Operating Systems Lab-Tasks

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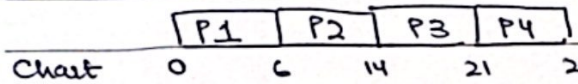
★Task 1: (FCFS)

Process	AT	BT	CT	TAT	WT
P1	0	6	6	6	0
P2	2	8	14	12	4
P3	4	7	21	17	10
P4	6	3	24	18	15

- TAT = CT - AT
- WT = TAT - BT
- ATAT = $\frac{\Sigma(TAT)}{\#Process}$
- AWT = $\frac{\Sigma(WT)}{\#Process}$

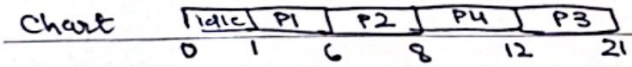


$$ATAT = \frac{6+12+17+18}{4} = 13.25$$

$$AWT = \frac{0+4+10+15}{4} = 7.25$$

★ Task 2: (SJF)

Process	AT	BT	CT	TAT	WT
P1	1	5	6	5	0
P2	3	2	8	15	3
P3	5	9	21	16	7
P4	6	4	12	6	2



$$ATAT = \frac{5+5+16+6}{4} = 8$$

$$AWT = \frac{0+3+7+2}{4} = 3$$

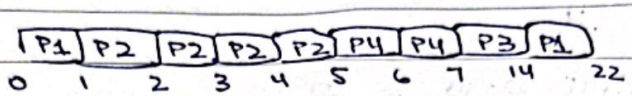
* Task 3 : (SRTF)

Process	AT	BT	CT	TAT	WT
P1	0	9	22	22	13
P2	1	4	5	4	0
P3	2	7	14	12	5
P4	3	2	7	4	2

→ TAT = CT - AT

→ WT = TAT - BT

Chart



$$AWT = \frac{\Sigma WT}{\#Process} = \frac{13+0+5+2}{4} = 5$$

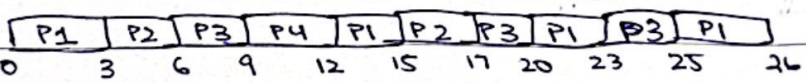
$$ATAT = \frac{\Sigma TAT}{\#Process} = \frac{22+4+12+4}{4} = 10.5$$

* Task 4 : (RR) Time Quantum 3ms

Process	AT	BT	CT	TAT	WT
P1	0	10	26	26	16
P2	1	5	17	16	11
P3	2	8	25	23	15
P4	3	3	12	9	6

Queue : ~~P1(7)~~, ~~P2(2)~~, ~~P3(5)~~, ~~P1(4)~~, ~~P3(2)~~, P1(1)

Chart



$$AWT = \frac{\Sigma WT}{\#Process} = \frac{16+11+15+6}{4} = 12$$

$$ATAT = \frac{\Sigma TAT}{\#Process} = \frac{26+16+23+9}{4} = 18.5$$

* Task 5: (RR) Time Quantum 2ms.

Process	AT	BT	CT	TAT	WT
P1	0	12	30	30	18
P2	2	6	20	18	12
P3	4	8	26	22	14
P4	6	4	16	10	6

Queue: P1(10), P2(4), P3(6), P4(2), P1(8), P2(2), P3(4), P1(6), P3(2), P1(4), P1(2)

Chart

P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P1	P3	P1	P1
0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

$$AWT = \frac{\Sigma WT}{\#\text{Process}} = \frac{18+12+14+6}{4} = 12.5$$

$$ATAT = \frac{\Sigma TAT}{\#\text{Process}} = \frac{30+18+22+10}{4} = 20$$

★Task 6: Priority Scheduling (NON-PREMTIVE)

Process	AT	BT	Priority	CT	TAT	WT
P1	0	7	3	7	7	0
P2	1	4	1	11	10	6
P3	2	6	2	17	15	9
P4	3	5	4	22	19	14

Chart

P1	P2	P3	P4
0	7	11	17	22

$$AWT = \frac{\Sigma WT}{\#\text{Process}} = \frac{0+6+9+14}{4} = 7.25$$

$$ATAT = \frac{\Sigma TAT}{\#\text{Process}} = \frac{7+10+15+19}{4} = 12.75$$

★Task 7: Priority Scheduling (Preemptive)

Process	AT	BT	Priority	CT	TAT	WT
P1	0	8	2	8	8	0
P2	1	3	1	4	3	0
P3	2	5	3	13	11	6

Chart

P1	P2	P1	P3
0	1	4	8	13

$$AWT = \frac{0+0+6}{3} = 2$$

$$ATAT = \frac{8+3+11}{3} = 7.33$$