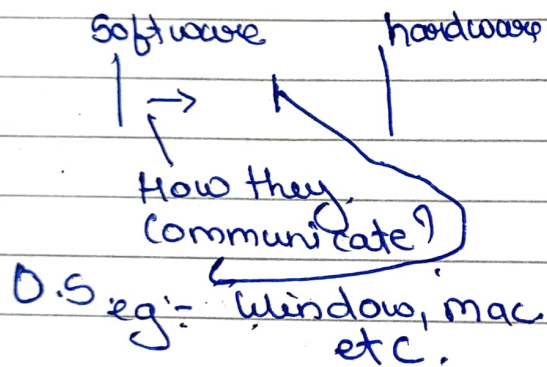


1. Introduction to OS. - (8)
2. Process Management. - (9)
3. Memory Management. - (12)
4. File System. - (4)
5. I/O System. - (3)
6. Storage Management and data protection - (2).

OS and main function.

① OS and main function.



main function.

Device manager ←
User Interface
Memory, file, Process

② Process and thread.

Process is One app.
In app other function are.
Open which work.
Simultaneously is called.
Thread.

③ Types of O.S.

1. Batch operating O.S.
↓

work One by One.

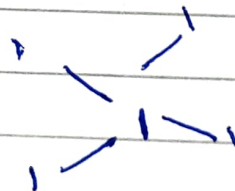
2. Multiprogramming O.S.

work Together. ~~or~~

3. Real-Time ⇒ where time is strictly eg:- Space Center.

4. Distributed O.S.

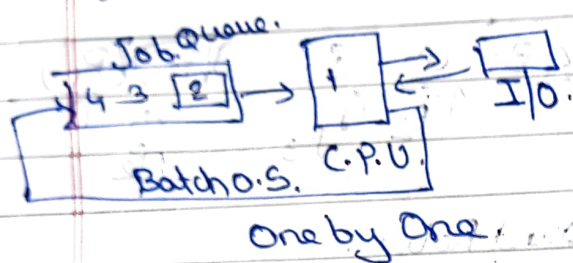
Apple Ecosystem.



5. Embedded O.S.

eg:- Elon Musk Rocket Catuh Team.
(IoT).

1.6 Batch O.S.



1.5 Multiprogramming and MultiTasking.

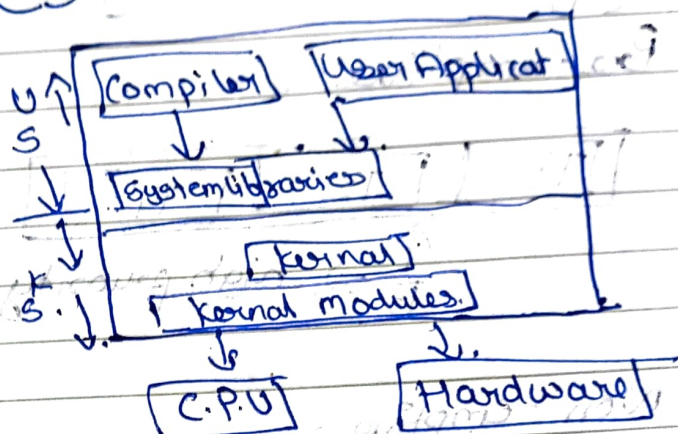
M.P \Rightarrow C.P.U Change the T1 and Go Start with T2 and again Start T1 means

Switching between Job.

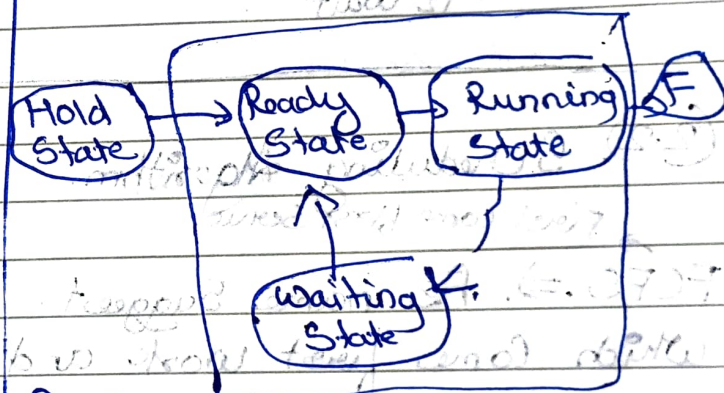
M.T \Rightarrow In Switch Rapidly between C.P.U and memory in Small Quantum that user think it work together.

Context Switching \Rightarrow Changes in One process to another the time is called Context Switching.

(1.6) kernel and users.



(1.7) Processes and Thread.



P.C.B and T.C.B are checking and Show like meter data.

(1.8) Normal Call v/s.

Normal call	System call.
Run on Program Code.	depend on hardware response.

(2) Process Management

(2.1)

Pre-emptive



↑ $T_2 \Rightarrow$ high priority.

Non-emptive



↑ T_2 wait

(2.2) Scheduling Algorithm

→ First come first serve.

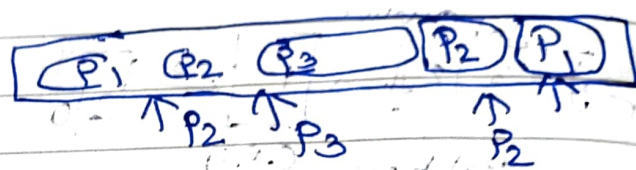
FCFS \Rightarrow As name suggest which come first work and no other process is between.

SJF \Rightarrow Shortest Job First.

P	T
1	3
2	2
3	1
4	5

↓
which have Shortest time work fine.

SRTF (Short Remaining Time First)



Round Robin

→ Given Each frame time to every one is called Round.

Robin

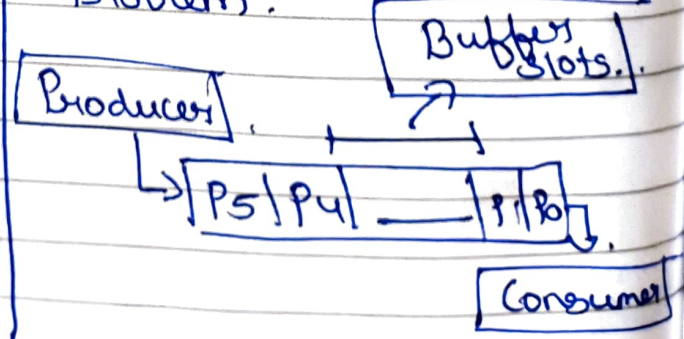
(2.3) Starving and Aging

Starving:- low priority task is denied and high priority task is coming.

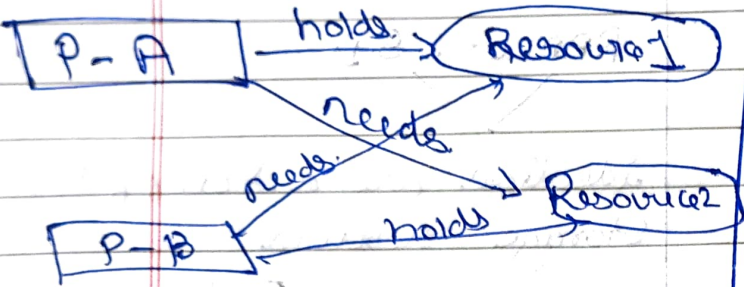
it lead to inefficient system performance is called Starving.

Aging:- low priority task move up over time is called Aging.

(2.4) Producer - Consumer Problem



2.5 Critical-Section Problem.



Dead Lock.
 if A is not hold the Other will not start and B is not released A not start.

Preventing \Rightarrow Other have to wait and One have to process and finished.

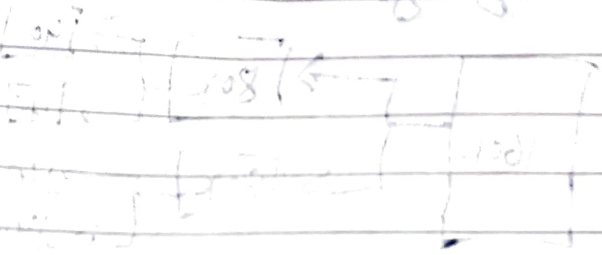
2.6 Semaphores.

it is computing Environment to prevent race-condition.

- ① Binary
- ② Counting.

(i) Dining philosophers Problem.

(ii) Banker's Algorithm.



Memory Management.

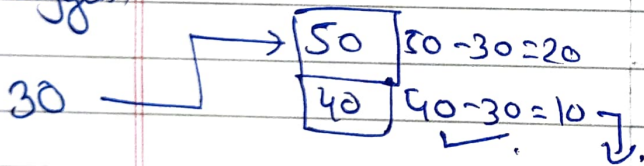
Fragmentation \Rightarrow it means waste of memory i.e. Unused memory is called Fragmentation.

First Fit Algorithm.

Where it find first Storage Space is called first fit algorithm.

Best-fit Algorithm.

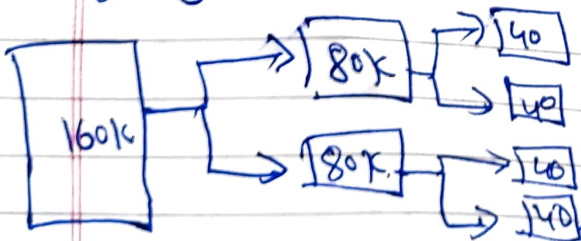
After Subtracting which finds minimum waste of memory is adding



Worst-fit Algorithm.

After Sub Maximum Waste is that Assigned.

② Buddy System Allocation.

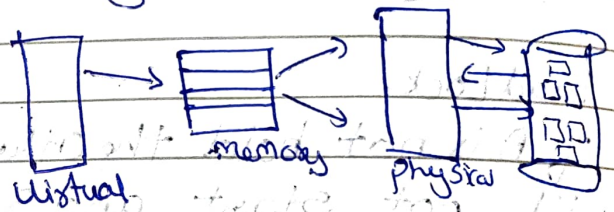


② Virtual Memory.

It is a

RAM or S.S.D

idealized abstraction of the Storage resource.



Paging:- Divide memory into Equal block is called Paging.

Segmentation:- Divide memory into Unequal part according to their requirement.

