Operating Systems Lab (CS-UH 3010)

Spring 2024

Assignment 4: Operating System Scheduling Algorithms Implementation

Deadline: March 07, 2024

Description: In this assignment, you will implement various scheduling algorithms commonly used in operating systems. You will write C programs to simulate the behavior of these scheduling algorithms and analyze their performance using different sets of processes.

Assignment Tasks:

You are provided with a basic C program structure (<fcfs.c> on Brightspace) that includes the **Process** structure. You have to implement the following scheduling algorithms (replicate the <fcfs.c> for each algorithm). Make sure to handle context switching, calculate average waiting time, service time, turnaround time, completion time, and other relevant metrics correctly.

1. First-Come, First-Served (FCFS)
2. Shortest Job First (SJF) – Preemptive
3. Shortest Job First (SJF) – Non-Preemptive
4. Round Robin (RR)

Test Cases: Use the following sample processes with arrival times and burst times provided as test cases for your implemented algorithms.

First-Come, First-Served (FCFS)		
Process Id	**Arrival time**	**Burst time**
P1	0	10
P2	2	3
P3	4	7
P4	6	5

Shortest Job First (SJF)		
Process Id	**Arrival time**	**Burst time**
P1	0	6
P2	2	3
P3	4	2
P4	6	8

Round Robin (RR)		
Process Id	**Arrival time**	**Burst time**
P1	0	8
P2	2	5
P3	4	6
P4	6	7