#include<stdio.h>

#include<conio.h>

void RoundRob(int no,int remt[10],int Cur\_t,int AT[10], int BT[10]);

main()

{

int Pno,j,no,CurT,RemProc,indicator,TQ,WT,TAT,AT[10],BT[10],remt[10],x=1;

indicator = 0;

WT = 0;

TAT = 0;

printf("Enter number of processes ");

scanf("%d",&no);

RemProc = no;

printf("\nEnter the arrival time and burst time of the processes\n");

for(Pno = 0;Pno < no;Pno++)

{

printf("\nProcess P%d\n",Pno+1);

printf("Arrival time = ");

scanf("%d",&AT[Pno]);

printf("Burst time = ");

scanf("%d",&BT[Pno]);

remt[Pno]=BT[Pno];

}

printf("The details of time quantum are as follows:\n");

printf("The time quantum for first round is 3.\n");

TQ=3;

CurT=0;

for(Pno=0;RemProc!=0;)

{

if(remt[Pno]<=TQ && remt[Pno]>0)

{

CurT+=remt[Pno];

remt[Pno]=0;

indicator=1;

}

else if(remt[Pno]>0)

{

remt[Pno]-=TQ;

CurT+=TQ;

}

if(remt[Pno]==0 && indicator==1)

{ printf("%d",Pno);

RemProc--;

printf("P %d",Pno+1);

printf("\t\t\t%d",CurT-AT[Pno]);

printf("\t\t\t%d\n",CurT-BT[Pno]-AT[Pno]);

WT+=CurT-AT[Pno]-BT[Pno];

TAT+=CurT-AT[Pno];

indicator=0;

}

if(Pno==no-1){

x++;

if(x==2){

Pno=0;

TQ=6;

printf("The time quantum for second round is 6. \n");

}

else{

break;

}

}

else if(CurT >= AT[Pno+1]){

Pno++;

}

else{

Pno=0;

}

}

RoundRob(no,remt,CurT,AT,BT);

return 0;

}

void RoundRob(int no,int remt[10],int Cur\_t,int AT[10], int BT[10])

{

float avg\_wait,avg\_tat;

int i,j,n=no,temp,btime[20],Proc\_no[20],w\_time[20],tat\_t[20],total=0,loc;

printf("Third round with least burst time.\n");

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

{

btime[i]=remt[i];

w\_time[i]=Cur\_t-AT[i]-btime[i];

Proc\_no[i]=i+1;

}

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

{

loc=i;

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

{

if(btime[j]<btime[loc]){

loc=j;

}

}

temp=btime[i];

btime[i]=btime[loc];

btime[loc]=temp;

temp=Proc\_no[i];

Proc\_no[i]=Proc\_no[loc];

Proc\_no[loc]=temp;

}

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

{

for(j=0;j<i;j++){

w\_time[i]+=btime[j];

}

total+=w\_time[i];

}

avg\_wait=(float)total/n;

total=0;

printf("\nProcess\t\tBurst time\t\twaiting time\t\tTurnaround Time");

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

{

tat\_t[i]=btime[i]+w\_time[i];

total=total + tat\_t[i];

printf("\nP%d\t\t\t%d\t\t\t%d\t\t\t%d",Proc\_no[i],btime[i],w\_time[i],tat\_t[i]);

}

avg\_tat=(float)total/n;

printf("\n\nAverage waiting time = %f",avg\_wait);

printf("\n Average turnaround time = %f\n",avg\_tat);

}