Mawlana Bhashani Science and Technology University

Lab-Report

Report No: 07

Course code: ICT- ICT-3110

Course title: Operating Systems Lab

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Submitted by

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Experiment no : 07

Experiment Name : Implementation of FCFS Scheduling Algorithm.

Theory :

First Come First Serve (FCFS) is an operating system scheduling algorithm that automatically executes queued requests and processes in order of their arrival. It is the easiest and simplest CPU scheduling algorithm. With first come, first served, what comes first is handled first; the next request in line will be executed once the one before it is complete.

 Implementation :

- Step-1: Enters the system it starts its execution immediately and runs till it completes its execution.

- Step-2: As other processes enter the system, they are put at the end of the queue and wait to get the CPU.

- Step-3: When a process finishes executing, it releases the CPU, is removed from the queue and the CPU is allocated to next process at the head of the queue.

Working Process :

Code for FCFS Scheduling Algorithm –

```
#include <stdio.h>
int waitingtime(int proc[], int n,
int burst_time[], int wait_time[]) {
   wait_time[0] = 0;
   for (int i = 1; i < n ; i++ )
   wait_time[i] = burst_time[i-1] + wait_time[i-1] ;
   return 0;
}
int turnaroundtime( int proc[], int n,
int burst_time[], int wait_time[], int tat[]) {
```

```c
    int i;
    for ( i = 0; i < n ; i++)
    tat[i] = burst_time[i] + wait_time[i];
    return 0;
}
int avgtime( int proc[], int n, int burst_time[]) {
    int wait_time[n], tat[n], total_wt = 0, total_tat = 0;
    int i;
    waitingtime(proc, n, burst_time, wait_time);
    turnaroundtime(proc, n, burst_time, wait_time, tat);
    printf("Processes  Burst   Waiting Turn around \n");
    for ( i=0; i<n; i++) {
        total_wt = total_wt + wait_time[i];
        total_tat = total_tat + tat[i];
        printf(" %d\t  %d\t\t %d \t%d\n", i+1, burst_time[i], wait_time[i], tat[i]);
    }
    printf("Average waiting time = %f\n", (float)total_wt / (float)n);
    printf("Average turn around time = %f\n", (float)total_tat / (float)n);
    return 0;
}
int main() {
    int proc[] = { 1, 2, 3};
    int n = sizeof proc / sizeof proc[0];
    int burst_time[] = {5, 8, 12};
    avgtime(proc, n, burst_time);
    return 0;
}
```

Output :

```
Processes  Burst    Waiting Turn around
1          5              0       5
2          8              5       13
3          12             13      25
Average waiting time = 6.000000
Average turn around time = 14.333333

Process returned 0 (0x0)    execution time : 0.234 s
Press any key to continue.
```

Discussion :

The above algorithm has been implemented using C language. Implementing FCFS scheduling al
gorithm is easy. Here for given n=3 number of processes i.e. P1, P2, P3 and their corresponding
burst times, the task is to find the average waiting time and average turnaround time using FCFS
CPU Scheduling algorithm.