

SJF PREEMPTIVE SCHEDULING ALGORITHM

```
#include<stdio.h>
#include<string.h>
struct process
{
int AT,BT,WT,TT,status,left;
char pname[10];
}p[10],temp;
struct gantt
{
int ST,CT;
char pname[10];
}g[50];
void main()
{
int n,i=0,j=0,k=0,m,idle=0,flag,ls=0,num=0;
float wait=0,turn=0;
printf("Enter the number of process\n");
scanf("%d",&n);
for(m=0;m<n;m++)
{
printf("Enter name,AT,BT\n");
scanf("%s%d%d",p[m].pname,&p[m].AT,&p[m].BT);
p[m].status=0;
p[m].left=p[m].BT;
}
while(ls<n)

{
flag=0;
for(j=0;j<n;j++)
{
if((p[j].status==0)&&(p[j].AT<=i)&&(flag==0))
{
k=j;
flag++;
}
if((p[j].status==0)&&(p[j].AT<=i)&&(flag>0))
{
if(p[j].left<p[k].left)
{
k=j;
}
}
}
if((flag==0)&&(idle==0))
```

```

{
strcpy(g[num].pname,"idle");
g[num].ST=i;
idle=1;
i++;
}
else if(flag>0)
{
if(idle==1)
{
g[num].CT=i;
idle=0;
num++;
}
strcpy(g[num].pname,p[k].pname);
g[num].ST=i;
if(p[k].left<=1)
{
g[num].CT=i+p[k].left;
i=g[num].CT;
p[k].TT=g[num].CT-p[k].AT;
p[k].WT=p[k].TT-p[k].BT;
p[k].status=1;
num++;
ls++;
}
else
{
g[num].CT=i+1;
i=i+1;
p[k].left=p[k].left-1;
num++;
}
}
else
{
i++;
}
}
printf("Name\tAT\tBT\tTT\tWT\n");
for(m=0;m<n;m++)
{
printf("%s\t%d\t%d",p[m].pname,p[m].AT,p[m].BT);
printf("\t%d\t%d\n",p[m].TT,p[m].WT);
wait=wait+p[m].WT;
turn=turn+p[m].TT;
}

```

```

}
printf("\nGantt chart\n");
printf("\n-----\n");
printf("|");
for(m=0;m<num;m++)
{
if(strcmp(g[m].pname,g[m+1].pname)==0)
{
continue;
}
else
{
printf("%s\t",g[m].pname);
}
}
printf("\n-----\n");
printf("%d\t",g[0].ST);
for(m=0;m<num;m++)
{
if(strcmp(g[m].pname,g[m+1].pname)==0)
{
continue;
}
else
{
printf("%d\t",g[m].CT);
}
}
printf("\nAverage waiting time = %f",wait/n);
printf("\nAverage turnaround time = %f\n",turn/n);
}

```

/*Enter the number of process

5

Enter name,AT,BT

p1

2

7

Enter name,AT,BT

p2

3

5

Enter name,AT,BT

p3

6

3

Enter name,AT,BT

p4

5

2

Enter name,AT,BT

p5

22

5

Name	AT	BT	TT	WT
------	----	----	----	----

p1	2	7	17	10
----	---	---	----	----

p2	3	5	7	2
----	---	---	---	---

p3	6	3	7	4
----	---	---	---	---

p4	5	2	2	0
----	---	---	---	---

p5	22	5	5	0
----	----	---	---	---

Gantt chart

|idle |p1 |p2 |p4 |p2 |p3 |p1 |idle |p5 |

0 2 3 5 7 10 13 19 22 27

Average waiting time = 3.200000

Average turnaround time = 7.600000

*/