

Digital Assignment I

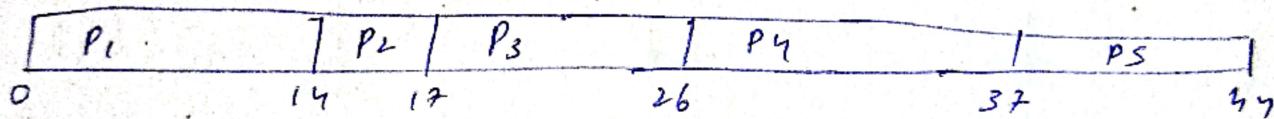
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22MCA0139

1) Process

Process	Burst Time	Priority
P ₁	14	1
P ₂	3	2
P ₃	9	3
P ₄	11	4
P ₅	7	5

FCFS

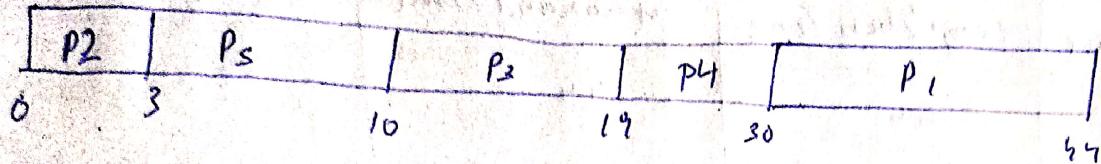


Process	Burst Time	Completion Time	Turnaround Time	Waiting Time
P ₁	14	14	14	0
P ₂	3	17	17	14
P ₃	9	26	26	17
P ₄	11	37	37	26
P ₅	7	44	44	37
			138	94

$$\text{Avg Turnaround Time} = \frac{138}{5} = 27.6 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{94}{5} = 18.8 \text{ ms}$$

SJF

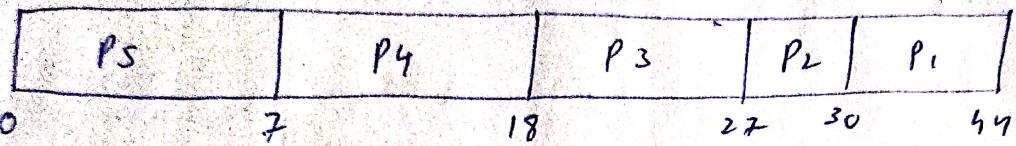


Process	Burst Time	Completion Time	Turnaround Time	Waiting Time
P ₁	14	44	44	30
P ₂	3	3	3	0
P ₃	9	19	19	10
P ₄	11	30	30	19
P _s	7	40	10	3
			106	62

$$\text{Avg Turnaround Time} = \frac{106}{5} = 21.2 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{62}{5} = 12.4 \text{ ms}$$

Priority (High priority number has more priority)



Process	Burst Time	Completion Time	Turnaround Time	Waiting Time
P ₁	14	44	44	36
P ₂	3	36	36	27
P ₃	9	27	27	18
P ₄	11	18	18	-
P ₅	7	7	7	0
			126	82

$$\text{Avg Turnaround Time} = \frac{126}{5} = 25.2 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{82}{5} = 16.4 \text{ ms}$$

Round Robin

$$TQ = 2 \text{ ms}$$

P ₁	P ₂	P ₃	P _n	P ₅	P ₁	P ₂	P ₃	P ₄	P ₅	P ₁	P ₃	P ₄	P ₅	P ₁	P ₃	P ₄	P ₅	→
0	2	4	6	8	10	12	14	15	17	19	21	23	25	27	29	31	33	35

→ P ₁	P ₃	P _n	P ₁	P ₄	P ₁
36	37	39	41	42	44

Process	Burst Time	Completion Time	Turnaround Time	Waiting Time
P ₁	14	44	44	30
P ₂	3	43	43	16
P ₃	9	37	37	28
P ₄	11	42	42	31
P ₅	7	34	34	27
			170	126

$$\text{Avg Turnaround Time} = \frac{170}{5} = 34 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{126}{5} = 25.2 \text{ ms}$$

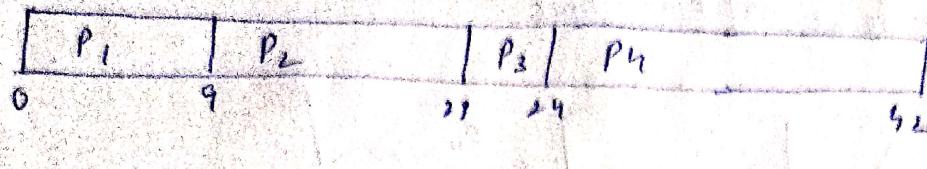
Comparison Table

Algorithm	Avg Turnaround Time (ms)	Avg Waiting Time (ms)
FCFS	27.6	18.8
SJF	21.2	12.4
Priority	25.2	16.4
Round Robin	34	25.2

2>

Process	Arrival Time	Burst Time
P ₁	0	9
P ₂	1	12
P ₃	2	3
P ₄	3	18

FCFS



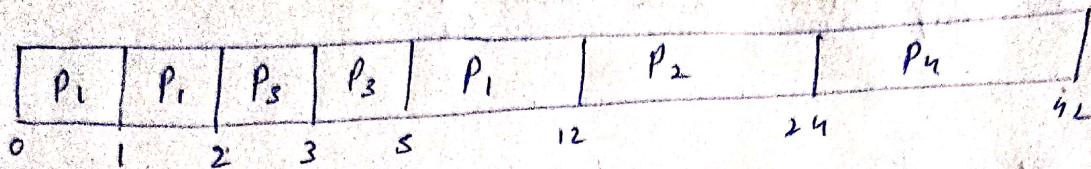
Process	Burst Time	Arrival Time	Completion Time	Turnaround Time	Waiting Time
P ₁	9	0	9	9	0
P ₂	12	1	21	20	8
P ₃	3	2	24	22	19
P ₄	18	3	42	39	21
				90	48

$$\text{Avg Turnaround Time} = \frac{90}{4} = 22.5 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{48}{4} = 12 \text{ ms}$$

SRT

Premption be done after 1ms



Process	Burst Time	Arrival Time	Completion Time	Turnaround Time	Waiting Time
P ₁	9	0	12	12	3
P ₂	12	1	24	23	11
P ₃	3	2	5	3	0
P ₄	18	3	18	39	21
				77	35

$$\text{Avg Turnaround Time} = \frac{77}{4} = 19.25 \text{ ms}$$

$$\text{Avg Waiting Time} = \frac{35}{4} = 8.75 \text{ ms}$$

Round Robin $TQ = 2 \text{ ms}$

Process	Burst Time	Arrival Time	Completion Time	Turnaround Time	Waiting Time
P ₁	9	0	28	28	19
P ₂	12	1	34	33	21
P ₃	3	2	13		
P ₄	18	3	42	39	8
				111	21
					69

$$\text{Avg Turnaround Time} = \frac{111}{4} = 27.75$$

$$\text{Avg Waiting Time} = \frac{69}{4} = 17.25$$

Comparison Table

Algorithms	Avg Turnaround Time (ms)	Avg Waiting Time (ms)
F C F S	22.5	12
S R T	19.25	8.75
Round Robin	27.75	17.25