

OPERATING SYSTEMS
EECE 5730
PROJECT 3: REPORT

By:

Akhila Nair

Student ID: 01743358

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Akhila Nair

Input in testin1.dat file:

10 1 0

3 4 0

7 2 2

1 2 4

3 5 6

Output with 1 cycle interval is:

```
*****FCFS Scheduling*****
t= 0
CPU: Loading process 0 (CPU burst = 10)
Ready Queue: - 1- 21855

t= 1
CPU: Running process 0 (remaining CPU burst = 9)
Ready Queue: - 1- 21855

t= 2
CPU: Running process 0 (remaining CPU burst = 8)
Ready Queue: - 1- 2- 21855

t= 3
CPU: Running process 0 (remaining CPU burst = 7)
Ready Queue: - 1- 2- 21855

t= 4
CPU: Running process 0 (remaining CPU burst = 6)
Ready Queue: - 1- 2- 3- 21855

t= 5
CPU: Running process 0 (remaining CPU burst = 5)
Ready Queue: - 1- 2- 3- 21855

t= 6
CPU: Running process 0 (remaining CPU burst = 4)
Ready Queue: - 1- 2- 3- 4

t= 7 |
CPU: Running process 0 (remaining CPU burst = 3)
Ready Queue: - 1- 2- 3- 4

t= 8
CPU: Running process 0 (remaining CPU burst = 2)
Ready Queue: - 1- 2- 3- 4

t= 9
CPU: Running process 0 (remaining CPU burst = 1)
Ready Queue: - 1- 2- 3- 4

t= 10
CPU: Finishing process 0 Loading process 1 (CPU burst = 3)
Ready Queue: - 1- 2- 3- 4
```

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```
t= 11
CPU: Running process 1 (remaining CPU burst = 2)
Ready Queue: - 2- 3- 4

t= 12
CPU: Running process 1 (remaining CPU burst = 1)
Ready Queue: - 2- 3- 4

t= 13
CPU: Finishing process 1 Loading process 2 (CPU burst = 7)
Ready Queue: - 2- 3- 4

t= 14
CPU: Running process 2 (remaining CPU burst = 6)
Ready Queue: - 3- 4

t= 15
CPU: Running process 2 (remaining CPU burst = 5)
Ready Queue: - 3- 4

t= 16
CPU: Running process 2 (remaining CPU burst = 4)
Ready Queue: - 3- 4

t= 17
CPU: Running process 2 (remaining CPU burst = 3)
Ready Queue: - 3- 4

t= 18
CPU: Running process 2 (remaining CPU burst = 2)
Ready Queue: - 3- 4

t= 19
CPU: Running process 2 (remaining CPU burst = 1)
Ready Queue: - 3- 4

t= 20
CPU: Finishing process 2 Loading process 3 (CPU burst = 1)
Ready Queue: - 3- 4

t= 21
CPU: Finishing process 3 Loading process 4 (CPU burst = 3)
Ready Queue: - 4
```

```
t= 22
CPU: Running process 4 (remaining CPU burst = 2)
Ready Queue:
```

```
t= 23
CPU: Running process 4 (remaining CPU burst = 1)
Ready Queue:
```

```
t= 24
CPU: Finishing process 4
Ready Queue:
```

FCFS Summary (WT = wait time, TT = turnaround time):

PID	WT	TT
0	0	10
1	10	13
2	11	18
3	16	17
4	15	18
AVG	10.40	15.20

Process sequence: -0-1-2-3-4-4
Context Switches: 6

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*****SJF Scheduling*****

t= 0

Thunderbird Mail process 1 (CPU burst = 3)

Ready Queue: - 1- 21855

t= 1

CPU: Running process 1 (remaining CPU burst = -1)

Ready Queue: - 21855

t= 2

CPU: Running process 1 (remaining CPU burst = -2)

Ready Queue: - 2- 21855

t= 3

CPU: Finishing process 1 Loading process 2 (CPU burst = 7)

Ready Queue: - 2- 21855

t= 4

CPU: Running process 2 (remaining CPU burst = -1)

Ready Queue: - 3- 21855

t= 5

CPU: Running process 2 (remaining CPU burst = -2)

Ready Queue: - 3- 21855

t= 6

CPU: Running process 2 (remaining CPU burst = -3)

Ready Queue: - 3- 4

t= 7

CPU: Running process 2 (remaining CPU burst = -4)

Ready Queue: - 3- 4

t= 8

CPU: Running process 2 (remaining CPU burst = -5)

Ready Queue: - 3- 4

t= 9

CPU: Running process 2 (remaining CPU burst = -6)

Ready Queue: - 3- 4

t= 10

CPU: Finishing process 2 Loading process 3 (CPU burst = 1)

Ready Queue: - 3- 4

t= 11

CPU: Finishing process 3 Loading process 4 (CPU burst = 3)

Ready Queue: - 4

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```
t= 12
CPU: Running process 4 (remaining CPU burst = -1)
Ready Queue:

t= 13
CPU: Running process 4 (remaining CPU burst = -2)
Ready Queue:

t= 14
CPU: Finishing process 4 Loading process 0 (CPU burst = 10)
Ready Queue:

t= 15
CPU: Running process 0 (remaining CPU burst = -1)
Ready Queue:

t= 16
CPU: Running process 0 (remaining CPU burst = -2)
Ready Queue:

t= 17
CPU: Running process 0 (remaining CPU burst = -3)
Ready Queue:

t= 18
CPU: Running process 0 (remaining CPU burst = -4)
Ready Queue:

t= 19
CPU: Running process 0 (remaining CPU burst = -5)
Ready Queue:

t= 20
CPU: Running process 0 (remaining CPU burst = -6)
Ready Queue:

t= 21
CPU: Running process 0 (remaining CPU burst = -7)
Ready Queue:

t= 22
CPU: Running process 0 (remaining CPU burst = -8)
Ready Queue:

t= 23
CPU: Running process 0 (remaining CPU burst = -9)
Ready Queue:
```

```
t= 24
CPU: Finishing process 0
Ready Queue:
```

SJF Summary (WT = wait time, TT = turnaround time):

PID	WT	TT
0	14	24
1	0	3
2	1	8
3	6	7
4	5	8
AVG	5.20	10.00

Process sequence: -1-2-3-4-0
Context Switches: 5

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*****Priority Scheduling*****

Priority Summary (WT = wait time, TT = turnaround time):

PID	WT	TT
0	0	10
1	18	21
2	8	15
3	13	14
4	15	18
AVG	10.80	15.60

Process sequence: -0-2-3-1-4-4

Context Switches: 6

*****STCF Scheduling*****

STCF Summary (WT = wait time, TT = turnaround time):

PID	WT	TT
0	14	24
1	0	3
2	5	12
3	0	1
4	0	3
AVG	3.80	8.60

Process sequence: -2-3-4-2-3-4-2-3

Context Switches: 8

*****RR Scheduling*****

RR Summary (WT = wait time, TT = turnaround time):

PID	WT	TT
0	0	10
1	2	24
2	2	22
3	2	20
4	1	18
AVG	1.40	18.80

Process sequence: -0-1-2-3-4-0-1-2-4-0-2-0-2-0

Context Switches: 14

*****OVERALL SUMMARY*****

Wait Time Comparision

1 STCF	3.80
2 SJF	5.20
3 FCFS	10.40
4 RoundRobin	1.40
5 Priority	10.80

TURNAROUND Time Comparision

1 STCF	8.60
2 SJF	10.00
3 FCFS	15.20
4 RoundRobin	18.80
5 Priority	15.60

Context Switch Comparision

1 STCF	8
2 SJF	5
3 FCFS	6
4 RoundRobin	14
5 Priority	6

In the terminal I get a message that scheduling is complete.

```
akhila@akhila-VirtualBox:~/Desktop/Project3$ ./out testin1.dat out1.txt 1  
DONE Scheduling !!akhila@akhila-VirtualBox:~/Desktop/Project3$
```

For compiling I used: gcc OS_program3.c -lpthread -o out

For output: ./out testin1.dat out1.txt 1

For better understanding, I am attaching the testin1.dat file and the out1.txt file in the zip folder.

Trouble shooting:

There were many errors during initial working on the code such as understanding the exact concept of each algorithm and implementing it. This was resolved by reading and watching different tutorials.

I also encountered error of Code dumping, which worked when I started using -lpthread in my compilation command.

Conclusion:

This project has given me a better understanding of all the scheduling algorithm done in class. It also helped me learn how to use different function types, extern, structure and overall implementing it together.