7. Construct a C program to implement non-preemptive SJF algorithm.

PROGRAM :

```
#include<stdio.h>
int main()
{
int at[10],bt[10],pr[10];
int n,i,j,temp,time=0,count,over=0,sum_wait=0,sum_turnaround=0,start;
float avgwait,avgturn;
printf("Enter the number of processes\n");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("Enter the arrival time and execution time for process %d\n",i+1);
scanf("%d%d",&at[i],&bt[i]);
pr[i]=i+1;
}
for(i=0;i<n-1;i++)
{
for(j=i+1;j<n;j++)
{
if(at[i]>at[j])
{
temp=at[i];
at[i]=at[j];
at[j]=temp;
temp=bt[i];
bt[i]=bt[j];
bt[j]=temp;
temp=pr[i];
pr[i]=pr[j];
```

```
pr[j]=temp;
}
}
}
printf("\n\nProcess\t|Arrival time\t|End time\t|waiting time\t|Execution time\t|Start time\t|Turnaround time\n\n");
while(over<n)
{
count=0;
for(i=over;i<n;i++)
{
if(at[i]<=time)
count++;
else
break;
}
if(count>1)
{
for(i=over;i<over+count-1;i++)
{
for(j=i+1;j<over+count;j++)
{
if(bt[i]>bt[j])
{
temp=at[i];
at[i]=at[j];
at[j]=temp;
temp=bt[i];
bt[i]=bt[j];
bt[j]=temp;
temp=pr[i];
```

```
pr[i]=pr[j];

pr[j]=temp;

}

}

}

}

start=time;

time+=bt[over];

printf("p[%d]\t|\t%d\t|\t%d\t|\t%d\t|\t%d\t|\t%d\t|\t%d\n",pr[over],
at[over],bt[over],start,time,time-at[over]- bt[over],time-at[over]);

sum_wait+=time-at[over]-bt[over];

sum_turnaround+=time-at[over];

over++;

}

avgwait=(float)sum_wait/(float)n;

avgturn=(float)sum_turnaround/(float)n; printf("Average waiting time is %f\n",avgwait);
printf("Average turnaround time is %f\n",avgturn);

return 0;

}
```

OUTPUT:

```
Enter the number of processes
3
Enter the arrival time and execution time for process 1
1 3
Enter the arrival time and execution time for process 2
2 6
Enter the arrival time and execution time for process 3
3 8


Process |Arrival  time  |End time       |waiting  time  |Execution  time        |Start  time    |Turnaround time

p[1]    |       1       |       3       |       0       |       3       |       -1      |       2
p[2]    |       2       |       6       |       3       |       9       |       1       |       7
p[3]    |       3       |       8       |       9       |       17      |       6       |       14
Average waiting time is 2.000000
Average turnaround time is 7.666667

--------------------------------
Process exited after 10.17 seconds with return value 0
Press any key to continue . . .
```