#include<stdio.h>

#include<stdbool.h>

#include"dos.h"

#include<windows.h>

void wtime(int p1[],int n,int bt[],int wt[],int q1)

{

int s=0;

int seq[s];

int i;

int rem\_bt[n];

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

{

rem\_bt[i]=bt[i];

}

int t=3;

printf("%5d to %5d :\tCPU IS IDEAL\n",0,3);

while(1)

{

bool d1= true;

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

{

if(rem\_bt[i]>0)

{

d1=false;

if(rem\_bt[i]>q1)

{

int t1=t;

t+=q1;

rem\_bt[i]=rem\_bt[i]-q1;

s=s+1;

seq[i]=p1[i];

printf("%5d to %5d :\t%d\n",t1,t,seq[i]);

}

else

{

int t2=t;

t= t + rem\_bt[i];

wt[i]=t-bt[i];

rem\_bt[i]=0;

s=s+1;

seq[i]=p1[i];

printf("%5d to %5d :\t%d\n",t2,t,seq[i]);

}

}

}

if(d1==true)

break;

}

}

void turntime(int p1[],int n,int bt[],int wt[],int tat[])

{

int i;

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

{

tat[i]=bt[i]+wt[i];

}

}

void avgtime(int p1[],int n,int bt[],int q2,int p2[])

{

int wt[n],tat[n],total\_wt=0,total\_tat=0;

wtime(p1,n,bt,wt,q2);

turntime(p1,n,bt,wt,tat);

int i;

printf("\nProcesses BURST TIME WAITING TIME TURN AROUND TIME\n");

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

{

total\_wt=total\_wt+wt[i];

total\_tat=total\_tat+tat[i];

printf("%d \t %d\t %d\t %d\n",p1[i],bt[i],wt[i],tat[i]);

}

printf("\nAverage waiting time= %f",(float)total\_wt / (float)n);

printf("\nAverage TurnAround time= %f",(float)total\_tat / (float)n);

}

int main()

{

int i,j;

printf("How many Processes are entering the OS:\n");

int n1;

scanf("%d",&n1);

int p[n1];

int p2[n1];

int bt1[n1];

for(i=0;i<n1;i++)

{

p[i]=(i+1);

p2[i]=(i+1);

}

for(i=0;i<n1;i++)

{

printf("Enter The Burst Time for P%d :",i+1);

scanf("%d",&bt1[i]);

}

for(i=0;i<n1;i++)

{

int ps=i;

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

{

if(bt1[j]<bt1[ps])

{

ps=j;

}

}

int temp;

temp=bt1[i];

bt1[i]=bt1[ps];

bt1[ps]=temp;

temp=p[i];

p[i]=p[ps];

p[ps]=temp;

}

printf("\nENTER THE VALUE OF THE TIME QUANTUM:\n");

int q;

scanf("%d",&q);

fflush(stdout);

sleep(3);

avgtime(p,n1,bt1,q,p2);

return 0;

}