PGBA (S1) 04-1

Information Technology in Management

SEMESTER - 1

BUSINESS ADMINISTRATION

BLOCK - 1

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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MASTER IN BUSINESS ADMINISTRATION
INFORMATION TECHNOLOGY IN MANAGEMENT

Block 1

DETAILED SYLLABUS

UNIT 1 : Basics of Computer **Page 7-28**

Computer– Definition; Components of a Computer; Evolution of Computer; Generation of Computers; Classification of Computer; Applications of Computer

UNIT 2 : Data Storage Techniques **Page 29-42**

Storing Data in Computer; Binary Number System: Binary to Decimal Conversion, Decimal to Binary Conversion; Computer Memory: Random Access Memory, Read Only Memory, Cache Memory and Virtual Memory, Secondary Memory

UNIT 3 : Software and Multimedia **Page 43-55**

Computer Software Basics; System Software; Application Software; Integrated Software; Multimedia Computing; Legal Restriction on Software

UNIT 4 : MS Word - I **Page 56-111**

Starting MS-WORD; Basic Components of MS Word; Entering and Saving Text in a Document; Closing the MS-Word document and Closing MS-Word; Opening of an Existing Document; Copy and Cut (Move); Formatting the Document; Find a Particular Pattern; Insertion; Implementing Formula on Table Contents; Header and Footer; Page Setup; Indents; Tabs; Columns; Change Case

UNIT 5 : MS Word - II **Page 112-120**

File Needed to Work with Mail Merge, Creating a Mail Merge Document, Inputting the Data, Printing the Merged Document, Modifying the Records in the Data Source

UNIT 6 :MS Excel - I **Page 121-147**

Starting of Microsoft Excel, Part of MS-Excel Window, Components of an Excel Work Book, Closing the Excel Work Book, Worksheets within Work Book, Enter an Edit Data, Saving and Creating the Work Book, Cell Contents

COURSE INTRODUCTION

This is the fourth course of MBA Programme. This course introduces us to the subject- Information Technology in Management. The course “Information Technology in Management” of M.B.A. 1st semester will focus on the different aspects of computer application. The course is meant to create interest in computer usage. This course will help the student in enhancing their knowledge in the field of Information Technology. This course consists of two blocks.The course has 12 units and is divided into two blocks; Block 1 and Block 2.

Block 1 deals with the introductory concepts of Informationm Technology in Management, data storage technologies, software & multimedia, MS word.

Block 2 concentrates on MS Excel, MS Powerpoint, varoius internet tools and working with Internet

Each unit of these blocks 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

BLOCK INTRODUCTION

This is the first block of the course ‘ Information Technology in Management ‘ The Block is divided into 6 units which are related to the basic concepts of computer application of Management. Block 1 deal with the basic concepts of computer and data storage techniques and overview of software and multimedia. This block is designed to provide a comprehensive introduction to the study of information technology in management. It is primarily a learner oriented Self learning material, as it satisfies the requirements of the learners in the filed of ‘management’.

The block is divided into 6 units:

Unit 1: Basics of Computer

Unit 2: Data Storage Techniques

Unit 3: Software and Multimedia

Unit 4: MS Word - I

Unit 5: MS Word - II

Unit 6: MS Excel - I

UNIT 1 : BASICS OF COMPUTER

UNIT STRUCTURE

1.1 Learning Objectives

1.2 Introduction

1.3 Computer– Definition

1.4 Components of a Computer

1.5 Evolution of Computer

1.6 Generation of Computers

1.7 Classification of Computer

1.8 Applications of Computer

1.9 Let Us Sum Up

1.10 Further Reading

1.11 Answers to Check Your Progress

1.12 Model Questions

1.1 LEARNING OBJECTIVES

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

- define the term Computer
- describe the key characteristics of a Computer
- trace the evolution of Computers
- describe the generations of Computers
- identify the types of Computers
- describe the applications of Computer.

1.2 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 existance of modern human being. With the growing information needs the computer has become one of the vital components for the survival of the business houses. Their presence is felt almost every working place from the bus and railway ticket

reservation 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 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.

1.3 COMPUTER– DEFINITION

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. 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. The machine itself is the hardware; and the instructions are the program or software.

Most of today's computer designs are based on the concepts developed by **John Von Neumann** refered to as the " **Von Neumann architecture**". According to this structure a computer must have two units– a *processing unit* and a single separate *storage unit*. The term "*storedprogram computer*" is generally used to mean a computer of this design. The processing unit is termed as **central processing unit (CPU)** which mainly comprises with another two unit namely Arithmetic and Logic Unit (**ALU**) and Control Unit (**CU**). The ALU performs the arithmetic operations on data such as addition, subtraction,multiplication and division, and the logical operations such as, >, <, >=, <= etc. The control unit directs the ALU to perform specific arithmetic and logical functions on the data.

The storage unit is used to store instructions and data temporarily. This component is referred to as *memory*. The memory unit stores all the information in a group of memory cells, also called memory locations, as binary digits (bits). Each memory location has a unique address and can be addressed independently.

The instruction and data can be put into the computer with the help of the input module. Similarly, it needs another component that will report the results in proper format and form. This component is called output module.

The following figure shows the basic structure of a conventional Von Neumann machine :

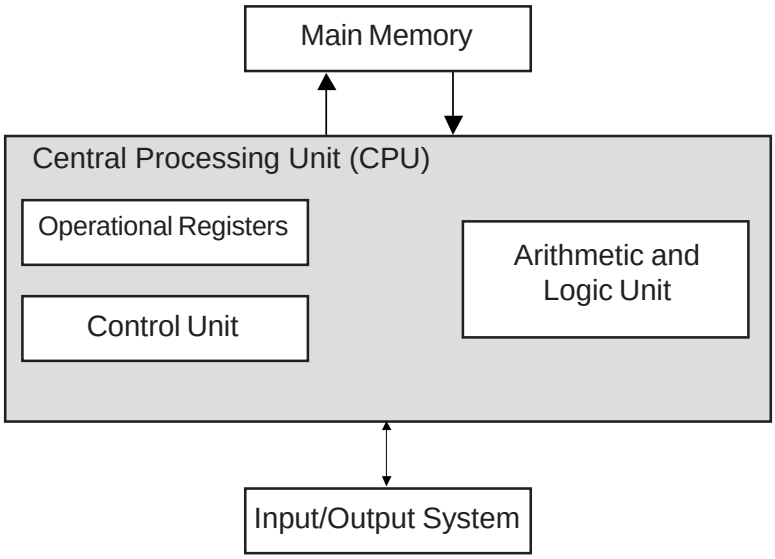


Fig. 1.1 : Von Neumann Architecture

NOTE

All the arithmetic and logical operations are performed in the CPU in special storage areas called registers. The size of the register is one of the important considerations in determining the processing capabilities of the CPU. Register size refers to the amount of information that can be held in a register at a time for processing. The larger the register size, the faster may be the speed of processing CPU processing power is measured in Million Instruction Per Second (MIPS).

1.4 COMPONENTS OF A COMPUTER

All general-purpose computer requires the following hardware components :

Input Unit : This is the unit through which data and instructions are entered into a computer. Usually a keyboard and mouse are the common input devices. The other input devices are light pen, joy stick, scanner, touch screen, magnetic ink character reader(MICR), optical mark reader (OMR) and bar code reader etc.

A group of input devices are shown in the following figure :



Scanner

Joy stick



Bar code reader



Touch screen

Optical Mark Reader



Mouse

Keyboard

Fig. 1.2 : Input Devices

Output Unit : This unit communicates the results to the user. A display screen or monitor, printers are the common device that lets you see what the computer has accomplished. The following figures shows the common output devices :



Printer

Monitor



Plotter

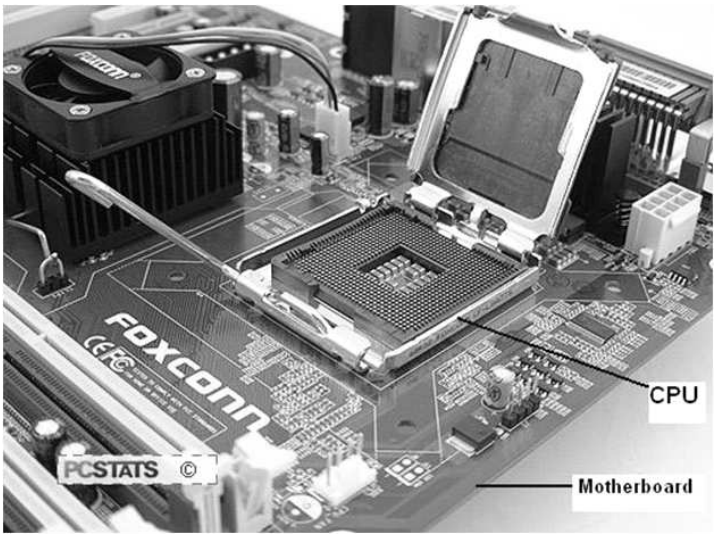
utput Devices

CPU) : The CPU is the brain of the rrying out arithmetic and logic functions s. Modern CPU's are what are called egrated chip is that several processing ngle piece of silicon. Without the CPU, composed of millions of transistors. A complete central processing unit (CPU) contained on a single silicon chip is also called a *microprocessor*. We have already mentioned that the CPU consists of two major components - ALU and CU.

The arithmetic and logic unit (ALU) is the part where actual computations take place. It consists of circuits which perform arithmetic operations e.g. addition, subtraction, multiplication, division, over data

received from memory and capable to compare numbers. The control unit of a CPU controls the entire operation of the computer. It controls all other devices such as memory, input and output devices connected to the CPU. It gives order to the ALU what operation are to be performed. It generates timing and control signals, and provides them for all operations. It controls the data flow between CPU and peripherals (including memory).

The physical image of a central processing unit which is attached to a motherboard shown below :



(a) A processor on the motherboard

(b) Processor

Fig. 1.4 : Central Processing Unit (CPU)

Memory : The memory enables a computer to store the data and programs temporarily. The term *memory* identifies data storage that comes in the form of chips, and the word *storage* is used for memory that exists on tapes or disks. Every computer comes with a certain amount of physical memory, usually referred to as main memory or RAM (Random Access Memory). The image of a physical RAM is shown below :

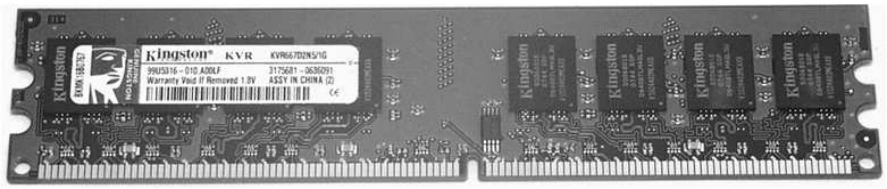


Fig. 1.5 : A RAM Chip

From the above discussion, we have come to know that, a computer system is consisting with various components like input unit, output unit, the CPU and the memory. Now, if we depict the block diagram of a computer system it will looks like the following :

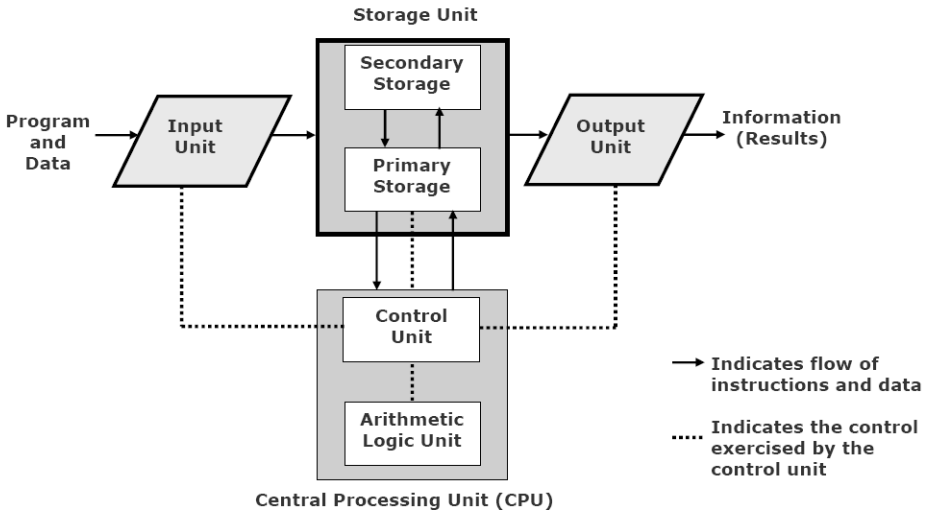


Fig. 1.6 : Block diagram of a Computer

Characteristics of Computer : Some of the main characteristics of computers that make them an essential part of every emerging technology and a desirable tool in human development can be cited as follows :

- **Speed :** In a few seconds a computer can perform such a huge amount of task that a normal human being may take days or even years to complete. At present, a powerful computer can perform billions of operations in just one second.
- **Accuracy :** The computers are very accurate. The level of accuracy depends on the instructions and the type of machine used.
- **Deligence :** Being a machine, computers do not suffer from tiredness and lack of concentration even if the same job has to be done repeatedly unlike we human beings. It can perform even millions of calculations all with the same accuracy and speed.

- **Reliability :** Computers are reliable, because at the machinery level, they do not require any human intervention between its processing operations. Computers also have built-in diagnostic capabilities, which help in continuous monitoring of the system.
- **Storage Capacity :** Computers can store large amounts of data and can recall the required information almost instantaneously.
- **Versatility :** Computers can perform multiple tasks simultaneously.
- **Resource Sharing :** With the tremendous growth in computer technologies resource sharing is easily possible.
- **Lack of Intelligence :** A computer can only perform what it is programmed to do. It cannot take any decision. This is the main limitation of a computer.

1.5 EVOLUTION OF COMPUTER

The ABACUS can be considered the ancestor of today's computer. It was built by the people of Asia Minor almost 2000 years ago. It was simply a wooden rack holding parallel wires on which beads were strung. When these beads were moved along the wire according to some rules that the user must memorize, all ordinary arithmetic operations could be performed.

An English mathematics professor, named **Charles Babbage**, in the early 1800s designed a machine to perform differential equations, called ***Difference Engine.*** It was a steam powered machine as large as a locomotive and had a stored program and could perform calculations and print results automatically.

After Babbage, between 1850 and 1900, many of the new advances in mathematics and physics took place which involved complex calculations and formulas that were very time consuming for human calculation. Then people started rethinking of the development of a device to help complex calculations.

In the 1890's census of the United States, a machine developed by **Herman Hollerith** was used. Hollerith developed a new punched-card system that could automatically read information on cards without human intervention.

In 1942, John P. Eckert, John W. Mauchley, and their associates at the University of Pennsylvania built a high-speed electronic computer to do the job known as **ENIAC(Electrical Numerical Integrator And Calculator**). It could multiply two numbers at the rate of 300 products per second, by finding the value of each product from a multiplication table stored in its memory. ENIAC was about 1,000 times faster than the previous generation of Computers. ENIAC used vacuum tubes to make the internal parts of the computer and electricity to run. It used punched-card input and output.

In 1945 **John Von Neumann** undertook a theoretical study of computation that demonstrated that a computer could have a very simple architecture and yet be able to execute any kind of computation effectively by means of proper programmed control without the need for any changes in hardware. Von Neumann came up with incredible ideas which came to be referred to as the ***stored-program technique***, that became fundamental for future generations of high-speed digital computers and were universally adopted.

The first wave of modern programmed electronic computers to take the advantage of these improvements came the first group of modern programmed electronic computers. This group included computers using random access memory (RAM),which is a memory designed to give almost constant access to any particular piece of information. This group of machines included **EDVAC, EDSAC** (Electronic Delay Storage Automatic Calculator) and **UNIVAC,** the first commercially available computers. The UNIVAC was developed by John W. Mauchley and John Eckert, Jr. in the 1950s.

In the 1960s efforts to design and develop the fastest possible computers with the greatest capacity reached a turning point with the completion of the **LARC** machine for **Livermore Radiation Laboratories** by the Sperry-Rand Corporation, and the Stretch computer by IBM. During this time the major computer manufacturers began to offer a range of computer capabilities, as well as various computer-related equipment. Input means such as consoles and card feeders; output means such as page printers, cathode-ray-tube displays, and graphing devices; and optional

magnetic-tape and magnetic-disk file storage.

In the 1970s entire assemblies, such as adders, shifting registers, and counters, became available on tiny chips of silicon. In 1971 Marcian E. Hoff, Jr., an engineer at the Intel Corporation, invented the microprocessor and another stage in the development of the computer began.

A new revolution in computer hardware was now well under way, involving miniaturization of computer-logic circuitry and of component manufacture by what are called ***large-scale integration*** techniques. In the 1980s ***very large scale integration (VLSI***), in which hundreds of thousands of transistors are placed on a single chip ,became increasingly common. The trend of reduction in size led to the introduction of Personal Computers (PCs), which are programmable machines small enough and inexpensive enough to be purchased and used by individuals. By the late 1980s some PCs were run by microprocessors, a processor on a single ***integrated circuit*** (**IC**) chip. The trend continued leading to the development of smaller and smaller microprocessors with a proportionate increase in processing powers.

1.6 GENERATION OF COMPUTERS

The history of computer development is often considered with reference to the different generations of computing device. Each generation of computer is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper ,more powerful and more efficient and reliable devices.

There are five generations of computers as follows :

First Generation (1945–1955) : Examples of computers of this generation are :

ENIAC– Electronic Numerical Integrator And Calculator

EDSAC– Electronic Delay Storage Automatic Calculator

EDVAC– Electronic Discrete Variable Automatic Computer

UNIVAC– Universal Automatic Computer IBM 701

Characteristics of First Generation Computers :

- Vacuum tubes were used– basic arithmetic operations took few milliseconds
- Bulky i.e. very large in size
- Consume more power with limited performance
- High cost
- Uses assembly language– to prepare programs. These were translated into machine level language for execution.
- Mercury delay line memories and Electrostatic memories were used
- Punched cards and paper tape were invented to feed programs and data and to get results.
- Magnetic tape / magnetic drum were used as secondary memory
- Mainly used for scientific computations.

Second Generation (1955–1965) : Examples of computers of this generation are– IBM 7030, Digital Data Corporation's PDP 1/5/8 Honeywell 400.

Characteristics of Second Generation Computers :

- Transistors were used in place of vacuum tubes
- Small in size
- Lesser power consumption and better performance
- Lower cost
- Magnetic ferrite core memories were used as main memory which is a random-access nonvolatile memory
- Magnetic tapes and magnetic disks were used as secondary memory
- High level languages such as FORTRAN, COBOL etc were used
- Separate input-output processors were developed that could operate in parallel with CPU.
- Punched cards continued during this period also.
- Increasingly used in business, industry and commercial organizations for preparation of payroll, inventory control, marketing, production planning, research, scientific & engineering analysis and design etc.

Third Generation (1965–1975) : Examples of computers of this generation are– 360 Mainframe from IBM, PDP-8 Mini Computer from Digital Equipment corporation).

Characteristics of Third Generation Computers :

- ICs were used
- Small Scale Integration and Medium Scale Integration technology were implemented in CPU, I/O processors etc.
- Smaller & better performance
- Comparatively lesser cost
- Faster processors
- In the beginning magnetic core memories were used. Later they were replaced by semiconductor memories (RAM & ROM)
- Introduced microprogramming
- Operating system software were introduced
- Cache and virtual memories were introduced (Cache memory makes the main memory appear faster than it really is. Virtual memory makes it appear larger)
- Database management, multi-user application, online systems like closed loop process control, airline reservation, interactive query systems, automatic industrial control etc. emerged during this period.

Fourth Generation (1975–1989) : Examples of computers of this generation are– Intel's 8088, 80286, 80386, 80486 .., Motorola's 68000, 68030, 68040, Apple II, CRAY I/2/X/MP etc)

Characteristics of Fourth Generation Computers :

- Microprocessors were introduced as CPU– Complete processors and large section of main memory could be implemented in a single chip
- Tens of thousands of transistors can be placed in a single chip (VLSI design implemented)
- CRT screen, laser & ink jet printers, scanners etc were developed.
- Semiconductor memory chips were used as the main memory.
- Secondary memory was composed of hard disks – Floppy disks & magnetic tapes were used for backup memory

- Parallelism, pipelining cache memory and virtual memory were applied in a better way
- Local Area Networks (LAN) and Wide Area Networks (WAN) were developed
- Introduced C language and Unix OS
- Introduced Graphical User Interface (GUI)

Fifth Generation (1989 to present) : Examples of computers of this generation are– IBM notebooks, Pantium PCs-Pentium 1/2/3/4/Dual core/ Quad core. SUN work stations, Origin 2000, PARAM 10000, IBM SP/2).

Characteristics of Fifth Generation Computers :

- Computers based on artificial intelligence are available.
- Computers use extensive parallel processing, multiple pipelines, multiple processors etc.
- Massive parallel machines and extensively distributed system connected by communication networks fall in this category.
- Introduced ULSI (Ultra Large Scale Integration) technology – Intel's Pentium 4 microprocessor contains 55 million transistors millions of components on a single IC chip.
- Superscalar processors, Vector processors, SIMD processors, 32 bit micro controllers and embedded processors, Digital Signal Processors (DSP) etc. have been developed.
- Memory chips up to 1 GB, hard disk drives up to 180 GB and optical disks up to 27 GB are available (still the capacity is increasing).
- Object oriented language like JAVA suitable for internet programming has been developed.
- Portable note book computers introduced.
- Storage technology advanced – large main memory and disk storage available.
- Introduced World Wide Web. (and other existing applications like e-mail, e-Commerce, Virtual libraries/Classrooms, multimedia applications etc.)
- New operating systems developed – Windows 95/98/XP/…, LINUX, etc.

- The recent development in the application of internet is the Grid technology which is still in its upcoming stage.
- Quantum mechanism and nanotechnology will radically change the phase of computers.

1.7 CLASSIFICATION OF COMPUTER

Computers can be classified according to their size and power as follows :

- Micro computer
- Mini computer
- Mainframe
- Supercomputer

Micro Computers :

- A microcomputer uses a microprocessor as its central Processing Unit. Microcomputers are tiny computers that can vary in size from a single chip to the size of a desktop model.
- They are designed to be used by only one person at a time.
- Small to medium data storage capacities 500MB – 2GB or more

The common examples of microcomputers are chips used in washing machines, TVs, Cars and Note book/Personal computers.

E.g. : IBM PC, PS/2 and Apple Macintosh

Applications : Used in the field of desktop publishing, accounting, statistical analysis, graphic designing, investment analysis, project management, teaching, entertainment etc. The different models of microcomputers are given below :

a) **Personal Computers :** The name PC was given by the IBM for its microcomputers. PCs are used for word processing, spreadsheet calculations, database management etc.

b) **Note Book or Lap Top :** Very small in terms of size– can be folded and carried around– Monitor is made up of LCD and the keyboard and system units are contained in a single box. Got all the facilities of a personal computer (HDD, CDD, Sound card, N/W card, Modem etc.) and a special connection to connect to the desktop PC which can be used to transfer data.

c) **Palm Top :** Smaller model of the microcomputer- size is similar to that of a calculator – pocket size. It has a processor and memory and a special connection to connect to the desktop PC which can be used to transfer data.

d) **Wrist PC :** Smallest type of microcomputer – can be worn on our wrist like a watch. It has a processor and memory and a wireless modem.

The following figures shows the various types of micro computers :

(a) Personal computer



b) Notebook computer

c) Laptop computer



d) Palmtop computer

e) PDA (personal digital assistant)

Fig. 1.7 : Micro Computer

Mini Computers :

- Perform better than micros.
- Large in size and costlier than micros.
- Designed to support more than one user at a time.
- Posses large storage capacities and operates at higher speed.
- Support faster peripheral devices like high speed printers.
- Can also communicate with main frames.

Applications :

- These computers are used when the volume of processing is large for e.g. Data processing for a medium sized organization
- Used to control and monitor production processes
- To analyze results of experiments in laboratories
- Used as servers in LANs (Local Area Networks)

Examples of mini computers are– Digital Equipments PDP 11/45 and VAX 11 etc. The following fig. shows a mini computer :



Fig. 1.8 : Mini Computer

Main Frame Computers :

- Able to process large amount of data at very high speed.
- Supports multi-user facility.
- Number of processors varies from one to six.

- Cost: 3500 to many million dollars.
- Kept in air conditioned room to keep them cool.
- Supports many I/O and auxiliary storage devices.
- Supports network of terminals.

Applications :

- Used to process large amount of data at very high speed such as in the case of Banks/ Insurance Companies/ Hospitals/ Railways etc. which need online processing of large number of transactions and requires massive data storage and processing capabilities.
- Used as controlling nodes in WANs (Wide Area Networks).
- Used to mange large centralized databases.

Examples of main frame computers are– IBM 370, IBM 3081, IBM 3000 series, Univac 1180, DEC IBM 3000 series, CDC Cyber - 2000V etc.



Fig. 1.9 : Mainframe Computer

Super Computer : Supercomputer is a broad term for one of the fastest computers currently available. The main characteristics of a super computer are :

- Most powerful Computer system - needs a large room
- Minimum world length is 64 bits
- CPU speed : 100 MIPS (Million instruction per second)
- Equivalent to 4000 computers

- High cost: 4–5 millions
- Able to handle large amount of data
- High power consumption
- High precision

Applications :

- In petroleum industry– to analyze volumes of seismic data which are gathered during oil seeking explorations to identify areas where there is possibility of getting petroleum products inside the earth
- In Aerospace industry– to simulate airflow around an aircraft at different speeds and altitude. This helps in producing an effective aerodynamic design for superior performance
- In Automobile industry– to do crash simulation of the design of an automobile before it is released for manufacturing– for better automobile design.



Fig. 1.10 : PARAM 1000 Series Super Computer

- In structural mechanics– to solve complex structural engineering problems to ensure safety, reliability and cost effectiveness. Eg. Designer of a large bridge has to ensure that the bridge must be

proper in various atmospheric conditions and pressures from wind, velocity etc and under load conditions.

- Meteorological centers use super computers for weather forecasting
- In Biomedical research– atomic nuclear and plasma analysis– to study the structure of viruses such as that causing AIDS
- For weapons research and development, sending rockets to space etc.

Examples of supercomputers are : Cray-1 (1976), Cray-2 (1985), Cray T3D (1993), NEC's SX-S/44 (1991), Fujitsu VP 2600/10 (1991), Hitachi 820/80 (1987), C-DAC's PARAM Series of supercomputers etc. A PARAM 10000 series super computer of IIT Guwahati is shown in the above figure.

1.8 APPLICATIONS OF COMPUTER

Now a days, computer is being used almost in every aspects of life. Every company, small or large, government offices, educational institutions are now directly or indirectly dependent on computers mainly for information processing. Computer based railway and airway reservation system is a common example of computer application. Computer system is helping in the efficient management of the banking sector, hospital records, payroll records and so on. Some of the areas where computers are being used mostly can be listed as below:

- **Science :** Scientists are using computers to carryout their research works based on complex computations because of computer's fast speed and the accuracy.
- **Education :** In schools and colleges, to make education much more interesting, computers are used now a days. Computer Aided Education (CAE) and Computer Based Training (CBT) packages are making learning much more interactive.
- **Health and Medicine :** Starting from diagnosing the illness to monitoring a patient's status during a surgery, in pathological analysis, in CAT scans or MRI scans etc., doctors are using computers. Some special purpose computers are available which can even be operated within the human body.

- **Engineering :** Engineers and architects are using computers in designing machineries, drawing design layouts. Architects can object that can be viewed from all the three dimensions by using techniques like virtual reality. In manufacturing industries, using computerized robotic arms hazardous jobs can be performed. The packages like Computer Aided Designing (CAD), Computer Aided Manufacturing (CAM) and so on are used in designing the product, ordering the parts and planning production.
- **Entertainment :** With the use of multimedia facilities , computers are now greatly used in entertainment industry. Computers are used to control and bring special effects on image and sound.
- **Communication :** Computer network and finally the Internet has brought a drastic change in communication system. Through E-mail or Electronic mail, it is possible to send messages and reports very fast from one person to another or a group of persons with the aid of computers and telephone lines.
- **Business and Banking :** Computer network and finally the Internet has brought a drastic change in communication system. Through E-mail or Electronic mail, it is possible to send messages and reports very fast from one person to another or a group of persons with the aid of computers and telephone lines.

In order to deposit or withdraw cash from bank, people can use ATM (Automated Teller Machine) services 24 hours of the day. Through the computer networks among different branches of a bank, inter branch transactions can be carried out without delay.

Apart from the above mentioned applications, there are many other applications of computers that can be seen in our day to day activities.



CHECK YOUR PROGRESS

Q.1 : State True or False :

i) PARAM is a super computer.

ii) A laptop is a portable computer.

iii) Vacuum tubes were part of the second generation computers.

iv) Micro computers are more powerful than mini computers.

v) EDSAC is an example of a second generation computer.

Q.2 : Fill in the blanks:

i) Physical components of a computer are called .....

ii) The basic components of first generation computers was .....

iii) PDA stands for .....

iv) ..... is a very small computer that can be held in the palm of the hand.

v) Analytical Engine was developed by .....



1.9 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 **micro processors**.
- Fifth generation computers are based on ***artificial intelligence.***
- Micro computer is a small, low cost digital computer and include desktop, laptop, PDA.
- A mini computer is a small digital computer more powerful than a micro computer.



1.10 FURTHER READING

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.

2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.

3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',* Vikash Publication House Pvt. Ltd.



1.11 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : i) True, ii) True, iii) False, iv) False, v) False

Ans. to Q. No. 2 : i) Hardware, ii) Vacuum tubes, iii) Personal Digital Assistant, iv) Palmtop, v) Charles Babbage.

1.12 MODEL QUESTIONS

Q.1 : Who invented the concept of stored program ? Why is this concept so important ?

Q.2 : List the key hardware technologies used in building computer of each of the five generations.

Q.3 : What are the advantages of transistors over vacuum tubes?

Q.4 : What is an IC? How it helps in reducing the size of computers

Q.5 : Discuss the important features of various generations of computers. Give some examples of the computers of each generation.

Q.6 : What is computer? What are the characteristics of a Computer? Do you think computers are superior to human being?

Q.7 : Describe the evolution of computers.

Q.8 : How computers are categorized into different categories?

*** ***** ***

UNIT 2 : DATA STORAGE TECHNIQUES

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Storing Data in Computer

2.4 Binary Number System

- 2.4.1 Binary to Decimal Conversion
- 2.4.2 Decimal to Binary Conversion

2.5 Computer Memory

- 2.5.1 Random Access Memory
- 2.5.2 Read Only Memory
- 2.5.3 Cache Memory and Virtual Memory
- 2.5.4 Secondary Memory

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 :

- learn how the computer stores data
- know about the binary number system
- describe the computer memory.

2.2 INTRODUCTION

In the earlier unit, we obtained a fairly good insight into the concept of computer, about various components and application of computer etc. Data storage techniques refers to the techniques used in computers for storing data and the use of possible data storage devices. Now in this unit, we will discuss the technique of storing data in computer. We will also introduce you to binary number system and various types of computer memories.

2.3 STORING DATA IN COMPUTER

To better understand how a computer stores information and to also understand why information is lost if the power goes off, let's take a closer look. Your computer is made of millions of tiny electric circuits. For every circuit in a computer chip, there are two possibilities:

1) an electric current flows through the circuit or
2) an electric current does not flow through the circuit.

When an electric current flows through a circuit, the circuit is on. When no electricity flows, the circuit is off. An "on" circuit is represented by the number one (1) and an off circuit is represented by the number zero (0). The two numbers 1 and 0 are called bits. The word bit comes from "binary digit". Each time a computer reads an instruction, it translates that instruction into a series of bits, 1's and 0's. On most computers every character from the keyboard is translated into eight bits, a combination of eight 1's and 0's. Each group of eight bits is called a byte. Each group of four bits is called a nibble.

Thus, 8 bits = 1 byte and 4 bits = 1 nibble

Since computers can handle such large numbers of characters at one time, metric prefixes are combined with the word byte to give some common multiples you will encounter in computer literature. These are mentioned below :

1 kilobyte (KB) = 1,024 byte = 2^{10} byte = 8,192 bit

1 megabyte (MB) = 1,024 KB = 2^{10} KB = 2^{20} byte

1 gigabyte (GB) = 1,024 MB = 2^{10} MB = 2^{20} KB = 2^{30} byte

1 terabyte = 1,024 GB = 2^{10} GB = 2^{20} MB = 2^{30} KB = 2^{40} byte

1 petabyte = 1,024 terabyte = 2^{10} terabyte = 2^{20} GB = 2^{30} MB = 2^{40} KB = 2^{50} byte

Commercially, however, bytes might be counted as decimal.

1 byte = 8 bits

1 kilobyte (KB) = 1,000 bytes

1 megabyte (MB) = 1,000,000 bytes

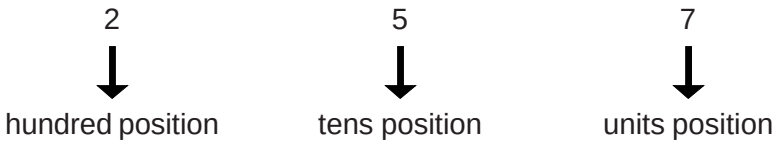
1 gigabyte (GB) = 1,000,000,000 bytes

1 terabyte (TB) = 1,000,000,000,000 bytes

2.4 BINARY NUMBER SYSTEM

We are familier with the decimal number system which is used in our day-to-day work. Ten digits are used to form decimal number. To represent these decimal digits, ten separate symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are used. So, the **base** or **radix** of such system is **10**. But a digital computer stores, understands and manipulates information composed of only zeros and ones. So, each decimal digits, letters, symbols etc. written by a user are converted to binary codes in the form of 0's and 1's within the computer. The knowledge of the number system is essential to understand the operation of a computer.

In decimal system, the successive position to the left of the decimal point represent units, tens, hundreds, thousands etc. For example, if we consider a decimal number 257, then the digit representations are :



The weight of each digit of a number depends on its relative position within the number.

So, the nember can be represented as :

$$257 = 2 \times 10^2 + 5 \times 10^1 + 7 \times 10^0$$

The weight of each digits of the number from right hand side are–

Weight of 1st digit = 7×10^0

Weight of 2nd digit = 5×10^1

Weight of 3rd digit = 2×10^2

The above expressions can be written in general forms as the weight of n^{th} digit of the number from the right hand side

$$= n^{th} \text{ digit} \times 10^{n-1}$$

$$= n^{th} \text{ digit} \times (\text{base})^{n-1}$$

The number system in which the weight of each digit depends on its relative position within the number is called a positional number system.

In binary number system, two digits 0 and 1 are used to represent binary numbers. So the base or radix of binary system is two (2). The digits

0 and 1 are called bits (Binary Digits). In this number system the value of the digit will be two times greater than its predecessor. Thus the value of the places are–

<– <– 32 <– 16 <– 8 <– 4 <– 2 <– 1

The weight of each binary bit depends on its relative position within the number. It is explained by the following example–

Example 1.2 : The weight of bits of the binary number 10110 is–

$= 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$

= 16 + 0 + 4 + 2 + 0 = 22 (decimal number)

The weight of each bit of a binary number depends on its relative position within the number and are explained from right hand side

Weight of 1^{st} bit = 1st bit $\times 2^0$

Weight of 2^{nd} bit = 2nd bit $\times 2^1$

.....

.....

and so on.

The weight of the n^{th} bit of the number from right hand side

$= n^{th}$ bit $\times 2^{n-1}$

$= n^{th}$ bit $\times (Base)^{n-1}$

It is seen that, this rule for a binary number is same as that for a decimal number system. The above rule holds good for any other positioned number system. The weight of a digit in any positioned number system depends on its relative positon within the number and the base of the number system.

2.4.1 Binary to Decimal Conversion

To convert a binary number to its decimal equivalent we use the following expression.The weight of the n^{th} bit of the number from right hand side = n^{th} bit $\times 2^{n-1}$

First, we mark the bit position and then we give the weight of each bit of the number depending on its position. The sum of the weight of all bits gives the equivalent number.

Example : Convert binary $(110100)_2$ to its decimal equivalent.

Solution :

$(110100)_2 = 1 \times 2^5 + 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0$

$= 32 + 16 + 0 + 4 + 0 + 0$

$= (52)_{10}$

Example : Converting binary fraction $(111011.101)_2$ to its equivalent decimal fraction.

Solution :

$(111011.101)_2 = (1 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 1 \times 2^0)$

$+ (1 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3})$

$= (32 + 16 + 8 + 0 + 2 + 1) + (0.5 + 0 + 0.125)$

$= (59.625)_{10}$

$(111011.101)_2 = (59.625)_{10}$

2.4.2 Decimal to Binary Conversion

There are different methos used to convert decimal number to binary numbers. The most common method is, repeatedly divide the decimal number to binary number by 2, then the remainders 0's and 1's obtained after division is read in reverse order to obtain the binary equivalent of the decimal number.

Example : Convert $(75)_{10}$ to its binary equivalent.

	Remainder	
2 |75		
2|37	1	
2|18	1	
2|9	0	Read in
2|4	1	reverse order
2|2	0	
1	0	

So, $(75)_{10} = (1001011)_2$

The method to convert the fraction decimal number to its binary equivalent, is repeatedly multiply the fraction part by 2 until it becomes zero and count the most significant bits (MSB) in the order they appear. In a binary number, the extreme left bit is called a most

significant bit and the extreme right bit is called least significant bit (LSB). In some cases the fractional part may not becomes zero, and the process will continue. For such a case an approximation is made.

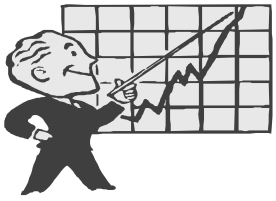
Example : Convert decimal fraction $(12.75)_{10}$ to its equivalent binary fraction.

2|12	Remainder	.75	MSB
2|6	0	× 2	
2|3	0	1.50	1
1	1		
		.50	
		× 2	
		1.00	1

Here, the fractional part becomes zero

So, $(12)_{10} = (1100)_2$ and $(.75)_{10} = (.11)_2$

Now, $(12.75)_{10} = (1100.11)_2$



CHECK YOUR PROGRESS

Q.1 : Converts the following :

a) 32 bytes = ... bits

b) 128 bits = ... bytes

c) 64 bits = ... nibbles

d) 16 KB = ... bytes = ... bits

e) 64 MB =..... KB = ... bytes

f) 4 GB = ... MB = ... KB

Q.2 : Convert the following decimal number into binary :

a) 120, b) 32.25

Q.3 : Convert the following binary number into decimal number :

a) 1001101, b) 11.1010

2.5 COMPUTER MEMORY

The term ***memory*** usually refers to a form of semiconductor storage and sometimes other forms of fast but temporary storage. Similarly**,** today

the term ***storage*** more commonly refers to mass storage such as optical discs, forms of magnetic storage like hard disks and other types. All these are slower than memory, but of a more permanent nature. Generally , the computer memory is divided into two category : **primary memory** and **secondary memory**. The term primary memory is used to represent the ***memory*** and the term secondary memory is used to represent the ***storage.***

Primary memory is directly accessible to the CPU. The CPU continuously reads instructions stored there and executes them. Any data actively operated on is also stored there in uniform manner. It is a form of semiconductor storage known as random access memory (**RAM**) and sometimes other forms of fast but temporary storage. It is small-sized, light, but quite expensive. This type of memory is divided into the following two types :

a) RAM (Random Accress Memory)
b) ROM (Read Only Memory)

2.5.1 Random Access Memory (RAM)

A machine's main memory is often referred to as RAM - an area in the computer system unit that temporarily holds user data, operating system instructions and program instructions. Every time we turn on our computer, a set of operating system instructions is copied from hard disk into RAM. These instructions, which help control basic computer functions, remain in RAM until we turn the computer off.

RAM features :

a) Data that needs to be processed and the instructions which are used for processing are held in the RAM.
b) RAM is a cluster of semi-conductor devices. The elements of RAM change with the proper application (changes) of the electric current.
c) Each element of RAM is a memory location in which data can be stored. Each location has a unique address. Using this address data can be directly retrieved and stored.

d) Since RAM must hold both the data to be processed and the instructions for processing, its size or capacity is one of the measure of power of the computer.

e) The contents of RAM need to be stored periodically onto a secondary memory since power failure will erase the contents of RAM because of which this memory is also called volatile memory.

There are generally two broad categories of random access memory:

i) **DRAM** memories (*Dynamic Random Access Memory*)

ii) **SRAM** memories (*Static Random Access Memory*)

2.5.2 Read Only Memory

One major type of memory that is used in PCs is called *read-only memory*, or *ROM* for short. ROM is a type of memory that normally can only be read, as opposed to RAM which can be both read and write. The instructions in ROM are permanent whether the power is on or off. We have no way to change them, unless we remove the ROM chips from the main board and replace them with another set.

Read-only memory is most commonly used to store system-level programs that we want to have available to the PC at all times. The most common example is the ROM-BIOS (ROM basic input and output services) program, which is use to boot up the system. The term boot is used to describe the initial loading of an operating system or of some other program into a computer. The word “boot” comes from the term “bootstrap”.

The following are the different types of ROMs with a description of their relative modifiability :

- **Programmable ROM (PROM) :** This is a type of ROM that can be programmed using special equipment; it can be written to, but only once.

- **Erasable Programmable ROM (EPROM) :** An *EPROM* is a ROM that can be erased and reprogrammed. Ultraviolet light of a specific frequency is used for erasing the EPROM and allow it to be reprogrammed again.
- **Electrically Erasable Programmable ROM (EEPROM) :** The next level of erasability is the *EEPROM*, which can be erased under software control. This is the most flexible type of ROM, and is now commonly used for holding BIOS programs.

2.5.3 Cache Memory and Virtual Memory

Another two types of memory used in a computers are – cache memory and virtual memory.

- **Cache Memory :** Cache memory is a special type of RAM which is the faster memory used in a computer system in between the CPU and main memory. It means that the accessing speed from the cache memory is faster than the main memory used in computer. So, the use of the cache memory reduces the average access time and helps the processor for fast processing. The Cache memory stores the instructions and data that are frequently needed by the processor for execution. Cache memory chip is a static memory chip It is much expensive than the main memory. Cache size varies from 32 MB to 128MB or 512MB etc.
- **Virtual Memory :** An operating system technique that uses swapping techniques to increase the apparent size of actual memory. Virtual Memory is the ability of a computer to use disk storage to simulate RAM. Virtual Memory allows computers without enough RAM to run large programs, manipulate large data files, and run more than one program at a time. One disadvantage of virtual memory is reduced performance. With most of today's operating systems the computer uses space on our computer's hard disk drive as an extension of RAM. It takes longer to retrieve data from virtual memory than from RAM because the disk is a mechanical device so access time is slower.

2.5.4 Secondary Memory

Secondary memory or *storage* provides the facility of storing information and programs permanently. It differs from primary memory in that it is not directly accessible by the CPU. The computer usually uses its input/output channels to access secondary storage and transfers desired data using intermediate area in primary memory. Secondary storage does not lose the data when the device is powered down; it is non-volatile. It is less expensive than primary memory.

In modern computers, hard disks are usually used as secondary storage. The time taken to access a given byte of information stored on a hard disk is order of few milliseconds. By contrast, the time taken to access a given byte of information stored in random access memory is measured in nanoseconds. Some other examples of secondary storage devices are: **optical disk, floppy disks, magnetic tape, Paper tape, Punch Cards, standalone RAM disks, flash memory (e.g. USB sticks or keys), and Zip drives**.

The **characteristics** that are used for the classification of various types of storage are :

- **Storage Capacity :** It is a representative of the size of the memory. The capacity of internal memory and main memory can be expressed in terms of number of words or bytes. The storage capacity of external memory is normally measured in terms of bytes.
- **Access Modes :** A memory is considered to consists of various memory locations. The information from these memory locations can be accessed in the following ways :
- **Random Access :** It is the mode in which memory locations can be accessed in any order in the same amount of time.
- **Sequential Access :** Sequential access also known as **serial access** where the device must read or move through all

information up to the point it is attempting to read or write. A tape drive is an example of a sequential access drive, where the drive must move the tape forward or backwards until it reaches its destination.

- **Direct Access :** A direct access storage device is one in which any location in the device may be selected at random, access to the information stored is direct i.e. no need of scanning a series of records and approximately equal access time is required for each location. Hard disk, optical disk are the examples of direct access storage device.
- **Access Time :** The access time is the time required between the request made for a read or write operation till the time the data is made available or written at the requested location.



CHECK YOUR PROGRESS

Q.4 : State True or False :

i) The secondary memory is faster than the main memory and has limited capacity.

ii) In random access memory memory locations can be accessed sequentially.

iii) Cache memory is faster than main memory.

iv) Flash memory is one kind of RAM.

v) High speed memories are needed to bridge the gap of speed between CPU and main memory.

vi) Virtual memory is technique of an operating system.

vii) Semiconductor memories are random access memory.



2.6 LET US SUM UP

- Data in side a computer is stored in form of 0s and 1s. These 0 and 1s are called bit. 4 bit constitute a nibble and 8 b it constitute a byte.
- Decimal number system has base 10 and binary number system has base 2.

- The ***memory*** usually refers to a form of semiconductor storage i.e. primary memory and ***storage*** refers to mass storag i.e. secondary memory.
- Random access memories are the semiconductor memory. They are volatile in nature. RAMs are of two types - dynamic RAM and static RAM.
- ROMs are also the semiconductor memory. The instructions in ROMs are permanent whether the power is on or off. PROM, EPROM, EEPROM are the types of ROMs.
- Cache memory is a special type of RAM which is the faster memory used in a computer system in between the CPU and main memory.
- Virtual memory is an operating system technique that uses swapping techniques to increase the apparent size of actual memory.
- Secondary memory also called secondary storage stores information and programs permanently. In personal computer, secondary memory typically consists of hard disk or any removable media, if present, such as a CD or DVD etc.



2.7 FURTHER READING

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.
2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.
3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',*Vikash Publication House Pvt. Ltd.



2.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : a) 256, b) 16, c) 16, d) 16384, 16777216, e) 65536, 67108864, f) 4096, 4194304

Ans. to Q. No. 2 : a) 2 |120 Remainder

2|60 0

2|30 0

2|15 0

2|7 1

2|3 1

1 1

Arranging in reverse order we will get - 1111000

So, $(75)_{10}=(1111000)_2$

b) 2|32 Remainder

2|16 0

2|8 0

2|4 0

2|2 0

1 0 For the fractional part :

$(32)_2$ = 100000 MSB .25

× 2

0 50

.50

× 2

1 1.00

Here, the fractional part becomes zero

So, 32.25 = $(100000.01)_2$

Ans. to Q. No. 3 : The decimal equivalent of the binary number

a) 1001101 = $1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$

= 64 + 8 + 4 + 1 = 77

b) 11.1010 = $1 \times 2^1 + 1 \times 2^0 + 1 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3} + 0 \times 2^{-4}$

= 2 + 1 + 0.5 + 0 + 0.125 + 0 = 3.625

Ans. to Q. No. 4 : i) False, ii) False, iii) True, iv) False, v) True,

vi) True, vii) True.

2.10 MODEL QUESTIONS

Q.1 : Discuss how the data are stored in computer.

Q.2 : Convert the following Decimal number to Binary

a) 125 b) 55.75 c) 0.875 d) 120.25

Q.3 : Convert the following Binary number to Decimal

a) 011011 b) 00010101 c) 110101.01101

Q.4 : What are the differences in :

a) Volatile versus Non-volatile memory

Q.5 : What is a RAM? What are its two types? Differentiate between them.

Q.6 : What is a ROM ? Why is it called so? Write about a few typical use of ROM.

Q.7 : What is a cache memory? How is it different from a primary memory?

Q.8 : Differentiate between PROM and EPROM.

Q.9 : Write short note :

a) Primary memory b) Secondary memory

*** ***** ***

UNIT 3 : SOFTWARE AND MULTIMEDIA

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Computer Software Basics

3.4 System Software

3.5 Application Software

3.6 Integrated Software

3.7 Multimedia Computing

3.8 Legal Restriction on Software

3.9 Let Us Sum Up

3.10 Furthers Readings

3.10 Answers to Check Your Progress

3.11 Model Questions

3.1 LEARNING OBJECTIVES

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

- know about the computer software
- differentiate system software and application software
- explain different types of system and application software
- discuss multimedia computing
- outline software licenses and copyright agreements.

3.2 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 carryout its basic operating tasks. **Application Software** helps the human user to carryout 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.

3.3 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 carryout a task. The steps in a computer program are written in a language that the computer can interpret or "understand".

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 number 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 wash 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 3.1.

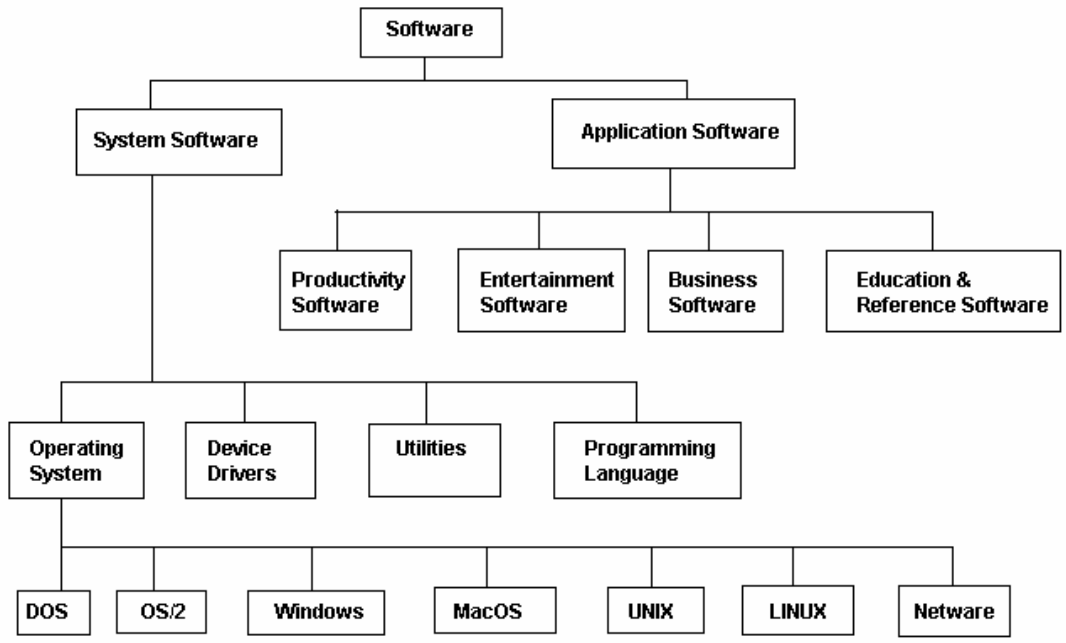


Fig. 3.1 : Classification of Software

3.4 SYSTEM SOFTWARE

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

1) Operating System
2) Utilities Software
3) Device Drive Software
4) Programming language.

1) Operating System : An Operating System is an important component of a computer system. The primary objecives of an operating system is to make computer system convenient to use and utilise computer hardware and various resources in an efficient manner.

An operating system is a large set of software which is also an interface between users and computer systems. It is also a system software. Operating system also manages computer resources of the computer system, such as memory, processor, file system and input/output devices.

Operating system can be classified into various categories as follows :

- Single User OS
- Multi User OS
- Single Tasking OS
- Multitasking OS
- Multiprogramming OS
- Real Time OS
- **Single User OS :** The simplest operating system which allows only one user to work on a computer at a time is known as single user operating system. For example MS-DOS, Windows 98 ect.
- **Multiuser OS :** This type of operating system which is running on a computer will manage the work of all different users, without letting them know that they all are actually working on a single computer. For example UNIX, Linux, Windows Xp ect.
- **Single Tasking OS :** It is one type of operating system which can execute a single job at a time is known as Single-tasking operating system. For example, MS-DOS operating system.
- **Multitasking OS :** Multitasking operating system allows the user to perform more than job at the same time on a computer. For example, UNIX, LINUX, OS/2 etc. are multitasking operating system.
- **Multiprogramming OS :** In multiprogramming OS, the CPU runs several programs at the same time. Multiprogramming is implemented in such a way that many programs are being executed concurrently. Mltiprogramming keeps the CPU busy.
- **Real Time OS :** Real-time operating systems work towards providing immediate processing and also responding to user's

commands in a very short period of time. This type of operating system is more commonly used in chemical industries for process control and scientific processing like airplane control and space vehicle control operations etc. For example, HP-RT and VTWorks etc.

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 I/O devices.
- 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.

- **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.
- **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 the most sophisticated and developed operating system designed by Microsoft Corporation are ***Windows XP & Windows VIsta***.
- **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 :** This operating system 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.

2) **Utilities Software :** Utilities are system software designed to augment the basic capabilities of your computer's operating system. Utilities provide a computers use with a way to control two allocation and use of hardware resources. Some utilities that are included with the operating system pertain tasks such as preparing disks to hold data, providing information about the files on a disk, and copying data from one disk to another. For example, Norton Utilities published by *Symantec* is a very popular collection of utilities software.

3) **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.

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 hardware functions.

ii) Computer based satellite 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.

3.5 APPLICATION SOFTWARE

These are softwares developed for the specific area of application of the user. Application software helps you to 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.

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

a) **Word processing software** helps you to produce documents such as reports, letters, papers and manuscripts. Word processing is the most popular type of application software.

b) **Spreadsheet Software** helps you work with number. The software displays a grid of rows and columns on the screen. Each box formed by this grid is called a cell. Each cell show an address that indicates its row and column position. 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. It also helps hospitals and doctors to keep track of patient records and the phone company to keep track of names, addresses, and phone numbers etc.

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. 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.

2) **Education and Reference Software :** Educational software is designed to help you learn more about a particular topic. One sub category of educational software is called CAI or tutorial software. CAI stands for "Computer Aided Instruction".

   Reference software, such as electronic encyclopedia, helps you look up facts on any topic.

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 world. For example, the "Paper Planes" software is entertaining while showing you how to construct several types of paper airplanes.

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.

   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.

3.6 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.

3.7 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 video into a single interactive computer presentation.

- **Multimedia** is defined as an integrated collection of computer-based text, graphics, sound, animation, photo images and video.
- **Multimedia applications :** One examples of a multimedia application is a multimedia encyclopedia. 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 lively 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 from 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.

3.8 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 copyright software, you do not become the owner of the copyright. Instead, you own only a copy of the software.

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.

d) **Licensed software :** A software license is a legal contract that defines the ways in which you may use a computer program.

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.

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 want to continue to use it, you must become a registered user by sending a registration fee.



3.9 LET US SUM UP

- There are two types of software :
  i) application software, ii) system 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.
- 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.
- Operating system acts as an interface between the user and computer. There are different types of operating system like Single User OS, Multi User OS, Single Tasking OS, Multitasking OS, Multiprogramming OS, Real Time OS.
- 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 animation simultaneously is called as Multimedia.
- 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.



3.10 FURTHER READINGS

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.
2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.

3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',* Vikash Publication House Pvt. Ltd.

3.11 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : i) Operating, ii) real time processing, iii) Metropolitan area net work, iv) Windows NT, v) UNIX.



3.12 MODEL QUESTIONS

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

Q.2 : Differentiate between system software and application software.

Q.3 : Discuss different types of Operating Systems.

Q.4 : What is an application software? Explain why application software is so important to the computer user.

Q.5 : What is multimedia? Discuss the application of Multimedia with examples.

Q.6 : Discuss the legal restrictions on software.

*** ***** ***

UNIT 4 : MS WORD - I

UNIT STRUCTURE

4.1 Learning Objective

4.2 Introduction

4.3 Starting MS-WORD

4.4 Basic Components of MS Word

4.5 Entering and Saving Text in a Document

4.6 Closing the MS-Word Document and MS-Word program

4.7 Opening of an Existing Document

4.8 Copy and Cut (Move)

4.9 Formatting the Document

4.10 Find a Particular Pattern

4.11 Insertion

4.12 Implementing Formula on Table Contents

4.13 Headers and Footers

4.14 Page Setup

4.15 Indents

4.16 Tabs

4.17 Columns

4.18 Change Case

4.19 Let us sum up

4.20 Further Reading

4.21 Answers to Check Your Progress

4.21 Model Questions

4.1 LEARNING OBJECTIVE

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

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

- learn to edit a document
- insert symbols, pictures in the document
- learn to print a document.

4.2 INTRODUCTION

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

In an organization lot of documents to be prepared, for example letters to be written to suppliers, customers, banks, authority. Similar letters may have to be written again and again. For all these, the letter may be typed once and it can be stored in the computer. When the same or similar letter is needed then it can be retrieved and changes can be made to if needed. Thus lot of time is saved in typing and the efficiency is increased. So, Microsoft Word is such 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.

4.3 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. 4.1**.

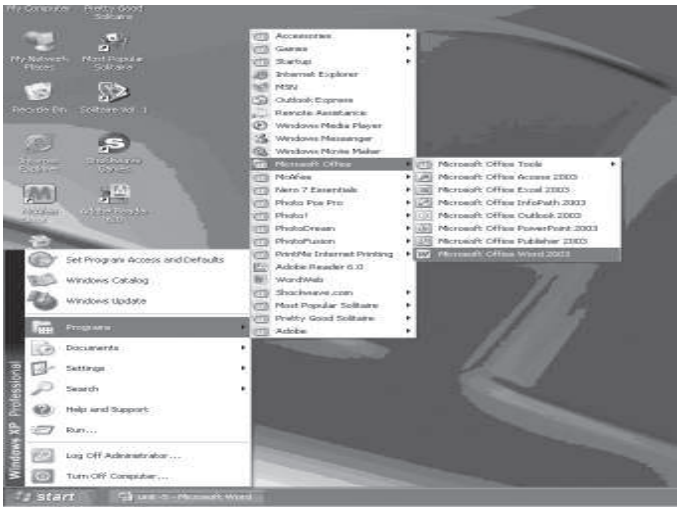


Fig. 4.1

A blank document file named **Documents** gets displayed on the screen instantly as shown in **Fig. 4.2**.

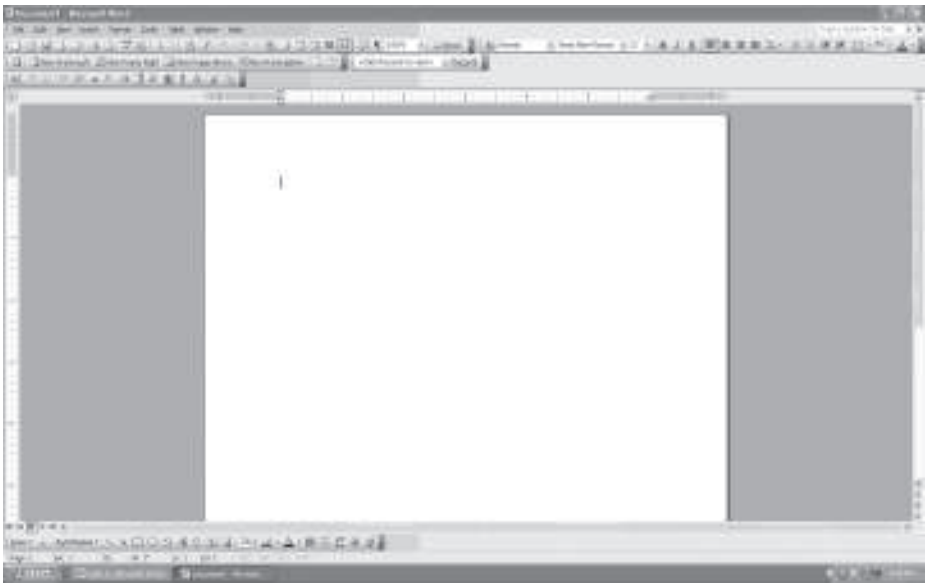


Fig. 4.2

4.4 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. 4.3

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.

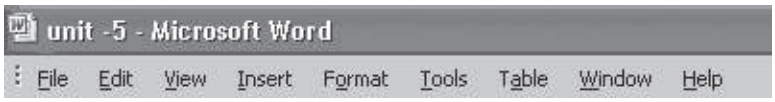


Fig. 4.4

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; existing **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 Front 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.



Fig. 4.5

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

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. 4.6

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.

4.5 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. 4.7**

d) Click "**OK**".



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. 4.8.**

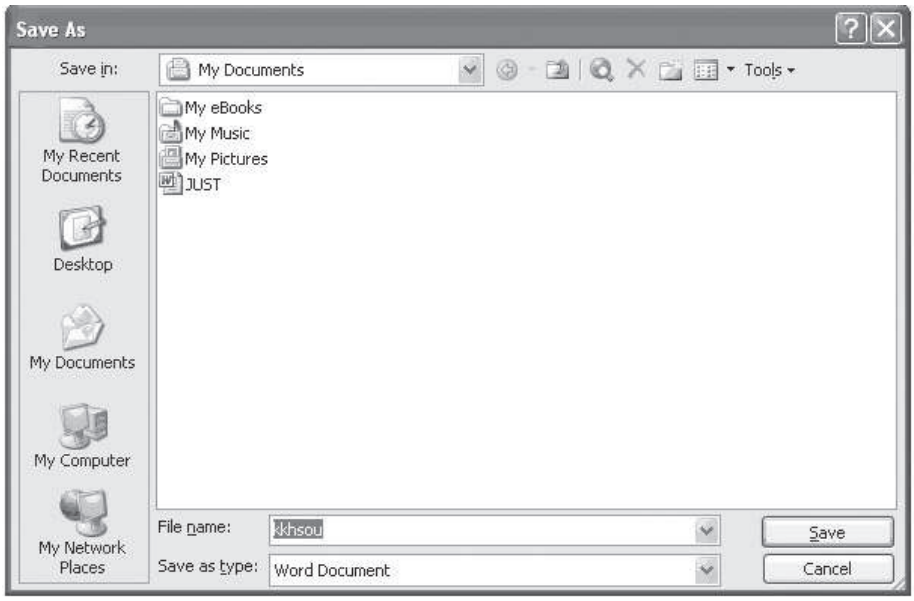


Fig. 4.8

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 4.8**. 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.

4.6 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 with saving it.

1) **Closing the document without saving it :** In this our work, 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 with saving it :** In this our work 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 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?

.....

.....

4.7 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. 4.9**.
   d) Select the drive and folder in which we have the file.

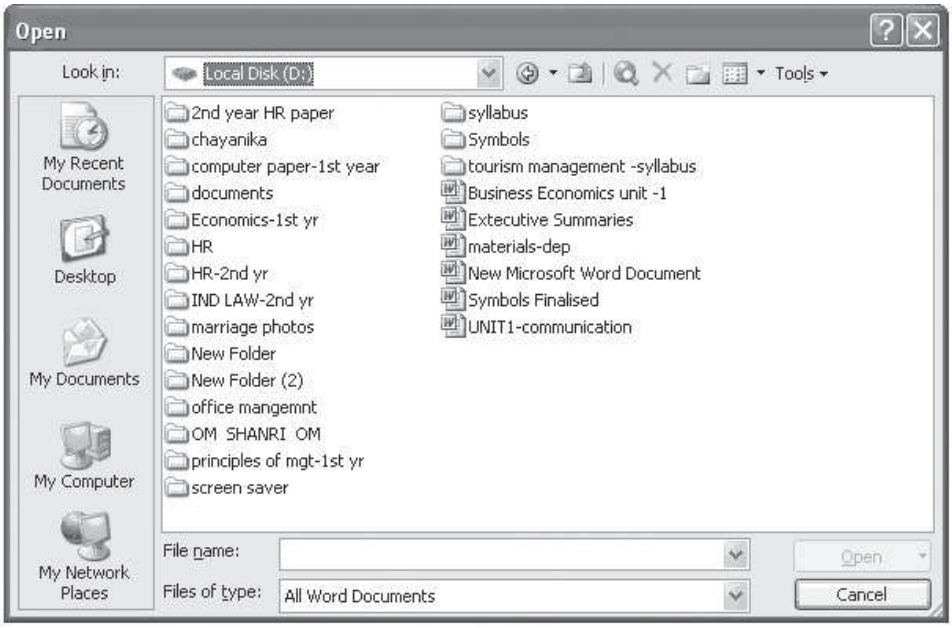


Fig. 4.9

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. 4.9** then follow the steps **(d)**, **(e)**, and **(f)** as mentioned above.

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

4.8 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. 4.10** shows the selection of block.

2) Click the right mouse button on the selected block we will get a pop up menu as shown in **Fig. 4.11**.

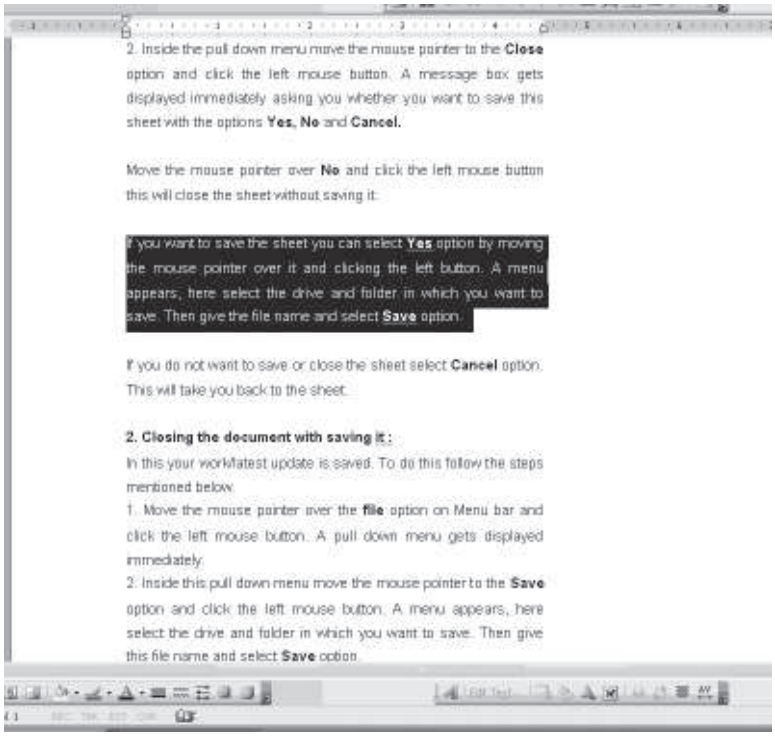


Fig. 4.10

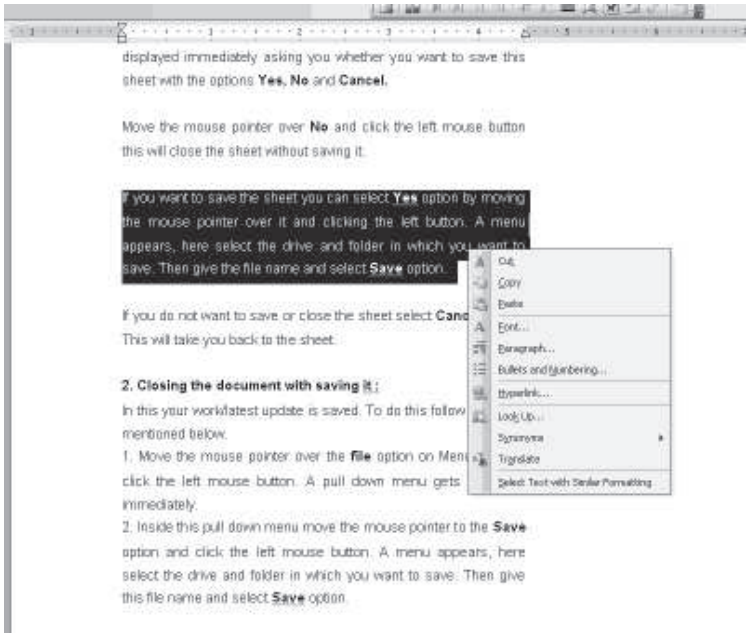


Fig. 4.11

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 5.12**. Now the selected block is copied on to the clipboard.

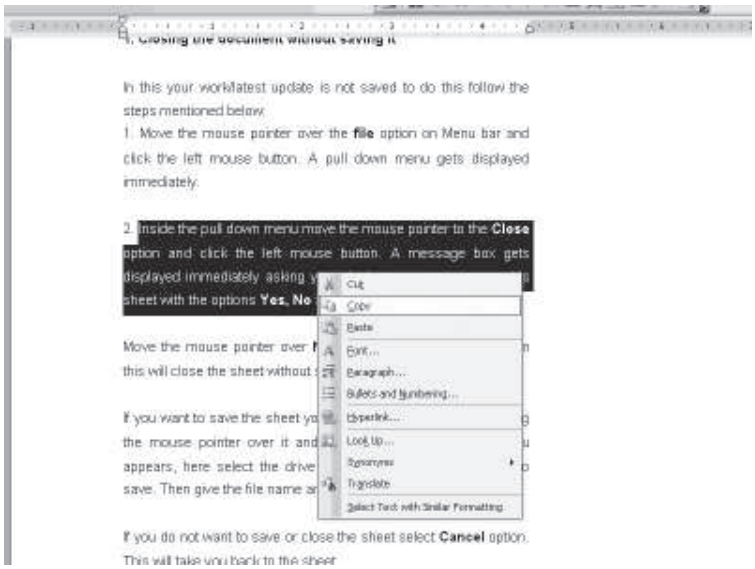


Fig. 4.12

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 and from the pop-up menu, select "**Paste**" option as shown in **Fig. 4.13**. The earlier selected block is copied to the new place shown in **Fig. 4.15**.

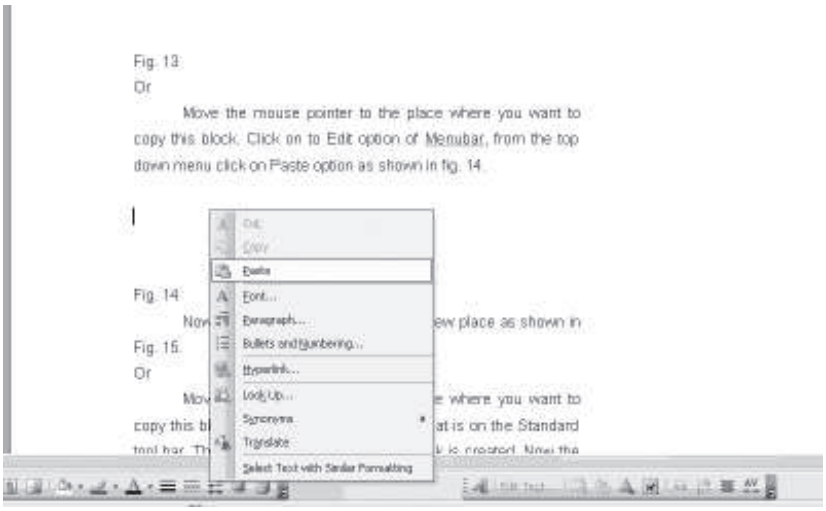


Fig. 4.13

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. 4.14**.

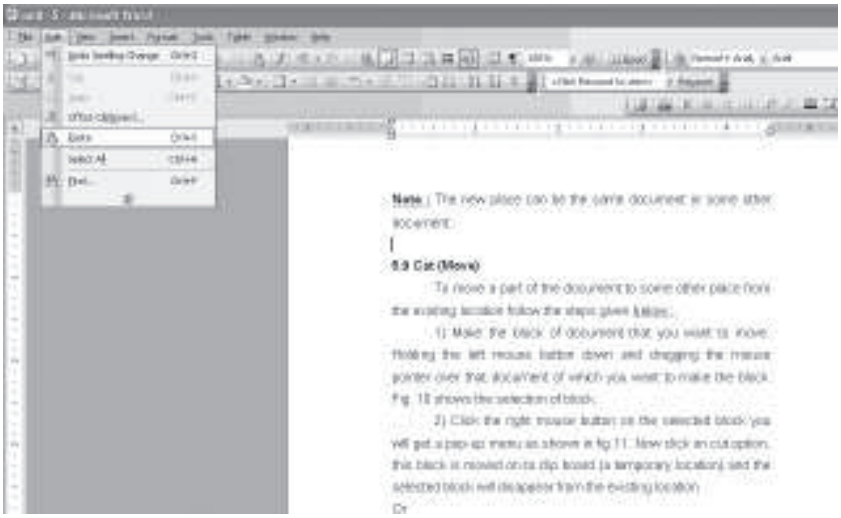


Fig. 4.14

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 4.11**. 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 4.12**.

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 and from the pop-up menu, select "**Paste**" option shown in **Fig. 4.13**. The earlier selected block is moved to the new place as shown in **Fig 4.15**.

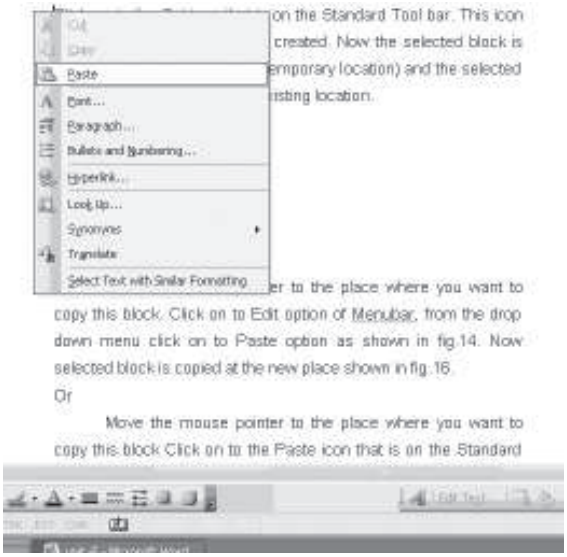


Fig. 4.15

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.4.14**. 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 is disappeared from the original place.

4.9 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. 4.16**.

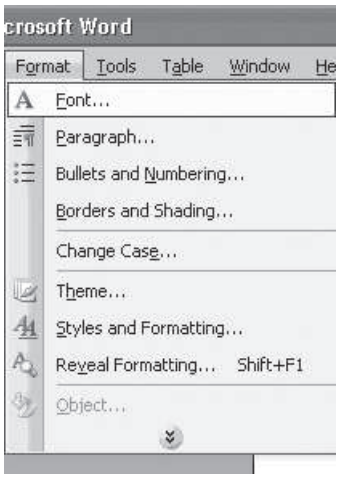


Fig. 4.16

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. 4.17**.

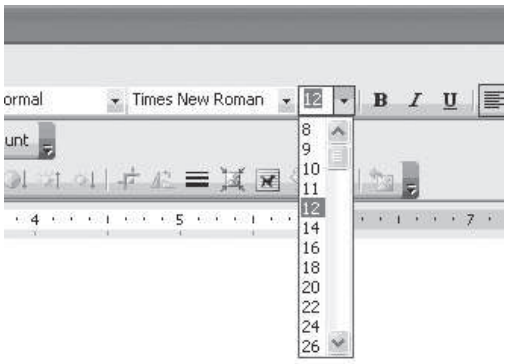


Fig. 4.17

For example select "**20**". **Fig 4.18** shows the changed font size in the selected block.

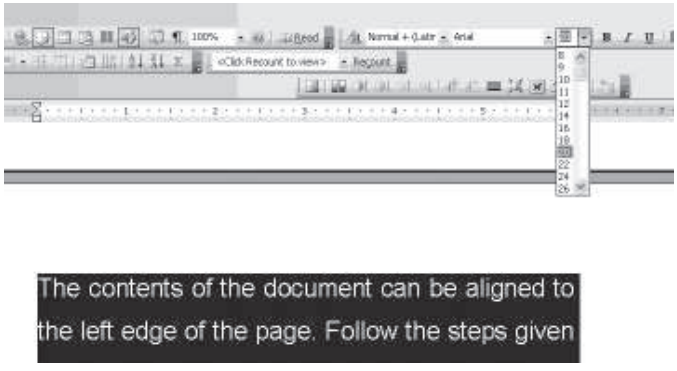


Fig. 4.18

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

1) Select the block, which we want to make Bold.
2) Click on "**Bold**" icon that is on the Standard Toolbar. The result is shown in **Fig. 4.19**.

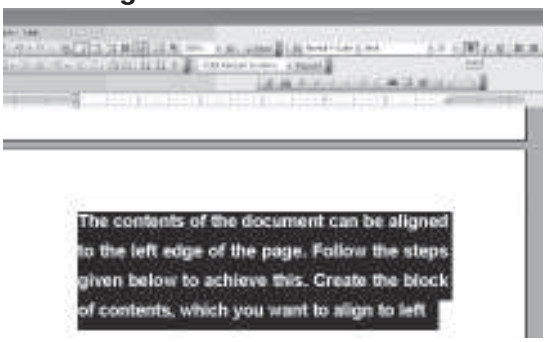


Fig. 4.19

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. 4.20**.

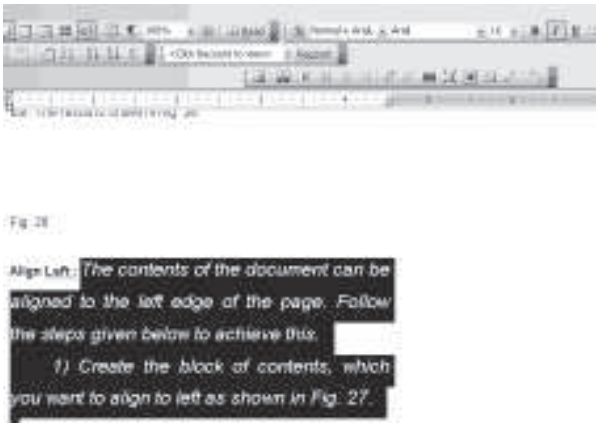


Fig. 4.20

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

1) Select the block of contents, which we want underlined.
2) Click on to "**Underline**" icon that is on the Standard tool bar. The result is shown in **Fig. 4.21**.

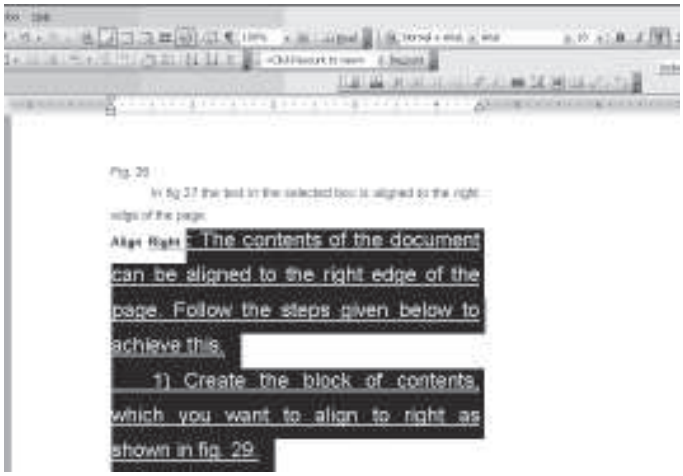


Fig. 4.21

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. 4.22**.

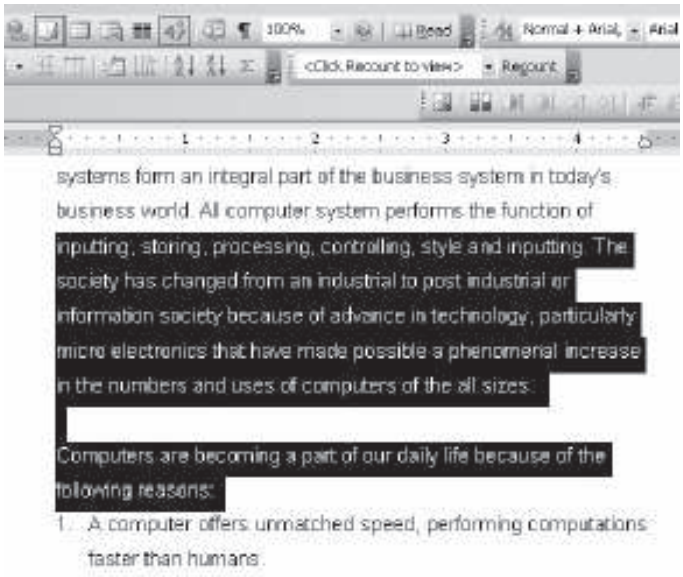


Fig. 4.22

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 we 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. 4.23**.

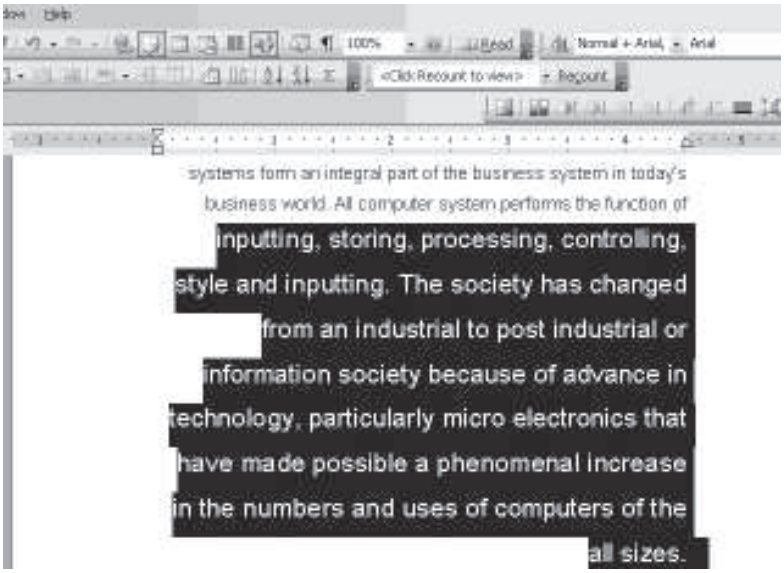


Fig. 4.23

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 we 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. 4.24**.

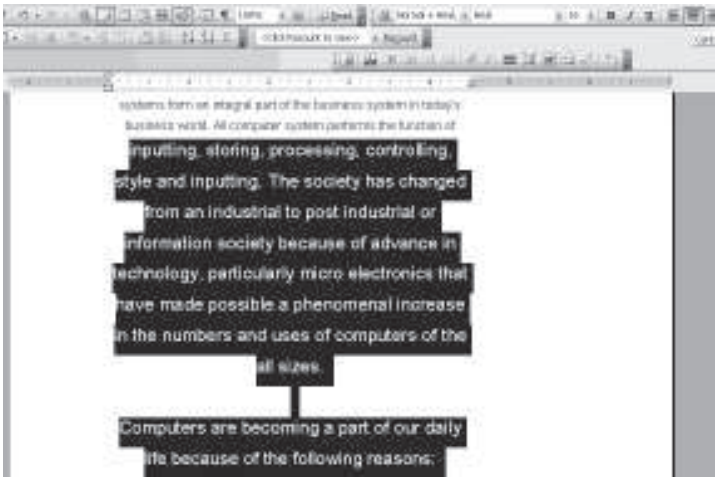


Fig. 4.24

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 we want to make justified.
2) Click to "**Justify**" icon that is on the Standard toolbar which is shown in **Fig. 4.25**.

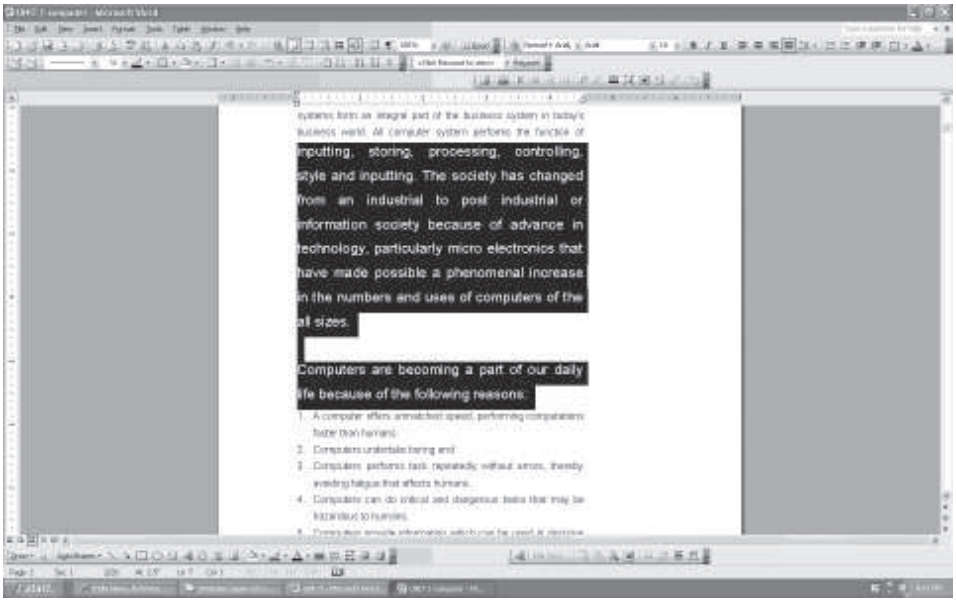


Fig. 4.25

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

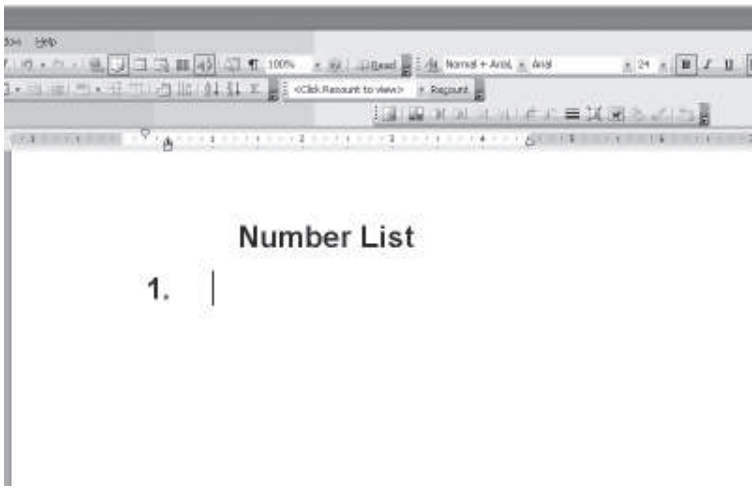


Fig. 4.26

2) Type the first line then press "**Enter**" key the second number is generated as shown in **Fig. 4.27**.

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

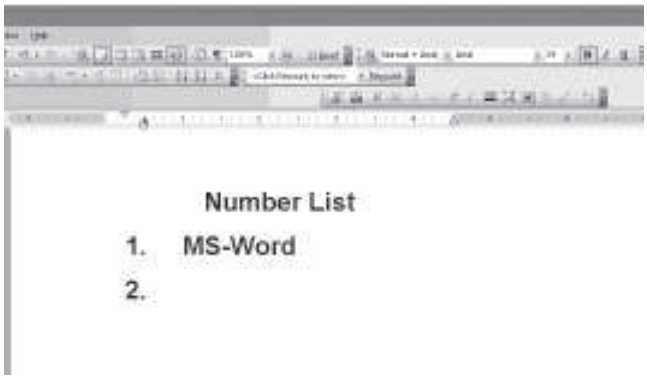


Fig. 4.27

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



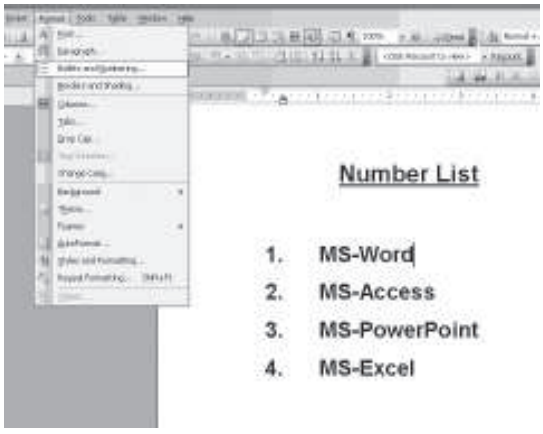
Number List

1. MS-Word
2. MS-Access
3. MS-PowerPoint
4. MS-Excel

Fig. 4.28

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. 4.29**.



Number List

1. MS-Word
2. MS-Access
3. MS-PowerPoint
4. MS-Excel

Fig. 4.29

We will get a menu as shown in **Fig. 4.30**. From the menu, we can select the required style.

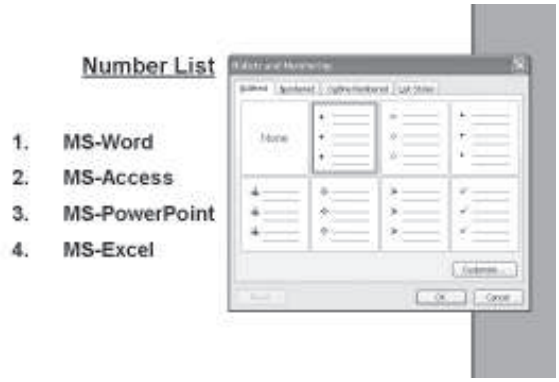


Fig. 4.30

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. 4.31**.

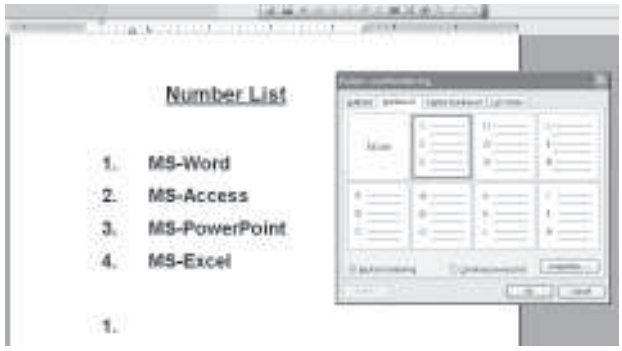


Fig. 4.31

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. 4.32**.

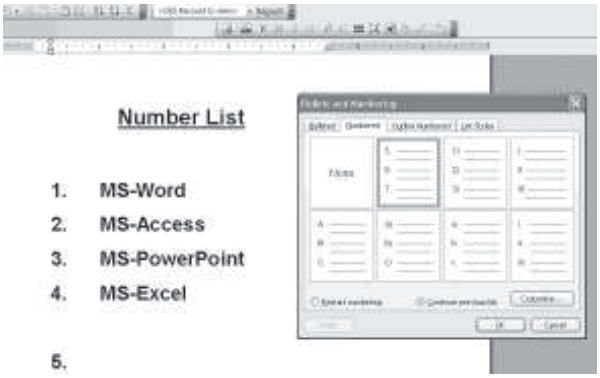


Fig. 4.32

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. 4.30**), we will get a menu as shown in **Fig. 4.33**.



Fig. 4.33

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. 4.34)**.
3) Thus we can type as many points as required.

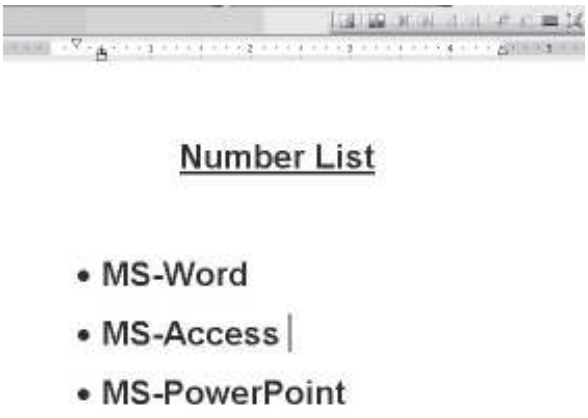


Fig. 4.34

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. 4.32).**
2) From the menu, select the kind of bullets, we want and click on to "**OK**" button (**Fig. 4.35**).

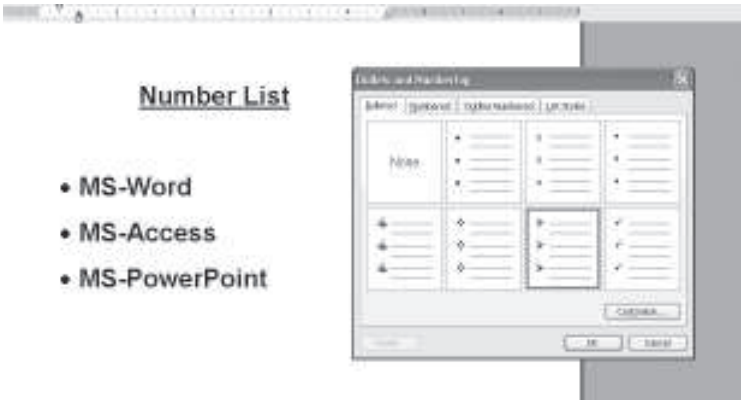


Fig. 4.35

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. 4.36**.



Fig. 4.36

We can customize our bullet, selecting the "**Customize**" option shown in **Fig 4.35**. We will get the menu as shown in **Fig.4.37**.



Fig. 4.37

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. 4.38**.

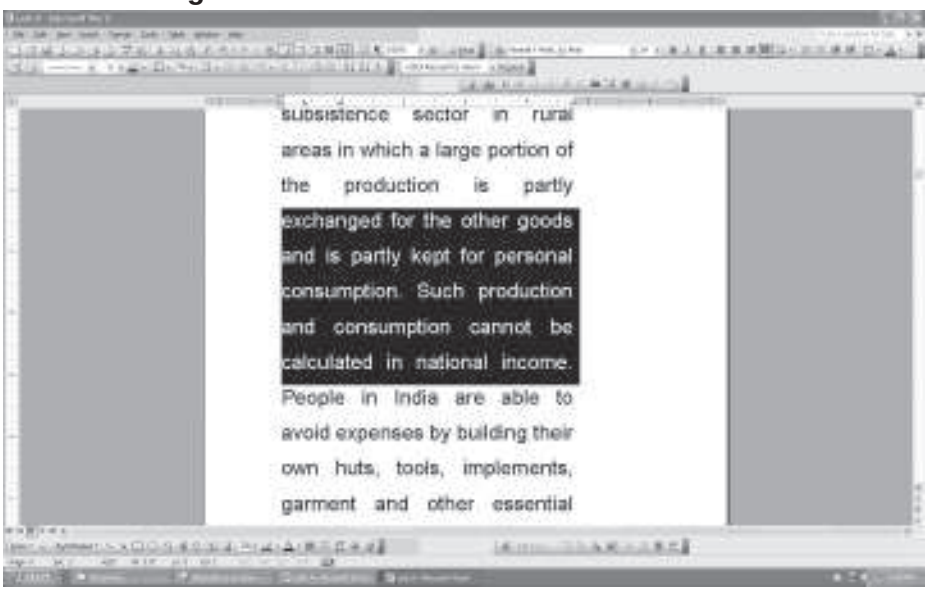


Fig. 4.38

2) Click on to the first arrow available on "**Font Color**" icon and select the required color as shown in **Fig. 4.39**.

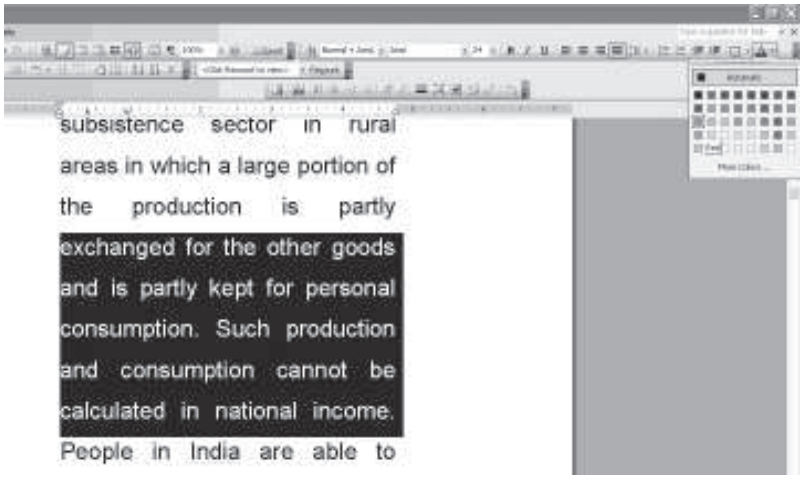


Fig. 4.39

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. 4.40** and we can select the required shade from the menu.

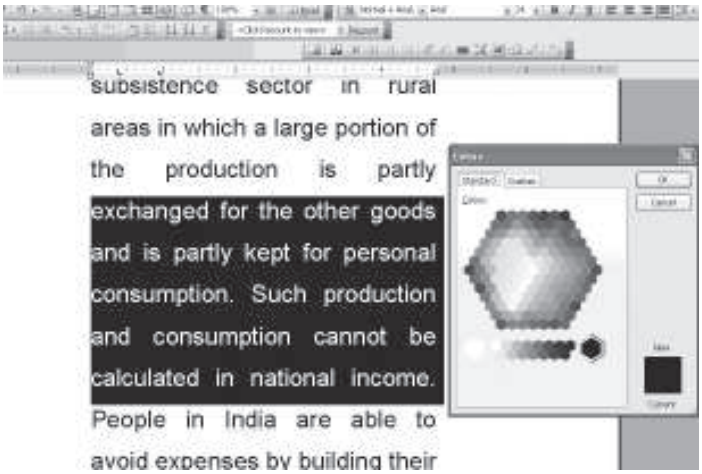


Fig. 4.40

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. 4.41**.

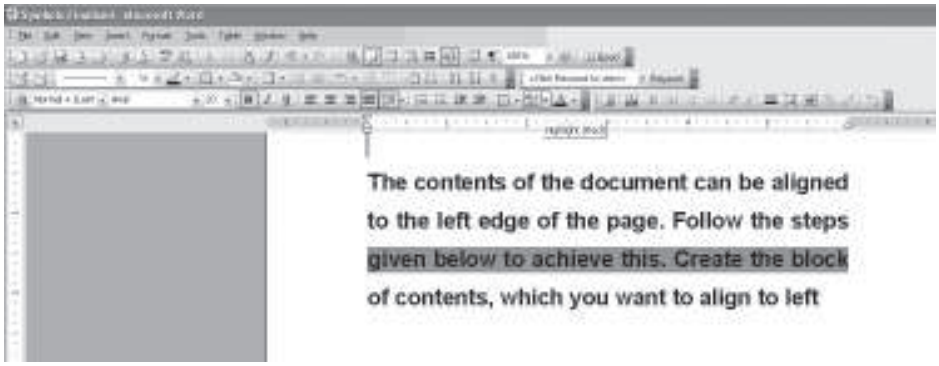


Fig. 4.41

4.10 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. 4.42**.

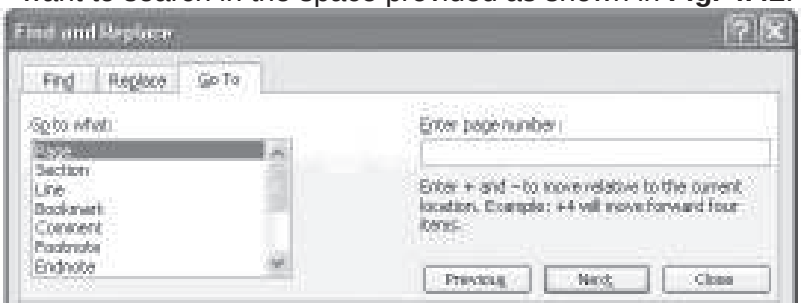


Fig. 4.42

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. 4.43**.

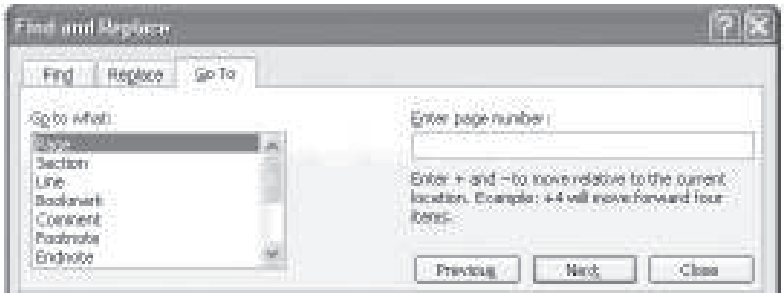


Fig. 4.43

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 we use wildcards, this option appears 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 4.44**.

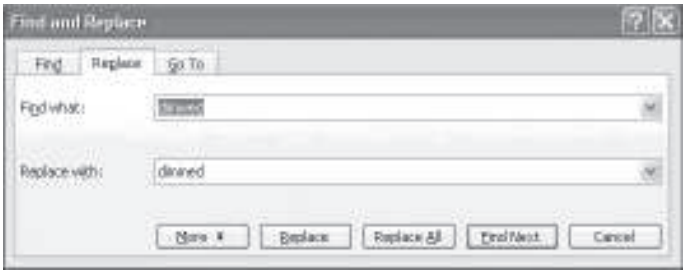


Fig. 4.44

We have different option tabs available in this menu and the explanations of each of are given below:

- **Replace :** Replace 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. 4.45**).

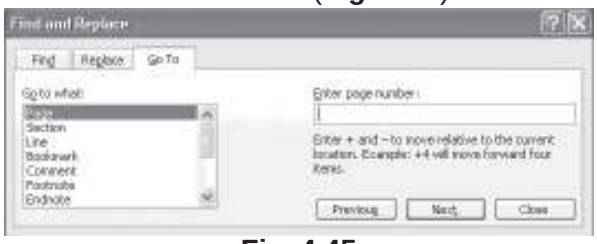


Fig. 4.45

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. 4.46**.

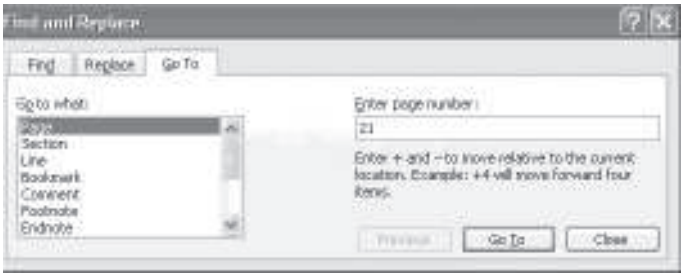


Fig. 4.46

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 "**Application**" and *right click* on it and a suggestion for correct words is obtained as shown in **Fig. 4.47**, *select* the proper required word.



Fig. 4.47

4.11 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. 4.48**.

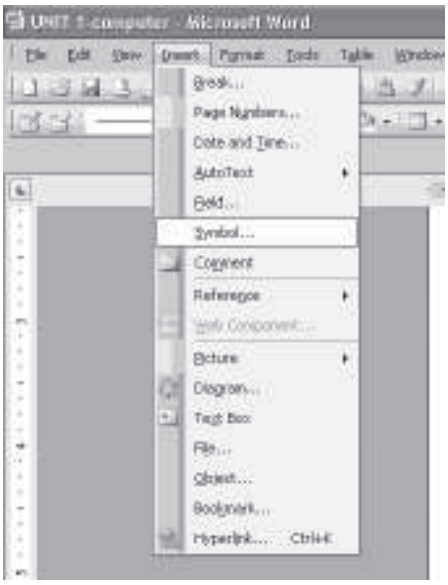


Fig. 4.48

2) Now click on "**Symbol**" option available and we will get a menu as shown in **Fig. 4.49**.

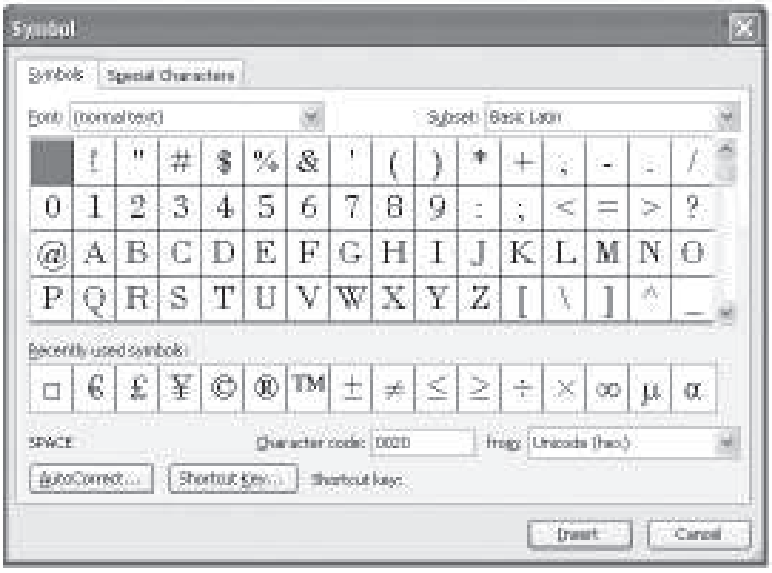


Fig. 4.49

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.4.50**), click on "**Insert**".

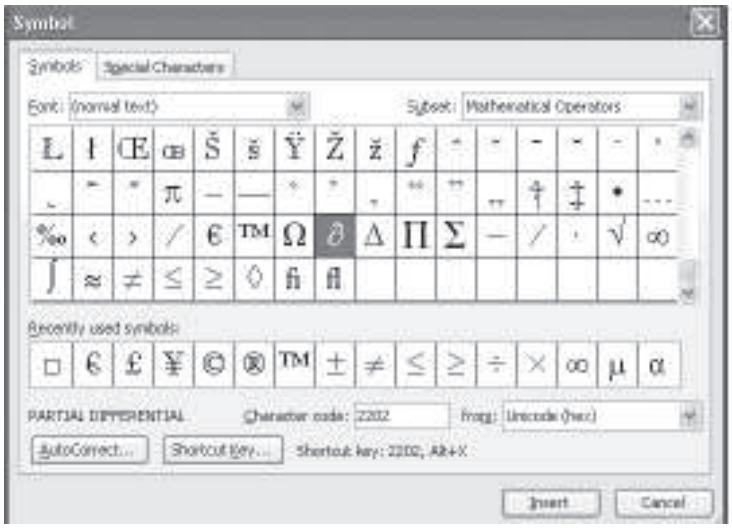


Fig. 4.50

Inserting Picture : To insert a picture follow the steps given below:

1) Point the cursor to the location where we want to insert the pictures and then click on "**Insert**" option available in the menu bar, we will get a drop-down menu as shown in **Fig. 4.51**.

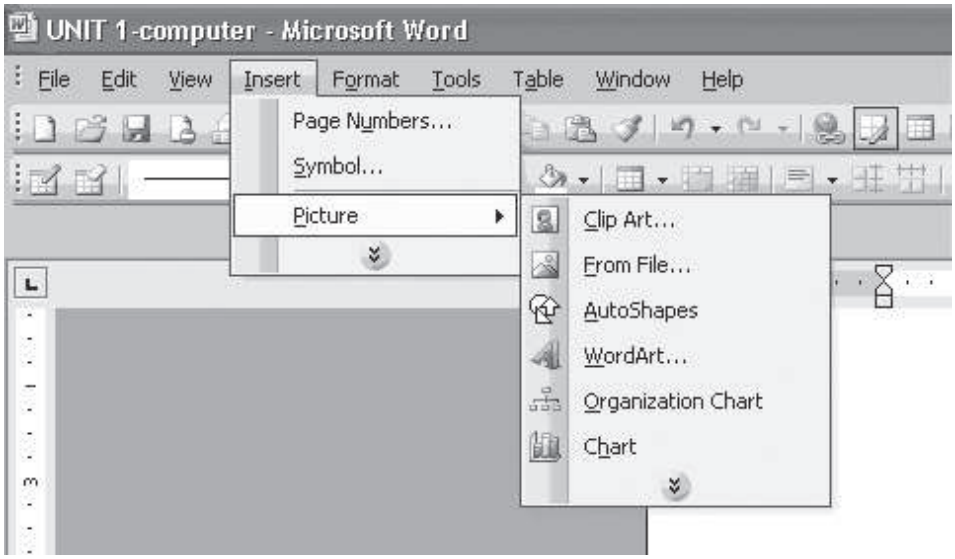


Fig. 4.51

2) Now we 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**", we will get a menu as shown in **Fig. 4.52**, which shows different categories of available pictures. Click on to required category, we will get another menu and here select the required pictures and insert it into location in our document.



Fig. 4.52

Inserting Picture from a file :

1) Point the cursor to the location where we want to insert the picture and then click on to "**Insert**" option available in the menu bar, we will get a drop-down menu as shown in **Fig. 4.51**.
2) Now click on to "**Picture**" option, we will get a sub-menu as shown in **Fig. 4.51**
3) Click on "**From File**", give the path of the picture file, where the picture, we 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. 4.51**.
2) Now click on "**Word Art**" we will get a menu as shown in **Fig. 4.53**.
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.

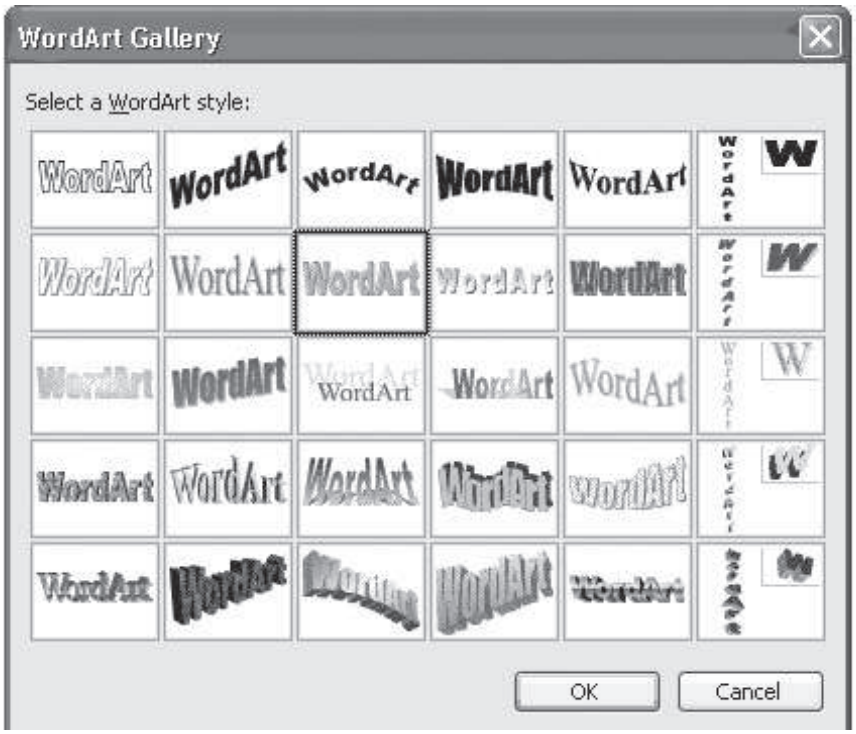


Fig. 4.53

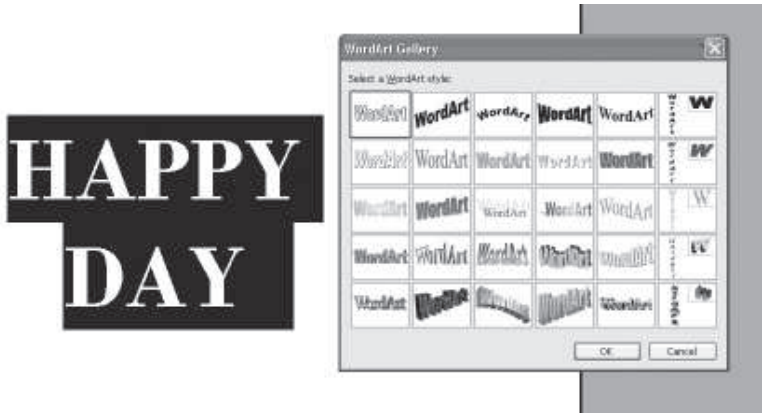


Fig. 4.54



Fig. 4.55

Inserting Charts : Even the charts can be inserted in the **Word** document and the chart's properties can be modified.

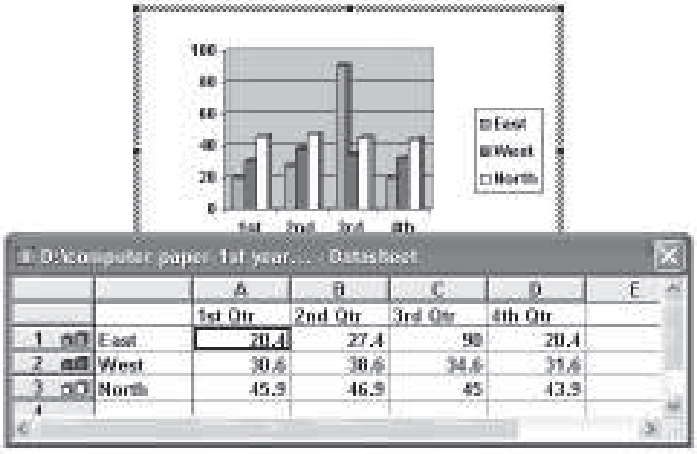


Fig. 4.56

To get the property sheet of the chart, right click on chart area and we will get a menu as shown in **Fig. 4.57**.

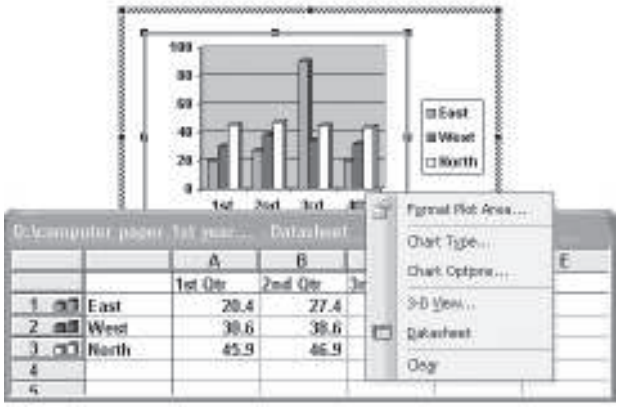


Fig. 4.57



ACTIVITY 4.1

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. 4.58**.

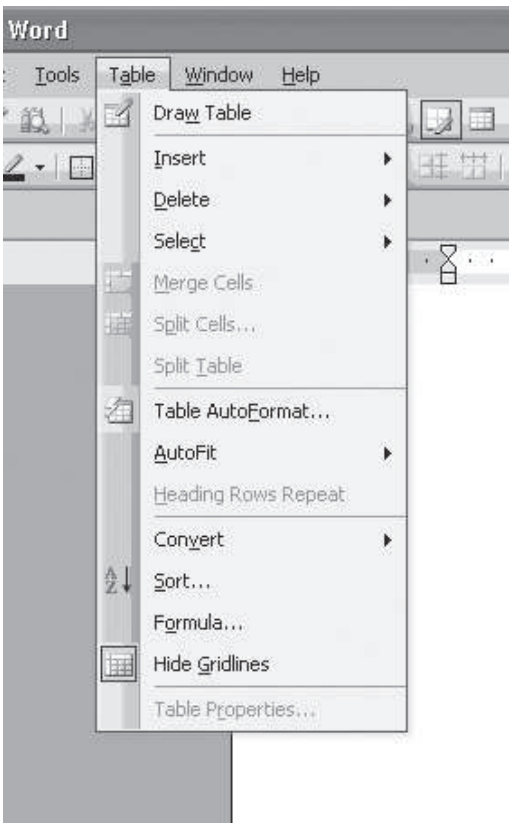


Fig. 4.58

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. 4.59**.

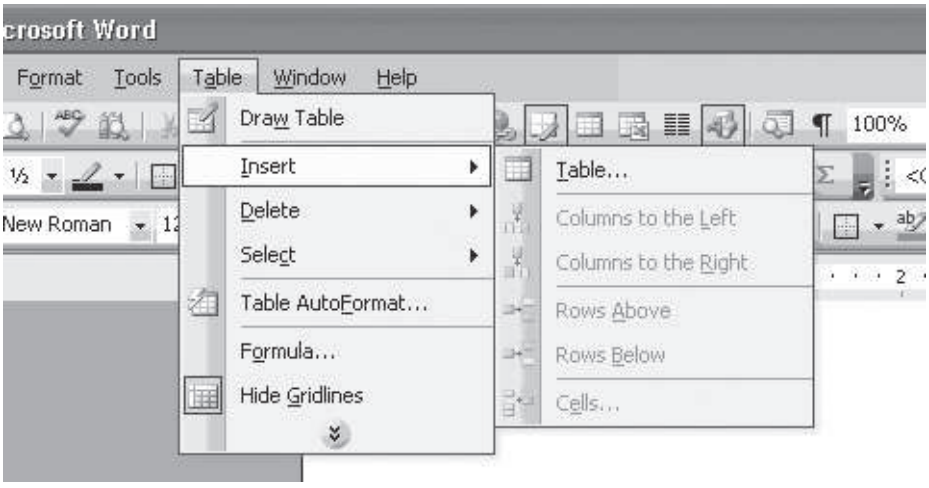


Fig. 4.59

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.

Fig. 4.60

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. 4.61**.

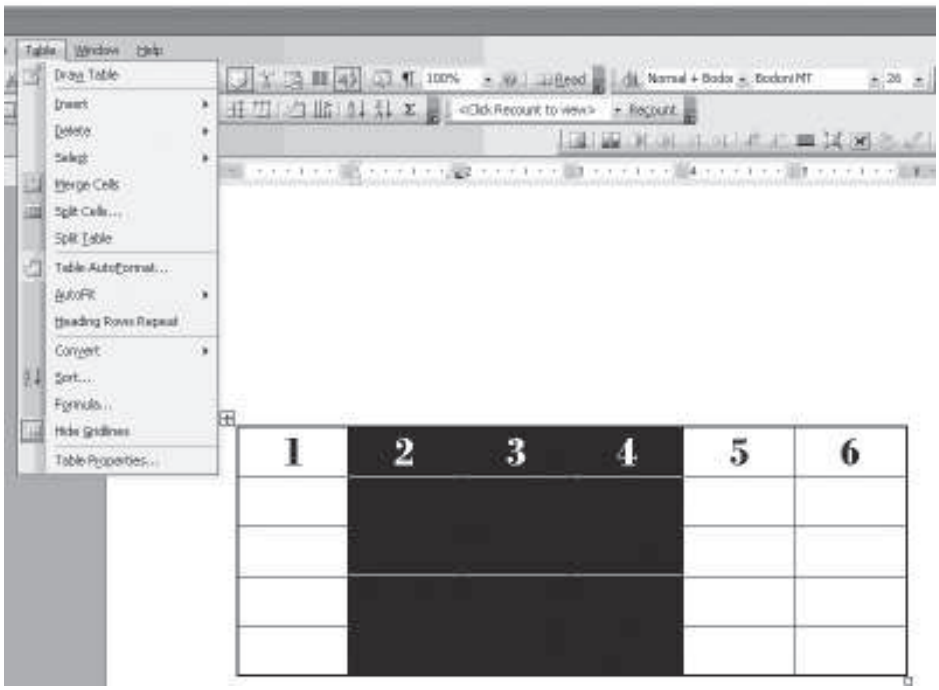


Fig. 4.61

Note : Black patches in **Fig. 4.61** 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. 4.61**. Column added **Fig. 4.62**.

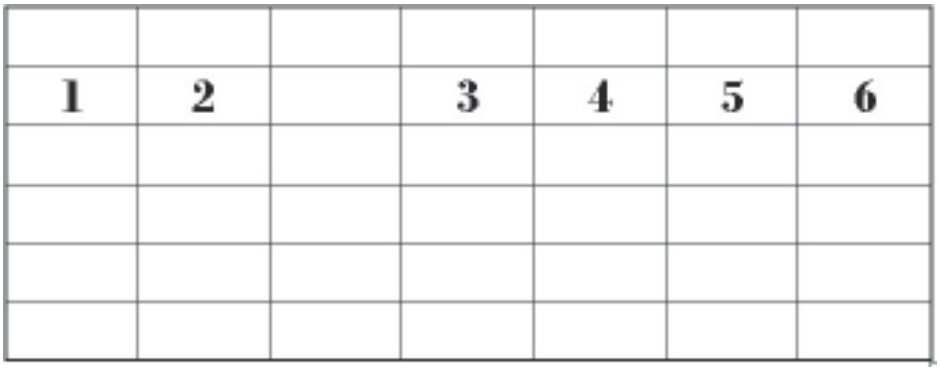


Fig. 4.62

- **Columns to the Right :** This option will add the column to the right of the selected column. Column selection made in **Fig 4.61**. Column added **Fig. 4.63**.

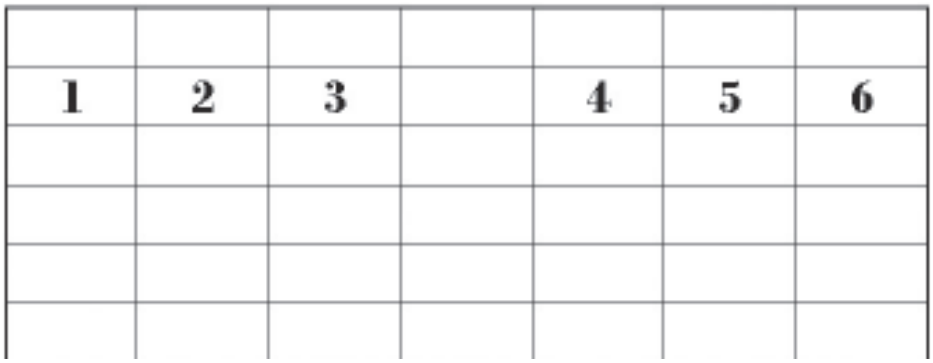


Fig. 4.63

- **Rows Above :** This will add rows to the above the selection. **Fig. 4.64** shows the selection of the row and **Fig. 4.65** shows the insertion of the row.

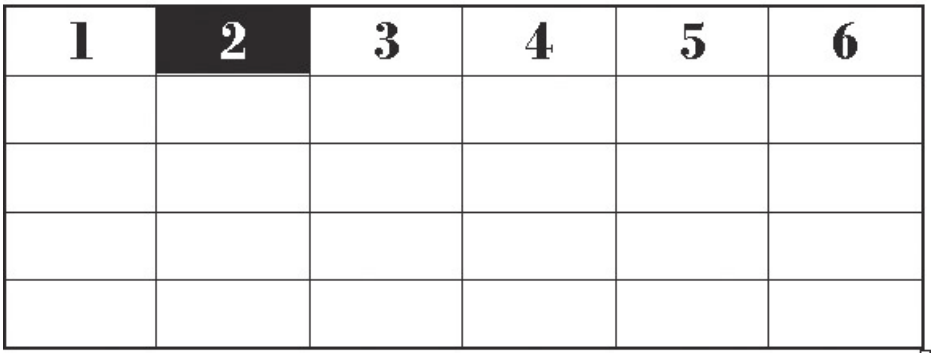


Fig. 4.64

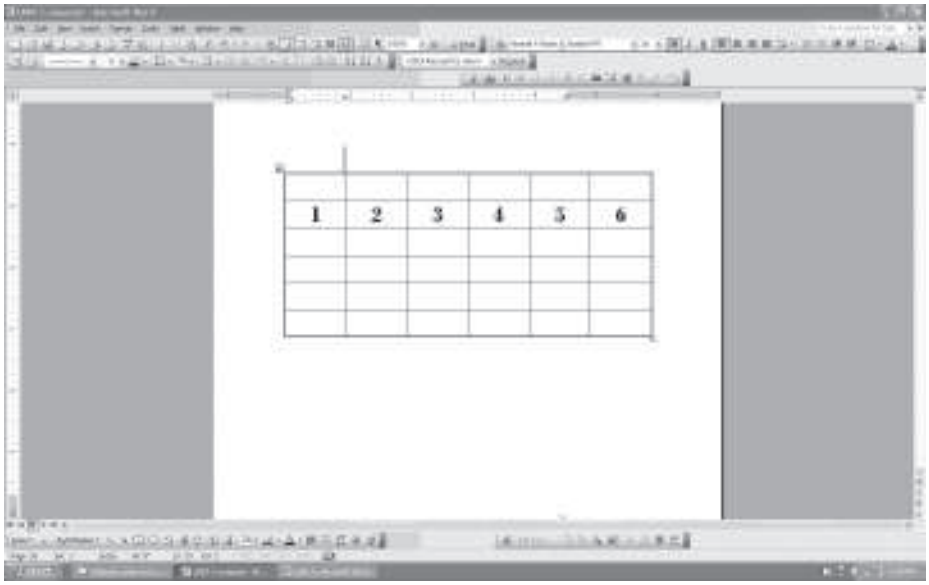


Fig. 4.65

- **Rows below :** This will add the rows below the selection. **Fig. 4.66** shows selection of the row and **Fig. 4.67** shows the insertion of the row below the selection.

1	2	3	4	5	6

Fig. 4.66

1	2	3	4	5	6

Fig. 4.67

- **Cells :** After we make the selection of insertion by selecting a cell, this option will display a menu as shown in **Fig. 4.68**. Select the required option and click "**OK**". The explanations for all the options are given below :

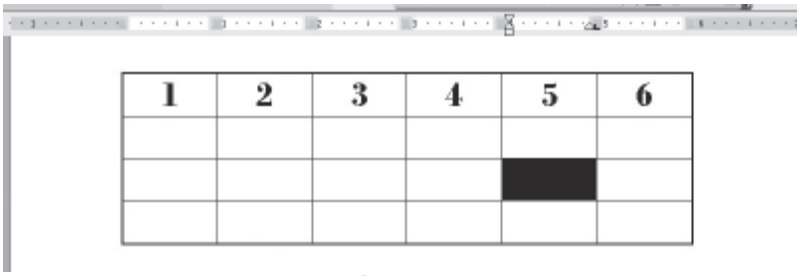


Fig. 4.68

- **Shift Cells Down :** Inserts new cells above the selected cells.

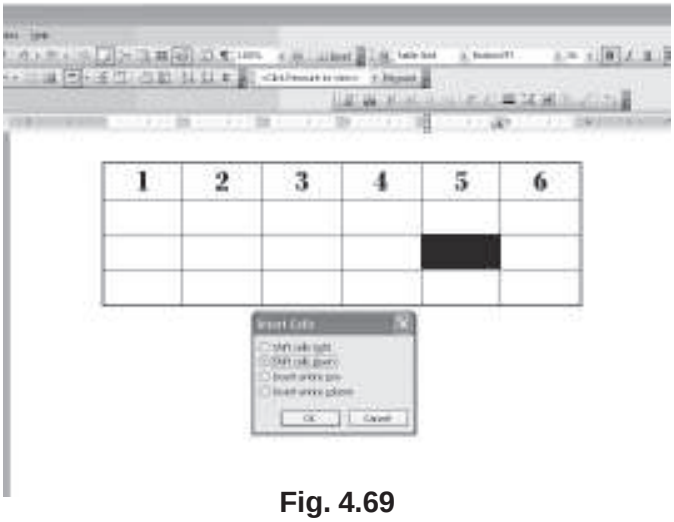


Fig. 4.69

- **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. 4.70** shows the selection. **Fig. 4.71** shows the Delete menu and **Fig. 4.72** shows the merged cells.

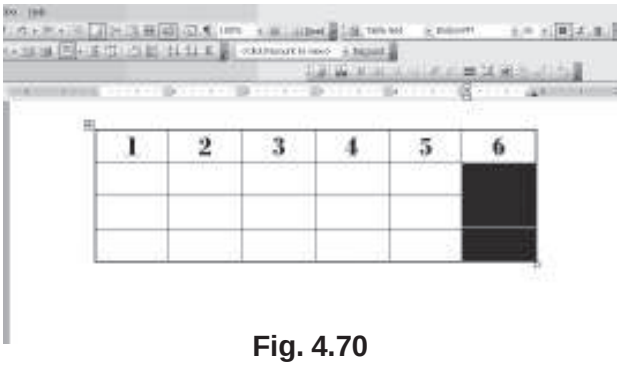


Fig. 4.70

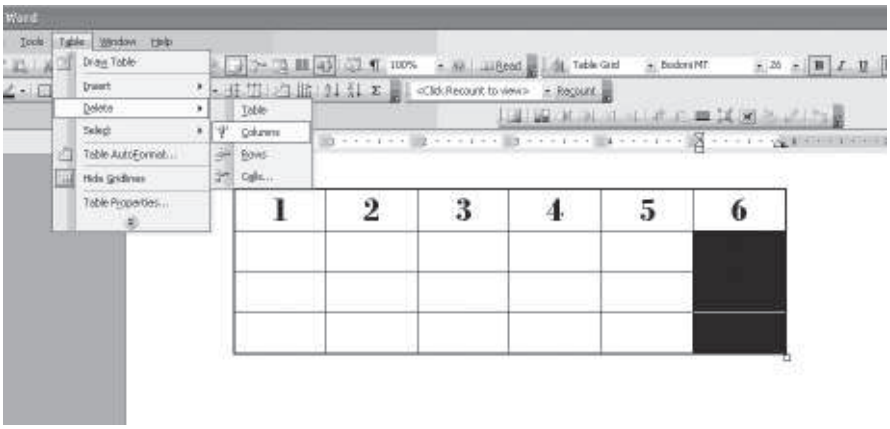


Fig. 4.71

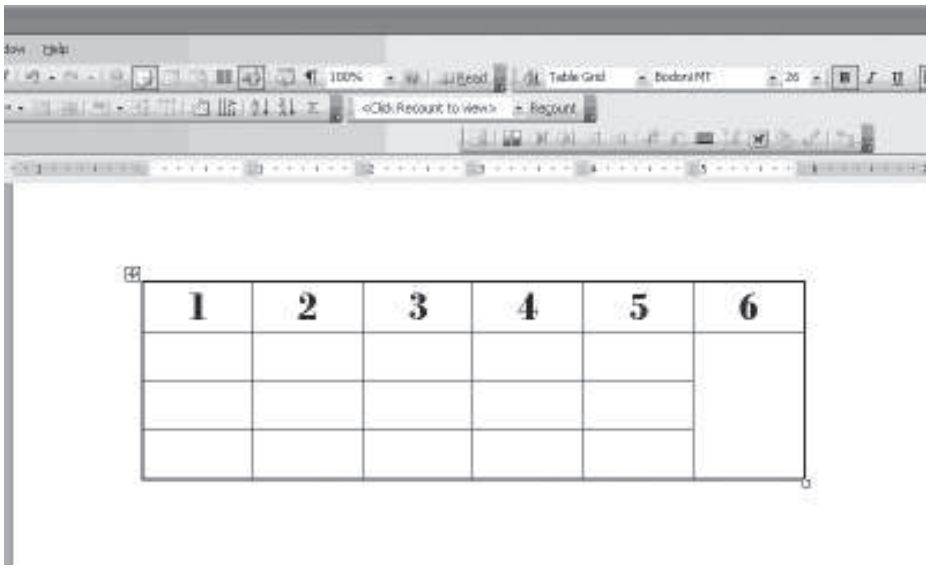


Fig. 4.72

4.12 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 4.74**. Select the required function from the "**Paste**" function list box (**Fig. 4.74**). 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. 4.75**.

Serial	Item Name	Units	Price/Unit	Price
1	CD-ROM	20	14	280
2	Floppy	20	12	240
3	Cartridge	4	600	3000
4	Toner	2	3500	7000

Fig. 4.73

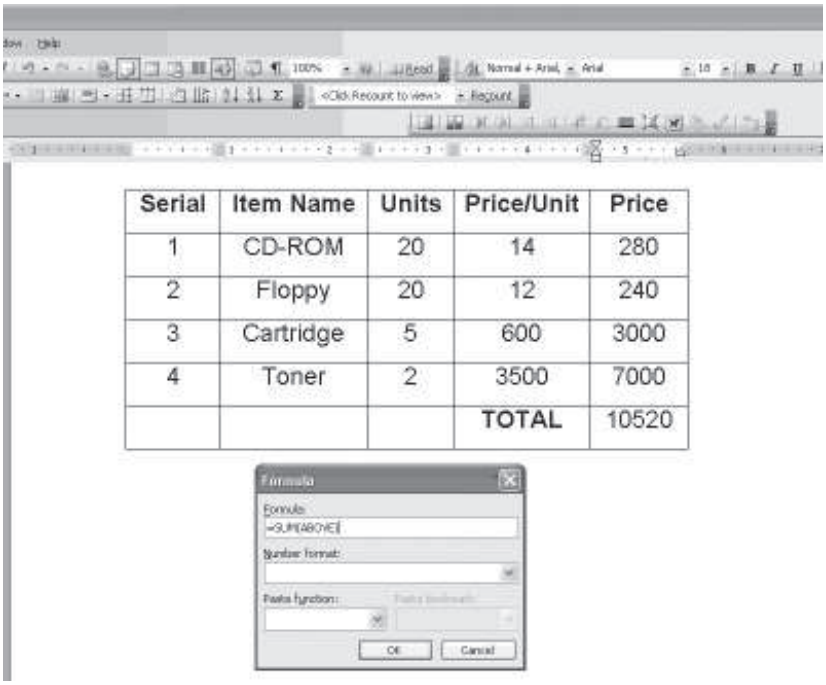


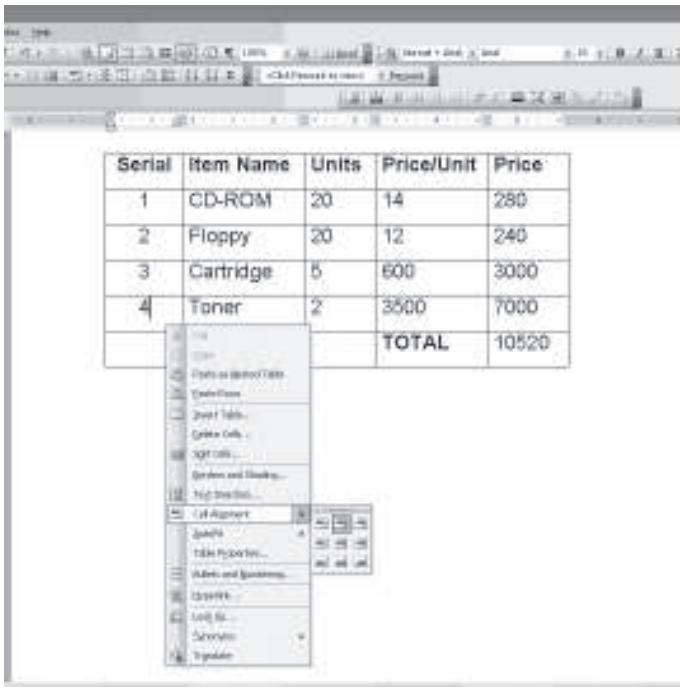
Fig. 4.74

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. 4.75

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. 4.76**.



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. 4.76

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. 4.77**. Use this tool to draw the table of our requirement as shown in **Fig. 4.78**.

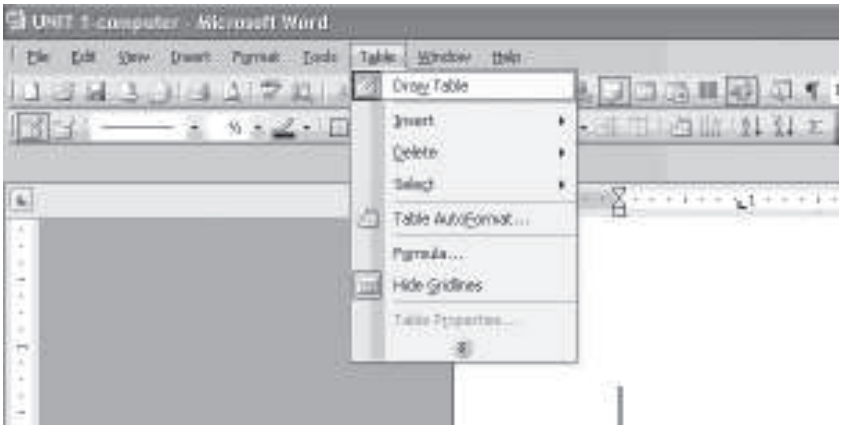


Fig. 4.77

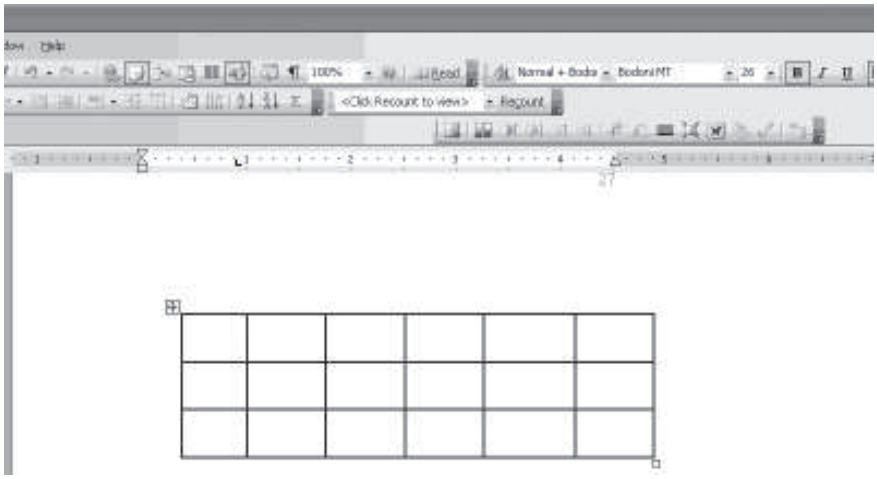


Fig. 4.78

4.13 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 button 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. 4.79**.
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**".

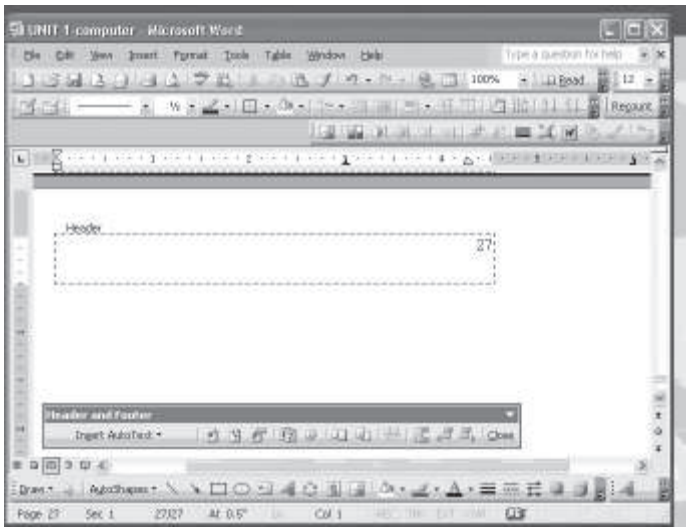


Fig. 4.79

4.14 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. 4.80**.

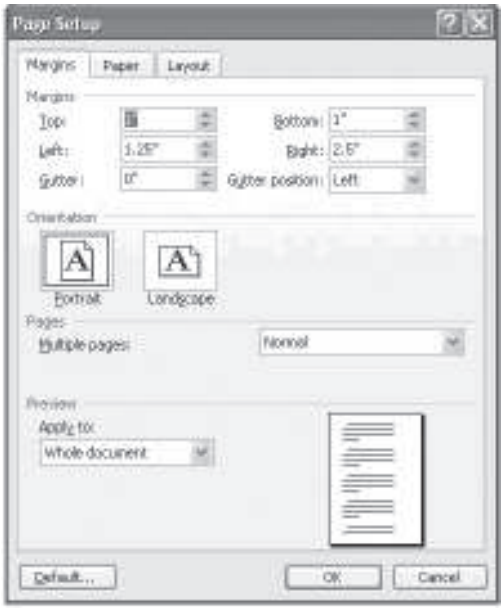


Fig. 4.80

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. 4.81**).

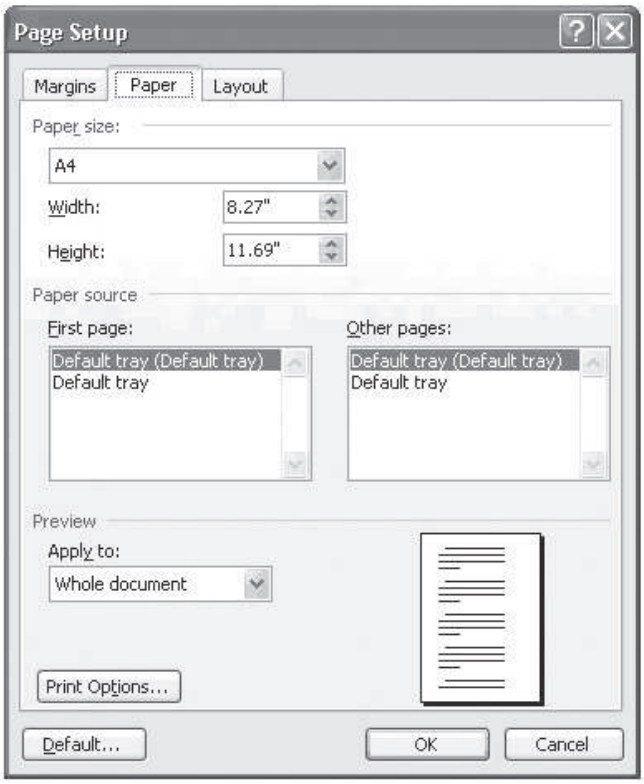


Fig. 4.81

- **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.

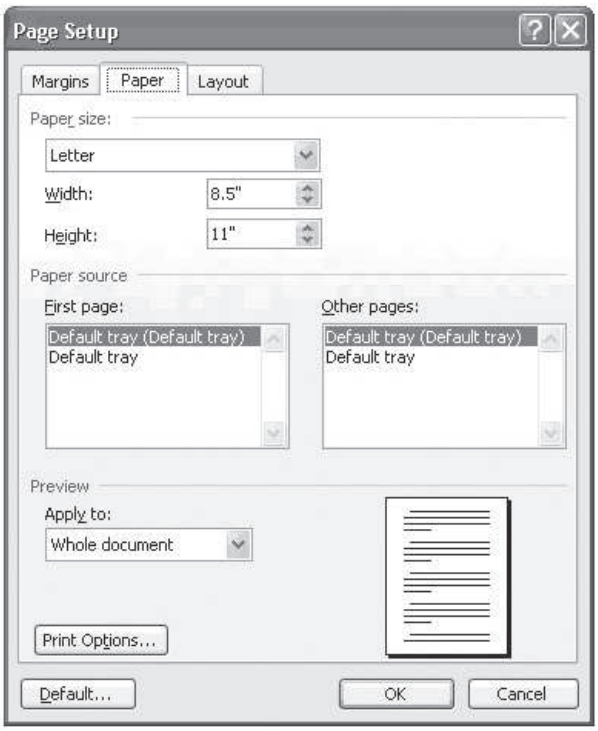


Fig. 4.82

- "**Preview**" and "**Apply**" options are same as explained above. Options available in "**Layout**" menu are given below (**Fig. 4.83**).

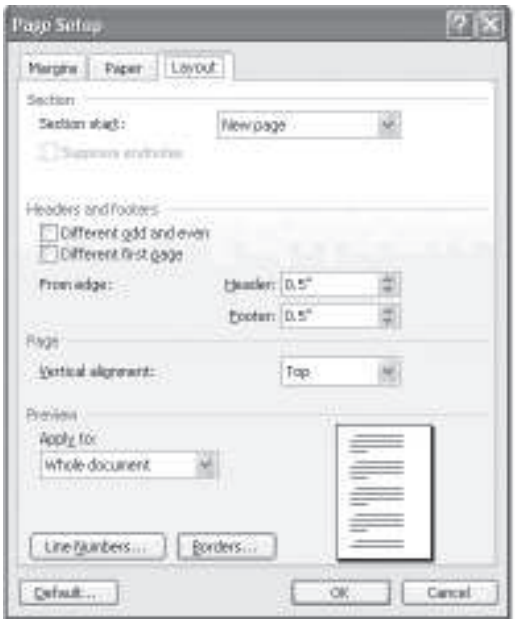


Fig. 4.83

- **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 :** Set options for applying a border around each page in the document.

4.15 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 set the amount of space between the lines and paragraphs. We can do it by invoking the "**Paragraph**" menu.

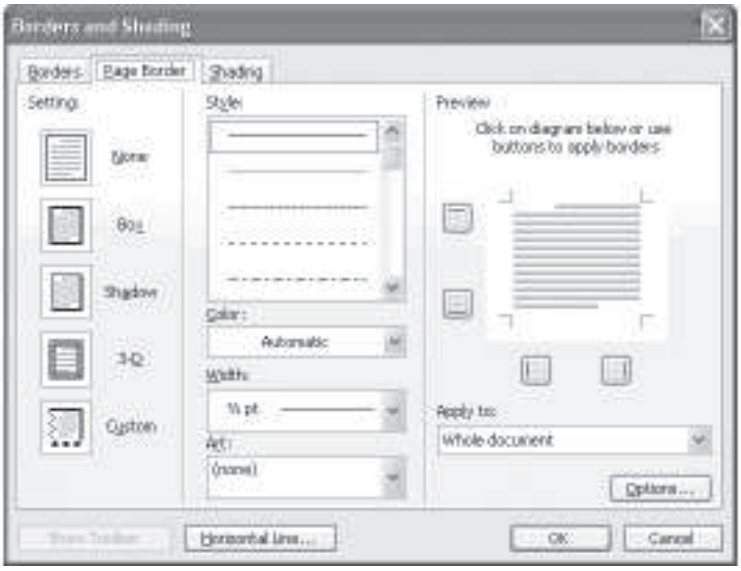


Fig. 4.84

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. 4.85**.

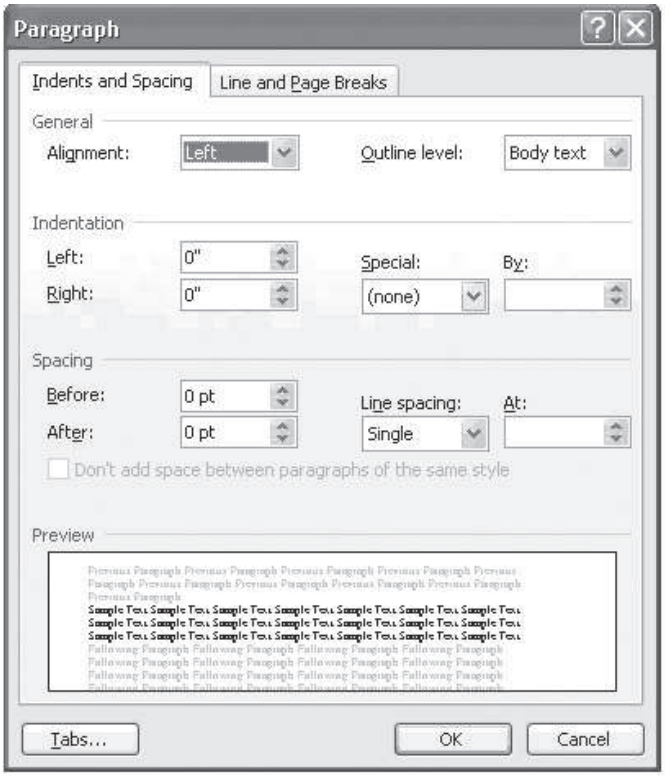


Fig. 4.85

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. 4.84**.

4.16 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. 4.86**.

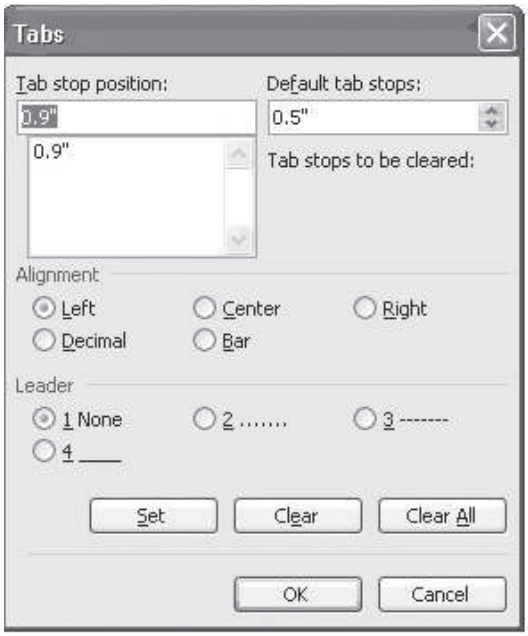


Fig. 4.86

- **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. 4.87 shows the setting of default tab stop which shows **0.4 inches** there onwards.

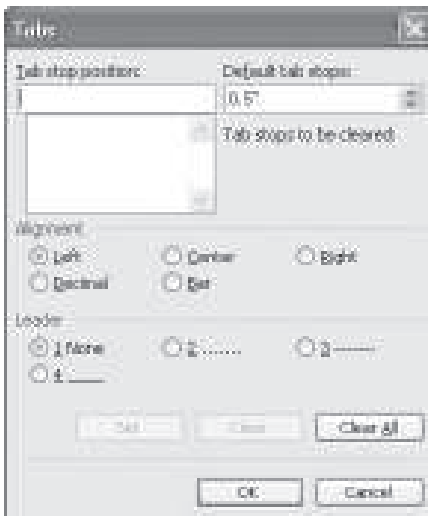


Fig. 4.87

4.17 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 these 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. 4.88**.

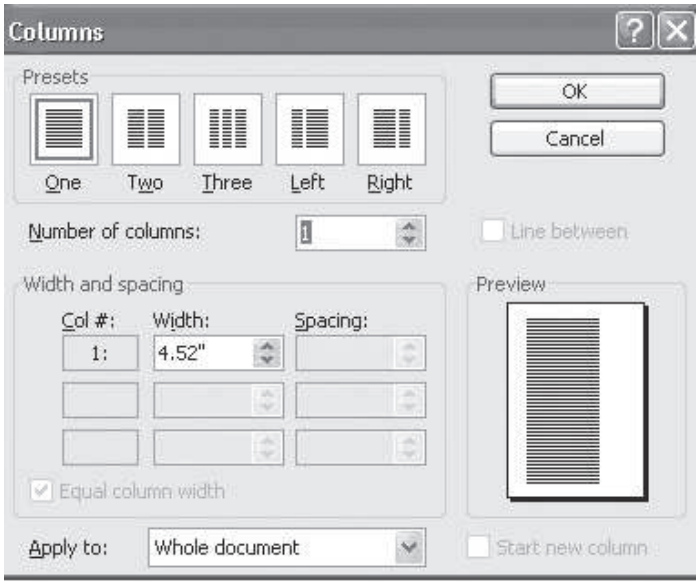


Fig. 4.88

Here, select the number of columns we want to have and other configurations and click "**OK**" to effect the change. The menu in **Fig. 4.88** has different options, which are discussed below.

3) **Fig. 4.89** shows the settings in "**Column**" menu and shows the columns of text from the paragraph we have typed.

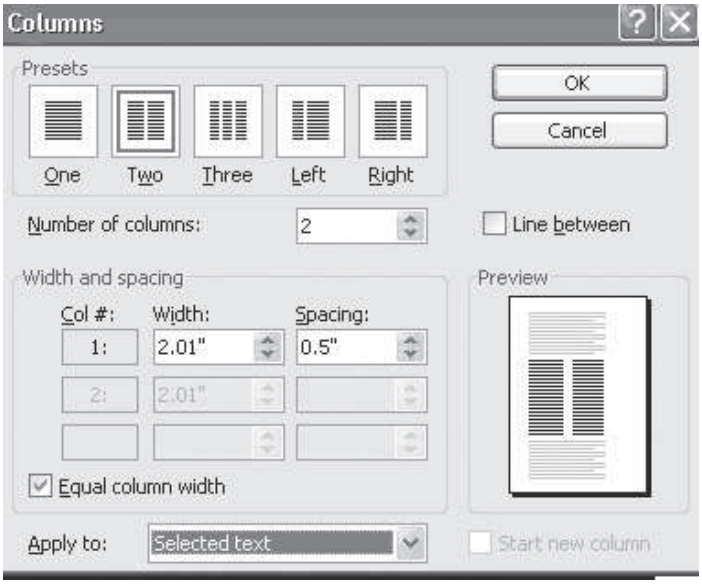


Fig. 4.89

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.

4.18 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. 4.90**.

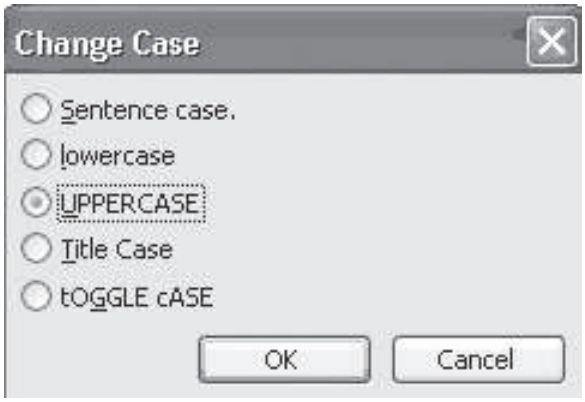


Fig. 4.90

Here selected kind of case we want to have and click "**OK**" to effect the change.

The menu in **Fig. 4.90** 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.



4.19 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 documents, 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**".



4.20 FURTHER READING

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.

2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.

3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',*Vikash Publication House Pvt. Ltd.

4.21 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.



4.22 MODEL 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.

Q.2 : 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.

*** ***** ***

UNIT 5 : MS-WORD - II

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 File Needed to Work with Mail Merge

5.4 Creating a Mail Merge Document

5.5 Inputting the Data

5.6 Printing the Merged Document

5.7 Modifying the Records in the Data Source

5.8 Let us Sum Up

5.9 Further Reading

5.10 Answers to Check Your Progress

5.11 Model Question

5.1 LEARNING OBJECTIVES

After going through this unit you will be to :

- explain the steps involved in creating Mail Merge
- set up the main document
- combine or Merge the Main Document
- input the data
- explain Printing of the merged document
- explain Modifying the Records in the Data Source
- change the contents of existing record.

5.2 INTRODUCTION

In the earlier unit, you have learnt about MS Word. In this unit we are going to discuss about another feature of MS WORD which is known as mail merge. Here, we will discuss about steps involved in mail merge, combining or merging the main document, inputting the data, printing of merged document, saving the main document, modifying the records etc.

Microsoft Word has a useful feature known as Mail Merge. It assists you to produce a personalized letter for each person in your mailing list.

Assume that you want to send an Invitation Letter to all of your friends. But typing the same letter for different friends of yours becomes a tedious job. But using the Mail Merge features of MS-Word you can make the tedious job easier. Using this feature you can quickly create personalized letter for each and every friend of yours who are in your mailing list.

In this facility all data is stored in one document. The format of the letter is stored in another document with some special instructions. This document, consisting of special instructions, is called the Main document. During the Mail Merge pressed, the Main Document is combined with or merged with the document containing the data. MS-Word replaces special instructions in the Main Document with the data from other document.

Let us now discuss the concept of working of Mail Merge. In this, the address of all of your friends is saved in one document, and the format of the letter to be sent to them is stored in another document. Special instructions are to be given in the letter format to indicate the MS-Word as to where the address has to be inserted. When both these documents are mail merge, individual address from the first document replace the special instructions given in the table.

5.3 FILE NEEDED TO WORK WITH MAIL MERGE

Two files are needed to work with Mail Merge. They are Data Source and Main Document.

- **Date Source :** The file that contains the mailing list.
- **Main Document :** The file that contains the format of the letter to be sent simultaneously to many people is referred to as Main Document. This document contains special instructions for the data to be inserted from the data source.

Following are the steps involved with Mail Merge:

1) Creating of the Data Source
2) Setting up of the Main Document
3) Combining or Merging the Main Document and Data Source.

5.4 CREATING A MAIL MERGE DOCUMENT

First of all decide the type of document you want to create i.e. letter, labels, envelopes or catalogues.

Now let us consider the example of sending greetings to your friends. So let us assume that you will have the following fields in the address.

First name, Last name, Street name.

Following the steps given below to use Mail Merge.

1) So to use the mail merging you should be in MS-Word, then click on to Tools option and from the resulting drop down menu click on to Mail Merge option (**Fig. 5.1**), you will get a menu as shown in **Fig. 5.2**.

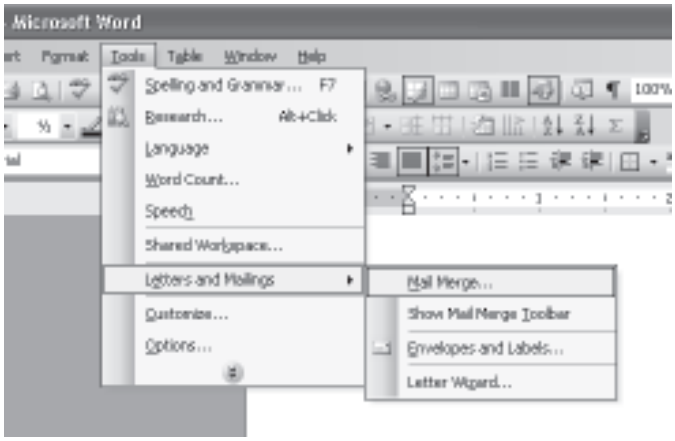


Fig. 5.1

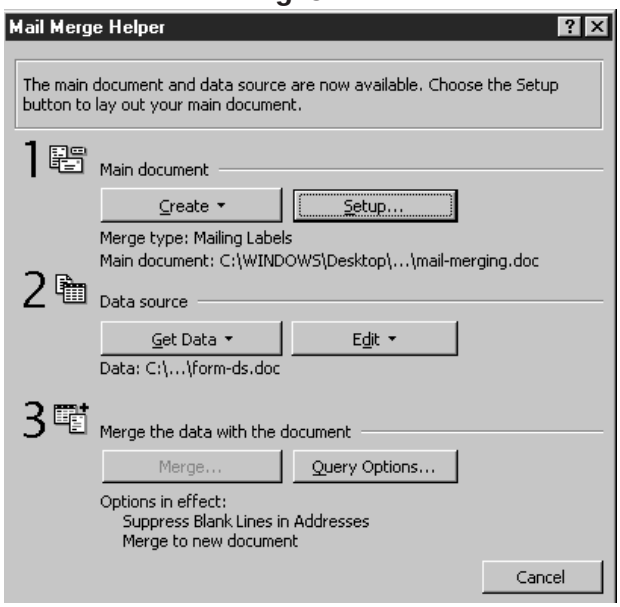


Fig. 5.2

2) This menu asks you to enter the type of Main document you wish to create. Now click on to Create button, you will get a drop down menu.

3) Click on Form letter option, as you want to send the greetings to your friends. Immediately, a message box gets displayed on the screen as shown in **Fig. 5.3**.

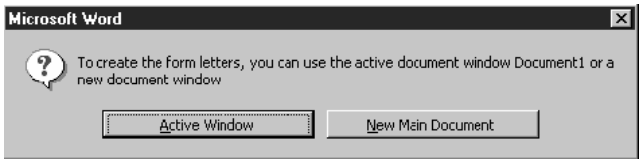


Fig. 5.3

4) The Message Box as shown in **Fig. 5.3** asks you whether you wish to have the form letter displayed in the currently open active window or you want to create a new document window. So assume that you want to create the form letter in the active document then click on to Active Window and Mail Merge Helper box gets displayed immediately.

5.5 INPUTTING THE DATA

The list of addresses of your friends is our data source. So let us first create the data source for storing the addresses of your friends.

Follow the steps given below to do this :

1) Inside the Mail Merge Helper Box as shown in **Fig. 5.4** click on to get Data button, a pull down menu appears immediately. In this menu, click on to create Data Source option. Immediately, a create data source box appears on the screen. Here select field names, which make the address of your friend along with the names.

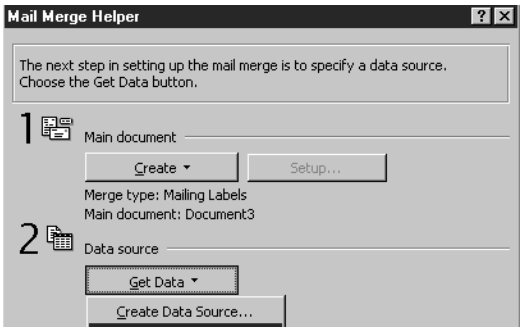


Fig. 5.4

2) Now select the field names from the field names in header row box as shown in **Fig. 5.5**.

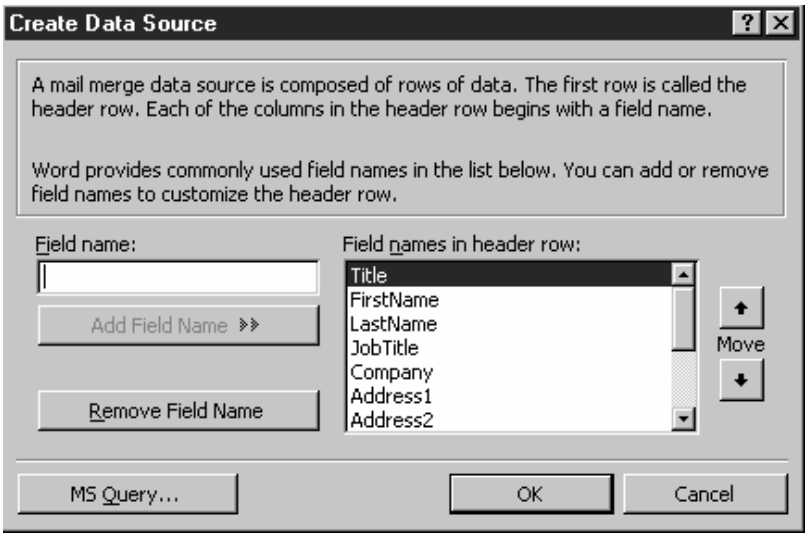


Fig. 5.5

Select the field names, which you don't want as the part of your address and click on to Remove field Name option. Now let us assume that we don't want Title field name then click on to Title and then click on to Remove Field Name. You can follow this procedures to delete field names that are not required.

You can add new field name also. Assume that you want to add a field name as Subject. So type subject in the Field name box and click on to Add Field name option and this new field added will be displayed in the field names in header row option.

3) Then click OK. Immediately the Save as box appears on the screen.Give the file name to this data source for example friends.

4) Since you have to enter the data in the data source file click on to Edit Data Source option (**Fig. 5.5**).

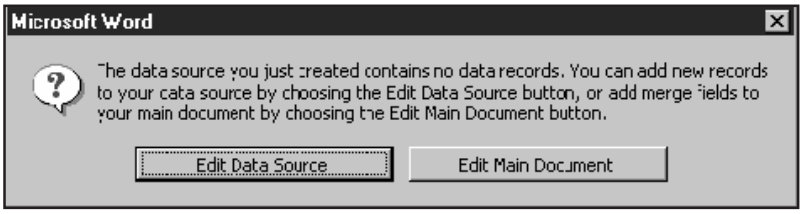


Fig. 5.6

Immediately a Data form Box gets displayed as shown in **Fig. 5.7**.

In the Data Form box, the addresses of your friends are needs to be entered. So enter the addresses of all your friends (or any body to whom you want to mail your letter). After adding the address of each of your friend.Click on to Add new button. So you will get a blank form to add new address. as shown in **Fig. 5.7**.

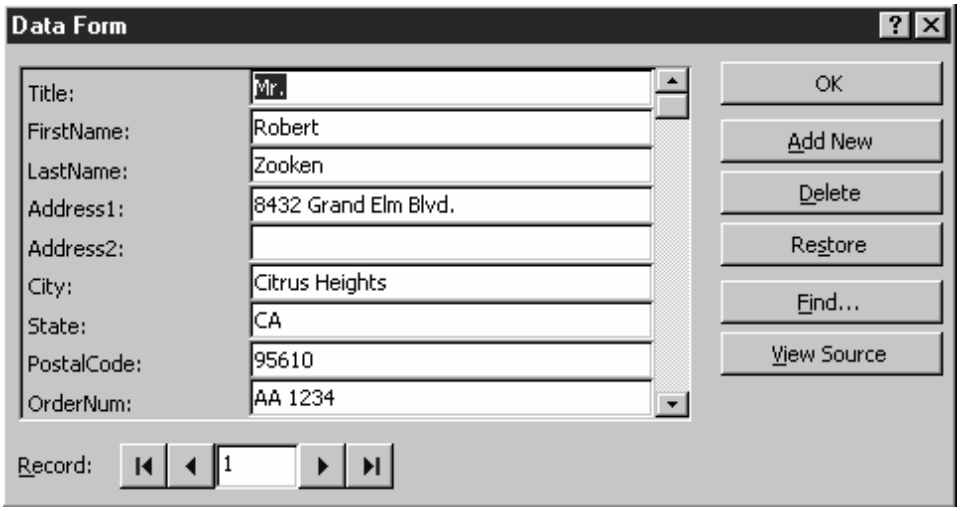


Fig. 5.7

5) After adding all the details, to have the look at the list of addresses, click on to View Source. Immediately the list appears on the screen as shown in **Fig. 5.8**. Save the data and close the data source.

Title First Name	Last Name	Address 1	Address 2	City	State	Post Code	Order Num
Mr. Robert	Zooken	8432 Gran Elm Blud.		Cotrus Heights	C A	95610	A A 1234
Mr. William	Batey	5240 Spbey Circle	P.O. Box 3248	Orange-vale	C A	95662	A B 1002
Ms. Judy	Elstenson	3180 Woodlake Hills Rd.		Fair Oaks	C A	95628	A C 2234

Fig. 5.8

You will find the mail merge tool bar as shown in **Fig. 5.9**. Place the cursor in the place where you want the address and click on insert merge field. Select the required titles. Finalize your letter and click on merge on the mail merge tool bar.



Fig. 5.9

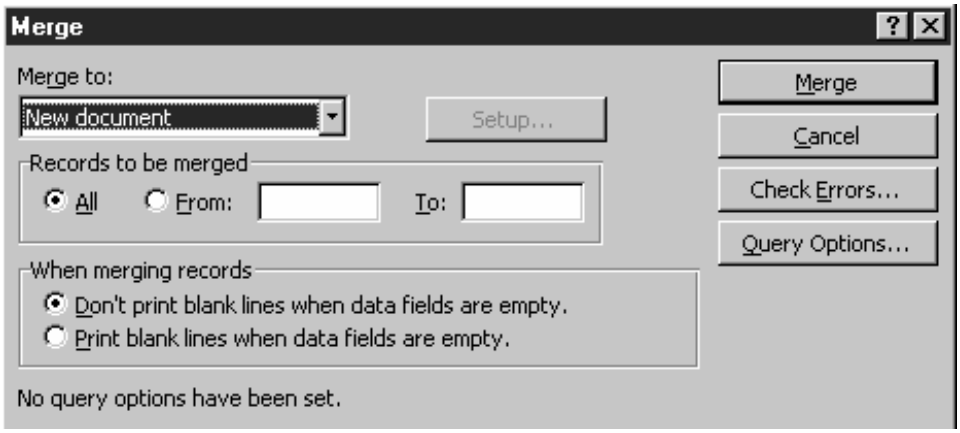


Fig. 5.10



Fig. 5.11

5.5 PRINTING THE MERGED DOCUMENT

The personalized letters can be printed using the printer by following the steps given below.

1) Click on to Merge to Printer option available on the Mail Merge tools bar.
2) From the resulting menu select the appropriate Printer settings and then click on OK.

Saving the Main document : Save the main document as you save other documents.

5.7 MODIFYING THE DATA IN THE RECORD SOURCE

You can add a new record, you can change an existing record or you can delete a record.

To add a record : To add a new record click on to Edit Data Source option available on the Merge Tool and from the resulting menu as show in **Fig. 5.12**, click on to add new button.

Blank fields will get displayed on the screen, add the information in the field and click OK and the new record is addded.

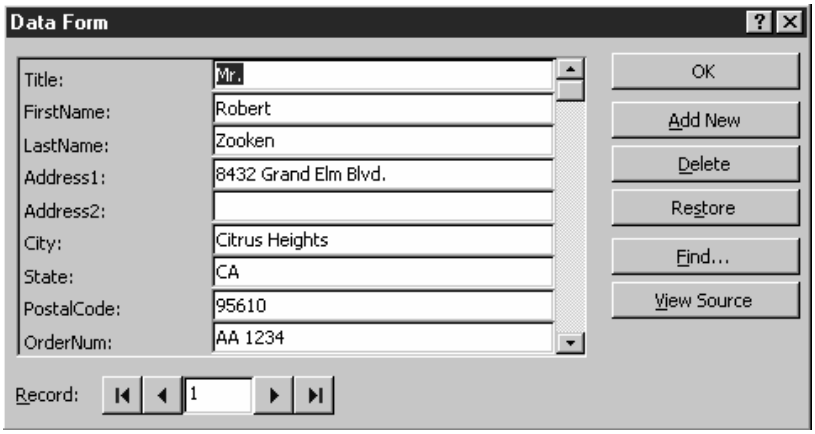


Fig. 5.12

Changing the Contents of Existing Record : Click on Edit Data Source option and from the resulting menu select the record which you want to change by using the record selector option.



The record can be changed now.

To delete a Record : To delete a record click on to Edit Data Source option available on the Merge Tool Bar and from the resulting Menu select the record, which you want to delete any using the record selector option. Now click on to Delete option.



The record can be deleted now.



CHECK YOUR PROGRESS

Q.1 : Write true or false for the following statements :

a) Microsoft Word has a useful feature known as Mail Merge. (T/F)

b) The file that contains the mail list is known as data source. (T/F)

c) The first step involved with Mail Merge is setting up of the Main Document. (T/F)

d) Two files are needed to work with Mail Merge. They are Data Source and Main Document. (T/F)



5.8 LET US SUM UP

In this unit we have learnt about mail merge and its operation.The two files needed to work with mail merge are Data Source and Main document. The steps involved with mail merge are erating the Data Source which will contain the information of the people or the organization to which the document will be addressed. Main document will contain the text of the document and fields. The Data Source and the Main document can be merged and prints out can be taken.



5.9 FURTHER READING

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.
2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.
3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',*Vikash Publication House Pvt. Ltd.

5.10 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : a) true, b) trure, c) False, d)True.



5.11 MODEL QUESTIONS

Q.1 : Explain how mail merge is useful and efficient.

Q.2 : How records can be modified in Data Source?

Q.3 : Discuss the steps involved in Mail Merge.

*** ***** ***

UNIT 6 : MS EXCEL - I

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Starting of Microsoft Excel

6.4 Part of MS Excel Windows

6.5 Components of an Excel Work Book

6.6 Closing the Excel Work Book

6.7 Worksheets within Work Book

6.8 Enter an Edit Data

6.9 Saving and Creating the Work Book

6.10 Cell Contents

6.11 Let Us Sum Up

6.12 Further Reading

6.13 Answer to Check Your Progress

6.14 Model Question

6.1 LEARNING OBJECTIVES

After going through this unit you will be able to :

- operate Microsoft Excel
- define different units of Excel
- explain Cells and Cell addresses
- explain Creation and Saving of a Worksheet and Workbook
- define the components of Work book
- explain the entering of formula.

6.2 INTRODUCTION

MS Excel is a Windows based spreadsheet (Worksheet) package. When calculations are made on paper and certain data must be changed, then the entire work must be calculated and re-written. If a spreadsheet package is used then the recalculation is automatic. The details of bank

passbook, tax inventory, purchase and sales can also be maintained using a spreadsheet package.

Lotus 123, MS Excel etc., are spreadsheet package.

6.2 STARTING OF MICROSOFT EXCEL

Following steps are undertaken to start Microsoft Excel :

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 program option inside the push up menu. A second menu gets displayed immediately.
3) Move the mouse pointer over Microsoft Excel option and click the left mouse button. A blank document files gets displayed on the screen instantly. Now the data can be entered in the file Book 1 appeared and calculations can be made on entered data.

When MS Excel is loaded, the Excel Window will appear on the screen. Excel window appearance with its parts is given below :

6.4 PARTS OF MS EXCEL WINDOWS

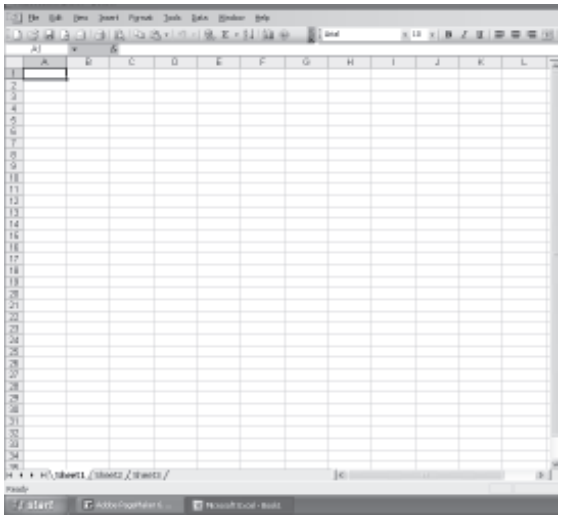


Fig. 6.1

1) Title Bar : Displays the application name, file name and various window controls like minimize button, maximize button and close button.

2) **Menu Bar :** Different options for selection.
3) **Formatting Toolbar :** Allows the user to give commands related to formatting cells and cell contents like Bold, Underline, Font style, Font size, Color etc.
4) **Name Box :** Displays the address of the current cell.
5) **Formula Bar :** Displays the cell content.
6) **Current Bar :** Current cell will be the active cell.
7) **Row Headers :** There are 65536 rows (lines) numbered as 1, 2, 3...65536. First row number is 1 and last row number is 65536. To go to cell in last row, press End and Down arrow key, to return to cell in the first row, press End and Up arrow key.
8) **Column Headers :** There are 256 columns numbered as AB, B, C, Z .... AA & AB. AZ, BA, BB ..... IV. First column name is A and last column name is IV. To go to the cell in last column header press End and Right arrow key, to return to the cell in first column, press End and Left Arrow key.
9) **Scroll Bars :** used to scroll through different parts of current sheet.
10) **Sheet Tabs :** Displays the sheet names. Each worksheet is named as sheet 1, sheet 2 and sheet 3.
11) **Status Bar :** Displays an the left side various modes like Ready or Edit mode. The status of numlock, caps lock and scroll lock keys on the key board on the right side.

Explanations :

Title Bar : Display the application name, file name and various window controlled like minimize button maximize button and close button.

- **Minimize Button :** This used for changing a window/sheet into a button.
- **Maximize Button :** This is used for enlarging a window/sheet after it has been minimised or restored.
- **Close Button :** This is used to close a window/sheet.

Menu Bar : This has different options for solutions (which is discussed in detail below). In addition to minimize and close button (described above) it has restore button which is used for bringing a window/sheet to its original size and adjusting the size of a window/sheet.

- **File :** This helps in creating a new file; opening an existing file; saving a file; printing; print preview; setting up of print area; closing the worksheet; existing Excel etc.
- **Edit :** This helps in copying, cutting, deleting a range of text, pasting text which has been copied or cut from some other location, clearing the contents of cells, finding the particular text in the worksheet etc.
- **View :** This helps in enabling and disabling certain tools in Excel Worksheet.
- **Insert :** This can be used to insert cells, row, column in the worksheet.
- **Format :** This helps in formatting of the row, column, to increase/ decrease height and width etc.
- **Tools :** This helps with the spell checker, protection of worksheets/ workbooks by providing the password. The worksheet can be customized according to one's specification etc.
- **Data :** This is used to sort (ascending/descending), filter the list to obtain sub total etc.
- **Window :** This is used to hide/unhide the work book, to create new window, to split the frame etc.
- **Help :** This can be used to get any help about Excel.

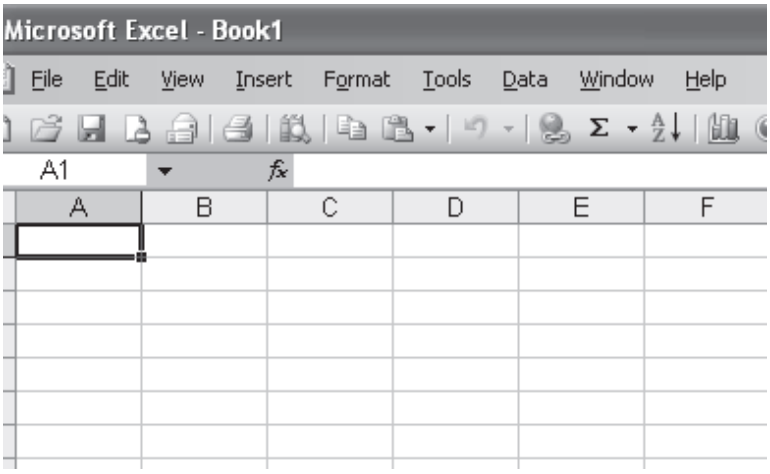


Fig. 6.2

Standard Tool Bar :

- **New :** This is used to create a new workbook.
- **Open :** This is used to open an existing file.
- **Save :** This is used to save a file.

- **Print :** This is used to take the print out of the file.
- **Preview :** This is used to see the printing document before printing.
- **Spelling Checker :** This is used to check the spelling and the grammatical errors in the file.
- **Cut :** This is used to move a selected block from one location to another.
- **Copy :** This is used to copy a selected block we want from one location to another.
- **Paste :** This is used to make appear the block selected during the copy or cut operation at a certain location.
- **Undo :** This is used to retain the and modifications made to a file.
- **Redo :** This is used to reverse the last undo action performed on the file.
- **Auto Sum Button :** This is used to add the numbers in a particular range.
- **Paste function Button :** This is used to do different operations on a selected set of numbers, such as finding average or finding the minimum or maximum of set of numbers such as finding average or finding the minimum or maximum of set of numbers etc.
- **Sort Ascending :** This is used to arrange a set of numbers in ascending (increasing) order.
- **Sort Descending :** This is used to arrange a set of numbers in descending (decreasing) order.
- **Chart Wizard Button :** This is used in creating chart graphics for a set of numbers.
- **Drawing :** This is used to add the drawing tool bar just above the status bar of the window.
- **Zoom :** This is used to change the size of the worksheet or to display the selected block in great size.

Formatting Tool Bar :

- **Font :** This helps in changing the style of the text typed in the work sheets. You can select a required font from the available font list and change the style of the text which is inside the selected block.

- **Font Size :** This helps in changing the size of the text. You can select a required size for the font from the available list and change the size of the text which is inside the selected block.
- **Bold :** This helps to make the selected look bolder than the other text.
- **Italic :** This helps to make the text in the selected block look tilted or slanted.
- **Underline :** This helps in getting a underline to the selected text.
- **Align left :** This helps in left justify the contents of cell which is inside the selected block.
- **Center :** This helps in center justify the contents of cell which is inside the selected block.
- **Align Right :** This helps in right justify the contents of cell which is inside the selected block.

Formula Bar : The **Fig. 6.3** shows the address of the active cell and the contents of active cell. In the above example C1 is the address of the cell and 'sales' is content of that cell.

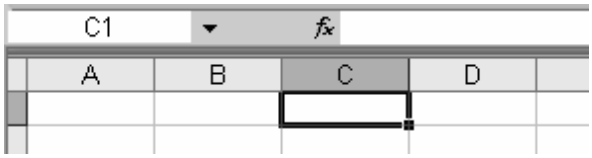


Fig. 6.3

Status Bar : The status bar is located at the button of the Microsoft Excel Window. It displays Ready, or Edit on the left hand side and NUM on the right hand side.

- **Ready :** This indicates that the work book is ready to accept date from the user.
- **Edit :** This indicates the workbook is in edit mode that means the contents of the cell being modified or a new content is being placed in the cell.
- **NUM :** This appears on the right hand side of the status bar and represents the status of Num Lock indicator on the key board. If Num Lock is enabled on the keyboard, NUM will disappear from the Status Bar.

- **Cell and Cell Address :** The intersection of a column and a row is called a cell. Each cell has a name and a cell address. The cell address consists of the column letter and row number. For example, the first cell is in the first column and first row. First column name is A and first row number is 1. Thereafter, the first cell address is A1. Similarly the address of last cell is IV65536 i.e. column IV and row number is 65536.

  The total cells in a Worksheet are 256*65536.

6.5 COMPONENTS OF AN EXCEL WORK BOOK

- **Row Numbers :** The horizontal group of cell is termed as a row. Each row is assigned a number. The row number appear on the left side of the work book.
- **Column Number :** The vertical group of cells is termed as a column. Each column is assigned a number. The column number appears below the formula bar in the workbook.
- **Column Headings :** The name given to each column is termed as column heading. These appear just below the Formula Bar.
- **Vertical Scroll Bar :** The vertical scroll bar consists of two buttons up Arrow Scroll button and the Down Arrow Scroll button. Clicking of any of these buttons allows you to see those rows of a sheet which are not visible on the screen.
- **Select all Button :** This is the first place where the row numbers and column headings meet.
- **Sheet Tab :** Using this one can move from one sheet to other of the work book. By default an Excel workbook has three sheets and has its name displayed. The default name of these sheets are sheet 1, sheet 2 and sheet 3. These names can be changed and a new name can be assigned to it. This tab appears just above the Status Bar.

Minimize, Maximize, Restore and Close Buttons : There are two sets of Maximize, Minimize/Restore, and Close Buttons; one on the right hand corner of the title Bar which is corresponding to Excel Window and

another set on the right hand corner of the Menu Bar which is corresponding to Excel workbook.

- **Minimize Button :** This is used for changing an Excel window/book into a button.
- **Maximize Button :** This is used for enlarging an Excel window/book after it has been minimised or Restored.
- **Restore Button :** This is used for changing an Excel window/book into its original size and adjusting the size of a window/book.
- **Close Button :** This is used to close the Excel window/book.

6.6 CLOSING THE EXCEL WORK BOOK

There are two ways in closing the work book.

1) Closing the work book without saving it.
2) Closing the work book with saving it.

1) Closing the work book without saving it : In this your work/latest update is not saved. To do this follow the steps mentioned.

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 close option and click the left mouse button. A message box gets displayed immediately asking you whether you want to save this sheet with three options Yes, No and Cancel. Move the mouse pointer over No and click the left mouse button this will close the sheet without saving it.

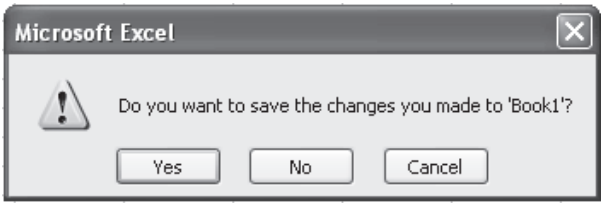


Fig. 6.4

Note :

- But at this point if you want to save the sheet you 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 you want to save. Then give the file name and select Save option.

- If you don't want to save or close the sheet select Cancel option. This will take you back to the sheet.

2) Closing the work book with saving it : In this your work/latest update is saved. 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 this pull down menu move the mouse pointer to the Save option and click the left mouse button. Then you will get a screen as shown in **Fig. 6.5**.

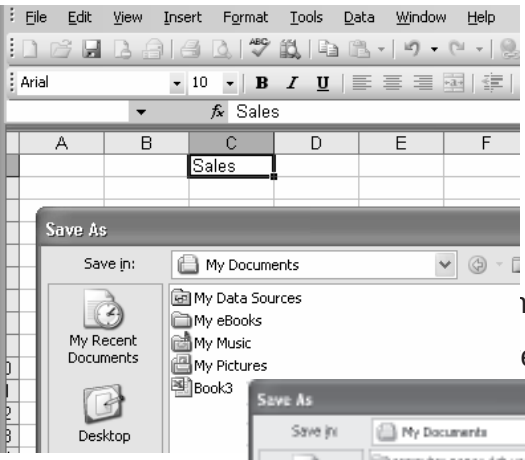


Fig. 6.5

ıere select the drive and folder in which you

e the file name and select Save option.

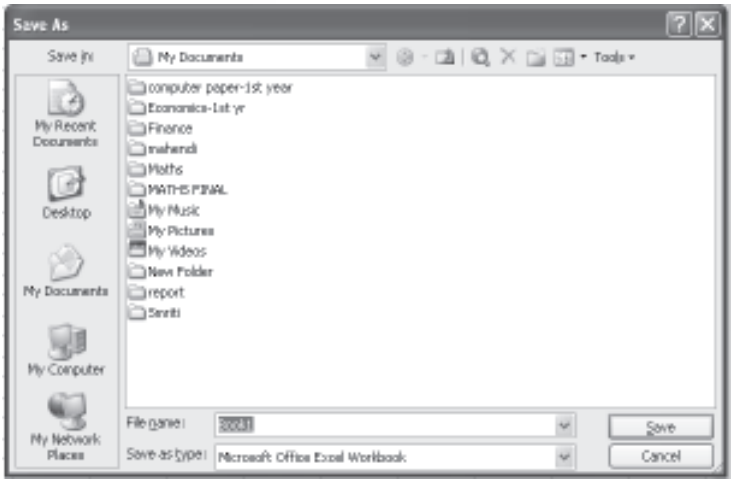


Fig. 6.6

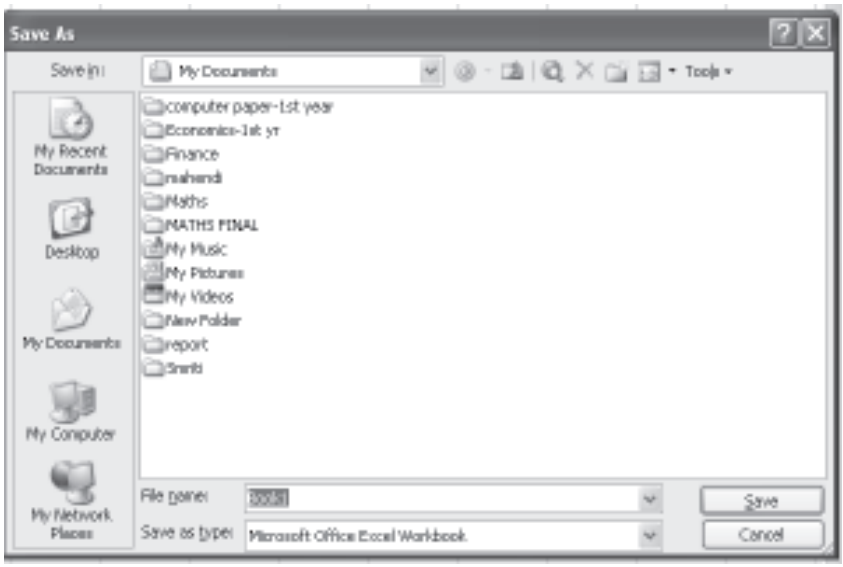


Fig. 6.7

Note : You can even use the Close button which is at the right hand corner of the Menu bar sheet to close the sheet. Again if the sheet is not saved earlier or latest update is not saved it will display the message as shown in **Fig. 6.4** and following the steps as explained above depending on your choice.

Closing the Excel : To close the Excel program following steps are required to follow:

i) Move the mouse pointer over the Close button which is at the right hand corner of the Title bar.

ii) Click the left button on the mouse.

6.7 WORKSHEETS WITHIN WORK BOOK

Excel documents (files) are known as workbooks. Each workbook contains 3 Worksheets by default. Adding or deleting the sheets can change the number of sheets. Each sheet is named uniquely like Sheet 1, Sheet 2 etc. which is displayed in the sheet tab. A workbook can also contain chart sheets, which are named as Chart 1, Chart 2 etc. by default.

When Excel is loaded, it automatically opens a new workbook, named Book 1, (with an extension. XLS). This name is displayed on the title bar. The main part of Excel screen is the worksheet area - a grid of rows and columns. The worksheet contains 65536 rows and 256 columns.

Navigate Worksheet : To move any cell of any worksheet of an open workbook, the mouse can be used.

1) To scroll through different parts of the worksheet, drag the scroll box in the scroll bars or click on the arrow marks in the scroll bars.
2) To go to the different sheets in the workbook, click on the desired sheet name in the sheet tab.
3) To go to a desired cell, click inside the cell, a select Edit> go to type the desired cell address in the Reference box (for example D7) and click on OK OR
4) Click on the name box, type the desired cell address and press enter. To move from one cell to another, the key board can also be used.

6.8 ENTER AN EDIT DATA

Any entry can be made in the active cell. Entries can be of 4 different types. They are :

- **Text :** Text in a cell can include any combination of letters, numbers and keyboard symbols. A cell can contain 3200 characters. If column with prevents a text string fitting visually in a cell, the display extends over neighbouring cells. To store a number as a text entry, use apostrophe (?) as the first character.
- **Number :** Numbers include digits from 0 to 9 and some special characters like $, %, +, –0, E etc. When a formatted number does not fit in a cell #### is displayed.
- **Logical values :** Logical values, TRUE or FALSE can be entered in the cells.
- **Formulas :** Formulas are entered into the cell to perform calculations. A formula begins with an equal sign (=) or plus symbol (+). After completing a formula entry, the result of formula will be displayed in the cell and the formula will be displayed in the formula bar.

To make any Entry in the Cell :

- Make the cell active (select the cell) on the cell or by pressing arrow key.
- Type the contents of the cell.

- Press enter or press the arrow keys or click on any other cell to complete the entry.

To Edit the Cell Content :

- Press F2 function key after selecting the cell of which you want to edit the contents or double click on that cell, correct the cell content and press enter.
- Click on the formula bar (whcih displays the active cell context), make the correction and Enter key.

To Delete the Content of Cell :

- Click on the cell which you want to delete and press delete key on the keyboard.

Entering and Copying the Formula : In the example (**Fig. 6.8**), you want to calculate the total price of each quantity and then the total price of all the quantity. That means calculate the total price of the pen you should have the quantity in cell address B_2, C_2 to be multiplied and result to be placed in cell address D_2. Similarly for the items pencial and pen box and the total of all the three items which will be placed at the cell address D_5.

Fig. 6.8

A formula can also be entered by using the cell address. In the above example, the value is to be calculated by using the formula Quantity * Rate.

To calculate the value of first item, pen, in the cell D_2 type = B_2*C_2 or +B_2*C_2 (Can be small letters or capital letters). The screen looks as shown in **Fig. 6.9**.

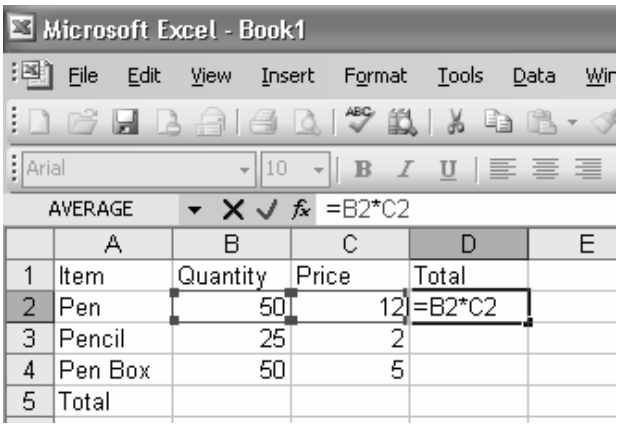


Fig. 6.9

Then press Enter key. The screen looks as shown in **Fig. 6.10**.

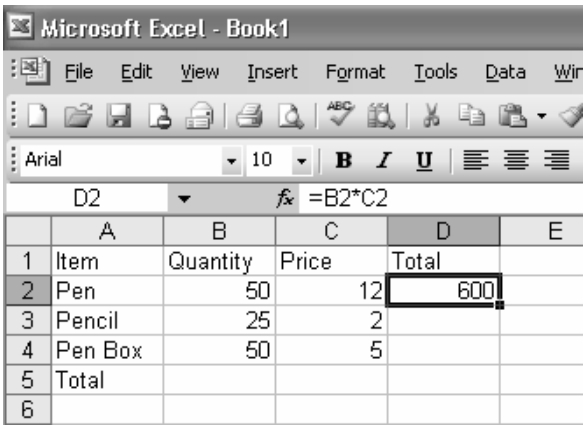


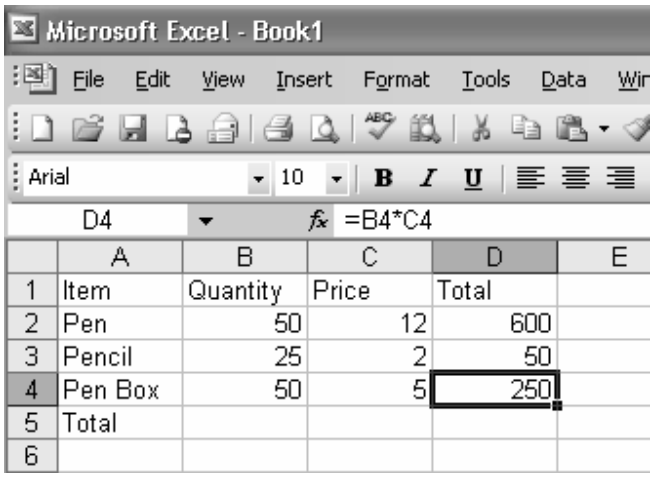
Fig. 6.10

To Copy the Similar Formula : If similar formula is to be entered for other cells, the formula can be copied. For example, if you want to calculate the total price of Pencil and Pen Box and want that to be appeared at cell address D_3 you should have B3*C3 and at cell address D4 you should have B4*C4. Thus instead of typing the formula in cell addresses D3 and D4. To do this follow the steps given below:

- Move the mouse pointer to right hand below corner of the cell from which you want to copy the formula. In the above example at the right hand below corner of the cell D2 you will get +(Fill Handle) symbol.
- Drag the symbol by keep pressing the left mouse button to the cell to which you want to copy the formula. In this case it is D3 and D4. So drag the symbol down. Then release the left mouse button which you had kep down. The formula will be copied to the other cells with

appropriate change in the cell address and the result will be displayed. In the above example in cell addresses D3 and D4.

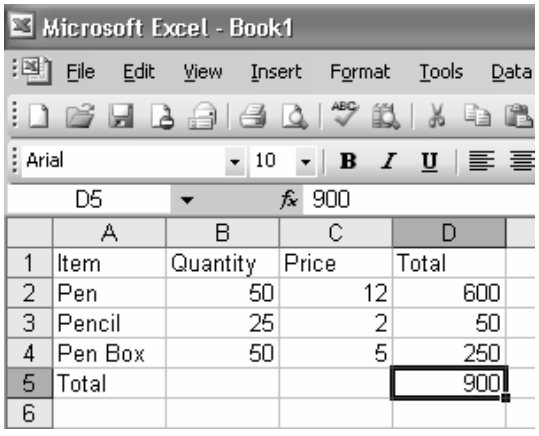
- Now click the mouse button you will get the result of the calculation. The figure is shown below :



	A	B	C	D	E
1	Item	Quantity	Price	Total	
2	Pen	50	12	600	
3	Pencil	25	2	50	
4	Pen Box	50	5	250	
5	Total				
6					

Fig. 6.11

Similarly to get the total price of all items and add the values at D2, D3 and D4. If you want the result to be placed at cell address D5 then move the mouse pointer to all addressed D5 and click on the left mouse button. Now type = D2 + D3 + D4 or + D2 + D3 + D4 and press Enter key you will get the result shown on the screen, it is shown below :



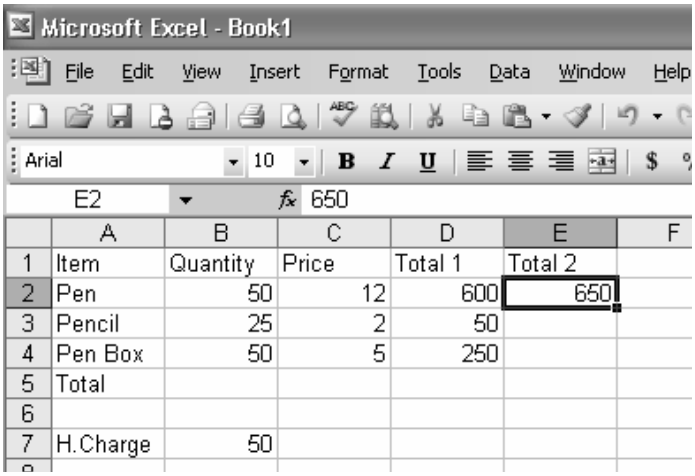
	A	B	C	D
1	Item	Quantity	Price	Total
2	Pen	50	12	600
3	Pencil	25	2	50
4	Pen Box	50	5	250
5	Total			900
6				

Fig. 6.12

A formula can be edited the same way you edit the contents of the cell.

- **Formula Cell :** This is the cell which contains the formula. In the above example D2, D3, D4 and D5 are the formula cell.

Relative (Reference) Cell Addressing : If a formula with relative reference is copied, the cell references used in the formula will automatically change in the copied cell. For example, when the formula = B2*C2 in the cell D2 is copied to D3 and D4. The formula will be = B3*C3 in the cell D3 and = B4*C4 in cell D4. Thus the calculations are done depending upon the relative position of the cell address from the formula cell.



	A	B	C	D	E	F
1	Item	Quantity	Price	Total 1	Total 2	
2	Pen	50	12	600	650	
3	Pencil	25	2	50		
4	Pen Box	50	5	250		
5	Total					
6						
7	H.Charge	50				

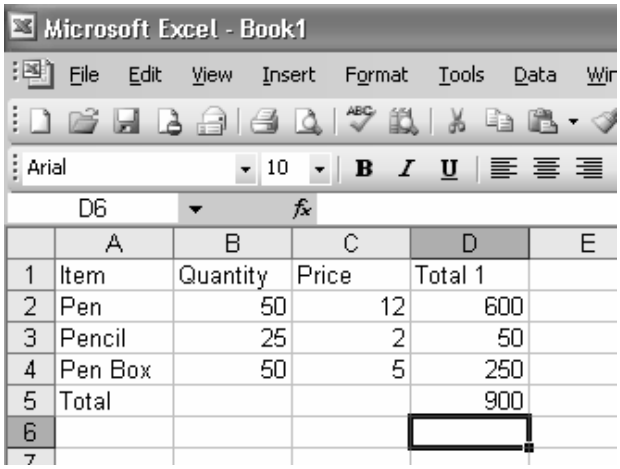
Fig. 6.13

Thus as shown in the above example the formula in D2 contains the multiplication of :

- The value at cell address B2 and C2 (two columns and one column before the formula cell).

Similarly the formula cell D3 contains the multiplication of :

- The value at cell address B3 and C3 (two columns and one column before the formula cell).



	A	B	C	D	E
1	Item	Quantity	Price	Total 1	
2	Pen	50	12	600	
3	Pencil	25	2	50	
4	Pen Box	50	5	250	
5	Total			900	
6					

Fig. 6.14

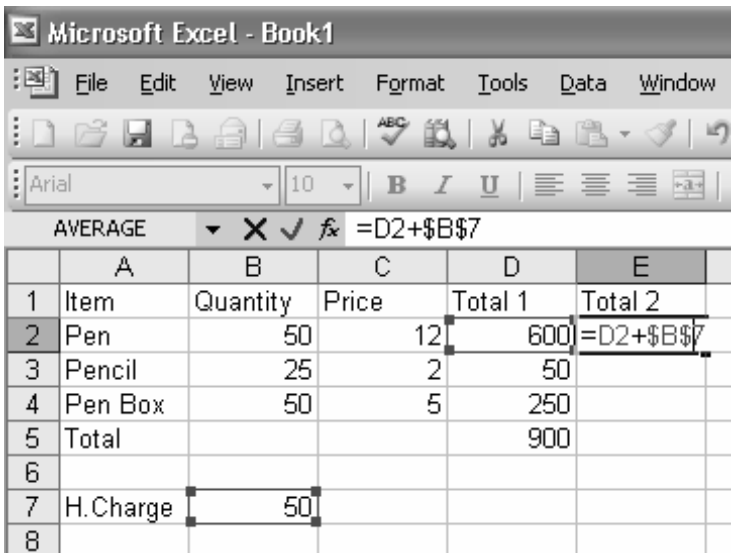
Absolute Cell Addressing : Consider the example shown below where if fixed value 50 as handling charges is required to be added to Total 1 and you will get Total 2. The formula in E2 as shown in Formula bar is = D2 + B7.

In cell E3 and E4 we want to have the similar formula as in E2 and if non the formula in formula cell E2 is copied to E3 and E4 as discussed earlier, E3 will have the formula as = D3 + B3 and E4 will have the formula as = D4 + B9 so we will get Total 2 corresponding to Pencil and Pen Box as shown below which is not correct. Since no value is present in cell B8 and B9 zero is added to the contents of cell D3 and D4.

To add the contents of cell B7 to the contents of D3 and D4 while copying the formula from the formula cell, you have to make an address constant or absolute so that regardless of wherever it is copied, it (B7) remains the same. This is called absolute addressing. It is done by typing a dollar sign ($) before both the column name and row number in the formula cell as shown below.

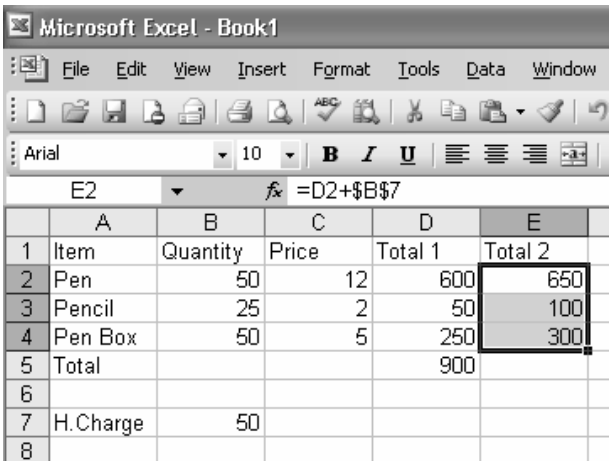
$ Column name $ Row number.

Thus to change the contents formula cell E2, double click at the cell address E2 and change the formula to D2 + B7, then copy the formula to cell E3 and E4. The **Fig. 6.15** shows the changed formula and the **Fig. 6.16** shows the result after copying the formula cell.



	A	B	C	D	E
1	Item	Quantity	Price	Total 1	Total 2
2	Pen	50	12	600	=D2+B7
3	Pencil	25	2	50	
4	Pen Box	50	5	250	
5	Total			900	
6					
7	H.Charge	50			
8					

Fig. 6.15



	A	B	C	D	E
1	Item	Quantity	Price	Total 1	Total 2
2	Pen	50	12	600	650
3	Pencil	25	2	50	100
4	Pen Box	50	5	250	300
5	Total			900	
6					
7	H.Charge	50			
8					

Fig. 6.16

6.9 SAVING AND CREATING THE WORK BOOK

Saving the Workbook : Three method are there to save a new work book.

1) **Use of Save Button on the Standard Tool Bar :** Click the Save button which is there on the Standard Tool Bar and you will get the figure shown below. Here select the drive, folder and give the fiule name and then click on Save button.
2) **Use of File Option button on Menu Bar :**
   a) Click on the File option button of Menu Bar.
   b) Select Save from drop down menu.
   c) You will get a screen as shown in **Fig. 6.17**. Here select the drive, folder and give the file name and then click on Save button.

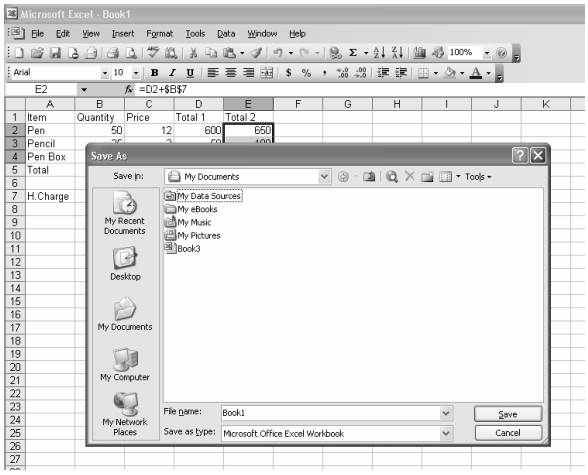


Fig. 6.17

3) **Press Ctrl and S key Simultaneously. Now follow the step (c).**

Note : If you want to Cancel the aving process now you can click on the Cancel button.

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

Closing the workbook is discussed earlier. When workbook is saved all the three sheets of it also saved.

Create a New Workbook : Three methods are there to open a new workbook.

1) **Use of New Button on Standard Tool Bar :** Click the New button which is there on the Standard Tool Bar and you will get the new workbook.
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) You will get a screen
   d) Click OK.
3) Press Ctrl and N Key simultaneously you will get a screen as shown in Fig. no.7.18. Now follow the Steps c) and d).

Note : If you don't want to open the new document at this stage click on the Cancel button so the new document will not be created.

Opening of an Existing Workbook : Three methods are there to open an existing workbook.

1) **Use of Open Button on Standard Tool Bar :** Click the open button which is there on the Standard Tool Bar and you will get the new workbook.
2) **Use of File Option Button on Menu Bar :**
   a) Click on the File option button of Menu Bar.
   b) Select Open from drop down menu.
   c) You will get a screen as shown in **Fig. 6.18**.
   d) Select the drive and folder in which you have the file.
   e) Type the name of the file you want to open in the file name box.
   f) Click open.

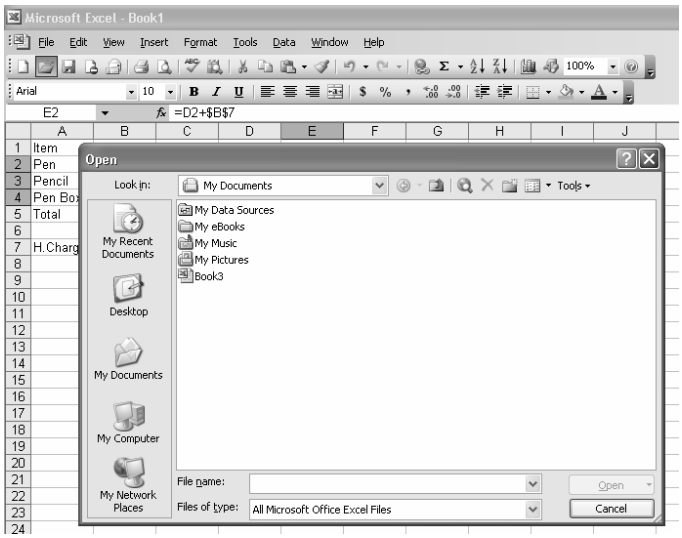


Fig. 6.18

3) Press Ctrl and O Key simultaneously you will get screen as shown in **Fig. 6.19** then follow the steps d), e) and f) as given above.

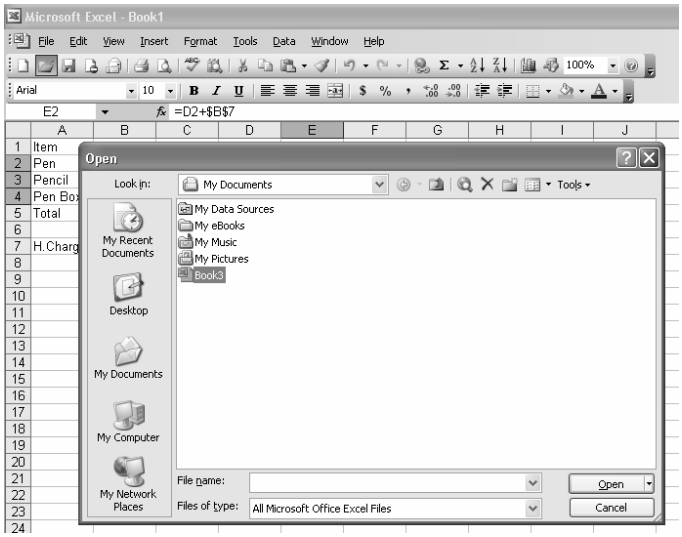


Fig. 6.19

The figure shows how to select the drive. It shows the selection of C drive. If you want to select any other drive move the mouse pointer over that drive and click the left mouse button.

Now to see the contents of selected drive you can double click left mouse button on the selected drive.

This figure shows the selection of the folder and the name of the file being typed in the file name box.

Note : If you don't want to open an existing document at this stage click on the Cancel button so the document will not opened.

6.10 CELL CONTENT

To Copy Cell Contents : To copy the cell contents to other cells, select the range of cells you want to copy, by dragging the mouse by clicking the left mouse button down. The selection is shown in **Fig. 6.20**.

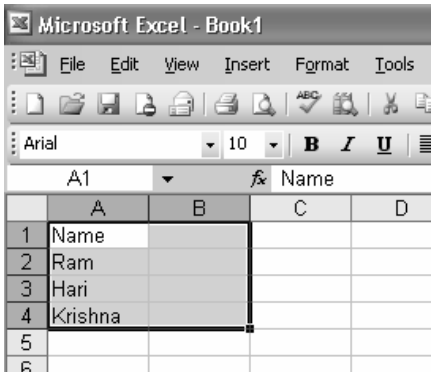


Fig. 6.20

To copy the contents to clip board (temporary location) you have following methods and select one among them.

1) Select Edit on the Menu bar then select copy.
2) Ctrl + C.
3) Click right mouse button, a menu pops up and select copy and click left mouse button.

Now move the mouse pointer to the position where you want to copy the contents of the selected cells and you can follow one of the following listed steps.

1) Select Edit from Menu Bar and click on Paste.
2) Press Ctrl and V key simultaneously.
3) Press right mouse button, a menu props and click on Paste option.

Fig. 6.21 shows the copied cells.

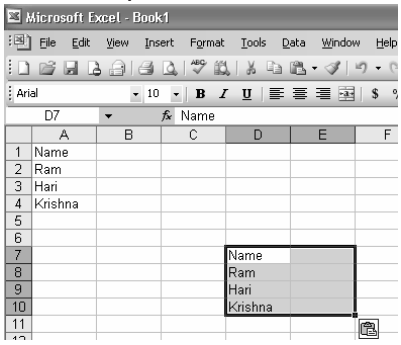


Fig. 6.21

Now to remove the highlighting of selected cells press Esc key.

Moving the Cell Content : To move the cell contents to other cells select the range of cells you want to move by dragging the mouse by clicking the left mouse button down. The selection is shown in **Fig. 6.22**.

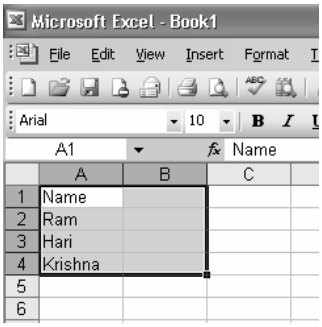


Fig. 6.22

To move the contents to clip board (temporary location) you have following methods and select one among them.

1) Select Edit on the Menu bar then select cut.
2) Ctrl + X
3) Click right mouse button, a menu pops up and select Cut and Click left mouse button.

Fig. 6.22 shows the selected cell.

Now move the mouse pointer to the position where you want to move the contents of the selected cells and you can follow one of the following listed steps.

1) Select Edit from Menu Bar and Click on Paste.
2) Press Ctrl and V Key simultaneously.
3) Press right mouse button, a menu props and click on Paste button.

Following **Fig. 6.23** shows the moved cells.

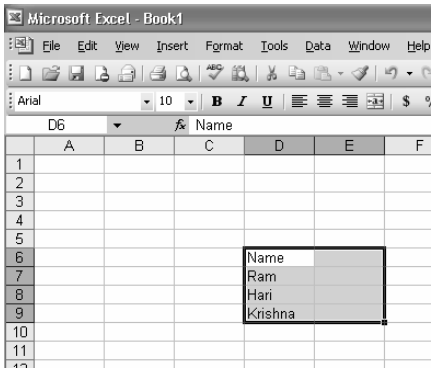


Fig. 6.23

The data is moved from the original position to the new position.

Inserting Cells, Columns and Rows : To insert cells, columns and rows, follow the steps mentioned below:

1) Click on the Insert button on the Menu bar then in the drop down menu click on cells. You will get a screen as shown in **Fig. 6.24**.

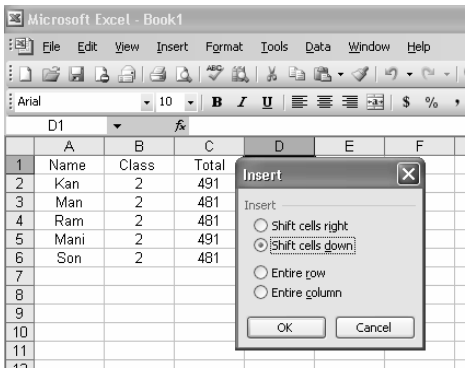


Fig. 6.24

2) In the pop up menu you will get four options. Depending on your requirement select the options.

   a) Shift cells right.

   b) Shift cells down.

   c) Entire row

   d) Entire column

a) Shift Cells Right : This will be a blank cell to the left of the selected cell. This is shown in **Fig. 6.25**.

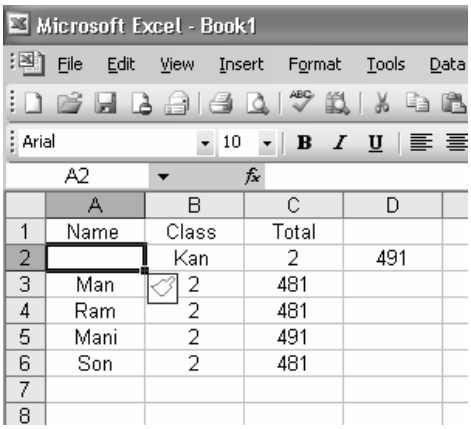


Fig. 6.25

b) Shift Cells Down : This will add blank cell at the top of the selected cell. Considering the **Fig. 6.24** and after executing this command you will get as shown in **Fig. 6.26**.

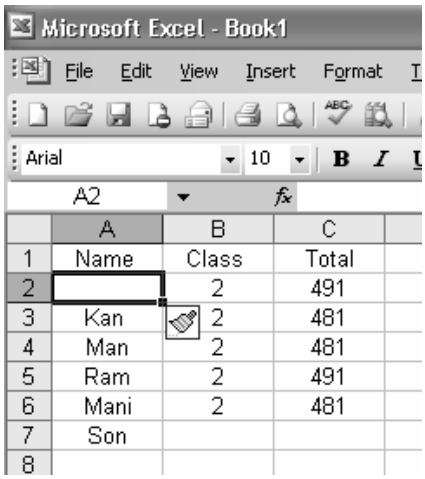


Fig. 6.26

c) Entire Row : This will add a blank row at the top of the selected row. Considering the **Fig. 6.24** after executing the command you will get the figure as shown in **Fig. 6.27**.

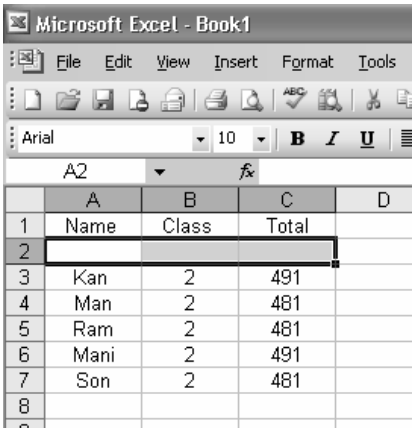


Fig. 6.27

d) Entire Column : This will add a blank column to the left of the selected column. Considering **Fig. 6.24** after executing the command you will get the following **Fig. 6.28**.

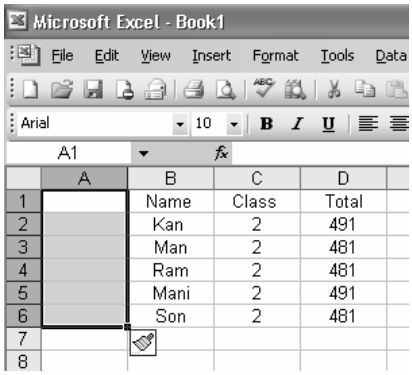


Fig. 6.28

To insert one or more columns :

a) To insert one column : Follow the steps listed below.

- Select the cell to left of which you want to insert the column.
- Click on the insert button on the Menu bar.
- Click on the column option from the drop down menu.

b) To insert more than one columns : Follow the steps listed below :

- Select the cell to left of which you want to insert the columns.
- Block the number of columns to be inserted.
- Click on the Insert Button on the Menu bar.
- Click on the column option from the drop down menu.

To insert one or more Rows :

a) To insert one row : Follow the steps listed below :

- Select the cell to above which you want to insert the row.
- Click on the Insert button on the Menu bar.
- Click on the Row option from the drop down menu.

b) To insert more than one Rows : Follow the steps listed below :

- Select the cell to above which you want to insert the rows.
- Block the number of rows to be inserted.
- Click on the insert button on the Menu bar.
- Click on the Row option from the drop down menu.



CHECK YOUR PROGRESS

Q.1 : Write true or false for the following statement :

i) MS Excel is a Windows based spreadsheet (Worksheet) pack age.

ii) Name box– displays the cell content.

iii) Formula Bar– Displays the address of the current cell.

iv) Left Alignment helps in left justify the contents of cell which is inside the selected block.

v) Insert tool can be used to insert cells, row, column in the worksheet.

Q.2 : Mention the function and example of spreadsheet package.

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6.11 LET US SUM UP

Excel document or files are known as workbook. Each workbook contain three worksheets by default. Adding or deleting the sheets can change the number of sheets. Each sheet is named uniquely as Sheet 1, Sheet 2 etc. A workbook can also contain chart sheets, which are named as Chart 1, Chart 2 etc. by default. When Excel is loaded, it automatically opens a new workbook named book 1. The Worksheet contains 65536 rows and 256 columns. The cell is a basic unit of the work sheet. Formulas are entered into the cell to perform calculations. A formula begins with an equal sign or a plus symbol. After completing a formula entry, the result will be displayed in the cell and the formula will be displayed in the formula bar. The default extension of an Excel workbook file is xls.



6.12 FURTHER READING

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.

2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.

3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',*Vikash Publication House Pvt. Ltd.

6.13 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : i) true, ii) false, iii) false, iv) true, v) true

Ans. to Q. No. 2 : The details of bank passbook, tax inventory, purchase and sales can also be maintained using a spreadsheet package..Lotus 123, MS Excel etc., are spreadsheet package.



6.14 MODEL QUESTIONS

Q.1 : Explain the different parts of MS Excel Window.

Q.2 : What is a cell? How the cell address is identified?

Q.3 : Explain different components of MS Excel workbook. Discuss the concept of worksheets within a workbook.

Q.4 : Explain the different methods of saving the new Excel work book.

Q.5 : Create a worksheet with the following details Student Roll number, Student name, Student class, Student marks in 4 different subjects. Now calculate the total marks obtained by each student.

*** ***** ***



REFERENCES

1) Parameswaram, R. (2010), *'Computer Applications in Business'*. S. Chand & Company.

2) Rajaraman, V. (2013), *'Fundamentals of computer',* Practice Hall India Learning Private Ltd.

3) Saxena, Sanjay & Chopra, P. (2006), *'Computer Application in Management',* Vikash Publication House Pvt. Ltd.