

TALHA MUDASSAR

LIF22BSCSD379

Assignment - 2

Operating System

1. FCFS

Process	Arrival time	Burst time	Completion time	TAT	WT	RT
P ₁	3	5	9	6	1	1
P ₂	0	4	4	4	0	0
P ₃	4	2	11	7	5	5
P ₄	5	4	15	10	6	6

$$TAT = CT - AT$$

$$WT = TAT - BT$$

$$RT = \left\{ \begin{matrix} \text{CPU} \\ \text{first} \\ \text{time} \end{matrix} \right\} - AT$$

TimeLine

P ₂	P ₂	P ₂	P ₂	P ₁	P ₁	P ₁	P ₁	P ₁	P ₃	P ₃	P ₄	P ₄	P ₄	P ₄
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Ready Queue

P ₂	P ₁	P ₃	P ₄
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$$\text{Average Wait time: } (1+0+5+6)/4 = 3\text{ms}$$

$$\text{Average turnaround time: } (6+4+7+10)/4 = 6.75\text{ms}$$

$$\text{Average Response time: } (1+0+5+6)/4 = 3\text{ms}$$

2. SJF (Preemptive).

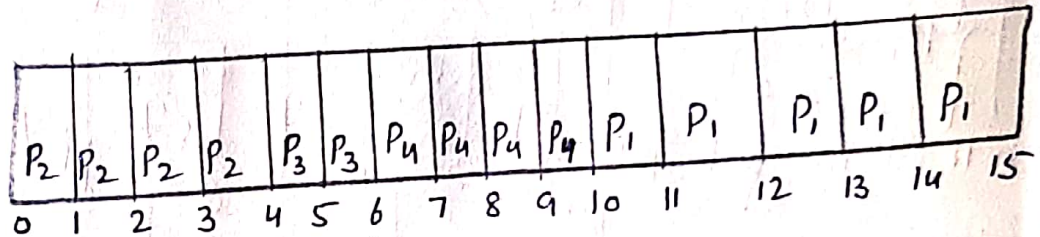
Process	Arrival time	Burst time	Completion time	TAT	WT	RT
P ₁	3	5	15	12	7	7
P ₂	0	4	4	4	0	0
P ₃	4	2	6	2	0	0
P ₄	5	4	10	5	1	1

$$TAT = CT - AT$$

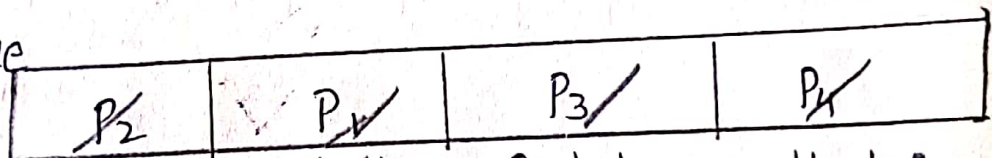
$$WT = TAT - BT$$

$$RT = \left\{ \begin{array}{l} \text{CPU} \\ \text{time} \\ \text{slot} \end{array} - AT \right\}$$

Time Line



Ready Queue



$$4-1=3$$

$$3-1=2$$

$$2-1=1$$

$$1-1=0$$

$$5-1=4$$

$$4-1=3$$

$$3-2=1$$

$$1-1=0$$

$$2-1=1$$

$$1-1=0$$

$$4-1=3$$

$$3-2=1$$

$$2-1=1$$

$$1-1=0$$

Average Wait time:

$$(7+0+0+1)/4 = 2 \text{ ms}$$

Average turn around time

$$(12+4+2+5)/4 = 5.75 \text{ ms}$$

Average Response time

$$(7+0+0+1)/4 = 2 \text{ ms}$$

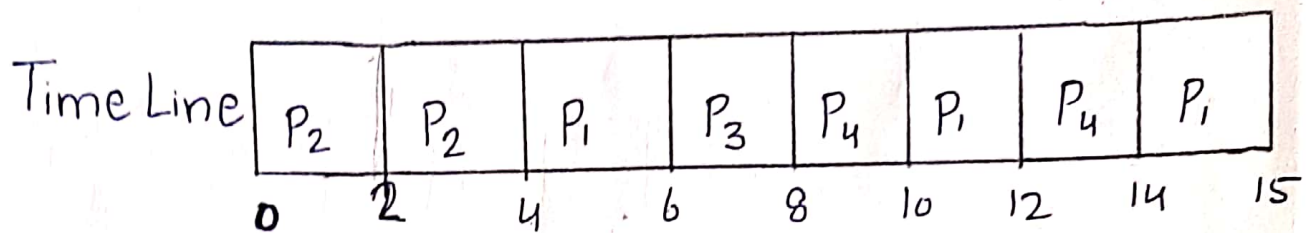
3. RR (time Slice: 2ms)

Process	Arrival time	Burst time	Completion time	TAT	WT	RT
P ₁	3	5	15	12	7	1
P ₂	0	4	4	4	0	0
P ₃	4	2	8	4	2	2
P ₄	5	4	14	9	5	3

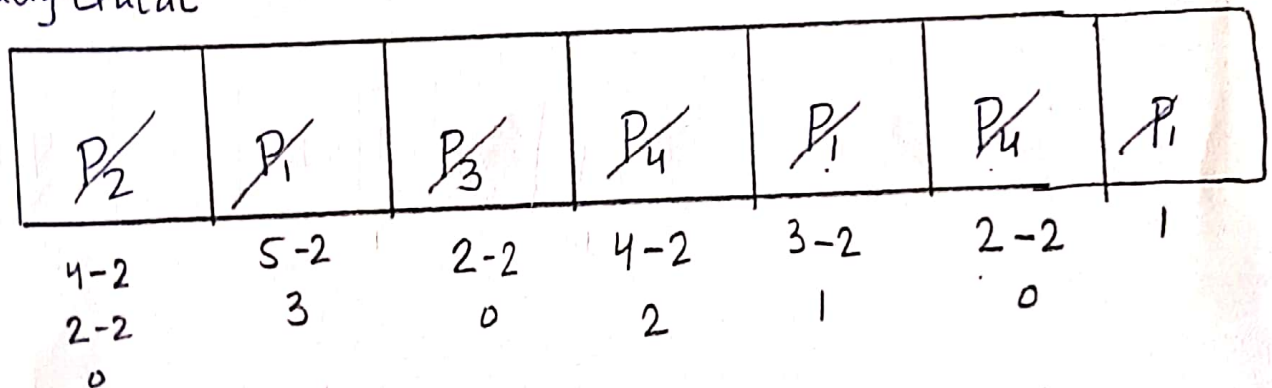
$$TAT = CT - AT$$

$$WT = TAT - BT$$

$$RT = \left\{ \begin{array}{l} \text{CPU} \\ \text{first} \\ \text{time} \end{array} - AT \right\}$$



Ready Queue



Average Wait time: $(7+0+2+5)/4 = 3.5 \text{ ms}$

Average turn around time: $(12+4+4+9)/4 = 7.25 \text{ ms}$

Average Response time: $(1+0+2+3)/4 = 1.5 \text{ ms}$