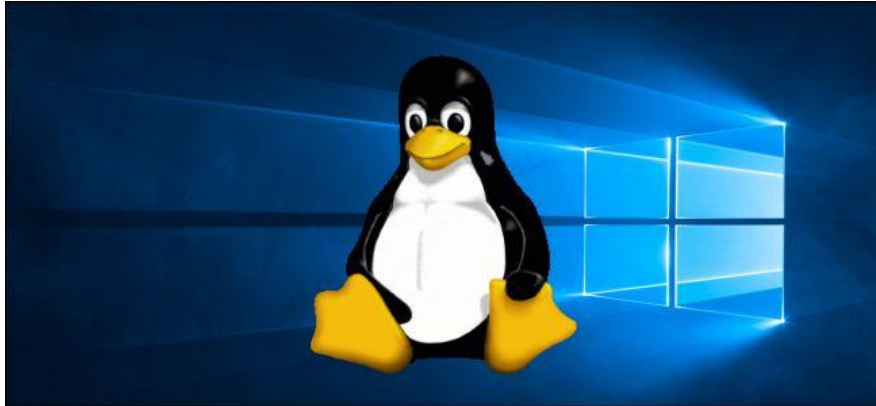


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Operating Systems

Experiment 11

Shortest Job First (Non-Preemptive) CPU Scheduling Algorithm

- CLO 2. Use modern tools and languages.*
 - CLO 3. Demonstrate an original solution of problem under discussion.*
 - CLO 4. Work individually as well as in teams*
-

Shortest Job First (Non-Preemptive) CPU Scheduling Algorithm

SJF:

Process with the **shortest CPU burst** “The amount of time the process uses the processor before it is no longer ready.” is scheduled first.

Two Schemes:

- **Non-preemptive** – Once CPU given to a process it cannot be preempted until completes its CPU burst.
- **Preemptive** – If a new process arrives with CPU burst length less than remaining time of current executing process, preempt. This scheme is known as the **Shortest-Remaining-Time-First (SRTF)**.

ALGORITHM for SJF (Non-Preemptive):

Step1: Get the number of process.

Step2: Get the process name and service time for each process.

Step3: Initially the waiting time of first short process as 0 and total time of first short process is the service time of that process.

Step4: Calculate the total time and waiting time of remaining process.

Step5: Waiting time of one process is the total time of the previous process.

Step6: Total time of process is calculated by adding the waiting time and service time of each process.

Step7: Total waiting time calculated by adding the waiting time of each process.

Step8: Total turnaround time calculated by adding all total time of each process.

Step9: Calculate average waiting time by dividing the total waiting time by total number of process.

Step10: Calculate average turnaround time by dividing the total waiting time by total number of process.

Step11: Display the results.

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LAB TASK

Implement Shortest Job First (Non-Preemptive) CPU Scheduling Algorithm.

Output 1

```
Enter the number of processes: 3
```

```
Enter Process Name of Process 0: P1
```

```
Enter Brust Time of Process 0: 10
```

```
Enter Process Name of Process 1: P2
```

```
Enter Brust Time of Process 1: 5
```

```
Enter Process Name of Process 2: P3
```

```
Enter Brust Time of Process 2: 2
```

```
P_Name  B_Time  Wait   TOT
```

```
P3      2      0      2
```

```
P2      5      2      7
```

```
P1     10      7     17
```

```
TOTAL WAITING TIME: 9
```

```
AVERAGE WAITING TIME: 3.000000
```

```
TOTAL TURNAROUND TIME: 26
```

```
AVERAGE TURNAROUND TIME: 8.000000
```

```
-----
```

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Output 2

```
C:\Users\Saba\Desktop\OS LAB FOLDER\OS_data\OS Lab 11_2k15\OS Lab 11_2k15
Enter number of process: 3

Enter Burst Time:
p1: 2
p2: 6
p3: 1

Process      Burst Time      Waiting Time      Turnaround Time
p3            1                0                 1
p1            2                1                 3
p2            6                3                 9

Average Waiting Time=1.333333
Average Turnaround Time=4.333333
-----
```