iProject 3

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1 Lab 5

1.1 Consider the following set of processes, with the length of the CPU burst given in milliseconds

Process	Burst Time (ms)	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

Table 1.1: Processes with CPU Burst Time and Priority

The processes arrived in the order P1, P2, P3, P4, P5 all at time 0.

1.2 Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, nonpreemptive priority (a smaller priority number implies a higher priority) and RR (quantum 1)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
FCFS	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P2	P3	P3	P4	P5	P5	P5	P5	P5
SJF	P2	P4	P3	P3	P5	P5	P5	P5	P5	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
NPPQ	P2	P5	P5	P5	P5	P5	P3	P3	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P4
RR Q1	P1	P2	P3	P4	P5	P1	P3	P5	P1	P5	P1	P5	P1	P5	P1	P1	P1	P1	P1

Table 1.2: Gantt charts for different scheduling algorithms

1.3 What is the turnaround time of each process for each of the scheduling algorithms in part a?

Process	FCFS	SJF	NPPQ	RR
P1	10	19	18	19
P2	11	1	1	2
P3	13	4	8	6
P4	14	2	19	4
P5	19	9	6	14

Table 1.3: Turnaround time of each process for each scheduling algorithm

1.4 What is the waiting time of each process for each of these scheduling algorithms?

Process	FCFS	SJF	NPPQ	RR
P1	0	9	7	9
P2	10	0	0	1
P3	11	2	6	5
P4	13	1	18	3
P5	14	4	1	8

Table 1.4: Waiting time of each process for each scheduling algorithm

1.5 Which of the algorithms results in the minimum average waiting time (over all processes)?

SJF resulted in the minimum average waiting time. FCFS had 9.6, SJF had 3.2, NPPQ had 6.4, RR had 5.2