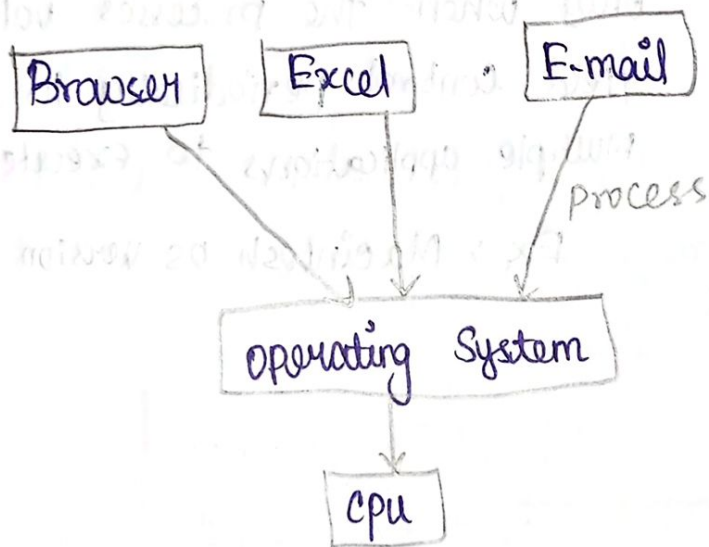


UNIT - IV

Processes and operating systems

Multi-tasking :

- * Multi-tasking operating system allow multiple users to perform multiple tasks at the same time.
- * The allocation of system resources such as input/output devices, CPU & memory.
- * Among processes can be easily managed by multi-tasking operating system.
- * Multitasking is a ability of an OS to execute more than one task simultaneously on a CPU machine.



Features :

- * Time sharing
- * Context switching
- * Multi-Threading
- * Hardware Interrupt

Types :

- * Pre-emptive multitasking

- * non-preemptive multitasking

1. Pre-emptive multitasking :-

The operating system can initiate a context switching from the running process to another process.

Ex : windows 95, windows NT OS

2. Non-pre-emptive multitasking :-

- * also known as cooperative multi-tasking.

- * In this method, a context switch occurs only when the processes voluntarily yield control periodically to allow multiple applications to execute simultaneously.

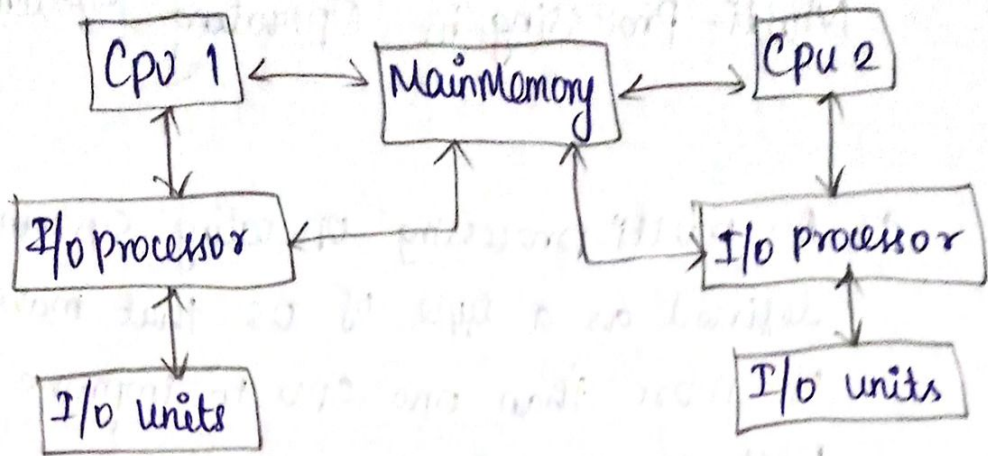
Ex : Macintosh OS version 8.0-9.2.2

Multi-Processing in Operating System :

- * A multi-processing operating system is defined as a type of OS that makes use of more than one CPU to improve performance.
- * Multiple processors work parallelly in multi-processing operating systems to perform the given task.
- * The main aim of the multi-processing OS is to increase the speed of the execution of the system.
- * It improves overall performance of a system.

Working :

- * It consists of multiple CPUs. Each CPU is connected to the main memory.
- * The task to be performed is divided among all the processors.
- * For faster execution and improved performance, each processor is assigned a specific task.
- * Once all the tasks of each processor are completed, they are compiled together in order to produce a single output.



Types :

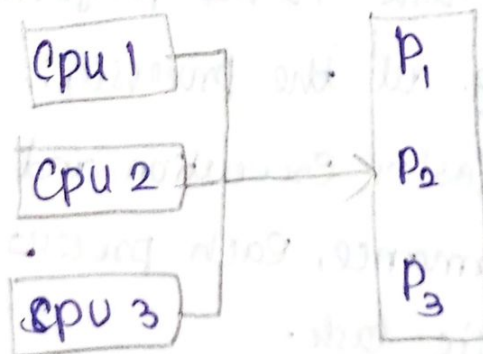
1. Symmetrical

2. Asymmetrical

1. Symmetrical multi-processing :

* In, this method, each processor executes the same copy of operating system every time ;

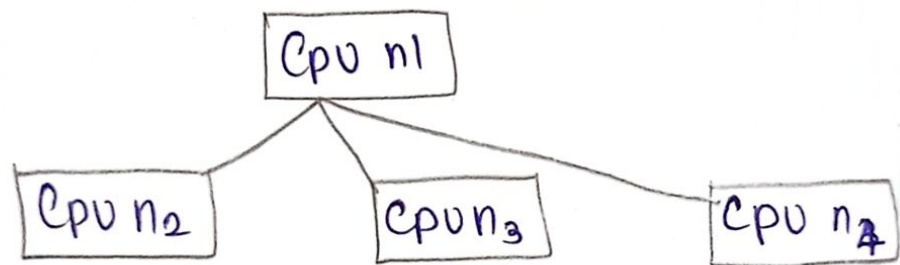
* also known as " shared, everything system".



Q. Asymmetrical multi-processing:

* In this method, one processor acts as a master whereas ^{remaining} all processors are ~~assigned with~~ act as slave.

* Slave processors are assigned with ready to execute processes by the master processor.



Conclusion:

* Multi-processing OS are designed in such a way that multiple processors can work simultaneously.

* This provides various advantages such as Performance, efficient utilization etc.,