

What are the different types of CPU Scheduling Algorithms?

There are mainly two types of scheduling methods:

- Preemptive Scheduling: Preemptive scheduling is used when a process switches from running state to ready state or from the waiting state to the ready state.
- Non-Preemptive Scheduling: Non-Preemptive scheduling is used when a process terminates , or when a process switches from running state to waiting state.

What are the different terminologies to take care of in any CPU Scheduling algorithm?

- **Arrival Time:** Time at which the process arrives in the ready queue.
- **Completion Time:** Time at which process completes its execution.
- **Burst Time:** Time required by a process for CPU execution.
- **Turn Around Time:** Time Difference between completion time and arrival time.

$$\text{Turn Around Time} = \text{Completion Time} - \text{Arrival Time}$$

Waiting Time(W.T): Time Difference between turn around time and burst time.

$$\text{Waiting Time} = \text{Turn Around Time} - \text{Burst Time}$$

Response time: Time at which a process get CPU first time – Arrival time

$$\text{Left} - \text{Arrival}$$

First-Come, First-Served Scheduling

Solved Problem -1

Convoy Effect

If processes with higher burst time arrived before the processes with smaller burst time, then, smaller processes have to wait for a long time for longer processes to release the CPU.

Consider the set of 5 processes whose arrival time and burst time are given below:

Process ID	Arrival Time	Burst Time
P1	4	5
P2	6	4
P3	0	3
P4	6	2
P5	5	4

Calculate the **average waiting time** and **average turnaround time**, if FCFS Scheduling Algorithm is followed.

First-Come, First-Served Scheduling

Solved Problem - 2

The arrival times and burst times for a set of 6 processes are given in the table below:

Process ID	Arrival Time	Burst Time
P1	0	3
P2	1	2
P3	2	1
P4	3	4
P5	4	5
P6	5	2

If FCFS Scheduling Algorithm is followed and there is 1 unit of overhead in scheduling the processes, find the efficiency of the algorithm.

Process	Arrival Time	Burst Time				
P1	6	2				
P2	2	5				
P3	8	1				
P4	3	0				
P5	4	4				