#include <stdio.h>

#include<conio.h>

int main()

{

int at[10],bt[10],temp[10];

int i,j,small,count=0,time,t\_process,total=0,counter=0,n,n1;

double wt=0,tt=0,end;

float awt,att;

printf("\nEnter the Total Number of Processes:\t");

scanf("%d",&t\_process);

printf("\nEnter Details of %d Processes\n",t\_process);

for(i=0;i<t\_process;i++)

{

printf("\nEnter Arrival Time:\t");

scanf("%d",&at[i]);

printf("Enter Burst Time:\t");

scanf("%d",&bt[i]);

temp[i]=bt[i];

}

bt[9]=9999;

for(time=0;count!=t\_process;time++)

{

small=9;

for(i=0;i<t\_process;i++)

{

if(at[i]<=time&&bt[i]<bt[small]&&bt[i]>0)

{

small=i;

}

}

bt[small]--;

if(bt[small]==0)

{

count++;

end=time+1;

wt=wt+end-at[small]-temp[small];

tt=tt+end-at[small];

}

}

awt=wt/t\_process;

att=tt/t\_process;

printf("\n\nAverage Waiting Time for SJF:\t%lf\n", awt);

printf("Average Turnaround Time for SJF:\t%lf\n", att);

printf("ROUND ROBIN SCHEDULING");

int time\_quantum,pid[10],need[10],waiting\_time[10],turnaround\_time[10];

int ct[10], flag[10],total\_turnaround\_time=0,total\_waiting\_time=0;

float average\_waiting\_time,average\_turnaround\_time;

printf("\t\t ROUND ROBIN SCHEDULING");

printf("\n\nEnter the number of Processors \n");

scanf("%d",&n);

n1=n;

printf("\n Enter the Time\_Quantum \n");

scanf("%d",&time\_quantum);

for(i=1;i<=n;i++)

{

printf("\n Enter the process ID %d arrival time ",i);

scanf("%d",&pid[i]);

printf("\n Enter the Burst Time of the process ");

scanf("%d",&ct[i]);

need[i]=ct[i];

}

for(i=1;i<=n;i++)

{

flag[i]=1;

waiting\_time[i]=0;

}

while(n!=0)

{

for(i=1;i<=n;i++)

{

if(need[i]>=time\_quantum)

{

for(j=1;j<=n;j++)

{

if((i!=j)&&(flag[i]==1)&&(need[j]!=0))

waiting\_time[j]+=time\_quantum;

}

need[i]-=time\_quantum;

if(need[i]==0)

{

flag[i]=0;

n--;

}

}

else

{

for(j=1;j<=n;j++)

{

if((i!=j)&&(flag[i]==1)&&(need[j]!=0))

waiting\_time[j]+=need[i];

}

need[i]=0;

n--;

flag[i]=0;

}

}

}

for(i=1;i<=n1;i++)

{

turnaround\_time[i]=waiting\_time[i]+ct[i];

total\_waiting\_time=total\_waiting\_time+waiting\_time[i];

total\_turnaround\_time=total\_turnaround\_time+turnaround\_time[i];

}

average\_waiting\_time=(float)total\_waiting\_time/n1;

average\_turnaround\_time=(float)total\_turnaround\_time/n1;

printf("\n\n Process \t Process ID \t BurstTime \t Waiting Time \t TurnaroundTime \n ");

for(i=1;i<=n1;i++)

{

printf("\n %5d \t %5d \t\t %5d \t\t %5d \t\t %5d \n", i,pid[i],ct[i],waiting\_time[i],turnaround\_time[i]);

}

printf("\n The average Waiting Time=%f",average\_waiting\_time);

printf("\n The average Turn around Time=%f",average\_turnaround\_time);

getch();

}

