#include <iostream>

using namespace std;

int main(){

int i,j,k,p,s=0, got=0, idle=0, temp\_burst, temp\_row, pre\_process\_row, done=0;

float sum=0;

cout<<"Please enter the number of process : ";

cin>>p;

int x[p][5];

int y[p][5];

cout<<"\nProcess\tarrival\tburst\n-------\t-------\t-----\n";

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

for(j=0;j<3;j++){

cin>>x[i][j];

}

x[i][3]=x[i][2];

}

cout<<"\n\nTime-Line is as follows (Verticle View)....\n\n";

i=x[0][1];

while(done!=p){

got=0;

k=0;

while(k<p){

if(x[k][1]<=i){

if(x[k][2]!=0){

got=1;

temp\_burst=x[k][2];

temp\_row=k;

idle=0;

break;

}

else

k++;

}

else{

if(idle==0)

printf("%5d-----------\n |Idle |\n",i);

idle=1;

break;

}

}

if(got!=0){

k=0;

while(x[k][1]<=i && k<p){

if(x[k][2]!=0){

if(temp\_burst>x[k][2]){

temp\_burst=x[k][2];

temp\_row=k;

}

}

k++;

}

x[temp\_row][2]-=1;

if(i==x[0][1])

printf("%5d-----------\n |p-%-4d|\n",i,x[temp\_row][0]);

else{

if(pre\_process\_row!=temp\_row)

printf("%5d-----------\n |p-%-4d|\n",i,x[temp\_row][0]);

}

pre\_process\_row=temp\_row;

if(x[temp\_row][2]==0){

done++;

y[s][0]=x[temp\_row][0];

y[s][1]=x[temp\_row][1];

y[s][2]=i;

y[s][3]=x[temp\_row][3];

y[s][4]=((i-x[temp\_row][1])-x[temp\_row][3])+1;

sum+=((i-x[temp\_row][1])-x[temp\_row][3])+1;

s++;

}

}

i++;

}

printf("%5d-----------\n",i);

cout<<endl<<endl;

cout<<"Table of processes with completion record as they were completed\n\n";

cout<<"\n\nProcess\tarrival\tFin\tTotal\tWait\n-------\t-------\t---\t-----\t----\n";

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

cout<<y[i][0]<<"\t"<<y[i][1]<<"\t"<<y[i][2]+1<<"\t"<<y[i] [3]<<"\t"<<y[i][4]<<"\n";

cout<<"\navg. Wait time = "<<sum/p<<endl<<endl;

cout<<"Programmed by : Aditya Hada 11801403 K18KH \n\n";

return 0;

}