

IT253 LAB ASSIGNMENT-1

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TOPIC: SCHEDULING, PRODUCER-
CONSUMER PROBLEM

Q1. Implement scheduling algorithms.

NOTE: The below problem is taken as input for all scheduling algorithms

Process ID	Arrival Time	Burst Time
1	0	7
2	2	4
3	4	1
4	5	4

OUTPUT SCREENSHOTS

- FCFS Scheduling

```
suyash@suyash-VirtualBox:~/Downloads$ python3 FCFS.py
Enter no. of Processes:4
Processes will be assumed as 1 to 4 in order
Enter arrival times of processes( 4 integers,one on each line):
0
2
4
5
Enter burst times of processes( 4 integers,one on each line):
7
4
1
4
*****FINAL ANSWER (FCFS SCHEDULING)*****

Process Id      TurnAround      Waiting
1               7               0
2               9               5
3               8               7
4               11              7

Average Waiting time    : 4.75
Average turn around time: 8.75
suyash@suyash-VirtualBox:~/Downloads$
```

- SJF non-Preemptive Scheduling

```
suyash@suyash-VirtualBox:~/Downloads$ python3 SJF_nonPreemptive.py
Enter no. of Processes:4
Process 1 :
Enter process id:1
Enter arrival time:0
Enter burst time:7
Process 2 :
Enter process id:2
Enter arrival time:2
Enter burst time:4
Process 3 :
Enter process id:3
Enter arrival time:4
Enter burst time:1
Process 4 :
Enter process id:4
Enter arrival time:5
Enter burst time:4
```

Process Id	Arrival	Burst	Completion	TurnAround	Waiting
1	0	7	7	7	0
2	2	4	12	10	6
3	4	1	8	4	3
4	5	4	16	11	7

```

Average Turn Around time: 8.0
Average waiting time: 4.0
suyash@suyash-VirtualBox:~/Downloads$

```

- SJF Preemptive Scheduling

```
suyash@suyash-VirtualBox:~/Downloads$ python3 SJF_Preemptive.py
Enter no. of Processes:4
Process 1 :
Enter process id:1
Enter arrival time:0
Enter burst time:7
Process 2 :
Enter process id:2
Enter arrival time:2
Enter burst time:4
Process 3 :
Enter process id:3
Enter arrival time:4
Enter burst time:1
Process 4 :
Enter process id:4
Enter arrival time:5
Enter burst time:4
```

Process Id	Arrival	Burst	Completion	TurnAround	Waiting
1	0	7	16	16	9
2	2	4	7	5	1
3	4	1	5	1	0
4	5	4	11	6	2

```

Average Turn Around time: 7.0
Average waiting time: 3.0
suyash@suyash-VirtualBox:~/Downloads$

```

- Round-Robin Scheduling (Time quantum: 1 unit)

```
suyash@suyash-VirtualBox:~/Downloads$ python3 Round_Robin.py
Enter no. of Processes:4
Process 1 :
Enter process id:1
Enter arrival time:0
Enter burst time:7
Process 2 :
Enter process id:2
Enter arrival time:2
Enter burst time:4
Process 3 :
Enter process id:3
Enter arrival time:4
Enter burst time:1
Process 4 :
Enter process id:4
Enter arrival time:5
Enter burst time:4
Enter time quantum:1

Process Id      Arrival      Burst      Completion      TurnAround      Waiting
1               0           7          15              15              8
2               2           4          12              10              6
3               4           1           6               2               1
4               5           4          16              11              7

Average Turn Around time: 9.5
Average waiting time: 5.5
suyash@suyash-VirtualBox:~/Downloads$
```

Q2. Implement Producer-Consumer Problem.

NOTE: The program will end only on keyboard interrupt.

OUTPUT SCREENSHOT: (below)

```

KeyboardInterrupt:
suyash@suyash-VirtualBox:~/Downloads$ python3 Producer_Consumer.py
Produced 0
Appended 0
Consumed 0
Produced 3
Appended 3
Consumed 3
Produced 0
Appended 0
Consumed 0
Produced 2
Appended 2
Produced 2
Appended 2
Consumed 2
Consumed 2
Produced 2
Appended 2
Consumed 2
Produced 1
Appended 1
Produced 4
Appended 4
Consumed 1
Produced 3
Appended 3
Produced 3
Appended 3
Consumed 4
Produced 3
Appended 3
Consumed 3
Produced 2
Appended 2
Produced 2
Appended 2
Produced 2
Appended 2
Consumed 3
Produced 4
Appended 4
Produced 0
Appended 0
Consumed 3
^CException ignored in: <module 'threading' from '/usr/lib/python3.8/threading.py'>
Traceback (most recent call last):
  File "/usr/lib/python3.8/threading.py", line 1388, in _shutdown
    lock.acquire()

```

NOTE: All program files are attached in the folder.
Codes have been explained in respective comments.

THANK YOU