Operating Systems Homework 3

Project Title:

CPU Scheduling Algorithms Simulation

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About:

This program displays a simulation run of a CPU Scheduling algorithm listed below:

- Shortest Job First-nonpreemptive
- First Come First Serve
- Round Robin

Calculations for **average turn around time, average waiting time, completion time and worst-case waiting time,** are displayed at the end of each run.

Metrics/Parameters:

Burst Time: Amount of time required for the process for its execution.

• Completion Time: The time when process completes its execution

• Turnaround Time: The time required to execute a particular process. It is denoted by:

Turnaround Time = Completion Time – Arrival Time

• Arrival Time

• Waiting Time: Amount of time process was waiting in waiting queue. It is denoted by:

Waiting Time = Turnaround Time – Burst Time

Note:

* Quantum number is 2 for Round Robin Algorithm, you can check it from class Round Robin.)

* We also explained our code inside the program as a comment.

Results:

Shortest Job First

Processes	Burst time	Waiting time	Turn around time
1	4	0	4
2	5	4	9
3	7	9	16

Average waiting time = 4.3333335
Average turn around time = 9.666667

First Come First Serve

Processes	Burst T.	Arrival Time	Waiting T.	Turn-Around T.	Completion T.
1	4	8	0	4	12
2	5	9	0	5	14
3	7	13	0	7	20

Average waiting time = 0.0
Average turn around time = 5.3333335

Round Robin

Processes	Burst time	Waiting time	Turn around time
1	4	4	8
2	5	8	13
3	7	9	16

Average waiting time = 7.0

Average turn around time = 12.333333

Comparing

Algorithm	Average waiting time	Average turn around time
Round Robin	7.0	12.333333
First Come First Serve	0.0	5.3333335
Shortest Job First	4.3333335	9.666667

*Results shows us to best algorithm based on three scheduling algorithm.