

CPU SCHEDULING ALGORITHMS Part 1**A) FIRST COME FIRST SERVE:**

AIM: To write a c program to simulate the CPU scheduling algorithm First Come First Serve

DESCRIPTION:

To calculate the average waiting time using the FCFS algorithm first the waiting time of the first process is kept zero and the waiting time of the second process is the burst time of the first process and the waiting time of the third process is the sum of the burst times of the first and the second process and so on. After calculating all the waiting times the average waiting time is calculated as the average of all the waiting times. FCFS mainly says first come first serve the algorithm which came first will be served first.

ALGORITHM:

Step 1: Start the process

Step 2: Accept the number of processes in the ready Queue

Step 3: For each process in the ready Q, assign the process name and the burst time Step

4: Set the waiting of the first process as 0 and its burst time as its turnaround time Step

5: for each process in the Ready Q calculate

a). $\text{Waiting time (n)} = \text{waiting time (n-1)} + \text{Burst time (n-1)}$

b). $\text{Turnaround time (n)} = \text{waiting time(n)} + \text{Burst time(n)}$

Step 6: Calculate

a) $\text{Average waiting time} = \text{Total waiting Time} / \text{Number of process}$

b) $\text{Average Turnaround time} = \text{Total Turnaround Time} / \text{Number of process}$

Step 7: Stop the process

Microsoft Visual Studio Debug Console

```
Enter the number of processes -- 4
Enter Burst Time for Process 0 -- 25
Enter Burst Time for Process 1 -- 45
Enter Burst Time for Process 2 -- 82
Enter Burst Time for Process 3 -- 34
PROCESS      BURST TIME    WAITING TIME    TURNAROUND TIME
P0           25           0               25
P1           45           25              70
P2           82           70             152
P3           34          152             186
Average Waiting Time -- 61.750000
Average Turnaround Time -- 108.250000
```

B) SHORTEST JOB FIRST:

AIM: To write a program to stimulate the CPU scheduling algorithm Shortest Job First (Non- Preemption)

DESCRIPTION:

To calculate the average waiting time in the shortest job first algorithm the sorting of the process based on their burst time in ascending order then calculate the waiting time of each process as the sum of the bursting times of all the process previous or before to that process.

ALGORITHM:

Step 1: Start the process

Step 2: Accept the number of processes in the ready Queue

Step 3: For each process in the ready Q, assign the process id and accept the CPU burst time

Step 4: Start the Ready Q according the shortest Burst time by sorting according to lowest to highest burst time.

Step 5: Set the waiting time of the first process as 0 and its turnaround time as its burst time.

Step 6: Sort the processes names based on their Burst time

Step 7: For each process in the ready queue, calculate

a) Waiting time(n)= waiting time (n-1) + Burst time (n-1)

b) Turnaround time (n)= waiting time(n)+Burst time(n)

Step 8: Calculate

c) Average waiting time = Total waiting Time / Number of process

d) Average Turnaround time = Total Turnaround Time / Number of process

Step 9: Stop the process

```
Microsoft Visual Studio Debug Console

Enter the number of processes -- 4
Enter Burst Time for Process 0 -- 25
Enter Burst Time for Process 1 -- 45
Enter Burst Time for Process 2 -- 82
Enter Burst Time for Process 3 -- 34

      PROCESS      BURST TIME      WAITING TIME      TURNAROUND TIME
      P0           25           0           25
      P3           34          25           59
      P1           45          59          104
      P2           82         104          186
Average Waiting Time -- 47.000000
Average Turnaround Time -- 93.500000
```