PG JMC S2- 04 (DSE)

TWO YEAR MASTER'S DEGREE COURSE

(CBCS in Accordance with NEP 2020)

SEMESTER-II

NEW MEDIA AND COMPUTER APPLICATIONS

JOURNALISM AND MASS COMMUNICATION

Bhupen Hazarika School of Mass Communication

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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January, 2024

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Printed and published by Registrar on behalf of Krishna Kanta Handiqui State Open University.

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The University acknowledges with thanks the financial support provided by the Distance Education Bureau, UGC for the preparation of this study material.

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COURSE INTRODUCTION:

'New Media and Computer Application' is the Discipline Specific Minor course of the second semester PGJMC programme. This course will introduce you to new media and give you the basic computer knowledge necessary for a media student. With the advent of computers and particularly with the emergence of the new media, media and journalism has undergone great transformation. And as a student of Mass Communication, this knowledge is extremely important for you. We expect you to gain a thorough and comprehensive idea about new media technology and computer application after completion of this course.In this course you will also get a basic idea of computer application. Here you will learn about the basic concepts of computer, its history and application. You will also learn about system softwares. Apart from that we will also discuss about two very important application softwares — MS Word and MS Powerpoint. The entire course consists of fourteen units. Each of the fourteen units will address some of the important concepts related to the field of new media and computer applications paragraph. Each unit of this course includes some along-side boxes to help you know some of the difficult, unseen terms. Some "EXERCISES" have been included to help you apply your own thoughts. You may find some boxes marked with: "LET US KNOW". These boxes will provide you with some additional interesting and relevant information. Again, you will get "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be helpful for you if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit. you in making your learning more active and efficient. And, at the end of each section, you will get "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit.

UNIT-1: INTRODUCTION TO NEW MEDIA

UNIT STRUCTURE

1.1 Learning Objectives

1.2 Introduction

1.3 Concept of new media

1.3.1 Definition

1.3.2 Difference between conventional media and new media

1.4 Characteristics of new media

1.5 Most common vehicles of new media

1.6 Let Us Sum Up

1.7 Further Reading

1.8 Answers to Check Your Progress

1.9 Model Questions

1.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- define new media
- distinguish between new media and conventional media
- identify the characteristics of new media
- name the early vehicles of new media

1.2 INTRODUCTION

New media and its ever-expanding technologies play a vital role in our day-to-day activities. The term must be vaguely familiar to you but as a Mass Communication and Journalism student you must understand 'new media' in its totality. This course on New Media fulfills this very end.

In this first unit, you will get a basic understanding of new media. Here, we will introduce you to the concept of new media, the characteristics of new media and the most common vehicles of new media.

This unit will guide you in your basic understanding of new media and its varying components. So, let us now get into the first section which will define the concept of new media.

1.3 CONCEPT OF NEW MEDIA

Press, television, radio, cinema and the telephone are the conventional forms of media which we have become so accustomed to. But apart from these forms of communication there is another form of communication which has spread its wings in the recent past. This new form of communication can be termed as the 'new media'.

Do you not always wish that you could send information as quickly as possible? Do you not wish that whatever information you send reaches exactly the way you sent it? New media helps you in this. With the advent of new media, information sharing and spreading has become a much easier experience now.

You can send letters, photographs, music files and other data to any part of the world. And you can do so in minimal time and with exact accuracy. New media has brought the world closer and nothing seems to be out of your reach in the present times. But how that happens and what new media exactly is will be defined in the following sections. So, let us move on further to understand the concept better.

1.3.1 DEFINITION OF NEW MEDIA

By now you must have got a fair understanding of the concept of 'new media'. But media scholars have defined this concept in their own unique ways. There is no one definition for it as different scholars have explained it in different words. In simple parlance, new media is a term meant to encompass digital or computerised networks to help us share and spread information. Digital media which is interactive, includes two-way communication and necessitates some form of computing can be referred to as the new media.

The Business Dictionary defines new media as an "electronic interactive media like the internet." Another definition states that, "New media is a catch-all term for all forms of electronic communication that have appeared or will appear since the original mainly text-and-static picture forms of online communication."

Therefore, new media is basically a generic term for the several forms of electronic communication that have been made possible since the inception and growth of computer technology.

1.3.2 DIFFERENCE BETWEEN CONVENTIONAL MEDIA AND NEW MEDIA

Now that the concept of new media has been discussed in detail in the previous two sections, we can now move on to understand the difference between new media and old media.

Till the 1980s the term 'media' referred primarily to print media, television, radio and cinema. But the last 25 years has seen a major development in computer technology which has given rise to what we now know as the 'new media'.

It is called new media in relation to the 'old' forms of media like newspapers, magazines, direct mail advertising, television, radio etc. In their original incarnation, these old or conventional forms of media did not require computer technology but in the present scenario, they do. In fact, it won't be wrong to say that many of these 'new media' emerged by merging the older medium with computer chips and a hard drive.

However, the vital points that distinguish new media from the media that preceded it are:



Players : Producer or service providers

- Old media has geographical limitations. Newspapers and TV stations can only reach to a certain geographical area. New media, however, has a far wider reach than the conventional forms. If newspapers want to reach out to a wider readership, they need to take the help of new media. The growth of online newspapers is an example of this. The online versions of major newspapers are now accessible through the Internet.
- Old media communication is strictly one-way. The content provider sends information to the consumer, and the consumer pays money for it. There is no provision for the consumer to send across his views or information. But new media

communication is inherently two-way. The consumer is active as new media offers an opportunity to interact and even intervene in the communication process. So, you can now become a part of the communication process rather than just being a plain recipient of information, as was the case with conventional media. Conventional media forms are now using new media technologies to receive audience feedback.

- The old media market has limited number of 'players'. There is a natural limit to the number of newspapers or radio stations or television channels in any given area. New media, on the other hand, has unlimited number of 'players'. The World Wide Web has several websites on one single topic. Every individual, can in fact, have his very own website. Even in terms of other new media technologies like mobile phones or DVDs or cameras, the number of products in the market is unlimited.
- Old media content providers have complete control over what the consumer hears or sees. Newspapers editors or TV channels can exercise their control over the content. In case of new media, however, the providers cannot control what the consumer wants to see or read or hear.
- The presentation is more important than the content in old media vehicles. Newspapers and television channels have to attract the viewers' attention to the content through attractive presentation. In new media, however, the content is more important than the presentation. For instance, in case of the World Wide Web, it is the content which draws the consumer to a particular website. The look or presentation is fairly unimportant while deciding which website to go to.
- Old media content is forced or 'pushed'. New media content is seeked or 'pulled' by the receiver. Newspapers, TV channels and radio stations find out different ways to attract consumers to pass on any information or message. They do so even if the consumer is not ready for it or hasn't asked for it. New media,

however, provides the consumer the choice to ask for whatever information he or she requires. New media vehicles will not impose the information; rather, wait for the consumer to seek out the information on their own.

- In new media new concepts have emerged like blogs, wikipedias wherein targeted receivers of the messages and contents can themselves become both the receivers as well as contributors of contents. A sort of democratization process has been set in motion in this regard. But this is very limited in case of the conventional media.
- Web newspapers, internet editions of newspapers, magazines, video journals, magazines etc. have to advertise in a big way to make themselves visible to the intended target audiences which is not the case with the conventional print media like newspapers, magazines. However, as penetration of the computerized environment is increasing by leaps and bounds every passing moment the conventional media have been compelled to keep up with it. That is why all the foresighted conventional media organizations are increasingly making their contents available in their web versions – internet radio, internet TV, receiving TV / Radio signals, news updates on your mobile phones etc.



LET US KNOW

1. Lev Manovich describes new media as new cultural forms which are native to computers or rely on computers for distribution.
2. Manovich calls it a cultural form because new media vehicles have now become a part of new age culture. We can no longer function without a mobile phone or a computer. The extensive use of digital technologies has given us a new way of leading our day-to-day lives. Our verbal and written languages have changed dramatically with the advent of 'SMS lingo'. The Internet

has opened up the whole world before us. Web sites, human-computer interface, virtual worlds, multimedia, computer games, computer animation, special effects in cinema and net films and interactive computer installations have now become a part of our life and culture.

3. Bolter and Grusin define new media in terms of remediation: "We call the representation of one medium in another remediation and we will argue that remediation is the defining characteristic of the new digital media."

   The basis of their definition lies in the fact that 'new media' is nothing but 'old media' served in a new way. Bolter and Grusin believe that the conventional forms (newspapers, magazines, radio) of media have been refashioned and remodeled with the help of computers to create, what we now know as, new media.

4. Rice defined new media as "communication technologies that enable or facilitate user-to-user interactivity and interactivity between user and information."

   New media enables a two-way communication process much like interpersonal communication. You can receive messages and also reply or respond to those messages via new media. This establishes the user-to-user interactivity. Apart from this, new media also enables you to add to that bit of information that you wish to share with another user. With appropriate technologies, you can now make your own video or audio messages by adding images, music or text. So, new media also establishes interactivity between user and information.



CHECK YOUR PROGRESS

Q.1: Define 'new media'.

Q.2: Match the following:

a) Interactivity	a) old media	☐
b) Newspapers	b) can be surfed through the internet	☐
c) New media	c) new media as a new cultural form	☐
d) Online newspapers	d) is digital media	☐
e) Manovich describes	e) helps in attaining feed back	☐

1.4 CHARACTERSITICS OF NEW MEDIA

Some of the defining characteristics of new media are:

- New media's most vital feature is its digitality. It is often known as 'digital media' or 'digital new media', which simply means 'media that uses computers'.
- The second important characteristic of new media is its interactivity. It allows two-way communication between the sender and the receiver. You are no longer a passive recipient of information as you can now give your own input and comments via new media technologies.
- New media has the advantages of both interpersonal communication and mass media communication. It assists you in delivering individualised messages to infinite number of people at the same time. And every person involved in this communication process can reciprocate individually to the message.
- New media is space binding and time binding. You can attain information from any part of the world. Distance makes little difference in the time, cost or speed of getting information.
- New media content cannot be stored for too long. Your books can last a lifetime but information on floppy drives or CDs hardly last a few years.
- New media content is not forced on the audience unlike conventional media content which is 'pushed' by the media organization. New media



Telnet: It is a system that allows you to execute commands on another computer to which you do not have physical access. You need to know the name of the machine to which you want to connect, and to have a valid user name in it.

Gopher: It is a menu-based facility that provides information about the Internet. Although it was very popular a few years ago, its usage has decreased a lot after the introduction of WWW.

MIT: Massachusetts Institute of Technology. It is a private research university located in Cambridge, Massachusetts, United States.

PDP-1: The world's first commercial interactive computer. PDP stands for **P**rogrammed **D**ata **P**rocessor. It was the first computer where history's first computerised video game, Steve Russell's Spacewar, was played.

content is 'pulled' by the consumer. It is only when you want some information that you take the help of the Internet or other computational technologies.

- Hypertextuality is another feature of new media. Hypertext provides a link between different documents. You can move from one piece of information to another because of the hypertext links between the pages that contain the information.

1.5 MOST COMMON VEHICLES OF NEW MEDIA

Let us now learn about the most common vehicles of new media.

- **Internet and the World Wide Web**

  Internet is a network of networks, linking computers to other computers; it's a global network of computers. Your computer can attain any information stored in another computer through the Internet. The Internet provides for various services like e-mail, file transferring, **Telnet**, **Gopher** and the World Wide Web. The World Wide Web is often thought to be synonymous to Internet but it is not. You will learn more about Internet and the World Wide Web in the next unit.

- **Computer games**

  Computer games are the games played on a personal computer rather than a gaming console or an arcade machine. The first computer game, Spacewar, was developed in 1961 by **MIT** students on a **PDP-1** computer used for statistical calculations. Initially the games were basically text adventures or interactive fiction where the players had to enter commands through the keyboard. Computers were earlier used only for research or educational purposes. But with the advent of computer games, computers became more attractive to consumers and their popularity gave way to an increasing use of computational technologies by common people.

- **DVDs and CD Roms:**

  The DVD or the Digital Video Disc functions as a video and data storage device. The purpose of a CD or a Compact Disc is also the same but their storage capacities are different. A DVD can store six times more data than a CD. DVDs and CDs are the most common forms of storing

data files in today's world. Information sharing and spreading has become much easier and less cumbersome with the invention of CDs and DVDs.



Image sensor: A device that converts an optical image to an electric signal.

- **Digital cameras:**

  Digital cameras take still and video images through an electronic **image sensor**. The first true digital camera was the Fuji DS-IP, which recorded images as a computerized file in 1988 but it was two years later that the first commercially available digital camera was launched. It was the Dycam Model 1. Digicams are a common mode of new media technology because they help in taking, storing and transferring images and video without much fuss. There is no need for developing negatives and waiting for hours to see a particular image as was the case with the original analog cameras. Images can be transferred to a computer and passed on to other computers as well.

- **Mobile Phones**

  These, as we all know, are long-range electronic devices used for voice communication. Mobile or wireless phones only work over a particular network area with specialized base stations that help in the communication. Several scientists have toiled over the last century to create what we now call the mobile phone, but the first practical mobile phone is credited to a Motorola researcher, Martin Cooper. He made the first call on April 3, 1973, to a rival from the Bell Labs. The advancement of technology has made mobile phones the most common vehicle of new media. They help in verbal communication, sending text and picture messages, taking pictures, browsing the Internet, listening to music as well as playing games. They are the perfect combination of all forms of new media technologies.



CHECK YOUR PROGRESS

Q.3 Explain in brief the following terms:

a) Hypertext

_____

_____

b) Digital media

c) Two-way communication

d) Media push and consumer pull

Q.4: What are the advantages of New Media?

Q.5: What is the one major drawback of new media?



1.6 LET US SUM UP

1. New Media is the new form of communication which uses computational technologies to share or spread information
2. It is called new media because it differs from conventional or old media forms like newspapers, radio etc.
3. The basic difference between old media and new media is that the latter offers interactivity. New Media allows the recipient to be active in the communication process, as he or she can revert back to the sender.

4. Another factor that distinguishes new media from old media is that new media is accessible and has a wider reach.
5. Conventional media forms now employ new media technologies to reach more audience.
6. New media has the positive aspects of both interpersonal communication and mass media communication. You can reach out to the masses with individualised messages. And through new media, every individual in that mass of people can get back to you with their feedback.
7. New media helps to attain information from every nook and corner of the world.
8. One major drawback of new media is that the data attained cannot be stored for too long. CDs, DVDs, hard drives etc have a short life span.
9. New media technologies provide you with information only when you ask for it. The consumer has to 'pull' information unlike other media in which the media organization has to 'push' their information to the audience.
10. The most common vehicles of new media are the Internet, CDs, DVDs, digital cameras and mobile phones.



1.7 FURTHER READING

1. **New Media: A critical Introduction** – *Martin Lister, Jon Dovey, Seth Giddings, Iain Grant, Keran Kelly (Routledge).*
2. **Digital Media, Building the Global Audience** – *TK Ganesh (Gnosis Publishers, New Delhi).*



1.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No.1: The new form of communication which uses computers or digital technology to spread information can be termed as new

media. It is termed new media in relation to old media like newspapers and radio etc. New media is interactive thereby allowing two-way communication, it is digital and it has a wider reach.

Ans. to Q. No.2: Match the following:

a) Interactivity	e) helps in attaining feed back
b) Newspapers	a) old media
c) New media	d) is digital media
d) Online newspapers	b) can be surfed through the internet
e) Lev Manovich describes	c) new media as a new cultural form

Ans. to Q. No.3: In brief:

a) Hypertext: Hypertext is the link between different pages of data on a computer. It has been made famous by the World Wide Web. When large chunks of information cannot be placed in one page the information is segmented into different web pages and with the help of hypertext you can go from one page to the other by the click of a mouse.

b) Digital media: It refers to electronic media which works on digital codes. Digital refers to the binary numbers '0' and '1' and computers rely on these two binary numbers to interpret and represent data. New media technologies are essentially 'digital' because they rely on computational technologies.

c) Two-way communication: The communication process which involves both the sender and the receiver is called a two-way communication. The recipient is also active as he gives back his feedback to the sender. It is a to and fro mode of communication much like when you are talking to a friend. New media allows two-way communication and that is why it is also called interactive.

d) Media push and consumer pull: When any information is given to the consumer without his asking for it, it is called media 'push'. And when we, the consumers, seek information through media outlets, it is referred to as the consumer 'pull'. For instance, television commercials provide information about several products,

which the consumer may not even be interested in. That's media push. But when the consumer is trying to find out about a particular product on the Internet, he is 'pulling' information. It is, therefore, called consumer 'pull'.

Ans. to Q. No.4 : The new media technologies have several advantages. As new media supports interactivity, it gives you the benefits of interpersonal communication. At the same time, new media helps you reach out to the mass, it thereby employs the advantages of mass media communication. Moreover, new media helps speed up the communication process. It also assists in attaining information from any part of the world.

Ans. to Q. No.5: The major drawback of new media technologies is that the data created or accumulated via its various vehicles does not last long. Computer files, CDs, floppies, DVDs etc, get corrupted and important data is lost.



1.9 MODEL QUESTIONS

A. Very Short Questions

Q.1 : Define new media

Q.2 : State any two features of new media

Q.3 : Who described new media as new cultural forms ?

B. Short Questions (Answer each Question in about 150 words)

Q.1: How can you differentiate new media from conventional media?

Q.2: Interactivity is a major advantage of new media. Explain.

C. Long Questions (Answer each Question in about 300-500 words)

Q.1: New media is a combination of mass media communication and interpersonal communication. Explain.

Q.2: Explain the relevance of content and presentation in terms of both new and old media.

Q.3: New media vehicles have given rise to a new media culture. Elucidate.

UNIT-2: IMPACT OF NEW MEDIA

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Impact of new media

- 2.3.1 Society and mass culture
- 2.3.2 Politics and developmental issues

2.4 New media and journalism

- 2.4.1 Print journalism
- 2.4.2 Broadcast journalism
- 2.4.3 Advertising industry

2.5 Convergence

- 2.5.1 Media convergence
- 2.5.2 Advantages of media convergence
- 2.5.3 Rising concerns about media convergence

2.6 Let Us Sum Up

2.7 Further Reading

2.8 Answers to Check Your Progress

2.9 Model Questions

2.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- explain the impact of new media on the society and mass culture
- describe the impact of new media on political and developmental issues
- narrate the effects of new media on the media industry
- define media convergence
- elucidate the characteristics of convergence
- identify the advantages and limitations of convergence

2.2 INTRODUCTION

By now, you must know what new media means. The concept of new media has been discussed in detail in the first unit. In short, new media involves computing, two-way communication and is interactive. In the first unit we also touched upon the fact that new media has had a major impact on all spheres of our life. Computers and other technologies have made deep inroads into our daily lives, so much so that we cannot imagine a life without them anymore.

In this unit, we will discuss the implications of new media in our life. We will also discuss it's impact on society, mass culture, politics, developmental programmes and the media industry as well. This unit will also focus on the understanding of convergence and how it has contributed to the whole scenario of communication.

2.3 IMPACT OF NEW MEDIA

The impact of new media has been pretty colossal and far reaching. With the advancement of technology, information has become an easily accessible commodity. The spread of any kind of information or news is faster and easier. Computers, Internet, mobile phones, videogames, iPods etc, have changed the way we live and their impact on every aspect of our lives is phenomenal.

They have taken such a strong footing in our lives that we cannot think of a life without any of them. In such a scenario, it is no wonder that all these new media technologies have made a great impact on our society and culture as well. They have very cautiously merged into the modern mass culture and become an intrinsic part of our social existence. These technologies have also had a major impact, both positive and negative, on all other major spheres like developmental activities and political issues.

In the next few sub-sections we will discuss how new media technologies have made an impact on these aspects of our life.

2.3.1 IMPACT ON SOCIETY AND CULTURE

Now-a-days, we live in an inter-connected world, a global society which facilitates interaction and communication. This in turn

encourages cultural realignments and transformations. The world that we live in today is epitomized by globalization as well as the advancement of technologies. Our world has become smaller as technology has brought us closer. In such an ever-changing media scenario, our socialisation process, our values and our beliefs are shaping up accordingly. It has even influenced our decisions regarding educational choices, employment, leisure and life in general.

The new media technologies provide a culture of information and pleasure, and independence to make decisions. All these appeal to the modern day youth, and it has its own implications on not just them, but their relationships within the family and society as well. Globalisation has provided the youth with experiences which are global and local at the same time. Youngsters fiddling with their cell phones, or their computers or game consoles are a common sight nowadays. But these technologies are not just a means of passing time. Some academics believe that technology is at the cultural core of today's young generation. The youth stays connected from home, school, workplaces and even from local cafes because they want to be connected and they need to play a participatory role in today's world. These day-to-day activities which involve new media technologies have shaped the society and times of today.

We all know that nowadays it is the age of information across the world. These days the advancement or development of a nation or a society is measured by the extent of access a citizen has to different types of information. That is why new media plays a vital role in providing easy access to the masses on a scale which was unthinkable about two decades back. It has in a way revolutionized the information dissemination activity all over the world.

Being students of Mass Communication you already very well realize the immense importance of information for masses in every aspect of life. It is not only enough that good quality information

is developed for our use. If we can't let the masses utilize this mass of information it will be a sheer wastage, nothing else.

This is because 'information is power.' So, in addition to mass media, new media is an excellent way for disseminating any kind of information to the masses through its various media.

2.3.2 IMPACT ON POLITICS AND DEVELOPMENTAL ISSUES

New media technologies are now a part of every aspect of our lives, be it in our day-to-day work, in our relationships with friends and family, and in our contact with the world in general. Politics and developmental issues are not far behind either.

Today's political scenario cannot do without new media telecommunications, computers, Internet, electronic media etc. These technologies help sustain democracy because it involves the people in the political affairs. New media is interactive and it is through new media that the political parties or public figures can receive feedback from the public. The cell phones, the World Wide Web and the various other new media organs have made the political system more transparent. Politicians now have to be more careful about their work as the public has become more vigilant and aware about issues. Information spreads like wildfire and it takes no time for that to happen. The public is more aware and more careful about their political choices.

Apart from the public, new media also assists politicians in propagating their ideas through them. Propagation of ideologies is the most important objective for every politician. Earlier, the only means of reaching out to the public was through rallies, and through traditional media outlets like newspapers, radio etc. But now even political parties have realized the importance of targeting the public through new media vehicles. Especially the young generation, who are the most difficult to access, can be targeted through the Internet and other means.

The 2009 parliamentary elections in India were not just fought through the rallies or the speeches. Every party had their own websites and their own new media strategies to lure the voters. Rahul Gandhi's campaign was followed by lakhs of people on the social networking site Twitter. Even during the American presidential elections of 2008, Barack Obama was very active on the World Wide Web. In fact it is said that new media including internet can claim a considerable credit in the entire campaign of the last US Presidential elections.

Unlike the widespread use of new media in the political scenario, the developmental sector is yet to see much of it. Although new media, especially Internet, can be used extensively in rural and agricultural development, its use has been seldom in the Indian subcontinent.

Internet is basically a medium of communication and better communication strengthens the development procedure. In India major development schemes do not reach the intended beneficiaries because of lack of awareness. People in the rural areas have no information about any of the government initiatives. Communication gap between the haves and the have-nots is the main reason behind the failure of most development projects. In such a scenario, new media can be used to bridge the gap.

However, the government has been taking up some active efforts for promoting better governance through the internet and new media mode. This includes internet terminals at almost every two or three villages of the country so that the local people can take advantage of the accessibility to information they may need on any issue of the world. This is going to take some considerable time to become practical but at least a beginning has been made in the right direction.

New media technologies can be used to develop locally appropriate applications and creative services. It can provide knowledge about successful development activities, improve the

access to a variety of information like training, research and educational resources which are generally not available in rural areas due to costs associated with printed materials and books. Access to new media technology can bring critical technical information to rural professionals like doctors, engineers, health care workers etc. This can further encourage professionals to continue working in the villages.

Internet can also be used as marketing tools to promote rural tourism and market home based businesses and other rural products. It can even enable local NGOs to interact with global organisations and seek necessary funds. They can also sensitise the policy makers to the ground level realities and needs of the rural population. But, the fact remains that new media can be used in every sector and it can only bring in positive results. It only remains to be seen how deep-rooted this impact can be in the coming decades.



CHECK YOUR PROGRESS

Q.1: What is the impact of new media on modern day society?

Q.2: How can new media technologies be used for social development?

Q.3: Write True or False:

a) Politicians have now become technology savvy. (T/F)

b) Youngsters are the least affected by new technologies. (T/F)

c) New media technologies are of no use as far as rural development is concerned. (T/F)

d) Technology has shaped the culture and times of today. (T/F)

e) New technologies have improved our living conditions. (T/F)

2.4 NEW MEDIA AND JOURNALISM

You have already seen that new media has an immense impact on the world around us. Our society, our culture, our politics have all been effected by the technologies. And with time, this new media penetration will be even deeper and will reach a much wider section of people.

New media, however, was developed mostly as a means to communicate and to spread information. So, it's not surprising that its impact on journalism is much more than anywhere else. Be it print, radio or broadcast, new media technologies have brought in sweeping changes in their domains. The Internet and the World Wide Web have changed the way journalists work. In the previous unit, you had read about online journalism which has become a totally new sector. But other than that, even the regular journalistic factions have received a boost with the coming of new media technologies. In the coming sub – sections, we will discuss how new media technologies have influenced the major journalistic sectors.

2.4.1 PRINT JOURNALISM

Not many moons ago, journalists functioned in information poor societies but new technologies have created information rich societies which demand much more from journalists. New technologies have improved news gathering practices which in turn have increased the expectation of quality news coverage. Journalists, therefore, are expected to become more creative in the way they deliver the news.

Now-a-days, journalists need to be multi skilled. The digital age of printing expects reporters to participate in much more technical functions than they ever did before. It is absolutely essential that reporters are familiar with the Internet, other common computer programs as well as the different editing and pagemaking software. **Computer Assisted Reporting or CAR** has fast become a journalist's preferred method of researching stories.

Photojournalism has also been highly influenced by new media technologies. Digital cameras with various features now assist photographers in capturing images of better quality and in much lesser time. It doesn't even take time to use the pictures for publishing unlike earlier when the camera reel had to be developed overnight. Nowadays, photographers can give breaking news stories with the help of their lenses. The images of a woman being molested by a group of men during New Year night revelries in Mumbai a year or so back became main story news for newspapers. And the photographers who took those pictures were awarded for their news sense.

But sometimes, photographs can be doctored to assist the motives of the news. With the help of software like Adobe Photoshop, images can be digitally manipulated to implicate a certain belief. For instance, in the 1994 OJ Simpson trail for murdering his wife both **Times** and **Newsweek** carried cover stories but the images differed. Newsweek later admitted that they had darkened the face of the alleged culprit to make him look evil.



Times is the largest metropolitan daily newspaper in the United States while **Newsweek** is the second largest news weekly magazine in the country.

New media, some say, has affected print journalism to such an extent that print journalists have now become an endangered species. So many new editing softwares have hit the market that a reporter's job nowadays is almost insignificant. Word processing, spell check, grammar check and style check are some of the simplest attributes of editing software. Besides these, there are also some news writing software available. The SportsWriter is one such software, created by Robert Helms, which can spin sports stories

out of match scores and details. There are also several packages which can sort out news, summarise the news coming from news agencies, newspapers and magazines.

With the gradual onset of new media technologies into the realm of journalism, there was a fear that print journalism would soon be a dying proposition. But despite the growing concerns, it has been seen that newspapers and magazines are still a favoured medium among readers. Although the Internet and the World Wide Web and the other technologies have trespassed into print media's domain, it has only pushed the latter to scale new heights. No doubt journalists have had to get acclimatized with new technologies and get used to its idiosyncrasies, it has been a great help to their work. The new technologies have made a journalist's job easier and faster. New technologies have only made the process of news gathering a less cumbersome job. The various editing software however only assists a reporter in his or her job. A writer still has to write well to be called a journalist. The new technologies will only assist in his research work and not in writing the actual draft.

We can very well say that rather than becoming a threat to print journalism, a fine knowledge of the new media and its various aspects will even help the print journalist in presenting his or her stories in a better way.

Print media may not appear the way it used to earlier but it is incorrect to say that it is a dying media. It can only grow bigger and stronger if it assimilates new media technologies into its domain.

It is interesting to note that in the face of the emergence of the new media, print media has also braced itself up for taking on the challenge and is collaborating more and more with the new media, particularly the internet or world wide web for reaching out to far more readers / audiences complementing each other on the way. Today, any newspaper or magazine has to have at least some links with the new media for a better survival.

2.4.2 BROADCAST JOURNALISM

As far as broadcast journalism goes, it wouldn't be wrong to say that technology is the basis of it. But advancements in media technologies in the recent years have only added to the meteoric rise and spread of electronic news channels. Digital advancements have proved effective in terms of immediacy of news and interactivity between news producers and viewers.

Nowadays, news journalists can broadcast live news from anywhere in the world. They can send images and video footage directly to newsrooms via video phones. It allows comprehensive coverage of breaking news. Many such technologies also help journalists to edit audio and video footage on location with the use of wireless laptops and they can transmit the footage to the newsroom through the Internet.

War journalism has received a huge impetus due to technological advancements. It has changed the way war correspondents report from international conflict zones. There has been a distinct change in the way the Vietnam war was televised and the real time coverage of the Iraq war of 2003. Video phones and laptops have made war reporting easier and a very common practice. There has also been significant development in portable satellite technologies which have brought about drastic changes in newsrooms worldwide. Media organisations can now easily distribute resources like audio-video footage and stories within newsrooms and across various networks of newsrooms.

You must already be familiar with the concept of internet TV / Radio by which one can watch TV programmes or listen to Radio programmes by tuning into the internet. This is one major achievement of new media in the world of communication.

A reporter can send in his report as a spoken message or a text using the internet connection through his mobile phone itself. This is also helping a lot in preparing a coordinated presentation of news reports.

2.4.3 ADVERTISING INDUSTRY

The advertising sector has also undergone quiet a few changes with the onslaught of new technologies. Technologies have influenced the process of ad making, the dissemination of ads and the choice of medium for the ads. Technology now offers all kinds of typeface designs which allow models to be shot indoors and placed in exotic locales. The body and face of models can be altered to make them look perfect.

Technology has also helped the advertising industry in gaining access to consumer information. The advertisers now know what the consumer needs are, and based on that, they customise their ads towards specific audiences. Regular web surfers can interact with ads in greater depth and can benefit largely from the personalized messages. Most companies now send e-mails to promote their products. The delivery of message has been made easier. Companies can now focus on individuals who would be interested in their product rather than sending junk mails to all and sundry. Rather than invading an individual's space, companies can send information which is valuable to him or her.

Those of you who have been surfing the internet must be aware of the numerous advertising messages flooding your e mail address and the various websites in the internet.



CHECK YOUR PROGRESS

Q.4: What do you mean by Computer Assisted Reporting?

Q.5: Name a software which can spin sports stories out of match scores and details.



ACTIVITY - 2.1

1. Visit a TV station in your area and check out the various technologies they use in producing their programmes. Check out their cameras, their editing software etc.
2. Talk to a newspaper journalist and find out how technology savvy they are. Do they still resort to old methods of journalism or have they incorporated new technologies in their work?
3. Try to use Adobe Photoshop software on a computer and see for yourself how images can be retouched.

2.5 CONVERGENCE

It is said that the 1980s was the decade of the computers and the '90s was the decade of the Internet. And what started after that is called the decade of convergence or what can simply be called the converging of technologies. In simple parlance, Convergence means the merging of different technologies in a single platform.

It can also be called an interconnection of information, thoughts and ideas across geographical boundaries. It believes in establishing a world where people are not denied access to any ideas or visions. Whether or not you think in terms of technology or information or people, the truth is that convergence is tearing down the barriers of society, industry and institutions of all sorts. For some advocates of convergence, the final product will be an enormous interconnection of digital technologies. The connection can be wire or wireless, voice or data, space or terrestrial. But the aim is to make all technologies, right from the kitchen toaster to the computer server to connect with speed, accuracy and purpose.

Convergence of technology takes place at different levels – in consumer products, in gadgets and in communications. Now-a-days, most

consumer products merge two different technologies to create a new technology. For instance, we now have talking refrigerators and washing machines. They not only make your daily chores easy but also tell you how to go about using the machine. Nowadays, digital cameras can not just take pictures but they can also add colour, text, graphics and sometimes even music to the images captured.

Being media students, however, you need to understand the concept of convergence in the media industry. You need to know how the convergence of communication technologies has influenced the media industry and our lives. In the next unit, the concept of media convergence is discussed in detail.

2.5.1 MEDIA CONVERGENCE

Not many years ago, the different media forms like print, broadcast and telephones were separate entities. But with the coming of new media, all these different forms have been merged to create what we now call 'Media Convergence'. Technological advancements in the field of computers and telecommunication networks has led to the merging of the traditional media forms with computer-based new media, thus giving rise to media convergence. Computers, cameras, Internet applications etc. were all individual entities, but with convergence, all these entities are now merged. Nowadays almost every cell phone has a camera installed in it, it can also help you browse the Internet and you can even make presentations or write reports on it. And all this is possible because of convergent technologies.

The impact of convergence in the print media sector can be perceived by the steady rise of online newspapers. All major newspapers in the world today have their online versions, and that is possible only through convergence of new media technologies with print media. Online newspapers have turned out to be revolutionary because they are updated round the clock with information from all over the globe. Online newspapers also promote interactivity and maximum archival capacity.

Convergence of new media technologies with television has led to concepts like Internet television which allows consumers to watch TV through the Internet. Even concepts like Tata Sky and Dish TV are examples of media convergence where you can select your own favourite programmes from a drop down menu, you can play games on your TV, you can record live programmes, etc. Thus, the advancement of technologies has opened the doors for more futuristic television.

As a result, simply using a TV card or radio card one can watch TV programmes or listen to Radio programmes in the computer itself. The direct-to-home antenna and the cable TV connections can provide you with internet access, Radio or TV programmes and what not.

Convergence of telephones and other communication media is the most widespread. Mobile phones can now be used to access the Internet, play games, listen to music, take pictures etc. Internet telephony is another concept which has become very popular of late. This enables users to make international calls through the Internet with minimum ISD charges. There are several websites which offer this service, for instance, *Phonewala.com*.

2.5.2 ADVANTAGES OF MEDIA CONVERGENCE

Media convergence is a concept that most people may not know about, but the benefits of which are being reaped by almost everyone. Online newspapers, Internet television, multimedia cell phones are all results of media convergence, and they help us communicate better and in a more effective manner. Its advantages are manifold. Some of them are discussed below:

1. Convergence of communication technologies help make life easier and simpler. We can now do so many things on a single gadget. A cell phone can double up as a telephone and a camera. You no longer need to carry a camera along everywhere because mobile phone cameras are equally good in quality.

2. Major newspapers of the world have online editions. So wherever you are, you don't need to worry about missing out on your local news. You can check out your favourite newspaper through the Internet. You save on the money too.
3. Many communication technologies are converging into digital forms which improve the quality of the end product.
4. Even books can be read online nowadays. This allows you to read books which you otherwise might not have access to.
5. Personal computers have CD and DVD drives, so you can watch movies and listen to music on your PC.
6. The convergence of technologies has turned out to be a boon for corporate honchos. They can conduct their business through their mobile phone. They can make calls, email important documents, make presentations, etc. on their phone itself.
7. Video conferencing is another facet of media convergence which helps people to communicate better. You can see the person you're talking to even if he or she is many miles away from where you are. Most computers nowadays have webcams which allow the user to see the person he or she is chatting to, through the Internet.
8. SMS, MMS, Bluetooth, are technologies which assist in sending information or data faster. Now, most cell phones and personal computers have incorporated these technologies into their own, thus allowing the user to do much more with a single gadget.
9. One major obvious advantage which is distinct from all these others is the immense possibility of sending and receiving data including photographs whenever one wishes any time of the day or night in a matter of a few seconds. This saves us so much time that we can only imagine about it. At a simple level, if a student or person has to send and application somewhere he or she can just download it from the internet, fill it up and simply send it online in a few seconds. The same form if somebody wants to get through the post office or courier it will be several days.

10. Another very important advantage is that despite the advent of so many avenues of information dissemination, with emergence of new media it is also becoming quite difficult to cheat people. Let me cite an example here. During the large-scale bombing of Palestine by Israel about a year or two ago, a photograph of a bombing incident was published in major newspapers by Reuters – the reputed international news agency. After about three days a few blogs started spreading a message that this particular photograph in question was a fake one, not a real one. Reuters immediately enquired with their freelance reporter in Palestine who then admitted that almost 30 % of the photograph was actually 'doctored' – contents changed with the help of computer graphics software. The photograph was recalled with an apology and the person's contract was terminated. We can cite several such instances. If somebody wants to cheat others, there is a lot of possibility that it will be found out sometime or the other.

The basic advantage of media convergence is that it has made our day-to-day lives easier and has reduced our workload to a large extent. But media convergence is not just about good things. Academics and scholars have raised several concerns about convergence. These will be discussed in the following section.

2.5.3 RISING CONCERNS ABOUT MEDIA CONVERGENCE

The concerns about convergence are many. Some of them are discussed below:

1. Convergence of technologies has definitely made life easier for people but in the process it has also made us lazy. We have become so accustomed to the gadgets that we tend to depend on them for everything.
2. It has given us several new ways to communicate and keep in touch with our friends and family. But we have lost the personal touch. We prefer to talk over the phone or SMS rather than meet up.

3. For those interested in making a career in the information society, convergence will make jobs and careers highly volatile. With the continuous advancement of technology, companies will try to re-engineer themselves time and again. So, a student interested in journalism, radio or TV will have to keep updating their knowledge and skills because old career tracks will disappear and new tracks will keep emerging.
4. Most jobs, like that of broadcast technicians, typesetters, telephone operators might shrink owing to improvement in information systems and automation. Simply a computer and a scanner can do enough work to eliminate most of the media jobs.
5. Cyber addiction is a major concern. Youngsters are so hooked to the computers because they can now do so many things on the PC. They can chat with friends, watch movies, play games and listen to music. So much so that they are addicted to these machines, having lost touch with the outside world.



CHECK YOUR PROGRESS

Q.6: What is convergence?

Q.7: Name some common gadgets or products which have employed convergent technologies.

Q.8: How has technology influenced the advertising industry?



2.6 LET US SUM UP

- New media has had a massive impact on our modern-day life.
- Technologies have assisted in information becoming easily accessible, news spreading faster, and it being immediate.
- New technologies have re-engineered the society that we live in. They have become so much a part of our life that they have assimilated into our culture.
- Because of the changing media scenario, our values and beliefs are shaping up accordingly, influencing our decisions regarding all our choices.
- Technology is not just a pass-time for the youth. It is at the cultural core of the young generation.
- Technology has seeped in so deep that even SMS language has now become an important part of our verbal and written communication.
- New media technologies have also influenced our political systems. They sustain democracy because they involve the public. Even politicians have understood the benefits of new media technologies. They are using the Internet to reach out to the people.
- The Internet has made the public more aware and knowledgeable. It has made the demand for more transparency in the political scenario.
- The World Wide Web has become the new battle ground for politicians to propagate their ideas and also to get direct feedback from the public.
- The need to inculcate new media technologies in the development sector is largely felt in India.
- Even though such technologies have made inroads into this sphere, it is not as deep as in the other aspects.
- Rural and agricultural development will be highly benefited if new media technologies can be employed.

- New media technologies assist in communication and most developmental schemes do not reach the intended beneficiaries because of lack of information about them. In such a scenario, if rural people have access to such technologies like the Internet and cell phones, they will be informed about all the schemes.
- If new media technologies are available in the rural areas, it can attract skilled professionals to work there.
- These technologies can also be used to promote rural tourism and the unique products made there.
- The media industry has also been highly influenced by the advancement of new technologies.
- News gathering techniques are different and journalists now need to do much more. They need to be multi-skilled.
- The digitalization of most work expects journalists to be more techno savvy. They need to know how to work on a computer and how to use the necessary software.
- While the different editing and news writing software has made the job of reporters easier, it has also put a question mark on their editorial capabilities.
- Even photojournalism has been affected. New and improved cameras help photographers to take more high quality pictures. They can even send these pictures to the editorial bench much faster than they could earlier. But with technology, most photographers and editorial boards have also lost the way, as they tend to doctor the images to prove their point.
- Broadcast journalism has also improved by many notches with the advancement of technology. TV journalists can now send news feeds from anywhere in the world. They can also transmit live news from location. War reporting, sports reporting etc have all become much better than before.
- New technologies have also had an impact on the advertising industry. Ads are now made keeping in mind the target audience. Technology

has helped companies in identifying their core audience, and they can thereby target their ads at only those people.

- Convergence is an offshoot of the advancement of new technologies. Convergence takes place when two technologies merge on a single platform.
- Nowadays, most electronic gadgets and devices employ convergent technologies. Every device can be used for more than one purpose. A cell phone doubles up as a camera, a computer doubles up as movie screen, the Internet doubles up as a telephone etc. In all these cases, two technologies have been merged on one platform.
- Convergence in the media sector is called media convergence. When traditional media vehicles merged with new media vehicles like computers and Internet, it became media convergence.
- Now-a-days most media vehicles employ technology to improve quality and services. Newspapers have online editions, television has become interactive, and radio programmes use telecommunications to establish contact with the listeners.
- Mobile phone is the most common tool to showcase convergence. They allow users to make calls, send text and video messages, access the Internet, make official documents, capture still and video images, record audio streams, listen to music, play games etc.
- The benefits of convergence are one to many. The most vital is of course, the fact that it has made our lives easier. We can just keep one gadget to complete all our work.
- All sorts of information spread faster and are more accurate. You can access any information you need from wherever you are at the moment.
- Many cumbersome jobs have now become effortless.
- Along with the benefits, convergence also has many anomalies. It has made people lazy, and has turned them into technology geeks.
- People have become so dependent on their gizmos that they cannot see any other means to do their work.

- Careers and jobs have been affected. If one is not multi-skilled in handling the technology, one might not survive in the ever-changing industry. Most jobs have been eaten by computers and other technologies as there is less need for man power.



2.7 FURTHER READING

1. **Digital Media, Building the Global Audience** – *T K Ganesh (Gnosis Publishers, New Delhi)*.
2. **Impact of Internet on Journalism** – *Arun Bhatia (Akansha Publishing House, New Delhi)*.
3. **Net, Media and Mass Communication** – *Jagadish Chakraborty (Authors Press, New Delhi)*.
4. **Electronic Journalism, Principles and Practices** – *Aditya Sengupta (Authors Press, New Delhi)*.



2.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q.No.1: New media has had a major impact on our everyday lives. It has penetrated deep into all our affairs so much so that we cannot think of life without these technologies. Imagine a life without cell phones, without television, without computers. Modern society is made up of people who are completely dependent on these various technologies. Our homes, our workplaces, our schools and colleges are all clued in to new media technologies. And it's not just in the cities or the urban areas. Every new technology may not be accessible in rural areas but the major ones are. Telecommunication networks have intruded deep into our villages, a television is a reality in almost every home. In fact, satellite TV is available in many small towns and villages. All these technologies bring the world closer; they inform the public about the happenings from all over the world. The world is now

a global village, and that is because of the spread of new media technologies.

Ans to Q.No.2: New media technologies can be used for social development in various ways. They can help in the process of communication between the government and the rural population. Through the Internet, the rural people can put across their grievances to the concerned authorities. NGOs working in the areas can communicate to the outside world and raise funds. Proper technologies can attract skilled professionals to work in villages. Rural tourism can be promoted through the Internet, and the indigenous products can also be marketed. They can get information about a better price for their products at a distant place than the local place, get a certificate downloaded and printed about land ownership or marriage registration, results of examinations, entrance tests etc. what not.

Ans to Q.No.3: a) True, b) False, c) False, d) True, e) True

Ans to Q.No.4: Computer Assisted Reporting or CAR means the use of computers in news-gathering. Journalists now regularly search for relevant information in the electronic realm, including government databases and online archives. From it, they derive ideas for stories, find contacts, get essential background information and check their facts in an electronic analogue of traditional legwork. They use software tools such as spreadsheets and data mining programs to search, collate and process data.

Ans to Q.No.5: SportsWriter

Ans to Q.No.6: Convergence is the merging of two technologies on a single platform. Most gadgets, these days, are based on convergent technologies. For instance, telecommunications technology merges with the technology of digital photography in a cell phone. Broadcast technology merges with computational technology to create Interactive TV.

Ans to Q.No.7: Some of the most common gadgets to employ convergent technology are mobile phones, computers, television sets, washing

machines, iPods etc. Mobile phones allow users to make calls, send text and video messages, access the Internet, make official documents, capture still and video images, record audio streams, listen to music, play games etc. Your personal computer can be used to watch movies and listen to music. Interactive TV permits you to choose your favourite programmes, play games on it, etc. Washing machines and refrigerators can now talk to you and tell you how to use them. You can use iPods to listen to songs, watch movies, listen to the radio, play games, store contact information etc.

Ans to Q.No.8: Just like every other media domain, technology has also influenced the advertising industry in all aspects. Ads are now created and distributed keeping in mind the target user. Internet technology has assisted the companies in identifying their potential customers. Therefore, they now make ads according to the requirement of those customers. Even the creative people who make these ads are using technology to create the desired product. They use high profile cameras and other digital software to get the best shot. Sometimes, technology helps them save money. A model can be clicked in an indoor location and later the background can be joined and she can be placed in an exotic locale.



2.9 MODEL QUESTIONS

A. Very Short Questions :

Q.1. : How can internet be used as a marketing tool to promote real tourism ?

Q.2. : What is the difference between examinary and media convergence ?

B. Short Questions.(Answer each questions in about 150 words)

Q.1: New media's impact on modern day culture is not a healthy sign. Discuss.

Q.2: Discuss media convergence.

C. Long Questions (Answer each questions in about 300-500 words)

Q.1: The World Wide Web has become the new battleground for political parties. Discuss the statement in the context of national and international elections.

Q.2: How can journalists survive in this ever-changing world where technology is taking over most jobs done by humans?

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UNIT-3: COMPUTER REVOLUTION AND INTERNET

UNIT STRUCTURE

3.1 Learning Objectives
3.2 Introduction
3.3 Evolution of computers
3.4 What is Internet
  3.4.1 History of Internet
  3.4.2 How Internet came to India
  3.4.3 Characteristics of Internet
  3.4.4 Internet's contribution
3.5 Internet Services
  3.5.1 E-mail
  3.5.2 FTP (File Transfer Protocol)
  3.5.3 Telnet
  3.5.4 Gopher
  3.5.5 World Wide Web
3.6 Let Us Sum Up
3.7 Further Reading
3.8 Answers to Check Your Progress
3.9 Model Questions

3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- discuss how computers evolved over the years
- explain what is Internet
- discuss the history of the Internet
- identify the characteristics and the contribution of the Internet
- describe the various Internet services
- explain what is World Wide Web

3.2 INTRODUCTION

In the first unit, you learnt about new media boom and how computers changed the whole concept of conventional media vehicles. You have understood that computers have changed the whole business of information sharing and spreading giving rise to a whole new concept called the new media. But to get a better understanding of how computers changed the face of communication you need to understand computers as well. This unit, therefore, will focus on what computers are and how computers evolved over the years.

This unit also focuses on the importance of the Internet because Internet is the most popular facet of the computers in today's world. You will get to know how the Internet was developed and what are its characteristics and contribution. The Internet services particularly the World Wide Web is also discussed in detail in this unit.

So, now let's get into understanding computers a little better by learning about its history in the very next section.

3.3 EVOLUTION OF COMPUTERS

The first computers were people. The term 'computer' was originally a job title conferred upon those people who used to make calculations necessary for deducing planetary positions, tide charts and navigational tables. Before the advent of the electronic or the mechanical computers human beings used to do all the required calculations for various sorts of jobs and human errors would lead to several problems. Therefore, inventors were always looking for ways to mechanise these cumbersome tasks.

Several inventions have since been made. The abacus, the logarithm tables, the Pascaline and the Difference Engine were some of the most popular forms of calculating machines. Even IBM started making mechanical calculators and selling it to business houses for financial accounting. But all these were still not good enough. The US Military wanted even higher-end calculators for their battleships and other armaments.

During the Second World War, the American battleships could throw shells weighing as much as a small car but all that needed perfect

calculations. And there would be people writing the necessary equations which would determine the gravity, the atmospheric drag, velocity etc and then make the necessary firing tables for the artilleries. During the war, the army went around looking for math major students to do the computing jobs. But because of the scarcity of qualified individuals, on several occasions the artilleries were sent to the battleground without the firing tables

Faced with such a situation, the US army was willing to accept even the most hair brained of ideas. One of the early successes was the Harvard Mark I computer, built by the IBM and Harvard in 1944. It was the first programmable digital computer in America but it was not a purely electronic computer. Colossus is another precursor to the modern day computer. It was built by Britain during World War II and it helped in breaking several German radio transmission codes.

There were arguments among the Americans and the British over who was the first to do what. But after the works of **Konrad Zuse** were published in 1964 all such debates were put to rest. Zuse had built a series of general purpose computers in Nazi Germany and the first one in the series, Z1, was built way back in 1936. His third machine, Z3, built in 1941, was perhaps the first software controlled digital computer. All his first three machines were destroyed in the Allied bombings and Zuse could only save the Z4. Because his machines were not known outside Germany, they did not effect the computing evolution in America. But their structure is surely similar to the computers of today.

Despite, Zuse's attempt, the **ENIAC** is popularly considered to be the forefather of today's digital computer. After ENIAC came other computers with funny names, viz. EDVAC, ILLIAC, JOHNNIAC and MANIAC.

By the end of 1950s, the makers of the ENIAC, Eckert and Mauchly, started their own business and built UNIVAC, the first commercial computer. But the two never achieved much fame and their business didn't take off and by the 1960s IBM was selling more computers than all the other companies in the race. IBM's downfall came when a smaller firm, Microsoft, became a software giant. Ironically, it was IBM which had hired Microsoft to provide the software for their computers.



Konrad Zuse: He was a German civil engineer and computer pioneer.

ENIAC stands for Electronic Numerical Integrator and Calculator. It was built at the University of Pennsylvania between 1943 and 1945 by John Mauchly and J. Presper Eckert who got funding from the war department.

The history of the computers is a fascinating tale and this section has given you an exhaustive account of how the present day computer came into being.



LET US KNOW

Harvard Mark I was made of switches, relays, rotating shafts, and clutches. The machine weighed 5 tons, incorporated 500 miles of wire, was 8 feet tall and 51 feet long, and had a 50 ft rotating shaft running its length, turned by a 5 horsepower electric motor. The Mark I ran non-stop for 15 years, sounding like a roomful of ladies knitting.



CHECK YOUR PROGRESS

Q.1: Why were people called computers?

Q.2: Why did the American army need computers?

Q.3: Identify whether the following statements are True or False:

a. Konrad Zuse's computers were all destroyed during the 2nd World War. (T/F)

b. COGNIAC is the name of a computer. (T/F)

c. Computers have developed mainly because of the Americans. (T/F)

d. Z3 was the first software controlled digital computer. (T/F)

e. UNIVAC is the same as ENIAC. (T/F)

f. Microsoft was founded by Bill Gates and Paul Allen. (T/F)

g. John Mauchly and J. Presper Eckert were successful businessmen. (T/F)

h. Colossus was a Japanese invention. (T/F)

3.4 INTERNET

You read about the Internet in the first unit but that was a just a tip of the iceberg. For New Media students the knowledge about the Internet is of supreme importance. It wouldn't be wrong to say that today's world runs because of the Internet and the various Internet services. In this section you will learn what the Internet is and how it works.

In simple parlance, the Internet is a global network of interconnected computers. In fact it is a network of networks that include millions of private, public, business and government networks of local to global scope that are connected via copper wires, wireless connections, fibre-optic cables and other technologies. Every computer that is linked to the Internet is part of a network and this includes your computer at home as well. You may be using a **modem** or you may dial a number to connect to an Internet Service Provider (ISP).

Interconnected computers in a network can share information with the help of the Internet. A computer which is connected to the Internet can access information from several different computers by simply moving the data into its own local memory. And the same connection will allow the computer to send information to the other computers as well. The information sharing that happens through the Internet occurs through a system of packet switching using the **TCP/IP** system.

But you must always remember one thing that the Internet itself doesn't contain the information. It is wrong to say that "a document was found *on* the internet." The most appropriate thing to say is, "that the information was found *through* or *using* the Internet."

Another aspect about the Internet that is fascinating is that nobody really owns the Internet. But the Internet Society, a non-profit organisation established in 1992, looks after the policies and protocols which define how we use the Internet. The next sub-section will focus on the Internet's history and how it evolved into what it now is.



Modem: It is a device that modulates an analog carrier signal to encode digital information and also demodulates such a carrier signal to decode the transmitted information. Modem is the combination of two terms – modulator and demodulator.

TCP/IP: Stands for Transmission Control Protocol/Internet Protocol. TCP/IP is a model for information sharing in a network system. In computer sciences Protocol is a set of rules determining the format and transmission of data.

3.4.1 HISTORY OF INTERNET

The Internet came into being because of the efforts of some great visionaries of the 1960s. These people realized the potential value of allowing computers to share information among each other. It was JCR Licklider of MIT (Massachusetts Institute of Technology) who first proposed the need for a global network of computers in 1962. He even shifted to the Defense Advanced Research Projects Agency (DARPA) and went about developing the idea. Some other researchers like Leonard Kleinrock, Lawrence Roberts developed it further. Kleinrock developed the theory of switching packets while Roberts connected a California computer with a Massachusets computer in 1965 with the help of dial-up telephone lines. Kelinrock's packet switching theory was confirmed and Roberts moved from MIT to DARPA and developed the plan of the ARPANET.

The Internet, then known as the ARPANET, came online in 1969. Under the aegis of the Advanced Research Projects Agency (ARPA) four major computers in four universities (UCLA, Stanford Research Institute, UCSB and the University of Utah) were connected. By 1970 Harvard, MIT, BBN and Systems Development Corp (SDC) in Santa Monica were also added. The next few months saw the addition of Stanford, MIT's Lincoln Labs, Carnegie-Mellon, Case-Western Reserve U, NASA/Ames, Mitre, Burroughs, RAND, and the University of Illinois.

Initially, the Internet was mainly used by computer experts, scientists, engineers and librarians. It was a very complex system unlike the user friendly personal computers that we have today. It, however, developed further in the '70s because of the TCP/IP architecture, which was proposed by Bob Kahn and which was developed further by Vint Cerf and Kahn together. The Defense Department replaced Network Control Protocol (NCP) and adopted it in 1980. The universal acceptance came in 1983.

The Internet was initially funded by the American government and it was only limited to research organisations and universities and government offices. But in the early ’90s Internet became commercial and Delphi became the first commercial online service to offer Internet service to its subscribers. And after Microsoft entered the commercial scene there was a complete shift to a commercially based Internet.



LET US KNOW

Who was the first to use the Internet? Charley Kline at UCLA sent the first packets on ARPANET as he tried to connect to Stanford Research Institute on Oct 29, 1969. The system crashed as he reached the G in LOGIN



CHECK YOUR PROGRESS

Q.4: How do you define a computer network?

Q.5: How is the Internet a network of networks?

Q.6: Who is an Internet service provider?

3.4.2 INTERNET IN INDIA

The Internet initiative in India was kicked off in the late ’80s when the ERNET was launched. The Government of India, the United

Nations Development Programme (UNDP) and the Department of Electronics (DoE) funded the project and it involved 5 major institutions: The National Centre for Software Technology (NCST) Bombay, Indian Institute of Science (IISC) Bangalore, the five IITs and the DoE. While the Ernet has now grown beyond its initial stage and now provides Internet service to all major educational and research organisations in India. It is, however, not allowed to provide services to the common public.

For the average Indian, Internet arrived in August 15, 1995, when VSNL launched it services. Though the initial spread of Internet was pretty low, it caught up in the late '90s. The opening of the telecom sector also brought in several new players in the market.

3.4.3 CHARACTERISTICS OF INTERNET

As you know by now that Internet is basically a network of several networks of computers. Now this global phenomenon has certain basic characteristics as well. They are:

a) It is not centrally controlled by any central authority.
b) It is a globally distributed public resource system
c) The maintenance of Internet is based on the paradigm of co-operation and co-ordination.
d) The access to Internet and its resources is not equal around the world
e) There is equality among the netizens. People who use the Internet have equal amount of opportunity to access and use it.
f) It is a self-learning tool when one knows to use it.
g) There's a continued worldwide acceptance.
h) It is very comprehensive and wide highway for exchange of information of very large scale.
i) It is almost a revolution in terms of allowing masses access to information across the globe.
j) It has almost democratized the dissemination of information,

k) It has made it virtually impossible to keep any restrictions on information. No information remains absolutely secret because of it.

3.4.4 INTERNET'S CONTRIBUTION

From your own experience of using the Internet and after reading the previous sections you must be having a fair idea about the usefulness of the Internet. Its major work is to help in the communication process. And it is with this basis that the Internet has effectively contributed to the world. Some of its contributions are listed below:

a) It establishes an equal state of knowledge and information.
b) Information can flow all across the globe.
c) It helps find information not easily available otherwise.
d) It assists in interacting with faraway friends.
e) Internet allows one to advertise their product and to buy and sell stuff online.
f) It even assists in learning. Nowadays most distance learning qualifications can be gained over the Internet.



LET US KNOW

Among the new media equipments, there is something called the **Super Computers** – a far-superior information processing machine developed by a person called Seymur Cray in the USA a few decades back. This is a bank of quite a few computers connected together which can carry out millions of calculations or analysis of situations in second and minutes. This is very useful in case of weather forecasting, war situations etc. Our country has also developed a local version of this computer termed as **Param** which also enjoys a very good reputation in the developed western nations.

3.5 INTERNET SERVICES

After reading about the characteristics and the contribution of the Internet you must have surely come to know about the various services which the Internet renders. But the major Internet services are just a few and they are:

3.5.1 E-MAIL

Everyone knows what e-mail is. It is the most popular service provided by the Internet. E-mail or electronic mail is a computerised version of postal mail. E-mail is all about sending messages by the user from one computer to the recipient on another computer. An e-mail has a header or the address of the recipient and the body of the message, which is the information that has to be sent. This service was created for ARPANET by Ray Tomlinson who was also responsible for using the @ symbol to link the address and the username.

3.5.2 FILE TRANSFER PROTOCOL (FTP)

This service allows users to login to a remote machine and upload and download files to and fro. It's a method of gaining access to another machine in the Internet network and obtaining files from there. The advantages of FTP are manifold. It allows one to download new software for free or new versions of old programs. It also helps send and receive big files without any problem. Even if the operating systems are different there is no problem in sending or receiving files.

3.5.3 TELNET

It allows you to login to a remote machine, most likely a computer to which you have no physical access. You just need to know the name of the computer to which you need access to and you can then login to that computer through another computer. For instance, "telnet science. newu.edu" will connect you to the machine named science. newu.edu.

3.5.4 GOPHER

It's a menu based facility that provides information about the Internet. It's a protocol system which allows text files to be hierarchically organised so that the files can be viewed by users on remote computers. It was first developed at the University of Minnesota. The University wanted to develop a menu to access information and files in the campus through their local network. So the Gopher was developed and it was named after the university's mascot, the golden gopher.

The purpose of developing the Gopher protocol was to enable people, located in different institutions in different parts of America, to share files and documents and to have those documents so organised that the related files and documents would become easily accessible. It was very popular when it started out but with the advent of the World Wide Web and the Hyper Text Transfer Protocol Gopher's usage has decreased a lot. World Wide Web helps find and share files while the http allows one to get links to related documents and files.

3.5.5 WORLD WIDE WEB

The WWW or the world wide web is the most popular service offered by the Internet. In fact it is so popular that it has now become synonymous with the term Internet. The web is basically a storehouse of documents linked to one another through **http** and which can be viewed via the Internet. Web pages may contain text, images, video, and other data which can be browsed with a web browser.

It was developed in 1989 by Tim Berners-Lee and some other scientists at the European Laboratory for Particle Physics, more popularly known as CERN. Initially it was only used in universities and other official organizations. In 1993, CERN announced that the Web protocol could be used by anyone free of



http: Hyper text transfer protocol. It is the protocol used to transfer a world wide web page from one computer to another.

royalty. This was a big blow to the Gopher protocol which was patented by the University of Minnesota. The Web became more accessible to people and the Gopher lost out. In 1994, Berners-Lee founded the World Wide Web Consortium (W3C) and this consortium decided that the Web would be set up on royalty-free technology so that it could be easily adopted.

And by 1996 the Web became an international phenomenon. Initially the people only saw the benefits of free publishing and instant spread of information. But the realization that the Web also helps in instantaneous two-way communication led way for the setting up of web based commerce or e-commerce.



CHECK YOUR PROGRESS

Q.7: What are the most important features of the Internet?

Q.8: What are the services provided by the Internet?

Q.9: Why did the Gopher protocol die down?



ACTIVITY - 3.1

1. Browse the World Wide Web and list the number of things you can do with the help of the Web for educational benefits.



3.6 LET US SUM UP

- Human beings who did calculations for different kinds of work were initially called computers.
- Several mechanical calculators were invented down the years to make calculations easier.
- Because human errors led to several problems and human calculations were very time-consuming, scientists and researchers made several attempts at making mechanical and then electronic machines which could do calculations.
- It was during the World War II that the need for calculating machines was largely felt. The American army had to search far and wide to get qualified individuals to do the calculations for their artilleries.
- Harvard Mark 1 and Colossus were two of the earliest computers. The former was built in America and the latter in Britain.
- The Zuse computers built in Nazi Germany by Konrad Zuse were perhaps the first computers even though his first three computers, Zuse 1, 2 and 3 were destroyed in the allied bombings. Despite his having built machines which were similar to the modern day computer, Zuse's attempts did not affect the computing revolution in America.
- Then came the ENIAC which became the UNIVAC and was commercially available to the public by the 1950s. Even IBM entered the scene and soon became monopolizing the computer market until the entry of Microsoft.
- Internet is a global network of networks which helps in the spreading and sharing of information and messages between and among different computers.
- One can send information, receive information and access any information stored in any computer in the network through the Internet.

- The Internet first came into being in 1969. It was then known as ARPANET and it only connected four computers in four universities.
- Initially the Internet was only used for research and governmental purposes but it soon became public in the 1990s.
- Delphi was the first company to offer Internet service to its consumers.
- In India the Internet was initiated by the Govt. of India, the UNDP and the Department of Electronics when they launched the ERNET involving five major institutions.
- Internet became public in India on August 15, 1995.
- The Internet is not controlled by any central organization and it is maintained on the principle of co-operation and co-ordination.
- The Internet establishes an equal state of knowledge and information where any kind of information can be acquired from any part of the world.
- The Internet renders several services like E-mail, FTP, Telnet, Gopher and World Wide Web.
- The World Wide Web is the most popular service of the Internet. And the Web on its own offers every other Internet service like e-mail and file transfer.
- The internet and computer has almost become a 'basic human need' for people across the world.



3.7 FURTHER READING

1. **Digital Media, Building the Global Audience** – *T K Ganesh (Gnosis Publishers, New Delhi)*.
2. **Impact of Internet on Journalism** – *Arun Bhatia (Akansha Publishing House, New Delhi)*.



3.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1: Human beings used to do all the major calculations in early times. There were no mechanical or electrical gadgets for any minor or major calculation. And people who used to do all these calculations were called computers. Computer was the designation given to these people.

Ans. to Q.No.2: The American army needed computers to do the calculations necessary to lob artilleries during war. The American army had developed many major bombs and artilleries during the World War II but they needed to make firing tables to use these. These firing tables would calculate the velocity, the gravity etc and help in firing the missiles. It was difficult to find as many people to make firing tables so the army was looking for some mechanical alternative to do the necessary calculations.

Ans. to Q.No.3: a) False, b) False, c) True, d) True, e) True, f) True, g) False, h) False

Ans. to Q.No.4: A network is a group of computers connected to each other by cables, wires and other technologies. The computers in a network can communicate with each other and share information and resources.

Ans. to Q.No.5: The Internet is a network of networks because it connects several small and big networks of computers from all over the world. All the interconnected computers in the Internet can share information among each other even if the computers are not in physical proximity to each other.

Ans. to Q.No.6: An Internet Service Provider is a company or a firm which offers Internet access to its customers. The ISP uses cable modems, wireless, dial-up etc. to connect the customers to Internet.

Ans. to Q.No.7: The most important feature of the Internet is the fact that it is not controlled by any authority. It is a resource system which is

globally distributed and it's built on the principle of co-operation and co-ordination.

Ans. to Q.No.8: The major services provided by the Internet are E-mail, File Transfer Protocol (FTP), Telnet, Gopher and the World Wide Web.

Ans. to Q.No.9: The Gopher protocol died down because of the emergence of the World Wide Web. Besides the University of Minnesota, who developed the Gopher protocol, conferred a copyright over the Gopher protocol. While the makers of the Internet made it a free resource for everyone to use.



3.9 MODEL QUESTIONS

A. Very Short Questions

Q.1 : What are super computer ?

Q. 2 : Who was the first to use the Internet ?

B. Short Questions (Answer each question in about 150 words)

Q.1 : What are the major internet services ?

C. Long Questions (Answer each question in about 300-500 words)

Q.1: The Internet and the World Wide Web are often used interchangeably. Discuss.

Q.2: The Internet is a global phenomenon. Discuss.

Q.3: The Americans are the major contributors in the development of computer technology. Elucidate.

Q.4: The Internet has found a worldwide acceptance. Comment.

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UNIT-4: DIGITAL MEDIA

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 4.3.1 Digital media

4.3.2 Analog Media

4.3.3 Why go digital

4.3.4 Advantages of digital media

4.4 Digital video and Digital Television

4.4.1 Digital video

4.4.2 Digital video: A brief history

4.4.3 Digital TV

4.4.4 Advantages of DTV over analog TV

4.5 Digital radio and digital photography

4.5.1 Digital radio

4.5.2 Radio in a box

4.5.3 Digital photography

4.6 Let Us Sum Up

4.7 Further Reading

4.8 Answers to Check Your Progress

4.9 Model Questions

4.1 LEARNING OBJECTIVES

After going through this unit, you will be able to -

- define digital media
- enumerate the advantages of digital media
- define digital video
- define digital TV
- explain digital photography.

4.2 INTRODUCTION

In today's age when every form of media is becoming digital, it is absolutely necessary to understand what 'digital' means and why is media increasingly turning towards digital technology? All forms of electronic goods are stressing on digitality. And you, being a media student, need to be aware of this transition towards a digital world.

This unit will, therefore, give you an idea about what the term 'digital' means and what digital media is. The unit will also elucidate the importance of digital media and define the various forms of digital media like digital TV, radio, video and digital photography.

The unit also stresses on why digital media is gaining momentum in today's world and what sets it apart from the existing analog system. You will also get a grasp of how digital media differs from analog media and how digital media outscores the analog system.

So, let's start with the concept of digital media. But before that we need to know what digital means. The next section will give you a proper understanding of this much talked about word.

4.3 DIGITAL MEDIA

4.3.1 DIGITAL MEDIA

Before we discuss what digital media is and why every media is slowly going digital, we need to understand the meaning of the term 'digital'. Digital is a form of electronic technology that produces, stores and processes any data in terms of two states —positive state and negative state. The positive state is expressed by the number 1 (one) and the negative state is expressed by 0 (zero). So, basically, whatever data is stored or transmitted digitally is done through a series of 0's and 1's. These state digits are called bits and a group of bits is called a byte.

The term digital is primarily used in computing technology where every bit of information is converted to the binary forms, i.e.,

0 and 1. Computers are the primary digital devices as they perform all calculations using ones and zeros.

Prior to the spread of digital technology, all electronic productions and transmissions occurred through the analog technology. Even media ran on analog technology. Images or video or audio were produced with analog devices like the old fashioned analog cameras and audio tapes and recorders. Their transmission too was through analog technology.

Nowadays, however every media form is trying to incorporate the digital technology in production and transmission, be it in television, radio, video or photography. The analog technology, however, still exists in most countries.

Therefore, we can say that, digital media indicates to those types of electronic media that work on digital codes or 0's and 1's. Digital media refers to all kinds of media forms, like video, audio and still images that can be produced and distributed through the binary forms.

The most popular forms of digital media are:

1. Digital video
2. Digital television
3. Digital radio
4. Digital photography
5. e-book
6. Internet
7. Video games
8. World Wide Web
9. Cell phones
10. Compact discs

4.3.2 DIGITAL MEDIA VS. ANALOG MEDIA

From the previous sub-section, you may have got a basic idea about what digital media is. But to understand the concept in its totality you need to understand it in relation to analog media.

Digital media is in the process of completely replacing analog media. Therefore, you need to understand what analog media is to get a clearer knowledge about the gradual transition from analog to digital.

As mentioned earlier, digital media devices are computers, hard discs, CD players and recorders, cell phones etc. On the other hand analog devices are the VCRs, tape players and record players. While, digital devices record and read data in the form of 0s and 1s, analog devices record and read data linearly from one point to another. They scan the physical data, reading the 'ups' and 'downs', the bumps and dips and then transmits the data in the form of a audio or video signal.

But the fact remains that in the digital reading the 0's and the 1's only estimate the sound or video wave, while in the analog reading it is the actual sound or video which is recorded. So, analog technology actually provides a better representation of the data or information.

4.3.3 WHY GO DIGITAL?

As mentioned in the previous section, analog technology provides the exact representation of any data than the digital technology. Why then is digital technology being preferred? Why is analog technology dying a slow death? The reason is because of the growing importance of computers.

Nowadays, most of our work is done on and by computers. And computers are essentially digital processing machines. They run on the binary numbers 0 and 1. When most of our work has to be done on computers the data we feed to the computer has to be digital as well. So, whatever data we produce or read through analog technology has to be converted to digital codes so that they can be fed on a computer and worked on. All analog video or audio has to be converted to digital data to make them work on a computer. Once the data is digital and fed on to the computer, the computer can edit the data as well as add effects that would otherwise not be possible.

Secondly, digital data is non-linear. They can be edited or played from any point. This saves a lot of time as compared to working on analog tapes. Digital technology helps to create, edit and reproduce any data much faster and easier. Also digital data has a longer time span. They do not wear out even after repeated use unlike the analog tapes or records.

Therefore, even though digital information is not as exact as analog information, it's more popular and easier to work on. Digital technology stores information in discrete pieces of information. Analog technology attempts to store exact information which may be accurate to start with, but can gradually deteriorate over time. Because digital is more compatible and does not degrade over time, digital technology is the common choice for today's audio and video formats.

4.3.4 ADVANTAGES OF DIGITAL MEDIA

Digital technology is most definitely the most preferred form of technology in every electronic sphere. And the media is no exception. Gradually almost every electronic media device is going the digital way. We have digital TV transmission, digital TV sets, digital music systems, digital cameras et al. This total transition to digital technology has several advantages. They are:

- Most work, these days, is done on computers and computers are digital. Digital media is, therefore, more compatible with computers.
- In digital media printing process, full colour designs cost the same as one colour designs. But in analog media printing process, each colour costs extra.
- Digital media is almost entirely based on computers and hence there is less paper work. Most work is done in the virtual world which reduces other costs.
- Digital media is non-linear. The digital technology allows any data to be edited from any point. One need not start editing right from the first to the last.

- Besides, playing something on celluloid tapes is quite cumbersome and the tapes get damaged comparatively much sooner than the digital equipments.



LET US KNOW

Because of the advantages of digital media the All India Radio (AIR) has taken up an initiative to transfer all of its tapes stored in its archives into DVDs a few years ago. This way, quality of the audio-visual or audio or visual programmes separately remain quite high for a very long time which we can't expect in case of tapes.



CHECK YOUR PROGRESS

Q.1: What does the term 'digital' mean?

Q.2: What is analog technology?

Q.3: What is the most important reason for the rapid spread of digital technology?

4.4 DIGITAL VIDEO AND DIGITAL TELEVISION

4.4.1 DIGITAL VIDEO

Digital video is one of the most common forms of digital media. It is a type of video recording system that uses digital video

signals rather than analog signals. It is audio/visual data in the binary format. Digital video information is presented as a series of 0's and 1's. It offers several advantages over analog video, which is why digital video is preferred. Digital video can be easily stored and shared. The digital video data can be copied over and over without any affect on the quality. The data can be copied easily and without any major expense.

Digital video is made up of a series of orthogonal bitmap digital images which are displayed in rapid succession at a constant rate. These images are called frames. Every frame comprises of a **raster** of **pixels**. If the width is W pixels and the height is H pixels, the frames size is W x H.

The only property that pixels have is their colour. The colour of each pixel is represented by a fixed amount of bits. If the bits are more, more subtle variations of colour can be reproduced. This is called colour depth (CD) of the video.



Pixel: A pixel is the smallest piece of information in an image. Pixels are usually arranged in a 2-dimensional grid, and are often represented using dots or squares.

Raster: It is the rectangular formation of parallel scanning lines that guide the electron beam on a television screen or a computer monitor.

4.4.2 DIGITAL VIDEO: A BRIEF HISTORY

In the 1970s and 1980s several types of video production equipment were introduced that would take an analog video input and convert them into digital signals. It was easier to work on the digital signals, to make necessary corrections and to add effects. Once the digital signals were enhanced, they were again converted into analog video. Some of these video equipment were time base correctors (TBC) and digital video effects (DVE) units. In the latter half of the '70s, digital video tape recorders were developed by some video equipment manufacturers in their own laboratories. But none of these machines were marketed commercially.

Digital video first came into the commercial market in 1986 with the **Sony D-1** format. It was able to record uncompressed standard definition component video signal in digital form. But these machines were very expensive and so were only used by big television networks. However, in no time, cheaper versions using



Sony's D1 format was the first major professional digital video format, introduced in 1986. D1 was very expensive and the equipment required very large infrastructure changes in facilities which upgraded to this format.

compressed data, like Sony's Digital Betacam, were introduced. This video format is still very popular among TV producers.

Digital video for common consumers first appeared in the form of QuickTime in 1990. The first few consumer level content creation tools were very basic and crude. It would require an analog video source to be digitised to make it computer readable. Gradually, however, the quality of consumer digital video increased rapidly with the introduction of playback standards like MPEG-1 and MPEG-2. Then came the DV tapes, which allowed direct recording to digital data, simplifying the editing process. Non-linear editing systems became cheap and popular as video editing could be now done on computers without any external playback or recording equipment.

4.4.3 DIGITAL TV

Digital television or DTV is all about sending and receiving moving images and sound by discrete digital symbols. The concept of Digital TV involves digital broadcasting and digital TV sets. Digital broadcasting implements digital technology to provide a greater number of channels and better quality of picture and sound. It involves over-the-air broadcasts to a conventional antenna instead of a satellite dish or cable connection.

Broadcasting has, since recently, been based on analog technology and so has been our regular TV sets. But, owing to the benefits of digital technology over analog, nowadays most countries are shifting towards total digital broadcasting. And most hi-end television sets are also digital.

Till the end of 2007, seven countries had completed the process of turning off analog terrestrial (over-the-air) broadcasting. In 2006 Luxembourg became the first country to make a complete switch to digital broadcasting. It was followed by Netherlands sometime later in 2006, Finland, Andorra, Sweden, Norway and Switzerland in 2007, Belgium and Germany in 2008, and the United States in June, 2009. Japan is set to switch over in July 2011, Canada

in August, 2011, UK will complete the process by 2012 and China plans to complete the process by 2015.

In India we still have both digital and analog broadcasting available. Digital satellite broadcasting is the most common with major players being Airtel Digital TV, Tata Sky, Dish TV etc. These digital broadcasters provide a set-top box which receives the digital signals and converts them into analog signals for our analog TV sets.

Digital television can be received by various different ways. The oldest way to receive digital signals is through an antenna. Known as the Digital Terrestrial Television or DTT, it has on offer only those channels which the antenna picks up. Even the signal quality might vary.

Digital cable and digital satellite are two of the newest ways. Digital satellite transmission is offered by the DTH (Direct To Home) suppliers like Tata Sky, Dish TV, Airtel Digital TV etc. This service provides every consumer with a separate dish antenna and a set top box. The antenna receives digital signals from the satellite and the set top box converts these signals into analog signals so that it can be transmitted on our analog TVs. Owing to the popularity of DTH's digital satellite transmission, even cable TV suppliers have now entered the field of digital transmission.

IPTV (Internet Protocol Television) is another way to receive digital television. It's about receiving TV via Internet Protocol through DSL (digital subscriber line) or optical cable line. There are several Internet television software with which you can watch TV on the computer.

4.4.4 ADVANTAGES OF DTV OVER ANALOG TV

The gradual transition from analog to digital TV is a common phenomenon the world over. And the reasons are plenty:

- Digital channels take up less bandwidth. So, broadcasters can provide more digital channels in the same space. The less

bandwidth also helps to provide high-definition television service as well as other non-television services like multimedia or interactivity.

- DTV also allows special services like multiplexing, i.e. more programmes on the same channel plus, electronic programme guides and additional languages, spoken or subtitled.
- Digital signals are better at avoiding interference than analog signals. In analog television, problems like ghosting of images, noise from weak signals etc may arise. These problems degrade the quality of the image and sound. Digital signals, however, can resist such problems by using numeric codes. Even if some information is missing, the decoder computer can reconstruct the complete signal.



CHECK YOUR PROGRESS

Q.4: What does Digital TV mean?

Q.5: What is a DV tape?

Q.6: What is IPTV?

4.5 DIGITAL RADIO AND DIGITAL PHOTOGRAPHY

4.5.1 DIGITAL RADIO

Digital radio transmits sound as computerised bits of information unlike analog radio. It is often called DAB digital radio,

where DAB stands for **digital audio broadcasting**, which is the name of the transmission system. Much like DTV, even digital radio takes up less bandwidth than the traditional analog technology. So there's room for more radio stations plus other features.

Digital radio offers national, local and regional stations which cater to all types of interests and people. The digital radio reception is much better with no interfering noises or station overlap that generally happens with AM and even FM radio. The tuning system in digital radio is simple and only requires the press of a button. No fiddling with a dial to get a good signal, no need to remember frequencies.

Digital radio also has a display screen to give information about what is being played like the song details, news headlines and email address. Some radios also have an electronic programme guide (EPG). Digital radio can also be transmitted through the Internet and through digital TV.

Digital radio signals cannot be received on the traditional analog radio sets. They can be accessed through the following ways:

- DAB digital radio set is the most common way to receive digital radio signals. Just like the analog sets, they are also available in many types—hand-held, portable, car radios, hi-fi tuners etc. The set will have a DAB logo on it. But do check whether your area has digital radio service.
- Digital radio can also be received through all digital TV platforms.
- Internet is another way to receive digital radio. All one needs are speakers or a headphone plug to the computer.

Digital radio is not as popular as other digital technology. But even this has its advantages over AM/FM radio or analog radio. All AM / FM signals receive major interference caused by physical obstructions in the form of buildings, mountains, airplanes and weather conditions. While listening to AM or FM radio, one can hear distant hisses and pops. These disturbances are caused by multi-

path interference which occurs when the signals bounces off physical obstructions.

DAB however provides crystal clear sound. Inside the receiver of a digital radio, there is a computer which sorts out the numerous multi-path signals and other distortions to improve the main signal. It only focuses on enhancing the main signal by ignoring the other obstructing signals.

Another advantage about DAB is that it is very flexible. For instance, generally six programme channels can be transmitted through a DAB set at a time. While some of these programmes, like talk-shows or interviews, require less audio data, some other shows (concerts, songs) will require more data. DAB can easily adjust to each of the requirements. Then again, in DAB the number of channels can depend on the time of the day. You can demand specific broadcasting, for instance, on a match day, a stereo channel can be divided into a sports channel and a single channel for news.

4.5.2 RADIO IN A BOX

The Radio In A Box (RIAB) concept was introduced to reach out to the millions of people who reside in most inaccessible areas of the world. It is a portable radio station which can be set up in any remote area without much technological support. It's set in a shock-proof case to withstand transportation to remote locations and harsh conditions.

The RIAB contains all the equipment to have a stereo FM radio station set up in a matter of minutes. The system is pre-wired and ready for use. One has to simply install the antenna on the highest point around the area, run the coax to the transmitter, hook up the power (local or generator) and you are on air.

The concept of RIAB has been used in several war-torn zones and areas prone to natural disasters. In Afghanistan, the US army uses the RIAB to isolate the Taliban influence among the people. The Radio Zormat, which started as a 50-watt FM transmitter in

2007 reaches people living within the six mile radius of the town of Zormat. It's now a 250-watt transmitter with three DJs broadcasting in Pashtu language to an audience which is hungry for news, music and call-in shows. The army also pushes its own messages in between the shows. And whenever the Taliban tries to go on air with their radio programmes, Radio Zormat intercepts the Taliban frequency and throws an electronic snowstorm into their transmission. The army has also distributed over 1500 radios that can pick up the station.

4.5.3 DIGITAL PHOTOGRAPHY

Digital photography is the most popular form of digital technology that is in use. Analog cameras are now almost obsolete and have become hard to find. Digital photography, in simple terms, uses digital technology to capture still and moving images. Earlier the cameras that were used to capture images used photographic films to create these images which were then chemically processed in a separate environment (dark rooms) to make the pictures visible. In digital photography, however, the pictures can be created, printed, stored, distributed and archived through digital and computer techniques. There is no need of celluloid reels for capturing the pictures.

Besides, in digital photography, subsequent copies of photographs can be produced without even a slight loss of image quality which is not the case in normal reel photography system. Also, digital photos can be downloaded into a simple computer and if needed corrections can be done (or doctoring) before printing them with a usual printer. In other words, the entire business of photography has been made far simpler because of the digital technological advancement.

A digital camera generally uses a digital memory device to store the images, which can be further transferred to a computer. Digi-cams can take pictures and also record audio and video. Some

can be used as webcams and some cameras can be connected to the TV so that the pictures can be seen in screen.

The advantages of digital photography are many. Some of them are discussed below:

- Immediate gratification. Digital pictures can be seen on the camera's LCD monitor right after the picture has been taken.
- For professional photographers, there is the satisfaction of delivering the pictures quickly. It takes hardly any time to burn (download it into a CD / DVD through the computer) a CD or take a print of the pictures once the camera is connected to a computer.
- Digital images can be modified on the computer without any fuss. You can add light if the picture is dark, add saturation, colour, use effects like cropping, gray scale etc.
- They are easier to store. Film rolls and the printouts take several file cabinets. But digital images can be stored in disk drives.
- Filming and processing costs have come down considerably.
- Digital photography is also less harmful to the environment. The processing of films is a toxic business. The chemicals used while processing are bad for the environment.
- Digital images can be printed over and over without any degradation in quality. But the negatives of a roll, if processed too many times, will not give the same quality as the original picture.



CHECK YOUR PROGRESS

Q.7: What are the three ways to receive digital radio signals?

Q.8: What is Radio In A Box?

Q.9: How is analog photography harmful for the environment?



4.6 LET US SUM UP

1. Digital media refers to media which is produced, stored and transmitted through digital technology.
2. Digital technology involves binary numbers—1 and 0—to process any data. So, whatever data is stored or transmitted digitally is done through a series of zeroes and ones.
3. Computers are the primary digital devices. And nowadays, almost every other media form is becoming digital as well.
4. The most common forms of digital media are digital video, digital radio, digital TV, digital cameras etc.
5. Before digital technology became such a force in the media world, it was analog technology which was extensively used.
6. In analog technology the data (audio/ video) is physically scanned, reading the bumps and dips unlike in digital technology where the data is read in the form of the binary codes.
7. Analog technology, therefore, provides the exact sound or video while digital is a mere representation of the data. Despite this, digital technology is preferred over analog.
8. The main reason for the popularity of digital technology is because computers are digital machines and nowadays most work is done on computers. So, people prefer to create digital data to store it easily on computers.

9. Digital technology allows electronic data to be stored for a much longer time.
10. Digital transmission enables hi-quality transmission.
11. Digital data can be reproduced several times without any degradation of quality.
12. Digital data can be processed in very short time.
13. Most work is done on computers, so other costs are reduced.
14. Digital media allows non-linear processing of data. You need not work on digital data from start to finish. The data can be edited and worked on from any point.
15. Digital video refers to a type of digital recording system which uses digital signals rather than analog ones. Audio/visual data in binary format implies digital video.
16. DTV or digital TV, on the other hand, is television which involves digital sending and receiving of audio/video signals. Broadcasters, the world over are now relying on digital technology to transmit hi-quality television programming to viewers.
17. DTV is preferred over analog TV because digital channels take up less bandwidth. Therefore, operators can provide more channels in the same bandwidth space. Less bandwidth also provides many other services like interactivity, multimedia, electronic programme guides and additional languages.
18. Also, digital signals are more adept at blocking interference. Analog television is prone to image blurring, noise from weak signals etc. But all this is avoided in DTV because of the numeric codes. Even if some signal goes missing, the decoder computer can reconstruct the missing signal.
19. Digital radio is another popular digital media form and this involves transmitting sound as computerised bits of information.
20. Digital radio signals can be received on digital radio sets, on digital TV platforms and through the Internet.
21. Radio In A Box refers to a radio set-up in a box which can be carried to various locations for transmission of radio programmes. It has been

designed to cater to those areas which have no access to any other forms of media.

22. Digital photography is the most common forms of digital media as digital cameras have completely replaced the traditional camera with film. Simply put, digital photography employs digital technology for capturing both still and moving images. Digital cameras have an in built memory device to stock the images which can be later transferred to a computer.



4.7 FURTHER READING

1. **Digital Media, Building the Global Audience** – *T K Ganesh (Gnosis Publishers, New Delhi)*.
2. **Impact of Internet on Journalism** – *Arun Bhatia (Akansha Publishing House, New Delhi)*.
3. **Net, Media and Mass Communication** – *Jagadish Chakraborty (Authors Press, New Delhi)*.



4.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1 : The word digital implies an electronic technology that uses the two numbers (0 and 1) to produce, store and process any form of data. Digital technology is now used extensively in all media forms.

Ans. to Q.No.2 : Analog technology refers to that system which reads any data, audio or video, in its actual form, unlike digital data which reads data in the form of ones and zeroes. Analog technology scans the physical data from one point to the other and then transmits it into a signal. Human beings perceive the world in analog. Everything we hear and see is a continuous transmission of information to our senses. This stream is what can be called as analog data.

3. The most important reason for most technologies going digital is because of the ever-increasing importance of computers. Computational technology is digital and it only accepts digital data. We can edit or enhance any form of data only on a computer. Therefore, it's important that the data is digital as well. If the data is analog, then we need devices to transform the analog data into digital data before it is fed on a computer. This process is very cumbersome. So most technologies are going the digital way so that the data they create can be directly worked on a computer.

Ans. to Q.No.3 : Digital TV or DTV is television broadcast through digital technology. It involves sending and receiving moving images and sound via digital symbols. Digital broadcasting happens either through satellite or via cables. The DTH suppliers all provide digital television via satellite.

Ans. to Q.No.4 : DV tape or Digital Video tape is a digital video format created by Sony, JVC, Panasonic and other video camera producers, and launched in 1995.

Ans. to Q.No.5 : IPTV is digital TV through the Internet. It's another way of receiving digital TV transmission via Internet Protocol through DSL or optical line.

Ans. to Q.No.6 : The first and most common way to receive digital radio signals are through the regular digital radio sets which are available in the market. They come in various types like car radios, hi-fi tuners, portable and hand-held. One can also receive digital radio on every digital TV platforms and through the Internet. For the latter you will need speakers or headphones connected to the computer.

Ans. to Q.No.7 : The concept of Radio In A Box is a very humane effort to take technology to areas which are cut off from the rest of the world. It enables radio transmission with minimum technological requirements. Set in a sturdy box, it is a portable mini radio station which can be set up in any remote location without much fuss.

Ans. to Q.No.8 : Analog photography involves chemical processing of the reel. The chemicals used in this process are very toxic and are thus harmful to the environment.



4.9 MODEL QUESTIONS

A. Very Short Questions.

Q.1 : Define the term “digital”.

Q.2 : What is the difference between bits and byte ?

B. Short Questions (Answer each question in about 150 words)

Q.1. Why digital technology is commonly used in the present day context ?

Q.2. What are the advantages of digital photography?

C. Long Questions (Answer each question in about 300-500 words)

Q.1: Discuss the advantages of digital technology over analog technology on the basis of all the major digital media.

Q.2: Almost every country is switching over to digital TV. Analog TV will gradually become obsolete. Comment.

Q.3: Why has digital radio not become as popular as digital TV or digital photography?

Q.4: What are the benefits of the Radio In A Box concept?

Q.5: Are you aware of any areas where analog technology may still have some amount of requirements for various reasons. If yes, describe them.

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UNIT-5: ONLINE JOURNALISM

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 What is online journalism?

- 5.3.1 Difference between online journalism and traditional journalism
- 5.3.2 History of online journalism

5.4 Characteristics of online journalism

- 5.4.1 Advantages of online journalism
- 5.4.2 Limitations of online journalism
- 5.4.3 Ethics of online journalism

5.5 Let Us Sum Up

5.6 Further Reading

5.7 Answers to Check Your Progress

5.8 Model Questions

5.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- define online journalism
- differentiate between online journalism and traditional journalism
- discuss the history of online journalism
- list the characteristics of online journalism
- enumerate the advantages and limitations of online journalism
- explain the ethicality of online reporting

5.2 INTRODUCTION

Journalism is all about spreading news, sharing information and it helps to create awareness about the environment we live in. And there are various media to do so. The most common form of journalism is the traditional journalism, i.e. through newspapers and magazines or the print

media. Even television and radio are two very popular media. But the latest to join this sphere is the Internet.

Despite the huge presence of traditional journalistic mediums, the Internet has become a very popular medium in a very short period of time. Therefore Media students can no longer stick to learning about the traditional vehicles of news production and reporting alone. Online or cyber journalism is a growing field and a knowledge of this will stand one in good stead in the years to come.

5.3 WHAT IS ONLINE JOURNALISM?

Online journalism is reporting of news and views through the Internet. It is different from traditional journalism in the sense that the medium is different. While traditionally, journalists have used the print medium for reporting news, online journalists use the World Wide Web to do the same.

The web is the most far-reaching and extensive communication medium in the world right now. It has built a bridge among millions of people divided by geographical boundaries and has brought so many communities and groups together. Anyone can address a huge number of people through the web. Its potential is huge and this realisation has led to the rise of online news production. All major and not so major news producing companies have online editions these days.

Online journalism has played a major role in making news 'immediate' and accessible. It's not just the 24 hour news channels on TV which give minute-by-minute updates on world happenings; even the news websites upload information instantly.

The web can be used in all the stages of journalism. You can access the background information through the electronic archives, you can get in touch with the people necessary for your story and you can upload your news and views in no time.

Online journalism, therefore, is a concept that has made news a common commodity. One can not only keep track of the world's happenings through the web but even local news about one's hometown can be

accessed from some remote corner of the world. News is no longer confined by geographical boundaries.

Internet journalism not only provides very up-to-date news details, but also acts as a highly comprehensive storehouse of background information about the news items. This is not possible in print, TV and Radio because of paucity of space and also time to some extent.

5.3.1 DIFFERENCE BETWEEN ONLINE JOURNALISM AND TRADITIONAL JOURNALISM

Online journalism is definitely rooted in the values of traditional journalism but it differs from the latter in several ways. The main difference lies in its distinctive features that are embedded in technology — the technology which allows limitless possibilities in terms of processing and distribution of news. The other differences that stem out of this major feature of online journalism are:

i) Online journalism is supported by the Internet and the Internet has the ability to mix multiple media which is not possible in case of traditional mass media.

ii) In online journalism the author has no control over the reader. No one can control the audience's attention or his choice.

iii) Interactivity is maximum. Through the Internet, the author and the reader can exchange views regarding the matter written.

iv) The Internet enables the communication process to be continuous.

v) News spreads with lightning speed through the Internet. In traditional mass media immediacy is not really possible.

vi) Online journalists have to take several new decisions that his or her counterpart in the traditional format doesn't require. The cyber journalist has to decide which media format suits a story best; he has to allow room for options for the public to respond, interact with the readers and also consider ways to connect history with some other relevant stories through hyperlinks.

vii) News items in a newspaper, TV or Radio channel are expected to be read or listened to or watched by the masses almost at the same time. This is not the case for internet edition journalism in which the target audiences would do so only at their own leisure.

viii) It is a bit cumbersome to retrieve old issues or bulletins of print, TV and Radio journalism. But in internet journalism this is a very comfortable exercise which does not require a lot of efforts to look at earlier bulletins, issues.

5.3.2 HISTORY OF ONLINE JOURNALISM

The development of online journalism has been a gradual but ongoing process, and it has changed the face of traditional journalism. It had its roots in the teletext system of the 1970s. Through teletext, news and information in the form of words and numbers were displayed on television screens for public viewing. Teletext enabled viewers to access news for free without the use of a telephone or computer. But the system allowed only very brief information to be displayed. Even the graphics used were of poor quality and took a lot of time to be uploaded. Several companies started the teletext systems in the ’70s and ’80s but none were successful.

After teletext came another type of digital journalism, Videotex. It was invented at British Telecom. Videotex refers to various computer-based interactive systems that electronically deliver text, numbers, and graphics via telephone lines, two-way cable, computer networks or any combination of the three, for the display on a TV set, video monitor or personal computer. It was a major breakthrough in the online sphere because it enabled consumers to send and receive data. Videotex played the role of a catalyst in the development of online news journalism.

Online journalism as we know today is rooted and sustained by the World Wide Web. The first journalism website was launched

in November 1993 at the University of Florida College of Journalism and Communications. The next year on January 19, the Palo Alto Weekly in California became the first newspaper to publish regularly on the net. This was followed by several other companies who realized that the web offered a fast, innovative and cost-effective way to deliver news to people.



CHECK YOUR PROGRESS

Q.1: Define online journalism.

Q.2: What is the teletext service?

Q.3: News is immediate in online journalism. Explain.

5.4 CHARACTERISTICS OF ONLINE JOURNALISM

Online journalism, as mentioned earlier is a relatively new domain and you have already read about its differences from the traditional form. To understand these differences better you will need to know the basic characteristics of online journalism. The major features of this form of journalism are hypertext, interactivity and multimedia.

Hypertext: In online journalism, a story or report can have several other stories linked to it via hyperlinks. If an online journalist finds it necessary he may substantiate his story with other relevant material by linking his writeup with that of others. These related stories may be available in the news website itself or in any other page on the world wide web. Such linked

stories supplement the main story and give background information to the reader.

Interactivity: Online journalism allows maximum interactivity. Even newspapers have options for readers writing; TV and radio listeners can write or call to give their feedback. But readers of online stories can not only give their views but also receive their replies from the writer in no time. There is a steady flow of information between the sender and the reciever.

Multimedia: Use of multimedia is another important feature of online reporting. Stories published on the web can be supplemented by pictures, graphics, audio streams and video footage. Covergence is responsible for making this possible.

Apart from the three major characteristics, other aspects that characterise online journalism are its archiving capacity, its immediacy and its non-linear structure. Websites maintain an archive where they store all their old and relevant stories and readers can access them at any given time. Such a thing is not possible with traditional media formats. Even though newspapers and TV stations archive their stories, it is not easy for the consumers to get an access to them.

The immediacy of online journalism is known to all. Any event or happening is immediately uploaded on news websites and people can read about them. They give direct competition to news channels when it comes to breaking news.

In online journalism the consumption of information is non-linear. Web-users can select which stories they would like to read first. Websites do have the main news stories on the front page of the site but readers can ignore those and read the other smaller stories which have links on the front page. In radio and TV, all stories are presented in an order as per the directives of the newsroom executives. Also the presentation is non-linear because information is not put up in a large block of text. Instead it is divided into sections and linked accordingly. So, a reader can read the critical part of it or maybe access the background information.

5.4.1 ADVANTAGES OF ONLINE JOURNALISM

If you have understood the characteritics of online journalism then you must have also understood the fact that its characteristic features are actually its advantages. The technological advancements and the popularity of web-based journalism has several postive aspects. Online journalism not only extends the best aspects about traditional journalism but also enhances it with techonological advancements. The involvement of the Internet has brought in a number of strategic advantages. Some of the advantages are:

1. Online publishing may attract new readers. Newspapers, have different objectives behind their online editions but the most important objective is to reach out to more readers and to promote the print product. And the online section helps in that regard.
2. Online journalism has major archival capacity. Stories can be stored online for years.
3. Online publishing can decrease and sometimes eliminate the publishing and distribution costs.
4. Online journalists have ample space to write their stories, unlike in newspapers and magazines. They can cover different aspects and do in-depth coverage.
5. The Internet allows multimedia usage. Any news can be supplemented with text, video, audio streams, pictures and graphics.
6. Interactivity is another positive factor of Internet journalism. It allows readers, writers and editors to interact with each other more frequently and directly.
7. The widespread access to the Internet allows the reader accessibilty to information from all over the globe. The reader is no longer bound by the local mediums. It readily receives a worldwide audience.

5.4.2 LIMITATIONS OF ONLINE JOURNALISM

There may be several advantages of online journalism but it cannot be without some shortcomings. Some of the disadvantages are:

1. The biggest shortcoming of online journalism is that there is no credibilty about the online sources. On the web anonymous writers can put up their view and get away with it. Anyone with a Internet connection can become a journalist and not just names, even organisations can be made up. Even reliable news websites may give unreliable information by hyperlinking pages outside their website. These linked pages may not be providing accurate information, thereby misleading the reader.
2. Another disadvantage of online journalism may spring from one of its advantage itself. Online journalism is known to be very fast and sometimes in its race to give out information, several major details may be missed out. The speed at which news can be pumped out, the rate of errors increases. Carelessness and oversight is maximum when the speed of work is so high.
3. Plagiarism, photo manipulation and posting supplementary material are the other drawbacks. There is no set rules that define journalism on the web. So, there is no way to check plagiarism. Technological advancements have also attributed to the increase in photo doctoring, wherein pictures can be tampered with and uplaoded as representing something totally false. Unlike traditional journalism where there are set rules as to formats and standards of journalism, online journalism has yet to reach that stage.

5.4.3 ETHICAL CONSTRAINTS OF ONLINE JOURNALISM

By now you must have seen that online journalism has many more positive traits in comparison to the negatives. But the ethicality of online journalism transcends all the positives that it entails. Traditional journalists have a set code of ethics which may not be

written down per se but which are followed nonetheless. Such codes originated with print media but were later reworked to include broadcast media as well. But the recent shift towards online journalism has left several grey areas in journalistic ethics. The journalistic code of ethics has yet to be updated to include web writing in its purview.

The biggest ethical question that arises in this form of journalism is the debate between speed and accuracy – whether information should be published immediately or one should wait to verify facts. This debate has been a bone of contention even in traditional media formats. But with online journalism this issue seems to have reached a higher plain. One of the main features of cyber journalism is its immediacy. News events are uploaded as and when they happen without considering the authenticity or accuracy of the information. In the mad rush to put up breaking news online most websites completely ignore to check the facts, which is a huge violation of the ethical standards of journalism.

Another ethical constraint to online journalism stems from the advertisers' demands. The journalist requires total independence to produce objective stories but when he has to consider advertising requirements his reporting loses its objectivity. And this is a total breach of ethical standards. It is easier to distinguish between editorial content and advertising content in the newspapers and broadcast media. But in the online format the distinction is blurred. The problem is further aggravated by the fact that website owners receive no monetary gains from their readers. Internet users do not pay any money to access websites. Whatever revenue they generate is through the advertisers, so it becomes essential for them to keep them happy.

The archival strength of online journalism also proves to be a bane sometimes. As mentioned earlier, websites can store information and pictures from around the globe and archive them for an indefinite period of time. This means that any incorrect

information or ethical breaches could be more damaging and widespread. Incorrect information will be archived and that will be passed on to users who access the site.

The hyperlinks on websites are also an issue with this form of journalism. Many stories on different websites have hyperlinks to other websites with similar stories. These hyperlinked information may not be correct. The reporter cannot ensure the accuracy of the linked information. To deal with this the reporters and editors should monitor the linked information and also warn the users that the linked story is not a part of their website.



CHECK YOUR PROGRESS

Q.4: Explain the non-linear structure of online journalism.

Q.5: What are the positives of online writing for reporters?

Q.6: Fill in the blanks:

a) Online journalism has maximum _____ capacity.

b) The major drawback of online reporting stems from its _____ constraints.

c) Most newspapers today have their own _____ editions.

d) Online editions eliminate _____ costs.

e) Online newspapers generate their revenue from _____ .



ACTIVITY - 5.1

1. Take a major newspaper like the Assam Tribune and read the main stories. Now check the online edition of the same newspaper and find out the major differences, if any, in the writing style of the same news story.



5.5 LET US SUM UP

- Online journalism is a term used to define that segment of journalism which is done through the use of the Internet.
- After print, radio and broadcast journalism, online journalism is the new form of journalism which has become very popular in a short span of time.
- It is different from the traditional forms in several ways.
- Online journalism uses multimedia like images, sound and video to complement the story.
- Online journalism is interactive as the writer and the reader can interact on an immediate basis.
- News spreads faster through online reporting.
- Online journalism is not a very old phenomenon but it has become popular in a very short span of time.
- The World Wide Web is responsible for the spread of this form of journalism.
- The characteristics of online journalism are hypertext, interactivity, multimedia usage, its archiving capacity, immediacy of news and its non-linear structure.
- The advantages of online journalism are: maximum interaction between writer and reader, huge archival capability, use of multimedia, it can decrease publishing costs, widespread accessibility etc.
- Online journalism has its limitations as well. The biggest drawback of online journalism is its ethical looseness. Online journalism has

several ethical issues to counter before it can be accepted as a completely credible form of reporting.

- Plagiarism, doctored photographs and uploading substandard information are the other drawbacks.



5.6 FURTHER READING

1. **Digital Media, Building the Global Audience** – *T K Ganesh (Gnosis Publishers, New Delhi)*.
2. **Impact of Internet on Journalism** – *Arun Bhatia (Akansha Publishing House, New Delhi)*.
3. **Net, Media and Mass Communication** – *Jagadish Chakraborty (Authors Press, New Delhi).*



5.7 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1: Online journalism is that form of news reporting or news production that relies on the World Wide Web for its transmission. News stories and reports are uploaded on websites and Internet users can access it by going to the websites.

Ans. to Q.No.2: The teletext service can be called a precursor of the online news reporting of today. It was a service developed in the 1970s in UK, where bits of news and information were transmitted on television sets. National, international, sports, weather and TV schedules were transmitted through the TV.

Ans. to Q.No.3: One of the main features of online journalism is its immediacy. Events and happenings from all over the world can be uploaded on news websites with immediate effect. Just like broadcast journalism, online news reporting is fast and most of the times accurate. People who do not have access to television all the time can check the news on the web. Specially office goers can nowadays, keep abreast of all the latest happenings with just a click of the mouse.

Ans. to Q.No.4: The structure of online journalism is said to be non-linear because the information can be accessed in a non-linear way. The home page of a website has almost all its stories mentioned and it's the reader who decides which story he or she wishes to read. The editor or writer cannot enforce his will on the reader. In other forms of media like newspapers or TV news, it is the editor who decides which news is important, thereby placing it over other 'insignificant' news. On websites, the internet users can read the entertainment and sports stories before he reads the political news. These two segments generally come in the latter half of TV news or in the backpages on newspapers. Even the presentation is non-linear because news stories aren't placed as huge chunks of text. Instead they are divided into parts and linked to one another. So that readers can read whatever part of information they require.

Ans. to Q.No.5: Online reporters can write as much as they want. That is a major plus point for them. In newspapers and magazines, writers have to cut down their stories due to space constraints. But that's not an issue for them when they write for websites. Online writing also allows reporters to give background information to their stories by way of links. They can complement their stories with information taken from other stories.

Ans. to Q.No.6: Fill in the blanks:

a) Online journalism has maximum archival capacity.
b) The major drawback of online reporting stems from its ethical constraints.
c) Most newspapers today have their own online editions.
d) Online editions eliminate publishing costs.
e) Online newspapers generate their revenue from advertising.



5.8 MODEL QUESTIONS

A. Very Short Questions

Q.1 : What is online journalism ?

Q.2 : What is the advantage of a teletext ?

Q.3 : What does videotex refer to ?

B. Short Questions (Answer each question in about 150 words.)

Q.1: Discuss the ethical issues pertaining to online journalism.

Q.2: How is online journalism different from traditional journalism?

C. Long Questions : (Answer each question in about 300-500 words.)

Q.1: Discuss the characteristic features of online journalism.

Q.2: Newspapers today tend to depend on their online editions for various factors. Discuss.

Q.3 : What role does online journalism play in making news immediate and accessible ?

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UNIT-6: ONLINE NEWSPAPERS

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Online newspapers

6.3.1 Types of online newspapers

6.3.2 Growth of online newspapers

6.4 Impact of online newspapers on traditional newspapers

6.5 How to write for the web

6.6 Let Us Sum Up

6.7 Further Reading

6.8 Answers to Check Your Progress

6.9 Model Questions

6.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- explain about online newspapers
- describe the growth of online newspapers
- discuss the impact of online newspapers on traditional newspapers
- discuss about how to write for the online medium

6.2 INTRODUCTION

In the previous unit, we discussed the many facets of online journalism and how it has evolved over the years. In this unit, we will focus on the growth of online newspapers over the years, and how they have emerged to become one of the strongest media industries in the present times. Every major newspaper in the world has an online edition these days and without that online presence, the newspaper loses much credibility.

Even though there are several debates regarding the ethicality of online reporting and cyber journalism, its popularity and reach is beyond compare. So, being media students, it is imperative that you understand

the concept of online newspapers. Learning the ways of online journalism and understanding the difference between writing for the web and for normal print medium will make you more skilled in this upcoming field of journalism.

6.3 ONLINE NEWSPAPERS

In simple parlance, an online newspaper is a newspaper that exists on the World Wide Web. It can be the exact replica of the newspaper's printed version or it can be a separate entity on its own.

Despite all the ethical constraints facing web-based journalism, the spurt of online newspapers hasn't gone down. Traditionalists may crib and squirm at the mention of online reporting, but even they can't stop the rising popularity of this form of journalism. Every major newspaper today has its own online edition. It helps them to not only interact on a regular basis with their readers, but it has also given them the scope to challenge broadcast journalism. Newspapers could never compete with the immediacy of TV journalism, but with the help of their online editions, they can now upload breaking news as and when they happen, much like the TV channels.

6.3.1 TYPES OF ONLINE NEWSPAPERS

Online newspapers are basically those newspapers which have an online presence. But there are certain basic types of online newspapers. They are:

1. **Most major newspapers have a dual presence on the World Wide Web.** One is in the form of a news website which is updated every minute. And the other is the direct version of the printed edition uploaded on the web. For the website, they have a team of dedicated writers and reporters who only write for the web and keep updating the news round the clock.

In India, major newspapers like, The Hindustan Times (*www.hindustantimes.com*) and the Times of India (*www.timesofindia.indiatimes.com*) both have a dual presence on the web. They have websites which upload news around the clock, plus, an online version of its daily edition called the e-paper. One can go on the website



CompuServe was the first major commercial online service in America. It dominated the market during the '80s but it later lost out to AOL which eventually took it over. CompuServe finally shut down in July 2009.

and read the exact print edition of the newspaper online. The pages from the daily edition are uploaded directly on the site. While the website is updated regularly, the online edition allows readers to check that day's edition on their computer. Sometimes, stories from the printed edition are carried on the website as well. The website editors might make certain changes if necessary.

2. **Many other newspapers have a single presence on the web.** For instance, in case of The Assam Tribune (*www.Assamtribune.com*), the news stories are the same in both the daily edition and the internet edition. They simply upload the stories from that day's edition on to their website. The website is not updated round the clock.
3. **The third type of online newspaper is the 'Online only newspaper'.** They only have a web presence and no connection with any hard-copy format. They are individual news websites with no collaboration whatsoever with any print newspaper or magazine. Rediff.com and yahoo.com are instances of news websites with no print affiliation.

Thus it can be said that most of the internet versions of newspapers and Radio and TV bulletins are something in between of these two styles of presentation.

6.3.2 GROWTH OF ONLINE NEWSPAPERS

Online newspapers do not have too long a history. It is merely over two decades old but the speed with which it has spread and grown is beyond belief. In the present times, every newspaper worth its salt has an online presence.

The first newspaper to go online was the Columbus (Ohio) Dispatch on July 1, 1980. It was brought to the users by **CompuServe.** CompuServe began working with 11 Associated Press (AP) newspapers, the first one being Columbus Dispatch, and the others being The Washington Post, The New York Times, The Minneapolis Star Tribune, The San Francisco Chronicle, The

San Francisco Examiner, the Los Angeles Times, The Virginian-Pilot / Ledger Star, The Middlesex News, the St. Louis Post-Dispatch, and the Atlanta Journal-Constitution.

Right from the beginning, the online news delivery service was stated to be an experiment, and all the newspapers stopped the project by the end of 1982. It was only in the 1990s that the movement caught on. Journalists made their first tentative steps onto the Internet in 1994. In October, 1993, Florida University's journalism school launched, what is believed to be, the first journalism website on the Internet. In the United Kingdom, the electronic Telegraph is launched as the first newspaper website in November 1994.

In 1997, the BBC goes online and in less than a year it provides more than 140000 web pages of content and 61,000 pages of news. 1999 saw the launch of The Guardian Unlimited network of websites and within two years, it has more than 2 million users making it the most popular news site in the UK.

As the 21st century came closer, everyone began creating web pages and posting news on them. But 1999 saw some tense moments in the online world as there was growing panic that there would be a worldwide ripple effect which would cause all the computers to crash. But all these fears proved to be baseless as there was a smooth transition into the new century.

In February, 2000, online editors and publishers were warned to be careful of hackers as Yahoo, Amazon, CNN.com and Buy.com were all hit by hackers. In the same year, Associated Press launched the AP Streaming News, which provided multimedia content to news sites and broadcasters. Another significant event that year is seen in the redesign of the International Herald Tribune. Their new site enabled users to flick over page turns and store headlines to be viewed later.

The 9/11 attacks at the World Trade Center in New York Not only stunned the world but also led to a huge demand for online

news sites. Most of the news sites saw tremendous increase in demand as users were looking for all sorts of information online. Following this sudden surge of demand, online editors were advised to build systems that can cope with any such future rise of demand.

In July 2002, The New York Times digitised its entire archive of stories dating back to 1851. It became the first newspaper to do so. In Google 2002 launched Google News, a service that brings together the main headlines from 4000 news sites from all over the world. Google was merely providing news from all the major news sites of the world, which angered many publishers who felt that Google was merely building their own business using the content of other websites. But Google defended itself by saying that it was mutually beneficial, because, they would drive the user to the news sites directly.

The popularity of news sites reached dizzying heights as several major incidents rocked the world. The Columbia space shuttle disaster of 2003 was scooped up by the news sites because most of the newspapers went to print by the time the news came through. Even the Gulf conflict in March, 2003, led to a huge surge of online traffic as office goers logged on to the websites to track the story. According to Nielsen/Net Ratings, during the first week of the Iraq war, the number of users accessing these news sites rose by 40 %

That same year, the Wall Street Journal invested $ 28 million to redesign its website, and this new online version got 625,000 subscribers. And in May, The Times launched its first online edition.

Online newspapers have gone from strength to strength in the last few years, and it only seems to be heading towards a stronger future. Even though most news sites do not charge the users, and websites have to mostly depend on advertising revenue to maintain their websites, the number of news sites are still on a rise. The steady rise in popularity of news sites has had a major impact on all the traditional forms of journalism. The next section will deal with this aspect of online newspapers.



CHECK YOUR PROGRESS

Q.1: What is an online newspaper?

Q.2: What are the different types of online newspaper?

Q.3: The first newspaper to go online, the Columbus (Ohio) Dispatch was brought to the users by _____.

Q.4: The first journalism website on the Internet was launched by _____ journalism school.

6.4 IMPACT OF ONLINE NEWSPAPERS ON TRADITIONAL NEWSPAPERS

As you have read in the earlier section, online newspapers have gradually developed to be a major source of news and information for the public. Earlier, the most common forms of accessing news were through newspapers and magazines. Then came the radio and television. But with the advent of online newspapers, the whole scenario has changed. The print media has been the worst sufferer. It was already facing a steep challenge from the broadcast media what with live news reporting and round-the clock coverage. And now, with the emergence of online editions the traditional news mediums have had a lot more catching up to do.

In a survey conducted by The Digital Future Project, it was found that in 2008, Internet users read online newspapers for 53 minutes per week. It was 41 minutes per week in 2007. The survey also found out that 22 % online news readers had stopped their subscription to a newspaper or a magazine because they got the same information on the web. In such a scenario, it is only too evident that online newspapers are creating a huge

dent in the traditional newspaper market.

The impact of online newspapers on traditional print mediums, therefore, is pretty massive. It has forced the newspapers to think out of the box and they have had to make several changes in their functioning in order to survive in the market. Some of these changes that the newspapers have incorporated down the years are:

- Owing to rising popularity of online newspapers, traditional publishers have realised the importance of the World Wide Web. They have therefore whole heartedly embraced the concept of launching websites that promote their print mediums. As was mentioned earlier, almost every newspaper and magazine today has a website. The publishers have realised that in order to survive stiff competition, they have to resort to creating online options for their dedicated readers.
- The online newspapers have changed the way newspapers function. Newspaper editors have now realised that no news is breaking news for them. Almost every major news is scooped by both the online reporters or the TV reporters. So, most major newspapers now focus on follow-up stories. They do cover the major stories but give a full blown account of the same.
- Newspaper writers and editors now have to be more careful about how they present their stories. There has to be some edge to every story because readers have anyways read the story online or seen it on TV. The better the presentation, the more chance that it'll be read.
- Newspaper editors are now focussing more on highlighting issues rather than stressing on the news. This is the case with all major newspapers in India. They take up an issue and do a full blown story on it by talking to experts, the common men, victims etc. Two-three page full spread outs are common in most national dailies these days.
- Since most newspapers have a web presence, they use it to interact with their readers. Earlier the only way to communicate with a newspaper editor was through post and that was a long, tedious process. But now, editors can be reached through their e-mail

addresses or through the feedback column in their website. The chances of getting the editor to revert back are also very high.

- Nowadays, newspapers are not just carrying news; they are trying to cater to almost every need of a reader. Apart from the hard news and the feature stories, they have stories on relationships, entertainment, food, travel, books, films etc. They have daily supplements that try to target every age-group.
- Owing to the maximum use of Internet, most newspaper writers now need to be more technically sound. They need to know their way around computers, software and the World Wide Web.
- The newspaper reporters also have to know how to write their stories for the online version. Online writing is not similar to traditional news reporting, so writers must have the skills for both the mediums.
- Many such information which may not be regarded as 'prime' in a newspaper may be kept in the internet edition so that if anyone is interested he or she can read it.
- As we have already discussed earlier, this new phenomenon has become such an important way of life for us that any newspaper, TV and Radio news channel must have its own internet editions for allowing more and more access to its readers and masses.

These are trying times for newspapers, and the Internet is more or less responsible for it. And although publishers have themselves resorted to the Internet to get over this crisis, no one can say how far the online editions are going to support their print editions. But most academics believe that newspapers need to move decisively towards the Internet and new business models, combining the complementary aspects of both print and online, need to emerge. There is an urgent need for a judicious co-existence between the two for the years to come.

6.5 HOW TO WRITE FOR THE WEB

With the increasing popularity of online newspapers, there is also a growing demand for online news reporters. Traditional reporting differs from

online reporting, and online journalists are now a new breed. Online journalism has changed the way journalism is taught in schools. Journalism schools have started introducing courses for online news reporting because the job requirements are different. So what does it take to be an online journalist or writer? Here are some tips to write efficiently for websites:

1. Online readers have low attention span and tend to scan more and read less. And then there are the other readers who access stories through search engines. So you have to use appropriate keywords to attract this section of readers.
2. Keywords rule in the Internet world. If you want to get maximum readers make sure that you use apt keywords. Keywords tell the user and the search engines what your story is about. Search engines like Google, Yahoo etc. help users to search for news by way of keywords. For instance, if your story is about communal riots, then make sure that you use words like 'religion', 'riot', 'Hindu', 'Muslim' etc. So, when an internet user uses a search engine to look for a story on communal riots he will definitely use these terms and will be directed to your story.
3. Use the keyword in the first paragraph itself and sprinkle it all across the story. It may be difficult not to sound repetitive but you have to make your point obvious.
4. Put a hyperlink to your home site in the first paragraph.
5. The headline is also an important part of your news story. To attract the readers, use catchy headlines, something that will not let their interest stray. To attract search engines to your story, use keywords in your headline and keep them in the front. For eg, if your keyword is "value based education", don't use a headline, "Amrit Mathur's seminar on value based education." Instead say, "Value based education seminar by Amrit Mathur". You may be using the passive voice but your keyword is getting top positioning.
6. Be it online reporting or traditional writing, news reporting requires a particular style. Be creative, but do not lose objectivity. It shouldn't be biased and without any hype.

7. Do not push your product. Although you wish to sell your idea or product, do not let that become evident in your writing. Your aim should be to inform not persuade. The best way to do so is to mention the problem and then to put up your idea as the solution for the problem.
8. Try to emphasise on what's different about your story. Unique and controversial stories receive maximum attention.
9. Use personal stories as references. Mention people and real life incidents. Readers love to read human interest stories and it also authenticates your story.
10. To support your idea, you may use quotes. But do ensure that proper permission is taken before you do so.
11. Inverse pyramid style works. Give the most important information in the first paragraph. Elaborate later but don't forget to reinstate the main point in the last paragraph again.
12. Use active voice and strong verbs to make your story sound important and immediate.
13. Do not use unnecessary words. Make sure that every word counts. Reread the story after you have written it, and delete the unnecessary words. Be as precise as possible.
14. Write in third person. Avoid superlatives and exclamation points. They'll make your story less credible.
15. Keep the paragraphs short and provide ample space between them. This helps online readability and keeps the readers' attention.
16. Keep the headlines short. If you want to put more information into the headline, use a sub heading.
17. Most websites demand a small introduction to your story. Keep it four sentences or less, and these lines may help you get a reader or get him off the site. So make sure you use the right words to intrigue the reader, but don't give away the story.
18. Take necessary steps to eliminate mistakes. Check and cross check your story before uploading it on the site. Write out the story on a word document first to eliminate any typing errors. Even a wrong spelling will make you lose your credibility.

19. Let someone else read it once. A fresh perspective helps catch mistakes, and also to ensure that the story makes sense.
20. And, authenticity is definitely the end word for this version of journalism also. Put maximum emphasis upon it as there is an impression that online version of journalism may contain un-authentic information.



LET US KNOW

BLOG: A blog is the short form for "weblog", a term used to describe a website which chronicles on-going information about a person. A blog is frequently updated by information on day-to-day happenings or whatever interests the writer of the blog. They are mostly personal diaries maintained by individuals or a group of individuals who wish to express their opinion about a wide range of subjects. A blog will contain text, pictures, videos and links to other sites as well.

Blogs are like personal diaries, but the diary keeper here is interested in letting his thoughts known to others. Many individuals have started blogging nowadays, and it has become a potent means of expressing one's opinion. And, in some cases these personal opinions may not be correct in the wider context. But there is no way to stop people to write on their blogs, although several litigations have been filed by people against blog writers.

Nowadays, most celebrities in India maintain their personal blogs. Amitabh Bachchan and Aamir Khan are two such stars. Their blogs are very popular and manage to attract a lot of readership.

Its biggest advantage is that anyone interested in it can start a blog and spread his or her views and ideas across the world stage.



CHECK YOUR PROGRESS

Q.5: What is the importance of keywords in writing for the web?

Q.6: Why is it necessary to keep paragraphs short and put in ample space between paragraphs?

Q.7: Write true or false:

a. Inverse pyramid style is best suited for web writing. (T/F)

b. Use passive voice and weak verbs to make your story sound important and immediate. (T/F)

c. Keep the headlines short. (T/F)



ACTIVITY 6.1

1. Visit a newspaper office and talk to an online writer. Find out the difference in writing for the print medium and online medium.
2. Check the search engines like Google and Yahoo for information on 'online journalism'. Try putting in different keywords and read the stories which appear on the first page of the search engine. See how the writer has used the keywords in the story.
3. Read the web versions of the Times of India or the Hindustan Times and find out one story which has been carried in both the website and the e-paper. Now spot the difference in the style of writing.



6.6 LET US SUM UP

- Online newspapers are newspapers that are present only on the World Wide Web.
- Online newspapers are basically of three types.
- News websites which only have stories taken from the printed edition is one type of online newspaper. Eg: The Assam Tribune.
- Some newspaper publications have two online versions – one is the e-paper which is the exact replica of a particular day's edition, the other is the formal website which has up-to-date news being uploaded round the clock. Most major newspapers have both the versions available online. Eg: Times of India, Hindustan Times.
- The concept of online newspapers is a relatively new concept. The first online newspaper was the Columbus Dispatch, the online version of which was launched on July 1, 1980.
- It was followed by ten other newspapers, which went online with the help of the CompuServe Information Service.
- Although the system of going online started in the 1980s, it was only in the '90s that the trend caught on.
- The '90s saw several newspapers around the world going online. And, as the 21st century approached, every small and big organisation started creating web pages and uploading them. Newspaper publishers were not behind either.
- But around the turn of the century, fears about the ripple effect arose, and everyone started dreading the new millennium expecting a total crash of computer systems all over the world. But nothing of that sort happened.
- The online bug caught many other publications and news websites became the most popular sites on the web. So much so that, traditional newspapers were in danger of being wiped out.
- Newspaper publishers realised that it would be foolish to fight with the online genre and decided to use this domain to promote their

supposedly dying print editions. Newspapers, therefore, have gradually assimilated the Internet editions into their functioning and have tried to make use of its influence and popularity to further their cause.

- As more and more traditional newspapers have launched their online editions, there has been an obvious impact on the workings of the print version. To keep up with the popularity of their online versions, traditional newspapers have had to introduce newer ways to keep their loyal readers and to attract new readers.
- Newspaper editors have realised that they can hardly break any news any longer. Their online competitors have the right platform to upload breaking news as and when they happen. So, newspapers now resort to doing follow-up stories of major news. Stories which are more detailed are well researched. They go beyond the news itself to provide more information about the same.
- Even the presentation matters a lot. Most of the stories are already out, so the editors need to find a new angle to the story.
- Newspapers now focus on one particular issue and try to make a total package story with expert comments, background information, past instances etc. They concentrate on a well-rounded feature story so that readers get something new to read.
- Online editions provide the reader with an opportunity to interact with the editors of the print edition.
- Newspaper writers need to have computer skills and, they also need to know the basics about writing for the web.
- Online writing demands a unique skill and one should be prepared to counter the skill before plunging into this domain.
- Keywords, hyperlinks, proper headlines are the things one should focus on while writing for the web.
- Blogging is one of the most recent forms of online writing. Common people, celebrities and even journalists have become prone to blogging on their own websites.
- Blogging allows one to express oneself freely.



6.7 FURTHER READING

1. **Digital Media, Building the Global Audience** – *T K Ganesh (Gnosis Publishers, New Delhi)*.
2. **Impact of Internet on Journalism** – *Arun Bhatia (Akansha Publishing House, New Delhi)*.
3. **Net, Media and Mass Communication** – *Jagadish Chakraborty (Authors Press, New Delhi).*



6.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1: An online newspaper is a newspaper that exists on the World Wide Web. It can be the exact replica of the newspaper's printed version, or it can be a separate entity on its own.

Ans. to Q.No.2: The different types of online newspaper are:

a. Online newspapers having dual presence on the World Wide Web.
b. Online newspapers having single presence on the web.
c. Online only newspaper

Ans. to Q.No.3: CompuServe.

Ans. to Q.No.4: Florida University

Ans. to Q.No.5: Online readers have low attention span, and tend to scan more and read less. And then there are the other readers who access stories through search engines. So, you have to use appropriate keywords to attract this section of readers.

Ans. to Q.No.6: It is necessary to keep the paragraphs short and provide ample space between them as this helps online readability, and keeps the readers' attention.

Ans. to Q.No.7: a. True, b. False, c. True



6.9 MODEL QUESTIONS

A. Very Short Questions.

Q.1: What is an online newspaper ?

Q.2 : What is a blog ?

B. Short Questions (Answer each question in about 150 words)

Q.1: Why have online newspapers become so popular? Discuss in detail.

Q.2: How is online writing different from traditional reporting?

Q.3: Why are 'keywords' such an important aspect of online writing?

C. Long Questions (Answer each question in about 300-500 words)

Q.1: Discuss the impact of online newspapers on traditional newspapers.

Q.2: Discuss how online journalism has brought in a revolutionary change in the world of news presentation in the modern day world.

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UNIT-7: USING COMPUTERS : ESSENTIAL CONCEPTS

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Concept of Computers

7.4 Generations of Computers

7.5 Organisation of a Computer

7.6 Different Types of Computers

7.7 Port

7.8 File Management

7.9 Application of Computers

7.10 Advantages and Disadvantages of Computers

7.11 Let Us Sum Up

7.12 Further Reading

7.13 Answers To Check Your Progress

7.14 Model Questions

7.1 LEARNING OBJECTIVES

After going through this unit you will be able to :

- explain what is a computer
- discuss about the generations of computers
- describe the organisation of computer
- elaborate on the different types of computers
- explain what is a port
- discuss the concept of file management
- identify the areas of application of computers
- discuss the advantages and disadvantages of computer.

7.2 INTRODUCTION

Computer is the most powerful tool man has ever created. Computers have made a great impact on our everyday life. Today, computer

technology has permeated every sphere of existence of modern human being. With the growing information needs computer has become one of the vital components for the survival of all organizations. Their presence is felt in almost every working place from the bus and railway ticket reservation counter to satellite launching, from retail stores to medical diagnosis and from home use to research and design organization - everywhere, we witness the elegance, sophistication and efficiency which is possible only with the help of computers.

In this unit, we will introduce you to the computer fundamentals including its various components and functionality. In this unit, we shall discuss the characteristics of computers including its evolution and generations. We will also discuss the categories of computers along with its application in the various fields of the modern world.

7.3 CONCEPT OF COMPUTER

In ancient times people used fingers and pebbles for computing purposes. With the development of civilization, the computing needs also grew and the need to perform lengthy calculations led to the invention of some mechanisms and devices, first a calculator and then a computer.

The term ***computer*** is derived from the word ***compute***, which means ***to calculate.*** In the simplest form a computer can be defined as a ***programmable machine***. In a more formal way it can be defined as an ***Electronic machine*** capable of performing calculations and other manipulations of various types of data, under the control of a stored set of instructions. The machine itself is the **hardware**; the instructions are the program or **software**.

We can also define ***computer*** as an electronic device that operates under the control of a set of instructions that is stored in its memory unit. A computer accepts data from an input device and processes it into useful information which it displays on its output devices. Actually, a computer is a collection of hardware and software components that help you accomplish many different tasks. ***Hardware*** consists of the computer itself, and any

equipment connected to it. ***Software*** is the set of instructions that the computer follows in performing a task.

Most of today's computer designs are based on the concepts developed by John Von Neumann refered to as the *"Von Neumann architecture"*. Von Neumann proposed that there should be a unit performing arithmetic and logical operations on the data. This unit is termed as *Arithmetic Logic Unit (ALU)*. A control unit directs the ALU to perform specific arithmetic and logical functions on the data. Therefore, in such a system, by changing the control signal, the desired operation can be performed on data.

The Arithmetic Logic Unit(ALU) and Control Unit(CU) together are termed as the Central Processing Unit(CPU). The CPU is the most important component of a computer's hardware. The ALU performs the arithmetic operations such as addition, subtraction,multiplication and division, and the logical operations such as, >, <, >=. <= etc. The control unit interprets instructions and produces the respective control signals.

Computers are becoming a part of our daily life because of the following reasons:

1. A computer offers unmatched speed, performing computations faster than humans.
2. Computers undertake boring and difficult tasks.
3. Computers perform tasks repeatedly without errors, thereby avoiding fatigue that affects humans.
4. Computers can do critical and dangerous tasks that may be hazardous to humans.
5. Computers provide information which can be used in decision – making.
6. Computers offer services in medicine and science that previously did not exist.
7. Computers are an exciting entertainment medium, as well as educational tool.
8. Computers allow society to undertake activities in many fields and to functions more efficiently.

9. Computers can work in engineering fields where humans find difficulty and risk to life in performing certain activities .e.g. painting, robotics, welding robotics can be used in areas where human access is impossible (to perform in certain intricate places).

In short, computers allow people to become more productive whether used at the office or in homes. They offer features that just ten years ago were unheard of it. Computer technology developed in America has spread through out the world. Leaders in government and industry must master this technology to make sure the organizations are equipped to operate with the computers. Computer system today offer reliability, considering the stressful conditions in which they are used.

7.4 GENERATIONS OF COMPUTERS

We have already discussed about the evolution of computers in the previous block of this course. Now, evolution of modern computer is commonly considered in terms of generation of computers also. So let us discuss about the generation of computers.

First Generation (1940-1956): Vacuum Tubes

The computers of this generation were made of vacuum tubes for circuitry and magnetic drums for memory. This made computers bulky and heavy. Punched cards were used to feed the information. Magnetic tapes were used as external storage devices. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat and occupied a large amount of space. These machines used machine and assembly level language.

The UNIVAC (Universal Automatic Computer) and ENIAC computers are examples of first generation computing devices.

In 1951,the UNIVAC (Universal Automatic Computer) was introduced and became the first commercially available computer, with vacuum tubes, which was big and bulky, generated much heat and required air-conditioned rooms.

Second Generation (1956-1963): Transistors

The computers of this generation were made up of transistors replacing vacuum tubes. They were small in size so the machines occupied a less amount of space. The use of transistors made the computers work faster. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, and more energy-efficient and is more reliable than their first generation predecessors. Though the transistors still generated a great deal of heat that subjected the computers to damage, it was a vast improvement over the vacuum tube. Transistors are made from materials called semi-conductors principally silicon (sand and rock) and germanium.

Second generation computers still relied on punched cards for input and printouts for output. The development of high-level languages like FORTRAN, COBOL and BASIC was possible.

Third Generation (1965-1971): Integrated Circuits

In the mid 1960's, the third generation of computers arrived and made the computer a major business tool. These were made up of IC (Integrated Circuits). Integrated circuit means incorporation of hundreds of transistors on a single silicon chip. The ICs had greater input-output capabilities and vast internal storage and operated in a billionth of a second. The third generation computers were still smaller than the computers of second generation. Heat generated was also less and occupied less space.

Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different application at one time with a central program that monitored the memory. Computers for the first time became accessible to mass audiences because they wee smaller and cheaper than their predecessors.

Fourth Generation (1971 onwards): Microprocessors

The computers of this generation saw the advent of Large Scale Integration (LSI) and Very Large Scale Integration(VLSI), which incorporated several thousand transistor in a single chip.

ICs with the equivalent of more than 100 components are called LSI and those with more than 1000 components are called VLSI. The main characteristics of the fourth generation computers is the evolution of the use of Microprocessors. Microprocessors had thousands of integrated circuits which were built into a single silicon chip. The computers using these chips are called microcomputers which are known as "Personal Computer" (PCs).

The Intel 4004 chip, developed in 1971, located all the components of the computer, from the central processing unit and memory to input/ output controls-on a single chip.

Fifth Generation Computers

At present we are in fourth generation. The fifth generation computers are in developmental stage.



CHECK YOUR PROGRESS

Q.1: What do you mean by computer?

Q.2: State True or false:

a) A computer offers unmatched speed, performing computations faster than humans. (True/False)

b) A computer system includes hardware, peripheral devices and software. (True/ False)

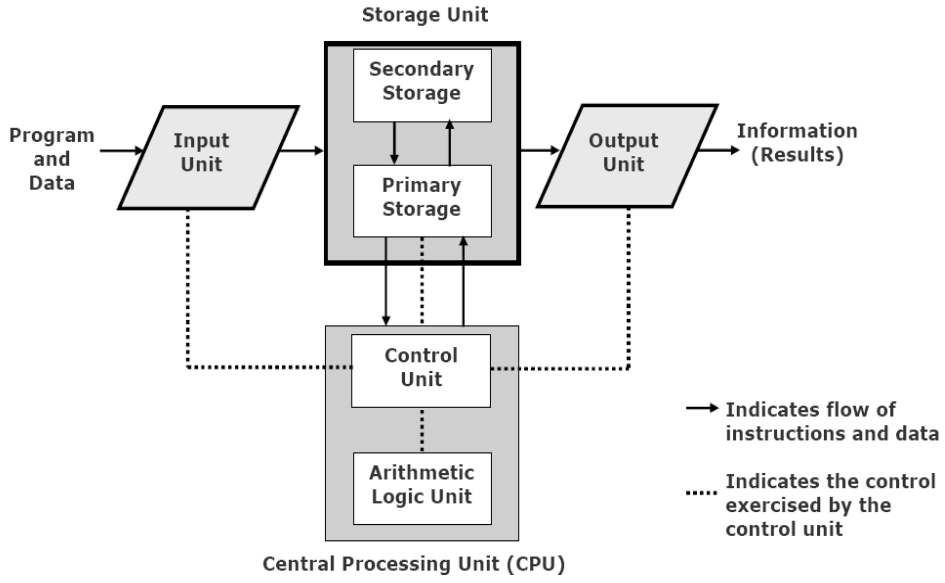
c) Output device is a peripheral device that displays, prints or transfers the results of processing from the computer memory. (True/False)

d) The word computer is derived from the word 'compute', which means to calculate. (True/False)

Q.3: What are the different generations of computer?

7.5 ORGANISATION OF A COMPUTER

A computer is a fast and accurate device, which can accept data, store data, process them and give desired results as output. The computer is organized into four units as shown in the following diagram:



A) Input Unit

The input to the human brain is through devices like the eyes, ears and /or nose. Similarly, input to the computer is through certain devices like a Keyboard, light pen and mouse. These devices which aid in the input of data and instructions into the computer are called input devices.

Function of Input Devices:

The input device helps us to communicate with the electronic computer by converting the human understandable signals and numbers into appropriate electronic /electric signals.

Examples of Input Devices:

Keyboard, Mouse, Lightpen, Touch Screen, Joystick, Scanners, Optical Character Readers (OCR), Magnetic Ink Character Reader (MICR), Mark sense Reader (MSR), Optical Mark Reader (OMR), Bar Code Reader.

B) Output Unit

Human beings communicate with each other by talking, writing or making actions. The computer communicates through devices like monitor (VDU-Visual Display unit) and Printers. These devices which aid in the communication of data and information from machine to man are called output devices.

Function of Output Devices

The output devices help the computer to communicate with us by converting the electric signals to human understandable signals.

Examples of Output Devices

Visual Display Unit (VDU), Printers and Plotters

The output on the VDU is called Soft copy. Output on paper, which is produced by printers and plotters, is referred to as hard copy output.

C) Central Processing Unit

The Central Processing Unit (CPU) is the heart of the computer combined with the processing system of a computer. The CPU of a modern computer is fully electronic i.e. it does not contain any moving parts. It is made up of millions of electronic components attached on to a number of silicon chips. These chips are all assembled on a Printed Circuit Board called the Mother Board.

The CPU carries out actions with help of Arithmetic-Logic Unit (ALU). This is done following a detailed set of instructions written in the main memory. It also uses the main memory for temporary storage of information. The CPU instructs various parts called device controllers to transfer data between secondary memory and the main memory. The CPU accepts the data from the input unit, process it and gives the result output to the output device. The data/result can be stored for the use by storing it in the secondary memory. The total operations of the computer are synchronized and combined by the CPU.

The processing capacity of a computer is measured in terms of the amount of data processed by the CPU in one operation .The CPU has three important sub-units.

1. Arithmetic-Logic Unit (ALU):

The ALU is an electronic circuit used to carry out the arithmetic operations like addition, substraction, multiplication and division. This unit carries out logical operation like greater than, less than, equal to etc. It performs the operation on the data provided by the input devices .A comparison operation allows a program to make decision based on its data input and results of the previous calculations. Logical operations can be used to determine whether a particular statement is TRUE or FALSE.

The ALU operates on data available in the main memory and sends them back after processing again to main memory.

2. Control unit:

The control unit coordinates the activities of all the other units in the system. Its main functions are to control the transfer of data and information between various units and to initiate appropriate actions by the Arithmetic-Logic unit. Conceptually, the control unit fetches instructions from the memory, decodes them to various units to perform the specified task.

3. Memory Unit:

The main memory is also called primary memory. It is used to store data temporarily. Although, the CPU is the brain behind all the operations in the computer, it needs to be supplied with the data to be processed and the instructions to tell it what to do. Once the CPU has carried out an instruction, it needs the result to be stored. This storage space is provided by the computer's memory. Data provided by the input device, and the result of that processed data is also stored in the memory unit. This main memory is like a scratch pad. The storage capacity of the memory is generally measured in megabytes.

8 bits	=	1 byte
1024 bytes	=	1 Kilobyte (KB)
1024 Kilobytes	=	1 Megabyte (MB)
1024 Megabytes	=	1 Gigabyte (GB)

Different kinds of primary memory are Random Access Memory (RAM) and Read Only Memory (ROM). We can read and write data in RAM

but the data is volatile or temporary, that is whenever the power is switched off, the contents of RAM are lost, so it is required to store the data in the secondary memory if the data is required for the future use. We can only read the data from ROM and we cannot write anything into it and the data is permanent.

D) Secondary Memory

The computer is provided with secondary storage devices. This is the permanent memory. The data, instructions and information stored in it are permanent. But we can delete them if we want to. There are different kinds of secondary storage devices available.

Examples:

Floppy disks : 1) to store files and retrieve files
2) Generally floppy disk is 3.5 inch floppy disk, which has the capacity of 1.44 MB

Hard disk: 1) to store files and retrieve files
2) These have the capacities in 40 Giga Bytes (GB), 80 GB etc.

Optical disks : 1) popularly known as compact disk (CD)
2) Different capacities are available; they are 650 MB, 700 MB etc. different forms of CDs are available. They are basically:

CD–ROM: Compact Disk Read Only Memory. On these the data is already recorded and we can view its contents when opened on the computer. But the contents cannot be erased or altered and no new content can be added to it.

CD-R: Compact Disk Recordable, in this the data can be written only once.

CD-RW: Compact Disk Rewritable. In this new data can be added several times. Also data can be erased from this disk.

DVD: Typically may contain at least 4.4 GB of data, nearly 7 times the amount of a CD-ROM. DVD capacities are given in decimal units. A “4.7 GB” DVD has a nominal capacity of about 4.38 GiB.

USB Flash Drive/Pen Drive :

1) A USB flash drive is a memory data storage device integrated with a USB (Universal Serial Bus) inter face. USB flash drives are typically removable and rewritable, much smaller than a floppy disk, and most weigh less than an ounce (30 g).
2) Storage capacities can range from 64 MB to 256 GB with steady improvements in size and price per capacity. Some allow 1 million write or erase cycles and have 10-year data retention.

7.6 DIFFERENT TYPES OF COMPUTERS

Computers can be classified in many different ways. Some of them are as follows.

BASED ON PURPOSE AND USE

1) **General Purpose Computers:** General purpose computers can store large amounts of data and the programs necessary to process them. Digital computers work in highly specialized fields and perform complex mathematical formulae. Most business use them as they are versatile.
2) **Special-Purpose Computers:** A computer that is designed to perform a specialized task. The instructions to perform this task are permanently stored in the computer, e.g., cash register, STD billing machines etc.

   Special purpose computers have many features of general purpose computers, but perform highly specialized data processing tasks.

BASED ON TECHNOLOGY/ DESIGN

1) **Analog Computers:** A computer which measures continuously changing conditions, such as temperature and pressure, and converts them into quantities. These computers are used in scientific and engineering fields.
2) **Digital Computers;** A computer which measures digital data and performs arithmetic and logical operations on such data. These are most popularly used computers.

3) **Hybrid Computers:** They combine the best features of analog and digital and have the speed of both. They are used for special problems in which the input data, a form of measurement is converted into digits and processed by computers e.g. central national defense and passenger flight use hybrid computers. In Computer Assisted Manufacturing (CAM), etc., the hybrid computers can control robots on the production line.

BASED ON MEMORY (PHYSICAL SIZE)

1) **Personal Computers (Microcomputers):** A computer is the smallest general purpose processing system. Functionally it is similar to any other large system. Microcomputers are self-contained units and usually designed for use by one person at a time.
2) **Minicomputers:** A minicomputer is medium sized computer that is more powerful than a micro computer. An important distinction between a microcomputer and a minicomputer is that a minicomputer is usually used to serve multiple users simultaneously.
3) **Mainframe Computer:** Computers with large storage capacities and very high speed of processing are known as mainframes. They support a large number of terminals for simultaneous uses by a number of users.
4) **Super computers:** These have extremely large storage area and computing speeds, which are many times faster than earlier discussed machines. While the speed of earlier discussed computers are measured in terms of million instructions per second, in super computers speed is measured as tens of millions of operation per second, an operation is made of many instructions. These have more than one processor in it and the processing is carried out in applications which include large scale numerical problems in scientific and engineering disciplines like weather forecasting, atomic research, space research etc.
5) **Laptop/Note Book Computer:** These are the computers, which are small in size and weight few Kgs. These computers can be carried from one place to another easily. The people who are always on the

move mostly use this. This has all the capabilities of a personal Computer. It has a LCD screen and has rechargeable batteries. Now we can even get computers which can be placed on our palm hence the name “Palm Top Computer”.

7.7 PORT

A **port** is a connector (or socket) which is used to connect the processor to the peripheral device. Any part of the computer’s circuitry that the processor needs to talk to, is given a port number, and the processor uses that number like a telephone number to call up the required part. Two types of ports are:

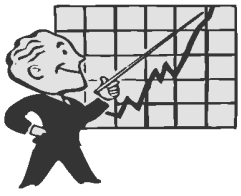
a) Parallel port and b) Serial port.

Data can be sent either one bit at a time or several bits at a time. When data is transferred one bit at a time using one data line, the data transfer is said to be **serial**. When data is transferred several bits at a time ,using many data lines(usually 9), the data transfer is said to be **parallel.**

Serial data transmission is usually chosen for long distance data communication and microcomputers will have at least one serial port based on the standard connector, RS-232C. A serial port is used to connect to either a telephone line (through a modem) or to a printer or the mouse.

Parallel data transmission is faster, as many data lines are used, many characters can be transfer at a time. Most microcomputer will have at least one parallel port. A parallel port is designed specially to work with a printer.

The parallel port is specialized for controlling but a serial port is more generalized and it can be used for a variety of purposes (the mouse and telephone being the most common things to be connected to it).



CHECK YOUR PROGRESS

Q.4: Computers are organized in four units, they are:

a) _____

b) _____

c) _____

d) _____

Q.5: What are the different types of computer?

Q.6: What do you mean by Port.

7.8 FILE MANAGEMENT

A **filename** is a unique set of letters and numbers that identifies a file and usually describes the file contents. Files are stored in clusters. A cluster is a group of sectors and is the smallest storage unit the computer can access. The number of sectors that form a cluster depends on the type of computer. IBM- compatible computers form a cluster from two sectors. Each cluster is numbered and the operating system maintains a list of which sectors correspond to each cluster.

A file is defined as a named collection of program instructions or data that exists on a storage medium such as a hard disk, a floppy disk, or a CD-ROM. There are several kinds of files. For example, data file, and program file which includes executable files, source files and batch file.

Data file: A data file contains words, numbers and pictures that we view, edit, save and print. Typically we create data files when we use application software. For example, we create a data file when we store a document we have written using word processing software or when we store a picture we have drawn using graphic software.

We probably won't create all the data files we use: we might receive data files as part of a software package we purchase. For example, word processing software often includes a dictionary data file that contains a list of words the software uses to check spellings.

Executable Files: An executable file contains the instruction that tells the computer how to perform a specific task. For example, the word processing program that tells our computer how to display and print text, is stored on the disk as an executable file. Other executable files on our computer system include the operating system, utilities and programs for application software.

The programs we run are one type of executable file. Our computer also has executable files that are executed at the request of a computer program, not the user. For example, a word processing program might request that the computer use an executable file called GRAMMAR.DLL to check the grammar in a document.

Source Files: A source file contains instructions that a computer user can understand and that must be translated before a computer can execute them. A computer user can request that a specific source file be run. The computer does the translation, so it seems as if the source program is being executed just like an executable file. But this is not the case; behind the scenes, a translator program is busy converting the source program into commands the computer can execute.

A valid file-name is created by following specific rules. The rules for creating a valid filename are referred to as file naming conventions. Each operating system has a unique set of file naming conventions. A filename usually has two parts: the fileneme itself and the file name extension. The extension is separated from the file name with a period, called a dot.

7.9 APPLICATION OF COMPUTERS

Computers have a very big impact on our day-to-day life. They can be used for a number of application like Business, Education, Research, Office, Accounting, Military, space, Entertainment, Medical etc. We can use it for any of the applications. Computers are becoming an integral part of our life, which enhances our efficiency and productivity. In this competitive world the usage of computer to carry out day-to-day work will give us an edge over the others.

Following are the broad application areas where computers are used extensively:

1. **Entertainment**: It can be used to make cartoon movies, animation and special effects in movies, games etc.
2. **Day-to-day life**: It can be used in institutions like colleges, Hospitals, Railways and Airline Booking System, Shops, Banks etc. to carry out day-to-day work. For example train ticket bookings can be done with the help of computers. If we want to book a ticket to a particular destination instead of a human being searching for the availability of the tickets in books or by calling a respective station, the computer can do that job as computers of different stations are connected in a network.

   Most of the jobs which human beings do using paper, are done by the computer without the use of computer. For example, when a sale bill is made in shop the entry is made in the computerised Ledger, cash/ Bank book, stock etc automatically.
3. **Communication:** Now-a-days internet is becoming an integral part of life to gather information about different topics or to send and receive e-mails etc.
4. **Science:** It can be used for research purpose, space programs, nuclear programs etc.

7.10 ADVANTAGES AND DISADVANTAGES OF COMPUTERS

Advantages of computer: The following are some of the advantages of computer:

1. **Speed:** Computers carry out the jobs in microseconds or even lesser time. The human beings cannot think of doing the jobs with such speed. Few lakh calculations can be done in a second.
2. **Accuracy:** While doing a job human being may commit mistakes whereas if the data given to the computer is correct then the computer does the job without any mistakes.

3. **Efficiency:** Unlike human beings efficiency is very high in computers. As it is a machine it does not get tired or bored of doing a job. It can do the same job repeatedly any number of times without any mistakes and with the same amount of time. Each time the job is repeated with same kind of result. For example if letters to parents of all the students are to be printed then it will do the job monotonously.
4. **Storage:** A computer has a memory in which the data can be stored for future use. For example, the details of the students, customers, suppliers etc. can be stored in the computers to be used whenever it is required. A letter can be stored so that the same letter can be used in the later date. Retyping of that letter need not be done unlike in the case of type writer. Any number of copies of that letter can also be produced.

Disadvantages of Computer: The following are the disadvantages of computer:

1. Computers cannot think by themselves and they require human direction to perform specific task.
2. If the data given is wrong then it gives the wrong result. For example if we want to add two numbers 400 and 300 say, (here 400 and 300 are data) instead of typing 400 and 300 if we give the data as 400 and 350 then the result what we get will be wrong.
3. Instructions given also should be correct, that is instead of addition if we ask it to multiply it will multiply.
4. It will not work without electricity.
5. Investment and maintenance in this equipment is also required.



CHECK YOUR PROGRESS

Q.7: What do you mean by file?

Q.8. What are the different kinds of files?

Q.9. What are the application areas where computers are used extensively?



7.11 LET US SUM UP

- Computer is an electronic device that is used to perform diverse operations with the help of instructions to process the data in order to produce desired results.
- Speed ,accuracy, reliability, versatility, diligence, lack of intelligence are the characteristics of computers.
- Computer development is divided into five generations.
- The first generation of computers used **vacuum tubes** for circuitry and **magnetic drums** for memory, and were often enormous, taking up entire rooms.
- In the second generation of computers, **transistors** replaced vacuum tubes.
- The **integrated circuits** were used in the third generation of computers.
- The fourth generation of computers are based on **microprocessors.** Fifth generation computers are based on ***artificial intelligence.***
- A file name is a unique set of letters and numbers that identifies a file and usually describes the file contents. File management implies the combination of file-naming conventions and storage of files.
- Computers have application in all walks of life that is in Business, Education, Research, Science, Entertainment etc.



7.12 FURTHER READING

1. Computer Application in Management, Sanjay Saxena & P. Chopra
2. Computer Applications in Business, R. Parameswaram
3. Computer Fundamentals, V. Rajaraman



7.13 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1: Computer are defined as an electronic machine that is designed to accept data and instructions, store the data and instructions, process the data according to the instruction to produce desired results.

Ans. to Q.No.2:

a) True b) True c) True d) True

Ans. to Q.No.3:

a) First Generation (1940-1956): Vacuum Tubes

b) Second Generation (1956-963): Transistors

c) Third Generation (1965-1971): Integrated Circuits

d) Fourth Generation (1971 onwards): Microprocessors

e) Fifth Generation Computers

Ans. to Q.No.4:

a) Input Unit

b) Output Unit

c) Central Processing Unit

d) Secondary Memory

Ans. to Q.No.5:

a) Analog Computers

b) Digital Computers

c) Hybrid Computers

d) Special Purpose Computers

e) General purpose Computers

Ans. to Q.No.6: A port is a connector (or socket) which is used to connect the processor to the peripheral device.

Ans. to Q.No.7: A file is defined as named collection of program instructions or data that exists on a storage medium such as a hard disk, a floppy disk, or a CD-ROM.

Ans. to Q.No.8:

a) Data file

b) Executable Files

c) Source Files

Ans. to Q.No.9:

a) Entertainment

b) Day-to-day life

c) Scientist

d) Communication



7.14 MODEL QUESTIONS

A. Very Short Questions

Q.1 : What is the most important component of a computer's hardware ?

Q.2 : Give some examples of first generation computing devices.

B. Short Questions (Answer each question within 150 words)

Q.1: What is a computer? What is the difference between a computer and a computer system?

Q.2: Explain different generations of computers

C. Long Questions (Answer each question within 300-500 words)

Q.1: Explain the organization of the computers with a block diagram.

Q.2: Discuss the application areas of computers

Q.3: Discuss the advantages and disadvantages of computers.

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UNIT-8 : SOFTWARE AND MULTIMEDIA APPLICATIONS

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Computer Software Basics

8.4 System Software

- 8.4.1 Operating System
- 8.4.2 Utilities Software
- 8.4.3 Device Drive Software
- 8.4.4 Programming Language

8.5 Application Software

- 8.5.1 Productivity Software
- 8.5.2 Education Software
- 8.5.3 Entertainment Software
- 8.5.4 Business Software

8.6 Integrated Software

8.7 Multimedia Computing

8.8 Legal Restrictions on Software

8.9 Let Us Sum Up

8.10 Further Reading

8.11 Answers to Check Your Progress

8.12 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss computer software
- define system software and application software
- differentiate between system software and application aoftware
- explain different types of system software and application software
- define Multimedia Computing
- outline Software licenses and copyright agreements

8.2 INTRODUCTION

In this unit we are going to discuss about computer software and its applications.The computer is the most successful and versatile machine in history. A computer's versatility is possible because of software. The software is an interpreter which translates the user's command into the understandable machine language codes which can be executed by the central processing unit. There are two major categories of software. They are system software and application software. **System Software** helps the computer to carry out its basic operating tasks. **Application Software** helps the human user to carry out a task. System software and application software are further divided into sub categories. We will discuss how a computer uses software and the difference between system software and application software.

The term multimedia isn't really anything new. It refers to the integrated use of multiple media, such as slides, video tapes, audio tapes, records, CD-ROMs, and photos. Computer technology is replacing or controlling many of the technologies and media that were previously used for multimedia presentations. Advances in computer technology have made it possible to combine text, photo images, speech, music, animated sequences, and video into a single interactive computer presentation. To display realistic graphic and video, your computer system must have a high resolution monitor and a CD-ROM drive.

8.3 COMPUTER SOFTWARE BASICS

Computer software determines what a computer can do; and in a sense, it transforms a computer from one kind of machine to another, from a drafting station to a type setting machine, from a flight simulator to a calculator, from a filing system to a music radio and so on.The distinction between software, programs and data is important.

COMPUTER PROGRAM

A computer program is a set of detailed, step by step instructions that tell a computer how to solve a problem or carry out a task. The steps in a computer

program are written in a language that a computer can interpret or understand. At one time, computer users had to invest the time and expense of writing many of their own programs. Today, people rarely write programs for their personal computers, preferring to select from thousands of commercially written programs.

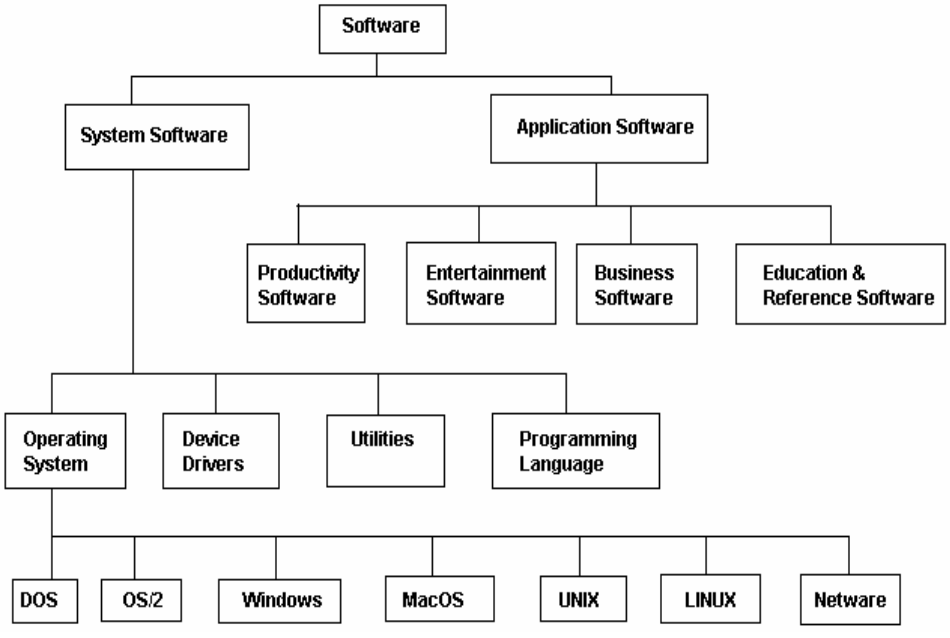
DATA

Data are the words, numbers and graphics that describe people, events, things, and ideas. Data can be included in the software, like the data for a dictionary in a word processing program, and you can create data such as numbers you provide for a graph.

SOFTWARE

We define Software as instructions and associated data, stored in electronic format, that direct the computer to accomplish a task. Under this definition, computer software may include more than one computer program, if these programs work together to carryout a task. Also under this definition, software can include data, but data alone is not a software. For example, word processing software might include the data for a dictionary, but the data you create using a word processor is not referred to as software.

Two major categories of software : System Software and Application Software with their strategies are displayed in the following figure :



8.4 SYSTEM SOFTWARE

These are software designed for the satisfactory operation of the system. The major categories of system software are :

(1) Operating System;

(2) Utilities Software;

(3) Device Drive Software;

(4) Programming Language.

8.4.1 OPERATING SYSTEM

An Operating System (OS) is the software that controls the computer's use of its hardware resources such as memory and disk storage space. An operating system works like an air traffic controller to coordinate the activities within the computer. Just as an airport cannot function without air traffic controllers, a computer cannot function without an operating system.

The operating system works as a liaison between the computer hardware and application software. An operation system helps you start an application, then it works "behind the Scene" while the application software is running to perform tasks essential to the efficient functioning of the computer system.

FUNCTIONS OF OPERATING SYSTEM

The functions of the Operating System are as follows :

- To control input/output operations i.e. use of keyboard, display screen and printer so that people can easily enter data and receive output.
- To control movement of data in the primary storage.
- To locate and load programs from secondary storage.
- To manage a large task in a smaller primary memory by using the technique of virtual memory.
- Management of Input/Output devices.
- Management of CPU time in (1) Multitasking (2) Multiprogramming and (3) Multiprocessing.

- Management of memory.

SOME POPULAR OPERATING SYSTEM

The names of the most popular micro computer operating system are DOS, Microsoft Windows, OS/2, MacOS, UNIX, VMS and MVS. Operating systems for micro, mini and mainframe computers perform many similar tasks. Many microcomputer users can recognize an operating system by looking at the first screen that appears when they turn the computer on or by recognising the operating system prompt.

DOS : DOS which stands for Disk Operating System, is marketed under the trade names PC-DOS and MS-DOS. Both PC-DOS and MS-DOS were developed primarily by Microsoft Corporation and are essentially the same operating system. Microsoft corporation stopped upgradation of DOS in 2001.

Windows : Microsoft took a more graphical approach to operating systems when it designed windows. Different versions of windows such as Windows 3.1, Windows 95, Window 98, etc. are developed. But most sophisticated and develop one is Windows XP and Windows Vista which is the latest version of Microsoft Corporation. MS-Windows provide icons that you can directly manipulate on the screen using a positive device, and menus you can use to issue commands. The application you use with Windows all have a consistent look, so it is easy to learn how to use new software. Windows also lets you run more than one program at a time in separate Windows on the screen and lets you easily transfer data between them. In addition to programs designed especially for Windows, the operating system also runs softwares designed for Windows and DOS.

Windows NT : The network version of the Windows operating system is Windows NT. With Windows NT you can connect your computer to other computers to share software programs and data.

OS/2 : OS/2 was designed jointly by Microsoft and IBM. If your computer uses OS/2, you can use most DOS and Windows

software, as well as software designed specifically for OS/2.

UNIX : UNIX is an operating system that was developed by AT & T's Bell Laboratories in 1969 and is now used as one the foundation technologies on the information superhighway. UNIX was originally designated for minicomputers, but is now available for microcomputer and mainframe. Many versions of UNIX exist, such as AIX from IBM, XENIX from Microsoft, and ULTRIX from Digital Equipment Corporation.

8.4.2 UTILITIES SOFTWARE

Utilities are system software designed to augment the basic capabilities of your computer's operating system. Utilities provide computers with a way to control two allocations and use of hardware resources. Some utilities that are included with the operating system pertain to tasks such as preparing disks to hold data, providing information about the files on a disk, and copying data from one disk to another. Additional utilities can be purchased separately from software publishers and vendors. For example, Norton Utilities, published by Symantec; is a very popular collection of utilities software. Norton Utilities can retrieve data from damaged disks, make your data more secure by exempting it and help troubleshoot problems with your computer's disk drives.

8.4.3 DEVICE DRIVERS

Device Drivers are system software that helps the computer control a peripheral device. When you purchase a new peripheral device, the installation instruction that come with the device usually tell you how to install both the device (hardware) and necessary device drivers (software). In order for your computer to use a device driver, you must install it according to the instructions. Once the device driver is installed correctly, the computer uses it to communicate with the device.

8.4.4 PROGRAMMING LANGUAGE

Programming language is a system of communication in the software technology. As such all the types of programming languages such as machine language, assembly language and procedure and object oriented language – high level languages are considered to be system software.



CHECK YOUR PROGRESS

Q.1: Fill in the blanks with appropriate words:

(i) _____ system is the software that controls the computer's hardware functions.

(ii) Computer based satelite control is an example of _____ software.

(iii) _____ is a communication facility within a city.

(iv) the network version of the windows operating system is _____.

(v) _____ is an operating system developed by AT &T's Bell Laboratories.

8.5 APPLICATION SOFTWARE

These are customer oriented software suitable for specific area of application. Application software helps you produce documents, perform calculations, manage financial resources, create graphics, compose music, play games, maintain files of information and so on. We can classify the application software using the following categories :

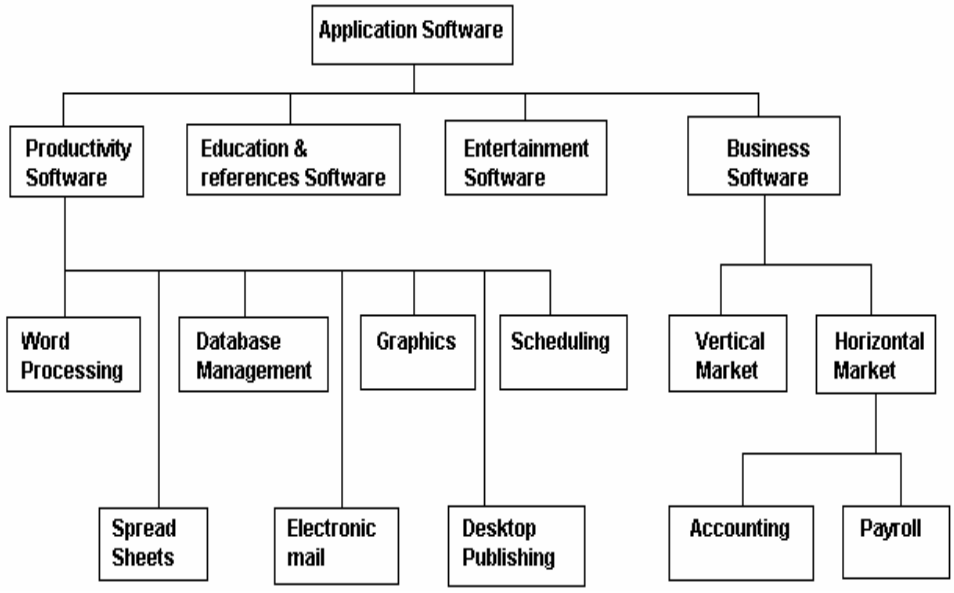
(1) Productivity Software.

(2) Education and Reference Software.

(3) Entertainment Software.

(4) Business Software.

The following figure shows you an expanded view of the application software branch of the software hierarchy chart.



8.5.1 PRODUCTIVITY SOFTWARE

Productivity software helps you work more effectively. The classification of this software are : (a) Word Processing, (b) Spread sheets, (c) Database Management, (d) Electronic Mail, (e) Graphics, (f) Desktop Publishing and (g) Scheduling.

(a) Word Processing Software helps you to produce documents such as reports, letters, papers and manuscripts. To use word processing software you type in the text of a document. As you type, you can easily edit your work and make corrections. You can also move text to improve the logical flow of ideas in your document. Word processing is the most popular type of application software.

(b) Spreadsheet Software helps you work with numbers. The software displays a grid of rows and columns on the screen. Each box formed by this grid is called a cell. Each cell shows an address that indicates its row and column position. For example, cell address B3 means a cell in column B, row 3. You enter number and formulas in the grid and the computer automatically performs the calculations. Spreadsheets are frequently used by financial analysis to examine investment opportunities, by managers to create budgets, by entrepreneurs to create business plans, and even by the educators

to keep track of student grades.

(c) Database Management Software helps you work with facts and figures, such as the customer names and addresses you might store on file cards or in a Rolodex. Database management software helps hospitals and doctors to keep track of patient records; the IRS to keep track of tax payments, the phone company to keep track of names, addresses, and phone numbers; and the record clubs and book clubs to keep track of members and sales.

(d) Electronic Mail Software provides you with a computerized mail box that collects documents or "mail" you receive electronically from other computers users. You can send electronic mail messages, you can read you electronic mail on your computer screen, you can save or throw away your electronic mail after you read it or you can compose electronic reply's to the mail you receive.

(e) Graphics Software helps you draw pictures, 3-D images and animations. If you have limited artistic ability, you can use graphics software to retrieve pre-drawn images called clip art, which you can use as it is or modify. Presentation graphics software helps you represent information using screen-based slide shows of bulleted lists, graphics and charts.

(f) Desktop Publishing Software provides you with computerized tools for page payout and design that combine text and graphics. Although many desktop publishing features are available in today's sophisticated word processing software, desktop publishing software provide additional features to help you produce professional looking, quality output for newspaper, newsletters, and brochures.

(g) Scheduling Software helps you keep track of appointments, due dates, and special dates such as birthdays and holidays. You can use the scheduling software to print a daily, weekly or monthly calendar.

8.5.2 EDUCATION AND REFERENCE SOFTWARE

Education Software is designed to help you learn more about a particular topic. One sub category of education software is called CAI or tutorial software. CAI stands for "Computer Aided Instruction". Other terms used to describe tutorial software include ""Computer-based instruction", "Computer-based learning" and "Computer-mediated learning", CAI software can help you learn how to do things – how to type, fix your car, use your word processor, speak French, or prepare for the GMAT/GRC exam.

Reference Software, such as electronic encyclopedia, helps you look up facts on any topic. Other reference software includes collections of classic literary works, electronic dictionaries, the phone directories, a trip planner with maps of a country, and medical reference guides.

8.5.3 ENTERTAINMENT SOFTWARE

It is no surprise that entertainment software is designed to entertain you. With entertainment software, you can play different types of games, battle monsters or explore new worlds. For example, the "Paper Planes" software is entertaining while showing you how to construct several types of paper airplanes.

8.5.4 BUSINESS SOFTWARE

Business Software is divided into two categories : horizontal market software and vertical market software.

(a) Horizontal Market software

A "horizontal market" is a group of different types of business that, despite their difference, have some of the same software needs. Horizontal market software refers to generic software packages that can be used for many different kinds of business. Productivity software, such as word processing, spreadsheet, or database management applications, can be considered horizontal market software because they can be used in virtually any business.

Accounting and payroll applications are also good examples of horizontal market software. Accounting Software is designed to computerise the bookkeeping and financial reporting tasks typically required in most business. Payroll software keeps track of employee houses and produces the reports required by the government or any organization for income tax reporting.

(b) Vertical Market Software

A "vertical market" is a group of a similar business – travel agencies, for example – that need specialised software. Vertical market software is designed for specialized tasks in a specific market or business.

8.6 INTEGRATED SOFTWARE

A software publisher sometimes combines several productivity software into a single package called integrated software. Typically integrated software include word processing, spreadsheet, database, and presentation graphics applications. Electronic mail is also included in some integrated software. Integrated software is often called a suite, office or works. Some popular integrated software package include Microsoft works, Claris works, Lotus SmartSuite, Novell Perfect Office, and Microsoft Office. Integrated software makes it easy to cut and paste data between applications.

8.7 MULTIMEDIA COMPUTING

Multimedia Computing refers to the integrated use of multiple media, such as slides, video tapes, audio tapes, records, CD-ROMs and photos. Computer technology is replacing or controlling many of technologies and media that were previously used for multi-media presentations. Advances in computer technology have made it possible to combine text, photo image, speech, music, animated sequences, and vide into a single interactive computer presentation. To display realistic graphic and video, your computer system must have a high resolution monitor and a CD-ROM drive.

Multimedia is defined as an integrated collection of computer-based text, graphics, sound, animation, photo images and video.

Multimedia applications : One example of a multimedia application is a multimedia encyclopedia. It contains articles and pictures on a wide range of topics like a traditional encyclopedia, but a multimedia encyclopedia has more. A multimedia encyclopedia provides you with a rich selection of text, graphics, sound, animation, and video.

Hypertext is a key element of many multimedia products, and has been used effectively in non-multimedia products as well. You are likely to use hypertext with many computer application. The term hypertext was coined by Ted Nelson in 1965 to describe the idea of documents that could be linked to each other. Linked documents make it possible for a reader to jump to a passage in another document.

Hypermedia : The links in today's applications often involve graphics, sound and video, as well as text. This type of multimedia hypertext is referred to as hypermedia. Hypertext and hypermedia are important computer-based tools because they help you easily follow a path that makes sense to you through a large selection of text, graphical, audio and video information.

8.8 LEGAL RESTRICTIONS ON SOFTWARE

Like books and movies, most computer software is protected by a copyright. In addition to copyright protection, computer software is often protected by the terms of a software license. Some of the major aspects for legal restrictions on software are as follows —

(a) Copyright Material : A copyright is a form of legal protection that grants certain exclusive rights to the author of a program or the owner of the copyright. The owner of the copyright has the exclusive right to copy the software, to distribute or sell the software and to modify the software. If you are not the owner of the copyright, it is illegal to copy, distribute, or sell the software unless you obtain permission from the copyright owner.

(b) Copyright Act : The copyright act states under what circumstances you can and cannot legally copy copyright software. When you purchase copyrighted software, you do not become the owner of the copyright. Instead, you own only a copy of the software. Your purchase allows you to use the software on your computer, but you cannot make additional copies to give

away or sell the restrictions. Copyright Act applies only to the programs and data included as part of the original software. The data you enter, the documents, files, and graphics you create can be copied without restrictions.

(c) Copyright Symbol : Copyrighted materials, such as software, display a copyright notice that contains the word “Copyright” (or the (c) symbol), the year of publication, and the name of the copyright holder. When you start a computer program the copyright notice usually appears on the first screen; it is also usually printed in the reference manual.

(d) Licensed Software : A software license is a legal contract that defines the ways in which you may use a computer program. For micro-computer software, you will find license on the outside of the package, on a separate card inside the package, or in the reference manual. Mainframe software licenses are usually separate legal documents, negotiated between the software publisher and a corporate buyer. It is important to distinguish the concept of licensing from that of purchasing a copy of software. When you pay for licensed software, you do not buy and then own a copy of the software. Instead, you are buying permission to use the software. You can think of it as renting software, rather than buying it.

(e) Public Domain Software is owned by the public rather than by the author. The program is available to everyone for use without restriction. Public domain software may be freely copied, distributed, and even sold. The primary restriction on public domain software is that you are not allowed to apply for a copyright on it. Public domain software is fairly rare.

(f) Shareware is copyright software marketed under a “try before you buy” policy. Shareware usually includes a license that allows you to use the software for a trial period. If you went to continue to use it, you must become a registered user by sending a registration fee. When you send the fee to become a registered shareware user, you are grated a license to use the software beyond the trial period. You might also receive a free copy of the latest version of the software or printed documentation for the program. A typical share policy allows you to make copies of the software and distributes them to other.



CHECK YOUR PROGRESS

Q.2: Write true or false for the following statements:

(i) Word processing software helps you to work with numbers.

(ii) Business software is devided into two categories as horizontal and vertical market software.

(iii) Graphics software helps you to produce documents.

(iv) Multimedia is defined as an integreted collection of computer based text, graphics, sound, animation, photo images and video.

(v) Shareware is copyright software marketed under a "try before you buy" policy.



8.9 LET US SUM UP

In this unit, we have defined computer software as instructions and associated data, stored in electronic format, that directs the computer to accomplish a task. There are two types of software.

(1) System Software

(2) Application Software

System software helps the computer to carry out its basic operating tasks. System software is also divided into subcategories such as Operating system, device drivers, utilities etc.

Operating System acts as an interface between the user and computer. There are different types of operating system like batch processing, multiprogramming, time-shared programming, multiprocessing etc. Examples are DOS, UNIX, WINDOWS etc. Utilities software and device driver software are both system software.

Application software helps the human user to carry out a task. Application software are further divided into sub categories such as productivity software, entertainment software, business software, education and reference software etc.

Application software is utilized with different categories to accomplish different specific tasks using the computer. Different categories are developed for different purposes.

Multimedia means being able to communicate in more than one way for better communication. The executive of text, sound graphics and ani mation simultaneously is called as Multimedia. To have multimedia in a computer they must have a sound card, proper graphics adapter and speakers to have the sound heard all around. A microphone can also be used to record something. Multimedia technology has a lot of potential and can be used in a variety of sectors : Education, Entertainment, Commerce etc.

Computer software is protected by a copyright which is a form of legal protection that grants legal rights to the author of a program or the owner of the copyright. Computer software is also protected by the terms and conditions laid down in the software license.



8.10 FURTHER READING

1. Computer Application in Management – *Sanjay Saxena & P. Chopra*
2. Computer Applications in Business – *R. Parameswaram*
3. Computer Fundamentals – *V. Rajaraman*



8.11 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1:

(i) Operating, (ii) Real time processing, (iii) Metropolitan Area Network, (iv) Windows NT, (v) UNIX.

Ans. to Q.No.2:

(i) False, (ii) true, (iii) False, (iv)True, (v) True.



8.12 MODEL QUESTIONS

A. Very Short Questions

Q.1 : What is the difference between System Software and Application Software ?

Q.2 : What are device drivers ?

Q.3 : What do you mean by multimedia computing ?

B. Short Questions (Answer each question in about 150 words)

Q.1: What is a Software ? Discuss the importance of software in a computer system.

Q.2: Discuss different types of operating systems.

C. Long Questions (Answer each question in about 300-500 words)

Q.1: What is application software ? Explain why application software is so important to the computer user.

Q.2: What is multimedia ? Discuss the application of Multimedia with examples.

Q.3: Discuss the legal restrictions on software.

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UNIT-9 : MS WORD

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Starting MS-WORD

9.4 Basic Components of MS Word

9.5 Entering and Saving Text in a Document

9.6 Closing the MS-Word document and Closing MS-Word program

9.7 Opening of an existing Document

9.8 Copy and Cut (Move)

9.9 Formatting the document

9.10 Find a particular pattern

9.11 Insertion

9.12 Implementing Formula on table contents

9.13 Header and Footer

9.14 Page Setup

9.15 Indents

9.16 Tabs

9.17 Columns

9.18 Change Case

9.19 Let Us Sum Up

9.20 Further Reading

9.21 Answers To Check Your Progress

9.21 Model Questions

9.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- explain steps to start Microsoft Word
- discuss basic units of Microsoft Word
- discuss the creation of a document and saving of the document
- explain opening of an existing document and formatting of a document

- describe how to edit a document
- insert symbols, pictures in the document
- explain how to print a document.

9.2 INTRODUCTION

In the earlier units, we discussed on the basic concepts in computer, about data storage technology, the software and multimedia applications and about **Windows XP**. Now in this unit we will discuss **MS-Word**, which is very important to any meida professional.

In a media organization lot of documents are to be prepared, for example letters are to be written to different organizations and people, reports and news stories have to be written. Even as a media student you will have to write assignments and project reports. Computer typed work always looks more neat and professional. A lot of time is saved in typing and the efficiency is increased. So, Microsoft Word is such a software which can be used to create, format, store, retrieve, edit and print the document.

Microsoft Corporation developed this software. It is a full-featured word processing program that allows us to create attractive and professional-looking documents easily and quickly. This software is also used to edit, layout, save, print, mail-merge etc. a document.

9.3 STARTING MS-WORD

Following steps are undertaken to start **Microsoft Word**

1. Make sure the Windows desktop is open. Move the mouse points over the **Start** button present on the extreme left of the task bar and then click the left mouse button. A push up menu appears.
2. Place the mouse pointer over the program option inside the pushup menu. A second menu gets displayed immediately.
3. Move the mouse pointer over **Microsoft Word** option and click the left mouse button as shown in **Fig. 9.1**.

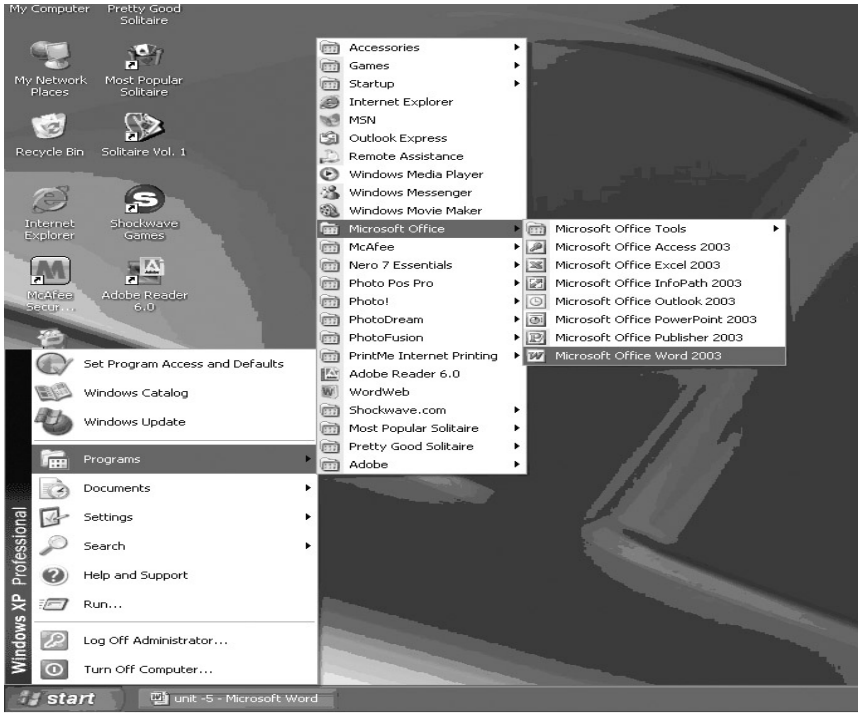


Fig. 9.1

A blank document file named **Documents** gets displayed on the screen instantly as shown in **Fig. 9.2**.

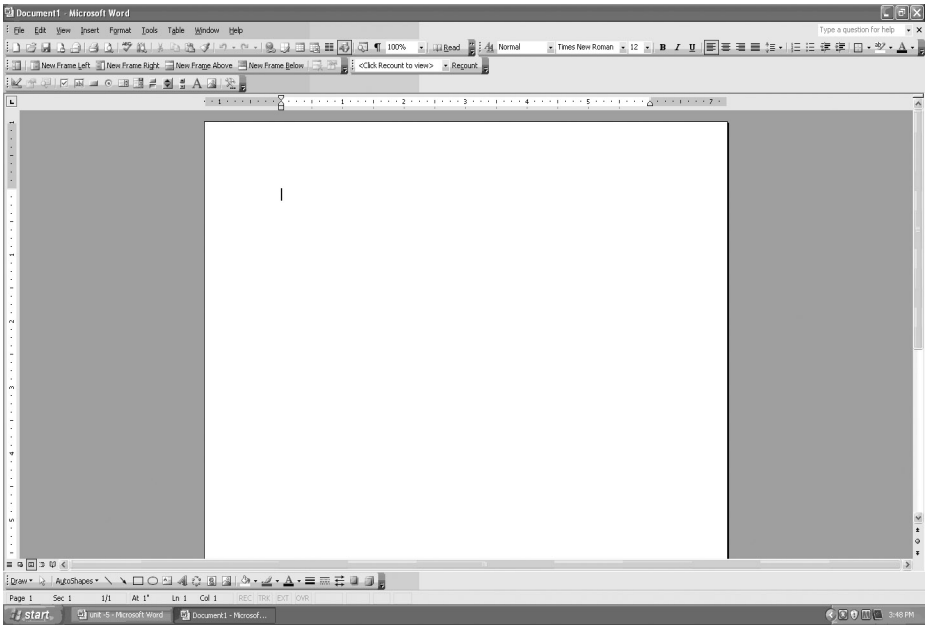


Fig. 9.2

9.4 BASIC COMPONENTS OF MS-WORD

1. Title Bar : It displays the name of the program and the document. Until we save the document and give it a name, the temporary name is Document 1.



Fig. 9.3

Title Bar also displays various window controls like minimize button, maximize button and close button.

a. **Minimize button:** This is used for changing a window/document into a button.
b. **Maximize button:** This is used for enlarging window/document after it has been minimized or restored. When a document is maximized then, to bring it back to the original size, we use Restore button.
c. **Close button:** This is used to close a document/window.

2. Menu Bar: The menu bar lists the name of the menus. Clicking a menu name on the menu bar displays a list of commands from which we can choose. For instance when you click on the 'file' menu a list of commands like 'open new file', 'save', 'print', 'page-setup' etc. will appear on a drop down menu.

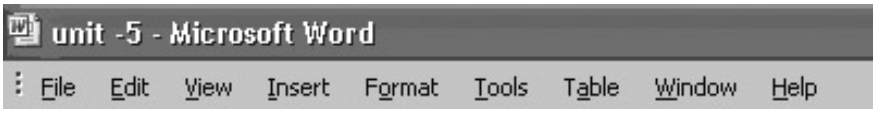


Fig. 9.4

a. **File :** This helps in creating new file; opening an existing file; saving a file; printing a file; print preview of a file; setting up of print area; page-setup; sending the page to MS-Power Point, closing the document; exiting **MS-WORD** etc.
b. **Edit:** This helps in copying, cutting, deleting a range of text, pasting a text, which has been copied or cut from some other location, clearing the content at a particular location, finding the particular text and replacing it with a new text in the Document etc.

c. **View:** This helps in enabling and disabling certain tools in the word window. This is also used to add **Header and Footer** to the document.

d. **Insert:** This can be used to insert page numbers, page breaks, pictures etc.

e. **Format:** This helps in changing the font of the text.

f. **Tools:** This helps with the spell checker, protection of documents by providing the pass-word. The document can be customized according to one's specification etc.

g. **Table:** This is used to insert, delete, select and draw table.

h. **Window:** This is used to hide/unhide the document window. To create new window, to split the frame etc are performed.

i. **Help:** This can be used to get any help about **MS Word**.

3. Standard Toolbar: The Standard toolbar contains buttons for the most frequently used commands, such as the commands for opening, saving and printing documents. This toolbar is one of the two default toolbars. Clicking buttons on a toolbar is often faster than using a menu bar.

Whenever we bring the points of the mouse to the buttons each button indicates the command for which it stands.



Fig. 9.5

4. Formatting toolbar: The formatting toolbar allows the user to give commands related to formatting text/data like Bold, Underline, Font Style, Font size, Font color etc.



Fig. 9.6

5. Editing area: Here we can type and edit the text.

6. Scroll Bars: Used to scroll through different parts of current document.

7. Drawing Tool Bar: This is used to draw different shapes, arrows etc.

8. Status Bar: The status bar displays the current page and section numbers, the total no. of pages and the position of the insertion point.

9.5 ENTERING AND SAVING TEXT IN A DOCUMENT

When we launch Word, the program opens a document window in which we can create a new document. We can begin by simply typing text at the insertion point. When we reach the end of a line as we type, word automation passes the insertion point to the next line. This feature is called **word-wrap**. To insert a new line or start a new paragraph simply press [**Enter**]. It is also a good idea to save our work shortly after writing our first paragraph and every **10** or **15** minutes and before printing.

Three methods are there to open a new document.

1. Use of **"New Blank Button"** on standard toolbar **:** Click the "**new**" button that is there on the Standard Toolbar and we will get a new document.
2. Use of "**File**" option button on Menu Bar **:**
   (a) Click on the "**File**" option button of Menu Bar.
   (b) Select "**New**" from drop down menu.
   (c) We will get a screen as shown in **Fig. 9.7**
   (d) Click "**OK**"

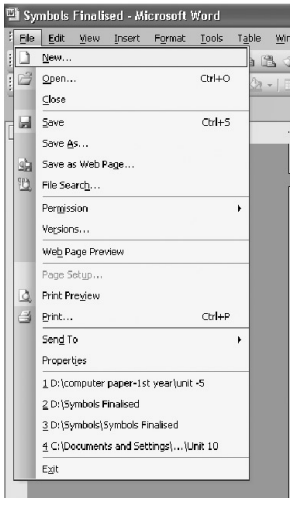


Fig. 9.7

3. Press **Ctrl** and **N** key simultaneously we will get a blank document automatically generated.

After the completion of typing a document we need to save it. We can create any number of blank documents but recently created document is shown on the screen. All other documents are minimized and they are displayed on the Status Bar at the button of the screen and we can select any of them by clicking on the required document.

SAVING THE DOCUMENT

Three methods are there to save a new document

1. Use of "**Save**" button on Standard Toolbar : Click the same button which is there on the Standard Toolbar and we will get the figure shown below. Here select the drive, folder and give the file name and then click on "**Save**" button.
2. Use of "**File**" option button of Menu Bar :
   (a) Click on the "**File**" option button of Menu Bar.
   (b) Select "**Save**" from drop-down menu.
   (c) We will get a screen as shown in **Fig. 9.8.**

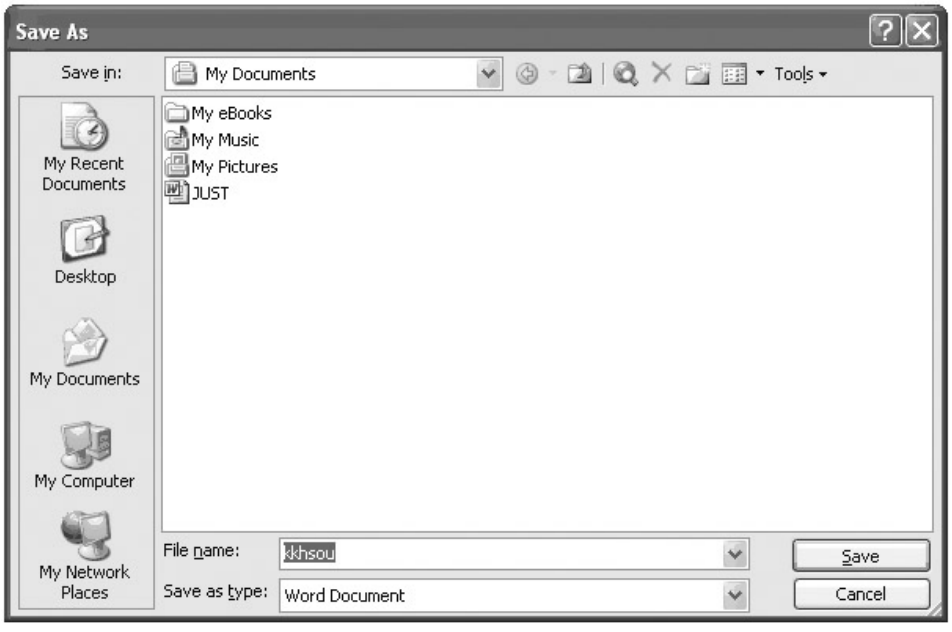


Fig. 9.8

Here select the drive, folder and give the file name and then click on "**Save**" button, as explained earlier.

3. Press **Ctrl** and **S** key simultaneously we will get a screen as shown in **Fig 5.8**. Now follow the Step (C).

Note: If we want to cancel the saving process, we can click on the "**Cancel**" button.

Once we have saved a document, next time if we want to save we can use any of three methods discussed above but we need not give the name of the file as it is already given when it was saved for the first time.

9.6 CLOSING THE MS-WORD DOCUMENT AND MS-WORD PROGRAM

A. CLOSING MS-WORD DOCUMENT :

There are two ways in closing the Document

1. Closing the document without saving it.
2. Closing the document after saving it.

1. Closing the document without saving it

In this method, the latest updates are not saved. So to do this follow the steps mentioned below:

(i) Move the mouse pointer over the "**File**" option on Menu Bar and click the left mouse button. A pull down menu gets displayed immediately.

(ii) Inside the pull down menu, move the mouse pointer to the "**Close**" option and click the left mouse button. A message box gets displayed immediately asking us whether we want to save this sheet with the options **Yes, No** and **Cancel.**

Move the mouse pointer over "**No**" and click the left mouse button this will close the document without saving it.

If we want to save the sheet we can select "**Yes**" option by moving the mouse pointer over it and clicking the left button. A menu appears, here select the drive and folder in which we want to save. Then give the file name and select "**Save**" option.

If we do not want to save or close the document select "**Cancel**" option. This will take us back to the document.

2. Closing the document after saving it:

In this method the latest updates are saved. To close the document follow the steps mentioned below.

(i) Move the mouse pointer over the "**File**" option on Menu Bar and click the left mouse button. A pull-down menu gets displayed immediately.

(ii) Inside this pull-down menu move the mouse pointer to the "**Save**" option and click the left mouse button. A menu appears, here select the drive and folder in which we want to save. Then give this file a name and select "**Save**" option.

We can even use the "**Close**" button, which is at the right hand corner of the Standard toolbar and follow the steps as explained above depending on our choice.

B. CLOSING MS WORD PROGRAM

We can use two methods to close the MS Word Program

(1) Using the "**Close**" button on the title bar :

- Move the mouse pointer over the "**X**" button which is at the right hand corner of the Title bar.
- Click the left button on the mouse.

(2) Using the "**Exit**" option :

- Move the mouse pointer over the "**File**" option on Menu bar and click the left mouse button. A pull-down menu gets displayed immediately.
- Click on to the "**Exit**" option in that menu.



CHECK YOUR PROGRESS

Q.1: What do you mean by Microsoft Word?

Q.2: What are the basic units of MS-Word?

Q.3: What are the three methods to open a new work book?

Q.4: What are the two methods to close MS-Word Program?

9.7 OPENING OF AN EXISTING DOCUMENT

Three methods are there to open an existing *Document*.

1. Use of "**File**" *option button* on *Menu Bar*:
   (a) *Click* on the "**File**" *option button Menu Bar*.
   (b) *Select* "**Open**" from *drop down menu*.
   (c) We will get a screen as shown in **Fig. 9.9**

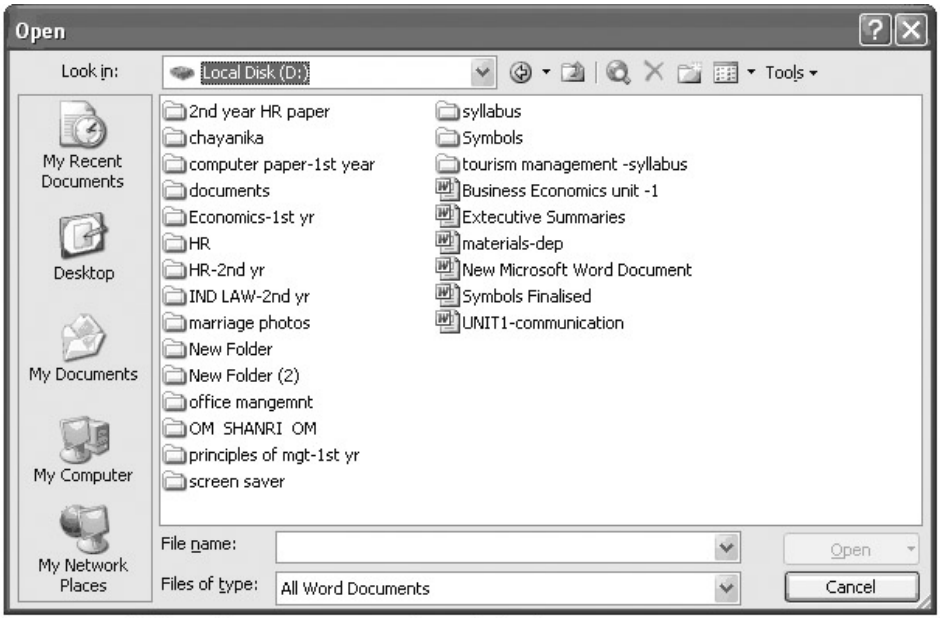


Fig. 9.9

(d) Select the drive and folder in which we have the file.
(e) Type the name of the file we want to open in the "**File name**" box.
(f) Click "**Open**".

2. Use of "**Open**" button on Standard toolbar :

   Click the "**Open**" button that is there on the Standard Toolbar we will get the screen as shown in **Fig. 9.9** then follow the steps **(d)**, **(e)**, and **(f)** as mentioned above.

3. Press **Ctrl** and **O** key simultaneously we will get "**Open**" dialog box.

9.8 COPY AND CUT (MOVE)

A. COPY

To copy a part of the document to some other place, follow the steps given below:

1) Make the block of document that we want to copy. Holding the left mouse button down and dragging the mouse pointer over that document of which we want to make the block. **Fig. 9.10** shows the selection of block.

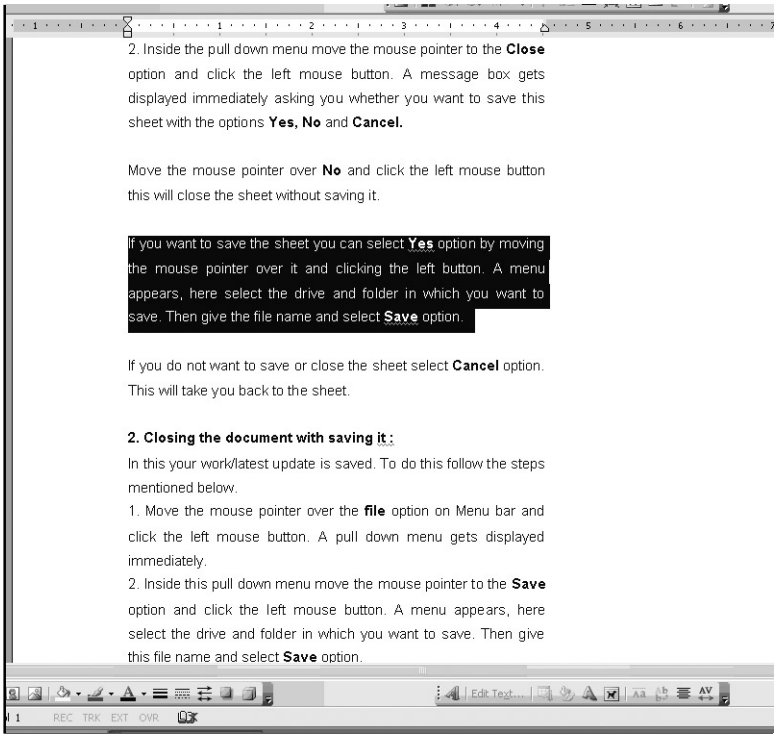


Fig. 9.10

2) Click the right mouse button on the selected block we will get a pop up menu as shown in **Fig. 9.11**.

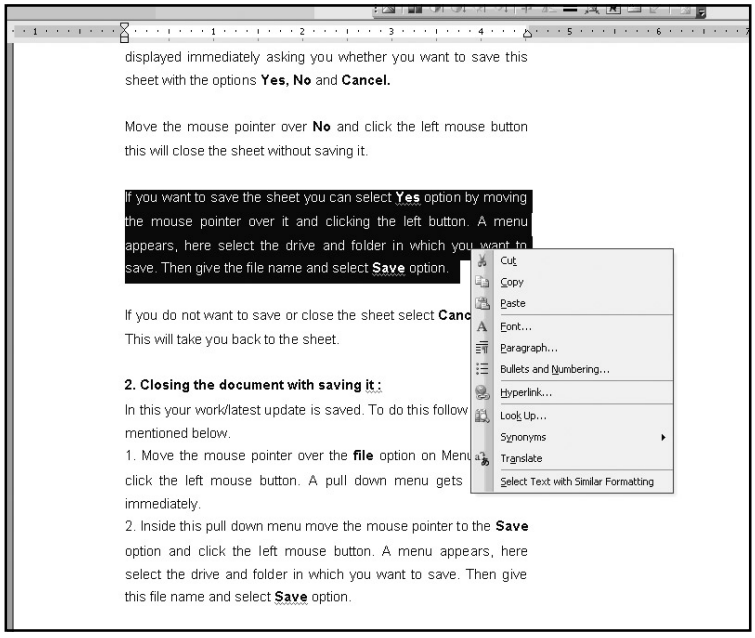


Fig. 9.11

Now click on "**Copy**" option, this block is copied on to clipboard (a temporary location), or Click on to "**Edit**" option of menu bar from the drop down menu, click on to "**Copy**" button as shown in **Fig 9.12**. Now the selected block is copied on to the clipboard.

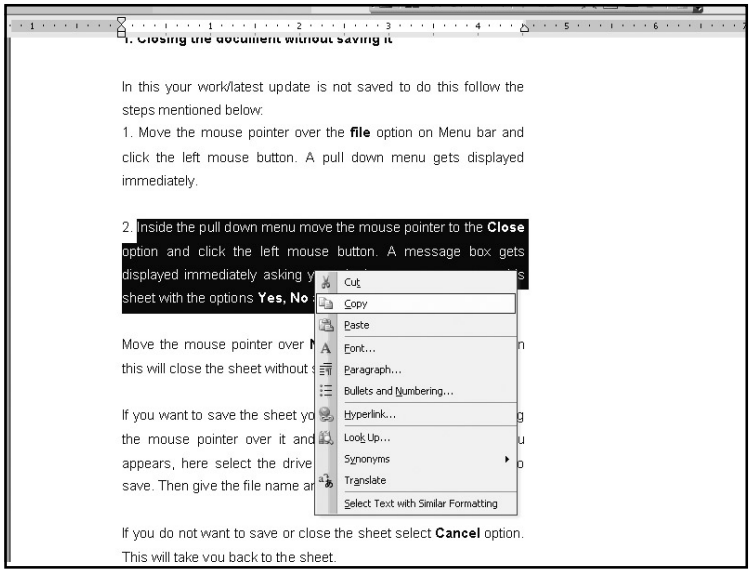


Fig. 9.12

Or click on to the "**Copy**" icon that is on the Standard Toolbar. This icon is activated when the block is created. Now the selected block is copied on to the clipboard.

3) Move the mouse pointer to the place where we want to copy this block and click the right mouse button. From the pop-up menu, select "**Paste**" option as shown in **Fig. 9.13**. The earlier selected block is copied to the new place shown in **Fig. 9.15**.

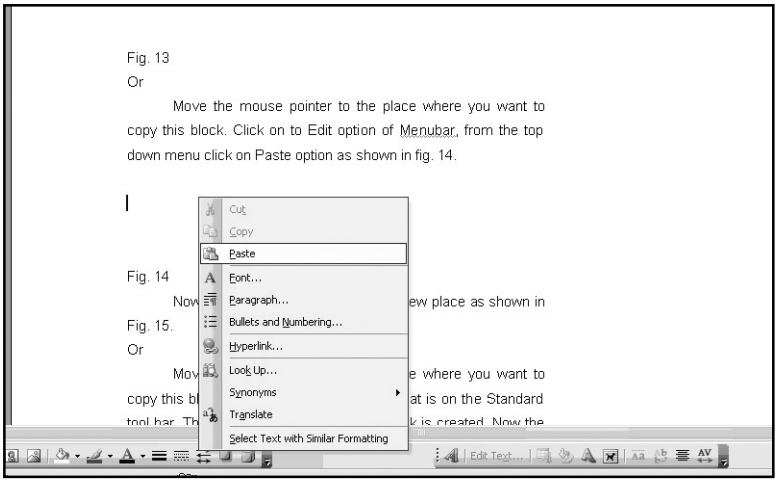


Fig. 9.13

Or move the mouse pointer to the place where we want to copy this block. Click on "'**Edit**" option of Menu bar, from the drop-down menu, click on "**Paste**" option as shown in **Fig. 9.14**.

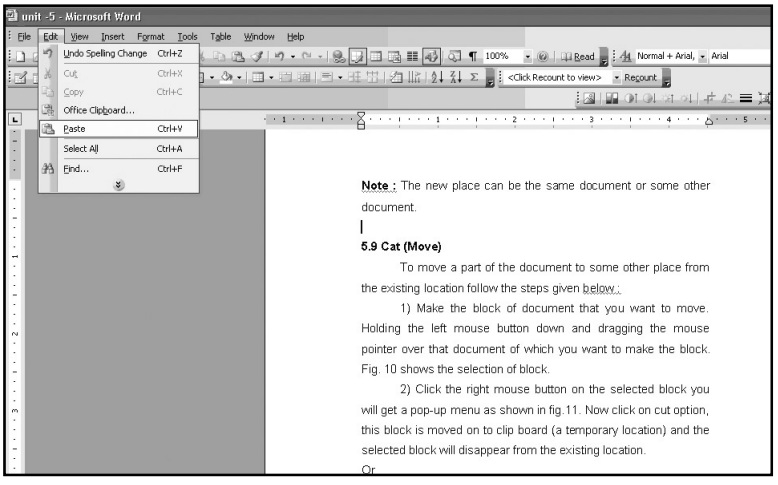


Fig. 9.14

Now the selected block is copied at the new place. Or move the mouse pointer to the place where we want to copy this block. Click on to the "**Paste**" icon that is on the Standard toolbar. This icon is activated when the block is created. Now the selected block is copied at the new place.

Note: The new place can be the same document or some other document.

B. CUT (MOVE)

To move a part of the document to some other place from the existing location, follow the steps given below:

1) Select the block of document that we want to move.
2) Click the right mouse button on the selected block we will get a pop-up menu as shown in **Fig 9.11**. Now click on "**Cut**" option, this block is moved on to clipboard and the selected block will disappear from the existing location.

   Or Click on to "**Edit**" option of Menu bar, from the drop-down menu, click on "**Cut**" option as shown in **Fig 9.12**. Now the selected block is moved on to clipboard and selected block will disappear from the existing location. Or click on the "**Cut**" icon that is on the Standard Toolbar. This icon is activated when the block is created. Now the selected block is moved on to the clipboard and the selected block will disappear from the existing location.
3) Move the mouse pointer to the place where we want to move this block and click the right mouse button. From the pop-up menu, select "**Paste**" option shown in **Fig. 9.13**. The earlier selected block is moved to the new place as shown in **Fig 9.15**.

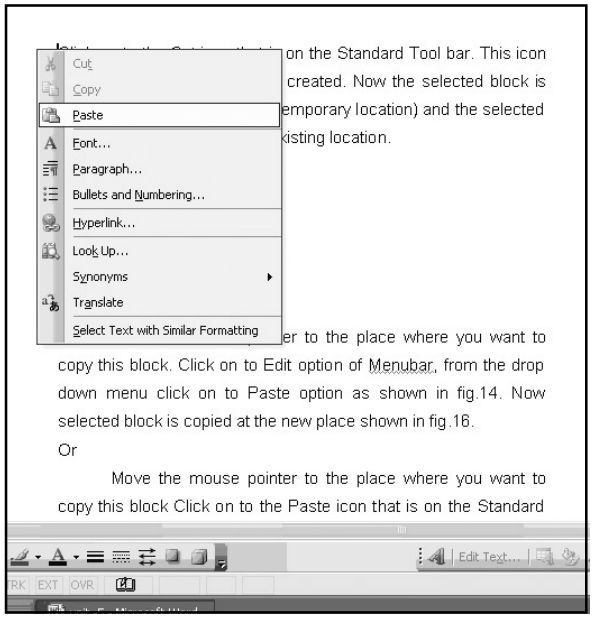


Fig. 9.15

Or move the mouse pointer to the place where you want to copy this block. Click on "**Edit**" option of Menu bar, from the drop-down menu, click on "**Paste**" option as shown in **Fig. 9.14**. Now the selected block is copied at the new place. Or move the mouse pointer to the place where we want to copy this block. Click on the "**Paste**" icon that is on the Standard Toolbar. This icon is activated when the block is created. Now the selected block is copied at the new place.

Note: We can observe that the selected block disappeares from the original place.

9.9 FORMATING THE DOCUMENT

a) Font: The style of the contents typed in the document can be changed. To do this follow the steps given below:

1. Select the block of the contents of which we want to change the Font.
2. Select the font from the list available as shown in **Fig. 9.16**.



Fig. 9.16

b) Font size: The size of the font in the selected block can be changed. Follow the steps given below to do this:

1. Select the block of the contents of which we want to change the font size.

2. Select the font size from the list available as shown in **Fig. 9.17**.

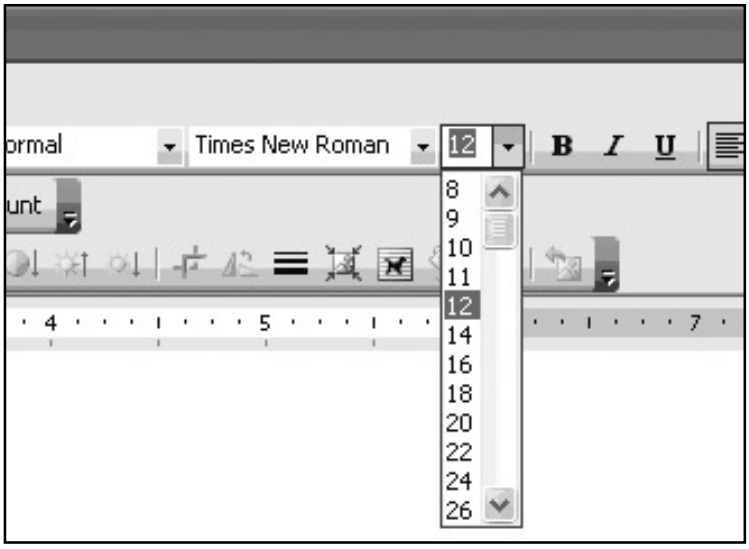


Fig. 9.17

For example select "**20**". **Fig 9.18** shows the changed font size in the selected block.

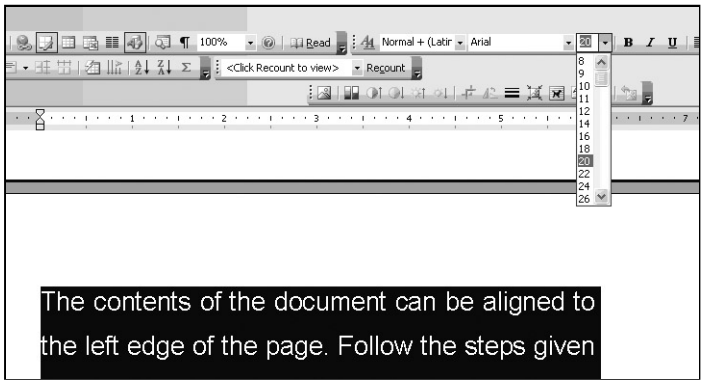


Fig. 9.18

c) Bold: To make the contents of the document look bold, follow the steps given below:

1. Select the block, which you want to make Bold.
2. Click on "**Bold**" icon that is on the Standard Toolbar. The result is shown in **Fig. 9.19**.

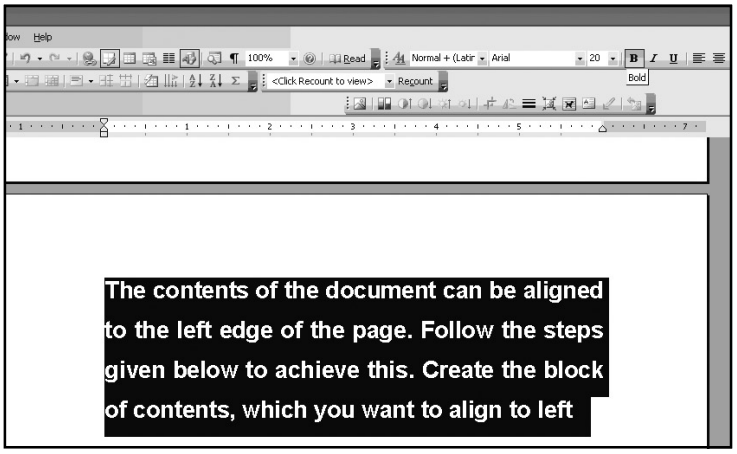


Fig. 9.19

Note: To remove the Bold; select the block of which we want to remove the Bold and click on to the "**Bold**" icon.

d) Italic: To make the contents of the document look slanted, follow the steps given below:

1. Select the block which we want to make italic.
2. Click on to "**Italic**" icon that is on the Standard Toolbar. The result is shown in **Fig. 9.20**.

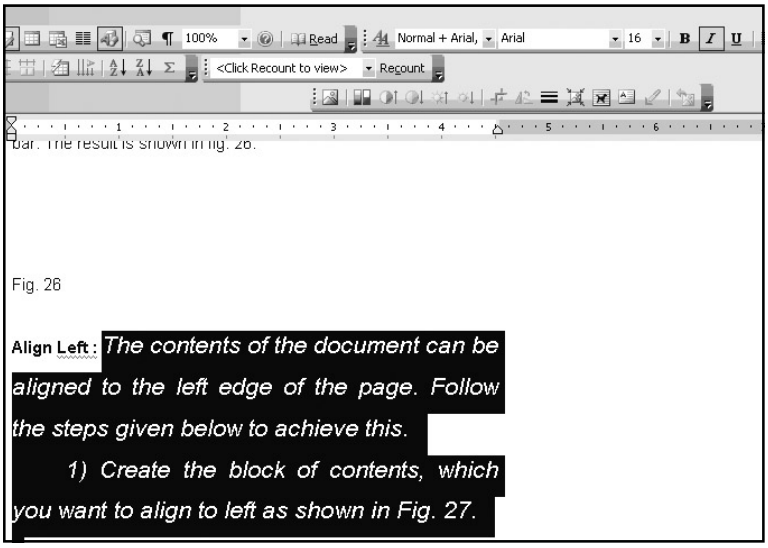


Fig. 9.20

e) Underline: To have underline to the contents of the document, follow the steps given below.

1) Select the block of contents, which you want underlined.
2) Click on to "**Underline**" icon that is on the Standard tool bar. The result is shown in **Fig. 9.21**.

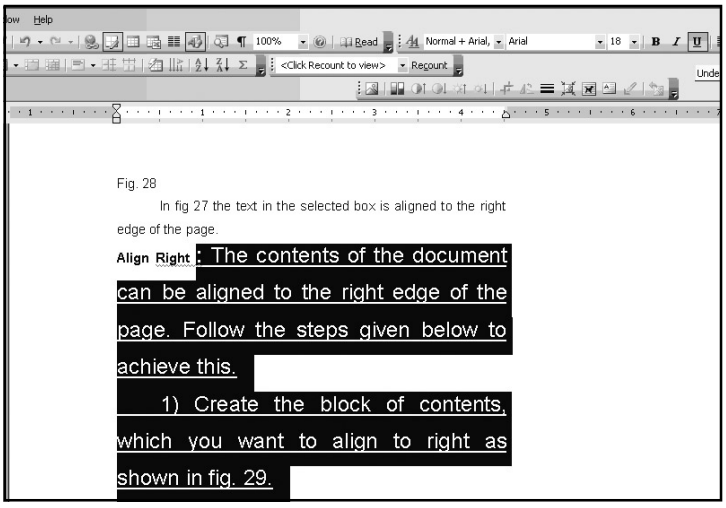


Fig. 9.21

f) Align Left: The contents of the document can be aligned to the left edge of the page. Follow the steps given below to achieve this:

1) Select the block of contents, which we want to align to left
2) Click on to "**Align left**" icon that is on the Standard toolbar. We will get the aligned contents as shown in **Fig. 9.22**.

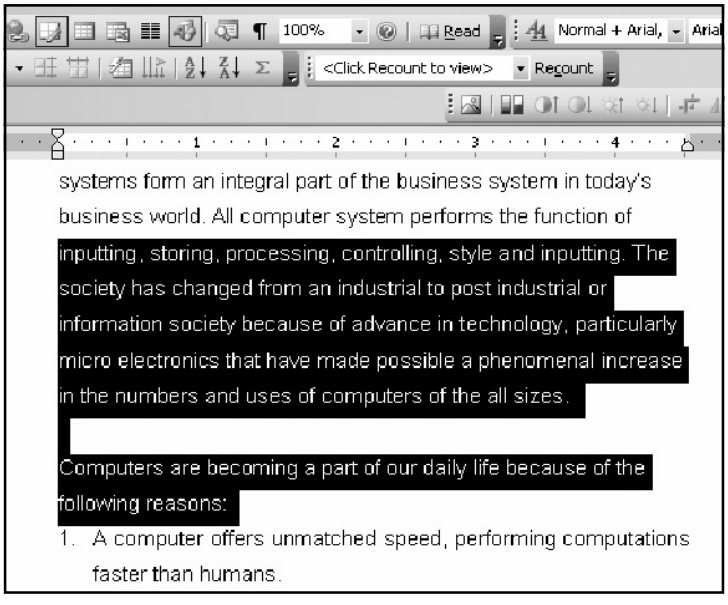


Fig. 9.22

g) Align Right: The contents of the document can be aligned to the right edge of the page. Follow the steps given below to achieve this:

1) Select the block of contents, which you want to align to right.
2) Click on to "**Align Right**" icon that is on the Standard toolbar. We will get the aligned contents as shown in **Fig. 9.23**.

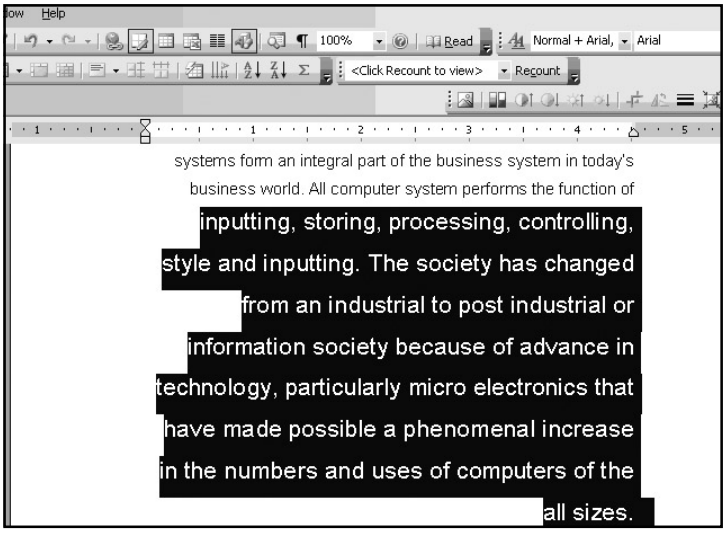


Fig. 9.23

h) Center: The contents of the document can be aligned to the center of the page. Follow the steps given below to achieve this:

1) Select the block of contents, which you want to align to the center.
2) Click on to "**Center**" icon that is on the Standard toolbar. We will get the aligned contents as shown in **Fig. 9.24**

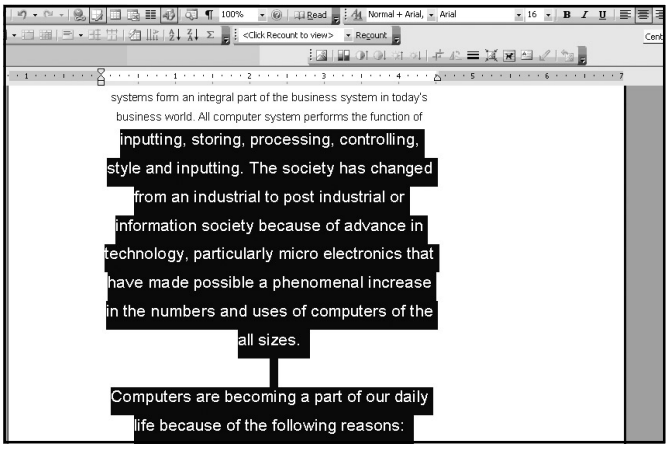


Fig. 9.24

i) Justify: The contents of the document can be aligned from the left edge to the right edge of the page. Follow the steps given below to achieve this:

1) Select the block of contents, which you want to make justified.
2) Click to "**Justify**" icon that is on the Standard toolbar which is shown in **Fig. 9.25**.

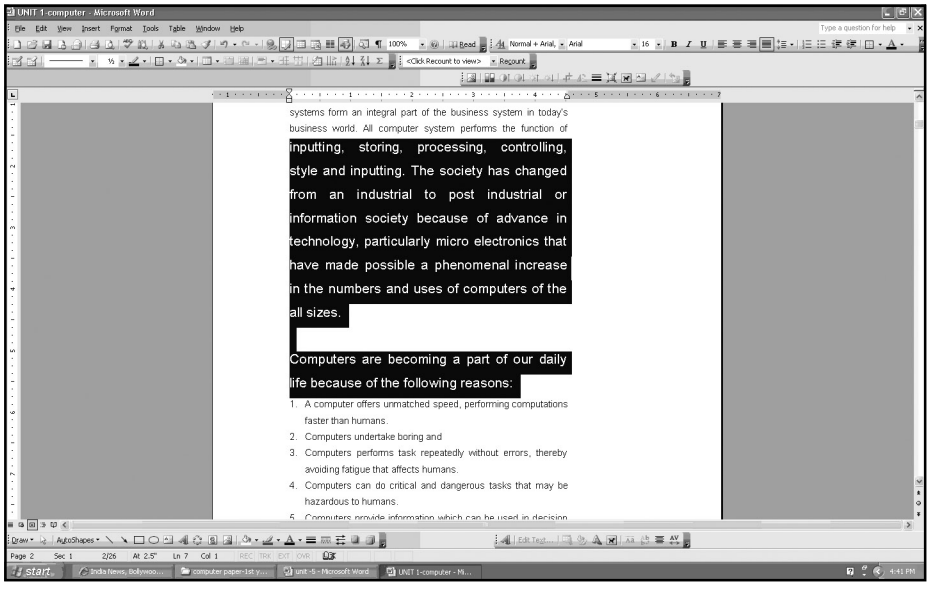


Fig. 9.25

j) Numbering: Automatic numbering can be generated when we want number certain points that we are typing. For example we want to type **MS-Word** line by line and if we want to number them as **1**, **2**, **3**, **4** then we need not type the numbers manually. To generate the numbers automatically follow the steps given below:

1) Click on to "**Numbering**" icon available on Standard toolbar. First number is generated **Fig. 9.26**.

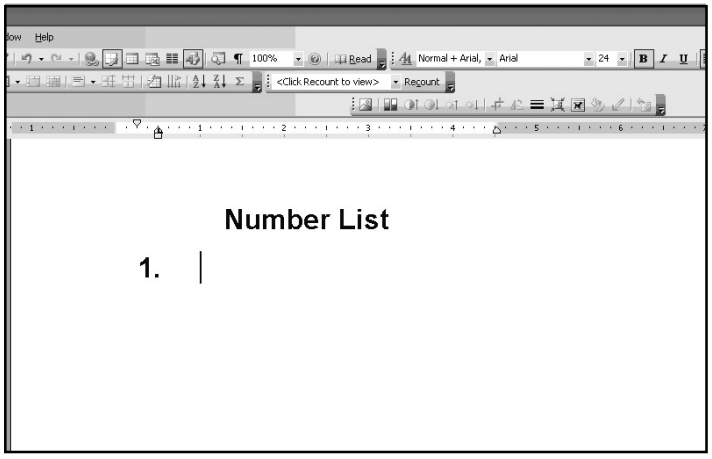


Fig. 9.26

2)Type the first line then press "**Enter**" key the second number is generated as shown in **Fig. 9.27**.

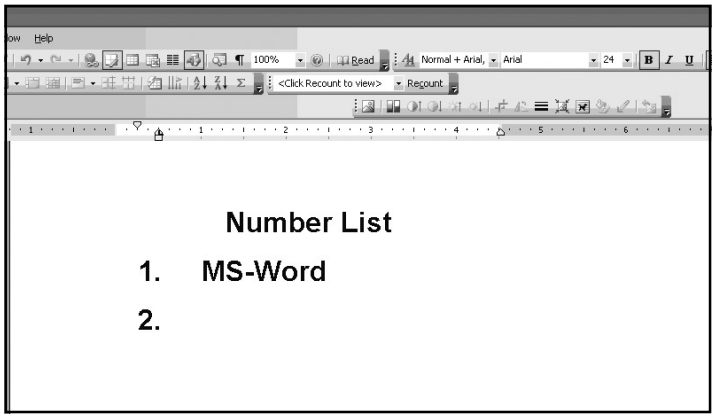


Fig. 9.27

3) Thus we can type as many points as required.

Note: Once we finish typing, to deactivate the automatic number generation feature, click on "**Numbering**" icon again.

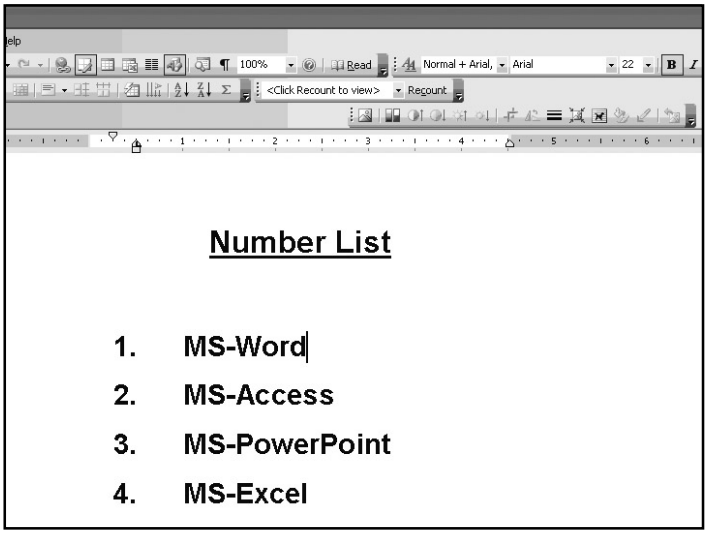


Fig. 9.28

CHANGING THE FORMAT OF NUMBER GENERATION

We can select different formats for the number generation. We can achieve this by following the steps given below:

Click on to "**Format**" option of menu bar. From the drop-down menu, click on the "**Bullets and Numbering**" option **Fig. 9.29**.

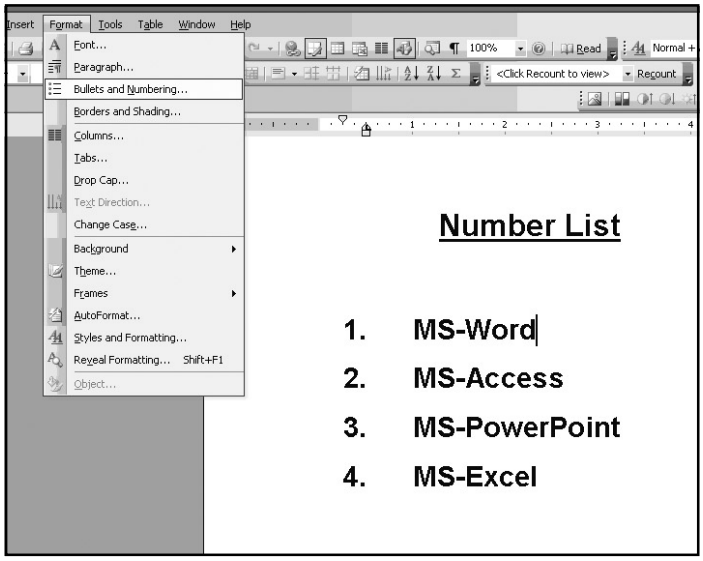


Fig. 9.29

We will get a menu as shown in **Fig. 9.30**. From the menu, we can select the required style.

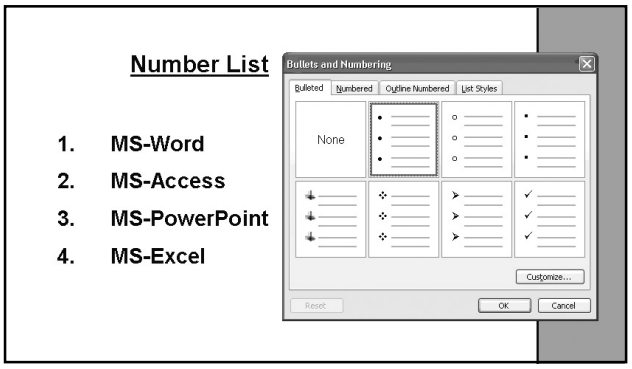


Fig. 9.30

Now we can select radio button "**Restart numbering**" or "**Continue previous list**". If we select "**Restart numbering**", then whenever the numbering feature is selected in a document then the list start from the first number of the list as shown in **Fig. 9.31**.

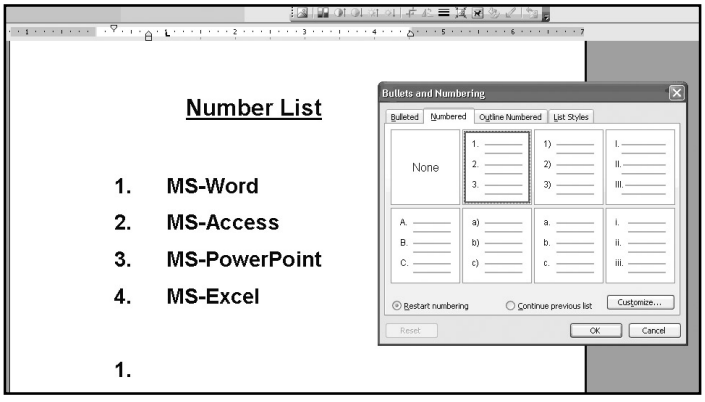


Fig. 9.31

If we select the radio button "**Continue from previous list**", whenever the numbering feature is selected then the numbering continues from previous list as shown in **Fig. 9.32**.

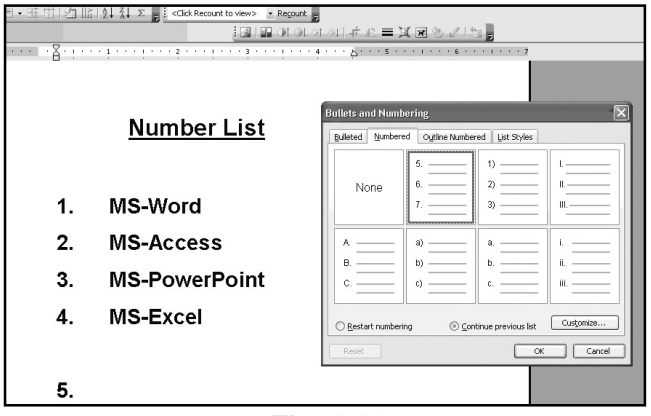


Fig. 9.32

We can also customize the Number format, Font, Number style, starting of the number list, place of the number list etc. by selecting the "**Customize**" option of the "**Bullets and Numbering**" menu (**Fig. 9.30**), we will get a menu as shown in **Fig. 9.33**.

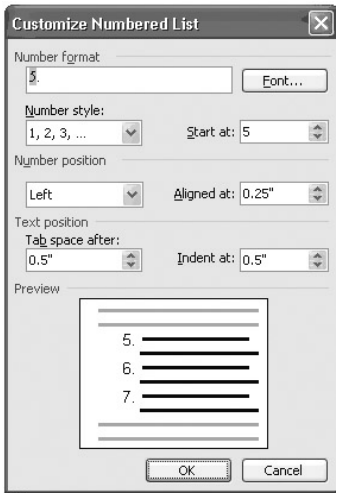


Fig. 9.33

k) Bullets: Automatic bullets can be generated when we want to give bullets to certain points that we are typing. For example, if we want to type **MS-Word** line by line and if we want to have bullets in front of these, then we need not type the bullets manually. To generate the bullets automatically follow the steps given below:

1) Click on the "**Bullets**" icon available on Standard toolbar. First, bullet will be generated.
2) Type the first line then press "**Enter**" key, the second bullet will be generated (**Fig. 9.34)**.

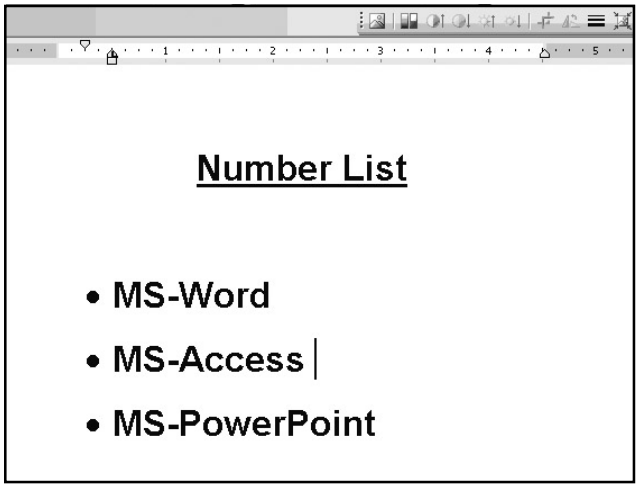


Fig. 9.34

3) Thus we can type as many points as required.

Note: Once we finish typing, to deactivate the automatic bullet generation feature, click on to "**Bullets**" icon again.

CHANGING THE FORMAT TO BULLET GENERATION

The bullets can be formatted to suit our needs by following the steps given below:

1) Click on to "**Format**" option of Menu bar. From the drop-down menu, click on the "**Bullets and Numbering**" option (**Fig. 9.32).**
2) From the menu, select the kind of bullets, we want and click on to "**OK**" button (**Fig. 9.35**).

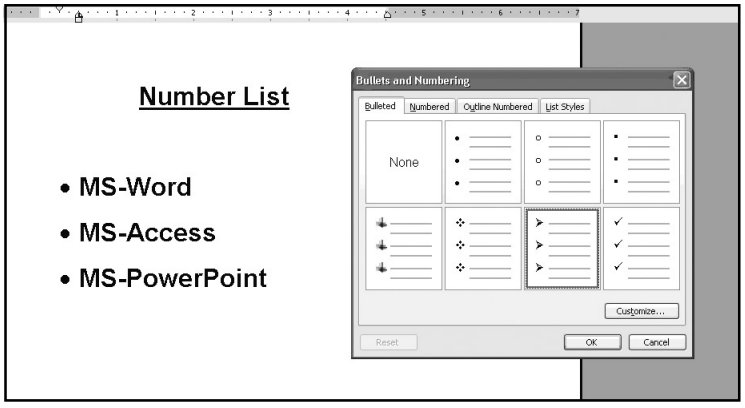


Fig. 9.35

We can select the required picture also as our bullet by clicking on to the "**Pictures**" option of menu. We will get a menu as shown in **Fig. 9.36**.

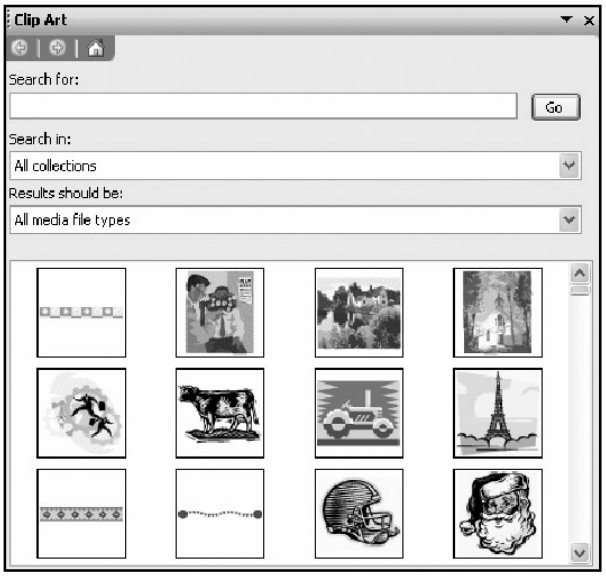


Fig. 9.36

We can customize our bullet, selecting the "**Customize**" option shown in **Fig 9.35**. We will get the menu as shown in **Fig. 9.37**.

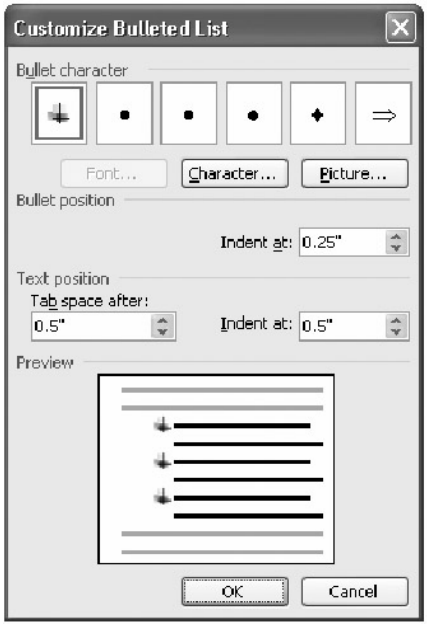


Fig. 9.37

I) Font Color: The color of the font can be changed to the required color by using "**Font Color**" icon available on Formatting Toolbar. To change the colors of the font to the required color follows the steps given below:

1) Select the text of which we want to change the color as shown in **Fig. 9.38**.

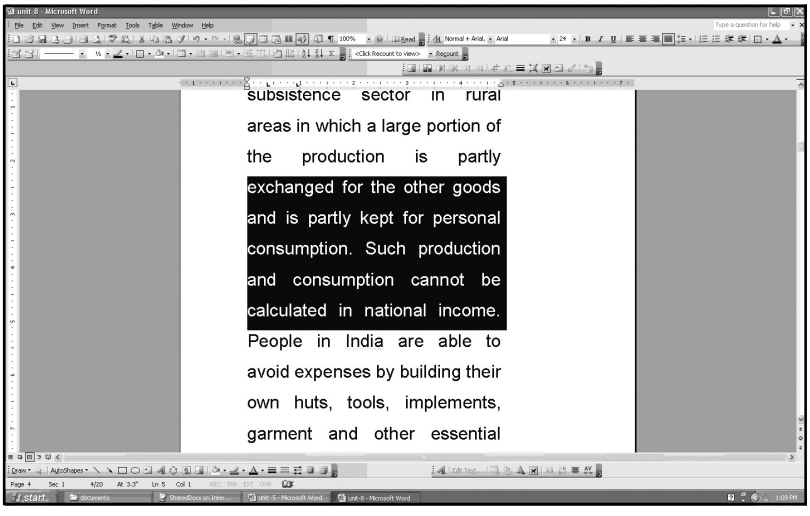


Fig. 9.38

2) Click on to the first arrow available on "**Font Color**" icon and select the required color as shown in **Fig. 9.39**.

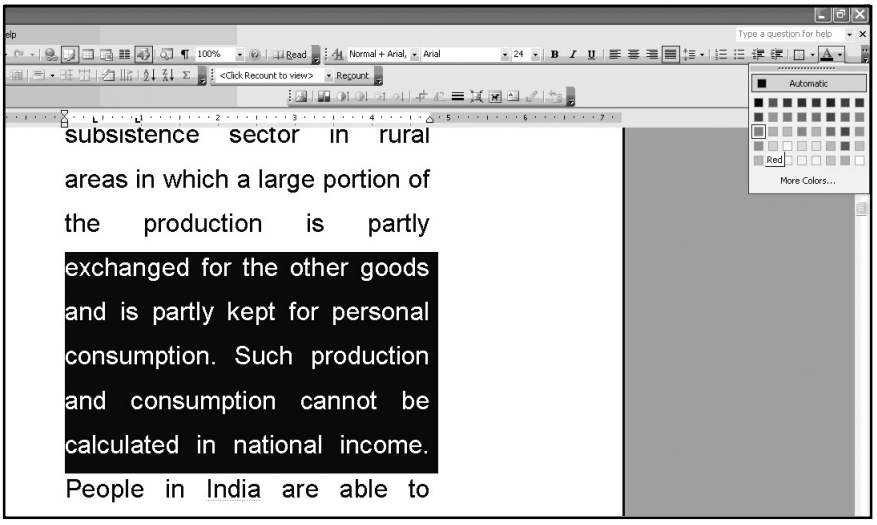


Fig. 9.39

3) Click on to the required color and the color of the blocked text will change.

If we want to have better shade than the available one we can click on to "**More Colors...**" option available and we will get a menu as shown in **Fig. 9.40** and we can select the required shade from the menu.

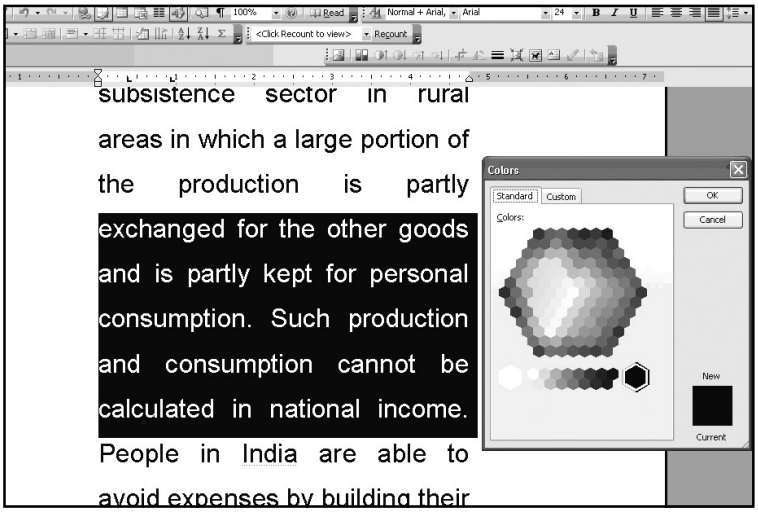


Fig. 9.40

m) Highlight : If we want to highlight a particular portion of the document by using the "**Highlight**" icon available on the Formatting toolbar. Follow the steps given below to achieve this.

1) Click on to the arrow available at the "**Highlight**" icon and select the color for highlighting.
2) Drag the cursor on to the text and the text will be highlighted. Font color will not be changed **Fig. 9.41**.

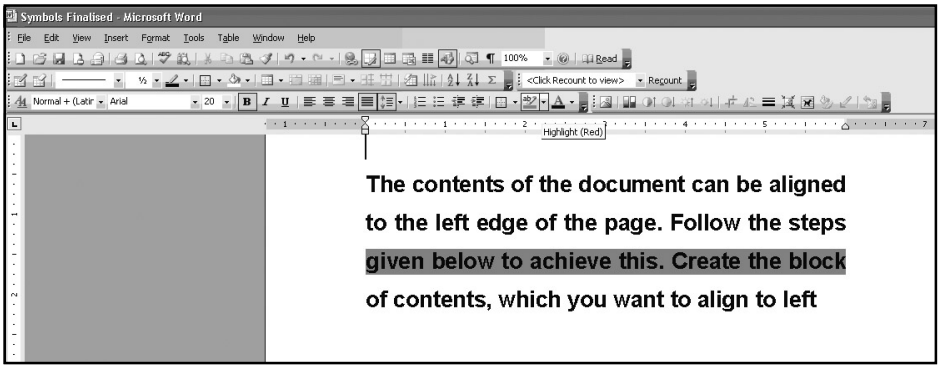


Fig. 9.41

9.10 FIND A PARTICULAR PATTERN

The "**Find**" icon can be used to find a particular pattern in the document. This can also be used to find a pattern and replace that pattern with the required pattern. "**Find**" icon is available on Standard Toolbar. Follow the steps given below to use the "**Find**" icon:

1. Position the cursor to the required position.
2. Click on "**Find**" icon, we will get a menu and type the pattern we want to search in the space provided as shown in **Fig. 9.42**.

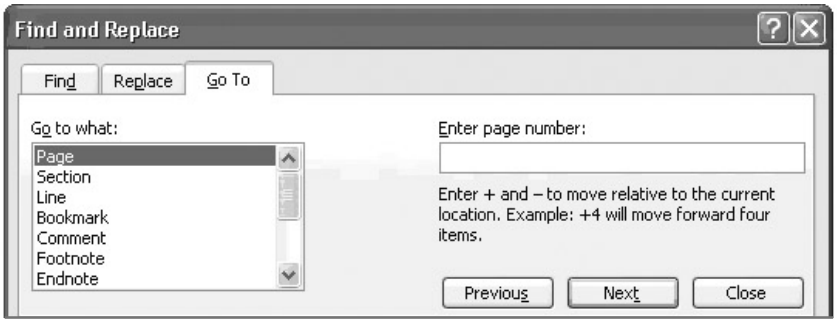


Fig. 9.42

If we want to use the more search options, we can click on to "**More command**" button available in the menu and we will get the enhanced menu as shown in **Fig. 9.43**.

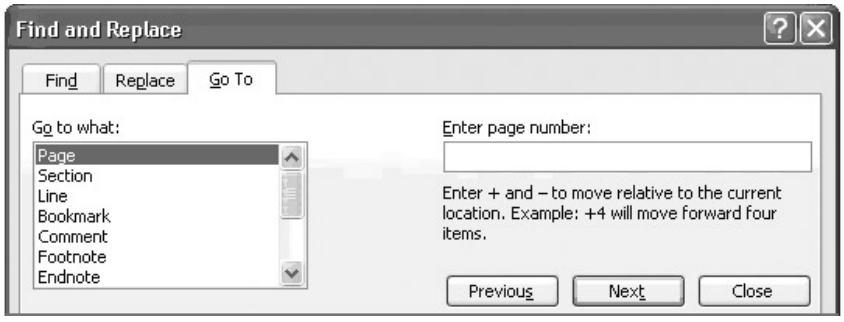


Fig. 9.43

We can select the required search options by selecting the check box against each of it.

For example, "**Match case**" option distinguishes between uppercase and lowercase characters. When "**Match case**" is selected, **Word** finds only those instances in which the capitalization matches the text we typed in the "**Find what**" box. When the ''**Wildcards**'' option is selected, the ''**Match case**'' and ''**Find what**'' options appear dimmed.

To replace the pattern found with the required pattern, click on "**Replace**" tab, we will get an enhanced menu where we have a text box (**Replace with**) to type in the pattern we want to replace with (when is the replace pattern typed in) as shown in **Fig. 9.44**.

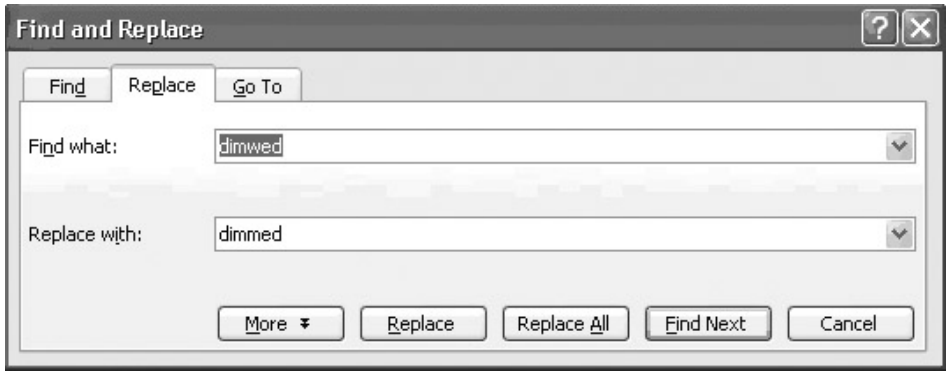


Fig. 9.44

We have different option tabs available in this menu and the explanations of each of are given below:

Replace : Replaces the selected instance of the search criteria, finds the next occurrence, and then stops.

Replace All : Replaces all occurrences of the search criteria in our document.

Find next : Finds and selects the next occurrence of the text or formatting specified in the "**Find what**" box.

Go to : This is used to select the location where we want to search. Follow the steps given below to use this option. Click the type of location we want to move to. Then enter the item number in the "**Enter**" box and click "**Go To**" (**Fig. 9.45**).



Fig. 9.45

For example, if we want to find a pattern in page number say **21** then enter the page number in the available. "**Enter page number**" box as shown in **Fig. 9.46**.

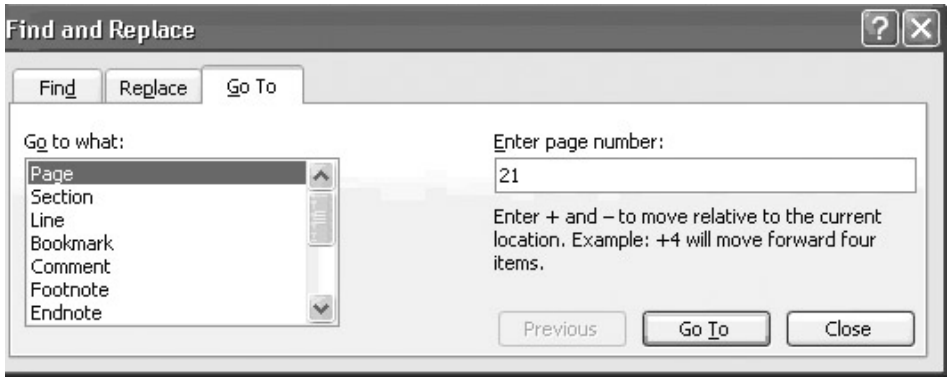


Fig. 9.46

How do we find the grammatical and/or spelling mistakes in the text? When we get a green line below the text that means that there is some grammatical error and if there is red line below the text it means it is the spelling mistake. We can correct these mistakes by right clicking on the text which has either green or red underlining and opting for the correct text, which is suggested by the application.

Consider the following example:

Point the *cursor* on the word "**Appliction**" and *right click* on it and a suggestion for correct words is obtained as shown in **Fig. 9.47**, *select* the proper required word.

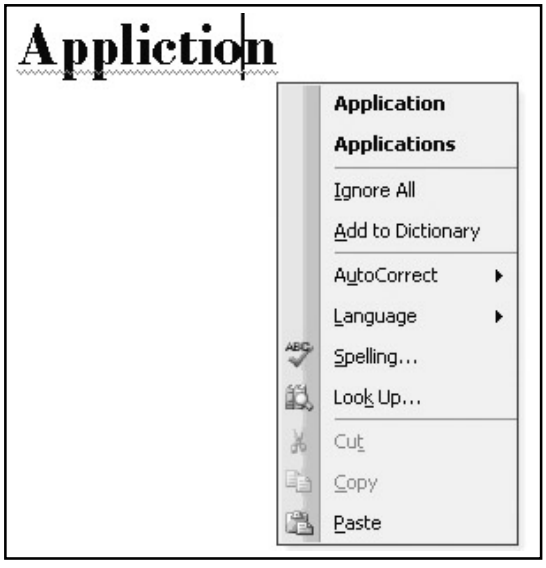


Fig. 9.47

9.11 INSERTION

In some cases, we may require to have some mathematical symbols, special symbols or pictures to be present in our document. But we may not have keys for those symbols and pictures in the keyboard. In this kind of situation, the special symbols or pictures can be inserted without typing it or drawing it respectively.

Inserting symbols:

To insert the special symbols follow the steps given below:

1. Point the cursor to the location where we want to insert the symbol and then click on "**Insert**" option available in the Menu bar, we will get a drop-down menu as shown in **Fig. 9.48**.

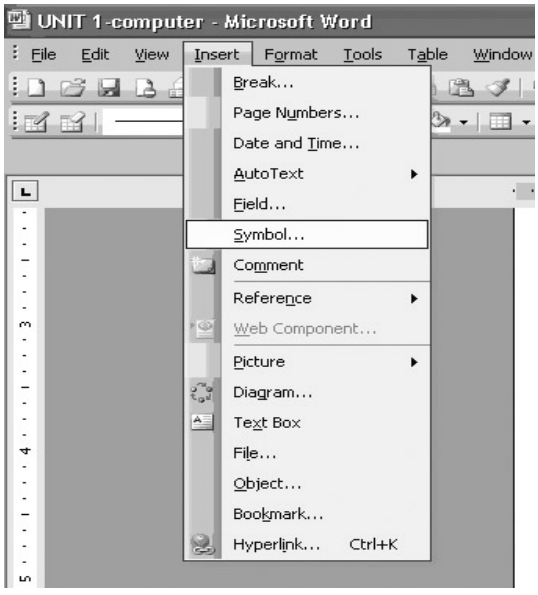


Fig. 9.48

2. Now click on "**Symbol**" option available and we will get a menu as shown in **Fig. 9.49**.

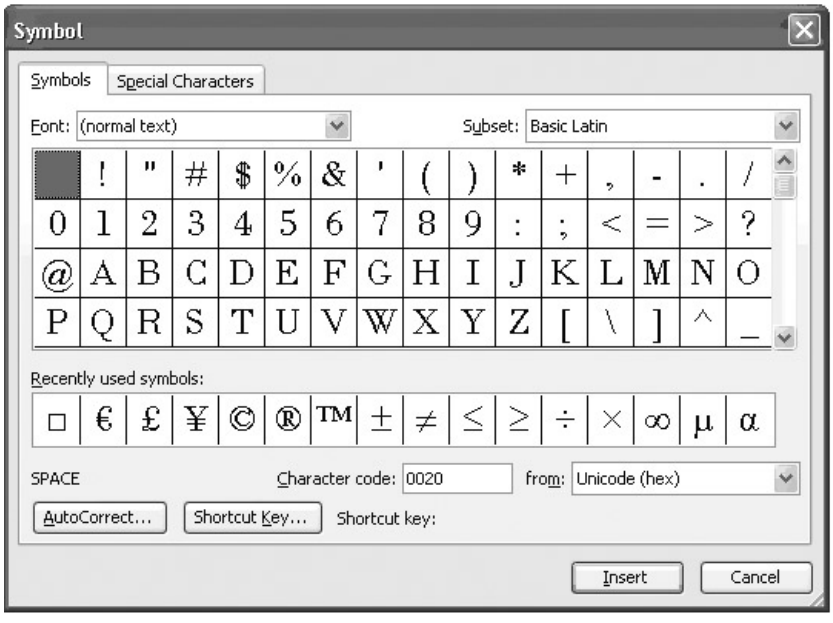


Fig. 9.49

3. We can select the required font and can also select the different subset of symbols.
4. Once we select the required symbol in subset (**Fig. 9.50**), click on "**Insert**".

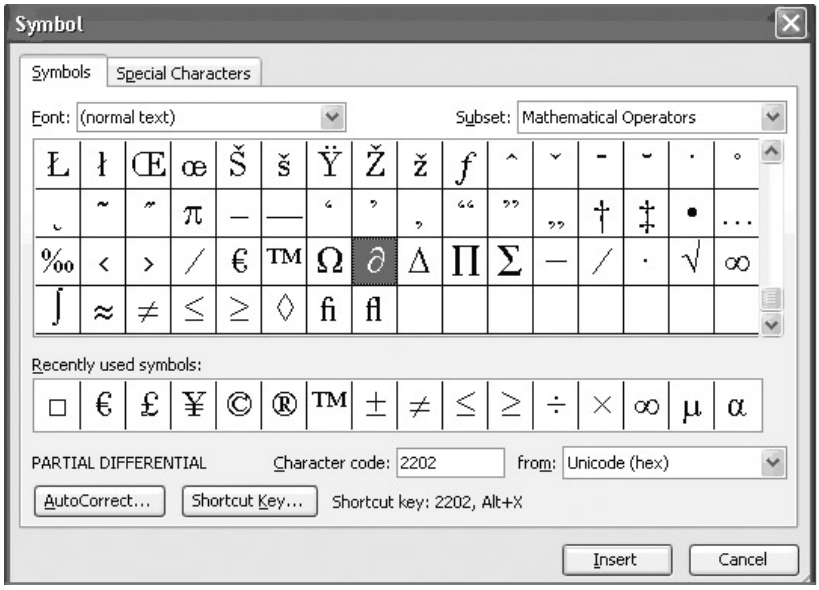


Fig. 9.50

Inserting Picture:

To insert a picture follow the steps given below:

1. Point the cursor to the location where you want to insert the pictures and then click on "**Insert**" option available in the menu bar, you will get a drop-down menu as shown in **Fig. 9.51**.

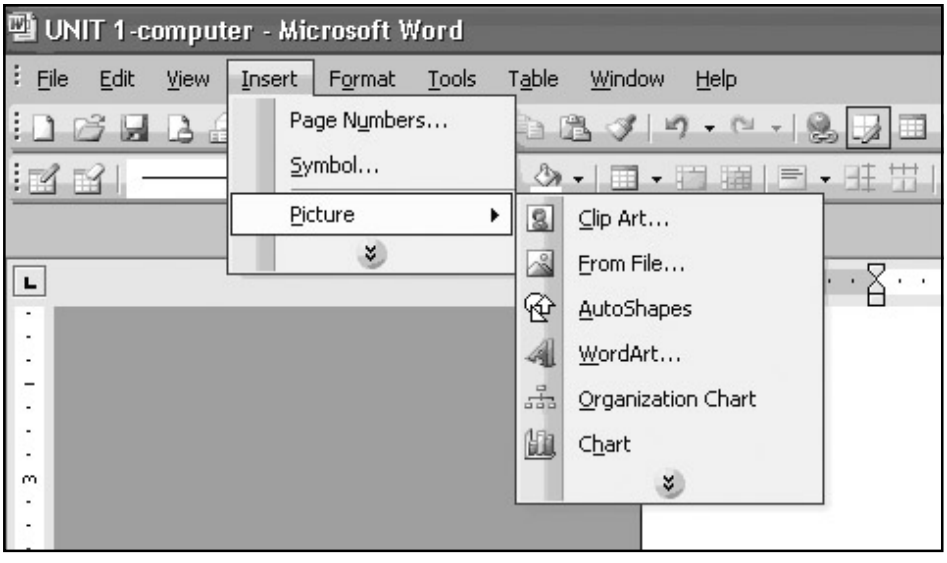


Fig. 9.51

Now you can insert a picture from the existing **MS-Word** repository or from a file where the users have stored pictures.

Inserting Clip Art: Click on "**Clip Art**", you will get a menu as shown in **Fig. 9.52**, which shows different categories of available pictures. Click on to required category, you will get another menu and here select the required pictures and insert it into location in your document.

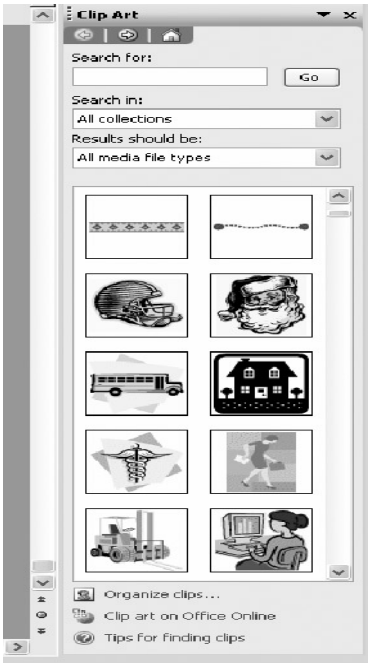


Fig. 9.52

Inserting Picture from a file:

1. Point the cursor to the location where you want to insert the picture and then click on to "**Insert**" option available in the menu bar, you will get a drop-down menu as shown in **Fig. 9.51**.
2. Now click on to "**Picture**" option, you will get a sub-menu as shown in **Fig. 9.51**
3. Click on "**From File**", give the path of the picture file, where the picture, you want to insert, is stored.

Insert Word Art:

This option will allow us to insert our text in the style, which we have selected.

1. Point the cursor to the location where we want to insert the picture and then click on "**Insert**" option available in the Menu bar, we will get a drop-down menu as shown in **Fig. 9.51**.
2. Now click on "**Word Art**" we will get a menu as shown in **Fig. 9.53**.

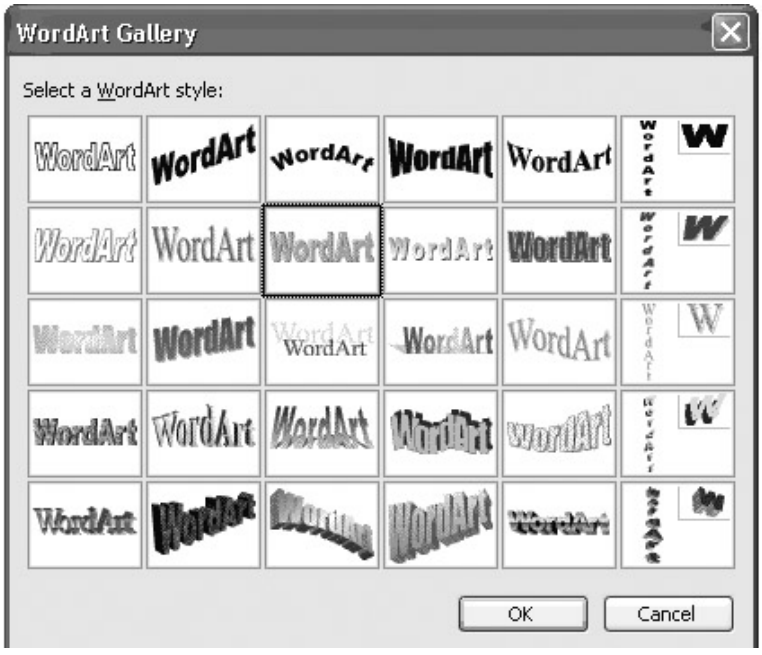


Fig. 9.53

3.Select the style we want and then click "**OK**", we will get a menu, which will allow us to type our required message. After typing our message, click "**OK**", we will get our typed text displayed in our document.

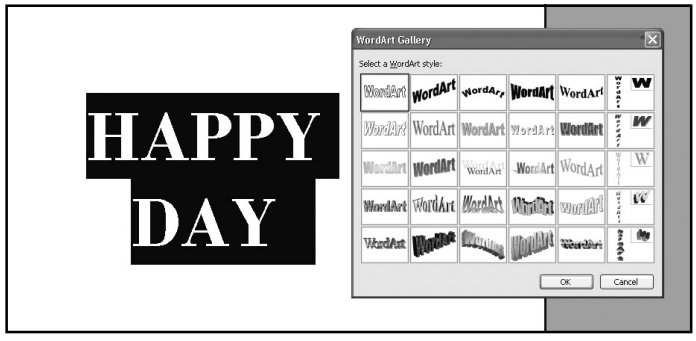


Fig. 9.54



Fig. 9.55

Inserting Charts: Even the charts can be inserted in the **Word** document and the chart's properties can be modified.

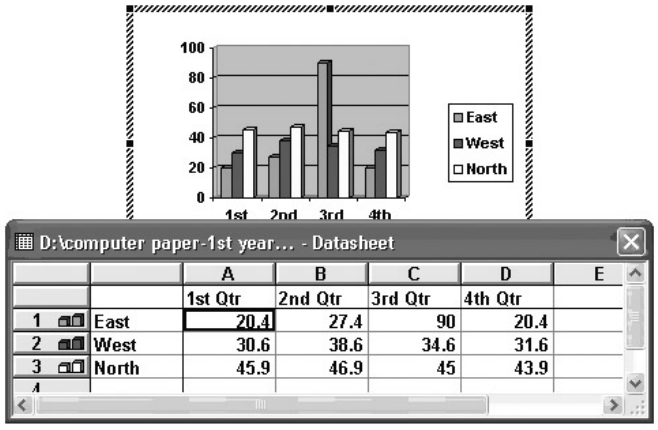


Fig. 9.56

To get the property sheet of the chart, right click on chart area and we will get a menu as shown in **Fig. 9.57**.

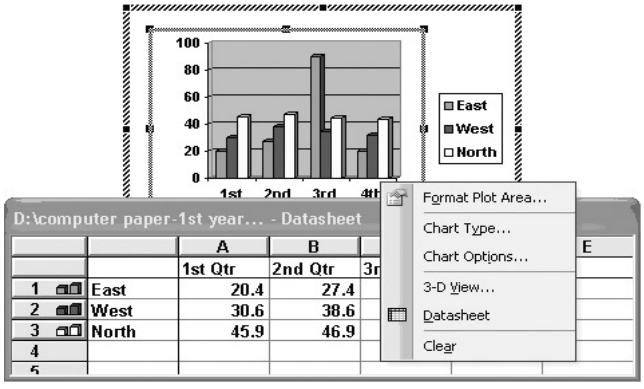


Fig. 9.57



ACTIVITY 9.1

Type ‘COMPUTER” using Word Art and save the file.

Inserting Tables: Table can be inserted in the document by following the steps given below:

1. Move the cursor at the location, where we want to insert the table and then click on “**Table**” menu and we will get a menu as shown in **Fig. 9.58**.

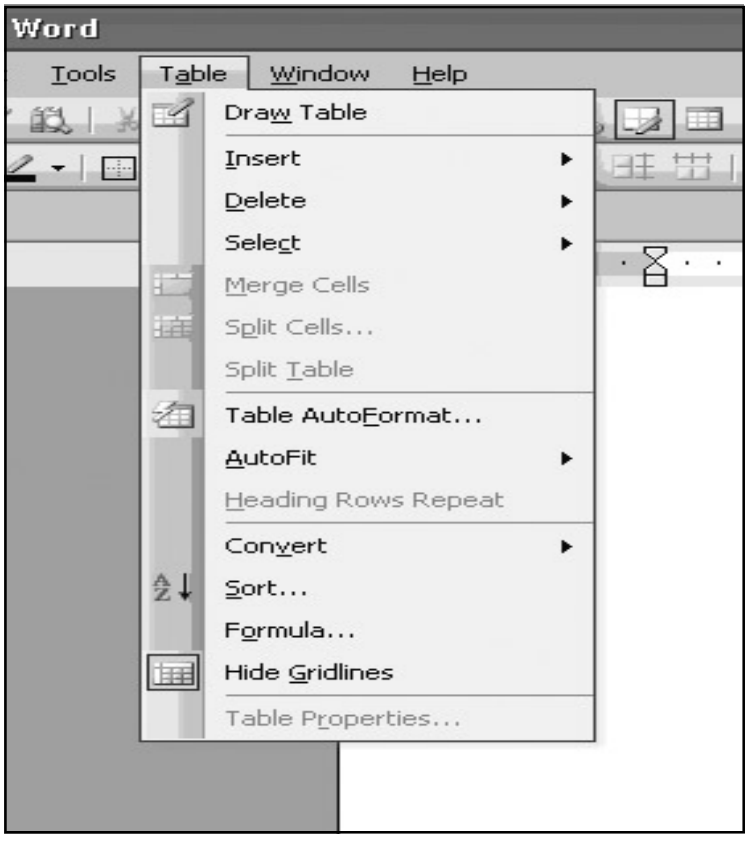


Fig. 9.58

2. Move the cursor on the "**Insert**", we will get another menu where we have "**Table**" option and we will get a menu as shown in **Fig. 9.59**.

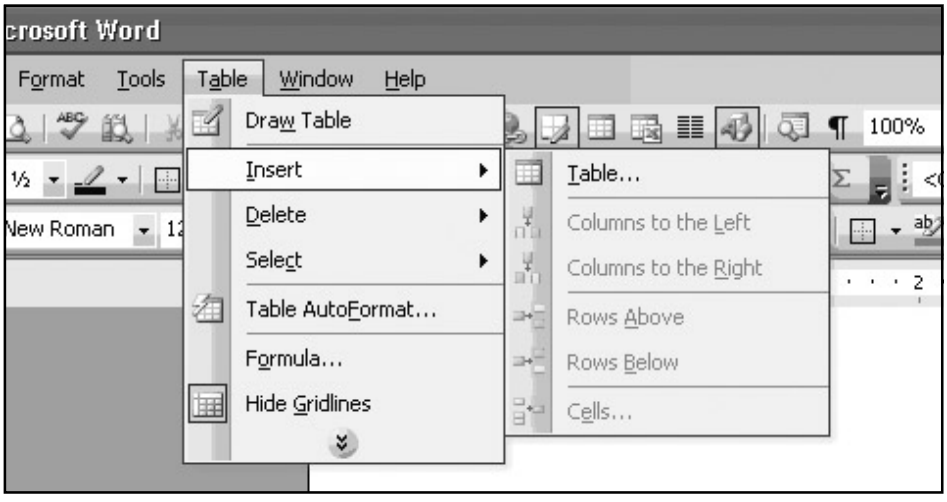


Fig. 9.59

Fig. 9.60

3. Select the number of Rows and Columns we want in the table and click on "**OK**". The table will be inserted at the location where we have pointed the cursor earlier.

Modifying the table properties:

The property of the table can be modified that is inserting/deleting the rows and columns, merging the cells, changing the shade of the border etc. To modify the property of the table, select the table by dragging the mouse on the table area and then click on "**Table**" menu available in the Menu bar. We will get a drop-down menu as shown in **Fig. 9.61**.

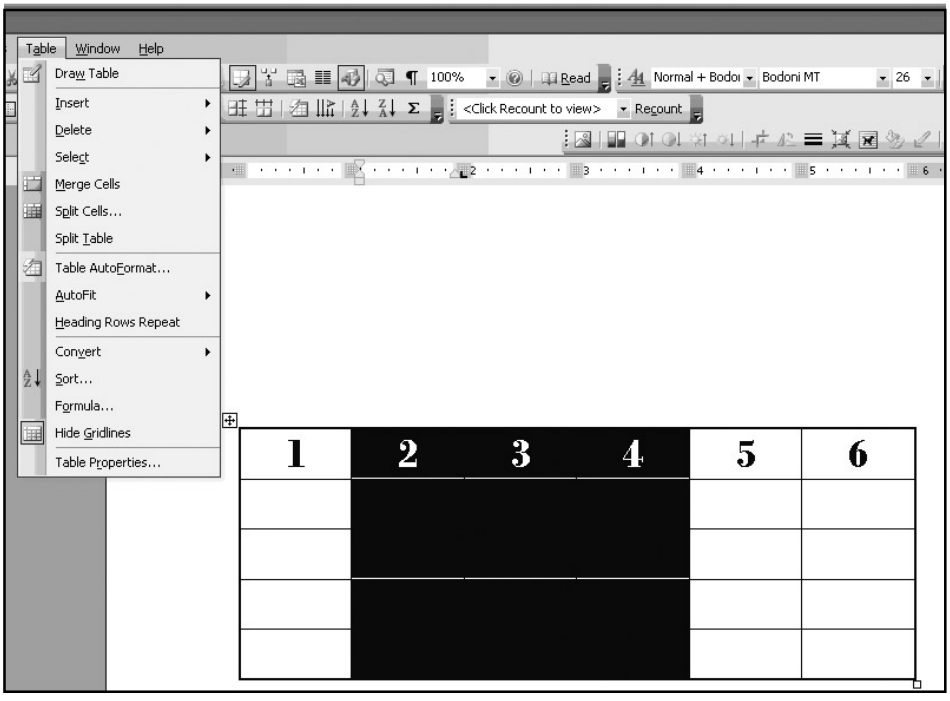


Fig. 9.61

Note: Black patches in **Fig. 9.61** shows the selection of columns in the table, which we want to modify. Different options available are:

Table: By clicking on to "**Table**" option, a table inside the present table will be added with default number of Rows and Columns.

Columns to the Left: This option will add the column to the left of the selected column. Column selection made in **Fig. 9.61**. Column added **Fig. 9.62**.

1	2		3	4	5	6

Fig. 9.62

Columns to the right: This option will add the column to the right of the selected column. Column selection made in **Fig. 9.61**. Column added **Fig. 9.63**.

1	2	3		4	5	6

Fig. 9.63

Rows Above: This will add rows to the above the selection. **Fig. 9.64** shows the selection of the row and **Fig. 9.65** shows the insertion of the row.

1	2	3	4	5	6

Fig. 9.64

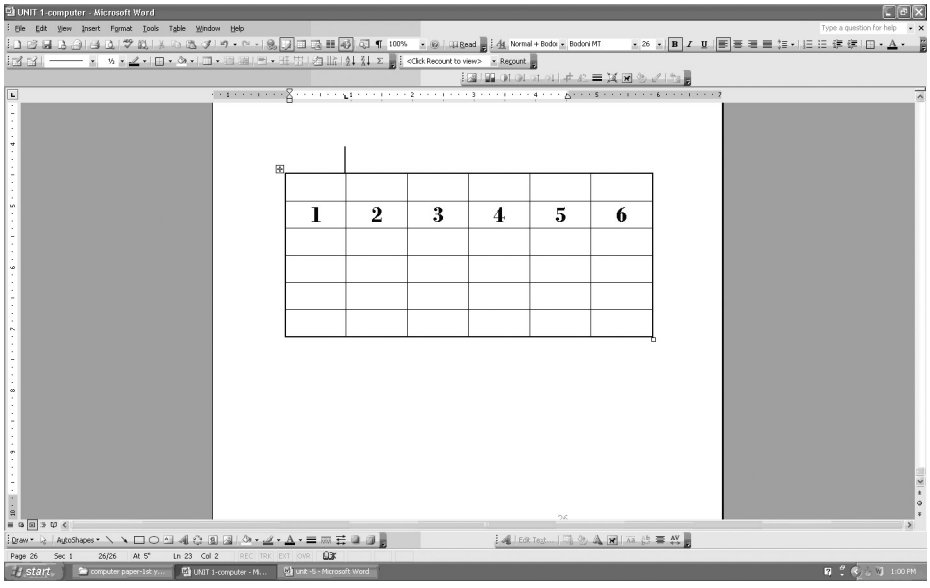


Fig. 9.65

Rows below: This will add the rows below the selection. **Fig. 9.66** shows selection of the row and **Fig. 9.67** shows the insertion of the row below the selection.

1	2	3	4	5	6

Fig. 9.66

1	2	3	4	5	6

Fig. 9.67

Cells: After we make the selection of insertion by selecting a cell, this option will display a menu as shown in **Fig. 9.68**. Select the required option and click "**OK**". The explanations for all the options are given below:

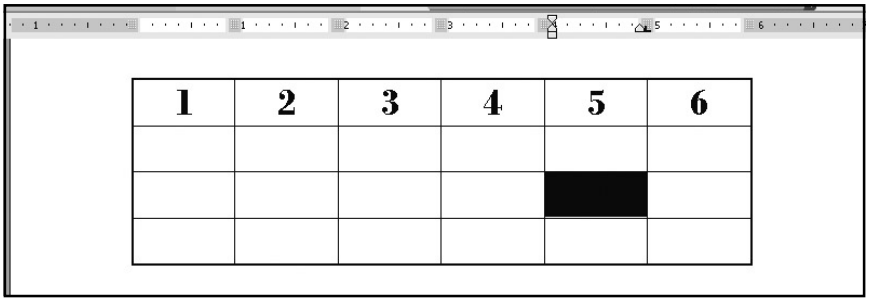


Fig. 9.68

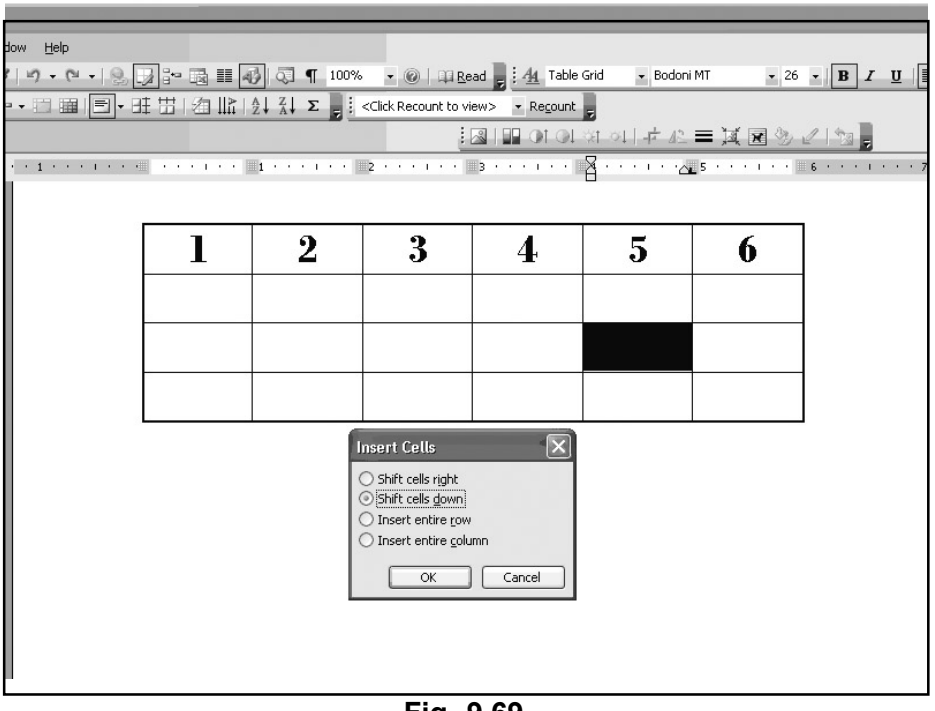


Fig. 9.69

Shift Cells Down: Inserts new cells above the selected cells.

Shift Cell Right: Inserts new cells to the left of the selected cells.

Insert entire row: Inserts an entire row above the row that contains the selection.

Insert entire column: Inserts an entire column to the left of the column that contains the selection.

Merge Cells: This option will merge the selected Table, Rows, Columns and Cells. **Fig. 9.70** shows the selection. **Fig. 9.71** shows the Delete menu and **Fig. 9.72** shows the merged cells.

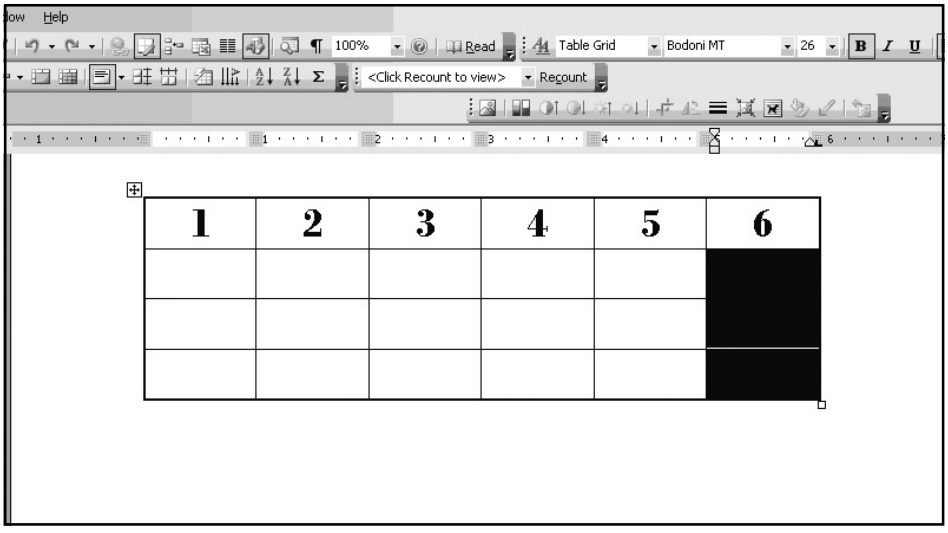


Fig. 9.70

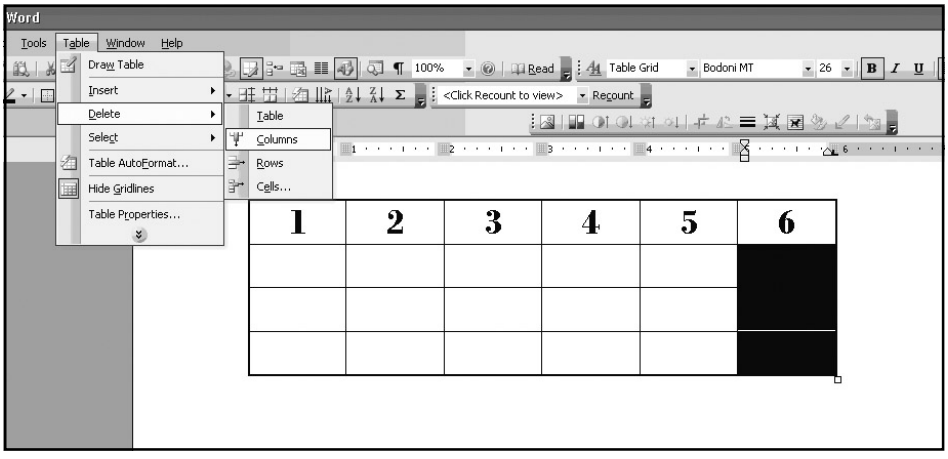


Fig. 9.71

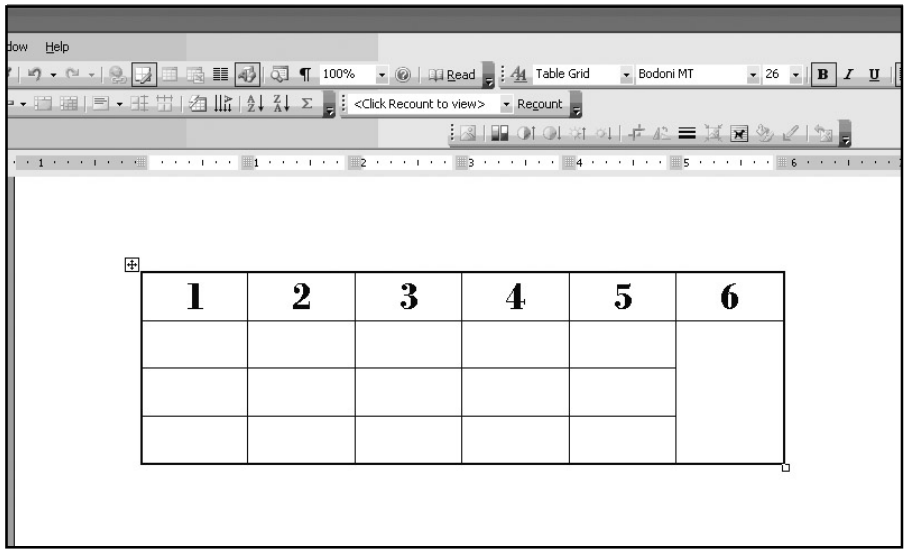


Fig. 9.72

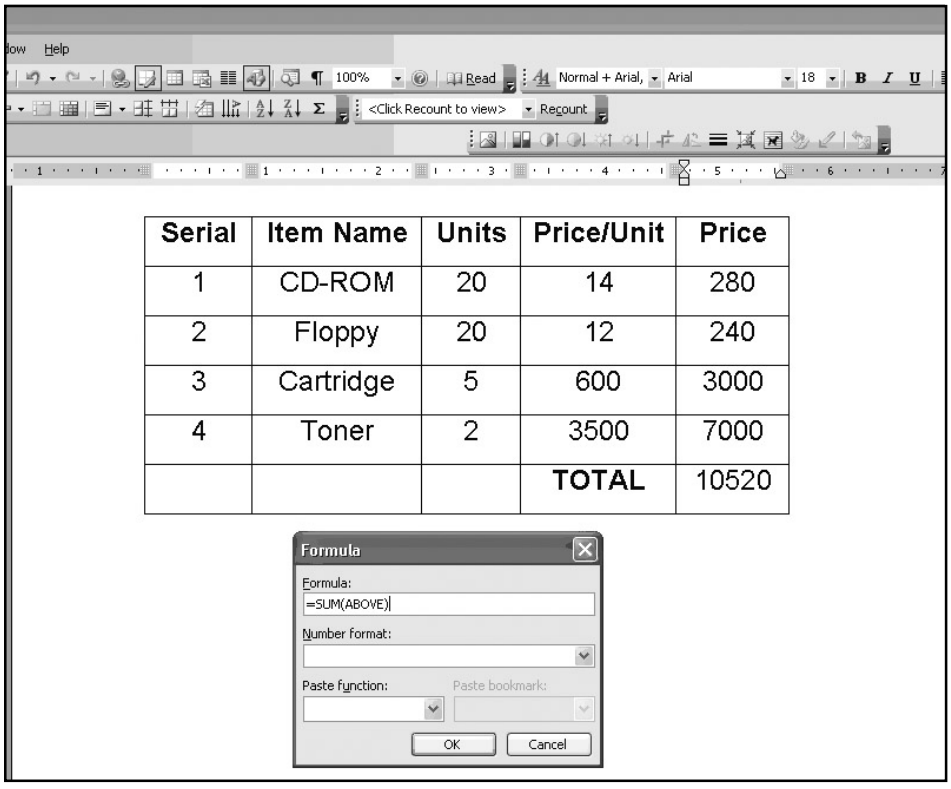
9.12 IMPLEMENTING FORMULA ON TABLE CONTENTS

Consider the following table. In that, consider last column and assume that we want to add the contents to find the total. To do that, follow the steps given below.

1. Point the cursor where we want to get the total.
2. Click on "**Table**" option of menu bar and from the resulting menu click on "**Formula**" option. We will get a menu as shown in **Fig 9.74**. Select the required function from the "**Paste**" function list box (**Fig. 9.74**). There are many functions available. In our case since we want to add the contents, we select the function **SUM**( ) and type "**ABOVE**" inside the parenthesis to add the contents present above the cells where cursor was earlier pointing to. We can see the result in **Fig. 9.75**.

Serial	Item Name	Units	Price/Unit	Price
1	CD-ROM	20	14	280
2	Floppy	20	12	240
3	Cartridge	5	600	3000
4	Toner	2	3500	7000

Fig. 9.73



Serial	Item Name	Units	Price/Unit	Price
1	CD-ROM	20	14	280
2	Floppy	20	12	240
3	Cartridge	5	600	3000
4	Toner	2	3500	7000
			TOTAL	10520

Fig. 9.74

Serial	Item Name	Units	Price/Unit	Price
1	CD-ROM	20	14	280
2	Floppy	20	12	240
3	Cartridge	5	600	3000
4	Toner	2	3500	7000
			TOTAL	10500

Fig. 9.75

Formatting the contents of the table: The contents of the table can be formatted according to our needs using the options available in the Formatting Toolbar. For example, if we want to have serial numbers to be at the center of first column then select the contents of the first column and click on "**Center**" alignment option available on the Formatting Toolbar and we will get the table as shown in **Fig. 9.76**.

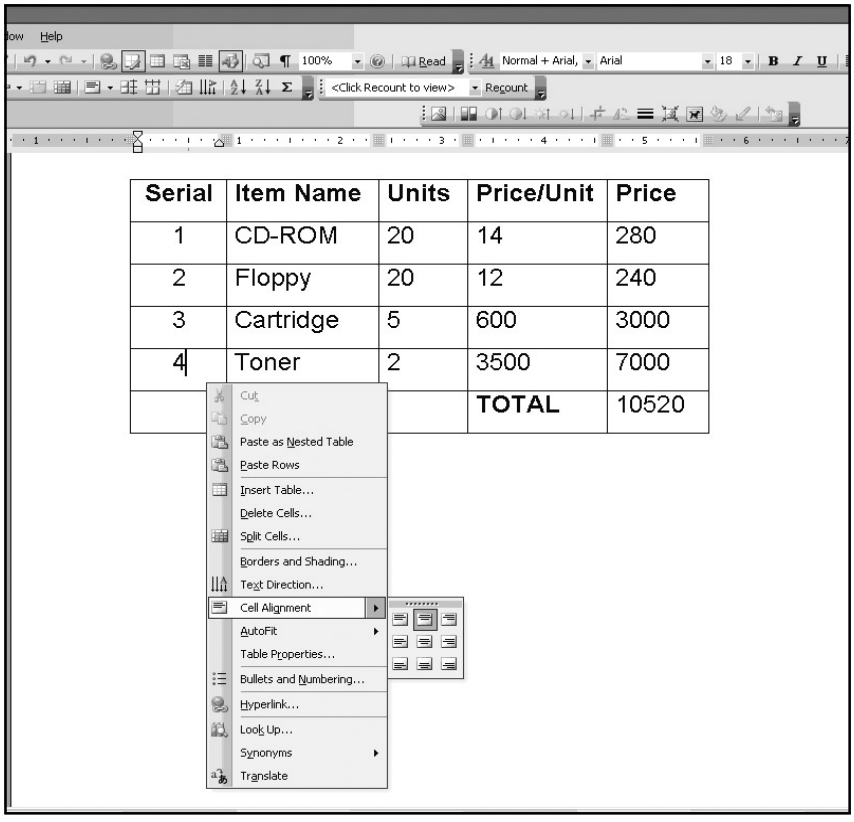


Fig. 9.76

Similarly we can have the different kinds of formatting according to our needs.

Draw table: Using this option we can draw a table using the drawing tool. To use this option, click on the "**Table**" option available in the menu bar. From the resulting menu, click on "**Draw table**" option and we will get the drawing tool as shown in **Fig. 9.77**. Use this tool to draw the table of our requirement as shown in **Fig. 9.78**.

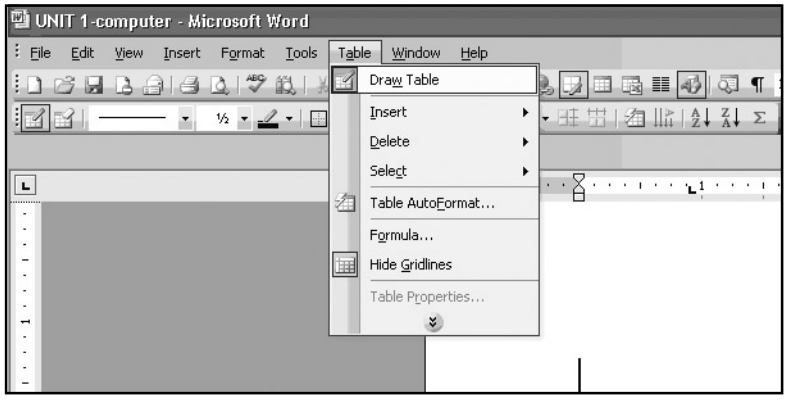


Fig. 9.77

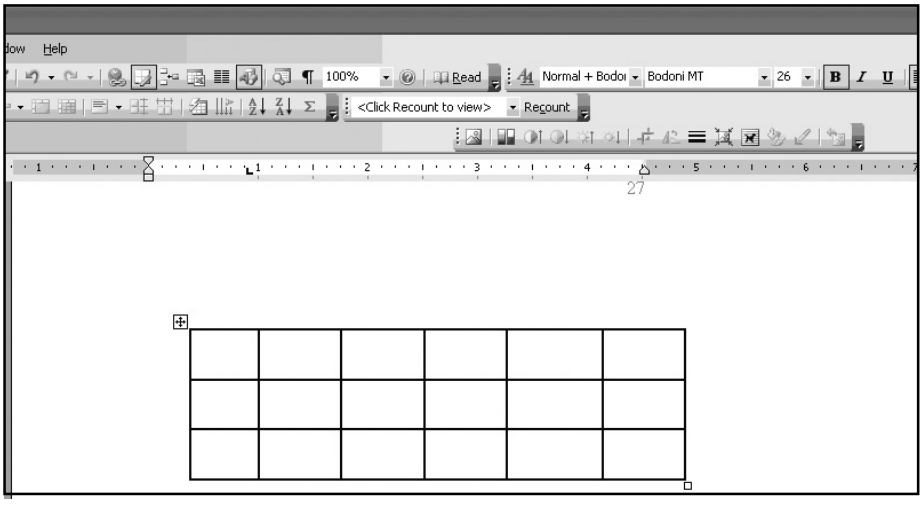


Fig. 9.78

9.13 HEADERS AND FOOTERS

Headers and Footers are typically used in printed documents. We can create headers and footers that include text or graphics - for example, page numbers, date, a company logo, the documents title or file name, or the author's name - that are usually printed at the top or bottom of each page in a document. A header is printed in the top-margin; footer is printed in the bottom-margin.

We can use the same header and footer throughout a document or change the header and footer for part of the document. For example, use a unique header or footer on the first page, or leave the header or footer off the first page. We can also use different headers and footers on odd and even pages or for part of a document.

Follow the steps given below to insert Headers and Footers.

1. Click on the '**View**" option available on menu bar, then click on "**Header and Footer**" available in the resulting menu, we will get a menu as shown in **Fig. 9.79**.

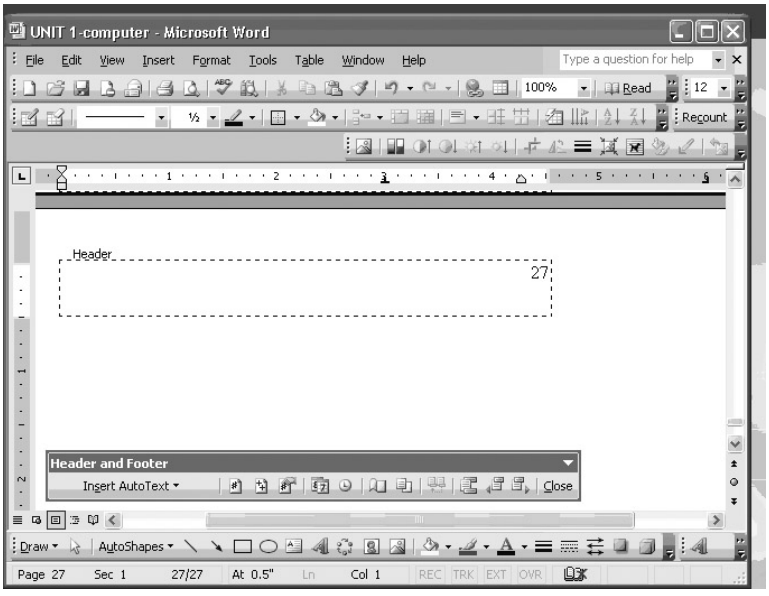


Fig. 9.79

2. To create a header, enter text or graphics in the header area. Or click, button on the Header and Footer bar.

To insert	Click
Page numbers	Insert page number
The current data	Insert date
The current time	Insert time

3. To create footer, click switch between Header and Footer to move to the footer area. Then repeat step 2.
4. When we finish, click "**Close**".

9.14 PAGE SETUP

Page can be set up the way in which we want. Follow the steps given below to set up a page.

Click on to "**File**" option available on Menu bar. Click on to "**Page Setup**" available on the resulting menu and we will get a menu as shown in **Fig. 9.80**.



Fig. 9.80

Page setup has four different tabs. They are **Margins**, **Paper size**, **Paper source** and **Layout**.

Options available in **Margins** tab are given below.

Top : Enter the distance we want between the top of the page and the top of the first line on the page.

Bottom : Enter the distance we want between the bottom of the page and the bottom of the last line on the page.

Left : Enter the distance we want between the left edge of the page and the left edge of unindented lines.

Right : Enter the distance we want between the right edge of the page and the right end of a line with no right indent.

Gutter : Enter the amount of extra space we want to add to the margin for binding. **Word** adds the extra space to the left margin of all pages if we clear the "**Mirror margins**" check box, or to the "**Inside margin**" of all pages if we

select the "**Mirror margins**" check box.

From Edge : Enter the distance we want from the top edge of the page to the top edge of the header. If the Header setting is larger than the Top setting, **Word** prints the body text below the header.

Header : Enter the distance we want from the top edge of the paper to the top edge of the header. If the Header setting is larger than the Top setting **Word** prints the body text below the header.

Footer : Enter the distance we want from the bottom edge of the page to the bottom edge of the footer. If the footer setting is larger than the Bottom setting, **Word** stops printing the body text above the footer.

Mirror Margins : Adjusts left and right margins so that when we print on both sides of the page, the inside margins of facing pages are the same width and the outside margins are the same width.

2 Pages per sheet : Prints the second page of a document on the first page. This check box is used when the printed page is folded in half with two pages on the inside. The outer margins (gutter) of the page will be the same width, and the inner margins will be the same width.

Apply to : Click the portion of the document we want to apply the current settings to in the "**Page Setup**" dialog box. We have two options here: **Whole document** and **This point onwards**.

Whole document means the settings, which we are making, will apply to all the pages in the file of which we want to take print out. **This point onwards** means the settings will be applicable to all the pages starting from the page in which we are actually making the settings.

Gutter position : We can set it either to the left or to the top of the page depending upon the radio button we will select.

Options available in "**Paper Size**" menu are given below (**Fig. 9.81**).

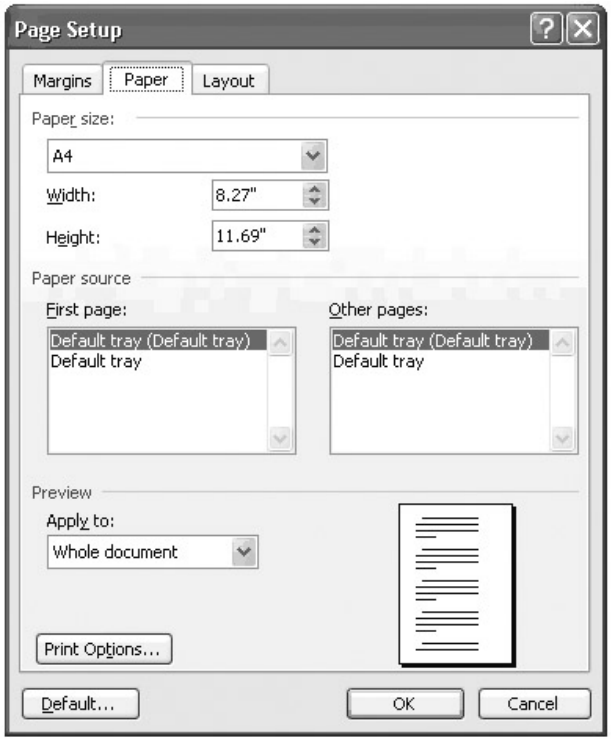


Fig. 9.81

Paper size: Click one of the paper sizes supported by our printer, or click **custom size** and then enter the paper size dimensions in the width and height boxes.

Orientation: Click a page orientation. When we change the page orientation, **Word** swaps the top and bottom margin settings with the Left and Right margin settings.

Review: Shows how our document will look with the selected options.

Apply to: Click the portion of the document we want to apply the current settings. We have two options here. **Whole document** and **This point onwards**. **Whole document** means the settings, which we are making, will apply to all the pages in the file of which we want to take print out. **This point onwards** means the settings will be applicable to all the pages starting from the page in which we are actually making the settings.

Options available in "**Paper source**" menu are given below:

First Page: Click the printer tray from which we want to print the first page

of each section. **Word** lists the feed available on our current printer.

Other pages: Click the printer tray from which we want to print the second and subsequent pages in each section. **Word** lists the feed options available on our current printer.

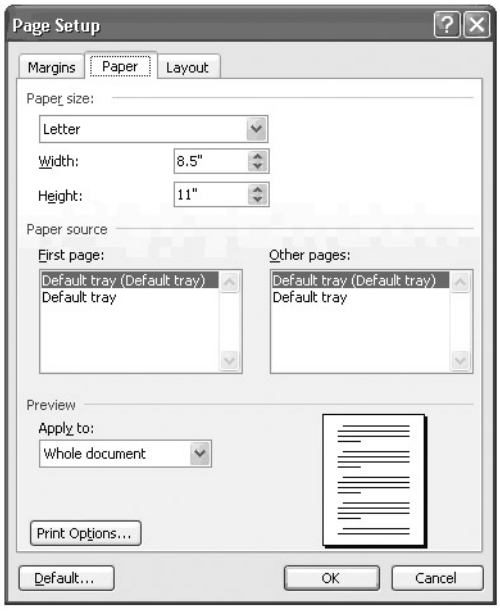


Fig. 9.82

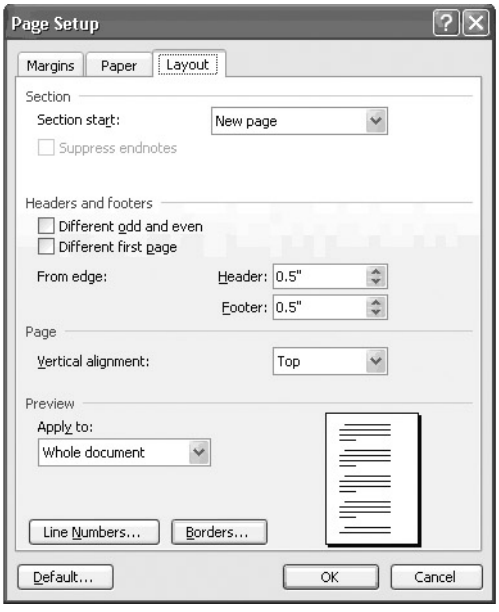


Fig. 9.83

"**Preview**" and "**Apply**" options are same as explained above. Options available in "**Layout**" menu are given below (**Fig. 9.83**).

Section Start: Tells **Word** where we want the current section to start.

Headers and Footers : Select the different odd and even check box to create one header or footer for even-numbered pages and a different header or footer for odd-numbered pages. Select the different first page check box to create a different header or footer for the first page of a section or document.

Vertical Alignment : Click the way we want to align text vertically between the top and bottom margins. The justified setting affects only full pages;

Word aligns pages with the top margin.

Line Numbers : Adds or removes line numbering from the portion of the document currently selected in the "**Apply to**" box.

Borders : Sets options for applying a border around each page in the document.

9.15 INDENTS

Setting Indents and spacing : Indents are used to set the position of text in relation to the left and right margins and spacing is used to set the amount of space between the lines and paragraphs. We can do it by invoking the "**Paragraph**" menu.

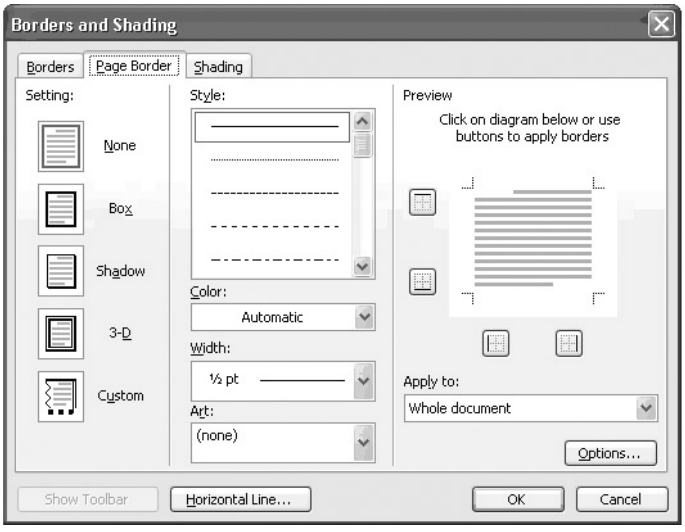


Fig. 9.84

Clicking on "**Format**" option available in the menu bar and clicking on the "**Paragraph**" option from the resulting menu can invoke "**Paragraph**" menu. "**Paragraph**" menu as shown in **Fig. 9.85**.

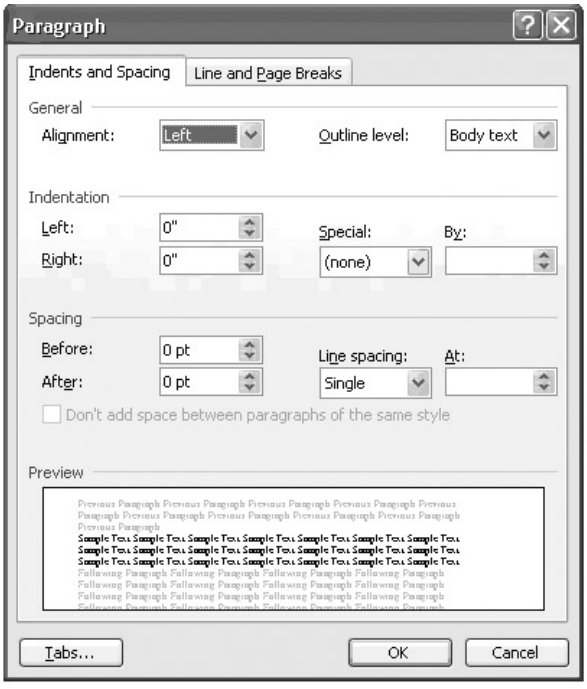


Fig. 9.85

Let us now discuss the different options available in this menu under "**Indents and Spacing**" tab.

Alignment : Sets the position of selected paragraphs relative to the indents. To align text relative to the left and right margins, remove any indentation formatting.

Outline level: Click the "**Outline level**", we want to assign to the selected paragraphs.

Indentation : Sets the position of text in relation to the left and right margins.

Left : Indents a paragraph from the right margin by the amount we enter in this box. If we want text to appear in the right margin, enter a negative number.

Special : Click first line to indent only the first line of a paragraph. Click hanging to indent all but the first line of a paragraph. Click (**none**) to remove special indentation formatting.

By : Enter the amount of indentation for a first line or hanging indent. **Word** clears this box if we click (**none**) in the special list.

Spacing : Sets the amount of space between lines and between paragraphs.

Before : Sets the amount of space above each selected paragraphs.

After : Sets the amount of space below each selected paragraph.

Line Spacing : Sets the amount of vertical space between lines of text. If we click "**At least**", "**Exactly**", or "**Multiple**", enter a value in the "**At**" box.

At : Enter the amount of vertical space we want between lines of text. This setting is effective only if we click "**At least**"', "**Exactly**", or "**Multiple**" in the "**Line Spacing**" box.

Students are advised to consider a text and make paragraph settings according to the **Fig. 9.84**

9.16 TABS

This is used to set or change the tab stop settings in a paragraph. Click on to "**Tabs**" option available in "**Paragraph**" menu, we will get the "**Tabs**" menu as shown in **Fig. 9.86**.

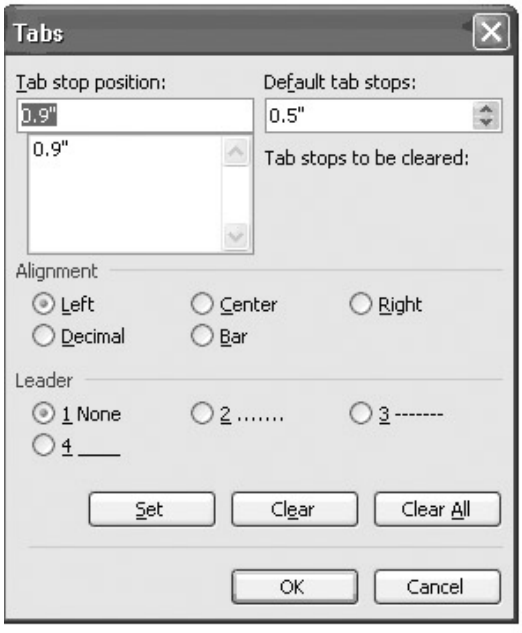


Fig. 9.86

Tab stop position : Type the measurement for a new tab stop, or click an existing tab stop and then type a new measurement for it.

Default tab stops : Sets the default spacing between tabs stop.

Alignment: Click the way we want text to be aligned at the tab stop. To change the alignment for an existing tab stop, click it on the Tab stop positive box, and then click the non alignment option.

Left : Extends text to the right from the tab stop.

Center : Center text at the tab stop.

Right : Extends text to the left from the tab stop. If text fills the space to the

left of the tab stop, the text often extends to the right.

Decimal : Aligns a decimal point at the tab stop. Text or numbers without a decimal point extends to the left of the tab stop.

Bar : Inserts a vertical line at the tab stop.

Leader : Click on the **dotted**, **dashed**, or **solid line** option to fill the empty space to the left of a tab stop.

Click

1. "**None**" to leave the space blank or to remove a previously applied leader line.
2. Fills the empty space to the left of a tab stop with a dotted leader line.
3. Fills the empty space to the left of a tab stop with a dashed leader line.
4. Fills the empty space to the left of a tab stop with a solid leader line.

Tab stops to be cleared : Lists the tab stops that will be cleared from the selected paragraphs when we click "**OK**". **Word** does not clear these tab stops if we click "**Cancel**".

Set: Sets a tab stop using the current settings.

Clear: Clears the tab stop that is selected in the "**Tab stop position**" box. **Word** lists the tab stops to be cleared at the bottom of the dialog box and actually clear them when we click "**OK**".

Clear All: Clears all the custom tab stops listed in the Tab stop position list. **Word** lists the tab stops to be cleared at the bottom of the dialog box and actually clears them when we click "**OK**".

Fig. 9.87 shows the setting of default tab stop which shows **0.5 inches** there onwards.

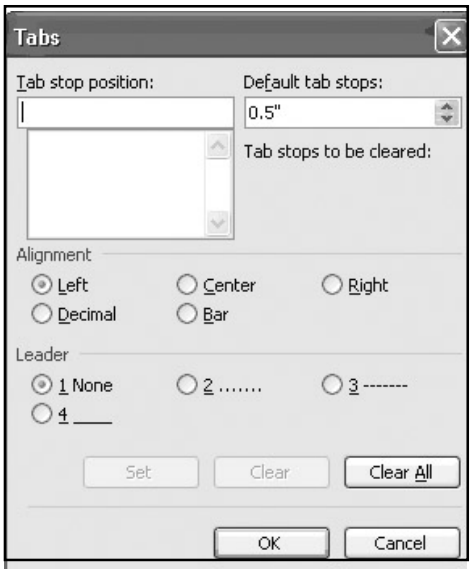


Fig. 9.87

9.17 COLUMNS

This is used to create newspaper columns to continue a story in the next column on the same page.

Assume that we have typed a paragraph and we want to divide that into columns. To do this follow the steps given below:

1. Be in the page where we have typed the paragraphs and click on to "**Format**" option available on Menu bar.
2. From the drop-down menu, click on to Column option. We will get a menu as shown in **Fig. 9.88**.

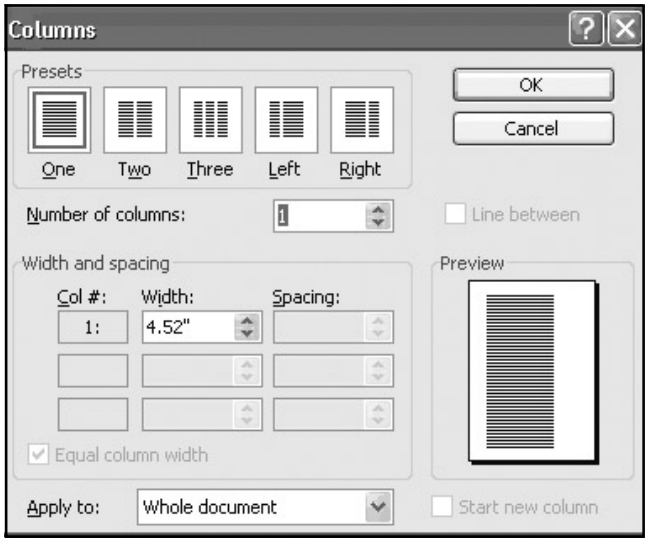


Fig. 9.88

Here, select the number of columns we want to have and other configurations and click "**OK**" to effect the change. The menu in **Fig. 9.88** has different options, which are discussed below.

3. **Fig. 9.89** shows the settings in "**Column**" menu and shows the columns of text from the paragraph we have typed.

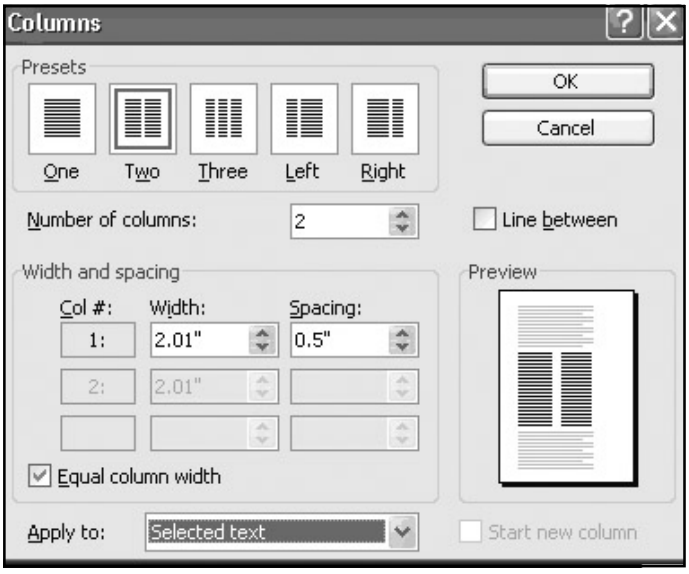


Fig. 9.89

Different options available in Columns menu:

Presets : Click one of these common preset column formats or enter our own custom settings.

One : Inserts a single column.

Two : Inserts two columns of equal width.

Three : Inserts three columns of equal width.

Left : Inserts two columns, of which the left column is half as wide as the right.

Right : Inserts two columns, of which the left column is half as wide as the left.

Number of columns : Enter the number of columns we want in a document or section of a document.

Width and Spacing : Enter the width and spacing measurement for each column. If the "**equal column width**" check box is selected, the width and spacing settings for column apply to all the columns.

Line Between : Adds vertical lines between columns.

Apply to : Click the portion of the document to which we want to apply column formatting. Here we have got two options **Whole document** and **this point onwards**. **Whole documents** mean column format will be applied to the contents of entire document. **This point onwards** means column format will be applied to the document from the point we specify to the document from the point we specify or we can even select the paragraph to which we want to apply the column format.

Start new column : Moves text following the insertion point to the top of the next column.

9.18 CHANGE CASE

This menu provides us with the different options of cases that we can apply to the text.

First select the text to which we want to apply the required case and click on "**Format**" option available on Menu bar. From the drop-down menu, click on "**Change case**" option. We will get a menu as shown in **Fig. 9.90**.

Here selected kind of case we want to have and click "**OK**" to effect the change.

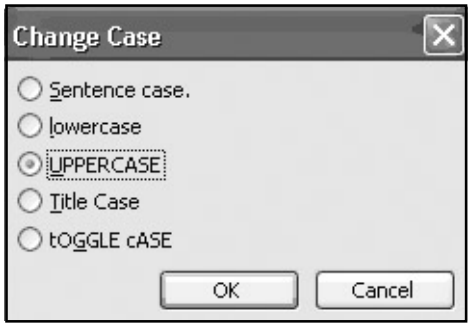


Fig. 9.90

The menu in **Fig. 9.90** has different options, which are discussed below.

Sentences case : Capitalizes the first letter of the first word in the selected sentence.

Lower case : Changes all selected text to lower case text.

Upper case : Changes all selected case to capital letters.

Title case : Capitalizes the first letter of each word in the selection.

Toggle case : Changes all upper case letters to lower case in the selection and vice-versa.

The options themselves are the example for different case which can be applied to.



9.19 LET US SUM UP

Microsoft Word is an Editor. The basic components of this software are **Title Bar**, **Menu Bar**, **Standard Toolbar** and **Formatting Toolbar**. Using this software we can create a new document, edit it, format it if needed. Documents can be formatted in terms of Font type, Font size etc. We can even make some part of the document highlighted. The document can be aligned according to our needs. The numbering can be provided to different points. Proper indentation also can be provided. Symbols, Pictures, Tables can also be inserted in the document. A particular word can be searched and it can be replaced with the new word if required. The printing of the document can be done with the help of this software. The default extension of a **Word** document is "**doc**".



9.20 FURTHER READING

1. Computer Application in Management – *Sanjay Saxena & P. Chopra*.
2. Computer Applications in Business – *R. Parameswaram*.
3. Computer Fundamentals – *V. Rajaraman*.

9.21 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No. 1: Microsoft Word is such software which can be used to create, format, store, retrieve, edit and print the document.

Ans. to Q.No. 2: Title Bar, Menu Bar, Standard Toolbar, Formatting toolbar, Editing area, Scroll Bars, Drawing Tool Bar, Status Bar

Ans. to Q.No.3: Use of New Blank Button on standard tool bar

Use of File option button on Menu Bar

Press Ctrl and N key simultaneously

Ans. to Q.No. 4: Using the Exit option

Using the Close button on the title bar.

9.22 MODEL QUESTIONS

A. Very Short Questions

Q.1:Open MS-Word and type the following Paragraph :

Computers have been called “mind tools” because they enhance our ability to perform tasks that require mental activity. Computers are adopting at performing activities such as making calculation quickly, sorting large units, and searching through vast information libraries. Humans can often accomplish them much faster and more accurately. Our ability to use a computer complements our mental capabilities and makes us more productive. The key to making effective use of the computer as a tool is to know what a computer does, how it works, and how we can use it.

Now, follow the following points (para & bold change)

a. Format the paragraph with Bold, Size-**20**, Font=**Arial**, Color=**Blue** and justified alignment and apply proper header and footer.

b. Convert the above paragraph into three columns with alignment justified and lines in between.

c. Convert the above paragraph into three columns with alignment

justified and lines in between.

d. Insert picture using clip art and place it in middle of the paragraph.

B. Short Questions (Answer each question in about 150 words)

Q.1. Open New Word document and type the following paragraph.

We can define a computer as a device that accepts input, processes data, stores data, and produces output. A computer is actually part of a computer system. Let us look more closely at the basic elements of a computer system.

Hardware includes the electric, electronic and mechanical device used in processing data.

A computer requires a set of instructions, called software or a computer program, which tells the computer how to perform a particular task.

Now follow the following points (para change & bold)

a. Set the first line indents of first paragraph to **2** inches.

b. Set double line spacing for the second paragraph.

c. Set **2pt** space before and after all the paragraphs.

C. Long Questions (Answer each question in about 300-500 words)

Q.1 : What are the basic components of MS-Word ?

Q.2 : What are headers and footers ?

*****

UNIT-10 : MS POWERPOINT

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Starting of Microsoft PowerPoint

10.3.1 Part of PowerPoint

10.4 Creation of PowerPoint Presentation

10.5 To Include a Chart in the Slide.

10.6 To Impart a Data Sheet.

10.7 Formatting Options

10.8 Slide Transition

10.9 Different Views of the Presentation

10.10 Let Us Sum Up

10.11 Further Reading

10.12 Answers To Check Your Progress

10.13 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- define how to start MS PowerPoint
- explain parts of PowerPoint Window
- create PowerPoint presentation
- explain saving the PowerPoint presentation
- outline chart in a slide
- explain imparting datasheet from a file
- outline formatting the slides
- define slide transitions
- explain different views of the presentation.

10.2 INTRODUCTION

Microsoft PowerPoint is a most widely used utility to create presentations relating to products, organisations, research papers etc. This

presentation can be created at ease and with immense speed. It is an effective software which provides techniques for designing the dynamic presentations. Using this software a slide can be designed, text can be inserted, graphics can be inserted and animation can be given to the slides and the objects within the slide.

10.3 STARTING OF MICROSOFT POWERPOINT

Following steps are undertaken to start Microsoft PowerPoint.

1. Move the mouse pointer over the ‘‘Start” button present on the extreme left of the task bar and then click the left mouse button. A push up menu appears.
2. Place the mouse pointer over the ‘‘All Programs’’ option inside the push up menu. A second menu gets displayed immediately.
3. Move the mouse pointer over Microsoft PowerPoint option and click the left mouse button. You will get the screen as shown below **Fig. 10.1**.



Fig. 10.1

4. You can create a new presentation by one of the methods given below:
   a) Auto Content Wizard
   b) Design Template
   c) Blank Presentation

Each of this presentation method can be selected using the radio button adjacent to each of them or you can open an existing presentation.

LET US CONSIDER BLANK PRESENTATION

You can create a blank presentation by clicking on the radio button next to blank presentation and then click OK (**Fig. 10.1**).

After following the above mentioned steps you will get a screen as shown below (**Fig. 10.2**).

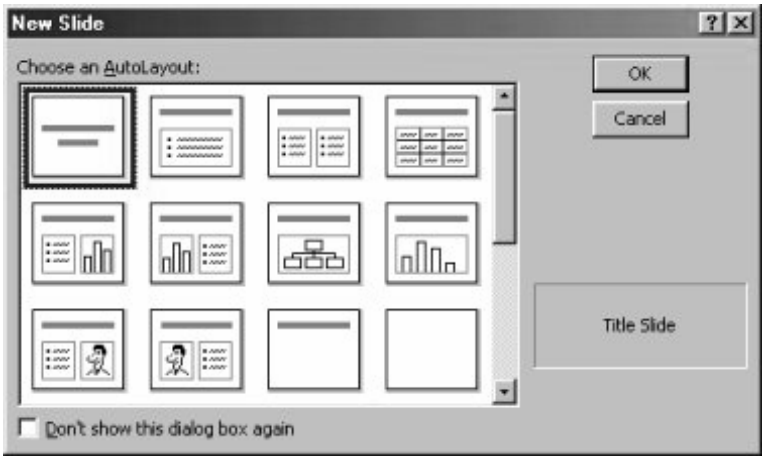


Fig. 10.2

10.3.1 PARTS OF POWERPOINT WINDOW

1. **Title Bar -** It displays the application name, file name and various window controls like minimize button, maximize button and close button etc.
2. **Menu Bar -** It displays different options for selection.
3. **Standard Toolbar -** Displayed by default, allows to give common commands like saving the file, opening a file, printing a file etc.
4. **Formatting Toolbar -** Allows the user to give commands related to formatting cells and cell contents like Bold, Underline, Font Style, Font Size, Font Color etc.
5. **The Drawing Palette -** This is used to draw different shapes.
6. **View Bar -** This is used to change the view of the screen.

10.4 CREATION OF POWERPOINT PRESENTATION

SLIDE LAYOUTS

Each PowerPoint presentation can have only one slide or it can have more than one slide. Each of these slides can have its own page layout associated with it. The page layout decides the position of the various objects like text, pictures etc. in the slide. Page layout also specifies the appearance of the text like its style, color, size etc.

PowerPoint provides 24 different types of page layouts along with a blank page.

FOLLOW THE GIVEN STEPS TO CREATE THE POWERPOINT PRESENTATION

1) Select the slide layout by moving the mouse pointer over the required layout and then click the left mouse button, then click on OK or you can cancel the selection by clicking on the Cancel.

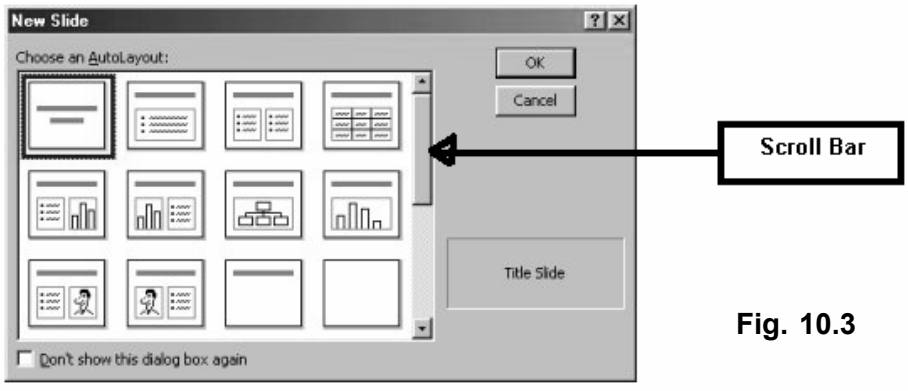


Fig. 10.3

Each of these layouts has different names like Title Slide, Bulleted List, Table, Organization, Charts, etc. as discussed earlier. On the screen 12 layouts are visible. Use scroll bar to see the other layouts.

On clicking OK you will get the screen as shown below :

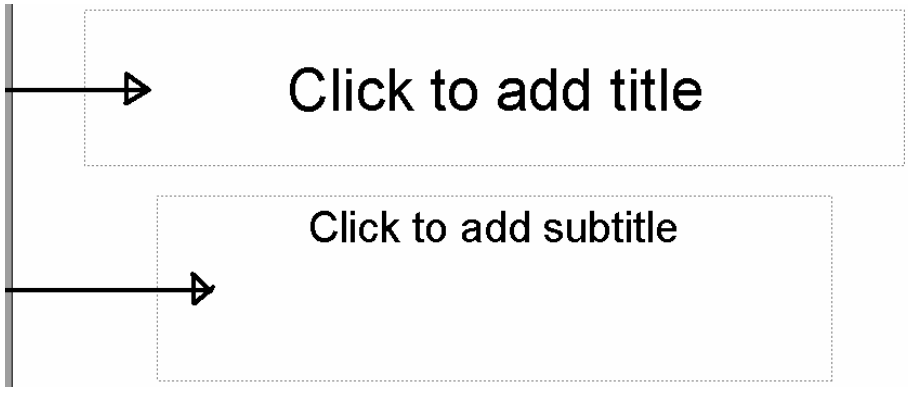


Fig. 10.4

2) To add text to the upper box as given in the box, click the mouse pointer inside the box. Now you can type any text you want. Say for example K.K. Handique State Open University.
3) Now to add text to the lower box, click inside that box and start typing the text you want to add. You will get the screen as shown in **Fig. 10.5**.

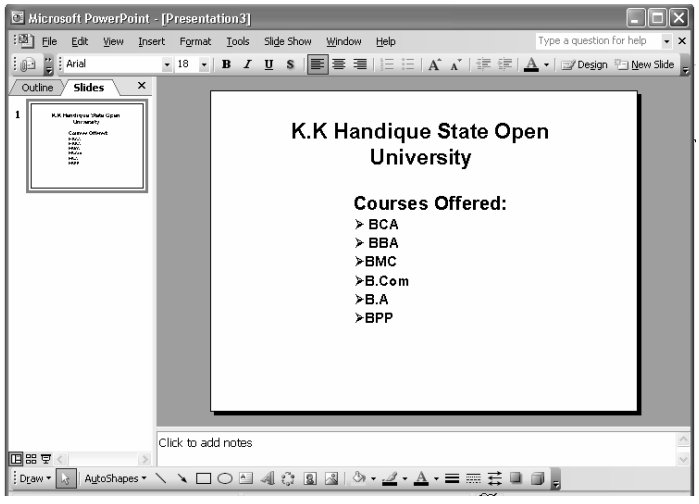


Fig. 10.5

4) Save this presentation. Use save icon of Standard toolbar or file option on Menu bar. While saving give the name for the presentation.
5) To view the slide show, click on to Slide show option which is on the Menu bar. You will get a drop down menu. Click on to view show you will get the slide show presented on the screen **Fig. 10.6**.

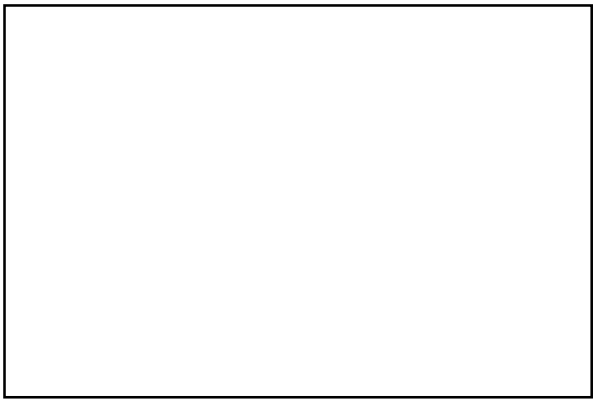


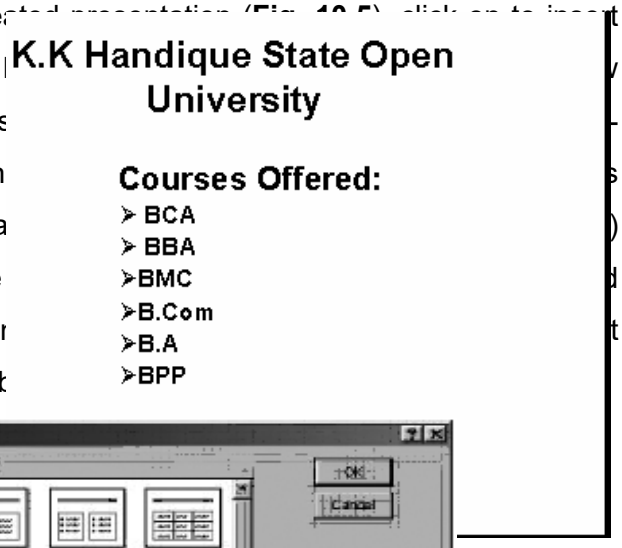
Fig. 10.6

Note : Press function key "F5" to see the slide show instead of step 5. To come back from the slide show to the PowerPoint menu press "Esc" Key.

ADDING MORE SLIDE TO AN EXISTING PRESENTATION

Consider the presentation already created above and follow the steps given below to add more slides to an existing presentation.

1. Be in the above cre[illegible] option on the menu [illegible] Slide option or Press created presentation on the Standard toolba[illegible]
2. You will get the slide [illegible] layout for the slide ar[illegible] we have selected tab[illegible]



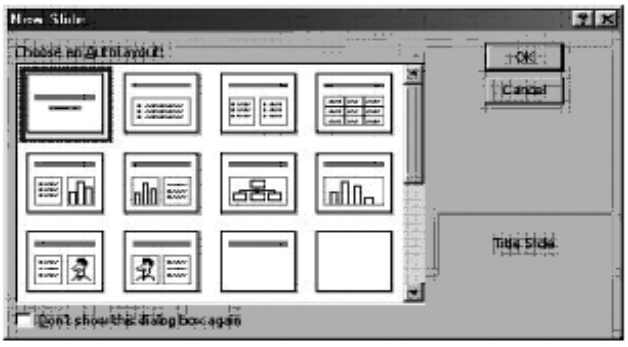


Fig. 10.7

3. Now click on OK you will get the screen as shown in **Fig. 10.8**.

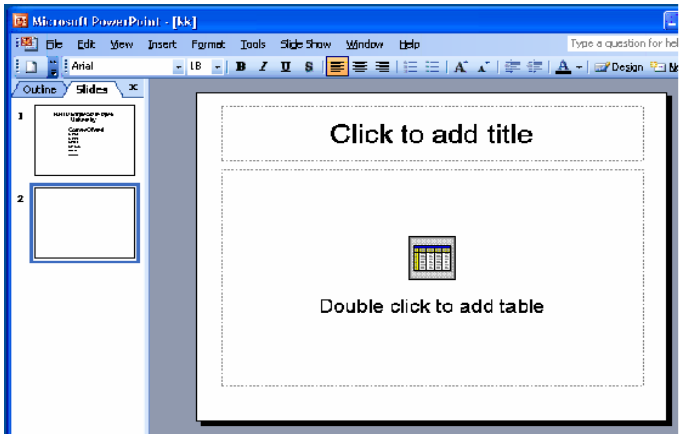


Fig. 10.8

4. Now you can add title in the upper box.
5. Now double click on to the lower box. You will get a menu as shown in **Fig. 10.9**.

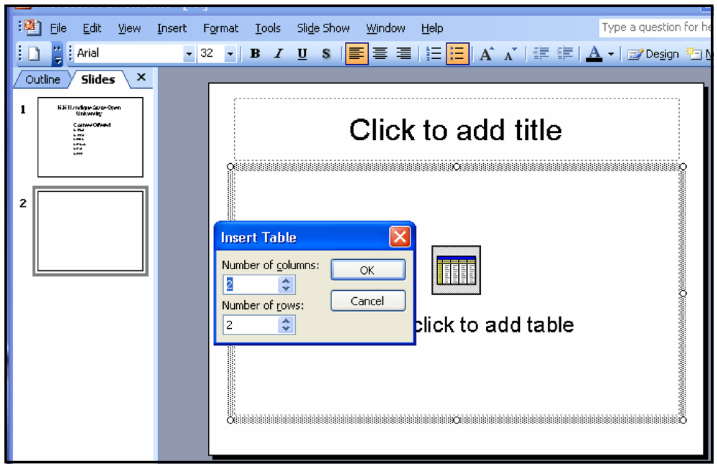
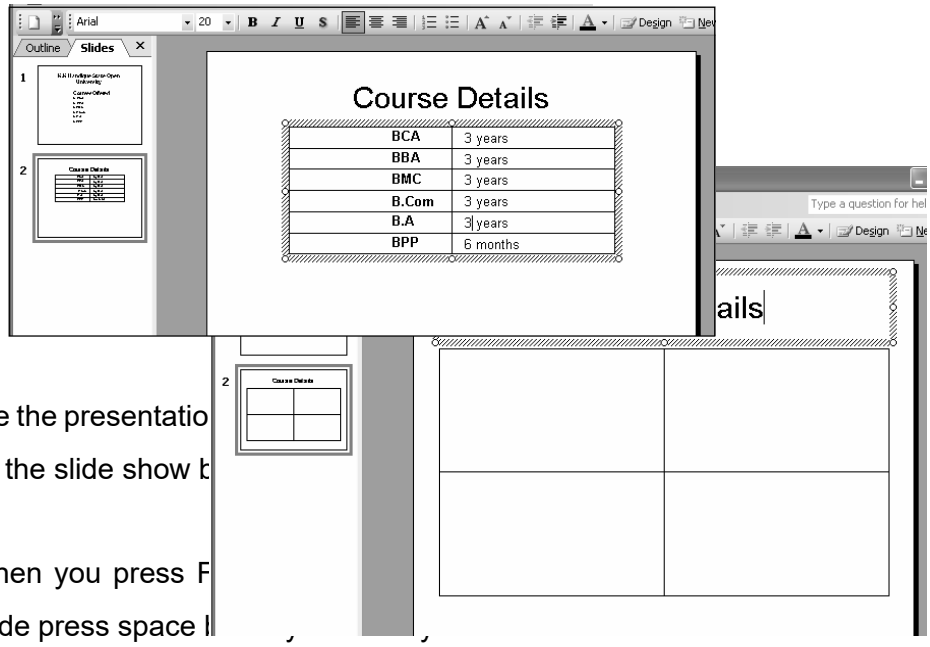


Fig. 10.9

6. Here you can select the number of rows and columns you want in the table by using small arrows present adjacent to Number of Columns and number of rows box. Then click which is present in the insert table menu. You will get the screen as shown in **Fig. 10.10**.

Fig. 10.10

7. Now you can enter the contents in this table shown in **Fig. 10.11** Microsoft Powerpoint (Presentation)



8. Save the presentatio
9. Run the slide show b

Note : When you press F
second slide press space b

TO ADD A SLIDE WITH PICTURE FOR THE EXISTING PRESENTATION

Consider the presentation already created above and follow the steps given below to add more slides to an existing presentation.

1. Be in the above-created presentation (**Fig. 10.11**). Click on to Insert option on the Menu Bar. From the drop down menu click on to New Slide option or Press Ctrl and M simultaneously being in the above-created presentation (**Fig. 10.11**) or click on to New slide icon which

is on the Standard tool bar being in the above created presentation (**Fig. 10.11**).

2. You will get the slide layout menu and now you can select a required layout for the slide and enter the text and picture in the slide. Let us assume that we have selected layout as shown in **Fig. 10.12**.

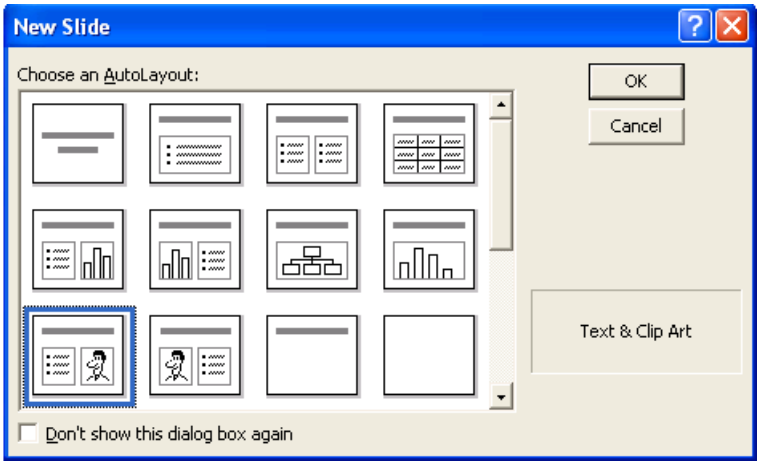


Fig. 10.12

3. Now click on OK. You will get the screen as shown in **Fig. 10.13**.

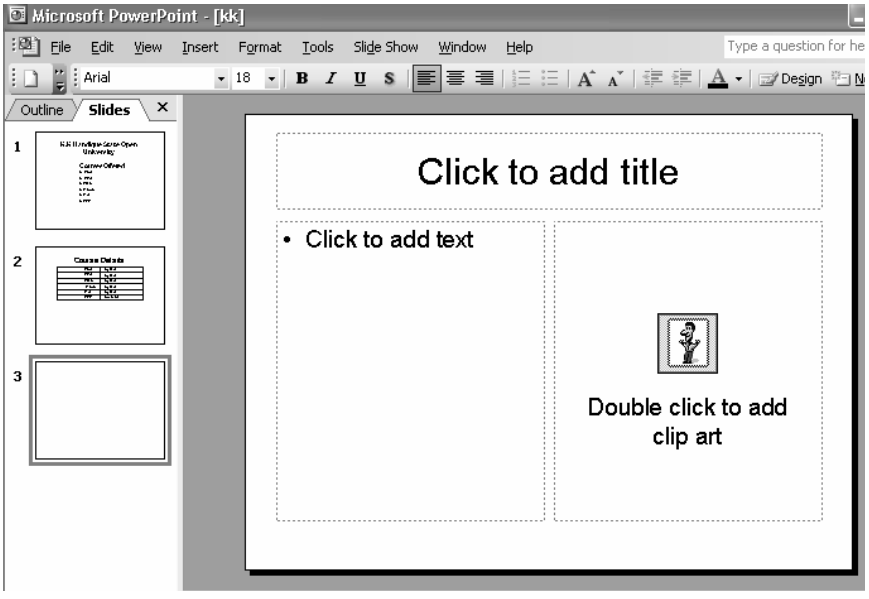


Fig. 10.13

4. Add Title to the slide and add text at the left hand box shown.

5. To add the picture at the right box follow the steps given below.

   a) Double click as instructed in the box you will get a menu as shown in **Fig. 10.14**.

   b) Now you can select any of the titles among the available ones as shown in **Fig. 10.14**. For example we have selected



Fig. 10.14

"Academic". Again you will get a menu, **Fig. 10.15** which contains

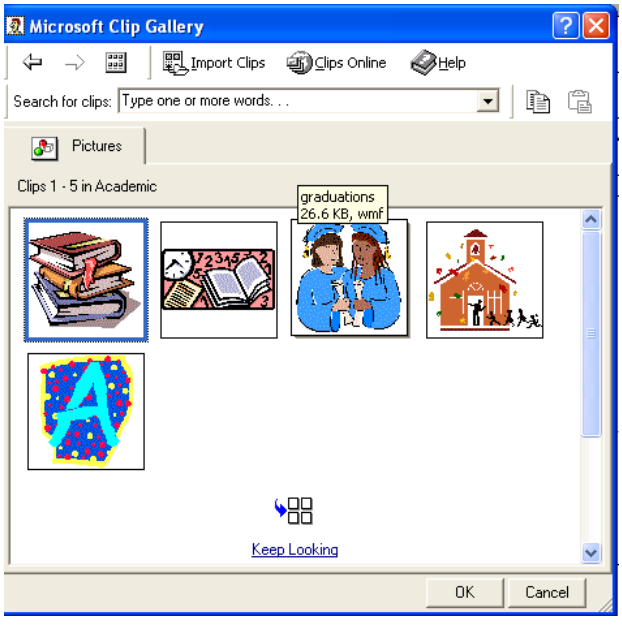


Fig. 10.15

different pictures. Now click on the picture you want to insert and Click on to OK on that menu. You will get the slide as shown in **Fig. 10.16**.

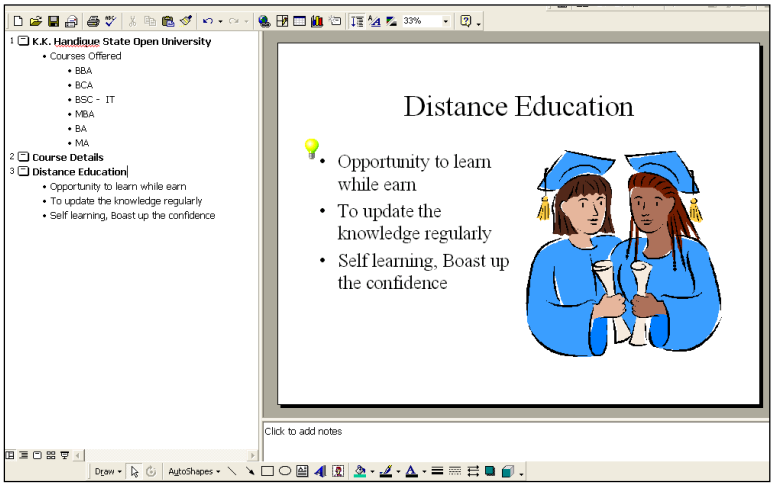


Fig. 10.16

c) Save the presentation as discussed earlier :

Note : To insert the pictures from the file....

1) Execute the step (a) of the above steps,
2) Clip on to the import clips item you will get **Fig. 10.17**.

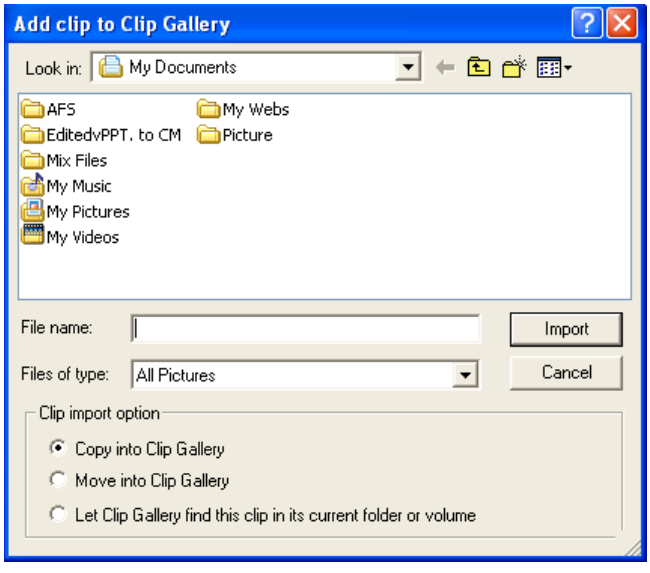


Fig. 10.17

3) Select the file from where you want to insert the file. You can select required drive and required folder.

4) Click on to Import item. You will get a menu as shown in **Fig. 10.18**.

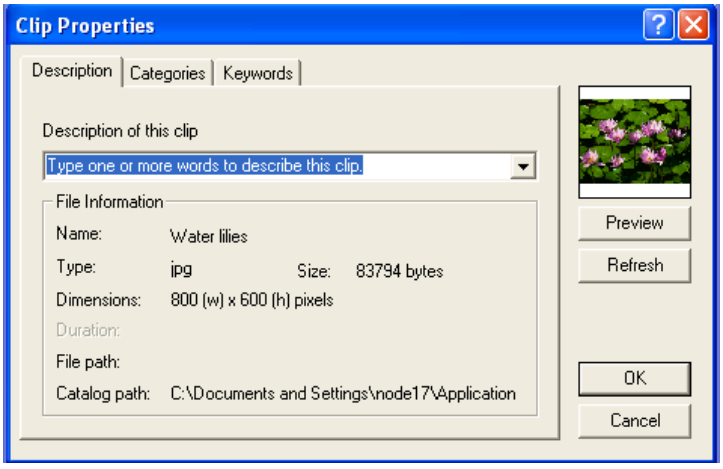


Fig. 10.18

5) Click on to OK you will get the menu as shown :

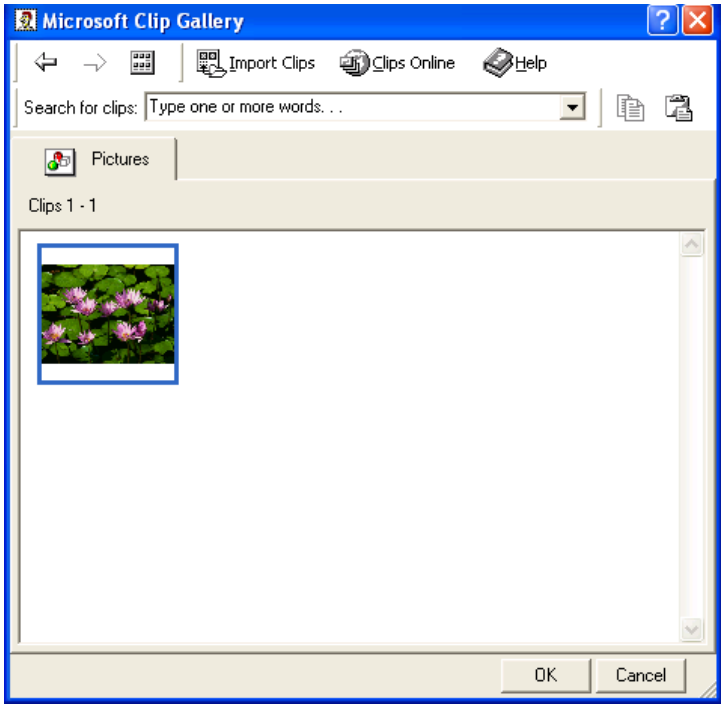


Fig. 10.19

6) Click on OK you will get the picture inserted in the box of the slide.

SAVING THE POWERPOINT PRESENTATION

We can save the files in different ways which are discussed in other applications like MS-Word, MS-Excel etc. The procedures are same. Even performing the tasks like opening of an existing presentation or closing a presentation without saving it, is also similar to the process carried out in other applications, so, you can follow the same procedures.

Note : The default extension used for the power point presentation file is **"ppt"**.

10.5 TO INCLUDE CHART IN THE SLIDE

To include a chart in the slide follow the steps given below :

1. Follow the steps to insert a new slide, as explained earlier, and select the chart layout as shown in **Fig. 10.20** and click OK.

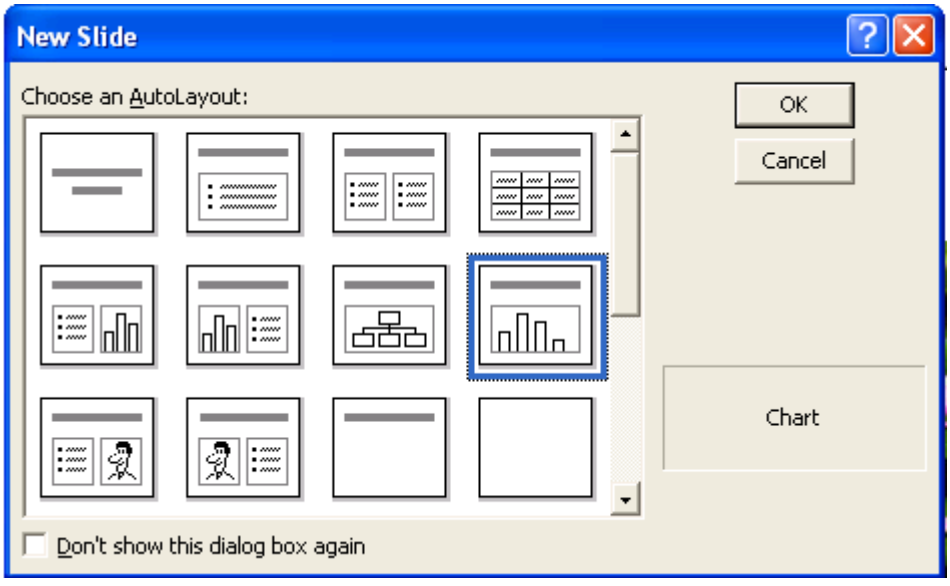


Fig. 10.20

2. Add title to the slide. For example Admission chart.
3. Double click at the chart area, you will get default chart. To have your data you can edit the data sheet according to your needs.
4. You can change the type of the plot, style etc. Right click on to the chart area and edit it.

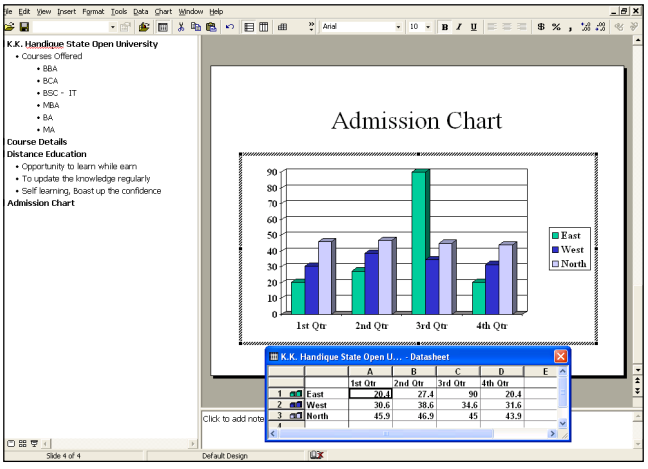


Fig. 10.21

10.6 TO IMPORT A DATASHEET

You can import a data sheet from a file, for example from Excel. To do so follow the steps given below :

1) Double click at the chart area and you will get default chart. Click on to the Import File icon present on the standard toolbar and select the data sheet which you want to import, according to the type, you want to draw the chart.
2) You can change the type of the plot, style etc. To do it, right click on to the chart area and edit it.

Microsoft PowerPoint

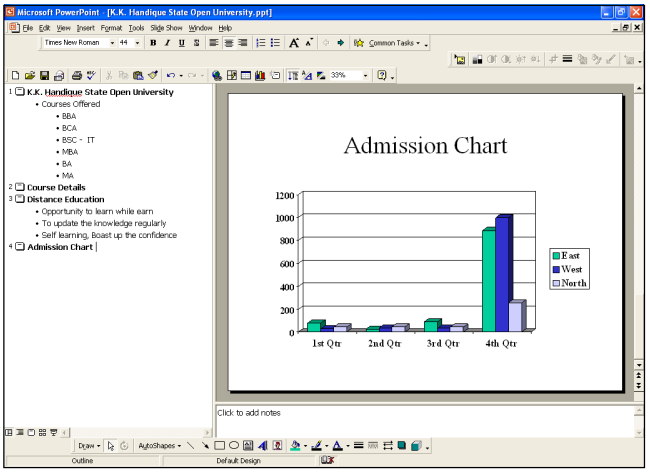


Fig. 10.22

10.7 FORMATTING OPTIONS

Font style : Font style of the text can be changed by selecting the text of which you want to change the font style and clicking on to the required font style icon available on the formatting toolbar.Similarly Font and their size can be changed. Select the text and use the required icons respectively.

Aligning text : After selecting the text, use required icons depending on whether you want to align the text Left, Centre or Right respectively. To have Numbers or Bullets use the respective icons.

Background of the slides : The background of the slide can be changed according to our needs to give an attractive look to the slide. Follow the steps given below to change the Background of the slide.

1) Click on to Format option on the menu Bar. From the drop down menu click on the Background option. You will get a menu shown in **Fig. 10.23**.

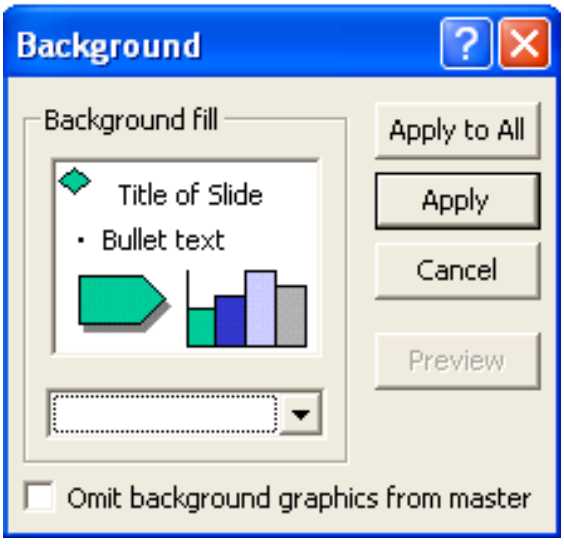


Fig. 10.23

2) To select the required Background, click on the arrow mark as shown above. You will get different colour on the resulting menu as shown in

Fig. 10.24. Select the required color for the Background.

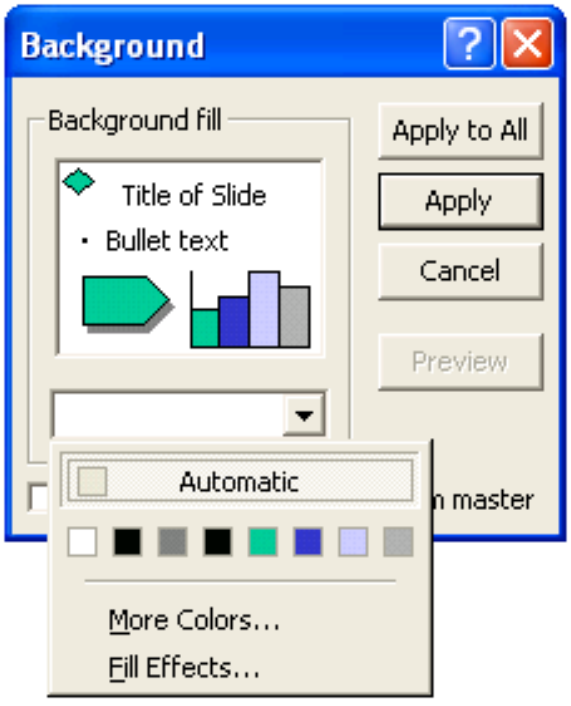


Fig. 10.24

For example, assume that you have selected grey colors as Background color then you will get the color applied to the sample slide in the menu as shown in **Fig. 10.25**.

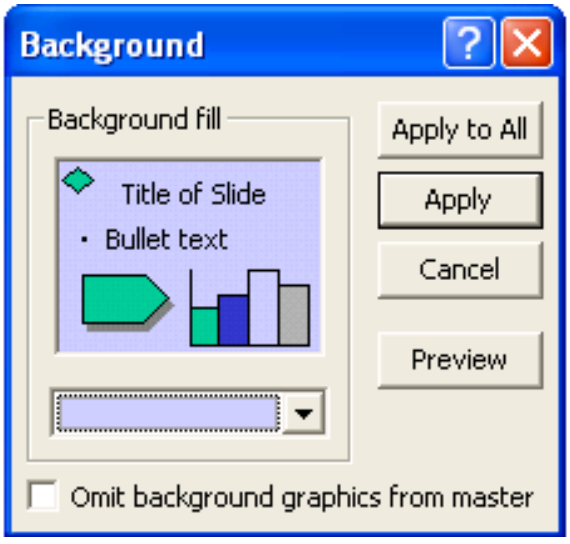


Fig. 10.25

3) You can apply this Background color to all the slides in the presentation by selecting. You can select Apply option to apply the Background color only to the current slide in the presentation. To apply the background colour to all the slide select ‘‘Apply to All’’ option. You can also cancel this menu by clicking on the ‘‘Cancel’’ option. You can click on to ‘‘Preview’’ option to see the new background color on the slide without actually applying it to the slide/slides and if you did not like it you can select a different Backgound color.

Note : All options discussed above are available in the Menu shown in **Fig. 10.23**. **Fig. 10.26** shows the application of the Background color to one slide.

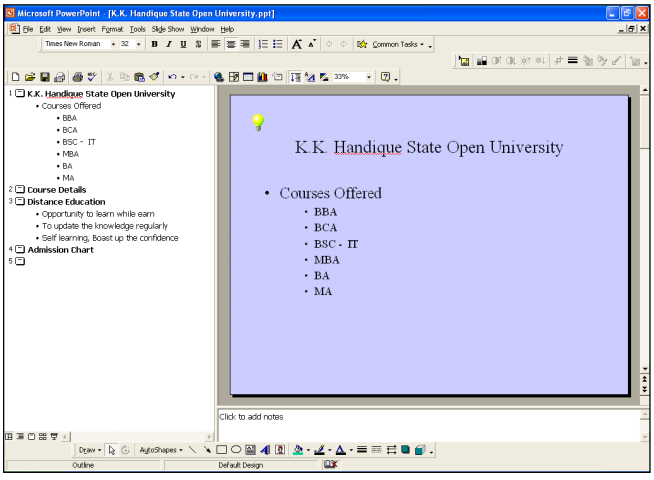


Fig. 10.26

More color : If you are not satisfied with the available colors, then you can click on to ‘‘More colors’’ option. This option is available in menu shown in **Fig. 10.24**. You will get a menu as shown in **Fig. 10.27**.

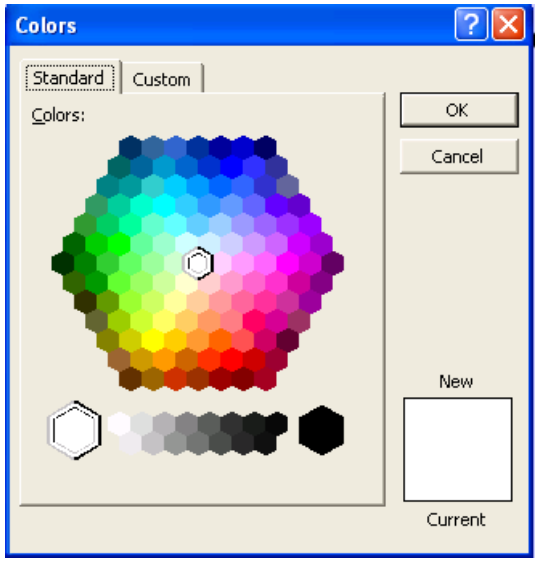


Fig. 10.27

Now select the required color by clicking on your required color, you will get the display of your selected color in the box titled “New” at the right button corner of the menu as shown in **Fig. 10.28**. Now click OK. You will

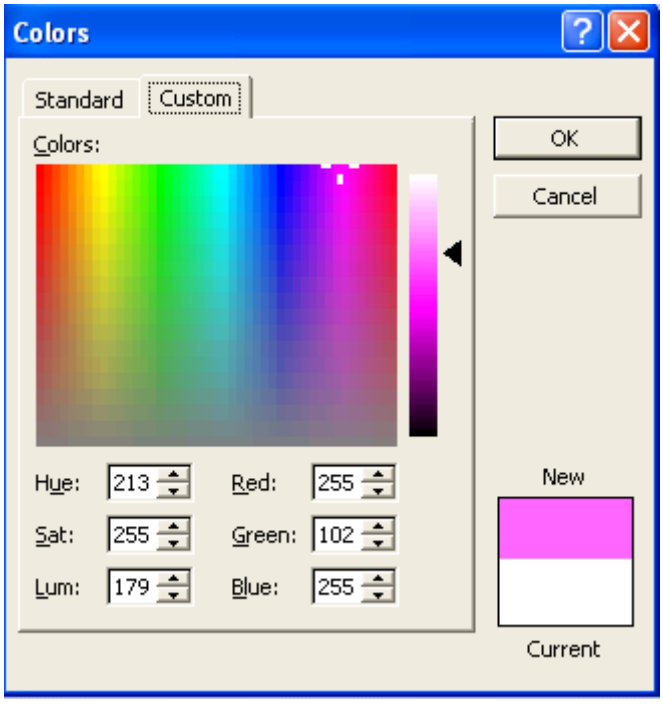


Fig. 10.28

get the color applied on sample slide as shown in **Fig. 10.29** and now you can apply this color to all the slides or current slide.

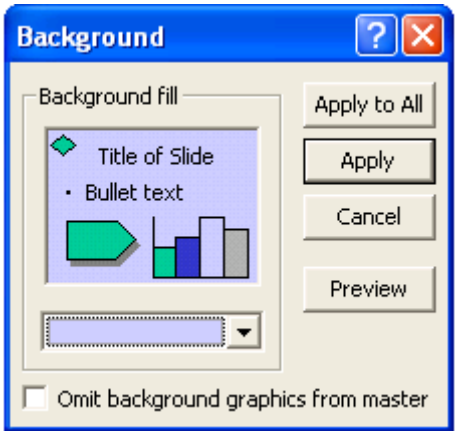


Fig. 10.29

Fill Effects: You have different kinds of Background color fill effects. Follow the steps given below.

1) After selecting the required colors click on the arrow as shown in **Fig. 10.29**. In the resulting menu select Fill Effects. You will get a menu as shown in **Fig. 10.30**.

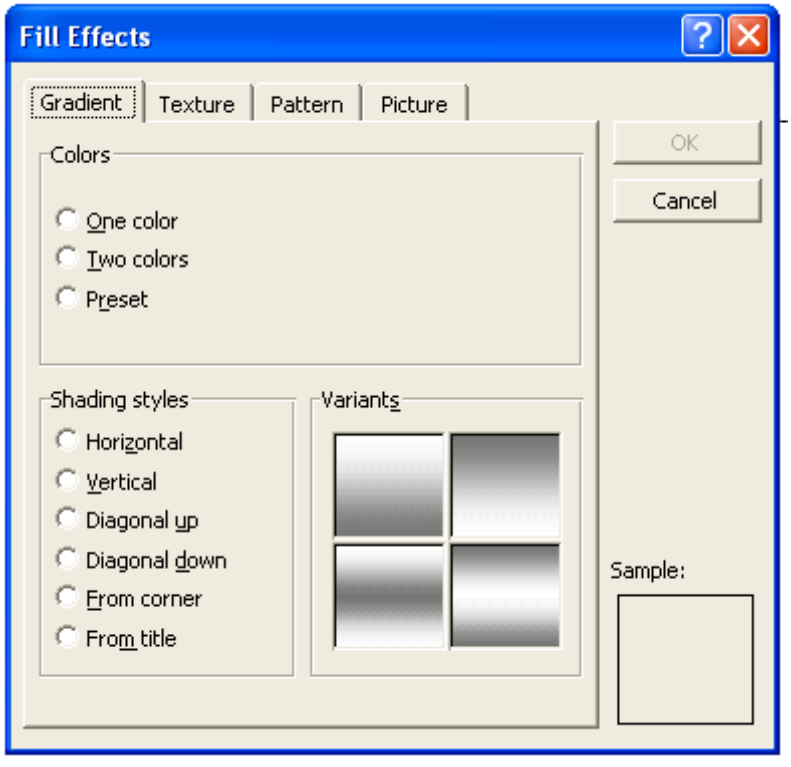


Fig. 10.30

2) You can use "Gradient" according to your **Fig. 10.30**.

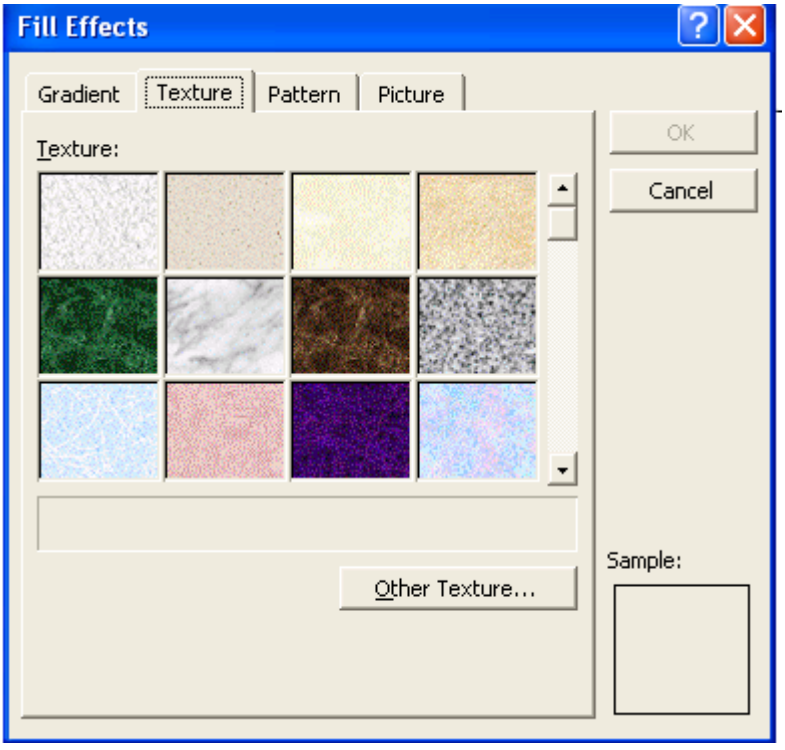


Fig. 10.31

3) You can select the "texture" **Fig. 10.31**.

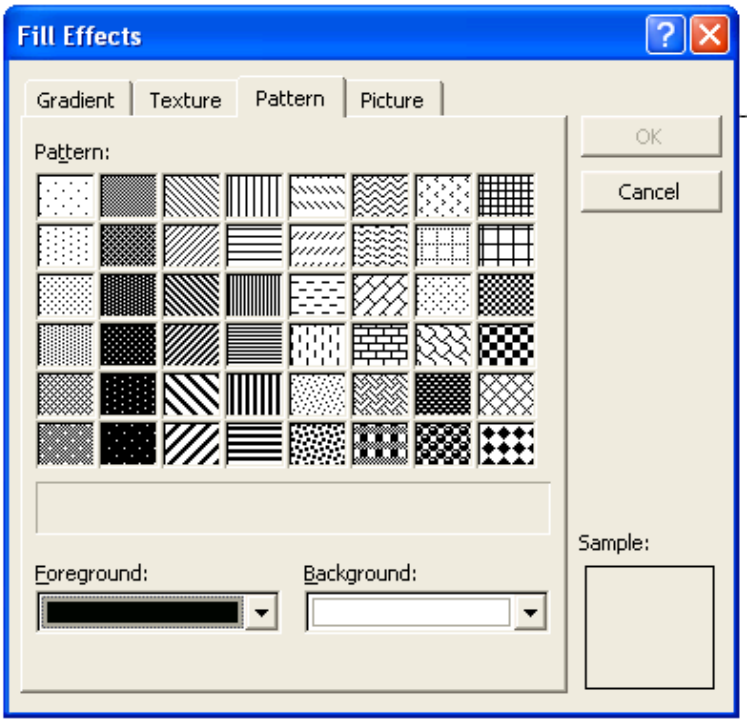


Fig. 10.32

4) You can select "Pattern" **Fig. 10.32**.

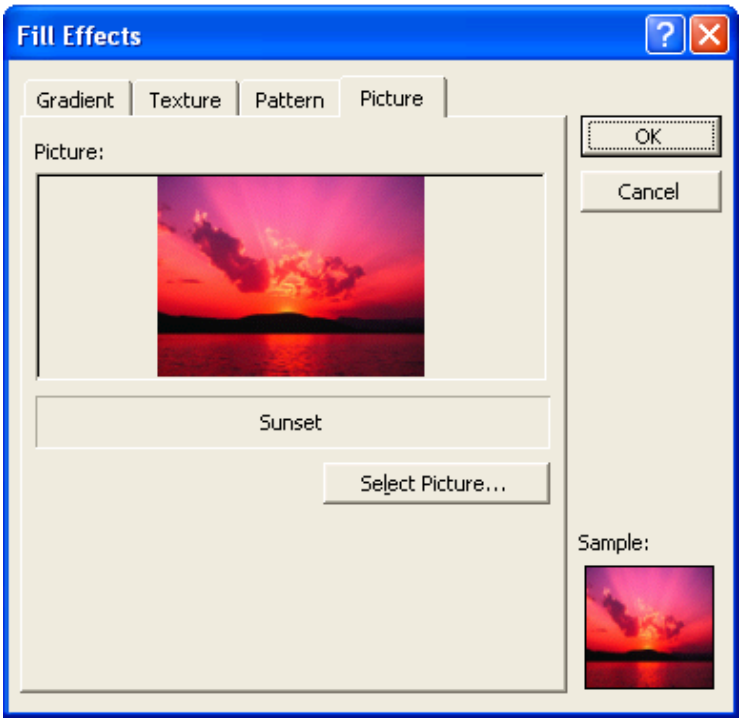


Fig. 10.33

5) You select "pictures" **Fig. 10.33**.

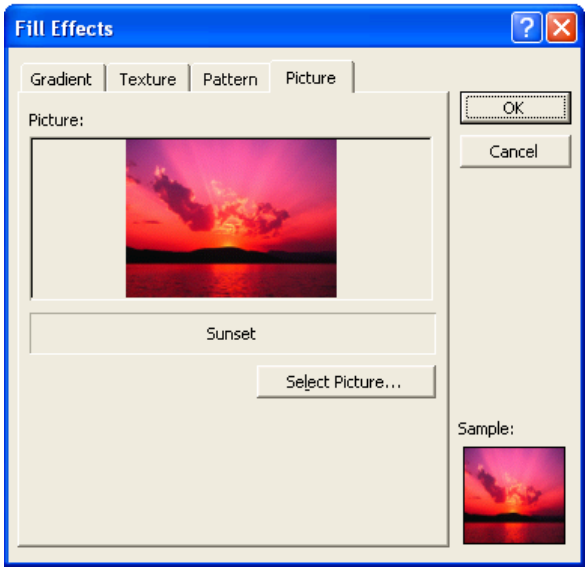


Fig. 10.34

Note : Try all the options.

APPLYING DESIGN TEMPLATES

You can apply different design templates to the slides to improve the appearance of the slides. To do so, follow the steps given below.

1) Click on to Format option present in the menu bar you will get the screen as shown in **Fig. 10.35**.

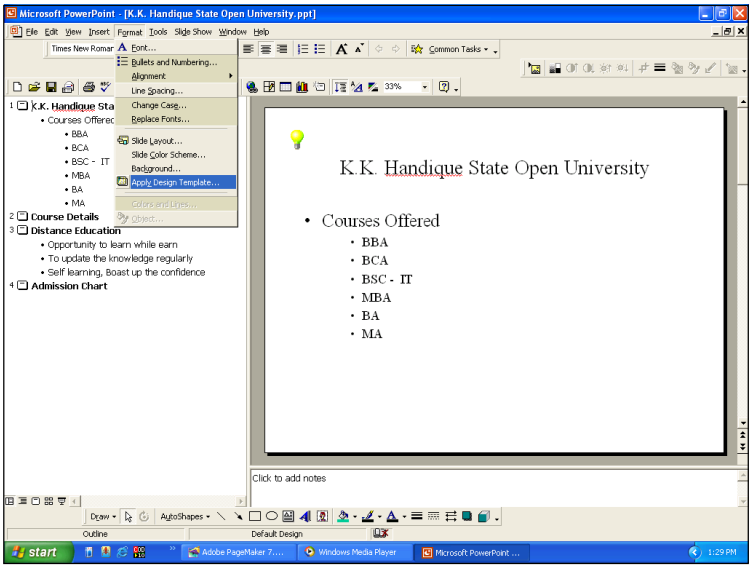


Fig. 10.35

2) Click on Apply Design Templete option of the drop down menu. You will get another menu as shown in **Fig. 10.36**.

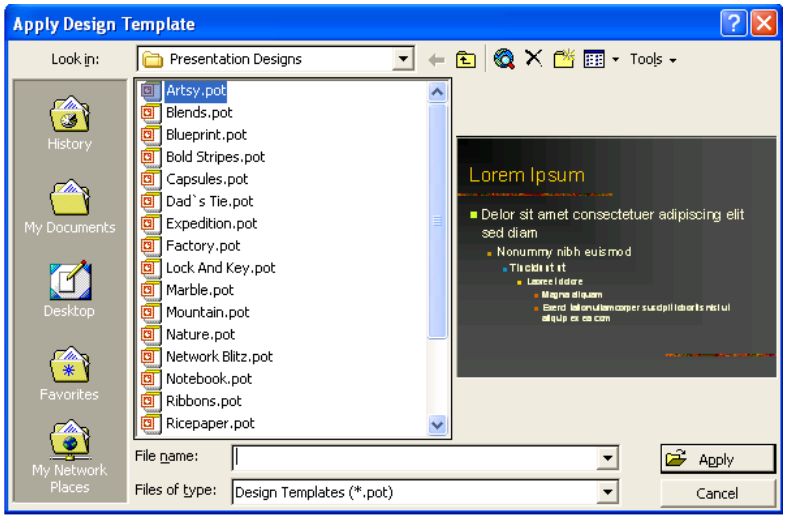


Fig. 10.36

3) You can select any of the templates available in the list by clicking on it and clicking on the Apply Option in that menu. The template will be applied on the slides of the presentation. You can also cancel this menu by clicking Cancel option present.

Note : Right side box present in the Apply Design Template menu [**Fig. 10.36**] will display the application of the selected design Template on the sample side; so by looking at that you can choose the correct template.

Example : Let us select Fill Bar design Template **Fig. 10.37** and apply it to the slides **Fig. 10.38**.

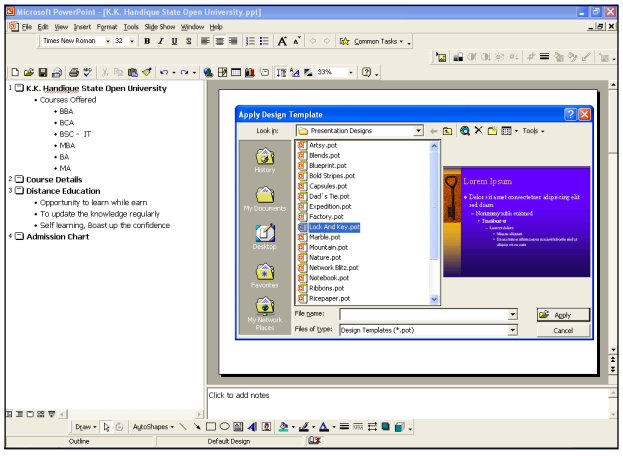


Fig. 10.37

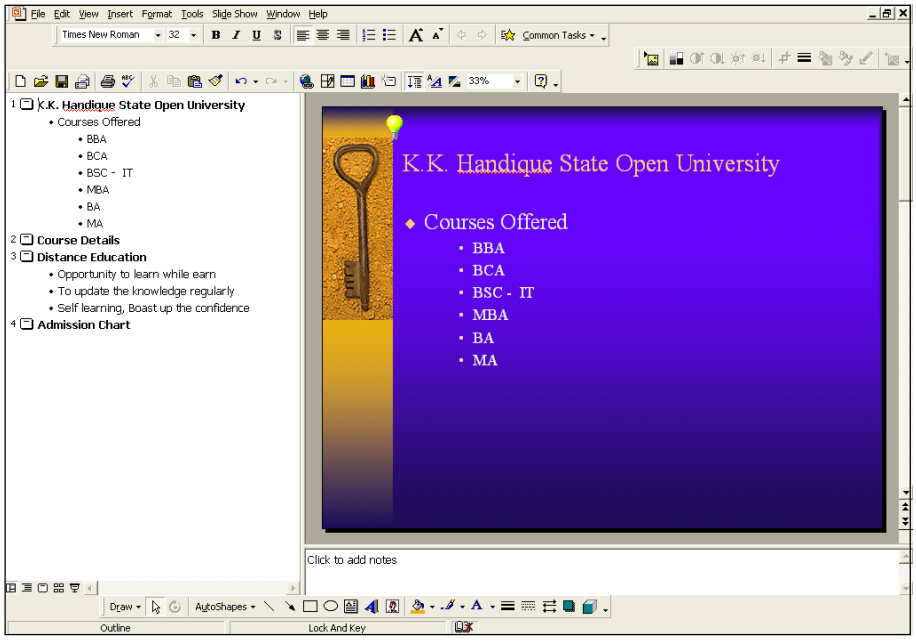


Fig. 10.38

10.8 SLIDE TRANSITION

During the slide show if you want to give different kinds of transition to the slides follow the steps given below.

1) Click on to Slide show option present on the Menu Bar you will get a drop down menu as shown in **Fig. 10.39**.

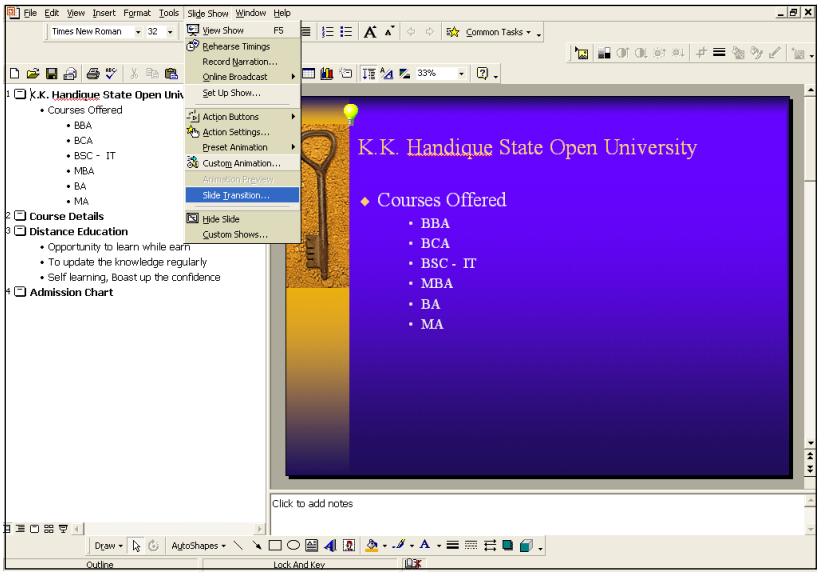


Fig. 10.39

2) Click on to "Slide Transition" option you will get a menu as shown in **Fig. 10.40**. This menu has different options. Let us see each of these options.



Fig. 10.40

a) **Effect :** By default it is ‘‘No Transition’’. You can select different kinds of effects for transition by clicking on the arrow as shown in Fig. 9.40 and clicking on the required effect. The effect of your selection is shown in the box of the menu immediately. (**Fig. 10.40**). The effect can be made slow, Medium or Fast.

b) **Advances :** This is used to move from one slide to another slide in a presentation during slide show. You can select the option on **‘‘mouse click’’** or **‘‘Automatically after’’**. You can select both the options also (**Fig. 10.40**)

On mouse click : When you select this option you are required, click the mouse button to advance to the next slide.

Automatically after : When you select this option after certain amount of time as you have selected, the next slide will be displayed on the screen. When you select both the options, the slide will be advanced either by mouse click or automatically whichever is first.

c) **Sound :** You can select different kinds of sounds during the appearance of the slide to do so click ‘‘at the sound’’ option of Slide Transition menu and select the required type of sound (**Fig. 10.40**).

Note : Now you can apply this Slide Transition feature to all the slides (Apply to All) of the presentation or the current slide (Apply).

You can also Cancel the menu (Cancel) **Fig. 10.40**.

10.9 DIFFERENT VIEWS OF THE PRESENTATION

You can have the different views of your presentation.

1. **Normal View :** Click on this you will get normal view.

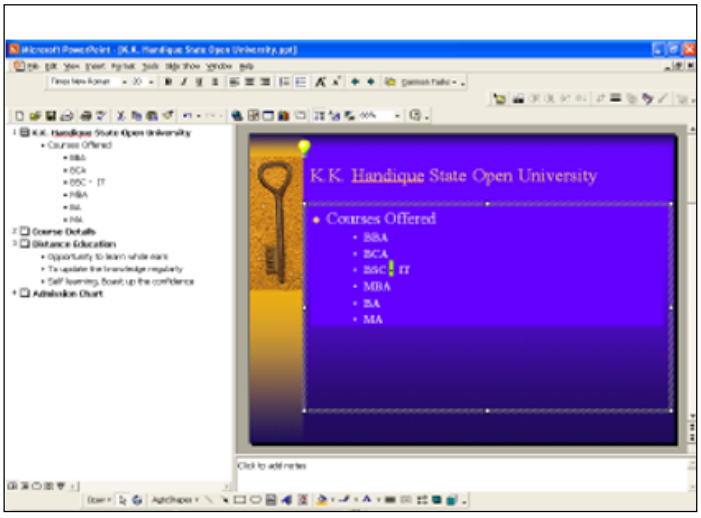


Fig. 10.41 : Normal View

2. **Outline View :** Click on this to get outline view as shown in **Fig. 10.42**.

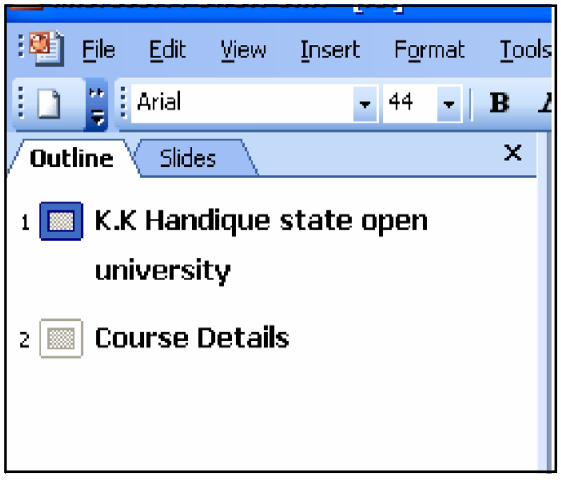


Fig. 10.42 : Outline View

3. **Slide View** : Click on this to get a view as shown in **Fig. 10.43**.



Fig. 10.43 : Slide View

4. **Slideo Sorrter View** : Click on this to get the view as shown in **Fig. 10.44**.

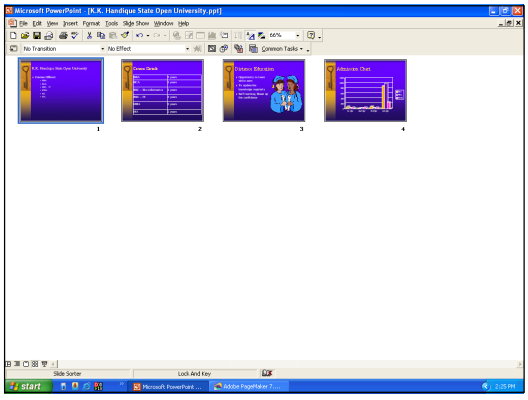
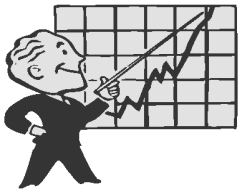


Fig. 10.44 : Slide Sorter View

5. **Slide show** : This takes you to slide show.



CHECK YOUR PROGRESS

Q.1: Write true or false for the following statements:

(i) You can create a new presentation by Autocontent Wizard.

(ii) You can apply sound affect while presenting the slides.

(iii) We cannot insert graphics in Microsoft PowerPoint.

Q.2: Define Microsoft PowerPoint.



10.10 LET US SUM UP

PowerPoint provides 24 different types of page layouts along with a blank page. A PowerPoint presentation can include one or more slides. You can even add more slides to the existing presentation. The default extension used for the PowerPoint presentation file is **ppt**. A chart can be included in a slide. A Data Sheet can also be imported from a file say from Excel. The

appearance of the text in the slides can be changed to suit the requirement. Attractive books can be given to slides by changing the Background. You can also have the required kind of transitions for the slides in the PowerPoint presentations.



10.11 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q.No.1:

(i) True, (ii) True, (iii) False,

Ans. to Q.No.1: Microsoft PowerPoint is a most widely used utility to create presentation relating to products, organisation, research papers etc. Using this software a slide can be designed, text can be inserted, graphics can be inserted and animation can be given to the slides and the objects within the slide.



10.12 FURTHER READING

1. Fundamentals of Computers – *Rajaraman, V.; 4th Edition, Pentice-Hallof India, New Delhi, 2004*.
2. World 2000 – An Introduction – *Lotia, M.; BPB Publication, New Delhi*.
3. MS Excel 2002 – Training Guide – *Jain, V.; BPB Publication, New Delhi*.
4. Power Point 2000 Fast & Easy – *Witherspoon; BPB Publication, New Delhi*.
5. Introduction to Information Technology – *Syganski; Pearson Education, Delhi-110092*.



10.13 MODEL QUESTIONS

A : A Very Short Questions :

Q.1: Explain different basic parts of PowerPoint Window.

Q.2: What is a PowerPoint presentation? Why they are used?

B : Short Questions : (Answer each question in about 150 words)

Q.1: Explain the steps in creating a PowerPoint presentation.

Q.2: How do you import a Data Sheet from Excel?

C : Long Questions : (Answer each question in about 300-500 words)

Q.1: Discuss slide transition.

Q.2: What are the different views of presentation?

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UNIT-11: DESKTOP PUBLISHING

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Desktop Publishing or DTP

11.3.1 Background of desktop publishing

11.3.2 Advantages of desktop publishing

11.4 Primary desktop publishing software programs

11.5 Adobe PageMaker

11.5.1 PageMaker Basics

11.6 Adobe Photoshop

11.6.1 Photoshop Basics

11.7 Let Us Sum Up

11.8 Answers to Check Your Progress

11.9 Further Reading

11.10 Model Questions

11.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- define desktop publishing or DTP
- discuss the origin and development of DTP
- narrate the advantages of DTP
- explain the primary DTP software
- discuss the basics of Adobe PageMaker
- discuss the basics of Adobe Photoshop

11.2 INTRODUCTION

Desktop Publishing or DTP has revolutionised printing technology from what it was since the inception of printing. Just like every other technology has incorporated computers in their functioning, so also has publishing and printing. DTP has replaced the earlier model of typesetting.

In this unit we will discuss what DTP is and how it has become all pervasive in the publishing sector.

This unit will also focus on the major publishing software available in the market. Being a media student, it is absolutely essential for you to know about the publishing industry and about the various software which are now being used in the big publishing houses, be it newspapers or magazines. So, in this unit you will get a basic idea about the most common DTP software, i.e., Adobe PageMaker and you will also get an understanding about Adobe Photoshop. But first, let's start with what DTP is all about.

11.3 DESKTOP PUBLISHING OR DTP

Desktop Publishing is mainly about creating documents on a computer which are later printed on paper. DTP uses software on a computer to combine multimedia elements like text and images to create a proper printable document. Once the document is created on the computer they can be printed on a home printer or printed at professional printing machines.

Now-a-days, almost every printing is based on DTP. Be it newspapers, magazines or simple pamphlets and brochures, most documents are designed on computers and then they are printed. Desktop Publishing has become an all-encompassing term these days as DTP software also includes other utilities like web publishing and presentation software.

Earlier, DTP was only about composing text and graphics into page layouts for publishing. In the 21st century the meaning of desktop publishing further expanded to include Web Design software and other forms of visual communication into the DTP software. It has now gone beyond just mere printing design. The term "desktop publishing" was earlier used to describe only page layout skills. But now the skills and software are not confined to newspaper and book publishing. They are used to create graphics for promotional items, for trade show exhibits, package designs, sale displays, outdoor signs etc.

Once the page is created on the computer with the help of the DTP software, they can be downloaded as files and printing plates can be

produced. While desktop publishers are well-suited with standard laser printers, they can also function with more specialised printers like photogravure printers used for making art prints, or thermographical printers used to make raised lettering on wedding invitations or flexographic printers used in product packaging.

11.3.1 BACKGROUND OF DESKTOP PUBLISHING

Desktop Publishing is a relatively new innovation as it burst into the scene in the early 1980s. Mac Publisher was the first desktop publishing software to be designed for Apple's Macintosh computers, which ran on the original 128K Macintosh computer. In January, that same year Apple introduced LaserWriter printer and in July came the PageMaker software introduced by the Aldus Corporation. It was later acquired by Adobe Systems. The latter became the DTP industry's standard software.

DTP caught on the imagination of the publishers and printers alike and in a few years DTP software began to be used extensively. One of the key features about DTP was its ability to preview a page or a document layout before it went for printing. You could see the page that you have designed on the computer and then send it for printing. This feature is called **the WYSIWIG** or "What You See IS What You Get", also pronounced as "wizzy-wig".

Creating WYSIWYG page layouts on screen and then printing them at 300 **dpi** resolution was a revolutionary move for both the typesetting industry and the personal computer industry. Gradually the newspaper industry and other print publications made the shift to DTP-based programs from the previous systems like Atex. Desktop publishing as a term can be attributed to Paul Brainerd, the Aldus Corporation founder.



dpi : Dots per inch. It is a measurement of printing resolution, i.e. how a image is printed to medium such as paper.

The early DTP software was much simpler compared to what we have today. There would be frequent software crashes, inability to control letter spacing plus other typographical shortcomings. But it was a groundbreaking innovation and it received

considerable acclaim.

Although desktop publishing is still in heavy use, now-a-days, word processing services have also included several applications which were once exclusive only to DTP. You can make simple layouts of documents on MS Word itself by adding tables, clipart, pictures, charts, diagrams etc. But despite all the added features on word processing units, DTP is still very popular because it provides users with finer control over documents through desktop publishing. High-end software is fundamental to quality document design and the design industry wouldn't compromise on that. DTP software enables the production of hi-quality catalogs, brochures or business cards. Not just that it also enables high-volume printing as used in book publishing.

Owing to the great demand for high quality publishing design, DTP software has evolved over the years. Many companies have introduced many different softwares to meet the demand.

11.3.2 ADVANTAGES OF DESKTOP PUBLISHING

DTP systems have flourished since the first day they were introduced. The reasons for which may be many. Some of the major reasons for users embracing DTP are discussed below:

Cost effective: If the per-page cost is taken into account it is found that DTP is extremely inexpensive in comparison to the other available options. Publishing companies can save money on salaries and office space because with DTP they may not need to hire lay-out specialists. Even the editor or writer can do it.

Time saving: Making the page layouts on your own saves a lot of time rather than wasting time on telling the printing house what you want. When you design the page you see what you will get. And you don't have to keep running back and forth to the printer to make changes. A DTP system also helps companies to cater to their client's needs in a more relevant way. Instead of merely jotting down whatever changes the client requires one can quickly get a print

with the new changes. DTP saves a lot of time and facilitates any work.

High on quality: When documents are created on a word processor we have to rely on the printer's built-in font set or on the fonts supplied by the word processing software. Page-layout programmes, however, have a much wider range of fonts and in a variety of sizes and styles. And with DTP software programmes, we can also add graphics, boxes and lines.

Under your control: When a document is ready it looks exactly like the way you want it to and not like the way the lay-out artist wants. From the font size of the text, to the colour and type of headline, you are in control completely. And if the finished product is still not exactly the way you planned it to be, it can be changed without much hassle.

Personal satisfaction: Doing your document or page on your own gives immense creative satisfaction. Once you see your idea, your creative input taking the shape of a document and in the way that you wanted it to be, it is a very heartening experience. The user friendly techniques of DTP software give one the pleasure of doing one's thing and creating a document on one's own.

A comprehensive idea of the final product: Here the person practicing the DTP system can get a very comprehensive and almost final-looking image of what is going to be printed out of his or her efforts. This allows a person to play with various changes whenever and wherever required.

A boon for the common man: We all know that earlier, preparing or composing the words and lines for writing a pamphlet or pages of a book, magazine, newspaper etc. used to be quite a clumsy affair with the 'composers' (human beings) requiring to compose each and every word manually from 'lead' impressions kept in trays. Now, because of the DTP system nothing like that is required and the person himself or herself can do everything by themselves. It is only that the person requires some amount of knowledge of the

relevant software.

Variety of designs: The advent of the DTP system has also brought in the possibility of experimenting with an almost 'unlimited' number of designs of various types to print a magazine or a book or a newspaper etc. This was not possible in case of the old system of printing composing as mentioned above.



CHECK YOUR PROGRESS

Q.1: What is desktop publishing?

Q.2: What is the meaning of WYSIWYG?

Q.3: In the 21st century the meaning of DTP expanded to include _____ and other forms of visual communication.

Q.4: _____ was the first desktop publishing software to be designed for Apple's Macintosh computers.

Q.5: PageMaker was introduced by _____ and later acquired by Adobe Systems.

Q.6: Desktop publishing as a term can be attributed to _____.

11.4 PRIMARY DESKTOP PUBLISHING SOFTWARE PROGRAMS

As mentioned earlier, there are several companies that produce DTP software. The major ones are Adobe, Quark, Corel and Serif. Apart from them, Microsoft, Nova Development and several others are also producing consumer and business desktop publishing software for many years. Adobe has also produced many software packages for designers

like Photoshop, Acrobat etc. These, however are not page-making software. They are graphics and web design software. The most basic page layout software applications for desktop publishing are:

- **Adobe FrameMaker**: Adobe FrameMaker is popular for large documents. Although it has evolved slowly in recent years, it maintains a strong following among professional technical writers.
- **Adobe PageMaker**: It was one of the first desktop publishing software to be introduced in the market in 1985 by Aldus. Its popularity spread far and wide and even now most media organisations use PageMaker. Major newspapers and magazine houses in Assam use PageMaker. Adobe announced in 2004 that the development of PageMaker has ceased but that they would still sell and support it. Adobe's InDesign software was presented as its successor.
- **Adobe InDesign**: It can be used to create anything from posters, flyers, and brochures to full magazines or books. InDesign was launched as a competitor to Quark Express because Quark had taken over the market from PageMaker by 1998. It launched InDesign 1.0 in 1999. And it is presently the most popular software used in major international publishing houses.
- **Quark XPress**: This is one of the two DTP software applications (the other being Adobe InDesign) which dominates the market space now. First released in 1987, it now allows publishing in English and 36 other languages. Most national newspapers in India use the Quark technology.
- **Corel Ventura**: Ventura was launched in 1986 as the first DTP package for IBM PC compatible computers running DOS. It was later acquired by Corel in 1993 and was repackaged as Corel Ventura 4.2.
- **Microsoft Office Publisher**: It is an entry-level desktop publishing application from Microsoft. It differs from Microsoft Word because in the former the emphasis is on page layout and design rather than text composition and proofing.
- **Serif PagePlus**: PagePlus was first introduced in 1991 by Serif. It is the first commercial DTP package for Windows. Their latest product



Mac OS 9 and **Mac OS X** are Operating Systems developed, marketed, and sold by Apple Inc. MAC OS X is the successor to Mac OS 9 and since 2002 it has been included with all new Macintosh computer systems.

is PagePlus X3, which supports Windows Vista.



CHECK YOUR PROGRESS

Q.7: Name some of the major desktop publishing software programs available in the market.

11.5 ADOBE PAGEMAKER

Adobe PageMaker is one of the first desktop publishing programs to have been introduced into the industry. And even now this software is one of the most popular ones to be used, despite the fact that Adobe has stopped producing the software anymore.

Introduced in 1985 by Aldus Corporation it was initially meant for the then-new Apple Macintosh. But it was later compatible with other platforms as well which ran on the then-new Microsoft Windows. It helped popularize both the Macintosh platform and the Windows environment. In 1986, PageMaker was awarded an SPA Excellence in Software Award for Best New Use of a Computer.

The last version of PageMaker, PageMaker 7.0 was released in July, 2001 and in 2004, Adobe announced that they wouldn't be developing the software any further. The PageMaker 7.0 Macintosh version only runs on the **Mac OS 9** but not on **Mac OS X**. The Windows version of PageMaker works on Windows XP but does not install on Windows Vista.

11.5.1 PAGEMAKER BASICS

Adobe PageMaker may appear to be a bit difficult for the first-timers. But the more one keeps trying out the different properties of the software, the easier it becomes. Adobe PageMaker may not be the market leader in DTP software in the world right now. But as media students, you need to understand the fundamental rules of

the most basic page-making software in the market. If you know PageMaker, you will be able to move on to Quark Express as well as Adobe InDesign.

So, here's a look at the basics of the PageMaker software:

- Launch PageMaker and open a new document (File > New). On the Document Setup box, fix the page size, number of pages, margin widths etc. If you are designing for a newspaper, select the "Facing Pages" option.
- Get familiar with the Toolbox Palette, the Control Palette and the Pasteboard (Help Topics>Toolbox Palette>Display).
- Select the number of columns for your page (Layout > Column Guides) and also Lock Guides (View > Lock Guides).
- Save the document (File > Save).
- If you are designing a newsletter, you need to make a nameplate on the first page. Choose the Text tool and click on the top left corner of the page. Fix the font, the size and the alignment for the text. (Type>Type Specs) or Control palette (Window>Show Control Palette). Then type the name of the newsletter.
- Define Headline style by choosing Define Styles on the Type Menu.
- If you wish to import text from a word document, just copy the text and paste it on one of the columns on the page. Do select the Text tool and define a text block on the page while pasting any text. Do take a moment to decide a font style for your body text.
- Add the jump line (Utilities > Pagemaker Plug-ins > Add Cont'd Line). This way you can continue the text from one column to another.
- Images are extremely important for any document. So to import an image on to the page, choose "Place" from the File menu, locate the image file and click OK. Use the Pointer from the Tool Box to fix the place for the image. If you wish to rescale use the sizing handles. Remember to keep pressing the Shift key on

your keypad while you are dragging a corner handle. This way the picture will resize proportionately. You can also import images by simple copy-pasting them. Some images like Microsoft Word Clip Art can only be imported this way.

- If you wish to underline a paragraph you can draw line using the Line Tool. But if the paragraph gets realigned, the line will not move with the text.
- If you want to use the Typographer's Quote, open File > Preferences > General > More. Enable the Typographer's Quotes. But this will only work on the present page.
- If you want to rotate an image with the Rotating Tool, you need use one of the object's handles. It can be rotated from any point, within or outside the image area.
- If you wish to wrap text around an already existing text block, select the text block with the pointer tool and click Element > Group.



CHECK YOUR PROGRESS

Q.8: PageMaker was awarded an _____Award for Best New Use of a Computer.

Q.9: The Windows version of PageMaker works on Windows XP but does not install on _____.

Q.10: How can you define headline styles in PageMaker.

Q.11: How can you import an image on to a PageMaker file?

11.6 ADOBE PHOTOSHOP



EPS, GIF, PNG, JPEG : These are all digital formats for storing images.

Adobe Photoshop is also known as DPP or Desktop Publishing Program as it is basically a graphics editing software. A flagship product of the Adobe Systems, it rules the market for commercial bitmap and image manipulation. Graphic professionals swear by this software as they use it for almost every small work that they have to do, be it image correction, cropping, adding colour and texture, making cutouts, blurring, enlarging etc. A 'Photo shopped' image can look totally different from what it originally looked like.

It all began in 1987 when Thomas Knoll, a PhD student at the University of Michigan, wrote a program to display grayscale images on a monochrome display. He did it on his Macintosh Plus and named the program Display. His brother, John Knoll, an Industrial Light & Magic employee, was impressed by the work and asked Thomas to turn into a complete image editing program. Thomas then collaborated with his brother to work on the program which he later renamed as ImagePro and then as Photoshop. He made a short-term deal with scanner manufacturer Barneyscan and distributed around 200 copies of this program.

During the same time, John went to Silicon Valley and presented the program to the engineers at Apple Computers Inc. and to Russell Brown, the art director at Adobe. Both companies liked the program and Adobe purchased the licence to distribute the product in September, 1988. While Thomas was in Ann Arbor writing the program code, John was in California working on the Plug-ins. Photoshop 1.0 was finally released in 1990 but for Macintosh platforms exclusively.

Photoshop is strongly connected to other Adobe software for media editing, animation and authoring. Photoshop files (PSD) can be exported back and forth from Adobe Premiere Pro, Adobe Illustrator, After Effects and Adobe Encore to provide non-linear editing and special effects services for TV, film and the web. Colour models like RGB (red, green and blue), CMYK (cyan, magenta, yellow and key or black), binary bitmap, grayscale and duotone can be utilized by Photoshop. It has the capacity to read, write

raster and vector image formats such as **EPS**, **GIF, PNG**, **JPEG** and Fireworks.

Adobe Photoshop is highly popular because of several reasons.

- It is user friendly and anybody with little interest and inclination towards image processing can use it.
- Photoshop provides multi-purpose using as it can be used to completely transform an image with its various tools. As mentioned earlier, images can be retouched beyond recognition.
- The graphics program of Photoshop is very comprehensive with excellent features.

However, there are also certain weaknesses of the program.

- One has to do a lot of experiments to actually get a hang of the system and to know the uses of the various tools and features.
- The loading interface for Photoshop takes a long time.
- And the most important disadvantage of this most effective software is its cost. The retail price for the software is very expensive which has led to several pirated versions being available in the black market.

11.6.1 PHOTOSHOP BASICS

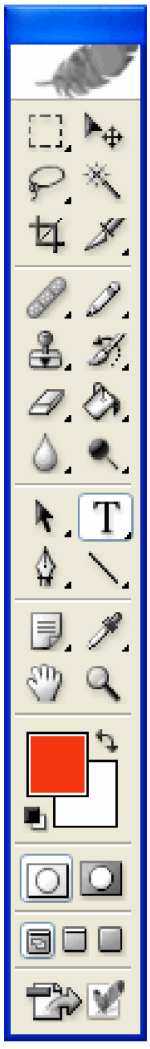
Photoshop is an image editing program; as such it has various features which one can imbibe as one keeps working at it. It becomes easy once it has been practiced a lot. Also, if one wishes to edit or manipulate a picture one should at least know what he or she wants to do with that image. What kind of an effect is needed for the image? Once that is fixed you can go about using the different tools for it. But for starters, the following basic rules should take you through the Photoshop software.

HOW TO START

- Photoshop opens with a Welcome screen that includes links to Tutorials, Tips and Tricks, Color Management Setup and What's New. Sometimes this screen might not appear if it was already deactivated in the settings.
- To make a new Photoshop document select File > New. New

Dialogue Box will appear.

- On the dialogue Box, put a name in the space for a Name. The Dialogue Box will also ask for specifications as to the image size. There are several preset sizes on the Box—letter, legal, tabloid, plus standard web graphic sizes (640 x 480, 800 x 600, 1024 x 768, and 468 x 60).
- If a preset size is selected then the resolution, height and width will be automatically set. You may not select the preset sizes and put in your own measurements (inches, pixels etc.) for the image.
- Many computer monitors are limited to a fixed image resolution of 72 ppi (pixels/inch). So set your resolution as that.
- There is also the color mode with options like RGB, CMYK and Lab modes. Set it to RGB.
- Then there is the Background Contents Section which provides 3 options: White creates a white background for the image, Background Color allows any colour to be selected for the background and Transparent creates a transparent layer behind the image.



Photoshop Toolbox

DIFFERENT PALETTES

- **Tools Palette**: It is also known as the Toolbox as it presents the various tools Photoshop provides.
- **Options Palette**: This one displays the available settings for the selected tool. This palette will change according to the tool that has been selected.
- **Navigator palette**: Use this to navigate within an image or to adjust the zoom level. Until you alter the zoom level a red View Box Marquee will appear around the image.
- **Color Palette**: It is used to select the colour for the foreground and the background. You can mix and match the colours to get the desired colour.
- **History Palette**: This palette keeps a track of all the steps that are taken in a particular Photoshop session. It lists all the steps

taken, right from opening a new document. If you click on any of the steps taken it will restore the image to that stage in the editing process.

- **Layers Palette**: It helps identify the various layers linked to the current image. The Layers palette is a very important part of the Photoshop program. The layers are like overhead transparencies that are stacked one on top of the other. Each layer contains one visual information, it may be an image or some text or some graphic. When you edit an image you use several different effects and graphics to do it. Each of these effects and graphics would make one layer. Each layer can be worked on individually and that adds to the final image.

  All these palettes will open once you click the Window menu and select the Palette you wish to open.

PHOTOSHOP TOOLBOX

When you open the Photoshop program, the Toolbox menu opens by default on the left of the window. The Toolbox has several sections. These are:

- Selection Tools
- Painting Tools
- Path, Text, and Shape Tools
- View Tools



CHECK YOUR PROGRESS

Q.12:. What do you mean by the term 'Photoshopped?

Q.13: What is the biggest disadvantage of Adobe Photoshop?

Q.14: Fill in the blanks:

a. Thomas Knoll's initial attempt at creating an image editing software was named _____.

b. CMYK stands for _____.

c. _____ Palette keeps track of all the steps taken in one Photoshop session.

d. Set your image resolution to _____.

e. The layers are like overhead _____.



ACTIVITY 11.1

1. Take any image (your own picture or a landscape) and edit the image on Adobe Photoshop to create a postcard.
2. Make a one page leaflet on how to promote Assam tourism. Use pictures about tourism in Assam, use catchy slogans and some text. Make the leaflet on Photoshop.



11.7 LET US SUM UP

- Desktop Publishing (DTP) is a system which allows one to make documents and page layouts on a computer. These lay-outs can then be printed.
- Desktop Publishing involves a computer and a software program which enables one to design a page or a document on the computer. This designed page can be then printed on a regular personal home printer or on a professional printing machine.
- Nowadays, most printing is done on the basis of DTP. Major newspapers, publishing houses, books, magazines, brochures, leaflets etc are all designed using DTP software programs.
- Desktop Publishing's major advantage is the WYSIWYG concept, i.e., the concept of "What You See Is What You Get" or "wizzy-wig". This implies that whatever document or page you see on the computer

is what you get in hand. The design is made on a computer and you get exactly the same print-out.

- The first DTP software, Mac Publisher, was introduced in 1984 and it was designed for Apple's Macintosh computers. Then came Apple's LaserWriter and then PageMaker. The latter is a milestone in this industry. Introduced by Aldus Corporation and later bought over by Adobe Systems, PageMaker is the mother of all DTP programs.
- DTP software was readily accepted by the industry because it had various advantages. Most importantly, it was cost effective.
- DTP software programs saved a lot of time for all those who were using it. One could design the page or document the way one wanted it without running to the printer with corrections every other day.
- The pages designed on DTP software were notches up in quality as compared to designing pages on word processors. DTP software programs offered a lot many features to improve the design quality.
- DTP allowed one to be in complete control of a document. One would get a document or page the way he or she would want it to be. And this would bring in a lot of personal satisfaction.
- Several DTP software programs have been launched in the recent years. Some of them are Adobe FrameMaker, Adobe PageMaker, Adobe InDesign, Quark XPress, Corel Ventura, Microsoft Office Publisher and Serif PagePlus.
- Adobe PageMaker is one of the first DTP software's to have been launched and it is also the most popular one all over the world.
- It was introduced in 1985 by Aldus Corporation and then bought over by Adobe Systems. In 2004, Adobe announced that they wouldn't produce the software anymore but would support and sell it.
- Adobe Photoshop is the most popular graphics editing software and it is the flagship product of Adobe Systems.
- Thomas Knoll and his brother John Knoll developed this program and Adobe bought the licence to distribute it. Photoshop 1.0 released in 1990.

- Photoshop is the most effective image editor because it is user friendly, provides multi-purpose using and the features are very comprehensive.
- The most important feature of the Photoshop program are the palettes which include the Options Palette, Navigator Palette, Color Palette, History Palette and the Layers Palette. The Tool Box is also an important device to do all your designing on Photoshop.



11.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q.No.1: Desktop publishing refers to a system of creating printable documents on computer. It involves DTP software which helps create a document or a page with text, graphics and images on a computer. This document can be then printed in a personal home printer or by major printers. DTP software was first introduced in 1984 and since then several other programs have been launched. Nowadays, almost every kind of publishing is based on DTP.

Ans. to Q.No.2: WYSIWYG refers to "What You See Is What You Get" and it's also called "wizzy-wig". WYSIWYG is a major attribute of DTP software programs as they facilitate the system of seeing the document on computer before it goes for printing. And what you see on the computer screen is what you get once it's printed.

Ans. to Q.No.3: Web Design software

Ans. to Q.No.4: Mac Publisher

Ans. to Q.No.5: Aldus Corporation

Ans. to Q.No.6: Paul Brainerd

Ans. to Q.No.7: Some of the major desktop publishing software programs are Adobe PageMaker, Quark Express, Adobe InDesign, Corel Ventura, Serif PagePlus, Microsoft Office Publisher etc. The first three programs are the most popular ones. PageMaker, is now not produced anymore and most international publication house have moved over to Adobe's successor to PageMaker, i.e., Adobe InDesign. Quark Express was the one software which dethroned the PageMaker and

compelled Adobe to come up with an even better program, which indeed they did with InDesign. Most national newspapers of India use Quark Express and newspapers and other publishing houses in Assam still rely on PageMaker.

Ans. to Q.No.8: SPA Excellence in Software

Ans. to Q.No.9: Windows Vista

Ans. to Q.No.10: In PageMaker we can define Headline style by choosing Define Styles on the Type Menu.

Ans. to Q.No.11: To import an image on to a PageMaker file, go to the "File" menu and click "Place". Then locate the image file and click "OK". Take the Pointer from the Tool Box and use it to fix the position of the image on the page. Images can also be imported by simply "copy pasting" them. In fact most MS Word Clip Art images can only be "copy pasted".

Ans. to Q.No.12: 'Photoshopped' is a colloquial jargon used to describe an image which has been edited or manipulated through the Photoshop software. Although pictures may be edited and changed by various other programs like Paint, Corel Photopaint etc, since Photoshop is the most popular of the lot, the term is used extensively. Adobe Systems, the makers of Photoshop, however, have always discouraged the use of the word 'Photoshop' in terms of a verb because it may undermine the company's trademark.

Ans. to Q.No.13: The biggest disadvantage of Adobe Photoshop is the fact that the retail cost of software is very exorbitant. This has led to many pirated versions being available in the market.

Ans. to Q.No.14:

a. Display

b. Cyan, magenta, yellow and key or black.

c. History

d. 72 ppi

e. transparencies.



11.9 FURTHER READING

- **The Desktop Publisher's Idea Book** — *Chuck Green (Bantam Books)*
- **The Photoshop Cs / Cs2 Wow! Book** — *Linnea Dayton, Cristen Gillespie (Peachpit Press) 2006*.



11.10 MODEL QUESTIONS

A. Very Short Questions

Q.1 : Why Layers palette is a very important part of the photoshop paragraph?

Q.2 : Why is Adobe Page Maker used ?

B. Short Questions (Answer each question in about 150 words)

Q.1: Explain the emergence of the desktop publishing boom.

Q.2: Explain the present desktop publishing scenario with special emphasis on the various DTP software programs available in the market.

C. Long Questions (Answer each question in about 300-500 words)

Q.1: Despite Adobe's declaration in 1994 that the PageMaker program wouldn't be produced anymore, this software is still very common among consumers. Discuss.

Q.2: Discuss the benefits of Adobe Photoshop.

Q.3: What is the significance of the DTP system?

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UNIT-12: PRINTING TECHNOLOGY AND TYPOGRAPHY

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Printing technology

- 12.3.1 History of printing
- 12.3.2 Types of printing technology

12.4 Offset Printing

- 12.4.1 Advantages and disadvantages of offset printing
- 12.4.2 Types of Offset presses

12.5 CTP (Computer to Plate)

12.6 Typography

- 12.6.1 Page Layout
- 12.6.2 Tips for good typography
- 12.6.3 Fonts and font families

12.7 Let Us Sum Up

12.8 Answers to Check Your Progress

12.9 Further Reading

12.10 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- define printing technology
- discuss the history of printing
- explain the different types of printing technology
- discuss CTP technology
- explain what typography means
- enlist the ways to achieve good typography
- explain the various font families

12.2 INTRODUCTION

In the previous unit we have discussed desktop publishing and how different computer programs can assist us in creating pages and documents for printing. As media students it is important for you to know about every stage of the modern communication process. That includes having the technical knowledge about printing as well. Because in every media field be it print journalism, advertising or PR, you will have to come across computers and computer related designing as well as printing know-how. You have to be accustomed to the various technologies that facilitate communication.

This unit will give you an understanding of what printing means and what are the various types of printing technologies available in the industry. You will also learn about Offset printing, which is the most favoured technology and about CTP. The unit will also focus on typography and what makes a good typography. Font families and page layout are the other aspects that you will come across in this unit.

To start with, you need to have a brief understanding of printing because even though we all know what printing generally means we tend to ignore its importance in today's world. The next section will take you through the world of printing.

12.3 PRINTING TECHNOLOGY

The process of reproducing text and images using ink on paper on a printing press is called printing. Printing is basically a large scale industrial process and it is a significant part of the publishing industry. Before printing technologies came about, the only way people could copy words and pictures was by hand. But after printing machines were invented the job of copying text and images have become much easier and less time consuming.

The printing press uses ink to put words and images on paper. This ink is very much like the ink we see in our pens. But press ink comes in hundreds of colours. Before you start to print, you need the content, i.e.,

text and images. The text can be anything, facts, stories, reports etc. while the images may be photographs, drawings or graphics. The content is then put on a thin sheet of metal known as the printing plate which then goes to the press. Most new press now gets their content straight from the computer. They are called the digital press.

Once the content is put on the plate, the press is fed with paper and the printing plate then puts ink on this paper to copy the content. The paper then comes out with the inked / printed content. Once the paper comes out it is sent for cutting. The cutter is actually a big blade which can cut many sheets of paper at one go and make them into proper sizes. After the pages are cut, they are then folded properly as per requirements. The folders fold the pages into books or magazines or newspaper sheets. Your printed material is now ready for use.

12.3.1 HISTORY OF PRINTING

Printing goes back a long way as instances of wood block printing date back to before 220 AD in China. Woodblock printing is the process of printing content on textiles with blocks of wood which were carved out into shapes of letters and images. They were then inked and pressed on to a sheet of cloth or latex. It originated in China and was used all across East Asia. By 593 AD the first printing press was invented in China and Kaiyuan Za Bao became the first newspaper to be printed from China in 713 AD. The Tianemmen scrolls were also printed in China in 868 AD.

Woodblock printing on cloth was also seen in Egypt during the 4th century but it is not known whether the Egyptians learnt this style form the Chinese or developed it on their own. Evidences suggest that some of these blocks were also made of metals like tin, lead and cast iron.

Then came moveable type printing which involved moving pieces of metal type for printing. This type of printing allowed more flexibility than hand copying or block printing. Even in this regard the Chinese were ahead of the whole world as the first known movable

type system was created in China by Bi Sheng in 1040. But he used porcelain to create the types which would break easily. So Wang Zhen later modified this by using wood for the moveable types. This was in 1298 AD.

However, the biggest name in the history of printing technology is undoubtedly Johannes Gutenberg. He was the one to introduce moveable type in Europe in1450. He created type pieces from alloy of lead, tin and antimony, the components which are still used today. One of the first books he printed was the Bible.

Gutenberg's movable type printing was quicker than wood block printing and the metal pieces were more durable and the lettering more uniform. Even the printing cost was less compared to the previous methods. Present day moveable type printing is mostly based on Gutenberg's invention.

Apart from Gutenberg's moveable type, there were some other types of printing which evolved over the years. One such technique was the Rotary printing press invented by Richard March Hoe in 1847. This technique uses a cylinder which has impressions cast around it to print on long continuous rolls of paper.

There are several other printing technologies which have come up in the recent decades. The next section will tell you a bit more about the different types of printing.

12.3.2 TYPES OF PRINTING

Commercial printing industry is a booming business and there have been several advancements in the last two decades. Many types of printing machines have been invented and introduced into the market. Some printing techniques are very popular like Offset Printing while Letterpress printing is the oldest of the lot. Following is a list of the most popular printing techniques:

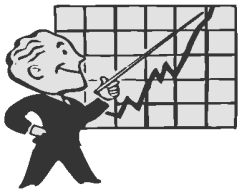
- **Digital Printing**: This does not involve any plate or film to produce images. It makes use of digital imaging technology through computers to provide high quality printing. It eliminates

the cost of making plates, film etc. Digital printing can be used to reproduce digital images and text on paper, film, cloth plastic etc.

- **Embossed Printing**: This is also called Blind or Relief Printing. This technique transfers text or images as a relief onto various surfaces like paper, metal foils and cardboard. The embossing is done behind the surface while the actual image is seen as relief on the front. The image stands out giving it a three dimensional effect.
- **Flexography Printing**: This technique is mainly used to print packaging materials. It can be used to print on materials like boxes, folding cartons, plastic bags, paper sacks etc. It employs flexible printing plates made of rubber or plastic.
- **Letterpress Printing**: In use since the 13th century this is the oldest technique to be still in use. In this process pages are printed by the "relief" types printing plates where the printing area is raised above the non-printing areas. Inked rollers then pass the page to be printed onto a separate ink-bed where a fresh film is picked for the following sheet of paper.
- **Screen Printing**: This technique is special because it uses a porous fabric and a stencil to create a sharp-edged image. This technique developed in early 19th century and was used extensively to make banners and flags during the First World War.
- **Electrostatic Printing**: It is a type of printing technique which is done without any plate, ink or type form. A thin layer of zinc oxide is used to coat the paper, which then becomes an insulator in the dark and also a conductor of electricity when exposed to light. Electrostatic printers are mostly used to print geographical maps.
- **Engraving Printing**: In comparison to the other techniques, this technique produces the sharpest, crispest and finest images. The method is a type of gravure printing which involves

pushing the paper against a recessed plate. The paper is slightly moistened and the cylinder pressure forces the ink from the recessed area to the paper.

- **Gravure Printing**: It is mainly used for high volume printing of wallpaper, packaging and gift-wraps.
- **Offset Printing**: One of the most common printing techniques, Offset printing is used by many industries. Although the machines and the set-up is expensive the printing expense is nominal. We will discuss offset printing in detail in the next unit.
- **Thermography Printing**: This process relies on heat to print letters or create images on a sheet of paper. Special thermography paper is spread over the paper after it is removed from an offset printing press. This powder is then dusted off the paper leaving only the part with the inked image. This sheet is then passed through a heat tunnel which melts the powder and a raised impression is left behind. It is used mainly on envelopes and business cards.



CHECK YOUR PROGRESS

Q.1: What do you understand by the term 'printing'?

Q.2: What is Woodblock printing?

Q.3: Why did Johannes Gutenberg's moveable type printing become so popular?

Q.4: What are the different types of printing?

Q.5: The first printing press was invented in _____.

Q.6: The first known movable type system was created in China by _____ in 1040.

Q.7: Present day moveable type printing is mostly based on _____ invention.

Q.8: The _____ was invented by Richard March Hoe in 1847.

12.4 OFFSET PRINTING

Offset printing is the most popular form of printing in the present scenario. It was invented by an American - Ira Washington Rubel in 1903. It is used in most big industries and press. Major newspapers use offset printing and as such it is necessary for media student to know in detail about this type of printing.

In this process ink is spread on a metal plate with etched images. This metal plate is then transferred onto an intermediate surface, mostly a rubber blanket. The plate is then applied to paper by pressing it against the intermediate surface. Due to its high quality printing and capacity to print high volumes, offset printing is the most common form of printing. The machine and the set-up may be a bit expensive but the cost of printing is very less. The major expense goes into the preparation before the actual printing takes place. The more one prints, the less one pays per page because every additional paper print will only require the cost of paper and ink which is very minimal.

Even though modern digital presses are competing with offset printing in terms of cost/benefit but digital press cannot get closer to offset in terms of the sheer volume of product that the latter can produce. And now-a-days, most offset presses are using CTP (Computer to Plate) systems as

opposed to older computer to film. This further increases the quality.

12.4.1 ADVANTAGES AND DISADVANTAGES OF OFFSET PRINTING

ADVANTAGES

The fact that this process of printing is the most common in today's industry is due to its several plus points. It scores over the other techniques in several ways. Some of these major advantages are discussed below:

- Superior image quality at a consistent rate. Offset printing produces high quality prints much more easily than letterpress printing. This is because of the rubber blanket which conforms to the texture of the printing surface.
- The production of printing plates is quicker and easier.
- The plates have a longer life in comparison to those in litho presses because in offset, the plates are not in direct contact with the printing surface.
- Offset printing is the cheapest way to produce volumes of high-quality prints.
- Other than paper, this technique can be used on other surfaces as well, including wood, cloth, metal, leather etc.

DISADVANTAGES

Offset printing has several benefits no doubt, but it has a few disadvantages as well. Some of these are discussed below:

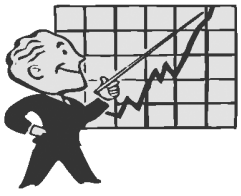
- In comparison to photogravure printing, the image quality is slightly inferior.
- The set-up and cost of offset press is very high. And it also takes a good amount of time to be set up.
- It is good mainly for high volume work. Smaller printing jobs are not feasible or cost-effective here. As a result smaller printing jobs are going to digital presses.

Despite the few anomalies of offset printing, the advantages are enough to make it the most popular printing mechanism.

12.4.2 TYPES OF OFFSET PRESSES

Offset presses are primarily of two types:

1. Sheet-fed Offset Printing Press: Here the printing is carried out on single sheets of paper as they are fed to the press one at a time. It is used to print brochures, letterheads, short-run magazines and other commercial printing. This doesn't require continuous reams of paper.
2. Web-fed Offset Printing Press: In this process, the printing is carried out on a single, continuous sheet of paper which is fed from a large roll. The sheet is then cut into individual sheets of desired sizes. Web printing is mostly used for excess of 10 or 20 thousand impressions. Printing of newspapers, newspaper ads, magazines, books etc involve web-fed offset printing.



CHECK YOUR PROGRESS

Q.9: Who invented the offset press?

Q.10: Why is offset printing highly preferred?

Q.11: What is the full form of CTP?

Q.12: What are the types of Offset press?



ACTIVITY 12.1

1. Visit a printing press near your place and make a report on how the printing process is carried out.
2. Visit a newspaper press and find out how newspapers are printed.

12.5 CTP (COMPUTER TO PLATE)

CTP or Computer to Plate is an imaging technology used in most modern printing processes. Through this process, an image that has been created on a computer with desktop publishing (DTP) can be directly sent to the printing plate. CTP has been developed as a replacement for the earlier technique of CTF or Computer to Film.

Before CTP was developed, most printing was done through CTF, where the computer created image was transferred to a photographic film first. This film was then used to make a printing plate. So CTF is a much longer process than CTP because in CTP one step is completely skipped.

CTP eliminates the stage where the image is developed on film and this increases the image sharpness and details. The omission of this step also removes the need for film and the other chemicals necessary to develop the film. CTP ensures better quality printing because the potential loss of quality during the film processing is avoided. In CTF the photographic film may be exposed to harsh light or it may get scratches. In CTP the plates are produced in less time, are more consistent and they come at a lower cost. CTP also ensures better registration of images even if they are repeated over and over.

CTP's benefits are aplenty but there are certain drawbacks too. The most significant drawback is its restriction to the digital format. CTP production requires the printed matter as well as the imposition to be digital. Besides this, another major drawback is that in CTP, if a plate gets damaged or if something has to be corrected after the plate is exposed, a completely new imposed plate has to be created.

CTP, however, is still the most common form of imaging technology used in the present times. The drawbacks are very little in comparison to its positives. Since most industries now use computers for work, CTP is a much easier option. Besides, it is less time consuming and cheap as well.

Now that you have come across all the major techniques and processes involved in printing, you also need to have an understanding of the building blocks of printing—the elements which form the basis of any document, i.e the **typography**. The next section will take you through the world of typography and how significant it is.



CHECK YOUR PROGRESS

Q.13: What is CTP?

Q.14: What are the advantages of CTP?

Q.15: What is CTF?

Q.16: CTP has been developed as a replacement for the earlier technique of called _____.

12.6 TYPOGRAPHY

The simplest meaning of typography is that it is the art of print. It combines communicative and artistic elements to create a print which is both easy to read as well as pleasing to the eye. Typography is made up of fonts, lettering and print types. A small font or a fuzzy font will be hard to

read and will make the message difficult to comprehend. It is a mark of good typography if the print is legible and easy to read. The choice of typography depends on the material to be printed. So, if it is for a newspaper then the typography will be simple and straightforward but if it is a wedding card, the print has to be ornate and elegant to suit the happy occasion.

The arrangement of type includes the choice of typefaces, point size, line length, line spacing or leading, tracking or adjusting the spaces between groups of letters and kerning or adjusting the space between pairs of letters. Typography is done by typographers, graphic designers, art directors, typesetters, compositors, comic book artists etc. Before the advent of computers, it was a specialised occupation. But now with the spread of digitization, typography is open to a new generation of visual designers and layman users.

12.6.1 PAGE LAYOUT

In the previous unit and even in this unit we have mentioned the term ‘page layout’ a number of times. But what exactly does it mean? Simply put, page layout is the process of arranging text and graphics on a page. This can be for a newspaper, a brochure or for a book. Every printed material needs to have a proper layout with some text and some images that are designed using good typographies.

You have read about desktop publishing software programs in the previous unit. The primary desktop publishing software are also known as page layout applications because they help create a page using the available tools. Before DTP was developed, page layout was done by pasting blocks of text and picture cutouts on sheets of paper.

But now with the spread of desktop publishing, page layouts are not such a messy ordeal. You might only have to know a few tricks of the trade. In DTP page layout, grids and templates are of extreme importance. Grids allow the user to align the material on the page. They are basically columns and rows which help place

the text and images in an appropriate manner. Grids are visible only during the designing process. Templates make minimal modification of background elements and frequent adjustment of foreground content.

Now good typography goes a long way in making a page layout look pleasing to the eye. The elements of typography become evident only through a page design or layout. So what exactly is a good typography? The next section will give you some answers.

12.6.2 TIPS FOR GOOD TYPOGRAPHY

Typography is an intrinsic part of page design and design is an intrinsic part of typography. One cannot merely throw a body of text on a page. It has to be placed in a neat and organised manner so that it adds to the importance of the information on the page. If a typed message has to make the maximum impact, the typography of the page matters a lot. So designers need to know how to create a good typography. Some of the tips that can make up a good typography are discussed below:

- **Grid-Based Layouts**: Grids are the basic structure of all printing design. They are simply a structure of columns and rows. Use grids as you set out to design a page. Do this even before you get to the type. A well-structured layout will use one or two columns. You can be original by using three or maybe four or five column layout. But do remember that the columns must fit into the page and every time you add a new column the other columns will shrink in size.
- **Alignment**: Maintaining correct alignment of text and images works wonders for a layout. A standard print layout is normally left aligned. For the headline central alignment is often considered ideal but centered headers can often throw off the layout. Sticking to left alignment with bold text is a safer option. A page with complete right aligned text is a bit jarring to the eye. Right alignment can be used for footnotes or captions. While

maintaining the alignment you should be careful about making everything line up at the same spot. This is where the grids come handy. Make sure that every text object should be at the same exact distance from the left or the right, depending on the alignment.

- **Margins, Kerning, Leading and Spacing**: Appropriate spacing and perfect line margins are an important aspect of printing and typography. Even a tiny little space can spruce up or mar the design. The content is important so make sure that you space it out well so that the content is given focus. The space between the individual alphabets, which is called kerning, and the space between the baselines of text, called leading are essential to typography. The leading and kerning have to be balanced. Too much leading can leave a lot of white space and less leading can make the words unintelligible.
- **Colour contrasts:** The text colours and their degree of contrast are also important facets to be looked into. If the colour contrasts are not perfect, the readability will be affected. It's challenging to find the right balance of contrast for the body text because it needs to be strong enough to be visible and yet not that strong that it becomes distracting. For headlines, it is advisable to use strong contrasts to make them prominent.
- **Consistent style:** If you are making a multiple page layout, be consistent with the fonts, colours and point sizes. You can try to change the look of every page but stick to the basic feel of the layout. You can try out different number of columns or rows and even alter their sizes but try to have uniformity in all the pages.
- **Graphics and text go hand-in hand:** A page layout is not just about the text. Graphics and images are also essential to give it a balanced look. The type or text must be in perfect harmony with the images. Lay the text in such a manner that it flows with the graphic elements. Maintain appropriate spacing between the text and the images by having margins.

- **Maintaining hierarchy:** Hierarchy in typography means the difference between headlines and body text. In other words, the headers and the body text need to be of different point sizes. This is necessary because it enables the reader to distinguish between the two. Headings are generally placed on top but you can experiment and place it in the middle or anywhere else. The size and variation of heading style will make it distinct from the remaining text even if it comes in between the body text.
- **White Space**: It is always better to stick to a minimalist typographic style and white space helps you achieve that. Proper white spacing adds a professional, clean look to any page layout. But you need to know how much is too much.

12.6.3 FONT AND FONT FAMILIES

A major element of typography is font. Fonts are basically the various typefaces that are available for printing. It is a collection of characters like alphabets, numerals, symbols and punctuation marks. And then there are various types of this collection of characters. Selecting a particular font type goes a long way in determining the look of any page layout.

All font types have some similar characteristics. Some of these basic font properties are:

- Name: Every font has a distinct name. Eg: Times New Roman, Courier, Arial etc. The font used on this page is Arial.
- Size: The size is determined by the height of the characters which is expressed in points. Each point is 1/ 72 of an inch. The text size in this page is 11 points.
- Style: The style of a basic font is referred to as Roman. The other styles are bold and italic.

When a group of fonts exhibit similar characteristics they are said to belong to a font family. It is a group of fonts that can be used in combination and that which exhibit similarities in design. These families may be grouped in different categories. Some with or without

serifs, some that look like fantasy fonts, some that resemble handwriting while some others whose characters are or are not proportionately spaced out. In the same family, one member may be italic, one bold, and another condensed or using small caps. Some font family names are Helvetica, New Century Schoolbook. There are basically two types of font family names:

- Family-name: The name of a font-family of choice, like “Times”, “Courier”, “Arial”, “Helvetica”, etc.
- Generic-family: The name of a generic-family, like serif (Times), sans-serif (Helvetica), cursive (Zapf-Chancery), fantasy (Western) and monospace (Courier).



CHECK YOUR PROGRESS

Q.17: Why is typography important?

Q.18: What is a font family?

Q.19: Fill in the blanks:

1. The simple structure of columns and rows are called _____.
2. The space between two individual letters is known as _____.
3. Fonts are a _____ of characters.
4. Headers and body text help establish the _____ in typography.
5. DTP software programs are also known as _____ applications.



12.7 LET US SUM UP

- The process of reproducing text and images using ink on paper in a printing press is called printing.
- For a page or document to be printed it must have content. Content can be only text or only images or both.
- Once the content is put on the plate, the press is fed with paper and the printing plate then puts ink on this paper to copy the content. The paper then comes out with the inked / printed content.
- The Chinese were the first ones to introduce printing as instances of wood block printing date back to before 220. They used to print on textiles or latex earlier with the help of blocks of wood which were carved out in the shape of letters or images. These blocks were then inked and placed on the sheet of cloth or latex.
- Even the Egyptians used wood blocks to print as far back as the 4th century.
- After woodblock printing, came moveable type printing. Even this was invented by a Chinese, Bi Sheng, in 1040. Sheng would use porcelain to make the type pieces for printing and these would break easily. So another Chinese, Wang Zhen later modified this by using wood for the moveable types in 1298 AD
- It was Johannes Gutenberg, a German, who revolutionised printing by introducing moveable type in Europe in1450. He created type pieces from alloy of lead, tin and antimony, the components which are still used today.
- Gutenberg's movable type printing was quicker than wood block printing and the metal pieces were more durable and the lettering more uniform. Even the printing cost was less compared to the previous methods.
- Now-a-days, there are several printing technologies available in the market. Some are used extensively while some are used by specific industries. The major printing technologies are: Digital Printing,

Embossing Printing, Flexography Printing, Letterpress Printing, Screen Printing, Electrostatic Printing, Engraving Printing, Gravure Printing, Offset Printing, Thermography Printing.

- Offset printing is the most popular of the lot because it is cheap, it saves time and it produces high quality prints in volumes.
- Newspaper presses are mostly based on offset printing.
- In offset printing process, ink is spread on a metal plate with etched images. This metal plate is then transferred onto an intermediate surface, mostly a rubber blanket. The plate is then applied to paper by pressing it against the intermediate surface.
- The machine and the set-up for offset printing may be a bit expensive but the cost of printing is very less.
- Offset presses are two types: Sheet-fed offset and web-feed offset.
- In sheet-fed process the printing is carried out on single sheets of paper as they are fed to the press one at a time.
- In Web-fed process, the printing is carried out on a single, continuous sheet of paper which is fed from a large roll.
- CTP or Computer to Plate is an imaging technology that enables an image created on a computer with desktop publishing (DTP) to be directly sent to the printing plate. CTP has been developed as a replacement for the earlier technique of CTF or Computer to Film.
- In CTF the computer created image is transferred to a photographic film first. This film is then used to make a printing plate. So CTF is a much longer process than CTP.
- Typography is the art of print which combines communicative and artistic elements to create a print which is both easy to read as well as pleasing to the eye. Typography is made up of fonts, lettering and print types.
- A good typography will include the choice of typefaces, point size, line length, line spacing or leading, tracking or adjusting the spaces between groups of letters and kerning or adjusting the space between pairs of letters.

- A good typography is possible only when one follows some basic tips. Try to make grid based layouts. Grids are basically the structure of rows and columns. Use grids as you set out to design a page. Do this even before you get to the type.
- Maintaining proper alignment is another important task. A standard print layout is normally left aligned. While maintaining the alignment you should be careful about making everything line up at the same spot.
- The spacing between words, between letters and in between lines is very essential. So, use margins and manage the kerning and leading spaces appropriately.
- Using colour is another choice you have to make. Ensure that the colour contrasts are pleasing to the eye. It shouldn't be too harsh; neither should be it too soft.
- If you are making the typography for a multiple page layout, maintain uniformity throughout by being consistent with the fonts, their point sizes and colours.
- Use graphics and text in harmony. They need to be balanced out to make a page look neat and readable.
- Maintain hierarchy between the headlines and the body text. The headers need to be distinctly created so that readers can identify the two even if you do not put the header on top of the text.
- Give ample white space. Too much clutter on the page is not at all pleasing to the eye. White space enables some breathing space to the content on the page.
- Fonts are a basic element of typography. They are basically a collection of characters or typefaces that are used for printing text. A particular font collection will have alphabets, numerals, symbols and punctuation marks.
- Every font will have a name, a size and a style.
- Some fonts have certain distinctive characteristics and these characteristics make them a part of a family. They are the font families. Some families may be without serif (sans serif), some with

serif, some families will look like handwriting etc.

- There are basically two types of font family names:
  - Family-name: The name of a font-family of choice, like “Times”, “Courier”, “Arial”, “Helvetica”, etc.
  - Generic-family: The name of a generic-family, like serif (Times), sans-serif (Helvetica), cursive (Zapf-Chancery), fantasy (Western) and monospace (Courier).
- Page layout is a basic part of printing. It refers to the process of placing text and images in a proper manner so as to create a page. the various desktop publishing software helps us in creating page layout with minimum fuss.
- It is while making a page layout that the various typographical elements come into play. A proper use of typographical elements will create a proper page.



12.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to. Q.No.1: Printing is basically the process of reproducing text and images using ink on a sheet of paper. And the process is carried out in a printing machine. Before printing evolved the only way to copy text was by way of writing it down. This would take time and it was also very cumbersome. Printing technology, however, changed all that. Now printing machines can print reams and reams of paper within minutes.

Ans. to. Q.No.2: Woodblock printing is the earliest form of printing where the prints were made not on paper but on textiles or cloth and latex. This type of printing dates back to China before 220 and in Egypt during the 4th century.

Ans. to. Q.No.3: Johannes Gutenberg’s moveable type became popular because he created the type pieces from the alloy of tin, lead and antimony. Before Gutenberg the Chinese had invented the moveable type of printing but they had used porcelain to make the type pieces.

These would break very easily. The Chinese also made type pieces out of wood but it was Gutenberg's invention of metal type pieces which made a major difference to printing technology. His components are still in use because they are durable and the lettering is more uniform.

Ans. to. Q.No.4: The different types of printing are Digital Printing, Embossing Printing, Flexography Printing, Letterpress Printing, Screen Printing Electrostatic Printing, Engraving Printing, Gravure Printing, Offset Printing, Thermography Printing.

Ans. to. Q.No.5: China

Ans. to. Q.No.6: Bi Sheng

Ans. to. Q.No.7: Gutenberg's

Ans. to. Q.No.8: Rotary printing press

Ans. to. Q.No.9: Offset printing was invented by an American Ira Washington Rubel.

Ans. to. Q.No.10: Due to its high quality printing and capacity to print high volumes, offset printing is the most preferred form of printing. The machine and the set-up may be a bit expensive but the cost of printing is very less.

Ans. to. Q.No.11: Computer to Plate.

Ans. to. Q.No.12: Offset presses are primarily of two types: Sheet-fed Offset Printing Press and Web-fed Offset Printing Press.

Ans. to. Q.No.13: Computer to Plate which is commonly known as CTP is basically an imaging technology which enables the direct transfer of pages created on a computer to a printing plate. CTP technology connects the computer to a printing plate unlike the earlier CTF (Computer to Film) technology which necessitated the involvement of photographic film to transfer pages from computer to plate. Whatever pages are created on a computer using desktop publishing software can now be directly put on a plate and printed by the use of CTP technology.

Ans. to. Q.No.14: The advantages of CTP are that in CTP the plates are produced in less time, are more consistent and come at a lower cost.

CTP also ensures better registration of images even if they are repeated over and over.

Ans. to. Q.No.15: It is an imaging technology where the computer created image is transferred to a photographic film first. This film was then used to make a printing plate. CTF was used before CTP emerged in the printing scenario.

Ans. to. Q.No.16: CTF

Ans. to. Q.No.17: Typography is important because it establishes the look of a page or document. It is the art of print which involves both artistic and communicative elements to put across the message. Typography includes the selection of fonts, point sizes, spacing between the alphabets and the lines etc. If you can select the appropriate typography for your document, half your job is done. Good typography will make the message on the document readable as well as pleasing to the eye.

Ans. to. Q.No.18: A font family refers to a group of fonts which have similar characteristics. A particular font family might be characterized by 'serifs' like the Times font family. Another font family may have fonts that look like handwriting; some families might be 'sans serif' etc.

3. a) grids b) kerning c) collection
d) hierarchy e) layout



12.9 FURTHER READING

- **Digital Colour Printing Technology** – *Bishwanth Chakravarty, (ASIAN BOOKS)*.
- **Modern Printing Technology** – *National Institute of Industrial Research*.



12.10 MODEL QUESTIONS

A. Very Short Questions

Q.1. : What is CTP ?

Q.2. : What is engraving printing ?

B. Short Questions (Answer each question in about 150 words)

Q.1: What are the different types of printing? Discuss in detail.

Q.2: Why is offset printing the most common printing technique?

C. Long Questions (Answer each question in about 300-500 words)

Q.1: What makes up a good typography?

Q.2: Will digital printing overshadow offset printing in the years to come? Discuss with relevant examples.

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