Lab 5

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1 Question 1

1.1 Part A

Draw your Gantt charts that illustrate the execution of these processes using the fillowing scheduling algorithms: FCFS, SJF, nonpreemprive priority, and RR (quantum = 1).

See Figure 1.1

1.2 Part B

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

FCFS: P1 = 10, P2 = 11, P3 = 13, P4 = 14, P5 = 19
SJF: P1 = 19, P2 = 1, P4 = 2, P3 = 4, P5 = 9
NP Priority: P1 = 16, P2 = 1, P3 = 18, P4 = 19, P5 = 6
RR: P1 = 19, P2 = 2, P3 = 7, P4 = 4, P5 = 14

1.3 Part C

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

FCFS: P1 = 0, P2 = 10, P3 = 11, P4 = 13, P5 = 14
SJF: P1 = 9, P2 = 0, P3 = 2, P4 = 1, P5 = 4
NP Priority: P1 = 6, P2 = 0, P3 = 16, P4 = 18, P5 = 1
RR: P1 = 4 + 2 + 1 + 1 + 1 = 9, P2 = 1, P3 = 2 + 3 = 5, P4 = 3, P5 = 4 + 2 + 1 + 1 + 1 = 9

1.4 Part D

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

FCFS = (0 + 10 + 11 + 13 + 14) / 5 = 9.6
SJF = (9 + 0 + 2 + 1 + 4) / 5= 3.2

NP Priority: $(6 + 0 + 16 + 18 + 1) / 5 = 8.2$
RR: $(9 + 1 + 5 + 3 + 9) / 5 = 5.4$

SJF has the smallest average waiting time.

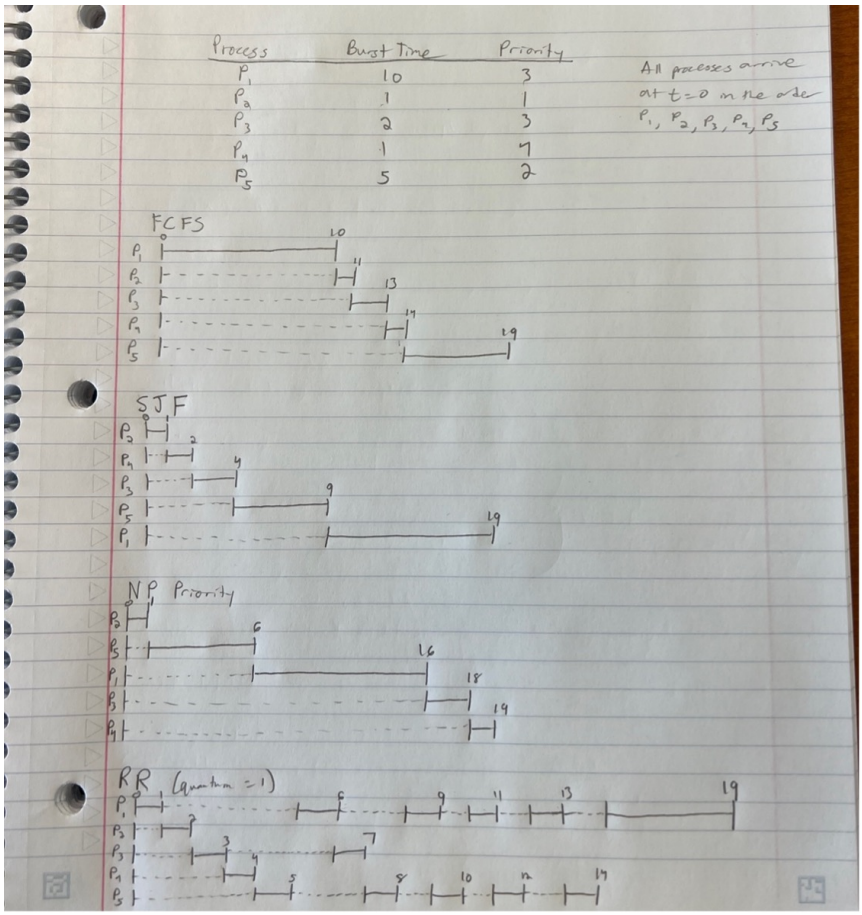

Figure 1.1: The Gantt charts for each of the algorithms listed in part A.