

Program for FCFS CPU Scheduling |

Given n processes with their burst times, the task is to find average waiting time and average turn around time using FCFS scheduling algorithm.

First in, first out (FIFO), also known as first come, first served (FCFS), is the simplest scheduling algorithm. FIFO simply queues processes in the order that they arrive in the ready queue.

In this, the process that comes first will be executed first and next process starts only after the previous gets fully executed.

Here we are considering that arrival time for all processes is 0.

```
1 // 106119100 Rajneesh Pandey
2
3 #include <iostream>
4 using namespace std;
5
6 void CalculateWaitingTime(int processes[], int n, int bt[], int wt[])
7 { wt[0] = 0;
8   for (int i = 1; i < n; i++)
9     wt[i] = bt[i - 1] + wt[i - 1];}
10 void CalculateTurnAroundTime(int processes[], int n, int bt[], int wt[], int tat[])
11 { for (int i = 0; i < n; i++)
12   tat[i] = bt[i] + wt[i];}
13
14 void CalculateAvgTime(int processes[], int n, int bt[])
15 { int wt[n], tat[n], total_wt = 0, total_tat = 0;
16   CalculateWaitingTime(processes, n, bt, wt);
17   CalculateTurnAroundTime(processes, n, bt, wt, tat);
18   cout << "Processes No.: "<< " Burst time: "<< " Waiting time: "<< " Turn around time:\n ";
19
20   for (int i = 0; i < n; i++)
21   { total_wt = total_wt + wt[i];
22     total_tat = total_tat + tat[i];
23     cout << i + 1 << "\t\t" << bt[i] << "\t\t" << wt[i] << "\t\t" << tat[i] << endl;}
24   cout << "Average waiting time= " << (float)total_wt / (float)n;
25   cout << "\nAverage turn around time= " << (float)total_tat / (float)n << " " << endl;
26   cout << "-----" << endl;
27 }
28
29 int main()
30 {
31   int n;
32   cin >> n;
33   int processes[n];
34   int burst_time[n];
35   for (int i = 0; i < n; i++)
36     processes[i] = i + 1;
37   for (int i = 0; i < n; i++)
38     cin >> burst_time[i];
39   cout << "-----" << endl;
40   cout << " OUTPUT : " << endl;
41   cout << "-----" << endl;
42   cout << endl;
43   CalculateAvgTime(processes, n, burst_time);
44   return 0;
45 }
```

```
rajneesh@rajneesh-VirtualBox: ~/Desktop/OS Lab/2$ g++ FCFS.cpp -o fcfs
rajneesh@rajneesh-VirtualBox: ~/Desktop/OS Lab/2$ ./fcfs
3
10 5 8
-----
OUTPUT :
-----
Processes No.: Burst time: Waiting time: Turn around time:
1          10          0          10
2           5          10          15
3           8          15          23
Average waiting time= 8.33333
Average turn around time= 16
-----
rajneesh@rajneesh-VirtualBox: ~/Desktop/OS Lab/2$ ./fcfs
4
10 8 7 3
-----
OUTPUT :
-----
Processes No.: Burst time: Waiting time: Turn around time:
1          10          0          10
2           8          10          18
3           7          18          25
4           3          25          28
Average waiting time= 13.25
Average turn around time= 20.25
-----
rajneesh@rajneesh-VirtualBox: ~/Desktop/OS Lab/2$
```