

MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

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**LAB REPORT**

Lab Report No : 08

Lab Report name :Implementation of SJF Scheduling algorithm.

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**Lab Report 08: Implementation of SJF Scheduling algorithm .**

**Theory :** Shortest-Job-First (SJF) is a non-preemptive discipline in which waiting job (or process) with the smallest estimated run-time-to-completion is run next. In other words, when CPU is available, it is assigned to the process that has smallest next CPU burst. The SJF scheduling is especially appropriate for batch jobs for which the run times are known in advance. Since the SJF scheduling algorithm gives the minimum average time for a given set of processes, it is probably optimal.

**Advantages of SJF** 1.Maximum throughput 2.Minimum average waiting and turnaround time **Disadvantages of SJF** 1.May suffer with the problem of starvation 2.It is not implementable because the exact Burst time for a process can't be known in advance.

**Corresponding 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:\n");

for(i=0;i<n;i++)

{

printf("p%d: ",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\t%d",p[i],bt[i],wt[i],tat[i]);

}

avg\_tat=(float)total/n; //average turnaround time

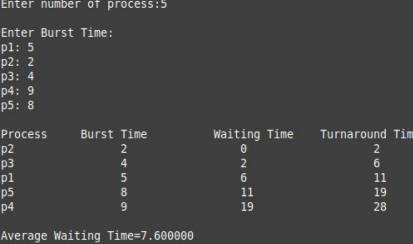
printf("\n\nAverage Waiting Time=%f",avg\_wt);

printf("\nAverage Turnaround Time=%f\n",avg\_tat);

printf("\n"); return 0;

}

**Output:**



* Conclusion:The full meaning of SJF algorithm is Shortest Job First algorithm.It is of two types:
  1. Non Pre-emptive
  2. Pre-emptive

In non pre-emptive SJF algorithm one process come when the previous process is completed.In this SJF algorithm all the processes are not available in the ready queue at time 0, and some jobs arrive after some time, In Preemptive Shortest Job First Scheduling, jobs are put into ready queue as they arrive, but as a process with **short burst time** arrives, the existing process is preempted or removed from execution.Here I have solved a problem using non pre-emptive scheduling algorithm.There are five processes.These are p1,p2,p3,p4 and p5.The burst time of p2 is 2 and this is the lowest.So this processes comes first.Next lowest burst time is 4 so p3 comes next and so on.Next I can find out waiting time,turnaround time .This algorithm is also easy.