

## CT-353 Operating Systems

### LAB 01

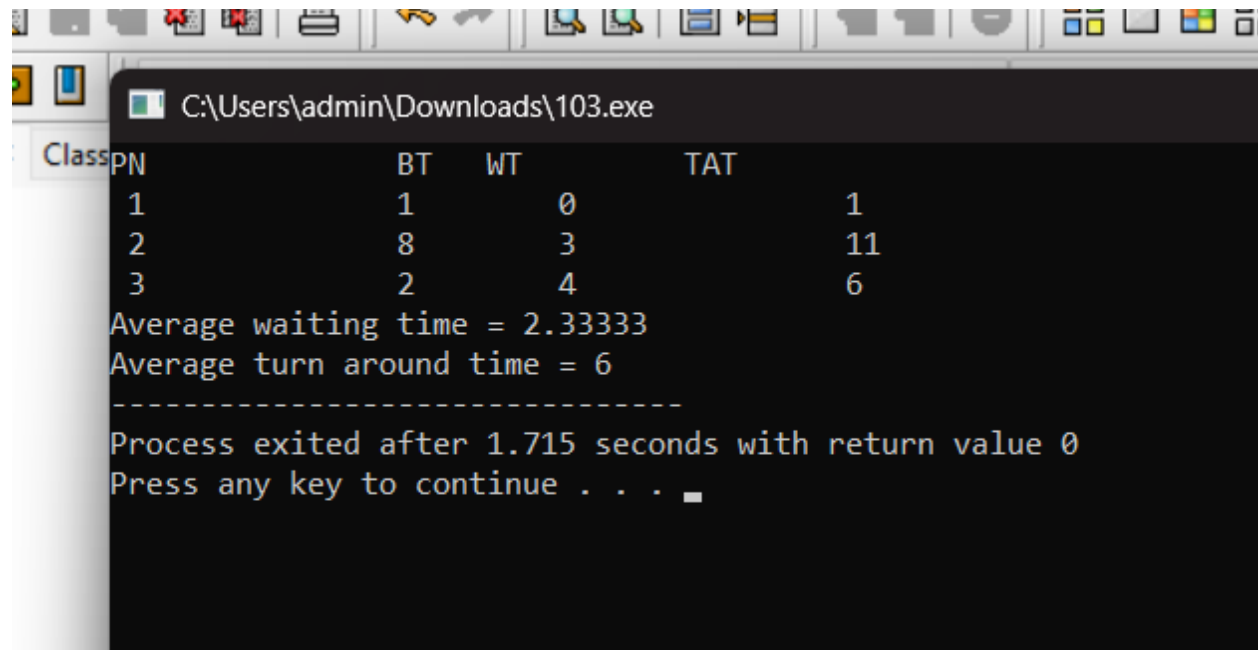
#### 1) FCFS CPU SCHEDULING ALGORITHM

```
4 C:\Users\admin\Downloads\101.exe
5
6 Enter the number of processes -- 2
7
8 Enter Burst Time for Process 0 -- 3
9
10 Enter Burst Time for Process 1 -- 5
11
12      PROCESS      BURST TIME      WAITING TIME      TURNAROUND TIME
13      P0           3              0                3
14      P1           5              3                8
15
16 Average Waiting Time -- 1.500000
17 Average Turnaround Time --5.500000
18 -----
19 Process exited after 38.9 seconds with return value 0
20 Press any key to continue . . .
```

#### 2) SJF CPU SCHEDULING ALGORITHM

```
18 for(k=1+1;k<n;k++)
19 C:\Users\admin\Downloads\102.exe
20
21 Enter the number of processes -- 3
22 Enter Burst Time for Process 0 -- 2
23 Enter Burst Time for Process 1 -- 2
24 Enter Burst Time for Process 2 -- 6
25
26      PROCESS      BURST TIME      WAITING TIME      TURNAROUND TIME
27      P0           2              0                2
28      P1           2              2                4
29      P2           6              4                10
30
31 Average Waiting Time --2.000000
32 Average Turnaround Time -- 5.333333
33 -----
34 Process exited after 36.69 seconds with return value 0
35 Press any key to continue . . .
```

### 3) ROUND ROBIN CPU SCHEDULING ALGORITHM



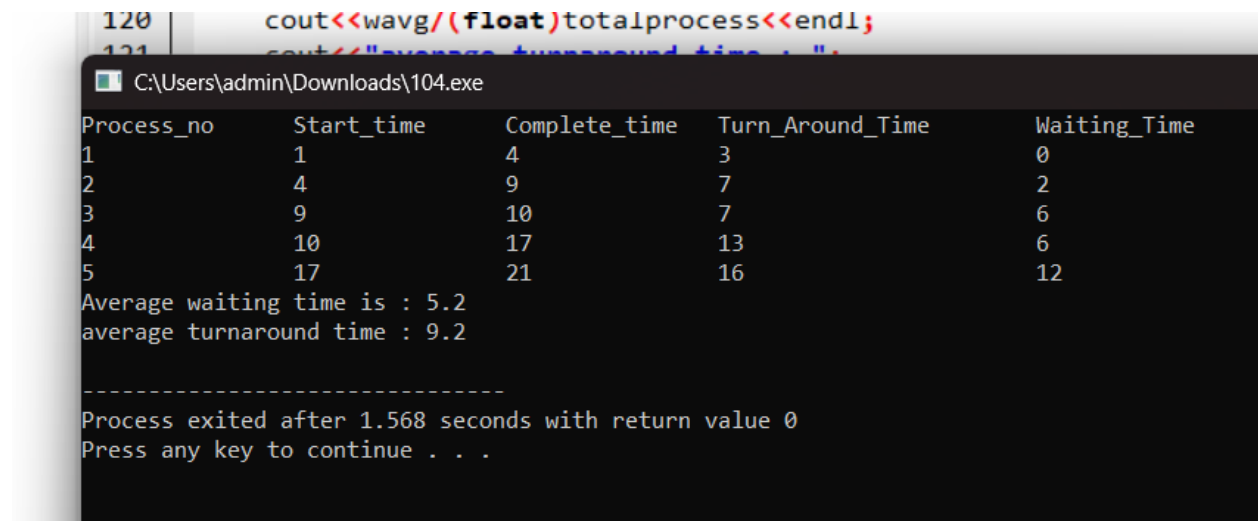
The screenshot shows a Windows command prompt window titled "C:\Users\admin\Downloads\103.exe". The program displays a table with 5 columns: Pn, BT, WT, TAT, and an unlabeled column. The data is as follows:

Pn	BT	WT	TAT	
1	1	0		1
2	8	3		11
3	2	4		6

Below the table, the program calculates and displays:

```
Average waiting time = 2.33333  
Average turn around time = 6  
-----  
Process exited after 1.715 seconds with return value 0  
Press any key to continue . . .
```

### 4) PRIORITY CPU SCHEDULING ALGORITHM



The screenshot shows a Windows command prompt window titled "C:\Users\admin\Downloads\104.exe". The program displays a table with 5 columns: Process\_no, Start\_time, Complete\_time, Turn\_Around\_Time, and Waiting\_Time. The data is as follows:

Process_no	Start_time	Complete_time	Turn_Around_Time	Waiting_Time
1	1	4	3	0
2	4	9	7	2
3	9	10	7	6
4	10	17	13	6
5	17	21	16	12

Below the table, the program calculates and displays:

```
Average waiting time is : 5.2  
average turnaround time : 9.2  
-----  
Process exited after 1.568 seconds with return value 0  
Press any key to continue . . .
```

5) Execute all scheduling algorithms on following data and find out the Average Waiting Time and Average Turnaround Time of all scheduling algorithms and discuss your results. (Quantum Value is 3)

#### FCFS CPU SCHEDULING ALGORITHM

```
// Displaying results
cout << "C:\Users\admin\Downloads\105.exe"
cout << "FCFS Scheduling"
float Process Burst Time    Waiting Time    Turnaround Time
for (P0    2                0                2
P1    6                2                8
P2    4                8                12
Average Waiting Time: 3.33333
Average Turnaround Time: 7.33333
}
cout << "-----"
cout << "Process exited after 0.09211 seconds with return value 0"
cout << "Press any key to continue . . ."
: main(
int p
int t
```

#### SJF CPU SCHEDULING ALGORITHM

```
W
C:\Users\admin\Downloads\105.exe
SJF Scheduling
Process Burst Time    Waiting Time    Turnaround Time
P0    2                0                2
P2    4                2                6
P1    6                6                12
Average Waiting Time: 2.66667
Average Turnaround Time: 6.66667
}
-----
Process exited after 1.969 seconds with return value 0
Press any key to continue . . .
f
```

### PRIORITY CPU SCHEDULING ALGORITHM

```
load total wt = 0, total tat = 0;
or (int C:\Users\admin\Downloads\105.exe
total
total
cout
out <<
out <<
ain() {
nt proc
```

Priority Scheduling

Process	Burst Time	Priority	Waiting Time	Turnaround Time
P1	6	1	0	6
P2	4	2	6	10
P0	2	3	10	12

Average Waiting Time: 5.33333  
Average Turnaround Time: 9.33333

-----  
Process exited after 2.005 seconds with return value 0  
Press any key to continue . . .

### ROUND ROBIN CPU SCHEDULING ALGORITHM

```
C:\Users\admin\Downloads\105.exe
```

Round Robin Scheduling

Process	Burst Time	Waiting Time	Turnaround Time
P0	2	0	2
P1	6	5	11
P2	4	8	12

Average Waiting Time: 4.33333  
Average Turnaround Time: 8.33333

-----  
Process exited after 2.121 seconds with return value 0  
Press any key to continue . . .

### Conclusion

Different CPU scheduling algorithms prioritize processes differently. First-Come, First-Served (FCFS) processes tasks in order of arrival, which can delay longer tasks. Shortest Job First (SJF) prioritizes shorter processes, achieving the lowest average waiting time and turnaround time. Priority Scheduling prioritizes important processes, delaying lower-priority tasks. Round Robin scheduling promotes fairness

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through time slicing but may increase average waiting time for shorter processes, highlighting the trade-offs between fairness, efficiency, and responsiveness.