

Question

Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. In answering the questions, use nonpreemptive scheduling, and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

- Draw the Gantt chart for FCFS and SJF scheduling algorithms.
- What is the average turnaround time for these processes with the FCFS scheduling algorithm?
- What is the average waiting time for these processes with the SJF scheduling algorithm?

Solution:

P1								P2				P3			
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	(FCFS)

TT1= 8.0

TT2= 11.6

TT3= 12

$$\begin{aligned} (TT)_{avg} &= (8 + (12 - 0.4) + (13 - 1)) / 3 \\ &= 31.6/3 \\ &= 10.53 \text{ b.} \end{aligned}$$

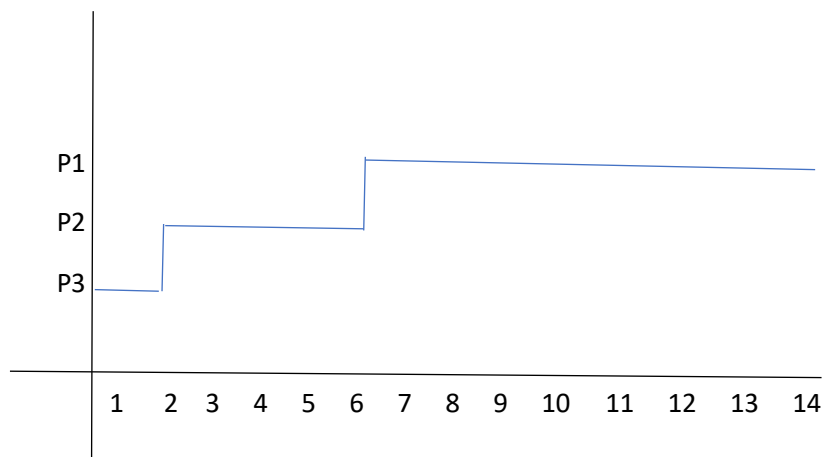
P1								P2				P3			
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	(SJF)

TT1=8.0

TT2= 12.6

TT3= 8

$$\begin{aligned} (TT)_{avg} &= (8 + (9 - 1) + (13 - 0.4)) / 3 \\ &= 28.6/3 \\ &= 9.53 \end{aligned}$$



$$TT1 = 14$$

$$WT1 = 6$$

$$TT2 = (6 - 0.4)$$

$$WT2 = 1.6$$

$$= 5.6$$

$$WT3 = 0$$

$$TT3 = 1.0$$

CPU is left idle:

Average turnaround for these processes:

$$= ((2 - 1) + (6 - 0.4) + (14 - 0)) / 3$$

$$= 20.6/3$$

$$= 6.87$$