SSN COLLEGE OF ENGINEERING, KALAVAKKAM
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UCS1411 - OPERATING SYSTEMS LAB

Batch: 2018-22 **Academic Year: 2019-20**
Class: CSE C **Faculty:Mrs.S.Lakshmi Priya & Mr.N.Sujaudeen**

Lab Exercise 3 Implementation of CPU Scheduling Policies: FCFS and SJF (Non-preemptive and Preemptive)

Aim:

Develop a menu driven C program to implement the CPU Scheduling Algorithms

FCFS and SJF (Non-Preemptive and Preemptive)

Sample Learning Outcome:

1. Learn about the CPU Scheduling algorithms – FCFS and SJF.
2. Implement the sorting algorithms necessary for scheduling and analyzing the performance using waiting time, turn around time and response time.
3. Learn to draw the Gantt Chart

Best Practices:

1. Algorithm design
2. Naming convention – for file names, variables
3. Comment usage at proper places
4. Prompt messages during reading input and displaying output
5. Error handling mechanisms for failures in system calls
6. Incremental program development
7. Modularity
8. All possible test cases in output

Algorithm:

1. Read the following

    a. Number of processes

    b. Process IDs

c. Arrival time for each process

d. Burst Time for each process

2. Design a menu with FCFS and SJF options

3. Upon selection of menu option apply the corresponding algorithm.

4. Compute the average turnaround time, average waiting time and average response time for each of the algorithm.

5. Tabularize the results.

6. Display the Gantt Chart.

Sample Input & Output:

CPU SCHEDULING ALGORITHMS

1. FCFS

2. SJF

3. EXIT

Enter your option: 1

FCFS CPU SCHEDULER

Number of Processes: 5

Process ID: P1

Arrival Time: 0

Burst Time: 4

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Process ID: P5

Arrival Time: 6

Burst Time: 3

Output:

P1				

0 4

Process ID	Arrival Time	Burst Time	Turnaround Time	Waiting Time	Response Time
P1	0	4	***	***	***
***	***	***	***	***	***
***					
***					
			Average	***	***

Want to Continue (Y/N): Y

CPU SCHEDULING ALGORITHMS

1. FCFS

2. SJF

3. EXIT

Enter your option: 2

SJF CPU SCHEDULER

a. Non preemptive SJF

b. Pre emptive SJF

Enter your option: a

Number of Processes: 5

Process ID: P1

Arrival Time: 0

Burst Time: 4

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Process ID: P5

Arrival Time: 6

Burst Time: 3

Output:

P1				

0 4

Process ID	Arrival Time	Burst Time		Turnaround Time	Waiting Time	Response Time
	***	***	***		***	***
	***	***	***		***	***
	***					
	***					
				Average	***	***