PRACTICAL NO 5: SCHEDULING [RR METHOD]

```
#include<string.h>
#include<ctype.h>
#include<stdlib.h>
typedef struct process
{
char pname[10];
int bt;
int at;
int wt;
int rt;
int tat;
}p1;
int main()
{
p1 p[10];
float avg_tat=0;
float avg_wt=0;
float avg_rt=0;
int n;
int i;
int j;
int k=0;
int l=0;
p1 swap;
p1 result[10];
p1 e[10];
int nextprocess=0;
int total_burst=0;
int realtime=0;
int tq;
printf("\n ENTER THE NUMBER OF PROCESS :");
scanf("%d",&n);
printf("\nENTER THE TIME QUANTUM:");
scanf("%d",&tq);
for(i=0;i<n;i++)
{
sprintf(p[i].pname,"p%d",i+1);
p[i].rt=-1;
p[i].wt=0;
p[i].tat=0;
printf("\nENTER THE BURST TIME :");
scanf("%d",&p[i].bt);
total_burst=total_burst+p[i].bt;
printf("\nENTER THE ARRIVAL TIME:");
scanf("%d",&p[i].at);
}
for(i=0;i<n;i++)
 {
 for(j=i+1;j<n;j++)
 {
 if(p[i].at>p[j].at)
 {
 swap=p[i];
 p[i]=p[j];
 p[j]=swap;
 }
 }
 }
for(i=0;i<n;i++)
 {
 e[l]=p[i];
 if(i!=(n-1))
 nextprocess=p[i+1].at;
 else
 nextprocess=10000;
 while(total_burst>=realtime && nextprocess>(realtime+tq))
 {
 if(e[0].bt>tq)
 {
 e[0].wt=e[0].wt+realtime-e[0].tat;
 if(e[0].rt==-1)
 e[0].rt=realtime;
 realtime=realtime+tq;
 e[0].tat=realtime;
 e[0].bt=e[0].bt-tq;
 swap=e[0];
 for(j=0;j<=(l-1);j++)
 e[j]=e[j+1];
 e[j]=swap;
 }
 else
 {
 if(e[0].bt!=0)
 {
 if(e[0].rt==-1)
 e[0].rt=realtime;
 e[0].wt=e[0].wt+realtime-e[0].tat-e[0].at;
 realtime=realtime+e[0].bt;
 e[0].tat=realtime-e[0].at;
 }
 result[k]=e[0];
 k++;
 for(j=0;j<=(l-1);j++)
 e[j]=e[j+1];
 l=l-1;
 }
 }
 l++;
}
for(i=0;i<n;i++)
{
avg_tat=avg_tat+result[i].tat;
avg_rt=avg_rt+result[i].rt;
avg_wt=result[i].wt+avg_wt;
}
avg_wt=avg_wt/n;
avg_tat=avg_tat/n;
avg_rt=avg_rt/n;
printf("\nAVERAGE WAITING TIME : %f",avg_wt);
printf("\nAVERAGE TURN ARROUND TIME :%f",avg_tat);
printf("\nAVERAGE RESPONSE TIME :%f",avg_rt);
return 0;
}
```

OUTPUT:

```
ENTER THE NUMBER OF PROCESS :3

ENTER THE TIME QUANTUM:4

ENTER THE BURST TIME :5

ENTER THE ARRIVAL TIME:0

ENTER THE BURST TIME :9
ENTER THE ARRIVAL TIME:1

ENTER THE BURST TIME :6

ENTER THE ARRIVAL TIME:2

AVERAGE WAITING TIME : 9.666667
AVERAGE TURN ARROUND TIME :16.333334
AVERAGE RESPONSE TIME :4.000000
```