Çankaya University - SENG315 - 2023 Fall – Assignment II

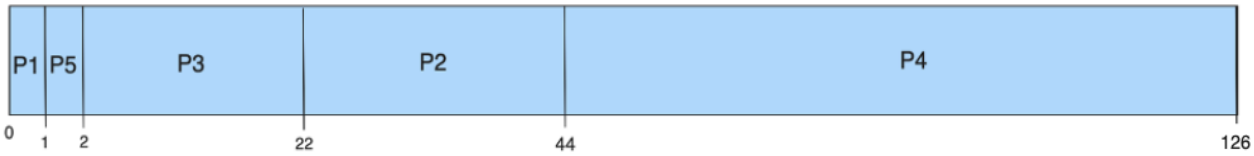
Consider the following set of processes that arrive at time 0, with the length of the CPU bursts given in milliseconds. Use FCFS, Non-preemptive SFJ and RR scheduling algorithm with a time quantum of 10 milliseconds. Give the **Gantt charts** and calculate the **average waiting time** and **turnaround** values. **Duru Karacan 202128022**

Process	Burst Time
Write your student number: **202128022**	
P_1	2nd and 4th digit of your student number :**1**
P_2	1st and 3rd digit of your student number :**22**
P_3	5th and 7th digit of your student number :**20**
P_4	6th and 1st digit of your student number :**82**
P_5	7th and 2nd digit of your student number :**1**
Note: If the first digit of processes (based on your student number) is zero, use only the second digit. If both are zero use 1. Omit the "c" character in front of your student number.	

1. **FCFS**

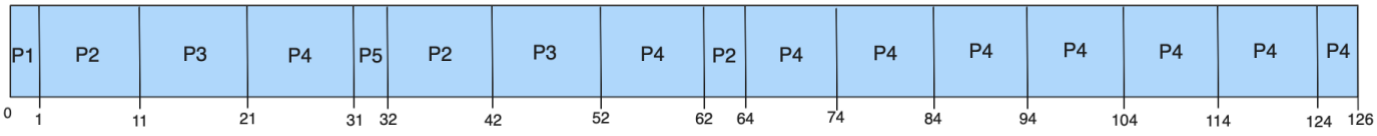
Waiting time for P1 = 0, P2 = 1, P3 = 23, P4 = 43, P5 = 125
Average Waiting Time = (0 + 1 + 23 + 43 + 125) / 5 = **38.4** milliseconds
Turnaround Time for P1 = 1-0, P2 = 23-0, P3 = 43-0, P4 = 125-0, P5 = 126-0
Average Turnaround Time = (1 + 23 + 43 + 125 + 126) / 5 = **63.6** milliseconds

2. **Non-preemptive SFJ**



Process Order: P1, P5, P3, P2, P4
Waiting time for P1 = 0, P5 = 1, P3 = 2, P4 = 22, P5 = 44
Average Waiting Time = (0 + 1 + 2 + 22 + 44) / 5 = **13.8** milliseconds
Turnaround Time for P1 = 1-0 , P5 = 2-0, P3 = 22-0, P2 = 44-0 , P4 = 126-0 ,
Average Turnaround Time = (1 + 2+ 22 + 44 + 126) / 5 = **39** milliseconds

3. **RR with time quantum = 10 milliseconds**



Waiting time for P1 = 1-1, P2 = 64-22, P3 = 52-20, P4 = 126-82, P5 = 32-1
Average Waiting Time = (0 + 42 + 32 + 44 + 31) / 5 = **29.8** milliseconds
Turnaround Time for P1 = 1-0, P2 = 64-0, P3 = 52-0, P4 = 126-0, P5 = 32-0
Average Turnaround Time = (1 + 64 + 52 + 126 + 32)/ 5 = **55** milliseconds

USED FORMULAS

For FCFS;
Turnaround Time (TAT) for each process, **TAT= Completion Time - Arrival Time**
Arrival Time = 0 for each process
https://www.javatpoint.com/os-fcfs-scheduling

For SJF;
Turnaround Time (TAT) for each process, **TAT= Completion Time - Arrival Time**
Arrival Time = 0 for each process
https://www.javatpoint.com/os-sjf-scheduling

For RR with quantum = 10 milliseconds;
Turnaround Time (TAT) for each process, **TAT= Completion Time - Arrival Time**
Waiting Time = TAT - Burst Time
Arrival Time = 0 for each process
https://www.javatpoint.com/os-sjf-scheduling