

## **CPU Scheduling**

In the uniprogramming systems like MS DOS, when a process waits for any I/O operation to be done, the CPU remains idle. This is an overhead since it wastes the time and causes the problem of starvation. However, In Multiprogramming systems, the CPU doesn't remain idle during the waiting time of the Process and it starts executing other processes. Operating System has to define which process the CPU will be given.

In Multiprogramming systems, the Operating system schedules the processes on the CPU to have the maximum utilization of it and this procedure is called CPU scheduling. The Operating System uses various scheduling algorithm to schedule the processes.

This is a task of the short term scheduler to schedule the CPU for the number of processes present in the Job Pool.

Whenever the running process requests some IO operation then the short term scheduler saves the current context of the process (also called PCB) and changes its state from running to waiting. During the time, process is in waiting state; the Short term scheduler picks another process from the ready queue and assigns the CPU to this process. This procedure is called context switching.

In Multiprogramming, if the long term scheduler picks more I/O bound processes then most of the time, the CPU remains idle. The task of Operating system is to optimize the utilization of resources.

If most of the running processes change their state from running to waiting then there may always be a possibility of deadlock in the system. Hence to reduce this overhead, the OS needs to schedule the jobs to get the optimal utilization of CPU and to avoid the possibility to deadlock.

### **First Come First Serve**

It is the simplest algorithm to implement. The process with the minimal arrival time will get the CPU first. The lesser the arrival time, the sooner will the process gets the CPU. It is the non-preemptive type of scheduling.

## **FCFS Scheduling**

First come first serve (FCFS) scheduling algorithm simply schedules the jobs according to their arrival time. The job which comes first in the ready queue will get the CPU first. The lesser the arrival time of the job, the sooner will the job get the CPU. FCFS scheduling may cause the problem of starvation if the burst time of the first process is the longest among all the jobs.

### **Advantages of FCFS**

- Simple
- Easy
- First come, First serv

### **Disadvantages of FCFS**

- The scheduling method is non preemptive, the process will run to the completion.
- Due to the non-preemptive nature of the algorithm, the problem of starvation may occur.
- Although it is easy to implement, but it is poor in performance since the average waiting time is higher as compare to other scheduling algorithms.