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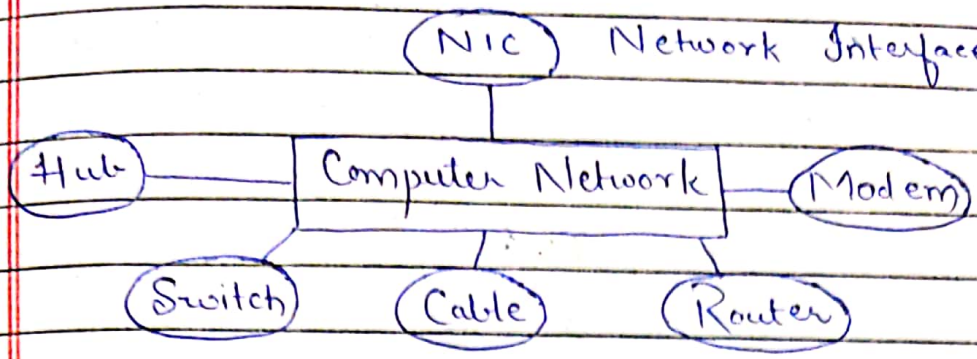
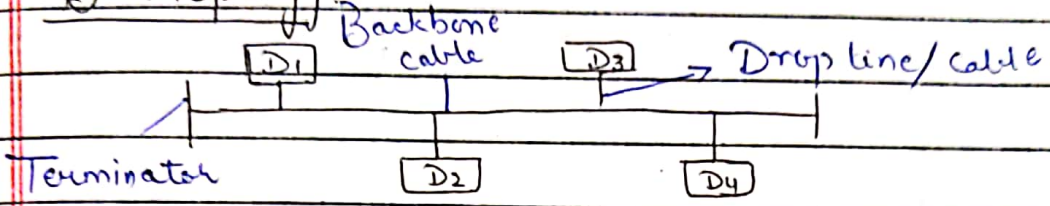
# Computer Network.




## 1) Bus Topology :-




1) Bus topology is designed in such a way that all the station is connected to a single ~~line~~ cable known as backbone cable.
2) Each bone is either connected to the backbone cable by drop cable or directly connected to the backbone cable.
3) When a node want to send a msg over a network it puts a message over the network.

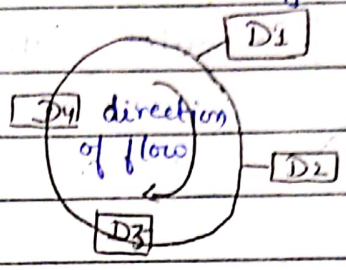
## 2) Ring Topology :.

1) Ring topology is like a bus

topology, but with connected ends.

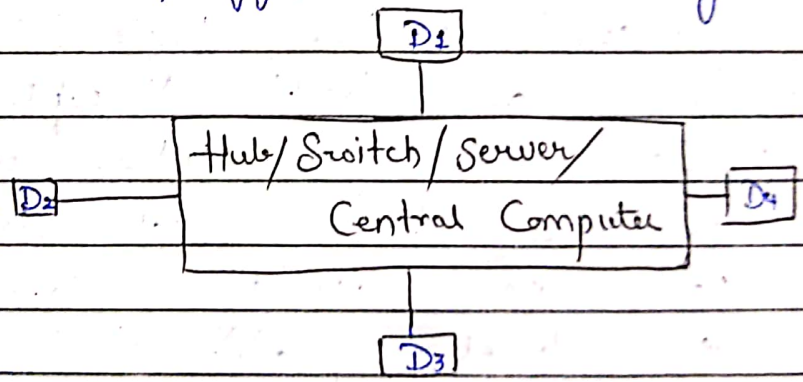
2) The data flows in single direction.

3) If we want to transmitt a data in a ring the node will receive a data from previous node and transmitt a data to the next node.




## Star Topology :-

1) Star topology is an arrangement of the network in which every node is connected to the central hub, switch, or a central computer.



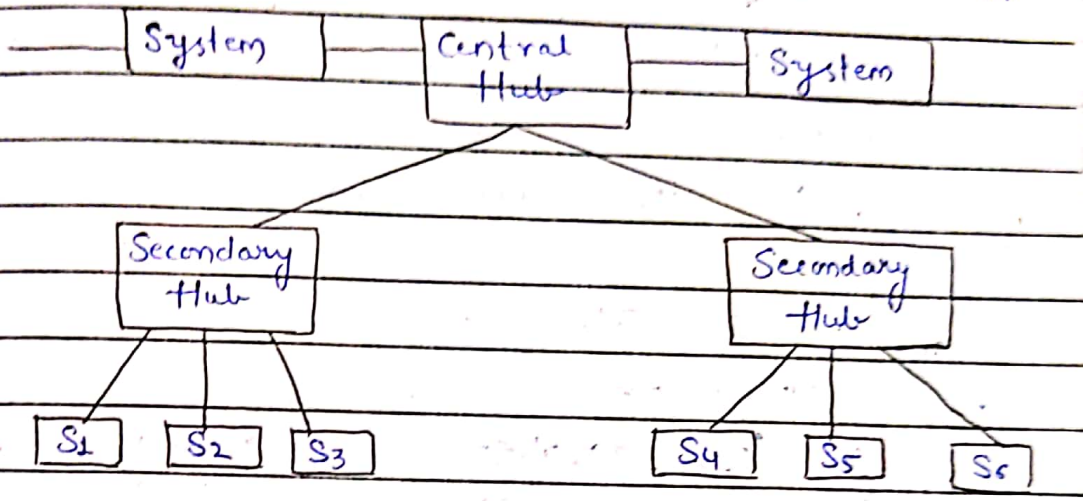

2) Central computer is known as server and all the other node act as a client.

3) Star topology is most popular

topology in the network implementation.

4) Tree Topology :-

1) Tree topology combine the characteristic of bus topology & star topology.



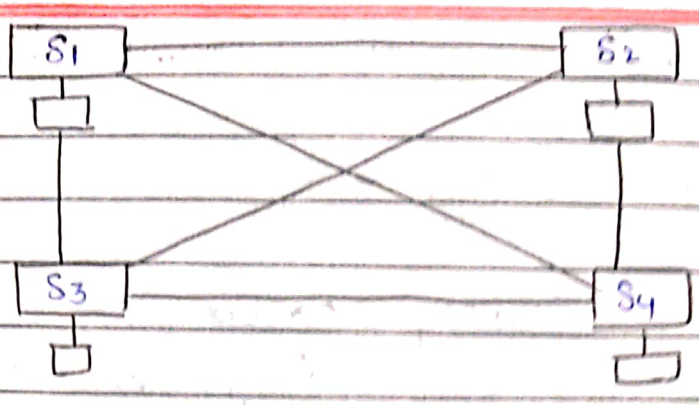

2) In tree topology all the node connected in such a way that they create a heriechical structure.

3) The topmost node in tree topology is known as root node.

4) There is only one path exist b/t two node for data transmission.

5) Mess Topology :-

1) Mess topology is an arrangement of network in which computer are ~~in~~ interconnected with each other




through various redudant connections.

2) There is a multiple path from one to another computer.

3) It does not contain the switch, hub or any central computer which act as a central point of communication.

4) Mess topology is mainly used for the WAN implementation.

6) Hybrid Topology :-

1) The combination of various different topology is known as Hybrid topo

2) If similar topology is combined then not called Hybrid topology.

3) The design of this topology depend on the organisation demand.

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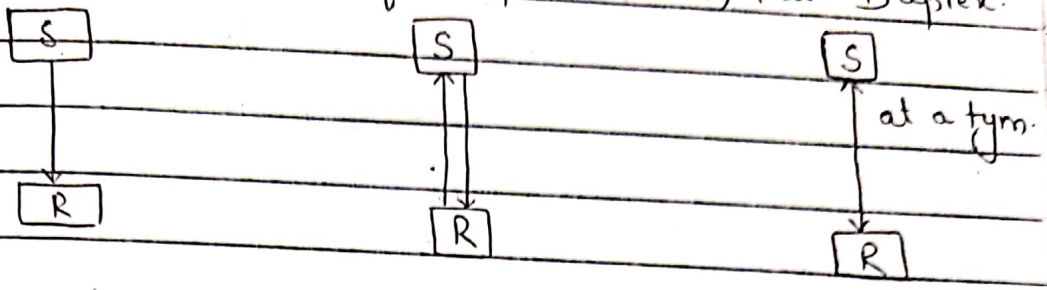
# Data Communication :-

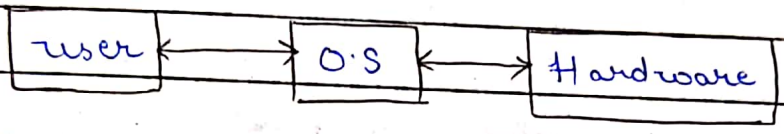
## Types of Data Communication :-
(transfer of data b/t two devices)

1) Simplex 2) Half Duplex 3) Full Duplex.

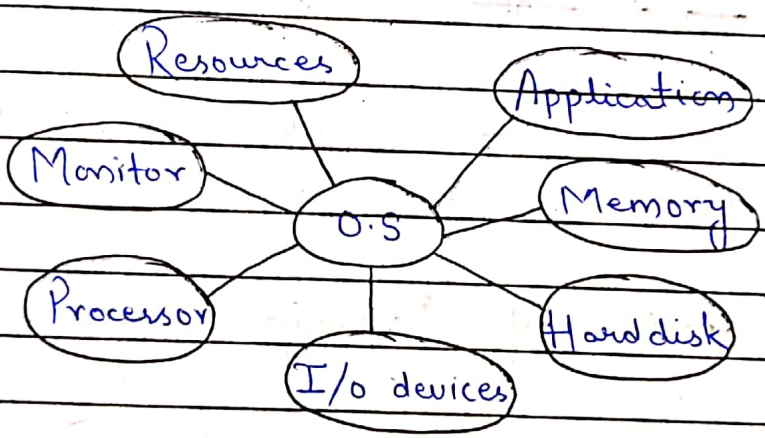



## Operating System :-

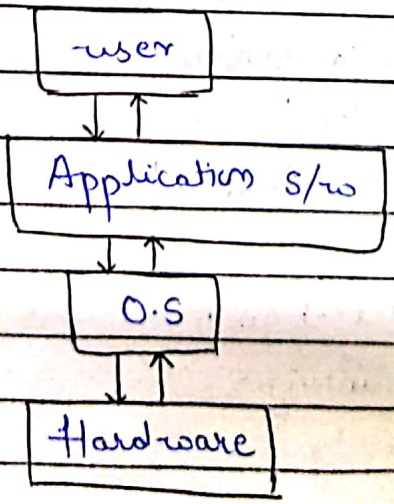
i)



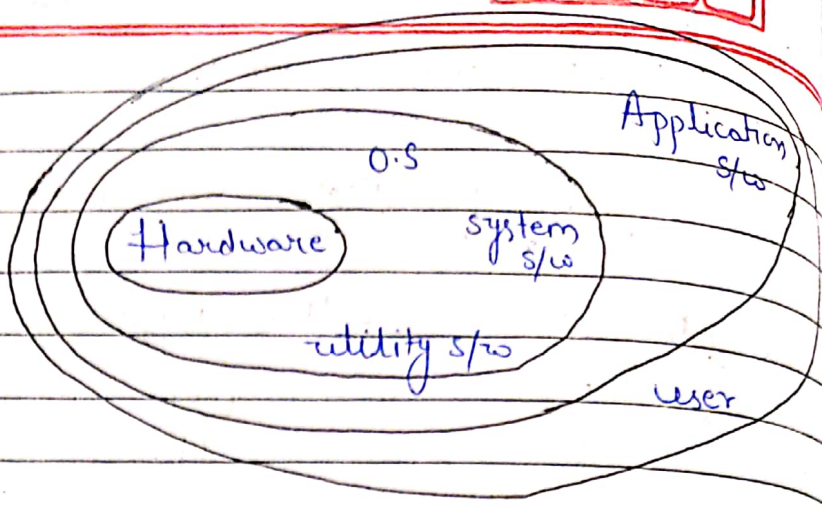

ii)




iii)



iv)




1) Operating system can be defined as an interface b/t user and hardware.
2) It provides an environment to the user so that, the user can perform its task in efficient and convienant way.
3) It is a primary resource manager.
4) It manage all the devices related to the system.

## Function of Operating System:-

1) Memory Management (RAM)
2) Process Management.
3) Device Management.
4) File Management (Harddisk)
5) Security
6) Error detection.
7) Job accounting.
8) Job priority.

1) Memory Management :-

This memory management refer to the primary memory. Main memory provide a faster storage that can be access directly by the CPU. Operating system keep track of primary memory. Operating system decides which process will get memory and how much.

2) Process management :-

In Multiy programming envirnment the operating system decides which proceuser gets the processor when and for how much time. This function is called process scheduling. Operating system keep the track of processor and status of process. The program responsible for this task is known as traffic controller.

3) Device Management :-

An OS manages device communication via their respective drives. OS ~~decides~~ keep the track of all the device, the

program responsible for this task is known as I/O controller.

4) File management :-

It referred to the secondary memory. OS keep the track of information, location, uses and status of the file.

5) Security :-

With the help of user id & password, we protect our data to the unauthorised user.

6) Error Detection :-

The OS constantly ~~continues~~ moniter system to detect the error and if found, they display on monitor screen.

7) Job accounting :-

OS keep the track of tym and resources used by the various task & users.

8) Job priority :-

OS determine what action should be done first in a computer

system.

## Types of Operating System:-

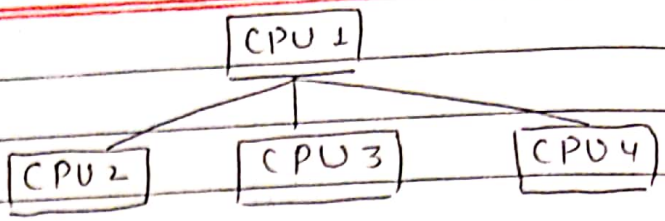
1) Batch OS
2) Multiprogramming OS
3) Time sharing / multi-tasking OS
4) Distributed OS
5) Network OS
6) Multi Processor OS — Symmetrical Multiprocessor; Asymmetrical Multiprocessor
7) Real time OS — Firm Real time; Soft Real time
8)

### 1) Symmetrical Multiprocessor:-

It occurs when many processor together to process the program using the same O.S and memory each CPU executes the OS operations. When memory is shared so it means all processor can communicate with each other.

### 2) Asymmetrical Multiprocessor:-

In this OS there is a master slave relationship b/t the processor. One processor act as a master




or supervisor while other ~~are~~ all treated as a slave. In this type of system each processor is assigned a specific task and master processor is controlling the activity of all the proces

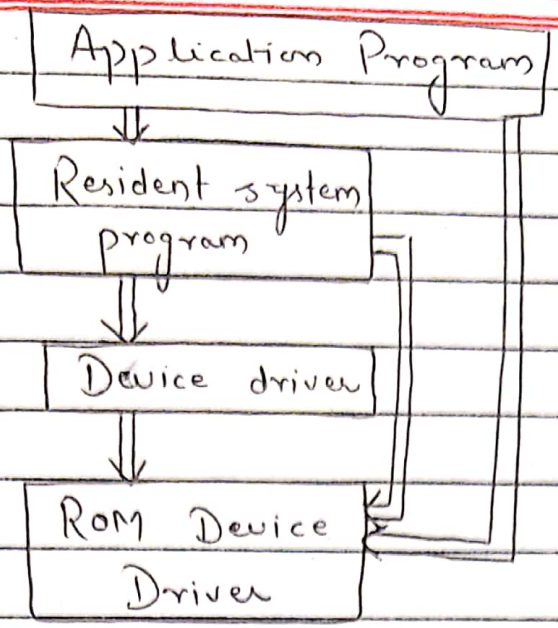
## Real - Time O.S :-

Real - time OS is an environment where a large no. of events, mostly external to the computer system, must be accepted and process in a short time within shorten deadline. The time interval required to process and respond to input is very small. This time interval is called Response time.

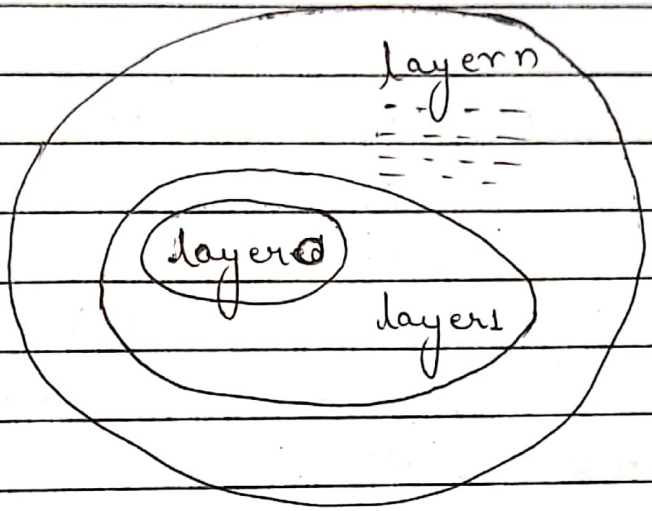
## Structure of O.S :-

1) Simple Structure.
2) Layered Structure.
3) Micro - Kernal.
4) Modular Structure

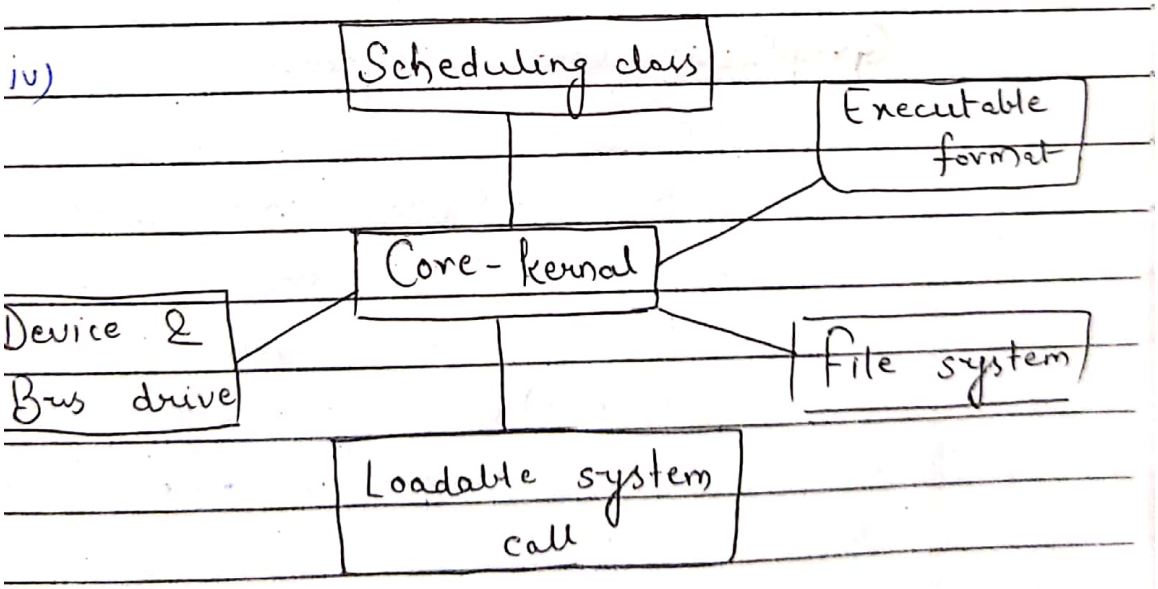
i)


Application Program
Resident system program
Device driver
ROM Device Driver

ii)


layer n
layer 0
layer 1

iv)


Scheduling class
Executable format
Core - kernal
Device & Bus drive
File system
Loadable system call

=> Command Base / Command Line Interface (CLI)
=> Graphical user Interface (GUI)

## Command line Interface :-

It is an interface for the user that is used to issue commands in successive line of text or command line to execute the task. It is a platform or medium in which user react to a visible prompt by writing a command and receiving a response from the system. It may be used with a low resolution, low cost monitor. It is also required less memory (RAM).

## Graphical User Interface :-

It is an interface that allow users to interact with diff. electronic devices. It is a visual representation of communication presented to the user for easy interaction with the machine.

(CLI).

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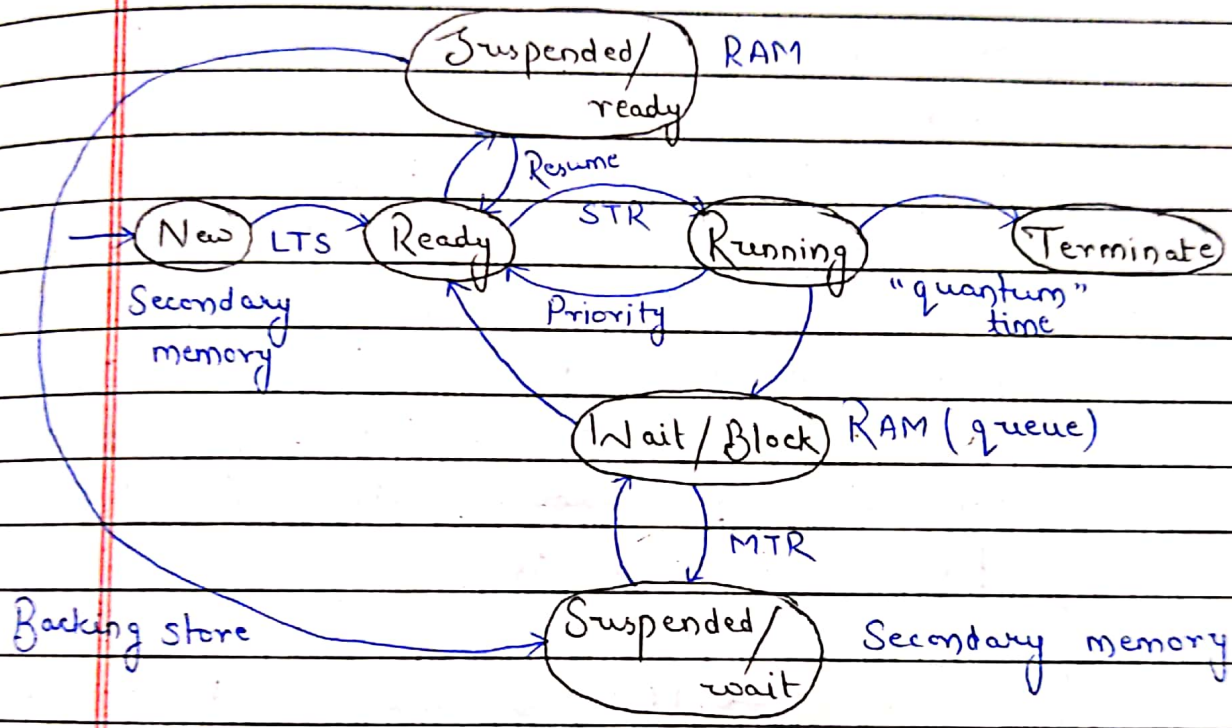
## Process Status / life cycle :-

1) New
2) Ready
3) Running
4) Wait / Block
5) Terminate




LTS - Long term schedular.

STR - Short , MTR - Medium.