# Code :

# #include<bits/stdc++.h>

using namespace std;

double runs(double k,double b,int x, double j, double h,int y,int overs\_1){

int runs=x;

int opp\_runs=y;

double p=k;

double e=b;

double s=j;

double f=h;

int overs\_3=overs\_1;

double z=(p+runs)/(e+overs\_3);

double r=(s+opp\_runs)/(f+overs\_3);

double l=z-r;

return l;

}

double balls(double k,double b,double a1,int a2,double j,double h, int a3, int a4){

double b1=a1;

int b2=a2;

int b3=a3;

double b4=a4;

double b5=k;

double b6=b;

double b7=j;

double b8=h;

double c1=(b5+b2)/(b6+b1);

double c2=(b7+b4)/(b8+b3);

double c3=c1-c2;

return c3;

}

int main(){

int n;

cout<<"Enter the number of matches played by the team "<<endl;

cin>>n;

//for getting an idea is it t-10 m1tch,t-20 match or odi match

int overs;

cout<<"Enter the total no of overs in a match"<<endl;

cin>>overs;

vector<int>tot\_runs(n,0);

vector<double>no\_overs(n,0);

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

bool wickets;

cout<<"Enter 1 if team is allout in that or else enter 0 if the team have some wickets after the completion of innings in "<<i+1<<" match"<<endl;

cin>>wickets;

if(wickets==1){

cout<<"No of runs made by that team in that "<<i+1<<" match"<<endl;

cin>>tot\_runs[i];

no\_overs[i]=overs;

}

else{

cout<<"No of runs made by that team in that "<<i+1<<" match"<<endl;

cin>>tot\_runs[i];

cout<<"No of overs played by that team in"<<i+1<<" match "<<endl;

cin>>no\_overs[i];

}

}

double k=accumulate(tot\_runs.begin(),tot\_runs.end(),0.0);

double b=accumulate(no\_overs.begin(),no\_overs.end(),0.0);

double c=k/b;

vector<int>tot\_runs\_giv(n,0);

vector<double>tot\_no\_bow(n,0);

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

bool opp\_wickets;

cout<<"Enter 1 if the opponent team is bowled out or else enter 0 if not "<<i+1<<" match"<<endl;

cin>>opp\_wickets;

if(opp\_wickets==1){

cout<<"No of runs given by that team in "<<i+1<<" match"<<endl;

cin>>tot\_runs\_giv[i];

tot\_no\_bow[i]=overs;

}

else{

cout<<"No of runs given by that team in that "<<i+1<<" match"<<endl;

cin>>tot\_runs\_giv[i];

cout<<"No of overs bowled by that team "<<i+1<<" match "<<endl;

cin>>tot\_no\_bow[i];

}

}

double j=accumulate(tot\_runs\_giv.begin(),tot\_runs\_giv.end(),0.0);

double h=accumulate(tot\_no\_bow.begin(),tot\_no\_bow.end(),0.0);

double m=j/h;

double w=c-m;

cout<<"TOTAL NET RUNRATE OF THE TEAM AFTER PLAYING "<<n<<" MATCHES WILL BE IN THE RANGE OF "<<w-0.09<<" to "<<w+0.09<<endl;

//For predicting the resultant runrate of the future match enter the value of x1 as 1 if that team bats 1st or else o if it bowls

//Enter the runs predicted by the team to score in next match , also enter the runs expected to be given by the team

cout<<"If you want to predict the resultant net runrate after 1 match "<<endl;

cout<<"Enter the value as 1 if team bats 1st or 0 if it bats 2nd"<<endl;

bool x1;

cin>>x1;

if(x1==1){

cout<<"The team is batting 1st and team will only win by hitting more runs than opponent team"<<endl;

cout<<"Enter the no of runs that team will scored by the team"<<endl;

int v;

cin>>v;

cout<<"Enter the no of runs given by that team to opponent"<<endl;

int q;

cin>>q;

double i=runs(k,b,v,j,h,q,overs);

//Runrate after that match of that team is i

cout<<"Run rate after that match of that team is "<<i<<endl;

}

else if(x1==0){

//Enter the run difference and also balls that will remain after hitting that target

cout<<"The team is bowling so it will win by hitting target in the overs given"<<endl;

cout<<"Enter the no of runs that team will score in that match"<<endl;

int d1;

cin>>d1;

cout<<"Enter the no of overs that will remain after scoring that runs in the match"<<endl;

double d2;

cin>>d2;

cout<<"Enter the no of runs given by that team to the opponent in that match"<<endl;

int d3;

cin>>d3;

int d4;

d4=overs;

double m1=balls(k,b,d2,d1,j,h,d4,d3);

cout<<"Net runrate of the team after that match will be in range of "<<m1-0.09<<" to "<<m1+0.09<<endl;

cout<<"Thank you"<<endl; }