Manan Rastogi

(1) Write an appl" for maternity leave
(2). Complete Attendance Register (3) Prepare lecture for BMS" ??

Fundamentals of Computing

Paper Code: ETCS-111 L T C
Paper: Fundamentals of Computing 2 0 2

INSTRUCTIONS TO PAPER SETTERS:	Maximum Marks : 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 10 marks

Obj: The objective of the paper is to facilitate the student withapplied working knowledge of computers. This is the first course of computing and does not assume any pre-requisite .

UNIT I (9 Hours)

Five Component Model of a Computer. System and Application software (introduction) storage devices , primary (RAM, ROM, PROM, EPROM, cache) Memory and secondary (magnetic tape, hard disk, Compact disks) memory , peripheral devices , printers [T1], [T2] Storage devices.

UNIT II (9 Hours)

Operating Systems: DOS Internal, External commands, Windows (2000 and XT) Overview of architecture of Windows, tools and system utilities including registry , partioning of hard disk, Overview of Linux architecture , File system , file and permissions , concept of user and group , installation of rpm and deb based packages [T1], [T2].

UNIT III (9 Hours)

Basics of programming through flow chart , Networking Basics - Uses of a network and Common types of networks , Network topologies and protocols , Network media and hardware , Overview of Database Management System[T1][T2], [R1].

UNIT IV (9 Hours)

Libre / Open Office Writer : Editing and Reviewing, Drawing, Tables, Graphs, Templates
Libre / Open Office Calc : Worksheet Management , Formulas, Functions, Charts
Libre / Open Office Impress: designing powerful power-point presentation
[R2][R3]

Text:
[T1]. Peter Norton, Introduction to computers, Sixth Edition Tata McGraw Hill (2007).
[T2]Andrews Jean, A+Guide to Managing & Maintaining Your PC. Cengage Publication 6/e
References:
[R1]Joiner Associates Staff , Flowcharts: Plain & Simple: Learning & Application Guide , Oriel Inc
[R2]http://www.openoffice.org/why/
[R3]. http://www.libreoffice.org/get-help/documentation/

Assignment 1:- Overview of architecture of Windows and ~~Hard disk Partitioning~~ Linux Architecture ??

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1 Introduction To computer system.

Computer is an electronic device that is programmed to accept data (input) Process it into useful Information (output) and store it.

C – Commonly
O – operating
M – Machine
P – Personal
U – used for
T – Technical
E – education
R – Research

Charles Babbage is known as Father of Modern Computer.

Data :- ① Data a collection of raw facts and figures. Raw material used as input for Processing.

② → Data describe the attribute about the activity of a Business or Person or any other thing either living or Non living.

③ It include facts, observation, Assumption or occurrence.

Data are name, time, date height.

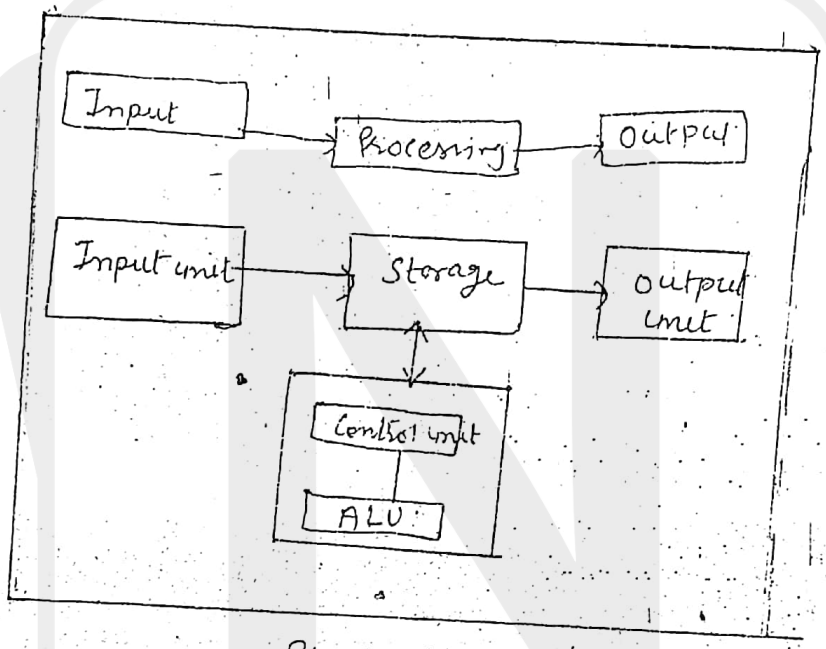
Information :- Information is a little Bit different from data.

✓ It is very well Processed assembled form of data.

Input device	output device
1). Device that allow the user to enter information that the PC.	Device that allow the computer to communicate with the user (monitor, Printe

Block Diagram Computer System

Compute which implies that the machine was designed to compute data.



Block diagram of computer

Input: The operation is used to feed information in the computer.

Standard device are keyboard, mouse & pointing

The input device must accept the data from out-side world and the computer to process it must accept same data. The data or Information feed through the keyboard are stored in storage device.

Input Interface

1. It accepts the list of instruction and data from outside world
2. Converts these instruction and data in computer acceptable form
3. Supplies this converted data to the computer system for further Processing.

Outside unit

Job of this unit just reverse of that I/P Unit means. It gives result to the outside user.

1. Accepts the result Produced by the computer which are in coded form
2. It Converts these coded result to the outside world

CPU (Central Processing unit)

CPU Carries out instruction and tells the rest of Computer system what to do. This is control unit of the CPU which Sends command signal to the other component of the system

CPU perform arithmetic calculation and data Manipulation.

eg. Comparisons, Sorting, Combining.

Control Unit The control unit directs the entire computer system to carry out Stored Program instruction. CU communicates with both the arithmetic logic unit and memory. This unit is used to control all the device which is help for Processing. It control the inflow and outflow of data. It works like a traffic which control the movement of data from memory to Processing unit. It must accept the value returned by the ALU and also by the memory

Processing :- Processing is done in Arithmetic logical unit (ALU). Any kind of data stored in the memory flow through control unit to ALU for processing and again stored result in memory which flow to control unit.

The combination of control unit and the ALU is called Processor.

Storage unit :- Storage unit is to store any kind of information. The memory in the storage unit is divided in the form of cell. Each and every cell is address Memory in two type

Generation of computers:-

Generation in computer talk is a step in Technology. It provides a frame work for the growth of computer Industry.

1st Generation of computer (1946 – 1954)

(1) These are the oldest computer using Vaccum tube technology.

(2) They were Bulky weighing about 30 tonnes.

3. They had low working speed.

4. They consumed about 140 kW of energy. Producing immense heat.

5. One is their mean time between failure. these computer required constant failure.

6. In these computers were difficult to Program and use. They had limited commercial use.

7. Vaccum Tube used filaments they have limited life: Because a computer used Thousand of Vaccum tube, These computer were often ten thousand vaccum tube. Power Consumption of these.

Second Generation (1955 - 1964).

- They used the technology of Transistors
- They were less bulky but could not reach the common man.
- The circuit density was about 100,000 CKT/sq ft
- They were much smaller than a tube
- They were less expensive to produce
- They dissipated much less Heat as compared to Vacuum Tube.
- They were highly reliable as compared
- They consumed almost one-tenth the Power consumed by a tube.

Third Generation (1964 - 1975)

- They were based on Technology of I.C (Integrated chips)
- This led to a great reduction in size.
- Computers were much faster and had a better storage capacity.
- Extensive use of Programming language was seen.

Fourth Generation (1975 - to Present)

1. PC's were smaller and cheaper than mainframe or minicomputer of third generation.
2. They consumed less power than third generation computer.
3. They were general purpose machine.
4. Graphical user interface enabled new user to quickly learn how to use computer.
5. PC - based application made PC's a powerful tool for both office and home usage.
6. They had faster large primary and secondary storage as compared to third generation computer.
7. They had huge storage capacity.
8. Billion circuit/sq ft were placed.
9. They were based very large scale integration technology.

Fifth Generation : (1990's) Present & beyond
Ultra large scale Integration

1) Portable PC's are much smaller than PC's of 4th Generation.

2. They consume less power than Predecessors.

3. They are more reliable ; and less Prone to Hardware failure than their Predecessors.

4. Fifth Generation Mainframe require Proper air conditioning

Computer Software

- System Software
- Application Software

System Software :- System Software Helps the computer perform essential operating tasks and enables the application software to run the hardware of the system software already installed of the.

System Software is a set of one or more programs designed to control the operation and extend the processing capability of a computer system.

1. Supports development of other application s/w
2. Support execution of
3. Monitors effective use of various Hardware resources such as CPU, memory, peripheral
4. Communication with and control operation peripherals device such as printer, disk, Tape

Some commonly known types of system software:-

1. Operating System → O.S takes care of effective and efficient use utilization of all hardware and other software components of computer system.

2. Programming Language Translator → Programming language translator Translation - to instruction. Prepared by Programmers in Programming Lang-

3. Communication Software :- In a network environment

Transfer of data and Program from one computer system to another

communication software enable

4. Utility Programs are set of Program that help user in system maintenance.

Tasks and in performing task & routine maintenance. Some task commonly performed by utility Programs including formatting & hard disk or floppy disk.

Q) Files stored on hard disk to a tape or floppy disk.

Application Software:- application software is a set of one or more programs designed to solve a specific problem or do a specific task.

For example. Payroll Processing.
Examination Result Processing.
Software Railway / airline reservation.
Computer game. Software etc| application Software.

1. Word Processing Software:- Word Processing software enables us to make use of a computer for creating, editing, viewing, formatting, storing and printing documents.

2. Spreadsheet Software:- Spreadsheet is a numeric data analysis tool that allow us to create a kind of computerized ledger. Manual ledger is a book having rows and columns that accountants use for keeping a record of financial transactions and for preparing financial statements.

3. Database Software:- database is a collection of related data stored and treated as a unit for information retrieval. Purpose

For example queries such as get the Telephones number of the person named Kashyap Rana. from the address or get the name of all currently enrolled students.

Graphic Software:- Graphic software enable us to use a computer system for creating editing viewing storing, retrieving and printing of design drawing picture graphs.

Personal Assistance Software:- Personal Assistance software allow us to use personal computer for storage and retrieval of our personal information as well as planning and management of our schedules, contacts finances and inventary of item important

Education Software:- Education s/w allows a computer to be used as teaching and learning tool.

example of such software include those used for teaching Mathematic, programmer language.

Entertainment Software:- entertainment s/w allow a complier to be be used as an entertainment tool. Computer video games belong to this category of software.

Language Processors (Translators / Compilers & Interpreters).

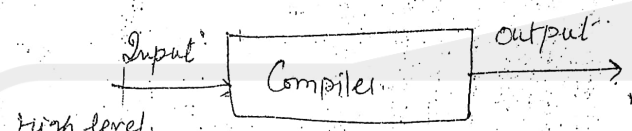
A language Translator or language Processor is a general term used for any assembler compiler or other routine that accepts statements in one language and produce equivalent statements in another language. Language Processor reads the source language statement one at a time and Reports a number of instructions. The compiler can accept as assemblers.

Compilers

- Compiler are the Translators that Translate source code (user written Program) to object code (m/c language Program) the only form in which machine can execute.
- A compiler Translates the entire Program into machine language before the Program is executed compiler must commonly used to Translate high level

Such Cobol, Fortran and Pascal. (Known as Source Code)

to machine language (Known as Object code



(1) Compiler can Translate only those source programs that have written in the language for which the compiler meant.

(2) Compiler are large programs residing permanently on secondary storage. To Translate source program the compiler and source program are loaded first from secondary storage into main memory of the computer.

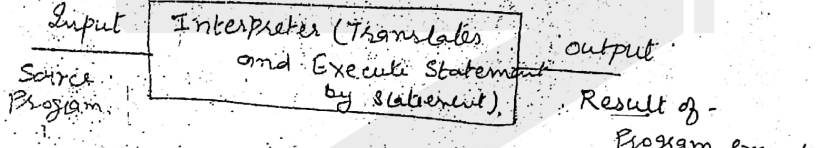
(3) Compiler being a program is then executed with source program as its input data.

(4) Compiler also detect and indicate certain type of error in source program automatically. These error are referred as Syntax error.

1. Illegal characters
2. Illegal combination of characters.
3. Improper sequencing of instruction.
4. Use of undefined variable name.

1. Source Program containing one or more errors detected by the compiler will not be compiled into an object program.
2. Compiler will generate a list of coded error message indicating the type of error committed.
3. This error list is an invaluable aid to a programmer in correcting the error.
4. Compiler can not detect logic error.
   Eg: Can detect grammatical (syntax) error only in source program.

Interpreter: → Interpreter is another type of Translator used to translate a High level language Program into its equivalent machine language Program. It take one statement of the High level language Program Translate it into machine language Instruction and then execute the resulting machine language Instruction Immediately



After compilation of a source Program, the resulting object Program is saved permanently for future use and used every time the Program is to be executed.

- Interpreter Translates and executes High level language Program statement by statement Program statement must be re interpreted every time it is encountered during Program execution.

For example:- during the execution of a Program instruction in a loop

Computer Language:-

Language is a mean of communication.

All Computer languges can be classified broadly.

- Machine language / Low level language.
- Assembly "
- High level language.

Low-Level language:

Machine language instruction normally has two part format

OPCode.	Operand.
Operation code.	Address/Location

Instruction Format

Computer can be programmed to understand many different computer language. every computer understands only one language without using a Translation Program.

This language is called machine language of computer.

Machine language of a computer is written normally as strings of Binary 1's and 0's

Machine language Instruction normally has a two part format.

1st Part is operation code that tells the computer what function to perform.

2nd Part is operand that tells where to find or store the data to be manipulated.

each Instruction tells the computer what operation to perform and the length and location of the data field involved in the operation.

Every computer has a set of operation codes called its Instruction set.

Each operation code in the Instruction set is meant to perform a specific Basic operation or function.

Typical operation included in the instruction set of a computer:

1. Airthmetic operation.
2. Logical operation.
3. Branch operation.
4. Data operation for Transfer of control to the address given in the operand field.
5.

The main advantage of Interpreter over compiler is that a Syntax error in a Program Statement is detect and Brought to the attention of the Programmer as soon as the

Difference between compiler and Interpreters:-

Compiler and Interpreter are language Translators. They Perform the same common function of reading and analyzing source code.

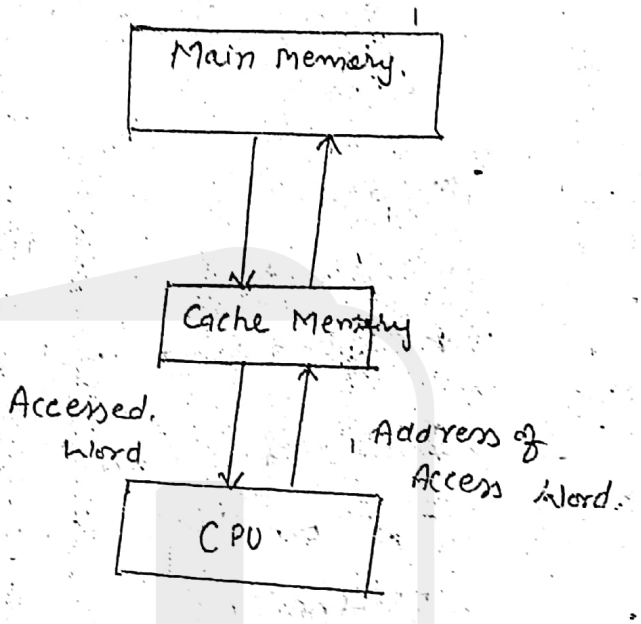
- Programming language may be compiled or Interpreated. (Fortran, ADA, C++) are almost always compiled where language which are dynamic in Nature
- Interpreters allow interactive environment where user can evaluate statement and expression while executing the Program.
- Interpreter usually Provide better run time error information. Because the source code is still available at run time. Compilation information about the source Program that is used in generating error message

is not usually retained by as Target Program.
So run time error message are often difficult to understand.

- Interpreters are generally easier to write than compiler they are more likely to be available for teaching and research language.
- Interpreter can store in read only memory and available where as compiler are stored externally.
- Interpreted Translated code cannot be saved.
- Translation need to be performed during each run and also for each statement with in loop
- Compiler generated object code can be saved and executed when required, with out re compiling the source code.
- Compiler some processing time which is very previous.
- Interpreter rather increase in Processing time.

Cache Memory

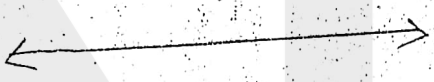
- CPU spends lots of its Program execution time in either fetching instruction and data or Storing results in the primary memory.
- Speed with which a CPU can execute a program depend on the speed of the memory.
- The Program of speed Mismatch between CPU and Primary memory can be overcome by Having High speed memory known as Cache Memory.
- It is Present as an Interface between the CPU and Primary memory.
- It is optional memory and may Not be Present in all computer. It is directly accessible to user but CPU can Access directly.



Operation of Cache Memory

It stores the segments of Programs that are Cursently being executed and of Temparary store. Very achive data and Instruction during Processing Data and Program data rapid sale the Perfarmance of CPU can be increased.

It is very Expensive Memary compared to other memories.



Room No
405 → 11-12

Topic

Basics of Programming through Flow charts

Def →

A Pictorial representation of an algorithm is called a "flow chart"

The steps in the algorithm are represented in the form of different shapes of Boxes and its logical flow is indicated by interconnecting arrows.

Flow chart demonstrates a solution to a given Problem.

OR

Flow chart can be defined as a diagrammatic representation of an algorithm or Process.

Flowcharts are used in analyzing designing documenting, or managing a Process or Program in various fields.

Flow charts are used not only as aid in developing algorithm but also to document algorithm.

USES OF FLOWCHART:-

(i) To clarify the logic of a Problem.

(ii) To analyse the actions resulting from a set of conditions.

(iii) As aids to Program construction and coding

(iv) Communicating documents - To explain the Program to other Programmer and the system analyst.

(v) Flowchart may be difficult to construct when the logic is complex.

Advantage of Flowchart:-

(1) They are more complete than decision tables for example they include start and end routine, and illustrate Program loops.

(2) They can be used to Test whether a Program logic works, by running through the flowchart

Disadvantage of Flowchart:-

1. Complex:- When a Program is very large the flowchart drawn for it needs many pages. It needs large efforts. The understanding of logic using such flow chart become difficult.

2. Costly:- If the Program solving logic straightforward and very lengthy. Flow chart can be drawn easily and cost factor remains in Proportion. Time taken for drawing flowchart.

3. Difficult to modify:- If any change in the symbol used in the flow chart or any modification to a flow chart is to be done. It is necessary to redraw the flow chart. Flowchart contain a large number of symbols. flow line with Proper spacing a number of Pages. So changing Flow chart is Not a simple Task. (2)

4. No Update:-

The user can easily understand the logic of the Program using the flowchart.

As per the requirement the Programs are update regularly.

Corresponding changes in the flowchart are Not done. especially when the Programs and hence the flowchart are large or length or complex.

Flowchart does not serve its Basic purpose

Advantage

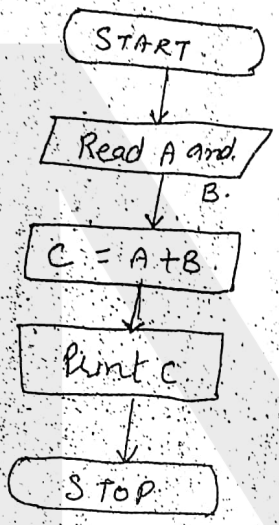
1. Logic understanding
2. Communication.
3. Effective analysis
4. Useful in coding.
5. Proper Testing and Debugging.
6. Appropriate documentation.

Program control structure:

3 type of control structure.

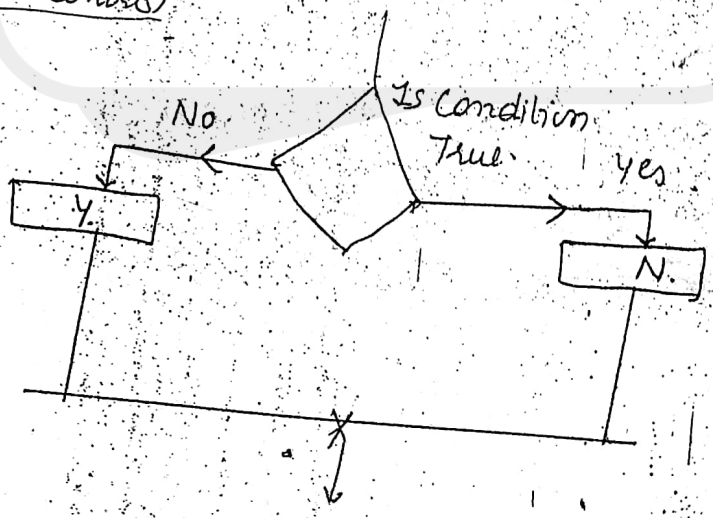
- Sequence.
- Selection.
- Repetition.

Sequence control:- To solve a Problem.

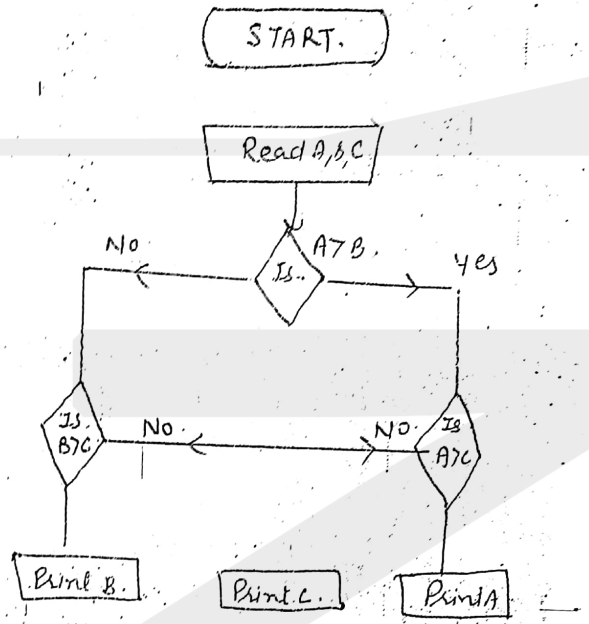


Sequence control structure to add 2 numbers.

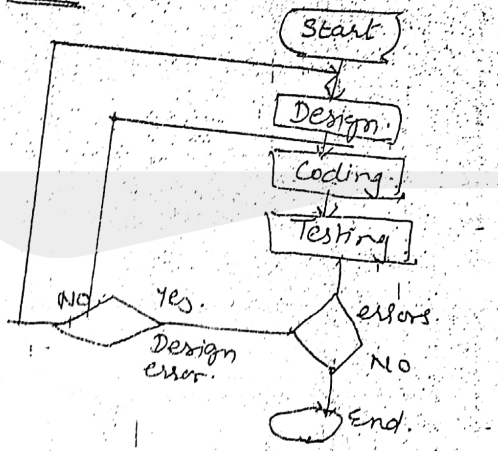
Selection Control



Flow chart selection control To solve a problem.



⇒ Draw a Flow chart for a Development life cycle SDLC.



OUTPUT DEVICE

Contents:→
Monitors (Types of Printers : Impact and Non Impact Printers
Plotters
Printer with Example.
Like
Daisy wheel, Printer, Thermal Printer
Laser Printer

VISUAL Display unit (Monitor)

Monitors is a Television like device used to display the result of processing
input data or information on
Quality of the monitor is judged on the
Term of Resolution which is measure of the number of Picture elements
Higher the no of pixels or screen
is the Image.
pixels clear and sharper

CRT
screen
Flat panel
Display.

Cathode Ray Tube :-

Data image can be produced by moving an electron beam across a phosphor coated screen. By intensifying the strength of the beam, the phosphor coating glows up certain places, forming the characters.

The CRT has a display screen of 25 line of 80 characters each.

Two type of color monitors are commonly used.

1. Composite

(a) Red, Green, Blue

A composite color monitor uses only one electron gun to control the intensity of all three phosphors dots on each pixel and used to control the luminosity of the phospher dots. Sharper picture is produced with the RGB monitor. There electron guns allow finer control over the intensities of the phosphor dots.

Flat-Panel Display :-

CRT screen is reliable but is bulky and consume a lot of power and tend to tiny it is use to

With Portable Computers

- Common Type of flat Panel display is the (LCD) : which Produce Image by aligning Molecular crystals. When Voltage is applied crystal line up in a way that Blocks light from passing through them and this absence of light is seen as character on the Screen.

LCD is Better than CRTs.

The flat Panel Display. Still in its infancy.

Better Resolution and contrast.

These display offer flicker free viewing and have much higher contrast than LCD

A Pixel is turned on when current is sent through the appropriate vertical and Horizontal wires

- Monochrome
- Gray scale
- Color

Monochrome :- monochrome Monitors actually display two colors | one for Background and one for Foreground

The colors can be Black and white, green and Black

Grey scale:- A gray scale monitor is special type of Monochrome monitor capable of displaying different shades of gray.

Color

Color monitors can display anywhere from 16 to over 1 Million different colors. Colors Monitors are sometimes called RGB Monitors

Red Green, Blue

The Resolution of a monitor indicate how densely packed the Pixels

More Pixels the sharper the Image

Most modern Monitors can display 1024 by 768 i.e. SVGA

High end models can display 1280 by 1024 even 1600 by 1200

Plotters:→

A Device that draws pictures on paper Based on command from a computer.

Plotter different from Printers in that they draw line using a Pen.

As a result they can Produce continous line. Where as Printer can only simulate line by Printing a closely spaced series of dots.

- Plotter consists of an arm that moves across the paper on which the diagram or graph needs to be drawn.
- Pen move along the arm and the arm itself move relative to the paper.
- Combination of two thus Provide movement along the Horizontal and vertical axes.
- Plotter can be connected to a Pc through the Parallel Port.
- A Plotter is more software dependent than any other Peripheral and much more Instruction.
- Plotter is used in application like CAD. which require high Quality graphics on paper.

Two commonly type plotters

- Drum plotters
- Flatbed "

Printer

- Impact Printer
- Non Impact

Impact Printer:→ is one that generally operates by using a Hammer to strike a character against an Inked ribbon.

Impact then causes an Image of the character to be Printed.

- Impact Printer function just like typewriter

Disadvantage:→

They are relatively slow, noisy and subject to mechanical Breakdown.

Most Printer in use today are Impact device.

Types of Impact

- Dot Matrix
- Daisy Wheel
- Line

Thermal-Transfer Printer

An inexpensive alternative to the ink jet Printer is the Thermal Transfer Printer which used Heat to Transfer ink to Paper. These Printer Bond the ink onto the Paper by heating Pins which Press against a Special ink ribbon.

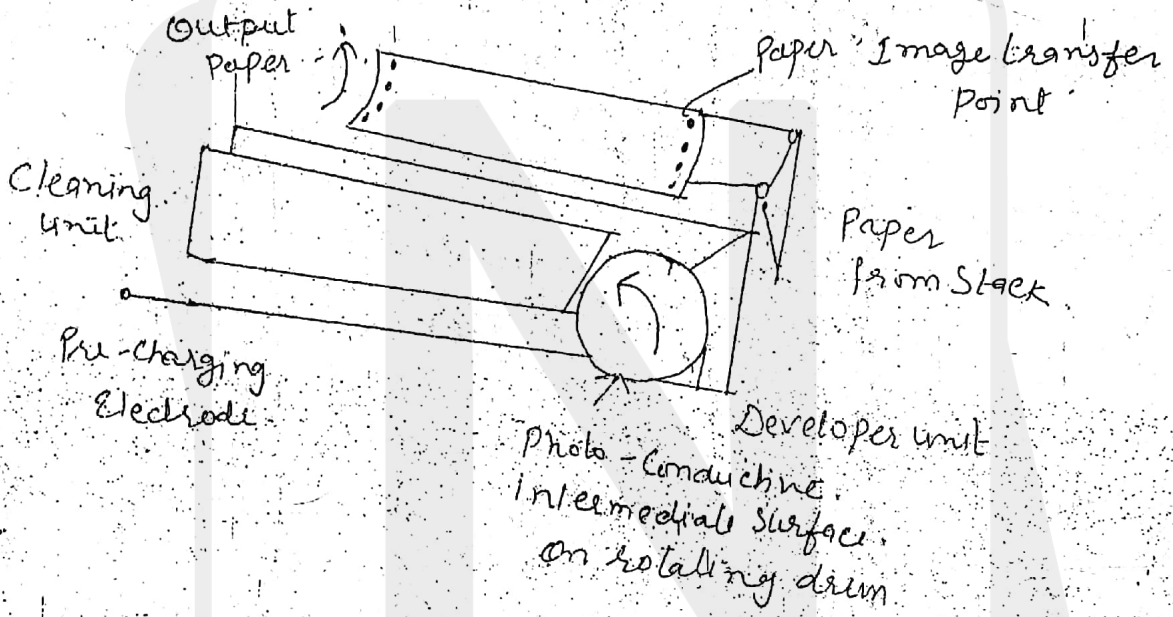
Thermal-Transfer Printer can Produce color Printout by using a color Ribbon.

Laser Printer →

These Printers operates on the same Principle as the most office copy machines such as xerox machines.

- This approach is to first form an Image of the Page i.e to be Printed on a Photo to be Printed on photo Sensitive drum in the machine Powered ink or Tonner is then applied to the Image on the drum.
- The Image is electrostatically Transferred from the drum to a Sheet of Paper.
- In a Xerox machine the Image on the Photo Sensitive drum is simply a Original Produced with a Camera lens

dazer Printer a more computer Compatible Method of Producing an Image on the photo Sensitive drum is applied turning a lazer ON and off.
Swept back and forth across the drum Produces an Image in about the same manner that an Image is Produced on a Raster scan.



Functioning of Laser Printer

- Modulater controlled by a micro computer turn the lazer beam ON and off to Produce dots. after the Image is linked and Transfered to the Photosensitive drum is a magnetically Sensitive drum used in some lasers Printer

Non-Impact – Non Impact Printer were developed to meet some of the needs that were not being satisfied by Impact Technology.

Most High-speed Page Printers.

For example use some form of non Impact device, but High speed is Not the only benefit of non Impact Technology.

Non-Impact Printer

- Laser – xerographic — High speed.
- Electrosensitive — High speed.
- Electrophotographic — High speed.
- Ink jet for Better Quality Printing.

Daisy-Wheel Printer

- Daisy Wheel Printer is so called because the Print mechanism looks like a daisy.
- This Printer give us letter Quality Print. But is Slow typically 25-55 character Per Sec.
- Processor while it is sending texts to the Printer can not normally be used for other Productive Work until Printing is done.

There are 2 approaches.

- Spooler Program (Software)
- Printer Buffer (Hardware)

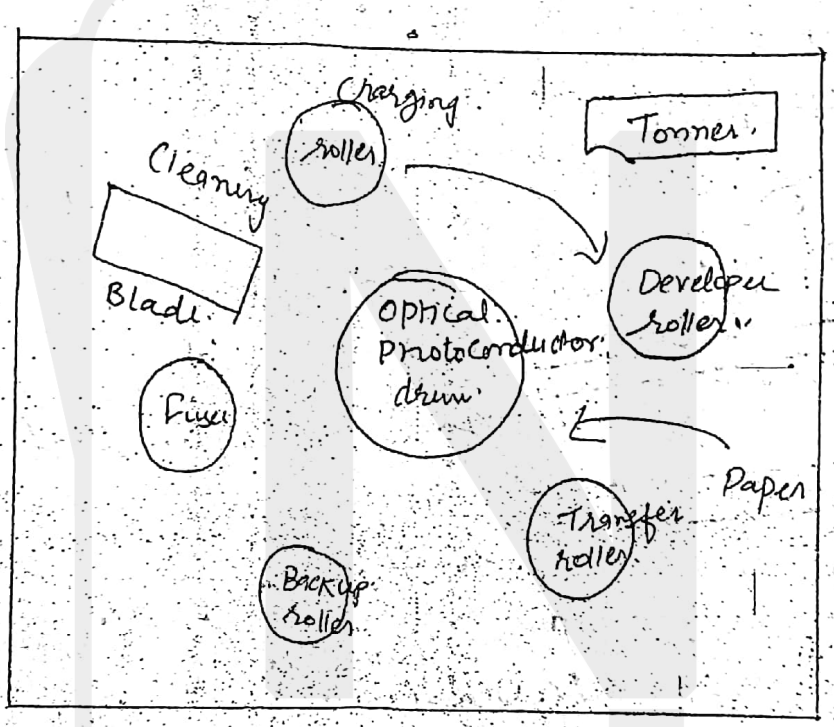
Spooler Programe (S/W) :→ allow the Processor to alternate between.

Processing a user on going activity and controlling the Printing Proces

Disk space or dedicated Block of Primary Storage should be available to store the text to Printed by the spooler.

Printer Buffer (H/W) :→ It is an additional. Storage device can accept text to be Printed. as fast as the computer can send it. The Buffer then slowly releases the text data to match the Printer speed. while the computer is free to do other thing.

An Image is written on these magnetic drum in the same way that data is recorded on the magnetic disks.
Magnetised ink are then applied to the drum Transferred to the paper and fused.



Imaging drum must first be charged before it will accept an Image a special roller called the charging roller applies the electro-static charge uniformally across the Image drum.

* NOTE:- Thermal Printer From the Book (Navina Thakur) Page (1:60)

Primary MEMORY

Primary Memory is main memory of computer. It is a chip mounted on the mother Board of Computer.

Primary Memory are 2 type.

- RAM (Random Access memory)
- Rom (Read only memory)

Ram is used for the Temparary Storage of Input data output data and intermediate results. The input data entered into the computer using the input device is stored in RAM for Processing.

After Processing the output data is stored in RAM before being sent to the output device Any intermediate result generated during the Processing of Program are also stored in RAM.

Rom is used to Store the data that does not require a change.

RAM (Random Access Memory)

RAM is used to store data and Instruction during the operation of computer.

* i). The data and Instruction that need to be operated upon by CPU are the first brought to RAM from the secondary storage device like the Hard disk.

(ii) CPU Interacts with RAM to get the data and Instruction For Processing.

* RAM loses information when the computer is powered off. It is volatile memory. When power is turn on.

— RAM Provide random access to the stored bytes. This mean that it require same amount of time to Access information from RAM.

— RAM can be read from and written to with the same speed.

— Size of RAM is limited due to its high cost. The size of RAM is measured in MB. or GB.

— Performance of RAM is affected by.
  — Access speed.
  — Data Transfer unit size

- RAM affects the speed and power of a computer
  RAM is Better Now days
- RAM is a micro chip implemented using Semiconductors.

Types of RAM.

1. SRAM (Static RAM) → Memory retains its contents as long as power is Being supplied. Power get down the data is lost. This makes SRAM a volatile memory as opposed to read only memory.
   SRAM does Not need to be refreshed
   SRAM is Often used Cache Memory due to its High Speed.
2. Dynamic RAM. The data continues to move in and out of the memory as long as Power is available.
   SRAM, DRAM must be continually refreshed in order to maintain the data.
   DRAM is used for most system memory because it is cheap and small.

	SRAM	DRAM
1.	Stores Bits in memory cells composed of flip flops.	Memory cells are composed of Capacitors and Transistor.
2.	Each cell which can store a single bit require Six Transistors	Each cell require a capacitor and Transistor.
3.	Faster Access time Compared to DRAM.	Slower Access time Compared to SRAM as it cannot be used while Being refreshed.
4.	More Power Consumption than DRAM Because of low chip density	Less Power Consumption than SRAM Because of Simple Circuitry
5.	More costly in terms of cost per Bit Compared to DRAM due to low chip density	Less costly than SRAM Because of High chip density
6.	Does not need to be refreshed Periodically as flip flop retain the data	Needs to be refreshed every few milliseconds to retain data because the Charge of Capacitor.

ROM (Read only Memory)

Read only memory other type of Internal memory
We can perform only read operation
Write operation is Not Permitted.
When the power supply is switch off.
Information stored inside a Rom is Not lost
in Case of RAM chip.
Once the information is stores or stored
Stores.
Rom is used to store the Basic set of
Instruction called Basic input output system.

Features.

- Non - destructive read out
- Long data life
- Non - Volatile.

Types of Rom

Masked Rom.
Programmable Rom.
Erasable Programmable
Electrically Erasable Programmable (EEPROM)

DELTA Page No. Date:

PROGRAMME - 5

AIM

Define MS - DOS. Explain Various MS DOS commands step by step

MS - DOS

MS - DOS (microsoft disk Operating System) is an Operating System for X-86 based, personal computers. MS - DOS grew from 1981. Today, MS - DOS is a rarely used system for desktop computing. It is a single-user single - tasking Operating System.

MS - DOS INTERNAL COMMANDS

- For MS - DOS internal commands, click on "Start" button and then, click on Run. On run, write "CMD" and then click OK. Here, we will have command prompt.

Total (P) →

22 Aug ∴

Fri	1	7
Thu	2	8
Wed	3	14
Th	10	21
	17	28
	24	

DELTA Page No. Date:

CHANGE DIRECTORY COMMAND

CD (change directory command) is a command used to switch directories in MS-DOS and the windows command line.

SYNTAX

Type

CHdir < directory Name > < press Enter >

(As shown in fig 8)

REMOVE DIRECTORY

Removes an empty directory in MS-Word.

SYNTAX

Removes (deletes) a directory Type

RMDIR < Directory Name > < press Enter >

(as shown in fig 9)

DELTA Page No. Date:

MAKE DIRECTORY COMMAND

This Command allows you to create your own directories in M.S-DOS.

Creates a directory at the command prompt by typing following command.

SYNTAX

md <Directory> <press Enter>

(As shown in fig 7)

Masked Rom:- Rom known as masked Rom. hard wired device that contained a Pre programmed set of data or Instruction. The content of such Rom Had to be specified before chip Production so the actual data used to arrange the transistor inside the chip.

Programmable Rom (PROM) → which can be Programmed. Blank PROM chip can be Bought economically and coded by the user with Help of a specially device known as PRom Progremmer.

Erasable Programmable Rom (EPROM)

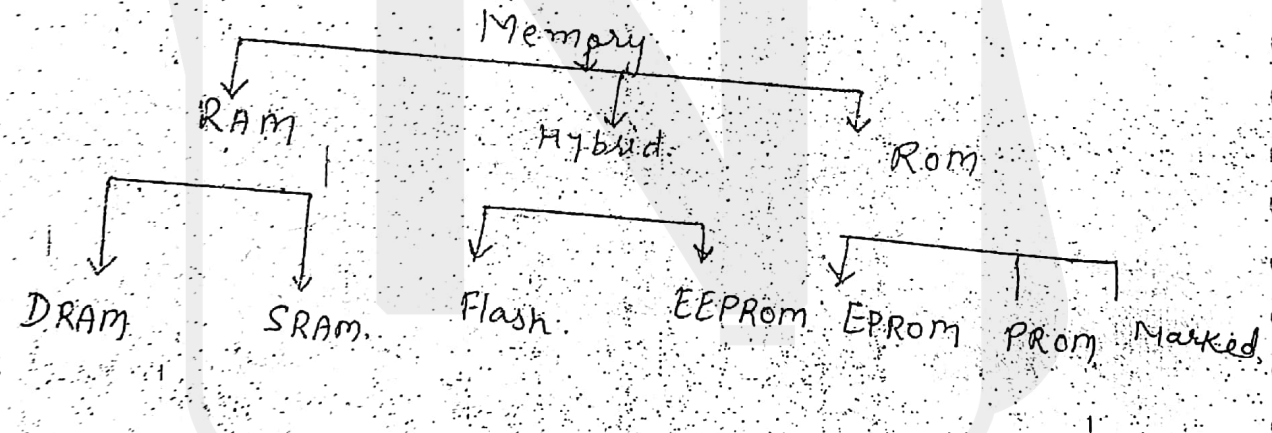
EPRom is Programmed in Exactly the same Manner as a PRom.

EPRom can be eased and reprogrammed repeatedly.

It can be erased by simply exposing the device to a Strong Source of ultra violet light for certain amount of time.

EEPROM :- This type of Rom can be erased by an electrical charge and then written to by using slightly higher than normal voltage. EEPROM can be erased one Byte at time. Rather than erasing the entire chip with ultra violet light.

- Process of reprogramming is flexible but slow. Changing the contents does not require any additional committed equipment these chips can be changed without opening



Disadvantage of Primary Memory

1. The Primary memory volitile in Nature.
2. The cost per unit storage is very high for the Primary Memory.
3. Design of computer generally limits the maximum possible size of Primary m...

Page No.
Date:

COPY COMMAND

Allows the user to copy one or more files to an alternate location

SYNTAX

Copies one or more files to another location.

Type

- Copy < file name to be copied > < file name in which we have to copy > < press Enter >.

(As shown in fig 10)

WILD CARD COMMAND.

A wild card is used to filter the data that you are searching

SYNTAX

dir *.txt < press enter >

This will show us all the files which have text.

(As shown in fig 11)

DELTA Page No. Date:

TYPE COMMANDS

Allows the User to see the contents of a file.

SYNTAX

Displays the contents of text files:

Type [drive:] [path] filename

(As shown in fig 12)

RENAME COMMAND

Used to rename files and directories from the Original name to a new name.

SYNTAX

Renames a file / directory or files / directories

REN <original name> <New Name> <press Enter>

(As shown in fig 13)

DELTA Page No. Date:

DIRECTORY COMMAND

The directory command allows you to see the available files in a directory.

DIRECTORY

Organization folder keeping all the files in your computer. Directories are found in hierarchical file systems such as DOS, OS/2, Unix etc.

The Directory Command is an internal Command and is available in the Microsoft Operating Systems.

Displays a list of files and sub-directories in a directories.

For directory type the command at the prompt

SYNTAX

Dir < press Enter >

(As shown in fig 1 and 2)

Page No.
Date

FILE CREATING COMMAND

A file can be created in MS-DOS by using the copy con command.

SYNTAX

With copy con command to create a file type the command at the prompt

```
copy con file.txt <press enter>
```

while typing the above you will return down one line to a blank line. Create the file line by line. Once you are ready to create the file, press enter to get a blank line and then press and hold CTRL and press Z then let go for both buttons. This will return ^Z. Once this has been entered, press enter to save and exit the file. (as shown in fig 5.)

DELETE COMMAND

Del is a command used to delete files from the computer. To delete a file type command at the prompt.

SYNTAX

DEL Drive:][Path][Filename [/P] (as shown in fig 6.)

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Date:

CLS - COMMAND

CLS Command is used to clear the screen. On screen when we are full of data and we want to clear the screen, then we just typed the CLS command or write CLS.

Syntax for command > CLS ↵

(As shown in fig 3 and 4)

- FORMAT COMMAND

It creates a new display directory and file allocation table for the disk.

SYNTAX

C:\> format < drive name >

- SCANDISK COMMAND

It checks a drive for errors and corrects any problem that it finds.

SYNTAX

C:\> scandisk < drive name >

- TREE COMMAND

The structure of the specified drive from the specified directory down, listing all the sub-directories it encounters is displayed Graphically.

SYNTAX

C:\> tree < drive name >

• DELTREE COMMAND

SYNTAX

C:\> deltree < drive > < path >

• X COPY COMMAND

SYNTAX

C:\> x copy < source > < destination >

• PRINT COMMAND

SYNTAX

C:\> print < filename >

- BACKUP COMMAND

  SYNTAX

  C:\> backup < source > < destination >

- RESTORE COMMAND

  SYNTAX

  C:\> restore < drive 1 > < drive 2 > < path > < filename >

- MEM COMMAND

  SYNTAX

  C:\> mem

- FC COMMAND

  SYNTAX

  C:\> fc < drive > < filename 1 > < drive > < filename 2 >

- FDISK COMMAND
  It is the tool DOS provides for setting up and managing hard disk partitions.

  SYNTAX
  <C:\> fdisk <

- LABEL COMMAND
  It lets you create, modify or delete the label assigned to a disk.

  SYNTAX
  <C:\> label < drive name >

- DOSKEY COMMAND
  It edits command lines, recalls command lines and create macros

  SYNTAX
  <C:\> doskey

- MORE COMMAND
  It displays one screen of output at a time and in the end of each screen displays a messages

  SYNTAX <C:\> more < drive : > < path > < filename >

DATE COMMAND

The date command can be used to look at the current date of the computer as well as change the date to an alternate date

SYNTAX

Displays or sets the date :

Type

Date <presenter>

It will displays the current date and prompt for new one and press enter to give the same date (as shown in fig 14)

TIME COMMAND

The time command can be used to look at the current time of the computer as well as to change the time to an alternate time

SYNTAX

time <press enter>

(As shown in fig 15)

- CHKDSK COMMAND

SYNTAX

C:\ chkdsk <d:> <path> <filename>

- COMP COMMAND

SYNTAX

C:\ > Comp < d: > [< path + filename >] <d:>
[< path + filename >]

- F DISK COMMAND

SYNTAX

C:\> fdisk <

- LABEL COMMAND

SYNTAX

C:\> label < drivename >

- DOSKEY COMMAND

SYNTAX

C:\> doskey

- MORE COMMAND

SYNTAX

C:\> more < drive :> < path > < filename >

- DELTREE COMMAND
It deletes a directory and all the files and sub-files and sub-directories contained within it.

SYNTAX
<\> deltree <drive> path>

- X COPY COMMAND
It is used to copy all the files in a directory, including the files in the sub-directories of that directory.

SYNTAX
<\> xcopy <source> <destination>

- PRINT COMMAND
It prints a text file.

SYNTAX
<\> print <filename>

MS-DOS

EXTERNAL COMMANDS

- CHKDSK COMMAND

It checks a disk's file allocation table entries for errors and find whether the files are OK or not

SYNTAX

<C:\> CHKDSK <d:> <path> <filename>

- COMP COMMAND

It compares two files byte-by-byte and reports the difference

SYNTAX

<C:\> COMP <d:> [<path + filename>] <d:> [<path + filename>]

- FORMAT COMMAND

SYNTAX

C:\> format <drive name>

- SCANDISK COMMAND

SYNTAX

C:\> scandisk <drive name>

- TREE COMMAND

SYNTAX

C:\> tree <drive name>

DISK OPERATING SYSTEM (DOS)

INTRODUCTION

DOS is an Operating System. It works as an interpreter between user and computer. We give English like commands and it converts it into machine language and after the computer has processed the information, returns the results to you in English. Ms. Dos consist of four essential programs and a set of additional utilities.

Components of MS-DOS

MS-DOS consists of four essentials programs and a set of additional utilities. Four main programs are

- Boot Record
- IO.SYS
- MSDOS.SYST
- COMMAND.COM

Booting: Process that starts up a computer is called booting. It checks for proper functioning of all the peripheral devices attached with the system. It searches for the operating system and, when located, loads it into the main memory. See fig 01.

Cold Booting is done by turning on the computer.

Warm Booting is performed by pressing Ctrl+Alt+Del keys simultaneously.

There are two name in DOS and is divided into 2 parts.

1. Primary Name

2. Secondary or extension

Primary name is separated from the Secondary name extension with the help of a dot (.) look at the following example

Example: ENVOICE .TXT

Primary name can be from 1 to 8 characters long and

Secondary name contains 3 or less than 3 characters and is optional. The extension tells DOS about what kind of file it is.

A valid Character for naming a file are: from A to Z and the digit 0 to 9

C:\> Is known as DOS/command prompt, where we give the commands.

DOS command divided into 2 parts.

1. *Internal Commands or Memory-Resident Commands*
2. *External Command or Disk-Residence Commands*

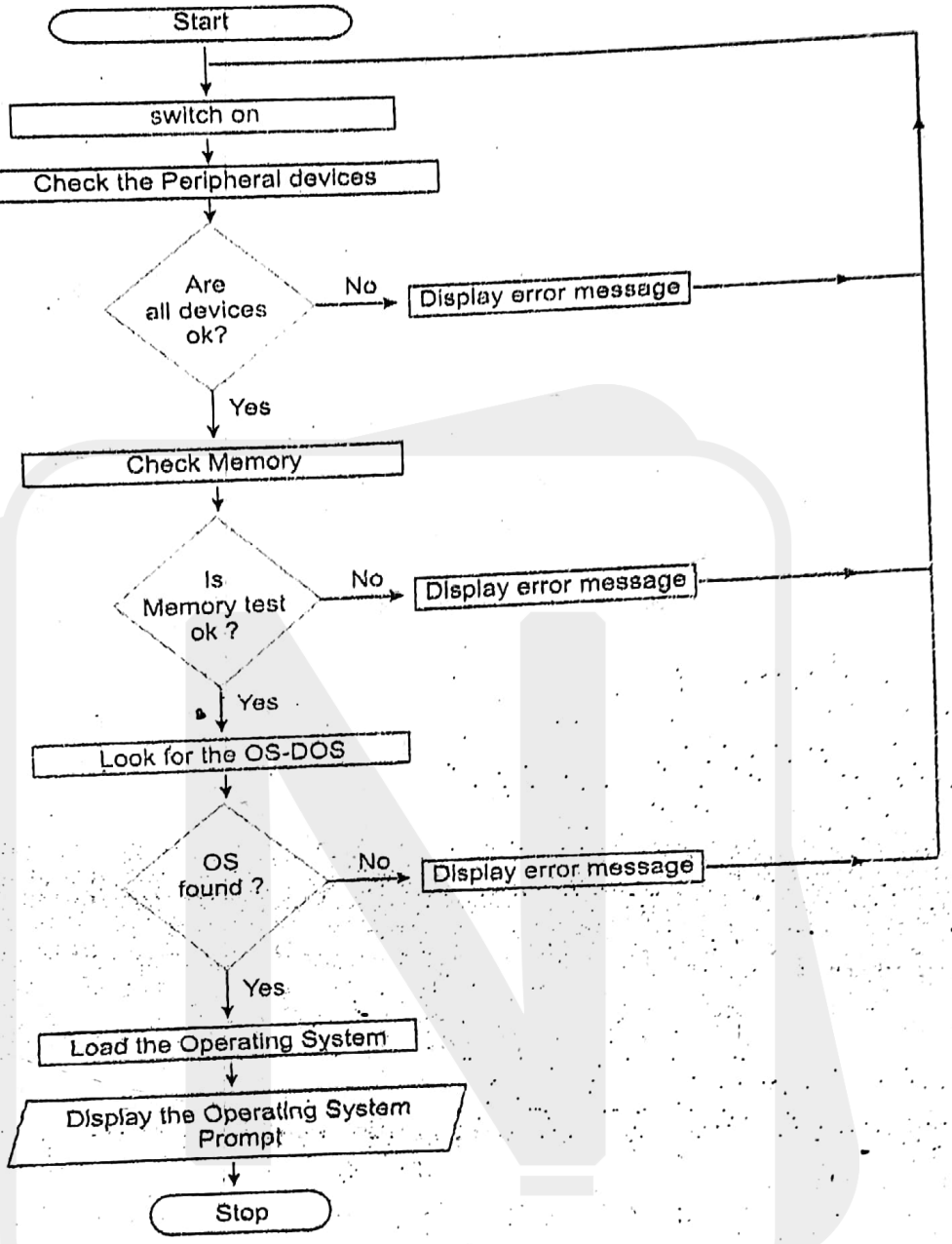


Fig.01. Flow Chart of the Booting Process

INTERNAL COMMAND

There are also called memory-resident commands. These commands are automatically loaded into the computer's memory during the booting process. They actually included in the Command.com file. So these commands are executable immediately after getting the dos prompt.

A few internal commands are

01. VER
02. VOL
03. DATE
04. TIME
05. CLS
06. DIR
07. MD
08. CD
09. PATH
10. RD
11. COPY CON
12. TYPE
13. COPY
14. DEL
15. REN
16. PROMT

A command can be given in Capitals or Small letters also. The internal commands can execute immediately but External Commands require special files for their execution without which it is not possible to execute them.

1. **VER** - All O/S has its own edition number or release or version number. The version number indicates which edition of O/S you are working on.

Syntax: VER <Enter>

Example: C:\> Ver <Enter>

Result will be: - Microsoft Windows XP [Version 5.1.2600]

02. **VOL** - It is used to display volume label and serial number of the current drive

Syntax: Vol [drive:]

Example: C:\> VOL

3. **DATE** - Used to display the current system date and prompt for entering new date.

Syntax: Date <Enter>

Example: C:\> date <Enter>

4. **TIME** - Displays the current system Time and prompt for entering new time.

Syntax: Time <Enter>

Example: C:\> Time <Enter>

5. **CLS** - Clears the cluster screen.

Syntax: CLS <Enter>

Example: C:\> CLS <Enter>

6. **DIR** - This command displays the list of directories and files with details like date of creation whether it is directory or file etc.

Syntax: DIR <Enter>

Switches:

/p : To view one screen of files at a time.

/w : Displays only five column of filenames and directories.

/b : Display only file and directory.

/l : Display all the information in lower case letters.

/a — stands for attributes that are given below.

/-h - Hidden (or not hidden) files

s/-s - System (or not systems) files

d/-d - Directory (or not Directory) names

r/-r - Read only(or not read only) files

Example:

DIR *.txt : Display all the files with extension .txl

DIR D???.* : Display all the files starting with D and having less than or equal to four characters in the file name and any extension.

Here "?" And "*" are called "wild card character"

"*" Stand for any number of the character

"?" Stands for nay one character.

07. MD OR MKDIR: -Used to create a new Directory or nested Directories.

Syntax: MKDIR OR MD [DRIVE:].PATH: DIRECTORY NAME

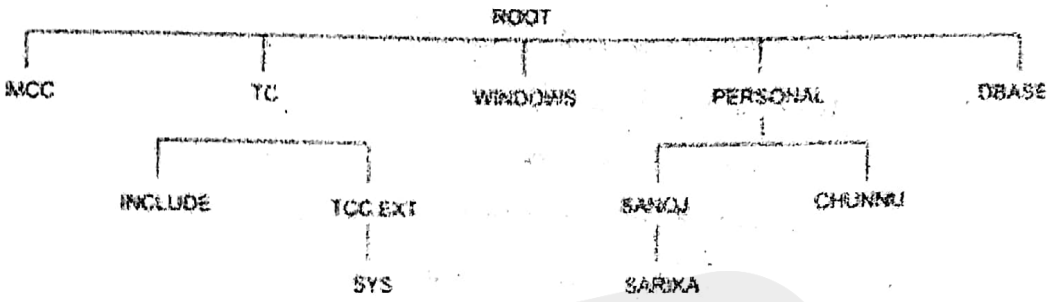
Example: C:\> MD SAMS <Enter>

08. CD OR CHDIR: - This command allows you to change present directory to another directory.

Syntax: CD [DRIVE:].PATH

Example: C:\> CD SAMS and press <Enter>

09. PATH: - This command defines a list of directories DOS Searches for external commands.



Syntax: PATH (Display the current Search Path)

PATH : - (Clear the search path so DOS will search for external commands only in the current directory)

10. RD: - To delete the empty directory.

Syntax: RD [DRIVE:] PATH

***NOTE:** -The directory must be empty when we use RD.*

Example: C:\> RD SAMS and press <Enter>

Switches: - 1. /s – Remove with subdirectories and files.

2. /q – Don't ask to confirm.

11. COPY CON: -We use this command to create a new file.

Syntax: COPY CON <FILENAME>

Example: C:\> Copy Con sams.txt <Enter>

***Note: -** Typing here and when you are done, press **Ctr+Z or F6** key followed by Enter to save the current document.*

12. TYPE: - This command allows you to see the contents of an existing file on the screen.

SYNTAX: TYPE <file name>

Example: C:\> TYPE SAMS

13. COPY: - Using this command you can make duplicate files of an exiting file from one location to another or one directory to another with different name or exiting name.

SYNTAX: COPY <SOURCE FILE NAME> <TARGET FILENAME>

Example: C:\> COPY SAMS.TXT A:\TAJ

Example: C:\> COPY*.TXT +*.BAK TARGET FILENAME And Then Press Enter

Example: C:\> COPY SAMS.TXT C:\SAMS_1\FO\RECEPTION And Then Press Enter

You can also have the option to change the name of files as you copy it.

Example: C:\> COPYold.TXT C:\dos\new.txt And Then Press Enter

14. DEL/ERASE: This command removes one or more files from the disk or current working directories.

SYNTAX: DEL filespec [/p] or ERASE filespec [/p]

Example: C:\> DEL C:*.BAK /P And Then Press Enter

Example: C:\> DEL abc And Then Press Enter

Example: C:\> DEL ????.COM And Then Press Enter

Switches: - 1. /p –confirmation 2. /q – In quit mode

15. REN: Used to change the name of the file or directory.

SYNTAX: REN <file name>

Example: REN sams sams1 <Enter>

Example: REN *.dat *.mst And Then Press Enter

16 PROMPT: This command allows you to customize the dos prompt

SYNTAX: 1. PROMPT

⇒ SOME SPECIAL $ PARAMETERS ARE GIVEN BELOW.

CHARACTER	EXAMPLE	DESCRIPTION
$Q	=	Equal Sign
$$	$	Dollar Sign
$t	12;30:06:92	Display current time
$d	tue 09-07-2007	Display current date
$v	msdos version 6.2	show dos version number
$g	>	Greater than sign

$L	<	Less than sign

Most people like to set their prompt to PG which display the current directory followed by > sign.

Example: **PROMPT PG** <Enter>

17. **TREE**: - It is used to display directory structure of a specified directory graphically.

Syntax : TREE [drive:] [path] [/f]

[/F] : displays the names of the files in each directory.

EXTERNAL COMMAND:

These are also called Disk-Resident Commands. These commands are meant for special purpose. These are found in separate files on Hard Disk or Floppy Disk, So that they don't typically consume valuable memory space. They are loaded into memory only when called.

Some External Command are:

1. Xcopy
2. Move
3. FC
4. Doskey
5. Mem
6. FILTER
   a. More
   b. Sort
   c Find
7. Attrib
8. Deltree
9. Edit
10. Tree

1. XCOPY: This command is faster than Copy Command and allows you to copy entire directories/disk including all the sub directories and files to destination.

Syntax: XCOPY Source [Target][/Y][-Y] [/P][/E]

SWITCHES :

/-Y : Prompts before copying over existing files.

/y : Overwrites existing files without prompting.

/p : Ask before copying each file.

/e : Copying empty directory also.

/s : Copying subfolders.

EXAMPLE: XCOPY C:\SAMS D:\SAMS /S/E

2. MOVE : This command moves a file or group of files from one directory to another and also one disk to another disk. It can also be used to rename directories.

SYNTAX: Move [Path File Name] [Destination file name path]

SWICHES:

/-Y : Prompt before it overwrites while it copies file that already exists.

/Y : Overwrites existing files without prompting.

EXAMPLE: move c:\sams\fo.txt to d:

EXAMPLE: move c:\sams\fo.txt to d:\ new_sams

4. FC: Stands for File Compare. If you wish to compare two files or two sets of files then you may use this command. This command has the capability to differentiate between the files and display the difference

SYNTAX: FC <files spec 1> <files spec2> [/a][/b][/c][/l][/n]

Switches

/a : This switch displays only the first and last line of each group.

/b : Compare the files in library mode (byte-by-byte)

/c : Ignore the case of letters.

/l : Compare the files in text mode.

/n : Displays the line number for lines that are different.

EXAMPLE: FC first.txt second.txt\n and then Press <enter>

5. DOSKEY: Dos can remember only the last command you had entered. But in order to make DOS remember all the commands you enter you will have to load a DOSKEY utility. Also Used To Create Macros

Syntax: DOSKEY and Press <Enter>

Display message on the screen.

DOSKEY Installed.

NOTE: - To display all commands from the history list one the screen.

Example: DOSKEY / History or /h < Enter>.

Now when DOSKEY is in memory, it can help store all the commands which you enter so that any of those commands need not be typed again to be executed. And this all are called HISTORY LIST. Now when you want the same command to be done you can use right arrow key or 'F1' or 'F3' Issuing following command.

Second feature of DOSKEY is Doskey Macro. Using this macro you can create own command and latter you can run it on the system prompt. For example

EXAMPLE: - DOSKEY C= CLS

Now if you type at the system prompt only C and press enter it will clear the screen.

Recalling Commands: Some key is provided to recall recent commands you have run since installing DOSKEY.

Key Strok	Effect
Up Arrow	Display the Preceding Command and further list.
Down Arrow	Show the next command you executed after the one that's being displayed.
Page Up	Display the oldest command that is still in Doskey.
Page Down	Show the most recent command that you executed
F7	Display the entire list of command that you executedd.
F9	Selects a commands
Alt+F7	Erase the command history list.

Alt+F10	Erase all macros in memory
Esc	Clear the command line.
Ctrl-T	Command separator

6. MEM:

This command displays amount of total available memory (low, Expanded and Extended) and all currently programs.

Syntax: MEM [/f][/p][/m]

Switches:

/f : Using this switch MEM display all the areas of memory that are fee.

/p : Use this option to display the information one screen at a time.

/m : Display information about how a specified program is using memory.

Example: MEM/p and then press <Enter>

7. FILTER:

A Powerful feature of DOS is its use of filters to process data directly. A DOS FILTER can process in unique way any data that passes through it and can change what we see on the screen.

There are three FILTERS include in DOS.

A. MORE: More command used to pause vertical Scrolling on the display screen, after each screenful, The display pauses and the message - - More - - appears. Pressing any key display the next screen.

EXAMPLE: C:\> MORE < TYPE FILE.TXT and then press <Enter>

EXAMPLE: C:\> DIR /MORE and then press <Enter>

B. SORT: Reads, Sorts in Order and sends the data to the screen, file or to another device. Sort to arrange data in an order.

SYNTAX: SORT [drive:][Path][filename][/r][+n]

Switches:

[drive:][Path][filename] : Specifies the name and location of the file to be searches. It must be preceded

by the redirection character (<).

[/r] : Sort lines in reverse ASCII Order (Z-A)

[+n] : Sorts line starting with the contents in column n. The default is 1.

EXAMPLE: C:\> SORT < NAME .TXT and then press <Enter>

EXAMPLE: C:\> SORT /+20 < PHONE .TXT and then press <Enter>

EXAMPLE: C:\> DIR / SORT > PHONE .TXT and then press <Enter>

Note: Sort command doesn't distinguish between upper and lower case. It can sort file of maximum 63 k size.

Combining Input & Output redirection :

EXAMPLE: C:\> SORT < NAME .DAT > SORTNAME.DAT and then press <Enter>

Here the sort command is being directed to take its input from <name.dat and after sorting, send its output to the > sortname.dat file.

C. FIND: The find Filter is used to search a file one or more designated character (called a text string) Depending upon the form of the FIND Command. Each line having (or not having) the text string is sent to an output devices. Such as the Screen, a file or the printer. The text string is always typed within quotes ("Text Sring").

SYNTAX: FIND [/v][/c][/n] "String " [d:] [path][filename]

Switches:

[/v] : Displays all the lines that do not contain string.

[/c] : Display the total number of lines found to contain the string.

[/n] : Display the line number as well as the line that contains the string.

[/i] : Ignores uppercase or lowercase during the search.

Where:

"String" : Specifies one or more alphabet or numeric character whose maximum length should not be more than 250 characters and must be enclosed in double quotes.

[d:] [path][filename] : Specifies the name and location of the file to be searches .

EXAMPLE: C:\> FIND "Rajni" my.txt per.txt and then press <Enter>

EXAMPLE: C:\> DIR/ FIND "TXT" and then press <Enter>

7. ATTRIB:

Every File on the Disk has its own description like size, space occupied, the type, the date it was created, etc. Likewise, every file has few attributes. The attributes of a file indicates whether it is a

i) Read-Only File: r ii) Archive File a

iii) Hidden File: h iv) System File s

With the ATTRIB command you can check the attributes of a file.

SYNTAX: ATTRIB [+r][+a][+h][/+s] [filename]

Switches:

+r, -r : +r Read-Only attribute or, -r turn of Read-Only attribute

+a,-a : +a archive attribute, or -a turn of archive attribute

+h,-h : +h hidden attribute, or –h turn of hidden attribute

+s, -s : +s system attribute and it should not be used generally.

Note:

While Creating a new file every file gets read only attribute and archive attribute by default.

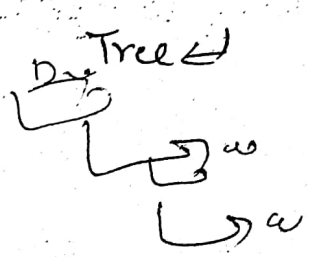
EXAMPLE: C:\> ATTRIB my.txt +R and then press <Enter>

EXAMPLE: C:\> ATTRIB my.txt +H and then press <Enter>

8. DELTREE:

This command used for deleting an entire directory whether in that directory contains files or subdirectories and also it will delete hidden files.

CHK DSK



Syntax: DELTREE [drive:][path] directories [/y]

EXAMPLE: C:\> DELTREE my.txt and then press <Enter>

9. EDIT:

This is the DOS Editor, which you can use to edit the text file and also creating new file.

Syntax: Edit [drive:][path][filename]

EXAMPLE: C:\> EDIT c:\sams\FO.TXT and then press <Enter>

EXAMPLE: C:\> Edit NEW FILE and then press <Enter>

BATCH FILES

It is a collection of DOS commands to perform a certain task. or A batch file is nothing but sequence of commands to perform sequence of operations step by step:

Look at the following commands you give step by step to perform an operation.

Suppose your job is

First - Check the directory

Second - Copy a file called ABC.txt to another disk

Third - Delete ABC.TXT from the present disk

Fourth - Clear the screen

If you do all this steps daily after your hour, then the commands you give would be:

i) C:\> DIR <Enter> ii) C:\> COPY C:ABC.TXT D: <Enter>

iii) C:\> DEL ABC.TXT <Enter> iv) C:\> CLS <Enter>

Instead of heating yup your head daily giving the same set of commands you can do it in a much simpler manner. All you do is put all the commands in a batch file.

How to create a batch file:

C:\> COPY CON A.bat <Enter>

Note:

Here Con means Console that is Keyboard, A the file name and .bat is extension.

It is compulsory that a batch file must have extension .BAT.

You will find the cursor below 'A' now type

C:\> DIR <Enter>

C:\> COPY A.TXT D : <Enter>

C:\> DEL A.TXT <Enter>

C:\> CLS <Enter>

Now Press the F6 or Ctrl+Z key combination. You shall find ^Z symbol below CLS, Now press Enter. You will receive the following message

1files Copied.

And you are returned to the prompt C:\>

Now to execute the Batch File simply type the name of the file.

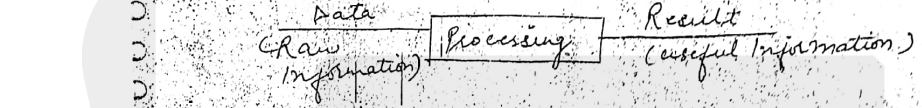
C:\> A <Enter>

You will see all the commands in the A.Bat come right into action. So instead of typing all those command one after another performed the same job by just typing the file name.

Unit - 1

Data: Collection of raw facts.

Information:
- Information is the processed data on which decisions & actions are based.
- Information must be
  - → Timely
  - → Accurate
  - → Complete
  - → Given to the right person



Example: Marks obtained in different subjects in an examination by students act as data.
→ By processing this data, result may be obtained. The result act as information that is used to declare a student pass or fail.

Database: Database is a collection of related information stored so that it is available to many users for different purposes.

Database Management System (DBMS): DBMS is a collection of programs that enables users to create and maintain a database.

Traditional File Processing System:
- These systems stored group of records in seperate files.
- Each department has its own files, designed specifically for those applications.

* Record is the collection of related data items (fields). For example payroll record for an employee contains data items like name, age, qualification etc.

Disadvantages of file processing system:

(i) Duplicate or redundant data:

as all the files are independent of each other some fields are stored in more than one file. for example:- one user i.e. result office may keep file on students & their marks. second user i.e. accounting office, may keep track of student's fees both are interested in data about students but each maintains separate files & programs to manipulate these files.

This redundancy results in wastage of storage space and efforts to maintain common data up to date.

(ii) Inconsistency:

In file processing system, if data item is to be changed then all files containing that data need to be updated. Problems may be in updation.

(iii) Poor Data Integrity:

duplicate data must be consistent i.e. each duplicate data item agree with one another for data integrity. In file processing system, as there is inconsistent data ∴ poor data integ

(iv) Data is isolated & separated

(v) Application programs are dependent on file formats:

change in file format result in program update and change which is time consuming & erroprone

(vi) Poor Data Security

In contrast to file processing system, there is database system & database environment that has a single large repository of data, called as database which is used simultaneously by many users.

Integrate

Integrated Database Environment
OR
Database System

Characteristics of Database System:

A number of characteristics distinguish the database approach from traditional file system, which are as follows:

→ 1. Self Describing nature of a Database System.

Database approach contains database as well as complete definition of database structure & constraints stored in DBMS Catalog (metadata).

→ 2. Insulation between programs and data, and Data Abstraction

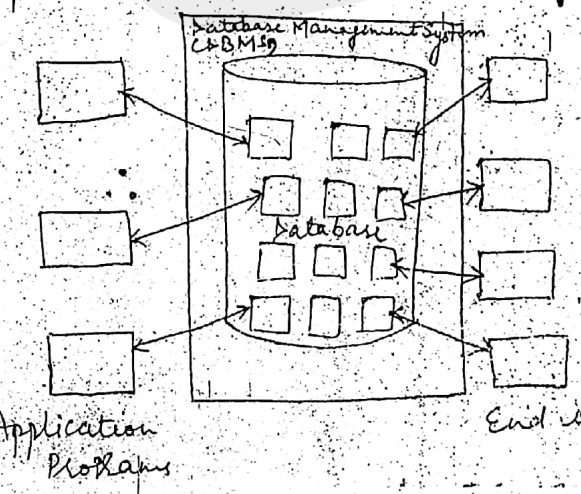
Due data abstraction, data files are stored separately in DBMS Catalog, So, change in any file do not require to change in programs that are accessing that file.

→ 3. Support of Multiple views of the Data

There are many users that require data in different perspective, it have applications that provide facilities for defining multiple views.

→ 4. Sharing of Data and Multiuser Transaction Processing

It ensures the concurrent transactions operate correctly, i.e to ensure if several users trying to update the same data, so they do it in controlled manner so that results of update is correct → OLTP.



→ A database system have four major components.

(1) Data
(2) Hardware
(3) Software
(4) Database users.

Data: ~~raw facts and concepts~~

- Data stored in the system is partitioned into 1 or more database.
- Data can be integrated or shared
  - integrated → unification of several distinct files
  - shared → by more than one user.

Hardware: Consists of secondary storage volumes – disks drum on which database resides, together with the associated devices, control units, channels etc.

Software:
- Between Hardware & users there is a layer of software, usually called Database Management System or DBMS.
- All requests from users for access to database are handled by the DBMS.
- DBMS handle all requests – Addition, Updation, Removal, Retrieval
- More details of DBMS → Later on.

Database Users: or Actors:

(1) Database designers (2) Database Administrator (DBA) (3) Application Programmers (4) End Users

(1) DD: are responsible for identifying data to be stored in the database and for choosing appropriate structures to represent & store this data.

(2) DBA: DBA is a person or group of persons responsible for central control over both data and the programs that access those data.

The functions of the DBA include:

→ Schema definition: DBA creates the original database schema by executing a set of data definition statements in DDL (Data definition language).

→ Storage structure and access method definition:

DBA decide how data is represented in stored database decide which hardware device will be most suitable

for database applications. Tradeoff between cost and efficiency is performed by DBA to decide storage device.

→ Monitor performance by modifications in physical organization:
DBA carried out changes to physical organization according to changing needs of the organization to improve performance.

→ Granting authorization for data Access:
DBA decides "who can access what" and this info. is stored in a special system structure.

→ Deciding the back-up and Recovery method:
DBA
Periodically back-up the database to prevent the data loss.
DBA checks disk space availability
If data is lost then DBA decides how to recover data from existing back-up.

3) AP: are responsible for writing application programs that use the database to meet user requirement. These application programs operate on the data in all usual ways: retrieving information, creating new info., deleting or changing existing info. Functions are performed by issuing the appropriate request to DBMS.
→ RAD (Rapid application development) tools are tools that enable an programmer to construct forms & reports without writing programs.
→ Languages used to write application programs - C/C++, Java & any 4th generation language.

4) End users: Accessing the database from a terminal
Naive users | Casual or Sophisticated users | Analysts | Specialized users.

(a) Naive Users: These are unsophisticated users who interact with the system by invoking on of the application programs

... to know any details of the structure or language of database system.

For Ex. Account balance checking over internet.

user interface → forms interface   username [abc]   password [***]

(b) Casual or Sophisticated users:

These are the users who interact with the system without writing programs. Instead they form their requests in a database by query languages (SQL- structured Query language)

Query → [Query processor] → [Result]

- Analysts who submit queries to explore data in the database fall in this category.

(c) Specialized users:

- These are sophisticated users who write specialized database applications that donot fit into traditional data processing framework.
- These applications are computer-Aided design system, knowledge base systems, expert systems etc.

DBMS ⟷

features

Advantages of DBMS over file System:

(i) Controlling Redundancy:

In traditional file management system, data is stored in the operating system files. To access these files, we need to write application programs. There is possibility of storing same data into different files → results in data redundancy & inconsistency.

→ In database approach, views of different user groups are integrated during database design which controls redundancy.

(iii) Restricting Unauthorized Access:

When multiple users share a file there is no access authorization in file system, But in DBMS only authorized persons are allowed to access shared data.

(iii) Providing storage structure for efficient query processing.

(iv) Providing Back up & Recovery.

→ 2 Transactions at same time results in failure in file system i.e atomicity problem.

→ DBMS provides various Transaction management techniques.

(v) Providing Multiple User Interfaces:] Bank

in DBMS, there is different levels (interfaces) for technical persons, users, application programmers

(vi) Representing complex Relationships among data:

Database include data that are interrelated in many ways.

(vii) Enforcing Integrity constraints:

DBMS provide capability for defining & enforcing the constraints.

→ Integrity constraints are like specifying datatype for each data item.

(viii) Flexibility:

It is easy to change the structure of a database as requirements change.

(ix) Availability of up-to-date information
(x) Reduced application development time

3-Tier Architecture

END users

External level

External / conceptual mapping

Conceptual level

Conceptual / Internal mapping

Internal level

Ext View

Ext View

Conceptual schema

Internal Schema

Stored DB

3-Tier

Two-tier Architecture :- is the client-server architecture

Presentation code + SQL statements to Db access

Database server processes the SQL statements & sends query results back to client

Fat client

Thin client

Network

Data server

Tasks

→ User interface

→ Presentation services

Application services

→ Application services

Business services

→ Data services

Data Abstra
As datase
So, d

Data Abstraction :

As database system users are not computer trained so, developers hide the complexity from users through several levels of abstraction, to simplify users interaction with the system.

(i) Physical level; lowest level of abstraction describes how data are actually stored. Here data is stored in complex low-level data structures are described in detail at this level.

(ii) Logical level : describes what data are stored in the database and what relationships exist among those data. How organized, Tables

- It describes entire database in terms of simple structures.
- DBA use the logical level of abstraction.

(iii) View level : Highest level of abstraction, but describes only part of database. Many people users don't need all information stored in database. So, need level abstraction exists to simplify their interaction with the system.

- System may provide many views of same database.
- Programmers using Application language work at this level.
- DBA also work at this level.

Metadata : information from data dictionary.

* For example, at physical level, an employee account can be described as a block of consecutive storage locations, at logical level each record is described by type definition, as in the previous code.

Events when application program leads a rec... by means of a DBMS:

(i) Application program issues request to DBMS to read a record.
(ii) DBMS obtain External Schema (Subschema) & look up the description of data in question.
(iii) Then, DBMS obtain conceptual schema & determines which logical data types are needed.
(iv) Then, DBMS obtains physical database description & determine which physical record(s) to be read.
(v) DBMS issues a command to operating system to read required record(s).
(vi) OS interacts with physical storage where data are kept.
(vii) Data extracted from the stored database must be reformatted to match user's external view.

Data Independence.

* It is the ability to modify schema definition at one level of database system without changing the schema definition at the next higher level.

OR

Ability to use the database without knowing the representation details is called Data Independence.

OR

Data Independence says that the physical representation of data in the secondary storage & the techniques used to access those data are independent of each other.

* There are 2 types of Data Independence:
  (i) Logical Data Independence
  (ii) Physical Data Independence

DataBase Models

- Data models provides a way to describe the design of database at physical, logical and view level
- Different data models are:

(i) Relational Data Model:

→ Relational model uses a collection of tables to represent both data & the relationships among those data.

→ Each table has multiple columns & each column has a unique name.

↳ Relational model is an example of Record based logical model (here database is structured in fixed format records).

Example:

Customer | cust-id | cust-addr | A/c No.

Loan | loan-no | loan-type | balance

Relationship | A/c no. | loan-no.

(ii) The Entity - Relationship Model:

→ ER data model is based on perception of real world that consist of a collection of basic objects called entities & relationship among these objects.

→ An entity is an object or thing in real world.

→ Entities in a database are described by attributes.

→ relationship is an association among [illegible]

iii) Object - oriented data Model :

→ It is based on objects

→ An object contains variables, methods.

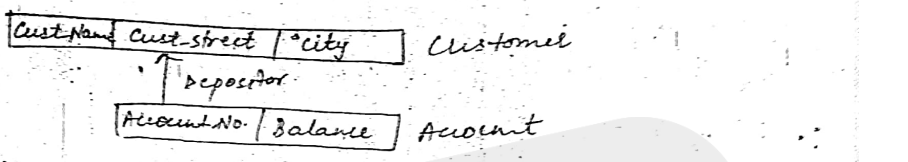
→ One object can access the data of another object by invoking their methods.

→ Object-oriented model can be seen as extending E-R model with notations of encapsulation, inheritance, polymorphism etc.

iv) Hierarchical data model :

- The hierarchical data model uses the tree concept to represent the data & the relationships among data.
- Nodes of the tree represents the entity sets and are connected by pointers or links.
- A pointer or link represent relationship between exactly two records.
- Parent record type can have any number of children record types, i.e relationship is one-to-one or one-to-many.
- In hierarchical model, tree can have only one root record type.
- Each child record can have only one parent record i.e many-many relationship is not true.
- Data in parent node applies to all its children records

Its Hierarchical model is:



Example:

Supplier

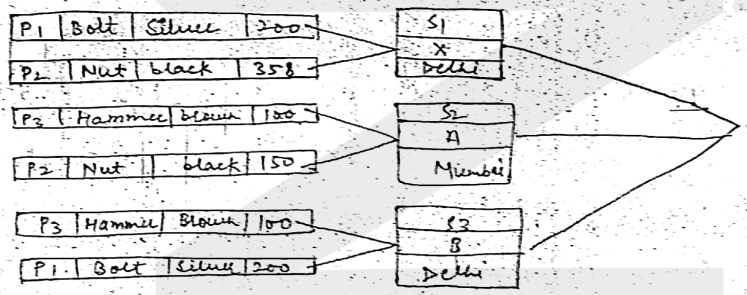
SNO	SName	city
S_1	X	Delhi
S_2	A	Mumbai
S_3	B	Delhi

Parts

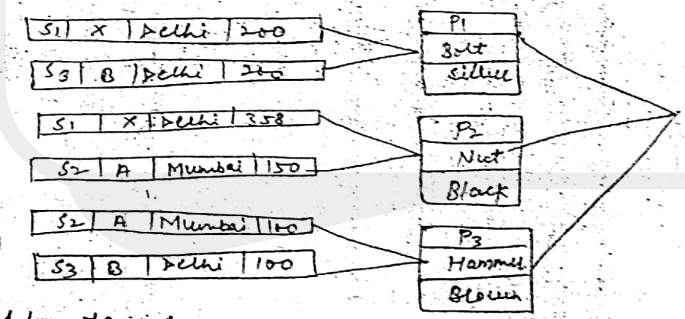
PNO	P-name	Color
P_1	Bolt	Silver
P_2	Nut	black
P_3	Hammer	Brown

SNO	PNO	Qty-Sup
S_1	P_1	200
S_1	P_2	358
S_2	P_3	100
S_2	P_2	150
S_3	P_3	100
S_3	P_1	200

Its Hierarchical Model:



OR



Advantages:
- Simplicity
- Data security & Integrity
- Efficiency

Disadvantages:
- Implementation complexity
- Lack of structural independence
- Programming complexity

Network Data Model

→ Network database Model was designed to solve some of the problems in hierarchical database model.

- We cannot add a record to child table in the hierarchical model until it has already been assigned to a parent table.

→ Network model solves this problem of data redundancy by representing relationships in the form of sets rather than hierarchy.

→ As in hierarchical model, in N/w model data are stored as collection of records & relationship is created by using pointers.

→ In N/w model, one pointer field for each link with which it is associated.

→ In this model, children can have multiple parents & parents can have multiple children.

Example:

DBTG N/w Model

N/w Model for suppliers, parts & quantity relation:-

Advantages:

1. Conceptual simplicity
2. Ease of data Access
3. Data Independence
4. Data Integrity

Disadvantages

- System complexity
- Absence of structural independence

Internet :- It is a network of computers linking many different types of computers all over the world. It uses a common set of protocols (comm.) for communication between two computers on the network. Internet has its root in ARPANET system of the Advanced Research Project Agency of U.S. Department of U.S. ARPANET was first WAN and had only four sites in 1969. Initally it was used by research organization & universities to share and exchange information. In 1989 U.S. government lifted restrictions on use of internet. Since then Intern has grown rapidly to become world's largest network.

Basic Services of internet :-

E mail :- Electronic mail service enables an internet user to send a mail (message) to another internet user in any part of world. All internet users have an e mail address. Each internet user have mail box. When sending a mail to another user, a sender specifies the email address of receiver. The receiver extracts the mail from his mailbox and reads it at own convenine time. After reading the message, receiver can save it, delete it, pass it to some one else or respond it by sending another message back. Message in email selvice can contain not only text document but also image, audio & video data. Only restriction is that data must be digitized, that is converted to a computer readable format.

E mail message has two sections :- header & body section. Header contain information about sender, receiver & subject of mail message. Body section contain actual text message. It may also signature part

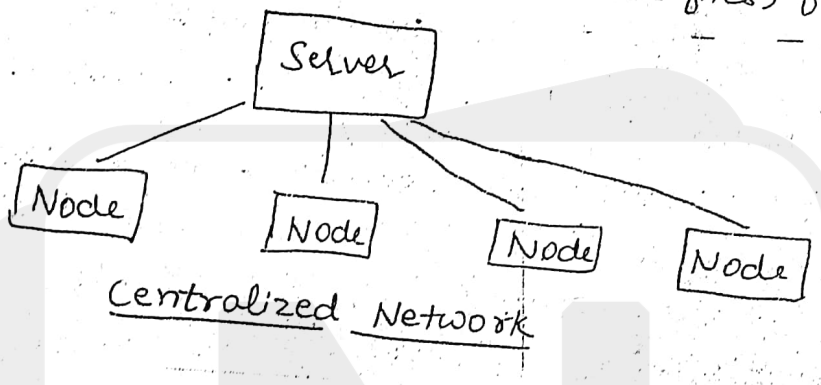
Advantage:-
(1) Cheap
(2) Time saving
(3) At the same time message can be sent to multiple parties.
(4) Faster
(5) No need to available at the same time.
(6) Email data can be stored in a computer and be easily printed, editing.

Disadvantage :-
(1) Password can be hacked.
(2.) Typing problem.
(3) Email address must be for mail service.
(4) Useless without internet connection.
(5) Should remember user id and password to access the email.

Signatures :- It is a text based collection of one or two lines. Signature is appended automatically to all emails.

Network :- It is a no. of computer connected to each other. A network is a network having a central computer (called server) and other computer called nodes (client). A centralized system has a server that the main office and nodes at all airports, have agencies. In some type of networks no central server exists. All computers are connected together through telephone connection centralized n/ws, a remote node can communicate only with server whereas in other type any two node can communicate with each other directly. In client server architecture two types of software are needed to the system. The software needed to do the work of node is called client software. The software

to run the system is called server. Client always ask for resources (software and data files) from server.



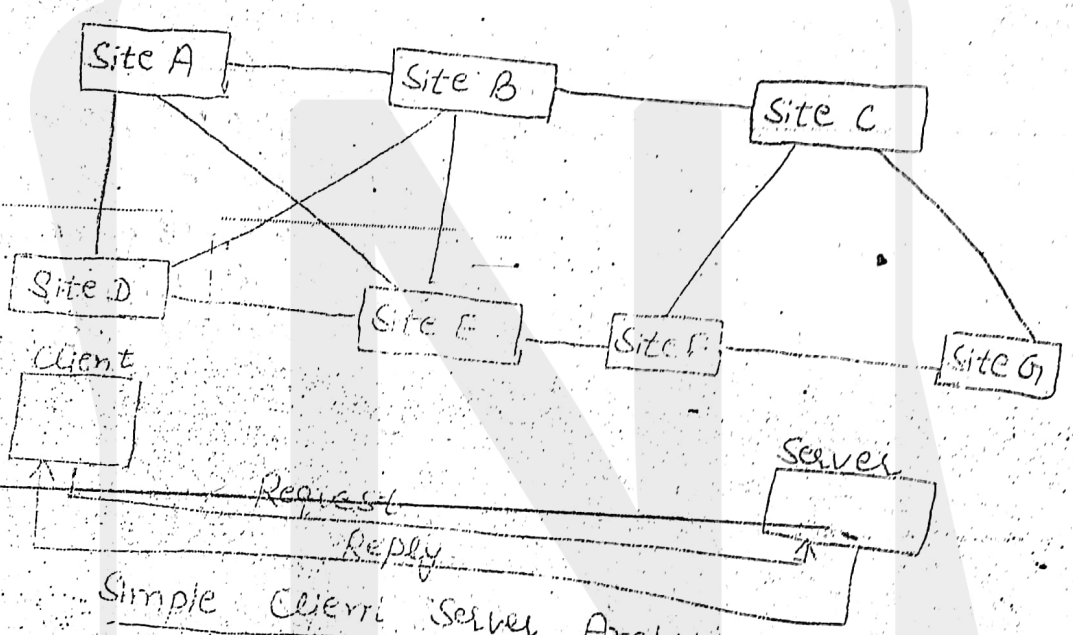
Centralized Network

WWW :- World Wide Web (W3)

It is global, seamless environment in which all information i.e. text, images, pictures, videos etc can be accessed in a consistent & simple way. These services are provided by websites.

WWW is based on the Internet.

WWW is a distributed client server services, in which a client using a browser can access a service using a server.



Simple Client Server Architecture

WWW refers to collection of document which are written in ~~HTTP~~ HTML

~~HTTP is hyper text transfer protocol.~~

Hyper text documents on the Internet are known as Web pages. Web pages are created by using a special lang called as HTML (hyper text markup language) HTM text of more generalized language SGML (Stan generalized Markup Language) that is a

powerful language for linking document for easier electronic access and manipulation.

A link is a special type of item in a hypertext document connecting the document to another document that provides more information about the linked item. A link is shown on the screen as a labeled button highlighted text or different colour text than normal text.

WWW uses client server model and an internet protocol called hypertext transfer protocol (HTTP) for interaction between computers on the internet.

Any computer on the Internet using HTTP protocol is called a web server and any computer accessing that server is called a web client. Use of client server model and HTTP allows different kinds of computers on the internet to interact each other.

Architecture of WWW :-

1. Controller
2. Client Protocol
3. Interpreter

1. Controller :- It receives input from keyboard or mouse and use client program to access the document.
2. Client Protocol :- It can be any protocol (Protocol is a set of standard rules) such as FTP, HTTP. The protocol is client/server program used to retrieve document.
3. Interpreter :- It is used to interpret the accessed document and to display it on screen. It can be HTML, JAVA or Javascript depending on type of document.

Web Browsers:- The web page designers create a special document that is viewed first one that contains introductory information & master menu of documents within the collection called home page. The location at which web pages are stored called as "web site".

Web browsers:- Web browser is the software which is used to access the internet & www. It is basically used to access and view the web pages of various website available on the internet. When we open a web browser, the first page which appear in web browser window is the home page set for particular web browser.

The most commonly web browsers are

Internet Explorer

Netscape Navigator

Mozilla firefox.

Browsing the internet:- Browsing the internet is process of accessing different website available on the internet using a web browser. To browse the Internet, we need to first connect our computer to internet through a connection provided by an ISP. To connect to the internet a modem is also required. Modem is a device that converts analog signal to digital & vice versa. A telephone line is also needed for connecting computer to servers of ISP (Internet Service Provider).

1. Select Start → Program → Internet Explorer.
2. Type URL of web site
3. Pre

URL (Uniform Resource Locator)

Each web page has a unique address called URL, that identifies its location on the internet. It is also called internet address.
URL consists of 4 parts :-

1. Protocol
2. Server or domain
3. Path
4. File Name

eg. http://www.xyz.com/tutor/start/m.htm

(server)

http	www	xyz	com	tutor/start/	m.htm
Access Method or Protocol	Host Computer Name	Domain Name	Domain type	Path	file Name

Protocol :- It is the access method. It is specified before colon (:), we can also use ftp, news

Domain :- It is unique and case sensitive name for a host on the internet. It specifies type of organisation.
eg. net - for internet related servic
com - commercial organization
edu - educational
gov - Government
org - organisation
net - network
ac - Academic

in - india
my - malaysia
uk - U.K

Telnet :- Telnet service enables an internet user to login to another computer i.e. a user can execute telnet command from his/her local-computer-i.e. a user can execute telnet command on his/her local computer to start a login session on a remote computer. This action is called remote login.

→ To start a remote login session, a user type telnet command & address of remote computer.
→ System then ask for enter login name & password.
→ User computer authenticates the user to ensure that he/she is authorized to access it.
⇒ If user specifies a correct login name & password, he/she is logged on to remote computer.
→ Once login session established with a remote computer, telnet enters input mode and anything typed on terminal of local computer by user is sent to remote computer for Processing.

Uses :- (1) Using computing power of remote computer.
(2) Using a software on remote computer. A software that a user wants to use but may not be available on his/her computer.
(3) Accessing remote computer database.
(4) For logging in to ones own computer from another Computer.

Internet Protocols:- Protocol means set of rules which defines the communication between two system or two users.

File Transfer Protocols:- FTP service enables an internet user to move a file from one computer to another on Internet. A file may contain any type of digital info., text document, image, artwork, movie, sound, software etc.

→ Moving a file from remote computer to ones own computer is known as downloading the file and moving a file from ones own computer to remote computer is known as uploading.

FTP's working:-

1. A user execute the ftp command on his/her local computer specifying address of remote computer.
2. FTP server/client then established a connection with FTP client/server.
3. The system then asks the user to enter his/her login name and password on the remote computer to ensure that user is authorized to access the remote computer.
4. Get (for downloading) & put (for uploading) commands are used.

FTP service is also used for more secure file transfer operations. In such cases a user needs a valid username and password to access a particular computer.

Anonymous FTP are those which are accessible to every user. Nonanonymous are those which are secure files, it requires user id & password. Only authorize person can access them.

Usenet News :- Usenet service enables a group of internet users to exchange their views/ideas/information on some common topic that is of interest to all the members belonging to the group. Such groups on internet is called newsgroup.

A newsgroup is like a large notice board. A member who wants to exchange his/her views/ideas/information with other members post his message.

Two types of newsgroups are there.

(1) Moderated.

(2) Nonmoderated.

Moderated :- In moderated newsgroup only selected members have the right to directly post (write) a message to the virtual notice board. It ensures the quality of message to be posted.

Unmoderated :- In this newsgroup any member can directly post a message on the virtual notice board.

Each newsgroup has a unique name eg. we have some groups like

- biz (business companies)
- comp (computers)
- soc (social issues)
- misc (miscellaneous). To access news we need to use a news reader program. This will connect to news server and therefore allows to subscribe to a number of groups and can read/send message to these groups.

Multimedia Conferencing:- It is of two types audio & video. In audio conferencing more than two persons can talk concurrently.

Video conferencing enables direct face-to-face communication across networks. A video conference can be person to person or can involve more than two people. In this form of meeting, participants in remote location can view each other and carry on discussion via web cameras, microphone & other communication tools.

The following five elements are used:-

(1) Camera:- It captures live images to send across the network.

(2) Visual display:- It display the images of the people taking part in video conference.

(3) Audio system:- It includes both microphones and speakers.

(4) Compression:- Videos are very bandwidth intensive and they take a long time to load these compression of video and decompression allows transmission across a network in near real time.

(5) User interface and control system:- The user interface allows the user to control interactions, eg. placing calls, storing and locating numbers and adjust enviornment setting such as volume.

Benefits:- A key factor is that it provides real time visual communication.

Its major limitation is the bandwidth available on Internet.

TCP/IP Protocol:- In internet to share information data has to be transfered from one computer to another certain rules called protocols has to be followed.

The protocols perform different tasks which are arranged in a vertical stack & each task is performed at a different layer. At time of transfering data protocol is responsible for determining network to which destination computer belongs.

→ Protocol also define the procedure which must be followed for dividing the data into packets.

→ Protocols are also responsible for detection of errors in data packet and the correction of these errors or loss of data packets.

Each computer on a network has a unique address which is known as Internet Protocol (IP) address. An IP address is a group of four numbers & numbers are separated from each other by a dot. When any data is sent from one computer to another computer over the network, it is divided into small modules known as packets or datagram. These packets are transmitted on the network by internet protocol. Each packet contains addresses of both source & destination computer.

→ A gateway present on the networks reads the address of distination computer and sends data to specified address. Gateway is a computer which contains software required for transmission of data over different networks. Each packets on the network is an independent entity so they are transfered through different routes to reach destination computer.

→ The packet received at destination are not in the same order in which they are transmitted. As a result

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→ A gateway present on the networks reads the address of distination computer and sends data to specified address. Gateway is a computer, which contains software required for transmission of data over different networks. Each packets on the network is an independent entity so they are transferred through different routes to reach destination computer.

→ The packet received at destination are not in the same order in which they are transmitted. As a result

Search Engine :- It is used for searching the info. In this we type keywords, it has logical understanding to match the keywords we type with the words stored in its own data base eg. Google, Yahoo search, ask.com, Live search, Lycos.

A search engine is a searchable data base of Internet files collected by a computer program called as wanderer crawler or spider. It allows the user to enter keywords relating to particular topic & retrieve info. about Internet sites containing those keywords. These consist of 4 key words.

(1) Spider :- A program that automatically fetches web pages. Spiders are used to feed pages to search engines. It is called crawlers because it crawls over the web. Because most of web pages contains links to another pages, a spider can start almost from anywhere. As soon as it sees a link to another pages it fetches it.

(2) Indexing software :- Program that analyses web pages that are downloaded by spiders.

(3) Database :- It is logical collection of data with some inherent meaning.

(4) Search Engine Mechanism :- Software that enables users to query the index and that usually returns in terms of relevency ranked order.

Working of Search Engine :

Step1 : Web spiders spider gathers all information about what is available on internet.

Step2 : Indexing software extracts information from the documents and organises it into the database.

Step3 : When user visit the search engine's web page they launch a search of its database by typing the keywords that describes the information they are looking.

Step4 : Search engines looks for the keywords in the index for the database. It creates a new web page displaying URL's and titles of documents.

SMTP :- Simple Mail Transfer Protocol :-

SMTP is an internet standard for electronic mail transmission across Internet Protocol (IP networks). When a mail is to be sent, then a mail transfer program contact with a remote machine over which the mail is transfered. Once the connection is established, then SMTP identifies the sender itself, specify the recipient of mail & then transfer a Email message.

→ It also require the reliable delivery of message such that sender may keep the copy of mail until the mail is actually delivered.

→ It was first defined in RFC 821 (1982) and last updated by RFC 5321 (2008), which describes the protocol in widespread use today, also known as extended SMTP / ESMTP.

⇒ One of the limitation of original SMTP is that it has no authentication of senders. SMTP is a global leader in email delivery. It allows to send a single message to one or more recipients & sending message that includes text, voice, video or graphics.

Two main components :-

1) User Agent
2) Mail Transfer Agent

1) User Agent :- It prepares the message (enclosed in an envelope). (The User agent is normally a program used to send and receive mail)

Address - To deliver a mail there must be unique addressing system. The addressing system used by SMTP consists of two parts: local part & domain name (separated by @ sign.

Local Part @ Domain Name

Address of mailbox on local site → of the destination.

Local Part defines the name of special file, called user mail box.

Domain Name :- An organization usually assigns one or more hosts to send & receive email, they are sometimes called as mail exchanger. It either comes from DNS database or is a logical name.

2) Mail Transfer Agent :- The actual mail Transfer is done through MTA. To send mail a system must have a client MTA & to receive a mail, a system must have a server MTA.

Limitation :- The maximum size of email is 64KB.

HTTP (Hyper text transfer protocol):-

HTTP is a communication protocol it is used for retrieving interlinked text documents (hypertext) led to the establishment of WWW.

→ HTTP is a request-response standard between a client and server. A client is an end user & server is a website.

→ Client makes a HTTP request using a web browser, spider and other end user tools is referred as user agent.

→ The responding server - which stores or creates resources such as HTML files and images is called origin server.

→ HTTP uses TCP not UDP because TCP provides transmission control, present data in order & provides error control.

→ HTTP is called a stateless protocol because each command is executed independently, without any knowledge of the commands that came before it.

→ HTTP is used mainly to access data on WWW. The protocol transfers data in form of plain text, hypertext, audio and video etc.

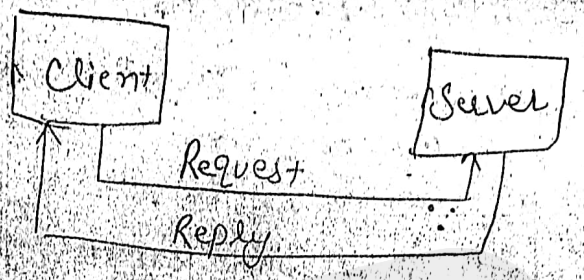
→ HTTP works like a combination of FTP & SMTP.

→ It is similar to FTP because it transfer files.

→ SMTP allows data transfer between client & server. It looks like SMTP message but SMTP message are stored & forwarded but HTTP messages are delivered immediately.

HTTP versions are:

1) HTTP/0.9
2) HTTP/1.0
3) HTTP/1.1
4) HTTP/1.2



Gopher :- Gopher is a text based tool that provides hierarchical collections of information of all sorts across the Internet.

→ It is a distributed document search and retrieval protocol designed for the Internet.

→ The difference between browsing & visiting a gopher space is that in web browsing, you see graphical pictures, text etc, while gopher present a menu. The web [illegible] you may go to another menu or the information will be presented in the form of text.

→ Gopher facilitates used simple menu selection features and also provide browsing of large files. The resource (file) available on gopher are called gopher space.

→ Its text menu interface is well suited to computing environment that rely heavily on remote terminals. Common in universities at time of its creation.

→ Gopher based resources are still available on the Internet, however things have moved to a better technology of world wide web.

Archie :- The resources (in the form of files) available on a server were to be shared by the internet clients (users). First technology that people adopted was FTP. However in FTP user had to initially know the location of the file. So it was very difficult to locate a file. Browsing of information was not possible in FTP.

⇒ Then came a service called Archie. ~~Then came a Service called Archie~~. Archie was dele developed as a searching system for the files available on FTP. The files available on FTP were called FTP space. Archie helped user to search the FTP space using keywords. Archie was not a part of FTP service. Archie & FTP were two different services. One can first search for a file in FTP space using Archie & download using FTP.

has simple menu selection features.

a new search came that is called as Veronica

Veronica available to search in Gopher. Using veronica

we can search a file in Gopher using keywords.

Veronica are not two different

Service Veronica can be got from Gopher menu

They are coupled together. Later another

facility called Jughead was developed. Both

FTP mainly have text based resources.

(Please write your Roll No. Immediately) Roll No. _____

First Term Examination

B Tech – Semester I **Oct., 2013**
Paper Code: ETCS – 111 **Subject: Fundamentals of Computing**
Time: 1 ½ Hours **Max. Marks: 30**

Note: Q. No.1 is compulsory. Attempt any two more questions from the rest.

Q1. a) Differentiate between internal and external commands.
b) What is the basic function of primary memory in the computer? Define various types of RAMs.
c) Name and differentiate the two main categories of computer software.
d) Draw a flow chart to print names of all the students having age 20 or more in a class. The input record contains the name and age of student.
e) Arrange the following in ascending order:
i) Nibble ii) Kilobyte iii) Petabyte iv) Megabyte
v) Terabyte vi) Byte vii) Bit viii) Gigabyte.

[2x 5]

Q2. a) What do you understand by booting a PC?
Separate internal and external commands from the following list. Also write their purposes and syntaxes.

i) edit ii) ren iii) fdisk
iv) rd v) move vi) deltree

b) Explain the different generations of computers with their basic characteristics.

[5+5]

Q3. a) What do you understand by input and output devices of a computer? Discuss any two from each in detail. Also define Sector, Track and Cylinder of a hard disk.

b) Draw a block diagram to illustrate the basic organization of a computer system and explain the functions of the various units.

[5+5]

Q4. Write short notes on ANY TWO of the following:

a) Blu Ray Disk
b) Direct Data Entry Devices
c) Impact & Non Impact Printers
d) Translators.

[5+5]

ECE-(E)

(Please write your Roll No. immediately)

Roll No. 407 - 02
411 - 31
410 - 22

Second Term Examination

B Tech – Semester I
Paper Code: ETCS – 111
Time: 1 ½ Hours

Nov., 2013
Subject: Fundamentals of Computing
Max. Marks: 30

Note: Q. No.1 is compulsory. Attempt any two from rest of the questions.

Q1. a) Define the *operating system*. Also list its functions.
b) Differentiate between *DOS* and *Windows OS*.
c) What is *computer network*? List four benefits that networks provide to their users.
d) Why is the Internet sometimes described as a *network of networks*?
e) What are *system utilities* in Windows OS?

[2x 5]

Q2. a) How *file permission* is given in Linux system? If the file name is ggsipu then write the command and syntax to assign file permission: read, write and execute to owner; read to group; read and write to others.

b) What is a *shell*? Explain any five Linux commands with their purpose and syntax.

[5+5]

Q3. a) What do you understand by *network topology*? Describe star and bus topologies with their advantages and disadvantages.

b) What is the need of protocol? Describe the purpose of the following protocols: HTTP, FTP, SMTP and PPP.

[5+5]

Q4. Write short notes on ANY TWO of the following:

a) Linux Architecture and File System
b) Network Media
c) Windows XP Administrative Tools.

[5+5]

Ms Mamta Gahlan
505-A

Assignment No-3

Ques.

1). List the 5. difference between Linux and unix. O-S

2). Discuss the Linux Architechure and Feature of Linux operating system.

3). Define LAN and WAN.

4). What do you mean by Protocol.

5. Why star Topology is commonly Preferred.

6. List out the advantage and drawback of. BUS Topology.

7. Mention Imparlant Benefits of Computer network.

8. What are the various type of Transmission media.

9. Explain FTP. HTTP.

Reference No.
10184701

(Please write your Exam Roll No.)

Exam Roll No. .....

END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] DECEMBER 2013

Paper Code: ETCS111 **Subject: Fundamentals of Computing**

Time : 3 Hours **Maximum Marks :75**

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

Ques1: a) Differentiate between System Software and Application Software?

b) Differentiate between Volatile and Non-Volatile memory with example?

c) Differentiate between Compiler and Interpreter?

d) What do you mean by Warm Booting?

e) What do you understand by FAT and NTFS file system?

f) What do you mean by Firmware?

g) Draw a Flow Chart to find smallest number of three numbers?

h) What do you mean by Protocol? What is the purpose of FTP?

i) Explain Unicast, Multicast, and Broadcast?

j) Who is DBA? What are the responsibilities of a DBA? (2.5*10)

UNIT - 1

Ques2: a) Explain the fundamental units of a Computer System with the help of block diagram? (6)

b) What do you mean by memory? Discuss various types of memory? (6.5)

Ques3: a) Explain Input and Output Devices? Discuss any three from each in detail? (6.5)

b) Differentiate between Impact and Non- impact Printer? (3)

c) Differentiate between primary storage devices and secondary storage devices? (3)

P.T.O

Computer Comm.

Application of High Performance

P.T.O.

UNIT - 2

Ques4: a) Explain architecture of Linux and also explain its features? (6.5)

b) Differentiate between Multiprogramming, Multiprocessing, Multiuser operating system? (6)

Ques5: a) Explain following commands with their syntax and purpose: (6)

i) COPY CON ii) RD iii) CHKDSK

iv) REN v) CLS vi) XCOPY

b) How file permission is given in Linux system and How we can change them? (3)

c) Explain DEB and DEBIAN package in Linux? (3.5)

UNIT - 3

Ques6: a) What is computer network? Explain types of networks in detail? (6)

b) What is DBMS? Explain two tier and three tier architecture? (6.5)

Ques7: a) What do you mean by Network Topologies? Describe any two topologies with their advantages and disadvantages? (6.5)

b) Explain the following Networking Devices: (6)

i) Bridge ii) Switch iii) Router

UNIT – 4

Ques8: a) Write down short note on Libre Office Components? (6.5)

b) What are various advantages of Libre Office? (6)

Ques9: a) Write down various steps to create a Template in open office writer? (6.5)

b) Discuss the most frequently used functions in spreadsheets? (6)

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Computer Comm.
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