

Lab Five

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1 PROBLEM ONE

Consider the following set of processes with the CPU burst times (in milliseconds) and priorities as given:

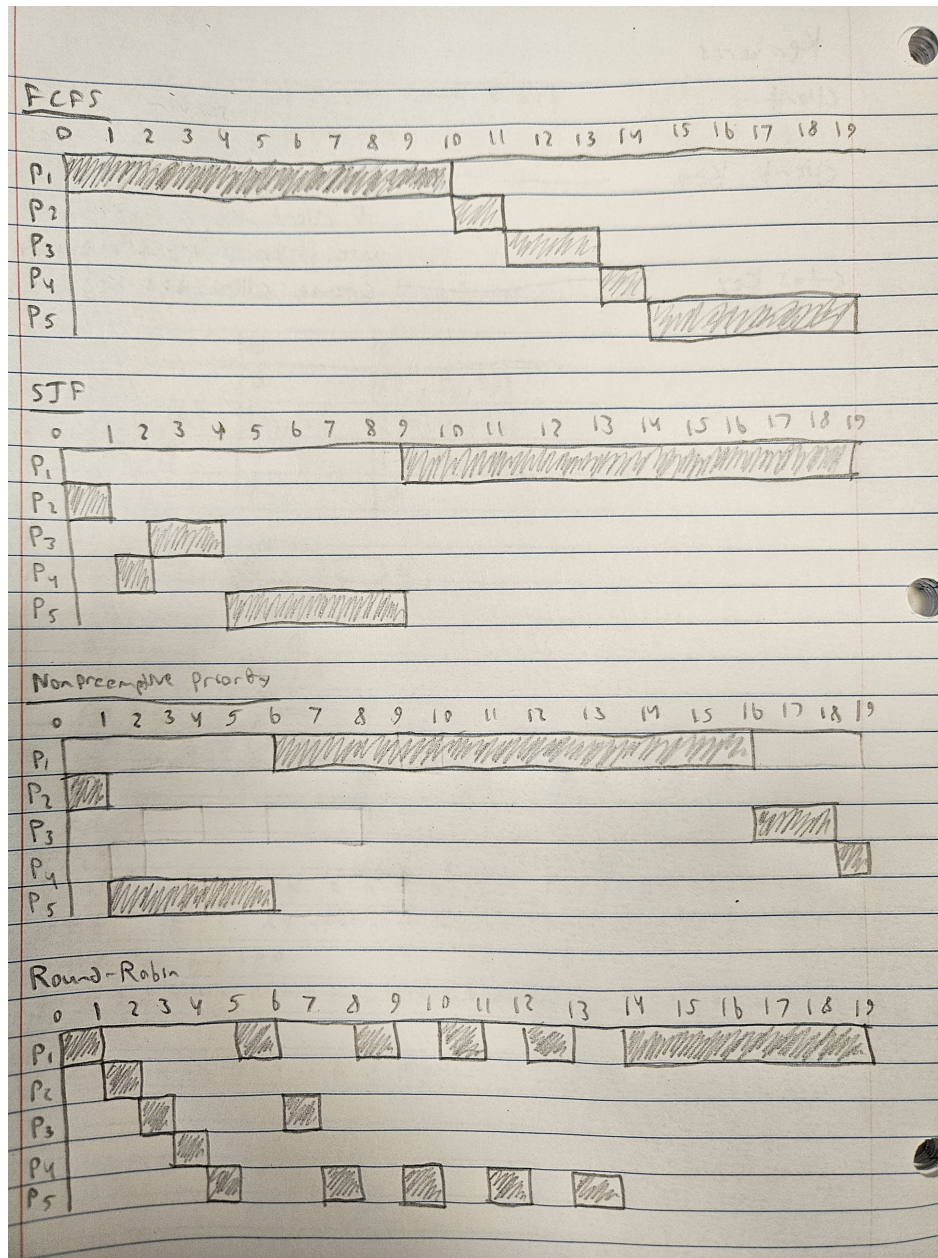
Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

All processes arrive at time 0. We will analyze the scheduling using the following algorithms:

- First-Come, First-Served (FCFS)
- Shortest Job First (SJF)
- Non-preemptive Priority (where a lower priority number implies higher priority)
- Round Robin (RR) with a quantum of 1 ms

A) GANTT CHARTS

The image below shows the Gantt Charts in the order of FCFS, SJF, nonpreemptive priority, and round-robin.



B) TURNAROUND TIME AND WAITING TIME TABLE

All times are in ms.

Algorithm	Process	Burst Time	Turnaround Time	Waiting Time	Average Waiting Time
FCFS	P_1	10	10	0	9.6
	P_2	1	11	10	
	P_3	2	13	11	
	P_4	1	14	13	
	P_5	5	19	14	
SJF	P_1	10	19	9	3.2
	P_2	1	1	0	
	P_3	2	4	2	
	P_4	1	2	1	
	P_5	5	9	4	
Priority	P_1	10	16	6	8.2
	P_2	1	1	0	
	P_3	2	18	16	
	P_4	1	19	18	
	P_5	5	6	1	
Round Robin	P_1	10	19	9	5.4
	P_2	1	2	1	
	P_3	2	7	5	
	P_4	1	4	3	
	P_5	5	14	9	

Shortest Job First has the shortest wait time in this scenario.