

## UNIT-II

**System Software:** , more commonly known as Operating system, is any computer software that provides the infrastructure over which programs can operate, ie it manages and controls computer hardware so that application software can perform. Operating systems, such as Microsoft Windows, Mac OS X or Linux, are prominent examples of system software.

System software is a set of programmes that manage the resources of a computer system such as processing time, storage space, and so on. System software consists of general programmes that assist the computer in the efficient control, support, development and execution of application programmes. System software began to be used with second generation computers in the early 1960s.

### **Components of System software: -**

1. System control Program
2. System support Program
3. System development program

**System control Program:-** It controls the execution of Programme, manage the storage processing resources of the computer. The main part of the type is operating system which performs functions. Next is starting the computer and processing of each job.

**System support Program:-** Is also called utility programmes which perform routine tasks. These program sort data, copy data from one storage medium to other, and some other tasks. Other common type of support software is librarian. It is used to maintain a catalog of the locations and usage of all programs and data files.

**System development program:-** In this system development programmes assist a programmer or user in developing and using an application program.

Ex: Language Translator, linkage editor, application generator.

**Language Translator:-** Is a program which converts a program written in a procedural language into machine language . There are many language translators they are compilers, Interpreter, assemblers.

**Operating system** (OS) is software that manages computer resources and provides programmers with an interface used to access those resources. An operating system processes system data and user input, and responds by allocating and managing tasks and internal system resources as a service to users and programs of the system. An operating system performs basic tasks such as controlling and allocating memory, prioritizing system requests, controlling input and output devices, facilitating computer networking and managing files. Operating systems can be found on almost anything made with integrated circuits, such as personal computers, Internet servers, cell phones, music players, routers, switches, wireless access points, network storage, game consoles, digital cameras, sewing machines and telescopes.

Common contemporary desktop Oses are Linux, Mac OS X, Microsoft Windows and Solaris. Windows is most popular on desktops while Linux is most popular in server environments.

**Bootting** is a process that starts operating systems when the user turns on a computer system. A boot sequence is the initial set of operations that the computer performs when it is switched on. The boot loader typically loads the main operating system for the computer.

**CPU Management:** Cpu management is a mechanism in which CPU will manage its memory by dividing into some parts. Few of the strategies are:

**PARTITIONING:** In this the operating system divides memory into separate areas or parts with equal size or variable size called partitioning. In this memory will be divided into several small parts.

**QUEUES:** Data or programmes that are to be executed wait on disk in queue. Queue will arrange all jobs one by one and these jobs will be executed one after the other in sequential manner.

**FOREGROUND/BACKGROUND:** Some computer systems divide memory into foreground and background areas. Foreground will have higher priority than background.

### **USER INTERFACE:**

A **Command-line interface (CLI)** is a mechanism for interacting with a computer operating system or software by typing commands to perform specific tasks.

**Graphical User Interface (GUI)** is a type of user interface which allows people to interact with a computer and computer-controlled devices. It presents graphical icons. Often the icons are used in conjunction with text, labels or text navigation to fully represent the information and actions available to a user. But instead of offering only text menus, or requiring typed commands, the actions are usually performed through direct manipulation of the graphical elements.

**Conversational Interface** is a type of interface in which input will be in the form of voice signals. Sensor will recognize the voice signals of operator and will do the work.

**Multitasking** is a method by which multiple tasks, also known as processes, share common processing resources such as a CPU. In the case of a computer with a single CPU, only one task is said to be running at any point in time, meaning that the CPU is actively executing instructions for that task. Multitasking solves the problem by scheduling which task may be the one running at any given time, and when another waiting task gets a turn. The act of reassigning a CPU from one task to another one is called a context switch. When context switches occur frequently enough the illusion of parallelism is achieved. Even on computers with more than one CPU (called multiprocessor machines), multitasking allows many more tasks to be run than there are

CPUs.

- Single user Multitasking
- Multi user Multitasking

**Multiprogramming** in Multiprogramming several programs are executed at the same time on a uni processor. The operating system executes part of one program, then part of another, and so on. To the user it appears that all programs are executing at the same time.

**Advantages of Multi programming:-**

1. **Increased Throughput:** Throughput is a measure of amount of processing that a computer system can complete in a fixed period of time. In multiprogramming it allows the CPU to perform other jobs instead of waiting for busy input and output devices then it increases the throughput.
2. **Shorter Response Time:** Turn around time means the submission of jobs and the availability of output so the turnaround time for multi programming is shorter.
3. **Ability to assign priorities to jobs:** Most multi programming systems have schemes for setting priorities for rotating jobs. They specify which program CPU will rotate. It improves system availability that means it improves speed from which system can respond to higher priority jobs.

**Multiprocessing:** **Multiprocessing** is the use of two or more central processing units (CPUs) within a single computer system. The term also refers to the ability of a system to support more than one processor and/or the ability to allocate tasks between them.<sup>[1]</sup> There are many variations on this basic theme, and the definition of multiprocessing can vary with context, mostly as a function of how CPUs are defined (multiple cores on one die, multiple dies in one package, multiple packages in one system unit

**Formating:**

**fragmentation** is a phenomenon in which storage space is used inefficiently, reducing storage capacity and in most cases performance. The term is also used to denote the wasted space itself.

There are three different but related forms of fragmentation: *external* fragmentation, *internal* fragmentation, and *data* fragmentation. Various storage allocation schemes exhibit one or more of these weaknesses. Fragmentation can be accepted in return for increase in speed or simplicity.

**Defragmentation** is a process that reduces the amount of fragmentation in file systems. It does this by physically organizing the contents of the disk to store the pieces of each file close together and contiguously. It also attempts to create larger regions of free space using *compaction* to impede the return of fragmentation. Some defragmenters also try to keep smaller files within a single directory together, as they are often accessed in sequence. The movement of the hard drive's read/write heads over different areas of the disk when accessing fragmented files is slower, compared to accessing a non fragmented file in sequence, without moving the read/write heads.

1. Chdir/CD:- Change current working directory. Displays the current working directory when used without a path parameter.
2. Clr:- Clears the screen.
3. Copy:- Copies files from one location to another. The destination defaults to the current directory. If multiple source files are indicated, the destination must be a directory, or an error will result.

Md/Mkdir:- Makes a new directory. The parent of the directory specified will be created if it does not already exist.

4. Rd/Rmdir:- Remove a directory, which by default must be empty of files for the command to succeed. The DELTREE command in DOS removes non-empty directories. In Windows NT's CMD.EXE, `rd /s` functions in the same way as `deltree`.

**Windows 95** is a consumer-oriented graphical user interface-based operating system. It was released on August 24, 1995 by Microsoft<sup>[2]</sup>, and was a significant progression from the company's previous Windows products. During development it was referred to as **Windows 4.0** or by the internal codename **Chicago**. Windows 95 integrated Microsoft's formerly separate MS-DOS and Windows products. It featured significant improvements over its predecessor, Windows 3.1, most notably in the graphical user interface (GUI) and in its relatively simplified "plug-n-play" features.

**Windows 2000** is a line of operating systems produced by Microsoft for use on personal computers, business desktops, laptops, and servers. Released on 17 February 2000,<sup>[3]</sup> it was the successor to Windows NT 4.0, and is the final release of Microsoft Windows to display the "Windows NT" designation. It was succeeded by Windows XP for desktop systems in October 2001 and Windows Server 2003 for servers in April 2003. Windows Me was released seven months after Windows 2000 and one year before Windows XP, but Windows Me was not intended to be, nor did it serve as the successor to Windows 2000. Windows Me was designed for home use, while Windows 2000 was designed for business.

Four editions of Windows 2000 were released: *Professional*, *Server*, *Advanced Server*, and *Datacenter Server*.<sup>[4]</sup>

**Windows XP** is an operating system that was produced by Microsoft for use on personal computers, including home and business desktops, laptops, and media centers. It was first released in August 2001, and is the most popular version of Windows, based on installed user base. The name "XP" is short for "eXPerience."<sup>[3]</sup>

Windows XP was the successor to both Windows 2000 and Windows Me, and was the first consumer-oriented operating system produced by Microsoft to be built on the Windows NT kernel and architecture.

**Windows NT** is a family of operating systems produced by Microsoft, the first version of which was released in July 1993. It was a powerful high-level-language-based, processor-independent, multiprocessing, multiuser operating system with features comparable to Unix. It was intended to complement consumer versions of Windows that were based on MS-DOS. NT was the first fully 32-bit version of Windows, whereas its consumer-oriented counterparts, Windows 3.1x and Windows 9x, were 16-bit/32-bit hybrids. Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Home Server, Windows Server 2008 and Windows 7 are based on Windows NT, although they are not branded as Windows NT.

**Unix** (officially trademarked as **UNIX**, sometimes also written as UNIX with small caps) is a computer operating system originally developed in 1969 by a group of AT&T employees at Bell Labs, including Ken Thompson, Dennis Ritchie, Brian Kernighan, Douglas McIlroy, and Joe Ossanna. Today's Unix systems are split into various branches, developed over time by AT&T as well as various commercial vendors and non-profit organizations.

The Open Group, an industry standards consortium, owns the “Unix” trademark. Only systems fully compliant with and certified according to the Single UNIX Specification are qualified to use the trademark; others might be called "Unix system-like" or "Unix-like" (though the Open Group disapproves of this term). However, the term "Unix" is often used informally to denote any operating system that closely resembles the trademarked system.

**Linux:** computer operating systems using the Linux kernel. Linux can be installed on a wide variety of computer hardware, ranging from mobile phones, tablet computers and video game consoles, to mainframes and supercomputers.<sup>[7][8][9][10]</sup> Linux is a leading server operating system, and runs the 10 fastest supercomputers in the world.<sup>[11]</sup> Use of Linux by end-users or consumers has increased in recent years, partly owing to the popular Ubuntu, Fedora, and openSUSE distributions<sup>[12]</sup> and the emergence of netbooks with pre-installed Linux systems and smartphones running embedded Linux.<sup>[13][14]</sup>

The development of Linux is one of the most prominent examples of free and open source software collaboration; typically all the underlying source code can be used, freely modified, and redistributed, both commercially and non-commercially, by anyone under licenses such as the GNU General Public License. Typically Linux is packaged in a format known as a *Linux distribution* for desktop and server use. Linux distributions include the Linux kernel and all of the supporting software required to run a complete system, such as utilities and libraries, the X Window System, the GNOME and KDE desktop environments, and the Apache HTTP Server. Commonly used applications with desktop Linux systems include the Mozilla Firefox web-browser, the OpenOffice.org office application suite and the GIMP image editor.

### UNIT-III

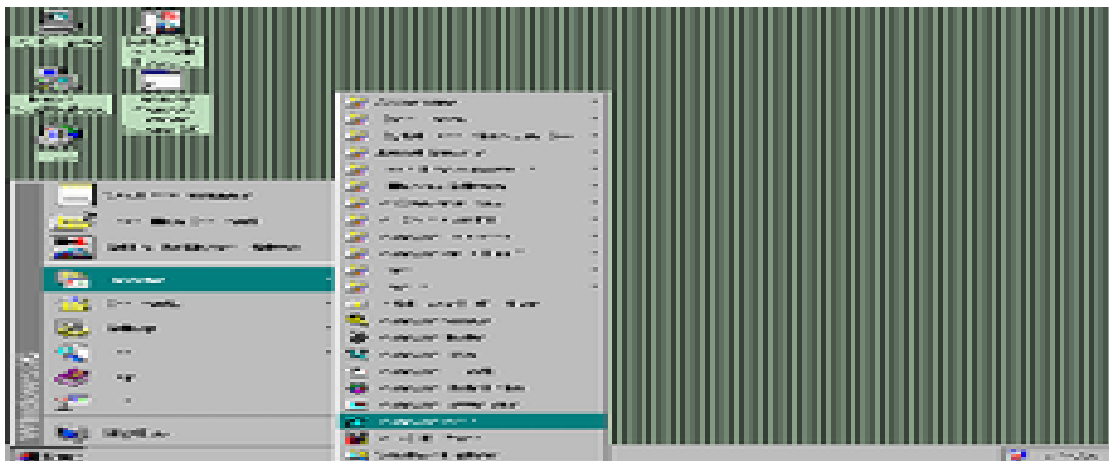
### IMPORTANT FEATURES OF MS-WORD

Ms-Word not only supports word processing features but also **DTP** features. Some of the important features of Ms-Word are listed below:

- i. Using word you can create the document and edit them later, as and when required, by adding more text, modifying the existing text, deleting/moving some part of it.
- ii. Changing the size of the margins can reformat complete document or part of text.
- iii. Font size and type of fonts can also be changed. Page numbers and Header and Footer can be included.
- iv. Spelling can be checked and correction can be made automatically in the entire document. Word count and other statistics can be generated.
- v. Text can be formatted in columnar style as we see in the newspaper. Text boxes can be made.
- vi. Tables can be made and included in the text.
- vii. Word also allows the user to mix the graphical pictures with the text. Graphical pictures can either be created in word itself or can be imported from outside like from Clip Art Gallery.
- viii. Word also provides the mail-merge facility.
- ix. Word also has the facility of macros. Macros can be either attached to some function/special keys or to a tool bar or to a menu.
- x. It also provides online help of any option.

**You can go inside MS-WORD by the following way**

1. Take the mouse pointer to **START** button on the task bar. Click the left mouse button. The monitor will show like as follows:

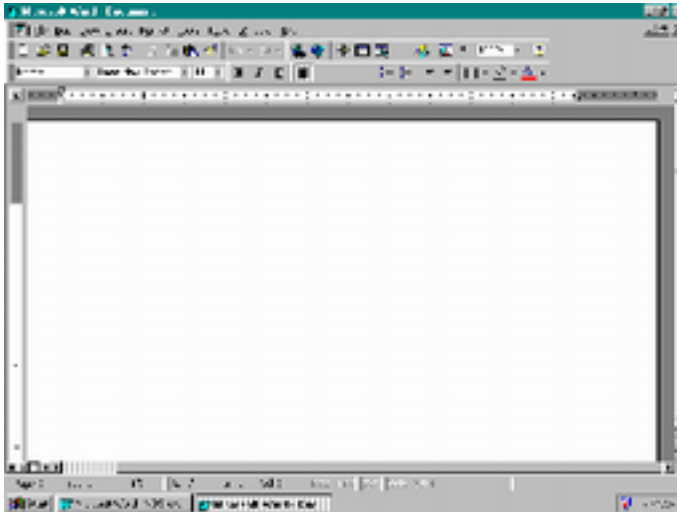


**Fig. 9.1**

2. Move the pointer to programs. You will notice another menu coming up to the right.
3. In that menu identify where Microsoft word is placed. Move the cursor horizontally to come out of programs.



4. Move into the rectangular area meant for Microsoft word. Click the left mouse button there. The computer will start MS-WORD. You will find the screen as follows.



**Fig. 9.2**

Let us discuss the important components of the screen.

**a. Title Bar**

The title bar displays the name of the currently active word document. Like other WINDOWS applications, it can be used to alter the size and location of the word window.

**b. Tool Bars**

Word has a number of tool bars that help you perform task faster and with great ease. Two of the most commonly tool bars are the formatting tool bar and the standard tool bar. These two toolbars are displayed just below the title bar. At any point of time any tool bar can be made ON or OFF through the tool bar option of View Menu.

**(c) Ruler Bar**

The Ruler Bar allows you to format the vertical alignment of text in a document.

**(d) Status Bar**

The Status Bar displays information about the currently active document. This includes the page number that you are working, the column and line number of the cursor position and so on.

**(e) Scroll Bar**

The Scroll Bar helps you scroll the content or body of document. You can do so by moving the elevator button along the scroll bar, or by click in on the buttons with the arrow marked on them to move up and down and left and right of a page.

**(f) Workspace**

The Workspace is the area in the document window were you enter/type the text of your document.

### (g) Main Menu

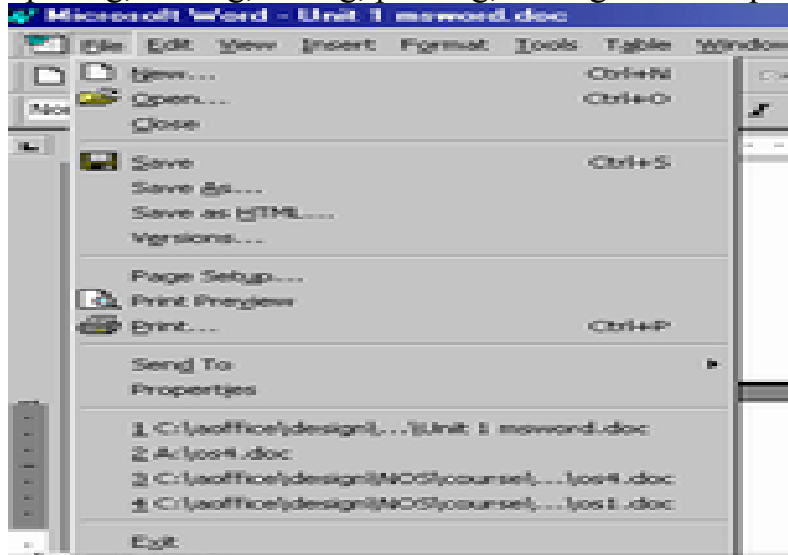
The Word main menu is displayed at the top of the screen as shown in the Fig. 9.1. The main menu further displays a sub menu. Some of the options are highlighted options and some of them appear as faded options. At any time, only highlighted options can be executed, faded options are not applicable. Infected if the option is faded you will not be able to choose it. You may not that any option faded under present situation may become highlighted under different situations.

## MAIN MENU OPTIONS

The overall functions of all the items of main menu are explained below.

### (a) File

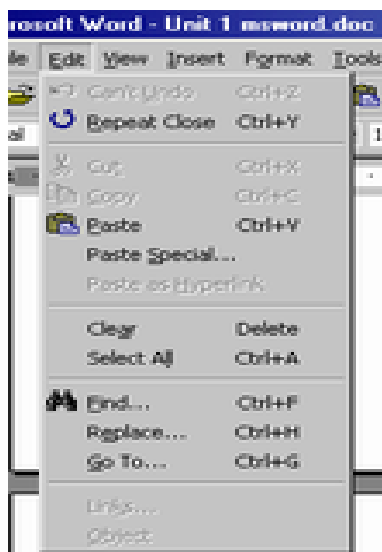
You can perform file management operations by using these options such as opening, closing, saving, printing, exiting etc. It displays the following sub menu.



**Fig 9.3 File Sub menu**

### (b) Edit

Using this option you can perform editing functions such as cut, copy, paste, find and replace etc. It displays the following sub menu.



**(c) View**

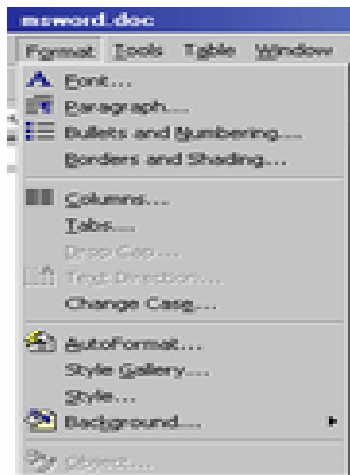
Word document can be of many pages. The different pages may have different modes. Each mode has its limitations. For example in normal mode the graphical picture cannot be displayed. They can only be displayed in page layout mode. Using the option "View" you can switch over from one mode to other. It displays the following Sub menu.



Using this menu, you can insert various objects such as page numbers, footnotes, picture frames etc. in your document. It displays the following Sub menu.



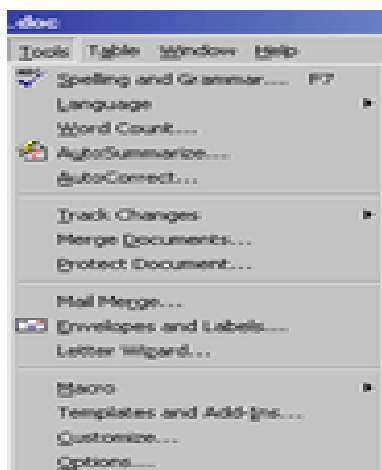
Using this menu, you can perform various type of formatting operations, such as fonts can be changed, borders can be framed etc. It displays the following Sub menu.



**Fig. 9.7 Format Submenu**

### **(f) Tools**

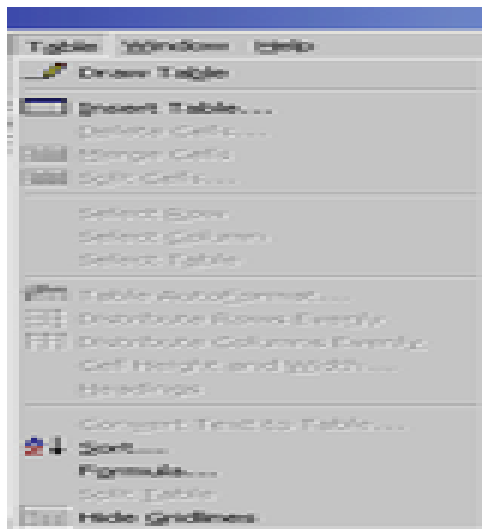
Using this menu, you can have access to various utilities/tools of Word, such as spell check, macros, mail merge etc. It displays the following Sub menu.



**Fig. 9.8 Tool Submenu**

### **(g) Table**

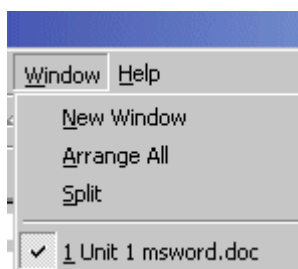
This menu deals with tables. Using this menu you can perform various types of operations on the table. It displays the following Sub menu.





**Fig. 9.9 Table Sub menu**

### **(h) Window**

This menu allows you to work with two documents simultaneously. This would require two windows to be opened so that each one can hold one document. Using this menu, you can switch over from one window to another. It displays the following Sub menu.



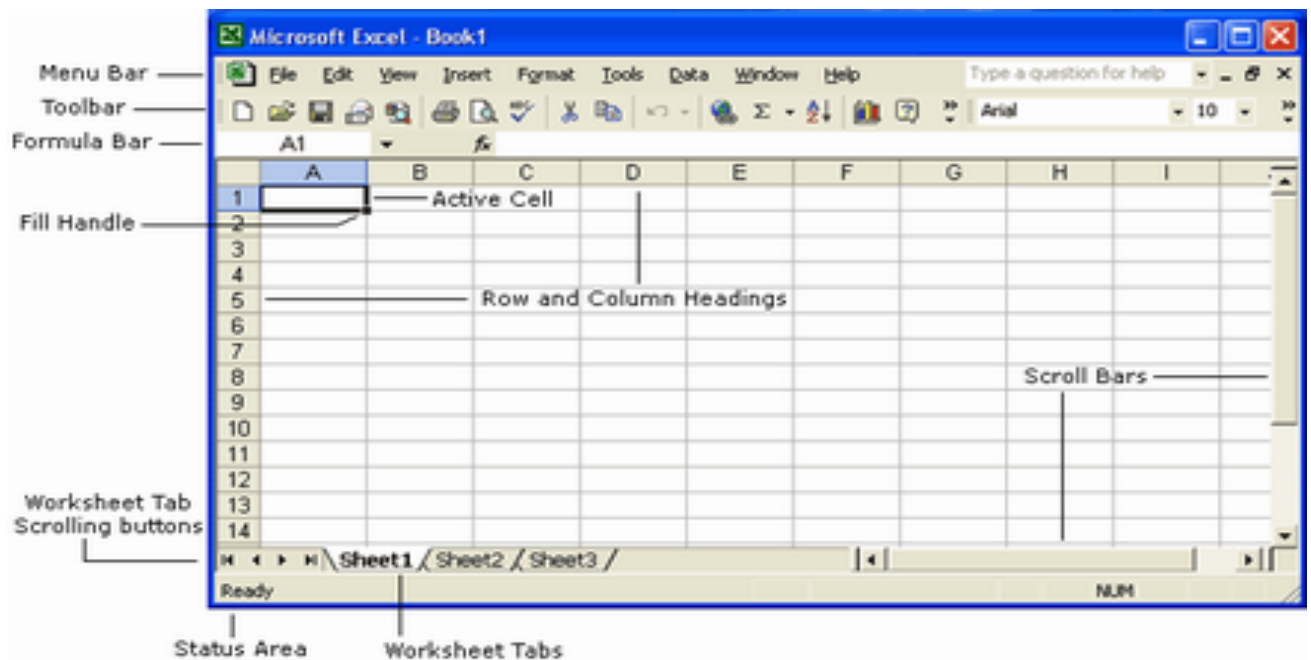
You can start Excel by:

1. Double-clicking on the Microsoft Excel application icon. This application is usually in a folder called Excel. An alias for this icon appears on the desktop of the computers in the Student Microcomputer Facility. 
2. Double-clicking on the icon of any Excel document. When you double-click an Excel document, Excel opens with the document already loaded. 

## **Exploring the Excel Interface**

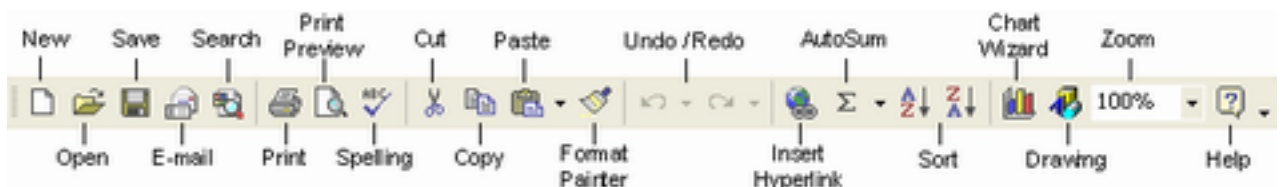
### **Components of the Excel Window**

Besides the usual window components (close box, title bar, scroll bars, etc.), an Excel window has several unique elements identified in the figure below.



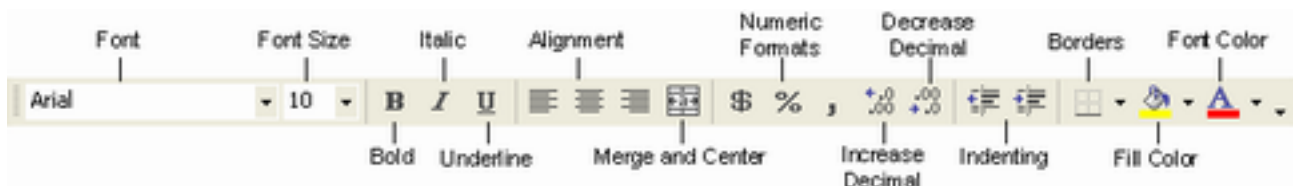
## Standard Toolbar

The Standard toolbar, located beneath the menu bar, has buttons for commonly performed tasks like adding a column of numbers, printing, sorting, and other operations. Excel let's you customize the toolbar or even display multiple toolbars at the same time. The Standard Excel XP toolbar appears in the figure below.



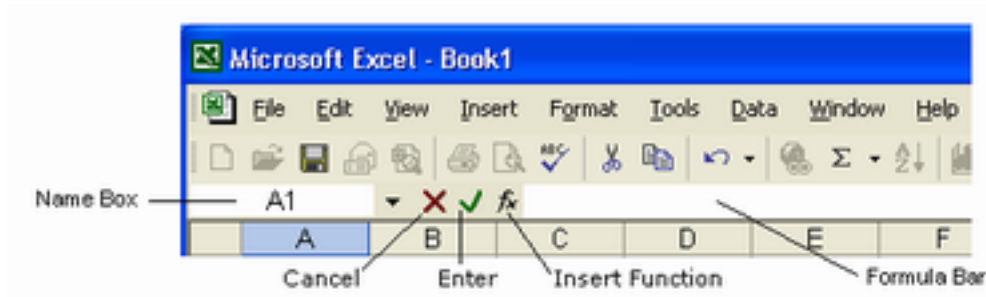
## Formatting toolbar

The Formatting toolbar, located beneath the Standard toolbar bar, has buttons for various formatting operations like changing text size or style, formatting numbers and placing borders around cells.



## Formula bar

The formula bar is located beneath the toolbar at the top of the Excel worksheet. Use the formula bar to enter and edit worksheet data. The contents of the active cell always appear in the formula bar. When you click the mouse in the formula bar, an X and a check mark appear. You can click the check icon to confirm and completes editing, or the X to abandon editing.



## Name box

The Name box displays the reference of the selected cells.

## Row and column headings

Letters and numbers identify the rows and columns on an Excel spreadsheet. The intersection of a row and a column is called a cell. Use row and column headings to specify a cell's reference. For example, the cell located where column B and row 7 intersect is called B7.

## Active cell

The active cell has a dark border around it to indicate your position in the worksheet. All text and numbers that you type are inserted into the active cell. Click the mouse on a cell to make it active.

## Fill handle

The lower right corner of the active cell has a small box called a Fill Handle. Your mouse changes to a cross-hair when you are on the Fill Handle. The Fill Handle helps you copy data and create series of information. For example, if you type January in the active cell and then drag the Fill Handle over four cells, Excel automatically inserts February, March, April and May.

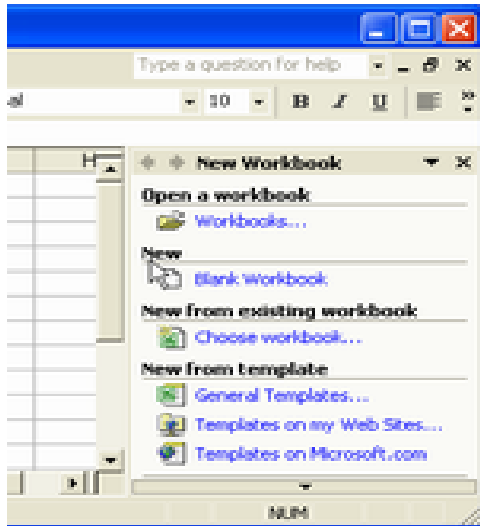
## Worksheet tabs

An Excel workbook consists of multiple worksheets. Use the worksheet tabs at the bottom of the screen to navigate between worksheets within a workbook.

## Creating a New Workbook

The lower right corner of the active cell has a small box called a Fill Handle. Your mouse changes to a cross-hair when you are on the Fill Handle. The Fill Handle helps you copy data and create series of information. For example, if you type January in the active cell and then drag the Fill Handle over four cells, Excel automatically inserts February, March, April and May.

If you are already in Excel and you want to create a new workbook, choose New from the File menu or click the New tool on the toolbar. If you choose New from the file menu the Task Pane will open on the right side of the Excel worksheet. To create a blank workbook, click Blank Workbook in the Task Pane, and a new workbook opens.



## Changing column widths by dragging column borders

You can change column widths by dragging column borders with the mouse. Move the mouse pointer to the right hand border of the column you wish to change. The mouse pointer will change shape to a left and right pointing arrow as seen below.

ABC.XLS			
C	D	↔	E

Click and drag the mouse to adjust the column width. Note that when you are adjusting the width in this way, a numeric width indicator appears in the upper left part of the formula bar.

## Formulas and Functions

Formulas and functions that perform calculations are the true power of spreadsheets.

### Formulas

To build a formula, first select the cell in which you want the results to appear. In Excel, all formulas start with the = sign. After the = sign, type the cells you want to add or subtract along with the mathematical operation you wish to perform. For example, to add the January sales in the worksheet below, the formula would be =B3+B4+B5. If you want to subtract February Widget Sales from January Widget sales, the formula would be =B3-C3.

	A	B	C	D	E	F	G	H
1								
2		January	February	March	April	May	Totals	%s
3	Widgets	98	39	40	140	240		
4	Figets	122	18	50	150	250		
5	Digets	56	52	60	160	260		
6								
7	Totals							

Building many formulas can quickly become tedious. Fortunately, the **Copy** command described earlier also works with formulas.

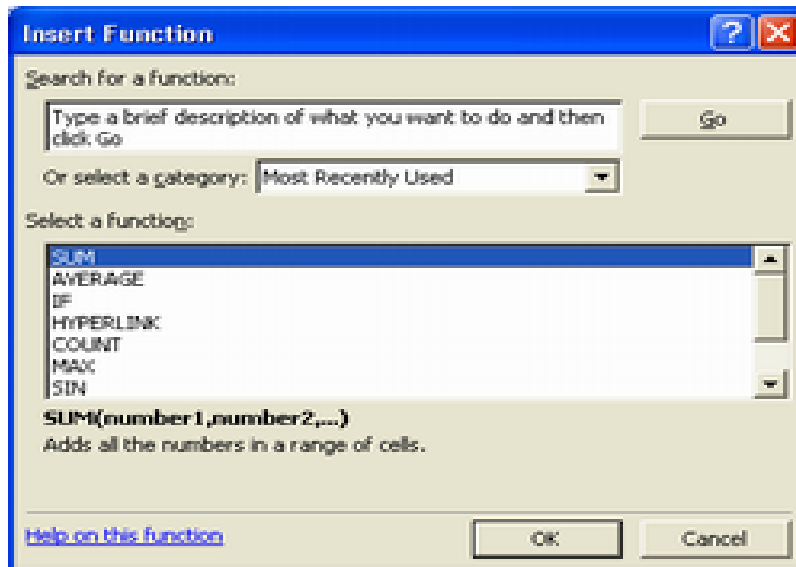


## Copying Formulas

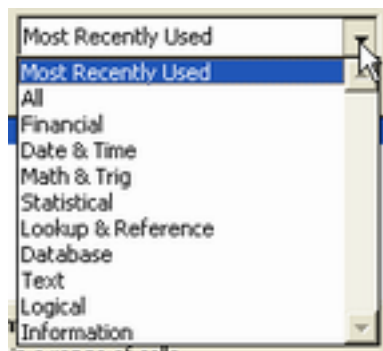
The easiest way to copy a formula is with the Fill Handle in the lower right corner of the cell. Create your initial formula and then position the mouse on the Fill Handle. When the mouse changes shape to a cross-hair, press and drag over the adjacent cells you want to copy the formula to.

## Using the Insert Function Button

The Insert Function Button is located by the Formula Bar. Click the Insert function button in to activate the Insert Function dialog window.

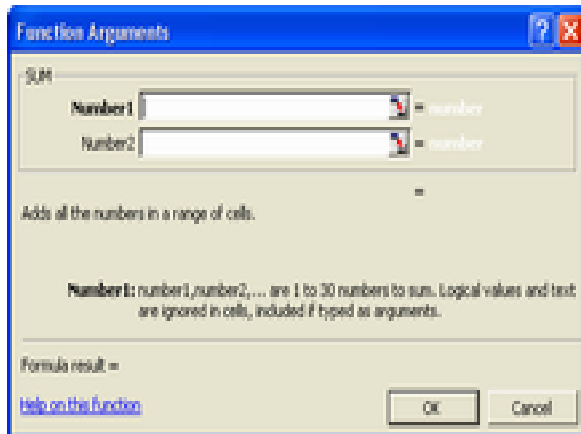


First, choose the Function Category you are interested in from the select a category drop down menu.



Then select the function you want in that category. When you have selected the proper function click OK.

In the Function Arguments dialog box you specify the cells the function will operate on, which are called its arguments. Select the cells with the mouse and click OK. Notice the creation of the function in the formula bar.



## Power Point :Definitions

**Presentation:** The primary type of file PowerPoint is used to create. Presentations typically have the file extension .ppt; however, you can also save PowerPoint presentations as Adobe Acrobat documents with the file extension .pdf. Finally, you can save your presentation as a web page, with the file extension .html or .htm.

**Slides:** Individual parts of a presentation. Slides are similar to the individual pages in a print document, and can contain text, graphics, and animation.

**Layout:** The specific arrangement of text and images on a slide. Layouts can be very simple, consisting of simple titles and text, or they can be more complex and include elaborate colors and images. You can also include animation, sounds, and other multimedia objects in your layout.

**View:** Microsoft PowerPoint has three main views: normal view, slide sorter view, and slide show view. Normal view is the main editing view. Slide sorter view is an exclusive view of your slides in thumbnail form, helpful for rearranging the order of your slides. Slide show view takes up the full computer screen, like an actual slide show presentation. In this full-screen view, you see your presentation the way your audience will.

**Design Template:** The specific “look” of a slide or group of slides. A design template can be very basic - with black text on a white background - or it can be very colorful and complex. Typically, PowerPoint presentations have the same design template for all slides, although it is possible to select a different design template for each slide. Later, I'll show you how to select different design templates.

**Slide Show:** The way a presentation appears when you are presenting it. When you display your slides in a slide show, the slides typically take up the whole screen, and they appear in sequence.

**Placeholder:** Boxes with dotted or hatch-marked outlines that appear when you create a new slide. These boxes act as "placeholders" for objects such as the slide title, text, clip art, charts, and tables. Placeholders are sometimes called “text boxes.”

**Sizing handles:** Small circles that appear along the edges of the selection rectangle around an object on your slide. You drag a sizing handle to change the shape or size of an object. To maintain the proportions of an object while resizing, simply drag a corner handle.

## Starting PowerPoint

**This section describes how to start PowerPoint, what you will see when you first open the program, and how to start creating a presentation from scratch.**

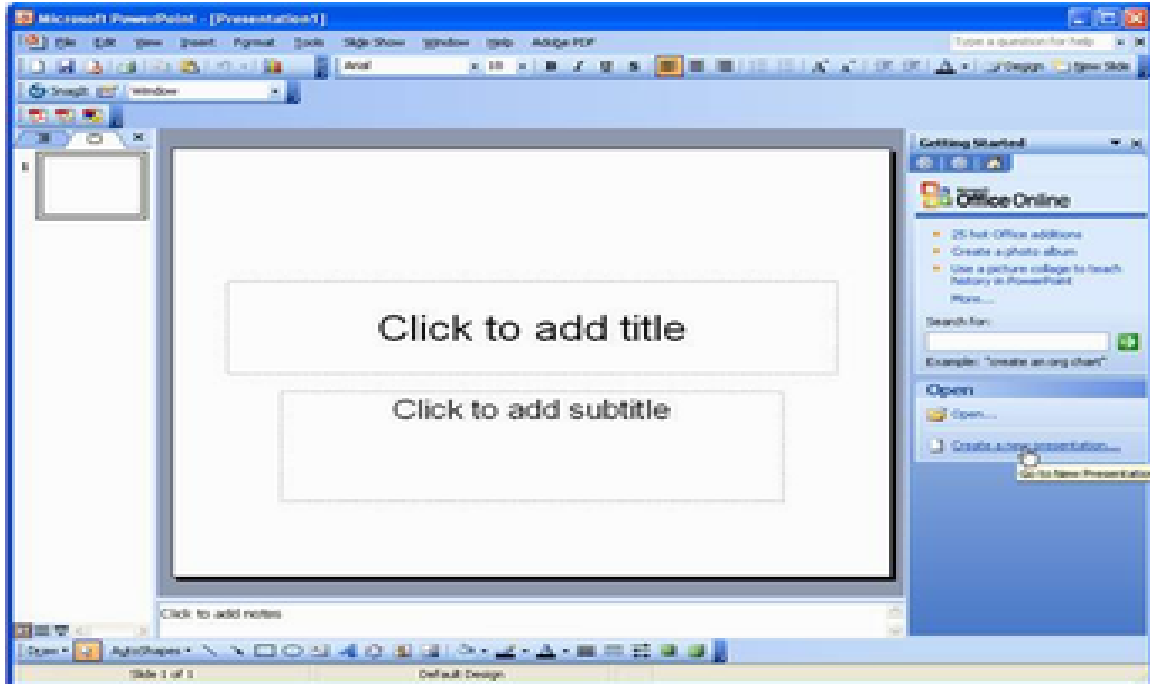
### Step1:

To start PowerPoint, go to the Start menu and select Programs ->Microsoft Office ->Power Point.

### Step2:

PowerPoint opens in “ Normal” view. In normal view, you will see the following:

- A blank slide in the center of the window.
- Off to the left, a “Slides” pane that will display a thumbnail sketch of all the slides in your presentation, in sequence.
- Off to the right, a “Task” pane that will display the following options for getting started:
  - i. “Open,” to open a pre-existing presentation.
  - ii. “Create a new presentation,” to start a new presentation.



**Step3:**  
Click “Create a new presentation” to start a new presentation.

**Step4:**  
Click “Blank presentation” to create a presentation from scratch. Your other options here are “From design template,” “From AutoContent wizard” and “From existing presentation.”

**Step5:**  
Click on a desired layout from the choices that appear in the task pane. A discussion of layouts follows in the next section.

**NOTE:**

## Layouts, Text and Slides

This section describes how to apply a layout; insert, format, and delete text; and insert and delete slides.

To apply a layout to your new slide:

**Step1:**  
Scroll through the available layouts in the “Slide Layout” task pane off to the right.

**Step2:**  
Click on the layout you would like to apply to your slides.

NOTE: You may change the layout of all or some of your slides at any point while working on your presentation. To apply a layout to only certain slides, select the slides you want in the slide pane on the left, and then go to the task pane on the right. Click the downward arrow button on the right side of the layout you want in the task pane on the right. You will get a menu that lets you choose "apply to selected slides".



#### To insert and format text in a slide :

##### Step1:

Click inside a placeholder.

##### Step2:

Enter text. You may use the formatting toolbar at the top of the PowerPoint window to apply various formats to your selected text. You may notice this toolbar is identical to the one used in Microsoft Word.



##### Step3:

When you are finished entering text, click outside the placeholder on some "empty space."

#### To delete text :

Option #1: Highlight the text you want to delete by dragging the cursor over the letters, and press the delete key.

Option #2: Click on the selection rectangle around the text so that its border changes from hatch marks to dots, and then press the delete key.

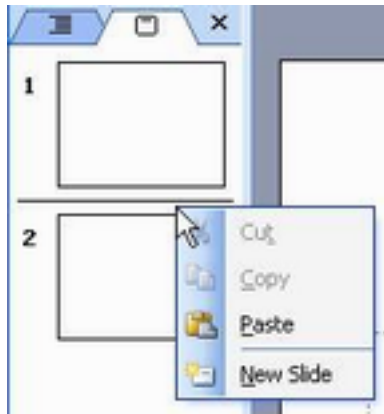
#### To insert a new slide:

Option #1: Go to Insert->New Slide. A blank slide will appear in the workspace, positioned after the selected slide or slide you were viewing.

Option #2: Click on the "New Slide" button on the formatting toolbar at the top of the PowerPoint window.



Option #3: On the Slides pane (off to the left), position your cursor to the point in the presentation where you would like the new slide to appear (i.e. between slides, at the beginning of the presentation, or at the end of the presentation). Right click, and choose "New slide" from the menu that appears.



#### To delete a slide :

Option #1: Go to Edit->Delete Slide. The current slide will disappear from the workspace.

Option #2: On the Slides pane (off to the left), click on the slide you would like to delete, and then hit the <Delete> key.

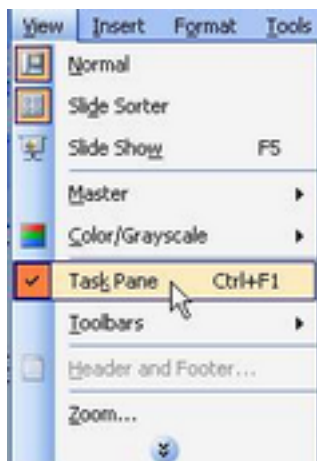
## Design Templates and Images

This section describes how to use Design Templates to change the appearance of your slides. It also describes how to insert and manipulate images on your slide.

#### To change the design template:

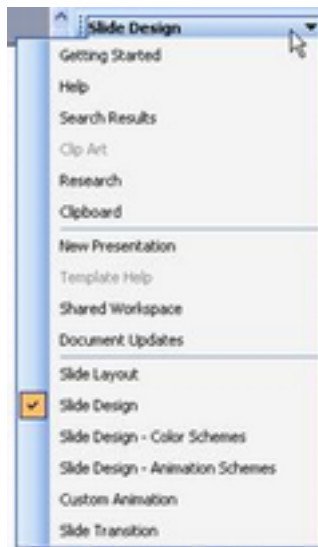
##### Step1:

Go to View->Task Pane. Verify that this option has a checkmark next to it. If it does not, click once on the "Task Pane" option.



##### Step2:

You will see the current Task Pane on the right-hand side of the PowerPoint window. This Task Pane should be labeled "Slide Design". If it is not, click once on the directional arrow to the right of the Task Pane title, and select "Slide Design."



### Step3:

You will see a number of design templates displayed in the Task Pane. Use the scrollbar to browse through the available templates.

### Step4:

Click once on the design template you would like to apply to your presentation.

If you would like to apply the design template to only selected slides, mouse over the desired template, and click on the arrow button that appears on the left side of the template icon. From the menu given, choose Apply to Selected Slides.



### To insert a picture into your presentation :

Option #1: If you have already saved the picture you would like to insert, go to Insert->Picture->From File, and navigate to your picture file. Select your file, and click "Insert". Your picture will appear on the current slide.

Option #2: If you would like to insert clip art:

i. Go to Insert->Picture->Clip Art. You will see that the "Insert Clip Art" task pane is visible on the right side of the PowerPoint window.

ii. If you know what kind of clip art you want, enter a word that describes it in the text box labeled "Search Text," and hit <Search>. Otherwise, simply hit <Go>.



iii. Use the scrollbar to browse through available clip art.

iv. Click once on the clip art you would like to insert. Your clip art will appear on the current slide, with sizing handles visible.

#### **To change the shape of a picture :**

##### **Step1:**

Move your cursor over the picture and click once to select it. You will see a number of small circles appear along the edge of the picture. These circles are called "sizing handles." There is also one green circle, which is used to rotate the image.



##### **Step2:**

Click on one of the sizing handles that appears on a side of the picture, hold the mouse button down, and drag the handle to change the shape of the picture. Your pointer will be a double-sided arrow when you are directly over a sizing handle. You are distorting the picture by stretching or squishing it.

##### **Step3:**

Release the mouse button when you have achieved the desired shape.

#### **To change the size of a picture :**

##### **Step1:**

Move your cursor over the picture and click once. You will see the sizing handles described above.

##### **Step2:**


Click your cursor on one of the sizing handles that appears on the corner of the picture, hold the mouse button down, and drag the picture to make it smaller or larger. Using these corner handles maintains the original proportions of the image (it does not stretch or squish).

##### **Step3:**

Release the mouse button when you have achieved the desired size.

### To move a picture :

Option #1: Using the mouse:

- i. Move your cursor over the picture until the cursor looks like this .
- ii. Click the mouse button, hold the button down, and drag the picture to change its location.
- iii. Release the mouse button when you are satisfied with the location of the image.

Option #2: Using the direction arrow keys:

- i. Move your cursor over the picture.
- ii. Click the mouse button once.
- iii. Use the direction keys to move the picture vertically, horizontally, right, and left. This option works well when you need to adjust the position very precisely, or just a tiny bit.

## Drawing Tools

**This section is an introduction to tools on the Drawing toolbar.**

Sometimes you need to create your own visual effects to get your point across. The drawing tools give you the ability to do this.

To view the Drawing toolbar, go to View->Toolbars->Drawing. Click on Drawing so that a check mark appears beside it on the menu.

The following is an explanation of basic tools on the toolbar, from right to left :



**Draw:** this button gives you options for moving or manipulating the objects already on the slide that you have selected. For example, you can rotate or flip objects, align multiple objects in relation to one another, or position objects in front of or behind each other with the order option, among other things.

**Select:** this button looks like the cursor arrow. Click this button to then select and move objects on your slide.

**Autoshapes:** this button gives you the option to insert pre-designed objects such as lines, arrows, basic shapes, and action buttons, among other things. Simply choose one of the options from the Autoshapes menu, then click or click and drag (depending on which object you choose) on your slide to insert that object. You can then manipulate that object by using the sizing handles, as mentioned in the previous section, Design Templates and Images.

**Line and Arrow:** these tools allow you to insert lines or arrows by clicking the tool, then clicking and dragging in your slide.

**Rectangle and Oval:** these tools allow you to insert rectangles or ovals by clicking the tool, then clicking and dragging in your slide.

**Text Box:** clicking this tool and then clicking in your slide inserts a box in which you can type an unlimited amount of text. This box is the same as the placeholders mentioned in the "Layouts" section of this tutorial. The box expands to accommodate what you type. Hitting the <enter> key on the keyboard takes you to the next line of text. You can move a text box by clicking on the border (your cursor should be a 4points arrow) and dragging it to the desired position. You can also resize a text box using the sizing handles, the same way you resize an image.

**WordArt:** this tool gives you some dramatic, pre-designed styles for formatting your text. Once you select a style and enter your text in the WordArt dialogue box, your text is added to your slide. You can manipulate that



WordArt object as you would an image or text box.

**Insert Diagram or Organizational Chart:** this tool gives you some pre-designed diagrams or charts to choose from, which are then inserted into your slide. Again, you can manipulate these (position, size, shape) as you would an image or text box.

**Insert Clip Art and Insert Picture:** these tools open the clip art task pane or ask you to navigate to an image file, respectively. Once you click on the clip art you want, or the image file you want, your selection is inserted into your slide.

**Fill color:** this tool allows you to choose whether to fill a selected object on your slide with a color. You can choose the color, and you also have choices of effect, such as texture, pattern, and gradient.

**Line Color:** similar to fill color, line color lets you assign color to lines in your slide. You may apply line color to line objects, or to the lines around selected shapes or text boxes.

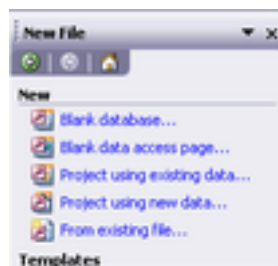
**Text Color:** this lets you assign color to text in a selected text box.

**Line, Dash and Arrow Style:** these tools let you change the weight (how thick or thin), the solidity (dashes or dots) and the endpoints (arrows, circles, diamonds) of a selected line.

## 1. Creating a database.

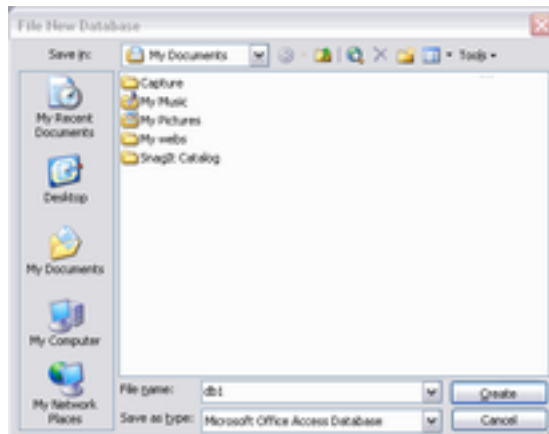
To create a new database we need to:

- Click on the option **Blank database...** in the task pane that appears to the right of the screen.



sel can use the **File** menu on the menu bar and select **New...** button on the tool bar. In this case a task pane will appear and we have to


- The following dialogue box will appear next where we indicate the name of the database we are creating and where it should be stored.



In the **Save in:** box click on the arrow on the right to select the folder **where we are going to save** the database.


Note how in the lower box appear all the subfolders of the selected folder.

Double click on the folder where we want to save the database.

The buttons that appear on the right of **Save in**, are explained here .

In the **File name:** box write down the name we want to call the database.

click on the **Create** button.

 A new database is created to which Access assigns a **.MDB** extension, and it will appear in the **Database** window:



If you look at the **Database** window, on the left appear the different **types of objects** that we can have in the database, (tables, queries, forms,...) and on the right, depending on the type of object selected on the left, Access shows us the objects of this type that are already been created and allows us to create new distinct objects.


In our case the object selected is the **Tables**, the primary element of any database as all the rest of the objects are created from this.

At this moment there are no tables created, when these are made they will appear on the right of the window below the **Create...** options.

## Unit 3. Creating data tables (I)

Here we will see how to **create a data table** in order to be able to **introduce data** into the database in the following units, and later work with this data using the advantages provided to us by Access2003.

## Creating a data table.

To **create a data table** we need to position ourselves in the **database** window with the **Tables** object selected, if we click on the New button  it opens a window with the various available ways of creating a new table:

- **Datasheet view** consists of directly introducing the data into the table, and according to the value introduced into the column determines the type of data that the column has.

- **Design view** is the method we will detail in this unit.

- **Table wizard** guides us step by step in the creation of the table using a predetermined sample table.

- **Import table** consists of creating a new table from an existing one in another database.

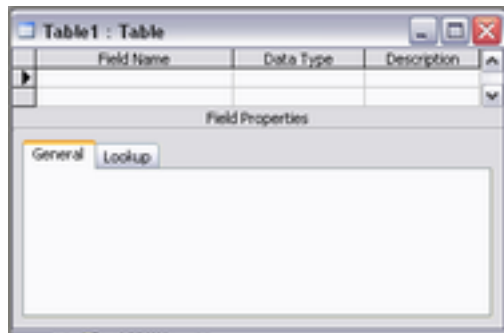
- **Link table** consists of creating a reference to another table stored in a different database.

Next we will explain the way to create a table in **design view**. This method consists in defining the structure of the table i.e define the different columns that it will contain as well as other considerations such as codes, validation rules etc...

**Another way** to arrive at the design view is from the **Database** window with the **Tables** object selected then double clicking on the option **Create table in Design view**.



The **Table design** window will appear:



In the title bar we have the **name of the table** (as we have still not assigned a name to the table, Access has assigned a default name **Table1**).

Next we have a **grid where we define the columns** (fields) that compose the table using a line for each column, so in the first row of the grid we will define the first column of the table, in the second row of the grid we will define the second column of the table and so on and so on.

At the bottom **left** we have two tabs (**General** and **Lookup**) to define the **properties of the field** i.e additional characteristics of the column we are defining.

And on the **right** we have a box with text to **help** us with what we need to accomplish.

## Queries (I)

In this unit we will learn how to **create queries** and how to **use them to edit records** in tables created in Access2003.

### Types of queries.

**Queries** are those objects in a database that allow us to **view, change, and arrange data stored in tables**.

We can also use them as the source of records for forms and reports.

Various types of queries exist:

#### **Select queries.**

These are the queries that extract or show us data. They will show data that complies with specific criteria.

Once we have the result we can consult the data and edit it (this can or cannot be done, depending on the query). A select query generates a logical table (named this way because it is not actually in the hard drive but in the memory of the computer, and every time we open it is recalculated).

This is the most common type of query.

#### **Action queries.**

These are the queries that carry out changes to the records. Various types of action queries exist to delete, update, insert data, and to create a new table from one existing table. These queries are named delete queries, update queries, append queries and Make-Table queries. We will study them in unit 10.

#### **Crosstab queries.**

We use these queries to calculate and restructure data for easier analysis. Crosstab queries calculate a count, average, sum, or other type of total for data that is grouped by two types of information (two fields), one down the left side of the datasheet and another across the top.

## 🔴 SQL queries.

When we want some action to be made on the data, we must tell Microsoft Jet engine to do it. SQL is the language that Microsoft Jet engine understands and permits us to communicate to it.

When you create a query in **Query Design** View, Access constructs the equivalent SQL statement behind the scenes for you. If you want, you can view and edit the SQL statement in **SQL** view.

After you make changes to the query in **SQL** view, the **Query Design** view will change and adapt to the new SQL sentence. However, sometimes, query might not be displayed in **Query Design** view because of the SQL sentence.

There is some statements that can not be defined from the **Query Design** View but rather directly in SQL, these are SQL-specific queries.

These queries will not be studied in this course as in order to define them knowledge of SQL is necessary, which is not part of the objective of this course.

## Creating a query.

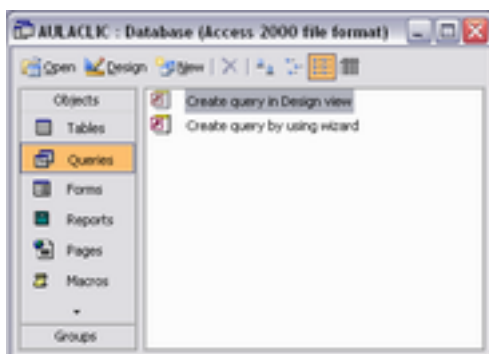


To **create a query**, follow the next steps:

Open the database where the query will be created.

Click on the **Queries** object found on the left lateral of the **Database** window.

This is the screen that will appear:



Later we have 3 alternatives:

🔴 Double click on the **Create query by using wizard** option.

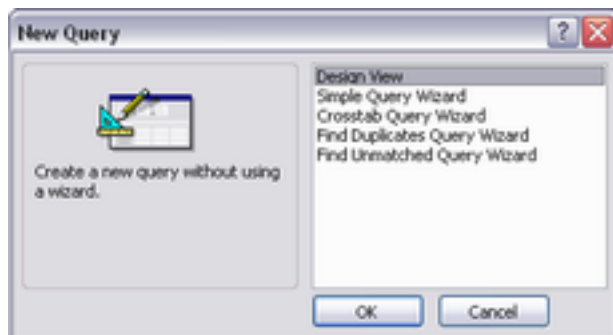
In this case the wizard window will open in which we are asked from which table we choose to extract the data, the fields we wish to visualize and the title of the query, next it will automatically generate the corresponding query.

🔴 Double click on **Create query in Design view**.

In this case the **Query design** window will open on which we will elaborate further on, and within which we can define our query in more detail.

🔴 Click on the  button in the **Database** window.

The following dialogue box will appear:



The **Simple Query Wizard** is the same as **Create a query using the wizard** mentioned above.

The **other wizards** permit us to generate special types of queries. In Unit 9 we will study the **Crosstab Query Wizard**.

The **Design view** option has the same effect as the **Create a query in Design view**. This is the option we will explain next.

On entering the **Query design** we are firstly asked for which tables the query should extract the data from:



The screenshot shows the 'New Form' dialog box in Microsoft Access. The 'Design View' tab is selected. The 'Form Wizard' section lists the following options: Columnar, Tabular, Datasheet, PivotTable, and PivotChart. Below these, the 'Chart Wizard' and 'PivotTable Wizard' options are also listed. The 'Choose the table or query where the object's data comes from:' section is empty. The 'OK' and 'Cancel' buttons are at the bottom.

If we wish to extract data from another query, click on **Queries** tab and select it.

The screenshot shows the 'New Form' dialog box with the 'Design View' tab active. The 'Form Wizard' list contains the following options: Columnar, Tabular, Datasheet, PivotTable, PivotChart, Chart Wizard, and PivotTable Wizard. The 'Choose the table or query where the object's data comes from:' field is empty. The 'OK' and 'Cancel' buttons are at the bottom.

## Intro

1  Create a form, and how to operate it for the editing of

Choose the table or query where the object's data comes from:

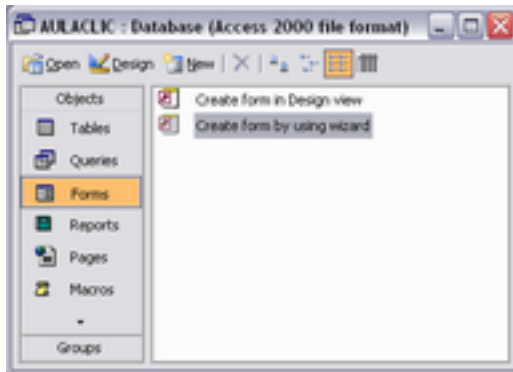
- 🍌 **Form wizard** uses an a wizard that guides us step by step in the creation of the form.

According to the type of form that we select (**columnnar**, **tabular**,...) the form will present the data in a distinct way, when we click on one of the options, a sample will appear on the left side with the way in which the data will be presented with this option. E.g **Autoform: columnnar** presents one record on a screen, meanwhile **Autoform: tabular** presents all the records on one screen and every record in a row.

- **Chart Wizard** uses a wizard that guides us step by step in the creation of a graphic.

We will next explain how to create a form using the wizard.

To start the wizard we can do it as describe in the last point, or a faster way would be from the **Database window** with the **Forms** object **selected**, by double clicking on the **Create form using wizard** option.




The first window of the wizard appears:





In this window we are asked to introduce the **fields** to include in the form.

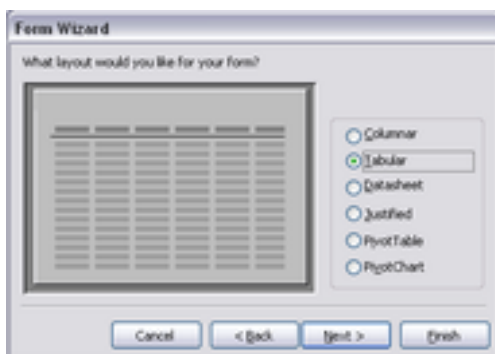
Firstly we select from the **Table/Queries** box the table or query that **we are going to get the data from**, this will be the **form source**. If we want to extract data from various tables it would be better to first create a query to obtain this data and then select this query as the form source.

Next we will select the **fields to include** in the form by clicking on the field and then the  button or simply double click on the field.

If we selected the wrong field click on the  button and the field will be removed from ther selected fields list.

We can **select all** the fields at the same time by clicking on the  button or deselect all the fields at once using the button .

Next we click on the **Next>** button and the window seen in the following example will appear...





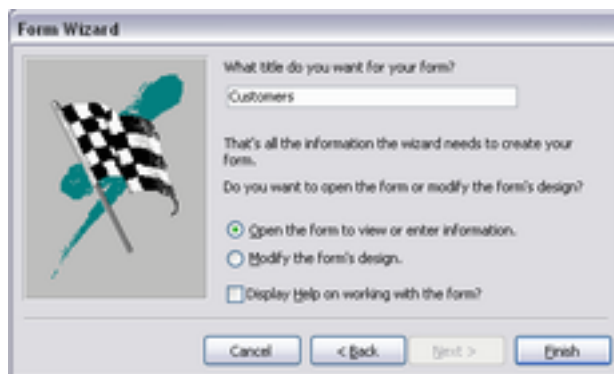
In this screen we select the **data distribution** within the form. By selecting a format it will appear on the left side the way it will be seen in the form.

Once we have selected the distribution of our choice click **Next** and the following window will appear:



In this screen we select the forms **style**, we can select between the various defined styles that Access has. By selecting a style it will appear on the left side as it will in the form.

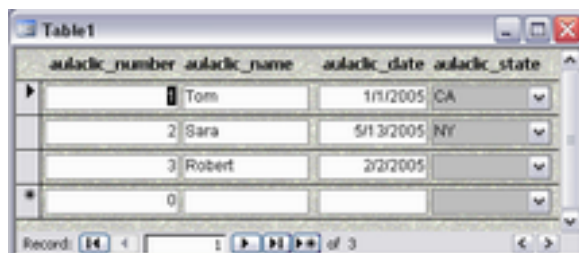
Once we have selected a style of our choice we click on the **Next** button and the last screen of the forms wizard will appear.



In this window we are asked for the **title of the form**, this title will also be the name assigned to the form.

Before clicking on the **Finish** button we can choose between:

🟡 **Open the form to view or enter information**, in this case we will see the result of the form ready for the editing of data, e.g:



or,

🟡 **Modify the form's design**, if we select this option the **Form design** view will appear where we can modify the aspect of the form, e.g:

## DBMS:

- Database is an organized collection of related files. It may be small contained within your own PC or it may available through online connection.
- In 1950 the large organizations used to maintain large information in the form of files for example university may contain student details, staff detail, fee detail so it is very difficult to maintain in files.
- If we want to modify anything then we have to update each record so with DB we can do modifications much easier.
- DBMS or DB manager consists of programs that control the structure of a database and access to the data.
- The advantages of DBMS are as follows:

**File Sharing:** This is the biggest benefit; all authorized users can work with the same set of files.

**Reduced data redundancy:** Data redundancy means that the same data field appears in many different files and in different format.

**Improved data integrity:** Data integrity means that data is accurate, consistent and up to date.

**Increased Security:** Though various department share data, but specific information can be limited to selected users. Thus through the use of password we can give access to particular sector students, staff medical.

**Types of DBMS:** DBMS is classified according to the No. of users.

1. Single user
  2. Multi user
- Single user DBMS supports only user at one time.
  - In other words if user A is working then user B & C must wait until user A has completed his/her work.
  - If single user DB runs on pc it is called desktop DB.
  - Multiuser DB supports multiple users at the same time.

- If DB support small no. of user (50) is called Workshop Db if more than 50 then it is called enterprise DB.

## Unit-IV

**Computer networking or Data communications (Datacom):-** is the engineering discipline concerned with the communication between computer systems or devices. A computer network is any set of computers or devices connected to each other with the ability to exchange data.<sup>[1]</sup> Computer networking is sometimes considered a sub-discipline of telecommunications, computer science, information technology and/or computer engineering since it relies heavily upon the theoretical and practical application of these scientific and engineering disciplines. The three types of networks are: the Internet, the intranet, and the extranet.

**Network:-** is a collection of computers connected to each other. The network allows computers to communicate with each other and share resources and information.

### **Benefits of network:-**

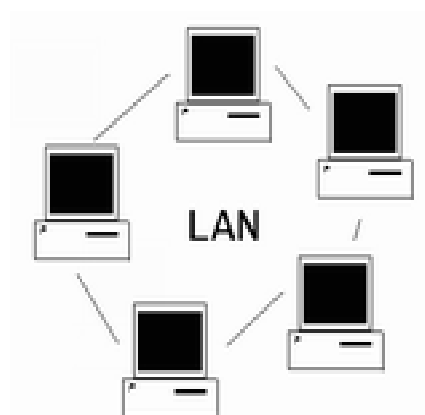
**Shared Files:** Share data & program files to all network users

**Shared Printers:** Share the cost of printer among all users gain access to different types of printers

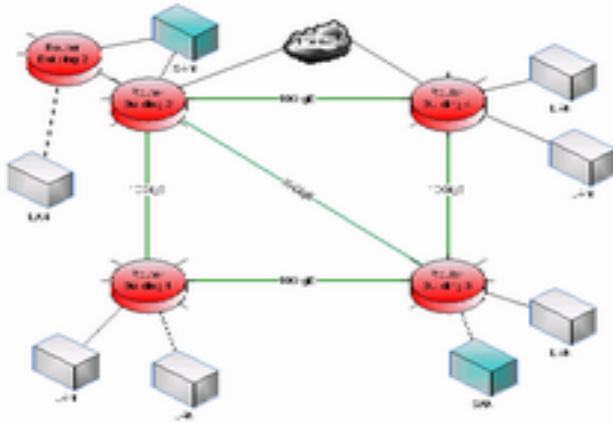
**Shared Resources:** Share peripheral devices access powerful information resources.

### **Types of network:-**

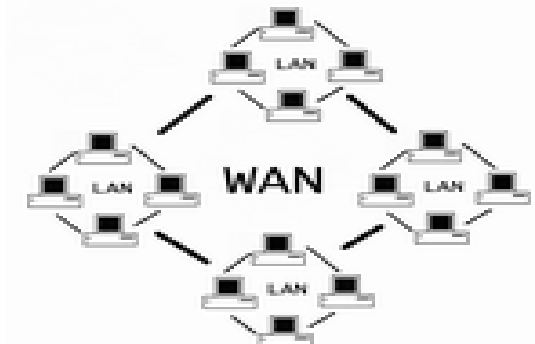
**Local Area Network (LAN):-** This is a network covering a small geographic area, like a home, office, or building. Current LANs are most likely to be based on Ethernet technology. A local area network (LAN) is a computer network that connects computers and devices in a limited geographical area such as home, school, computer laboratory or office building.<sup>[1]</sup> The defining characteristics of LANs, in contrast to wide area networks (WANs), include their usually higher data-transfer rates, smaller geographic area, and lack of a need for leased telecommunication lines.



**Metropolitan Area Network:-** is a network that connects two or more Local Area Networks but does not extend beyond the boundaries of the immediate town/city. Routers, switches and hubs are connected to create a Metropolitan Area Network. A MAN is optimized for a larger geographical area than a LAN, ranging from several blocks of buildings to entire cities. MANs can also depend on communications channels of moderate-to-high data rates. A MAN might be owned and operated by a single organization, but it usually will be used by many individuals and organizations. MANs might also be owned and operated as public utilities. They will often provide means for internetworking of local networks.



**Wide Area Network (WAN):-** is a data communications network that covers a relatively broad geographic area (i.e. one city to another and one country to another country) and that often uses transmission facilities provided by common carriers, such as telephone companies. WAN technologies generally function at the lower three layers of the OSI reference model: the physical layer, the data link layer, and the network layer. The term Wide Area Network (WAN) usually refers to a network which covers a large geographical area, and use communications circuits to connect the intermediate nodes. A major factor impacting WAN design and performance is a requirement that they lease communications circuits from telephone companies or other communications carriers. Numerous WANs have been constructed, including public packet networks, large corporate networks, military networks, banking networks, stock brokerage networks, and airline reservation networks. Some WANs are very extensive, spanning the globe, but most do not provide true global coverage. Organisations supporting WANs using the Internet Protocol are known as Network Service Providers (NSPs). These form the core of the Internet



## Types of LANs

A Local Area Network, as the name suggests, connects machines in close geographical proximity, although exactly what "proximity" means can be stretched. The term "Wide Area Network" (WAN) is used for networks that expand beyond the campus or office; the Internet is the best known example of a WAN. (The Internet is also an "internet", a collection of networks acting as one.) Usually a WAN will have one or more slow links, perhaps over telephone lines between cities, whereas all the links in a LAN will be fast. This difference in speed is important for optimizing the overall network performance.

The usual use of the term "LAN," however, implies more services than simply making connections between local machines. On a LAN, we expect to share files, programs, or printers, all without being particularly aware of where the physical resources we're using are actually located. LANs providing these types of services are typically set up either as "peer-to-peer" or "client-server" LANs, or perhaps as a combination of the two.

### Peer-to-peer LANs

All the machines on a peer-to-peer LAN are equal. Provided that the file's owners give permission, a file on machine A can be accessed from machine B, and vice versa. Peer-to-peer LANs do not require any one machine to be a dedicated, high-performance server; service by a peer-to-peer LAN is often cheaper for this reason. Peer-to-peer LANs work well when only a small number of machines are connected to it. But as the size of the LAN grows, peer-to-peer services can become quite disorganized, and because each machine on the LAN must be powerful enough to serve all of its peers, the cost increases. For larger LANs, the dedicated client-server LAN architecture becomes more cost effective.

### Client-server LANs

A client-server LAN consists of one or more server machines on which shared files and programs reside and many client machines where people do their work. The LAN server machines are usually big and fast because they must serve many users, while the client machines need only be fast enough for one person to use at a time. Shared printers are either attached directly to a server, or to a print server (a specialized computer attached to the network), or to a personal computer on network that acts as a print server.

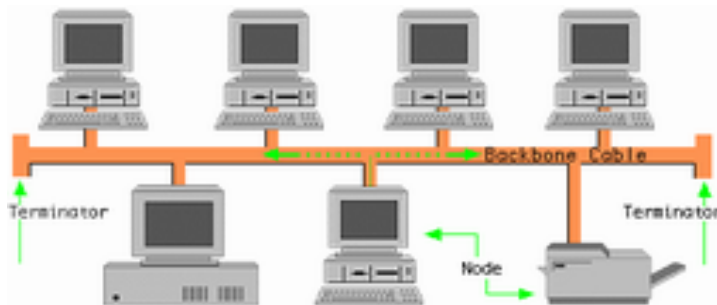
## Components of LAN'S:-

1. **Cabling System:** LANs may use a wired or wireless connection system. Wired connections may be twisted pair wiring, coaxial cable or fiber optic cable. Wireless connections may be infrared, radio waves and Bluetooth.
2. **Router:** Router is a special device that directs communicating messages when several networks are connected together. It will route the traffic of the network.

3. **Bridge:** It is an interface used to connect same type of networks. LAN to LAN, MAN to MAN.
4. **Gateway:** It is an interface used to connect different types of networks
5. **NIC( N/w interface Card):** A NIC enables the computer to send and receive messages over a cable network.

**Topologies of LAN:-** A network topology describes the arrangement of systems on a computer network. It defines how the computers, or nodes, within the network are arranged and connected to each other. Some common network topologies include star, ring, line, bus, and tree configurations. These topologies are defined below:.

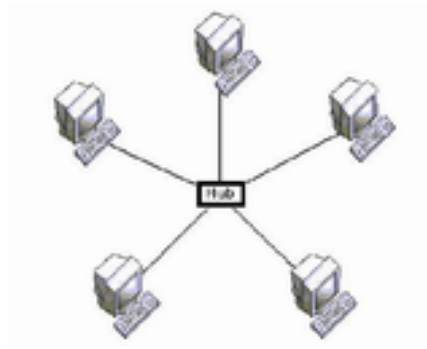
1. **Bus topology** is a network architecture in which a set of clients are connected via a shared communications line, called a bus. Bus network topology uses a broadcast channel which means that all attached stations can hear every transmission and all stations have equal priority in using the network to transmit data. Each node is connected to a central bus that runs along the entire network. All information transmitted across the bus can be received by any system in the network.



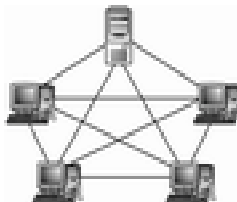
2. **Ring topology:** is a network topology in which each node connects to exactly two other nodes, forming a circular pathway for signals – a ring. Data travels from node to node, with each node handling every packet. Each node is connected to exactly two other nodes, forming a ring. Can be visualized as a circular configuration. Requires at least three nodes.



3. **Star topology** is one of the most common computer network topologies. In its simplest form, a star network consists of one central switch, hub or computer, which acts as a conduit to transmit messages. Thus, the hub and leaf nodes, and the transmission lines between them, form a graph with the topology of a star. One central node is connected to each of the other nodes on a network. Similar to a hub connected to the spokes in a wheel.

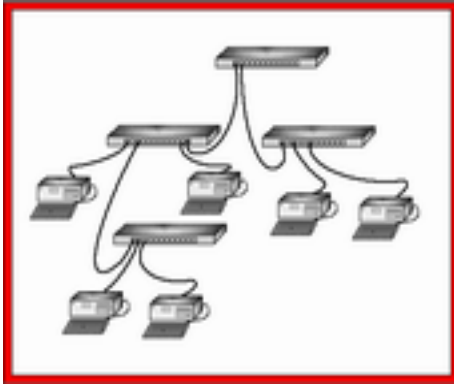


4. **Mesh topology** whose nodes are all connected to each other is a fully connected network. Mesh Network is a network where all the nodes are connected to each other and is a complete network. In a Mesh Network every node is connected to other nodes on the network through hops. Some are connected through single hops and some may be connected with more than one hop.



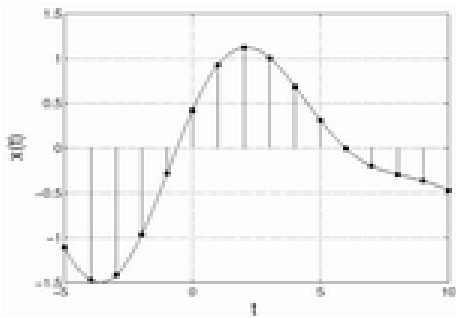
5. **Tree** Also known as a **hierarchical network**. One "root" node connects to other nodes, which in turn connect to other nodes, forming a tree structure. Information from the root node may have to pass through other nodes to reach the end nodes. The type of network topology in which a central 'root' node (the top level of the hierarchy) is connected to one or more other nodes that are one level lower in the hierarchy





### **Analog to Digital: -**

**Analog signal:** An **analog** or **analogue signal** is any continuous signal for which the time varying feature (variable) of the signal is a representation of some other time varying quantity, i.e., analogous to another time varying signal. It differs from a digital signal in terms of small fluctuations in the signal which are meaningful. Analog is usually thought of in an electrical context; however, mechanical, hydraulic, and other systems may also convey analog signals.

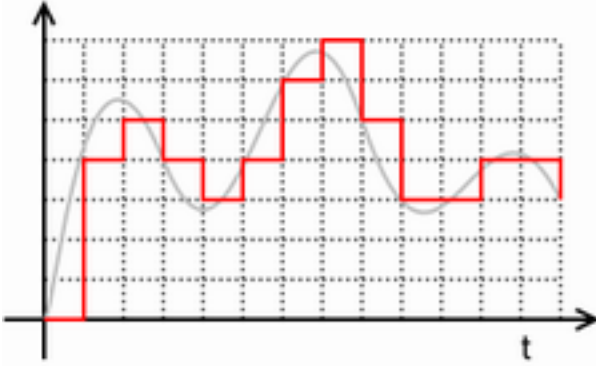


An analog signal uses some property of the medium to convey the signal's information. For example, an aneroid barometer uses rotary position as the signal to convey pressure information. Electrically, the property most commonly used is voltage followed closely by frequency, current, and charge.

**Frequency:** No. of cycles per second.

**Amplitude:** Height of the signal.

**Digital Signal:** - The term **digital signal** is used, to refer to more than one concept. It can refer to discrete-time signals that have a discrete number of levels, for example a sampled and quantified analog signal, or to the continuous-time waveform signals in a digital system, representing a bit-stream. In the first case, a signal that is generated by means of a digital modulation method which is considered as converted to an analogue signal, while it is considered as a digital signal in the second case.



To convert analog signal to digital and vice versa we use modem. Modem is short form “Modulator/ Demodulator”.

**Internet Concepts:-** In 1957 US established the ARPA (Advanced Research Project Agency) to investigate ways of increasing the military use of digital communication.

1969- With four nodes network was established

1973 – with 15 nodes

1984- JANET( Joint Academic N/w)

1989 – WWW(World wide web)

How the web works:- Web document can be linked together because they are created in a hypertext format.

Hypertext: Text, Pictures, sounds, movies etc.

To support hypertext document web uses a special protocol called HTTP(Hyper text transfer Protocol)

A hypertext document is a specially encoded files that uses the HTML. This language allow user to attach links. Hypertext document or links are called web pages.

A collection of related web pages is called a web site.

**URL (Uniform Resource Locator)** The HTTP uses internet address in a special format called URL's .

<http://www.loc.gov>

**Hyperlink:** Inside a webpage you can open them by clicking on the particular link.

**File Transfer Protocol (FTP)** is a network protocol used to transfer data from one computer to another through a network such as the Internet.

**FTP** is a file transfer protocol for exchanging and manipulating files over a computer

network. An FTP client may connect to an FTP server to manipulate files on that server.

**Telnet (Telecommunication network)** is a network protocol used on the Internet or local area network (LAN) connections. Typically, telnet provides access to a command-line interface on a remote machine.

**Electronic mail**, often abbreviated to **e-mail**, **email** or **eMail**, is a method of creating, transmitting, or storing primarily text-based communications with digital communications systems. Originally, e-mail consisted only of text messages composed in the ASCII character set, virtually any media format can be sent today, including attachments of audio and video clips.

**Electronic commerce**, commonly known as **e-commerce** or **eCommerce**, consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks.

**Electronic commerce**, commonly known as **e-commerce** or **eCommerce**, or **e-business** consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. The amount of trade conducted electronically has grown extraordinarily with widespread Internet usage. The use of commerce is conducted in this way, spurring and drawing on innovations in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at some point in the transaction's lifecycle, although it can encompass a wider range of technologies such as e-mail as well.

- Internet banking
- Online Shopping

**The World Wide Web** (commonly shortened to **the Web**) is a system of interlinked hypertext documents accessed via the Internet. With a Web browser, one can view Web pages that may contain text, images, videos, and other multimedia and navigate between them using hyperlinks.

A **Web search engine** is a tool designed to search for information on the World Wide Web. Information may consist of web pages, images, information and other types of files. Some search engines also mine data available in news books, databases, or open directories. Unlike Web directories, which are maintained by human editors, search engines operate algorithmically or are a mixture of algorithmic and human input.

## UNIT-V

**PROGRAM:-** Is a set of or list of instructions that the computer must follow in order to process data into information. There are five steps in program execution.

1. problem Clarification
2. program design
3. program coding
4. Program testing
5. Program documentation and maintenance.

**Problem Clarification:** - In this step first user will understand the problem that means analysis of problem. This analysis is based on few considerations those are:

**I. Clarify objectives & Users:** - You need to write the steps for your objectives you are trying to accomplish. And you need to make sure the users of the program will be. Will they be people inside the company or outside, if you are preparing program for a company.

**II. Clarify desired output:** - Make sure you understand the output what the system designer want from the system. What information should be outputs include?

**III. Clarify desired input:** - once you know the type of output then you can think about input. What kind of input data is needed?

**IV. Clarify desired Processing:** - You should understand the procedure or process for executing any program or process of getting output from input.

**V. Document the Analysis:** - Throughout program clarification programs must document everything they do.

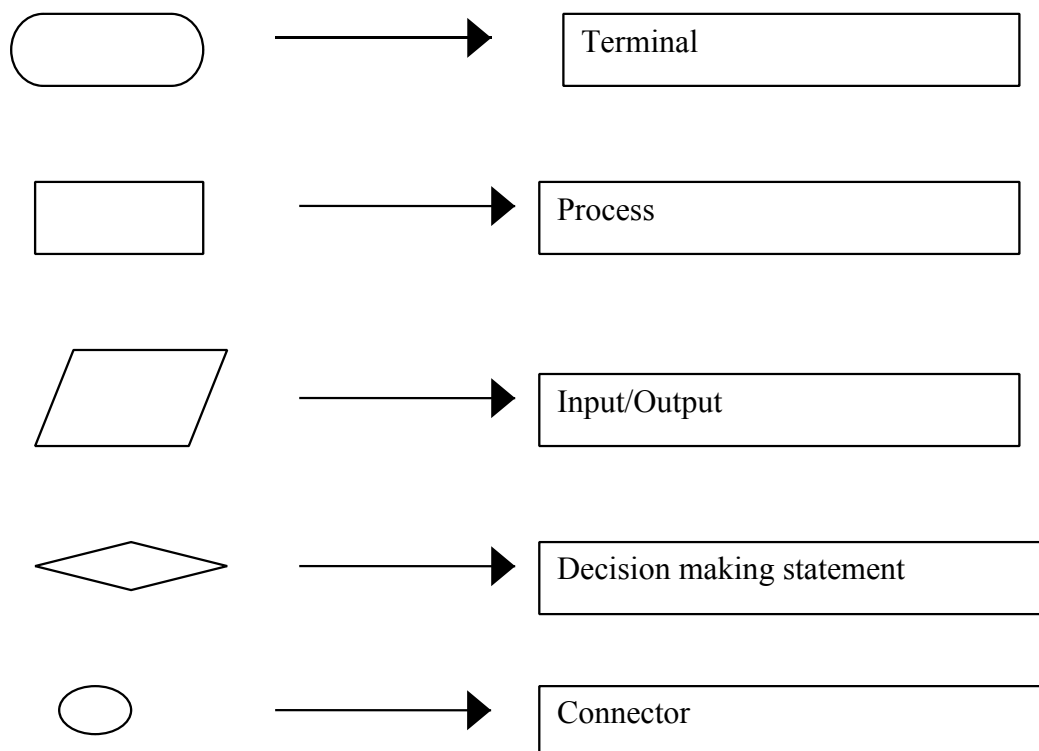
**Program design:** - In this program design step, the software is designed in 3 mini steps. First the program logic is determined through a top- down approach and modularization, using a hierarchy chart then designed in detail, either in pseudo code or graphical flow chart.

➤ **Determine the program logic using a Top- down Approach:** - A module is a processing step of a program. Such module is made up of logically related program elements. A hierarchy chart or structured chart illustrates the overall purposes of the program.

➤ **Design Details ,using Pseudo code or Flowchart :** -

**Pseudo code:** Algorithm, describing program by using some terms as If, then...else.

**Flow Chart:** Graphical representation of the program by using series of steps.



**Terminal:** Beginning & Ending of program.

**Process:** A calculation or assigning of work.

**I/O:** For giving input and taking output.

**Connector:** For connecting two symbols.

**Control Structures:-** when you are trying to determine the logic behind something you use words like “ if”, “ then” and “else”. There are three control structures.

**1) Sequential Control**

**2) Selection Control**

**3) Iteration - loops**

**Program Coding:** - Once the program has been developed, the actual writing the program is called coding.

1. **Select the appropriate Programming language:-** A programming language is a set of rules that tells the computer what operations to do.

Eg: COBOL, C,Java

Not all programming languages are suitable for all uses. Some are for mathematical use, some are for database. Thus choosing a language depends upon purpose of the program.

2. **Follow the syntax:-**

**Syntax:** The rules of the programming language.

Programming language have their own grammar just as human language.

**Program Testing:-** Running various tests and then running real world data to make sure the program works.

- **Perform Desk Checking:-** Desk checking is simply reading through, or checking , the program to make sure that it is free from errors.
- **Debug the Program:** - To detect, locate and remove all bugs/ errors in a program. Syntax errors are caused by typographical errors. Logical errors are caused by incorrect use of control structures.

**Document & Maintain the Program:** - Documentation consists of written descriptions of what a program is and how to use it.

- **Prepare user Documentation:** - When we buy a software package, you normally get manual with it. This is called user documentation.
- **Prepare operator Documentation:** - To help computer operator, programmers will provide operator documentation.
- **Write Programmer Documentation:** - one system is existing and few programmers are working, if these programmers are left then this programmer documentation helps the new comers to work with existing system.
- **Maintain the program:** - Maintain refers to any activity such as designed to keep programs in working condition, error free and up to date.

## Five generations of programming languages.

A programming language is a set of rules that tell the computer what operations to do. The five generations of programming languages are as follows.

### First generation: - Machine language (1947).

Machine language is the basic language of the computer, representing data as 1s and 0s. Machine language programs varied from computer to computer; that is they are machine-dependent.

The language is more technical, more flexible, less user friendly and faster.

### Second generation: - Assembly language (1950)

Assembly language is a low-level programming language that allows a computer user to write a program using abbreviations or more easily remembered words instead of numbers. A language translator (assembler) is required to convert it to machine language.

A **compiler** is a computer program (or set of programs) that transforms source code written in a programming language (the *source language*) into another computer language (the *target language*, often having a binary form known as *object code*). The most common reason for wanting to transform source code is to create an executable program

In computer science, an **interpreter** normally means a computer program that executes, i.e. *performs*, instructions written in a programming language. An *interpreter* may be a program that either

1. executes the source code directly
2. translates source code into some efficient intermediate representation (code) and immediately executes this
3. explicitly executes stored precompiled code<sup>[1]</sup> made by a compiler which is part of the interpreter system

### Third generation: - High-level (early 1960).

A high-level or procedural language resembles to some human language such as English. Ex:- COBOL, C, C++, Fortran.

A language translator (compiler or interpreters) is needed to convert high level language into machine language.

### Fourth generation:- Very high level or problem oriented language(1970).

A very high level or problem oriented language (4GL), are much more user oriented and allow users to develop programs with fewer commands. Ex:- RAD, DBMS, etc.

### Fifth generation:- natural languages(1980).

It uses human language to give people a more natural connection with computers. Natural languages are part of the field of study known as artificial intelligence.

### III Programming Languages Used Today:

**1. FORTRAN:** Stands for formula Translator, it is a language of mathematics and the first high level language. Actually designed for mathematical formulas, Scientific and Engineering Problem. Also useful for Complex Business Applications.

**2. COBOL:** Language of Business, adopted in 1960. Common business oriented language. Is most frequently used in business programming for language computers.

Adv's:

- It is machine independent
- Its English like statements are easy to understand even for non-programmer
- It can handle many files, records and fields
- Easy to handle input and output operations

Dis-Adv's:

- Because it is so readable it is wordy
- Thus simple programs are lengthy
- IT cannot handle mathematical operations, as well as FORTRAN

**3. BASIC:** Beginner's all purpose Symbolic Instruction Code

Used for creating and editing pages on the web. Can do anything from putting plain text on a webpage, to accessing and retrieving data from a database. Vary greatly in terms of power and complexity.

- **HTML**  
Hyper Text Markup Language. The core language of the world wide web that is used to define the structure and layout of web pages by using various tags and attributes. Although a fundamental language of the web, HTML is static - content created with it does not change. HTML is used to specify the content a webpage will contain, not how the page functions. Learn HTML at our **HTML tutorials** section.
- **XML**  
Extensible Markup Language. A language developed by the **W3C** which works like HTML, but unlike HTML, allows for custom tags that are defined by programmers. XML allows for the transmission of data between applications and organizations through the use of its custom tags.
- **Javascript**  
A language developed by Netscape used to provide dynamic and interactive content on webpages. With Javascript it is possible to communicate with HTML, create animations, create calculators, validate forms, and more. Javascript is often confused with Java, but they are two different languages. Learn Javascript at our **Javascript tutorials** section.
- **VBScript**  
Visual Basic Scripting Edition. A language developed by Microsoft that works only in Microsoft's Internet Explorer web browser and web browsers based on the Internet Explorer engine such as FlashPeak's **Slim Browser**. VBScript Can be used to print dates, make calculations, interact with the user, and more. VBScript is based on Visual Basic, but it is much simpler. Learn VBScript at our **VBScript tutorials** section.



- **PHP**  
Hypertext Preprocessor (it's a recursive acronym). A powerful language used for many tasks such as data encryption, database access, and form validation. PHP was originally created in 1994 By Rasmus Lerdorf. Learn PHP at our **PHP tutorials** section.
- **Java**  
A powerful and flexible language created by Sun Microsystems that can be used to create applets (a program that is executed from within another program) that run inside webpages as well as software applications. Things you can do with Java include interacting with the user, creating graphical programs, reading from files, and
- more. Java is often confused with Javascript, but they are two different languages. Learn Java at our **Java tutorials** section.

## Software languages

Used for creating executable programs. Can create anything from simple console programs that print some text to the screen to entire operating systems. Vary greatly in terms of power and complexity.

- **C**  
An advanced programming language used for software application development. Originally developed by Dennis Ritchie at Bell Labs in the 1970's and designed to be a systems programming language but since then has proven itself to be able to be used for various software applications such as business programs, engineering programs, and even games. The UNIX operating system is written in C.
- **C++**  
Descendant of the C language. The difference between the two languages is that C++ is object-oriented. C++ was developed by Bjarne Stroustrup at Bell Labs and is a very popular language for graphical applications.
- **Visual Basic**  
A language developed by Microsoft based on the BASIC language . Visual Basic is used for creating Windows applications. The VBScript language (also developed by Microsoft) is based on Visual Basic.

### Java

A powerful and flexible language created by Sun Microsystems that can be used to create applets (a program that is executed from within another program) that run inside webpages as well as software applications. Things

**Assembler:** - It is program that translates the assembly language program into machine language.

**Compiler:-** A compiler is a language translator that converts the entire program of a high lever language into machine language before the computer executes the program.

**Interpreter:** - An interpreter is language translator that converts each procedural language statement into machine language and executes it immediately, statement by statement.

**Source code:** - the programming instructions of a procedural language are called the source code.

**Object code:-** The compiler translates source code into machine language, this machine language is called object code.

**Pseudo code :-**An outline of a program, written in a form that can easily be converted into real programming statements. Pseudo code cannot be compiled nor executed. The benefit of pseudo code is that it enables the programmer to concentrate on the algorithms without worrying about all the syntactic details of a particular programming language.