

# Operating System

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## EXERCISE-1

**Question 1.** For the process listed in table draw the chart illustrating their execution time using

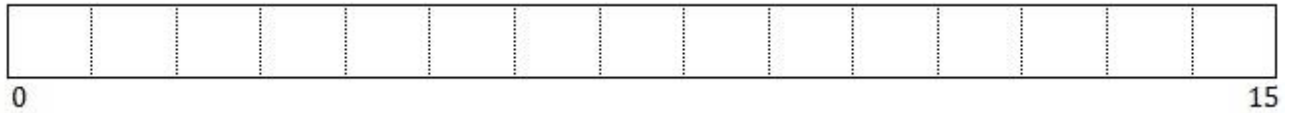
- A. First-Come- First -Served.
- B. Shortest Job First(SJF Non Preempted)

**Table 1: Process Scheduling Data**

Process	Arrival Time	Burst Time/ Processing Time
A	0.000	3
B	1.001	6
C	4.001	4
D	6.001	2

**Solution**

**A. First-Come- First -Served.**



**B. Shortest Job First(SJF Non Preempted)**



**Question 2.** For the process listed in Table 1, calculate the turnaround time of each process and also calculates average turnaround time using.

- A. First-Come- First -Served.
- B. Shortest Job First(SJF Non Preempted)
- C. Shortest Remaining Time First(SJF Preempted)
- D. Round Robin (Quantum =2 )
- E. Round Robin (Quantum =1 )

(Hint: Turnaround time is computed by subtracting the time the process entered in the system from the time it terminated)

**Solution**

**A. First-Come- First -Served.**

$$\begin{aligned}
 \text{Tat (A)} &= ( \quad ) - ( \quad ) = ( \quad ) \\
 \text{Tat (B)} &= ( \quad ) - ( \quad ) = ( \quad ) \\
 \text{Tat (C)} &= ( \quad ) - ( \quad ) = ( \quad ) \\
 \text{Tat (D)} &= ( \quad ) - ( \quad ) = ( \quad )
 \end{aligned}$$

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## B. Shortest Job First(SJF Non Preempted)

$$\begin{aligned} \text{Tat (A)} &= ( \quad ) - ( \quad ) = ( \quad ) \\ \text{Tat (B)} &= ( \quad ) - ( \quad ) = ( \quad ) \\ \text{Tat (C)} &= ( \quad ) - ( \quad ) = ( \quad ) \\ \text{Tat (D)} &= ( \quad ) - ( \quad ) = ( \quad ) \end{aligned}$$

**Question 3.** For the process listed in Table 1, calculate the waiting time of each process and also calculates average waiting time using.

- A. First-Come- First -Served.
- B. Shortest Job First(SJF Non Preempted)
- C. Shortest Remaining Time First(SJF Preempted)
- D. Round Robin (Quantum =2 )
- E. Round Robin (Quantum =1 )

(Hint: Waiting time is computed by subtracting the Processing time(Burst Time)from its Turnaround time)

### Solution

#### A. First-Come- First -Served.

$$\begin{aligned} W (A) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (B) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (C) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (D) &= ( \quad ) - ( \quad ) = ( \quad ) \end{aligned}$$

#### B. Shortest Job First(SJF Non Preempted)

$$\begin{aligned} W (A) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (B) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (C) &= ( \quad ) - ( \quad ) = ( \quad ) \\ W (D) &= ( \quad ) - ( \quad ) = ( \quad ) \end{aligned}$$

	Process	Arrival Time	Burst Time/ Processing Time	Execution Time	Turnaroun d Time	Waiting Time	Average Turnaround Time	Average waiting Time
<b>FCFS</b>	<b>A</b>	0.000	3					
	<b>B</b>	1.001	6					
	<b>C</b>	4.001	4					
	<b>D</b>	6.001	2					
<b>SJF (NP)</b>	<b>A</b>	0.000	3					
	<b>B</b>	1.001	6					
	<b>C</b>	4.001	4					
	<b>D</b>	6.001	2					