

Lab report no. : 08

Lab report name : Lab report on implementation of SJF scheduling algorithm .

Aim and objectives: To learn about Shortest job first also know as SJF algorithm , implement it with a c program, to learn how to use this algorithm.

Explanation:

- i) **SJF Scheduling algorithm :** Shortest Job First (SJF) is an algorithm in which the process having the smallest execution time is chosen for the next execution. SJF scheduling algorithm, schedules the processes according to their burst time. SJF scheduling process with the lowest burst time, among the list of available processes in the ready queue, is going to be scheduled next. It is not implementable because the exact Burst time for a process can't be known in advance.

- ii) **Implementation of SJF in C Program:**

Code:

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
int bt[20],p[20],wt[20],tat[20],i,j,n,total=0,pos,temp;
```

```
float avg_wt,avg_tat;
```

```
printf("Enter number of process:");
```

```
scanf("%d",&n);
```

```

printf("\nEnter Burst Time for every process:\n");
for(i=0;i<n;i++)
{
    printf("p%d process7
        :",i+1);
    scanf("%d",&bt[i]);
    p[i]=i+1;
}

```

```

for(i=0;i<n;i++)
{
    pos=i;
    for(j=i+1;j<n;j++)
    {
        if(bt[j]<bt[pos])
            pos=j;
    }
}

```

```

temp=bt[i];
bt[i]=bt[pos];
bt[pos]=temp;
temp=p[i];
p[i]=p[pos];

```

```

p[pos]=temp;
    }
wt[0]=0;
for(i=1;i<n;i++)
{
    wt[i]=0;
    for(j=0;j<i;j++)
        wt[i]+=bt[j];

    total+=wt[i];
}
avg_wt=(float)total/n;
total=0;
printf("\nProcess\t Burst Time \tWaiting Time\tTurnaround Time");
for(i=0;i<n;i++)
{
    tat[i]=bt[i]+wt[i];
    total+=tat[i];
    printf("\np%d\t\t %d\t\t %d\t\t%d",p[i],bt[i],wt[i],tat[i]);
}

avg_tat=(float)total/n;
printf("\n\nAverage Waiting Time=%f",avg_wt);
printf("\n\nAverage Turnaround Time=%f\n",avg_tat);
return 0;

```

}

Output:

```
E:\3-1\OPERATING\Zafrul_Hasan_Khan\SJF.exe
Enter number of process:6

Enter Burst Time for every process:
p1 process:12
p2 process:21
p3 process:9
p4 process:11
p5 process:17
p6 process:7

Process      Burst Time      Waiting Time      Turnaround Time
p6           7           0           7
p3           9           7          16
p4          11          16          27
p1          12          27          39
p5          17          39          56
p2          21          56          77

Average Waiting Time=24.166666
Average Turnaround Time=37.000000

Process returned 0 (0x0)   execution time : 39.216 s
Press any key to continue.
```

Conclusion: After execution of simulation codes of SJF, I come to the conclusion that SJF algorithm is more competitive. I have also show ,SJF algorithm is a very long process to be not executed at the time required. However, this algorithm will be helpful for future work.