LAB 4 CPU SCHEDULING

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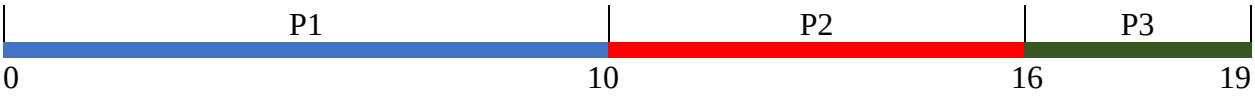
4. EXERCISE (3PTS)

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.

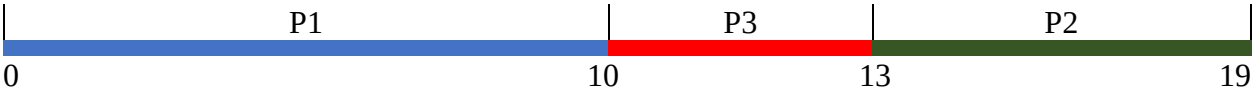
Process	*Arrival time*	*Burst time*
P1	*0.0*	*10*
P2	*0.5*	*6*
P3	*1.0*	*3*

a. What is the average turnaround time for these processes with the FCFS scheduling algorithm?



Process	P1	P2	P3	Average time
Turnaround time	10 – 0 = 10	16 – 0.5 = 15.5	19 – 1 = 18	(10 + 15.5 + 18)/3 = 14.5

b. *What is the average turnaround time for these processes with the SJF scheduling algorithm?*



Process	P1	P2	P3	Average time
Turnaround time	10 – 0 = 10	19 – 0.5 = 18.5	13 – 1 = 12	(10 + 18.5 + 12)/3 = 13.5

c. *The SJF algorithm is supposed to improve performance, but notice that we chose to run process P1 at time 0 because we did not know that two shorter processes would arrive soon. Compute what the average turnaround time will be if the CPU is left idle for the first 1 unit and then SJF scheduling is used. Remember that processes P1 and P2 are waiting during this idle time, so their waiting time may increase. This algorithm could be called future-knowledge scheduling.*

The CPU is left idle:

Process	P1	P2	P3	Average time
Turnaround time	20 – 0 = 20	10 – 0.5 = 9.5	4 – 1 = 3	(20 + 9.5 + 3)/3 = 10.8333