PGCM (S1) 04-02

Computer Application in Business

SEMESTER - 1

MASTER OF COMMERCE

BLOCK - 2



KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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MASTER OF COMMERCE

COMPUTER APPLICATION IN BUSINESS

Block 2

DETAILED SYLLABUS

UNIT 7 : MS Excel - II **Page 153-189**

Ranges and Common Excel Functions, Custom List, Alignment, Database, Charts

UNIT 8 : MS PowerPoint **Page 190-213**

Starting of Microsoft Power Point, Part of Power Point, Creation of Power Point Presentation, To Include a Chart in the Slide, To Impart a Data Sheet, Formatting Options, Slide Transaction, Different Views of the Presentation

UNIT 9 : Information Technology **Page 214-236**

Areas of Information Technology, Advantages and Disadvantages of Information Technology, Application of Information Technology

UNIT 10: Working with Internet **Page 237-250**

Introduction to Internet ,Internet Architecture,Evolution of Internet, Basic Internet Terminologies, Getting connected to Internet , Application of Internet

UNIT 11: Internet Tool **Page 251-267**

Web Browsers, Web Server, Electronic Mail, Search Engines, World Wide Web, Internet Security, Types of Attack and Malicious Software

UNIT 12: Management Information System **Page 268-284**

Concept of MIS, Information Security and Control, Quality Assurance, Ethical and Social Dimensions, Intellectual property rights as related to IT services/IT products and Managing global Information systems.

BLOCK INTRODUCTION:

This is the second block of the course ' Computer Application in Business' The Block is divided into 6 units. Block 2 deal with the applications like MS Excel, MS Powerpoint besides the uses and tools of internet. This block covers role of MIS in business organisations.

The block is divided into 6 units:

Unit 7 : MS Excel

Unit 8 : MS Powerpoint

Unit 9 : Information Technology

Unit 10 : Internet Tools

Unit 11 : Working with Internet

Unit 12 : Management Information System

UNIT 7 : MS EXCEL - II

UNIT STRUCTURE

7.1 Learning Objectives
7.2 Introduction
7.3 Ranges and Common Excel Functions
7.4 Custom List
7.5 Alignment
7.6 Database
7.7 Charts
7.8 Let Us Sum Ip
7.9 Further Reading
7.10 Answers to Check Your Progress
7.11 Model Questions

7.1 LEARNING OBJECTIVES

After going through this unit you will be able to :

- learn the ranges and common excel functions
- discuss the Logical functions
- identify the Custom list
- learn Changing the Alignment, column width, height of the rows
- learn formatting the values in cells
- discuss Database,Filters, Validation
- discuss Pivot tables and Pivot Chart Report
- explain the process of making Charts

7.2 INTRODUCTION

In the earlier examples of unit 6 (Block 1) we have seen that to multiply the values of three columns and then to add the values at three rows we have used the formulas. But it is fine if we want to do the calculations involving very less number of cells. But if we want to add the values of say 100 cells then writing the formula will be very lengthy. For example, we may have to write = C1 + C2 + C3 +....+ C100. Instead it will

be easy to use functions to perform certain operations involving many cells. Functions are certain in built formulas and a function begin with the = or + sign. Let us discuss the various concepts like ranges, custom list, charts etc. in the following sections.

7.3 RANGES AND COMMON FUNCTIONS

Ranges : We have to make use of ranges for carrying at calculations through functions. So, a range is a sequence of cell addresses. It is specified in the following manner.

First cell address: Last cell address

or

First cell address ... Last cell address

Example for ranges :

A1: D1 means it includes cells A1, B1, C1, D1

B3: D4 means it includes cells B3, B4, C3, C4, D3, D4.

Common Excel Functions :

1) **SUM ( ) :** It is a mathematical function used to add the numeric value in a range of cells. The format of the sum of function i.e.

= SUM (Starting cell address : Ending cell address)

For example if we want to add the contents of cells C7, C8, C9 and C10 and store the result in cell C11, follow the steps given below.

i) Take the mouse pointer to cell addressed as C11

ii) Click the left mouse button (This is how we select cell).

iii) Now type = SUM (C7 : C10) and press enter.

Following figure shows the way in which we should enter the formula.

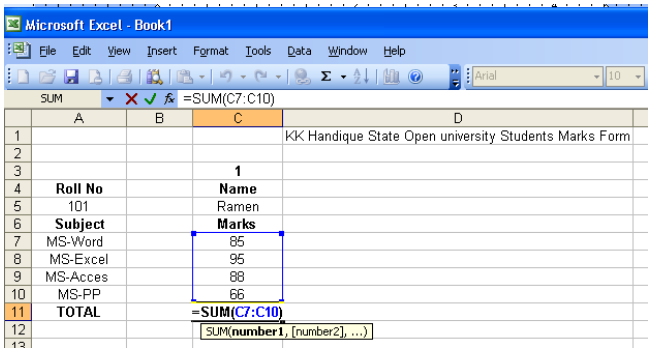


Fig. 7.1

Fig. 7.2 show the result of usage of SUM ( ) function.

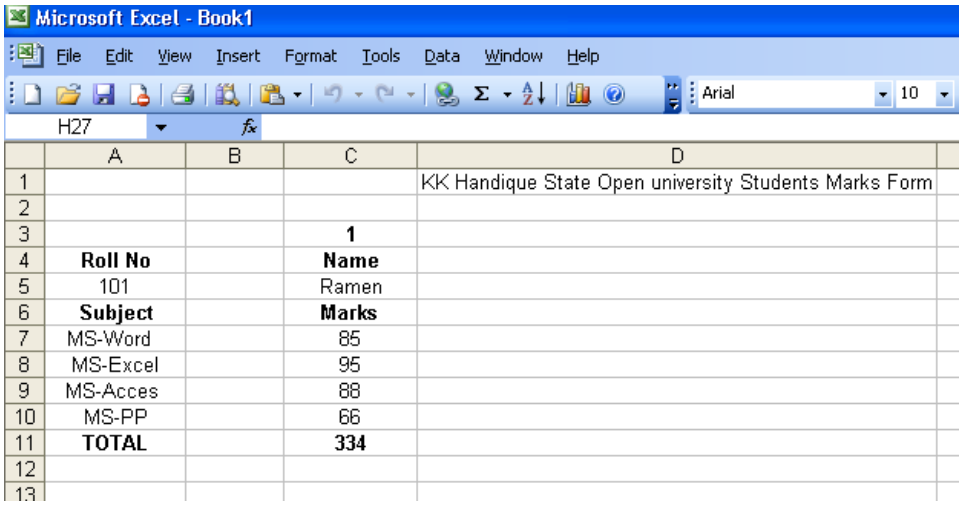


Fig. 7.2

2) **Average ( ) :** This function calculates and returns the average (arithmetic mean) of the numeric values in the given of cells. It is a statistical function.

For example, to calculate the average of the contents in cell C7 through C10 :

= AVERAGE (C7:C10) – Average of values in the range C7 through C10.

Steps mentioned to use the SUM ( ) function can be followed to use the average function :

AVERAGE ( ). Instead of SUM ( ) use AVERAGE ( ) and use the appropriate cell range.

Considering in **Fig. 7.2**, if this function is entered in the cell address and we will get the result as 83.5 in the cell address C12. It is the average of values 85, 95, 88, 66.

3) **Max ( ) :** This function returns the largest value in the given range of cells. For example, to calculate the maximum value among the contents in cells C7 through C10.

= MAX (C7:C10) - Highest value in the range C7 to C10.

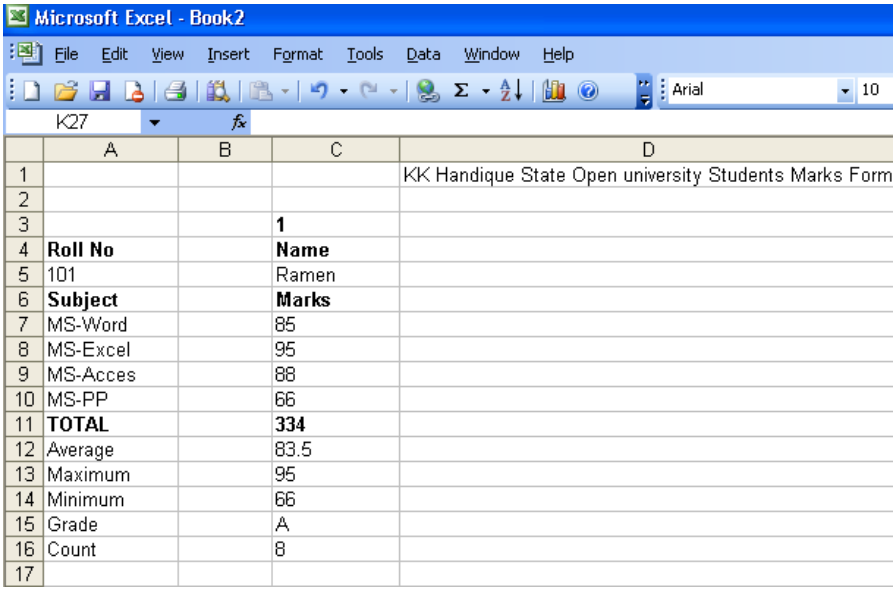
Steps mentioned to use the SUM ( ) function can be followed to use the AVERAGE ( ) function. Instead of SUM ( ) use MAX ( ) and use the appropriate cell range.

Considering the **Fig. 7.2**, if this function is entered in the cell address C13 and we will get maximum value of 85, 95, 88 and 66.

4) **Min ( ) :** This function returns the lowest value in the given range of cells. For example to calculate the minimum value among the contents in cell C7. Through C10 = MIN (C7:C10) – lowest value in the range C7 to C10.

Steps mentioned to use the SUM ( ) function can be followed to use the MIN ( ) function. Instead of SUM ( ) use MIN ( ) and use the appropriate cell range.

Considering the **Fig. 7.3**, if this function is entered in the cell address C14 and we will get the result as 86 in cell address C14. It is the minimum of values 85, 95, 88 and 66.



	A	B	C	D
1				KK Handique State Open university Students Marks Form
2				
3			**1**	
4	**Roll No**		**Name**	
5	101		Ramen	
6	**Subject**		**Marks**	
7	MS-Word		85	
8	MS-Excel		95	
9	MS-Acces		88	
10	MS-PP		66	
11	**TOTAL**		**334**	
12	Average		83.5	
13	Maximum		95	
14	Minimum		66	
15	Grade		A	
16	Count		8	
17				

Fig. 7.3

5) **Count ( ) :** This function is used to count the number of cell adverse considering the data. It is statistical function.

= COUNT (range)

Steps mentioned to use the sum ( ) function can be followed to use the COUNT ( ) function. Instead of SUM ( ) use COUNT ( ) and use the appropriate cell range.

E.g.: = COUNT (C7: C15) Numeric cells in the range C7 to C15.

Considering the **Fig. 7.3**, if this function is entered in the cell address C16 and we will get the result as 8 in cell address C15. It is

the number of cells in which we have numeric values. Consider the following **Fig. 7.3** in which the cell address is C15 we have A which is not numeral.

6) **Upper ( ) :** This function is used to convert the text in a cell address to capital letters.

= UPPER (Cell address)

For example, to convert Name to NAME in the above shown example and to make appear this NAME in cell address D4 follow steps mentioned below:

i) Move the mouse pointer to cell address where we want to get the converted text stay in D4 from C4.

ii) Click the left mouse button.

iii) Type the function as given below

= UPPER (C4)

iv) Press Enter key

As shown in the below **Fig. 7.3(A)** the text 'Name' is converted and shown as NAME.

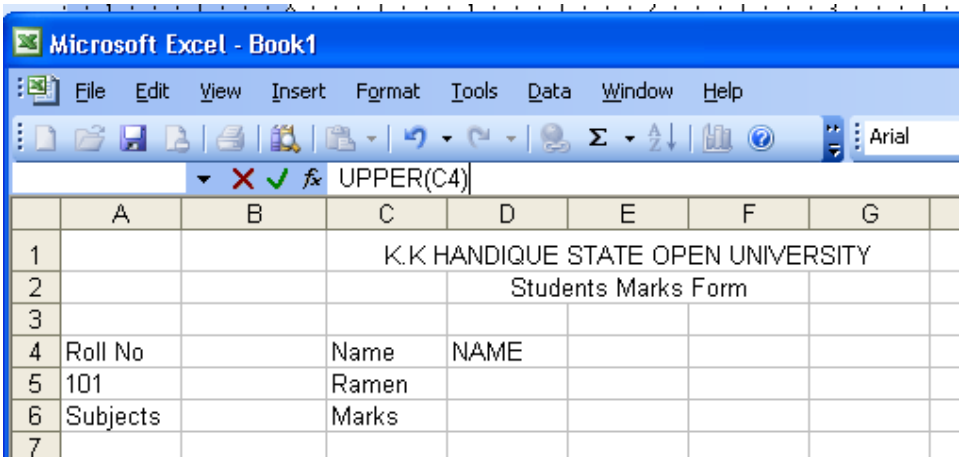


Fig. 7.3(A)

7) **Lower ( ) :** This function is used to convert the text in a cell address to loour case letters.

= LOWER (Cell address)

For example, to convert 'NAME' to 'name' in the above shown example and to make appear.

This 'name' in cell address E5 follow steps mentioned below :

i) Move the mouse pointer to cell address where we want to get the converted text say in E4 from D4.

ii) Click the left mouse button.

iii) Type the function as given below

= LOWER (E4)

iv) Press Enter Key

8) **Counts ( ) :** Counts the number of cells that are not empty in the specified range.

9) **Syntax :** = COUNT A (Range)

In this case, a value is any type of information, including empty text (" ") but not including empty cells.

For example in Fig.:8.3 shown above if ,We have function = COUNT A (C3:C16) in cell C17 we will get the value as 13.

10) **Count blank (c) :** Counts empty cells in a specified range of cells. Cells with zero values are not counted.

= COUNTBLANK (range)

For example, in fig. no. 31 shown above if we have function = COUNTBLANK (C3:C16) in cell C17 we will get the value as 1.

11) **Logication Functions :** Logical functions are used to see whether a condition is true or false or to check for multiple conditions.

12) **IF ( ) :** The function is used to determine whether a condition is true or false. Value one is returned if the condition is true and different value is returned if the condition is false.

Syntax : = IF (Condition, true condition, false action) Consider an example in which the perks to the sales is given according to the following table :

If Sales >=1,00,000/ per month	1%
If Sales < 1,00,000/ per month	0.25%

Consider the following fig:8.4 and commission is calculated and placed in cell D2 for employee Rajesh. Since commission is calculated according to the sales made by him and sales amount is stored in cell C2, type the IF ( ) function in D2 as shown below.

= IF (C2>=100000, C2*1%, C2*0.25%)

The meaning of above IF ( ) : IF the value in cell C2 is greater than or equal to 100000 calculate the commission according to the formula C2 ((Value) *1%).

If the value in cell C2 is less than 100000 calculate the commission according to the formula C2 (Value) *0.25%.

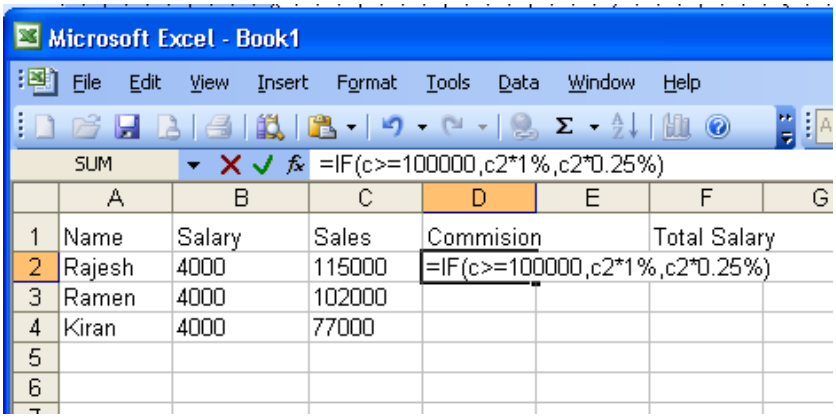


Fig. 7.4

Fig. 7.5 shows the result after copying the IF ( ) to D3 and D4 cells, to calculate the commission for employees Ramesh and Kiran.

D4 = IF(C4>=100000, C4*1%, C4*0.25%)

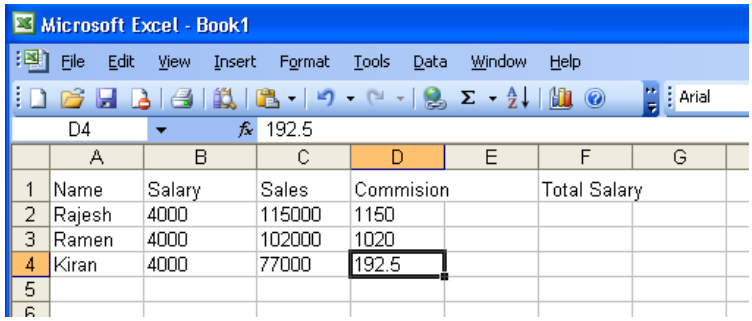


Fig. 7.5

Consider another example where the commission is calculated according to the following table

If Sales is > = 100000	1%
If Sales > = 75000 and if Sales <100000	0.75%
If Sales > = 50000 and if Sales <75000	0.50%
If Sales <50000	0.25%

The IF ( ) is written as shown below :

= IF (C2>=100000, C2 * 1%, (IF (CV2>=75000, C2 * 0.75%,(IF (C2>=50000,C2*0.50%,C2*0.25%)))

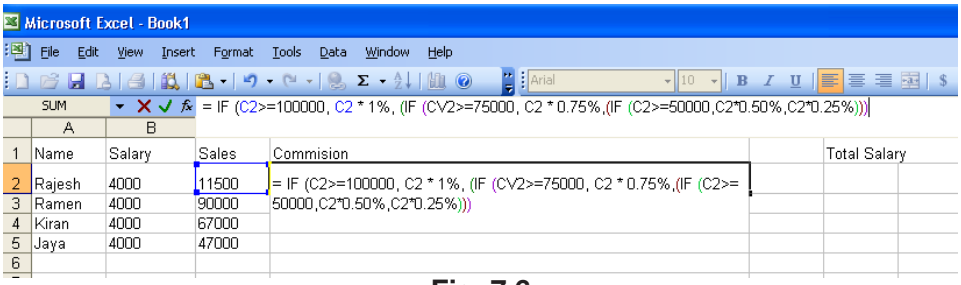


Fig. 7.6

After copying the formula to D3, D4 and D5 we will get the result as shown in **Fig. 8.7**.

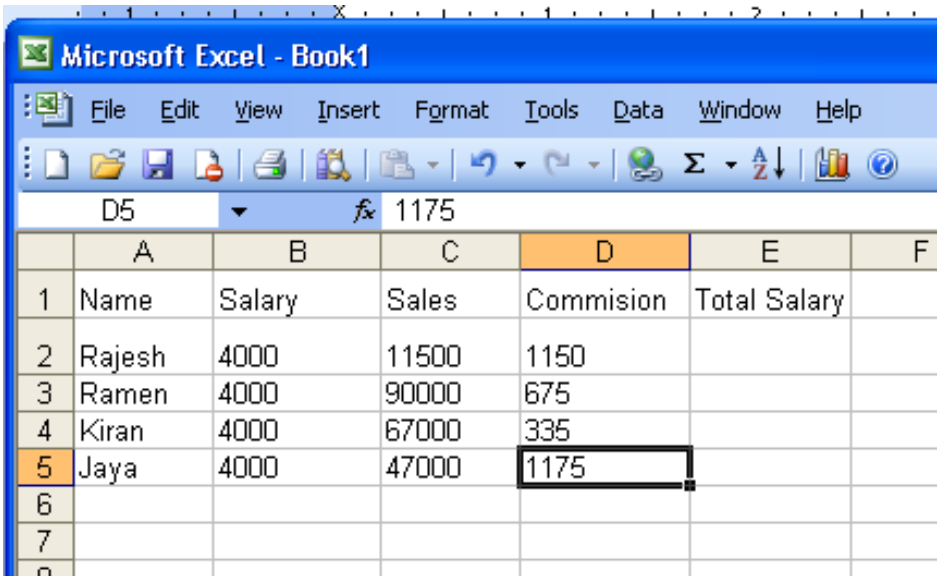


Fig. 7.7

13) **Sum if ( ) :** SUMIF ( ) is used to total a range of numeric cells based on a condition.

Syntax : = SUMIF (range to check, criteria , range to total)

Range to check is the range of cells where the criteria is to be searched. Criteria are in the form of a number, expression, or text that defines the cells to be added. Range to total is a range of cells the number of which is to be added. The cells in range to total are summed only if their corresponding cells in range match the criteria.

Consider the following worksheet which gives the sales of different products for different months.

Following figure shows the calculation of total soap sales. In this, the range A2:A8 is checked to search for criteria “Soap” and the contents of E2:E8 is added when the criteria matched. So, criteria

"Soap" matches for cells A1, A6 and A7 and the value in cells E2, E6 and E7 are added and the results is stored in cell E3.

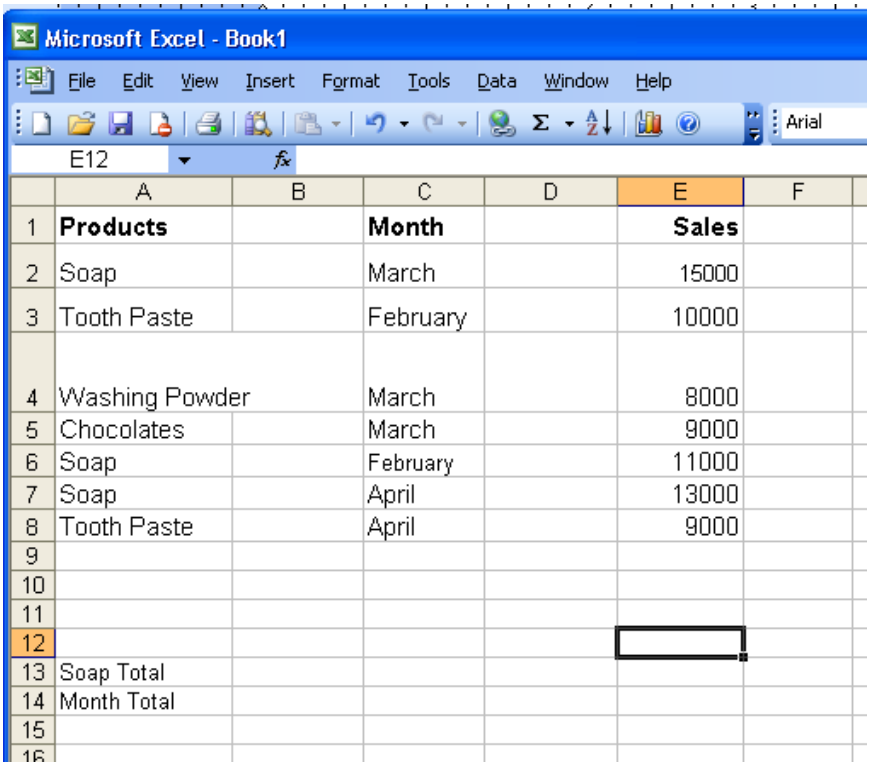


Fig. 7.8

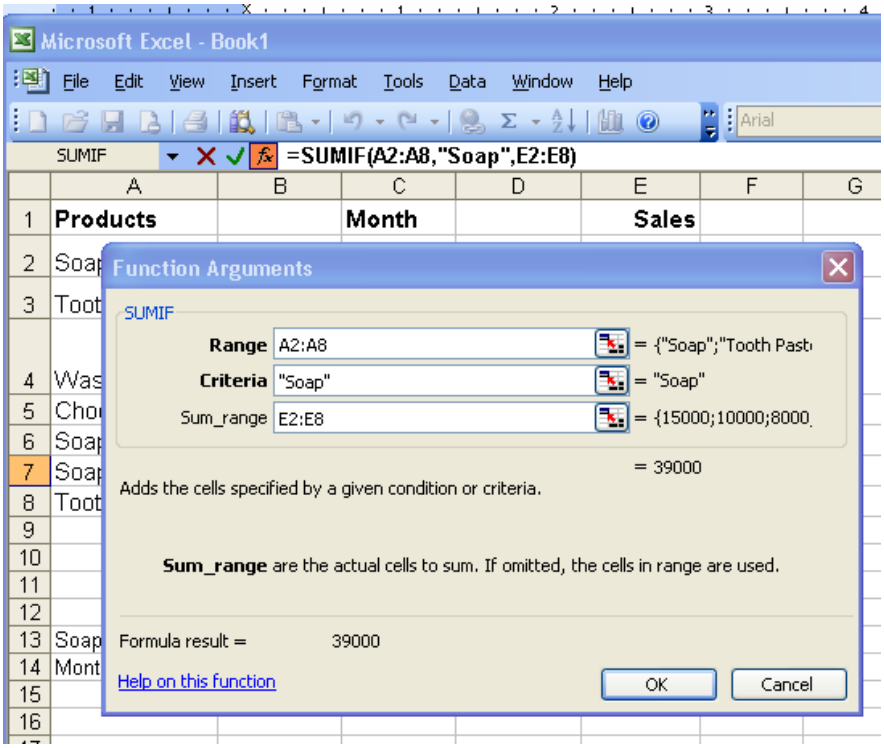


Fig. 7.9

Fig. 7.10 shows the applying of SUMIF ( ) for total sales for the month of March.

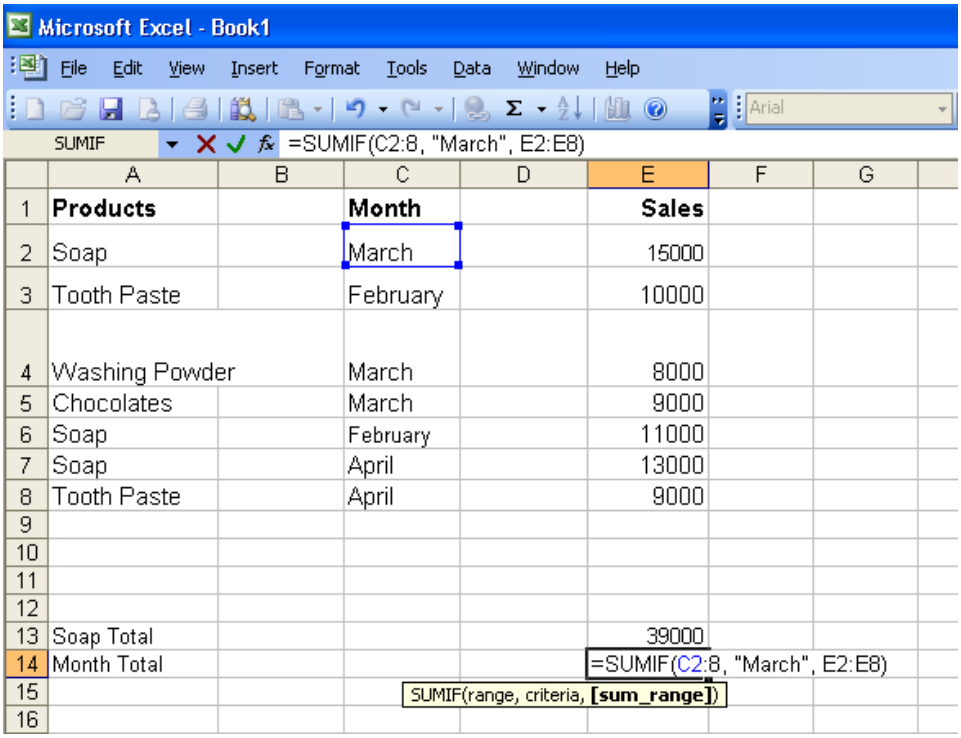


Fig. 7.10

Fig. 8.11 shows the addition sales which is above 9000.

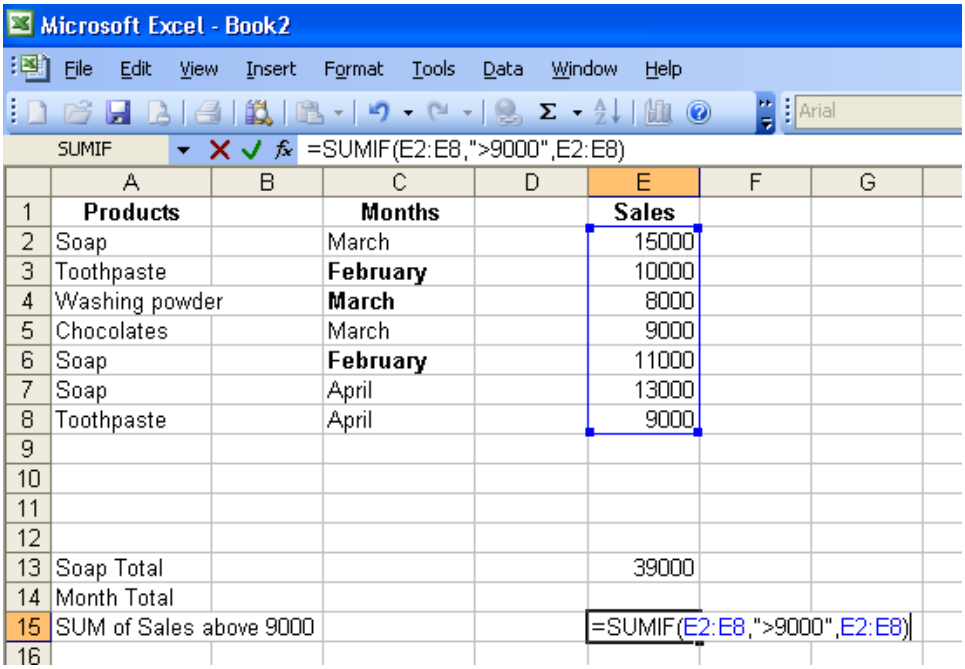
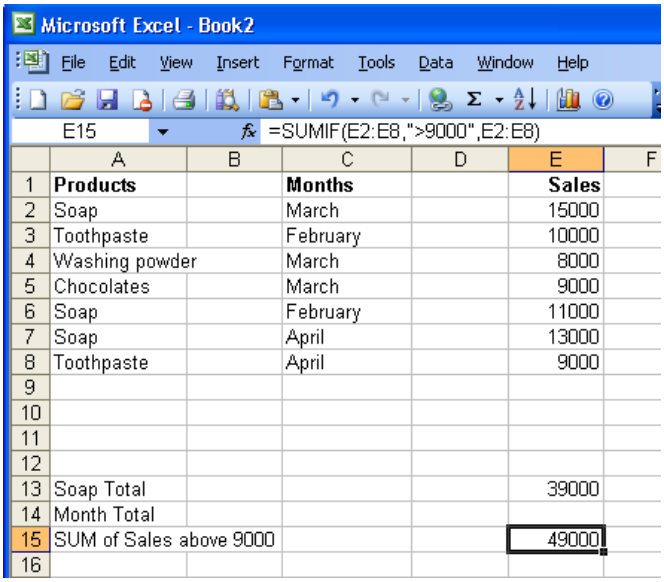


Fig. 7.11

Fig. 7.12 shows the result of all the SUMIF ( ) functions.



	A	B	C	D	E	F
1	**Products**		**Months**		**Sales**	
2	Soap		March		15000	
3	Toothpaste		February		10000	
4	Washing powder		March		8000	
5	Chocolates		March		9000	
6	Soap		February		11000	
7	Soap		April		13000	
8	Toothpaste		April		9000	
9						
10						
11						
12						
13	Soap Total				39000	
14	Month Total					
15	SUM of Sales above 9000				49000	
16						

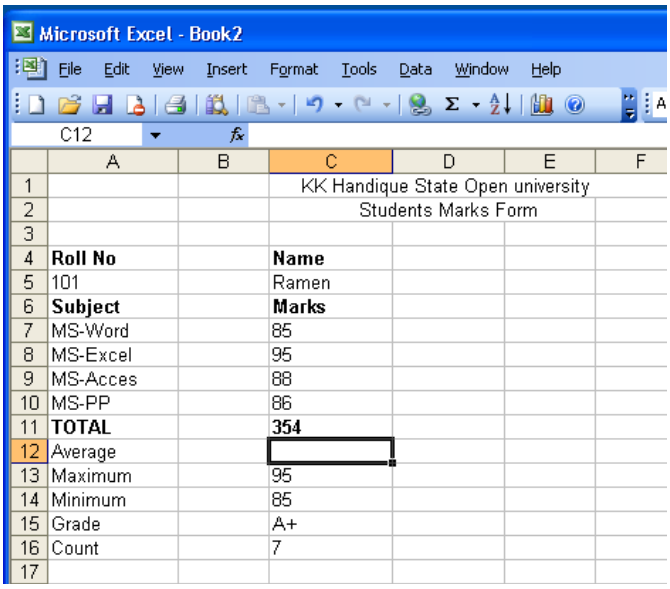
Fig. 7.12

14) **COUNT IF ( ) :** This function gives the count of number of cells which satisfies the condition. All the above mentioned functions can be implemented with the help of Paste Function button which is on the Menu Bar.

Follow the steps mentioned below :

a) Select the cell in which we want to have the function.

b) Click the left mouse button on the Paste function button which is on the standard tool bar. We will get the screen as shown in **Fig. 7.13**.



	A	B	C	D	E	F
1			KK Handique State Open university			
2			Students Marks Form			
3						
4	**Roll No**		**Name**			
5	101		Ramen			
6	**Subject**		**Marks**			
7	MS-Word		85			
8	MS-Excel		95			
9	MS-Acces		88			
10	MS-PP		86			
11	**TOTAL**		**354**			
12	Average					
13	Maximum		95			
14	Minimum		85			
15	Grade		A+			
16	Count		7			
17						

Fig. 7.13

c) Select the function which we want to implement say Average ( )

d) We will get the screen as shown in **Fig. 7.14**. Here select the range of which we want to find the Average ( ) say C7:C10.

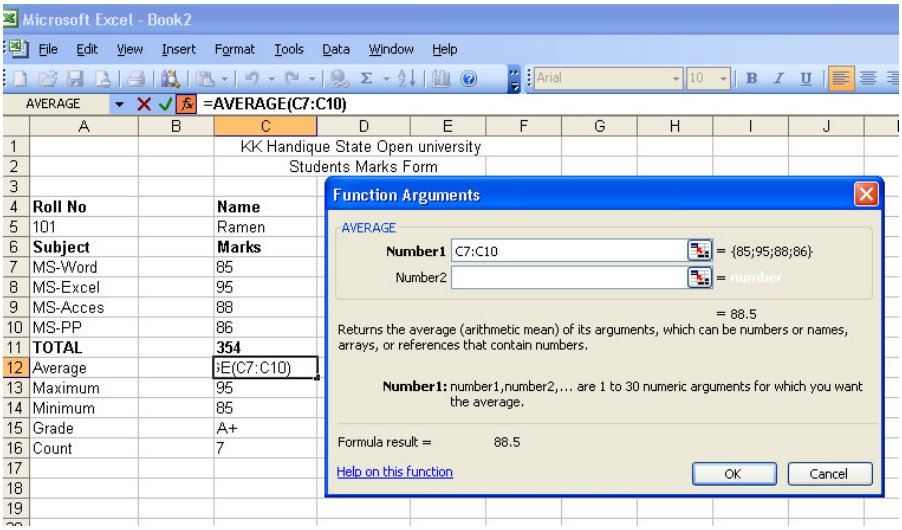


Fig. 7.14

15) **Auto SUM :** This is used to total a range of numeric cells. This icon is available in Standard tool bar. To use this icon, select the numeric cells of which we want to find the sum and click on the auto sum icon.

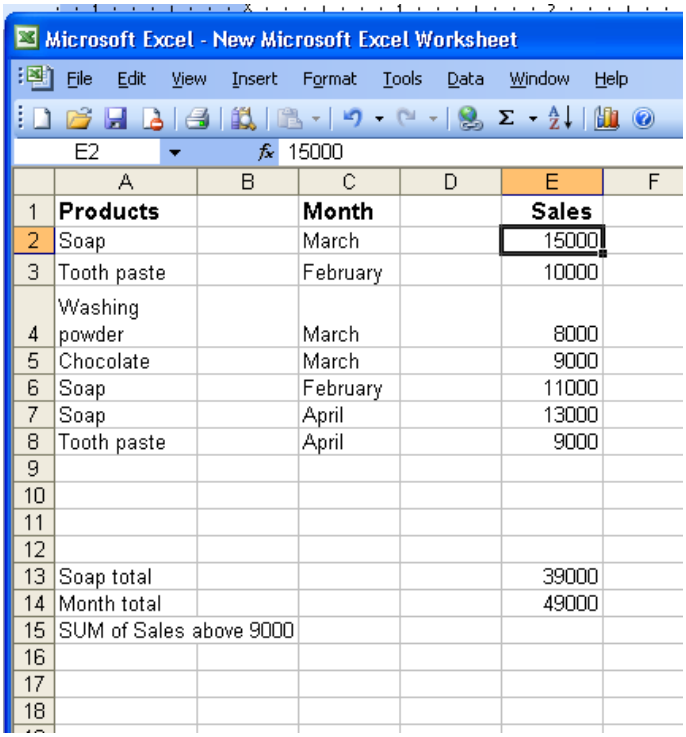


Fig. 7.15

16) **Auto Fill :** The auto fill feature of MS Excel will save data entry time by expanding series of numbers, days of weak, different months, etc. from a given cell to adjacent ones. This is achieved using fill handle.

a) To generate the serial numbers 1, 2, 3, 4 ... ... with the increment 1, type 1 in any cell and Ctrl + Drag the fill handle down or right, this will increase the number by 1 in each cell and Ctrl + Drag the fill handle up or left will reduce the number by 1 in each cell. Instead of 1, any other starting number can also be entered. As we drag the fill handle, the number which will appear in the cell will be displayed near the fill handle for our reference.

b) To generate the serial numbers with the increment or decrement other than 1, type the first 2 numbers; block those 2 cells and the drag the fill handle. To generate 5, 10, 15, 20 ..... one below the other, type 5 in any cell, in the next cell type 10, block those 2 cells and Drag the fill handle down. We can also generate the numbers in descending order by typing 100, 95 in different cells.

c) Text can be entered with the number. To generate F1, F2, F3 ... type F1 in any cell and drag the fill handle.

d) We can also generate the week day names like Sunday, Monday etc. and we can generate the month days from January to December.

If we are required to fill a range of cells with repeating values or sequence of values, it is possible to achieve this using Excel feature easily.

If the students are allotted the registered numbers and if the institution has say 800 students then instead of typing the registered number for each student it is easy to use auto fill features.

Consider the example given below in which the starting Reg. No. is 101 and the next should be 102, 103 ..... and so on. So instead of typing the numbers to use the auto fill feature follow the steps given below:

a) Select the cells in which the numbers are required to be filled as shown in **Fig. 7.16**.

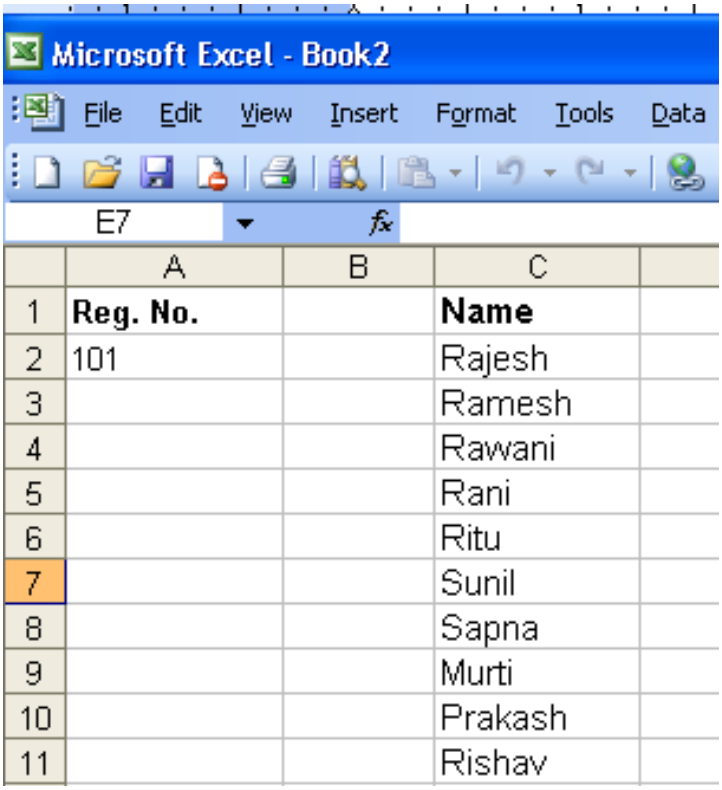


Fig. 7.16

b) Click the left mouse button on the Edit option of Menu Bar, a drop down menu appears.

c) Select Fill from that menu, a sub menu appears. Select series option from it, a menu as shown below appear:

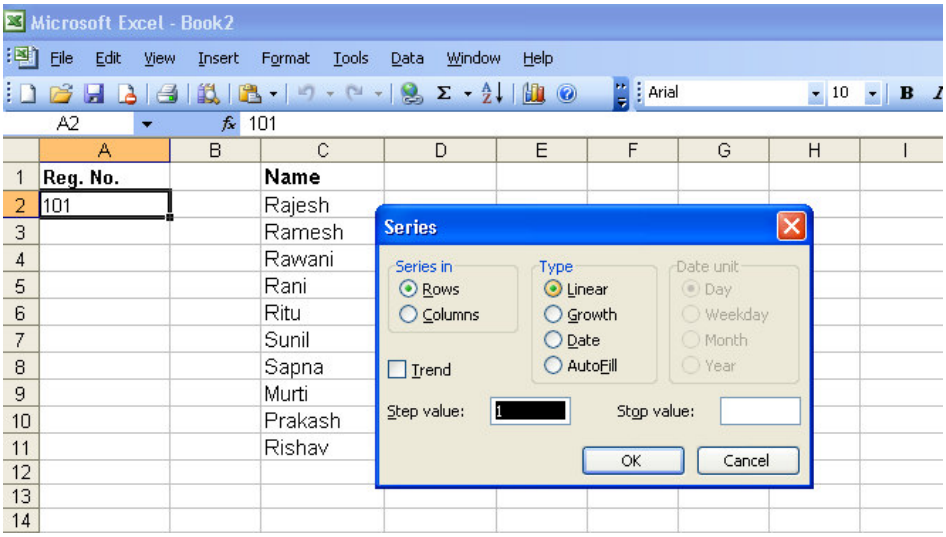
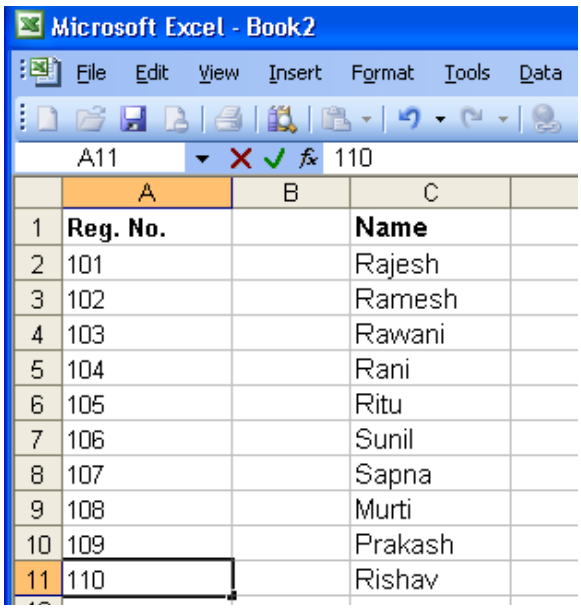


Fig. 7.17

d) Click on OK we will get this registered number filled against each name as shown in **Fig. 7.18**.



	A	B	C
1	**Reg. No.**		**Name**
2	101		Rajesh
3	102		Ramesh
4	103		Rawani
5	104		Rani
6	105		Ritu
7	106		Sunil
8	107		Sapna
9	108		Murti
10	109		Prakash
11	110		Rishav

Fig. 7.18

Note following points regarding auto fill feature:

1) To generate the serial number with the decrement use step equal to-1. If we want to generate the series as say 101, 99, 97... Then use the step value accordingly. In this case it is - 2.
2) To generate the serial numbers is crement order and as say 101, 104, 107 ... then use step as 3. We can use starting number as any value.
3) We can also generate the week day names like Sunday, Monday... etc. and we can generate the month days from January to December.

7.4 CUSTOM LIST

A custom list is a collection of some commonly used words, which can be reproduced by dragging fill handle. For example, a company deals in different products and the names of this is used in many places in a worksheet or in different worksheets. This is used to some data entry time.

Consider the following example shown in Fig: 8.19.The list of the products is used in different worksheets. To do that, we have to create the custom list first.

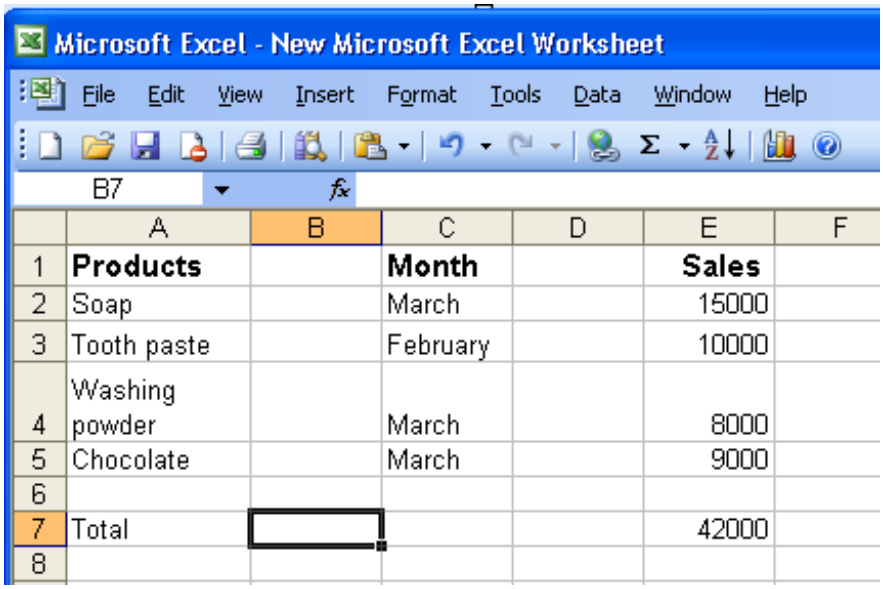


Fig. 7.19

Follow the below mentioned steps to create the custom list.

1) Select the list of which we want create the list as shown in **Fig. 7.20**.

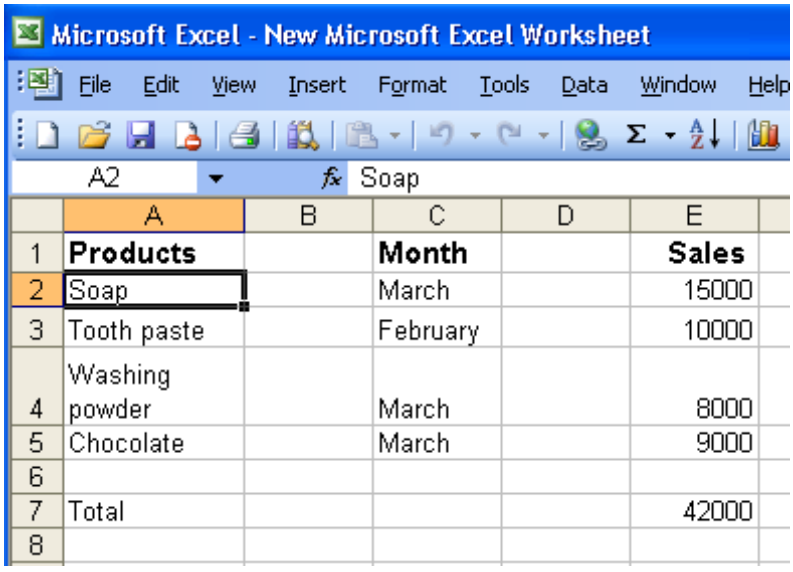


Fig. 7.20

2) Click on to Tools option on the Menu Bar. From the drop down menu select options. We will get the menu as shown in **Fig. 7.21**.
3) Select custom list if it is not selected, in the **Fig. 7.21**, it is selected.
4) Click on Import option, it shows the cell address from where the list is to be imported. We can edit this list by clicking on to it. Now the list is brought to the custom lists. This is shown in **Fig. 7.22**.

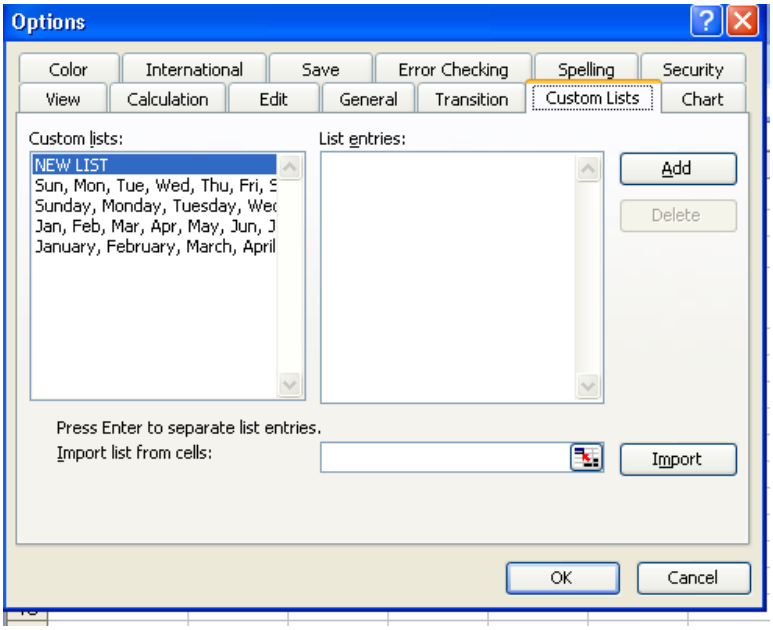


Fig. 7.21

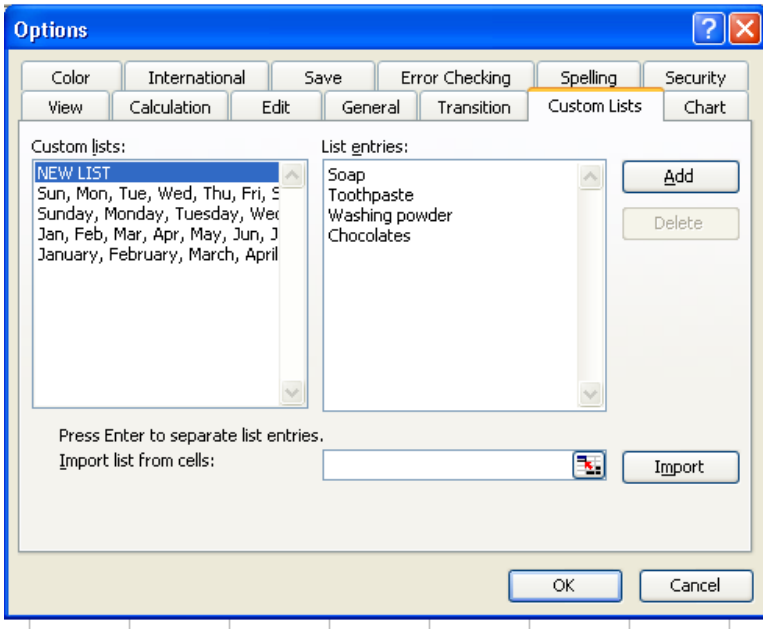


Fig. 7.22

5) Now click on to OK. Our list is added to the Custom list. We can edit this before clicking on to OK or later.

If we want to edit the list later, go to custom list menu and select the list we want to edit. We will get that list in the 'List entries' box, now click in that box and edit the entries as we like.

Now if we want to have this list in some other worksheet we can use it by following the steps given below:

1) Type the first value or any one of the values from the list into a cell.
2) Drag the fill handle.

Sheet Layout : Appearance of text or numbers in a cell can be changed to suit our requirement with the features provided by Excel.

7.5 ALIGNMENT

The data at a particular cell can be aligned to Left or Right or Center of the cell. By default the text is aligned at the left hand side of the cell.

This can be achieved by following the steps given below :

1) Select a cell or group of cells of which we want to change the alignment of data in them.
2) Select the Alignment buttons which are available at the formatting tool bar depending on our requirement.

Three buttons are there to align the data :

a) Align Right : This will align the data in the selected cell to the right hand side of the cell.

b) Align Left : This will align the data in the selected cell to the left hand side of the cell.

c) Align Center : This will align the data in the selected cell to the center of the cell.

Consider the following example : To align the contents of the group of cells for left hand side of the cell:

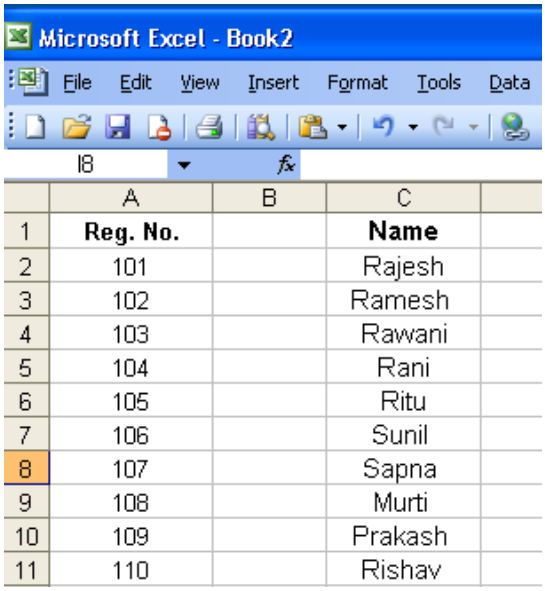
1) Select the group of cells as shown below.
2) Then click to the left mouse button on Align Left button which is on the Formatting toolbar.
3) The contents in the selected cells aligned to left as shown in the **Fig. 7.23**. **Fig. 7.23(A)** shows the selection of cells of which the alignment is required to be made.

Following Figure shows the alignment of data in cells A2 to A11 to right hand side of the cell.

Similarly alignment can be made to the cells containing text. Let us consider an example in which cell containing text to be aligned to center.

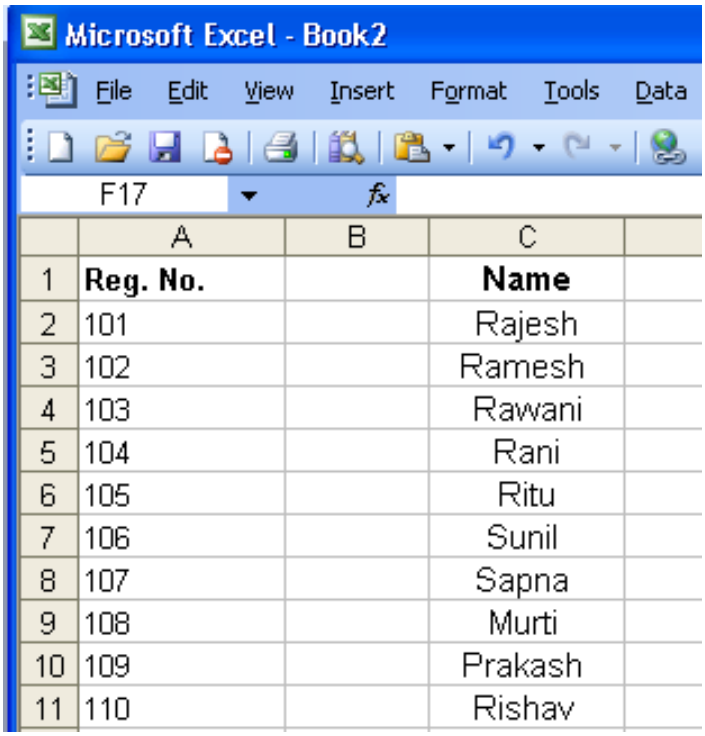
Follow the steps given below :

1) Select the group of cells as shown below.
2) Then click the left mouse button on Align center button which is on the Formatting toolbar.
3) The contents of the selected cells aligned to center of the selected cells.



	A	B	C
1	**Reg. No.**		**Name**
2	101		Rajesh
3	102		Ramesh
4	103		Rawani
5	104		Rani
6	105		Ritu
7	106		Sunil
8	107		Sapna
9	108		Murti
10	109		Prakash
11	110		Rishav

Fig. 7.23



	A	B	C
1	**Reg. No.**		**Name**
2	101		Rajesh
3	102		Ramesh
4	103		Rawani
5	104		Rani
6	105		Ritu
7	106		Sunil
8	107		Sapna
9	108		Murti
10	109		Prakash
11	110		Rishav

Fig. 7.23(A)

Fig. 7.24 shows the selection of cell :

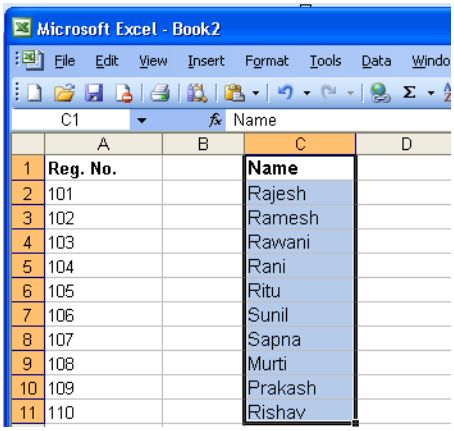


Fig. 7.24

Figure shows in cell C1 to C11 the contents are aligned to Center.

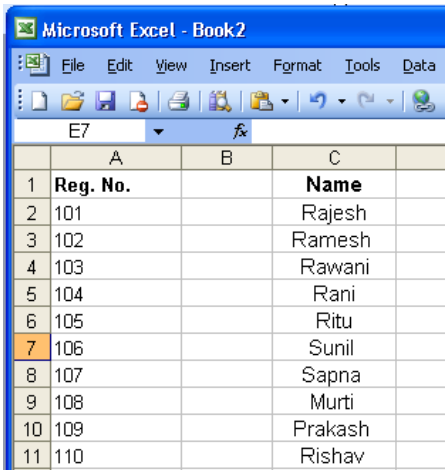


Fig. 7.25

Changing the alignment in a cell or group of cells by an angle, can be achieved by following the steps given below :

1) Select the group of cells as shown in **Fig. 7.26**.

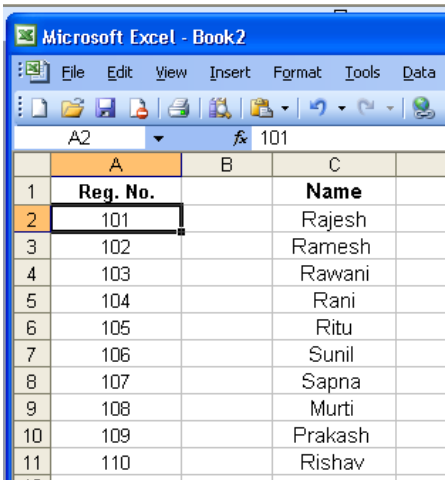


Fig. 7.26

2) Click on the format option of the Menu Bar. Select cells option from the drop down menu. We will get another menu titled format cells.

3) Select Alignment button from the format cells menu we will get the screen as shown in **Fig. 7.27**.

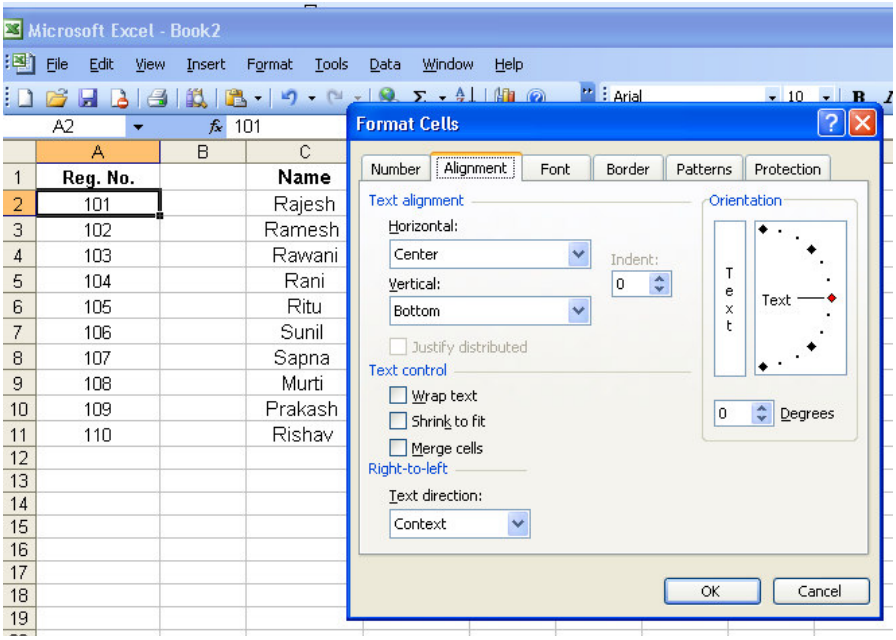


Fig. 7.27

4) Now select the degrees by which we want to align the text as shown in the following **Fig. 7.28**.

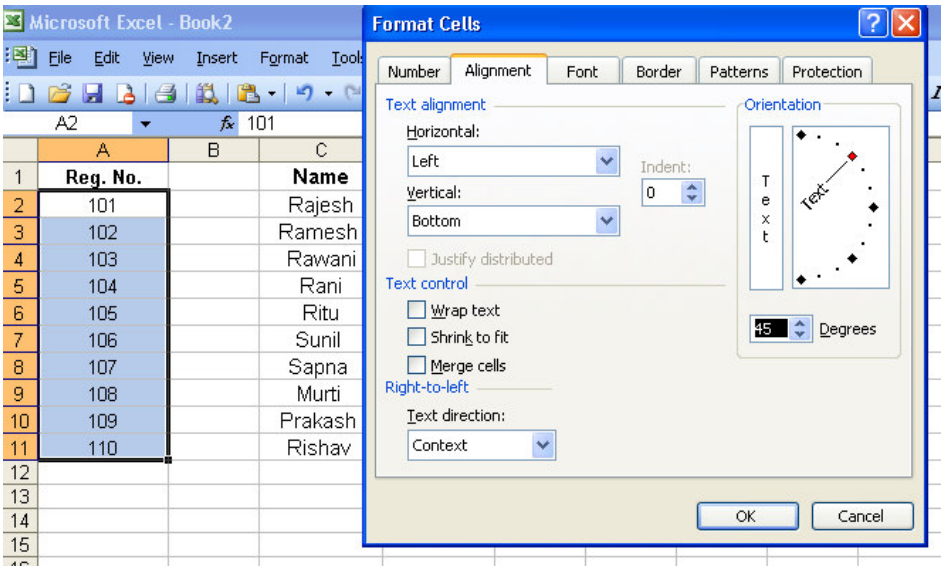


Fig. 7.28

5) Press OK. We will get the screen as shown in **Fig. 7.29**.

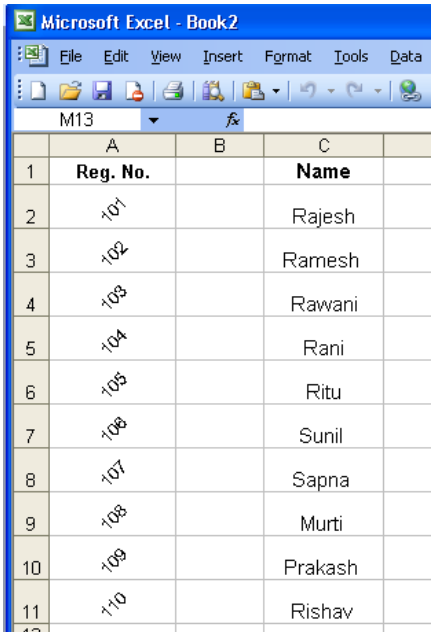


Fig. 7.29

Changing the column width : By default each cell can have I characters. However the width of each column can be changed and different columns in a sheet can have different width.

To change the column width follows the steps given below:

1) Select the column of which we want to change the width by placing the mouse pointer on the respective column.
2) Click on the format button which is on the Menu bar.
3) In the drop down menu move the mouse pointer over the column option. We will get a sequence, now select width option in that and we will get the screen as shown in **Fig. 7.30**.

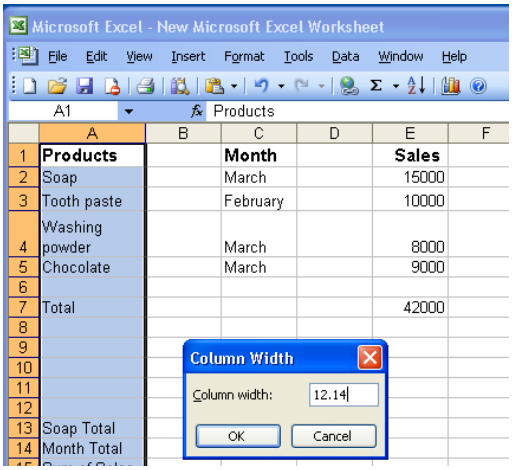


Fig. 7.30

4) Take the mouse pointer to the box next to column width which is presently showing 12.14 and click. Now enter a number which will represent the width of the column. For example 19 is typed and will get the display as shown in **Fig. 7.31**.

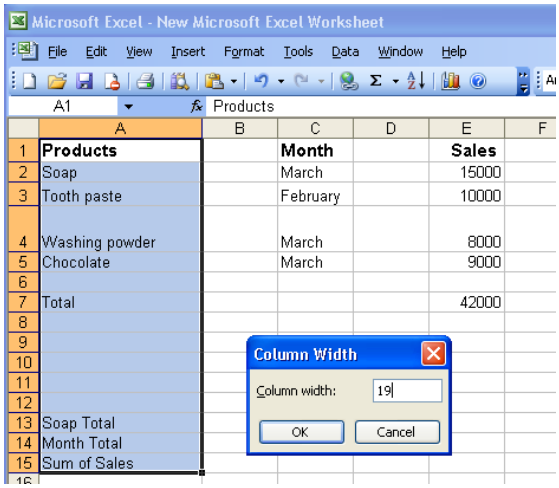


Fig. 7.31

Note : If we want to decrease the width of the column we can type a number which is less than 12.14

Formatting : Formatting is how information appears in cells; if does not alter the data in any way. To format a cell, we select it, and then apply the formatting we want. We can also format a range of cells. Cells and ranges can be formatted before or after data is entered.

Now select the required format say for example currency we will get the screen as shown in **Fig. 7.32**, here we can again select the required pattern of currency.

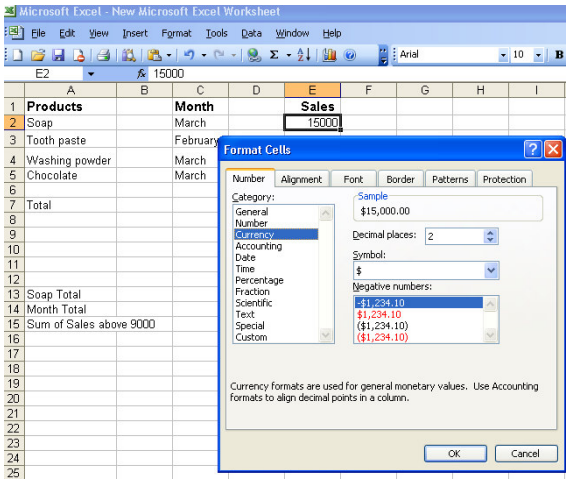


Fig. 7.32

Click on OK we will get the required format it also shown in **Fig. 7.33**.

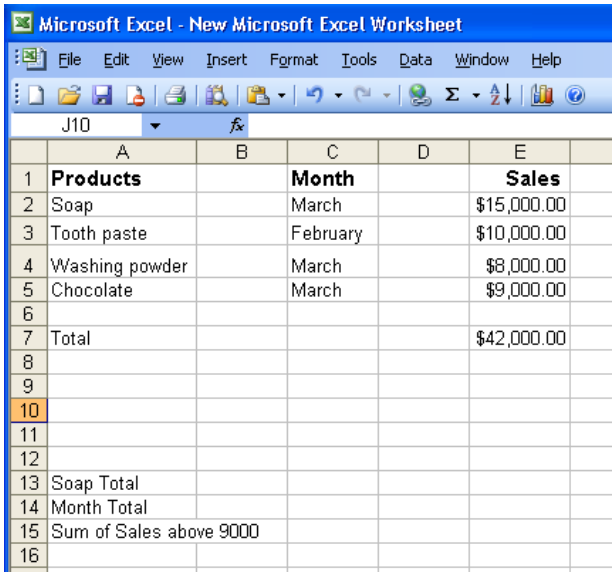
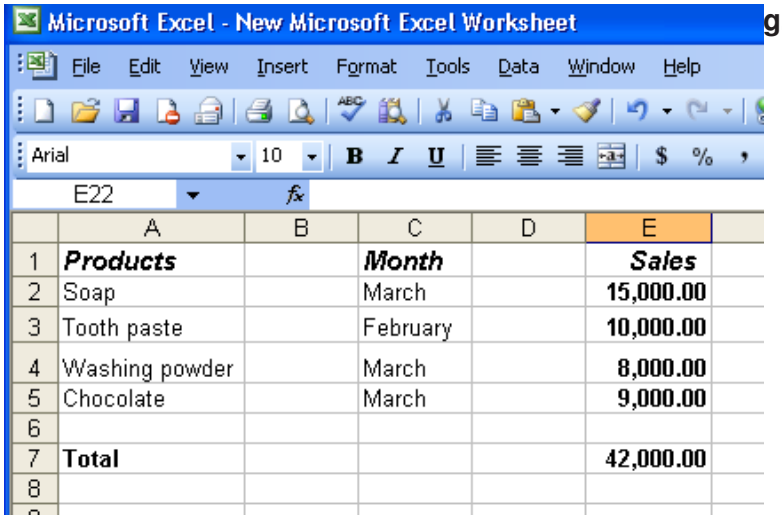


Fig. 7.33

Bold, Italic and Underline : Appearance like Bold, Italic and Underline can be given to the contents of a cell. Follow the steps given below:

1) Select the cell/cells of which we want to change the appearance.
2) Click on Bold, Italic and Underlined from the formatting bar depending



g. 7.34.

Fig. 7.34

Note : We can apply more than one format to the contents of a given cell/cells as shown in **Fig. 7.34**.

7.6 DATABASE

An organized collection of data arranged in rows and columns is a database. It is also called an excel list. The columns are called fields, the column labels or headings are field names. Each row in the list below the field name is a record.

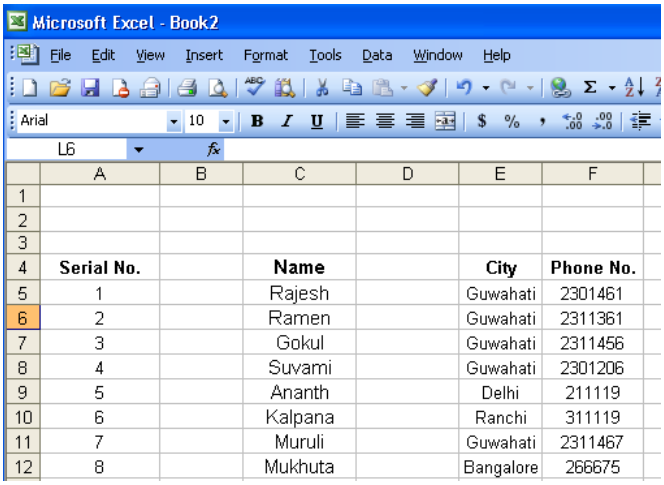
Auto Filter : Data > Filter > Auto Filter

Auto filter helps us to display the records, which meet a particular condition. When this option is selected, drop down controls are placed next to each field name. On clicking on this drop down control, the contents of the field without repetition are displayed.

Data Sort : Sorting is arranging the records in a database, based on one or more fields (Columns). Data Sort brings the related records together, so that the records in the database are easily accessible. Records can be arranged in ascending or descending order.

The command is DATA > SORT.

Advanced Filter : Advanced Filter criteria can include multiple conditions applied in a single column, multiple criteria applied to multiple columns, and conditions created as the result of a formula. Consider the example shown in **Fig. 7.35**.



	A	B	C	D	E	F
1						
2						
3						
4	**Serial No.**		**Name**		**City**	**Phone No.**
5	1		Rajesh		Guwahati	2301461
6	2		Ramen		Guwahati	2311361
7	3		Gokul		Guwahati	2311456
8	4		Suvami		Guwahati	2301206
9	5		Ananth		Delhi	211119
10	6		Kalpana		Ranchi	311119
11	7		Muruli		Guwahati	2311467
12	8		Mukhuta		Bangalore	266675

Fig. 7.35

Example of Advanced Filter Criteria : Advanced filter criteria can include multiple conditions applied in a single column, multiple criteria applied to multiple columns, and conditions created as the result of a formula.

Multiple Conditions in a Single Column : If we have two or more conditions for a single column, type the criteria directly below each other in separate rows. For example the following criteria range displays the rows that contain “Raiesh”, “Suvami” or “Ramen” in the Name column.

Serial No.		Name		City	Phone No.	
1		Rajesh		Guwahati	2301461	
2		Suvami		Guwahati	2311361	
3		Ramen		Guwahati	2311456	

One Condition in Two or More Column : To find data that meets one condition in two or more columns, enter all the criteria in the source row of the criteria range. For example, the following criteria range displays all rows that contain “Ananth” in the name column, “Delhi” in the city column and 211119 in the phone column.

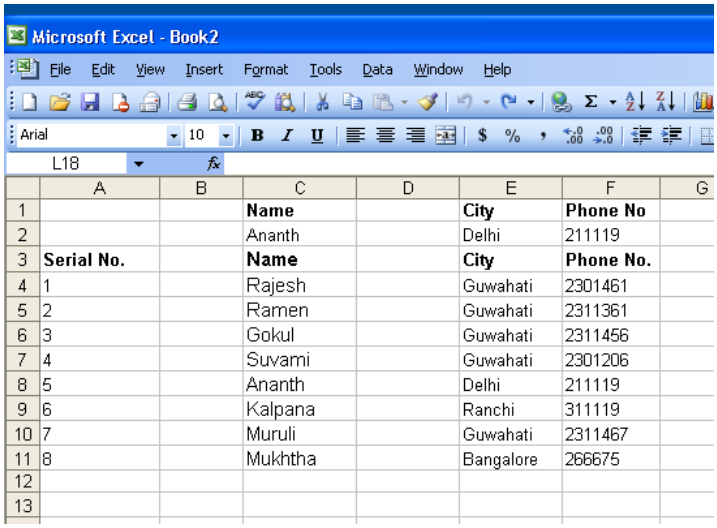
Serial	Name	City	Phone	
	Ananth	Delhi	211119	

One Condition in One Column or Another : To find data that meets either a condition in one column or a condition in another column, enter the criteria in different rows of the criteria range. For example, the following criteria range displays all rows that contain either “Ananth” in the Name Column, “Delhi” in the city column, or Phone numbers equal to 211119.

Serial	Name	City	Phone	
	Ananth			
		Delhi		
			211119	

Now let us consider the criteria of one condition in one column or another and work on the example database given in **Fig. 36**. Follow the steps given below :

1) Type the criteria label, in the rows below the criteria labels, type the criteria we want to match.
2) On the Data menu, point to filter and then click Advanced Filter.
3) We will get Advanced Filter menu. How we have got the following options and select required ones appropriately.



	A	B	C	D	E	F	G
1			**Name**		**City**	**Phone No**	
2			Ananth		Delhi	211119	
3	**Serial No.**		**Name**		**City**	**Phone No.**	
4	1		Rajesh		Guwahati	2301461	
5	2		Ramen		Guwahati	2311361	
6	3		Gokul		Guwahati	2311456	
7	4		Suvami		Guwahati	2301206	
8	5		Ananth		Delhi	211119	
9	6		Kalpana		Ranchi	311119	
10	7		Muruli		Guwahati	2311467	
11	8		Mukhtha		Bangalore	266675	
12							
13							

Fig. 7.36

a) To filter the list by hiding rows that doesn't match our criteria. Click Filter the list, in-place.

b) To filter the list by copying rows that match our criteria to another area of the worksheet, click copy to another location, click in the Copy to box, and then click the upper lift corner of the area where we want to paste the rows.

c) In the criteria range box, enter the reference for the criteria range, including the criteria labels. To move the Advanced Filter dialog box out of the way temporarily while we select the criteria range, click collapse Dialog.

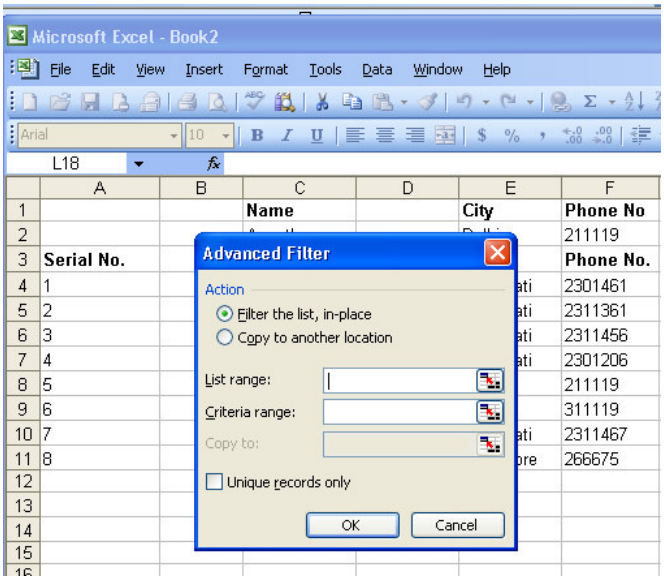
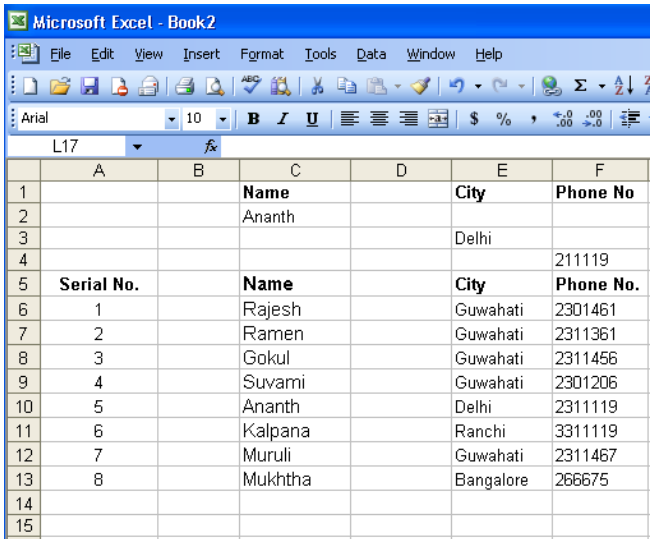


Fig. 7.37

4) Click on to OK we will get the filtered table which is shown in **Fig. 7.38**.



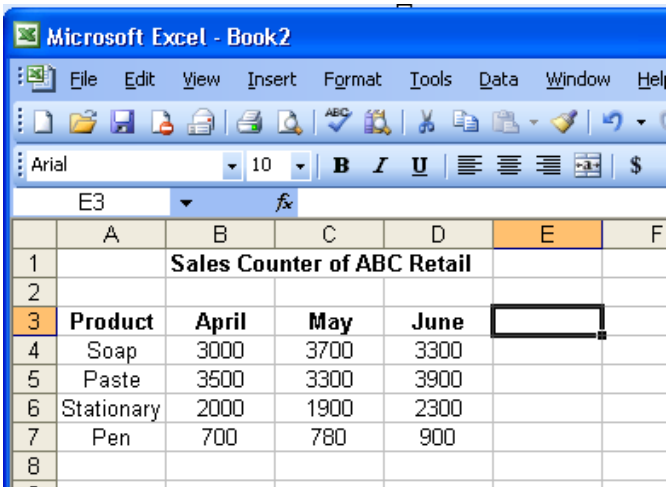
	A	B	C	D	E	F
1			**Name**		**City**	**Phone No**
2			Ananth			
3					Delhi	
4						211119
5	**Serial No.**		**Name**		**City**	**Phone No.**
6	1		Rajesh		Guwahati	2301461
7	2		Ramen		Guwahati	2311361
8	3		Gokul		Guwahati	2311456
9	4		Suvami		Guwahati	2301206
10	5		Ananth		Delhi	2311119
11	6		Kalpana		Ranchi	3311119
12	7		Muruli		Guwahati	2311467
13	8		Mukhtha		Bangalore	266675
14						
15						

Fig. 7.38

7.7 CHARTS

Charts are graphical representation of information. Excel has tools to draw different types of charts: they are Bar Charts, Area Charts, Pie Charts, Line Charts, and Radar Charts etc.

To create charts consider the following example as shown figure below :



	A	B	C	D	E	F
1		**Sales Counter of ABC Retail**				
2						
3	**Product**	**April**	**May**	**June**		
4	Soap	3000	3700	3300		
5	Paste	3500	3300	3900		
6	Stationary	2000	1900	2300		
7	Pen	700	780	900		
8						

Fig. 7.39

Follow the steps given below to create a chart.

1) Select the data range of which we want to create the chart as shown in **Fig. 7.40**.

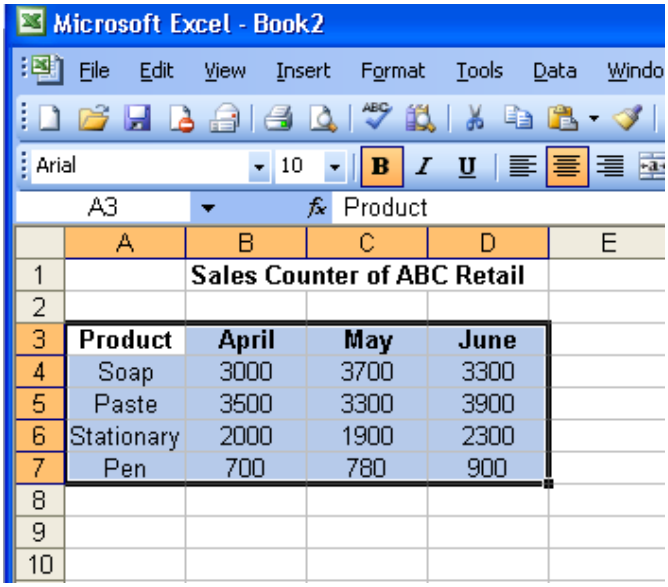


Fig. 7.40

2) Click on the Chart wizard available on the Standard tool bar we will get the screen as shown in the **Fig. 7.41**.

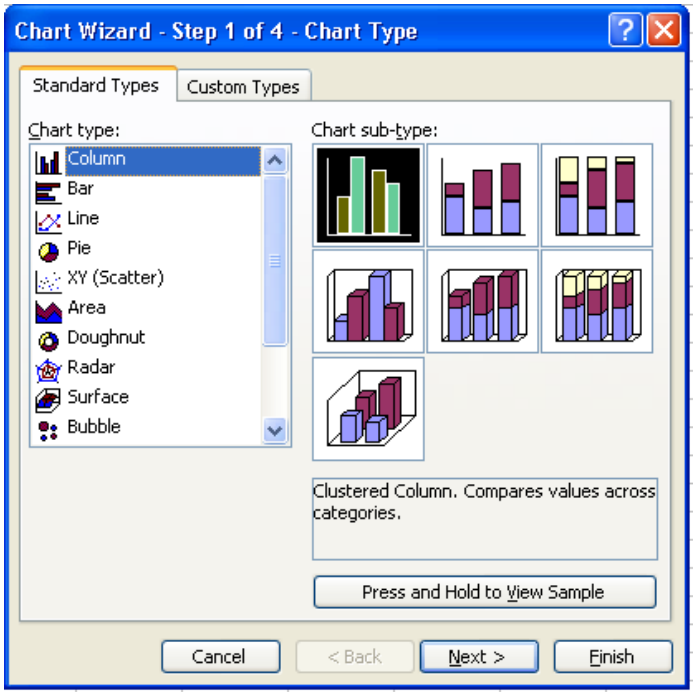


Fig. 7.41

3) Here we can select the kind of chart we want to create. For example as shown Bubble stock, XY etc. In the specific chart we can select Chart sub-type also. We can also see the view of the sample chart by pressing the left mouse button and holding it down. (Let us consider the chart selected above in figure and discuss.)

4) Click on to Next we will get the screen as shown in **Fig. 7.42** Chart Wizard.

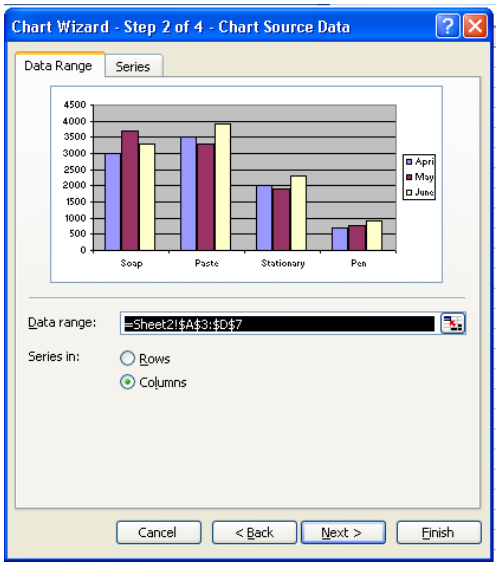


Fig. 7.42

5) Here we can change the data range if we want. (The cell range selected in the first step can be altered). Here we can go to the previous step and can make any allocations in the previous step. Here now we can select Series in as:

   a) Columns

   b) Rows

A) Columns :

6) Click on the Next we will get the screen as shown in **Fig. 7.43**.

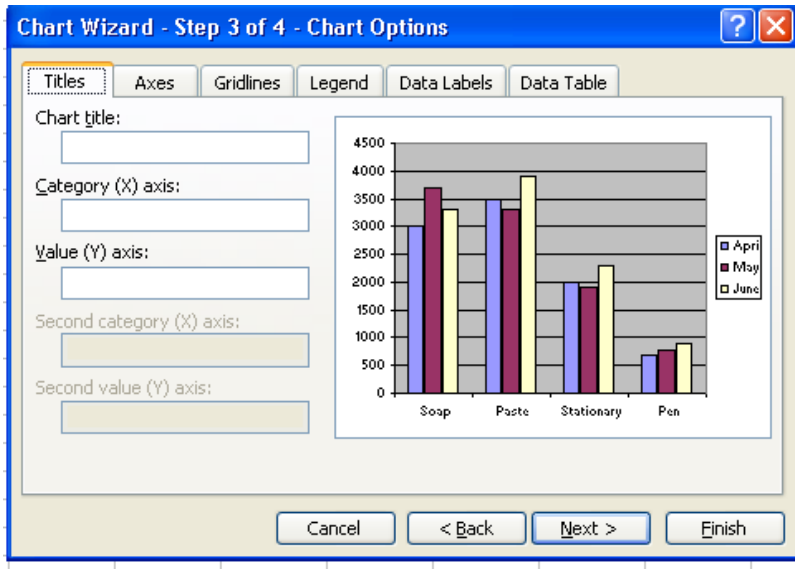


Fig. 7.43

7) We can give the title to the chart in Chart title box. For example, "Sales Report of ABC Retail". Then we can give the name to represent x-axis for example products and we can give a name to represent y-axis for example Rupees.

Chart title is the title to the chart.

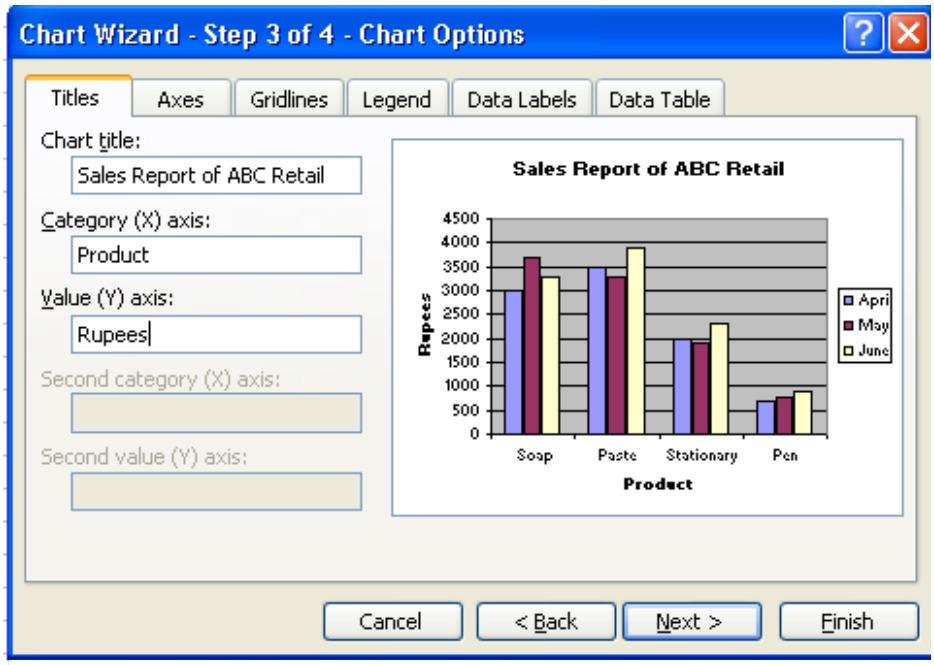


Fig. 7.44

8) Click to Next we will get the screen as shown in **Fig. 7.45**.

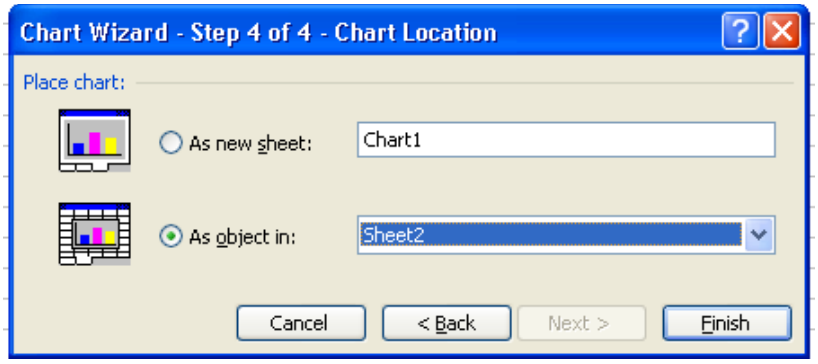


Fig. 7.45

9) Now we can select the chart to be displayed in a new sheet or as an object in any of the sheets of the work book.

a) As object in sheet : We can select it to be the object in sheet 1 or sheet 2 or sheet 3 etc. Then click on to Finish. We will get the screen as shown below :

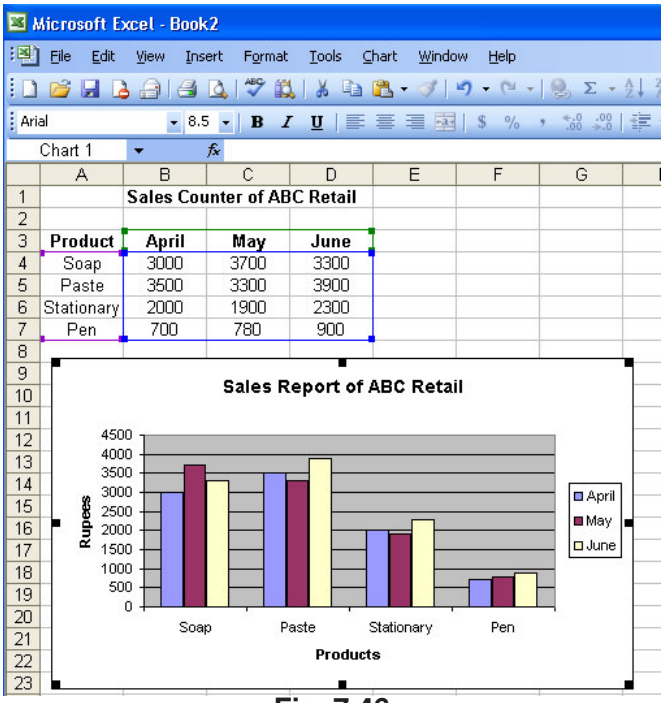


Fig. 7.46

b) As a new sheet : We can place the chart in a new sheet by clicking on to the radio button adjacent to As new sheet. We will get the figure as shown below :

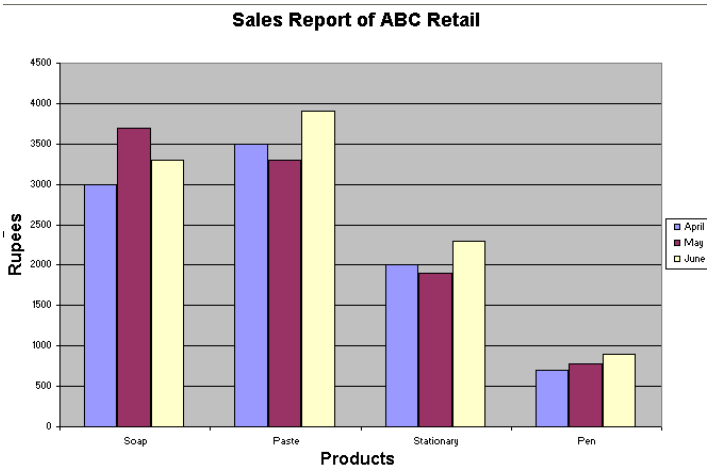


Fig. 7.47

Note : We can observe a box containing the meaning of each colour in the chart.

B) Rows :

10) Click on to Next. On the screen we got, we can give the title to the chart in chart title box. For example “Sales Report of ABC Retail”. Then we can give the name to represent X axis for example “Month”

in the category (X) axis box and we can give a name to represent Y axis for example “Rupees” in value (Y) axis box.

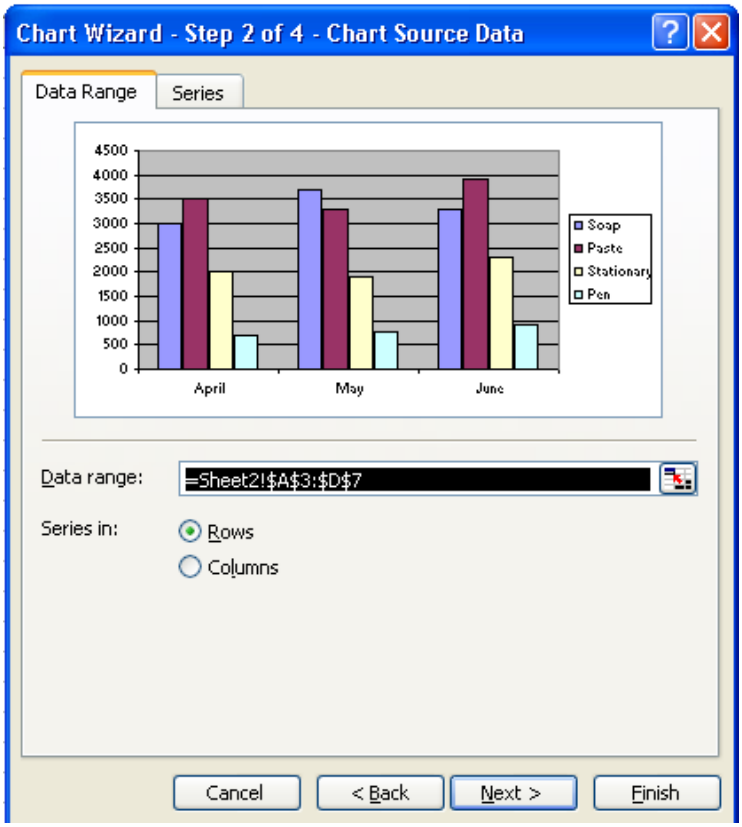


Fig. 7.48

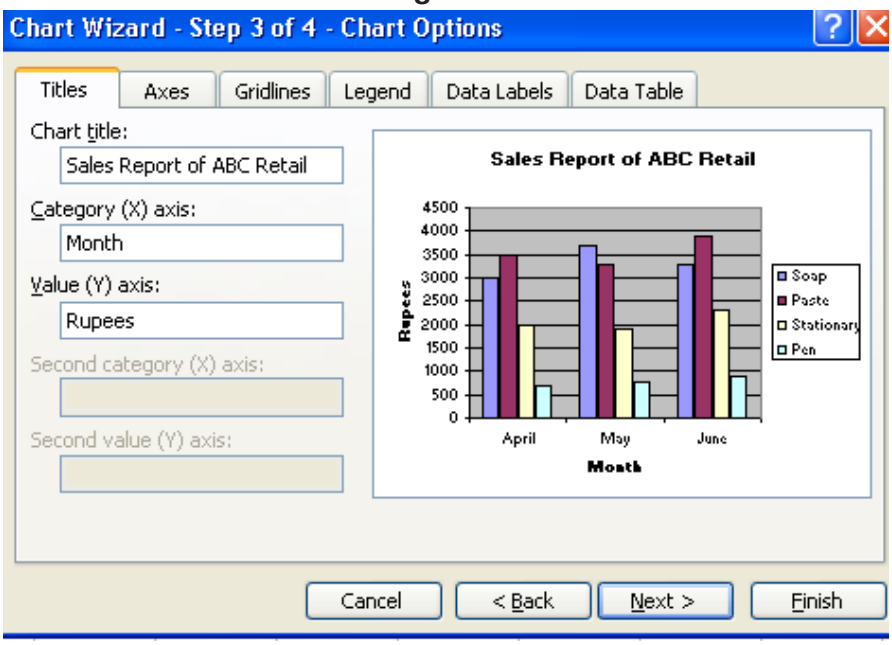


Fig. 7.49

11) Click on to Next we will get as shown in **Fig. 7.50**.

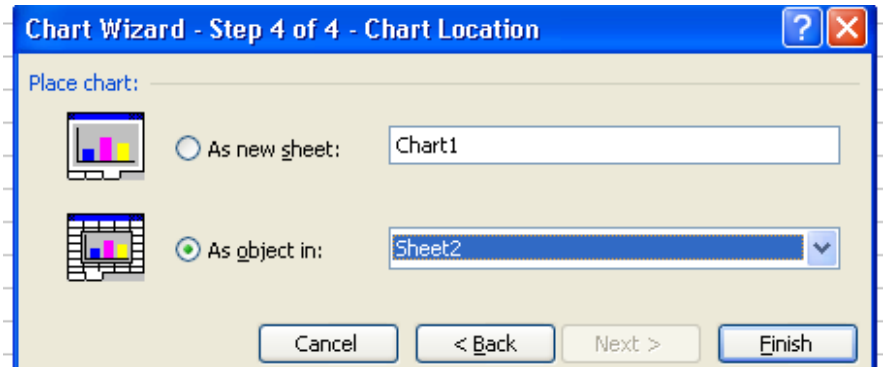


Fig. 7.50

12) Now we can select the chart to be displayed in a new sheet or as an object in any of the sheets of the work book.

a) As object in sheet : We can select it to be the object in sheet 1 or sheet 2 or sheet 3 etc. Then click on to Finish. We will get the screen as shown below .

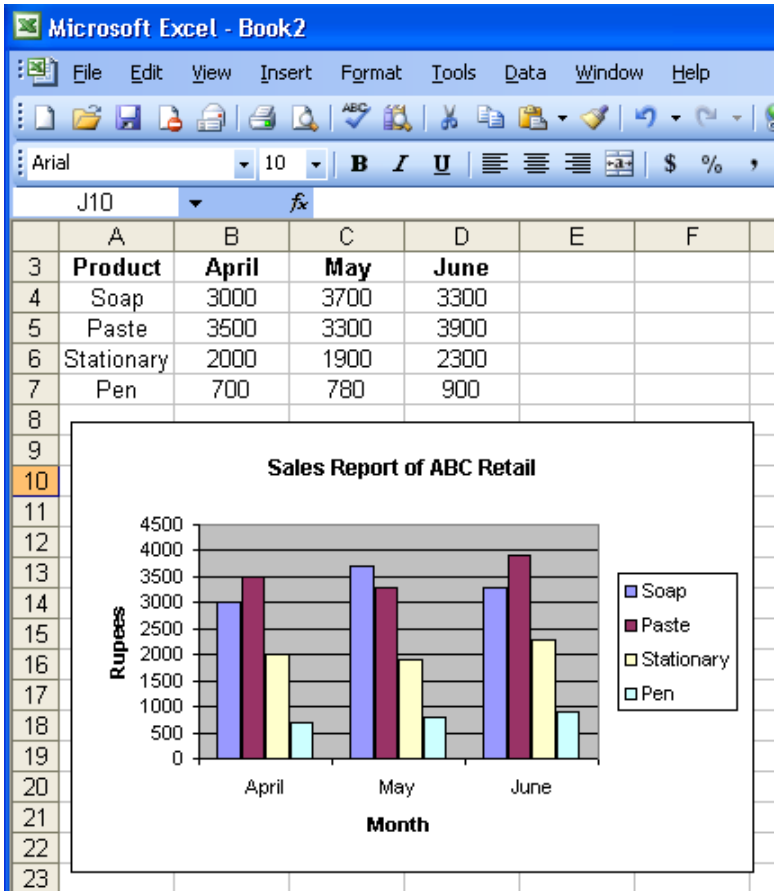


Fig. 7.51

b) As a new sheet : We can place the chart in a new sheet also (explained).

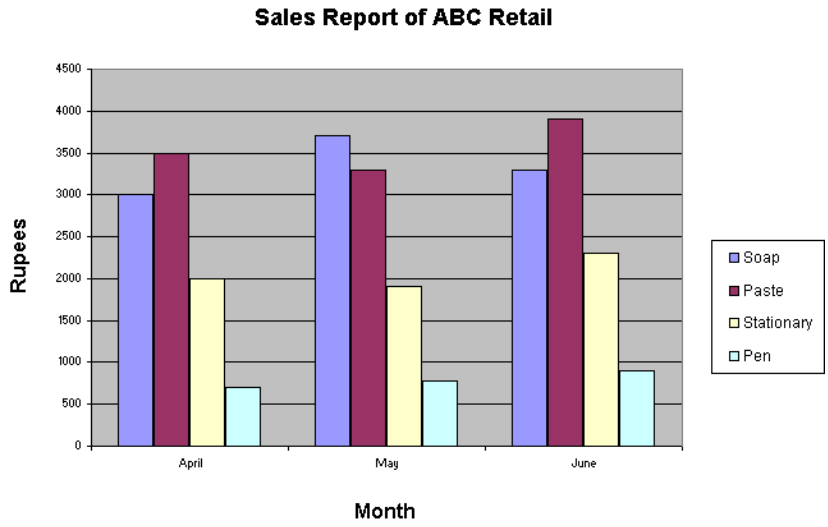


Fig. 7.52

Note : We can observe a box containing the meaning of each color as shown in **Fig. 8.53** in the chart drawn.

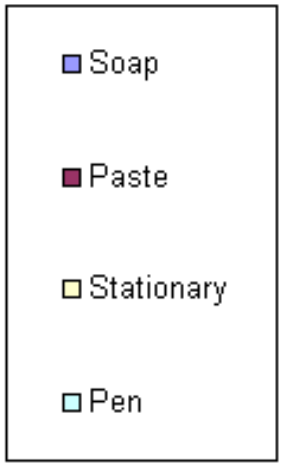


Fig. 7.53



CHECK YOUR PROGRESS

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

i) We have to make use of ranges for carrying ..... at through functions.

ii) A ..... is a collection of some commonly used words, which can be reproduced by dragging fill handle.

iii) Excel has ..... to draw different types of charts.

iv) Charts are graphical representation of .....



7.8 LET US SUM UP

In this unit we have discussed the following concepts :

- Instead of using the formulas to do certain calculations functions are provided in Excel. Entering the formulas when many cells involved is difficult so functions are used.
- Common functions like average ( ), max ( ), min ( ) are used to find average of numeric values among the range of cells, to find the largest value in the given range of cells, to find the lowest value in the given range respectively.
- Logical functions like if ( ) is also used to check certain conditions and to take a decision.
- We can also prepare a list of commonly used words which can be used of text or numbers in a cell can be changed as per the requirements.
- Column width and row height can also be changed. The appearance of the value in a cell can also be changed according to the requirement. An Excel list or Database can be created.
- Auto filter feature of Excel helps to display the records, which meet certain conditions.



7.9 FURTHER READING

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

7.10 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : i) calculations, ii) custom list, iii) tools, iv) information

7.11 MODEL QUESTIONS

Q.1 : Create a worksheet with the following details :

Student Roll number, Student name, Student class, Student marks in four different subjects.

a) Calculate the total marks obtained by each student.

b) Decide the result as follows :

Total Marks	Result
>350	Distinction
>=200	Pass
<200	Fail

Q.2 : Discuss any four functions.

Q.3 : Give the syntax of if ( ), sum if ( ), count if ( ).

Q.4 : What are criteria in filtering?

Q.5 : What is a Database?

Q.6 : What are Charts and how do we use it?

*** ***** ***

UNIT 8 : MS POWERPOINT

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Starting of Microsoft PowerPoint

8.3.1 Parts of PowerPoint Window

8.4 Creation of PowerPoint Presentation

8.5 To Include a Chart in the Slide

8.6 To Impart a Data Sheet

8.7 Formatting Options

8.8 Slide Transaction

8.9 Different Views of the Presentation

8.10 Let Us Sum Up

8.11 Further Readings

8.12 Answer to Check Your Progress

8.13 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- define how to start MS PowerPoint
- explain Parts of PowerPoint Window
- define Creation of PowerPoint presentation
- explain Saving the PowerPoint presentation
- Outline Chart in a slide
- explain Imparting Data sheet from a file
- Outline Formatting the slides
- define Slide transactions
- explain Different views of the presentation.

8.2 INTRODUCTION

Microsoft PowerPoint is a most widely used utility to create presentation relating to products, organisation, research papers etc. This

presentation can be created at ease and with immense speed. This is effective software which provides techniques for designing the dynamic presentations. Using this software a slide can be designed, text can be inserted, graphics can be inserted and animation can be given to the slides and the objects within the slide.

8.3 STARTING OF MICROSOFT POWERPOINT

Following steps are undertaken to start Microsoft PowerPoint.

1) Move the mouse pointer over the start button present on the extreme left of the task bar and then click the left mouse button. A push up menu appears.
2) Place the mouse pointer over the program option inside the push up menu. A second menu gets displayed immediately.
3) Move the mouse pointer over Microsoft PowerPoint option and click the left mouse button. You will get the screen as shown below **Fig. 8.1**.

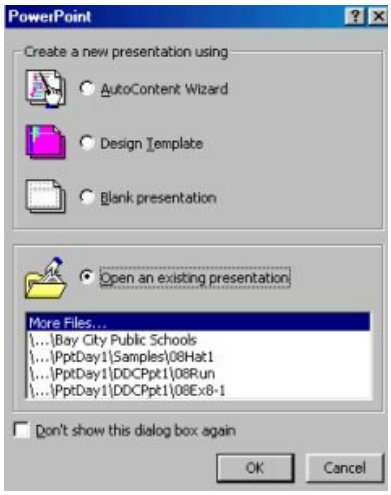


Fig. 8.1

4) You can create a new presentation by one of the methods given below :
   a) Auto Content Wizard
   b) Design Template
   c) Blank presentation

Each of this presentation method can be selected using the radio button adjacent to each of themm or You can open an existing presentation.

Let us Consider Blank Presentation : You can create a blank presentation by clicking an OK of the below shown menu as already, radio button next to Blank presentation is selected.

After following the above mentioned steps you will get a screen as shown below **Fig. 8.2**. Different parts of the following figure is given below :

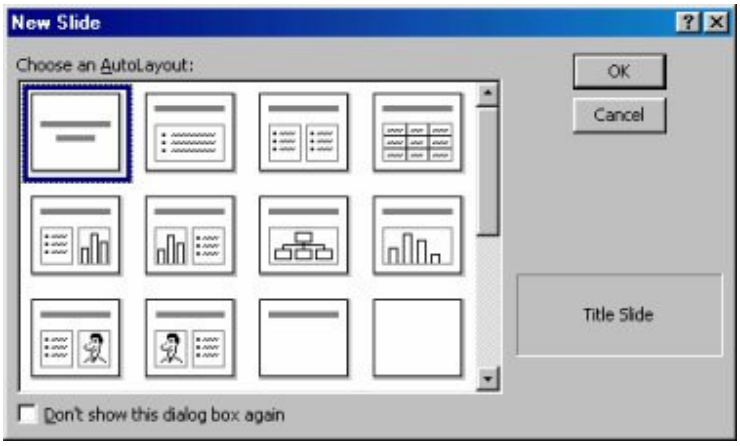


Fig. 8.2

8.3.1 Parts of PowerPoint Window

1) **Title Bar :** Display the application name, file name and various window controlled like minimize button, maximise button and close button.
2) **Menu Bar :** Different options for selection.
3) **Standard Tool Bar :** Displayed by default, allows to give common commands like saving the file, opening a file, printing etc.
4) **Formatting Tool Bar :** allows the user to give commands related to formatting cells and cell contents like Bold, Underline, Font Style, Font Size, color etc.
5) **The Drawing Palette :** This is used to draw different shapes.
6) **View Bar :** This is used to change the view of the screen.

8.4 CREATION OF POWERPOINT PRESENTATION

Slide Layouts : Each PowerPoint presentation can have only one slide or it can have more than one slide. Each of these slides can have its own page layout associated with it in the presentation. The page layout

decides the position of the various objects like text, picture etc. in the slide. Page layout also specifies the appearance of the text like its style, color, size etc.

PowerPoint provides 24 different types of page layouts along with a blank page.

Steps to create PowerPoint presentation follow the given steps to create the PowerPoint presentation :

1) Select the slide layout by moving the mouse pointer over the required layout and click the left mouse button, then click on OK or you can cancel the selection by clicking on the Cancel.

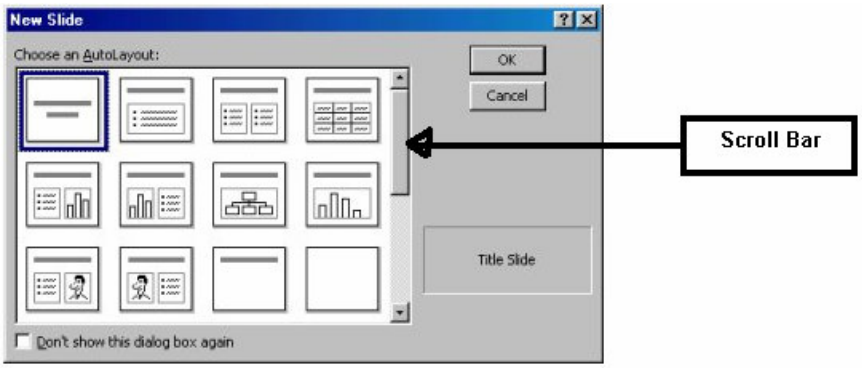


Fig. 8.3

Each of the these layouts has different names like Title slide, Bulleted List, Table, Organization, Charts etc.as discussed earlier 24 different layouts are available. On the screen 12 layouts are visible use scroll bar to see the other layouts.

The above selected layout has the name Bulleted list. On clicking OK you will get the screen as shown below :



Fig. 8.4

2) To add text to the upper box as given in the box Click the mouse pointer inside the box. Now you can type any text you want. Say for example K. K. Handiqui State Open University.

3) Now to add text to the lower box click inside that box and start typing the text you want to add. You will get the screen as shown in **Fig. 9.5**.

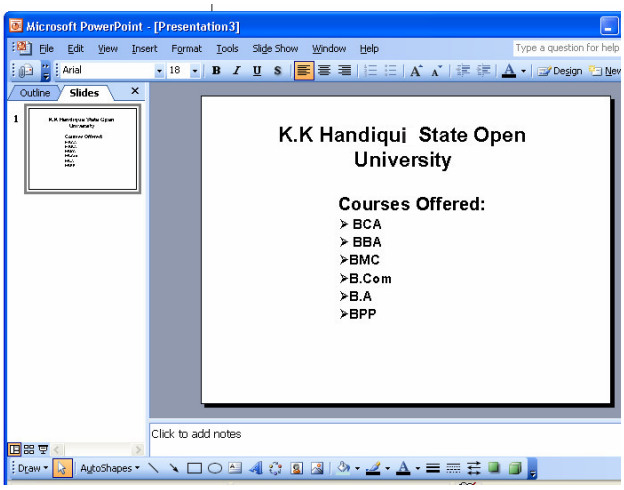


Fig. 8.5

4) Save this presentation. Use save icon of Standard tool bar or file option of Menu bar. While saving give the name for the presentation.

5) To view the slide show Click on to Slide show option which is on the Menu bar. You will get a drop down menu. Click on to view show you will get the slide show presented on the screen **Fig. 8.6**.

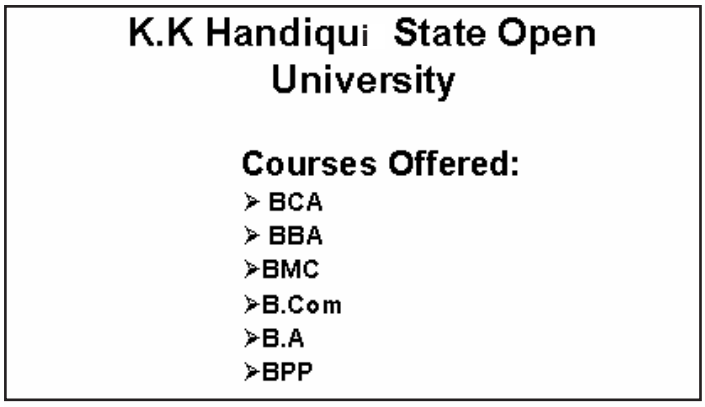


Fig. 8.6

Note : Press function key F5 to see the slide show instead of step 5. To come back from the slide show to the PowerPoint menu press Esc Key.

Adding more Slide to an existing presentation : Consider the presentation already created above and follow the steps given below to add more slides to an existing presentation.

1) Be in the above created presentation (**Fig. 8.5**) Click on to insert option on the menu bar. From the drop down menu click on to New Slide option. or Press Ctrl and M simultaneously being in the above-created presentation (**Fig. 8.5**)or Click on to New Slide icon which is on the Standard tool Bar being in the above created presentation (**Fig. 8.5**)

2) You will get the slide layout menu and now you can select a required layout for the slide and enter the text in the slide. Let us assume that we have selected table layouts. It is shown in **Fig. 8.7**.

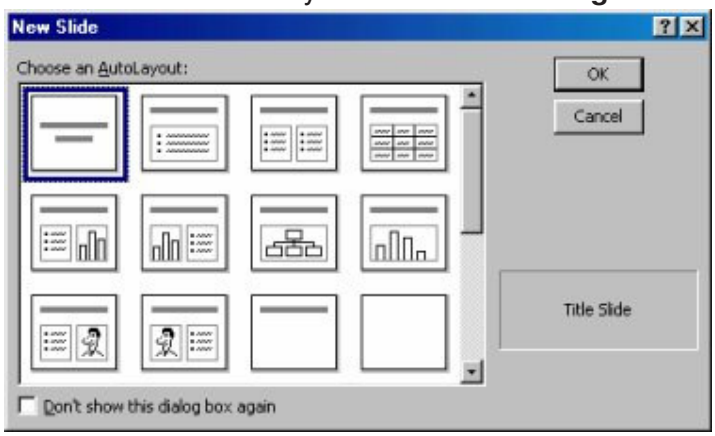


Fig. 8.7

3) Now click on OK you will get the screen as shown in **Fig. 8.8**.

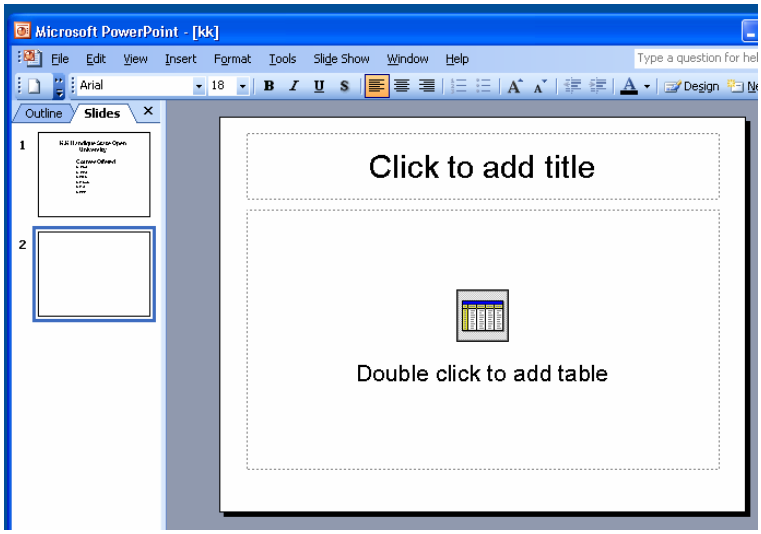


Fig. 8.8

4) Now you can add title in the upper box.

5) Now double click on to the lower box. You will get a menu as shown in **Fig. 8.9**.

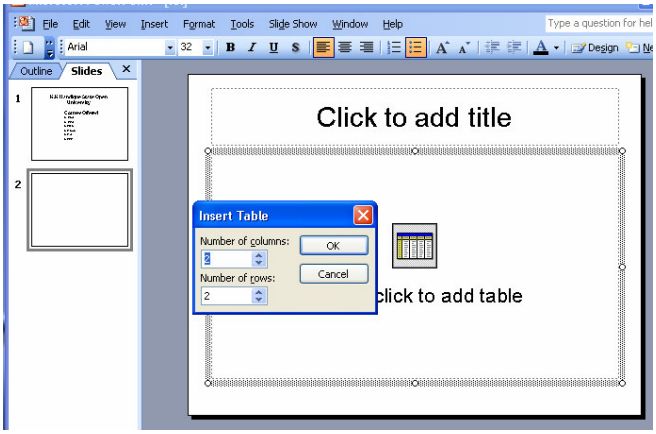


Fig. 8.9

6) Here you select the number of rows and columns you want in the table by using small arrows present adjacent to Number of Columns and number of rows box. Then click which is present in the insert table menu. You will get the screen as shown in **Fig. 8.10**.

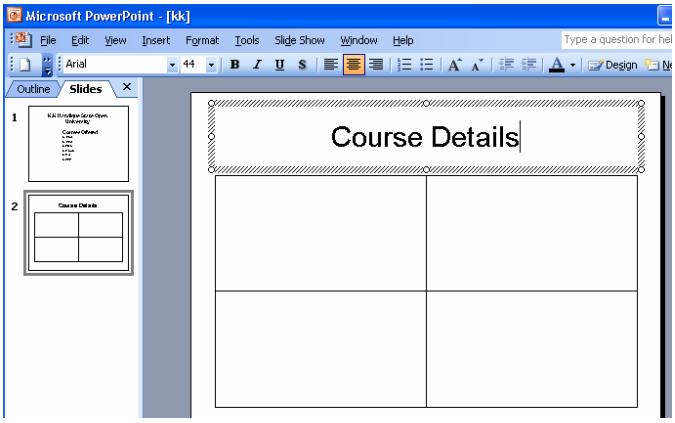


Fig. 8.10

7) How you can enter the contents in this table shown in **Fig. 8.11** Microsoft Powerpoint (Presentation)

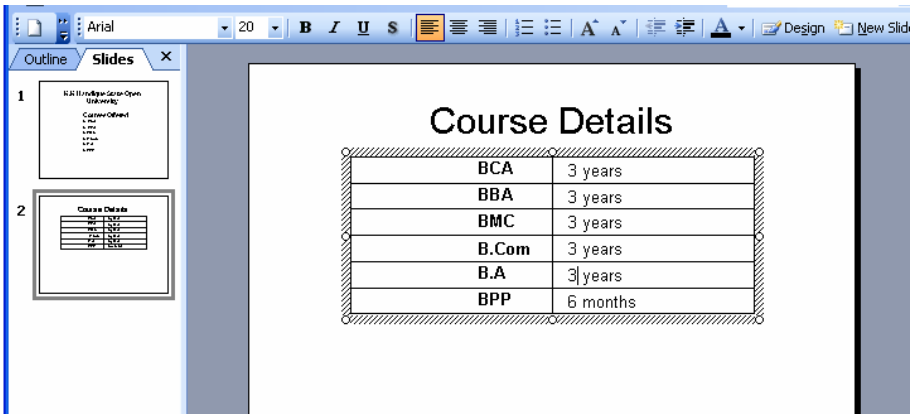


Fig. 8.11

8) Save the presentation.

9) Run the slide show by pressing F5.

Note : When you press F5 it will show the first slide not to go to the second slide press space bar key of the key board.

To add a slide with picture for the existing presentation : Consider the presentation already created above and follow the steps given below to add more slides to an existing presentation.

1) Be in the above-created presentation (**Fig. 8.11**). Click on to Insert option on the Menu Bar. From the drop down menu click on to New Slide option or Press Ctrl and M simultaneously being in the above-created presentation (**Fig. 8.11**). or Click on to New slide icon which is on the Standard tool bar being in the above created presentation (**Fig. 8.11**)

2) You will get the slide layout menu and now you can select a required layout for the slide and enter the text and picture in the slide. Let us assume that we have selected layout as shown in **Fig. 8.12**.

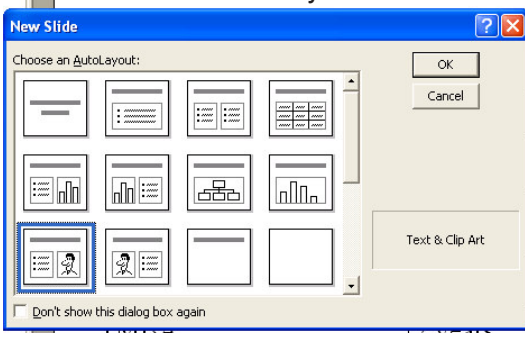


Fig. 8.12

3) Now click on OK you will get the screen as shown in **Fig. 8.13**.

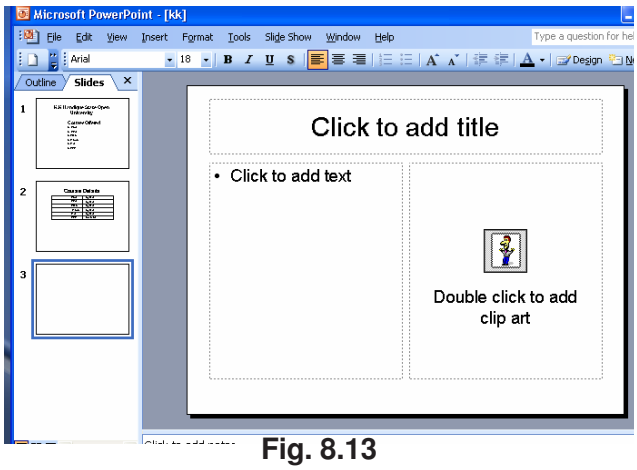


Fig. 8.13

4) Add Title to the slide and add text at the left hand box shown.

5) To add the picture at the right box follow the steps given below.

a) Double click as instructed in the box you will get a menu as shown in **Fig. 8.14**.



Fig. 8.14

b) Now you can select any of the titles among the available ones as shown in **Fig. 8.14**. For example we have selected "Academic". Again you will get a menu, **Fig. 8.15** which contains different pictures. Now click on the picture you want to insert and Click on to OK on that menu you will get the slide as shown in **Fig. 8.16**.



Fig. 8.15

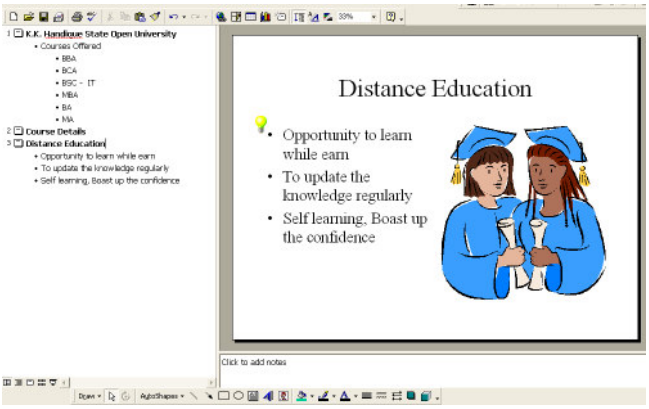


Fig. 8.16

c) Save the presentation as discussed earlier.

Note : To insert the pictures from the file.... 1) Execute the step (a) of the above steps,

6) Clip on to the import clips item you will get **Fig. 8.17**.

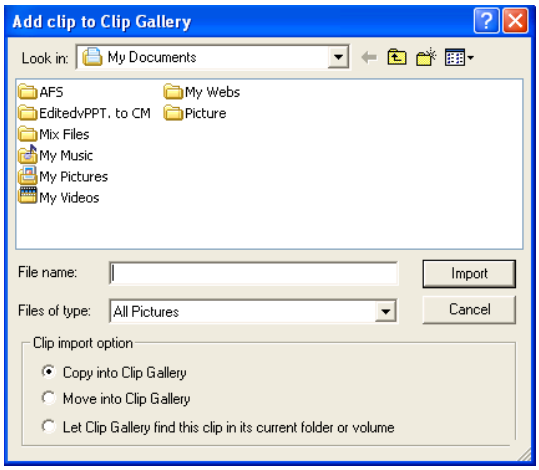


Fig. 8.17

7) Select the file from where you want to insert the file. You can select required drive and required folder.

8) Click on to Import item. You will get a menu as shown in **Fig. 8.18**.

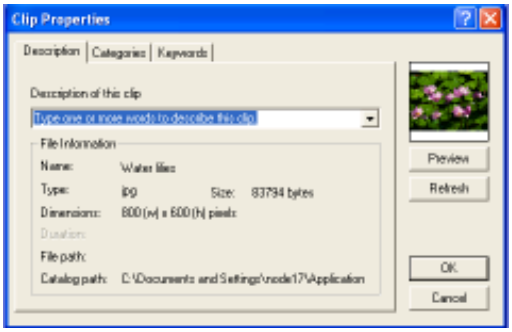


Fig. 8.18

9) Click on to OK you will get the menu as shown :

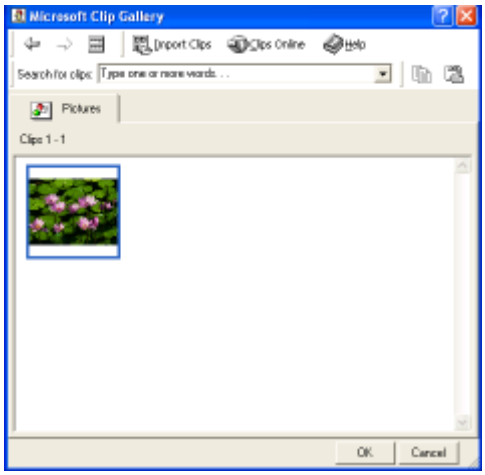


Fig. 8.19

10) Click on OK you will get the picture inserted in the box of the slide.

Save the PowerPoint presentation : We can save the files in different ways which are discussed in other applications like MS Word, MS Excel etc. The procedure is same. Even performing the tasks live opening of an existing presentation, or closing a presentation without saving it, is also similar to the process carried out in other applications, So, you can follow the same procedure:

Note : The default extension used for the PowerPoint presentation file is ppt.

8.5 TO INCLUDE CHART IN THE SLIDE

To include a chart in the slide follow the steps given below :

1) Follow the steps to insert a new slide as explained earlier and select the chart layout as shown in **Fig. 8.20** and click OK.

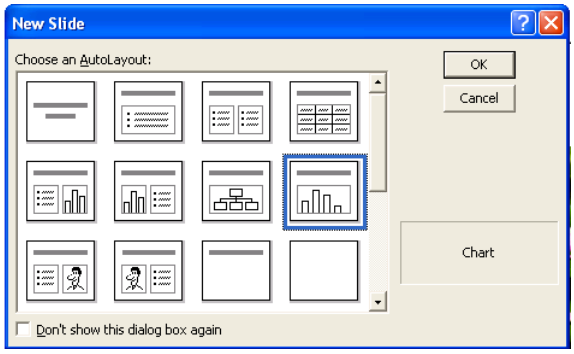


Fig. 8.20

2) Add title to the slide. For example Admission chart.
3) Double click at the chart area, you will get default chart. To have your data you can edit the data sheet according to your needs.
4) You can change the type of the plot, style etc. Right click on to the chart area and edit it.

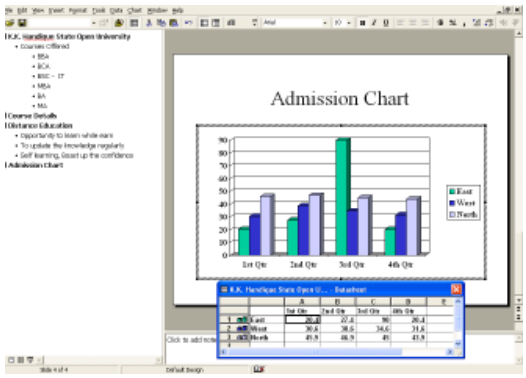


Fig. 8.21

8.6 TO IMPORT A DATASHEET

You can import a data sheet from a file for example from Excel. To do so follow the steps given below :

1) Double click at the chart area. You will get default chart. Click on to the Import file icon present on the standard tool bar and select the data sheetm which you want to import, according to which you want to draw the chart.
2) You can change the type of the plot, style etc. To do som right click on to the chart area and edit it.

Microsoft PowerPoint

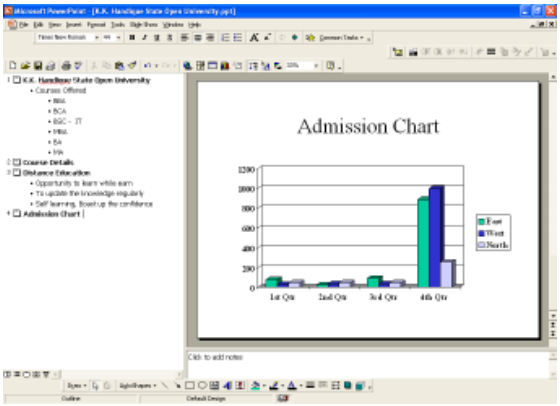


Fig. 8.22

8.7 FORMATTING OPTIONS

Font Style : Font style of the text can be changed by selecting the text of which you want to change the font style and clicking on to the required font style icon available on the formatting tool bar.Similarly Font and their size can be changed. Select the text and use the required icons respectively.

Aligning Text : After selecting the text, use required icons depending on whether you want to Align the text Left, Centre or Right respectively. To have Numbers or Bullets use the following icons respectively.

Background of the Slides : The background of the slide can be changed according to our needs to give an attractive look to the slide. Follow the steps given below to change the Background of the slide.

1) Click on to Format option on the menu Bar. From the drop down menu click on the Background option. You will get a menu shown in **Fig. 8.23**.

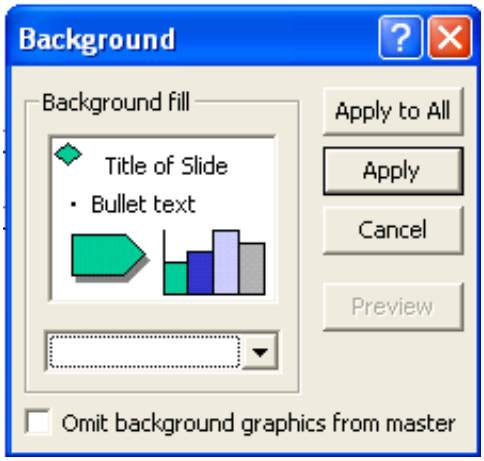


Fig. 8.23

2) To select the required Background click on the arrow mark as shown above. You will get different colour on the resulting menu as shown in **Fig. 8.24**, select the required color for the Background. For example assume that you have selected grey colors as Background color then you will get the color applied to the sample slide in the menu as shown in **Fig. 8.25**.

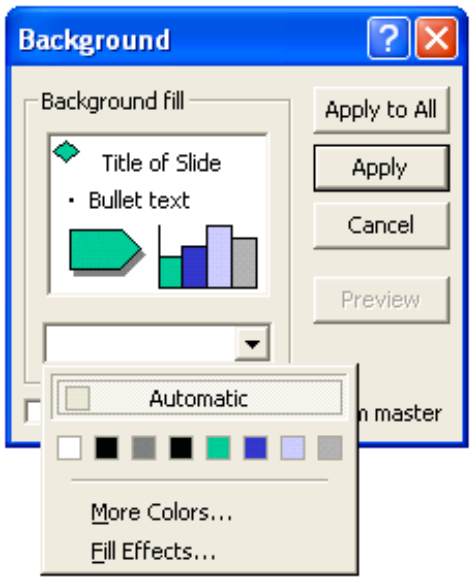


Fig. 9.24

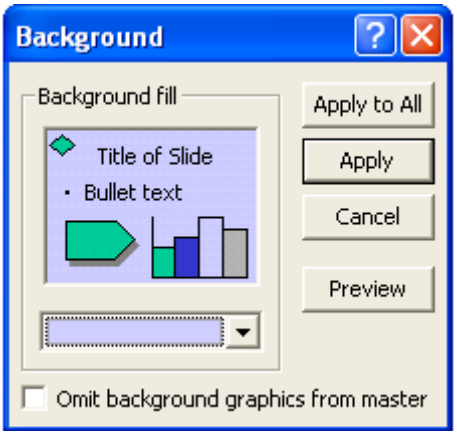


Fig. 8.25

3) You can apply this Background color to all the slides in the presentation by selecting. Apply to All option or you can select Apply option to apply the Background color only to the current slide in the presentation. Or you can cancel this menu by clicking on the Cancel option. You can click on to Preview option to see the new background color on the slide without actually applying it to the slide and if you did not like it you can select a different Backgound color.

Note : All options discussed above are available in Menu shown in **Fig. 8.23**.

Fig. 8.26 shows the application of the Background color to one slide.

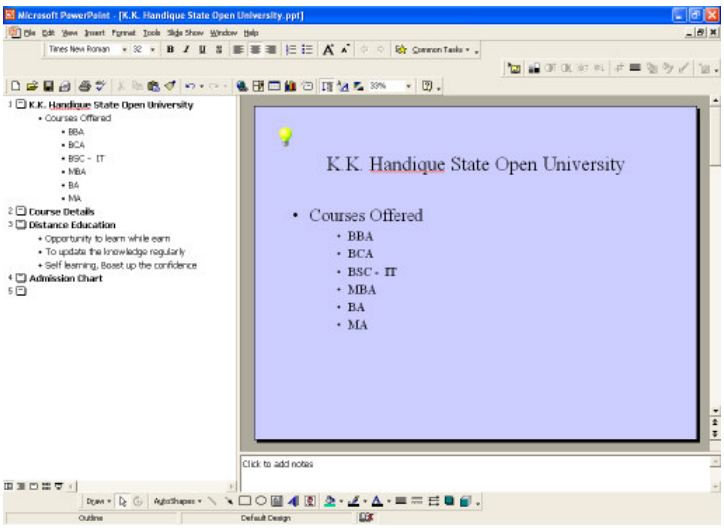


Fig. 8.26

More Color : If you are not satisfied with the available colors, then you can click on to More colors option. This option is available in menu shown in **Fig. 8.24**. You will get a menu as shown in **Fig. 8.27**.

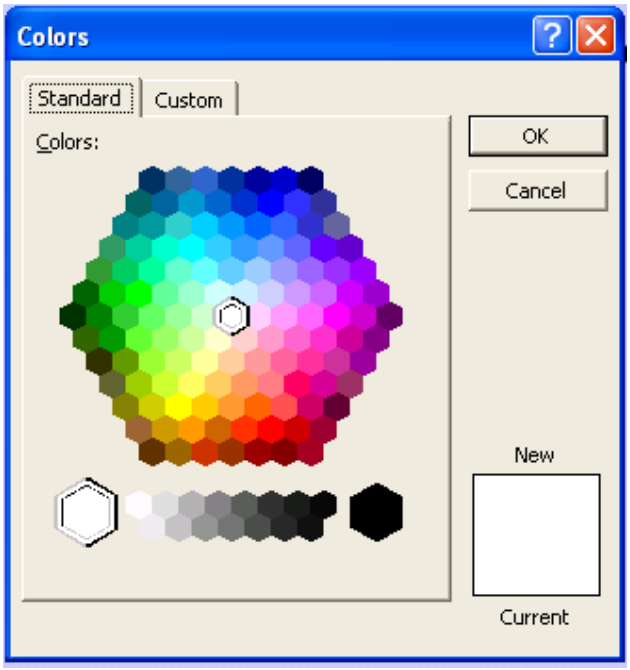


Fig. 8.27

Now select the required color by clicking on your required color, you will get the display of your selected color in the box titled “New” at the right button corner of the menu as shown in **Fig. 8.29**. Now click OK. You will get the color applied on sample slide as shown in **Fig. 8.30** and now you can apply this color to all the slides or current clide.

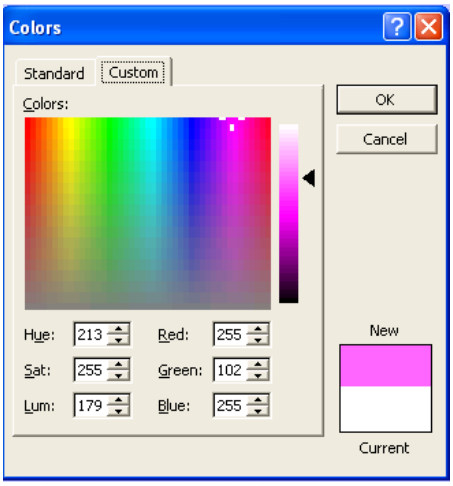


Fig. 8.28

Fill Effects : You have different kinds of Background color fill effects.

Follow the steps given below.

1) After selecting the required colors click on the arrow as shown in **Fig. 8.29**. In the resulting menu select Fill Effects as shown in **Fig. 8.30**. You will get a menu as shown in **Fig. 8.30**.

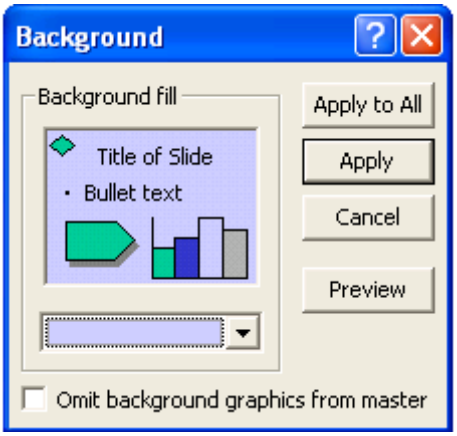


Fig. 8.29

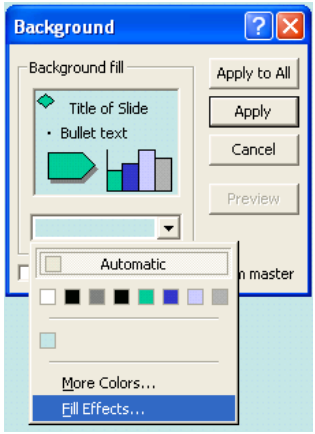


Fig. 8.30

2) You can use Gradient according to your **Fig. 8.31**.

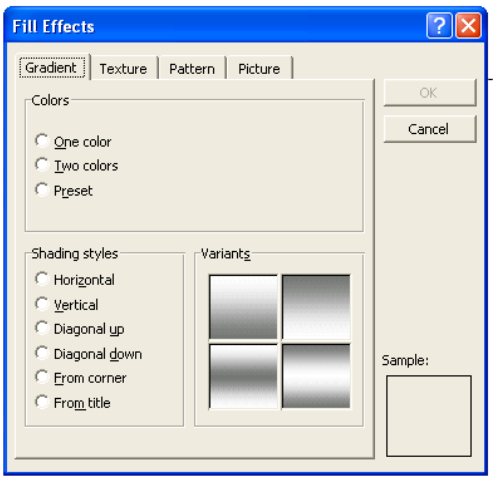


Fig. 8.31

3) You can select the texture **Fig. 8.32**.

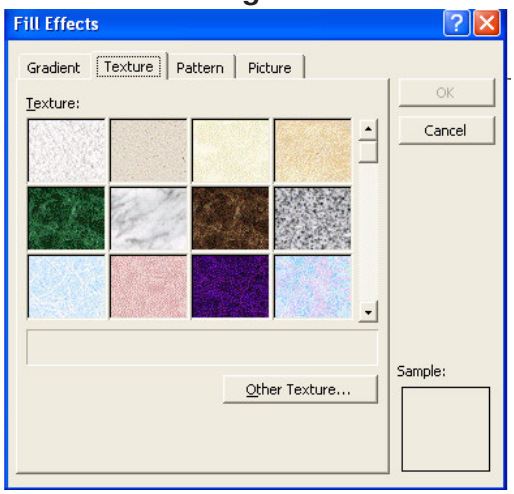


Fig. 8.32

4) You can select Pattern **Fig. 8.33**.

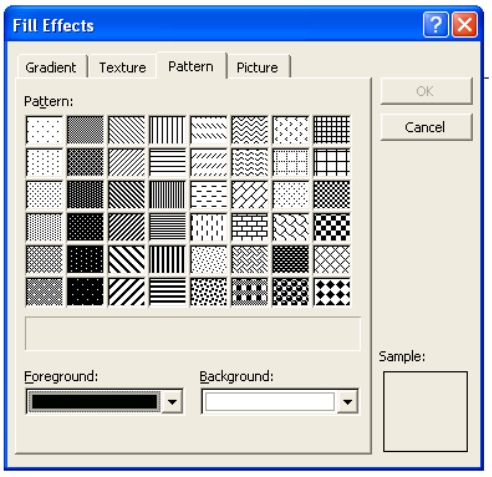


Fig. 8.33

5) You select pictures **Fig. 8.34**.

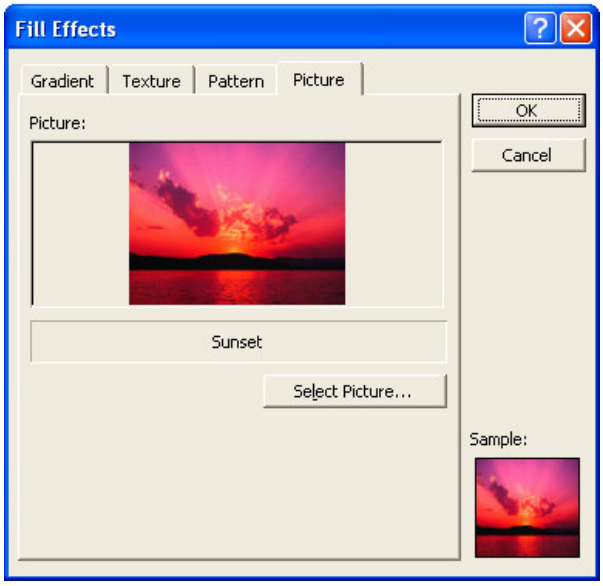


Fig. 8.34

Note : Try all the options.

Applying Design Templates: You can apply different design templates to the slides to improve the appearance of the slides. To do so, follow the steps given below.

1) Click on to Format option present in the menu Bar you will get the screen as shown in **Fig. 8.35**.

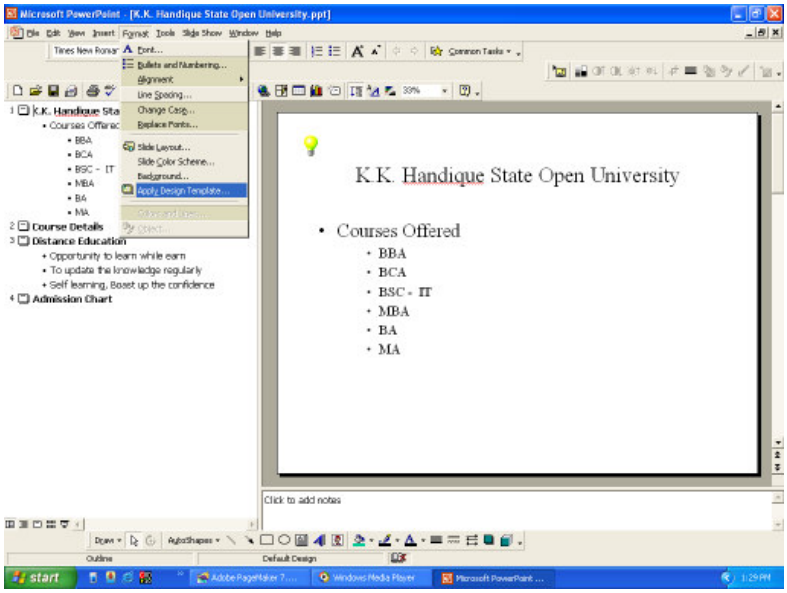


Fig. 8.35

2) Click on Apply Design Templete option of the drop down menu. You will get another menu as shown in **Fig. 8.36**.

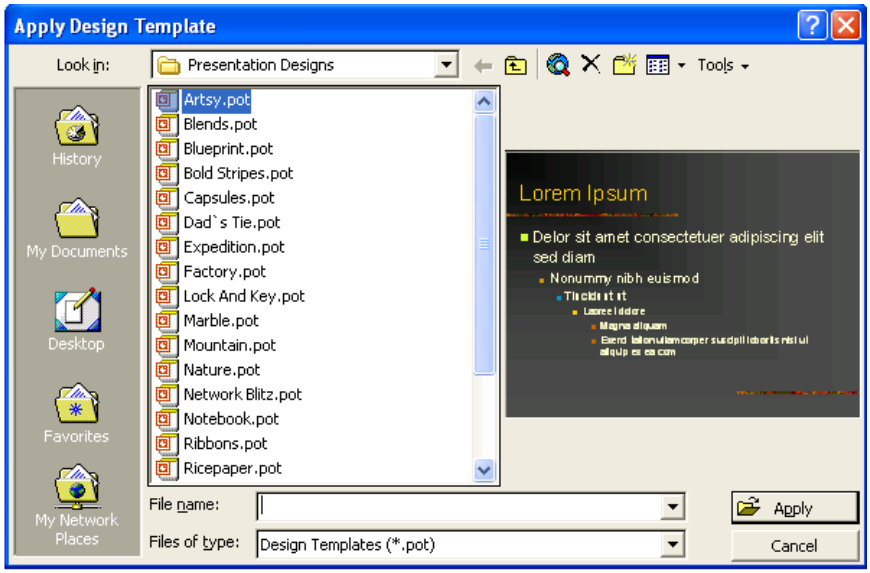


Fig. 8.36

3) You can select any of the templates available in the list by clicking on it and clicking on the Apply Option in that menu. The template will be applied on the slides of the presentation. You can also cannot this menu by clicking Cancel option present.

Note : Right side box present in the Apply Design Template menu [Fig.9.36] will display the application of the selected design Template on the sample side; so by looking at that you can choose the correct template.

Example : Let us select Fill Bar design Template **Fig. 8.37** and apply it to the slides **Fig. 8.38**.

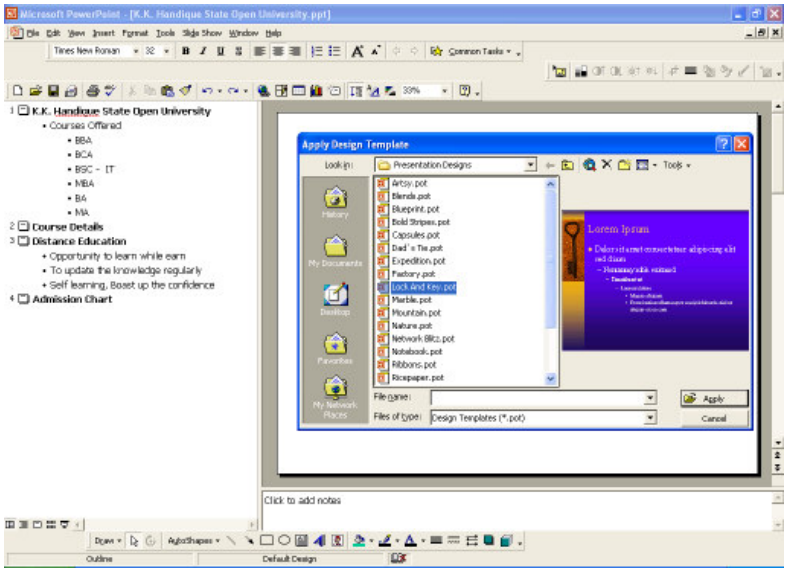


Fig. 8.37

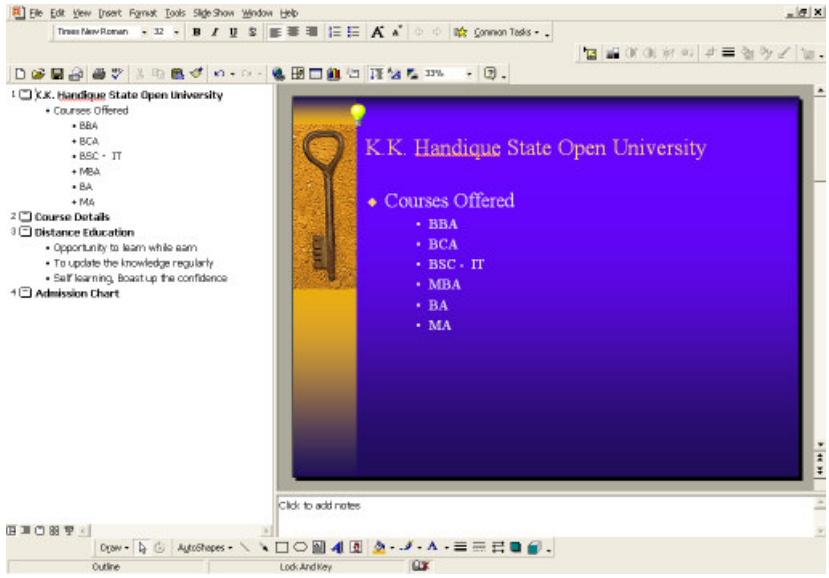


Fig. 8.38

8.8 SLIDE TRANSITION

During the slide show if you want to give different kinds of transition to the slides follow the steps given below.

1) Click on to Slide show option present on the Menu Bar you will get a drop down menu as shown in **Fig. 8.39**.

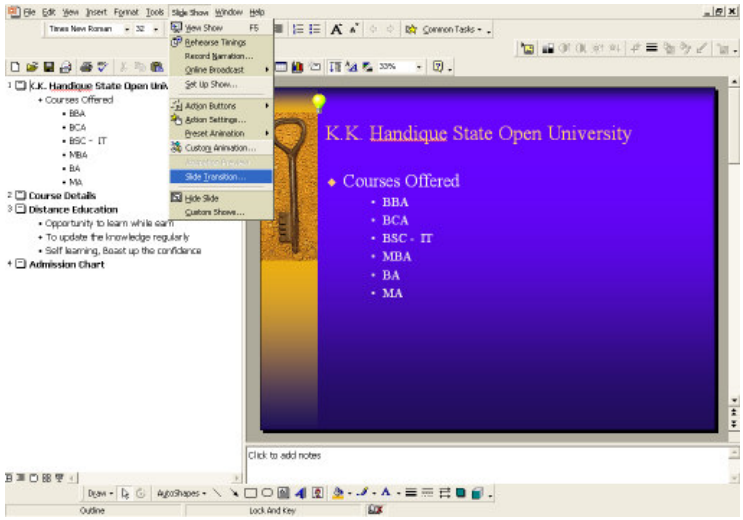


Fig. 8.39

2) Click on to Slide Transition option you will get a menu as shown in **Fig. 8.40**. This menu has different options let us see each of these options.

a) **Effect :** By default it is No Transition. You can select different kinds of effects for transition by clicking on the arrow as shown in Fig.9.40and clicking on the required effect. The effect of your selection is shown in the box of the menu immediately. (**Fig. 8.40**). The effect can be made slow, Medium or Fast.

b) **Advances :** This is used to move from one slide to another slide in a presentation during slide show. You can select the option on mouse click or Automatically after. You can select both the options also (**Fig. 8.40**).

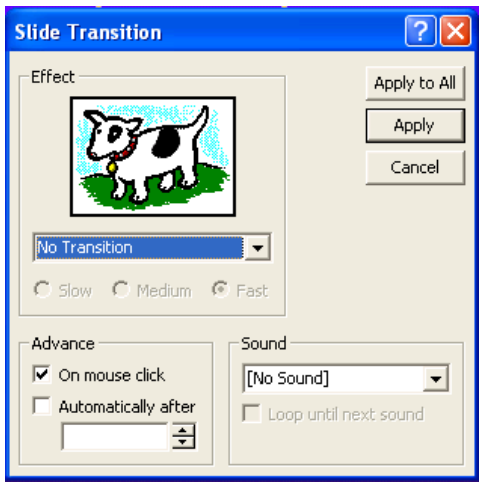


Fig. 8.40

On Mouse Click : When you select this option you are required click the mouse button to advance to the next slide.

Automatically after : When you select this option after certain amount of time as you have selected, the next slide will be displayed on the screen.

When you select both the options, the slide will be advanced either by mouse click or automatically whichever is first.

c) **Sound :** You can select different kinds of sounds during the appearance of the slide to do so click at the sound option of Slide Transition menu and select the required type of sound (**Fig. 8.40**).

Note : Now you can apply this Slide Transition feature to all the slides (Apply to All) of the presentation or the current slide (Apply).

You can also Cancel the menu (Cancel) **Fig. 8.40**.

8.9 DIFFERENT VIEWS OF THE PRESENTATION

You can have the different views of your presentation.

1) **Normal View :** Click on this you will get normal view.

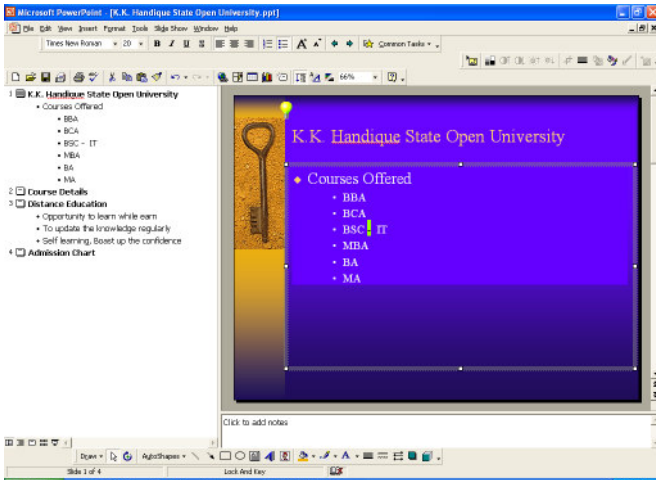


Fig. 8.41

2) **Outline View :** Click on this to get outline view as shown in **Fig. 8.42**.

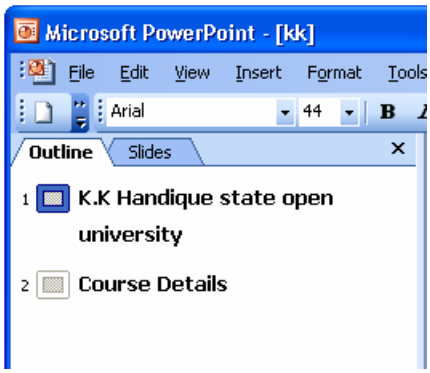


Fig. 8.42

3) **Slide View :** Click on this to get a view as shown in **Fig. 8.43**.



Fig. 8.43

4) **Slide Sorter View :** Click on this to get the view as shown in **Fig. 9.44**.

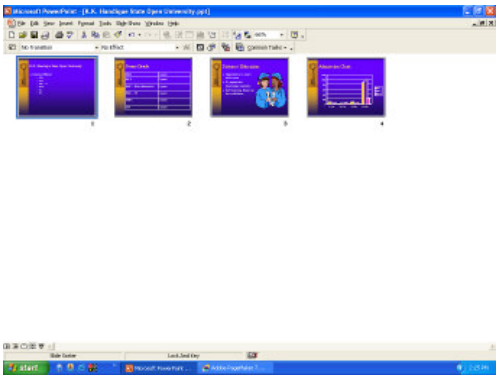


Fig. 8.44

5) **Slide show :** This takes you to slide show.



CHECK YOUR PROGRESS

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

i) You can create a new presentation by Autocontent Wizard.

ii) You can apply sound affect while presenting the slides.

iii) We cannot insert graphics in Microsoft PowerPoint.

Q.2 : Define Microsoft PowerPoint.

.....

.....



8.10 LET US SUM UP

PowerPoint provides 24 different types of page layouts along with a blank page. A PowerPoint presentation can include one or more slides. You can even add more slides to the existing presentation. The default extension used for the PowerPoint presentation file is ppt. A chart can be included in a slide. A Data Sheet can also be imported from a file say from Excel. The appearance of the text in the slides can be changed to suit the requirement.

Attractive books can be given to slides by changing the Background. You can also have the required kind of transitions for the slides in the PowerPoint presentations.



8.11 FURTHER READING

1) Jain, V.; *MS Excel 2002–Training Guide*, BPB Publication, New Delhi.
2) Lotia, M.; *World 2000–An Introduction*, BPB Publication, New Delhi.
3) Rajaraman, V. (2004); *Fundamentals of Computers*, 4th Edition, Pentice-Hall of India, New Delhi.
4) Syganski; *Introduction to Information Technology*, Pearson Education, Delhi-110092.
5) Witherspoon; *PowerPoint 2000 Fast & Easy*, BPB Publication, New Delhi.



8.12 ANSWER TO CHECK YOUR PROGRESS

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

Ans. to Q. No. 2 : Microsoft PowerPoint is a most widely used utility to create presentation relating to products, organisation, research papers etc. Using this software a slide can be designed, text can be inserted, graphics can be inserted and animation can be given to the slides and the objects within the slide.



8.13 MODEL QUESTIONS

Q.1 : Explain different basic parts of PowerPoint Window.

Q.2 : What are PowerPoint presentation? Why they are used?

Q.3 : Explain the steps in creating a PowerPoint presentation.

Q.4 : How do you import a Data Sheet from Excel?

Q.5 : Discuss slide transition.

Q.6 : What are the different views of presentation?

*** ***** ***

UNIT 9 : INFORMATION TECHNOLOGY

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Areas of Information Technology

9.4 Advantages and Disadvantages of Information Technology

9.5 Application of Information Technology

9.6 Let Us Sum Up

9.7 Further Reading

9.8 Answer to Check Your Progress

9.9 Model Questions

9.1 LEARNING OBJECTIVES

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

- define Areas of Information Technology
- explain Applications of Information Technology
- explain Advantages and disadvantages of Information Technology.

9.2 INTRODUCTION

Information Technology (IT) may be defined as the technology which is used to acquire, store, organize and process data to a form which can be used in specified applications, and disseminate the processed data. Information is processed data or processing of data, based on which decisions can be taken and appropriate actions initiated.

Information is also processed data which improved our knowledge, enabling us to do our work better. As an example of how organizing data enhances our understanding, let us consider marks obtained by students in an examination. The marks by themselves do not give any immediate idea about the performance of the class. By processing this data, a bar chart may be obtained, which gives the number of students with marks between 100 and 90, 90 and 80, 80 and 70, an so on. This Chart (**Fig. 9.1**)

gives the teacher of the class information on the performance of the class, which would enable him or her to initiate appropriate action.

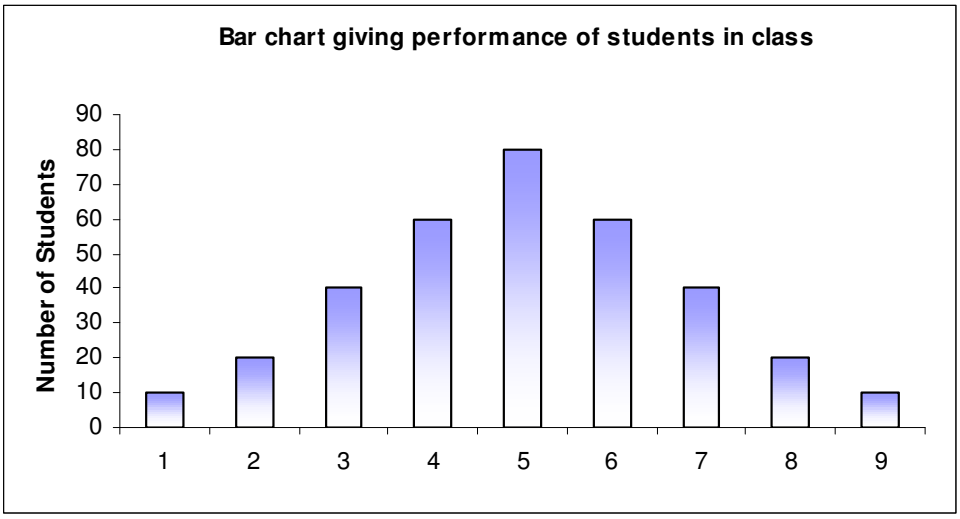


Fig. 9.1

This is a simple example to have a basic idea and concept of information technology. Actually data is processed through computer based systems for various applications.

9.3 AREAS OF INFORMATION TECHNOLOGY

There are various areas of information technology. These areas could be broadly classified as :

1) **Hardware Engineering :** It is a science related to electronic circuits and components. The hardware of the computer consists of different types of units such as memory devices, CPU, input and output devices. Memory devices are the devices based on electronic circuits and components to store the instructions and data required for operation.

   Memory is needed for the following purposes :

   i) To store the program and data during execution.
   ii) To store the program for repetitive use.
   iii) To store the data for the future.
   iv) To store the result of execution.

   Semi-conductor memory and magnetic disk memory are two-types of memory we use.

- **CPU (Central Processing Unit) :** The Control Unit, Arithmetic Logic Unit and Memory Unit together form the Central Processing Unit (CPU) of the computer.
- **Input Devices :** These devices allow supply of data to the computers. The data can be fed in the form text or graphics. Keyboard, light pen and mouse are the examples of input devices.The input devices help us to communicate with the electronic computer by converting the human understandable signals and numbers into appropriate electric signals.
- **Output Devices :** These devices provide output result which are processed by the user. Visual Display Unit (VDU), Printer and Plotter are the examples of output devices.

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

2) Networking : It is a science related to Internet and interconnected network of computers. A network is a communication system that enables computer users to share computer equipment, application software, data voice and video transmissions. Networks can link users who are across the room or across the world. Network information is transmitted by wire or through radio waves, such as microwaves. There are two primary reasons for having a network.

First : By sharing software and equipment, network owners are able to save expenses on resources. One printer can be used for an entire office, saving the cost of attaching a printer to each computer.

Second : Networks make people more productive. People are able to share information without leaving their offices or homes.

- **Networking Elements :** Today's networks have several common elements:
  - **i) Nodes :** Any device or entity or computer connected to a network is a node.
  - **ii) Cabling :** The communication wire used to connect equipment in a network is called a cable. The cable provides

a medium for the electrical signal that carries information from one networked computer to another. The signal contains data that are used by workstations, hosts and printers. Most nodes (or computers) have a network interface card (NIC) that can capture the signal and translates it for use by the node.

iii) **Topology :** All networks have a physical layout that determines how the data signal goes from one node to the next. The physical layout is the topology of the network. The topology is most easily represented by drawing the connections between network nodes.Nodes connected in star patterns are known as the Star Topology, in circles known as the Ring Topology, and in a straight line pattern is known as the Bus Topology.

3) **MIS (Management Information System) :** It is a tool used by management for improving the productivities. A system is a set of processes interacting with each other in response to inputs to produce outputs. A process is a set of operations carried on inputs with the system. Management Information System (MIS) is an application of management of the information of a system. The processing of data is carried out by various persons trained in the organization. The processing of data is performed by using computer which utilizes hardware and software components. The principle of management is utilized for operation on a data system. This may involve:

i) Planning of data processing.
ii) Planning of software and hardware.
iii) Planning for new software.
iv) Planning for advanced hardware.
v) Coordinating the personnel.
vi) Organizing and arranging day-to-day operation.
vii) Communicating with programmers and data entry operators.
viii) Motivating the personnel for better accuracy and efficiency.

ix) Initiating the personnel for learning new system and crating there interest.

x) Establishing the control over the complete system to avoid unnecessary expenditure, work, waste of time etc.

The MIS cell performs some of the major functions :

i) Monitoring of useful information.

ii) Designing of better procedure.

iii) To assist in decision making.

iv) To form an interface between different systems.

4) Internet and Software : It is the area in which the sharing of resources and communication can be performed. We consider three types of network:

i) Local Area Network (LAN) : A series of interconnected computers, printers and other computer equipments that share hardware and software resources. The service area is usually limited to a given floor, office area, or building.

ii) Metropolital Area Network (MAN) : A network that reaches throughout a large area such as a city or a large university campus.

iii) Wide Area Network (WAN) : A far reaching system of networks. WANs can across state lines and across continents. They make it possible for thousands of users to send data to one another.

We may define Internet as a worldwide Computer networks whose constituents are computer networks such as LAN, MAN and WAN located in organizations. All these individual networks are interconnected using routers and publish switched telephone networks. All computers connected to the Internet communicate with one another using a common set of rules. The common set of rules is called a protocol. TCP/IP (Transmission Control Protocol/ Internet Protocol) is the protocol used by the Internet.

An important point to note use any technology such as Ethernet, token ring or any type of connection such as ring, bus, star etc. provided the rules of communications among computers is standardized as TCP/IP.

The Network Interface Unit (NIU) of every computer/device which wants to send or receive messages must have an address. Such an address is called an IP address. It should be noted that routers which interconnect local networks are special purpose computers and will require IP addresses. The IP address is 4 bytes long. It is difficult for people to remember a string of 32 bits. Thus IP address is expressed in the so called dotted decimal format.

For example, an IP address is : 144.16.79.48

Where each number is the decimal equivalent of a byte (Remember that with 8 bits we can represent 0 to 255). Fortunately, in day-to-day use, it is not necessary to remember the IP address of your machine in numerical form. A character string which is easy to remember is usually assigned as your address. The actual assignment of IP addresses follows a systematic process to make it easy to route messages between networks. Each Internet Service Provider (ISP) who manages a group of users is assigned a set of IP addresses by an international agency. The ISP in-turns assigns a subset of addresses to each organization from this set.

The heart of any network is the communication software used to guide data along their way. All networks use or more software protocols that enable data packaging and transmission. Protocols define the rules for handling and interpreting transmitted data. Each data packet is constructed according to the rules of the network protocol. For example, many college campuses use the Transmission Control Protocol/Internet Protocol (TCP/IP) to transmit data. Novell Netware networks use the Internet Packet Exchange (IPX) and the Sequence Packet Exchange (SPX) protocols. These protocols can be transmitted on a single network as long as workstations can recognize the protocols.

The speed at which data are transported on a network is called Data transmission on a network is called Data transmission rate. On some networks the speed may be as low as one megabits per second (Mbps), and others it may be over 100 Mbps.

5) **Enterprise Resource Planning (ERP) :** It is the area in which the planning of available resources and forecast the demand of the customer is performed by use of computer system. ERP is also known as Enterprise Systems which appear to be dream come true. These commercial software packages promise the seamless integration of all the information flowing through a company, financial and accounting information, supply chain information, customer informati0on.

An enterprise system enable a company to integrate the data used throughout its entire organization. This list shows some of the many functions supported by SPA' R/3 package. Germany's SAP is the fastest software company in the world.

At the heart of an enterprise system is a central database that draws data from and feeds data into a series of applications supporting diverse company functions.

6) **GUI Applications :** There are front end tools used for customization of software. Graphical User Interfaces or GUIs are found on most of today's microcomputers. GUIs are based on the philosophy that people can use computers intuitively – that is with minimal training – if they can manipulate on screen objects that represents tasks or commands.

GUI is a work environment, ranks etc., provided by software like windows, Presenting picture and graphics to operate various commands.

Graphical objects are the key elements of GUIs. A graphical object is a small picture on the screen that you can manipulate using a mouse or other input device. Each graphical object represents a computer task, command or a rat world object. You show the computer what you want it to do by manipulating an object instead of entering commands or selecting menu options.

Most graphical user interface are based on a metaphor in which computer components are represented by real-world objects. For example, a user interface using a desktop metaphor might represent documents as file folders and storage as a filing cabinet.

The greatest advance is provision of very good graphical user interface, which makes it easy for any one to use the system for information.

7) **Database Application :** There are the database related applications software.

Data : Data is defined as facts related to people, places, events or things, which can be represented using number and letter.

Example : Name, address, age or facts related to people. These facts are represented using alphabets, numbers or a mix of both.

Database : A collection of interrelated data stoned together with controlled redundancy to serve one or more applications, so that the data stored are independent of the programs that use them and so that a common, controlled approach can be used for adding, modifying and retrieving data.

It is a form of data construction created to store the data in a suitable format. The database provides an information about the type of application or th case for which the data is stored.

Example : Address File

Name	Age	Address	Occupation

Database System : A database system is an integrated collection of related files along with details of the interpretation of the data contained therein.

Database Management System (DBMS) is a software or a software system – a collection of software required for using a database.

Example : MS-ACCESS, FOXPRO, ORACLE etc. Two main types of facilities are supported by the DBMS :

i) **The Data Definition Facility or Data Definition Language (DDL) :** DDL can be used to define the conceptual scheme and also give some details about hoe to implement this scheme in the physical devices used to store the data.

ii) **The Data Manipulation Facility or Data Manipulation Language (DML) :** DML is a language used to manipulate data in the database. Data manipulation involves retrieval of data from the database, insertion of new data into the database and deletion or modification of existing data.

8) **Operating Systems :** This is a science of study of operational system of computer.

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

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

The names of the most popular microcomputer operating systems are FOS (Disk Operating System), Microsoft Windows, OS/2 and Mac OS, UNIX, VMS and MVS, LINUX are the familiar names of the operating systems used in mini or mainframe computers. Operating systems for micro, mini and mainframe computers perform many similar tasks.

9) **Computer Aided Design :** It is the design of the product by use of the computer software. There are several readymade tools available in computer systems to generate pictures. We will classify the pictures as geometrical objects which can be drawn using line segments, circles, curves, edipses, triangles etc. and as natural objects such as an elephant, and human face. Geometrical objects are easy to generate using the primitive operations available on a PC. Generating figures using line segments, circles etc. is known as vector graphics, vector graphics programs are used extensively

to create engineering design drawings, generally called Computer Aided Design (CAD) tools. One of the most popular CAD tools is called AUTOCAD which allows viewing different aspects of an object such as top view, side view, frontal view, and a 3D perspective. The major advantages of tools such as AUTOCAD are:

i) Precise drawings to scale and control of colour.
ii) Blending colous and shading
iii) Ability to slowly rotate a 3D object view on the screen and make alterations as needed.

10) E-Commerce : It is the commercial activity performed by use of electronic media. The virtual world of business is E-Commerce. The Internet has inter-connected number of users creating a new world markets and new business opportunities.

E-Commerce is a commercial activity by using electronic media by executing business transaction such as contract ordering, invoicing payment on interactive electronic media. This refers to all types of transactions relating to commercial activities based on processing and transmission of digitized data, text, sound and images.

It is defined as any transfer involving some exchange of value over an Internet. The E-Commerce involves a user with a computer linked to the Internet which employs an Internet browser to contact web sites in order to exchange the value for goods or services or transfer of funds between accounts. The goods exchanged may be electronic documents, images and sound files. The electronic services may include ATM, Financial Planning, Online Games etc.

The E-Commerce is used in number of fields such as –

i) Sharing of information
ii) Document exchange
iii) Messages dispatch
iv) Market and advertising
v) Payment transaction

It is used in wide areas of business and commercial applications. Some of the applications are :

a) **Web Site Development :** The website can be created for any business organization which contains the information of the organization, the products manufactured and the location, capacity etc. of the company. The website contains number of files having photograph and picture of the company products. It also provides information about the communications to be done with different departments.

b) **Online Training :** It is possible to provide training to the students by using the Internet and video conferencing system. The training can be given in various areas of engineering, science, medical etc.

c) **Shopping :** It is used for purpose of shopping where the products could be displayed and the information regarding the product can be provided. The orders could be accepted.

d) **Real Estate :** The e-commerce for real estate business is for display and choice of various properties and their locations.

e) **Customer Services :** It can be used for providing various services to the customers like the information about trains, buses, hotels etc. The e-mail service can also be provided.

f) **Medical Consultations :** It can be used for consultation of the expert doctor regarding the diagnosis.

g) **Online Library :** It can be used for the library in which online books could be provided and e-books could be obtained on the Internet.

h) **Online Banking :** It can be used for online banking services where the transactions of payment could be made on the Internet through the credit cards system.

The E-Commerce applications are :

1) **Business to business E-Commerce :** The Intranet can connect all businesses to one another regardless of their locations or positions the supply chain of Internet connections.

2) **Business to consumer E-Commerce :** The connection of business houses or companies to consumer for display of their advertisement and marketing of their products.

3) **Intra Company E-Commerce :** The new tools of E-Commerce such as TCP/IP connectivity and WEB browser have finally enable the building and sharing of information within the company. The intra company applications of WEB based technology are called intranets

11) **Webpage Development :** This is a development of customize marketing documents placed on the Internet site for the view of the customers. The Word Wide Web (WWW, W3 or the Web for Short) is the most visual part of the Internet. It is also the fastest growing part of the Internet which may be because it is so easy to access and explore. It is based on the display of Web pages, which are computer documents that can present text, graphics and sounds.

A Web page represents a single location on the Web. A Web site is made up of two or more interconnected Web pages presented as a unified place on the Web. A common term used on the Web is home page. This is the intended central or starting place on a Web site.

In 1989 Tim Banners Lee and his team in the European Laboratory for Particle Physics designed the present form of the documentation language and called it Hypertext Markup Language (HTML for short) which is a basic tool for designing Web page. It is a documentation language to mark the headings, title, table and forms.

The Web is visual, allowing you to see more than just text on year computer screen. For example, with the Web you can preview a piece of art and then download it, copying it to your computer.

You can still view written information as well, but text can be formatted in different ways to fit the overall presentation of the Web page.

The Web is an ideal medium for the transmission of multi-media information. With the click of a button you can download clip from your favorite movie or hear a snippet (to remove by cutting off) of audio from a famous radio address.

The Web's highly graphical nature makes it ideal for presenting artwork and photographic images. Pictures of family, friends and especially pets have become increasingly popular among Web creators.

Web pages also serve as an ideal medium for transferring computer software. Many corporate Web sites, for example, allow users to download free demonstration programs, add-on pieces, or upgrades to existing computer applications.

HTML and hyperlinks are the basis of web's versatility. Links on a web page can take the viewer to another place on the same web page or to different web page altogether. They can be links to images, or they can activate the transfer of digitized information such as video or audio clips. (Web links are also commonly known as hyperlinked) Hyperlinks can call up windows for sending e-mail, or even take the views to locations on the internet outside the web.

Hyperlinks are the easiest way to access information on the Internet. Hyperlinks are based on the principles of hypertext, which is a method of publishing that relies on interactive participation.

When a web page is developed the following are to be planned :

i) Content of the Page

ii) Appearance of the Page

The appearance of the web page is coded in HTML language using HTML tags.

12) Application Developers : This is an area of software development of the commercial applications, business and engineering application. This is an area of application software. Application software helps you accomplish a specific task using the computer. It helps you produce documents, perform calculation, manage financial resources, create graphics, compose music, play games, maintain files of information, and so on.

Because there is such a vast amount of application software developed so far, it is helpful to classify it. One way to classify application software is to use these categories : Productivity, business, education, reference and entertainment.

Productivity software can be classified as follows :

a) ***Electronic Mail Software :*** provides you with a computerized mail box that collect documents or "mail" you receive electronically from other computer users. You can send electronic mail messages, you can read your electronic mail on your computer screen, you can save or throw away your electronic mail after you read it, and you can compose electronic replies to the mail you receive.

b) ***Graphical Software*** helps you draw pictures, 3-D images, and animations

c) ***Desktop Publishing Software*** provides you with computerized tools for page layout and design that combine text and graphics.

d) ***Scheduling Software*** helps you keep tracks of appointment, due date, and special dates such as birthdays and holidays.

e) ***Word Processing Software*** helps you produce documents such as reports, letters, papers, and manuscripts.

f) ***Spreadsheet software*** is frequently used by financial analysis to examine investment opportunities, by managers to create budgets, by entrepreneurs to create business plans, and even by educators to keep track of student grades. It helps you work with numbers.

g) ***Database Management Software*** helps you work with facts and figures, particularly stored in database.

h) ***Business Software*** helps business and organizations efficiently accomplish routine tasks.

i) ***Entertainment software*** transforms your computer from productivity and business to fun and games.

j) Education Software is designed to help you learn more about a particular topic.

k) ***Reference Software***, such as an electronic encyclopedia, helps you look up facts on any topic.

l) ***Educational simulations*** let you work with a computerized model of something in the real world, manipulate it, and see what happens.

13) **Multimedia System :** These are the recreational systems used for entertainment, games, fun etc.Multimedia system is defined as an integrated collection of computer-based text, graphics, sound, animation, photo images, and video. It also 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 vid4eo into a single interactive computer presentation. To display realistic graphic and video, you computer system must have a high-resolution monitor and a CD-Rom drive.

9.4 ADVANTAGES AND DISADVANTAGES OF INFORMATION TECHNOLOGY

The information technology is the technology used for processing of information on the computer system. The use of computer system provides a large number of advantages for processing information.

Advantages :

a) The data can be stored permanently
b) Large number of calculation can be performed at very fast processing speed.
c) The degree of accuracy is very high
d) The operations like deletion of data, modification of data can be done very easily.
e) The operations of retrieval of data can be performed and the data can be searched immediately from the stored data.
f) The operations such as indexing or arranging the data is possible
g) The variety of functions can be utilized in the operations.
h) It allows for the decisions and logical comparisons.
i) It allows for creation of standard libraries.
j) It is possible to obtain the results in the formatted form.

k) It allows for production of graphics and aesthetics (the study of the nature of beauty).

The information technology revolution has occurred because of the above advances which are obtained in processing of data.

Disadvantages : The following are the important disadvantages:

1) ***Cost of software/hardware and migration*** **:** A significant disadvantage of information technology/system is cost. In addition to the cost of purchasing and/or developing the software, the hardware has to be upgraded to allow for the extensive programs and the workspaces required for their execution and storage.

   An additional cost is that of migration from a traditionally separate application environment to an integrated one.

2) ***Problems associated with centralizatio*****n:** Centralization also means that the data is accessible form a single source, namely the database. This increases the potential severity of security breaches and disruption of operation of the organization because of downtimes and failure. The replacement of monolithic centralized database by a federation of independent and cooperating distributed database resolves some of the problems resulting from failures and downtimes.

3) ***Complexity of backup and recovery*** **:** While centralization reduces duplication, the lack of duplication requires that the database be adequately backup so that in the case of failure the data can be recovered. Backup and recovery operations are fairly complex in the information system management.

9.5 APPLICATION OF INFORMATION TECHNOLOGY

The Information Technology can be utilized in a large number of fields such as:

1) **Railway Reservation System :** In this system the reservation records of the passengers are maintained for different trains and classes. The reservation system maintains the records of passenger name, age, destination etc. in database files.

2) **Industries and Commerce :** The profitability being the prime motto, industries and commercial houses have exploited the use of computers to a large extent to achieve the aim. The versatility of the computers to handle a wide variety of situations, calculations and decision making capacity has been proved as a boon to the commercial world. The tremendous speed and accuracy which could be depended upon have been put to use effectively. The voluminous, tedious and repetitive arithmetic figures and operations involved in the commercial transactions were invariably source of monotony and fatigue for man.

   The errors were common, therefore rechecking meant more time and effort and loss of profit. Since the computers have been loaded with these responsibilities the efficiency has increased beyond imagination.

3) **Banks :** The Information Technology is used in the bank for maintaining the accounts of the saving and current accounts. These records are maintained in the files and the calculations of transactions can be done very easily. These are used for clearing of cheques and even counting of cash.

4) **Inventory Control :** Inventory Control is control of store records. The aim being to avoid the dead inventory, it would be highly desirable to have an all-time up-to-date information about the position of the stock of raw materials, finished, goods and semi-finished goods. The daily receipt of stocks have to be added to the books. The issue of raw materials for processing deducted from the stock and the stock at the end of the day is known to plan the future procurement. This involves tedious calculations and repetitive operation leading to monotony or errors. The use of computers for this purpose has been highly accepted by industries in general. The inventory costs have in fact been reduced considerably. By an up-to-date maintenance of inventory and purchases the industrial operations are stream lined for the higher efficiency.

5) **Production Planning and Control :** The computers have been the best aids to planning the production schedules. The client wise

demand of the goods, production wise manufacturing requirements, item wise actual production, capacity wise manufacturing planning, various such combinations for planning the production control of and industry can be possible only if the computers come to rescue.

6) **Costing and Budgetary Control :** To achieve the goal of profit making in an industry, the control over manufacturing cost becomes an effective remedy. The industries having a series of manufacturing process, the product costing world involves a number of calculations and a range of decision makings. The computers can take up this job and provide the necessary costing figures to control the manufacturing costs. The budget of an industry world involve a number of factors like market behaviour, product demands, financial resources, man power costing and the management policies. The computers can provide useful database for an efficient budgetary control.

7) **Sales Analysis and Market Research :** The efficient marketing management of an industry can be supported by the information available by the computer in a variety of classification and combinations like data wise, item wise, party wise, product wise, territory wise and salesman wise sale figures. The computer can also prepare product invoices if required. This type of analysis can certainly become a strong base for marketing managers.

8) **Financial Accounting and Pay Roll :** The computers have become the most efficient tool in financial accounting and auditing. The entire book keeping is made through the computers. The preparation of tax balances, profits and loss statements, financial balance sheet which used to take months for the account department, involving number of commerce figures and the scope for many other supporting information.

9) **Social and Educational Fields :** Along with the sale of computer in industries, it has entered the social and educational field of the society. The right from learning a simple programming language upto performing the most complicated calculations of space

technology, the computers have become almost indispensable. The government organizations, educational institutes and research institutes have accepted computer for all their needs of data storage, processing and report retrievals. It is used for online training.

10) **Space Technology :** The assembling of space shuttles followed by an adequate quality control and testing is normally performed with the help of large computers in the space technology. Even the path control of space shuttles is done entirely through computer. Apart from this, number of information regarding atmospheric pressure, temperatures, movements of planet and all relevant information are stored in computer which helps in making the space program a success.

11) **Weather Forecasting :** The computers have extended their use in giving the exact weather forecasting for entire country. The computer stores all the data required about the pressure in air, temperature, hot currents etc. in its memory and supplies the daily forecast after proper calculations and certain logical decisions. The forecast can be possibility of rains, the temperature in different parts of country and trend of sea water regarding tide and ebb. The rain prediction helps the formers for better crops, saves fisherman from tide and temperature information is for the benefit of public in general.

12) **Manufacturing System :** It is used in operation of manufacturing systems. The computer can provide instructions to the manufacturing machine which performs the machining system operations according to the type of drawing supplied. The use of computer system allows animations, and alternate design being evolved.

13) **Crime Detection :** The computer has been proved as an effective tool in keeping track of perfect information regarding crime. The finger prints, the crime pattern, sequences of crime and the personal records of all professional criminals are stored in the computer storage when and incident of a fresh crime comes to the notice of authorities, the execution of crime is compared with that of the

computer records. This helps in the detection of criminal, checking the past record of criminal and for preventive measures to control the crime level in a particular area. The Police Deptt., Central Bureau of Investigations, the Regional Forensic Laboratory are required with full fledged computer systems.

14) **Research :** It is used in scientific research to find new technologies, to obtain assessment of the experimental results. The number of scientific institutions are using large level mini computers for their scientific computations. Because of their basic characteristics of high speed in calculations and wide storage, computers can play a vital role for such institutions, in arriving at a required result.

15) **Government Organizations :** As the union and state government have a large setup of functions, computers can do a lot of them. Management Information System (MIS), for government is fully computerized, which provides upto date data for quick and correct decisions for police. The distribution system of sales supplies, financial control and budgetary systems are based upon the information provided by the mainframe computer systems installed at government offices.

16) **Recreation :** The computers have a variety of software for games and recreations. The games have been designed for all the level of people. This fact has made computer the most popular amongst all the age groups of people.



CHECK YOUR PROGRESS

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

i) Management Information System is a tool used by ..... for improving the productivities.

ii) E-Commerce is the ..... activity performed by use of electronic media.

iii) The Control Unit, Arithmetic Logic Unit and ..... together form the Central Processing Unit (CPU) of the computer.

iv) Database Management Software helps to work with facts and figures, particularly stored in .....

v) Entertainment software transforms your computer from productivity and business to .....

Q.2 : Define Web page.

.....

.....

.....

.....



9.6 LET US SUM UP

- Information Technology is primarily concerned with acquisition, storage, processing and organization of data. It is also concerned with widely disseminating organized and processed data for use by people and organizations. In early days of IT, data mainly meant numbers and text. This has changed now. Now data in all forms numbers, text, graphics, audio and video are processed by computers toolstools.
- The hardware of the computer consists of different types of units such as memory devices, CPU, input and output devices. Networking of computers increases the utility of each computer as it can obtain services of other computers and expensive peripherals attached to the network. Internet is a world wide network whose constituents are millions of smaller networks. In other words it is a network of networks. Operating system is an organized collection of programs that acts as an interface between machine hardware and the user providing the user with a set of facilities and maintenance of the program. Application software are developed for the specific area of application.
- The sharing of business information, maintaining business relationships and conducting business transactions using telecommunication networks is usually defined as E (Electronic)-

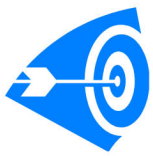
Commerce.

- Multimedia refers to the integrated use of multiple media, such as slides, video taps, audio tapes, records, CD-ROMs, and photos.
- Information Technology (IT) is profoundly affecting our day-to-day living. Computers are everywhere: in government offices, courts, businesses, public utilities, banks, homes etc. It is essential to be conversant with their applications and know how to use them to live in today's world.



9.7 FURTHER READING

1) Jain, V.; *MS Excel 2002–Training Guide*, BPB Publication, New Delhi.
2) Lotia, M.; *World 2000–An Introduction*, BPB Publication, New Delhi.
3) Rajaraman, V. (2004); *Fundamentals of Computers*, 4th Edition, Pentice-Hall of India, New Delhi.
4) Syganski; *Introduction to Information Technology*, Pearson Education, Delhi-110092.
5) Witherspoon; *PowerPoint 2000 Fast & Easy*, BPB Publication, New Delhi.



9.8 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : i) Management, ii) commercial, iii) Memory Unit, iv) database, v) fun and games.

Ans. to Q. No. 2 : A Web page represents a single location on the Web. A Web site is made up of two or more interconnected Web pages presented as a unified place on the Web. A common term used on the Web is home page. This is the intended central or starting place on a Web site.



9.9 MODEL QUESTIONS

Q.1 : Define Information Technology: What is the difference between data and information? Give an example of organizing data which allows human decision making.

Q.2 : Discuss the different areas of Information Technology.

Q.3 : What are the ways IT is affecting our day-to-day life?

*** ***** ***

UNIT 10: WORKING IN INTERNET

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Internet

10.3.1 Internet Architecture

10.4 Evolution of Internet

10.5 Basic Internet Terminologies

10.6 Getting connected to Internet

10.6.1 Dial-Up Connections

10.6.2 ADSL Connections

10.6.3 Cable Connections

10.7 Application of Internet

10.8 Let Us Sum Up

10.9 Further Reading

10.10 Answers to Check Your Progress

10.11 Model Questions

10.1 LEARNING OBJECTIVES

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

- define Internet
- describe the evolution of Internet
- illustrate the steps to getting connected to Internet
- describe the application of Internet

10.2 INTRODUCTION

Ever since the advent of computers, researchers have indulged in a continuous quest to bring the world closer through computers. This effort gave rise to the Internet. It is through the Internet that today millions of people communicate and share information, regardless of their location. This unit will focus on the basics of the Internet and also shed light upon how the Internet works along with its applications.

10.3 INTERNET

The Internet can be defined as a **network** of **globally connected computers** that is **decentralized by design.** This definition can be broken down into three parts. Let's understand each part of the definition in isolation.

It is a network: A network is a collection of computers. The Internet can also be referred to as a network because it is a collection of millions of computers.

Globally connected computers: This means that you can be connected to the Internet, regardless of your location. The Internet has brought people in the world closer by connecting computers located in the remotest of locations.

Decentralized design: The Internet has a decentralized design. That is, there is no centralized body that controls the way in which the Internet functions. The Internet does provide online services that are centrally administered, but as a whole, it would not be incorrect to say that the Internet has a decentralized design. Each computer connected to the Internet is called a *host*. The operator user of a particular host can choose from the millions of available Internet services and can also make services available through the Internet.

You can consider Internet to have the following characteristics:

- A complex network - with simplified definition as a 'network of network'
- Disorganized - Internet can be cumbersome and confusing, even for experienced users
- A decentralized system - millions of individual networks and over 200 million individual computers connected through the world
- Composed of many billions of files (web pages).
- Dynamic - changing every minute of every day. On an average, a new network is connected to the Internet every 30 minutes.
- Expanding exponentially - the Internet is growing at the rate not less than 15% per month.

In order to access the Internet, one requires the following:

- A client computer with necessary hardware and client software

- Connectivity through Internet Service Provider (ISP) for flow of data
- Host computer(s) which is also called Web server hosting the desired
- Processor of Pentium (Intel based) or AMD or Macintosh
- Network Interface Card (NIC)
- Modem, it can be an external or internal (fitted inside the computer)

The necessary software that must be found on the client computer is:

- Operating system like Windows, UNIX, LINUX or OS/2 etc.
- Web browser like Netscape, Internet explorer, Firefox etc. (it must be compatible with the operating system).

Common methods of Internet access in homes include dial-up, landline, broadband (ADSL) **(over coaxial cable, fiber optic or copper wires)**, Wi-Fi, satellite and 3G technology cell phones etc. Let us now look at the architecture of the internet.

10.3.1 Internet Architecture

It is important to understand what the term “architecture” means. The notion of network architecture was introduced during the Internet research phase by the research community that had developed the Arpanet protocols. Network architecture is a set of high-level design principles that guides the technical design of the network, especially the engineering of its protocols and algorithms. There are two commonly used architectures in Internet technology and they are: *peer-to-peer* and *client server architecture*.

Peer-to-peer: Peer-to-peer is a communication model in which each and every node is capable of sharing information and can initiate a communication session. On the Internet, peer-to-peer (referred to as P2P) is a type of transient Internet network that allows a group of computer users with the same networking program to connect with each other and directly access files from one another’s hard drives. **Napster** and **Gnutella** are examples of this kind of peer-to-peer software.

Client Server: The Client-Server Architecture is based on the principle where the client computer requests for some data and the data are sent by the server computer through the network. The concept of *client/server* computing has particular importance on the Internet because most of the programmes are built using this design. Servers are powerful computers or processes dedicated to managing disk drives (file servers), printers (print servers), or network traffic (network servers). Clients are PCs or workstations on which users run applications. Clients rely on servers for resources, such as files, devices, and even processing power.

The following figure shows the two architectures:

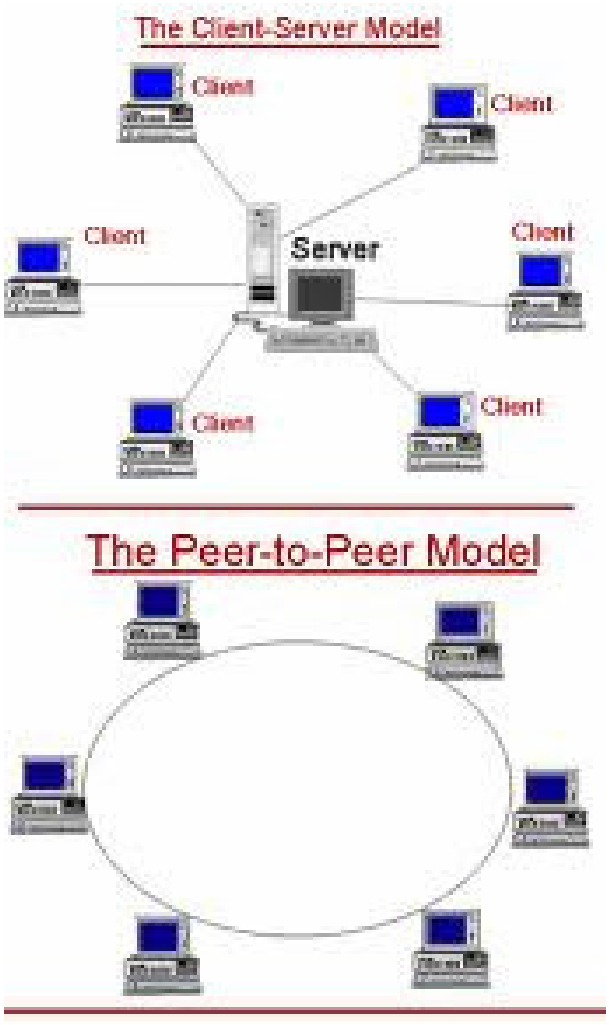


Fig. 10.1: Client Server and peer-to-peer architecture

10.4 EVOLUTION OF INTERNET

The Internet was born in the 1970s in a small government project of the United States of America called the APRANET. The APRANET had many computers connected to each other through modems or leased lines and was aimed for exchange of data between computers using the technique of packet switching. In the 1980s a new concept was introduced where a world-wide network of interconnected TCP/IP networks existed simultaneously called the Internet Protocol Suite (TCP/IP). Later the TCP/IP network was allowed access to supercomputers for research purposes.

In the 1990s the APRANET was decommissioned and the Internet was fully commercialized, which lead to the rapid growth of Internet in not only America, but also in other continents like Europe and Australia. At the same time, the Internet also spread through to Asia.

Another major for the growth of Internet came when the HTML, i.e. Hyper Text Markup Language and web browsers were developed. Together the HTML and browsers, software that helped people view web pages, graphics, and most online content, easily transformed the Internet.

Since the mid-90s many new Internet technologies were launched and well accepted which made the Internet even more popular. Some of these technologies are Email, VoIP, two-way interactive video calls, and the World Wide Web or Web in short. The Web with its collection of shopping sites, online databases, gaming websites, music and video sites, blogs, and discussion forums on any topic, instantly became popular and helped rose the Internet even more and to its present form.

10.5 BASIC INTERNET TERMINOLOGIES

Some basic internet terms and terminologies that are used more often than the others while using internet are:

URL or Uniform Resource Locator – Every website has a specific location or address.

Web Browser – We need web browsers to use the internet. A Web Browser is free client software that helps us to view web pages, graphics, and most online content.

WWW, World Wide Web or Web – World Wide Web as the name suggests is the interactive collection of hypertext pages linked to one another. They may include text, graphics and/or links to other spots in the Web.

Homepage – This is the default setting, or the page that opens up when we start the browser.

Links – This is the hypertext which, when clicked, connects us to another site or another page within the same site. In most cases, for better visibility the links are highlighted in blue or underlined.

Web page – This is the context that is on our screen at any given time. The information on the page can be viewed by scrolling up and down.

Search Engines – One of the most common uses of internet is to find information. This is done by using search engines. It is a type of software that helps us to search the Web by typing the topic name, which we are interested in. One of the most common examples of search engines is Google.



CHECK YOUR PROGRESS

Q1: Choose the correct answer

a) In a peer-to-peer communication model a group of computers use

i) Different network program

ii) Same network program

iii) None of the above

b) Internet is

i) Complex system ii) Decentralized system

iii) Dynamic system iv) All of the above

c) Which is not an example of search engine?

i) Google ii) KKHSOU website

iii) Bing iv) Yahoo

d) Give examples of two web browsers.

Q2. What do you understand by client-server architecture?

10.6 GETTING CONNECTED TO INTERNET

In order to connect to the Internet, one requires the following:

- A client computer with necessary hardware and client software
- The connectivity through Internet Service Provider (ISP) for flow of data
- Host computer(s) which is also called Web server hosting the desired data.

The necessary hardware devices that must be had on the client computer are:

- Processor of Pentium (Intel based) or AMD or Macintosh
- Network Interface Card (NIC)
- Modem, it can be an external or internal (fitted inside the computer)

The necessary software's that must be found on the client computer are:

- Operating system like Windows, UNIX, LINUX or OS/2 etc.
- Web browser like Netscape, Internet explorer, Firefox etc. (it must be compatible with the operating system)
- Common methods of Internet access in homes include **dial-up, landline broadband (ADSL)** (over coaxial cable, fibre optic or copper wires), **Wi-Fi, satellite and 3G technology cell phones**.

We will concentrate basically on the following methods

- dial-up connections
- ADSL connections and
- Cable Connections

10.6.1 Dial-Up Connections

Dial-up connections is a type of Internet connectivity that operates through a standard telephone line. Before a person can subscribe to a dial-up service, he or she must have a computer and dial-up modem. A telephone line feeds into the modem. The modem is controlled by software in the computer; for example, the Network Connections utility that comes with Microsoft Windows operating systems. Here you can setup a profile for the ISP (Internet Service

Provider, like BSNL), which will tell the modem what phone number to call and how to communicate with the dial-up service. The ISP itself provides this information.

Upon joining a dial-up service, the subscriber chooses a username and password. Once the modem calls the phone number and makes a connection, a "*handshake*" takes place in which upon joining a dial-up service, the subscriber chooses a username and password. Once the modem calls the phone number and makes a connection, a "*handshake*" takes place in which information is exchanged between the computer modem and the remote server. The username and password are supplied by the modem. This grants the user an access through the dial-up gateway to the Internet. Dial-up connections can be very economic and are widely available; the cost per minute is comparable to that of a local phone call, or priced as a monthly plan which will include a certain amount of time. As these connections use a standard modem the hardware costs are minimal. Dial-up connections are very slow compared to other connection types. When connected to the internet the same phone line cannot be used for phone calls, so if anyone calls you when you are connected, they will get the busy signal.

Dial-up connections transfer data over an analogue line, so before the data is sent it has to be converted from digital to analogue, Likewise, when data is received it has to be converted from analogue to digital (this is what the modem does), This adds a performance overhead which affects the speed of the connection.

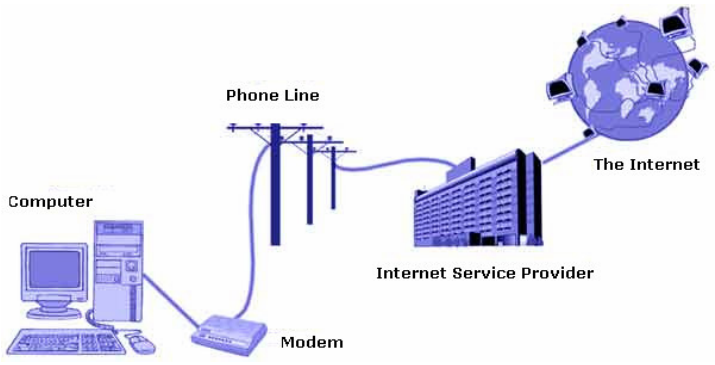


Fig. 10.2: Dial-up Connection

10.6.2 ADSL Connections

ADSL (Asymmetric Digital Subscribers Line) connections are becoming more and more widely available and can provide an excellent Internet connection. The connections work by splitting your phone line into two separate channels, one for data (Internet) and other voice (phone calls), which means you can talk on the phone and be connected to the Internet at the same time.

You will often see ADSL connection services advertised as having different speed specifications. Given below are some common configurations:

256Kbps/128Kbps or 512Kbps/128Kbps

1Mbps/256Kbps or 2Mbps/512Kbps

8Mbps/1024Kbps

Notice that there are two values to each configuration. The first figure states the download speed and the second figure is the maximum upload speed. As an example let us take the second configuration 512Kbps/128Kbps. This means that you can potentially download data at a speed of 512Kbps and upload data at 128Kbps.

Advantage of ADSL connections: ADSL technology eliminates the need for a second phone line by allowing voice and data transfer at the same time (you can use the phone as normal while connected to the Internet). Because ADSL transfers data digitally, it eliminates the usual performance overhead associated with standard dial-up connections. In other words, ADSL doesn't need to convert the data from digital to analogue and back again.

Disadvantage of ADSL connections: ADSL connections are not available to everyone. You should always ensure that you have ADSL coverage in your area. The hardware costs can be quite significant as you will need a special ADSL modem and ADSL filters to use the service. Most ISPs allow you to hire these items which can reduce the initial cost. Because ADSL connections are always on you will need a firewall to protect your PC.

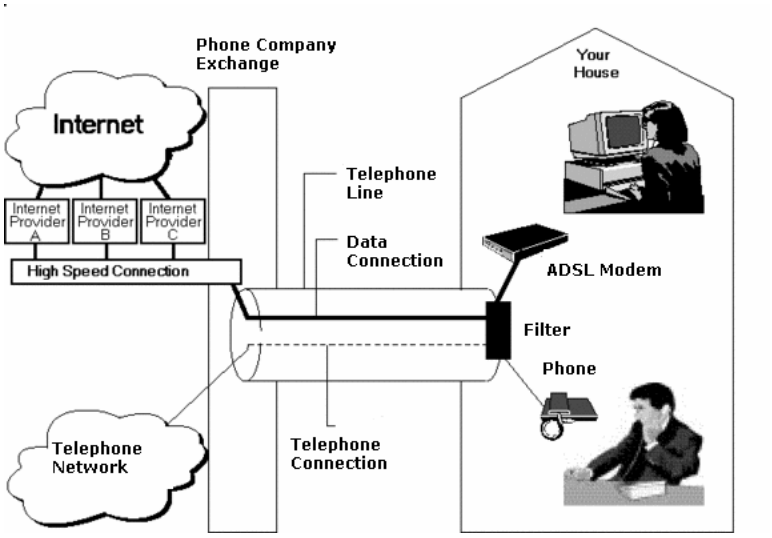


Fig. 10.3: ADSL Connection

10.6.3 Cable Connections

Cable connections are considered one of the best types of Internet connection available to the home user because they offer very fast and reliable connections with a fixed monthly fee. Cable companies usually offer different packages to suit different Internet subscribers.

The different packages will offer different speed specifications and bandwidth limits. Because a cable connection uses a totally separate medium to transfer data it doesn't affect your ability to make/ receive phone calls.

Advantage of Cable connection: Speed is a major reason for having a cable connection. Like ADSL connections, cable connections transfer data digitally, eliminating any digital/analogue conversion overhead. Cable connections are always on, eliminating long waits to make a connection.

Disadvantage of Cable connection: Cable connections are not available in every area. You will need to contact the cable company of your choice to ensure that you have coverage.

10.7 APPLICATIONS OF INTERNET

Internet is an interconnection of large number of heterogeneous computer networks all over the world that can share information back and forth. These interconnected network exchange information by using same standards and protocols. Now-a-days the application of Internet touches the every field of modern society. Let us briefly focus some of them.

Email: Email is now an essential communication tool in business. It is also excellent for keeping in touch with family and friends. The advantages to email is that it is free (no charge per use) when compared to telephone, fax and postal services.

Information: There is a huge amount of information available on the Internet for just about every subject known to man, ranging from government law and services, trade fairs and conferences, market information, new ideas and technical support.

Services: Many services are now provided on the Internet such as online banking, job seeking and applications, and hotel reservations. Often these services are not available off-line or cost more.

E-Commerce: The Internet is a very effective way to buy and sell products all over the world. Business houses use the Internet to provide product information, online support service, etc. Companies carry out online trading including advertising, selling, buying, distributing products, and providing after-sales services through the Internet.

Communities: Communities of all types have sprung up on the Internet. Institutions use the Internet for voice and video conferencing and other forms of communication that allow people to telecommute, or work from a distance. It is a great way to meet up with people of similar interest and discuss common issues. Scientists and scholars use the Internet to communicate with colleagues, to perform research, to distribute lecture notes and course materials to students, and to publish papers and articles.

Entertainment: Entertainment is another popular reason why many people prefer to surf the Internet. In fact, media of Internet has become quite successful in trapping multifaceted entertainment factor. Downloading

games, visiting chat rooms, online gaming or just surfing the Web are some of the uses people have discovered. There are numerous games that may be downloaded from the Internet for free.



CHECK YOUR PROGRESS

Q3: Choose the correct answer

a) Dial-up connections are

i) Very fast ii) Fast

iii) Very slow iv) None of the above

b) Dial-up connections transfer data over

i) Analog line ii) Digital line

iii) Both analog and digitaliv) None of the above

c) In ADSL connection data and voice

i) Can be sent at the same time

ii) Can send one at a time

iii) Cannot be sent

iv) All of the above

d) Give examples of two web browsers.

Q4: Give an example of an application of internet.



10.8 LET US SUM UP

- The Internet can be defined as a network of globally connected computers that is decentralized by design.
- There are two commonly used architectures in Internet technology and they are: peer-to-peer and client server architecture.
- The APRANET had many computers connected to each other through modems or leased lines and was aimed for exchange of data between computers using the technique of packet switching.
- Dial-up connections is a type of Internet connectivity that operates through a standard telephone line.
- ADSL (Asymmetric Digital Subscribers Line) connections work by splitting your phone line into two separate channels, one for data (Internet)

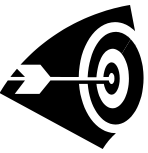
and other voice (phone calls), which means you can talk on the phone and be connected to the Internet at the same time.

- Cable companies usually offer different packages to suit different Internet subscribers.



10.9 FURTHER READING

1) Jain, V.; *MS Excel 2002–Training Guide*, BPB Publication, New Delhi.
2) Lotia, M.; *World 2000–An Introduction*, BPB Publication, New Delhi.
3) Rajaraman, V. (2004); *Fundamentals of Computers*, 4th Edition, Pentice-Hall of India, New Delhi.
4) Syganski; *Introduction to Information Technology*, Pearson Education, Delhi-110092.
5) Witherspoon; *PowerPoint 2000 Fast & Easy*, BPB Publication, New Delhi.



10.10 ANSWERS TO CHECK YOUR PROGRESS

Answer to Q1: a) ii) same network program,
b) ii) decentralized system,
c) ii) KKHSOU website,
d) Firefox and Internet Explorer

Answer to Q2: The Client-Server Architecture is based on the principle where the client computer requests for some data and the data are sent by the server computer through the network. The concept of *client/server* computing has particular importance on the Internet because most of the programmes are built using this design. Servers are powerful computers or processes dedicated to managing disk drives (file servers), printers (print servers), or network traffic (network servers). Clients are PCs or workstations on which users run applications. Clients rely on servers for resources, such as files, devices, and even processing power.

Answer to Q3: a) iii) very slow,

b) i) analogue line,

c) i) can be sent at the same time,

d) Gmail from Google and Yahoo Mail from Yahoo

Answer to Q4: An important application of internet is **Email:** It is an essential communication tool in business. The advantages of email are that it is free when compared to telephone, fax and postal services.



10.11 MODEL QUESTIONS

Q1. What is Internet? Explain why Internet has a decentralized design?

Q2. What do you mean by the Internet architecture? Describe the most commonly used Internet architecture.

Q3. Describe in brief the evolution of internet.

Q4. Define the terms Web page, Web browser, URL and Home page.

Q5. Differentiate between the dial-up and ADSL Internet connection.

Q6. Differentiate between the ADSL Internet connection and cable Internet connection.

Q7. There are many application areas of Internet. Identify four of them and describe two of them.

Q8. What is an Electronic mail? Describe the common header fields associated with an email.

Q9. Write short notes on the following:

a) Dial-up connections

b) ADSL connections

c) Uniform resource locator

d) WWW

e) Web browsers

*** ***** ***

UNIT 11: INTERNET TOOLS

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Web Browsers

11.4 Web Server

11.5 Electronic Mail

11.6 Search Engines

11.7 World Wide Web

11.7.1 Web Pages

11.8 Internet Security

11.8.1 Types of Attack

11.8.2 Malicious Software

11.9 Let Us Sum Up

11.10 Further Reading

11.11 Answers to Check Your Progress

11.12 Model Questions

11.1 LEARNING OBJECTIVES

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

- discuss about web-browsers and web servers
- learn to use e-mail
- define search engine
- learn the basics of the World Wide Web
- describe different issues of internet security

11.2 INTRODUCTION

Internet is a kind of network that is built using wires or other wireless medium. It is not limited to a few places but is a network that is used worldwide, and hence can be called an international network or network of networks.

We browse through the Internet using a Web browser which is an application software used on the computer which we use to access the Internet.

11.3 WEB BROWSERS

A web browser (commonly referred to as a browser) is a software application for presenting and retrieving the information resources and traversing through the resources on the World Wide Web. The common web browsers are *Google Chrome*, *Firefox*, *Internet Explorer*, *Opera*, and *Safari*.

The first web browser was invented in 1990 by Sir Tim Berners-Lee. It was called World Wide Web and was later renamed Nexus.

Homepage is the webpage that your browser uses when it starts the webpage that appears every time you open your browser.



Fig 11.1 Web browsers

The different parts of a Mozilla Firefox browser window are shown below:



Fig. 11.2 Browser Window

- Each webpage has an address or URL. This is indicated in the *Address Bar*. If you want to open a webpage then you have to type its address on the Address Bar.
- Most web pages will have titles. You can check the title of the page by looking at the *webpage title*, it is also called title bar.
- The actual webpage itself is displayed in the *Main Webpage Window*. It is cut off in the picture above, but would normally fill most of the screen.
- You can reload a page by hitting the "Refresh" button. This will update it to the latest version of the page.
- If a webpage takes a long time to load you can stop loading it by hitting the "Stop" button.
- Through the "Search Box" you can search any term on the Internet.

In a network such as the World Wide Web, all the computers are divided into two categories: *client* and *server*. These web browsers are used while communicating with the web server in a network such as World Wide Web. A *web client* is software that accesses a web server by sending requests and processing the resulting response. The Fig. 7.3 shows how a web server and a web client is connected to a network and what components are actually held by them for communicating each other.

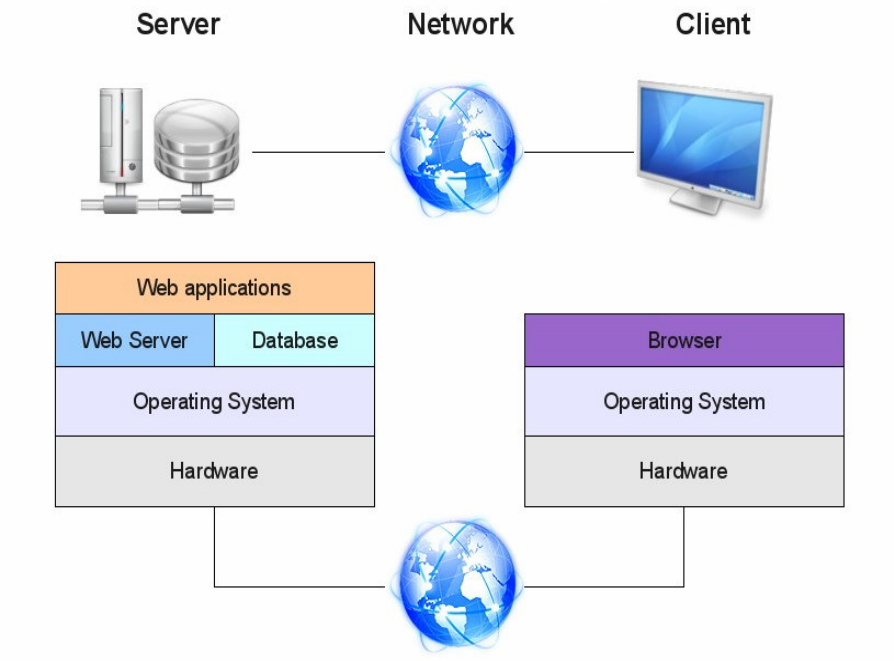


Fig. 11.3: A Web Server and a Client

The web server is the computer on the Internet that stores the web pages, images and other web resources. When we click a hyperlink or type a URL into the web browser, a request for the web page is made by the web client to the web server. The server then receives the request and responds by sending the HTML page to the browser. The browser then interprets and displays the page.

The client-side processing is carried out by the **Web browser**. The browser consists of an interface and processing software. ***Web browsers*** are programs running on the client. They are called browsers because they allow the users to browse the resources available on the servers. We can search for and view different kinds of information on the Web with browsers. The main purpose of a web browser is to make the information resources in the Web available to the users. A browser allows you to view the documents written in HTML (Hyper Text Markup Language). These documents are called *web pages*.

11.4 WEB SERVERS

Server software runs exclusively on server machines, handling the storage and transmission of documents. In contrast, client software such as Netscape, Internet Explorer, etc. runs on client computer that access, translates and displays documents.

A web server is a software package that processes HTML documents for viewing by Web browsers that runs on client computers. Web servers can be run from any hardware platform. There are servers that are specifically designed for Macintosh computers, PCs, Silicon Graphics, and various other platforms, including the Amiga. It can also run under several operating systems, including MS Windows, Windows NT, Unix, Linux etc.

The web server is responsible for document storage and retrieval. It sends the document requested (or an error message) back to the requesting client. The client interprets and presents the document. The client is responsible for document presentation. The language that web clients and servers use to communicate with each other is called the Hypertext Transfer Protocol (HTTP). All web clients and servers must be able to speak HTTP

in order to send and receive hypermedia documents. For this reason, web servers are often called HTTP servers, or HTTP Daemons (HTTPD).



CHECK YOUR PROGRESS

Q1. Distinguish between web server and web browser.

.....

Q2. Explain the contents of web browser window.

.....

11.5 ELECTRONIC MAIL

Electronic mail, most commonly referred to as ***email*** or ***e-mail*** is a method of exchanging digital messages from a sender to one or more recipients. Modern email operates across the Internet or other computer networks.

Internet email messages consist of two major sections:

1. **Header** - Structured into fields such as From, To, CC, Subject, Date, and other information about the email.
2. **Body** - The basic content, as unstructured text; sometimes contains a signature block at the end. This is exactly the same as the body of a regular letter.

Common header fields for email include:

- **To:** This contains the email address or addresses and optionally names of the message's recipients.
- **Subject:** This contains a brief summary of the topic of the message.
- **Bcc** (Blind Carbon Copy): This contains the addresses added to the delivery list but not (usually) listed in the message data, remaining invisible to other recipients.
- **Cc** (Carbon Copy): This contains the addresses added to the delivery list listed in the message data.

Message body–

Most modern graphic email clients allow the use of either plain text or HTML for the message body at the option of the user. HTML email

messages often include an automatically generated plain text copy as well, for compatibility reasons.

A typical e-mail window is shown below:

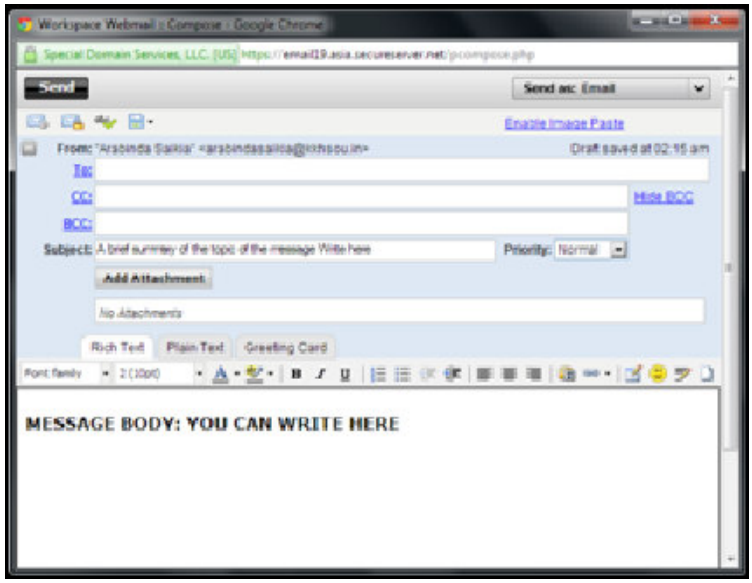


Fig. 11.4 Email Window

The text written in the message body part can be formatted; it means you can change the font size (text size), font type, make change the alignment of the text, can be converted to bold text or italic text etc. You can also attach another document along with the email written by you by clicking the button *"Add Attachment"*. After composing the email click on the **"Send"** button to finally send it to destination and within a second it will be delivered to the recipient's mailbox.

Some examples of Email services are Gmail, Yahoo Mail, Rediff Mail, Hotmail etc among many others.

11.6 SEARCH ENGINES

The Web is quickly becoming a vast information space that needs search tools to find information efficiently. The search engines can be defined as the tool created for finding, classifying and storing information about various Websites on the Internet. These can help in locating information of relevance on a particular subject by using various search methods.

A search engine is a service that indexes, organizes, and often rates

and reviews Web sites. Search engines are online utilities that quickly search thousands of Web documents for an entered word or phrase. Search engines are usually accessed through Web browser software. Each search engine provides different searching options and has its own look.

A web search engine can also be defined as a software system that is designed to search for information on the World Wide Web. The search results are generally presented in a line of results often referred to as search engine results pages (SERPs). The most commonly used search engines are shown below:



Fig: 11.5 Examples of Search Engines

You may wonder as to how the search engines find the answers to a query so quickly. Actually it is a four-step process and the steps are:

- ***Crawling:*** the Web, following links to find pages.
- ***Indexing:*** the pages to create an index from every word to every place it occurs.
- ***Ranking:*** the pages so that the best ones show up first.
- ***Displaying:*** the results in a way that is easy for the user to understand.

Given below is a list of important search engines which you can use for searching the web.

Name	URL
Google	http://www.google.com
Yahoo	http://www.yahoo.com
Altavista	http://www.altavista.com

Excite	http://www.excite.com
Hotbot	http://www.hotbot.com
Infoseek	http://www.infoseek.com
Lycos	http://www.lycos.com
Northern Light	http://www.northernlight.com
Webcrawler	http://www.webcrawler.com

11.7 WORLD WIDE WEB

The **World Wide Web-** known as **WWW** or **W3** or simply, the **Web** - is one of several Internet resource discovery tools developed to help people publish, organize and provide access to information on the Internet. The Web was first developed by Berners Lec in 1989 while working at CERN, European Particle Physics Laboratory in Switzerland, and has now become the most powerful, and popular, resource discovery tool on the Internet. The WWW can be defined as a hypertext, multimedia, distributed information system that provides links to hypertext documents, as well as to many other Internet tools and databases.

The most important things required to understand the underlying mechanism of the Web are the client-server architecture, the Hypertext Transfer protocol (HTTP), Universal Resource Locators (URLs) which we have already seen very briefly and the another important resource is Hypertext Markup Language (HTML). The most common method of creating a web document is through the use of Markup Languages. Most of these are created by adding a set of formatting code to ASCII text to show fonts, justifications, links, etc. on the web. A Markup language is a language that uses tags to indicate a change in presentation style or a change in content type.

By now, you can imagine that the web ***documents*** are referring to each other by ***links***. This simple view is known as the ***hypertext*** paradigm. The reader sees on the screen a document with sensitive parts of text representing the links. A link is followed by mere pointing and clicking.

11.7.1 Web Pages

A web page is nothing but a hypertext document which is suitable for the World Wide Web and can be accessed through a web browser and displayed on a monitor or mobile device. Web pages are usually written in HTML or XHTML and may contain static contents or dynamic contents. Web pages provide navigation to other web pages via ***hypertext links***. Hypertext is a system of organizing, navigating, distributing and publishing information electronically. A web page of the website of Krishna Kanta Handiqui State Open University is shown below:



Fig 11.6 Webpage of KKHSOU

Contents of a Web Page:

A web page may contain various types of information, which can be divided into two main groups - *perceived information* (visible to the website visitor) and *hidden information* (hidden from the visitor's eye).

Depending on the purpose and target audience of a website, its perceived information could be textual, non-textual and interactive.

The non-textual information includes static images (e.g. GIF, JPEG, PNG or TIFF), animated images (e.g. animated GIF, Flash,

Shockwave, Java Applet), vector formats (e.g. Flash, SVG), audio file formats (MIDI, WAV, MP3, Java Applets), video files (WMV, RM , FLV, MPG, MOV) etc. Interactive content on web pages could be displayed via DHTML, interactive illustrations, DHTML based buttons. *Hyperlink* or *link* is a navigational element in a web page through which navigation between the content on separate pages is possible.

The hidden information on web pages includes comments, metadata, charset details, CSS visual specifications, scripts (e.g. the interactivity focused JavaScript) etc.

Depending on the type of information contained in a web page, web pages can be divided into three categories:

- ***dynamic web page***
- ***static web page***
- ***active web page***

A ***dynamic web page*** is a kind of web page that has been prepared with fresh information (content and/or layout), for each individual viewing. It is not static because it changes with the time (ex. a news content), the user (ex. preferences in a login session), the user interaction (ex. web page game), the context (parametric customization), or any combination of the foregoing.

A web page is **static**, if it does not change its behaviour in response to external actions. A static web page remains the same, i.e. static, for all its life, unless and until someone manually changes its contents. Examples of some static web pages are some home pages, page specifying the contact details, etc., which do not change that often.

An **active web page** is a web page that executes a program on the client machine, i.e. web browser. It means the web page shown by a web browser is the program currently executed by the client and hence that page is called an active web page.

Creating a Web Page:

A web page can be created in many different ways. There are a lot of web pages created by simply using HTML code which are simple and not very interactive. Advanced web pages can be

created by using a programming language which is also known as scripting languages, such as ***JSP, PHP, Python*** or ***Perl***.

How do web pages work?

The information on a web page is displayed online with the help of a web browser, which connects with the server where the website's contents are hosted through the Hypertext Transfer Protocol (HTTP). For instance, if you look at the URL of the web page you are on at the moment, you could notice the prefix 'http://', which tells the browser what protocol to use to execute the particular URL request.

Each web page's contents are usually presented in HTML or XHTML format, which allows for the information to be easily structured and then quickly read by the client's web browser. With the help of CSS (Cascading Style Sheets), designers can precisely control the web page's look and feel as far as the layout typographic elements, colour scheme and navigation are concerned. CSS instructions can be either embedded within the HTML web page (valid for that particular page) or can be included in a separate external file (valid for the whole site).



CHECK YOUR PROGRESS

Q3. Give the common header fields for email.

.....

.....

Q4. Explain in brief the working of a search engine. Also give an example.

.....

11.8 INTERNET SECURITY

Internet security concerns with security to individual or computer from attacks related to the internet. Internet security is one of the biggest concerns of today's internet world. Internet allows us to exchange information through unsecure channels and this may cause attacks like identity theft,

data theft among many other attacks. These attacks are present even though different data protection methods are being used like data encryption, digital signatures.

11.8.1 Types of attack:

There are many different types of attacks. Let us look at the most common groups of attacks like passive attacks, active attacks, distributed attacks, close-in attacks and exploitation attacks by insiders.

Passive Attack: A passive attack includes monitoring traffic in the computer system to get important data or personal information like passwords. Passive attack results in disclosure of information to the attacker without the consent of the user.

Active Attack: In an active attack, the attacker tries to break into the defences of the computer systems. This type of attack can be implemented by using viruses, worms or Trojan horse and result in modification of data or denial-of-service attacks.

Distributed Attack: In this type of attack the attacker uses software like Trojan horse to get inside the computer and then this software is later distributed to other computer systems.

Close-in Attack: In close-in attack someone attempts to get physically close to network components, data, and systems in order to learn more about a network.

Insider Attack: In insider attacks someone from the inside intentionally steal or manipulate information, pass sensitive information to outsiders and deny access to authorised users.

11.8.2 Malicious Software:

Some of the malicious software used in performing some of the above attacks to the computer system is listed below:

Malware: Malware is short for malicious software and are designed to damage a system. Examples are viruses and Trojan horses.

Viruses: One of the most well known Internet security problem, viruses is software program written to disrupt computer systems and steal or disrupt data.

Worms: Worms are more dangerous than viruses as they cannot be detected by anti-virus software. Worms replicate themselves and can spread themselves through the network to perform malicious tasks.

Spyware: Spyware refers to software that collects information about the user of a computer by monitoring its activities and sending the information to others without the users consent.

Trojan horse: Trojan horse is a kind of software that pretends as harmless software but in reality steals data and damages the computer system.

Anti-virus software:

Viruses are the most common way to harm a computers security. Anti-virus software is a type of software that is used to protect the computer systems from any computer virus attacks from the internet world. Some of the most well-known anti-viruse software are:

- Norton Anti-virus
- Avast Anti-virus



CHECK YOUR PROGRESS

Q5. What are the different types of internet attacks?

.....

Q6. Give two examples of anti-virus software.

.....



11.9 LET US SUM UP

- A **web browser** is a software application for presenting and retrieving the information resources and traversing through the resources on the World Wide Web.

- **Homepage** is the webpage that your browser uses when it starts the webpage that appears every time you open your browser.
- A **web server** is a software package that processes HTML documents for viewing by Web browsers that runs on client computers. Web servers can be run from any hardware platform.
- **Electronic mail**, most commonly referred to as email or e-mail is a method of exchanging digital messages from a sender to one or more recipients.
- A web search **engine** can also be defined as a software system that is designed to search for information on the World Wide Web.
- The World **Wide Web- known as WWW or W3** or simply, the Web - is one of several Internet resource discovery tools developed to help people publish, organize and provide access to information on the Internet.
- In a network such as the **World Wide Web**, all the computers are divided into two categories: client and server. The client-side processing is carried out by the Web browser.
- A **web page** is nothing but a hypertext document which is suitable for the World Wide Web and can be accessed through a web browser and displayed on a monitor or mobile device. **Web pages** can be divided into three categories: dynamic web page, static web page, and active web page.
- Internet security concerns with security to individual or computer from attacks related to the internet. There are many different types of attacks like passive attacks, active attacks, distributed attacks, close-in attacks and exploitation attacks by insiders.



11.10 FURTHER READING

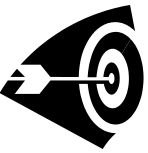
1) Jain, V.; *MS Excel 2002–Training Guide*, BPB Publication, New Delhi.
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4) Syganski; *Introduction to Information Technology*, Pearson

Education, Delhi-110092.

5) Witherspoon; *PowerPoint 2000 Fast & Easy*, BPB Publication, New Delhi.

11.11 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: A Web server is a computer that delivers (serves up) Web pages. Every Web server has an IP address and possibly a domain name. For example, if you enter the http:/ www.pcwebopedia.com/index.html in your browser, this sends a request to the server whose domain name is pcwebopedia.com. The server then fetches the page named index.html and sends it to your browser. Web browser, a software application used to locate and display Web pages which is found on a client computer. The main function of the Web browser is to make the information resource available to the users. The two most popular browsers are Netscape Navigator and Microsoft Internet Explorer. Both of these are graphical browsers, which mean that they can display graphics as well as text.



Ans. to Q. No. 2: The different parts of a Mozilla Firefox browser window are: Each webpage as an address or URL. This is indicated in the *Address Bar*. If you want to open a webpage then you have to type its address on the Address Bar. Most web pages will have titles. You can check the title of the page by looking at the *webpage title*, it is also called title bar. The actual webpage itself is displayed in the *Main Webpage Window*. It is cut off in the picture above, but would normally fill most of the screen. You can reload a page by hitting the "Refresh" button. This will update it to the latest version. If a webpage takes a long time to load, you can stop loading it by hitting the "Stop" button. Through the "Search Box" you can search any term on the Internet.

Ans. to Q. No. 3: The common header fields for email include: **To:** This contains the email address or addresses and optionally names of the message's recipients. **Subject:** This contains a brief summary of the topic of the message. **Bcc** (Blind Carbon Copy): This contains the addresses added to the delivery list but not (usually) listed in the message data, remaining invisible to other recipients. **Cc** (Carbon Copy): This contains the addresses added to the delivery list listed in the message data.

Ans. to Q. No. 4: The working of a search engine is a four-step process and the steps are as follows: **Crawling:** the Web, following links to find pages; **Indexing:** the pages to create an index from every word every place it occurs; **Ranking:** the pages so that the best ones show up first; **Displaying:** the results in a way that is easy for the user to understand.

Ans. to Q. No. 5: The different types of attacks are: **Passive Attack:** A passive attack includes monitoring traffic in the computer system to get important data or personal information like passwords. **Active Attack:** In an active attack, the attacker tries to break into the defences of the computer systems. **Distributed Attack:** In this type of attack the attacker uses software like Trojan horse to get inside the computer and then this software is later distributed to other computer systems. **Close-in Attack:** In close-in attack someone attempts to get physically close to network components, data, and systems in order to learn more about a network. **Insider Attack:** In insider attacks someone from the inside intentionally steals or manipulates information, pass sensitive information to outsiders and deny access to authorised users.

Ans. to Q. No. 6: Two example of anti-virus software are: Avast Antivirus and Norton Antivirus.



11.12 MODEL QUESTIONS

Q1. Describe World Wide Web and its functions.

Q2. Describe Web browser along with their features.

Q3. What is a Search Engine and how does it work?

Q4. What is an Electronic mail? Describe the common header fields associated with an email.

Q5. What is Web server application? How is it different from a Web browser?

Q6. Describe how the Web browser communicates with the web server.

Q7. Explain internet security in brief

Q8. Write short notes on the following:

a) World Wide Web b) Email

c) Search Engines d) Malicious Software

*** ***** ***

UNIT 12: MANAGEMENT INFORMATION SYSTEM

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Concept of MIS

12.4 Information Security and Control

12.5 Quality Assurance

12.6 Ethical and Social Dimensions

12.7 Intellectual property rights as related to IT services/IT products

12.8 Managing global Information systems

12.9 Let us Sum up

12.10 Further Reading

12.11 Answers to check your progress

12.12 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit you will b able to:

- discuss information security and control
- learn quality assurance
- describe ethical and social dimensions
- discuss Intellectual property rights as related to IT services/IT products
- discuss managing global information systems

12.2 INTRODUCTION

In the previous unit we have learnt about managing IT functions in an organization. In this unit, we will learn about how information security and control is important in an organization, the meaning quality assurance, social and ethical dimensions needs to be considered in an organization, discuss the intellectual property rights as related to IT products and how

does it help the organizations, the different challenges that businesses have to face while managing global information system.

Information Technology and computers have changed business processes and the way businesses operate. Thus in this Information Age, "Information" has emerged as one of the most valuable and sought after resource conferring competitive advantage on the organizations using it. Information systems has helped the organizations to have a competitive edge over their competitors in terms of cost savings, increased productivity and revenue gains. This has raised certain issues in the areas of security, privacy, confidentiality, destruction and theft of information and information systems. These security threats can be from both internal and external sources. Thus industries need to keep their information secure. It is interesting to know that according to various studies as much as 80-95% of the security threats come from internal networks. Thus, in other words in today's business information security and control is very important.

12.3 CONCEPT OF MIS

Management Information Systems (MIS) is the study of people, technology, organizations, and the relationships among them.MIS is a people-oriented field with an emphasis on service through technology.

Let us discuss MIS in the following ways:

To the managers, MIS is an implementation of the organizational systems and procedures.

To a programmer it is the dealing with file structures and file processing.

As MIS stands for Mangement Information System , we discusses the three terms in this way that **System** suggests integration and holistic view, **Information** stands for processed data, and **Management** is the ultimate user, the decision makers.

Management information system can thus be analyzed as follows:

- Management covers the planning, control, and administration of the operations of a concern. The top management handles planning; the middle management concentrates on controlling; and the lower management is concerned with actual administration.

Information

- Information, in MIS, means the processed data that helps the management in planning, controlling and operations. Data means all the facts arising out of the operations of the concern. Data is processed i.e. recorded, summarized, compared and finally presented to the management in the form of MIS report.

System

- A system is made up of inputs, processing, output and feedback or control.

Thus MIS means a system for processing data in order to give proper information to the management for performing its functions.

12.4 INFORMATION SECURITY AND CONTROL

The term ***Information Security*** refers to the policies and procedures that are used to protect the data and information systems from unauthorized access, use, disclosure, modification and destruction of data. ***Control*** refers to the methods and procedures that are used to ensure the safety of the organization's assets, the accuracy and reliability of the data and operational adherence to the organizational standards.

Businesses deal with large amounts of data and when such data and information are stored in electronic form and are accessible over networks they become vulnerable to different kinds of threats. The figure below shows some of the most common threats to information systems.

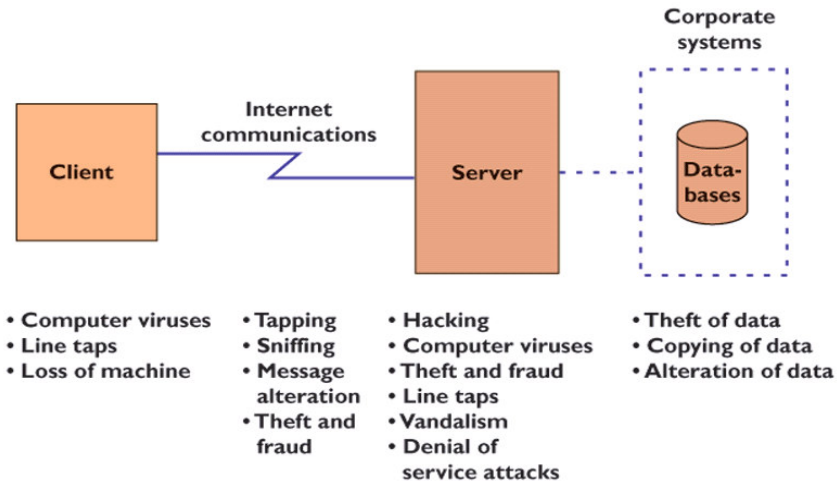


Figure 12.1

In a client-server environment, as illustrated in the above figure, security challenges and vulnerabilities can occur at each of the client, server and the corporate database access points and also in the communication between these layers. On the client side the system may be used without authorization, or the user may introduce some errors. The system may be hacked and vital information may be stolen or altered. Some crackers also attack the systems of the organizations to bring them down and make them ineffective. Both hacker and a cracker intends to gain unauthorized access to the computer systems but a cracker is a hacker with a criminal intent. Cyber vandalism is also another threat to the organizations. It is a type of malicious behavior that causes damage to data and computers and potentially disrupt the services of the organizations.

Even during transmission of data over the networks the data may be destroyed or altered. As the systems nowadays are highly networked, they are constantly at a threat from malicious softwares. These malwares poses a variety of threats such as virus, worms and Trojan horses. Viruses and worms may infect data and programs in the computers and cause heavy damage to organizations. They may enter the system from the downloaded files from Internet, from emails or instant messaging or from infected machines. Spywares and Keyloggers are also posing threats to the organizations. Power failures and natural disasters like flood, fire or others may also disrupt the normal functioning of a computer system. The growing use of smart phones by corporate executives is adding to the problem of information security as these networks are more vulnerable. There is a greater risk of information security if the organization network is a part of the Internet.

12.5 QUALITY ASSURANCE

Information is an organizational resource. Quality of information in an organization is very important for the proper functioning of the organization. The increased information requirement day by day has also increased the responsibilities of the quality assurance departments. Low quality information will adversely affect the performance of the organization

as it directly affects the decision making. Therefore the quality assurance of information products is critical. Quality refers to offering the information service in a way that meets the organizational needs.

Quality assurance generally means any systematic process of checking whether the product or service that is developed is meeting the specified requirements or not. There are management as well as users duties to quality control and assurance.

The management information system control and quality assurance duties includes the approval of the information system plan and budget, major software and hardware systems approval and the information systems procedures for quality assurance and control.

Quality assurance duties of the users are as participants in application and database development and maintenance. This requires knowledge of the context data. That is the users should be able to identify the invalid data.

In the present competitive world, customers are the kings and every organization is striving to give better quality products and services to attract the customers. A quality product means that product is better than the other similar products in the market. Companies with better quality products can gain a competitive edge over other companies in the market. However from information point of view quality means focusing on the production and delivery of timely, accurate and reliable information. Japanese companies have emphasized product/service quality in their organizational processes through total quality management (TQM). According to Edward Deming, who coined this term, it is just not a technique of quality control but a philosophy of quality management where every organizational member is involved.

The basic beliefs that provides the foundation of TQM are

i. Quality is defined by customers
ii. It is achieved by the management
iii. It's the whole organization's responsibility.

Quality assurance is a significant issue and there are many conditions for quality control: organizational commitment to quality, processing the information according to operations of the organization and

quality of the applications that are used in the organizations should be maintained

CHECK YOUR PROGRESS

Q1. Fill in the blanks:

1. A _____ is a hacker with a criminal intent.
2. Policies and procedures that are used to protect the data and information systems from unauthorized access, use, disclosure, modification and destruction of data is _____.
3. During transmission of data over the networks the _____ may be destroyed.
4. Viruses and _____ may infect data and programs in the computers and cause heavy damage to organizations.
5. _____ generally means any systematic process of checking whether the product or service that is developed is meeting the specified requirements or not.
6. _____ is a philosophy of quality management where every organizational member is involved.

12.6 ETHICAL AND SOCIAL DIMENSIONS

With the changes in the field of Information Technology and greater use of computers in the organizations, there has been a significant change in the nature of the work which has given rise to social and ethical issues. Today's managers are concerned much about the social and ethical dimensions as they emerge from the societal context. Information system is a part of the societal system. Both these dimensions are interrelated. Let's discuss each separately.

1. **Ethical dimension:** Ethics are the principles that govern the behavior of a person or an organization for conducting any activity. It is thus concerned with what is right or wrong in the behavior. Ethics in Management Information Systems seeks to safeguard individuals and society by proper use of technology. Ethical dimension is important to consider for the managers to take any decisions because many things are related to use of information systems in organizations. Ethical dimensions include obligations to management, society, and employer and also the country. New ethical questions are being raised by use of information systems as they have created various opportunities. Improvement in technology has helped the society to progress but at the same time the number of crimes has also increased which in turn has threatened the cherished social values.

Advancement in networking and information technology has given rise to two types of ethical issues which pose challenges to those who are concerned with information systems.

- Privacy rights
- Intellectual property rights

Information technology allows the information to be gathered, stored, combined and shared on a scale never seen before. It has changed the dynamics of organizations.

Mason foresaw two threats to privacy: growth of Information technology and increased value of information in decision making. Privacy rights in case of organizations are concerned with the employees, customers, suppliers, financiers and share holders. It means their privacy should be free from interference and surveillance from other individuals or organizations. Internet cookies monitor the actions of the users in the Internet, and there is the Customer Relationship Management software that allows the companies to keep a track of the detailed behavior of the users. There is a saying the Information is Power. According to Simon, increase in information reduces uncertainty. Thus increase in global competitiveness among the companies has made the value of information increasing day by day. Thus, the information technology has threatened the privacy rights by making the invasions cheap, effective and profitable.

Intellectual property is the creations of human minds or organizations. Such properties are in the form of patents, copyrights and trade secrets. As per the Intellectual property rights, the creator of the intellectual property has the sole right to use that property.

2. **Social Dimension:** Social dimensions involve all those areas which affects the society as a whole. There is tremendous growth in business and the companies such as Facebook, Google and others would not have existed without information technology.Basically there are three social issues that are of concern.
    - Employment challenges
    - Quality of the work life
    - Health issues

Information technology is both a boon and a bane to the society. Society has much progress in different fields due to the introduction of information technology but at the same time it has also created unemployment problems. Computers have replaced man in jobs.

Quality in work life has also been affected. Social isolation and self estrangement has emerged from Information technology. The social bonding between people has loosened and gadgets has found a prime place in family leisure times. Virtual office concepts has created lack of belongingness among the employees. There has also developed a psychological fear amongst the employees of losing their jobs.

Extensive use of computers in work place has caused many health related problems like stress, eyes strain, radiation exposure, blood pressure, blood sugar related problems and others.

12.7 INTELLECTUAL PROPERTY RIGHTS AS RELATED TO IT SERVICES/ IT PRODUCTS

Intellectual property are created using the knowledge gained by people in their areas and Intellectual property rights means those individuals who have created such property has the sole right to use them. Thus, property that is the result of thought, namely intellectual activity, is called Intellectual

property. It stimulates and promotes future creativity. Intellectual property law also attempts to checks that the owner's right to reap the rewards of their efforts are balanced against the public need for a competitive market.

There is no doubt that the extensive use of information technology in the companies and institutions has led to increased competition in the global market which in turn has led to availability of better quality products and services in the market. However, this also has led to invasion of the intellectual property rights. The contemporary software poses severe challenges to such rights and has created social and ethical issues. With digitalization, it has become much easier for things to be altered, replicated and transmitted over the digital mediums. Piracy has become common today because of the ease of doing things with Internet.

Certain rights are granted by Intellectual property rights. For example, authors can prevent others from copying their books, and the owner of a patented invention can prevent others from making, using or selling the product.

After a period of time, these exclusive rights may be lost or taken from the owner and given to the public. Globalization, digital data and Internet have all contributed to a greater need. However, the intellectual property rights do not prevent anyone from stepping on the owners' rights but does give the owner the right to take the trespasser to the court. The owner acquires exclusive rights and can file a lawsuit to stop others who use the property without authorization.

There are different areas of intellectual property protection.

- Copyrights
- Patents
- Trade marks

1. **Copyrights:** Copyright is a statutory grant that protects the expression of literary or artistic works. It is granted to the authors of original work including literary, dramatic, musical, artistic and other works. So books, songs, jewelry, play, movies, sculptors, paintings, choreographic works and even computer software can be protected by copyright. Copyright protection is also available for marketing materials, advertising copy

and cartoons. Nevertheless some works like titles, names, short phrases, ingredients list are not protected by copyright. Also copyrights do not protect ideas or facts; it protects only the unique way in which the ideas or facts are expressed. For example, copyright may protect an author's science fiction novel about the conversation between a human and a space alien but the author cannot stop others from using the underlying idea of such intergalactic conversations.

In case of individuals it protects their works from copying by others for whatsoever reason during their lifetime and also an additional 70 years after their death. For corporate owned works the copyright is for 95 years. The Copyright Act, 1957 which been amended by Copyright Amendment Act, 2012 governs the copyright law in India. The Copyright laws have been made so as to encourage creativity and authorship by ensuring that such creative minds receive the financial benefits from their works. In 1980, the Computer Software Copyright Act was passed. This act provides for protection of the software codes and for copies of the original sold in the market. This act is covered under the Copyright Act 1957.

2. **Patents:** Patents are exclusive rights granted for inventions for a minimum period of 20 years from the date of filing the patent. It gives right to the patent holder to prevent others from selling and making the patented invention for such period. The main intention behind patent provisions is to ensure that the inventors get the full benefit, both financial and others, and also to make use of their inventions by providing details to those who wanted to use their inventions by getting a license from the patent's owner.

   Generally, patents are of three types: utility, design and plant patents. Referring to patent commonly refers to the Utility patent, which allows the creator of an invention to stop others from making, using or selling that invention for the patented time.

   Design patents include the patents for new and original designs that ornament a manufactured article. For example, new shape of a car or flashlight would qualify for design patents. Plant patents are the

least frequently used type of patent – granted for any new asexually reproducible plants (such as flowers or plants reproducible by grafting or cloning).

3. **Trademark:** A trademark is any distinctive sign that is used to differentiate the goods and services of one company from others. It may be a word, phrase, logo, graphic symbol or any other sign that identifies a business goods and services from the others. An important goal of trademark is to prevent the customers from being confused in the marketplace. Another goal of trademark law is to prevent a business from trading off another business's goodwill. A trademark is used for the marketing of a product.

   Trademarks provide guarantee of quality and consistency of the product and service that they identify. A great amount of time, effort and money is spent by the companies in gaining the confidence of the consumers on their marks.

   In addition to words, trademarks can also consists of slogans, as shown in the example below for McDonald's.



12.8 MANAGING GLOBAL INFORMATION SYSTEMS

Information technology is playing an important and increasingly significant role in the world wide marketplace. Radical changes have occurred in the organizations due to new technologies. Majority of the world's large organizations are now engaged in international business activities and are earning great profits out of it.

A global information system refers to an information system which collects data, processes, stores and distributes data in a global context. Multinational organization uses global information systems to manage the information requirement of its international businesses. The needs of business survival and the urge to expand to new markets are some of the reasons that the organizations are becoming global. Today the international businesses have adopted the concept of "Think Globally, Act Locally". The strategic planning of such organizations should be global followed by a local flavor. By branching out to doing business in many countries, the businesses can continue growing and at the same time reduce the risks that it might face, even if conditions in one country change drastically.

When implementing information systems globally, the organizations have many objectives and face challenges in doing so. There are many challenges in political, geographical, economic and cultural dimensions that the businesses have to face to grow and sustain in the global marketplace.

Some of the challenges of the global information systems may be indicated as given below:

- Technological barriers
- Regulations and Tariffs
- Electronic payment mechanisms
- Different measurement standards
- Culture and language
- Time and distance
- Currency and legal barriers

Different business strategies are adopted by the organizations to operate global business. Such strategies are basically related to the control and decision-making. Proper strategy is important for a company to function effectively in different countries and thus strategies needs to be developed effectively to manage them effectively.

Although many different strategies can be followed when involving in international businesses, three most important are global strategy, multinational strategy and international strategy.

The multinational strategy is used when the company is involved in a number of markets beyond its home country. For each country the strategy should be different because of the difference in the demands of the customer needs and the competition in that market. In multinational strategy, the company believes in centralized financial powers but decentralization of production, marketing, sales etc. the companies in such strategy take the advantage of the resource availability and the market potential. Examples of companies using such strategy are Hewlett-Packard, Intel, General Motors etc.

The International strategy has been designed for the home market but it is also considered suitable for the international markets. International food companies such as McDonald's, Kentucky Fried Chicken (KFC) and Coca-Cola fits into this type. Such companies develop their products in the mother country and then market, and even produce the goods globally through franchisees or their own production units.

In the global strategy, the companies treat the world as one market and one source of supply with a little variation. These are transnational in approach.



CHECK YOUR PROGRESS

Q2. Fill up the blanks:

a. Principles that govern the behavior of a person or an organization for conducting any activity are .....

b. Ethical dimensions include..... to management, society, and employer and also the country.

c. Two types of ethical issues are ..... and .....

d. Two threats to privacy according to Mason are .....and ..... in decision making.

e. Increase in information for decision making reduces .....

f. ……is the creations of human minds or organizations.

g. ……is granted to the authors of original work including literary, dramatic, musical, artistic and other works.

h. Computer Software Copyright Act was passed in ……..

i. Three types of patents are……, …….. and ……..

j. A…….. is any distinctive sign that is used to differentiate the goods and services of one company from others.



12.9 LET US SUM UP

In this unit we have learned the following:

1. Information Security refers to the policies and procedures that are used to protect the data and information systems from unauthorized access, use, disclosure, modification and destruction of data.
2. Control refers to the methods and procedures that are used to ensure the safety of the organization's assets, the accuracy and reliability of the data and operational adherence to the organizational standards.
3. Hacker and a cracker intend to gain unauthorized access to the computer systems but a cracker is a hacker with a criminal intent.
4. Viruses and worms may infect data and programs in the computers and cause heavy damage to organizations.
5. Quality of information in an organization is very important for the proper functioning of the organization
6. Quality assurance generally means any systematic process of checking whether the product or service that is developed is meeting the specified requirements or not.

7. Japanese companies have emphasized product/service quality in their organizational processes through total quality management (TQM).
8. Edward Deming had coined the term total quality management
9. Ethics are the principles that govern the behavior of a person or an organization for conducting any activity
10. Ethical dimensions include obligations to management, society, and employer and also the country.
11. Two types of ethical issues which pose challenges to those who are concerned with information systems are Privacy rights and Intellectual property rights
12. Mason foresaw two threats to privacy: growth of Information technology and increased value of information in decision making.
13. Intellectual property is the creations of human minds or organizations. Such properties are in the form of patents, copyrights and trade secrets.
14. Intellectual property rights mean those individuals who have created such property has the sole right to use them.
15. Intellectual property law also attempts to checks that the owner's right to reap the rewards of their efforts are balanced against the public need for a competitive market.
16. Copyright is a statutory grant that protects the expression of literary or artistic works. It is granted to the authors of original work including literary, dramatic, musical, artistic and other works.
17. The Copyright Act, 1957 which been amended by Copyright Amendment Act, 2012 governs the copyright law in India.
18. Patents are exclusive rights granted for inventions
19. Patents are of three types: utility, design and plant patents
20. A trademark is any distinctive sign that is used to differentiate the goods and services of one company from others. It may be a word, phrase, logo, graphic symbol or any other sign that identifies a business goods and services from the others.
21. Multinational organization uses global information systems to manage the information requirement of its international businesses

22. There are many challenges in political, geographical, economic and cultural dimensions that the businesses have to face to grow and sustain in the global marketplace.
23. Three most important different strategies when involving in international businesses, are global strategy, multinational strategy and international strategy.



12.10 FURTHER READING

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12.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: 1. cracker
2. Information Security
3. data
4. worms
5. Quality assurance
6. Total Quality Management

Ans to Q. No. 2: a. Ethics
b. obligations
c. Privacy rights, Intellectual property rights.
d. growth of Information technology, increased value of information

e. uncertainty
f. Intellectual property.
g. Copyright
h. 1980
i. utility patent, design patent and plant patent
j. trademark



12.12 MODEL QUESTIONS

1. Why information security and control is important in an organization?
2. What do you mean by the quality of information? How can quality assurance help organizations in having a competitive edge over other companies?
3. Explain the Intellectual property rights.
4. Explain why companies expand beyond a country's border.
5. 'Globalization has posed new opportunities as well as challenges.' Explain this statement.

*** ***** ***



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