TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGES

BRIDGE COURSE MODULE
2022
Department of Computer Science
TTWRDC (W)-DEVARAKONDA

Computer Science is the Operating System for all Innovation.

INDEX

1. INTRODUCTION TO COMPUTER

Objectives of Basic Computer Skills:

1. To develop skills of computer science for fresher's
2. Avoid fear of computer system
3. To build awareness about computer security

1.1 Introduction to computer hardware

Computer hardware is **the physical components that a computer system requires to function**. It encompasses everything with a circuit board that operates within a PC or laptop; including the motherboard, graphics card, CPU (Central Processing Unit), ventilation fans, webcam, power supply, and so on.

Introduction:

The term *computer* is derived from the Latin word *compute*, which means *to calculate*. A computer is a tool and partner in every sphere of human life and activity. Computers are bringing many changes in industry, government, education, medicine, scientific research, law, social service.

Definition:

A Computer is an electronic device that processes data and converts it into information *that is useful to people.*

What is the full form of computer?

C- Commonly
O- Operated
M-Machine
P- Particularly
U- Used for
T- Technical
E- Educational and
R-Research

1.2 INPUT and OUTPUT devices

The devices that are used *to enter data and instructions* into the computer are known as ***Input devices***.

Input Devices

It includes Keyboard, Mouse, touchscreens, Joysticks, barcode readers, scanners, etc.

Keyboard:

A **keyboard** is the primary input device. It can be used to enter the text input. A standard keyboard contains about 100 keys. It contains Typing keys, numeric keypad, Control keys, function keys, cursor keys and special purpose keys. The computer keyboard uses the ***QWETY*** key arrangement.

Mouse:

A Mouse is a graphical input device. You can move the mouse around a surface and controls the pointer. By using the mouse, you can perform:

I. Clicking
II. Double-Clicking
III. Dragging
IV. Right Clicking

There are two types of Mouse's:

1.Physical Mouse

2.Optical Mouse

Touch Screen:
A touch screen is a type of screen that allows you to input by touching its icons.

Joystick:
A Joystick is a game controller. It is a swivelling lever. It is well suited for playing video games.

Scanner:
A scanner is an input device. It can scan a document or an image into the computer's memory. **Microphone**
A Microphone enables you to input your voice or music as data. Microphones are useful for audio and video conferencing.

Barcode readers
Barcode readers are one of the most widely used input devices.
They can read the bar codes on the products.

1.3 Output Devices:

The devices that can display the resulting information to the user are known as **Output devices**.
Monitors and ***Printers*** are commonly used output devices.
Monitors.

Monitor is a commonly used output device. It is also called as Visual Display Unit (VDU). It provides
A visual display of data.
Monitors are of different types:

1. CRT(Cathode Ray Tubes)

2. LCD(Liquid Crystal Display)

3. LED (Light Emitting Diode)

Printers:

A Printer is an output device that prints text or images on paper.
Printers are useful to create 'hard copy' of data.
Printers are of two types:

1. Impact printers

2. Non-impact printers.

Impact printers:

Impact printers can print by striking the paper. Example: Line printers, dot-matrix printers.

Non-impact printers:

Non-impact printers do not
strike the paper. Example:
laser printers, inkjet printers.

Plotters:

Plotters are the output devices. They can print the data or images on a large sized papers.

Speakers:

Speakers are output devices that allow you to hear sound from your computer. Computer speakers are just like stereo speakers.

1.4 The basic components of a Computer system

The basic components of a computer can be classified into four main units:

1.Input Unit.

2.Central Processing Unit

3.Memory Unit

4.Output Unit

Input Unit:
Computer uses input devices to accept the data and program. Keyboard, mouse, light pen, touch screen etc., are some of the input device.

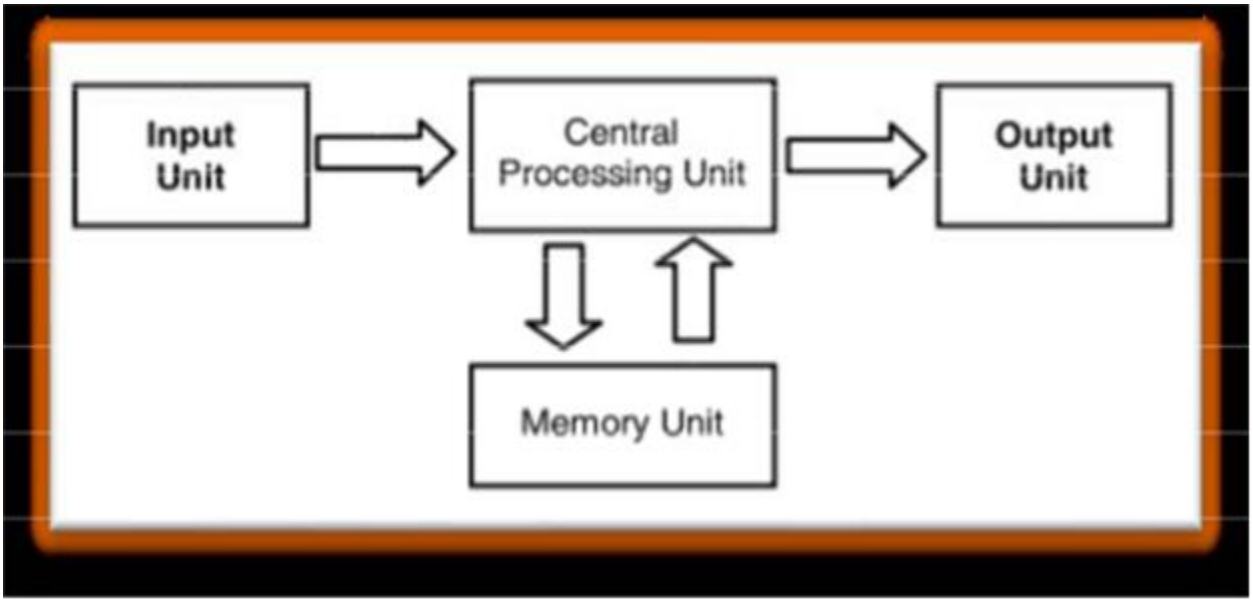

Figure: *Basic components of a Computer System*

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Central Processing Unit:

CPU is the brain of any computer system. It Coordinates all computer operations and Perform arithmetic and logical operations on data.

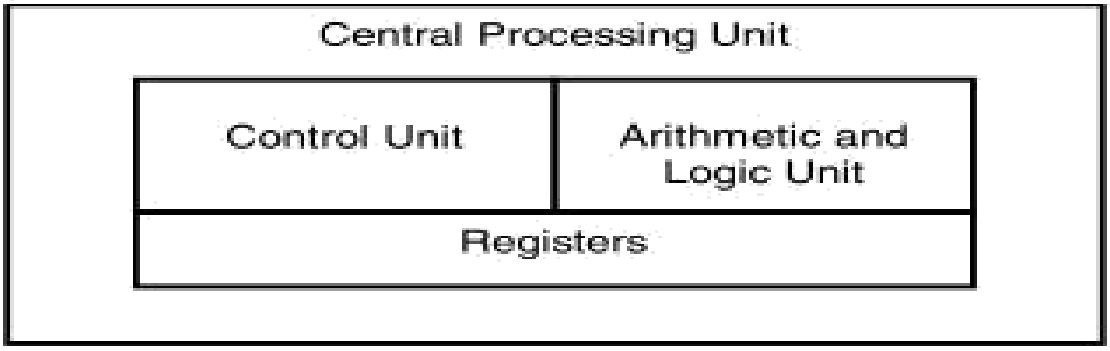

Figure: *CPU*

The CPU consists of *arithmetic and logic units*, *control unit* and *internal memory* (registers). The Control unit controls all the operations. The arithmetic and logic units performs addition, subtraction, division and multiplication and some logical operations.

Memory:

The electronic storage are of a computer is known as Memory. Computers memory is of two types:

- Primary Memory (or) Main Memory
- Secondary Memory

The main memory stores the programs and data that are currently being used by the computer. It holds data and programs temporarily.

Secondary memory stores the data permanently. It is also known as auxiliary memory. It is much less expensive.

Output Unit:

Output devices can display the resulting information to the user. Monitors and Printers are commonly used output devices.

2. Memory

The storage areas of a computer is known as Memory. Memory is useful to hold / store data and the instructions.

MEMORY UNIT:

UNIT	ABBREVIATION	STORAGE
Bit	B	Binary digits either 0 or 1
Nibble	-	4 bits
Byte	B	8bits
Kilo Byte	KB	1024 bytes
Mega Byte	MB	1024 KB
Giga Byte	GB	1024 MB
Tera Byte	TB	1024 GB
Peta Byte	PB	1024 TB
Exa Byte	EB	1024 PB
zetta Byte	ZB	1024 EB
Yotta Byte	YB	1024 ZB

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Computer's memory is of 2 types:

1. Primary Memory.

2 .Secondary Memory.

Primary Memory:

Primary Memory is also called as **main memory**. There are different types of memory. They are:

I I. Random Access Memory (RAM)

II. Read Only Memory (**ROM**)

Random Access Memory – [RAM]: RAM is the main memory for a computer. RAM can be used for both reading and writing. **When we switch off a computer, then the data on RAM will be erased**. It is a **volatile memory**.

TYPES OF RAM:

There are two types of RAM:

•• Dynamic RAM

•• Static RAM.

Dynamic RAM (DRAM): Its data has ***to be refreshed*** after every few milliseconds. DRAM has higher storage capacity. ***It is cheaper*** than Static RAM.

Static RAM (SRAM): Its data ***need not be refreshed***. SRAM has higher speed. **It is costlier**. **Read Only Memory – ROM**

ROM is computer's internal memory. It contains some pre-loaded programs. ***The programs on ROM are helpful for booting***.

There are different types of RAM:

1.ROM

2.EPROM

3.EEPROM

PROM: It is a Programmable ROM. PROM allows us to write our own BIOS programs. But these programs can be written only once.

EPROM: It is Erasable Programmable Read Only Memory. EPROM allows us to write our own BIOS programs. These programs can be erased by using an ultraviolet light.

EEPROM: It is an Electrically Erasable Programmable Read Only Memory. EEPROM allows us to write our own BIOS programs. It can be erased by exposing it to an electrical voltage.

Register

Registers are the high speed storage areas within a CPU. They are also called as ***CPU's Working Memory***. They are useful to the CPU during the execution of the instructions. *There are different types of registers:*

Accumulator (ACC): It can store the results of arithmetic and logical operations

Instruction Register (IR): It contains the current instruction.

Program Counter (PC): It contains the address of the next instruction.

Memory Address Register (MAR): It contains the address of the next location in memory.

Memory Buffer Register (MBR): It temporarily stores the data from memory.

Data Register (DR): It stores the Operands and other data.

CACHE Memory

A Cache is a fast responding, small memory chip attached between CPU and memory

1. CACHE memories are accessed faster than RAM.

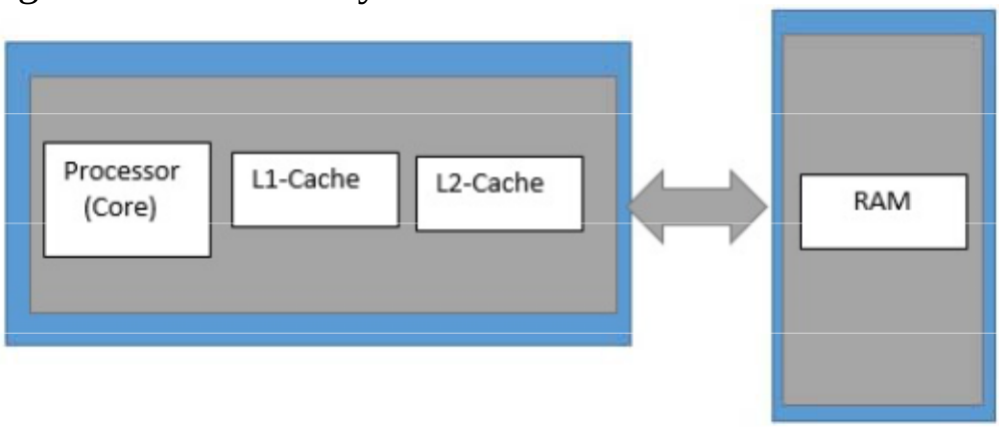
2. It is used to store programs currently using by the CPU.

3. So cache memory makes main memory to work faster.

4. A Cache is available in limited

Capacity (in Kilo Bytes.

Figure: Cache Memory



CACHE is of 3 Types:

- • Level-1 Cache
- • Level-2 Cache
- • Level-3 Cache

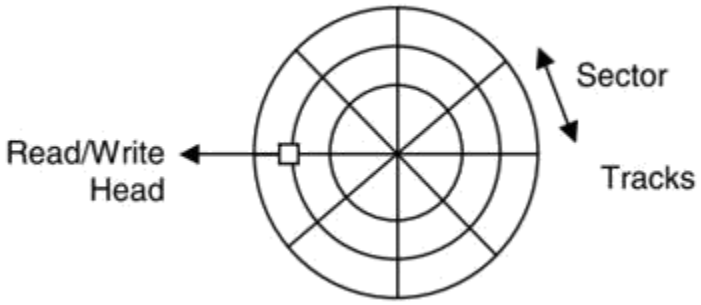
Secondary Memory / Storage Devices:

Secondary memory is a large, non-volatile memory. It stores the data and instructions permanently. Some of the commonly used secondary storage devices are *hard disks*, *magnetic tapes*, *floppy disks* and *CD-ROM*

Hard Disk:

Hard disk is a magnetic disk. It can store computer data and instructions. It is a direct-access storage medium. A hard disk contains some Tracks and Sectors to store the data. The arrangement of tracks and sectors on a disk is known as its 'format'Now a days the hard disk in a PC has nearly 1Tera Byte Capacity.

Now a days the hard disk in a PC has nearly 1Tera Byte capacity.



Magnetic Tape:
A magnetic tape is a thin tape with a coating of magnetic strip. It is used for recording the data.
Magnetic tape is a serial access medium. Magnetic tapes are generally used for backup.

Floppy Disk

A Floppy disk is a thin circular disk used for data storage. It is a soft magnetic disk that can be enclosed in a protective sheet. It contains tracks and sectors.
A floppy has 3.5" in size. Some floppy disks would be 5.25" in size. A 3.5" floppy disk can hold 1.44 MB of data

Compact Disk

Compact disk is a secondary memory device that can be written by lasers. It is a random access storage medium. It is also known as read/write CD-ROM. It is a popular and cheap method for storage.

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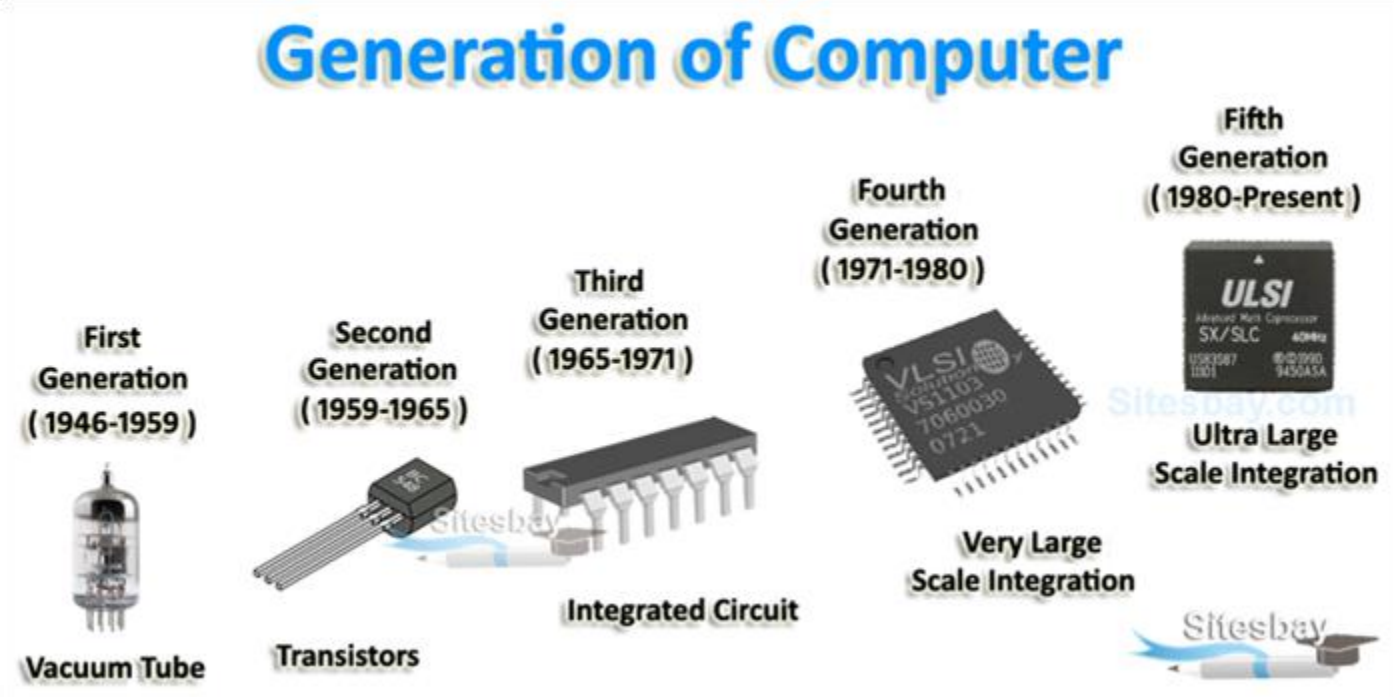
Floppy Disk Internal Structure Compact Disk

2.1



3. OPERATING SYSTEM

Definition: ***Operating System (OS) is system software. It acts as an interface between the user and the computer hardware***.

Objectives of OS:

OS has two main objectives:

(1) To make the computer system convenient and easy to use.

(2) To use the computer hardware in an efficient way.

Examples of OS:

Some commonly used operating systems are: Microsoft Disk Operating System (MS-DOS), Windows XP, Windows 7, Windows 8, Windows 10, UNIX, Linux, Mac, Android, etc.

3.1 Functions of OS

The following are the main functions of the OS:

1.Process Management

2.Memory Management

3.File Management

4.Device Management

5.Protection and Security

6.User interface

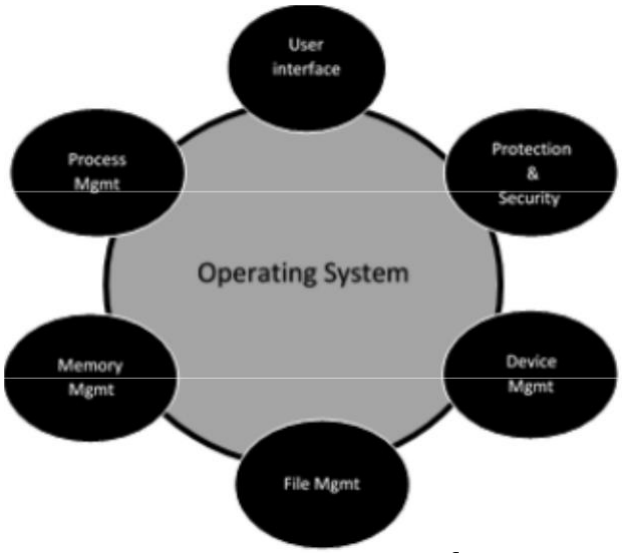


Figure: Functions of OS

Process Management:

A process is a unit of work. A process can be created, executed and stopped by the operating system.

A process may have 5 states:

I. **New** State
II. **Ready** State
III. **Running** State
IV. **Waiting** State
V. **Terminated** State

The following figure shows the 5 states:

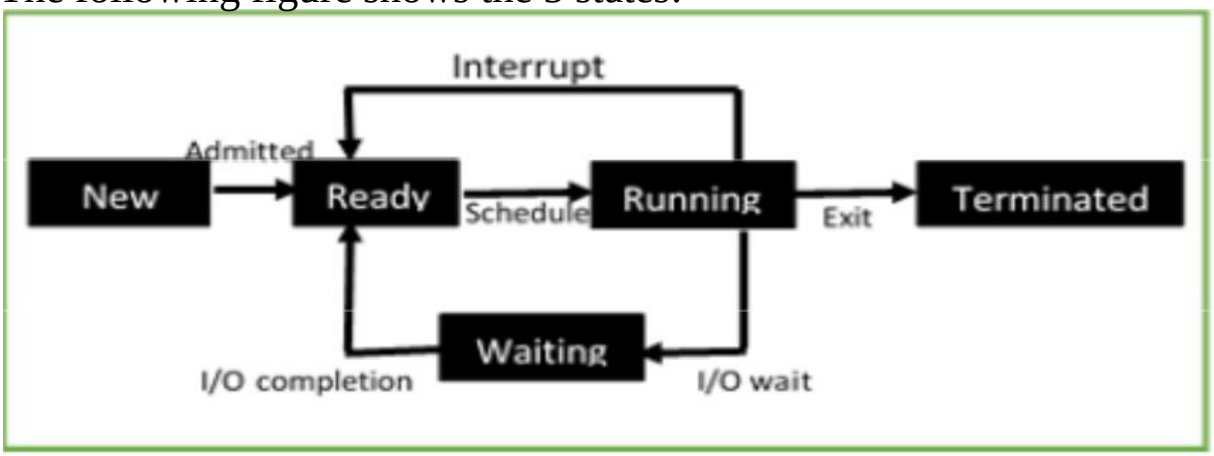


Figure: Five State Process Model

Memory Management:

Every process requires some memory. OS performs the memory management functions like:
I. Allocate memory II. Free memory
III. Re-allocate memory IV. Maintaining the memory usage details.

File Management:
A file is a collection of related information. OS manages a collection of files and directories. It can create and delete files.
Device Management:
OS controls and manages the devices connected to the computer. It can communicate with the devices by using device driver software.
Protection and Security:

OS protects the resources of the system. It provides the basic protection like user authentication, encryption, backup, etc.
User interface:
OS provides an interface between the user and computer. It allows the user to interact with the application and the hardware.

3.2 Types of Operating Systems

OS are of the following types:

1.Single User -Single Tasking Operating Systems

2. Single User -Multitasking Operating Systems

3.Multi User Operating Systems

4. Multiprocessing Operating Systems

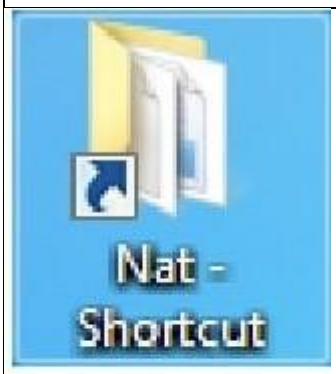
5. Real time Operating Systems

6. Embedded Operating Systems.

4. Understanding Desktop Icons:

The Windows desktop contains a range of icons, some of which appear when you install Windows 10, and some that appear when you install new programs. Icons with an arrow are known as shortcuts or links to programs, files or folders. You can doubleclick on a desktop icon to launch that program, folder or file. Below are some common desktop icons.

Icons	What They Represent
	**Programs** The icons to the left represent shortcuts to various programs. You can tell it's a shortcut as it contains an arrow. So, if you were to delete the shortcut, you wouldn't be deleting the actual program, only the desktop link to it. Double-clicking on the relevant icon will launch that program. For example, if you double-click on the icons to the left you will launch: 1. Microsoft Word 2007 (word processing program) 2. Mozilla Firefox (internet browser) 3. Adobe Reader 9 (to view PDF files)

	**Files** Icons that show a page represent a file. When you double-click on the icon, the file will open in the program that it was created in. The picture to the left shows that the file was created in Notepad. However, as no arrow appears, it is not a shortcut, but indicates that this file was actually saved to the desktop. Therefore, if this desktop icon is deleted, so is the actual file.
 	**Folders and drives** Icons that show a folder represent a folder or shortcut to a folder. When you double-click on a folder icon, the Windows Explorer window will open and you will see the contents of that folder. Similarly, icons that show a hard disk will display the contents of that drive in Windows Explorer when you double-click on it.
	**Recycle Bin** The desktop icon for the Recycle Bin is shown as a waste paper basket with the recycle symbol on it. Double-clicking on this icon will open the Recycle Bin window, allowing you to permanently delete or restore files as necessary.

5. WORD PROCESSING

Application of word processing:

The process of using a computer to create, edit, format and print documents is known as *Word Processing***.**

- To perform word processing, a computer, a special program called a word processor and a printer are required.

A word processor is an application program that enables the user *to create a document*, *format it*, *store it*, *display it* and *print it* on a printer.

- ***Microsoft Word*** is the most widely used word processing software.
- **WordPerfect** and **open Office Writer**, **Libre Office Writer** are some other word processers.
- *Office Web Apps* or *Google Docs* are the Web-based word processors.

Microsoft Word 2013 **is a word-processer that is used to create professional-looking documents such as reports, resumes, letters, memos, and newsletters.**

•Word processors have a variety of uses in the business, home, and education.

•In Business word processing is used for:

*Letters and

letterhead * Memos

*Documents.

• In the home word processing is used as educational, planning, dealing with assignments. Examples:

*Letter writing * résumé/CV creation.

•In education word processing is used the production of assignments, notes, exams, and for practicing its uses!

5.1 Microsoft WORD

Microsoft Word 2013 is a word-processing program that is used to create professional-looking documents such as reports, resumes, letters, memos, and newsletters.

Features of word processing:

Word processors/Microsoft Word has the following features:

1. Text Manipulation

It allows us to change the appearance of a document by changing words, sentences and paragraphs.

2. Document Formatting

It allows us to format the documents. Formatting improves the readability of documents.

3. Graphics

It allows us to insert Pictures or graphics in a document.

4. Tabs

It allows us to setup the text on a page in the exact position.

5. Tables

It allows us to insert tables in a document. The data in a table can be sorted, formatted, etc.

6. Mail Merge

Mail merge allows the user to merge a list of names and addresses to a single letter that can be sent it to different people.

7. Spell Checking

It allows the user to check the words for correct spelling.

Collaborative Editing: **It allows two people to simultaneously work on one document as a team.**

Starting Word

You can start Word 2013 from the Start menu.
->To start Word 2013 from the Start menu:

1. Click the **Start** button -> **All Programs** -> **Microsoft Office 2013**->**Word 2013**.

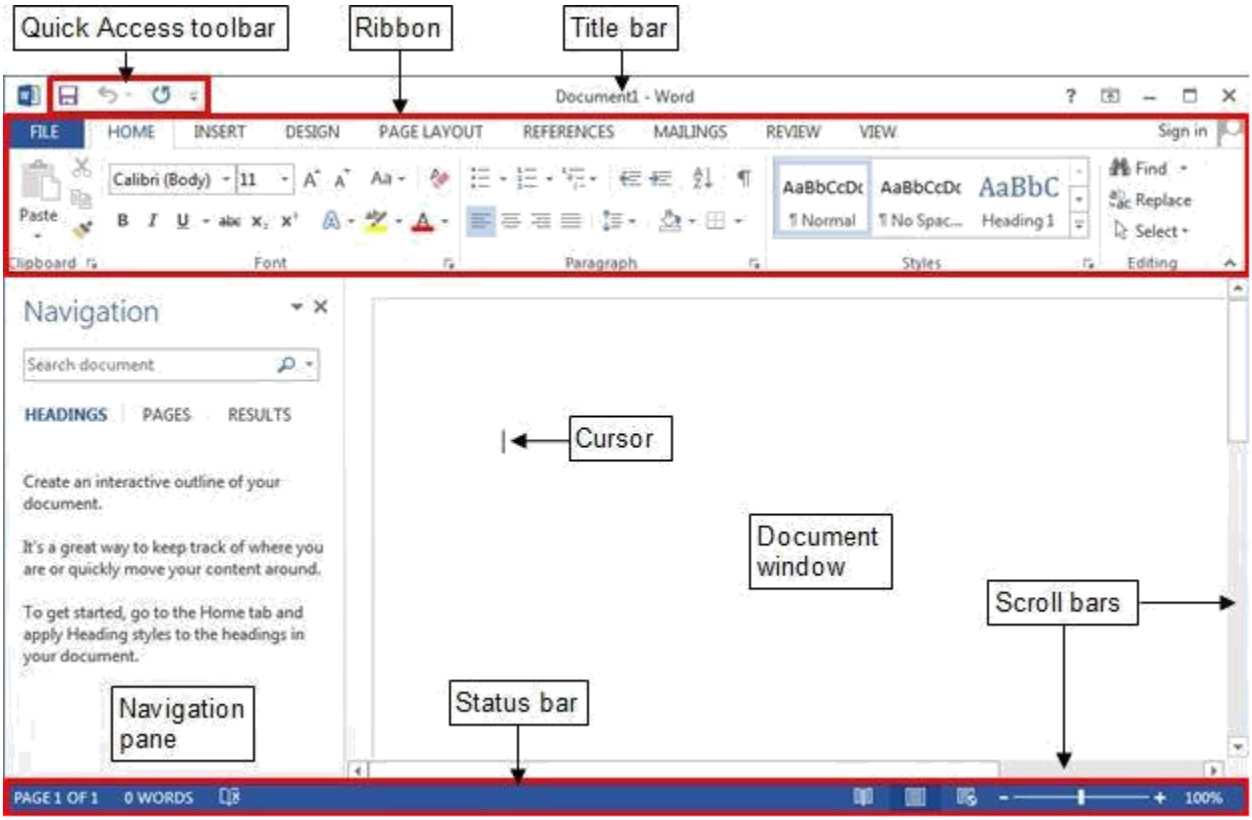
•It shows the **Start** screen.

2.In the right pane, click **Blank document**.

•It opens a new, blank document.

5.2 Parts of a MS-WORD window

MS-WORD is a word processor. An ***MS-Word window has the following***



Menus and Tool bars:
The old menu system has been replaced by the ***Ribbon*** and the ***Office button*** in the latest versions of Word.

8. **Title bar**: It appears at the top of the window. It displays the title of the document. It also shows the buttons to minimize, restore, /maximize, and close the window.

- **Quick Access toolbar**: It appears on the left side of the Title bar and contains frequently used commands.
- **Ribbon**: It appears below the Title bar. It consists of a set of tabs with related commands/Menus.
- **Navigation pane**: It appears on the left side of the window. It enables you to navigate long documents, search for specific text.
- **Document window**: It displays the contents of the document.
- **Cursor**: It is a blinking pointer that indicates where the text will be inserted.
- **Scroll bars**: It enable you to scroll through the document.
- **Status bar**: It appears at the bottom of the window. It displays information about the document

Creating Documents

An MS-Word document can be created by using the following procedure

1.Select and Click on **Word 2013**

2.Select **Blank document**

- It opens a new document for you to enter your content.

3.You can also create a new document by pressing **CTRL + N** keys.

Saving Documents

After creating a document, you can save it.

To save a new document:

1.Click on the File tab

2. Then, click on **Save as** It opens the Save As page window. Select a location to save the file

3.Type a File name.

4.Click the Save button.

NOTE: 1.Word 2013's file format is called ***Word Document***. This format has the **.docx** file extension.

2. You can also save a document in the *Word 97-2003* format with the **.doc** file. This format works with earlier versions of Word.

Closing Documents

You can close a document after finishing working on it.

To close a document:

1.Click the File tab

2.Then click Close.

Or, press **Ctrl+**

.

3. Opening Documents

You can locate and open an existing document.
To open a document:
1.Click the File tab
2.Then click **Open**. Or, press Ctrl+O.
- It opens a list of recently used documents.

3.Locate your document and then click the **Open** button.

Previewing and Printing Documents

To preview and print a document:
1.Click the File tab
2.Then click Print. Or, press Ctrl+P.
•It displays print settings
3.Change the print settings as you like.
To print the document, click the Print button.

Editing Documents

Most documents require some editing. You may perform basic tasks such as **selecting**,
Deleting, **copying**, and **moving text**, and **undoing** and **redoing** changes.

Selecting Text

To select text:

1.To select a word, double-click anywhere in the word.

2.To select a sentence, hold down the Ctrl key and click anywhere in the sentence.

3.To select a paragraph, triple-click anywhere in the paragraph

4. To select the entire document press Ctrl+A

Deleting Text

To delete text:

1.Select the text that you want to delete, and then press the Delete key.

Moving and Copying Text

You can copy or move the text into a location. To move or copy text:

1.Select the text that you want to move or copy.

2.Select Home tab and do one of the following:

•To move text, click the **Cut** button. Or, press **Ctrl+X**.

•To copy text, click the **Copy** button. Or, press **Ctrl+C**.

3.Place the cursor in the required position.

4.Then, Click the **Paste** button. Or, press **Ctrl+V**.

Undoing and Redoing Changes

Whenever you make a mistake, you can easily reverse it with the Undo command. The Redo command allows you to restore the undone actions.

To undo an action:

1.Click the **Undo** button. Or, press **Ctrl+Z**.

To redo an action:

1. Click the **Redo** button. Or, press **Ctrl+Y**.

Formatting Documents

Formatting is a feature that *enhances the appearance of a document*. Text formatting includes ***font, font size, font color***, and etc.

Figure: Font group

Different formatting features in MS-Word

Word 2013 has a number of features to format a document. The following are some formatting features:

Name	Description
 Bold	Makes the selected text bold (**Example**).

Name	Description
Align Left	Aligns the text at the left margin. This Is the default alignment.
Centre	Centres the text between the left and Right margins.
Align Right	Aligns the text at the right margin.
Justify	Aligns the text at both the left and right Margins.

Formatting Paragraphs

Paragraph formatting is the layout of a paragraph on the page. You can change a paragraph alignment, line spacing, and the space before and after it.

Changing Paragraph Alignment

Paragraph alignment refers to the position of a paragraph between the left and right margins

To change the alignment of a paragraph:

1.Select the paragraph that you want to align.

2.On the Home tab, in the Paragraph group, click the desired alignment button.

5.3 Headers and Footers

Headers and footers are the areas in the top and bottom margins of each page.

- • You can insert text or graphics in headers and footers.
- • For example, you can add the document title, page numbers, the author's name, or a logo.
- • A header and footer appears on every page.

To insert a header or footer:

1.Click **Insert** tab

2.Then select the **Header & Footer** group and click on the **Header** or **Footer** button.

Figure: Header and Footer group

Then it opens the header and footer area in the document.

3.Type the required text in the *header area*.

4.Type the required text in the *footer area*.

5.Apply the required Formatting features to the header and footer.

6.After finishing, click on **Close header and footer.**

Inserting Page Numbers:
Page numbers are the most common type of header or footer.
To insert page numbers:

1.Click **Insert** tab

2.Then select the **Header & Footer** group and click on the **Header** or **Footer** button.

Figure: Header and Footer group

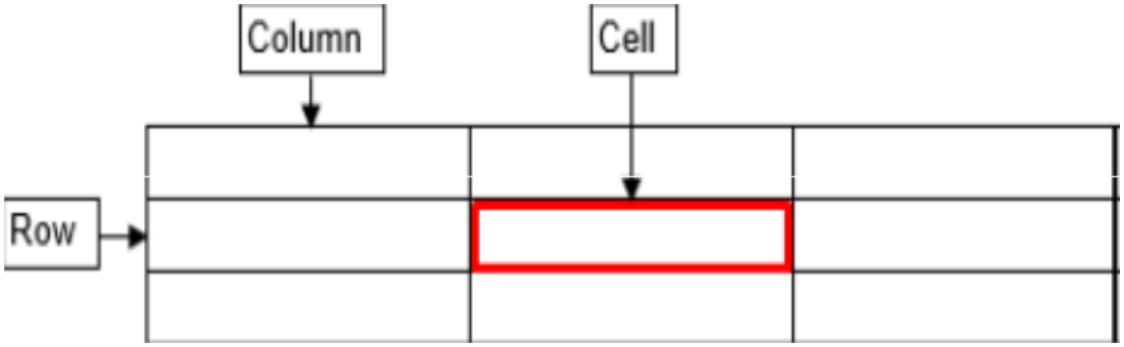
- Then it opens the header and footer area in the document.

3.Select **Insert Page Number** arrow.
4.Click on the required style.
- It will insert the page numbers at the specified position.

5.After finishing, Click on **Close header and footer**

Working with Tables

Tables are commonly used to organize and present data. A table is made up of horizontal *rows* and vertical *columns.*



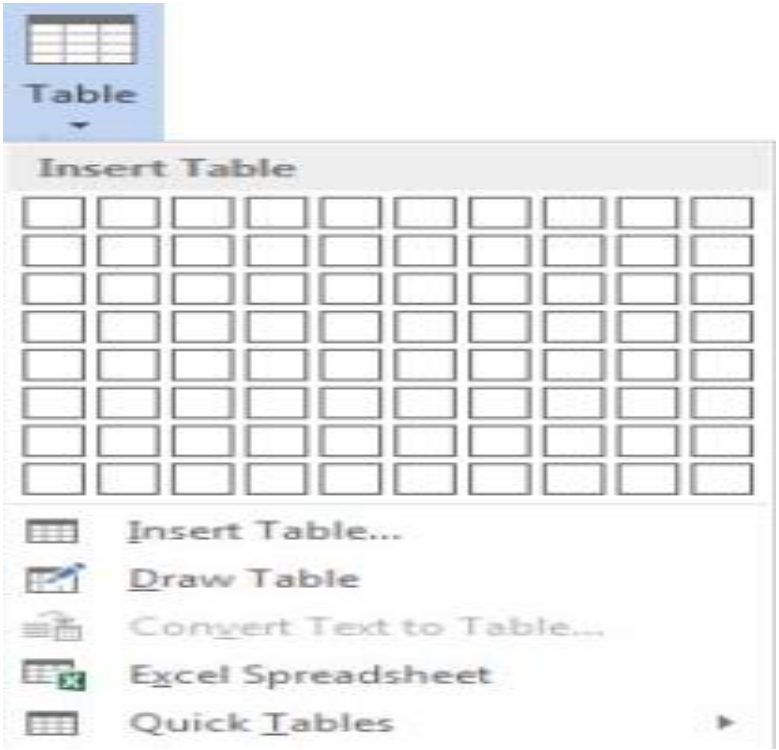
Inserting Tables

Word 2013 makes it quick and easy to insert a table into a document. To insert a table:

1.Click in the document where you want to insert the table.

2.Select the Insert tab

3.Select the Tables group and click the Table button



4. Select the desired numbers of rows and columns.

Working with Images

Images can add visual interest to documents. Word 2013 allows you to insert images of .gif, .jpg,
.png, .bmp, etc. into a document.

To insert an image:

1.Click in the document where you want to insert the image.
2.On the Insert tab, click on the Pictures button
3. It will display an **Insert Picture** dialog box,
4. Locate and select the desired image and then click the **Insert** button.

5.4 Mail Merge

The mail merge is a process that ***combines a document with a data source*** to *produce personalized documents*.
Document contains the text and graphics. *Data source* contains the addresses of the recipients.
The mail merge process in Word 2013 has the following steps:

Select the document type and main document.

Connect the main document to a data source and define the recipients list.

Add merge fields to the main document.

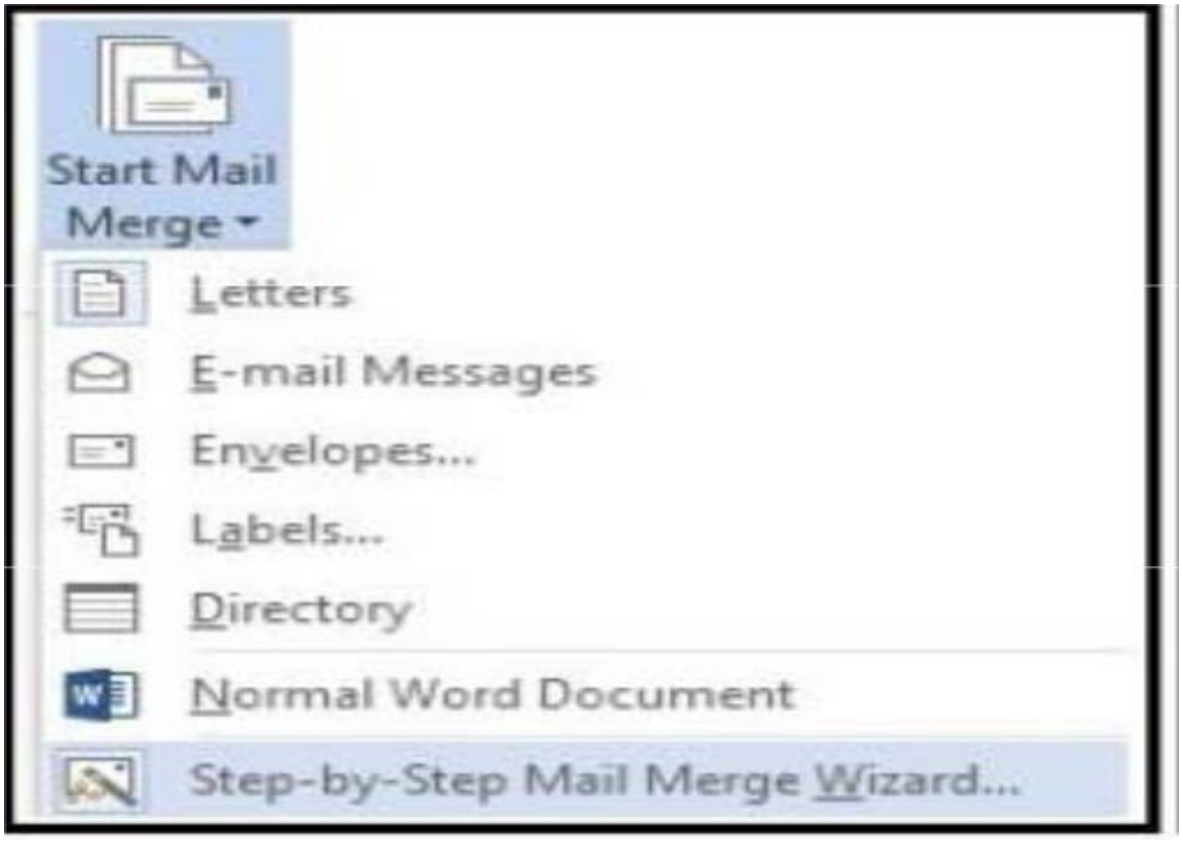
Preview the results and complete the merge.

To perform mail merge:

1.Create a new blank document and type your letter.

2.Select **Mailings** tab and click on **Start Mail Merge** button.

3. Then click **Step-by-Step Mail Merge Wizard.**



4. It displays the **Mail Merge** pane. It has the following 6 steps:

Step 1 of 6: **Select document type** and select the **Letters** option.
Step 2 of 6: **Select starting document** and select the **Use the current document** option.
Step 3 of 6: **Select recipients**, select **Type a new list** option and then click the **Create** link

- Type the information of the recipients and save it.
- Click the **Next** link.

- *Step 4 of 6:* click in the document and insert a merge field.
- *Step 5 of 6:* Click **Preview your letters**, click the **Next** button.
- *Step 6 of 6:* Select **Merge** and click on **Print.**

-

- The following figure shows mail merge process:

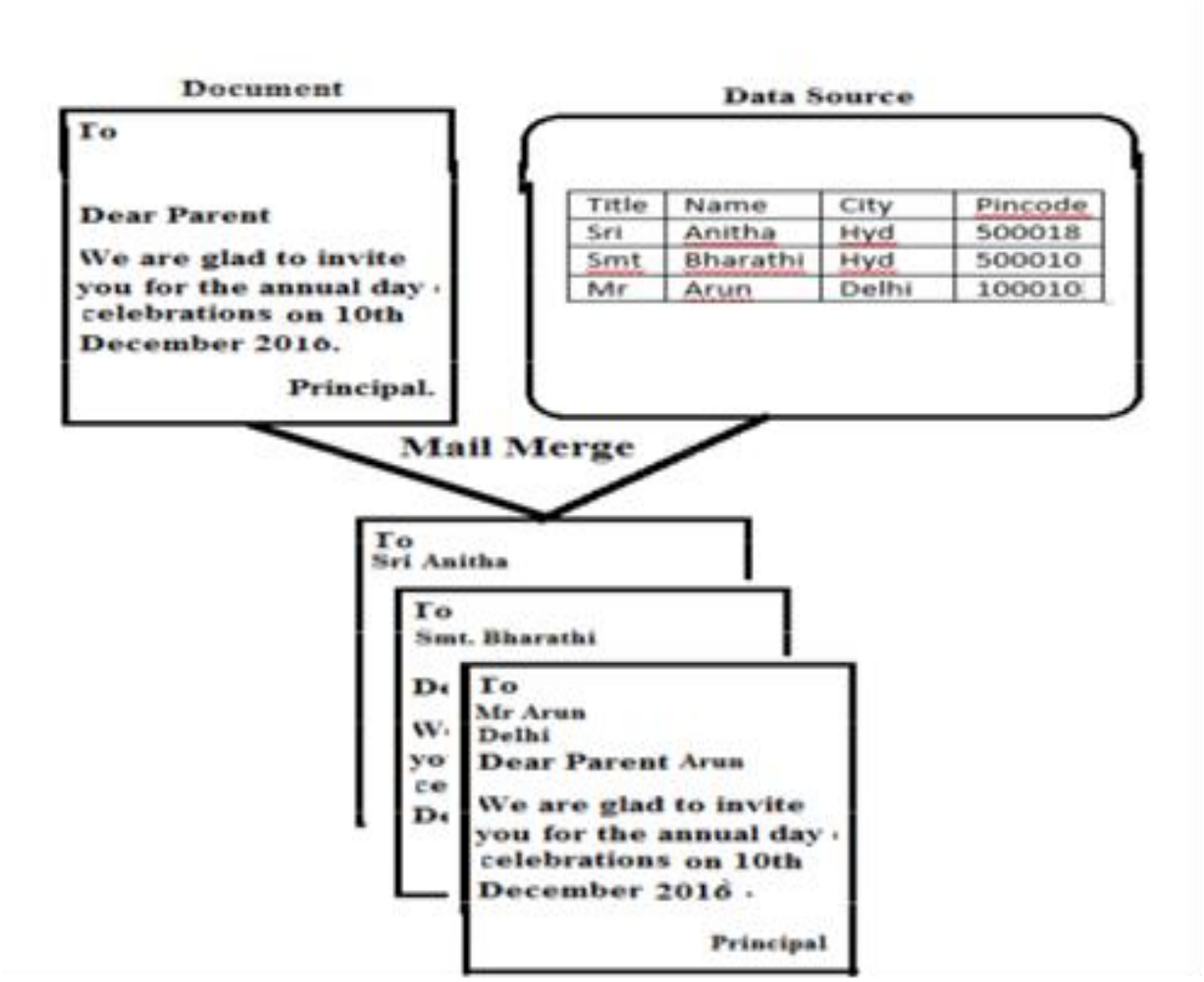


Figure: **Mail merge Process**

Macro

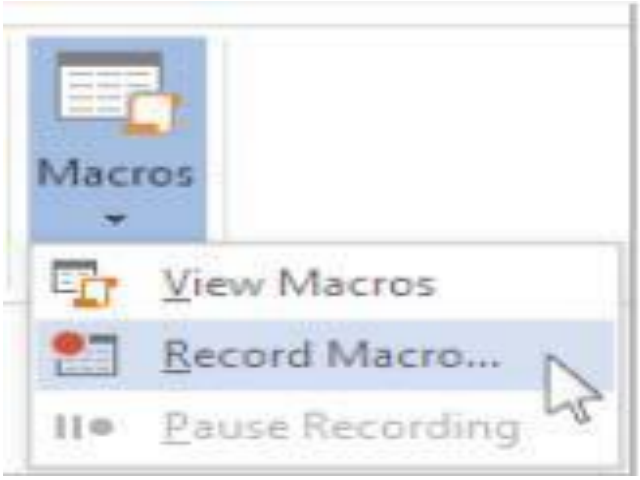
Definition: A macro is a series of actions.

You can use it to automate a repeated task. So that you can run the macro when you have to perform that task. It saves time for us.

Creating/Recording a Macro:

The following are the steps to record a macro:

1.Click **View** > **Macros** > **Record Macro**.



2.To assign your macro to a button, click **Button**.

3.Select new macro and click Add.

4.Click **Modify**.

5.Choose a button image, type the name you want, and click **OK** twice.

6.Now record the steps.

7.To stop recording, click **View** > **Macros** > **Stop Recording**.

- The button for your macro appears on the Quick Access Toolbar.
- To run the macro, click the button.

Run a macro

Steps to run a macro:

You can run a macro by:

- Clicking the button on the Quick Access Toolbar
- Pressing the keyboard shortcut.
- Run the macro from the **Macros** list.

- 1.Click **View** > **Macros** > **View Macros**

2.Select your **Macro name** from the list.

3.Click Run.

Disadvantages of Macros:

Some macros can give security problems. Sometimes hackers can introduce a destructive macro in a file that can spread a virus on your computer.

6. WORKSHEET

SHEET Application of
work sheet/spread sheet:

A spreadsheet is a program that contains a group of 'cells' arranged in rows and columns. You can enter the data into each cell. This data can be used to make calculations, show graphical representations or analysis.

- Spreadsheets are the widely used applications for analysing and displaying data.
- Spreadsheets can help users to develop graphs, charts, reports of financial data, or statistical

Analyses.

- They has a wide variety of features including graphics, sorting, mathematical and statistical computing.
- A spreadsheet can contain a number of different worksheets.
- Spreadsheet software packages can be used on almost any type of computers.
- The most widely used spreadsheet software packages are:
  ->Microsoft Excel
  ->Liber Office - Calc (Free)
  ->Open Office - Calc
  ->Google Sheets

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to manage, analyse, and present data.

- It can be used to organize and manipulate large amounts of data, perform complex calculations, and more.

MS-Excel window also has the following menus:

File: It contains the commands for managing the excel files.
Home: It contains the most frequently used commands.
Insert: It contains the commands to insert the required items into a worksheet.

Page Layout: It contains the commands to change the appearance and layout of a worksheet

Formulas: It contains commands to insert formulas.
Data: It contains the commands to manage data.
Review: It contains commands used to check spelling and protect worksheets, etc.
View: It contains commands related to changing the view. **Formula Bar**
The Formula bar displays the contents of the active cell. It can be used to enter or edit cell contents. The Formula bar contains three buttons, as shown below:

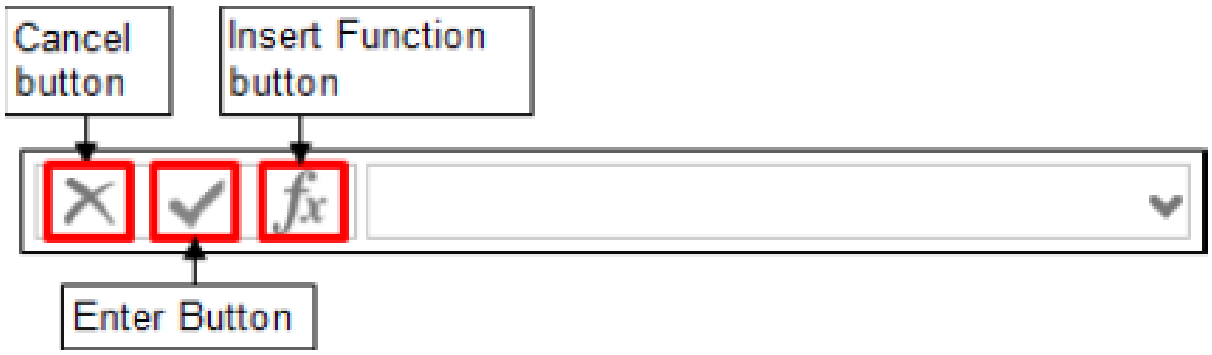


Figure – Formula Bar
Cancel button: It is used to cancel the changes made in the cell.
Enter button: It is used to commit the changes you made in the cell.
Insert Function: It is used to construct formulas.

6.1 Workbooks

An Excel file is called a workbook. In **Excel 2013**, each *new workbook contains one blank worksheet*. You can add additional worksheets. Each worksheet consists of **1,048,576 rows** and **16,384 columns**.

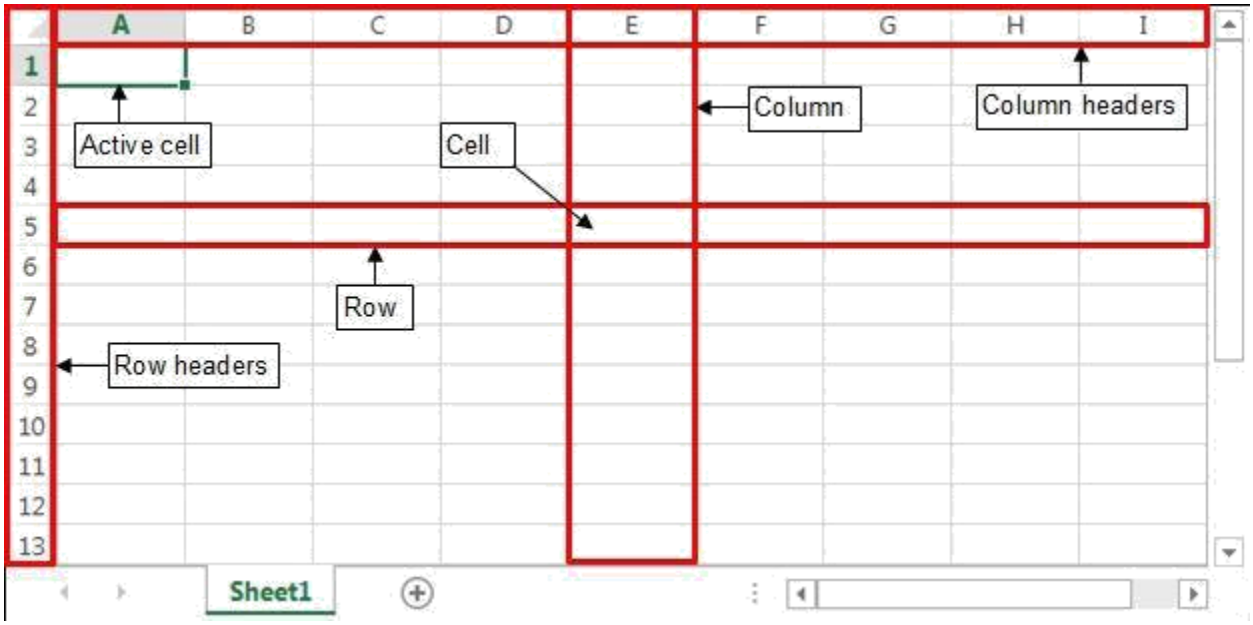


Figure: Worksheet

The box formed by the intersection of a row and a column is called a cell. Cells are used to store data. Each cell is identified by its address which consists of its column letter and row number. Example: cell A1 is the cell in the first column and first row.

Creating a Workbook
You can start Excel 2013 from the Start menu.

To start Excel 2013 from the Start menu:

1. Click the **File** tab **new**

• It shows different templates.

2. In the right pane, click

Blank Workbook. It opens a

new, blank workbook.

3.You can also use Ctrl + N to open a new workbook.

Saving a Workbook

To save a workbook:
1. Click the **File** tab click **Save As**.
• It displays a Save As window

2. Click **Computer Browse**
3. Select a *location* to save the file, *type a name* in the File name box, and then *click the* **Save** button. Note: Excel 2013's file format is called ***Excel Workbook***. This format has the file extension ***.xlsx***
Closing a Workbook
After finishing working on a workbook,
you can close it. To close a workbook
without exiting Excel:

1.Click the ***File*** tab, and then click **Close**.

2.Or, press **Ctrl+W**.

Opening a Workbook to open a workbook:

1.Click the File tab
2.Then click **Open**. Or, press **Ctrl+O**.
• It opens a list of recently used workbooks.
3. Locate your workbook and then click the **Open** button.

Entering Data

You can enter the data directly in a cell or by using the Formula bar. A cell can contain a maximum of 32,767 characters.

Entering Numbers

Numbers are automatically aligned to the right in a cell. Numbers can be used in formulas to
Calculate other values.
You can enter:
- Whole numbers (such as 5 or 1,000)
- Decimals (such as 0.25 or 5.15)
- Negative numbers (such as -10 or -5.5)
- Percentages (such as 20% or 1.5%)
- Currency values (such as $0.25 or $20.99).

To enter a number:

1.Select the cell in which you want to enter the number.

2.Type the desired number, and then press the Enter key.

To edit data:

1.Double-click the cell that contains the data you want to edit.

2.Click where you want to make changes, and then type the new characters.

3. *To delete* characters, click where you want to delete and then press the Backspace or Delete key.

4.When you are finished, press the-+8 Enter key.

Printing a worksheet:

1.Select the worksheet that you want to print.

2.Click the **File** tab click **Print**. Or, press Ctrl+P.

- Make the required changes in the print settings

3.To print multiple copies, specify the number of copies you want.

4.Click the Print button.

Inserting a Worksheet:

To insert a worksheet:

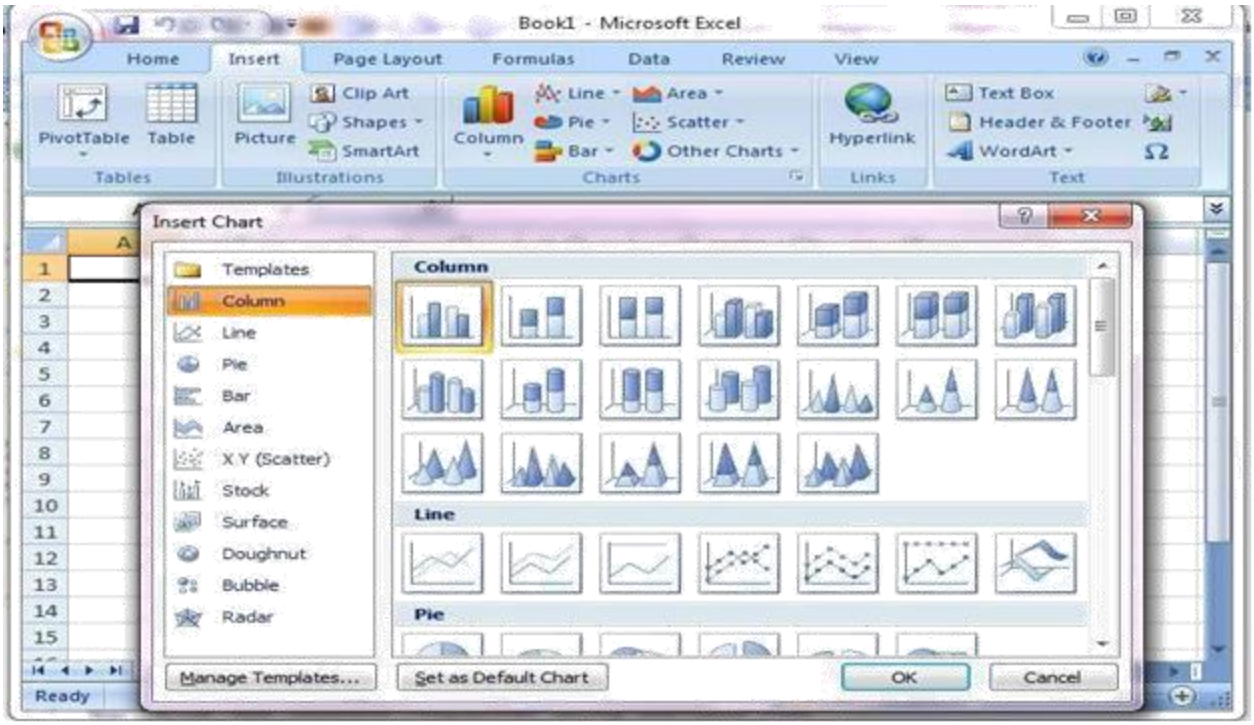
1.Click the tab of the worksheet to insert a new worksheet.

2.Click on **Home** tab click on **Insert** and then click on **Insert Sheet**

3.Or Click the New sheet button located on the right side of the tabs. This inserts a new worksheet.

Charts

A chart is an integral feature of Excel. It is also known as a graph. ***Charts/graphs are used to visually represent numeric values***. It is very much useful to analyse the data


Book1 - Microsoft Excel
Home
Insert
Page Layout
Formulas
Data
Review
View
PivotTable
Table
Picture
Clip Art
Shapes
SmartArt
Column
Line
Pie
Bar
Area
Scatter
Other Charts
Hyperlink
Text Box
Header & Footer
WordArt
Tables
Illustrations
Charts
Links
Text
Insert Chart
Templates
Column
Line
Pie
Bar
Area
X Y (Scatter)
Stock
Surface
Doughnut
Bubble
Radar
Column
Line
Pie
Manage Templates...
Set as Default Chart
OK
Cancel
Ready

6.2 Functions

Functions are predefined formula that takes a value or values. A Function can perform an operation and returns a value or values.

• • MS-Excel 2013 has a number of functions. Each function has a syntax. Syntax means a set of rules.

An excel function has the following Syntax:

1.A function must begin with '=' sign.
2. Then, Define the name of the function
3. Then, Specify the list of arguments in brackets.

Types of Functions

MS-Excel 2013 has the following types of functions:

1. Statistical Functions
2. Mathematical Functions
3. Text Functions
4. Logical Functions
5. Financial Functions
6. Date and Time Functions

Statistical Functions:

These functions will perform statistical operations. Some of them are:

• **Count**: The COUNT function is used to count the number of cells that contain numbers.

Syntax: COUNT (value1, [value2],) ([DPSOH——————————
&2817
$$

————————————————————

——————————**Average**: The AVERAGE function is used to find the average of values in a range of cells.

Syntax: AVERAGE (number1, [number2] ...)

Example: =AVERAGE (A2:A6)

• **Mid**: The MID function is used to extract a substring.

Syntax: MID (text, start_num, num_chars)

Example: = MID ("Microsoft Excel", 11, 5)
It returns the value Excel.
• LEN: The LEN function gives the length of the string.

Syntax: LEN (text)

Example: LEN ("MICROSOFT")
It gives the value 9
• **Upper**: Converts text to uppercase

Syntax: UPPER (text)
Example: UPPER ("excel")
It gives the string EXCEL. Syntax: RIGHT (text, [num_chars])
Text Functions
• **Concatenate**: CONCATENATE function joins the strings.

Syntax: CONCATENATE (text1, [text2],)
Example:=CONCATENATE("MICROS
OFT", " EXCEL") It gives the value
Microsoft Excel
• **Left**: The LEFT function is used to extract leftmost characters from a string.

Syntax: LEFT (text, [num_chars])
Example: =LEFT ("MICROSOFT", 5)
It gives the value "micro".
• **Right**: The RIGHT function is used to extract rightmost characters from a string.

Example: =RIGHT ("MICROSOFT", 4)
It gives the value "soft".
• **Mid**: The MID function is used to extract a substring.

Syntax: MID (text, start_num,
num_chars)
Example:=MID("Microsoft

Excel", 11, 5) It returns the
value Excel.
• LEN: The LEN function gives the length of the string.

Syntax: LEN (text)
Example: LEN ("MICROSOFT")

Upper: Converts text to uppercase
Syntax: UPPER (text)
Example: UPPER ("excel")
It gives the string EXCEL. Syntax: RIGHT (text, [num_chars])

Text Functions

• **Concatenate**: CONCATENATE function joins the strings .
Syntax: CONCATENATE (text1,
[text2],...)
Example:=CONCATENATE("MICROS
OFT", " EXCEL") It gives the value
Microsoft Excel
• **Left**: The LEFT function is used to extract leftmost characters from a string.
Syntax: LEFT (text, [num _ chars])
Example: =LEFT ("MICROSOFT", 5)
It gives the value "micro".
• **Right**: The RIGHT function is used to extract rightmost characters from a string.

Example: =RIGHT ("MICROSOFT", 4)
It gives the value "soft".
• **Mid**: The MID function is used to extract a substring
.

Syntax: MID (text, start_num, num_chars)
Example: = MID ("Microsoft Excel", 11, 5)
It returns the value Excel.
• LEN: The LEN function gives the length of the string.

Syntax: LEN (text)
Example: LEN ("MICROSOFT")

, W ——————JLYHV——————WKH———
YDOXH————————————————————
——————**Upper**: Converts text to uppercase

Syntax: UPPER (text)
Example: UPPER ("excel")
It gives the string EXCEL.

Mathematical Functions

•**ABS:** It returns the absolute value of a number. The absolute value of a number is the number without its sign.

Syntax: ABS (number)
Example: =ABS (-2)
It returns the value 2.

• **COS**: It returns the cosine of the given value.

Syntax: COS (number)
Example: COS (30)
It returns the value 0.1542515

• OR: It returns TRUE if any argument is TRUE; returns FALSE if all arguments are FALSE.

Syntax: AND (logical1, [logical2],)
Example: =OR (1+1=1, 2+2=5)

• NOT: It reverses the value of its argument.

Syntax: NOT (logical)
Example: =NOT (FALSE)

Financial Functions

• FV: It returns the future value of an investment.

Syntax: FV (rate, nper, pmt, [pv], [type])
Example: =FV (A2/12, A3, A4, and A5)

• **PMT**: It calculates the payment for a loan.

Syntax: PMT (rate, nper, PV, [fv], [type])
Example: =PMT (0.50%, 240, 15000, 0)
• **PV**: Returns the present value of an investment.

Syntax: PV (rate, nper, pmt, [fv], [type])
• **Rate**: It returns the interest rate per period of an annuity.

Syntax: RATE (nper, pmt, PV, [fv], [type])
Example: =RATE (A2*12, A3, A4)
•**NPV**: It calculates the net present value

of an investment. Syntax: NPV (rate,

value1, [value2],...)

Example: =NPV (A2, A3, A4, A5, A6)
The result of formula is displayed in the cell that has the formula

In Excel, every formula must begin with an equal to (=) sign.

Creating a Formula:

Step 1: Select a cell to display the result
Step 2: Type the = sign.
Step 3: Type the cell address that contains the first number.
Step 4: Type the operator you need in the formula
Step 5: Type the cell address that contains the second number.
Step 6: Press Enter.
The expression will be calculated, and the result will be displayed in the cell.
For example, you can write = A1+A2 to add the values in cells A1 and A2.

Editing a Formula:

Step 1: Select the cell that contains the formula.
Step 2: The formula will appear in the formula bar. Click in the formula bar and change the formula.
Step 3: Press the Enter key.

Copying a Formula:

• Formula specified in one cell can be copied and applied to other cells by clicking on the cell having the formula and then dragging the mouse across other cells.
• While dragging, Excel automatically updates the cell references.

7. PRESENTATION

Microsoft PowerPoint 2013 is a presentation program. It offers various *themes* and *effects* to create effective presentations. You can combine text, graphics, videos, sounds, and animations to create dynamic presentations.
Microsoft PowerPoint can be used to create interactive presentations for classroom, business, or personal use.

Features of MS-Power Point:

1. By using power point you can create professional looking presentations.

2. By using power point it is quick and easy to create presentations.

3. It provides different templates and themes to create presentations.

4.It provides various views to work with the slides.

5. It provides features to insert other objects like charts, images, etc.

6. You can create color or black & white overhead transparencies

7. You can also create 35mm slides with different formats.

8.You can create computer based presentations with several designs.

9.You can also add animation effects to your presentation

10. You can insert various multimedia objects such as audio, video in your slides.

PowerPoint contains the following menus/tabs:

File: It contains the file management commands.
Home: It contains the most frequently used commands.
Insert: It contains the commands to insert other objects into a presentation
Design: It contains the commands to change the appearance of a presentation
Transitions: It contains commands to apply slide transitions.
Animations: It contains commands to apply animation.
Slide Show: It contains commands to present a slide show
Review: It contains commands to review a presentation
View: It contains commands to change the view.

7.1 Creating a New Presentation

In Powerpoint2013, You can create a new presentation in two ways:

1.Creating a new blank presentation

2.Creating a new presentation from a template.

1. Click the FILE and select New.
It displays a new presentation window.
2. Click the Blank
Presentation option. It
creates a new blank
presentation.
OR
Press **Ctrl** + **N** to create a Blank Presentation.

Delete a slide

1. Select the slide you want to delete.
2. Press <Delete>.

3.Right-click on the slide you want to delete and select Delete Slide.

Editing a Slide

Most presentations require
some editing. To edit text:
1.Select the Slide
2.Click where you want to edit.
3.Do any of the following:
• Type any additional text.
• Press the Delete key/Backspace to remove text.

Formatting Presentations

PowerPoint 2013 has a number of features to format a presentation. Formatting enhances the appearance of a presentation.

Changing the Theme

A theme is a coordinated set of colors, fonts, and effects. You can easily change the theme for a presentation.

To change the theme:

1.Select--> Design tab--> select the desired theme from the Themes gallery.

To insert Word Art

1. Click on Insert --> WordArt.

2.Select your WordArt.
3.Enter the text

1.Click on Insert > Table
2.Choose the desired table size
3.And then Click to insert the table.

To insert Charts

1.Click on Insert --> Chart.
2.Choose a Chart.
3.Click OK.

Adding Custom animation

Custom animation is a tool that gives motion to text, images, and other content on the slide. So that they appear on the slide automatically or with the click of the mouse.

Add custom animation

Select the Slide

Select an Element to apply animation

•Click -->Add

Animation button

•Select an animation

effect •Click the

Timing tab

• Apply the duration

•Click the Preview button to preview animation

Notes Page view

The **Notes** pane is located beneath the slide window. It is used to include your notes in a presentation.

Outline view

Outline view is used to create an outline for your presentation. It displays only the text on your slide

7.2 Master views

Master views include, **Slide**, **Handout**, and **Notes**. It is used to make universal style changes to every slide.

Slide Show view

Slide Show view is used to deliver your presentation to your audience. Slide Show view occupies the
Full computer screen.

Presenter view

Presenter view can be used to view your notes while delivering your presentation. In **Presenter** view, your audience cannot see your notes. **Reading view**

It is used to review a PowerPoint presentation. It makes it easy to move through the slides.

An e-mail message contains two parts:

1.Header

2.Body • From: - Sender's email address
• To: - Recipients email address
• Date: - When the e-mail was sent
• Subject: The topic of the message
• Cc:-Carbon Copy, to send the message to others.
• Bcc:-Blind Carbon Copy, to send the message to others privately.

Header: The header contains information about the message such as:

Body: It contains the text of the message and any attachments to be sent.

8. INTERNET

The **internet** is ***a network of interconnected networks***. It is a global network of computer systems/devices. These computers are connected via cables, wireless, or via the cloud. Internet is mainly useful for information sharing.

History of Internet:

The Internet started in the 1960's under

The name "ARPAnet". ARPAnet was originally developed for US military communications. This network operated with a technique called *packet switching*.

The Computers on the Internet will use the *Transmission Control Protocol/Internet Protocol* (TCP/IP). These protocols are used to manage communication between computers.

Today, the Internet has grown into a public giant network of millions of computers connected by cables and by wireless signals.

Computers on the Internet use the *client–server architecture*.

Internet Architecture

The internet is a network of interconnected networks. It was designed to operate without a central control.

The architecture of internet is hierarchical in nature. It contains the following components:

1. **Client**: A Client is the user of a computer. It will be

operated at the lowest level in the hierarchy.

2. Local **Internet Service Provider** (ISP): It will be operated at the next level to the client.

ISP (Internet Service Provider): An ISP is an organization that provides the internet facility for their clients. Local ISP is the local telephone company.

Example: BSNL, MTNL, Airtel

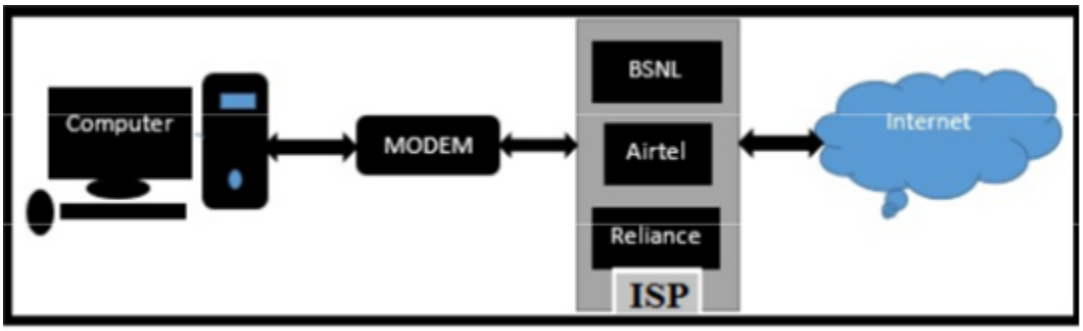


Figure: Connecting to Interne

Web Browser is an application program that can display the information on WWW.
ISP is an internet service provider.
A telephone line can transmit data from regional ISP to the client.
Modem is a device that connects the computer to the internet.

Internet Address

A computer connected to the internet must have a unique address. This address is called ***Internet Protocol (IP) Address***. It is useful to identify the computer uniquely. An ISP assigns a unique IP address to every computer in the internet.

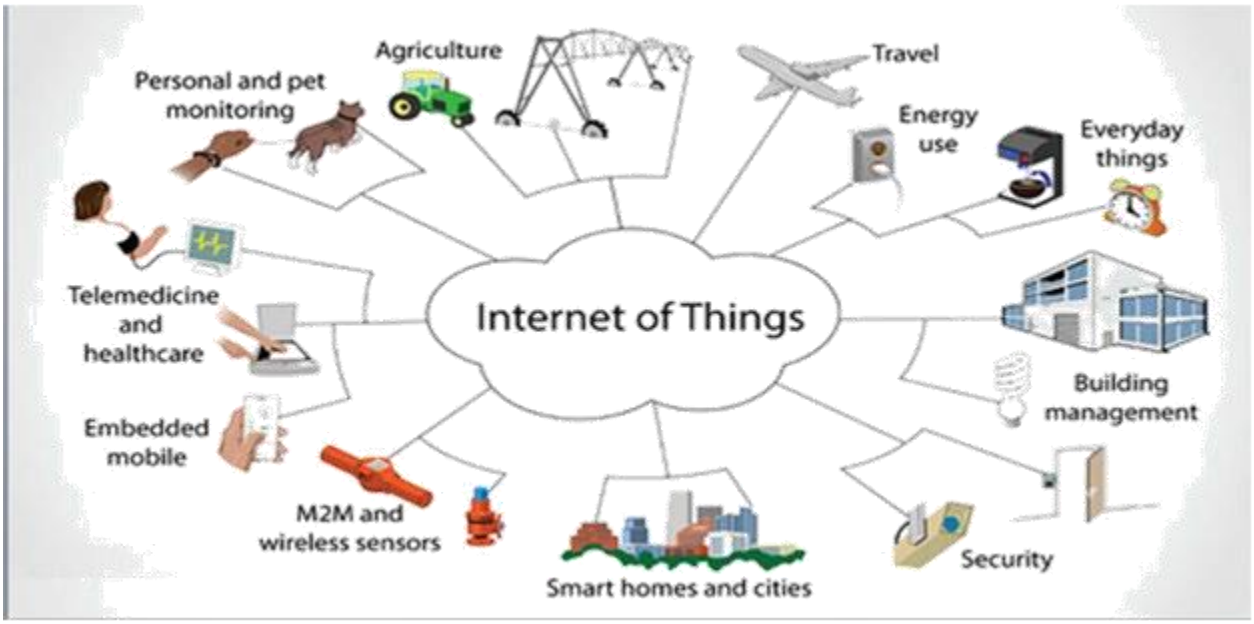
An IP address is a string of numbers. It contains **4** parts. Each part has a number between 0 and 255. For example: 192.168.54.122

Domain Name: A domain name is a text name of the numeric IP address. Domain names are used for the convenience of the user. *A domain will be provided* ***based on the nature of their activities***. For example:

.com□□ for commercial organizations
.Edu □ for Educational institutions
.net□ for gateways
.org□for non-profit organizations
.co□ for
Companies
ac→ for
academics

Internet Services

Internet offers a many services to the users. Some of the important services provided by internet are: ***WWW, e-mail, news, chat,*** and ***discussion groups***.


Internet of Things
Agriculture
Travel
Personal and pet monitoring
Energy use
Everyday things
Telemedicine and healthcare
Building management
Embedded mobile
M2M and wireless sensors
Smart homes and cities
Security

9. World Wide Web

The World Wide Web, or "Web" is a collection of documents. The World Wide Web was born in 1989. It was officially introduced on August 6, 1991 by Sir ***Tim Berners-Lee***.

- WWW uses hypertext**. Hypertext** is a document that contains links to other documents.
- A hypertext document is called a **webpage**.
- Webpages can be created by using a language called **Hyper Text Mark-up Language** (HTML).
- Webpages can be transferred by using **Hyper Text Transfer Protocol** (HTTP).
- A group of related webpages is called as a **Web site**.
- The first web page of a website is called as **Home Page**.
- A computer, which stores webpages in it is called as a **Web Server**.
- The process of storing a web page on a web server is known as **Uploading**.
- The process of retrieving a web page from a web server is known as **Downloading**.
- A **Web browser** is an application program that can display the Web pages.
- Every web page in internet can be identified by its address. This address is known as URL
-

(**Uniform Resource Locator**).

6.1 Electronic Mail

An electronic message transmitted over a network from the sender to the receiver is known as an
Electronic Mail. It is popularly known as e-Mail. An e-Mail has the following features:

1. E-Mail is the fastest way to communicate with the people.

2. An e-mail can be sent to many persons at a time.

3. An e-mail service is available 24hours a day.

4. An e-mail can open his e-mail at his convenient times

5. E-mail can also transmit other files as attachments with it.

E-Mail Address:

An e-mail address consists of 2 parts separated by @ symbol:
The first part is User Name
The second part is host computer name.
For example: vcmgu@gmail.com
Here, **vcmgu** is the user name.
Gmail.com is the host computer name. ***E-Mail message format:***
An e-mail message contains two parts:

3.Header

4.Body • From: - Sender's email address

- •To:- Recipients email address
- •Date:- When the e-mail was sent
- •Subject: The topic of the message
- •Cc:-Carbon Copy, to send the message to others.
- •Bcc:-Blind Carbon Copy, to send the message to others privately.

Header: The header contains information about the message such as:

Body: It contains the text of the message and any attachments to be sent. 32 Photographic Experts Group. It works well with 24 bit colour image. It is suitable for the images with many colors.

.GIF: GIF stands for Graphical Interchange Format. It supports 8 bits of colour information. It is suitable for the images with 256 colours.

Audio:

Audio consists of the sounds. In a multimedia project sound can be used for narration and also in backgrounds.

Properties of Sound:

Amplitude: It indicates the volume. It is measured in decibels.

Frequency: It indicates the vibrations per second. It is measured in hertz (Hz).

Bandwidth: It indicates the difference between the sound signals.

Video: A Video consists of a sequence of natural scenes. A digital video can be used in making of movies, gaming and IT industry.

4. Training:

Multimedia can be useful to give training to employees. By using multimedia, training can be given online and also by using simulation.

5. Virtual reality:

Virtual reality is a special environment that can be created by using multimedia. It offers a feel of 3-D world.

OUTCOMES:

1. Basic understanding of computer hardware & software
2. Ability of problem solving skills
3. Apply logical skills to programming in a variety of language
4. Utilize web technologies
5. Basic understanding of network principles.