UNIT-I

WHAT IS A COMPUTER?

A computer is an electronic device which processes information based upon the instruction provided and generates desired output.

Electronic devices, which can input, store, manipulate data and output information in a desired form.

Computer is a machine that processes data to give information.

CHARACTERISTICS OF COMPUTERS

The characteristics of computers, which made them so powerful and useful, are

1. SPEED
2. ACCURACY
3. CONSISTENCY
4. STORAGE
5. VERSATILITY
6. AUTOMATION

SPEED

Computers are able to do all tasks at amazing speeds. Although the speed of the computer will depend on how powerful the computer is, it can still process a lot of data at high speed. The computers speed is measured in terms of Millions of Instructions per second also called MIPS. For the personal computer, speed depends on the clock frequency expressed in MHz per second.

ACCURACY

The computer does not make mistakes. Once the right instructions have been given to it, the chances of computer making errors are almost zero. If faulty instructions are provided for processing the data, obviously faulty answers will be given. This is called GIGO ie., Garbage In Garbage Out.

CONSISTENCY

After doing work for some time humans become tired. But computers do not become tired. This leads to it giving a consistently good performance hour after hour. This is also called diligence.

STORAGE

Computers come with large amount of memory. They can hold lot of data. computers can retrieve a particular piece of information from large amount of data in a

short time. This is called retrieval of data. Storage of data and information on the computer allows reduction of paper filing and other mundane tasks. Storage is expressed in terms of Bytes like

VERSATILITY

Computers are capable of solving various types of problems. It is used both in simple activities such as preparing payroll and in complex activities such as controlling the aircraft.

AUTOMATION

Computers have made automation of many complicated processes possible not only complicated processes but also some dangerous processes that pose health risks to human beings have been computerized.

APPLICATION OF COMPUTERS

Computers are used everywhere. Some of the areas of computer applications are given below.

1. *Accounting*: Computers are used to maintain accounts efficiently. Computers do inventory management, financial management and cash management very easily. In computerized accounting we can easily take the reports like trail balance, profit and loss account and balance sheet.
2. *Banking* : Now a days all banks are computerized. Customer transactions are maintained by computers. Computer controlled Automatic Teller Machines (ATM) are used for cash withdrawals.
3. *Medical* : In hospitals, Computers are used to maintain patient details, their diseases and treatments given by the doctors. Also in hospitals, most of the equipments are computer controlled. The doctors use these equipments for effective diagnosis.
4. *Education* : Computers can be used in education to teach students. Students can get most of the details using various websites available in the Internet.
5. *Designing* : In textile business, It is used to draw a new designs. By using AutoCAD software, Engineers draw the blue prints of their proposed buildings.
6. *Transport* : In railways, it used for reservation and cancellation of tickets in easy manner. Airways and shipping corporation use computers in their day-to-day activities.
7. *Communication*: E-mail, voice mail and Video conferencing are possible by using computers. Computers control telephone and mobile phone communication also.
8. *Engineering :* Computer-aided manufacturing (CAM) software is used by the engineers to design new products before their manufacture.
9. *Entertainment :* Computers are used to play movies and to play games
10. *Publishing :* Publishers use computer to prepare and format the content of the book.
11. *Space Technology.* Computers control space research stations.

12. *Insurance:* Insurance companies use computer to maintain their policy holder's details.
13. *Cinema :* Computers are used for adding graphical effects in films.
14. *Defense :* Computer is used to control missiles efficiently.
15. *Libraries :* In library, Computers are used to maintain information about books. Book issues and receipts are fully controlled by the computers. Computers are used to calculate the penalty for overdue books automatically.

CONCEPTS OF DATA AND INFORMATION

Computers have basic underlying principle on which it works computers can also be called an information processor because the computer processes data to give information.

DATA

Data is a collection of numbers, alphabets or some facts and numbers. Data on its own is not that useful unless it is arranged or combined with some more data.

I / P values given to a computer for manipulation or processing

Ex.

Raj scored 515 marks out of 600 ---→ 515
Ram scored 300 marks out of 600 ---→ 300
Comparing the 2 data use come to know---→ 2
Raj has scored higher than ram did---→ **GT** 300

INFORMATION

When data has been worked upon to give something more useful to the user, it is called information.

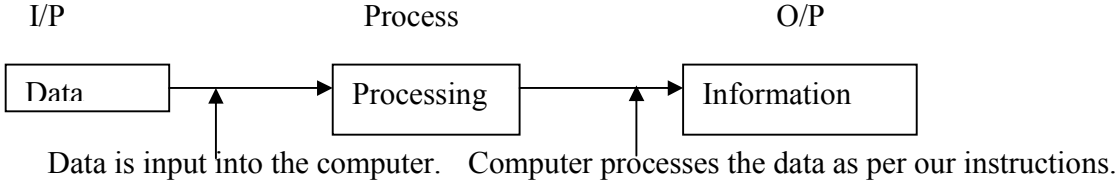
The processed data, which is available at the output of the computer for direct use, is called as information.

Ex.

Raj scored a higher % than ram did.

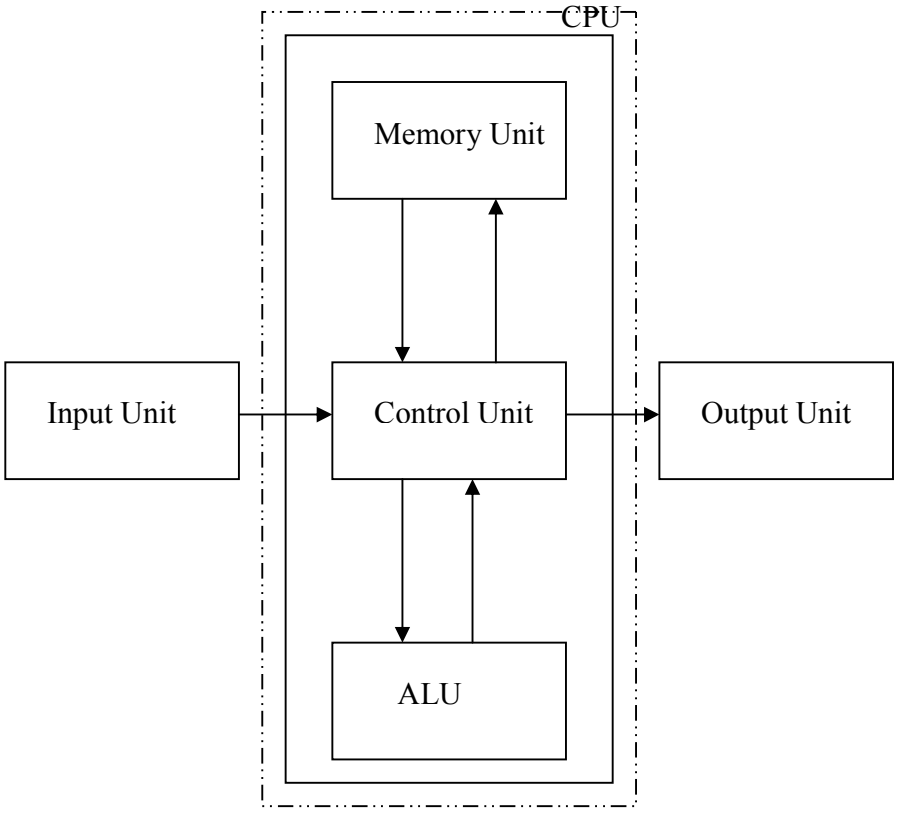
PROCESSING

The work that is done on data is a process. Process can be anything like addition, subtraction or a comparison. It is this processing that converts data into information.



DATA	INFORMATION
Raw (un Processed) A collection facts and numbers Not of much use. Get converted to information	Processed (added intelligence) Organized and arranged data. Is always useful Can also get converted to data.

TYPICAL COMPUTER SYSTEM



A TYPICAL COMPUTER SYSTEM

The box kept beside the monitor houses some of the most important and delicate parts of the computer. The part of the computer that does all the work all the thinking or all the processing is called the central processing unit or CPU.

CPU consists of three parts, which are inside name.

1. ALU
2. Control Unit
3. Memory Unit

ALU

The ALU takes care of all the mathematical and logical or comparison functions done by the computer. E.g.:- Addition, Subtraction, Multiplication, Division, Greater than, Less than etc.

CU

The control unit controls the entire operations of all the units of a computer. It brings one instruction at a time from the memory, interprets it and obeys it by coordinating the working of all the other units. In other words, this unit is considered to be the nervous system of a computer. All the commands are regulated and controlled by this unit.

MEMORY UNIT

This unit consists of locations or cells on which the data can be stored. If you want to retrieve the data, the data can be retrieved from the same unit. This unit consists of two types of memories, Permanent memory and secondary or auxiliary memory.

INPUT UNIT

Input unit is used to receive data and instruction in a form that can be understood by the computers. I/p unit is that a part of a computer to which the data and instruction is feed. Its function is to read the information and transmit to the CPU.

OUTPUT UNIT

On completion of the process the data are stored in the memory and control unit transfers the data in the memory unit to the o/p unit and it convert the information into the form of human readable languages.

MEMORY CONCEPTS

The memory has made the computer the most versatile instrument or machine that man has ever developed. Memory enables the computer to learn and remember different types of functions making it a very efficient machine.

MEMORY

Memory is what allows a person to remember things. “Memory is just a measure of an individual’s capacity to remember”.

COMPUTER MEMORY

Computer memory is capable to store many programs that allow it to perform tasks. Comparing the computer memory with our own memory, our memory is not a physical entity, where as the case of the computer's memory it does have physical appearance. Data is stored here before the processing takes place and is stored here after it is converted into information. Computer memory is a place that physically holds the data, for the instruction that is going to be processed.

Imagine a large sheet, with vertical and horizontal lines drawn on it the little squares formed by the intersection of the lines are called cells each cell is capable of holding or remembering some piece of data or information.

When some data is entered in the computer every small unit of data is placed in these tiny cells during the process and even after the data that is converted into information remains stored in these tiny cells.

In computers everything is binary. As far as the computer is concerned all data is always numeric information is also numeric, but the computer can convert this into a form that we as users want and give it to us as text, numbers or even pictures. Although the computer is dealing with text, it first gets converted to numbers, gets processed as numbers and then gets displayed again as text this sort of a conversions is done by using a standard coding procedure called ASCII

ASCII stands for American Standard Code for Information Interchange. ASCII is used as standard by the computing world to enable easy exchange of information between different countries or even different types of computer systems.

Computers use only the binary digits namely 0's and 1's. The numbers 0's and 1's denote the state of the circuits being "off" "on" respectively.

Bits-Binary digits-0's and 1's
1 byte-8 bits
1KB (OR) 1KILOBYTE-1024 BYTES
1MB (OR) 1MEGABYTE-1024 KB
1GB (OR) 1 GIGA BYTE-1024 MB

TYPES OF COMPUTER MEMORY

Based on the needs the memory in computers is classified into two types.

1. Primary (or Internal Storage)
2. Secondary (or External Storage)

PRIMARY

This is of first importance, fundamental or basic

SECONDARY

This is of second importance, something that is dependent. Storage here refers to the safe-keeping of data, information or programs.

Primary memory- memory for immediate processing
Secondary memory-memory for storing data, information and programs

PRIMARY MEMORY

Primary memory is of the most importance to the immediate processing needs of the computer science this memory is found inside the box where the CPU too is found, it is sometimes also called the internal memory. This is of two types

1. RAM (Random Access Memory)
2. ROM (Read Only Memory)

RAM (RANDOM ACCESS MEMORY)

RAM is essentially a read/write memory. Information can be written into and read from a RAM. It is volatile in nature, i.e. it retains the stored information as long as power supply is not switched off.

Ram chips may be classified as:

1. Dynamic
2. Static.

Dynamic RAM chip consist of transistors and capacitors. The change on the capacitor must be periodically refreshed or recharged.

Static RAM chop consist of combination of transistors & resistors. Static RAM does not require special regenerator circuits to retain the stored data. More transistor and other devices are needed to store a bit static RAM. These chips are more complicated than dynamic RAM.

ROM (READ ONLY MEMORY)

ROM is a permanent type memory. Its contents will not lose when power supply is switched off. Data is hardwired onto these chips at the time of manufacture and cannot be changed by the user.

Though data is hardwired, the user is able to program the following types of ROM

1. PROM
2. EPROM
3. EEPROM

PROM, Programmable Read Only Memory allows micro programs to be fused into them. Operations once written cannot be erased. A fused link cannot be restored. PROM can be programmed only once.

EPROM, Erasable Programmable Read Only Memory makes it possible for the user to repeatedly erase and reprogram this ROM. Exposing the EPROM to Ultra Violet rays of a specific frequency does erasing.

EEPROM, an Electrically Erasable Programmable Read Only Memory can be programmed through the use of special electrical pulses.

SECONDARY MEMORY

The secondary memory is found outside the CPU box and hence sometimes called the external memory or external storage.

1. PUNCHED CARDS
2. MAGNETIC TAPES
3. FLOPPY DISKS
4. OPTICAL STORAGE DEVICES
5. FLASH DRIVES

HISTORY OF COMPUTERS

Historians starts the history of calculation with the abacus (a wooden frame with balls) or beads strung on parallel wires of trace its origin to around 5000 B.C. It was used for performing simple calculations. In the seventeenth century, John Napier a Scottish mathematician did considerable work on the aids for calculation. In 1620, William Ougntred invented the slide rule. This is a calculating device based on the principles of logarithms. 1642, basis Pascal invented the first machine; numbers were entered by dialing a series of numbers wheels. Another series too then wheels transferred the movements to a dial which showed the results.

In 1822, Charles Babbage, a professor of mathematics at Cambridge University designed a machine called “Difference Engine”. It performs simple computation needed for setting up trigonometric and logarithmic table. In short time, he had developed a machine called prototype computer whish is the basic model of the computer.

In 1944, H.Aiken designed a machine called mark I. The time taken for average multiplication of division was about 4” seconds respectively. The results were printed at the rate of one result per 5 seconds.

Charles Babbage (1822) is the father of modern day computer.

GENERATIONS OF COMPUTERS

Electronic computers developed in five different phases known as generations of computer. Each phase is characterized by type of switching circuits.

1st Generation	Vacuum tubes	1940 – 1956
2nd Generation	Transistor (flip-flop)	1956-1963
3rd Generation	Integrated circuits	1964 – 1971
4th Generation	Large scale integrated on a micro-chip(Microprocessor)	1971 - present
5th Generation	artificial Intelligence	Present and Beyond

FIRST GENERATION

First generation computers used vacuum tubes and programming was done in machine languages. All the computers were of very big sizes and costly.

The first generation computers had the following limitations

1. Slow operating speed and restricted computing capacity.
2. High power consumption.
3. Very large space requirement.
4. Limited programming capabilities.

The trends which were encountered during the era of first generation computer were.

1. The first generation computer control was centralized in a single cpu.
2. Punched cards were used as input device.
3. Magnetic tapes and magnetic drums were used as secondary memory.
4. Primary code or Machine language was used for programming.
5. Assembler, a program which translates assembly language program to machine language was made.
6. Computer was accessible to only one programmer at a time. (Single user environment).

The famous computers of this generation were.

ENIAC, EDSAC, EDVAC, LEO, UNIVAC-1, IBM-701 and IBM-650

ENIAC: Electronic Numerical Integrator and Calculator which was completed in 1946 was the first Electronic Calculator. It performs 5000 additions/sec and consumed 150 kilowatts of power.

EDVAC: Electronic Discrete Variable Automatic Computer Which was a computer build by the more school personnel and the Ballistics Research Laboratory of the US Army in between 1947-1950

SECOND GENERATION

Second generation began with invention of transistors. The transistor was at work in the computer. Coupled with early advances in magnetic-core memory, transistors led to second generation computers that were smaller, faster, more reliable and more energy, efficient. The high level languages like FORTRAN, COBOL and ALGOL were developed.

The use of transistors reduced

1. Size
2. Manufacturing and running costs
3. Reliability and processing power.

Some of the second generation computers were

IBM-1620, IBM-1401, IBM-1094, CDC-1604, CDC-3600, RCA-501, UNIVAC-1108, LEO MARK-111, ATLAS, ICL-1901 etc

THIRD GENERATION

Third generation computers had integrated transistor circuit (IC) having higher speed, larger storage capabilities and lower prices. These computers were called mini computers.

Multiprogramming was well developed to allow the simultaneous execution of many program segments interleaved with I/O operation.

Many high-performance computers, like IBM 360/91, TI-ASC, CYBER-175, STAR-100 and CMMP were developed.

FOURTH GENERATION

The development of micro processor made it possible to place complete control processing unit of a computer on a single chip. Very large scale integrated having about 50,000 transistors on a chip, made it possible to have micro computers of fourth generation. Magnetic core memories were replaced by semi conductor memory.

The present generation computers emphasize the use of large-scale integrated (LSI) circuits for both logic and memory sections.

IBM introduced its personal computer (PC) for use in the house, office and schools, uses controlled the screen cursor using a mouse.

As smaller computers become more powerful, they could be linked together, or networked, to share memory space, software, information and communicate with each other. As opposed to a mainframe, which was one powerful computer that shared with many terminals for many applications, networked computers allowed individual computers to form electronic co-ops.

FIFTH GENERATION

Defining the fifth generation of computers is somewhat difficult because the field is in its intense. The most famous example of the fifth generation computer is the HAL 9000.

HAL performed all of the functions currently envisioned for real-life fifth generation computers. Many advantages in the science of computer design and technology are coming together to ensure the creation of fifth-generation computers.

Two such engineering advances are

1. Parallel Processing.
2. Superconductor Technology. .

TYPES OF COMPUTERS

Computers can be broadly classified on the basis of purpose, components and size and processing power.

PURPOSE

Analog computers
Digital computers
Hybrid computers

ANALOG COMPUTERS

Analog computers are computers that measure physical quantities (eg. Pressure, temperature, length etc) and convert them to numeric values. For eg a thermometer does not perform any calculations but measure the temperature of the body by comparing the relative expansion of mercury.

Analog computers are used mainly for scientific and engineering purposes because they deal with quantities that very constantly.

DIGITAL COMPUTER

Most computers are digital devices ie they process information using numbers, which is essentially in a binary or a 2 state format

Special purpose digital computers can be fixed permanently into the machine, for example processors that are installed in automobiles to control fuels, breaking system etc.

HYBRID COMPUTERS

The features of analog and digital machines are combined to create a hybrid computing system for e.g. analog devices measures patient's vital signs like temperature, heart functions, etc. These are then converted to numbers and supplied to a the digital computers that monitor the patients vital signs.

SIZE & PROCESSING POWER

1. Micro computers
2. Mini computers
3. Mainframe
4. Super computer

MICRO COMPUTERS

The microcomputer is the smallest type of computer. Inside a micro-computer, the arithmetic and control unit are combined on a single chip called a micro-processor. Micro-computers contain two types of storage or memory.

RAM
ROM

Micro computers are used as home computers for the family or personal computers by business executive or by small business where volume of data processing and speed are small.

MINI COMPUTER

Mini computers are more powerful than the microcomputers and supply several users. They have larger RAM and backing storage capacity and can process data more quickly.

A medium sized organization may use it for applications like processing of payrolls and financial accounts, handling costing, sales analysis, production planning and minicomputers may also be used for system like reservation or banking.

Eg. PDP-11, VAX 7500, AS400

MAINFRAME COMPUTERS

Very large computers with a very high capacity of main store

1. larger computer
2. high storage capacity
3. larger amount of data process very quick

very big organization can use this computers e.g. IBM 4381

SUPER COMPUTER

Used for complex scientific applications like weather forecasting. In this type of computer very large amount of data are to be processed within a very short period of time.

Eg. CRAY XMP-24.

INPUT DEVICES

The purpose of having such device is to present information to the computer. The input device feed the information in to the computer.

A medium that allows the user of the computer to enter data and instructions inside the computer is called an input device.

KEYBOARD

A small flat piece of plastic board with several buttons arranged on it is called a keyboard. These buttons are marked with capital alphabets from A to Z. Another set of buttons has numbers from 0 to 9 more buttons with mathematical signs like + for addition, - for subtraction, * for multiplication, and / for division are present. Then there are some buttons that have some special sign like: ,.””?\@$!%&()etc. All these buttons are called keys; the arrangement of the keys on the keyboard is some as ordinary typewriter. Most computers have keyboards with 104 keys.

MOUSE

Keyboards are still very popular for typing data for giving short instruction to the computer, the mouse has become very convenient. The user of the computer just has to point at the instruction that he wants the computer to carry out.

Accordance with the mouse movement, an arrow or any other symbol moves in the monitor, thus we select the command by moving arrow and press the button on the mouse. That particular command executed by pressing the button on the mouse is known as clicking the mouse.

BAR CODE READER

In some articles, number of small bars is printed to represent code number and price. These are called as Bar Codes. A handy device called bar code reader can read such cods. They are connected to the computer. The user moves the bar code on the bar code reader, the computer reads the information and stores it. Then the computer calculates the value corresponding to the code and prints the bill.

MICR READER

MICR means Magnetic Ink Character Recognition. MICR is a device which can sense characters as they scan the characters. It consists of characters of standard type. All the characters formed by making the correct combinations of boxes. It is used to read the details in a cheque.

OCR

OCR means Optical Character Reader. OCRs scan the text optically, character by character, conquered them into a machine readable code and store the text on the system's memory. They can read at a rate of up to 2,400 characters per second. It is used for validating examination paper and application forms.

LIGHT PEN

The light pen is a digital input device. It is used as a pointing device. With this device the user will point, to do an operation like drawing a line or rotating an object on a CRT. Light pen, in combination with a video screen is used to display or modify images on the screen. This is carried out by placing the tip of the light pen, across the surface of the screen to trace the outline of the image to be displayed. The light pen is an electronic device in the form of a photo diode. The computer detects the location of the pen on the screen surface by counting the number of vertical and horizontal synchronization pulses.

JOYSTICK

The joystick is used as a graphical input device. Like a mouse, it converts a user's graphics moment into changes in voltage. It also used to variable resistors to specify the movements in X and Y directions. Here the movement is caused by pushing a handle which is available on the upper portion of the joystick is similar to the mouse.

DIGITAL CAMERA

A digital camera can be used to take pictures. It can be hooked up to a computer to transfer the pictures from the camera to the computer. Some digital cameras hold a floppy disk, and the floppy disk can be taken out of the camera and put directly into the computer.

MICROPHONE

A microphone is used to record sound. The sound is then saved as a sound file on the computer.

SCANNER

A scanner is used to copy pictures or other things and save them as files on the computer.

CAMERA

Most of cameras like this are used during live conversations. The camera transmits a picture from one computer to another, or can be used to record a short video.	

TRACKBALL

Instead of moving the whole mouse around, the user rolls the trackball only, which is on the top or side.

GLIDE PAD (TOUCH PAD)

Uses a touch sensitive pad for controlling cursor. The user slides finger across the pad and the cursor follows the finger movement. For clicking there are buttons, or you can tap on the pad with a finger. The glide pad is a popular alternate pointing device for laptops.

TOUCH SCREEN

Make selection by just touching the screen.

OUTPUT DEVICES

The device that will give the processed data or information to us is called the output device.

The device, which is used to communicate the processed information to the user, is called output device.

This device translates the processed date from a machine-code form to a form that can be read and used by people.

CATHODE RAY-TUBE (CRT)

The working of CRT is most similar to the working of the TV screen. Here an electronic beam hits a phosphor-coated surface because of which light is emitted. By controlling the electron and its intensity, we can generate character and graphics on the screen. By employing horizontal and vertical deflection circuitry, the electron beam is more across the screen.

The traveling of electron beam from top left to bottom right of the screen, line by line is called scanning. The scanning of electron beam from left to right is called the trace. The scanning of electron beam from right to left is called retrace. A dot or a point on the screen is called pixel. Number of pixels per unit area is called resolution of the monitor. Monitor is of two types

1. Monochrome
2. Color.

In monochrome monitors, the letter appears in gray or white color. Since there is only one colors being used, it is called monochrome (mono-single, chrome -color)

Color monitors can display text and pictures in all colors. Some recently developed monitors have as many shades as your TV at home.

GRAPHICS PLOTTER

Potters are used to produce output containing graphics or diagrams with the availability of multi color plotters they are increasingly used for preparing financial documents, annual reports and engineering drawings.

Plotter may use either pen or inject approach. Pen plotter is available in two forms.

1. Drum type
2. Flat Bed type

In drum plotter, both paper and pen moves, while in the flat bed plotter, the paper is fixed and the pen moves. The injection plotter was jets of ink with different colors and is able to produce large drawings containing many colors.

PRINTERS

The paper copy obtained from a printer is often referred to as the printouts. The output can be obtained from printers are available with variety of printing mechanisms and speeds and varying quality.

Based on the printing style, the printers are classified as

1. Impact Printers
2. Non-Impact Printers.

IMPACT PRINTER

Impact printers are those which have contact between the keys, the ribbon and the paper and there will a impression found on the paper due to the striking of keys.

1. Dot Matrix Printers.
2. Daisy Wheel Printers.
3. Line Printers.

NON – IMPACT PRINTERS

Non Impact printers are those which have no contact between the keys, the ribbon and the paper and there will be no impression found on the paper due to the spraying method of inks.

1. Laser Printers.
2. Inkjet Printers.

DOT MATRIX PRINTER

The matrix printer is another impact printer, which prints one character at a time. The print head compress a matrix of tiny needles, usually seven rows and five columns they are electrically driven and print character in the form of patterns of fine dots. The pattern of dots for each character is dictating by instruction held.

DAISY WHEEL PRINTERS

A daisy wheel printer is also a character printer and derives its name from the shape of the print wheel used in it. The wheel rotates at high speed and when the required character is positioned over the ribbon, a tiny hammer strikes it against the ribbon thus transferring the character symbol to the paper. These are slow printers, with speeds ranging from 17 to 200 characters per second.

LINE PRINTERS

A line printer which prints an entire line at a time instead than printing a character It is the fastest printer. Its speed varies from 300 to 3000 lines per minute. It has been used in data processing applications for many years. They have normally 132 print positions per line. Speed is the obvious advantage of this type of printer. The major disadvantages are noise and relatively poor image quality.

LASER PRINTERS

Laser printer technology has much less mechanism than impact printing, resulting in much higher speeds and quicker operation. A laser beam is directed across the surface of a light sensitive drawn and fired as needed to record an image in the form of a pattern to tiny dots. The image is then transferred to the paper, a page at a time, in the same fashion as a copy machine, using as special toner.

The major advantage of laser printers is

1. Very high speed.
2. Low maintenance required.
3. Low noise level.
4. Excellent graphics capabilities
5. A variety of type size and styles.

INKJET PRINTERS

Inkjet printers work in much the same fashion as dot-matrix printers is that they form images or characters with little dots. The dots are formed not by hammer like pins, but by tiny droplets of ink. These printers almost matches the speed of dot-matrix printers, up to about 270 cps, they produce less noise and produce better latter quality. Some of the printers come with all their color inks in a cartridge, if you want to replace one color, you must replace all the colors. Other color ink-jet printers allow you to replace inks individually. These printers are better choice if you use one color predominantly.

DATA STORAGE DEVICES

The purpose of data storage device is to retain data and programs for future use. It helps the user to store data, information and various softwares for later use.

The popular external storage media used computers are

1. Floppy disks
2. Hard disks
3. Magnetic tapes
4. Optical/compact disc.
5. Blu- rays Disc
6. USB Flash Drive

1. FLOPPY DISKS

Floppy disk is the most common storage medium used on small computers. It is a flexible plastic disk coated with magnetic material and looks like a phonograph record. The disks are permanently enchased in stiff paper jacked for protection and easy handling. An opening is protection and easy handling. An opening is provided in the jacket which facilitates reading and writing of information. Floppy disks are available in three standard sizes namely.

Floppy Disk-5.25” -, 320 KB.
Floppy Disk - 3.5” - 1.44 MB.

2. HARD DISKS

The hard drives are one of the most important of the secondary types of computer data storage device. Data is stored on the hard drives in the digital format on the hard drives. In the initial days of the computers, hard disks were like removable mass storage devices. However, with time they started coming as a part of the central processing unit of the computer. However, now there are external hard drives available as well.

3. MAGNETIC TAPES

Magnetic tapes are plastic types created with magnetic material such as ferrous oxide. By passing this type under a coil where the data is feed in the form of current, we can magnetize the tape. For reading back, the tape is passed under a coil. Because of the magnetic force, a current is induced in the coil, which is then processed by electronic circuits, which converts in into digital data. The records are stored in block forms and are separated by an identification gap called Inter Record Gap or Inter Block Gap [IRG]

4. COMPACT DISKS:[Optical Disks]

4.1.CD-ROM (Compact Disk – Read Only Memory)

The disk manufacturer imprints this optical disk's data. The user cannot erase it, change it, or write on the disk, the user can only 'read' the data.

4.2.DIGITAL VERSATILE DISC (DVD)

The format of storing data in the digital versatile discs (DVD) is similar to that of a compact disc. The difference lies in the storage capacity. There is six times more storage space in the DVD's as compared to the CD's. Like the CD's, DVD's are also used as backup device.

5. Blu-rays Discs

Blu-rays discs are abbreviated as BD, are used for high definition video storage. It is often used by gamers. Blu-ray discs are similar to the CD's and DVD's in their looks. It is the memory space which makes all the difference between the CD's, DVD's and BD's. Blu-ray disc is an optical storage device.

6. USB Flash Drive

The USB flash drive has an integrated Universal Serial Bus (USB) interface. They are non-volatile and data can be rewritten on them. They are very small in size, but have very large memory space. There are some of the USB drives, where 1 million erase and write cycles can be carried out. On the other hand, some of them are known to retain data for as long as 10 years.

HARDWARE AND SOFTWARE

A computer system is a combination of Hardware and Software.

HARDWARE

Hardware refers to the physical components/parts of the computer such as electronic circuits, keyboards and bolts and nuts that goes to make the computers.

The physical equipments and components which we can see, touch and feel in the computer system are called as hardware.

SOFTWARE

Software is the set of instructions given to the computer, which helps the computer to process data with give information. In other words, it is defined as a set of programs given to the computer.

Software is an individual or a group of programs or instructions given to the computer to perform a particular task.

Software is classified into two broad categories

1. System Software.
2. Application Software.

SYSTEM SOFTWARE

System software is a set of programs that manage the resources of a computer system, control and monitor various activities and makes it easier and more efficient to use the computer.

System software consists of general programs that assist the computer in the efficient control, support, development and execution of application programs.

System software is classified into three categories.

1. System Control Software (Program that manage system resources & function).
2. System Support Software (Program that support the execution of various applications).
3. System Development Software (Program that assist system developers in designing and developing information system).

SYSTEM CONTROL SOFTWARE

System control software includes programs that monitor, control, coordinate and manage the resources and functions of a computer system. The most important system control software is operating system.

SYSTEM SUPPORT SOFTWARE

System support software is software that is software that supports, or facilitates, the smooth and efficient operation of a computer these one four major categories of system support software: Utility programs, language translators, database management systems & performance statistics software.

SYSTEM DEVELOPMENT SOFTWARE

System development software helps system developers design and build better systems. An example is Computer – Aided Software Engineering, or CAS, a collection of programs that Assist developers in developing an information system.

APPLICATION SOFTWARE

Application software is programs that work for human related tasks such as payroll, inventory and sales analysis. There are two types of application software:

1. General – purpose software.
2. Application – dedicated software.

GENERAL – PURPOSE SOFTWARE

General purpose software is mass produced for a broad range of common business applications such as word processing graphics, payroll and accounting some popular general purpose software programs are word processing, desktop publishing, accounting software, etc.

APPLICATION – DEDICATED SOFTWARE

Application – Dedicated software includes specialized or customized applications designed for very specific purposes. For example, software designed to cater the delivery of goods and services to a customer's door step is highly specialized.

ROLE OF SOFTWARE

Some of the applications for which the computer is used are

1. Letter writing
2. Publishing
3. Keeping records
4. Performing mathematical calculations
5. Painting and drawing.
6. Telecommunications.
7. Games.

LETTER WRITING

Software that allows us to type any data, letter, report or a story and also allows us to make corrections on the mistakes occurred while typing without wasting paper and the human energy is called a word processor. The typed data is stored in the RAM of the computer and if there is any mistakes occurred, it can be corrected and can be saved. Then the printouts can be taken when we are satisfied by the corrections made.

The most commonly used word processors are MS-WORD, WORD PERFECT, ETC.,

PUBLISHING

Publishing refers to the collection of several pieces of text, combining it with pictures and printing it in an attractive form. The most commonly found published material we read every day is the News Paper. This process is quite lengthy, messy; now software that helps in the collection and arrangement of this is called Desktop Publishing because every work can now be done on the 'top of our desk' (Commonly called as DTP). Some most popular ones are Page Maker & Ventura.

KEEPING RECORDS

All the data that we collect for processing needs to be stored and the information we generate needs to be maintained. The list must be made and kept handy. If we have any new data, it must be added to the list. This is called updating the list. For maintaining a huge data like books in the library of a university, database software is available for maintaining this huge base of data.

Examples of database programs are DBASE, and Oracle.

PERFORMING MATHEMATICAL CALCULATIONS

Computer is very good at handling all types of mathematical problems since it turns everything into numbers. SPREADSHEET is the main software used to do the process and it allows to enter a lot of number and perform many types of calculations, it allows to decide which number can be added, divided or whose percentage has to be calculated. Some common spreadsheets available are EXCEL, LOTUS 1-2-3, etc.,

PAINTING AND DRAWING

Drawing a straight line in computer is very easy. To draw a straight line on the computer all you have to do is make on the screen where the line should start and end. The software available for making drawings on the computer allows the artist to

Create & edit freehand drawings.
Refine parts of those drawings.
Combine 2 different drawings to produce a new one.

Fill up a drawing white colors.
Change the size of those drawings are per the user's requirements.

The popular drawing packages are Paint, Paint brush, etc.,

TELECOMMUNICATIONS

The term 'telecommunication' refers to communication done over long distances. Telephones help us to talk over long distances and even across continents cable televisions allows us to watch the programs of counters across the oceans. All this is possible due to telecommunications. Specific software is now available that helps computers communicate with each other matter where they are in the world.

GAMES

Playing games on the computer is one of the common uses of the computer games have gone a long way in making the computer popular. It is one software that thrills users of all ages because of the variety of software that is available to the users.

READYMADE SOFTWARE

The software which is written previously or programmed previously for general purpose and sold in shops is called readymade software.

HOUSE KEEPING

Take care or maintaining the parts and software's are apart of house keeping. To make the most out of any machine it has to be.

Use properly.
The parts have to be kept in good condition.
Any break-downs have to be repaired immediately.
Records of all the break-downs have to be kept regularly.
Sufficient training on how to use the machine has to be imparted to the users.

This process is often called as house keeping. House keeping in computers refers to the maintaining of the computer hardware, the computer software and the data.

MAINTAINING COMPUTER HARDWARE

The parts of the computer that are most likely to get affected by repeated use are.

DISK DRIVES

The disk drives need to be cleared from time to time using the tools that are available.

PRINTER

Printer creates a lot of paper dust. This needs to be cleaned once in every 15 day depending on the usage.

HARD DISK

The computer should not be switched off when a program is working.

FLOPPY DISK

The computer should never be switched off without removing the diskette from the drive. Doing this will cause the data on the disk to be lost or will damage the disk all-tougher.

MOUSE

The mouse has to be cleaned every month. It is best to use the mouse on the firm and smooth pad.

If any error occurs on the computer, it must be communicated to the engineer keeping the record of the exact nature of the breakdown.

MAINTAINING COMPUTER SOFTWARE

Software or programs too have to be looked after all the programs or software should be copied on a set of disks to avoid problems in case the original copy on the hard disk gets erased by mistake. This procedure is known as taking a backup.

MAINTAINING DATA

For example, typing a huge number of pages of data, if the data typed get lost by some reason. All the energy, time and efforts spent for typing the data will be waste.

Back up are nothing but exact copied of the data that is stored on hard disk. This copy is taken in floppy disks, magnetic tapes or CD.

The various reasons, which could lead to data loss
Power failure
Surges in power (fluctuation in voltages)
Computer breakdowns

Backup is the most important work that needs to be carried out at the end of working time on the computer. This process is also called the day and procedure.

UNIT II

The Computer Internals

The computer is a result of many small parts which works each other in smooth coordination. Those are:-

1. Bus, Port, Cards and Motherboard.
2. Memory
3. Hard disk drive
4. Floppy disk drive
5. Power supply unit
6. Computer clock

Bus, Port, Cards and Motherboard

Millions of data and instructions are speeding along, through the components of your computer. This is happening even while your computer seems to be idle. Like a busy highway which has many policeman regulating heavy traffic, the input/output work in a computer is controlled by controllers which work with the processor to make sure that there is no clash of data.

The bus in a computer system transfers the data and controls around the internal parts of a computer system. There are several types of buses that facilitate transfer of data. One is the data bus. The bus which controls all the data flow is the control bus. A bus is not a single part of the computer. It is actually a complex group of circuits. These circuits are present all over the motherboard.

The microchips that are seen inside the computer are also called buses. These microchips allow the computer to include more ports. For this purpose, they have slots in them in which cards can be included. Hence this bus which allows the expansion of the computer is called the expansion bus.

While the transfer of data takes place through the bus, the entry and exit point of these buses is called ports. Some ports allow only a serious of data to pass through. Such ports are called serial ports. 'serial' refers to the fact that the entry of data bits happens in a line one after the other. Naturally, the time that will be taken for data transferred from one place to another will be more because only one bit is allowed to enter or exit at any point of time.

Serial port is used mostly with the mouse. It is also sometimes called RS-232.

Some ports allow the passage of more than one bit i.e., 8 bits at a time. Such ports are called parallel ports. Transfer of data is much faster than the serial port. These ports can transfer the entire word 'computer' from one part of the computer to another part. These ports are used with the printers. These are some times called as printer ports.

Memory

RAM chips are used in group of 9, each holding the same number of bits. RAM is usually solid and installed to a standard adding board called Single In-Line Memory Module or SIMM.

Hard disk drive

This is the work house of the computer. This can be thought of as a collection of many floppies or gramophone record stacked on each other without all of them actually touching each other. These are caked platters. The gap between these platters is as thin as a human hair. The data stored on these platters may actually be the result of years and years of work. The platters plate at a very high speed all the time, when the computer is on. Whenever any data is read or written is done on read and write heads. The full set of these platters and the read and write heads is enclosed a vacuumed container to protect it from dust and electrical shocks.

Floppy disk drive

A floppy disk allows information to be changed between two computers. The floppy is actually enclosed in a plastic jacket that protects it from heat, dust and electrical shocks. When a floppy is imposed to any of the above the following two things can happen.

1. The floppy can be physically damaged, which can lead to loss of the data which is on the floppy.
2. The floppy may remain intact, but there may still be a data loss.

One way to avid the loss of data in the floppy is to label the floppy correctly as a backup floppy. This would certainly avoid such an accident. Another more effective way would be to write protect the floppy, i.e. protect it from being written on.

Power supply unit

The power supply unit checks the quality of the power supply and ensures that the right amount of power gets supplied to the various parts of the computer.

Computer clock

All computers have a real clock built inside them which is attached to the motherboard. This clock works on a separate battery source. Therefore it remains working even when the computer's power supply is switched off.

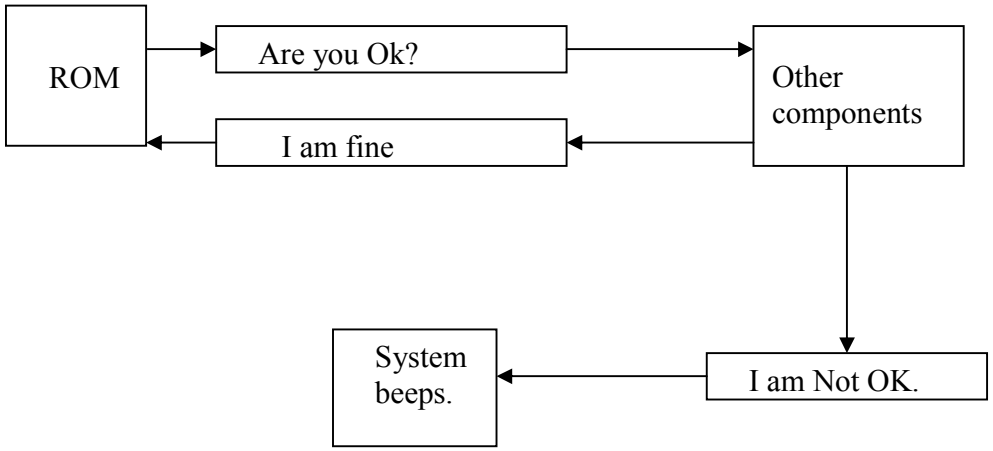
Typical pc configuration

Configuration refers to the manner in which the hardware and software of an information processing system are organized and interconnected. When a computer is bought, it has to be configured, configuring a computer is a process that describes the devices and optional features and programs that the system will have.

The specifications for these will keep changing because technology is advancing at a very rapid pace.

Booting a computer

When you switch on a computer, it goes through a complex set of instructions. This is to ensure that all its components are working properly and if something is found wrong, it is able to give warning to the user. This is the first step of a very complex process called booting.



Power-On Self Test

As soon as you turn on a computer, its central processing unit (CPU) begins to carry out the programming instructions contained in the basic input/output system (BIOS). The first set of startup instructions is the power-on self test (POST). The POST is responsible for the following system and diagnostic functions:

- Performs initial hardware checks, such as determining the amount of memory present
- Verifies that the devices needed to start an operating system, such as a hard disk, are present

- Retrieves system configuration settings from nonvolatile complementary metal-oxide semiconductor (CMOS) memory, which is located on the motherboard

The contents of CMOS memory remain even after you shut down the computer. Examples of hardware settings stored in CMOS memory include boot order and Plug and Play information.

After the motherboard POST completes, add-on adapters that have their own firmware (for example, video and hard drive controllers) carry out internal diagnostic tests.

To access and change system and peripheral firmware settings, consult the system documentation provided by the manufacturer.

Virus, Anti-Virus, Vaccines

Virus is nothing but a program written using one of the computer languages, to cause damage to data, the information or the hardware of the computer. . Like a biological virus, a computer virus also keeps on spreading. Generally, viruses are memory resident. While in memory, it keeps infecting on other program files and keeps on spreading through disks or networks. In other words it is destructive software. A virus can replicate itself very easily. This is because along with the instructions it has for destroying data; it also has instructions for copying itself on to the memory of the computer. It also has instructions to copy itself in any floppy disk drive. It can multiply itself or make several copies of itself.

The most common damage that is done by virus is that it

- Erase data from the hard disk.
- Increase the file size of command file by several 1000 bytes.
- Affects the hardware components.

Types of Viruses

Different types of viruses are:

- Boot Sector virus
- File Virus (EXE type and COM type)
- Directory Virus
- Macro Viruses.

Programs that are used for preventing virus are called anti-virus software and programs that are used for removing the virus are called vaccines.

Antivirus

Antivirus or **anti-virus software** is used to prevent, detect, and remove malware, including but not limited to computer viruses, computer worm, trojan horses, spyware and adware. This page talks about the software used for the prevention and removal of such threats, rather than computer security implemented by software methods. Some of the Antivirus softwares are

- Avast! Free Antivirus
- AVG Anti-Virus
- Avira AntiVir Premium
- Symantec Norton
- Trend Micro Internet Security

Vaccines

To write a vaccine for a particular virus, we should know how the virus behaves. We can get a sequence of virus code (after analyzing the code of virus), a few bytes we call as virus signature. So a virus scanner searches for this signature in a file, the presence of which indicates that file is infected. After analyzing the virus code, we could know that where it is infecting, like at the bottom of the target program, or at the beginning. Then we could delete that much number of bytes as the virus length from the file.

Versions of software

Software is the result of many people putting their heads together to chum out a product that will cater to the needs of a wide range of users. Many mothers are spent writing program, testing them correcting them. After all the programs have been written, tested corrected, the software is said to be ready. This ready-made software is sold in the market to users who range from computer professionals, to other professionals who use the computer as a tool. All these users have to be taught how to work the software. No matter how user friendly the software is, there is always the need to refer to some thing that will tell the user how to use the software.

Ready-made software comes with a user's manual. All manuals however speak only about the product. There is no information on the knowledge that may be a pre-request for using that software.

All software keeps getting improvised by the people who develop it. This happens because only extensive use by the users do all the mistakes in the program come to light. After the errors get notified they are rectified and a new version of the software gets released. For example when windows was released it was just called windows. Then there were different versions called windows 3.1, windows 3.11 and Windows 95. Each release comes with more and more improvisations.

A lot of people spend months writing programs to create software. Software also gets copied and distributed in the market illegally and at rates which are one tenth of the original price. This is called software piracy.

Introduction to operating system

The hardware consists of the Central Processing Unit, Input Unit, Output devices and Memory parts of the computer hardware cannot produce any results id there is no interaction between any other machines, the computer system also requires a force or an intermediate operator interact between the hardware and the user.

A program is a task given to a computer. It contains step-by-step instructions to perform a simple example of a program is a stepwise procedure to find the average of some numbers intermediate force is required which interprets them instructions of the program to the hardware data and instructions have to be read and executed to complete a task.

Software is a collection of programs that gives instructions to the hardware and vice versa in user interaction with the hardware and provides different facilities to the user to complete them.

The system software makes the Central Processing unit of the computer coordinate with parts of the computer system.

The operating system is responsible for carrying out the following tasks

It loads itself in the memory:- The process of loading the operating system into the memory is known as booting. Only if it is present in the memory can it allow the user to interact with the hardware.

It loads the user program in the memory:- The user may have written some instructions to sole the problem of adding two numbers. These stepwise instructions, called a program, are loaded in some part of the memory so that the CPU can access these instructions.

The data required by the program is also loaded in the memory:- The data is entered by the user through the input device. The operating system places this data in the memory. Each location in the memory has a specific address. The operating system identifies the data entered by the user as a memory address. This memory address is a number. The operating system keeps a track of these memory locations where data and programs have been stored.

Interprets the program instructions one at a time:- The operating system provides interpretation of each instruction to the CPU. The CPU adds the two numbers by reading the numbers from the memory and storing the result in some other location. The user may refer to this location with any name like RESULT. The operating system refers to it as a memory location like 8000.

Gives instruction to display the result on the screen:- The operating system tells the CPU to read the memory location 8000 and display the contents. The operating system manages the resources like memory, input device, output device like the monitor.

The operating system is also responsible for reading data from the storage devices, where a user has stored his data or program. Just like the operating system keeps track of the location in memory where data and programs are loaded, it also keeps track of the location where a program is stored in a storage device.

The functions of the operating system as follows

1. It loads itself in the computer's memory.
2. It loads user and application programs in the computer's memory.
3. It load the data associated with the application programs in the computer's memory.
4. It interprets application program instruction one at a time.
5. It activates the storage devices attached to the computer system in order to transfer the data from the computer's memory to the storage device.
6. It read data from the storage device and transfers it to the computer's memory for use by the application programs.
7. It provides the means for the proper use of the resources like memory, input and output devices.
8. It manages the various resources and allocates them to various users as and when required.
9. It coordinates flow of data between various application programs and users.
10. It allows the user to interact with the hardware to obtain results.

Classification of operating systems

There are many operating system that have been developed to simplify the manner in which the user interacts with the computer. Mainly the operating system can be classified as follows.

1. Real-Time Operating System
2. Single- User, Single Task Operating System
3. Single-User, Multi-Tasking Operating System
4. Multi-user Operating System.

Real -Time Operating System (RTOS)

Real-time operating systems are used to control machinery, scientific instruments and industrial systems. An RTOS typically has very little user-interface capability, and no end-user utilities. A very important part of an RTOS is managing the resources of the computer so that a particular operation executes in precisely the same amount of time every time it occurs.

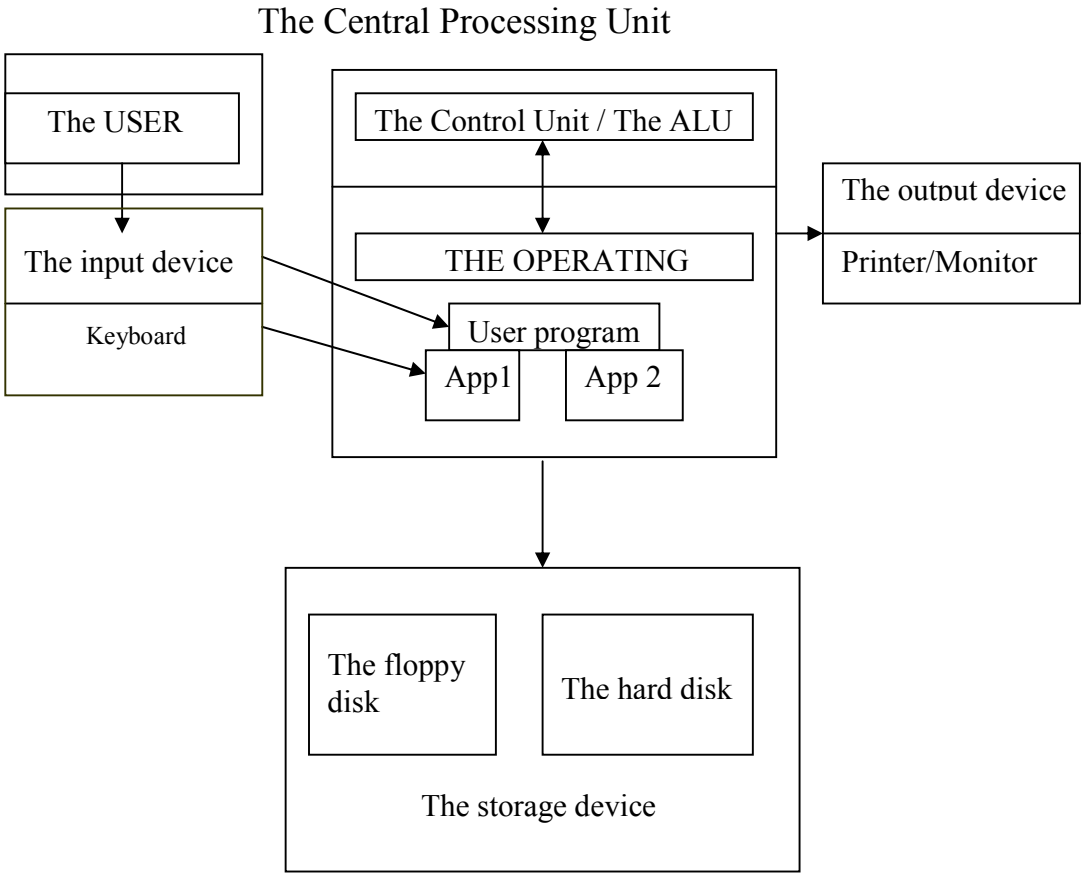
Single-user Single -Task system

A system having a single CPU and one set of I/O devices is referred to as a personal computer (PC). Since there is only one job or program that is loaded in memory for execution there is only one user at a time of working on the system. Hence these systems are called single user systems. These machines are also sometimes termed as stand alone machines. These are efficient and user-friendly systems. They increase the working speed and efficiency of an organization. This is possible due to easy operational and interaction facilities provided by the operating system.

MS-DOS (Microsoft Disk Operating System) is one of the popular operating system for single user machines like the IBM-OC.

Single-user Multi -Task system

This is the type of operating system most people use on their desktop and laptop computers today. Windows 98 and the MacOs are both examples of an operating system that will let a single user have several programs in operation at the same time.



Multi-user systems

As the number of computer system users in the technical and commercial world increased, there was a need to develop an operating system, which would manage more than one user using the computer system at the same time.

These users can use either different data or application software/user programs for their tasks or the same.

The advantages of multi user systems are

1. They are systems that are used by more than one user.
2. They allow the computer system of one user in interact with the computer system of user. In other words the computers are connected to each other.
3. The resources available with the computer system can be used by more thane one user.
4. The system also has the advantages of executing one or more tasks at a time.
   The multiple users can be serviced by one operating system there is no requirement of keeping several copies of the data. Popular multi-user operating systems are UNIX and Windows NT.

Basic tasks of Operating System

When the power to a computer is turned on, the first program that runs is usually a set of instructions kept in the computer's read-only memory that examines the system hardware to make sure everything is functioning properly. This Power-On Self Test (POST) checks the CPU, memory, and basic input-output systems (BIOS) for errors and stores the result in a special memory location. Once the post has successfully completed, the software loaded in ROM will begin to activate the computer's disk drives. The bootstrap loader is a small program that has a single function. It loads the operating system into memory and allows it to begin operation.

The operating system's tasks, in the most general sense are

- Processor management
- Memory and Storage management
- Device management
- Application interface
- User interface.

Basics of MS-DOS

MS-DOS refers to Microsoft Disk Operating System, which gives all its resources to a single user and hence it is known as a single user operating system.

Microsoft DOS is a command line user interface. MS-DOS 1.0 was released in 1981 for IBM computers and the latest version of MS-DOS is 6.22, which was released in 1994.

The commands in the MS-DOS can be categorized as

1. Internal commands
2. External commands.

Internal commands are those commands which are readily available for the user after the installation of the DOS is over and there is no need for an external agency to help to execute this command.

External commands are those which do need the help of an external agency to perform the required function. These external commands can be executed by inserting the floppy disk containing these commands into our computer.

List of some Internal commands

Command	Description	Function.
Dir		
Dir/p, Dir/w	Directory	To list down the entire directory of files.
MD	Make Directory	To create a directory.
RD	Remove Directory	To erase a directory.
TYPE	Type	To read a file.
REN	Rename	To change a file name.
COPY	Copy	To copy a file from one location to another location.
DEL	Delete	To delete a file.
CLS	Clear Screen	To clear the screen.

List of some External commands

Command	Description	Function.
FORMAT	Disk Format	To format a disk.
FORMAT/V	Disk Format and labeling	To format a disk and label it.
LABEL	Label the disk	To name the disk.
DISK COPY	Disk copy	To copy the entire disk (inclusive of the hidden files).
CHKDSK	Check disk	To find out free available space of a disk in terms of byte.

Basics of MS-Windows

The most popular operating system among the users is MS-WINDOW. We have several versions in windows. The popular and the latest edition of windows is Windows XP professional. It is really versatile and user friendly and it is used in most offices, business concerns, educational institutions, banks and so on. Now it is used on a LAN based networked environment. It contains new utilities and has improved performance and supports the latest hardware technologies. Almost all sorts of tasks can be performed with windows very easily as they used icon based applications. That is from the desk top, one can operate the computer and apply according to their needs.

Advantages of Windows over DOS

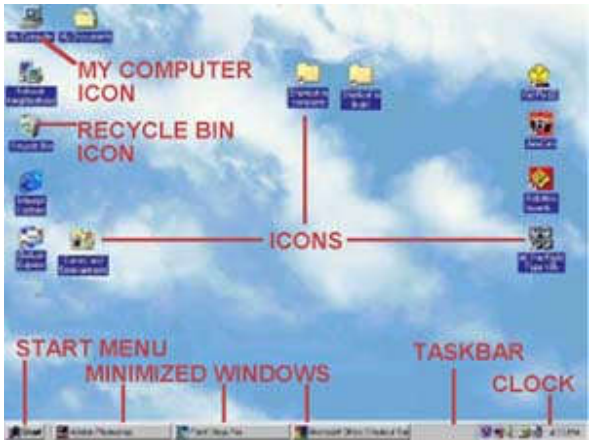
The following are the advantages of using WINDOWS over DOS.

1. The very important and significant advantage of using WINDOWS is its Graphical User Interface (GUI). MS DOS uses command line interface. In DOS you have to remember the commands and type them without mistakes. A simple spelling mistake or missed space will result in an error. But in windows with its GUI display all the information on the screen in a form of ICON. All you have to do is to point and select the icon and thereby select the required application by using the mouse.
2. WINDOWS allows you to use several utilities like calculator, paint, WordPad, internet explorer, clipart and so on.
3. There are a wide variety of other software applications that can be used on windows.
4. WINDOWS allows you to run multiple applications at the same time.
5. It also allows you to easily switch between the applications and also can transfer data between them.
6. WINDOWS has online help facility to guide you and through which one can find information on a topic based on category, index and search using keywords or phases.
7. It has an excellent internet interface. You can easily access and browse through web pages from anywhere on your computer.
8. It is used to play interactive games using joy stick.
9. It is used to play music, seeing videos and also run some multimedia applications.

Desktop and Desktop Icons

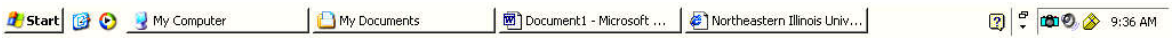
Desktop

When your computer is booted up and ready to use, the screen you see is called the **desktop**. It is the background for all programs and contains the commands needed for accessing those programs. As you move the mouse around with your hand, you see the mouse pointer move accordingly on the computer desktop. The icons on the desktop correspond to commonly used programs found in the computer. These icons are actually shortcuts to the programs themselves and double-clicking the icons will launch the programs automatically.



Taskbar

All open windows will be accessible via the **Taskbar**. You can select them by clicking on the button that they formed when they were first opened.



Time and date are found on the right-hand side of the **Taskbar** and can be changed by double clicking on the numbers that display the time.

Icons

Another important graphic feature that you will find on a desktop is an **icon**. Icons are small pictures that are linked to programs. Double-clicking on the icon runs the program or accesses the file and right-clicking accesses a menu offering options, actions and properties. Certain icons are a permanent fixture on the desktop. The user can put other icons on the desktop that will quickly access programs or files - like a shortcut. Icons can be moved around on the desktop by clicking and dragging them.

The windows desktop have some common icons are

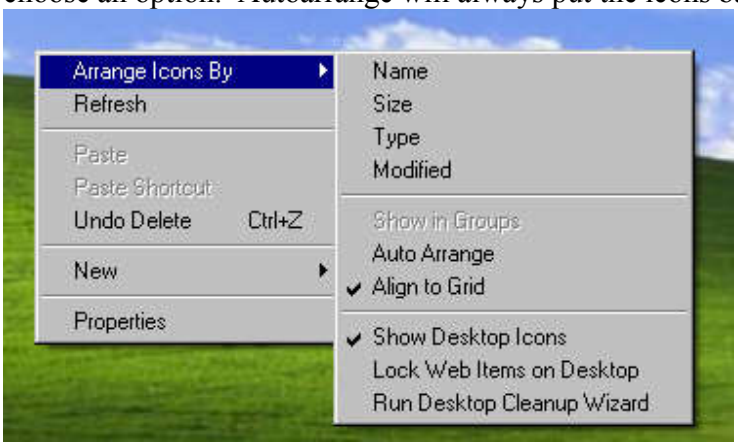
The **My Computer** icon will show a listing of the computer's disk drives, network drives, and system files/folders. Local files or folders are found on the computer's drives whereas remote files or folders are found on the network drives. Double-clicking on the drive letter will open the contents of that drive.

The **My Documents** folder is the default folder where most of the Windows XP programs will save your files.

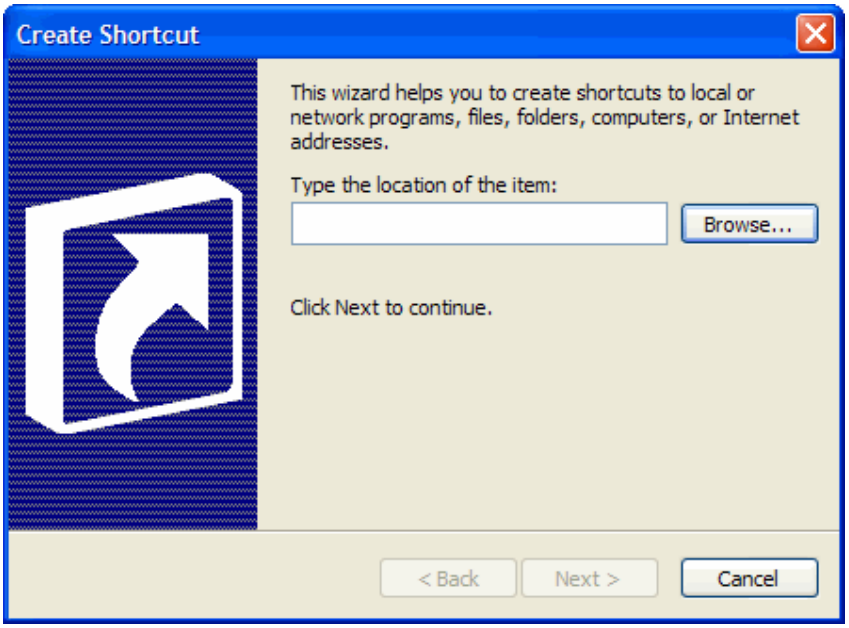
The **My Network Places** icon shows the computer name list which are connected to same network.

Recycle Bin
When you delete a file, Windows XP will place the file into the recycle bin (instead of deleting it altogether), this allows you to **restore** the file in case you deleted it by mistake.

Re-aranging icons
You can move an icon by clicking on it with the mouse and dragging it. You can re-arrange icons by right-clicking on an empty part of the desktop, and choosing 'Arrange Icons by', then choose an option. Autoarrange will always put the icons back if they get dragged out of place.



Creating a desktop shortcut
Right click on the **desktop**, choose **New**, then **Shortcut**. Click on the **Browse** button to choose the application/file for which you want the shortcut. After Next you can choose the name for it. Finish will create it.



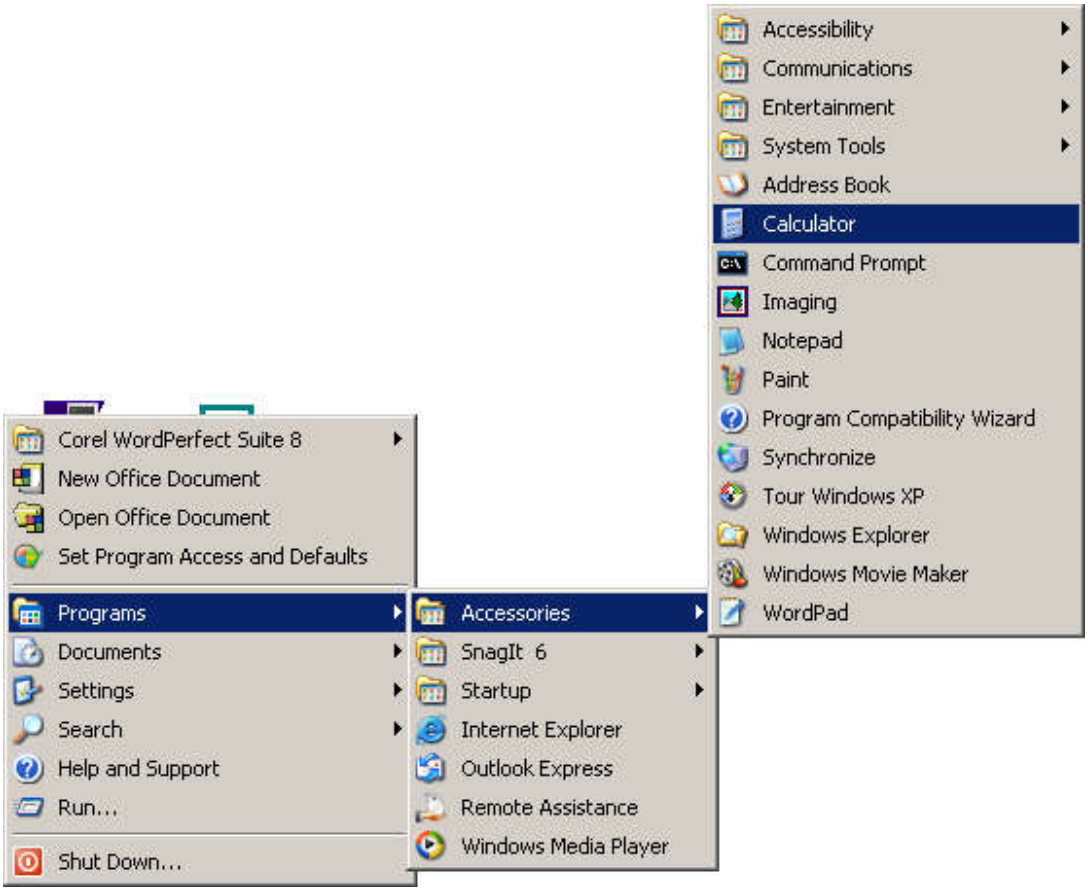
Alternatively, you can **drag an application on to the desktop** from the **Start menu** for instance, or you can right click on an application link, choose **Send to**, then **Desktop (create shortcut)**.

Starting Programs

1. Using Start menu

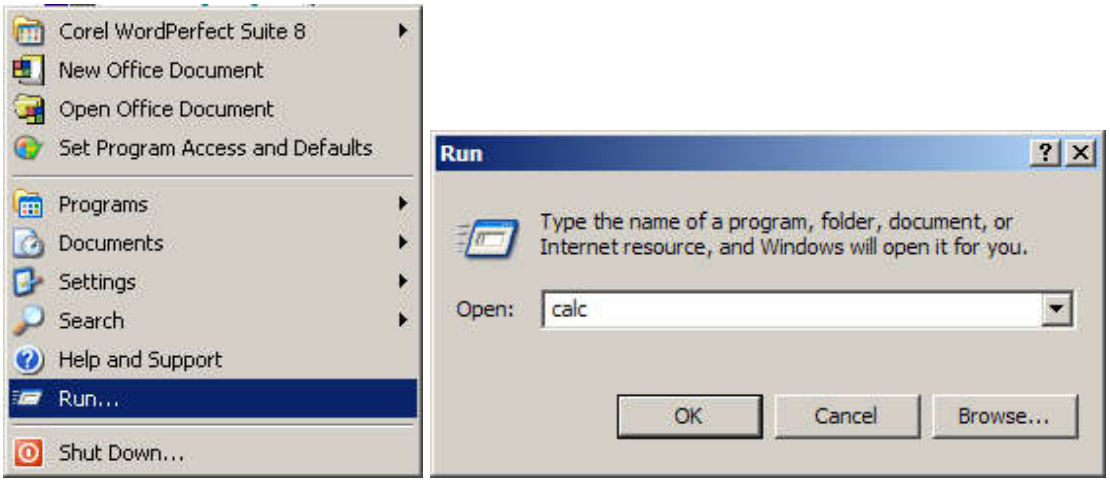
The **Start Menu** contains shortcuts to the most commonly used programs that are found on your computer. It shows the all software programs that have already installed in your computer.

Clicking **Start -> Programs -> Accessories -> Calculator** will launch the calculator program



2. Using RUN Command

If you know the name of the program you want to open, go to **Start -> Run** and type in the program's name. For example, if you want to open the calculator program, go to **Start -> Run** and type in the name **calc**. Click the **OK** button.



3. Create Shortcut

Right click on free space on **Desktop,** select **NEW** and Select **Shortcut** option . Then the Create Shortcut dialog box shows. In the dialog box type the file name with path or click Browse button and select the file from available location and click the Finish button. The new icon is created on desktop with file name. Double click the created icon to open the file.

Windows components

Normally, each window has following components.

1. **Title Bar →** shows the Title or name of application programs at left most corner and Control buttons which are used to maximize or minimize, restore and close operations.
2. **Menu Bar →** shows the menu commands that are used to do users work for the application programs.
3. **Tool Bar →** shows icons that is used to run commands which user click the icons

Every window have a series of buttons on the top right corner of the **Title Bar** to manage the window size.

-Close Button – Close the current application window

- Restore Button – Minimize the window and store in the **Task Bar**

- Maximize Button – Switch over the window size from smaller size into full screen size or maxmimum size.

- Minimize Button – Switch over the window from full size into smaller window size

Browsing and Managing Windows Explorer

Opening Windows Explorer

Windows **Explorer** is part of all Windows operating systems (Windows 95, 98, 2000, Me, XP and Vista) and is an easy way to manipulate files and view the contents of your computer. Using Windows Explorer you can examine files, create folders and organize files within folders, and copy and move files between different locations. These abilities will enable you to perform the basic housekeeping tasks needed to organize your work on a PC running any Windows Operating system (Windows 95, 98, Me, 2000, XP, or Vista).

To Open Windows Explorer

There are a few ways to open Windows Explorer, here are 3 different methods:

Method 1 - Click on the **START** button, hover your mouse over the **All Programs** and then hover over **Accessories**, finally click on **Windows Explorer**.

Method 2 - click the **START** button, click **run**, type **explorer** into the box and press enter.

Method 3 - open **My Computer** and click on the **Folders** button on the toolbar.

Navigating through your drives and folders

When you have opened Windows Explorer (or opened my computer and then clicked the folders button) you will see something similar to that shown in **fig 1.1** below:

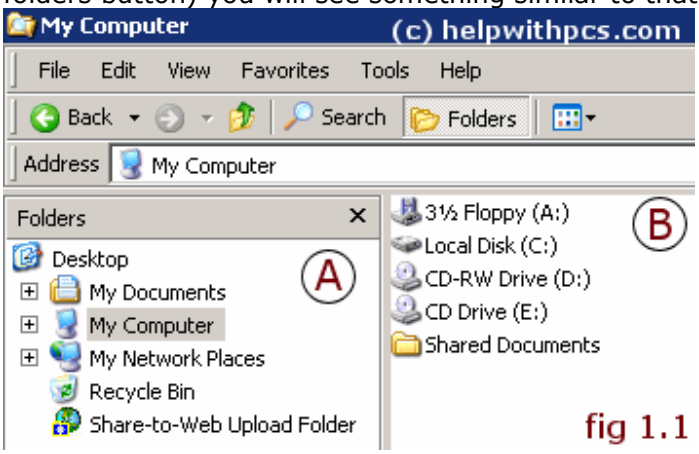
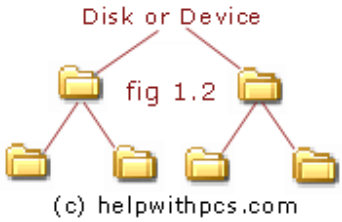


fig 1.1

You can see Windows Explorer is split into two parts. The left hand side which is called the **folders list** (**A** in fig 1.1), and the right hand side (**B** in fig 1.1) which is where you will be managing your files and folders.

First let's concentrate on the **folders list**, you may have noticed the small plus sign (**+**) next to some of the icons, these indicate that the drive/folder has more folders inside it.

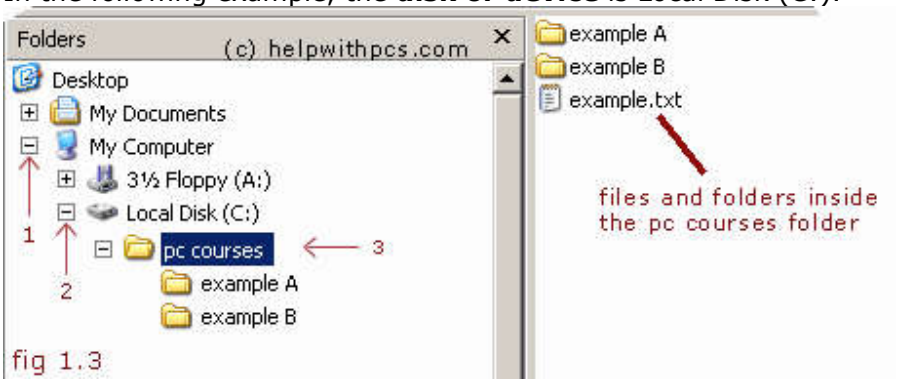
The file system of your PC is organised in a hierarchical way, below is an example:



The **Disk or Device** is the upper hierarchical level and is known as the **root**.

Notice how the folders are organised, this type of structure can facilitate a very organised PC!

In the following example, the **disk or device** is Local Disk (C:).



In fig **1.3** above we have navigated to the **pc course** folder on Local Disk (C:).

1. First we clicked on the small arrow next to the **My Computer** icon
2. then clicking the arrow next to **Local Disk (C:)**
3. and finally left clicking on the **pc courses** folder in the left pane.

Now that we have navigated to it, we could make some changes to our **pc courses** folder.

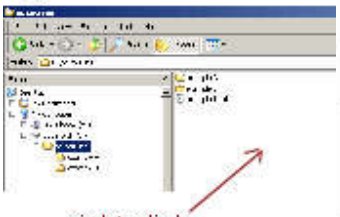
Creating a new folder or folders

Open Windows Explorer, navigate to the drive or folder in which you want to create your new folder. For our example we are going to create a new folder in our **pc courses** folder.

The steps are:

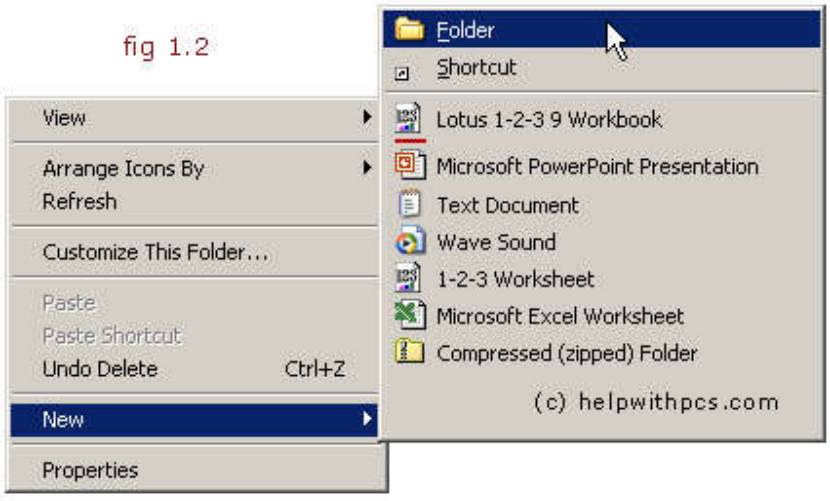
1. **right click** anywhere in the white space (**fig 1.1**) and hover the mouse over **new**
2. then click on **folder** from the sub-menu that appears as shown in **fig 1.2** below.

fig 1.1



(c) helpwithpcs.com

fig 1.2



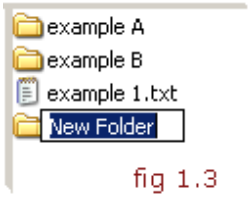


fig 1.3

You will then be prompted to name the folder (as shown in **fig 1.3** on the left), simply type in the name and then press the enter (return) key. We are going to name our folder **example C**.

Try and be as descriptive as you can when naming folders, and avoid using any punctuation symbols in the names.

Copying, Deleting, and Renaming Files and Folders

All of these tasks are straight forward and can be achieved using the same method.

First, navigate to the folder where the file or folder is stored, then right click on the file/folder of interest. You will be presented with a menu similar to that shown in **fig 1.4**.

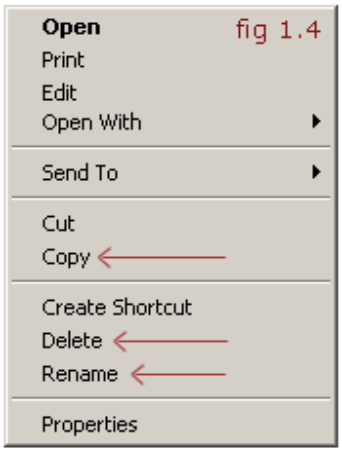


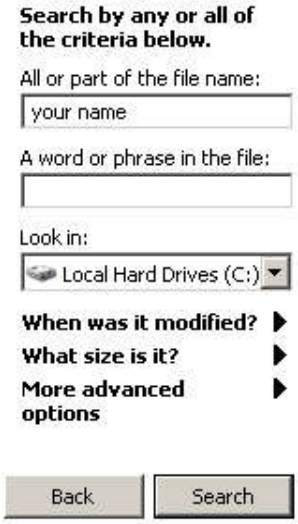
fig 1.4

Your menu may vary, we have pointed out 3 options:

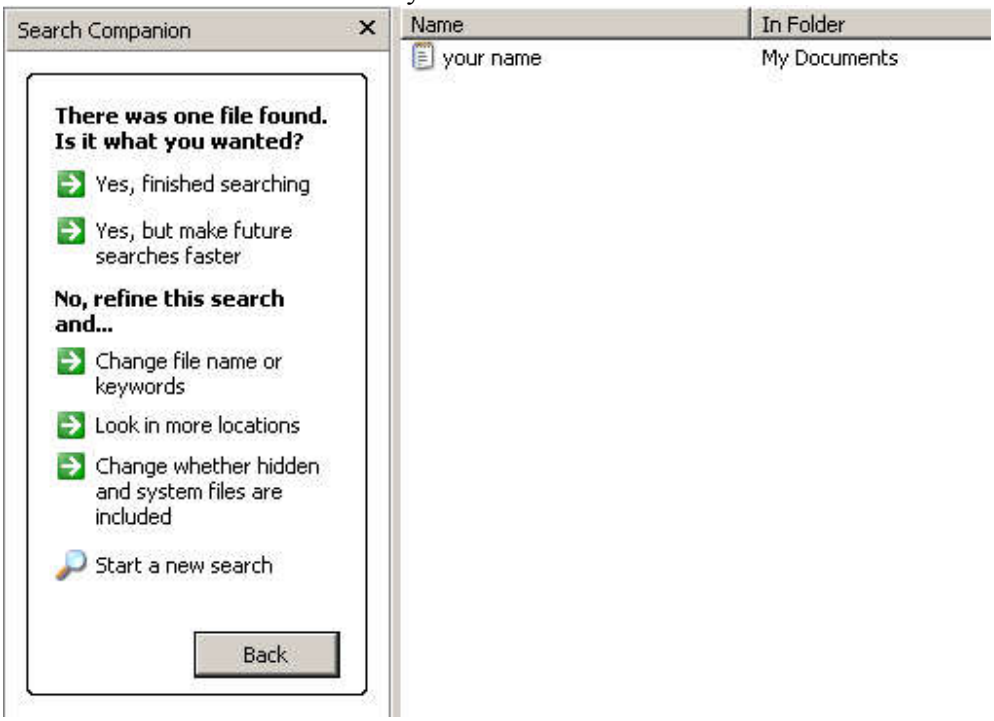
1. **copy** - clicking on this option will copy the file or folder into (the clipboard) memory. You can then navigate to the folder where you want to copy the file to, right click (as if making a new folder) in the right hand pane and select **paste** from the menu that appears.
2. **delete** - this option will delete the file or folder (send it to the **recycle bin**), Windows XP will prompt you for confirmation first.
3. **rename** - this option allows you to rename the file or folder, simply type in the new name and press the enter (return) key.

Searching Files or Folders

To search for the file that was just restored, Click the **Start Menu b**utton, and select **Search** then the search window will be open.



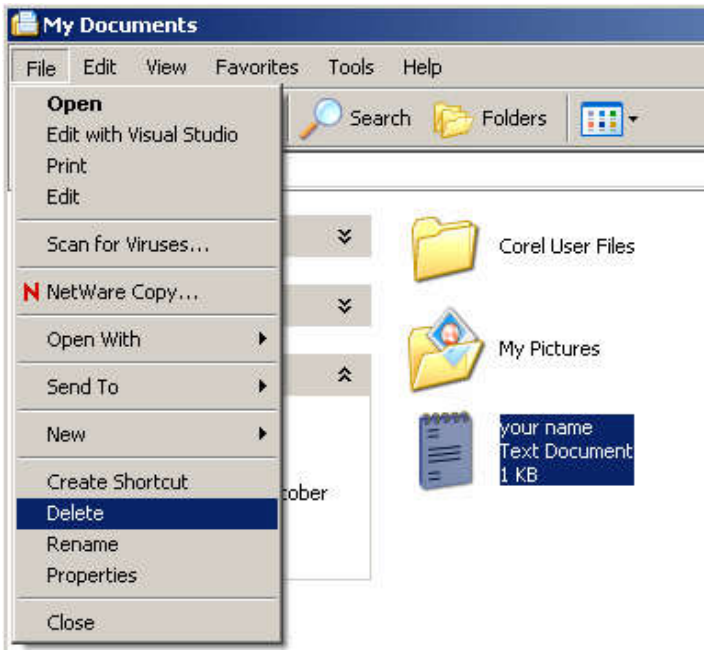
There are various ways to search for files and folders. You are able to search by file name or words found in the file you are looking for. You can search specific areas of your hard drive or for files that were created or modified on a certain date. Test some different ways of searching to see which one works best for you.



Deleting a File or Folder

First we select the single file or Multiple files or folder that we want to delete. Delete operation is performed in three ways.

1. From the **Menu Bar**, select **File -> Delete**
2. Press **Delete** button from Key board
3. Open **Windows Explorer,** Drag the file from its location and Drop in **Recycle Bin** folder



Click the **Yes** button.

Task bar Settings

At any given time, you might have several programs, folders, and documents open on your desktop. The short name for "anything that's currently open on your desktop" is *task*. That is, we can refer to each open item on your desktop -- no matter what that item is, as a "task", short for "task-in-progress". The Windows taskbar, which is roughly centered across the bottom of your screen, as in Figure 1.

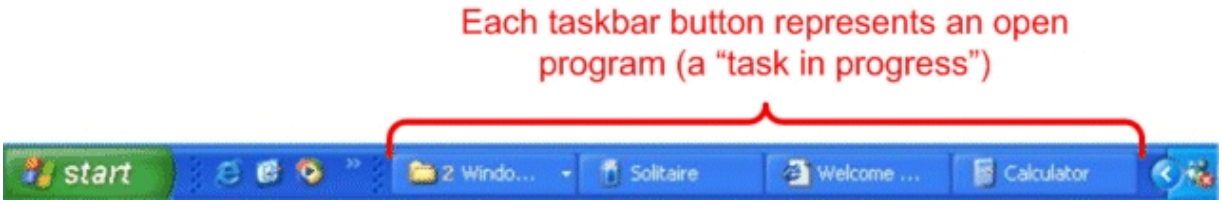


Figure 1

Here are some things you can do with the taskbar along those lines:

- You can also click a task's taskbar button to make it invisible the application window (so it's not taking up any space on the desktop), then click that same button again to make it visible again.
- You can also *close* any open task (thereby removing it from the desktop and putting it back in the filing cabinet) by right-clicking its taskbar button and choosing Close.

Setting Taskbar Options

Like everything else in Windows XP, you can customize the taskbar to your liking. To do so, right-click the Start button and choose Properties. In the Taskbar and Start Menu Properties dialog box that opens, click on the Taskbar tab. The options shown in Figure 3 appear. Your options are summarized below:

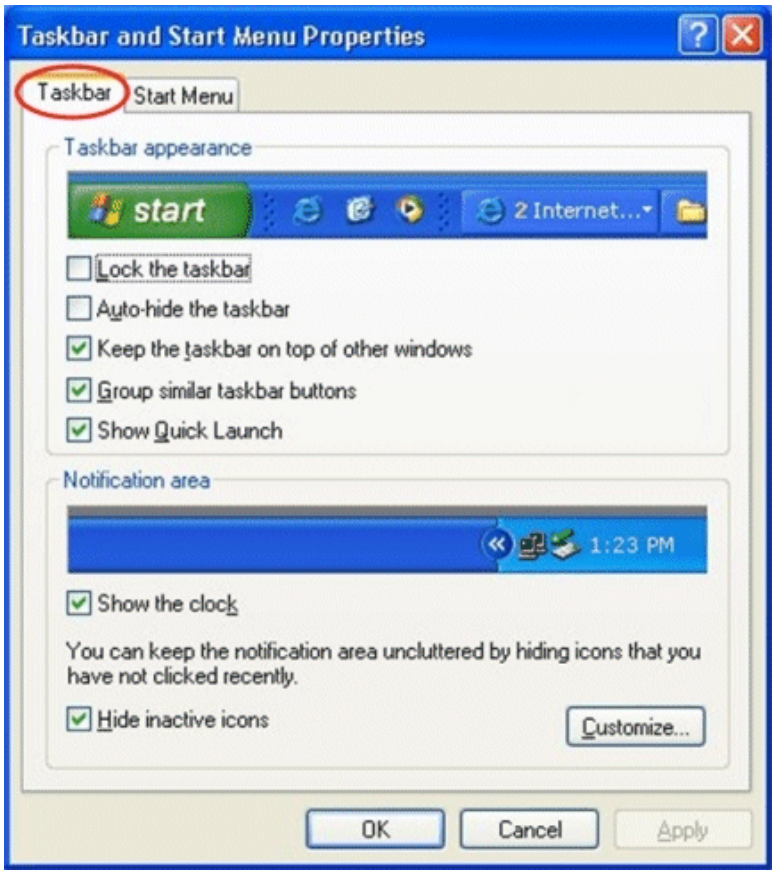


Figure 3

- **Lock the taskbar**: If selected, hides all sizing handles on the taskbar so you can't accidentally move or resize it (as discussed below).
- **Auto-hide the taskbar**: If you select this option, the taskbar will be hidden most of the time so as to not take up any space on the screen. To make it visible, move the mouse pointer to the very bottom of your screen.
- **Keep the taskbar on top of other windows**: If selected, makes sure the taskbar is visible at all times, even when large maximized program windows are covering the rest of the screen.
- **Group similar taskbar buttons**: If selected, allows multiple taskbar buttons to collapse into a single button so the buttons don't become too small to see on the taskbar.
- **Show Quick Launch**: If selected, displayed the optional Quick Launch toolbar to the right of the Start button.

Moving and Sizing the Taskbar

Windows XP is very flexible. You can size, color, and position anything to your liking. But you can only move and size things on the taskbar when the taskbar is unlocked. But just so you know, when the taskbar is unlocked, you can change its height as follows:

1. Move the mouse pointer to the thin bar that appears along the top strip of the taskbar, until the mouse pointer turns to a two-headed arrow.
2. Hold down the left mouse button and drag that top edge up or down until the taskbar is the width you want, then release the mouse button.

UNIT – III - Introduction to Internet

Network

If two or more computers are said to be interconnected then they are able to exchange information and resources like printer with each other. The three types of Networks are

1. *Local Area Network (LAN)* - Computers are connected with in a building or campus up to a few kilometers.100 m for buildings, 1 km for campus, 10 m for room.
2. *Metropolitan Area Network (MAN)* - A network contained in the distance of a city or roughly 30 miles.
3. Wide Area Network (WAN) - Network with a large geographical area like a country or continent.

What is Internet?

The internet is a world wide collection of computer networks connecting academic governmental, commercial and organizational sites. It provides access to communication services and Information resources to million of users around the globe. One of the important facts about the internet is that nobody really owns it. It is global collection of networks. The internet society is a non profit group, the formation of policies and protocol that define how we use and interact with the internet. Every computer that is connected to the internet is part of a network even the one in your home.

Internet is the world's largest computer network, the network of networks, scattered all over the world

History of Internet

In 1960, Advanced Research Project Agency(ARPA) introduced the ARPAnet which is the first concept of Internet. ARPAnet built a mega-network in the United States connecting Department of Defense, the University of California at Los Angles (UCLA), the Stanford Research Institute (SRI), the University of California, at Santa Barbara (USCB) and the University of Utha.

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Another factor in the rapid growth of this technology was the inclusion of the TCP/IP protocols in the Berkeley version of UNIX. TCP/IP protocols gained wide usage, and more networks wee created with them. These networks began to connect to each other. There was originally only one, the ARPAnet. Soon there were many separate networks. Eventually all these Individual interconnected TCP/IP networks were collectively referred to as the Internet, or more simply the net.

The following components are needed for internet connection.
1. Personal Computer
2. Modem or ISDN – Modem (Modulation and Demodulation) is used to convert digital information into analog signals which carried by ordinary telephone line and also convert the analog signal into digital signal which send back to the computer. ISDN (Integrated

Services Digital Network) is carries digital signal from one computer to another computer through special telephone wires.
3. Telephone connection - Get a telephone connection from telephone agents.
4. ISP (Internet Service Provider) – Purchase internet account package from ISP and install in your computer. It gives user name and password to enter into the internet.

How to enter into Internet?

After configuring the internet along with the pc, you can see the Icon on the desk top with the ISP's name given by the user. By clicking that ISP's name Icon you will get window contains username and password. Dial then click the dial button and wait for some time. The username and password verified and if they are correct and then internet connectivity will be achieved. Then you can open the browser and start your browsing in the internet.

Browser

A browser is a software program that allow user to access and navigate the World Wide Web. The process of accessing the web site through the software is called browsing.

How to browse the website

After achieving internet connectivity double click the Internet Explore to open it.

If you want to browse a web site, that website's address has to be typed in the address box. (Uniform Resource Locator). Eg., www.annamalaiuniversity.ac.in

After typing the address then press the enter key, in few second your will see your specified web site.

Client/ Server Basics

A **client** accesses the Internet to obtain desired information. The **server** is responsible for performing the tasks as requested by the client.

A server is a piece of hardware that receives, processes, and replies to a query. A server has the capability to handle multiple connections concurrently and from many different sources or clients. Server hardware traditionally has been a minicomputer such as a Sun or a Cray, or a high-end IBM or DEC computer. With the new Pentium and power-PC processor, however, more PCs are being used as servers for limited uses such as a Web or a mail server, or even an FTP file server. For Telnet or database applications, however, more powerful servers are needed. On the other hand, if a large corporation wanted to maintain an up-to-the-minute nationwide inventory supply, a more powerful computer likely would be required.

You can have multiple software servers on one computer. In a typical intranet, an organization will want a mail server to process and deliver e-mail, an FTP server to manage file transfers, a Web server to host and serve World Wide Web documents, and possibly a database server to store and process data.

A client is a computer or software application that helps a user form and send a query and then displays the results of the queried information for the user. Practically any computer can be a client

A mail client does much the same. There is a standard mail protocol over the Internet, but dozens of clients take the information. Though your message may be entered in several ways, each client will put it in the correct format to transmit it over the Internet.

Examples of clients are Eudora and Outlook Express for mail, Fetch or CuteFTP for file transfer, and Netscape or Internet Explorer for browsing the World Wide Web.

Like automated teller machines (ATMs), client/server applications are based on transactions. The client sends a request to the server, similar to a customer sending a request to an ATM. Just as the outcome of the ATM transaction depends on what type of information the customer gives the ATM when prompted, so does the outcome of a client request for information from a server depend on the information given to the server.

The client sends a request to the server with the following information:

- Address for the server (Where do I ask for this information?)
- The request (What information do you want?)
- The return address for the information (Where do I send the information?)

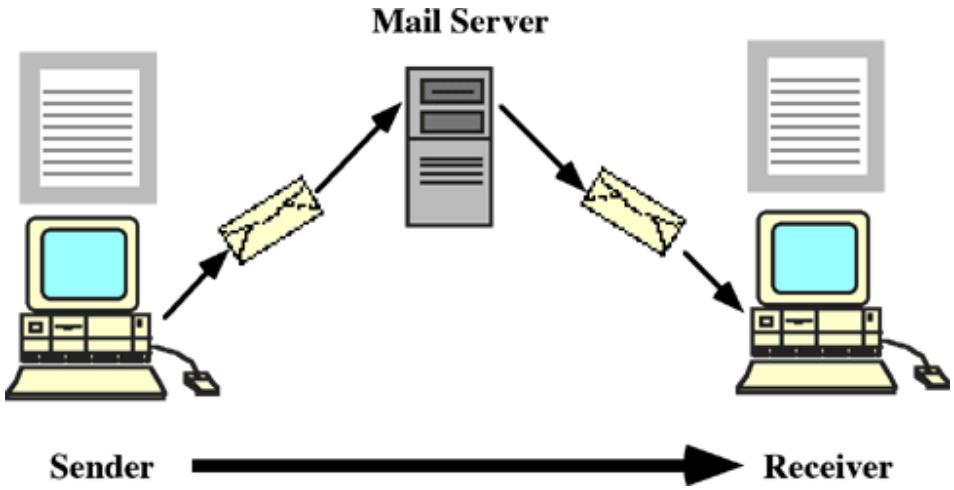
There must be a common protocol that both the client and the server speak to communicate with one another. On the Internet that protocol is TCP/IP. The server does most of the work in the relationship: It waits for requests, processes them, and then sends the client the information requested.

E-Mail

E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. E-mail messages are usually encoded in ASCII text. However, you can also send non-text files, such as graphic images and sound files, as attachments sent in binary streams. Internet email can be sent to anyone in the world who has an Internet email address.

Email has both similarities and differences with more **conventional postal services**. First, messages are posted electronically to individuals at specific addresses much like conventional mail. The address denotes the computer that the individual employs as a **mail server**. A **mail server** is like a local post office: it is a computer that sends and receives electronic mail for a specific network. Like regular mail, when messages are delivered, the

user may read them at his or her convenience and like postal letters, email may be saved or discarded.



Unlike conventional mail, email is **much faster**. This means that multiple copies of a given message can be sent to different parties automatically with no more effort than indicating the distribution list of addresses.

Replies to email can be automatic too. Most mail programs allow the user to reply to the sender and include part or the entire original message. A major difference between email and conventional mail is that while postal letters are not entirely secure, **email is even less secure**.

Email addresses are similar to regular mail in that the **addresses are unique**. Email has a unique post office --- **that is an email server**. Each email server must have a unique name. When you send your email the last part of the address after the **@** is the server address (or post office).

Ex. mani_1788@yahoo.co.in, **alvernja@alverno.edu**

Parts to an email

- **header** - It contains Date line, From line, To line, Subject line, CC line and BCC line.

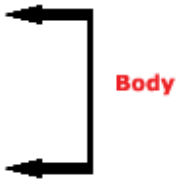
  Date : To display message sending date and time.
  From : It shows the senders mail address
  To : It shows the recipients address
  Subject : It shows title or purpose of the message content.
  CC: (Carbon Copy) field allows you to send the same message to multiple recipients. When you send a Cc: message, all recipients are aware of who received copies of the message. Cc: stands for carbon copy and is a holdover from the days when letters were typed with carbon paper between the pages to create identical letters for multiple recipients.

BCC: (Blind Carbon Copy) field allows you to send an identical message to multiple recipients, however, those recipients whose addresses appear in the BCC: field cannot be seen by the other recipients..

- **message body**, where you write your message
- **signature**, which identifies the sender. This part is optional and must be set up inside of your email software

Date: Mon, 6 Aug 2001 10:04:11 –0500
From: alvernja@alverno.edu
To: anthonsb@alverno.edu
Subject: When can we meet?

When can we get together to work on our project? I am available any time this week after 5:00 PM. But I do have some other appointments next week. I would like to meet before we have our next class so email me and let me know what would work for you.
Thanks!



Jane A. Alverno
Student, Alverno College

SMTP: SMTP is short for Simple Mail Transfer Protocol. SMTP can only be used to send email messages.

POP: POP stands for Post Office Protocol and is a protocol that is used to receive email. The most recent version of POP is called POP3. POP3 is a client-server protocol which means that your email messages are stored on your server and need to be downloaded to your computer hard drive in order to be read. An email client such as Netscape, Outlook Express, AOL, or Eudora is used to download the emails onto your computer.

Telnet

Telnet allows log-in access to another computer on the Internet.

Telnet is a protocol or set of rules that enables one computer to connect to another computer. It allows you to remotely log into a computer system and use your local screen and keyboard as terminals. The user's computers, which imitates the connection is referred to as the local computer and the machine being connected to which accepts the connection is referred to as the remote or host computer. The remote computer can be physically located in the next room, the next town, or in another country. Once connected, the user's

computer emulates the remote computer. When the user types in commands, they are executed in the remote computer. The user's monitor displays what is taking place on the remote computer during the telnet session. Telnet also operates on the client/server principle. The local computer uses a telnet client program to establish the connection and display data on the local computer's monitor. The remote or host computer uses a telnet server program to accept the connection and send response to requests for information back to the local computer.

Library of Congress telnet://locis.loc.gov Search for materials available at the United States Library of Congress. No log in name or password is required.

PEN pages telnet://world@psupen.psu.edu . Search and retrieve information from agricultural, health, teaching, and other databases. This service is provided by the College of Agriculture of the Pennsylvania State University and the Pennsylvania Department of Education. You type in the word **world** when you see the prompt Username:

Weather Forecasts telnet://madlab.sprl.umich.edu:3000 Check weather forecasts and other weather related information.

Archie

Archie was the first search engine ever invented, designed to index FTP archives, allowing people to find specific files. The original implementation was written in 1990 by Alan Emtage, Bill Heelan, and Peter J. Deutsch, then students at McGill University in Montreal.

The earliest versions of archie simply contacted a list of FTP archives on a regular basis (contacting each roughly once a month, so as not to waste too much resource on the remote servers) and requested a listing. These listings were stored in local files to be searched using the UNIX grep command. Later, more efficient front- and back-ends were developed, and the system spread from a local tool, to a network-wide resource, to a popular service available from multiple sites around the Internet. Such archie servers could be accessed in multiple ways: using a local client (such as archie or xarchie); telneting to a server directly; sending queries by electronic mail; and later via World Wide Web interfaces.

FTP

File Transfer Protocol (FTP) is a standard Internet protocol for transmitting files between computers on the Internet. FTP is an application protocol that uses the Internet's TCP/IP protocols. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server for everyone on the Internet. It's also commonly used to download programs and other files to your computer from other servers.

Files that can be transferred are stored on computer called FTP servers. To access these files an FTP client program is used. This is an interface that allows the user to locate the files to be transferred and initiate the transfer process.Your Web browser can also make FTP requests to download programs you select from a Web page.

Using FTP, you can also update (delete, rename, move, and copy) files at a server. You need to logon to an FTP server. However, publicly available files are easily accessed using anonymous FTP.

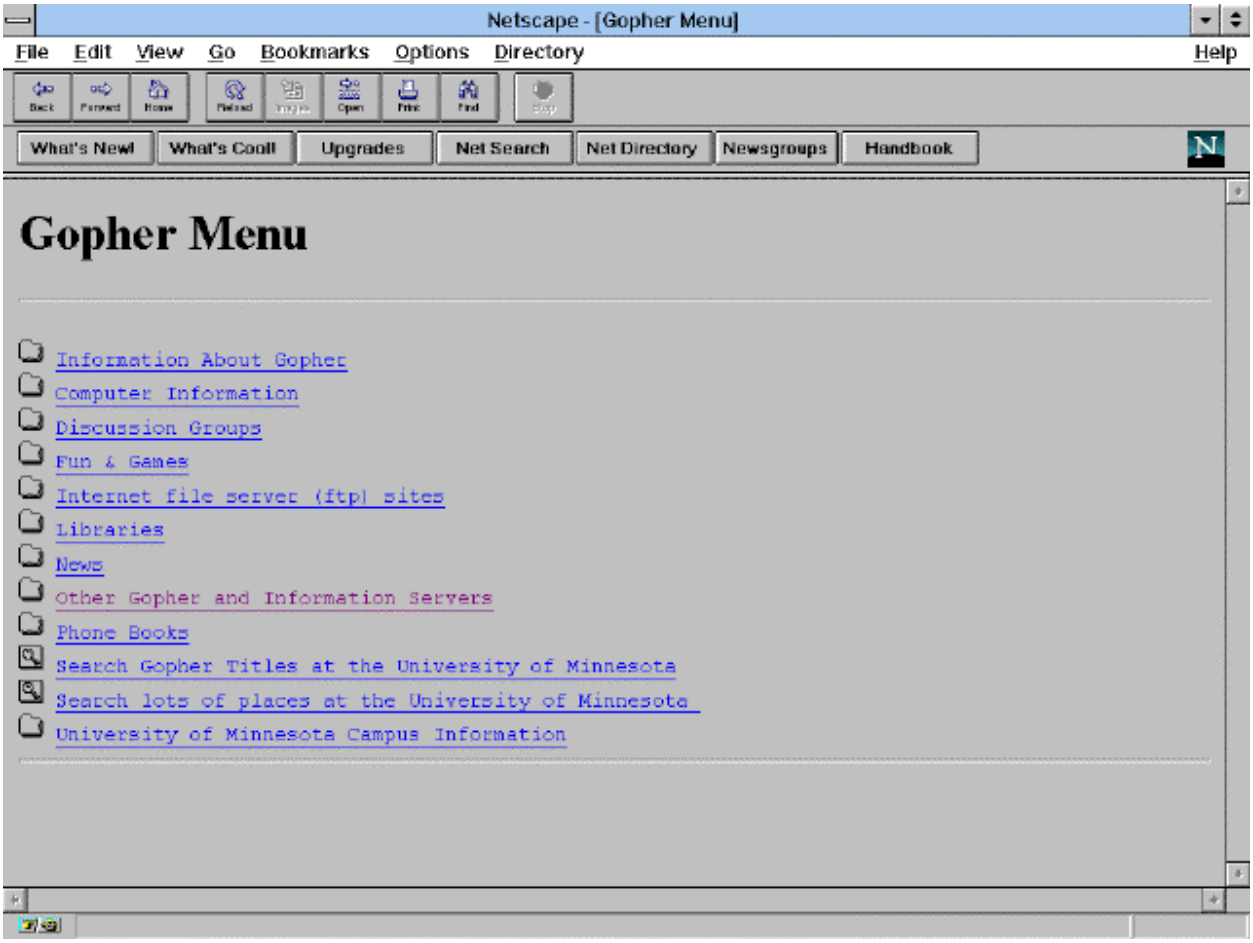
The basic steps to use FTP are

1. Connect to the FTP server.
2. Navigate the file structure to find the file you want.
3. Transfer the file.

Gopher

The **Gopher protocol** is a TCP/IP application layer protocol designed for distributing, searching, and retrieving documents over the Internet. Strongly oriented towards a menu-document design, the Gopher protocol was a predecessor of (and later, an alternative to) the World Wide Web.

A protocol for searching file names and resources on the Internet that presents hierarchical menus to the user.



From about 1992 through 1996, Gopher was an Internet application in which hierarchically-organized text files could be brought from servers all over the world to a viewer on your computer. Especially in universities, Gopher was a step toward the World Wide Web's Hypertext Transfer Protocol (HTTP), which effectively replaced it within a short time. Gopher was developed at the University of Minnesota, whose sports teams are called "the Golden Gophers."

Although most Gopher browsers and files are text-based, Gopher browsers, notably HyperGopher, were developed that displayed graphic images (GIF and JPEG files) that were included in Gopher file directories. Two tools for searching Gopher file hierarchies were Veronica and Jughead.

Veronica

A program that searches the Internet for specific resources by description, not just file name. Unlike most search engines, Veronica searches for keywords only in gopher server menu titles, and doesn't look through out the entire text of documents. When searching with Veronica, you can use the logical operators AND, NOT, and OR to help narrow your search. Also, typing an asterisk (*) at the end of a word will match anything starting with that word.

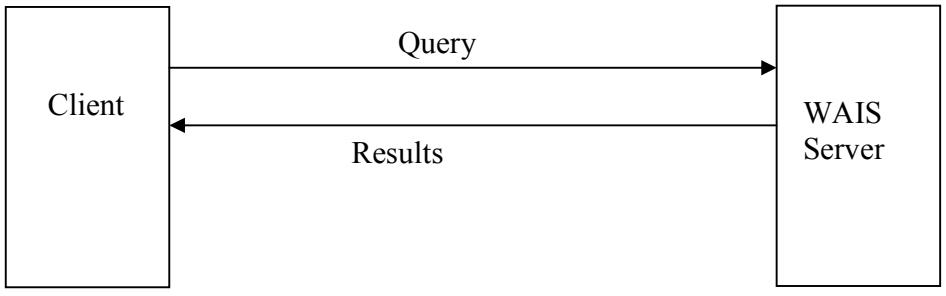
Jughead

Jughead was a tool for searching the information on gopher sites for particular subjects.

WAIS (Wide Area Information Server)

WAIS Stands for "Wide Area Information Server." This is a program that can index enormous amounts of information and make it searchable across large networks (including the Internet). People can search the WAIS index and it will return results by relevance.

A WAIS client program enables the user's computer to contact a WAIS server, submit a search query and receive a response to that query. WAIS searches the content of database files.



User sends Query to server & read the results

Server processes the Query and sends back the results

WWW (World Wide Web)

The *World Wide Web* is distributed system of interlinked web pages which are stored in different machines called web servers. it is a client-server application system which transfers text, graphics and sound files through the Hyper Text Transfer Protocol (HTTP). These files called pages or web pages contain information or a piece of pages and links to resources throughout the Internet. The collection of web pages is known as a website. These files represent text documents, pictures, video, sound, programs, interactive environment and other useful details.

The Hypertext markup language (HTML) allows a file co contain links to related files. Such a link also called hyperlink contains the information necessary to locate the related files on the internet. When you connect to the Internet and use a web browser, you can access any kind of information and from any part of the world where you are located to make finding things on the web easier, every web page has an address. The page address is called and URL (Uniform Resource Locater) and works just like a street address. It tells your web browser where to look for the page you want to see. The WWW clients are called Web Browsers.

Eg:-
www.yahoo.com
www.sify.com

Fundamentals of HTML

What is HTML

HTML is a language for describing web pages.

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- HTML is not a programming language, it is a **markup language**
- A markup language is a set of **markup tags** which are surrounded by **angle brackets** like <html>.HTML tags normally **come in pairs** like and
- HTML uses **markup tags** to describe web pages

HTML gives authors the means to:

- Publish online documents with headings, text, tables, lists, photos, etc.
- Retrieve online information via hypertext links, at the click of a button.
- Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.
- Include spreadsheets, video clips, sound clips, and other applications directly in their documents.

Structure of an HTML File

The most important tags are **<html>** and **</html>** - the entire document is contained within these two tags. The instruction here is simply "This is an HTML document". HTML comprises two major parts that give a document a well-structured look. They are:

1- *Head* : The Head contains the title of the document and the heading - which is the heading of that particular page in the document. The head section start with tag<head> and end with </head>.

2- *Body* : The Body contains the entire content of the document. The body section start with tag <body> and end with </body>.

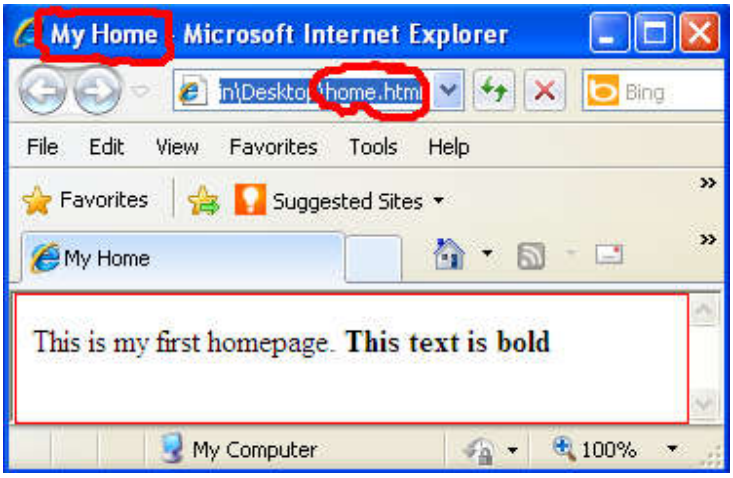
You can create such a document using any text editor - even a very simple one like Windows Notepad. After finishing of the HTML codes, we can save the file with extension ".html". To view an HTML document, you must use a browser (or similar software). The browser opens the HTML document in the background and "decodes" it before showing it to you. (ex. Home.html).

Example code for home.html

```
<html>
    <head>
          <title> Home Page </title>
    </head>
    <body>
          This is my first homepage. <b>This text is bold</b>

    </body>
</html>
```

Output



TCP/IP

TCP/IP stands for Transmission Control Protocol / Internet Protocol. TCP/IP is actually a collection of protocols or rules that govern the way data travels from one machine to another across networks. The internet is based in TCP/IP. TCP/IP has major components.

TCP

1. Breaks data up into packets that the network can handle efficiently.
2. Each packet is composed with header and footer.
3. Verifies at the receiving end whether all the packets have arrived at their destination.
4. Reassembles the data.

IP

1. Envelopes and address the data
2. Enables the network to read the envelope and forward the data to its destination.
3. Defines how much data can fit in a single "envelope" (a Packet).
4.

E-commerce

Electronic commerce (commonly entitled as **E-commerce**) in its simplest interpretation is a new way of doing business by buying and selling services or products, that opens big perspectives in the market for any type of businesses. Electronic commerce can be between two businesses transmitting funds, goods, services and/or data or between a business and a customer.

Simply tells E-Commerce is doing business using communication networks like internet, mobile network etc.

A number of different types of businesses are covered by this term: starting from retail sites which allows consumers to exchange goods and services over the Internet with no barriers of time or distance to business exchanges between corporations.

E-commerce also includes such notions as: E-Marketing, E-Trade, E-Banking, E-Cash, E-Insurance, Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT).

ADVANTAGES OF ECOMMERCE

- Faster buying/selling procedure, as well as easy to find products.
- Buying/selling 24/7.
- More reach to customers, there is no theoretical geographic limitations.
- Low operational costs and better quality of services.
- No need of physical company set-ups.
- Easy to start and manage a business.
- Customers can easily select products from different providers without moving around physically.

DISADVANTAGES OF ECOMMERCE

- Any one, good or bad, can easily start a business. And there are many bad sites which eat up customers' money.
- There is no guarantee of product quality.
- Mechanical failures can cause unpredictable effects on the total processes.
- As there is minimum chance of direct customer to company interactions, customer loyalty is always on a check.
- There are many hackers who look for opportunities, and thus an ecommerce site, service, payment gateways, all are always prone to attack.

UNIT – IV - HTML

What is HTML

To publish information for global distribution, one needs a universally understood language, a kind of publishing mother tongue that all computers may potentially understand. The publishing language used by the www is HTML.

HTML gives authors the means to:

- Publish online documents with headings, text, tables, lists, photos, etc.
- Retrieve online information via hypertext links, at the click of a button.
- Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.
- Include spreadsheets, video clips, sound clips, and other applications directly in their documents.

HTML files are nothing more than simple text files, so to start writing in HTML, you need nothing more than a simple text editor. Notepad is a common text editor (on Windows this is usually found under the Programs > Accessories menu). Type html codes and save the file as "myfirstpage.html".

To look at HTML files, they don't even need to be on the web. Open a web browser such as Firefox or Internet Explorer and in the address bar, where you usually type web addresses, type in the location of the file you just saved (for example, "c:\html\myfirstpage.html") and hit return. Alternatively, go to the File menu of the browser, select Open, and browse for the file.

Structure of a HTML page

```
<HTML>
    <HEAD>
        <TITLE> name of the document </TITLE>
    </HEAD>
    <BODY>
        ……..page content ……..
        ……..page content……
        ……..page content……
    </BODY>
</HTML>
```

HTML tags

1. <HTML> tag

The first page structure in every HTML page is the <HTML> tag. It indicates that the content of this file is in the HTML language. All the text and HTML comments in a HTML page should go within the beginning and ending HTML tags.

2. <HEAD> tag

The <HEAD> tag specifies the line within the beginning and ending points of the tag are the prologue to the rest of the file. Generally, only a few tags go into the <HEAD> portion of the page.

3. <BODY>..</BODY> tag

The remainder of the HTML page, including all the text and other content is enclosed within a <BODY> tag.

4. <TITLE>...</TITLE> tag
The <TITLE> tag is used to show title of document in the title bar of the web browser.

5. <H> tag
The header tag <H> is used to display the text in different font size. It has six types

<H1>...</H1> - Largest heading size. ex. **Heading1**
<H2>...</H2> - Large heading size. ex. **Heading 2**
<H3>...</H3> - Medium-big heading size. ex. **Heading 3**
<H4>...</H4> - Medium-small heading size. ex. **Heading 4**
<H5>...</H5> - Small heading size. ex. **Heading 5**
<H6>...</H6> - Smalles heading size. ex. **Heading 6**

6. <P>…</P> tag
The Paragraph tag <P> is used display the in paragraph format and also align the text in left, right, center and Justify format.

7. <OL>...</OL> tag
This tag is used to show list of items in ordered format. Each item is covered with <LI>..</LI> tag.
Example:

```
<OL>
 <LI> red </LI>
 <LI> green </LI>
 <LI> blue </LI>
</OL>
```

Output

1.red
2.blue
3.green

7. <UL>...</UL> tag

This tag is used to show list of items in unordered format. Each item is covered with <LI>..</LI> tag.

Example:

```
<UL>
 <LI> red </LI>
 <LI> green </LI>
 <LI> blue </LI>
</UL>
```

Output:

- red
- green
- blue

8. <B>...</B> tag

This is used to display text in bold face.

```
<B> bold</B>
```

Output:

bold

9. <I>...</I> tag

This is used to display text in Italic style.

```
<I> Italic </I>
```

Output:

Italic

10. <HR> tag

This used to draw single line. The <HR> is not need to closing tag </HR>

```
<HR>
```

Output:

11.
 tag

This is used to break line in a paragraph.

12. <IMG> tag

This is used to include the image to html page with different size.

Example : <IMG src="c:\bird.jpg">

13. <A> … </A> tag

This is used to create a hyper link for another page or image or file etc. The linked words are displayed in blue color with underlined. User click linking word then we can move to the linked page.

Example: <A href="c:\main.html"> main </A>

Output : main

14. <Table>… </Table> tag

This tag is used to display items in tabular format with different color.

15. <Tr>…</Tr> tag

It is used to create new row in a table. It is used inside the <Table> tag.

16. <Td>…<Td> tag

It is used to display individual data item in a single row. It is used inside the <Tr> tag.

Ex :

```
<table border=1>
    <tr>
        <td>name</td>  <td> marks(100) </td>
    </tr>
    <tr>
        <td>Mani</td>  <td> 95</td>
    </tr>
    <tr>
        <td>sureh</td>  <td> 85</td>
    </tr>
</table>
```

Output :

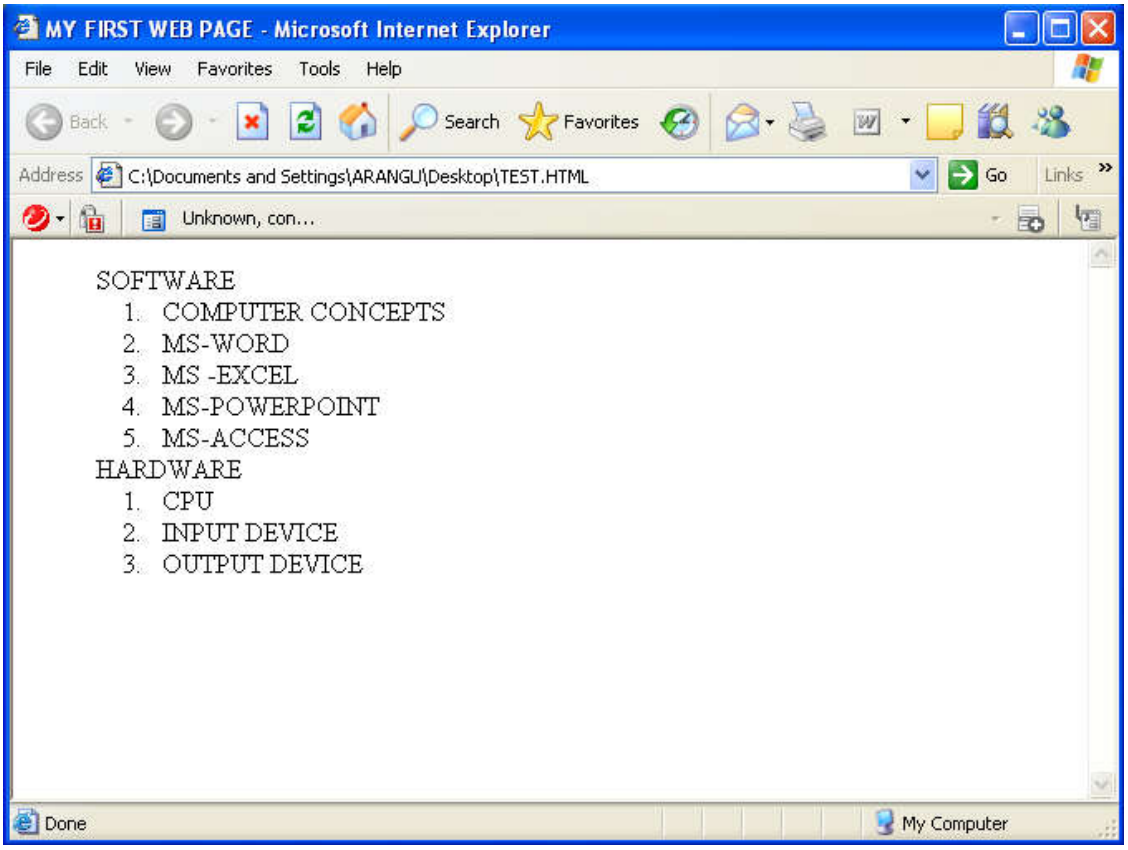
name	marks(100)
Mani	95
sureh	85

Simple HTML page

```
<HTML>
    <HEAD>
        <TITLE> MY FIRST WEB PAGE </TITLE>
    </HEAD>
    <BODY>
        <UL>
        <L1> SOFTWARE
```

```
                <OL>
                        <L1> COMPUTER CONCEPTS
                        <L1> MS-WORD
                        <L1> MS -EXCEL
                        <L1> MS-POWERPOINT
                        <L1> MS-ACCESS
                </OL>
                <L1> HARDWARE
                <OL>
                <LI> CPU
                <LI> INPUT DEVICE
                <LI> OUTPUT DEVICE
                </OL>
                </UL>
        </BODY
</HTML>
```

The out put for the above HTML program is as follows

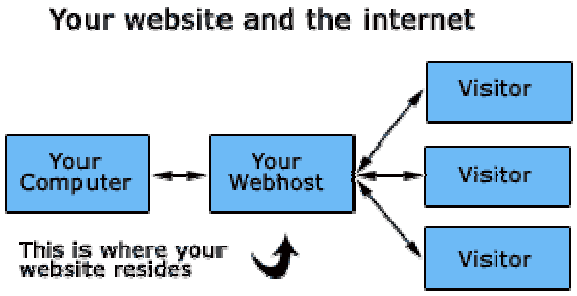


What is a website?

A website is an address (location/server) on the World Wide Web that contains your web pages and can be accessed by anyone on the internet. Each website is identified by unique name that is called Uniform Resource Locator (URL). Example www.yahoo.com. Web page is a document that contains text, image, sounds, videos and links to other pages.

Making a website is easy. Making a good website is not so easy. There are many things you have to consider if you want to make a successful website, no matter if it is a commercial or personal site. Web site creation is divided into four steps

1. Planning a new website
2. Design and build web pages
3. Upload web pages to web server (web hosting)
4. Maintaining the web site.



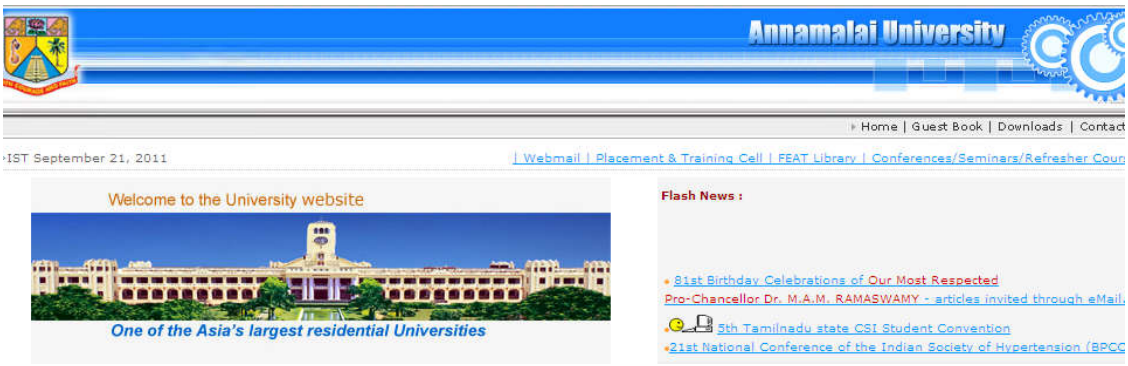
1. Planning a website

You will need to create a development and management plan for the site. you can hold a meeting with your group members or customers and discuss about the following contents.

1. Purpose of new website
2. Naming of new website.
3. What type of information and images are included
4. Selection of good Template
5. How many links are added which is used to go other related pages

2. Designing a website

First, you can start to design home page which is the starting page or first page of every website and also includes links for the web pages.



You can create your web pages using software like Macromedia Dreamweaver, Microsoft Front Page, etc. A good website contains the following

1. Good template design.
2. Align text and images in a attractive manner
3. Invisible and meaningful menu names
4. Choose attractive color and text size
5. Including compatible image size causes very fast loading in web browser
6. Web pages are run in all web browsers.
7. Easily understandable headings
8. Include contact details.

3. Web Hosting

After successfully building of website, the next step is hosting your site. For hosting your web site, you can communicate some web host company. The company allocate web spaces to hold your site. You can pay amount to the company for yearly. After hosting, the new site is available in internet and everyone to access.

4. Maintaining the web site

It is a big process. You can maintain your site by daily or weekly or monthly depends the type of website.

Issues Involved in Web site management

1. Browser Compatibility:

Your website is run on all web browsers. That means you can create a script codes of website are executed by all browsers.

2. Fast Loading web pages:

When the visitor opens your web site, it will be opened with in 8 seconds. Otherwise visitors are jumped to other quickly web sites. So, your web pages contain small images and needful links.

3. Keep content up-to-date:

Depends upon the type of web site, you can change content of page every minute or daily or weekly or monthly. For example, a News website changes its content every minute to attract the visitors.

4. Spot errors

If any error occurred in your website, you can find and rectify it. For example, a page cannot be loaded from the link. Then you can check the link and correct it.

5. Feed back monitoring

Every website monitoring their visitors and get some useful ideas from them through email or phone. For a good website maintenance, you can analyze and implement the visitor's suggestion in your web pages.

6. Performance Monitoring

You can calculate how many visitors accessing your website per day. Because, a lot of websites are available. For a good site, numbers of visitors are increased day by day. That is success of creating a website.

7. Security Problem

Your website is a transactional website. Your customer can transfer confidential data through web. It is big problem to identify your customer and verify it data is correct or wrong. Hackers and Hijackers are breaking your security of website and stolen customer's details and misused.

Hacker is person to enter into transactional site and changing the correct data before reached to the web server. At the result, No transaction is taken.

Hijacker is person to enter into transactional site and get a copy of data and misused.

8. Font Problem

Your web page contains good font size and attractive font color. You can apply different font colors for the ordinary text and linking words. You can choose contrast colors for background and text. If your page contain new font, you give instruction to the user download and install. Then only the user may read the entire page. Ex: Tamil font.

9. Virus Threat

You can maintain your web sites without affecting from virus. Virus is spread through internet. If your website is affected from virus, no visitor is to open your web site because

of visitor's computer is also affected. The virus may delete the contents of a website from web server.

10. User Problem

Your site contains meaningful text, images and links. For a new user visiting your web sites, new user easily understand your sites and what are links are available.

Addressing

What is a domain name?

A ***domain name*** is a unique name that identifies a website or computer on the Internet. Although you can identify a computer by its IP address — for example, 192.168.1.50 — numbers are not very easy for people to read or remember. This is why domain names are useful — they serve as "nicknames" for websites and computers. A domain name points to an IP address, and you can then use the domain name, rather than the IP address, to access the website or computer.

Example : google.com, yahoo.com, annamalaiuniversity.ac.in , tn.gov.in

Finding a free domain name

Now that you know how domain names work, your next step is to find a free name that you can use for your site. This is easier said than done, because millions of common names have already been taken! For advice and tips on choosing a good domain name for your site.

.com domains are the most popular, and the most widely registered. So to increase your chance of finding a free domain name, consider registering your domain under a different category instead, such as .net, .org, or .info. It can also be a good idea to register a country-specific domain — such as example.co.uk — if your business/site is catering specifically to that country. The database of registered domain names is known as the ***WHOIS database***. You can search this database in a couple of ways to see if the domain you want to use is free:

Choose a domain name that's easy to use

It helps to have a domain name that is easy for people to:

- remember
- pronounce, and
- spell.

This is especially important if you plan to market your website offline (in a flyer or magazine, for example). An easy-to-pronounce name also helps with word-of-mouth marketing.

Of course, shorter names tend to be easier to remember, and most short domain names are already in use. However, with a bit of creativity and brainstorming (see below) you should be able to come up with a catchy, easy-to-spell name.

Registering and setting up your domain name

Have you chosen your domain name? Congratulations! The next step is to register your domain name with a registrar and point the domain name to your website. The cost of registering a domain name ranges from less than $10 USD to about $30 USD per year. You can register a domain from 1 to 10 years. The reason for the cost is that the central 'address book' of all the world's domain names needs to be updated – somebody's got to pay for that!

Now your website is ready to browse through the internet.

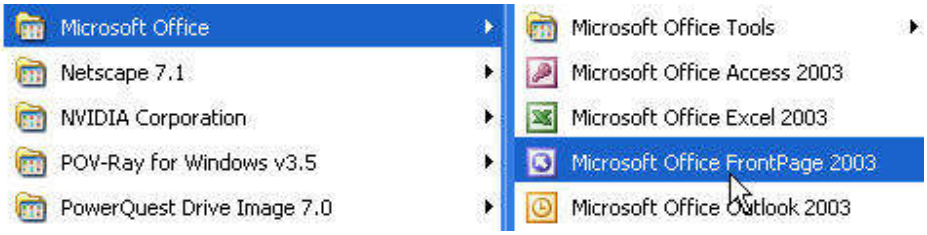
Designing Web sites with Front Page

How to Create a new web page using Microsoft Front page?

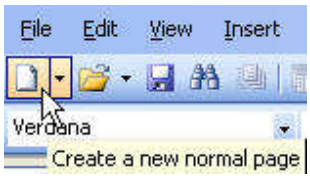
In this step you will use the 'Start' button to open FrontPage and create a new blank page.

1. Click on the 'Start' button in the lower left of your computer screen

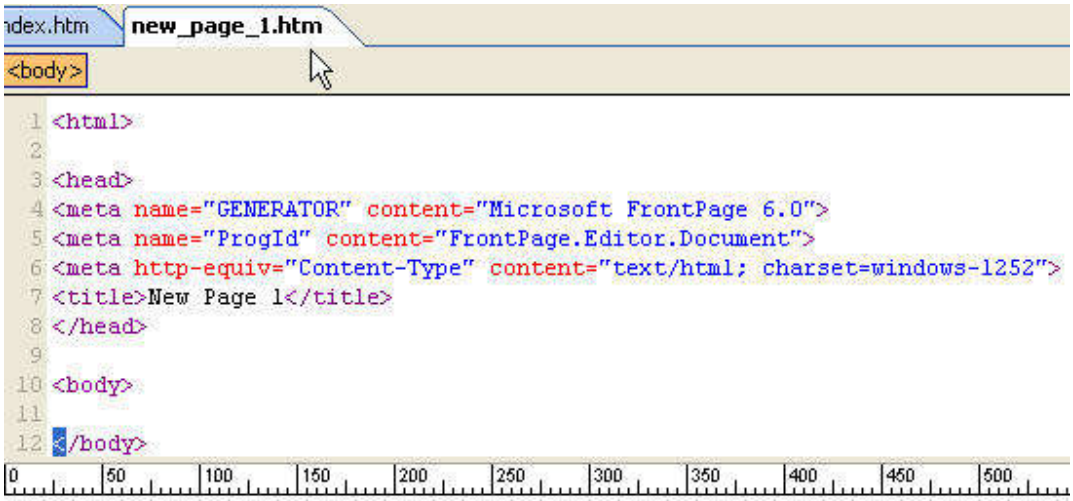
2. Go to 'All Programs' > 'Microsoft Office' > 'Microsoft Office FrontPage 2003' and click



3. Once FrontPage opens, click on the 'New Page' icon to create a new page in FrontPage

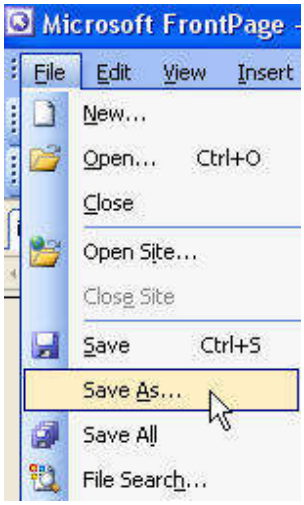


4. The new page should have a tab that has the heading 'new_page_1.htm'

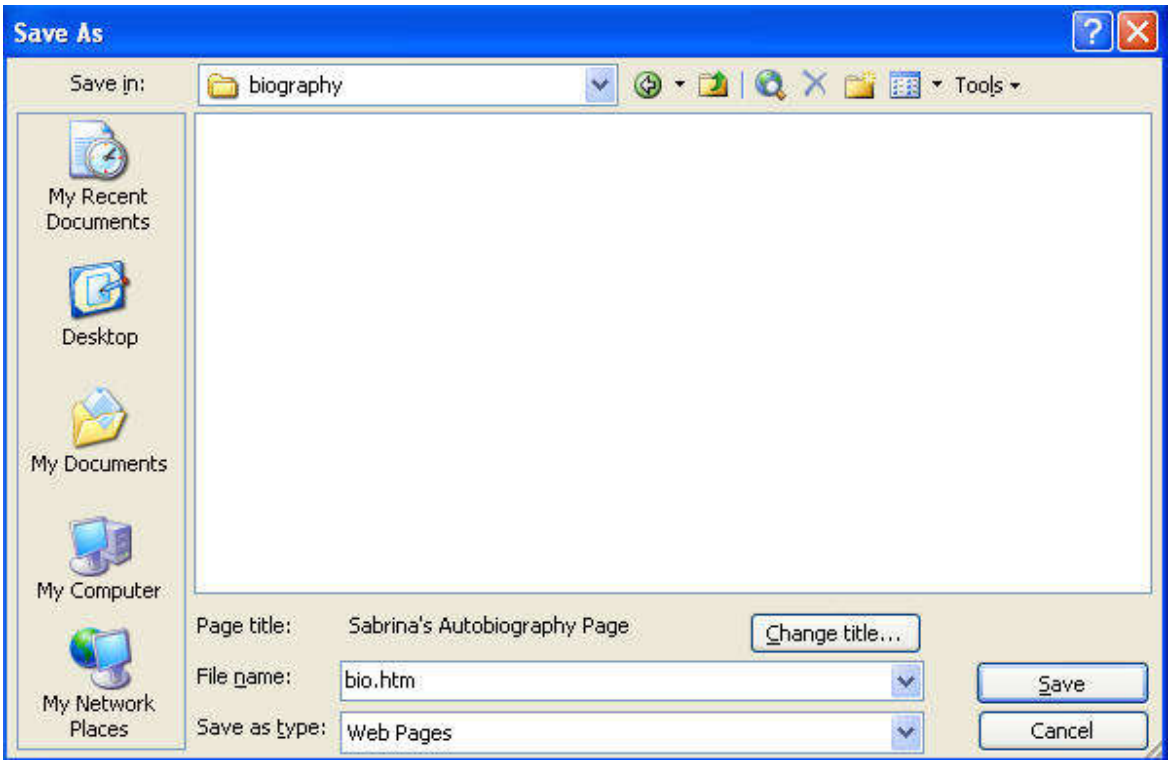


In this step you will rename the new blank page you created in FrontPage and save it in the folder you have created on the Desktop.

1. Go to 'File' > 'Save As…' and click to open the window



2. When the window pops up, select the 'Change title...' button and title your page whatever you want
   (I titled mine 'Sabrina's Autobiography Page')
   Click on the 'File name:' window and name your page 'bio.htm'
   Click on the 'Save' button

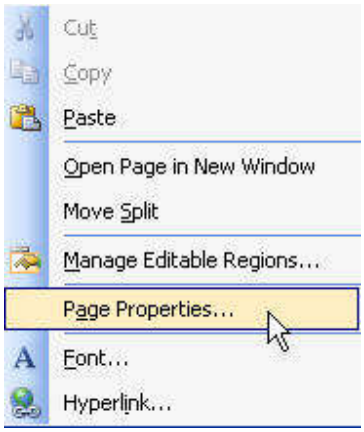


In this step you will choose the background of your page and then view the page in a browser window.

Changing the Background and Preview the web page

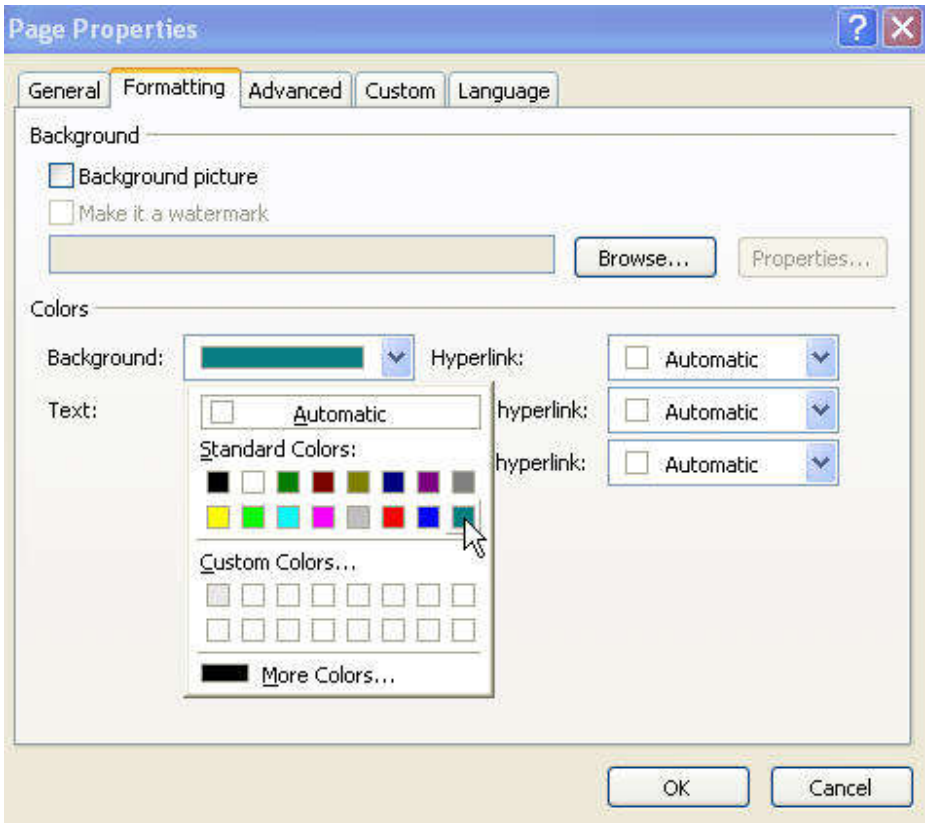
1. Right click anywhere on the 'bio.htm' page to pull up the menu

2. Go to 'Page Properties...' and click



3. From the 'Page Properties' menu, navigate to the 'Formatting' tab and click

4. Click on the pull down menu on 'Background' and then click on a color you want for the background
   Then click on 'OK'

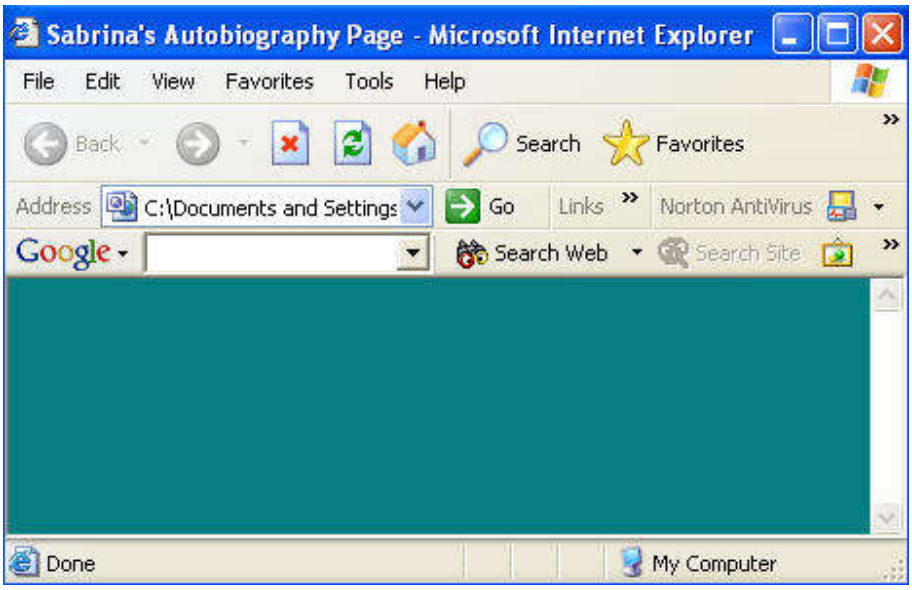


5. The entire 'bio.htm' page changes to that color

6. Go to 'File' > 'Save' to save the changes to your folder automatically

7. Click the 'Preview in Browser' icon on the toolbar to open a new window

8. This will allow you to view what your page will look like on the Internet
   Use this option often to check your progress as you build your site

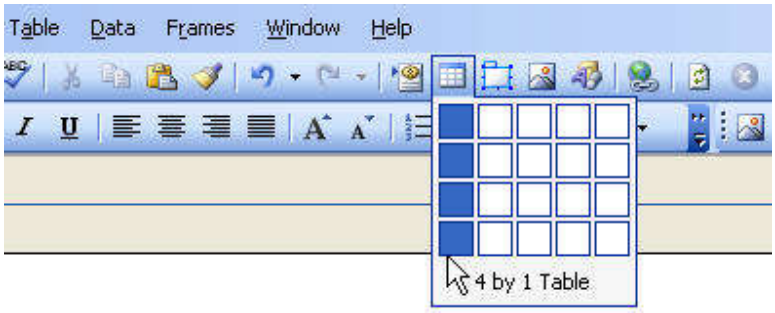


Creating a Table

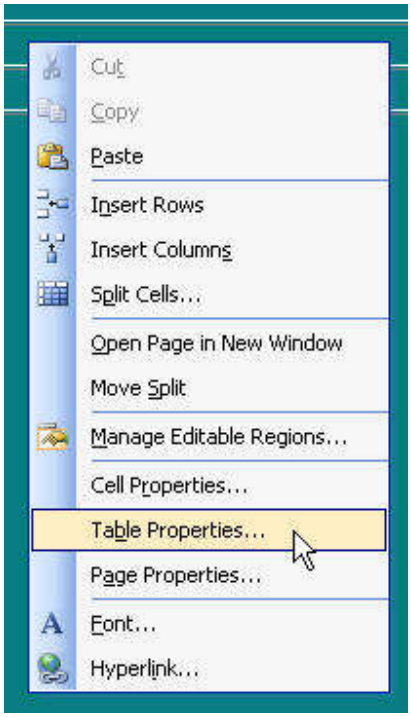
In this step you will choose a table size and modify the properties of the table.

1. Click on the 'Insert Table' icon in the toolbar

2. Highlight the number of cells you want to appear in your table and click



3. Right click on your new table to open the menu and click on 'Table Properties'

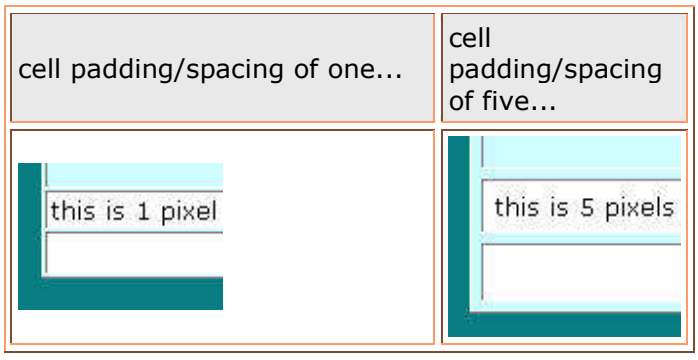


4. The 'Table Properties' window allows you to change the size, alignment, width, cell spacing, border size and color, and background color of the table. Experiment to get the look you want by clicking 'OK'.

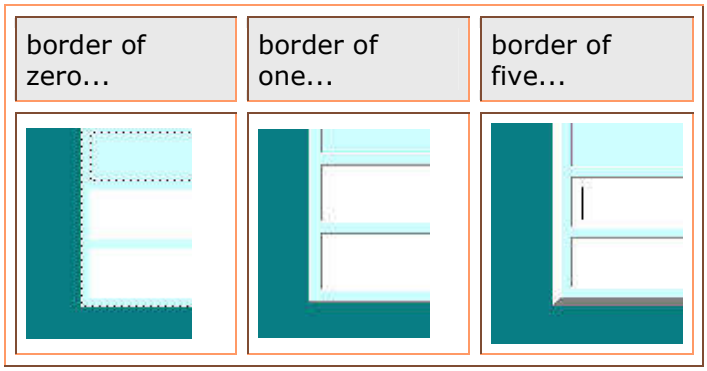
Some things to note:

keep width of your table below 800 pixels to avoid horizontal scrolling on a monitor with 800 x 600 resolution

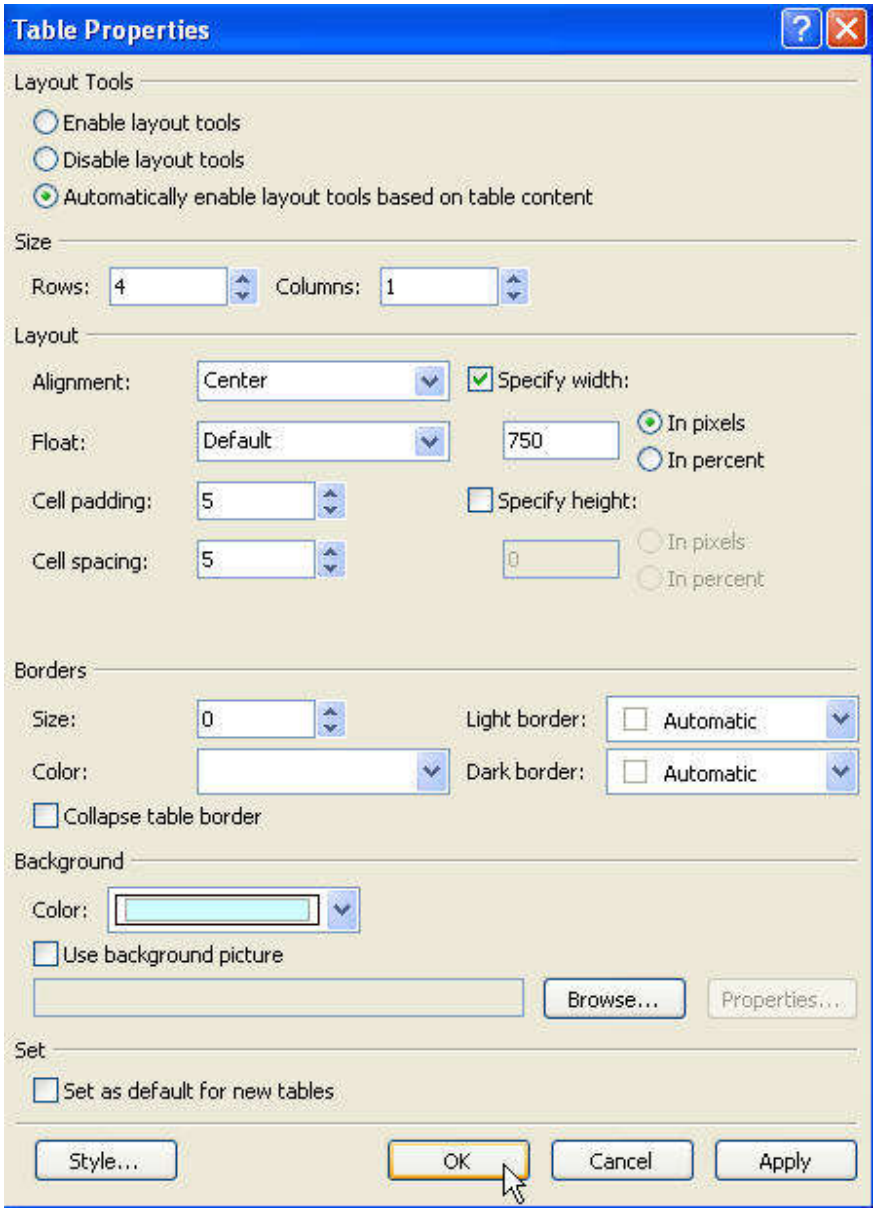
'Cell padding' and 'Cell spacing' refer to the distance (in pixels) text and images will appear from the border



a border of zero will show a dashed line on the 'Split' view but no border on the 'Preview' view

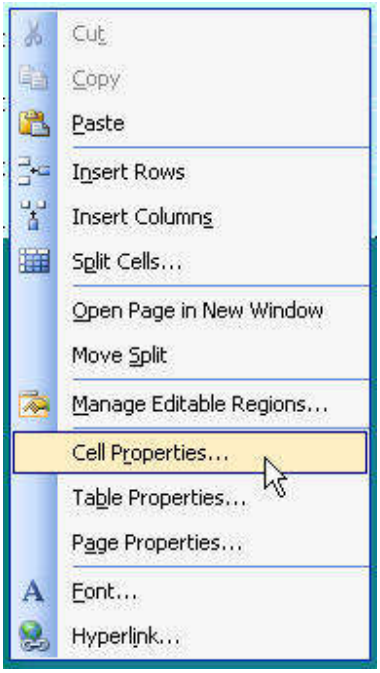


Here is a sample layout...



In this step, you will learn how to modify individual cells in your table.

1. Right click on the cell you want to modify and on the menu click on 'Cell Properties'

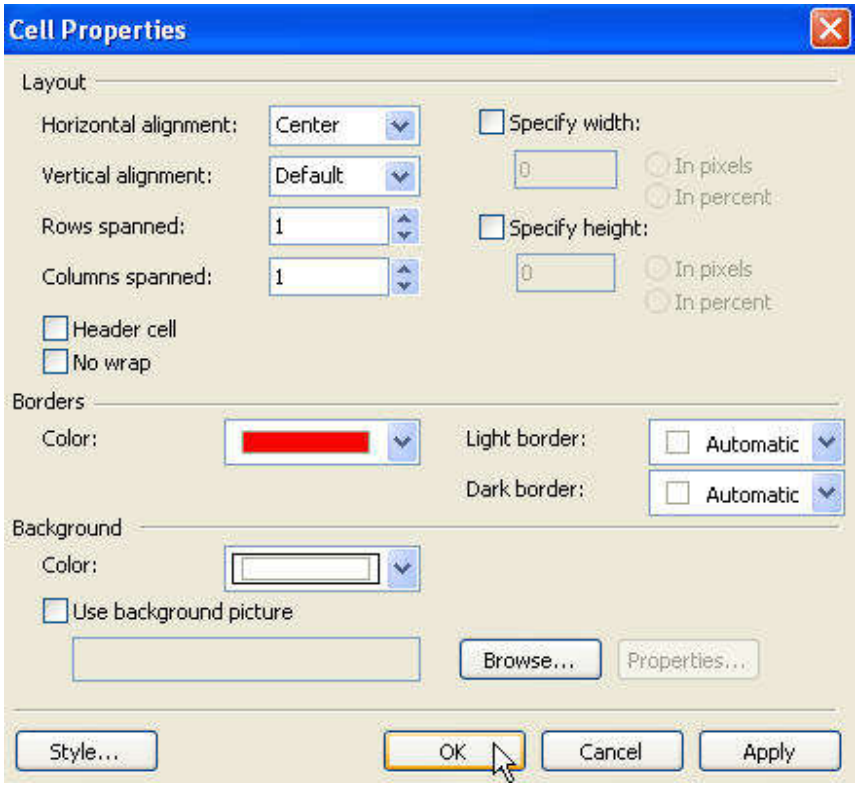


2. The 'Cell Properties' window allows you to modify many parts of individual cells. Use the pulldown menus to experiment with the look of the cells

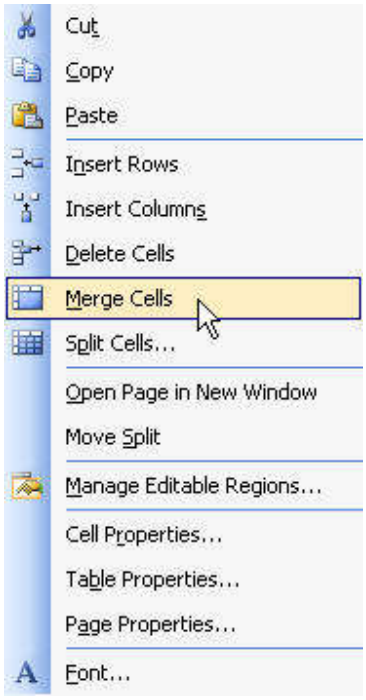
   A thing to note...

   'Alignment' determines where in the cell font and graphics will appear

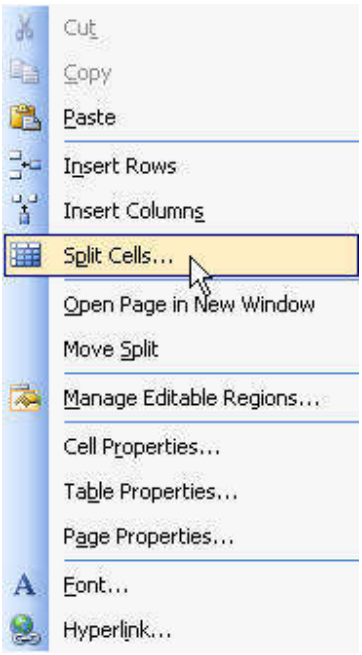
   Here is an example of a layout...



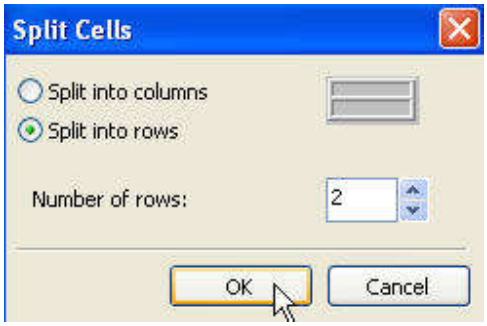
3. You may also merge the cell by highlighting the cells you want to merge into one Right click to bring up the 'Merge Cells' command and select it

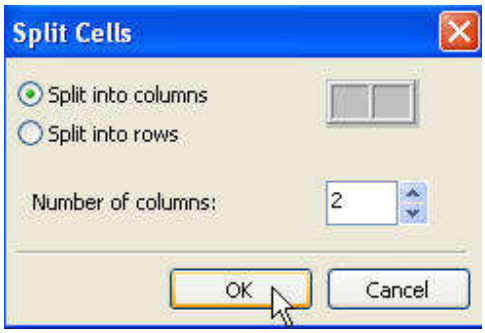


4. Or split an individual cell into rows and columns by right clicking on the cell to bring up the menu
Select 'Split Cells...'



and then choose whether you want 'rows' or 'columns' and the number





Changing the Font size and Font Colors

In this step you will learn how to modify the font.

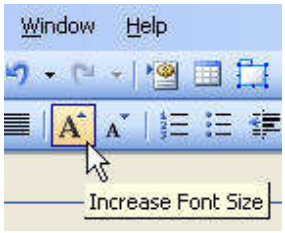
1. Highlight the font you want to change

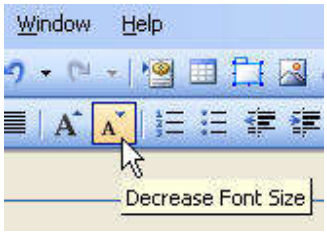
2. Use any combination of the characteristics below

a. Change the font type by clicking on the pulldown arrow next to the font type

b. Change the font size by either clicking on the pulldown arrow to select a number

or clicking on the 'A' icons on the toolbar to make the font larger or smaller



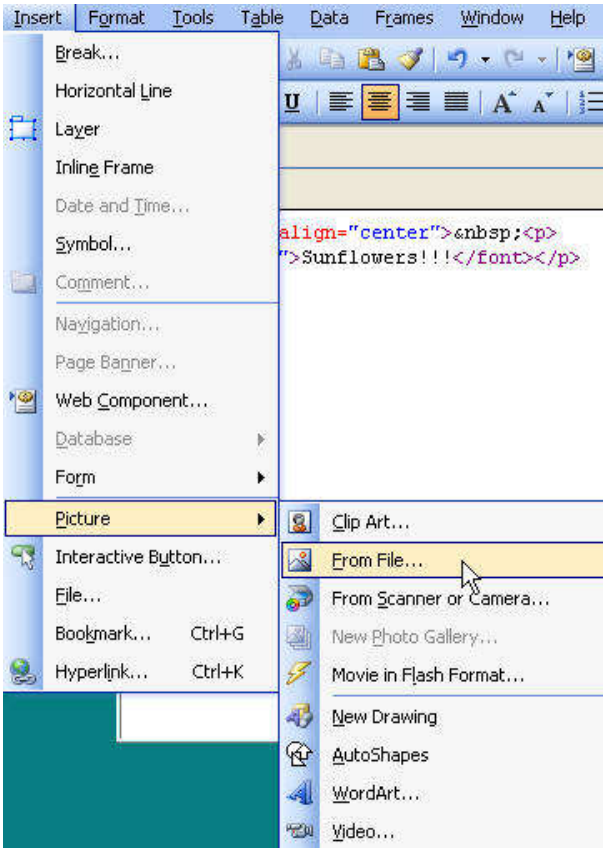


c. Change the font color by clicking on the 'Font Color' selector icon and choosing your color

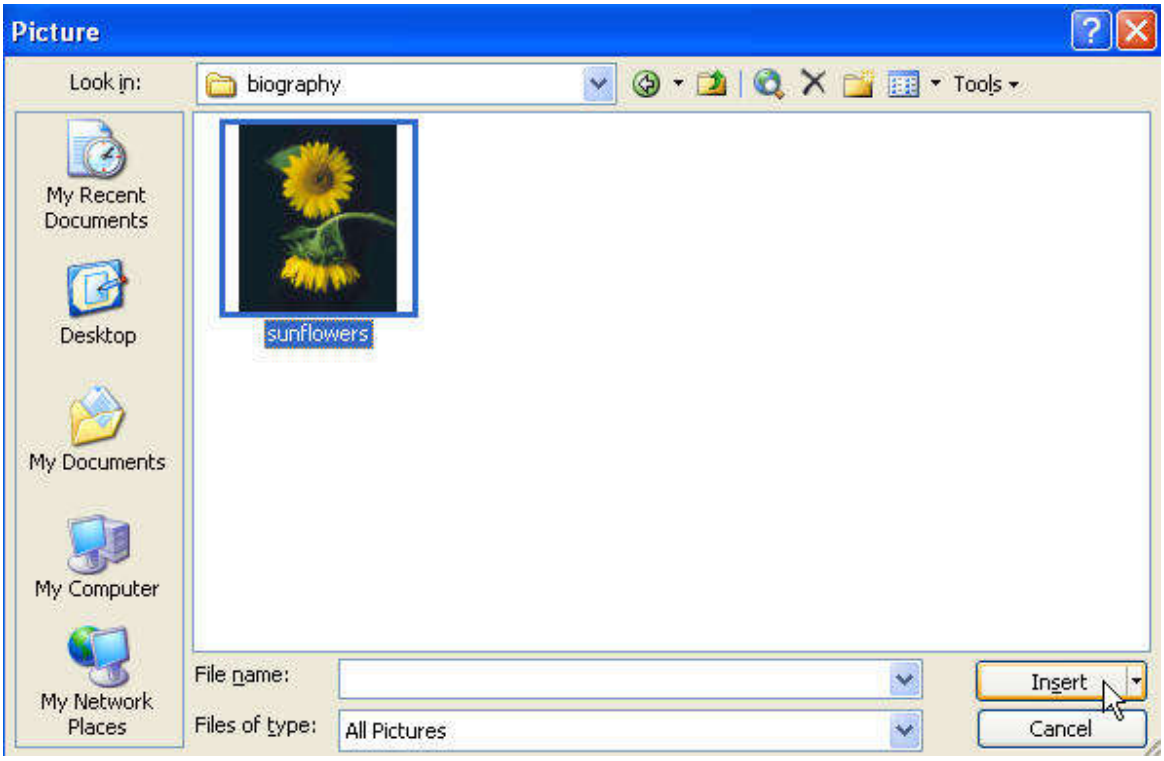
In this step you will insert and modify graphics you find on Google.

Insert a image

1. Click on the location you want the graphic on your page
   Go to 'Insert' > 'Picture' > 'From File...'



2. Navigate to your picture and select it and Click 'Insert'



5. An example of the finished result

6. You may modify the picture by clicking on it and using the various tools on the 'Picture Toolbar'

7. An example of the finished result

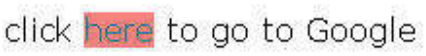
Creating a Hyper link in a page

In this step you will create hyperlinks. There are three types of hyperlinks:

1. links to outside websites
2. links to other pages in your website
3. links to places within the same document

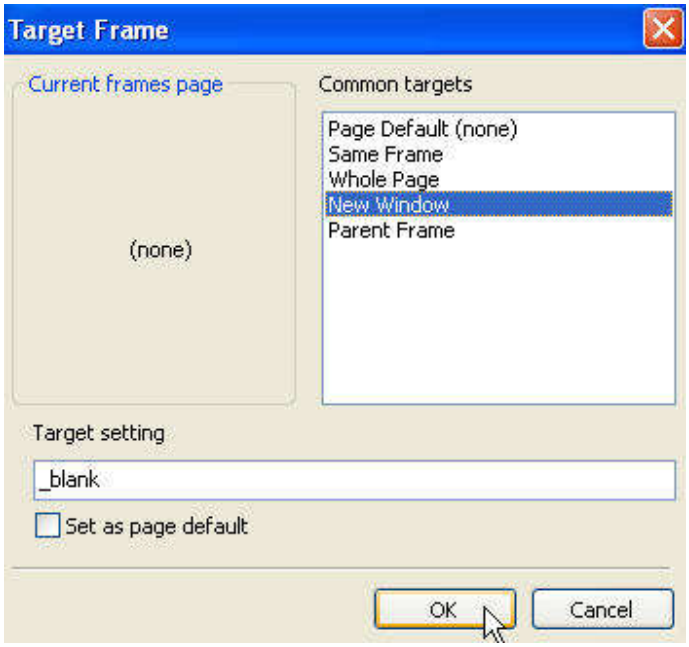
To link to an outside website (opens in a new window)

1. Highlight the text or graphic you want to link to an outside site

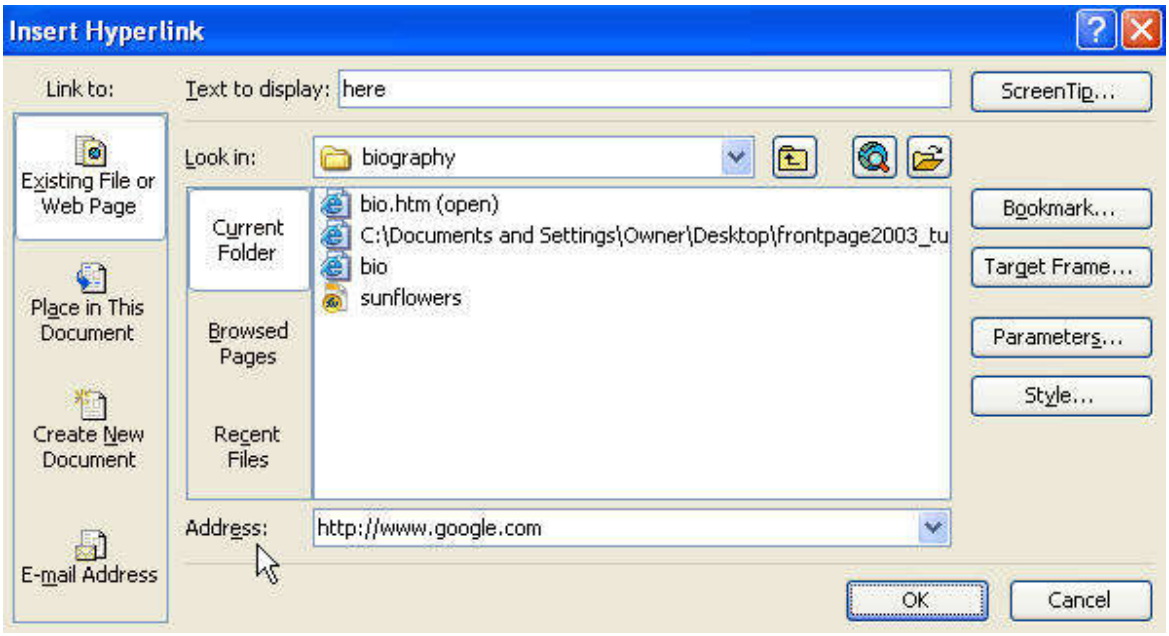


2. Click on the 'Hyperlink' icon on the toolbar to open the 'Insert Hyperlink' window

3. Select the 'Target Frame...' button
   Select 'New Window'
   Click 'OK'



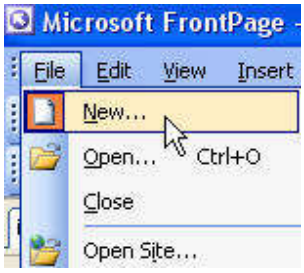
3. In the 'Insert Hyperlink' window, make sure 'Existing File or Web Page' is selected
   Type in the full URL of the outside site in the 'Address' window
   Click 'OK'

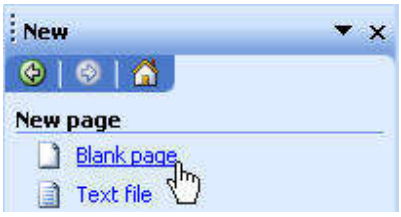


4. The word is now linked

Link to other pages in your website

1. Go to 'File' > 'New...' and select 'Blank page' from the menu that appears



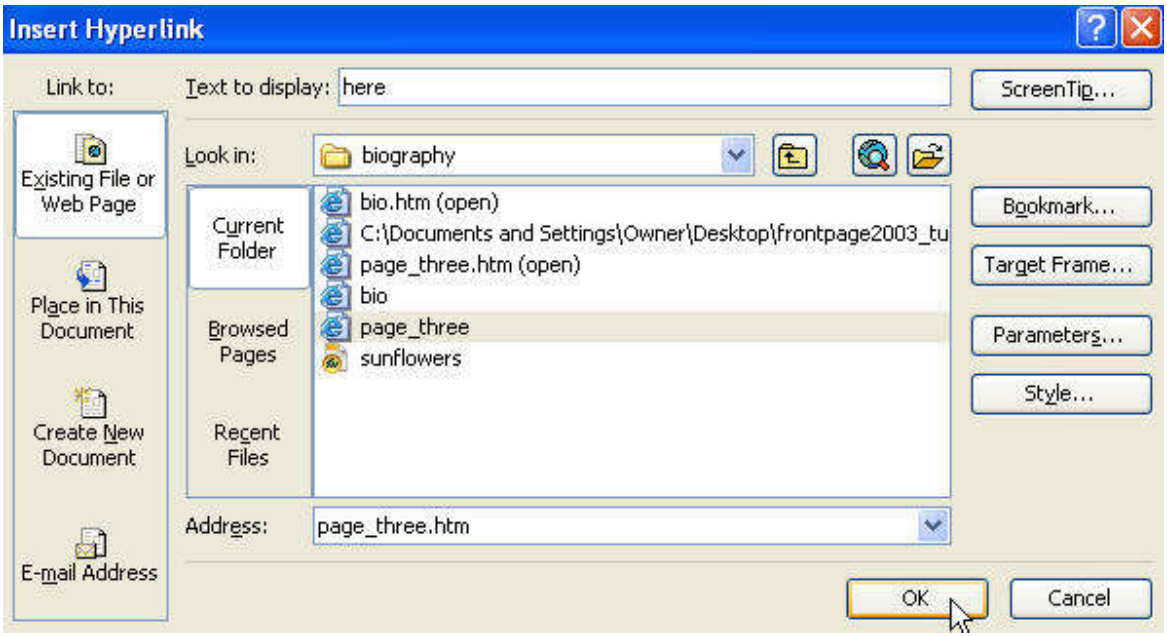


2. Use the steps outlined in Step 3 to name and save the page
3. Highlight the text you want to link to the new page

4. Click on the 'Hyperlink' icon on the toolbar 

5. Make sure you select the 'Existing File or Web Page' icon in the 'Hyperlink' window. Navigate to your 'biography' folder on the desktop and select the proper

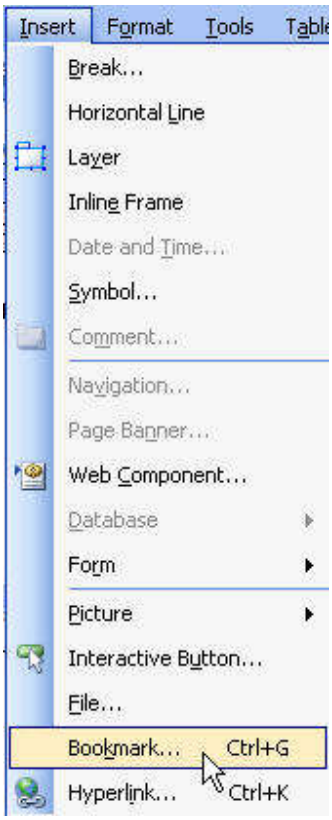
.htm page. Do **not** select 'Target Frame...' > 'New Window' as you did in the previous example Click 'OK'



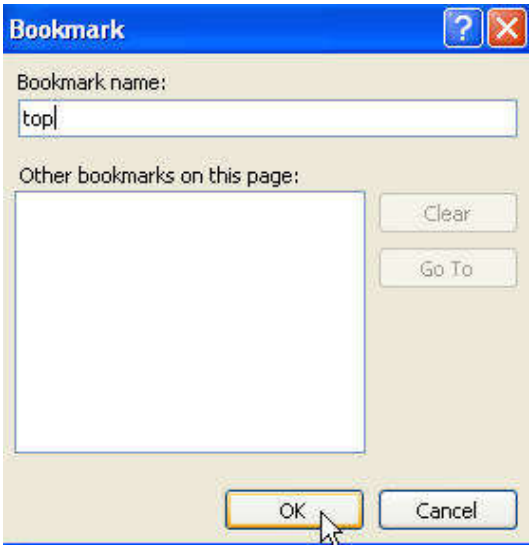
6. The word is now linked

Linking to a place within the same document

1. Click the cursor to the place in your document **to which you want to navigate**
2. Go to 'Insert' > 'Bookmark' and click

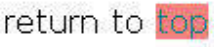


3. A 'Bookmark' window will appear, name your bookmark (In this case, I want to navigate from the bottom to the top of my page, so I named mine 'top') Click 'OK'

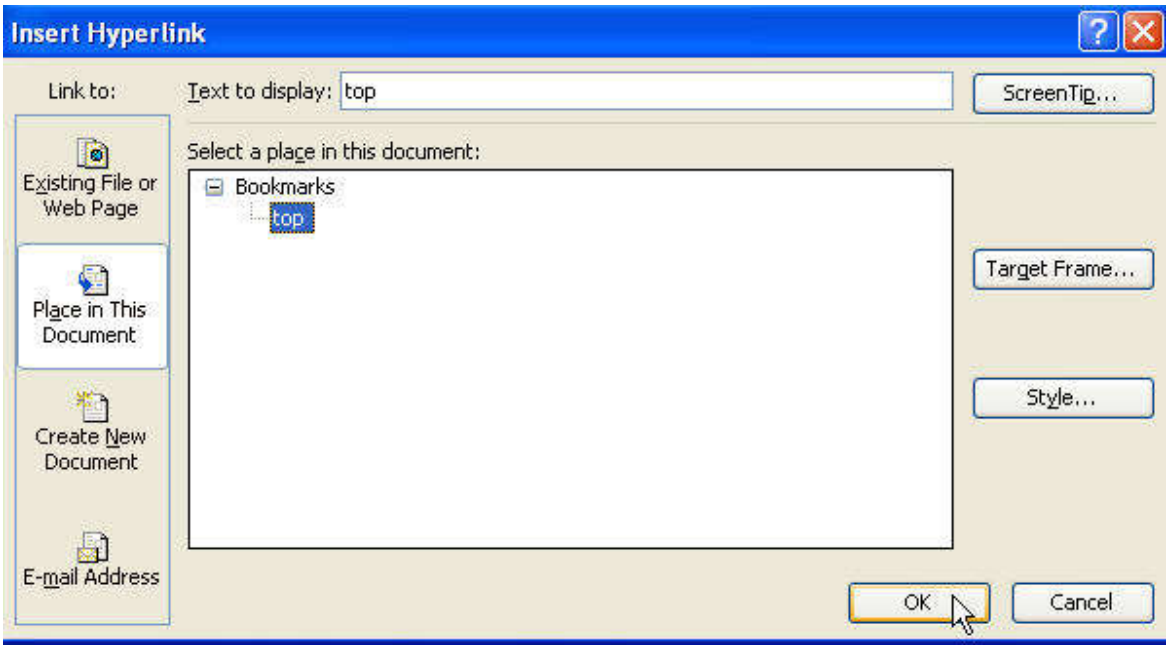


4. A tiny 'flag' appears, representing a bookmark
(This flag will not appear when viewed in the browser)

5. Highlight the text or image in your page **from which you wish to navigate**
(In this case, I highlighted 'top' since I am wanting to navigate from bottom to top)



6. Click on the 'Hyperlink' icon and choose 'Place in This Document' and the name of the bookmark
Click 'OK'



7. The area you highlighted is now linked to the bookmark
You may now 'jump' from one area to another within the same page

Fundamentals of HTML

What is HTML

HTML is a language for describing web pages.

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- HTML is not a programming language, it is a **markup language**
- A markup language is a set of **markup tags** which are surrounded by **angle brackets** like <html>.HTML tags normally **come in pairs** like and
- HTML uses **markup tags** to describe web pages

HTML gives authors the means to:

- Publish online documents with headings, text, tables, lists, photos, etc.
- Retrieve online information via hypertext links, at the click of a button.
- Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.
- Include spreadsheets, video clips, sound clips, and other applications directly in their documents.

Structure of an HTML File

The most important tags are **<html>** and **</html>** - the entire document is contained within these two tags. The instruction here is simply "This is an HTML document". HTML comprises two major parts that give a document a well-structured look. They are:

1- *Head* : The Head contains the title of the document and the heading - which is the heading of that particular page in the document. The head section start with tag<head> and end with </head>.

2- *Body* : The Body contains the entire content of the document. The body section start with tag <body> and end with </body>.

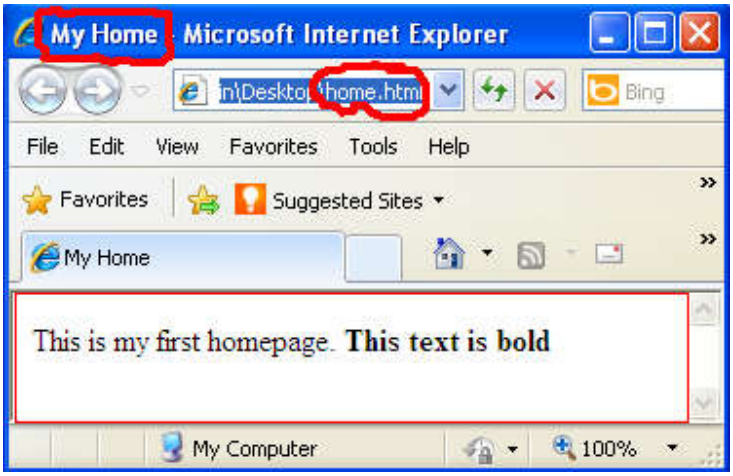
You can create such a document using any text editor - even a very simple one like Windows Notepad. After finishing of the HTML codes, we can save the file with extension ".html". To view an HTML document, you must use a browser (or similar software). The browser opens the HTML document in the background and "decodes" it before showing it to you. (ex. Home.html).

Example code for home.html

```
<html>
    <head>
        <title> Home Page </title>
    </head>
    <body>
        This is my first homepage. <b>This text is bold</b>

    </body>
</html>
```

Output



What is HTML

To publish information for global distribution, one needs a universally understood language, a kind of publishing mother tongue that all computers may potentially understand. The publishing language used by the www is HTML.

HTML gives authors the means to:

- Publish online documents with headings, text, tables, lists, photos, etc.
- Retrieve online information via hypertext links, at the click of a button.
- Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.
- Include spreadsheets, video clips, sound clips, and other applications directly in their documents.

HTML files are nothing more than simple text files, so to start writing in HTML, you need nothing more than a simple text editor. Notepad is a common text editor (on Windows this is usually found under the Programs > Accessories menu). Type html codes and save the file as "myfirstpage.html".

To look at HTML files, they don't even need to be on the web. Open a web browser such as Firefox or Internet Explorer and in the address bar, where you usually type web addresses, type in the location of the file you just saved (for example, "c:\html\myfirstpage.html") and hit return. Alternatively, go to the File menu of the browser, select Open, and browse for the file.

Structure of a HTML page

```
<HTML>
    <HEAD>
        <TITLE> name of the document </TITLE>
    </HEAD>
    <BODY>
        ……..page content ……..
        ……..page content……
        ……..page content……
    </BODY>
</HTML>
```

HTML tags

1. <HTML> tag

The first page structure in every HTML page is the <HTML> tag. It indicates that the content of this file is in the HTML language. All the text and HTML comments in a HTML page should go within the beginning and ending HTML tags.

2. <HEAD> tag

The <HEAD> tag specifies the line within the beginning and ending points of the tag are the prologue to the rest of the file. Generally, only a few tags go into the <HEAD> portion of the page.

3. <BODY>..</BODY> tag

The remainder of the HTML page, including all the text and other content is enclosed within a <BODY> tag.

4. <TITLE>...</TITLE> tag

The <TITLE> tag is used to show title of document in the title bar of the web browser.

5. <H> tag

The header tag <H> is used to display the text in different font size. It has six types

<H1>...</H1> - Largest heading size. ex. **Heading1**

<H2>...</H2> - Large heading size. ex. **Heading 2**

<H3>...</H3> - Medium-big heading size. ex. **Heading 3**

<H4>...</H4> - Medium-small heading size. ex. **Heading 4**

<H5>...</H5> - Small heading size. ex. **Heading 5**

<H6>...</H6> - Smalles heading size. ex. **Heading 6**

6. <P>…</P> tag

The Paragraph tag <P> is used display the in paragraph format and also align the text in left, right, center and Justify format.

7. <OL>...</OL> tag

This tag is used to show list of items in ordered format. Each item is covered with <LI>..</LI> tag.

Example:

```
<OL>
 <LI> red </LI>
 <LI> green </LI>
 <LI> blue </LI>
</OL>
```

Output

1.red

2.blue

3.green

7. <UL>...</UL> tag

This tag is used to show list of items in unordered format. Each item is covered with <LI>..</LI> tag.

Example:

```
<UL>
 <LI> red </LI>
 <LI> green </LI>
 <LI> blue </LI>
</UL>
```

Output:

- red
- green
- blue

8. <B>...</B> tag

This is used to display text in bold face.

```
<B> bold</B>
```

Output:

bold

9. <I>...</I> tag

This is used to display text in Italic style.

```
<I> Italic </I>
```

Output:

Italic

10. <HR> tag

This used to draw single line. The <HR> is not need to closing tag </HR>

<HR>

Output:

11.
 tag

This is used to break line in a paragraph.

12. <IMG> tag

This is used to include the image to html page with different size.

Example : <IMG src="c:\bird.jpg">

13. <A> … </A> tag

This is used to create a hyper link for another page or image or file etc. The linked words are displayed in blue color with underlined. User click linking word then we can move to the linked page.

Example: <A href="c:\main.html"> main </A>

Output : main

14. <Table>… </Table> tag

This tag is used to display items in tabular format with different color.

15. <Tr>…</Tr> tag

It is used to create new row in a table. It is used inside the <Table> tag.

16. <Td>…<Td> tag

It is used to display individual data item in a single row. It is used inside the <Tr> tag.

Ex :

```
<table border=1>
        <tr>
            <td>name</td>  <td> marks(100) </td>
        </tr>
        <tr>
            <td>Mani</td>  <td> 95</td>
        </tr>
        <tr>
            <td>sureh</td>  <td> 85</td>
        </tr>
    </table>
```

Output :

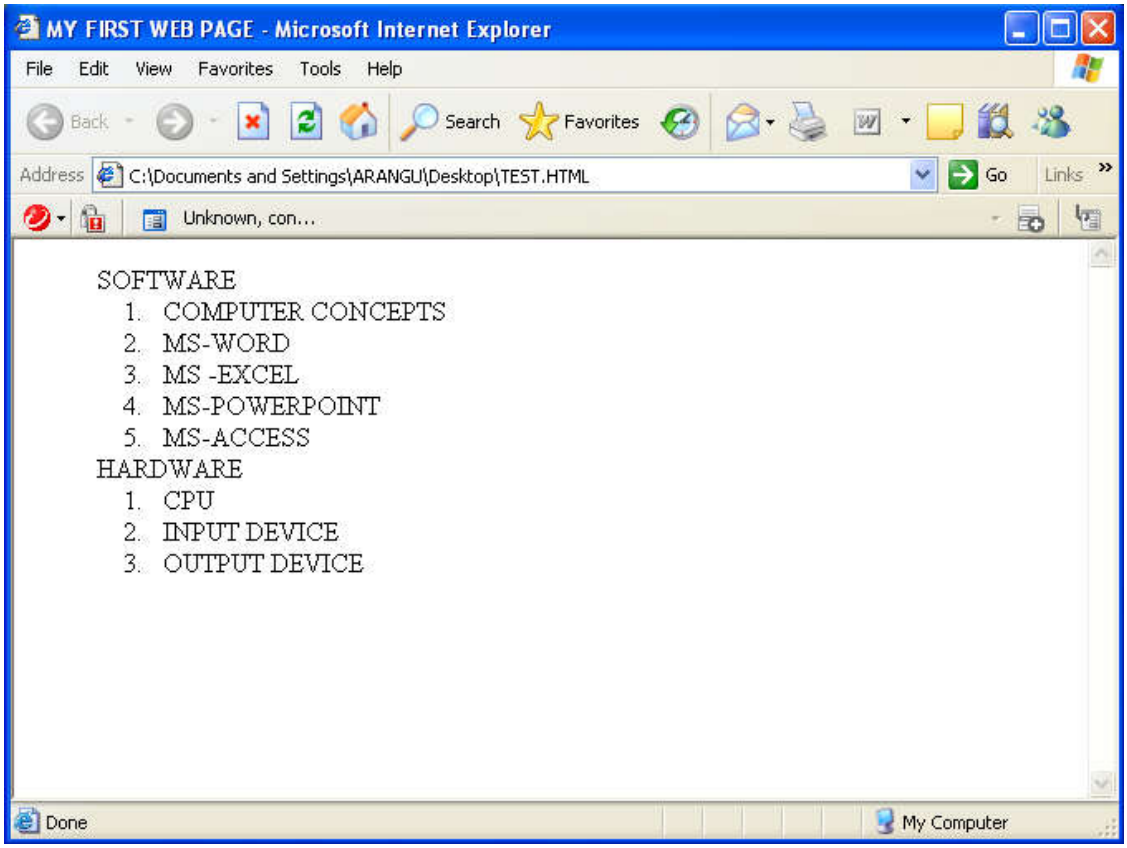
name	marks(100)
Mani	95
sureh	85

Simple HTML page

```
<HTML>
        <HEAD>
            <TITLE> MY FIRST WEB PAGE </TITLE>
        </HEAD>
        <BODY>
```

```
<UL>
<L1> SOFTWARE
<OL>
    <L1> COMPUTER CONCEPTS
    <L1> MS-WORD
    <L1> MS -EXCEL
    <L1> MS-POWERPOINT
    <L1> MS-ACCESS
</OL>
<L1> HARDWARE
<OL>
<LI> CPU
<LI> INPUT DEVICE
<LI> OUTPUT DEVICE
</OL>
</UL>
</BODY
</HTML>
```

The out put for the above HTML program is as follows


MY FIRST WEB PAGE - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\Documents and Settings\ARANGU\Desktop\TEST.HTML
Go Links
Unknown, con...
SOFTWARE
1. COMPUTER CONCEPTS
2. MS-WORD
3. MS -EXCEL
4. MS-POWERPOINT
5. MS-ACCESS
HARDWARE
1. CPU
2. INPUT DEVICE
3. OUTPUT DEVICE
Done
My Computer

1. C:\>**ver**

Microsoft Windows XP [Version 5.1.2600]

2. C:\>**date**

The current date is: Thu 08/11/2011
Enter the new date: (mm-dd-yy)

3. C:\>**time**

The current time is: 11:08:31.26
Enter the new time:

4. C:\>**copy con student.txt**

mani
ganesh
suresh
^Z
1 file(s) copied.

5. C:\>**type student.txt**

mani
ganesh
suresh

6. C:\>**rename student.txt stud.txt**

7. C:\>**dir**

Volume in drive C has no label.
Volume Serial Number is EC7E-8DFC

Directory of C:\

06/08/2011 10:24 AM <DIR> annamalaiuniversity
01/12/2011 10:13 AM 0 AUTOEXEC.BAT
01/12/2011 10:13 AM 0 CONFIG.SYS
06/11/2011 03:53 PM <DIR> Documents and Settings
01/12/2011 02:54 PM <DIR> Intel
04/20/2011 04:03 PM 882 menu.htm.html
04/20/2011 04:03 PM <DIR> menu.htm_files
08/05/2011 02:59 PM 11,770 PNET1 Query.txt
07/25/2011 12:24 PM <DIR> Program Files
08/11/2011 11:08 AM 22 stud.txt
07/04/2011 02:38 PM <DIR> WINXP
08/06/2009 12:00 AM <DIR> xampp
5 File(s) 12,674 bytes
7 Dir(s) 22,581,161,984 bytes free

8. C:\>**dir/w**

```
 Volume in drive C has no label.
 Volume Serial Number is EC7E-8DFC

 Directory of C:\

[annamalaiuniversity]    AUTOEXEC.BAT           CONFIG.SYS
[Documents and Settings] [Intel]                menu.htm.html
[menu.htm_files]         PNET1 Query.txt        [Program Files]
stud.txt                 [WINXP]                [xampp]
               5 File(s)        12,674 bytes
               7 Dir(s)  22,581,161,984 bytes free
```

9. C:\>**md test**

10. C:\>**cd test**

11. C:\test>**cd..**

12. C:\>**copy stud.txt c:\test**

```
 1 file(s) copied.
```

C:\>**cd test**

C:\test>**dir**

```
 Volume in drive C has no label.
 Volume Serial Number is EC7E-8DFC

 Directory of C:\test

08/11/2011  11:11 AM    <DIR>          .
08/11/2011  11:11 AM    <DIR>          ..
08/11/2011  11:08 AM                22 stud.txt
               1 File(s)             22 bytes
               2 Dir(s)  22,581,161,984 bytes free
```

13. C:\test>**del stud.txt**

C:\test>**dir**

```
 Volume in drive C has no label.
 Volume Serial Number is EC7E-8DFC

 Directory of C:\test

08/11/2011  11:11 AM    <DIR>          .
```

08/11/2011 11:11 AM <DIR> ..
0 File(s) 0 bytes
2 Dir(s) 22,581,166,080 bytes free

C:\test>**cd..**

14. C:\>dir
Volume in drive C has no label.
Volume Serial Number is EC7E-8DFC

Directory of C:\

06/08/2011 10:24 AM <DIR> annamalaiuniversity
01/12/2011 10:13 AM 0 AUTOEXEC.BAT
01/12/2011 10:13 AM 0 CONFIG.SYS
06/11/2011 03:53 PM <DIR> Documents and Settings
01/12/2011 02:54 PM <DIR> Intel
04/20/2011 04:03 PM 882 menu.htm.html
04/20/2011 04:03 PM <DIR> menu.htm_files
08/05/2011 02:59 PM 11,770 PNET1 Query.txt
07/25/2011 12:24 PM <DIR> Program Files
08/11/2011 11:08 AM 22 stud.txt
08/11/2011 11:11 AM <DIR> test
07/04/2011 02:38 PM <DIR> WINXP
08/06/2009 12:00 AM <DIR> xampp
5 File(s) 12,674 bytes
8 Dir(s) 22,581,166,080 bytes free

C:\>**rd test**

C:\>**dir**
Volume in drive C has no label.
Volume Serial Number is EC7E-8DFC

Directory of C:\

06/08/2011 10:24 AM <DIR> annamalaiuniversity
01/12/2011 10:13 AM 0 AUTOEXEC.BAT
01/12/2011 10:13 AM 0 CONFIG.SYS
06/11/2011 03:53 PM <DIR> Documents and Settings
01/12/2011 02:54 PM <DIR> Intel
04/20/2011 04:03 PM 882 menu.htm.html
04/20/2011 04:03 PM <DIR> menu.htm_files
08/05/2011 02:59 PM 11,770 PNET1 Query.txt
07/25/2011 12:24 PM <DIR> Program Files
08/11/2011 11:08 AM 22 stud.txt

```
07/04/2011  02:38 PM    <DIR>          WINXP
08/06/2009  12:00 AM    <DIR>          xampp
               5 File(s)         12,674 bytes
               7 Dir(s)  22,581,166,080 bytes free
```

UNIT – V - Multimedia

Basic Definition

Multimedia can be defined as any combination of two or more of the following:-

- Text
- Graphics
- Sound
- Animation
- Video

Multimedia combines text, photographic images, video, animations and sound to provide the means to visualize and interact with information in a meaningful way.

It makes electronic advertising more interesting as the television and movies by incorporating the sound and video checks into the computer presentation.

The word multimedia simply means being able to communicate in more than one way for better interaction.

In other words, execution of text, sound, graphics and animation simultaneously is the function of multimedia

Hence the basic components of multimedia are text, sound, graphics, animation and video. A multimedia based computer must have all the needed hardware and software require to combine these components

Application of Multimedia

Multimedia technology can be used in variety of sectors. Virtual reality is the multimedia tool used for performing remote control applications.

1. Entertainment

Software industry has developed lots of real life like games by in including text, graphics, sound and animation.

Virtual reality has made computer game adventure. Multimedia games allow children to experience the joy of driving cars of different type and model, fly aircraft play and musical instrument and so on.

2. Education

In Education, multimedia is used to produce computer-based training courses (popularly called CBTs) and reference books like encyclopaedia and almanacs. A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Edutainment is an informal term used to describe combining education with entertainment, especially multimedia entertainment.

They are used in training centers(eg.). In air force, candidates trained to control on aircraft using flight simulators.

3. Medicine

In Medicine, doctors can get trained by looking at a virtual surgery or they can simulate how the human body is affected by diseases spread by viruses and bacteria and then develop techniques to prevent it.

4. Mathematical and Scientific Research

In Mathematical and Scientific Research, multimedia is mainly used for modeling and simulation. For example, a scientist can look at a molecular model of a particular substance and manipulate it to arrive at a new substance. Representative research can be found in journals such as the Journal of Multimedia.

5. Engineering

Software engineers may use multimedia in Computer Simulations for anything from entertainment to training such as military or industrial training. Multimedia for software interfaces are often done as collaboration between creative professionals and software engineers.

6. Business

Multimedia is used in business to enhance quality of the business communication. Now we can advertisement and corporate presentation, incorporating multimedia or video conferencing, Another activity that involves multimedia to get together for discussion on the internet.

Elements of Multimedia

Text:

This involves displaying words on the screen. This is used to provide a lot of information, so program always used it. Text appearance can be made attractive and impressive using special tools namely bold face, blink, underline etc.,

Graphics or Pictures

Computer can also produce photograph quality images on the screen explaining topics using pictures along with text will make the audience understand the topic better.

However, different graphics formats are available which take less space and are faster to load into the memory.

Animation

Moving images have an overpowering effect on the human peripheral vision. Followings are few points for its popularity.
Sometimes animation can explain aspect better than movies.

Eg. A) The feet moment of a dinosaur can be explained in details through animation.
B) Automobile industry use animation to study event like vehicle accident to make driving safer.
c) Film industry use animation to create a non-existing artificial world.

Audio

Audio has a greater role to play in multimedia development. It gives life to the static state of multimedia. Incorporation of audio is one of the most important features of multimedia, which enhance the multimedia usability to its full potential. There are several types of sound, which can be used in multimedia. They are human voices, instrumental notes, natural sound and many more. All these can be used in any combination as long as they give some meaning to their inclusion in multimedia.

Video or Movies

A computer can be turned into a television using a multimedia program. Video regarding like family movies stored on CD, entertainment movies, educated movies can be played.

Beside animation there is one more media element, which is known as video. With latest technology it is possible to include video impact on clips of any type into any multimedia creation, be it corporate presentation, fashion design, entertainment games, etc.

Hardware and Software Requirements

For producing multimedia you need hardware, software and creativity. In this section we will discuss the multimedia equipment required in a personal computer (PC) so that multimedia can be produced.

(a) Central Processing Unit

As you know, Central Processing Unit (CPU) is an essential part in any computer. It is considered as the brain of computer, where processing and synchronization of all activities takes place. The efficiency of a computer is judged by the speed of the CPU in processing of data. For a multimedia computer a *Pentium* processor is preferred because

of higher efficiency. In today's scenario, a Pentium processor with MMX technology and a speed of 166 to 200 MHz (Megahertz) is an ideal processor for multimedia.

(b) RAM

In addition to the processor one will need a minimum 16 MB RAM to run WINDOWS to edit large images or video clips. But a 32 or 64 MB RAM enhances the capacity of multimedia computer.

(b) Monitor

As you know that monitor is used to see the computer output. Generally, it displays 25 rows and 80 columns of text. The text or graphics in a monitor is created as a result of an arrangement of tiny dots, called *pixels*. Resolution is defined in terms of horizontal and vertical pixel (picture elements) displayed on the screen. The greater the number of pixels, better visualization of the image.

c) SVGA Adapter card

The signals that monitor gets from the processor are routed through a graphics card. But there are computers available where this card is in-built into the motherboard. This card is also called the graphics adapter or display adapter. This card controls the individual pixels or tiny points on a screen that make up image. There are several types of display adapter available. But the most popular one is Super Virtual Graphics Arrays (SVGA) card and it suits the multimedia requirement. The advantage of having a SVGA card is that the quality of graphics and pictures is better.

d) Video Grabbing Card

This card is fitted into a free slot on the motherboard inside the computer and gets connected to an outside source such as TV, VCR or a video camera with the help of a cable. This card receives both video and audio signal from the outside source and conversion from analog to digital signal takes place. This process of conversion is known as sampling.

e) Sound Card with Speakers

This is installed into a free slot on the computer motherboard. As in the case of video grabber card, sound card will take the sound input from outside source (such as human voice, pre-recorded sounds, natural sounds etc.) and convert them into digital sound signal of 0's and 1's. The recording software used along with the sound card will store this digitized sound stream in a file. This file can latter be used with multimedia software.

f) Graphics accelerator card

Generating graphics takes up considerable amount of system resources. This slows the moving pictures that don't move smoothly. The graphics accelerator card takes responsibility of generating pictures and screen without the interaction of CPU generating excellent output of pictures and movies.

g) CD-ROM Drive

CD-ROM is a magnetic disk of 4.7 inches diameter and it can contain data up to 680 Megabytes. It has become a standard by itself basically for its massive storage capacity, faster data transfer rate. To access CD-ROM a very special drive is required and it is known as CD-ROM drive. Let us look into the term ROM that stands for 'Read Only Memory'. It means the material contained in it can be read (as many times, as you like) but the content cannot be changed.

As multimedia involves high resolution of graphics, high quality video and sound, it requires large amount of storage space and at the same time require a media, which can support faster data transfer. CD-ROM solves this problem by satisfying both requirements.

Similar to the hard disk drive, the CD-ROM drive has certain specification which will help to decide which drive suit best to your multimedia requirement.

h) 1GB Hard disk or above
i) Key board and Mouse
j) Mic

Hypertext

Hypertext most often refers to text on a computer that will lead the user to other, related information on demand. Hypertext represents a relatively recent innovation to user interfaces, which overcomes some of the limitations of written text. Rather than remaining static like traditional text, hypertext makes possible a dynamic organization of information through links and connections (called hyperlinks).

Hypertext can be designed to perform various tasks; for instance when a user "clicks" on it or "overs" over it, a bubble with a word definition may appear

Hypertext contains connections within the text to other documents or locations. Hypertext allows non-sequential reading and writing of documents by using embedded links to jump from one place in the document to another; hopefully in a meaningful way. The cross reference links are determined by the author but the user chooses which branches to take.

Hypermedia

Hypermedia is used as a logical extension of the term hypertext, in which graphics, audio, video, plain text and hyperlinks intertwine to create a generally non linear medium of information.

Hypermedia documents contain links not only to other pieces of text, but also to other forms of media:

- *sounds*
- *pictures*
- *movies*
- *animations*

The destination of a link is a node. Pictures may also be used to link to other nodes. Hypermedia simply combines hypertext and multimedia. It allows authors to connect information in diverse ways, allowing users to explore a complex web of interlinked information according to their needs and interests.

Sound

The multimedia application user can use sound right off the bat on a multimedia PC running Windows because beeps and warning sounds are available as soon as the operating system is installed. In Windows system sounds are WAV files and they reside in the windows\Media subdirectory.

There are still more choices of audio if Microsoft Office is installed. Windows makes use of WAV files as the default file format for audio.

Digital Audio

Digital audio is created when a sound wave is converted into numbers – a process referred to as digitizing. It is possible to digitize sound from a microphone, a synthesizer, existing tape recordings, live radio and television broadcasts, and popular CDs. You can digitize sounds from a natural source or prerecorded.

Audio File Formats

A file format determines the application that is to be used for opening a file. Following is the list of different file formats and the software that can be used for opening a specific file.

1. *.WAV for Windows Systems
2. *.WMA –windows media player
3. *.MP3 – MP3 audio
4. *.RA – Real Player

Sound Recorder

It can be used both to play and record sound. To record sound a microphone is required. The microphone is also plugged into sound card. It can record maximum of 1 minute audio in “WAV” format.

Media Player

This is a versatile media player by Microsoft and can play audio and video file. It can also play Audio CD and Video CD.

Images

The display on screen depends on the display cards. Display cards that support large number of colour better. They are pixel based images available in file format like TIF, GIF, BMP, JPEG

The quality can be good if care is taken during scanning and if atleast 256 colors are used. Software such adobe and Photoshop give good control over the image scanning devices like scanner or flat-bed scanner can be connected to the computers. So that scanned image is stored directly in your CPU.

Images can be created using images editing software like photoshop, paintbrush, coreldraw etc., Images created can stored in different file format. Some of the common file formats are TIF, GIF, BMP, JPEG.

Animation

It is a single graphic file that depicts movement for instance. This is achieved by super imposing, several still picture in pre-defined sequence. The time interval that each frame remains can specified to achieve the results. If the frames move too slowly or too fast, the animation is not smooth. The speed at which the images are displayed is called the frame rate and measured as frame per second.

Generally the minimum frame rate for acceptable animation is about 15 frames/sec. Which move at a speed that allows us to recognize images as being separate but is still watchable. The ideal rate for animations is 30 fps which matches video frame rate. Most of multimedia computers are capable of playing back 30 fps animation and video

Morping

Morphing is popular effect in which one image transforms into another. It is also related animation. It is technique that allows smooth changes to occur to an object shape by defining beginning, ending and possibly intermediate forms as guides.

Following is the list of few Software used for computerized animation:

- 3D Studio Max
- Flash
- AnimationPro

Video

The advantage of integrating video into a multimedia presentation is the capacity to effectively convey a great deal of information in the least amount of time. Remember that motion integrated with sound is a key for your audience's understanding. It also increases the retention of the presented information (knowledge).

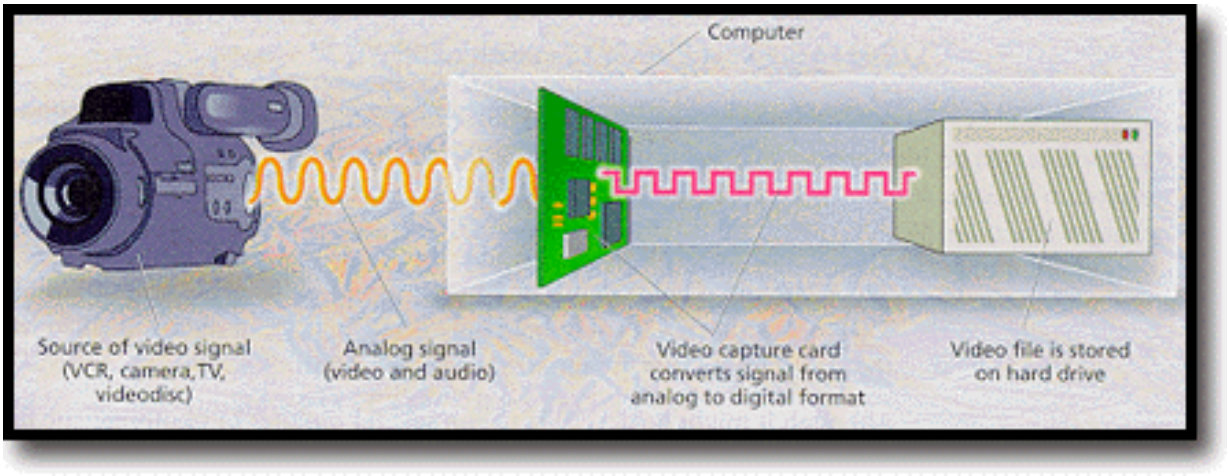
Digitizing the Video Signal

There are two basic approaches to delivering video on a computer screen – analogue and digital video.

- Analogue video is essentially a product of the television industry and therefore conforms to television standards.
- Digital video is a product of the computing industry and therefore conforms to digital data standards.

Video, like audio. Is usually recorded and played as an analog signal. It must therefore be digitized in order to be incorporated into a multimedia title.

Figure below shows the process for digitizing an analog video signal.



A video source, such as video camera, VCR, TV, or videodisc, is connected to a video capture card in a computer. As the video source is played, the analog signal is sent to the video card and converted into a digital file that is stored on the hard drive. At the same time, the sound from the video source is also digitized.

Advantages of Digital Video

One of the advantages of digitized video is that it can be easily edited. Analog video, such as a videotape, is linear; there is a beginning, middle, and end. If you want to edit it, you need to continually rewind, pause, and fast forward the tape to display the desired frames.

Digitized video on the other hand, allows random access to any part of the video, and editing can be as easy as the cut and paste process in a word processing program. In addition, adding special effects such as fly-in titles and transitions is relatively simple.

Other advantages:

- The video is stored as a standard computer file. Thus it can be copied with no loss in quality, and also can be transmitted over standard computer networks.
- Software motion video does not require specialized hardware for playback.

Unlike analog video, digital video requires neither a video board in the computer nor an external device (which adds extra costs and complexity) such as a videodisc player.

The common digital video formats are :

- Motion Pictures Expert Group (.MPEG)
- Video for Windows (.AVI).

Development of Multimedia Projects

Most multimedia and web projects must be undertaken in stages. Some stages should be completed before other stages begin and some stages may be skipped or combined. Here are four basic stages in multimedia project.

1. Planning and costing
2. Designing and producing
3. Testing
4. Delivering

1. Planning and Costing

A project always begins within a idea or a need identify how you will make each message within your system before you begin developing plan what writing skill, graphic art, music, video and other multimedia expertise will be required. Estimate the time needed to do all elements and prepare a budgets prepare a proof of concept.

2. Designing and Producing

Perform each of the planned tasks to create finished products.

3. Testing

Always test your programs to make sure that they meet the requirements of your projects.

4. Delivering

Package and deliver the project to the end user. This stage has several steps such as implementation, maintenance, shipping and marketing the product.