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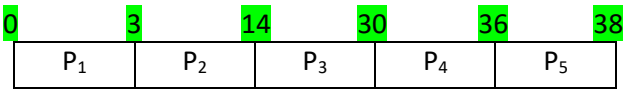
IS 3033 – Summer 2022
June 17, 2022

Lab 02 – Processes Management and Scheduling

Problem 1

Process	Arrival Time	Run Time	FIFO	SJF
P_1	0	3	3	5
P_2	0	11	14	22
P_3	0	16	30	38
P_4	0	6	36	11
P_5	0	2	38	2

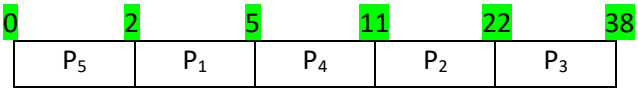
First-In-First-Out (FIFO):



Average turnaround time = $\frac{3 + 14 + 30 + 36 + 38}{5} = \frac{121}{5} = 24.2$

Process	Wait Time
P_1	0
P_2	3
P_3	14
P_4	30
P_5	36

Second-Job-First (SJF):



Average turnaround time = $\frac{2 + 5 + 11 + 22 + 38}{5} = \frac{78}{5} = 15.6$

Process	Wait Time
P_1	0
P_2	2
P_3	5
P_4	11
P_5	22

In conclusion, SJF performs better than FIFO as demonstrated by the turnaround times

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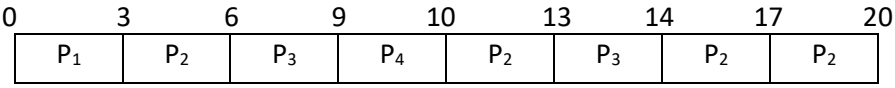
Problem 2

Time Quantum: 3

Process	Arrival Time	Burst Time	Completion Time	Turnaround Time	Waiting Time
P_1	0	3	3	3	0
P_2	1	12	20	19	7
P_3	2	4	14	12	8
P_4	4	1	10	6	5

Ready queue: P_1 P_2 P_3 P_4 P_2 P_3 P_2 P_2



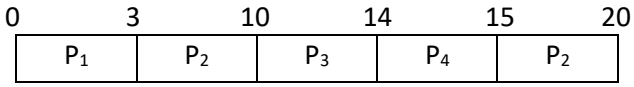
The following is the order the job will be completed/executed:
P_1 P_4 P_3 P_2
The wait time for each corresponding process is depicted in the table above.

$$\text{Average turnaround time} = \frac{\text{Sum of turnaround times of all processes}}{\text{number of processes}}$$
$$= \frac{3+19+12+6}{4}$$
$$= \frac{40}{4} = 10$$

Time Quantum: 7

Process	Arrival Time	Burst Time	Completion Time	Turnaround Time	Waiting Time
P_1	0	3	3	3	0
P_2	1	12	20	19	7
P_3	2	4	14	12	8
P_4	4	1	15	11	10

Ready queue: P_1 P_2 P_3 P_4 P_2



The following is the order the job will be completed/executed:
P_1 P_3 P_4 P_2
The wait time for each corresponding process is depicted in the table above.

$$\text{Average turnaround time} = \frac{\text{Sum of turnaround times of all processes}}{\text{number of processes}}$$
$$= \frac{3+19+12+11}{4}$$
$$= \frac{45}{4} = 11.25$$