

1. Tutorial 1

Exercise 1.1: Explain the difference between the following scheduling algorithms:

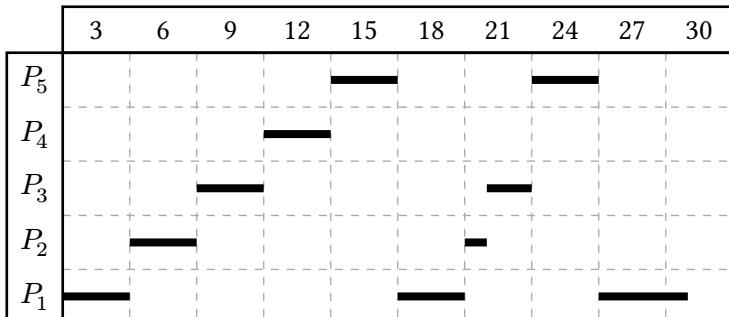
- Round Robin Scheduling.
- Priority Scheduling.
- First-Come, First-Served Scheduling.
- Shortest Job First Scheduling.

Skipped because why not of course.

Exercise 1.2: Given the following processes, the arrival and burst times are in time units, and the time quantum is 3 units.

Name	Arrival Time	Burst Time
P1	0	10
P2	0	4
P3	0	5
P4	0	3
P5	0	6

Question 1.2.1: Drawing the Grantt Diagram for the execution of those processes in Round Robin algorithm.



Question 1.2.2: Calculate the turnaround and waiting time for each of the processes.

Name	Turnaround Time	Waiting Time
P1	29	19
P2	19	15
P3	21	16
P4	12	9
P5	24	18

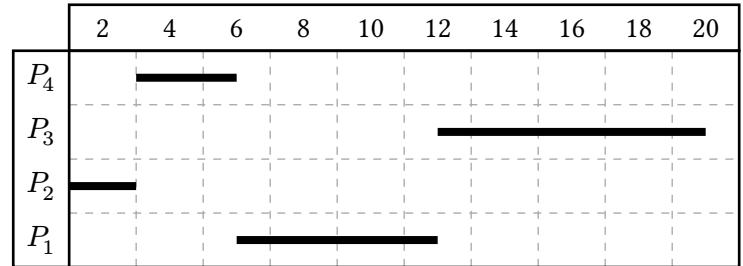
Question 1.2.3: Calculate the average waiting time for the processes.

$$\text{Average waiting} = (19 + 15 + 16 + 9 + 18)/5 = 15.4.$$

Exercise 1.3: Given the following processes, the arrival and burst times are in time units.

Name	Arrival Time	Burst Time
P1	0	6
P2	0	2
P3	0	8
P4	0	3

Question 1.3.1: Draw the Grantt diagram for the non-preemptive SJF algorithm.



Question 1.3.2: Calculate the turnaround time and the waiting time for each process.

Name	Turnaround Time	Waiting Time
P1	11	5
P2	2	0
P3	19	11
P4	5	2

Question 1.3.3: Compare the results with those obtained using FCFS algorithm.

By comparing the average waiting time we get that SJF has less than FCFS, thus it is better.

Can't see how this conclusion is coherent, so accept it.

Exercise 1.4: Given the following processes, the arrival and burst times are in time units.

Name	Arrival Time	Burst Time	Priority
P1	1	7	2
P2	1	5	3
P3	1	3	1
P4	1	2	4
P5	1	4	2

where 1 is the highest priority and 4 is the lowest priority.

Question 1.4.1: Simulate a static priority-based scheduling.

Question 1.4.2: Describe an implementation of a dynamic priority-based scheduling, where the more time a process is waiting, the more its priority increases.