

Chapter - 1

What are the types of OS?

- (1) Single user program of single user
- (2) Make the computer system convenient to use
- (3) Use the computer resources in efficient manner

what is operating system?

→ OS is a program that acts as an intermediary between a user of a computer and the computer hardware.

What are the goals of OS?

- ① Execute user programs & making solving user problems easier
- ② Make the computer system convenient to use
- ③ Use the computer hardware in efficient manner.

OS definition:-

OS is a resource allocator &

control program making efficient use of hardware and managing execution of user program.

what are the components of computer system?

Four components.

- ① Hardware (provide basic computer resource)
 - ② Operating system (controls & coordinates the use of hardware among various application & users)
 - ③ Application programs
 - ④ Users.
- ↓
- (define the way in which the system resource are used to solve computing problems of users)

what is kernel?

→ kernel is a central component of OS that manages operation of computer and hardware (manage operation time & CPU time)

what is Interrupt ?

→ an interrupt is a signal emitted by hardware or software when a process or event needs immediate attention.

→ it temporarily stops or terminates a service on current process.

what is kernel ?

Storage structure

main memory

- Random access
- volatile ~~memory~~
- (DRAM)

Secondary storage

HDD

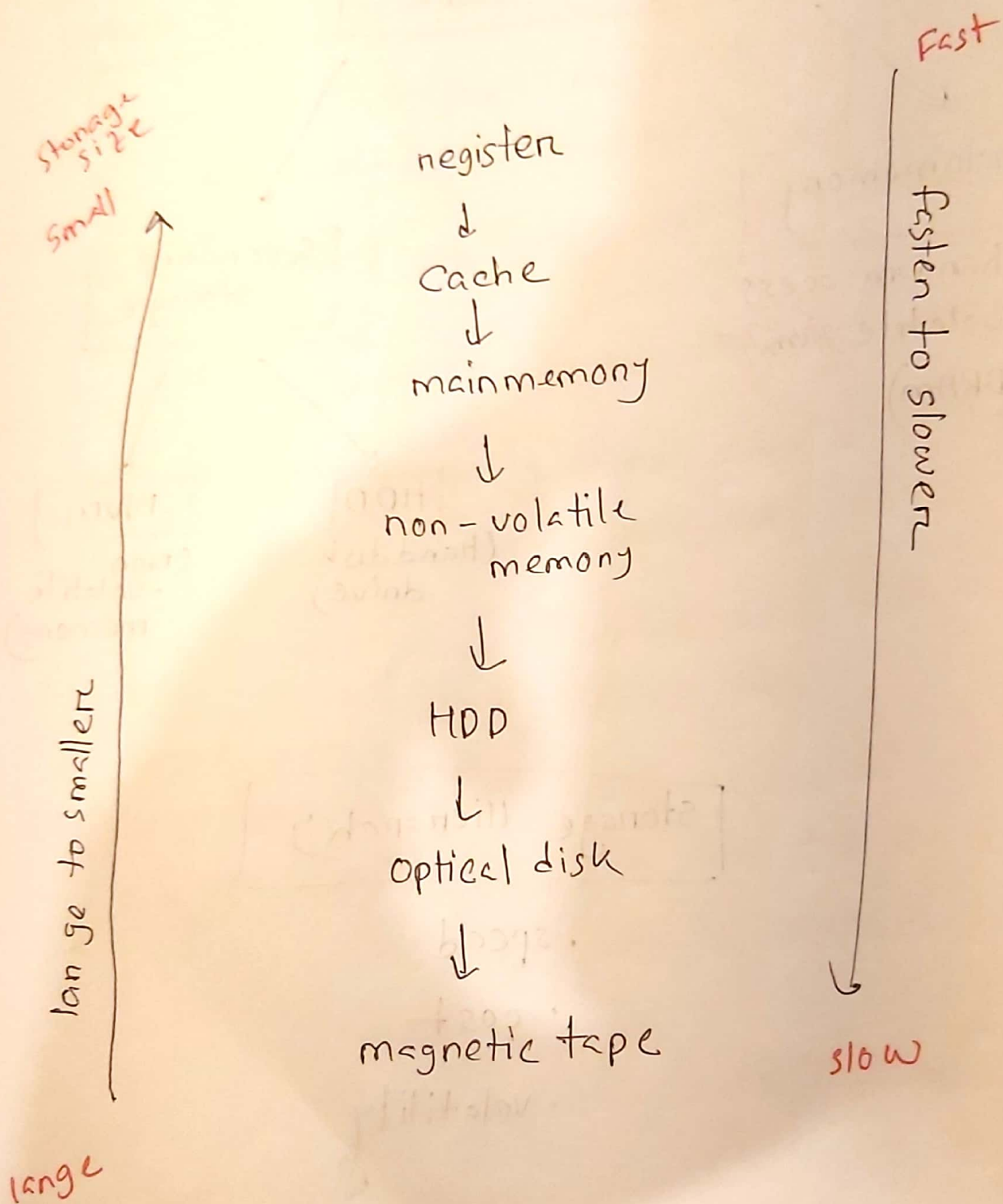
(Hard disk drive)

NVM

(Non-volatile memory)

Storage Hierarchy

- speed
- cost
- volatility



(Storage - Device Hierarchy)

operating system operations

① Bootstrap program (initialize the system)

② kernel loads

③ start system daemons (services outside kernel)

④ kernel interrupt driven.

Hardware interrupt

Software interrupt

→ error

→ system call

→ process problem

what is multiprogramming?

→ when multiple program execute at a single time on a device

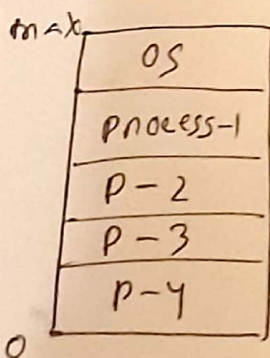
→ multiprogramming organizes jobs (code & data) so that cpu always has one job to execute.

→ a subset of total jobs in system is kept in memory

→ one job is selected and run via job scheduling

→ when a job has to wait (like for I/O device), OS switches to another job

∴ This is called multiprogramming (batch system)



what is multitasking?

- multitasking in OS allows a user to perform more than one computer task (such as the operation of an application program) at a time.
- use CPU scheduling, to run several jobs at the same time.
- a logical extension of batch systems where CPU switches job frequently so that user can interact with each job while it ^{is} running.

(time sharing)