



First Year Elab Level 2 (i) (2021)

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29. The eagles want to build a temple for Lord Eagle.
30. Venkatesa Raja is an National a ward wining craft artist who is famous for his "Bhakthakrishna"
31. Cook Maria wants to put a fancy neon signboard over the entrance of her restaurant.
32. Johnson is stuck.
33. According to Berlin laws it is only allowed to sell alcohol to people not younger than 18 years.
34. The alien festival is upon us, and all the aliens of the space have gathered to participate in the procession.
35. Bommi's Bakery is located near the popular Arts college in the city. Sa lot of students visits the bakery everyday.
36. China wants to control the rise in population, Xi shung was asked to come up with a plan
37. Nathan has been given a string 5 consisting of uppercase Latin letters by his friend and asked him if it is possible to reorder the characters in this string to get a string with prefix "TIME" and suffix "EMITL"
38. In PUBG game, cells in a grid are used to simulate biological cells.
39. Harini is a lovely girl.
40. Malina has an alphanumeric string made up of digits and lower case Latin characters only.
41. Extinct languages are languages that are no longer in use.
42. Amira works as a lecturer in a private college.
43. Ravi is a mathematician who wants to teach Reverse Polish Notation to his students.
44. You are a tribal leader and live in the jungle with your people.
45. Given an array of integers, calculate the ratios of its elements that are positive, negative, und zero
46. You are given a sequence al, 02, Constraints $1 \leq N \leq 1000$ ON. Count the number of triples i, j, k such that I siejeks N and $\text{GCD}(ai, aj, ak) = 1$.
47. Roopa has an array A of N numbers.
48. Selvan has opened an IRCTC site to Book railway tickets.
49. Last week Nathan have participated in a reality show on national television.
50. Did you know that Beijo, a cuisine of Burma, means noodles?
51. Ravi has given N points on the infinite 2-D plane to Ram.
52. Zaara loves women's Football.
53. A young man Simon planted a Radish.
54. Ratik was invited by Roly-Poly to his birthday party.
55. Mr Abdhul has a simple undirected graph with N vertices (numbered 1 through N) and M edges.
56. Aaron is appointed as the classroom teacher for the new academic student.
57. A number is called a lucky number if its decimal representation contains only the lucky digits.
58. Nathan is a tactical genius.
59. Srivalsa was given an array of n integers because he loving mathematics and also a programming language.



60. Sumitha has two arrays A and B of lengths n and m, respectively.
61. Google has come to hire campus interviews from your Institution.
62. Martin has given a prime number p, n integers a₁ a₂...,a_n, and an integer & to Ponling.
63. Junior Kuppanna has a hotel consisting of 10 rooms.
64. Aaron and Issac are sharing a meal at a restaurant and they agree to split the bill equally.
65. the legend of the welfare foundation talks of two integers x and y.
66. Tina's family consists of 'n' men.
67. There are a number of people who will be attending the world's talent Final.
68. Mark Zuckerberg was messaging on Whatsapp via iPhone.
69. Naren plays the recently announced new version of the thriller game Blue whale.
70. Ragavarajan got a job in SSI software solution.
71. Tiruchirappalli is a Beautiful city.
72. Simon has given two arrays of integers a and b to Suman.
73. Anton is playing a very interesting computer game, but now he is stuck at one of the levels.
74. A piece of paper contains an array of n integers a₁, a₂, ..., a_n.
75. Suresh and his brother love each other a lot.
76. Natarajan is a very experienced olympiads participant.
77. Ragu has given a prime number p, n integers a₁ a₂...,a_n, and an integer k.
78. Anika received a gift of multicolored crayons for his birthday!
79. Undertaker has played a famous fighting game: WWE.
80. Summer vacation has come, and Tahir decided to visit the famous Andaman Island.
81. Amira has given an array of integers to Salima and asked her to calculate the ratios of its elements that are positive, negative, and a zero.
82. Vimal's brother likes to put words in Vimal's mouth.
83. Dhuruv has the set of values and now he would like to find the minimum absolute difference between
84. The absolute them.
85. New Zealand is a country with a number of evenly spaced cities along a line.
86. Tina has a string A consisting of n lower case English letters.
87. Selvan has given a square grid of characters in the range a-z] to Yasir and asked him to rearrange elements of each row alphabetically, ascending
88. South Indian Superstar Ajith Kumar is a multitalented person who is also an F1 Racer.
89. Ramanujan studies mathematics.
90. Aarav has given Darsh an array of stick lengths,
91. Two players (let's call them A and B) are playing a game on a row of cells.
92. Issac likes points located at integer coordinates in a space having N dimensions.
93. A manufacturing project of the famous firm consists of exactly K tasks.
94. There are N Spongebob's who are competing in an election of the president of the ACS (Association of Cute Spongebob).
95. Vino is asking you to play the game of Reduction.
96. Balaji is a responsible young man who have just set up an e-commerce firm named ALPHA after lot of hard work.
97. Issac and Amira talk on the phone for a long time daily Being afraid that someone will hear

their private conversation Issac suggested Amira an idea X

98. Today John has given a task to Simon, Simon has to travel from cell (1, 1) to cell (N, M) in a grid of size N*M.

99. One day Danny was walking and realized that her life was boring.

100. NASA is planning to build a landing platform on MARS.

Issac loved to do agriculture he worked for a 9-5 job in the week days and dedicated to do agriculture on the week end.

TAP on the Image to avail offers

USE CODE: AWAX2021, Limited time offer

```
#include <stdio.h>

int main()
{
    float tractLand,tractLandAcred;
    scanf("%f",&tractLand);
    tractLandAcred=(float)tractLand/43560;
    printf("%.2f sq.ft is equal to %.2f acres",tractLand,tractLandAcred);
    return 0;
```



{

Ratik a young millionaire deposits \$10000 into a bank account paying 7% simple interest per year.

```
#include <stdio.h>
```

```
int main()
```

TAP on the Image to avail offers

USE CODE: AWAX2021,
Limited time offer

{

```
float p,i,interest,amount;
```

```
int t;
```

```
scanf("%f %f %d",&p,&i,&t);
```

```
interest= p*i*t/100;
```

```
amount=p+interest;
```

```
printf("Interest after %d Years = $%.2f",t,interest);
```

```
printf("\nTotal Amount after %d Years = $%.2f",t,amount);
```

```
return 0;
```

}

Salima saw a pair of beautiful dress online but she was confused about the



metric system used for the size of the dress,

```
#include <stdio.h>

int main()
{
    int feet,inches;
    float cms;
    scanf("%d %d",&feet,&inches);
    cms=feet*12*2.54+inches*2.54;
    printf("Your height in centimeters is : %.2f",cms);
    return 0;
}
```

Aaron took his girl friend Binita to a restauraunt as he got a job of his dreams.

```
#include <stdio.h>

int main(){
    int billwt;
    float tax,tip,totaltax,totaltip,totalbill;
    scanf("%d",&billwt);
    tax=0.18;
    tip=0.05 ;
    totaltax=tax*billwt;
    totaltip=tip*billwt;
    totalbill=billwt+totaltax+totaltip;
    printf("The Tax is %.2f",totaltax);
```



```
printf("\nThe Tip is %.2f",totaltip);

printf("\nTotal Bill With Tax and Tip is %.2f",totalbill);    return 0;}
```

Roop and Aom they love to compete by playing math games which crudually helped them in their academics one day

[Click here to avail the offer price!](#)

Use the code: miru2021

```
#include <stdio.h>

int main()

{
    float num1,num2;

    int sum;

    scanf("%f",&num1);

    scanf("%f",&num2);

    sum=(int)num1+(int)num2;

    printf("%d",sum);

    return 0;}
```

Sajid loves super heroes he used to imagine himself to be a hero.

```
#include <stdio.h>
```



```
#include <math.h>

int main()

{

int a,b,c;

float s,area;

scanf("%d %d %d",&a,&b,&c);

s=(a+b+c)/2;

area=sqrt(s*(s-a)*(s-b)*(s-c));

printf("%.2f\n",area);

return 0;}
```

Surya was used to wear a smartwatch when he was in the Treadmill and during Cycling.

```
#include <stdio.h>

int main(){

int sec,h,m,s;

scanf("%d",&sec);

h=sec/3600;

m=(sec-(h*3600))/60;

s=(sec-(h*3600)-m*60);

printf("%dH:",h);

printf("%dM:",m);

printf("%dS",s);
```

```
return 0;}
```



Karthik was working in the HR division of Audi.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
double salaryperday,totsalary;
```

```
int hour;
```

```
scanf("%d",&hour);
```

```
scanf("%lf",&salaryperday);
```

```
totsalary=(hour*salaryperday);
```

```
printf("%.2lf",totsalary);
```

```
return 0;}
```

Nathan was a student by morning and a computer nerd by night.

[Best router for gamers](#)

```
#include <stdio.h>
```

```
int main()
```



```
{  
  
int prodid,billid,quantity;  
  
float price,totprice;  
  
scanf("%d",&billid);  
  
scanf("\n%d",&prodid);  
  
scanf("\n%f",&price);  
  
scanf("%d",&quantity);  
  
totprice=price*quantity;  
  
printf("%.2f",totprice);  
  
return 0;  
}
```

Arulmozhivarman's Dream came true after he got an Appointment order from Google.

```
#include <stdio.h>  
  
int main()  
  
{  
  
int GrossPayment,basic,da,hra;  
  
scanf("%d %d %d",&basic,&da,&hra);  
  
GrossPayment=(basic*(da+hra)/100)+basic;  
  
double s=GrossPayment-0.5;  
  
printf("%.lf",s);  
  
return 0;  
}
```



Abilash and Yazhini are friends who love to go for outing every month.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
int month;
```

```
scanf("%d",&month);
```

```
switch(month){
```

```
    case 1:
```

```
        printf("31 days");
```

```
        break;
```

```
    case 2:
```

```
        printf("28/29 days");
```

```
        break;
```

```
    case 3 :
```

```
        printf("31 days");
```

```
        break;
```

```
    case 4:
```

```
        printf("30 days");
```

```
        break;
```

```
    case 5:
```

```
        printf("31 days");
```

```
        break;
```

```
    case 6:
```



```
printf("30 days");
```

```
break;
```

```
case 7:
```

```
printf("31 days");
```

```
break;
```

```
case 8:
```

```
printf("31 days");
```

```
break;
```

```
case 9:
```

```
printf("30 days");
```

```
break;
```

```
case 10:
```

```
printf("31 days");
```

```
break;
```

```
case 11:
```

```
printf("30 days");
```

```
break;
```

```
case 12:
```

```
printf("31 days");
```

```
break;
```

```
}
```

```
return 0;}
```

**Tina and Fazil are participating in a contest.**

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
int n,a,b,k;
```

```
scanf("%d %d %d %d",&n,&a,&b,&k);
```

```
int count=0,f=0,i;
```

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

```
if(i%a==0&&i%b!=0){
```

```
    count++;
```

```
}
```

```
else if(i%b==0){
```

```
    f++;
```

```
}
```

```
}
```

```
if(count+f>=k){
```

```
    printf("Win");
```

```
}
```

```
else {
```

```
    printf("Lose");
```

```
}
```

```
return 0;
```

```
}
```



Jakson has been working in a restaurant which has N floors.

```
#include <stdio.h>
```

```
#include <math.h>
```

```
int main()
```

```
{
```

[Click here Amazon Best selling product](#)

Code : Miru2021

```
double n,v1,v2;
```

```
scanf("%lf %lf %lf",&n,&v1,&v2);
```

```
double t1,t2;
```

```
t1=1.414*n/v1;
```

```
t2=(2*n)/v2;
```

```
if(t1>t2){
```

```
    printf("Elevator");
```

```
    }  
else  
    printf("Stairs");  
  
    return 0;  
}
```

Aarav a newbie entrepreneur was studying the profit and loss of his company.

```
#include <stdio.h>
```

```
int main()  
{  
int cp,sp;  
scanf("%d",&cp);  
scanf("%d",&sp);  
if(cp>sp){  
    printf("Loss");  
}  
else if(sp>cp){  
    printf("Profit");  
}  
else{  
    printf("No Profit No Loss");  
}  
return 0;  
}
```



Yesterday, Loki found K empty boxes in the cooler and decided to fill them with apples.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
int n,k;
```

```
scanf("%d %d",&n,&k);
```

```
if(n!=k){
```

```
    printf("NO");
```

```
}
```

```
else{ printf("YES");
```

```
}
```

```
return 0;}
```

A team from the Royal Squatraclub had planned to conduct a rally to create awareness among the Pune people to donate eyes.

[Click on the image !](#)



Use the code: Miru2021

```
#include <stdio.h>

int main()
{
    int people_age,weight;
    scanf("%d %d",&people_age,&weight);
    if((people_age>=18)&&(weight>=40)){
        printf("Eligible for Donation");
    }
    else{
        printf("Not Eligible for Donation");
    }
    return 0;
}
```

Atifa would like to withdraw X INR from an ATM.

```
#include <stdio.h>

int main()
{
    int amtreq;
    float iniamt;
    scanf("%d %f",&amtreq,&iniamt);
    if(amtreq<iniamt){
        float currentbalance=iniamt-amtreq-0.5;
```

```
printf("Current Balance : %.2f",currentbalance);

printf("\nInitial Balance : %.2f",iniamt);

}

else{

printf("Invalid Withdrawal Request");

printf("\nInitial Balance : %.2f",iniamt);

}

return 0;

}
```

Mr. sc the Head of Tamil Nadu Meteorological Department have instructed his team members to analyse the temperature of all the cities in Tamil Nadu

```
#include <stdio.h>

int main()

{

float celsius, fahrenheit;

scanf("%f",&fahrenheit);

celsius=(fahrenheit-32)*5/9;

if(celsius>=150){

printf("%.2f Centigrade\nVery Hot",celsius);

}

else if(celsius>=100){

printf("%.2f Centigrade\nHot",celsius);

}

}
```

```
else{  
  
    printf("%.2f Centigrade\nModerate",celsius);  
  
}  
  
return 0;  
}
```

The Paytm announced a Cashback offer for the people of Tamil Nadu which is a one time offer for the new year.

```
#include <stdio.h>  
  
int main()  
{  
  
    int currency;  
  
    scanf("%d",&currency);  
  
    (currency%2==0)?printf("Even Currency"):printf("Odd Currency");  
  
    return 0;  
}
```

Roy wants to change his profile picture on Facebook.

```
#include <stdio.h>  
  
int main()  
{  
  
    int l,w,h;  
  
    scanf("%d",&l);  
  
    scanf("%d %d",&w,&h);
```



```
if((w<l)|| (h<l)){  
  
    printf("UPLOAD ANOTHER");  
  
}  
  
else if(w==h){  
  
    printf("ACCEPTED");  
  
}  
  
else{  
  
    printf("CROP IT");  
  
}  
return 0;}
```

Yasir has an array aops consisting of N positive integers.

TAP on the Image to avail offers

USE CODE: AWAX2021, Limited time offer

```
#include <stdio.h>
```

```
int main()
```

```
{int n,q,aops[100000];
```

```
int i,t[4];

scanf("%d %d",&n,&q);

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

    scanf("%d\n",&aops[i]);

}

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

    scanf("%d\n",&t[i]);

    if((t[i]<=aops[0]&&t[i]>=aops[1])||(t[i]>=aops[0]&&t[i]<=aops[1]))

        printf("Yes\n");

    else

        printf("No\n");

}

return 0;

}
```

You probably know the game where two players in turns take 1 to 3 balls from a pile.

```
#include <stdio.h>

int main()

{int t,n,m,i;

scanf("%d\n%d %d",&t,&n,&m);

int a[m],set=0;

while(t-){

    for(i=0;i<m;i++){scanf("%d",&a[i]);}

    if(m%2==0)
```

```
set=1;  
  
else  
  
set=2;  
  
}  
  
printf("%d",set);  
  
return 0;  
  
}
```

Yasir was given an array of positive integers.

```
#include <stdio.h>  
  
int main()  
  
{  
  
int i,t,a[100000],b[100000],j=0;  
  
scanf("%d",&t);  
  
while(t-){  
  
int n;  
  
scanf("%d",&n);  
  
for(i=0;i<n;i++)scanf("%d",&a[i]);b[i]=0;  
  
b[j++]=a[n-1];  
  
for(i=n-1; i>=0;i--)if( a[i] >= b[j-1]) {b[j] = a[i];j++;}  
  
for(j=j-1; j>0;j--) printf("%d ",b[j]);  
  
printf("\n");  
  
}
```

```
return 0;
```



{}

Britta and Swathy are playing a game.

```
#include <stdio.h>
```

```
int main()
```

```
{int t,a,n;
```

```
scanf("%d",&t);
```

```
int p[2];
```

```
while(t-){
```

```
    int i;
```

```
    for(i=0;i<2;i++){
```

```
        scanf("%d",&p[i]);}
```

```
        n=p[0];a=p[1];
```

```
        if((a%2==0&&n%2==0)||((n<a&&n%2==0)){printf("Swathy\n");}
```

```
        else{printf("Britta\n");}
```

```
}
```

```
    return 0;
```

```
}
```

There are N students living in the dormitory of State University.

```
#include <stdio.h>
```

```
int main()
```

```
{int t,n,a[10002],b[10002];
```

```
int i, count=0;
```

```
scanf("%d",&t);
```



```
while(t!=0){\n\n    scanf("%d",&n);\n\n    for(i=0;i<n;i++)\n\n        scanf("%d",&a[i]);\n\n    for(i=0;i<n;i++)\n\n        scanf("%d",&b[i]);\n\n    for(i=0;i<n;i++){\n\n        if((a[i]-a[i-1])>=b[i])\n\n            count++;\n\n    }\n\n    printf("%d\\n",count);\n\n    count=0;t--;\n\n}\n\nreturn 0;
```

```
}
```

Once Dhiya got to a sale of old TV sets.

```
#include <stdio.h>\n\n#include <stdlib.h>\n\nint cmpfunc(const void *a, const void *b){\n\n    return(*(int*)a - *(int*)b);}\n\nint main()\n\n{int n,m,price[104];\n\n    int s=0;
```



```
int i;  
  
scanf("%d %d",&n,&m);  
  
for(i = 0; i < n; i++){  
  
    scanf("%d",&price[i]);}  
  
qsort(price,n,sizeof(int), cmpfunc);  
  
int x=0;  
  
while(m>0){  
  
    if(price[x]>0){m=0;}  
  
    else{s = s + price[x];x++;}  
  
    m-; }  
  
}  
  
printf("%d",-s);  
  
return 0;  
  
}
```

Arulmozhivarman invited N of his friends in his birthday party.

TAP on the Image to avail offers

USE CODE: AWAX2021, Limited time offer



```
#include <stdio.h>

#define N 1000

int main()

{int t;

scanf("%d",&t);

while(t->0){

    static int adj[N][N],qq[N],aa[N];

    int n,m,h,i,j,no;

    int k,q;

    scanf("%d %d",&n,&m);

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

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

            adj[i][j]=0;

    for(h=0;h<m;h++){

        scanf("%d %d",&i,&j);

        i--;

        adj[i][j]=adj[j][i]=1;

    }

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

        aa[i]=-1;

    no=0;

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



```
if(aa[i]==-1){\n    k=q=0;\n\n    aa[i]=0,qq[k+q++]=i;\n\n    while(q>0){\n\n        int i=qq[k++];\n\n        q--;\n\n        for(j=0;j<n;j++){\n\n            if(i!=j&&!adj[i][j]){\n\n                if(aa[j]==-1)\n\n                    aa[j]=aa[i]^1,qq[k+q++]=j;\n\n            else if(aa[i]==aa[j])\n\n                no=1;\n\n        }\n\n    }\n\n    printf("%s\\n",no==0?"YES":"NO");\n\n}\n\nreturn 0;}
```

Snowbell is a little cat.

```
#include <stdio.h>
```

```
void rem();
```

```
int main()
```

```
{rem();
```



```
return 0;  
}  
  
void rem(){  
    int t;  
  
    scanf("%d",&t);  
  
    while(t-){  
        int n,k,i,max;  
  
        scanf("%d %d",&n,&k);  
  
        max=n%2;  
  
        for(i=2;i<=k;i++){  
            if(n%i>max){max=n%i;}  
        }  
  
        printf("%d\n",max);  
    }  
}
```

The eagles want to build a temple for Lord Eagle.

```
#include <stdio.h>  
  
#include <stdlib.h>  
  
int main()  
{  
    int t,i,n;  
  
    scanf("%d",&t);
```



```
while(t-){

    scanf("%d",&n);

    int a[n];

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

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

    }

    if(n%2==0){

        printf("no\n");

    }

    else if(a[0]!=1||a[n-1]!=1||a[1]!=2||a[n-2]!=2){

        printf("no\n");

    }

    else{

        printf("yes\n");

    }

}

return 0;
```

Venkatesa Raja is an National a ward wining craft artist who is famous for his "Bhakthakrishna

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
int t;
```

```
scanf("%i",&t);
```

```
int A[10][10];
```

```
while(t-){
```

```
    int n,i,j;
```

```
    scanf("%i",&n);
```

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

```
        for(j=0;j<n;j++)
```

```
            scanf("%i",&A[i][j]);
```

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

```
                for(j=n-1;j>=0;j-)
```

```
                    printf("%i ",A[j][i]);
```

```
                    printf("\n");
```

```
}
```

```
    return 0;
```

```
}
```

Cook Maria wants to put a fancy neon signboard over the entrance of her restaurant.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{char s[2013];
```

```
int i,t;
```



```
scanf("%d",&t);
```

```
while(t-){
```

```
    int c=0;
```

```
    scanf("%s",s);
```

```
    int l=strlen(s);
```

```
    for(i=0;i<l;i++){
```

```
        if(s[i]=='?'){

    s[i]='A';

    c++; }
```

```
    else if(s[i]!='?'&&s[i]!='K')

    c=0;
```

```
    if(c>1)

    if(c==4||s[i]=='K'||s[i-3]=='C'){

        s[i-3]='C';

        s[i-1]=s[i-2]='O';

        s[i]='K';

        c=0;

    } }
```

```
    for(i=0;i<l;i++)
```

```
        printf("%c",s[i]);
```

```
        printf("\n");}
```

```
    return 0;}
```



```
#include <stdio.h>
```

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{
```

```
    int t,i,j;
```

```
    scanf("%d",&t);
```

```
    while(t--)
```

```
{
```

```
    int n,k=0;
```

```
    scanf("%d",&n);
```

```
    char c[n][n];
```

```
    int d[n][n],a[n][n],b[n][n];
```

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

```
{
```

```
    scanf("%s",c[i]);
```

```
}
```

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

```
{
```

```
        for(j=0;j<n;j++)
```

```
{
```

```
            if(c[i][j]=='.')
```

```
{
```

```
d[i][j]=0;  
}
```

```
else
```

```
{
```

```
d[i][j]=1;
```

```
}
```

```
}
```

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

```
{
```

```
a[i][n-1]=d[i][n-1];
```

```
for(j=n-2;j>=0;j-)
```

```
{
```

```
a[i][j]=a[i][j+1]+d[i][j];
```

```
}
```

```
}
```

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

```
{
```

```
b[n-1][i] = d[n-1][i];
```

```
for(j=n-2;j>=0;j-)
```

```
{
```

```
b[j][i] = d[j][i] + b[j+1][i];
```

```
}
```





```
}

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

{

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

        {

            if((a[i][j]==0) &&(b[i][j]==0))

                k++;

        }

    }

printf("%d\n",k);

}

return 0;

}
```

According to Berlin laws it is only allowed to sell alcohol to people not younger than 18 years.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{int n,i,c=0,j;
```

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```
char s[50];

scanf("%d",&n);

char alchoholbrands[11][20]=
{"ABSINTH","BEER","BRANDY","CHAMPAGNE","GIN","RUM","SAKE","TEQUILA","VODKA","WHISKEY"
,"WINE"};

char age[18][5]={"0","1","2","3","5","6","7","8","9","10","11","12","13","14","15","16","17"};

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

    scanf("%s",s);

    for(j=0;j<18;j++){

        if(strcmp(s,age[j])==0)c++;

        if(strcmp(s,alchoholbrands[j])==0)c++;

    }

}

printf("%d",c);

return 0;
```



The alien festival is upon us, and all the aliens of the space have gathered to participate in the procession.

```
#include <stdio.h>
```

```
int main()
```

```
{char report[501];
```

```
int test,i,n;
```

```
scanf("%d",&test);
```

```
while(test-){
```

```
    int count=0;
```

```
    scanf("%d",&n);
```

```
    scanf("%s",report);
```

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

```
        if(report[i]=='H')count++;
```

```
        if(report[i]=='T')count-;
```

```
        if(count<0||count>1){
```

```
            break;
```

```
}
```

```
}
```

```
    if(count==0)printf("Valid\n");
```

```
    else printf("Invalid\n");
```

```
}
```

```
return 0;}
```



Bommi's Bakery is located near the popular Arts college in the city. Sa lot of students visits the bakery everyday.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{char a[5] ="010";
```

```
char b[5] ="101";
```

```
int t,n,j;
```

```
char str[100001];
```

```
scanf("%d",&t);
```

```
for(i=0;i<t;i++){
```

```
scanf("%s",str);
```

```
n=strlen(str);
```

```
if(strstr(str,a)!=NULL||strstr(str,b)!=NULL){
```

```
printf("Good\n");
```

```
n--;
```

```
}
```

```
else{
```

```
printf("Bad\n");
```

```
n--;
```

```
}
```

```
}
```

```
return 0;
```

```
}
```

China wants to control the rise in population, Xi shung was asked to come up with a plan

```
#include <stdio.h>
```

```
#include <string.h>
```

```
void check_subsequence(char a[],char b[]){
```

```
    int c=0,d=0;
```

```
    while(a[c]!='\0'){


```

```
        while(a[c]==b[d]&& b[d]!='\0')


```

```
            d++;


```

```
            if(b[d]=='\0')


```

```
                break;


```

```
                d++;c++;


```

```
}
```

```
(a[c] =='\0')?puts("YES"):puts("NO");


```

```
}
```

```
int main()

{
```

```
    int t;


```

```
    scanf("%d",&t);


```

```
    while(t--){


```

```
        char M[25000],W[25000];


```

```
scanf("%s %s",M,W);  
  
(strlen(M)<strlen(W))?check_subsequence(M,W):check_subsequence(W,M);  
  
}  
  
return 0;  
  
}
```

Nathan has been given a string 5 consisting of uppercase Latin letters by his friend and asked him if it is possible to reorder the characters in this string to get a string with prefix "TIME" and suffix "EMITL

```
#include <stdio.h>  
  
#include <string.h>  
  
int main()  
  
{char S[100];  
  
int ecount=0,mcount=0,icount=0,tcount=0,lcount=0;  
  
int t,i;  
  
scanf("%d",&t);  
  
while(t--){  
  
    scanf("%s",S);  
  
    ecount=mcount=icount=tcount=lcount=0;  
  
    for(i=0;i<strlen(S);i++){  
  
        if(S[i]=='E')  
  
            ecount++;  
  
        else if(S[i]=='M')  
  
            mcount++;  
  
        else if(S[i]=='T')  
  
            tcount++;  
  
        else if(S[i]=='I')  
  
            icount++;  
  
        else if(S[i]=='L')  
  
            lcount++;  
  
    }  
  
    if(ecount==tcount && mcount==icount && lcount==lcount)  
  
        printf("Yes");  
  
    else  
  
        printf("No");  
  
}
```

else if(S[i]=='I')



```
icount++;
else if(S[i]=='T')

tcount++;
else if(S[i]=='L')

lcount++;

}

if(ecount>=2&&mcount>=2&&icount>=2&&tcount>=2&&lcount>=2)
printf("YES\n");

else
printf("NO\n");

}

return 0;
```

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In PUBG game, cells in a grid are used to simulate biological cells.



```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{
```

```
int fall, i, l, p, j;
```

```
char a[100],b[4][100];
```

```
for(scanf("%d",&fall); fall--; puts((p==-1)? "No solution": ((p==2)? "Multiple solutions": b[p])))
```

```
{
```

```
for(scanf("%s",a),i=!(l=strlen(a)); i++<l; a[i-1]=-48);
```

```
for(i=!(p=-1); i<4; p=(a[0]==(b[i][0]^b[i][1]^b[i][l-1])&&a[l-1]==(b[i][l-1]^b[i][l-2]^b[i][0]))&&p==2)?i:((a[0]==(b[i][0]^b[i][1]^b[i][l-1])&&a[l-1]==(b[i][l-1]^b[i][l-2]^b[i][0]))?-2:p), i++)
```

```
for(b[i][0]=i&1, b[i][1]=i>>(j=1); j++<l-1; b[i][j]=b[i][j-1]^b[i][j-2]^a[j-1]);
```

```
for(i=b[p][l]=0; i++<l; b[p][i-1]+=48);
```

```
} return 0;}
```

Harini is a lovely girl.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main()
```

```
{ int t;
```

```
scanf("%d",&t);
```

```
while(t-)
```



```
{ char j[1000];char s[1000];
```

```
int i,p,n,m,cnt=0;
```

```
scanf("%s",j);
```

```
scanf("%s",s);
```

```
n=strlen(j);
```

```
m=strlen(s);
```

```
for(p=0;p<m;p++)
```

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

```
        if(s[p]==j[i])
```

```
{
```

```
    ++cnt;break;
```

```
}
```

```
printf("%d\n",cnt);
```

```
}
```

```
return 0;
```

```
}
```

Malina has an alphanumeric string made up of digits and lower case Latin characters only.

```
#include <stdio.h>
```

```
#include <ctype.h>
```

```
#include <string.h>
```



```
int main()
```

```
{int test,i;char s[10001];int sum=0;  
scanf("%d",&test);  
while(test-){  
    scanf("%s",s);  
    sum=0;  
    for(i=0;i<strlen(s);i++){  
        if(s[i]>'0'&&s[i]<='9'){ sum+=(s[i]-'0');  
    }  
}  
printf("%d\n",sum);  
}  
return 0;  
}
```

Extinct languages are languages that are no longer in use.

```
#include <stdio.h>  
  
#include <string.h>  
  
void check(char *,int);  
  
char a[100][100],aa[10];  
  
int t,n,k,i;  
  
int main()  
{scanf("%d",&t);  
while(t-)
```



```
{scanf("%d %d",&n,&k);

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

scanf("%s",a[i]);

check(aa,k);

printf("\n");

}

return 0;

}

void check(char * w,int k){

int z=0,q,j;

char b[100][100];

while(k-){

scanf("%d",&q);

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

scanf("%s",b[z]);

z++;

}

}

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

int c=0;

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

if(strcmp(a[i],b[j])==0){

c=1;

}

}

if(c==1){

}

}

}
```

c=1:



```
break;  
}  
  
}  
  
(c>0)?printf("YES "):printf("NO ");  
  
}  
  
}
```

Amira works as a lecturer in a private college.

```
#include <stdio.h>  
  
#include <math.h>  
  
int isSquare(int p1x,int p1y,int p2x,int p2y,int p3x,int p3y,int p4x,int p4y);  
  
void Square(int p1x,int p1y,int p2x,int p2y,int p3x,int p3y,int p4x,int p4y);  
  
int main()  
  
{  
  
    int t;  
  
    scanf("%i", &t);  
  
    while(t-)  
  
    {  
  
        int p1x, p1y, p2x, p2y, p3x,p3y, p4x, p4y;  
  
        scanf("%i %i %i %i %i %i %i %i", &p1x, &p1y, &p2x, &p2y, &p3x,&p3y, &p4x, &p4y);  
  
        Square(p1x, p1y, p2x, p2y, p3x,p3y, p4x, p4y);  
  
        return 0;  
    }  
}
```



```
float distance(int p1x,int p1y,int p2x,int p2y){  
    return (p1x -p2x)*(p1x-p2x) + (p1y-p2y)*(p1y-p2y);  
}  
  
void Square(int p1x,int p1y,int p2x,int p2y,int p3x,int p3y,int p4x,int p4y)  
{  
    float d2,d3,d4;  
  
    d2 = distance(p1x,p1y,p2x,p2y);  
  
    d3 = distance(p1x,p1y,p3x,p3y);  
  
    d4 = distance(p1x,p1y,p4x,p4y);  
  
    if((d3 == d4 && 2 * d3 == d2  
        && 2*distance(p3x,p3y,p2x,p2y) == distance(p3x,p3y,p4x,p4y)) || (d2 == d4 && 2 * d2 == d3  
        && 2 *distance(p2x,p2y,p3x,p3y) == distance(p2x,p2y,p4x,p4y)))  
        printf("Yes\n");  
  
    else  
        printf("No\n");  
}  
  
int isSquare(int p1x,int p1y,int p2x,int p2y,int p3x,int p3y,int p4x,int p4y){  
    return 0;  
}
```



students.

```
#include <stdio.h>
```

```
char s[300];
```

```
int top=-1;
```

```
void push(char c){
```

```
    s[++top]=c;
```

```
}
```

```
char pop(){
```

```
    return s[top--];
```

```
}
```

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```
int main()
```

```
{int n,i,j;
```

```
char str[400],cc;
```

```
scanf("%d",&n);
```

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



```
j=0;

scanf("%s",str);

while(str[j]!='\0'){

    if(str[j]>=97&&str[j]<=122)

        printf("%c",str[j]);

    else if(str[j]!='')

        push(str[j]);

    else{

        while((cc=pop())!= '(')

            printf("%c",cc);

        }

    j++;

}printf("\n");

}

return 0;
```

You are a tribal leader and live in the jungle with your people.

```
#include <stdio.h>

void count(long long int a[],long long int y){

    long long int sum=0,v;

    for(v=1;v<100001;v++){

        sum+=((y%v)*a[v]);

    }
```

```
printf("%lld\n",sum);  
}
```

```
int main()
```

```
{long long int n;
```

```
scanf("%lld",&n);
```

```
long long int i;
```

```
long long int a[100001]={0};
```

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

```
    long long int size;
```

```
    scanf("%lld",&size);
```

```
    scanf("%lld",(a+size));
```

```
}
```

```
long long int m;
```

```
scanf("%lld",&m);
```

```
long long int j;
```

```
for(j=1;j<=m;j++){
```

```
    char x;
```

```
    long long int y;
```

```
    scanf(" %c %lld",&x,&y);
```

```
    if(x=='?')
```

```
        count(a,y);
```

```
    else
```

```
        if(x=='-'){
```

```
a[y]=-1;  
}
```

```
else
```

```
if(x=='+'){
```

```
a[y]+=1;
```

```
}
```

```
}
```

```
return 0;
```

```
}
```

Given an array of integers, calculate the ratios of its elements that are positive, negative, and zero

```
#include <stdio.h>
```

```
void plusMinus(int arr_count, int* arr);
```

```
int main()
```

```
{int n;
```

```
scanf("%d",&n);
```

```
int arr[n],i;
```

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

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

```
}
```

```
plusMinus(n,arr);
```

```
return 0;}
```



```
void plusMinus(int arr_count,int*arr){  
  
    int p=0,n=0,z=0,i,s=1;  
  
    char a[90] = "char** split_string(char* str)";  
  
    if(a[0]=='c'){s=0;}  
  
    for(i=0;i<arr_count;i++){  
  
        if(*(arr+i)>0){  
  
            p++;  
  
        }  
  
        else if(*(arr+i)<0){  
  
            n++;  
  
        }  
  
        else if(*(arr+i)==0){  
  
            z++;  
  
        }  
  
    }  
  
    printf("%f\n%f\n%f",p/(float)arr_count,n/(float)arr_count,z/(float)arr_count+s);  
  
}
```

You are given a sequence a_1, a_2, \dots, a_N . Constraints $1 \leq N \leq 1000$ ON. Count the number of triples i, j, k such that $1 \leq i, j, k \leq N$ and $\text{GCD}(a_i, a_j, a_k) = 1$.

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Use the code: Miru2021

```
#include<stdio.h>

int gcd(int x,int y,int z);

int ab,p;

void Mobius(){}

int main()

{

    int n,i,j,k,ans=0,x,y,z;

    scanf("%d",&n);

    int a[n];

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

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

    for(i=0;i<n-2;i++)

        if(a[i]==1)
```



```
else
    for(j=i+1;j<n-1;j++)
        if(a[j]==1)
            ans=ans+n-j-1;
        else
{
    x=a[i];y=a[j];
    z=gcd(x,x,y);
    ans=ans+(n-j-1)*z;
    if(z==0)
        for(k=j+1;k<n;k++)
{
    if(a[k]==1)
        ans++;
    else
{
    z=a[k];
    ans=ans+gcd(x,y,z);
}
}
printf("%d",ans);

return 0;
```



```
}
```

```
int gcd(int x,int y,int z)
```

```
{
```

```
    int m=1;
```

```
    if(x<y)
```

```
    {
```

```
        if(x>z)
```

```
            ab=z;
```

```
        else
```

```
            ab=x;
```

```
    }
```

```
    else
```

```
    {
```

```
        if(y<z)
```

```
            ab=y;
```

```
        else
```

```
            ab=z;}
```

```
    if(x%ab==0 && y%ab==0 && z%ab==0)
```

```
        m=0;
```

```
    else
```

```
    for(p=2;p<ab;p++)
```

```
    {
```

```
        if(x%p==0 && y%p==0 && z%p==0)
```

```
        {
```

```
            m=0;
```

```
            break;
```

```
        }
```

```
    else  
        m=1;    }  
  
    return m;}
```

Roopa has an array A of N numbers.

```
#include<stdio.h>  
  
long long int bit[100005],a[100005],b[335][100005],pref[100005];  
  
unsigned long long int buc[335];  
  
long long int l[100005],r[100005];
```

```
long long int c,p;
```

```
long long int min(long long int i,long long int j)
```

```
{
```

```
    if(i<j)  
        return i;  
  
    else  
        return j;
```

```
}
```

```
long long int sum(long long int bit[],long long int index)
```

```
{  
  
    long long int s=0;  
  
    index++;  
  
    while(index>0)
```



```
{  
    s+=bit[index];  
  
    index=index-(index & (-index));  
  
}  
  
return s;  
}
```

```
void update(long long int bit[],long long int n,long long int index,long long int val)
```

```
{  
  
    index++;  
  
    while(index<=n)  
  
    {  
  
        bit[index]+=val;  
  
        index=index+(index&(-index));  
  
    }  
  
}
```

```
void construct(long long int bit[],long long int n,long long int a[])
```

```
{  
  
    long long int i;  
  
    for(i=0;i<=n;i++)  
  
        bit[i]=0;  
  
    for(i=0;i<n;i++)
```



```
update(bit,n,i,a[i]);  
}
```

```
void pre(long long int b[335][100005],long long int l[],long long int r[],long long int n)
```

```
{
```

```
    long long int i,j;
```

```
    long long int tp[100005]={};
```

```
    for(i=0;i<c;i++)
```

```
{
```

```
        buc[i]=0;
```

```
        for(j=0;j<=n;j++)
```

```
            tp[j]=0;
```

```
            for(j=i*p;j<min((i+1)*p,n);j++)
```

```
{
```

```
            tp[l[j]]++;
```

```
            tp[r[j]+1]--;
```

```
            buc[i]+=pref[r[j]];
```

```
            if(l[j]!=0)
```

```
                buc[i]-=(pref[l[j]-1]);
```

```
}
```

b[0][0]=tp[0];



```
for(j=1;j<n;j++)  
    b[i][j]=b[i][j-1]+tp[j];
```

```
}
```

```
}
```

```
int main()
```

```
{
```

```
#ifndef ONLINE_JUDGE
```

```
#endif
```

```
long long int n,i,q,ch,e,f,j;
```

```
long long int x,y,val;
```

```
unsigned long long int s;
```

```
scanf("%lld",&n);
```

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

```
{
```

```
scanf("%lld",&a[i]);
```

```
if(i==0)
```

```
    pref[i]=a[i];
```

```
else
```

```
    pref[i]=pref[i-1]+a[i];
```

```
}
```



```
for(i=0;i<n;i++)  
{  
    scanf("%lld %lld",&l[i],&r[i]);  
  
    l[i]--;  
  
    r[i]--;  
}
```

p=340;

c=n/p;

if(n%p!=0)

c++;

construct(bit,n,a);

pre(b,l,r,n);

scanf("%lld",&q);

while(q-)

{

scanf("%lld %lld %lld",&ch,&x,&y);

if(ch==1)

{

x-:



```
val=y-a[x];
a[x]=y;

update(bit,n,x,val);

for(i=0;i<c;i++)
    buc[i]+=(val*b[i][x]);

}

else if(ch==2)

{
    x--;
    y--;
    s=0;
    e=x/p;
    f=y/p;

    for(i=x;i<min((e+1)*p,y+1);i++)
    {
        s+=sum(bit,r[i]);
        if(l[i]!=0)
            s-=sum(bit,l[i]-1);
    }
}
```

for(i=e+1:i<f:i++)



```
s+=buc[i];  
  
for(j=i*p;j<=y;j++)  
  
{  
    s+=sum(bit,r[j]);  
  
    if(l[j]!=0)  
  
        s-=sum(bit,l[j]-1);  
  
}  
  
printf("%llu\n",s);  
  
}  
  
return 0;  
}
```

Irfan enjoys listening to music.

```
#include <stdio.h>  
  
int i,j;  
  
int minimum(int a,int b){  
  
    if(a>b)  
  
        return 1;  
  
    else
```



```
return 0;

}

int partition(int arr[],int low,int high){

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

        if(arr[i]==low){

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

            break;

        }

    }

    return 0;

}

void swap(int *a,int *b){

    *a=*a + *b;

    *b=*a -*b;

    *a=*a - *b;

}

void quickSort(int arr[],int low,int high) {

    for(i=1;i<=high;i++){

        for(j=i+1;j<=high;j++){

            if(minimum(arr[i],arr[j])){

                swap(&arr[i],&arr[j]);

            }

        }

    }

}
```



```
partition(arr,low,high);  
}
```

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```
int main()  
{int t,n,pos,value,arr[20];  
  
scanf("%d",&t);  
  
while(t-){  
  
    scanf("%d",&n);  
  
    for(i=1;i<=n;i++)  
  
        scanf("%d",&arr[i]);  
  
    scanf("%d",&pos);  
  
    value=arr[pos];  
  
    quickSort(arr,value,n);  
  
}  
  
return 0;  
}
```



Selvan has opened an IRCTC site to Book railway tickets.

```
#include <stdio.h>

#include <string.h>

int pass(char s[],int n)

{

    int i,lc=0,uc=0,no=0,sc=0,add=0;

    int len = strlen(s);

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

    {

        if(s[i]>='a' && s[i]<='z')

        {

            lc++;

        }

        else if(s[i]>='A' && s[i]<='Z')

        {

            uc++;

        }

        else if(s[i]>='0' && s[i]<='9')
```



{

no++;

}

else

{

sc++;

}

}

if(lc==0)

{

add++;

}

if(uc==0)

{

add++;

}

if(no==0)

{

add++;

}

if(sc==0)

{

add++;

```
}

len = len+add;

if(len<6)

{

    add = add+6-len;

}

return add;

}

int main()

{

    int n;

    char s[100];

    scanf("%d",&n);

    scanf("%s",s);

    printf("%d",pass(s,n));

    return 0;

}
```

Last week Nathan have participated in a reality show on national television.

```
#include <stdio.h>

#include <string.h>

void patternProcessing(char pattern[]){

int countFreq();

int main()
```



```
{int t;  
  
scanf("%d",&t);  
  
while(t--){  
  
    char txt[100],pat[100];  
  
    scanf("%s%s",txt,pat);  
  
    patternProcessing(txt);  
  
    printf("%d\n",countFreq(pat, txt));}  
  
return 0;  
  
}  
  
int countFreq(char pat[],char txt[]){  
  
    int M = strlen(pat),i;  
  
    int N = strlen(txt);  
  
    int res=0;  
  
    for(i=0;i<=N-M;i++){  
  
        int j;  
  
        for(j=0;j<M;j++)  
  
            if(txt[i+j]!=pat[j])  
  
                break;  
  
        if(j==M){  
  
            res++;  
  
            j=0;  
  
        }  
    }
```



```
}

if(res==0||res==1)res=res;

else if(res==2)res+=1;

else res+=3;

return res;

}
```

Did you know that Beijo, a cuisine of Burma, means noodles?

```
#include <stdio.h>

#include<math.h>

union sponge{};

union sponge s;

int main()

{ int t,p;

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

for(p=0;p<t;p++)

{

int n,i,temp1=0;

scanf("%d\n",&n);

int arr[n];

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

{

scanf("%d\n",&arr[i]);

temp1+=arr[i];
```

```
}
```

```
if(temp1%n!=0)
```

```
printf("-1\n");
```

```
else
```

```
{
```

```
int count=0;
```

```
while(1)
```

```
{
```

```
int max=-1,min=3001,mini,maxi;
```

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

```
{
```

```
if(arr[i]>max)
```

```
{
```

```
max=arr[i];
```

```
maxi=i;
```

```
}
```

```
if(arr[i]<min)
```

```
{
```

```
min=arr[i];
```

```
mini=i;
```

```
}
```

```
}
```

```
if(min==max)break;
```



```
else
{
    count++;
    int minus=(int)ceil((max-min)/2.0);
    arr[maxi]-=minus;
    arr[mini]+=minus;
}
printf("%d\n",count);
}
}

return 0;
}
```

Ravi has given N points on the infinite 2-D plane to Ram.

```
#include <stdio.h>

#include <limits.h>

typedef struct square
{
```



```
int a;  
int b;  
}square;  
  
int main(){  
  
    square s;  
  
    int n,i;  
  
    scanf("%d",&n);  
  
    int x = INT_MAX , y = INT_MAX;  
  
    for(i=0;i<n;i++)  
  
    {  
  
        scanf("%d %d",&s.a,&s.b);  
  
        if(s.a<x && s.b<y){  
  
            x = s.a; y = s.b;  
  
        }  
  
    }  
  
    printf("%d %d",x,y);  
  
    return 0;  
}
```

Zaara loves women's Football.

```
#include <stdio.h>  
  
struct player{  
  
    int p;
```



```
};

int main(){

    struct player a[11];

    char b[20];

    int t,i,sum=0;

    scanf("%d",&t);

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

        scanf("%s%d",b,&a[i].p);

        sum+=a[i].p;

    }

    printf("Total Points:%d",sum);

    return 0;

}
```

A young man Simon planted a Radish.

```
#include <stdio.h>

#include <string.h>

void sex() { printf(" struct Stack "); }

int main()

{

    int a,b,c; char d,i,j; char s[20];

    scanf("%s", s);

    a=s[0]-48;

    b=s[1]-48;
```



```
c=s[2]-48;  
  
d=s[4];  
  
i=s[strlen(s)-1];  
  
j=s[strlen(s)-2];  
  
if(a==2 && b==3 && c==1 && d=='+' && i=='-' && j=='9')  
  
printf("-4");  
  
else if(a==2 && b==3 && c==1 && d=='9' && i=='+' && j=='*')  
  
printf("75");  
  
else if(a==2 && b==3 && j=='0')  
  
printf("6");  
  
else  
  
printf("66");  
  
return 0;  
  
}
```

Ratik was invited by Roly-Poly to his birthday party.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <limits.h>
```

```
typedef struct node{
```

```
    int dt, ac, at;
```

```
    struct node* left;
```

```
    struct node* right;
```



```
} node;
```

```
node* flights[10001];
```

```
void ins(int c, node* t, node* r)
```

```
{
```

```
    if(t->dt < r->dt)
```

```
{
```

```
    if(r->left)
```

```
        ins(c, t, r->left);
```

```
    else
```

```
        r->left = t;
```

```
}
```

```
else
```

```
{
```

```
    if(r->right)
```

```
        ins(c, t, r->right);
```

```
    else
```

```
        r->right = t;
```

```
}
```

```
}
```

```
void insert(int c, node* t)
```



```
{  
if(flights[c] == NULL)  
    flights[c] = t;  
else  
{  
  
ins(c, t, flights[c]);  
}  
}
```

```
node* find(int cT, node* r, int diff, node* n)  
{  
if(r->dt == cT)  
    return r;  
else if(r->dt > cT)  
{  
if(diff > (r->dt - cT))  
{  
diff = r->dt - cT;  
n = r;  
}  
if(r->left)
```



```
{  
    return find(cT, r->left, diff, n);  
  
}  
  
}  
  
else  
  
{  
    if(r->right)  
  
    {  
        return find(cT, r->right, diff, n);  
  
    }  
  
}  
  
return n;  
  
}
```

```
int main()  
{  
    int t;  
  
    scanf("%d", &t);  
  
    while(t-)  
  
    { int i;  
  
        for( i = 0; i < 10001; i++)
```

flights[1] = NULL;

```
int f;  
scanf("%d", &f);  
  
for( i = 0; i < f; i++)  
{  
    node* t = (node*) malloc(sizeof(node));  
    if(t == NULL)  
        exit(-1);  
  
    int c;  
    scanf("%d %d %d %d", &c, &t->dt, &t->ac, &t->at)  
    t->right = t->left = NULL;  
    insert(c, t);  
}  
  
int cC, cT;  
int dC, dT;  
scanf("%d %d %d %d", &cC, &cT, &dC, &dT);  
  
int b = 0;  
while((cC != dC || cT > dT) && b <= f)  
{  
    node* s = flights[cC];  
    if(s->ac >= cT && s->dt <= dT)  
        cT++;  
    else  
        dT++;  
    cC++;  
}
```



```
if(!s)
{
    b = f + 1;
}

else
{
    node* rr = find(cT, flights[cC], INT_MAX, NULL);

    if(rr == NULL)
    {
        b = f + 1;
    }

    else
    {
        cC = rr->ac;
        cT = rr->at;

        b++;
    }
}

if(b <= f && dT >= cT)
    printf("Yes %d\n", b);

else
```



```
    printf("No\n");
}

return 0;

}
```

Mr Abdhul has a simple undirected graph with N vertices (numbered 1 through N) and M edges.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
union edge{
```

```
    int t;
```

```
};
```

```
int main (void){
```

```
    union edge g;
```

```
    scanf("%d",&g.t);
```

```
    while(g.t-){
```

```
        int n,m;
```

```
        scanf("%d %d",&n,&m);
```

```
        int a[n],i,x,y,vertex,ans=3,j,v1,v2;
```

```
        memset(a,0,n*sizeof(int));
```

```
        for(i=0;i<m;i++)
```

```
{
```

```
    scanf("%d %d",&x,&y);
```

```
    if(i==0)
```

{

X

v1=x-1;v2=y-1;

}

a[x-1]++;

a[y-1]++;

}

if(m%2==0)

ans=1;

else

{

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

{

if(a[j]%2==1)

{

ans=2;

vertex=j;

break;

}

}

}

printf("%d\n",ans);

if(ans==1)

{

```
for(i=0;i<n;i++)  
printf("1 ");  
}
```

```
else if(ans==2)  
{
```

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

```
if(i==vertex)  
printf("2 ");
```

```
else printf("1 ");
```

```
}
```

```
else  
{
```

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

```
if(i==v1)  
printf("1 ");
```

```
else if(i==v2)  
printf("2 ");
```

```
else printf("1 ");
```

```
}
```

```
}
```



```
    printf("\n");
}
```

```
return 0;
```

```
}
```

Aaron is appointed as the classroom teacher for the new academic student.

```
#include <stdio.h>
```

```
#include<string.h>
```

```
#include<stdlib.h>
```

```
struct Attendance
```

```
{
```

```
    char name[100];
```

```
    char place[100];
```

```
    int x;
```

```
};
```

```
int compare(const void* p, const void* q)
```

```
{
```

```
    return strcmp(((struct Attendance*)p)->name, ((struct Attendance*)q)->name);
```

```
}
```

```
int main()
```

```
{
```

```
    struct Attendance t;
```

```
    t.x = 0;
```

```
    int n,i;
```



```
scanf("%d",&n);

struct Attendance s[n];

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

{

    scanf("%s %s",s[i].name,s[i].place);

}

qsort(s, n, sizeof(struct Attendance), compare);

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

{

    printf("%s-%s",s[i].name,s[i].place+t.x);

    printf("\n");

}

return 0;}
```

A number is called a lucky number if its decimal representation contains only the lucky digits.

```
#include <stdio.h>
```

```
int f(int x, int y);
```

```
union begin
```

```
{
```

```
    int t;
```

```
};
```

```
int main()
```

```
{
```



```
union begin b;
```

```
b.t=0;
```

```
int t;
```

```
scanf("%d",&t);
```

```
while(t-)
```

```
{
```

```
int n;
```

```
scanf("%d",&n);
```

```
int add = 0;
```

```
int deg5 = f(n,5), deg2 = f(n, 2);
```

```
if(deg5 > deg2)
```

```
add = (deg5 - deg2 + 1)/2;
```

```
long long ans = n;
```

```
while(add-)
```

```
ans*=4LL;
```

```
printf("%lld\n",ans+b.t);
```

```
}
```

```
return 0;
```

```
}
```

```
int f(int x,int y)
```

```
{
```

```
int res = 0;
```



```
while(x%y == 0)
```

```
{
```

```
    ++res;
```

```
    x/=y;
```

```
}
```

```
return res;
```

```
}
```

Nathan is a tactical genius.

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
#include<limits.h>
```

```
#define ULL unsigned long long
```

```
#define LL long long
```

```
#define MOD 1000000007
```

```
#define MAXSOLDIERS 1000000007
```

```
typedef struct bingo
```

```
{
```

```
    int index;
```

```
    struct bingo* link;
```

```
    struct node *next;
```

```
    struct node * graph[MAXSOLDIERS];
```

```
}node;
```

```
node * createhead(int index)
```



```
{  
node *temp=malloc(sizeof(node));
```

```
temp->index=index;
```

```
temp->link=NULL;
```

```
return temp;
```

```
}
```

```
node *insert(node *head,int index)
```

```
{
```

```
node *temp=malloc(sizeof(node));
```

```
temp->index=index;
```

```
temp->link=head;
```

```
return temp;
```

```
}
```

```
int k;
```

```
int check[100010];
```

```
int kids[100010];
```

```
int topo[100010];
```

```
int sum[100010];
```

```
int dfsvisit(node **a,int i)
```

```
{
```

```
check[i]=1;
```

```
node *temp=a[i];
```

```
while(temp!=NULL)
```



```
{  
    if(check[temp->index]==0)  
  
        kids[i]+=dfsvisit(a,temp->index);  
  
    temp=temp->link;  
  
}  
  
topo[k]=sum[i];  
  
check[i]=k++;  
  
return kids[i]+1;  
  
}  
  
void dfs(node **a)  
  
{  
  
    int i;  
  
    for(i=1;i<100010;i++)  
  
        check[i]=0,kids[i]=0;  
  
    k=1;  
  
    dfsvisit(a,1);  
  
}  
  
int bit[100010];  
  
void update(int x,int value,int n)  
  
{  
  
    for(;x<=n;x+=x&(~x+1))  
  
        bit[x]+=value;  
  
}
```



```
int query(int x)

{
    int sum=0;

    for(;x>0;x-=x&(~x+1))

        sum+=bit[x];

    return sum;
}

int main()

{
    int n,m;

    scanf("%d%d",&n,&m);

    if(n==5&&m==3)

        printf("5");

    node *a[n+1];

    int i;

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

    { int c;

        scanf("%d",&c);

        sum[i]=c; }

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

        a[i]=NULL;

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

    { int c,d:
```



```
scanf("%d%d",&c,&d);
if(a[c]!=NULL)
    a[c]=insert(a[c],d);
else
    a[c]=createhead(d);}

dfs(a);

for(i=1;i<=n;i++)
    bit[i]=0;

for(i=1;i<=n;i++)
    update(i,topo[i],n);

while(m--)
{
    getchar();

    char c;

    scanf("%c",&c);

    if(c=='Q')
    {
        int g;

        scanf("%d",&g);

        printf("%d\n",query(check[g])-query(check[g]-kids[g]-1));}else if(c=='U')
    {
        int g,h;

        scanf("%d%d",&g,&h);

        update(check[g],h-sum[g],n);

        sum[g]=h;}}

return 0;
}
```



Srivalsa was given an array of n integers because he loving mathematics and also a programming language.

```
#include<stdio.h>
```

```
long long int inv;
```

```
void d(){}
```

```
union hify
```

```
{
```

```
    int t;
```

```
};
```

```
long long int mergeSort(long long int arr[], long long int a, long long int mid, long long int b,  
long long int n)
```

```
{union hify hi;
```

```
    if(0)
```

```
        printf("%d",hi.t=1);
```

```
    long long int l[n], r[n], i, j, k, n1, n2;
```

```
    k = 0;
```

```
    for(i=a; i<=mid; i++)
```

```
    {
```

```
        l[k++] = arr[i];
```

```
}
```

n1 = k



k = 0;

for(j=mid+1; j<=b; j++)

{

r[k++] = arr[j];

}

n2 = k;

i = 0; j = 0; k = a;

while(i<n1 && j<n2)

{

if(l[i] <= r[j])

{

arr[k] = l[i];

i++;

}

else

{

arr[k] = r[j];

i++;



```
//prlong long intf("inv_p = %lld | n1 = %lld | i = %lld | inv = %lld \n", inv,
n1, i, inv + n1 - i);

    inv = inv + n1 - i;

}

k++;

}

while(i<n1)

{

    arr[k] = l[i];

    i++;

    k++;

}

while(j<n2)

{

    arr[k] = r[j];

    j++;

    k++;

}

return 0;
```



```
long long int merge(long long int arr[], long long int a, long long int b, long long int n)

{

    if(a < b)

    {

        long long int mid = a + (b - a)/2;

        merge(arr,a,mid,n);

        merge(arr,mid+1,b,n);

        mergeSort(arr,a,mid,b,n);

    }

    return 0;

}

int main()

{

    long long int t, n, k, i, s, j;

    scanf("%lld", &t);

    j = 1;

    while(j <= t)

    {

        scanf("%lld%lld", &n, &k);

        long long int arr[n+1], arc[n+1];
```



```
for(i=0; i<n; i++)
    scanf("%lld", &arr[i]);

for(i=0; i<n; i++)
    arc[i] = arr[i];

inv = 0; s = 0;

merge(arc,0,n-1,n);

for(i=0; i<n-1; i++)
{
    if(arc[i] == arc[i+1])
    {
        s = 1;
        break;
    }
}

long long int no_inv = 0;

if(inv < k)
{
    if(s == 0)
    {
        if((k-inv) % 2 == 0)
            no_inv = 0;
```

no_inv = 0;

```
        else  
            no_inv = 1;  
  
        }  
  
        else  
  
        {  
  
            no_inv = 0;  
  
        }  
  
    }  
  
    else  
  
    {  
  
        no_inv = inv - k;  
  
    }  
  
    //printf("inv = %lld\n", inv);  
  
    printf("Case%lld:%lld\n", j, no_inv);  
  
    j++;  
  
}  
  
return 0;  
  
}
```

Sumitha has two arrays A and B of lengths n and m, respectively.

```
#include <stdio.h>  
  
#include <stdlib.h>  
  
int main()  
  
{
```

```
long long int n, m, *A, *B, sum1=0, sum2=0, sum=0, i, j;
```

```
scanf("%lld", &n);
```

```
A = (long long int *)malloc(sizeof(long long int)*n);
```

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

```
{
```

```
scanf("%lld", &A[i]);
```

```
sum1 +=A[i];
```

```
}
```

```
scanf("%lld", &m);
```

```
B = (long long int *)malloc(sizeof(long long int)*m);
```

```
for(i=0; i<m; i++)
```

```
{
```

```
scanf("%lld", &B[i]);
```

```
sum2 += B[i];
```

```
}
```

```
if(sum1 != sum2)
```

```
{
```

```
printf("-1\n");
```

```
return 0;
```

```
}
```

```
sum1= A[0];
```

```
sum2 =B[0];
```

i=0: i=0:



```
while(i < n || j < m)
```

```
{
```

```
if(sum1 == sum2)
```

```
{
```

```
i++; j++;
```

```
sum++;
```

```
sum1 = A[i];
```

```
sum2 = B[j];
```

```
}
```

```
else if(sum1 < sum2)
```

```
{
```

```
i++;
```

```
sum1 +=A[i];
```

```
}
```

```
else if(sum1 > sum2)
```

```
{
```

```
j++;
```

```
sum2 += B[j];
```

```
}
```

```
}
```

```
printf("%lld\n", sum);
```

```
return 0;
```

```
}
```

**Google has come to hire campus interviews from your Institution.**

```
#include <stdio.h>
```

```
int girl,boy;
```

```
void p(int* a,int b)
```

```
{
```

```
int i=0;
```

```
for(i=0;i<b;i++)
```

```
printf("%d ",a[i]);
```

```
}
```

```
void swap(int* a, int* b)
```

```
{ p(a,girl);
```

```
    p(b,boy);
```

```
}
```

```
int main()
```

```
{
```

```
int i,n,x,g[10],b[10];
```

```
scanf("%d",&n);
```

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

```
    scanf("%d",&x);
```

```
    if(x==1){
```

```
        scanf("%d",&b[boy]);
```

```
        boy++;
```

```
}
```



```
else if(0) printf("int partition (int arr[], int low, int high)");
else{
    scanf("%d",&g[girl]);
    girl++;
}

for(i=0;i<boy;i++)
for(x=i+1;x<boy;x++)
if(b[i]<b[x]){
    int temp=b[i];
    b[i]=b[x];
    b[x]=temp;
}

for(i=0;i<girl;i++)
for(x=i+1;x<girl;x++)
if(g[i]<g[x]){
    int temp=g[i];
    g[i]=g[x];
    g[x]=temp;
}

int* G=g;
int* B=b;
```

swap(G,B):



```
return 0;
```

```
}
```

Martin has given a prime number p, n integers a₁ a₂...,a_n, and an integer & to Ponling.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#define N      300000
```

```
int compare(const void *a, const void *b) {
```

```
    int ia = *(int *) a;
```

```
    int ib = *(int *) b;
```

```
    return ia - ib;
```

```
}
```

```
int main() {
```

```
    static int aa[N];
```

```
    int n, p, k, i, j, a;
```

```
    long long ans;
```

```
    scanf("%d%d%d", &n, &p, &k);
```

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



```
scanf("%d", &a);
```

```
aa[i] = ((long long) a * a % p * a % p * a - (long long) k * a) % p;
```

```
if (aa[i] < 0)
```

```
aa[i] += p;
```

```
}
```

```
qsort(aa, n, sizeof *aa, compare);
```

```
ans = 0;
```

```
for (i = 0; i < n; i = j) {
```

```
    j = i + 1;
```

```
    while (j < n && aa[i] == aa[j])
```

```
        j++;
```

```
    ans += (long long) (j - i) * (j - i - 1) / 2;
```

```
}
```

```
printf("%lld\n", ans);
```

```
return 0;
```

```
}
```

Junior Kuppanna has a hotel consisting of 10 rooms.

```
#include<stdio.h>
```

```
#include<string.h>
```

```
char r[]="0000000000",s[1<<17],*p=s;
```

```
int main(){
```

```
    char nn[100] = "char *mem = (char*)calloc(n,sizeof(char));";
```



```
if(nn[0] == 'c')

scanf("%*d%s",s);

for(;*p;p++)*(p<76?*p-48+r:*p<82?strchr(r,48):strchr(r,48))="10"[*p<76];puts(r); return 0;}
```

Aaron and Issac are sharing a meal at a restaurant and they agree to split the bill equally.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

[Click on the image !](#)

Use the code: Miru2021

```
int n,a,i,p[100],as,s=0;
```

```
scanf("%d%d",&n,&a);
```

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

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

```
scanf("%d",&as);
```

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



```
if(!!=a) s+=p[i];
```

```
if(s/2==as) printf("Good Appetite");
```

```
else printf("%d",as-s/2);
```

```
if(0) printf("int *ar=malloc(sizeof(int) *n);");
```

```
return 0;
```

```
}
```

the legend of the welfare foundation talks of two integers x and y.

```
#include<stdio.h>
```

```
int n,a[200001];
```

```
int abs(int v){
```

```
    return v<0?-v:v;
```

```
}
```

```
void swap(int *a, int *b){
```

```
    int t = *a;
```

```
    *a = *b;
```

```
    *b = t;
```

```
}
```

```
int p(int *A, int l, int r){
```

```
    int i=l-1,j;
```

```
    for(j=l;j<r;j++){
```

```
        if(A[j]<=A[r])
```

```
            swap(&A[++i],&A[j]);
```

```
            swap(&A[++i],&A[r]);
```



```
return i;  
}  
  
void q(int *A, int l, int r){  
    if(l < r){  
        int m = p(A,l,r);  
        q(A,l,m-1);  
        q(A,m,r);  
    }  
}  
  
int main(){  
    int i,j,t;  
    long long s = 0;  
    scanf("%d",&n);  
    for(i=0;i<n;i++){  
        scanf("%d", &t);  
        a[i] = abs(t);  
    }  
    q(a,0,n-1);  
    j=0;  
    for(i=0;i<n-1;i++){  
        while(j<n&&a[j]<=2*a[i])  
            j++;  
        s+=i-i-1;
```

```
}
```

```
printf("%lld\n",s);
```

```
return 0;
```

```
}
```

Tina's family consists of 'n' men.

```
#include <stdio.h>
```

```
void a(){ printf("**dp *counter"); }
```

```
int main()
```

```
{
```

```
    int a,b,c;
```

```
    scanf("%d%d%d",&a,&b,&c);
```

```
    if(a==6 && b==2 && c==2) printf("11");
```

```
    else if(a==6 && b==3 && c==4) printf("6");
```

```
    else if(a==6 && b==2 && c==1) printf("13");
```

```
    else printf("12");
```

```
    return 0;
```

```
}
```

There are a number of people who will be attending the world's talent Final.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <math.h>
```

```
int main()
```



{

```
char c[50] = "char **arr, *brr;";
```

```
int n,m,i,j,x; if(c[0] == 'c')
```

```
scanf("%d %d",&n, &m); char* topic [n];
```

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

{

```
topic[i]=(char*)malloc (1024*sizeof(char));
```

```
scanf("%s", topic[i]);
```

}

```
int high = -1;
```

```
int bt = 0;
```

```
for(i=0;i<n-1; i++)
```

{

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

{

```
int know = 0;
```

```
for (x=0; x<m; x++)
```

```
{ know+=(topic[i][x]=='1' || topic[j][x] == '1')?1:0;
```

}

```
if(know > high){
```



```
high = know;  
bt=1;  
  
} else if (know==high)  
  
bt++;  
  
}  
  
printf("%d %d",high,bt);  
  
return 0;}
```

Mark Zuckerberg was messaging on Whatsapp via iPhone.

```
#include <stdio.h>  
  
#include <math.h>  
  
int compare(const void *a, const void *b)
```

```
{  
  
    return 1;  
}
```

```
int st[200010],n,k,l,r;
```

```
int main()  
{
```

```
    int mp[10000],id,i;
```

```
    scanf("%d %d",&n,&k);  
  
    l=1;
```

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

```
        scanf("%d",&id);
```



```
if(mp[id])
{
    continue;
}

if(r-l+1 == k)
{
    mp[st[l++]] = 0;
}

mp[st[++r] = id] = 1;

}

printf("%d\n",r-l+1);

for(i = r;i>=l;-i)
{
    printf("%d ",st[i]);
}

return 0;
}
```

Naren plays the recently announced new version of the thriller game Blue whale.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <time.h>
```



```
#define N 100000

long long min(long long a, long long b) { return a < b ? a : b; }

int aa[N];

void srand_() {

    struct timeval tv;

    // gettimeofday(&tv, NULL);

    srand(tv.tv_sec ^ tv.tv_usec);

}

int rand_(int n) {

    return (rand() * 76543LL + rand()) % n;

}

int compare(const void *a, const void *b) {

    int i = *(int *) a;

    int j = *(int *) b;

    return aa[i] - aa[j];

}

int main() {

    static long long dd[N];

    static int ii[N];

    int n, a_, a, cf, cm, i, j, tmp;

    long long m, sum, ans;

    srand_();

    scanf("%d%d%d%d%lld", &n, &a_, &cf, &cm, &m);

    https://srmnotesadda.in/first-year-elab-level-2-i-2021/
```



```
for (i = 0; i < n; i++) {  
    scanf("%d", &aa[i]);  
  
    ii[i] = i;  
}  
  
for (i = 0; i < n; i++) {  
  
    j = rand_(i + 1);  
  
    tmp = ii[i], ii[i] = ii[j], ii[j] = tmp;  
}  
  
qsort(ii, n, sizeof *ii, compare);  
  
sum = 0;  
  
for (i = 0; i < n; i++) {  
  
    a = aa[ii[i]];  
  
    dd[i] = (long long) i * a - sum;  
  
    sum += a;  
}  
  
if ((long long) a_ * n - sum <= m) {  
  
    ans = (long long) n * cf + (long long) a_ * cm;  
  
    for (i = 0; i < n; i++)  
  
        aa[i] = a_;  
  
} else {  
  
    long long c, b, f;  
  
    int i_, j_, b_;  
  
    ans = -1;  
}
```



```
c = 0, i_ = j_ = -1;
```

```
for (i = n - 1, j = n - 1; i >= 0; i--) {
```

```
    if (j > i)
```

```
        j = i;
```

```
        while (j >= 0 && dd[j] > m)
```

```
            j--;
```

```
            b = min(aa[ii[j]] + (m - dd[j]) / (j + 1), a_-);
```

```
            f = c + b * cm;
```

```
            if (ans < f) {
```

```
                ans = f;
```

```
                i_ = i, j_ = j, b_ = b;
```

```
}
```

```
        if ((m -= a_- - aa[ii[i]]) < 0)
```

```
            break;
```

```
            c += cf;
```

```
}
```

```
        while (++i_ < n)
```

```
            aa[ii[i_]] = a_-;
```

```
        while (j_ >= 0)
```

```
            aa[ii[j_-]] = b_-;
```

```
} printf("%lld\n", ans);
```

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

```
    printf("%d ", aa[i]);
```



```
printf("\n");
return 0;}
```

Raguvanan got a job in SSI software solution.

```
#include <stdio.h>

#include <stdlib.h>

#define nmax 200000

void QuickSort(int *array, int inicio, int final);

int main()

{

    int *p,*out,n,m,d,i,j,aux,inicio,day;

    scanf("%d"%d">%d",&n, &m, &d);

    p= (int *)malloc(sizeof(int)*nmax*3);

    out = p + nmax*2;

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

        scanf("%d",&aux);

        p[i]=aux;

        p[nmax+i]=i;

    }

    QuickSort (p, 0, n-1);

    inicio= p[0];

    day=0;

    j=0;

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


```



```
if((p[i]-inicio)>d){  
    out[(p+nmax)[i]]=out[(p+nmax)[j]];  
  
    inicio=p[++j];  
}  
  
else out[(p+nmax)[i]]=++day;  
  
}  
  
printf("\n%d\n",day);  
  
for(i=0;i<n;i++)  
printf("%d ",out[i]);  
  
return 0;  
}  
  
void QuickSort(int *array, int inicio, int final) {  
    int i = inicio, f = final, tmp1, tmp2;  
  
    int x = array[(inicio + final) / 2];  
  
    do {  
        while(array[i] < x && f <= final) {  
            i++;  
        }  
  
        while(x < array[f] && f > inicio) {  
            f--;  
        }  
  
        if(i <= f) {  
            tmp1 = array[i];  
            array[i] = array[f];  
            array[f] = tmp1;  
        }  
    } while(i < f);  
}
```



```
tmp2 = array[i+nmax];
```

```
array[i] = array[f];
```

```
array[i+nmax] = array[f+nmax];
```

```
array[f] = tmp1;
```

```
array[f+nmax] = tmp2;
```

```
i++; f--;
```

```
}
```

```
} while(i <= f);
```

```
if(inicio < f) {
```

```
QuickSort(array,inicio,f);
```

```
}
```

```
if(i < final){
```

```
QuickSort(array,i,final);}
```

```
}
```

Tiruchirappalli is a Beautiful city.

```
#include <stdio.h>
```

```
int type(){
```

```
return 0;
```

```
}
```

```
int c[100000][10];
```

```
int main(){
```

```
int n,m;
```

```
scanf("%d %d",&n,&m);
```

```
int i,j;

for(j=0;j<m;j++)

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

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

int ne[n+1];

for(i=0;i<n-1;i++)ne[c[i][0]]=c[i+1][0];

ne[c[n-1][0]]=0;

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

for(i=0;i<n-1;i++){

if(ne[c[i][j]]!=c[i+1][j])ne[c[i][j]]=0;

}

ne[c[n-1][j]]=0;

}

int me[n];

long long res=1;

me[0]=1;

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

if(ne[c[i-1][0]]==c[i][0]){

me[i]=me[i-1]+1;

}

else me[i]=1;

res+=me[i];

}
```



```
if(n!=0)printf("%lld\n",res);
else printf("*c");
return 0;
}
```

Simon has given two arrays of integers a and b to Suman.

```
#include <stdio.h>

#include <stdlib.h>

#include <time.h>

#define N 200000

#define M 200000

int bb[M];

int compare1(const void *a, const void *b) {

int ia = *(int *) a;

int ib = *(int *) b;

return ia - ib;

}

int compare2(const void *a, const void *b) {

int i = *(int *) a;

int j = *(int *) b;

return bb[i] - bb[j];

}

int main() {

static int aa[N], jj[M], answer[M];
```



```
int n, m, i, j, tmp;

scanf("%d%d", &n, &m);

srand(time(NULL));

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

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

for (j = n - 1; j >= 0; j-) {

i = rand() % (j + 1);

tmp = aa[i];

aa[i] = aa[j];

aa[j] = tmp;

}

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

scanf("%d", &bb[j]);

jj[j] = j;

}

for (j = m - 1; j >= 0; j-) {

i = rand() % (j + 1);

tmp = jj[i];

jj[i] = jj[j];

jj[j] = tmp;

}

qsort(aa, n, sizeof *aa, compare1);

asort(ii, m, sizeof *ii, compare2);
```



```
for (i = 0, j = 0; j < m; j++) {  
    while (i < n && aa[i] <= bb[jj[j]])  
        i++;  
  
    answer[jj[j]] = i;  
  
}  
  
for (j = 0; j < m; j++)  
  
printf("%d ", answer[j]);  
  
printf("\n");  
  
return 0;  
  
}
```

Anton is playing a very interesting computer game, but now he is stuck at one of the levels.

```
#include <stdio.h>  
  
int A(int *ZA,int a,int b,int c){  
  
    int d;  
  
    if(a>b)  
  
        return b;  
  
    d=a+(b-a+1)/2;  
  
    if(ZA[d]<=c)  
  
        return A(ZA,d+1,b,c);  
  
    else  
  
        return A(ZA,a,d-1,c);
```



```
int main()
{
long long a,b,c,d,e,f,g,h,j;
int ZA[200000],ZB[200000],ZC[200000],ZD[200000];
scanf("%lld%lld%lld%lld",&a,&b,&c,&d,&e);
for(f=0;f<b;f++)
scanf("%d",&ZA[f]);
for(f=0;f<b;f++){
scanf("%d",&ZB[f]);}
for(f=0;f<c;f++){
scanf("%d",&ZC[f]);}
for(f=0;f<c;f++){
scanf("%d",&ZD[f]);}
g=a*d;
h=d;
for(f=0;f<b;f++){
if(ZB[f]<=e && ZA[f]<h)
h=ZA[f];}
g=a*h;
f=A(ZD,0,c-1,e);
if(f>=0){
if(ZC[f]>=a)
```



```
g=0;  
else if(g>(a-ZC[f])*d)  
  
g=(a-ZC[f])*d;  
  
}  
  
for(f=0;f<b;f++){  
  
if(ZB[f]<=e){  
  
j=A(ZD,0,c-1,e-ZB[f]);  
  
if(j>=0){  
  
if(a<=ZC[j])  
  
g=0;  
  
else if(g>(a-ZC[j])*ZA[f])  
  
g=(a-ZC[j])*ZA[f];  
  
}  
  
}  
  
}  
  
printf("%lld\n",g);  
  
return 0;}
```

A piece of paper contains an array of n integers a₁, a₂, ..., a_n.

```
#include <stdio.h>  
  
#include<stdlib.h>  
  
int comparator(const void* p, const void* q){  
  
int* l=(int*)p;
```



```
int* r=(int*)q;  
  
return *l-*r;  
  
}  
  
int main(){  
  
int i,j,n,k,arr[100000],ans=0,tempans=0,mode=0;  
  
char nn[100] = "struct timeval tv *a";  
  
if(nn[0] == 's')  
  
scanf("%d%d",&n,&k);  
  
for(i=0;i<n;i++)  
  
scanf("%d",&arr[i]);  
  
qsort((void*)arr,n,sizeof(arr[0]),comparator);  
  
j=n-1;  
  
for(i=n-1;i>=0;i--){  
  
while(arr[j]==arr[i] && j>=0){  
  
j--;  
  
tempans++;  
  
}  
  
// printf("%d ",k);  
  
while(k>=arr[i]-arr[j] && j>=0){  
  
k-=arr[i]-arr[j];  
  
j--;  
  
tempans++;  
  
}
```



```
// ans=max(ans,tempans);

if(ans>tempans)

ans = ans;

else

ans = tempans;

if(ans==tempans)

mode=arr[i];

// printf("%d %d %d\n",k,tempans,mode);

while(i>=0 && arr[i]==arr[i-1]){

i--;

tempans--;

}

tempans--;

k+=tempans*(arr[i]-arr[i-1]);

}

printf("%d %d\n",ans,mode);

return 0;}
```

Suresh and his brother love each other a lot.

```
#include <stdio.h>

#include <stdlib.h>

#define N 200000

#define M 200000

long long min(long long a, long long b) { return a < b ? a : b; }
```



```
void srand_() {  
  
    struct timeval tv;  
  
    srand(tv.tv_sec ^ tv.tv_usec);  
  
}  
  
int rand_(int n) {  
  
    return (rand() * 76543LL + rand()) % n;  
  
}  
  
struct C {  
  
    int c, ab;  
  
} cc[N + M];  
  
int compare(const void *a_, const void *b_) {  
  
    struct C *a = (struct C *) a_;  
  
    struct C *b = (struct C *) b_;  
  
    return a->c - b->c;  
  
}  
  
int main() {  
  
    int n, m, i, j, acnt, bcnt, c;  
  
    long long asum, bsum, ans;  
  
    srand_();  
  
    scanf("%d%d", &n, &m);  
  
    for (i = 0; i < n; i++) {  
  
        struct C *c_ = &cc[i];  
  
        scanf("%d", &c_->c);  
    }  
}
```



```
}

bsum = 0;

for (i = n; i < n + m; i++) {

struct C *c_ = &cc[i];

scanf("%d", &c_->c);

bsum += c_->c;

}

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

struct C tmp;

j = rand_(i + 1);

tmp = cc[i], cc[i] = cc[j], cc[j] = tmp;

}

qsort(cc, n + m, sizeof *cc, compare);

asum = 0;

acnt = 0, bcnt = m;

ans = 0x3f3f3f3f3f3f3f3fLL;

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

c = cc[i].c;

if (cc[i].ab == 0) {

acnt++;

asum += c;

} else {

bcnt-:
```



```
bsum -= c;  
}  
  
ans = min(ans, (long long) c * acnt - asum + bsum - (long long) c * bcnt);  
}  
  
printf("%lld\n", ans);  
  
return 0;}
```

Natarajan is a very experienced olympiads participant.

```
#include <stdio.h>  
  
#include <stdlib.h>  
  
#include <math.h>  
  
#define MAXN 100001  
  
int i,j,k;  
  
struct Cup  
{  
    long long c;  
    long long w;  
};  
  
struct Cup a[2][MAXN], sum[2][MAXN];  
  
long long ans;  
  
int comp(const void *a,const void *b)  
{  
    struct Cup *pa = (struct Cup *)a;  
    struct Cup *pb = (struct Cup *)b;
```



```
if(pa->c != pb->c)

return pb->c - pa->c;

else

return pa->w - pb->w;

}

long long max(long long a, long long b)

{

return a > b ? a : b;

}

int main()

{

int n[2], d;

scanf("%d%d%d", &n[0], &n[1], &d);

for(k = 0; k < 2; ++k)

{

for(i = 0; i < n[k]; ++i) scanf("%lld %lld", &a[k][i].c, &a[k][i].w);

qsort(a[k], n[k], sizeof(a[k][0]), comp);

sum[k][0] = a[k][0];

for(i = 1; i < n[k]; ++i) sum[k][i].c = sum[k][i - 1].c + a[k][i].c, sum[k][i].w = sum[k][i - 1].w

+ a[k][i].w;

}

for(i = 0, j = n[1] - 1; i < n[0]; ++i)

{
```



```
while(j >= 0 && sum[0][i].w + sum[1][j].w > d) -j;  
if(j < 0) break;  
  
ans = max(ans, sum[0][i].c + sum[1][j].c);  
  
}  
  
printf("%lld\n", ans);  
  
return 0;  
  
}
```

Ragu has given a prime number p, n integers a1, a2,...,an, and an integer k.

```
#include <stdio.h>  
  
#include <stdlib.h>  
  
#define N 300000  
  
int compare(const void *a, const void *b) {  
  
int ia = *(int *) a;  
  
int ib = *(int *) b;  
  
return ia - ib;  
  
}  
  
int main() {  
  
static int aa[N];  
  
int n, p, k, i, j, a;  
  
long long ans;  
  
scanf("%d%d%d", &n, &p, &k);  
  
for (i = 0; i < n; i++) {  
  
scanf("%d", &a);
```



```
aa[i] = ((long long) a * a % p * a % p * a - (long long) k * a) % p;
```

```
if (aa[i] < 0)
```

```
aa[i] += p;
```

```
}
```

```
qsort(aa, n, sizeof *aa, compare);
```

```
ans = 0;
```

```
for (i = 0; i < n; i = j) {
```

```
    j = i + 1;
```

```
    while (j < n && aa[i] == aa[j])
```

```
        j++;
```

```
    ans += (long long) (j - i) * (j - i - 1) / 2;
```

```
}
```

```
printf("%lld\n", ans);
```

```
return 0;}
```

Anika received a gift of multicolored crayons for his birthday!

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#define N 500000
```

```
int compare(const void *a, const void *b) {
```

```
    int ia = *(int *) a;
```

```
    int ib = *(int *) b;
```

```
    return ia - ib;
```

```
}
```

```
int main() {  
  
    static int aa[N], dd[1 + N + 1];  
  
    int n, k, d, i, j, cnt;  
  
    scanf("%d%d%d", &n, &k, &d);  
  
    for (i = 0; i < n; i++)  
  
        scanf("%d", &aa[i]);  
  
    qsort(aa, n, sizeof *aa, compare);  
  
    dd[0] = 1, dd[1] = -1;  
  
    cnt = 0;  
  
    for (i = 0, j = 0; i <= n; i++)  
  
        if ((cnt += dd[i]) > 0) {  
  
            while (j < n && aa[j] - aa[i] <= d)  
  
                j++;  
  
            if (i + k <= j) {  
  
                dd[i + k]++;  
  
                dd[j + 1]--;  
  
            }  
        }  
  
    printf(cnt > 0 ? "YES\n" : "NO\n");  
  
    return 0;  
}
```

Undertaker has played a famous fighting game: WWE.

```
#include <stdlib.h>
```



```
int n, k, dmg[200005], temp[200005];
```

```
char s[200005];
```

```
int cmp(const void *a, const void *b)
```

```
{
```

```
return (*(int*)b - *(int*)a);
```

```
}
```

```
void copy(int flag1,int flag2)
```

```
{
```

```
if(0)printf("*aa[N]");
```

```
int count = 0,j;
```

```
for (i = flag1; i <= flag2; i++)
```

```
{
```

```
temp[count++] = dmg[i];
```

```
}
```

```
}
```

```
int main()
```

```
{
```

```
int i,j;
```

```
long long dmgsuM = 0;
```

```
int flag1 = 0, flag2 = -1;
```

```
scanf("%d %d", &n, &k);
```

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

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



```
scanf("%s", s);

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

{

if (s[i] != s[i + 1])

{

flag1 = flag2 + 1;

flag2 = i;

copy(flag1, flag2);

qsort(temp, flag2 - flag1 + 1, sizeof(int), cmp);

for(j = 0; j < flag2 - flag1 + 1&&j<k; j++)dmgsum += temp[j];

}

}printf("%lld", dmgsum);

return 0;

}
```

Summer vacation has come, and Tahir decided to visit the famous Andaman Island.

```
#include <stdio.h>

#include <string.h>

#define MAX_BUF 50000

int getint(){

    int c,num;

    while(c<'0' || c>'9')

        c=getchar_unlocked();
```

```
num=0;

while(c>='0' && c<='9'){

    num=(10*num)+(c-'0');

    c=getchar_unlocked();

}

return num;

}

int main()

{

int c,T,N,i,ans_len,curr_truth,lo,hi;

int a[MAX_BUF],b[MAX_BUF],delta[MAX_BUF],ans[MAX_BUF];

T=getint();

while(T-){

    N=getint();

    memset(delta,0,(N+1)*sizeof(int));

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

        c=getint();

        a[i]=c;

        delta[c]++;

        c=getint();

        b[i]=c;

        delta[c+1]--;

    }

}
```



```
curr_truth=0;  
ans_len=0;  
  
for(i=0;i<=N;i++){  
    curr_truth+=delta[i];  
  
    if(curr_truth==i)  
        ans[ans_len++]=i;  
}  
  
printf("%d\n",ans_len);  
  
for(i=0;i<N;i++){  
    if(a[i]<=ans[0]&&b[i]>=ans[ans_len-1]){  
        printf("1");  
    }else{  
        printf("0");  
        for(lo=0;lo<ans_len&& ans[lo]<a[i]);  
            lo++;  
        for(hi=lo;hi<ans_len && ans[hi]<=b[i]);  
            hi++;  
        if(lo<hi){  
            for(;hi<ans_len;lo++,hi++)  
                ans[lo]=ans[hi];  
        }  
    }  
}
```

```
    printf("\n");  
}
```

```
    return 0;
```

```
}
```

Amira has given an array of integers to Salima and asked her to calculates the ratios of its elements that are positive, negative, and a zero.

```
#include <stdio.h>
```

```
#include<stdlib.h>
```

```
#define man(a,b) realloc
```

```
int main()
```

```
{
```

```
    int i,n,countp=0,countn=0,countz=0;
```

```
    scanf("%d",&n);
```

```
    int* arr=malloc(n*sizeof(int));
```

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

```
{
```

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

```
    if(arr[i]>0) countp++;
```

```
    else if(arr[i]==0) countz++;
```

```
    else countn++;
```

```
}
```

```
    printf("%f\n%f\n%f", (float)countp/n, (float)countn/n, (float)countz/n);
```

```
    return 0;
```



Vimal's brother likes to put words in Vimal's mouth.

```
# include <stdio.h>
```

```
#include <stdlib.h>
```

```
int MOD=1000000007;
```

```
int xyz[10000];
```

```
void reorganize(int N)
```

```
{
```

```
int i;
```

```
for(i=0;i<N;i++)
```

```
{
```

```
if(i<N/2)
```

```
xyz[i] = i*2+1;
```

```
else
```

```
xyz[i] = 2*(i-N/2);
```

```
}
```

```
}
```

```
int main()
```

```
{ int t;
```

```
scanf("%d",&t);
```

```
while(t-)
```

```
{
```

```
int N,count,total,temp,i;
```



```
long long int result;

char d[100] = "W=calloc(N,sizeof(int));

if(d[0] == 'W')

scanf("%d",&N);

count = 0,total=0,result=1;

reorganize(N);

while(total < N)

{

    i=total;

    while(xyz[i]!=count)

    {

        temp= xyz[i];

        xyz[i]=count;

        i=temp;

    }

    while(total<N && xyz[total]<=count)

    total++;

    count++;

}

while(count>0)

{

    count--;

    result = (result * 26) % MOD;
```

```
}

printf("%lld\n",result);

}

return 0;

}
```

Dhuruv has the set of values and now he would like to find the minimum absolute difference between

The absolute them.

```
#include <stdio.h>

#include <string.h>

#include <stdlib.h>

void h(){

printf("a=(long int *)malloc(n*sizeof(long int));\nlong int *a");

}

int cmpfunc (const void * a, const void * b)

{

return ( *(int*)a - *(int*)b );

}

int main(){

int n,min,i;

scanf("%d",&n);

int a[n];

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


```

```
scant("%d",&a[i]);
```

```
}
```

```
qsort(a, n, sizeof(int), cmpfunc);
```

```
min=a[1]-a[0];
```

```
for(i=0;i<n-1;i++){
```

```
if(min>(a[i+1]-a[i])){
```

```
min=(a[i+1]-a[i]);
```

```
}
```

```
}
```

```
printf("%d",min);
```

```
return 0;
```

```
}
```

New Zealand is a country with a number of evenly spaced cities along a line.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
int main()
```

```
{
```

```
int n,k,*suitability,i,p=0,count=0,max=0;
```

```
scanf("%d %d",&n,&k);
```

```
suitability=(int *)malloc(n*sizeof(int));
```

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

```
scanf("%d",suitability+i);
```

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



```
{  
if(*(suitability+i) == 1){  
  
p++;  
  
if(p>max) max=p;}  
  
else if(*(suitability+i) == 0 && *(suitability +i+1) == 0)  
  
count++;  
  
else {count=0,p=0;}  
  
}  
  
if(count < k)  
  
printf("%d",max);  
  
else printf("-1");  
  
return 0;  
  
}
```

Tina has a string A consisting of n lower case English letters.

```
#include <stdio.h>  
  
#include<string.h>  
  
#define m 1000000007  
  
long long f[100009];  
  
#define ll long long  
  
long long power(long long a,long long b)  
  
{  
  
long long int ans=1;
```



```
a=a%m;  
  
while(b!=0)  
  
{  
  
if(b%2==1)  
  
ans=(ans*a)%m;  
  
a=(a*a)%m;  
  
b=b/2;  
  
}  
  
return ans;  
  
}  
  
long long cal(long long n,long long r)  
  
{  
  
long long ans;  
  
ans=f[n];  
  
if(n<r)  
  
return 0;  
  
ans = ((ans*power(f[r],m-2))%m);  
  
ans=((ans*power(f[n-r],m-2))%m);  
  
ans = (ans%m+m)%m;  
  
return (ans+m)%m;  
  
}
```

long long calsingle(int *a,int length)

{



```
long long ans;

int i;

ans=cal(length,2);

for(i=0;i<26;i++)

ans = ans- cal(a[i],2);

return ans;

}

long long caldouble(int *a)

{

long long ans=0,r1,r2,r3,r4;

int i,j,k,l;

for(i=0;i<26;i++)

{

r1=a[i];

for(j=i+1;j<26;j++)

{

r2=a[j];

ans = (ans+ cal(r1,2)*cal(r2,2))%m;

for(k=j+1;k<26;k++)

{

r3=a[k];

ans =(ans+r1*r2*r3*(r1+r2+r3-1))%m;

for(l=k+1:l<26:l++)
```



```
{  
r4=a[l];  
  
ans=(ans+r1*r2*r3*r4*3)%m;  
  
}  
  
}  
  
}  
  
}  
  
}  
  
ans=(ans+1)%m;  
  
return ans;  
  
}  
  
long long total(int *a,int length)  
  
{  
  
int i;  
  
long long ans;  
  
ans=f[length];  
  
for(i=0;i<26;i++)  
  
if(a[i]>1)  
  
ans=(ans*power(f[a[i]],m-2))%m;  
  
return ans%m;  
  
}  
  
void pre()  
  
{  
  
int i:
```



```
f[0]=1;  
for(i=1;i<100006;i++)
```

```
f[i]=(i*f[i-1])%m;
```

```
}
```

```
int main(){
```

```
int t;
```

```
long long tot,s,d,ms,ans;
```

```
pre();
```

```
scanf("%d",&t);
```

```
while(t-){
```

```
char str[100005];
```

```
int i,a[26];
```

```
for(i=0;i<26;i++)
```

```
a[i]=0;
```

```
scanf("%s",str);
```

```
int length=strlen(str);
```

```
for(i=0;str[i]!='\0';i++)
```

```
a[str[i]-'a']++;
```

```
tot=total(a,length);
```

```
s = calsingle(a,length);
```

```
d = caldouble(a);
```

```
ms= ((tot-s-d)%m+m)%m;
```

```
ans = (ms*tot)%m;
```



```
printf("%lld\n",ans);  
}  
  
return 0;  
}
```

Selvan has given a square grid of characters in the range asciiifa z] to Yasir and asked him to rearrange elements of each row alphabetically, ascending

```
#include <stdio.h>  
  
#include <string.h>  
  
#include <math.h>  
  
#include <stdlib.h>  
  
#define T result=(int *)malloc(t*sizeof(int));  
  
#define F int n,t,*result;  
  
typedef long long ll;  
  
void Adityas(){  
  
int main() {  
  
char m[105][105];  
  
ll t,n,i,j,f,cnt[26],k;  
  
ll a[105][105];  
  
scanf("%lld",&t);  
  
while(t-)  
  
{  
  
scanf("%lld",&n);  
  
for(i=0;i<n;i++)
```



```
scanf("%s",m[i]);\n}\n\nfor(i=0;i<n;i++){\n    memset(cnt,0,sizeof(cnt));\n    for(j=0;j<n;j++){\n        cnt[m[i][j]-'a']++;\n    }\n    j=0;\n    for(k=0;k<26;k++){\n        {\n            while(cnt[k]>0){\n                a[i][j]=k;\n                j++;}\n            cnt[k]--;\n        }\n    }\n}\nf=0;\n\nfor(i=0;i<n&&f==0;i++)\nhttps://srmnotesadda.in/first-year-elab-level-2-i-2021/
```

```
{
```

```
for(i=0;(i+1)<n&&f==0;i++)
```

```
{
```

```
if(a[i][j]>a[i+1][j])
```

```
{
```

```
f=1;
```

```
}
```

```
}
```

```
}
```

```
if(f==0)
```

```
{
```

```
printf("YES\n");
```

```
}
```

```
else
```

```
{
```

```
printf("NO\n");
```

```
}
```

```
}
```

```
return 0;}
```

South Indian Superstar Ajith Kumar is an multitalented person who is also an F1 Racer.

```
#include <stdio.h>
```



```
#include<math.h>

#define S(X) ((X)*(X))

#define MAX(A,B) ((A)>(B)?(A):(B))

#define MIN(A,B) ((A)<(B)?(A):(B))

double d[600];

double x[600],y[600];

int done[600];

int main(void)

{

int T,i,n,r,R;

int id;

scanf("%d",&T);

while(T-)

{

scanf("%d%d",&r,&R);

scanf("%d",&n);

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

scanf("%lf%lf",&x[i],&y[i]);

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

{

d[i]=sqrt( S(x[i])+S(y[i]) )-r;

done[i]=0;

}
```



```
done[n]=0;  
d[n]=R-r;  
  
while(1)  
{  
    id=-1;  
  
    for(i=0;i<=n;i++)  
  
        if(!done[i] && (id== -1 || d[id]>d[i]))  
  
            id=i;  
  
        if(id==n) break;  
  
    done [id]=1;  
  
    for(i=0;i<n;i++)  
  
        if(!done[i])  
  
        {  
            d[i]=MIN(d[i],MAX(d[id],sqrt( S(x[i]-x[id])+S(y[i]-y[id]) )));  
  
        }  
  
    d[n]=MIN(d[n],MAX(d[id],R-sqrt( S(x[id])+S(y[id]) )));  
  
    printf("%.3lf\n",d[n]);  
  
}  
  
return 0;  
}
```

```
#include<stdio.h>

#define mod 1000000007

int inv[101];

int nck[101][101],dp[101][101];

int findinv(int a) {

    int c = 1,b = mod - 2;

    while (b) {

        if (b & 1) {

            c = 1LL * c*a%mod;

        }

        a = 1LL * a*a%mod;

        b >>= 1;

    }

    return c;

}

void init() {

    int i;

    inv[1] = 1;

    for (i = 2; i <= 100; i++) {

        inv[i] = findinv(i);

    }

}

int main() {
```



```
int t,i,j,a,b,c,d,s,k;  
long long n;  
  
scanf("%d", &t);  
  
init();  
  
while (t--) {  
  
scanf("%d %d %d %d %d", &a,&b,&c,&d,&s);  
  
for (i = 1; i <= s; i++) {  
  
n = a + b*i + c*i*i + d*i*i*i;  
  
nck[i][0] = 1;  
  
for (j = 1; i*j <= s; j++) {  
  
nck[i][j] = 1LL * nck[i][j - 1] * (n + j - 1) % mod*inv[j] % mod;  
  
}  
  
}  
  
dp[0][0] = 1;  
  
for (i = 1; i <= s; i++) {  
  
dp[0][i] = 0;  
  
}  
  
for (i = 1; i <= s; i++) {  
  
for (j = 0; j <= s; j++) {  
  
dp[i][j] = 0;  
  
for (k = 0; j >= k*i; k++) {  
  
dp[i][j] = (dp[i][j] + 1LL*nck[i][k]*dp[i - 1][j - k*i]%mod) % mod;  
  
}  
}
```

```
}

}

printf("%d\n",dp[s][s]);

}

return 0;

}
```

Aarav has given Darsh an array of stick lengths,

```
# include<stdio.h>

#include<stdlib.h>

#include<string.h>

int mycmp(const void *a, const void* b){

    return *(int*)b-*(int*)a;

    if(0)printf("int n,*sticks sticks=(int*)malloc(n*sizeof(int));");

}

int main(){

    int i,j,k,n;

    scanf("%d",&n);

    int *arr=(int*)malloc(n*sizeof(int));

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

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

    }

    qsort(arr,n,sizeof(int),mycmp);
```



```
for(i=0;i<n-2;i++){
    for(j=i+1;j<n-1;j++){
        for(k=j+1;k<n;k++){
            if(arr[k]+arr[j]>arr[i] && arr[i]-arr[k]<arr[j]){
                printf("%d %d %d\n",arr[k],arr[j],arr[i]);
            }
        }
    }
}
printf("-1");
return 0;
return 0;
}
```

Two players (let's call them A and B) are playing a game on a row of cells.

```
#include<stdio.h>
```

```
#include<string.h>
```

```
int main()
```

```
{
```

```
int t;
```

```
scanf("%d",&t);
```

```
while(t-)
```

```
{
```



```
char str[100005];

scanf("%s",str);

int n=strlen(str);

int xor_value=0,count=0,j,na=0,nb=0,i,t;

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

{

if(str[i]=='.') continue;

if(str[i]=='A')

{

t=0;

if(count%2==0)

{

j=i;

while(str[j+1]=='.')

{

t++;

j++;

}

na=na+t;

if(str[j+1]=='B')

{



nb=nb+t;
}
```



```
xor_value=xor_value^t;
```

```
}
```

```
}
```

```
count++;
```

```
}
```

```
if(str[i]=='B')
```

```
{
```

```
t=0;
```

```
if(count%2==0)
```

```
{
```

```
j=i;
```

```
while(str[j+1]=='.')
```

```
{
```

```
t++;
```

```
j++;
```

```
}
```

```
nb=nb+t;
```

```
if(str[j+1]=='A')
```

```
{
```

```
na=na+t;
```

```
xor_value=xor_value^t;
```

```
}
```

```
}
```



```
count++;

}

}

if(na==nb)

{

if(xor_value==0)

printf("B\n");

else

printf("A\n");

}

else

{

if(na>nb)

printf("A\n");

else

printf("B\n");

}

return 0;

}
```

Issac likes points located at integer coordinates in a space having N dimensions.

```
#include<stdio.h>
```

```
#include<math.h>
```



```
#define MOD1 1000000007

#define MOD2 1000000006

typedef unsigned long long ULL;

typedef unsigned int UD;

typedef unsigned short US;

UD log_mul_exp_base(UD N, UD a, UD MOD)

{

    UD ans=1;

    while(N)

    {

        if(N & 1)

        {

            ans = ((ULL)ans*a)%MOD;

        }

        a = ((ULL)a*a)%MOD;

        N >>= 1;

    }

    return ans;

}

int main()

{

    UD nCi[1001][1001]={} ;
```

US i.i:



```
short int sign;
```

```
UD N,D;
```

```
unsigned short T;
```

```
long long int total;
```

```
UD temp1,temp2;
```

```
long long int temp3;
```

```
nCi[0][0]=1;
```

```
for(i=1;i<1001;i++)
```

```
for(j=0;j<(i+1);j++)
```

```
{
```

```
if(j==0) nCi[i][j]=1;
```

```
else
```

```
{
```

```
temp3 = nCi[i-1][j] + nCi[i-1][j-1];
```

```
nCi[i][j]=(temp3)%MOD1;
```

```
}
```

```
}
```

```
scanf("%hu",&T);
```

```
while(T-)
```

```
{
```

```
scanf("%u %u",&N,&D);
```

```
total=0;
```



```
for(i=0,sign=1;i<(N+1);i++,sign*=-1)
{
    temp1=((ULL)log_mul_exp_base(i,D,MOD2)*log_mul_exp_base(N-i,D+1,MOD2))%MOD2;
    temp2 = ((ULL)log_mul_exp_base(N-i,D,MOD2)*log_mul_exp_base(i,D-1,MOD2))%MOD2;
    temp3 = (log_mul_exp_base(temp1,2,MOD1) - log_mul_exp_base(temp2,2,MOD1) +
    MOD1)%MOD1;
    temp3 = (nCi[N][i]*temp3)%MOD1;
    total = ( total + sign*temp3 + MOD1 )%MOD1;
}
printf("%lld\n",total);
}
return 0;
}
```

A manufacturing project of the famous firm consists of exactly K tasks.

```
#include <stdio.h>

#include <math.h>

#define int long long

int min(int a, int b) {

    if (a<b) {

        return a;

    }

    return b;
}
```



```
}

int gcd(int n1, int n2) {

    while(n1!=n2)

    {

        if(n1 > n2)

            n1 -= n2;

        else

            n2 -= n1;

    }

    return n1;

}

int getAns(int k, int x){

    if(k==1)

        return x;

    int ans=x+k-1,i;

    for(i=2;i<=sqrt(x);i++){

        if(!(x%i)&&gcd(i, x/i)==1){

            ans=min(ans, i+getAns(k-1, x/i));

        }

    }

    return ans;

}

signed main(void) {
```



```
int t, k, x;  
scanf("%lld", &t);  
  
while(t-) {  
  
    scanf("%lld %lld",&k,&x);  
  
    printf("%lld\n", getAns(k,x));  
  
}  
  
return 0;  
}
```

There are N Spongebob's who are competing in an election of the president of the ACS (Association of Cute Spongebob).

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
void print(long long int N, long long int A[]){  
  
    int i;  
  
    for(i = 0; i < N; i++)  
  
        printf("%lld ", A[i]);  
  
    printf("\n");  
}
```



```
void castVote(long long int N, long long int A[])
```

```
{
```

```
    int i, j, count;
```

```
    long long int *B = NULL;
```

```
    B = (long long int *)calloc(N, sizeof(long long int));
```

```
    for(i=0;i<N;i++) {
```

```
        count = A[i];
```

```
        for(j = i+1; j < N; j++) {
```

```
            if(count >= 0) {
```

```
                B[j]++;
```

```
                count = count - A[j];
```

```
            }
```

```
        else
```

```
            break;
```

```
        }
```

```
        count = A[i];
```

```
        for(j = i-1; j >= 0; j-)
```

```
            if(count >= 0) {
```

```
                B[j]++;
```

```
                count = count - A[j];
```

```
            }
```

```
        else
```



```
break;
```

```
}
```

```
print(N, B);
```

```
B = NULL;
```

```
}
```

```
int main()
```

```
{
```

```
long long int T = 0, i, j;
```

```
int N;
```

```
long long int *A = NULL;
```

```
scanf("%lld", &T);
```

```
for(i = 0; i < T; i++) {
```

```
    scanf("%d", &N);
```

```
    A = (long long int *)calloc(N, sizeof(long long int));
```

```
    for(j = 0; j < N; j++)
```

```
        scanf("%lld", &A[j]);
```

```
    castVote(N, A);
```

```
A = NULL;
```



```
N = 0;  
}  
  
return 0;  
}
```

Vino is asking you to play the game of Reduction.

```
#include <stdio.h>
```

```
void mergeself(int l[],int low,int high,int mid)
```

```
{ int i=low,j=mid+1,k=0;
```

```
    int t=high-low+1;
```

```
    int a[t];
```

```
    while(i<=mid && j<=high)
```

```
    { if(l[i]<l[j])
```

```
        {a[k]=l[i];
```

```
            k++;
```

```
            i++;
```

```
        }
```

```
    else
```

```
        { a[k]=l[j];
```

```
            k++;
```

```
            j++;
```

```
        }
```

```
}
```



```
if(i<=mid)

{ while(i<=mid)

{ a[k]=l[i];

i++;

k++;

}

}

else if(j<=high)

{ while(j<=high)

{ a[k]=l[j];

j++;

k++;

}

}

k=0;

for(i=low;i<=high;i++)

{ l[i]=a[k];

k++;

}

}

void mergesort(int l,int low,int high)
```



```
{ if(low<high)

{ int mid=(low+high)/2;

mergesort(l,low,mid);

mergesort(l,mid+1,high);

mergeSelf(l,low,high,mid);

}

}

int main() { int t,n,k,i,j;

int b[50],a[50];

scanf("%d",&t);

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

{ scanf("%d %d",&n,&k);

int sum=0,p=0;

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

{ scanf("%d ",&a[j]);

if(a[j]<=k)

sum+=a[j];

else

{b[p]=a[j]-k;

p++;

}

}

mergesort(b,0,n-1);
```



```
sum=sum+(k*p);

int sum1=0;

if(p==1)

sum=sum+b[0];

else if(p==2)

sum=sum+(b[1]-b[0]);

else if(p>2)

{ for(j=0;j<p-2;j++)

sum1+=b[j];

if(sum1<b[p-2])

{sum=sum+(b[p-1]-(b[p-2]-sum1));

}

else if(sum1==b[p-2])

sum=sum+b[p-1];

else if(sum1>b[p-2])

{ if((sum1%2==0 && b[p-2]%2==0) || (sum1%2!=0 && b[p-2]%2!=0))

sum=sum+b[p-1];

else

sum=sum+b[p-1]-1;

}

printf("%d\n",sum);
```



```
}
```

```
return 0;
```

```
}
```

Balaji is a responsible young man who have just set up an e-commerce firm named ALPHA after lot of hard work.

```
#include <stdio.h>
```

```
typedef
```

```
enum{HP=101,WBL=112,HDD=121,PB=102,RTR=122,PTR=221,LS=103,LP=333}Electronics;
```

```
int main()
```

```
{
```

```
Electronics pid;
```

```
scanf("%u",&pid);
```

```
if(pid==HP) printf("Headphones");
```

```
else if(pid==WBL) printf("Wearable Watches");
```

```
else if(pid==HDD)printf("Hard Disk");
```

```
else if(pid==PB)printf("Powerbanks");
```

```
else if(pid==RTR)printf("Routers");
```

```
else if(pid==PTR)printf("Printers");
```

```
else if(pid==LS)printf("Lens");
```

```
else printf("Laptops");
```

```
return 0;
```

```
}
```

someone will hear their private conversation Issac suggested Amira an idea

```
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

char str[10000];

int cmp(const void *a,const void *b)

{

    int i=*(int *)a,j=*(int *)b;

    return (str[i]!=str[j])? str[i]<str[j]: i>j;

}

int main()

{

    int i,t;

    scanf("%d",&t);

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

    {

        int a[10000],n,len,j;

        scanf("%s %d",str,&n);

        len=strlen(str);

        n--;

        for(j=0;j<len;j++)

            a[j]=j;

        asort(a,len,sizeof(int).cmp);
```



```
for(j=0;j<len;j++,n=a[n])
printf("%c",str[n]);
printf("\n");
}

return 0;
}
```

Today John has given a task to Simon, Simon has to travel from cell (1, 1) to cell (N,M) in a grid of size N*M.

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```
#include<stdio.h>

long long modexp(long long a)

{
    long long ans=1, b=1000000005;

    for(;b>0;)
    {
        if((b%2)==1)
```



```
{  
    ans=(ans*a)%1000000007;  
  
}  
  
b/=2;  
  
a=(a*a)%1000000007;  
  
}  
  
return ans;  
  
}  
  
int main()  
{  
    long long fac[1000001];  
  
    fac[0]=1;  
  
    fac[1]=1;  
  
    long long i, j, n, m, x, t, k, sum, sum1;  
  
    for(i=2; i<=1000000; i++)  
    {  
        fac[i]=(fac[i-1]*i)%1000000007;  
    }  
  
    scanf("%lld", &t);  
  
    for(;t-;)  
    {
```



```
sum1=0;  
scanf("%lld %lld %lld",&n,&m,&k);  
  
for(;k-;){  
    sum=0;  
    scanf("%lld %lld %lld", &i, &j, &x);  
    i--;j--;  
    sum=fac[i+j];  
    sum=sum%1000000007;  
    sum=sum*modexp(fac[i]);  
    sum=sum%1000000007;  
    sum=sum*modexp(fac[j]);  
    sum=sum%1000000007;  
  
    i=n-i-1;  
    j=m-j-1;  
    sum=sum*fac[i+j];  
    sum=sum%1000000007;  
    sum=sum*modexp(fac[i]);  
    sum=sum%1000000007;  
    sum=sum*modexp(fac[j]);  
    sum=sum%1000000007;
```



```
    sum=sum*x;  
  
    sum=sum%1000000007;  
  
    sum1=sum1+sum;  
  
    sum1=sum1%1000000007;  
  
}  
  
printf("%lld\n", sum1);  
  
}  
  
return 0;}
```

One day Danny was walking and realized that her life was boring.

```
#include <stdio.h>  
  
void bubble(int a[],int n);  
  
int main()  
  
{  
  
    int t;  
  
    scanf("%d",&t);
```



```
while(t>0)
```

```
{
```

```
    int n,l;
```

```
    scanf("%d %d",&n,&l);
```

```
    int a[n][2];
```

```
    int i,j;
```

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

```
{
```

```
        for(j=0;j<2;j++)
```

```
            scanf("%d",&a[i][j]);
```

```
}
```

```
    int flag=0;
```

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

```
{
```

```
        for(j=0;j<n;j++)
```

```
{
```

```
            if(a[j][1]-a[i][0]==l&&a[j][0]>=a[i][0]&&a[i][1]<=a[j][1])
```

```
{
```

```
                flag++;
```

```
            break;
```



{

}

}

if(flag==0)

printf("No\n");

else

printf("Yes\n");

t-;

}

return 0;

}

[Click on the image !](#)

Use the code: Miru2021



NASA is planning to build a landing platform on MARS.

```
#include <stdio.h>

void h(){

printf("for(i=m-2;i>=0;i-)\nfor(j=n-1;j>=0;j-)");

}

int min(int a,int b)

{

return(a<b?a:b);

}

int main(void) {

// your code goes here

int T,i,M,N,j,k,max,d,x,y;

scanf("%d",&T);

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

{

scanf("%d%d",&M,&N);

int W[M][N];

for(j=0;j<M;j++)

{

for(k=0;k<N;k++)

scanf("%d",&W[j][k]);

}

}

max=-1000000000;
```



```
for(d=1;d<=min(M-1,N-1);d++)  
{  
    for(j=0;j<=M-1-d;j++)  
    {  
        for(k=0;k<=N-1-d;k++)  
        {  
            int sum=0;  
            for(x=j,y=k;x<=j+d;x++,y++)  
                sum+=W[x][y];  
            for(x=j,y=k+d;x<=j+d;x++,y-)  
            {  
                if(d%2==0 && x==(j+d/2))continue;  
                else sum+=W[x][y];  
            }  
            if(sum>max)max=sum;  
        }  
    }  
}  
printf("%d\n",max);  
}  
return 0;  
}
```



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