

Introduction:

Definition of Operating System:-

→ Operating system is an interface b/w the user and the Computer hardware.



main() {

int x;

printf("Hello world"); (Interact with monitor)

scanf("%d", x); (Interact with keyboard)

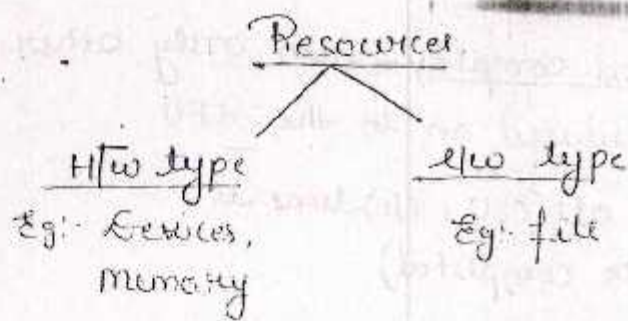
}

printf → Internally calls the write () system call to communicate with the monitor.

System call: System call is, it is a request made by the user program to the operating system in order to get any kind of service.

→ The operating system can also be called as Resource allocator.

Operating system is responsible for allocating resources of your computer.



Goals of Operating System:

1. primary goal of O.S. is convenience. (Easy to use)
2. Secondary goal of O.S. is efficiency

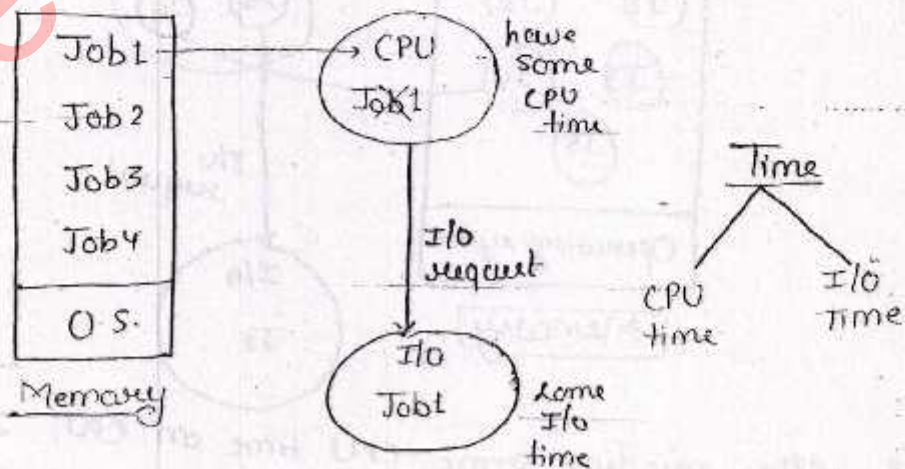
Windows O.S. is more convenient than UNIX O.S.

UNIX O.S. is more efficient than window O.S.

Generally, for large database ^{which are} used ^{throughout the} year without rebooting the computer, we should use UNIX O.S.

Types of Operating System:

1. The Batch OS



→ If the job is Completed Completely, then only other another job will be scheduled on to the CPU.

(means all (CPU + I/O) time is to be completed)

→ Increased CPU idleness

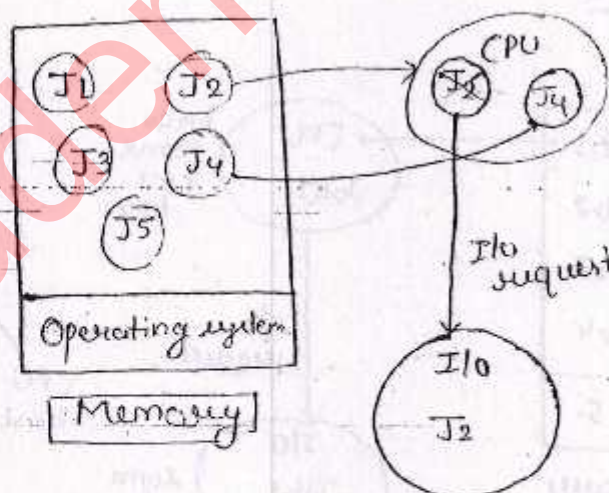
→ Decreased throughput of the system.

(the no. of jobs completed for unit time is called as the throughput of the system)

CPU become idle - when job left CPU after I/O request & go to I/O device CPU become idle

→ IBM OS/2

2. Multiprogramming Operating System



* After expending some CPU time on CPU, Job J2 left CPU & go for some I/O operation & spend I/O time on I/O device.

* When J_2 left CPU, CPU will not become idle.

Note:

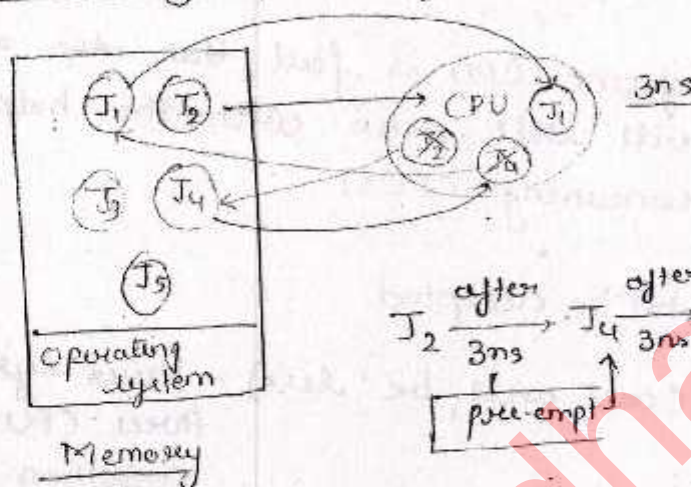
If the job is leaving the CPU to perform I/O operation then another job, which is ready for execution will be scheduled on to the CPU.

→ Increased CPU Utilization.

→ Increased throughput of system.

Eg:- Windows, UNIX etc.

3. Multitasking Operating System:



→ The multitasking OS is an extension to multiprogramming OS.

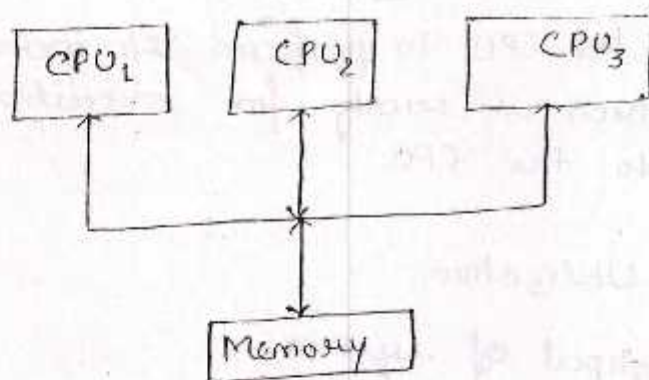
→ The jobs will be executed on the CPU in the time-sharing mode.

Eg:- Windows, UNIX etc.

→ Only one job is scheduled on CPU at a time.

→ for users point of view all happens at a time.

4. Multiprocessor Operating System (Parallel system)



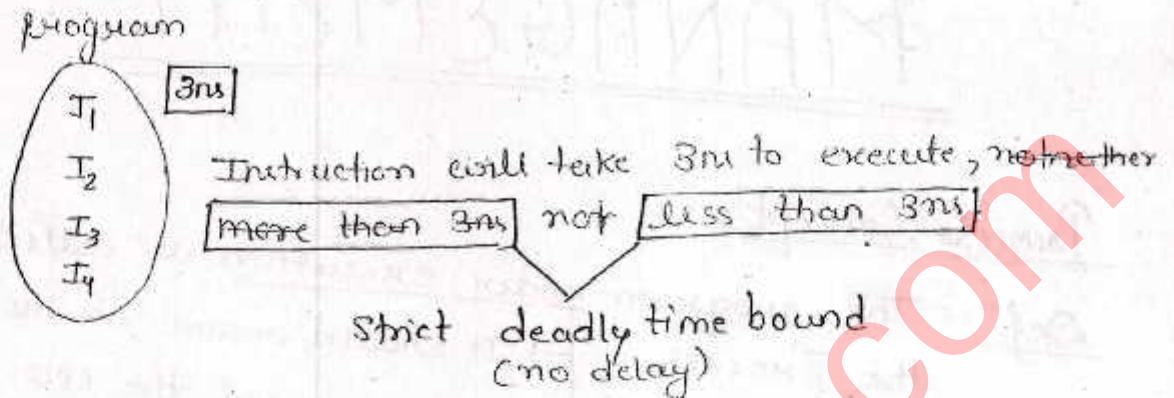
More than one CPU connected to the system

Advantages:

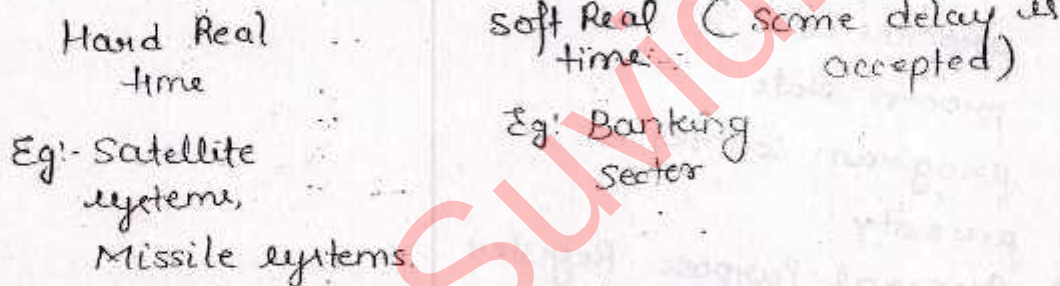
- The increased throughput of the system. (No. of jobs completed in unit time is increased).
- Reliability (if one CPU is fail, then also system will still work with the help of remaining CPUs) (fault tolerant system) fault will be accepted
- economical (cost will be less) - three system with three CPU - more costly than - one system with three CPU.
- You can't make one CPU is busy always & make other CPU's idle always. Jobs are distributed over the no. of CPU's.
- Eg:- UNIX can be used as Multiprocessor OS.

5. Real Time Operating system

The systems which are strict deadlly time bound are called as Real time systems.



Real time system



→ Eg: RTOS