Assignment - 2

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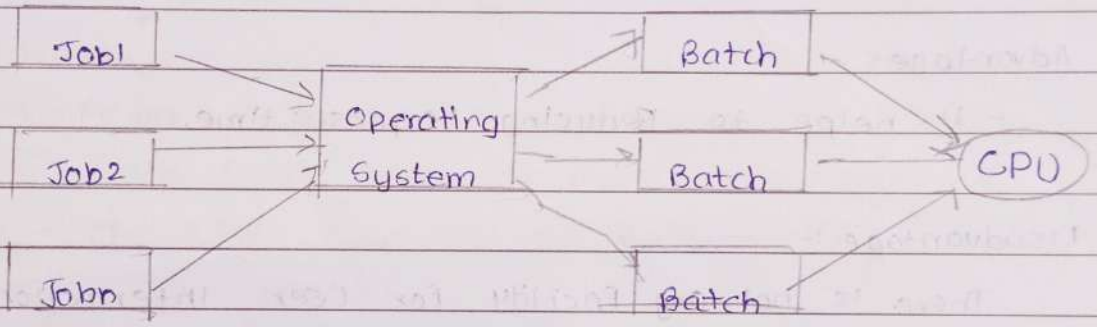
- Types of OS :-

1) Batch operating System :-

This type of operating System does not Interact with computer directly. There is an operator which take similar jobs having the Same Requirement and groups them into batches. It is the responsibility of Operator to sort jobs with Similar needs



- Advantages :-

1) It is very difficult to guess or know the time - Required for any job to complete. Processors of batch Systems know how long the job would be when it is in queue.
2) Multiple users can share the batch Systems.
3) The Idle time for batch System is very less.
4) It is easy to manage large ~~network~~ repeatedly In batch Systems.

- Disadvantages :-

1) The Computer Operators Should be well known with batch System.
2) Batch Systems are hard to debug
3) It is Sometimes costly.
4) The other jobs will have to wait for unknown time if any job fails.

2) Multi Programming Operating System :-

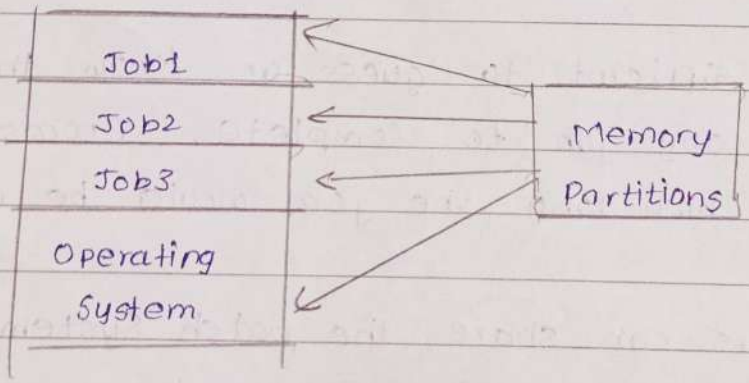
- More than one program is present in main memory and any one of them can be kept in execution. This is basically used for better execution of Resources
→ to Execute multiple Jobs by Single Processor
- No. of Jobs (processes) in memory, OS execute one of Job
- when current Job waits for some reason the OS executes another job.
- CPU will never be idle to increase throughput, response time.

Advantages :-

- It helps to Reducing Response time.

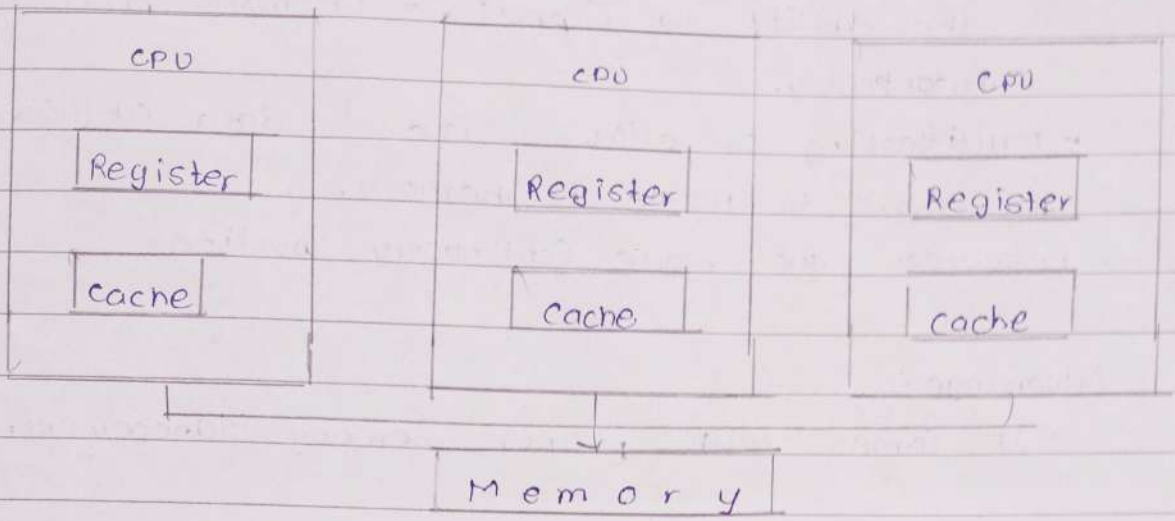
Disadvantage :-

There is not any Facility for User Interaction of System resources with System.



3) Multi-Processing OS :-

- Is type of OS in which more than one CPU is used for execution of Resources. It betters the throughput of System.
- It is also known As Tightly Coupled Systems where processors share memory and clock. Communication usually takes place through Shared memory



- Advantages :-
  - Increase the throughput of system
  - As it has several processors, so if once processor fails we can processed with another processor.
  - In Symmetric multiprocessing each processor runs identical copy of OS.
  - → Many processors can run at once without performance decrease.

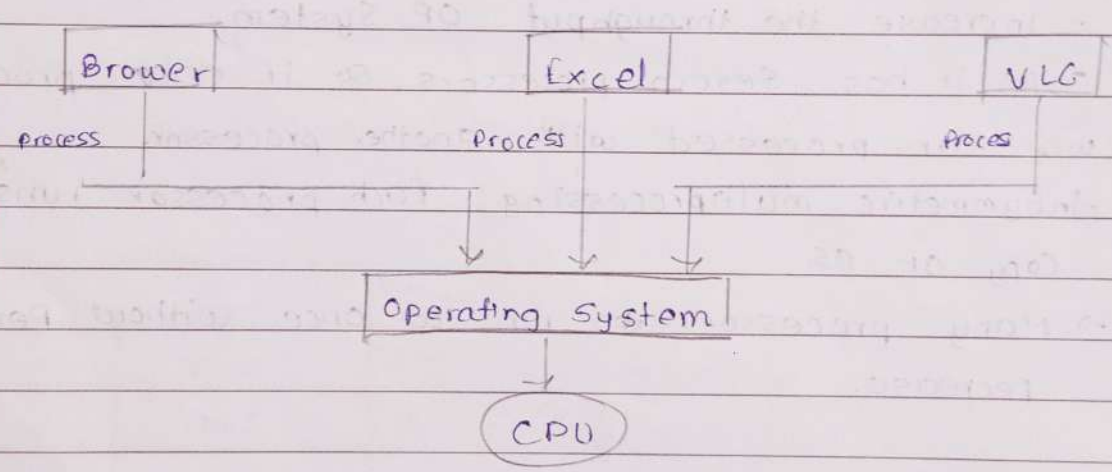
- Disadvantage :-
  - Due to multiple CPU, it can be more complex and somehow difficult to understand.

4) Multi - Tasking OS :-
- Simply Multiprogramming OS with having Round Robin scheduling Algorithm. It can Run Multiple Programs Simultaneasly
- Task is instace of process. & process is a program under execution. CPU handling multiple task at a time known as multi tasking

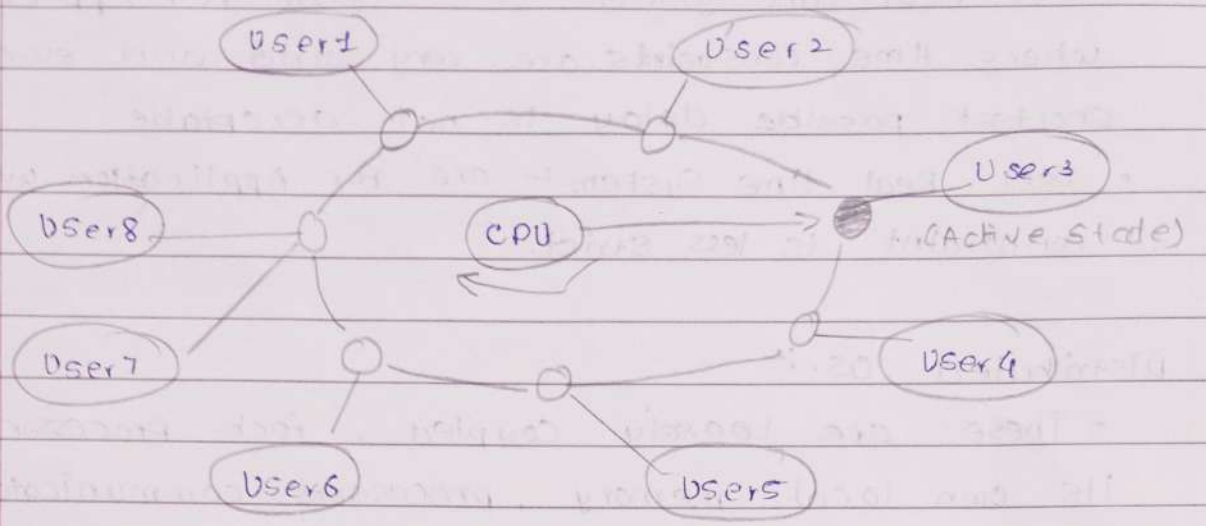
- is the ability to Support 2 or more processes execution simutaneously.
- Multitasking OS allows code & data of several processors to reside in memory.
- Resources are made Continuosly working

Advantage :-
- It comes with proper memory Management.

Disadvantage :-
- The Systems get heated In case of heavy progrons multiple times



5) Time Sharing OS :-
- Each task is given some time to execute so that all the tasks work smoothly. Each user gets time of CPU as they use a single system. These system are also known as multitasking systems The task can be from a single user or different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.



- Advantage :-
  - Fewer chances of duplication of s/w
  - Each tasks gets an equal opportunity.
  - CPU idle time can be Reduced.

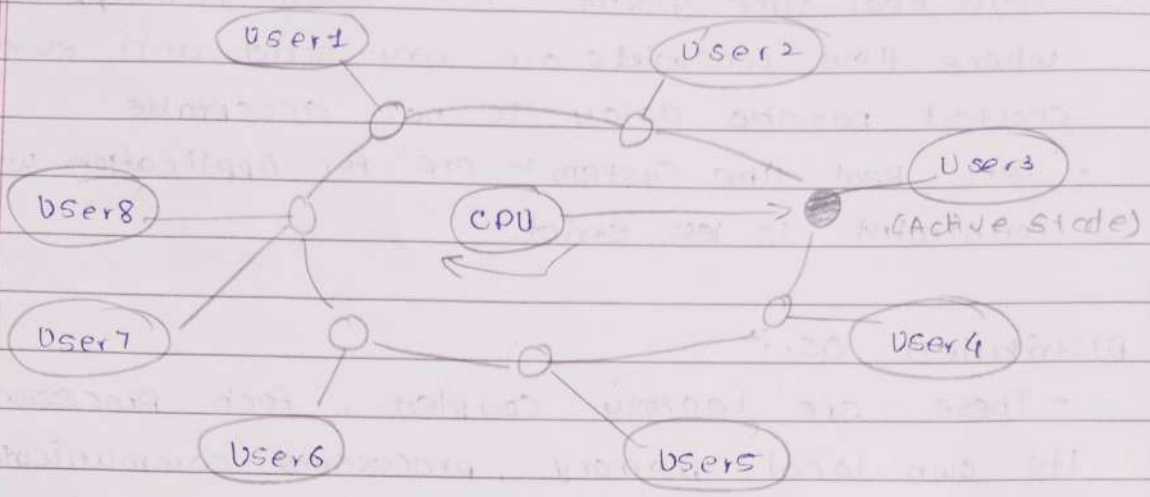
- Disadvantage :-
  - Reliability Problem.
  - One must have to take care of Security & Integrity of User programs and Data.

6) Real Time OS :-

- These types of OSs serve real time systems. The time interval Required to process & respond to inputs is very small. This time interval is called Response time.
- Real time systems are used when there are time Requirements that are very strict like missile systems, air traffic control systems, robots etc.

Types :-

1) Hard Real Time System
2) Soft Real Time system.



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2) Soft Real Time System.

- Hard Real time System :- are meant for Applications where time constraints are very strict and even the shortest possible delay is not acceptable
- Soft Real time System :- are for Application where time constraint is less strict.

7) Distributed OS. :-
- These are loosely coupled, each processor has its own local memory, processors communicate with one another through various communications lines, such as high speed buses & telephone lines.
- may be either Client-Serve or Peer to Peer systems
- Require local area network or wide area Network.