|  |  |
| --- | --- |
| [12289](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3710) | [One-Two-Three](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3710) |

Code:

#include<stdio.h>

#include<string.h>

int main()

{

int T,i,len;

char str[100];

scanf("%d",&T);

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

{

scanf(" %[^\n]",str);

len=strlen(str);

if(len==5) printf("3\n");

else if(str[0]=='o' && str[2]=='e') printf("1\n");

else if(str[0]=='o' && str[1]=='n') printf("1\n");

else if(str[1]=='n' && str[2]=='e') printf("1\n");

else printf("2\n");

}

return 0;

}

### 10104 - Euclid Problem

#include<iostream>

using namespace std;

long long int fun(long long int a,long long int b,long long int \*x,long long int \*y)

{

if(a==0){

\*x=0;

\*y=1;

return b;

}

long long int x1,y1;

long long int gcd=fun(b%a,a,&x1,&y1);

\*x=y1-(b/a)\*x1;

\*y=x1;

return gcd;

}

int main()

{

long long int x,y,k,a,b;

while(cin>>a>>b){

if(a==b) cout<<'0'<<" "<<'1'<<" "<<a<<endl;

else {

k=fun(a,b,&x,&y);

cout<<x<<" "<<y<<" "<<k<<endl;

}

}

return 0;

}

|  |  |
| --- | --- |
| [11877](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2999) | [The Coco-Cola Store](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2999) |

#include<stdio.h>

int main()

{

int n,r,v,sum,i,l;

for(i=0;i<10;i++){

sum=0;

scanf("%d",&n);

if(n==0) return 0;

else{

while(1){

r=n%3;

v=n/3;

l=v+r;

sum=sum+v;

if(l>=3){

n=l;

}

else if(l==2) {

sum++;

break;

}

else break;

}

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

}

}

return 0;

}

|  |  |
| --- | --- |
| [10812](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=1753) | [Beat the Spread!](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=1753) |

#include<stdio.h>

int main()

{

int n,s,d,a,b,i;

scanf("%d",&n);

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

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

if(s<d) printf("impossible\n");

else if(((s+d)%2)!=0) printf("impossible\n");

else{

a=(s+d)/2;

b=(s-a);

printf("%d %d\n",a,b);

}

}

return 0;

**10035 - Primary Arithmetic**

#include<stdio.h>

int main()

{

long long int a,b,c,d,p;

int i,j,l,k;

while(1){

scanf("%lld %lld",&a,&b);

if(a==0 && b==0) return 0;

else{

l=0,k=0;

while(1){

if(a==0 && b==0) break;

if(a==0) c=0;

else{

c=a%10;

a=a/10;

}

if(b==0) d=0;

else{

d=b%10;

b=b/10;

}

if((c+d+k)>=10)

{

l++;

k=1;

}

else k=0;

}

if(l==0) printf("No carry operation.\n");

else{

printf("%d carry operations.\n",l);

}

}

}

}

### 11332 - Summing Digits

#include<stdio.h>

int main()

{

long long int n,tum;

int sum,p;

while(1)

{

scanf("%lld",&n);

if(n==0) return 0;

sum=n;

while(1){

if(sum<10) {

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

break;

}

else{

n=sum;

sum=0;

while(1){

p=(n%10);

n=n/10;

sum=sum+p;

if(n==0) break;

}

}

}

}

return 0;

}

[**11479**](http://uva.onlinejudge.org/external/114/11479.pdf) - [Is this the easiest problem?](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=2474)

#include<stdio.h>

int main()

{

long long int a,b,c,temp,ara[3];

int i,j,k,T;

scanf("%d",&T);

for(k=1;k<=T;k++){

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

ara[0]=a,ara[1]=b,ara[2]=c;

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

for(j=i+1;j<3;j++){

if(ara[i]<ara[j]){

temp=ara[i];

ara[i]=ara[j];

ara[j]=temp;

}

}

}

a=ara[0],b=ara[1],c=ara[2];

if(a>=(b+c)) printf("Case %d: Invalid\n",k);

else if(a==b && b==c) printf("Case %d: Equilateral\n",k);

else if((a==b) || (b==c) || (c==a)) printf("Case %d: Isosceles\n",k);

else if((a!=b) && (b!=c) && (c!=a)) printf("Case %d: Scalene\n",k);

}

}

[**11364**](http://uva.onlinejudge.org/external/113/11364.pdf) - [Parking](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=2349)

#include<stdio.h>

int main()

{

int ara[21],i,t,n,j,temp,k,sum;

scanf("%d",&t);

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

{

sum=0;

scanf("%d",&n);

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

if(j==(n-1)) scanf("%d",&ara[j]);

else scanf("%d ",&ara[j]);

}

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

for(k=j+1;k<n;k++){

if(ara[j]>ara[k]){

temp=ara[j];

ara[j]=ara[k];

ara[k]=temp;

}

}

}

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

sum=sum+(ara[j+1]-ara[j]);

}

printf("%d\n",(2\*sum));

}

return 0;

}

### 272 - TEX Quotes

#include<stdio.h>

int main()

{

long long int p=0;

char ch;

while(scanf("%c",&ch)!=EOF){

if(ch=='"'){

if (ch=='\0') printf("\n");

else if(p==0) {

printf("%c%c",96,96);

p=1;

}

else

{

printf("%c%c",39,39);

p=0;

}

}

else printf("%c",ch);

}

return 0;

}

[**11044**](http://uva.onlinejudge.org/external/110/11044.pdf) - [Searching for Nessy](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=1985)

#include<stdio.h>

#include<math.h>

int main()

{

int t,i,m,n;

double p,x,y;

scanf("%d",&t);

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

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

m=m-2;

n=n-2;

x=(double)m/3.000;

y=(double)n/3.000;

x=ceil(x);

y=ceil(y);

p=x\*y;

printf("%d\n",(int)p);

}

return 0;

}

### 1124 - Celebrity jeopardy

Interesting problem…..

Here input terminating is not given…:

Input

Each input line contains a solution in the form < symbol > = < value >

So we need to use EOF…..but EOF can be used when we input string by one one character…..that means we can not take input as a string:

#include<stdio.h>

#include<stdio.h>

int main()

{

char ch;

while(scanf("%c",&ch) != EOF){

if(ch=='\0') printf("\n");

printf("%c",ch);

}

return 0;

}

### 11547 - Automatic Answer

#include<stdio.h>

int main()

{

int t,n,i,sum;

scanf("%d",&t);

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

sum=1;

scanf("%d",&n);

sum=n\*567;

sum=sum/9;

sum=sum+7492;

sum=sum\*235;

sum=sum/47;

sum=sum-498;

sum=(sum%100)/10;

if(sum<0) sum=(-(sum));

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

}

return 0;

}

### 12250 - Language Detection

#include<stdio.h>

#include<string.h>

int main()

{

char str[15];

int i=1;;

while(1){

scanf(" %[^\n]",str);

if(str[0]=='#') return 0;

else if(strcmp(str,"HELLO")==0) printf("Case %d: ENGLISH\n",i);

else if(strcmp(str,"HOLA")==0) printf("Case %d: SPANISH\n",i);

else if(strcmp(str,"HALLO")==0) printf("Case %d: GERMAN\n",i);

else if(strcmp(str,"BONJOUR")==0) printf("Case %d: FRENCH\n",i);

else if(strcmp(str,"CIAO")==0) printf("Case %d: ITALIAN\n",i);

else if(strcmp(str,"ZDRAVSTVUJTE")==0) printf("Case %d: RUSSIAN\n",i);

else printf("Case %d: UNKNOWN\n",i);

i++;

}

}

### 12279 - Emoogle Balance

#include<stdio.h>

int main()

{

int N,ara[1001],i,sum,num,j=1;

while(1){

sum=0,num=0;

scanf("%d",&N);

if(N==0) return 0;

else{

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

if(i==(N-1)){

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

}

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

}

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

if(ara[i]>0) sum++;

else if(ara[i]==0) num++;

}

sum=sum-num;

printf("Case %d: %d\n",j,sum);

}

j++;

}

}

[**494**](http://uva.onlinejudge.org/external/4/494.pdf) - [Kindergarten Counting Game](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=435)

#include<stdio.h>

int main()

{

char str[1000];

int c,i,p;

while(gets(str)){

c=0,p=0;

for(i=0;str[i];i++){

if((str[i]>='a' && str[i]<='z') || (str[i]>='A' && str[i]<='Z')){

p=1;

if(str[i+1]=='\0') c++;

}

else{

c+=p;

p=0;

}

}

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

}

return 0;

}

|  |  |
| --- | --- |
| [Root](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=0) | [Submit](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=submit_problem&problemid=3135&category=) [Problem Stats](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=problem_stats&problemid=3135&category=) [uDebug](https://www.udebug.com/UVa/11984) [Download as PDF](https://uva.onlinejudge.org/external/119/11984.pdf) |
| 11984 - A Change in Thermal Unit |

#include<iostream>

#include<cstdio>

using namespace std;

int main()

{

int c,T,d,i;

double s;

cin>>T;

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

cin>>c >>d;

s=(double)c+((double)d\*0.5555555555555555);

printf("Case %d: %.2lf\n",i,s);

}

return 0;

}

[**12403**](http://uva.onlinejudge.org/external/124/12403.pdf) - [Save Setu](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=3834)

#include <stdio.h>

#include <string.h>

int main ()

{

int t,s=0,d=0;

char a [100];

scanf ("%d", &t);

while (t--)

{

scanf ("%s", a);

if (strcmp (a, "donate")==0)

{

scanf ("%d", &d);

s += d;

}

else

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

}

return 0;

}

Wooow…..i can solve it ::::::::in my logic::::::::::::

I come to know from this:

1.how to convert string to intger value ::::::::::::

2.how to use atoi function::::::::

#include<string.h>

#include<stdio.h>

#include<stdlib.h>

int main()

{

int T,n,i,len,j,k;

long int s,sum=0;

char str[1000],str1[1000];

scanf("%d",&T);

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

scanf(" %[^\n]",str);

len=strlen(str);

if(len==6) printf("%d\n",sum);

else{

for(j=7,k=0;j<len;j++,k++){

str1[k]=str[j];

}

str1[k]='\0';

s=atoi(str1);

sum=sum+s;

}

}

return 0;

}

…………………………………………………………………………………………………………………………………………………………

### 136 - Ugly Numbers::

Main code for solution:::::::::

#include<stdio.h>

int fun(int n){

while(n!=1) {

if(n%5==0) n=n/5;

else if(n%3==0) n=n/3;

else if(n%2==0) n=n/2;

else return 0;

}

return 1;

}

int main()

{

int k=1,c,l;

long long int i=2;

l=12;

while(1)

{

if(i%2==0)

c=fun(i);

else if(i%3==0)

c=fun(i);

else if(i%5==0)

c=fun(i);

if(c==1) k++;

if(k==l){

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

break;

}

i++;

}

return 0;

}

Submission code:L:::::

#include<iostream>

using namespace std;

int main()

{

int k;

cout<<"The 1500'th ugly number is 859963392."<<endl;

return 0;

}

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| [**12372**](http://uva.onlinejudge.org/external/123/12372.pdf) - [Packing for Holiday](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=3794) | **Accepted** | C++ | 0.000 | [0.000](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=problem_stats&problemid=3794&category=24) | 4402 | 5 mins ago |
| [https://uhunt.onlinejudge.org/images/udebug3.png](https://www.udebug.com/UVa/12372) | [discuss](http://uva.onlinejudge.org/board/search.php?keywords=12372)[**12372**](http://uva.onlinejudge.org/external/123/12372.pdf) - [Packing for Holiday](http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=3794) |  |  |  |  |  |  |

#include<iostream>

using namespace std;

int main()

{

int h,w,l,T,i;

cin>>T;

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

cin>>l>>w>>h;

if(h<=20 && w<=20 && l<=20) cout<<"Case "<<i<<": good"<<endl;

else if(h>20 || l>20 || w>20) cout<<"Case "<<i<<": bad"<<endl;

else if((h==w) || (h==l) || (l==w)) cout<<"Case "<<i<<": good"<<endl;

}

return 0;

}

### 11219 - How old are you?

#include<stdio.h>

int main()

{

int d1,d2,m1,m2,y1,y2,T,y,i;

scanf("%d",&T);

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

scanf("%d/%d/%d",&d2,&m2,&y2);

scanf("%d/%d/%d",&d1,&m1,&y1);

if(d2<d1) m2--;

if(m2<m1) y2--;

y=y2-y1;

if(y<0) printf("Case #%d: Invalid birth date\n",i);

else if(y>130) printf("Case #%d: Check birth date\n",i);

else if(y==0) printf("Case #%d: 0\n",i);

else printf("Case #%d: %d\n",i,y);

}

return 0;

}

### 10550 - Combination Lock(using debug)…..

#include<stdio.h>

int main()

{

int a,b,c,d,sum,l;

while(1)

{

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

if(a==0 && b==0 && c==0 && d==0) break;

if(a<b) a=(40+a)-b;

else a=a-b;

if(c<b) b=(40+c)-b;

else b=c-b;

if(c<d) c=(40+c)-d;

else c=c-d;

l=(a+b+c)\*9;

sum=360+360+360+l;

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

}

return 0;

}

### 10346 - Peter's Smokes

#include<stdio.h>

int main()

{

int n,a,d,k,l,bk;

while(scanf("%d %d",&n,&k) != EOF){

a=n;

while(n>=k){

d=n;

l=n/k;

bk=n%k;

a=a+l;

n=l+bk;

}

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

}

return 0;

}

### 10070 - Leap Year or Not Leap Year and

It’s a very bed code:::::

My code:

#include<stdio.h>

int main()

{

int m4,m100,m400,m55,m15,len,k=0,i;

char str[100000];

while(scanf("%s",str)!=EOF){

if(k>0) printf("\n");

m4=0,m100=0,m400=0,m55=0,m15=0;

len=strlen(str);

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

m4=((m4\*10)+(str[i]-'0'))%4;

m100=((m100\*10)+(str[i]-'0'))%100;

m400=((m400\*10)+(str[i]-'0'))%400;

m55=((m55\*10)+(str[i]-'0'))%55;

m15=((m15\*10)+(str[i]-'0'))%15;

}

if((m4==0 && m100!=0) || m400==0){

printf("This is leap year.\n");

if(m15==0) printf("This is huluculu festival year.\n");

if(m55==0) printf("This is bulukulu festival year.\n");

}

else if(m15==0) printf("This is huluculu festival year.\n");

else if(m55==0) printf("This is bulukulu festival year.\n");

else printf("This is an ordinary year.\n");

k++;

}

return 0;

}

But in this code I can’t find any bug…my accepted code is :

#include<stdio.h>

int main()

{

int m4,m100,m400,m55,m15,len,k=0,i;

char str[100000];

while(scanf("%s",str)!=EOF){

if(k>0) printf("\n");

m4=0,m100=0,m400=0,m55=0,m15=0;

len=strlen(str);

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

m4=((m4\*10)+(str[i]-'0'))%4;

m100=((m100\*10)+(str[i]-'0'))%100;

m400=((m400\*10)+(str[i]-'0'))%400;

m55=((m55\*10)+(str[i]-'0'))%55;

m15=((m15\*10)+(str[i]-'0'))%15;

}

if((m4==0 && m100!=0) || m400==0){

printf("This is leap year.\n");

if(m15==0) printf("This is huluculu festival year.\n");

if(m55==0) printf("This is bulukulu festival year.\n");

}

else

{

if(m15==0) printf("This is huluculu festival year.\n");

else printf("This is an ordinary year.\n");

}

k++;

}

return 0;

}

…………………………………………………………………………………………………………………………………………………………………………………

#include<stdio.h>

int main()

{

int m4,m100,m400,m55,m15,len,k=0,i;

char str[100000];

while(scanf("%s",str)!=EOF){

if(k>0) printf("\n");

m4=0,m100=0,m400=0,m55=0,m15=0;

len=strlen(str);

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

m4=((m4\*10)+(str[i]-'0'))%4;

m100=((m100\*10)+(str[i]-'0'))%100;

m400=((m400\*10)+(str[i]-'0'))%400;

m55=((m55\*10)+(str[i]-'0'))%55;

m15=((m15\*10)+(str[i]-'0'))%15;

}

if((m4==0 && m100!=0) || m400==0){

printf("This is leap year.\n");

if(m15==0) printf("This is huluculu festival year.\n");

if(m55==0) printf("This is bulukulu festival year.\n");

}

else

{

if(m15==0) printf("This is huluculu festival year.\n");

else printf("This is an ordinary year.\n");

}

k++;

}

return 0;

}

#include<stdio.h>

#include<string.h>

int main()

{

long long a,b,c,d,e,i,l,leap,hulu,bulu,nl=0;

char s[100000];

while(gets(s))

{

a=0;

b=0;

c=0;

d=0;

e=0;

leap=0;

hulu=0;

bulu=0;

l=strlen(s);

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

{

a=a\*10+(s[i]-'0');

a=a%4;

}

if(a==0)

{

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

{

b=b\*10+(s[i]-'0');

b=b%100;

}

if(b==0)

{

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

{

c=c\*10+(s[i]-'0');

c=c%400;

}

if(c==0)

leap=1;

}

else

leap=1;

}

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

{

d=d\*10+(s[i]-'0');

d=d%15;

}

if(d==0)

hulu=1;

if(leap==1)

{

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

{

e=e\*10+(s[i]-'0');

e=e%55;

}

if(e==0)

bulu=1;

}

if(nl!=0)

printf("\n");

if(leap==1)

printf("This is leap year.\n");

if(hulu==1)

printf("This is huluculu festival year.\n");

if(bulu==1)

printf("This is bulukulu festival year.\n");

if(leap==0 && hulu==0 && bulu==0)

printf("This is an ordinary year.\n");

nl++;

}

return 0;

}

#include<stdio.h>

int main()

{

int m4,m100,m400,m55,m15,len,k=0,i,v;

char str[100000];

while(scanf("%s",str)!=EOF){

if(k>0) printf("\n");

m4=0,m100=0,m400=0,m55=0,m15=0;

len=strlen(str);

v=0;

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

m4=((m4\*10)+(str[i]-'0'))%4;

m100=((m100\*10)+(str[i]-'0'))%100;

m400=((m400\*10)+(str[i]-'0'))%400;

m55=((m55\*10)+(str[i]-'0'))%55;

m15=((m15\*10)+(str[i]-'0'))%15;

}

if((m4==0 && (m100!=0 || m400==0)){

printf("This is leap year.\n");

v=1;

}

if(m15==0) printf("This is huluculu festival year.\n");

if(m55==0) printf("This is bulukulu festival year.\n");

if((v==0) && (m15 != 0) && (m55 !=0)) printf("This is an ordinary year.\n");

k++;

}

return 0;

}

### 11057 - Exact Sum

#include<iostream>

#include<cstdio>

#include<algorithm>

using namespace std;

int main()

{

int N,M,i,j,k,ara[10000],p,q,d;

while(cin>>N){

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

cin>>ara[i];

}

p=0,q=N-1;

d=q-p;

cin>>M;

sort(ara,ara+N);

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

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

if((ara[i]+ara[j])==M){

if(j-i<d)

p=i,q=j;

d=q-p;

}

}

}

cout<<"Peter should buy books whose prices are "<<ara[p]<<" and "<<ara[q]<<"."<<endl;

cout<<endl;

}

return 0;

}

### 11936 - The Lazy Lumberjacks

#include<iostream>

#include<algorithm>

using namespace std;

int main()

{

int a,b,c,T,ara[3],i;

cin>>T;

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

cin>>a>>b>>c;

ara[0]=a,ara[1]=b;ara[2]=c;

sort(ara,ara+3);

if(ara[0]+ara[1]>ara[2]) cout<<"OK"<<endl;

else cout<<"Wrong!!"<<endl;

}

return 0;

}

### 10018 - Reverse and Add

#include<iostream>

using namespace std;

int main()

{

long long int a,k,b,cont,t;

int N,i;

cin>>N;

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

cin>>a;

cont=0;

while(1){

k=0;

t=a;

while(1){

if(a/10==0){

b=a%10;

k=((10\*k)+b);

break;

}

b=a%10;

a=a/10;

k=((10\*k)+b);

}

if(k==t)

{

cout<<cont<<" "<<k<<endl;

break;

}

else{

a=k+t;

cont++;

}

}

}

return 0;

}

### 11799 - Horror Dash

#include<iostream>

#include<algorithm>

using namespace std;

int main()

{

int T,i,j,k,ara[100],N;

cin>>T;

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

cin>>N;

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

if(j==N-1) cin>>ara[j];

else cin>>ara[j];

}

sort(ara,ara+N);

cout<<"Case "<<i<<": "<<ara[N-1]<<endl;

}

return 0;

}

### 12543 - Longest Word

#include<stdio.h>

#include<string.h>

int main()

{

int n,c,d,i,len,m;

char str[10000],str1[100];

m=0;

while(scanf("%s",str)){

c=0;

if(strcmp(str,"E-N-D")==0) break;

len=strlen(str);

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

if((str[i]>='A' && str[i]<='Z') || (str[i]>='a' && str[i]<='z')|| (str[i]=='-'))

{

c++;

}

}

if(c>m){

strcpy(str1,str);

m=c;

}

}

len=strlen(str1);

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

if((str1[i]>='A' && str1[i]<='Z') || (str1[i]>='a' && str1[i]<='z') || (str1[i]=='-')){

printf("%c",tolower(str1[i]));

}

}

printf("\n");

return 0;

}

### 11150 - Cola

#include<iostream>

using namespace std;

int main()

{

int N,i,c=0,p,r,l;

while((cin>>N)){

c=0;

l=N;

while(1){

p=N/3;

if(p>0){

r=N/3;

N=N%3+r;

c=c+r;

}

else{

if(N==2) {

c=c+l;

cout<<c+1<<endl;

break;

}

else {

cout<<c+l<<endl;

break;

}

}

}

}

return 0;

}

### 11417 - GCD

#include<iostream>

using namespace std;

int GCD(int a,int b)

{

int p,n,temp;

if(a>b)

{

temp=a;

a=b;

b=temp;

}

while(1){

n=b/a;

if(b%a==0){

return a;

}

else {

p=b%a;

b=a;

a=p;

}

}

}

int main()

{

int N,x=0,i,j,G;

while(x<101){

cin>>N;

G=0;

if(N==0) break;

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

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

G+=GCD(i,j);

}

}

cout<<G<<endl;

x++;

}

return 0;

}

### 11388 - GCD LCM

#include<iostream>

#include<cmath>

using namespace std;

int main()

{

long long int a,b,i,j,T,p,q,sq,x,test;

cin>>T;

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

test=0;

cin>>a>>b;

if(b%a==0)

cout<<a<<" "<<b<<endl;

else cout<<-1<<endl;

}

return 0;

}

### 11942 - Lumberjack Sequencing

#include<iostream>

using namespace std;

int main()

{

int ara[10],i,N,k,j,l;

cin>>N;

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

l=0;

if(i==0) cout<<"Lumberjacks:"<<endl;

for(j=0;j<10;j++){

cin>>ara[j];

}

if(ara[0]<ara[1]){

for(k=1;k<9;k++){

if(ara[k]>ara[k+1]){

cout<<"Unordered"<<endl;

l=1;

break ;

}

}

}

else if(ara[0]>ara[1]){

for(k=1;k<9;k++){

if(ara[k]<ara[k+1]){

cout<<"Unordered"<<endl;

l=1;

break;

}

}

}

if(l==0) cout<<"Ordered"<<endl;

}

return 0;

}

### 10327 - Flip Sort

#include<iostream>

using namespace std;

int main()

{

int ara[1000],N,i,temp,flip,j;

while(cin>>N){

flip=0;

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

cin>>ara[i];

}

for(i=N-2;i>=0;i--){

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

if(ara[j]>ara[j+1]){

temp=ara[j];

ara[j]=ara[j+1];

ara[j+1]=temp;

flip++;

}

}

}

cout<<"Minimum exchange operations : "<<flip<<endl;

}

return 0;

}

### 543 - Goldbach's Conjecture

#include<iostream>

using namespace std;

int ara[1000000];

int main()

{

int i,j,k,N,test;

ara[0]=1,ara[2]=0;

for(i=4;i<=1000000;i=i+2){

ara[i]=1;

}

for(i=3;i\*i<=1000000;i+=2){

if(ara[i]==0){

for(j=i\*i;j<1000000;j+=i){

ara[j]=1;

}

}

}

while(1){

k=0;

cin>>N;

if(N==0) break;

else if(N%2==0 && N>=6){

for(i=N-2;i>=3;i--){

if(ara[i]==0){

test=N-i;

if(ara[test]==0 ){

cout<<N<<" = "<<test<<" + "<<i<<endl;

k=1;

break;

}

}

}

if(k==0) cout<<"Goldbach's conjecture is wrong."<<endl;

}

}

return 0;

}

MORE EFECIENT CODE:

BY VECTOR;

#include<iostream>

#include<vector>

using namespace std;

#define maxn 1000050

vector<int> primes;

bool flag[maxn];

int main()

{

int M,i,j,N,k,test;

primes.push\_back(0);

primes.push\_back(2);

flag[2]=true;

for(i = 3; i <= maxn; i += 2) flag[i] = true;

for(i=4;i<maxn;i+=2)

{

flag[i]=false;

}

for(i=3;i\*i<=maxn;i+=2){

if(flag[i]){

primes.push\_back(i);

for(j=i\*i;j<=maxn;j+=i){

flag[j]=false;

}

}

}

while(1){

k=0;

cin>>N;

if(N==0) break;

else if(N%2==0 && N>=6){

for(i=N-2;i>=3;i--){

if(flag[i]==true){

test=N-i;

if(flag[test]==true){

cout<<N<<" = "<<test<<" + "<<i<<endl;

k=1;

break;

}

}

}

if(k==0) cout<<"Goldbach's conjecture is wrong."<<endl;

}

}

return 0;

}

### 686 - Goldbach's Conjecture (II)

Time limit: 3.000 seconds

#include<iostream>

#include<vector>

using namespace std;

#define maxn 10000050

vector <int> primes;

bool flag[maxn];

int main()

{

int N,i,j,test,k,cont;

primes.push\_back(2);

for(i=3;i<maxn;i+=2){

flag[i]=true;

}

for(i=3;i\*i<maxn;i+=2){

if(flag[i]){

primes.push\_back(i);

for(j=i\*i;j<=maxn;j+=i){

flag[j]=false;

}

}

}

while(1){

cont=0;

cin>>N;

if(N==0) break;

else if(N%2==0 && N>=4){

for(i=N-2;i>=N/2;i--){

if(flag[i]==true){

test=N-i;

if(flag[test]==true) cont++;

}

}

if(N==4) cout<<1<<endl;

else cout<<cont<<endl;

}

}

return 0;

}

### 10392 - Factoring Large Numbers

#include<iostream>

#include<vector>

using namespace std;

#define maxn 1000000

vector<int> primes;

void seive()

{

vector<bool> test(maxn+1,false);

long long int i,j;

test[2]=true;

for(i=3;i<=maxn;i+=2){

test[i]=true;

}

for(i=3;i\*i<=maxn;i+=2){

if(test[i]){

for(j=i\*i;j<=maxn;j+=i){

test[j]==false;

}

}

}

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

if(test[i]) primes.push\_back(i);

}

return ;

}

int main()

{

long long int i,j,n;

seive();

while(1){

cin>>n;

if(n<0) break;

for(i=0;i<primes.size();i++){

while(n%primes[i]==0){

n/=primes[i];

cout<<" "<<primes[i]<<endl;

}

if(n==1) {

cout<<endl;

break;

}

}

if (n != 1){

cout<<" "<<n<<endl;

cout<<endl;

}

}

return 0;

}

### 374 - Big Mod

#include<iostream>

using namespace std;

int bigmod(long long int a,long long p,int m)

{

int x,remain;

if(p==0) return 1;

x=bigmod(a,p/2,m);

x=(x\*x)%m;

if(p%2 != 0){

x=(a\*x)%m;

}

return x;

}

int main()

{

long long int a,p,ans;

int m;

while(cin>>a>>p>>m){

ans=bigmod(a,p,m);

cout<<ans<<endl;

}

return 0;

}

### 1230 - MODEX

#include<iostream>

using namespace std;

int fun(int x,int p,int m){

int k;

if(p==0){

return 1;

}

k=fun(x,p/2,m);

k=((k\*k))%m;

if(p%2==1){

k=(k\*x)%m;

}

return k;

}

int main()

{

long long int p,x,y,z,i,n,result;

while(cin>>p){

if(p==0) break;

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

cin>>x>>y>>n;

result=fun(x,y,n);

cout<<result<<endl;

}

}

return 0;

}

### 10394 - Twin Primes

#include<iostream>

#include<vector>

using namespace std;

#define n 20000000

vector<int> primes;

void fun()

{

int i,j;

vector <bool> test(n+1,false);

test[2]=1;

for(i=3;i<=n;i+=2){

test[i]=1;

}

for(i=3;i\*i<=n;i+=2){

if(test[i]){

for(j=i\*i;j<=n;j+=i){

test[j]=0;

}

}

}

primes.push\_back(0);

for(i=3;i<=n;i++){

if(test[i] && test[i+2]){

primes.push\_back(i);

}

}

}

int main()

{

long long int S;

fun();

while(cin>>S){

cout<<"("<<primes[S]<<", "<<primes[S]+2<<")"<<endl;

}

return 0;

}

### 10931 - Parity

#include<iostream>

using namespace std;

int fun(int a,int k){

int c;

if(a==0) return k;

if(a%2==1) k++;

c=fun(a/2,k);

cout<<a%2;

return c;

}

int main()

{

long long a,c,k;

while(1){

cin>>a;

if(a==0) break;

k=0;

cout<<"The parity of ";

c=fun(a,k);

cout<<" is "<<c<<" (mod 2)."<<endl;

}

return 0;

}

### 10696 - f91

#include<iostream>

using namespace std;

int f91(int N,int ck)

{

if(N>=101){

if(ck==0) return (N-10);

else return N;

}

else if(N<=100){

f91(N+11,1);

return 91;

}

}

int main()

{

long long int p;

int ck=0;

while(1){

cin>>p;

if(p==0) break;

ck=0;

cout<<"f91("<<p<<") = "<<f91(p,ck)<<endl;

}

return 0;

}

### 12459 - Bees' ancestors

#include<iostream>

using namespace std;

int main()

{

long long int n,sum,i,t1,t2,nextTerm;

while(1){

t1=0,t2=1,nextTerm=0;

cin>>n;

if(n==0) break;

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

{

nextTerm = t1 + t2;

t1 = t2;

t2 = nextTerm;

}

cout << nextTerm <<endl;

}

return 0;

}

### 10699 - Count the factors

#include<iostream>

#include<vector>

using namespace std;

#define maxn 10000050

vector <int> primes;

bool flag[maxn];

void seive()

{

int N,i,j,test,k;

primes.push\_back(2);

for(i=3;i<maxn;i+=2){

flag[i]=true;

}

for(i=3;i\*i<maxn;i+=2){

if(flag[i]){

primes.push\_back(i);

for(j=i\*i;j<=maxn;j+=i){

flag[j]=false;

}

}

}

}

int main()

{

long long int n,cont,i,test,c;

seive();

while(cin>>n)

{

if(n==0) break;

c=n;

cont=0;

for(i=0;i<primes.size();i++){

test=0;

if(primes[i]>n) break;

while(n%primes[i]==0){

n/=primes[i];

if(test==0)

{

cont++;

test=1;

}

}

}

if(n!=1) cont++;

cout<<c<<" : "<<cont<<endl;

}

}

### 10924 - Prime Words

#include<iostream>

#include<vector>

#include<cstring>

using namespace std;

#define maxn 9999

bool flag[maxn];

void seive()

{

int N,i,j,test,k;

flag[1]=true,flag[2]=true;

for(i=3;i<maxn;i+=2){

flag[i]=true;

}

for(i=3;i\*i<maxn;i+=2){

if(flag[i]){

for(j=i\*i;j<=maxn;j+=i){

flag[j]=false;

}

}

}

}

int main()

{

long long int n,cont,i,test,c,sum,len,p;

string str;

seive();

while(cin>>str){

len=str.length();

sum=0;

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

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

p=1+(str[i]-'a');

}

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

p=27+(str[i]-'A');

}

sum+=p;

}

if(flag[sum]==true) cout<<"It is a prime word."<<endl;

else cout<<"It is not a prime word."<<endl;

}

}

### 673 - Parentheses Balanc

### Using implementation :

#include<iostream>

#include<string>

using namespace std;

int fun(string str)

{

int top=0,i,len;

char data[130];

len=str.length();

//if(len%2==1) return 0;

top=0;

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

{

if(str[i]== ' ') ;

else if(str[i]=='(' || str[i]=='['){

data[top]=str[i];

top+=1;

}

else if(str[i]==')' || str[i]==']'){

if(top==0) return 0;

else{

top-=1;

if(data[top]=='(' && str[i]==')') continue;

else if(data[top]=='[' && str[i]==']') continue;

else{

return 0;

}

}

}

}

if(top==0) return 1;

else return 0;

}

int main()

{

int T,i;

char a;

cin>>T;

cin>>a;

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

{

string str;

getline(cin,str);

int c=fun(str);

if(c==1) cout<<"Yes"<<endl;

else cout<<"No"<<endl;

}

return 0;

}

**Using concept of Stack** :

#include<bits/stdc++.h>

using namespace std;

int main()

{

int T,len,test;

int i,j,k;

cin>>T;

getc(stdin);

string str;

for(j=1;j<=T;j++){

char str[140];

gets(str);

stack<char> s;

test=0;

len=strlen(str);

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

if(str[i]==' ') continue;

else if(str[i]=='(' || str[i]=='[') s.push(str[i]);

else {

if(s.empty()){

cout<<"No"<<endl;

test=1;

break;

}

else if(str[i]==')' && s.top() != '('){

cout<<"No"<<endl;

test=1;

break;

}

else if(str[i]==']' && s.top() != '['){

cout<<"No"<<endl;

test=1;

break;

}

s.pop();

}

}

if(test==0) {

if(!s.empty()) cout<<"No"<<endl;

else cout<<"Yes"<<endl;

}

}

return 0;

}

­­­­­­­­­­­­­­­­#include<iostream>

#include<vector>

using namespace std;

#define maxn 9999999

long int ara[maxn];

void fun()

{

int i,j,k;

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

ara[i]=i;

}

for(i=1;i\*i<=maxn;i++){

if(ara[i]==i){

for(j=2\*i;j<=maxn;j+=i){

if(ara[j]==j){

ara[j]=i;

}

}

}

}

}

vector<int> factor(int n)

{

int c;

vector<int> ret;

while(n != 1){

n=n/ara[n];

if(c != ara[n]) ret.push\_back(ara[n]);

c=ara[n];

}

return ret;

}

int main()

{

int n,i;

vector<int> l;

while(cin>>n){

l=factor(n);

for(i=0;i<l.size();i++){

cout<<l[i]<<" ";

}

cout<<endl;

}

return 0;

}

### 11192 - Group Reverse

#include<iostream>

#include<string>

using namespace std;

int main()

{

int t,g,i,j,k,len,l;

char ch;

string str;

t=1;

while(t<=101){

cin>>l;

if(l==0) return 0;

cin>>str;

len=str.length();

g=len/l;

for(i=g-1;i<=len-1;i+=g){

for(j=i,k=1;k<=g;k++,j--){

cout<<str[j];

}

}

cout<<endl;

t++;

}

return 0;

}

### 299 - Train Swapping

#include<iostream>

using namespace std;

int main()

{

int t,i,s,n,j,l;

cin>>t;

for(l=1;l<=t;l++){

cin>>n;

int ara[n];

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

{

cin>>ara[i];

}

s=0;

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

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

if(ara[i]>ara[j]){

swap(ara[i],ara[j]);

s++;

}

}

}

cout<<"Optimal train swapping takes "<<s<<" swaps."<<endl;

}

return 0;

}

### 11850 - Alaska

#include<iostream>

#include<cstdio>

#include<algorithm>

using namespace std;

int main()

{

int arr[1422],input,i,j;

while(1)

{

cin>>input;

bool possible=true;

if(input==0) break;

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

cin>>arr[i];

}

sort(arr,arr+input);

for (i=0;i<input-1;i++)

if (arr[i+1]-arr[i]>200)

possible=false;

if (2\*(1422-arr[input-1]) > 200)

possible=false;

if (possible)

printf("POSSIBLE\n");

else printf("IMPOSSIBLE\n");

}

return 0;

}

### 10098 - Generating Fast

#include<iostream>

#include<algorithm>

using namespace std;

void fun(string str)

{

sort(str.begin(),str.end());

do{

cout<<str<<endl;

}

while(next\_permutation(str.begin(),str.end()));

}

int main()

{

int T,i,j;

cin>>T;

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

string str;

cin>>str;

fun(str);

cout<<endl;

}

return 0;

### 10006 - Carmichael Numbers

#include<iostream>

#include<cmath>

using namespace std;

#define maxn 65001

bool mark[maxn];

void seive()

{

int i,j;

int sq=sqrt(maxn);

for(i=4;i<=maxn;i+=2)

{

mark[i]=1;

}

for(i=3;i<=sq;i+=2){

if(mark[i]==0){

for(j=i\*i;j<=maxn;j+=i){

mark[j]=1;

}

}

}

}

long long int mod(int a,int p,int m)

{

if(p==0){

return 1;

}

long long int x=mod(a,p/2,m)%m;

x=(x\*x)%m;

if(p%2==1){

x=(x\*a)%m;

}

return x;

}

bool fun(int n)

{

int i,k;

for(i=2;i<n;i++){

{

k=mod(i,n,n);

if(k != i) {

return false;

}

}

}

return true;

}

int main()

{

int n,T,i;

bool test;

seive();

while(1)

{

cin>>n;

if(n==0) break;

if(mark[n]==0)

{

cout<<n<<" is normal."<<endl;

continue;

}

test=fun(n);

if(test==true) cout<<"The number "<<n<<" is a Carmichael number."<<endl;

else cout<<n<<" is normal."<<endl;

}

return 0;

}

### 10551 - Basic Remains

#include<iostream>

#include<cstring>

#include<cmath>

using namespace std;

long long int dec(int b,string n,unsigned long int mod)

{

unsigned long long int k,p1=0,p2=0,power1=0,power2=0;

int len=n.length();

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

p1=b\*p1;

p1+=(n.at(i)-'0');

p1%=mod;

}

return p1;

}

long long int anytodec(int b,string m)

{

long int len,p=0;

len=m.length();

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

p=b\*p;

p+=(m[i]-'0');

}

return p;

}

void decimal\_to\_any\_base(int b,long int n)

{

string main\_string="",another\_string="";

char ch;

ch = n%b+'0';

main\_string+=ch;

n/=b;

while( n != 0 )

{

ch = n%b+'0';

main\_string+=ch;

n/=b;

}

for(int i=main\_string.length()-1; i>=0; --i)

another\_string+=main\_string.at(i);

cout<<another\_string<<endl;

}

int main()

{

unsigned long long int c,mod,len,i,l;

int b;

string n;

string m;

while(1)

{

mod=0;

cin>>b;

if(b==0) break;

cin>>n>>m;

mod=anytodec(b,m);

mod=dec(b,n,mod);

decimal\_to\_any\_base(b,mod);

}

return 0;

}

### 1225 - Digit Counting

#include<iostream>

#include<cstring>

#include<sstream>

using namespace std;

int main()

{

int ara[10],len,T,p,j,i,k;

long int n;

cin>>T;

for(j=1;j<=T;j++){

memset(ara,0,sizeof(ara));

cin>>n;

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

if(i<10) ara[i]++;

else {

stringstream ss;

string str;

ss<<i;

ss>>str;

len=str.length();

for(k=0;k<len;k++){

p=str[k]-'0';

ara[p]++;

}

}

}

for(i=0;i<10;i++){

if(i==9) cout<<ara[i]<<endl;

else cout<<ara[i]<<" ";

}

}

return 0;

}

### 160 - Factors and Factorials

#include<iostream>

#include<vector>

#include<cmath>

#include<cstdio>

using namespace std;

#define maxn 120

bool ara[maxn];

vector<int> p;

void seive()

{

int i,j,sq=sqrt(maxn);

for(i=3;i<=maxn;i+=2){

ara[i]=true;

}

p.push\_back(2);

for(i=3;i<=sq;i+=2){

if(ara[i]==true){

for(j=i\*2;j<maxn;j+=i) ara[j]=false;

}

}

for(i=3;i<=maxn;i+=2){

if(ara[i]==true) p.push\_back(i);

}

}

int main()

{

seive();

int n,ct,cnt,i,j,test;

while(1){

cin>>n;

if(n==0) return 0;

ct=0;

printf("%3d! =",n);

for(i=0;i<p.size() && p[i]<= n;i++){

test=n;

cnt=0;

while(test){

test=test/p[i];

cnt+=test;

}

if(ct==15) {

printf("\n%6c%3d",' ',cnt);

ct=0;

}

else printf("%3d",cnt);

++ct;

}

cout<<endl;

}

}

### 495 - Fibonacci Freeze

import java.math.BigInteger;

import java.util.Scanner;

public class Main{

static BigInteger fun(int n)

{

BigInteger a = new BigInteger("0");

BigInteger b= new BigInteger("1");

BigInteger c= new BigInteger("1");

for(int i=2;i<=n;i++){

c=a.add(b);

a=b;

b=c;

}

return a;

}

public static void main(String args[])

{

int n;

Scanner input =new Scanner(System.in);

while(input.hasNext()){

n=input.nextInt();

System.out.println("The Fibonacci number for "+n+" is "+fun(n+1));

}

}

}

### 324 - Factorial Frequencies

#include<bits/stdc++.h>

using namespace std;

int limon(int ara[],int len,int x);

void fun(int n)

{

int ara[800];

int ara1[10];

memset(ara1,0,sizeof(ara1));

int len=1,i;

ara[0]=1;

for(i=2;i<=n;i++){

len=limon(ara,len,i);

}

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

++ara1[ara[i]];

}

for(i=0;i<=4;i++){

cout<<" "<<"("<<i<<")"<<" "<<ara1[i];

}

cout<<endl;

for(i=5;i<=9;i++){

cout<<" "<<"("<<i<<")"<<" "<<ara1[i];

}

cout<<endl;

}

int limon(int ara[],int len,int x)

{

int i,remain=0,l;

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

l=(ara[i]\*x+remain);

ara[i]=l%10;

remain=l/10;

l=l/10;

}

while(l != 0){

ara[len]=l%10;

l/=10;

++len;

}

return len;

}

int main()

{

int n;

while(1)

{

cin>>n;

if(n==0) return 0;

else{

cout<<n<<"! --"<<endl;

fun(n);

}

}

}

### 884 - Factorial Factors :s

#include<bits/stdc++.h>

using namespace std;

#define maxn 1000010

long long int dp[maxn];

void sum();

bool isprime(int n)

{

int sq=sqrt(n);

if(n==2) return true;

else if(n%2==0) return false;

for(int i=2;i<=sq;i++) {

if(n%i==0) return false;

}

return true;

}

void limon()

{

int i,j;

long long int k;

for(i=2;i<=maxn;i+=2){

if(isprime(i)==true){

k=i;

while(k<=maxn){

for(j=k;j<=maxn;j+=k) ++dp[j];

k=k\*i;

}

}

}

for(i=3;i<=maxn;i+=2){

if(isprime(i)){

k=i;

while(k<=maxn){

for(j=k;j<=maxn;j+=k) ++dp[j];

k=k\*i;

}

}

}

}

void sum()

{

int i,j;

dp[2]=1;

for(i=3;i<=maxn;i++){

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

}

}

int main()

{

int n;

limon();

sum();

while(cin>>n){

cout<<dp[n]<<endl;

}

return 0;

}

### 10038 - Jolly Jumpers

#include<bits/stdc++.h>

using namespace std;

bool test(int ara[],int n)

{

int m,i,k;

int ara1[n-1];

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

ara1[i]=abs(ara[i]-ara[i+1]);

}

sort(ara1,ara1+(n-1));

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

if(ara1[i] != i+1) return false;

}

return true;

}

int main()

{

int i,j,k,t,n;

while(cin>>n){

int ara[n];

for(i=0;i<n;i++) cin>>ara[i];

if(test(ara,n)==true) cout<<"Jolly"<<endl;

else cout<<"Not jolly"<<endl;

}

return 0;

}

### 10050 - Hartals

#include<bits/stdc++.h>

using namespace std;

int limon(int ara[],int d,int n)

{

int i,j,ct=0,p;

int ara1[d+3];

memset(ara1,0,sizeof(ara1));

for(i=6;i<=d;i+=7) ara1[i]=1;

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

p=ara[i];

for(j=p;j<=d;j+=p){

if(j%7==0) continue;

else if(ara1[j]==0){

++ct;

ara1[j]=1;

}

}

}

return ct;

}

int main()

{

int T,i,j,d,k,n,p;

cin>>T;

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

cin>>d;

cin>>n;

int ara[n];

for(j=0;j<n;j++) cin>>ara[j];

p=limon(ara,d,n);

cout<<p<<endl;

}

return 0;

}

### 10523 - Very Easy !!!

//package basicjava;

import java.util.Scanner;

import java.math.BigInteger;

public class Main {

public static void main(String args[]) {

int n,a;

Scanner input=new Scanner(System.in);

while(input.hasNext()){

n=input.nextInt();

a=input.nextInt();

BigInteger sum=new BigInteger("0");

BigInteger A = BigInteger.valueOf(a);

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

sum=sum.add(BigInteger.valueOf(i).multiply(A.pow(i)));

}

System.out.println(sum);

}

}

}

### 10487 - Closest Sums

#include<bits/stdc++.h>

using namespace std;

int main()

{

//freopen("limon","r",stdin);

int n,m,i=1,a,b,j,p,t;

long long int ans,test;

while(cin>>n){

if(n==0) return 0;

int ara[n];

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

cin>>ara[j];

}

cin>>m;

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

if(j==0) cout<<"Case "<<i<<":"<<endl;

cin>>p;

t=0;

ans=ara[0]+ara[1];

if(ans==p){

cout<<"Closest sum to "<<p<<" is "<<ans<<"."<<endl;

continue;

}

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

for(b=a+1;b<n;b++){

test=ara[a]+ara[b];

if(test==p){

cout<<"Closest sum to "<<p<<" is "<<test<<"."<<endl;

t=1;

break;

}

else if(abs(p-ans)>abs(p-test)) ans=test;

}

if(t==1) break;

else if(a==n-2) cout<<"Closest sum to "<<p<<" is "<<ans<<"."<<endl;

}

}

++i;

}

return 0;

}

### 11518 - Dominos 2

#include<bits/stdc++.h>

using namespace std;

int visit[10005];

void dfs(list<int> l[],int x)

{

visit[x]=1;

list<int> :: iterator it;

for(it=l[x].begin();it!=l[x].end();++it)

{

if(visit[\*it]==0) dfs(l,\*it);

}

}

int main()

{

int T,i,j,p,q,n,e,ct,li,x;

cin>>T;

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

cin>>n>>e>>li;

ct=0;

list<int> l[n+1];

memset(visit,0,sizeof(visit));

for(j=1;j<=e;j++){

cin>>p>>q;

l[p].push\_back(q);

}

for(j=1;j<=li;++j){

cin>>x;

if(visit[x]==0){

dfs(l,x);

}

}

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

if(visit[j]==1) ++ct;

}

cout<<ct<<endl;

}

return 0;

}

|  |
| --- |
|  |
|  |

### 10880 - Colin and Ryan

#include<bits/stdc++.h>

using namespace std;

set<long long int> p;

int main()

{

long long int T,i,j,c,r,k;

set<long long int> :: iterator it;

cin>>T;

for(k=1; k<=T; k++)

{

cin>>c>>r;

cout<<"Case #"<<k<<":";

if(c==r) cout<<" 0"<<endl;

else

{

long long k=c-r,i;

int sq=sqrt(k);

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

{

if(k%i==0)

{

if(i>r) p.insert(i);

if(k/i>r)p.insert(k/i);

}

}

for(it=p.begin(); it!=p.end(); ++it)

{

cout<<" "<<\*it;

}

cout<<endl;

p.clear();

}

}

return 0;

}

### 11723 - Numbering Roads

#include<iostream>

using namespace std;

int main()

{

int n,i=0,j=1,t,sum,r;

while(j<10002){

sum=0;

t=0;

cin>>n>>r;

if(n==0 && r==0) break;

cout<<"Case "<<j<<": ";

if(n==r) {

cout<<0<<endl;

++j;

continue;

}

else if(r>n) {

cout<<0<<endl;

++j;

continue;

}

n=n-r;

for(i=1;i<=26;i++){

{

sum+=r\*1;

if(sum>=n) {

cout<<i<<endl;

t=1;

break;

}

}

}

if(t==0) cout<<"impossible"<<endl;

++j;

}

return 0;

}

### 10101 - Bangla Numbers

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

void fun(ll ara[],string str[],ll n)

{

int p;

for(int i=0; i<4; i++)

{

if(n>=ara[i])

{

p=n/ara[i];

cout<<" "<<p<<str[i];

n=n%ara[i];

if(n==0) cout<<str[0];

}

}

if(n>0) cout<<" "<<n<<" kuti";

}

int main()

{

ll n,c=1,p,i;

char ch='.';

long long int ara[]= {10000000,100000,1000,100};

string str[]= {" kuti"," lakh"," hajar"," shata"};

while(cin>>n)

{

printf("%4d.",c);

if(n==0) {

cout<<" "<<0<<endl;

++c;

continue;

}

for(i=0; i<4; i++)

{

if(n>=ara[i])

{

p=n/ara[i];

if(i==0 && p>=100)

{

fun(ara,str,p);

// cout<<str[0];

n=n%ara[i];

}

else

{

cout<<" "<<p<<str[i];

n=n%ara[i];

}

}

}

if(n>0) cout<<" "<<n<<endl;

else cout<<endl;

++c;

}

return 0;

}

### 294 - Divisors

#include<bits/stdc++.h>

using namespace std;

int main()

{

long long int t,i,j,k,h,u,p,sq,d;

cin>>t;

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

cin>>u>>p;

h=0;

long long index;

for(j=u;j<=p;++j){

sq=sqrt(j);

if(j==1) {

h=1,index=1;

continue;

}

else{

d=2;

for(k=2;k<=sq;++k){

if(j%k==0){

if(j/k==k) ++d;

else d+=2;

}

}

}

if(h<d) {

swap(h,d);

index=j;

}

}

cout<<"Between "<<u<<" and "<<p<<", "<<index<<" has a maximum of "<<h<<" divisors."<<endl;

}

return 0;

}

### 146 - ID Codes

#include<bits/stdc++.h>

using namespace std;

int main()

{

char str[52];

int len,i;

while(gets(str))

{

if(str[0]=='#') return 0;

len=strlen(str);

if(next\_permutation(str,str+len)){

cout<<str<<endl;

}

else cout<<"No Successor"<<endl;

}

}

### 10107 - What is the Median?

#include<bits/stdc++.h>

using namespace std;

int main()

{

vector<long long int> p;

long long int s,mid,n;

while(cin>>n){

p.push\_back(n);

sort(p.begin(),p.end());

s=p.size();

if(s%2 != 0) cout<<p[s/2]<<endl;

else {

mid=(p[s/2]+p[s/2-1])/2;

cout<<mid<<endl;

}

}

return 0;

}

### 11340 - Newspaper

#include<bits/stdc++.h>

using namespace std;

int main()

{

int n,t,p,q,l,T,i,j,k,len;

long long int sum;

double d;

char ch,c;

string str;

map<char,int> m;

cin>>T;

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

cin>>n;

sum=0;

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

cin>>c>>p;

m.insert(pair<char,int>(c,p));

}

cin>>l;

getc(stdin);

for(k=1;k<=l;k++){

getline(cin,str);

len=str.length();

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

sum+=m[str[p]];

}

}

d=(double)sum/100.00;

cout<<setprecision(2)<<fixed<<d<<"$"<<endl;

m.clear();

}

return 0;

}

### 10226 - Hardwood Species

#include<bits/stdc++.h>

using namespace std;

int main()

{

map<string,int> m;

double d;

int ct,len;

char ch;

map<string,int> :: iterator it;

int t,i,j;

char str[35];

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

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

ct=0;

while(gets(str)){

len=strlen(str);

if(len==0) break;

++m[str];

++ct;

}

for(it=m.begin();it!=m.end();++it){

d=(double)it->second\*100.00/(double)ct;

cout<<it->first<<" "<<setprecision(4)<<fixed<<d<<endl;

}

if(i != t) cout<<endl;

m.clear();

}

}

### 11152 - Colourful Flowers

#include<iostream>

using namespace std;

long long int fun(int n,int k)

{

long long int sum=1;

int i;

if(n-k<k) k=n-k;

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

sum\*=(n-i);

sum/=(i+1);

}

return sum;

}

int main()

{

int n;

long long int s,p=0;

while(cin>>n){

if(p==1) cout<<endl;

p=1;

s=fun(2\*n,n);

s=s/(n+1);

cout<<s<<endl;

}

return 0;

}

# 10773 - Back to Intermediate Math

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

int main()

{

ll d,v,u;

int t,i=1;

double t1,t2,p;

cin>>t;

while(i<=t){

cin>>d>>v>>u;

if(d==0 || u==0 || u<=v || v==0){

cout<<"Case "<<i<<": "<<"can't determine"<<endl;

++i;

continue;

}

t1=(double)d/(double)u;

p=(u\*u-v\*v);

p=sqrt(p);

t2=(double)d/p;

p=t2-t1;

cout<<"Case "<<i<<": "<<setprecision(3)<<fixed<<p<<endl;

++i;

}

return 0;

}

### 11475 - Extend to Palindrome

#include<bits/stdc++.h>

using namespace std;

void failure(string str,int f[])

{

int k=1,j=0;

f[0]=0;

int len=str.length();

while(k<len){

if(str[k]==str[j]) f[k++]=++j;

else{

if(j) j=f[j-1];

else f[k++]=0;

}

}

}

int table(string text,string pat)

{

int len=pat.length();

int f[len];

failure(pat,f);

int i=0,j=0,ct=0;

int len\_t=text.length();

while(i<len\_t){

if(text[i]==pat[j]) {

++i;

++j;

ct=j;

if(j==len){

j=f[j-1];

}

}

else{

if(j) j=f[j-1];

else i++;

}

}

return ct;

}

int main()

{

string text,pat;

int i,c,j;

while(getline(cin,text))

{

int len=text.length();

pat=string(text.rbegin(),text.rend());

c=table(text,pat);

//cout<<"output"<<endl;

cout<<text;

for(i=c;i<len;i++){

cout<<pat[i];

}

cout<<endl;

}

return 0;

}

### 10004 - Bicoloring

#include<bits/stdc++.h>

using namespace std;

vector<int> l[1000];

int color[1000];

queue<int> q;

bool test()

{

int x,i,src=0;

while(!q.empty()) q.pop();

memset(color,-1,sizeof(color));

vector<int> :: iterator it;

q.push(src);

color[src]=1;

while(!q.empty()){

x=q.front();

for(it=l[x].begin();it!=l[x].end();it++){

if(color[\*it]==-1){

color[\*it]=1-color[x];

q.push(\*it);

}

else if(color[x]==color[\*it]) return false;

}

q.pop();

}

return true;

}

int main()

{

int i,j,n,p,q,e;

while(cin>>n && n){

cin>>e;

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

{

cin>>p>>q;

l[p].push\_back(q);

}

if(test()==true) cout<<"BICOLORABLE."<<endl;

else cout<<"NOT BICOLORABLE."<<endl;

for(i=0;i<n;i++) l[i].clear();

}

return 0;

}

### 11278 - One-Handed Typist

#include<bits/stdc++.h>

using namespace std;

int main()

{

char s[]="`1234567890-=qwertyuiop[]\\asdfghjkl;'zxcvbnm,./~!@#$%^&\*()\_+QWERTYUIOP{}|ASDFGHJKL:\"ZXCVBNM<>? ";

char Limon[]="`123qjlmfp/[]456.orsuyb;=\\789aehtdck-0zx,inwvg'~!@#QJLMFP?{}$%^>ORSUYB:+|&\*(AEHTDCK\_)ZX<INWVG\" ";

char mapp[128];

char str[1006];

char ch;

int i,len;

for(i=0;s[i];i++){

mapp[s[i]]=Limon[i];

}

while(gets(str)){

len=strlen(str);

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

ch=mapp[str[i]];

cout<<ch;

}

cout<<endl;

}

return 0;

}

### 10082 - WERTYU

#include<bits/stdc++.h>

using namespace std;

int main()

{

int i,len,l;

char kb[] ="1234567890-=WERTYUIOP[]\\SDFGHJKL;'XCVBNM,./";

char str[]="`1234567890-QWERTYUIOP[]ASDFGHJKL;ZXCVBNM,.";

char mapp[128];

len=strlen(kb);

for(i=0;str[i];i++){

mapp[kb[i]]=str[i];

}

string str1;

while(getline(cin,str1)){

l=str1.length();

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

if(str1[i]==' '){

cout<<str1[i];

continue;

}

else cout<<mapp[str1[i]];

}

cout<<endl;

}

return 0;

}

### 10305 - Ordering Tasks

#include<bits/stdc++.h>

using namespace std;

class Graph

{

int V;

list<int> \*adj;

void top(int v,bool visit[],stack<int> &s);

public:

Graph(int V);

void add(int v,int w);

void top\_sort();

};

Graph:: Graph(int V)

{

this->V=V;

adj=new list<int> [V];

}

void Graph :: add(int v,int w)

{

adj[v].push\_back(w);

}

void Graph :: top(int v,bool visit[],stack<int> &s)

{

visit[v]=true;

list<int> :: iterator it;

for(it=adj[v].begin();it!=adj[v].end();it++){

if(!visit[\*it])

top(\*it,visit,s);

}

s.push(v);

}

void Graph::top\_sort()

{

int i,j;

stack<int> s;

bool \*visit=new bool[V];

for(i=1;i<V;i++) visit[i]=false;

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

if(visit[i]==false)

top(i,visit,s);

}

while(! s.empty()){

cout<<s.top()<<" ";

s.pop();

}

cout<<endl;

}

int main()

{

int i,j,n,p,q,m;

while(scanf("%d%d",&n,&m) && n){

if(m==0) {

for(i=n;i>=1;i--){

if(i==1) cout<<i<<endl;

else cout<<i<<" ";

}

continue;

}

Graph g(n+1);

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

cin>>p>>q;

g.add(p,q);

}

g.top\_sort();

}

return 0;

}

### 443 - Humble Numbers

#include<bits/stdc++.h>

using namespace std;

set<long long int> s;

int main()

{

int n,i=1,j;

long long int p;

int ara[]={2,3,5,7};

s.insert(1);

set<long long int>:: iterator it;

it=s.begin();

while(s.size()<=6842){

for(i=0;i<4;i++) s.insert((\*it)\*ara[i]);

++it;

}

vector<long long int> v(s.begin(),s.end());

while(cin>>n && n){

if(n%100==11 || n%100==12 || n%100==13) cout<<"The "<<n<<"th humble number is ";

else if(n%10==1) cout<<"The "<<n<<"st humble number is ";

else if(n%10==2) cout<<"The "<<n<<"nd humble number is ";

else if(n%10==3) cout<<"The "<<n<<"rd humble number is ";

else cout<<"The "<<n<<"th humble number is ";

cout<<v[n-1]<<"."<<endl;

++i;

}

return 0;

}

### 540 - Team Queue

#include<bits/stdc++.h>

using namespace std;

int ara[999999];

int main()

{

int i,j,k,test=1,tp,top,t,n,p,number;

string str;

bool bol;

while(cin>>t && t){

bol=false;

memset(ara,0,sizeof(ara));

queue<int> q[t];

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

cin>>n;

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

cin>>p;

ara[p]=i;

}

}

queue<int> r;

while(cin>>str){

if (str=="STOP") break;

else if(str=="ENQUEUE"){

cin>>k;

number=ara[k];

if(q[number].empty()) r.push(number);

q[number].push(k);

}

else{

top=r.front();

tp=q[top].front();

q[top].pop();

if(bol==false){

cout<<"Scenario #"<<test<<endl;

bol=true;

}

cout<<tp<<endl;

if(q[top].empty()) {

r.pop();

}

}

}

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

while(!q[i].empty()) q[i].pop();

}

while(!r.empty()) r.pop();

++test;

cout<<endl;

}

return 0;

}

### 11034 - Ferry Loading IV

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

int main()

{

ll t,l,m,p,ct,r;

int i;

string str;

queue<ll> right,left;

cin>>t;

while(t--){

cin>>l>>m;

l=l\*100;

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

cin>>r>>str;

if(str[0]=='l') left.push(r);

else right.push(r);

}

ct=0;

p=0;

while(!left.empty() && !right.empty()){

p=left.front();

while(p<=l && !left.empty()){

left.pop();

if(!left.empty()) p+=left.front();

}

p=right.front();

while(p<=l && !right.empty()){

right.pop();

if(!right.empty()) p+=right.front();

}

ct+=2;

}

bool bol=false;

while(!left.empty()){

p=left.front();

while(p<=l && !left.empty()){

left.pop();

if(!left.empty()) p+=left.front();

}

if(bol==false){

bol=true;

++ct;

}

else ct+=2;

}

while(!right.empty()){

p=right.front();

while(p<=l && !right.empty()){

right.pop();

if(!right.empty()) p+=right.front();

}

ct+=2;

}

cout<<ct<<endl;

}

return 0;

}

### 11991 - Easy Problem from Rujia Liu?

#include<bits/stdc++.h>

using namespace std;

vector <int> v[1000003];

int main()

{

int n,m,p,q,i,k;

while(cin>>n>>m){

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

cin>>k;

v[k].push\_back(i+1);

}

while(m--){

cin>>p>>q;

if(v[q].size()<p) cout<<"0"<<endl;

else{

cout<<v[q][p-1]<<endl;

}

}

for(i=0;i<1000003;i++) v[i].clear();

}

return 0;

}

### 11130 - Billiard bounces(\*\*\*\*\*)

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

### using namespace std;

### const double conv = 3.14159265 / 180;

### int H(int b,int v,int A,int t)

### {

### int p;

### p=b+(v\*t\*(sin(A\*conv)));

### p=p/(2\*b);

### return p;

### }

### int V(int a,int v,int A,int t)

### {

### int p;

### p=a+(v\*t\*(cos(A\*conv)));

### p=p/(2\*a);

### return p;

### }

### int main()

### {

### int a,b,v,A,t;

### while(cin>>a>>b>>v>>A>>t && (a || b || v || A || t)){

### cout<<V(a,v,A,t)<<" "<<H(b,v,A,t)<<endl;

### }

### return 0;

### }

### 10940 - Throwing cards away II

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

### using namespace std;

### int main()

### {

### int n,a;

### int i,j,k,l;

### int ara[500001];

### ara[1]=1;

### ara[2]=2;

### i=3;

### j=2;

### l=0;

### k=2;

### while(i<=500001){

### ara[i]=k;

### k=k+2;

### ++l;

### ++i;

### if(l==j){

### l=0;

### j=j\*2;

### k=2;

### }

### }

### while(cin>>a && a){

### cout<<ara[a]<<endl;

### }

### return 0;

### }

### 11827 - Maximum GCD

#include<bits/stdc++.h>

using namespace std;

int main()

{

int n,m,g,i,j,p,k;

char ch;

cin>>n;

string str;

getchar();

while(n--)

{

int ara[101];

getline(cin,str);

istringstream is(str);

i=0;

m=0;

while(is>>ara[i++]);

for(k=0;k<i-2;k++){

for(j=k+1;j<i-1;j++){

g=\_\_gcd(ara[j],ara[k]);

if(m<g) m=g;

}

}

cout<<m<<endl;

}

return 0;

}

### 11286 - Conformity

#include<bits/stdc++.h>

using namespace std;

int max(int a,int b) {return a>b ? a:b ;}

int main()

{

map<vector<int> , int> m;

map<vector<int> , int> :: iterator it;

int n,mx,ct,i;

while(cin>>n && n){

ct=0,mx=-1;

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

vector<int> v(3);

for(auto &x: v) cin>>x;

sort(v.begin(),v.end());

m[v]++;

}

for(it=m.begin();it!=m.end();it++){

mx=max(mx,it->second);

}

for(it=m.begin();it!=m.end();it++){

if(mx==it->second) ++ct;

}

cout<<ct\*mx<<endl;

m.clear();

}

return 0;

}

### 11988 - Broken Keyboard (a.k.a. Beiju Text)

#include<bits/stdc++.h>

using namespace std;

int main()

{

int i,len,j;

list<char> l;

list<char> :: iterator it;

string str;

while(getline(cin,str))

{

it=l.end();

len=str.length();

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

if(str[i]=='[') {

it=l.begin();

}

else if(str[i]==']'){

it=l.end();

}

else {

l.insert(it,str[i]);

}

}

for(it=l.begin();it!=l.end();it++){

cout<<\*it;

}

cout<<endl;

l.clear();

}

return 0;

}

### 599 - The Forrest for the Trees

#include<bits/stdc++.h>

using namespace std;

list<int> adj[26];

list<int> :: iterator it;

map<char,int> m;

int f;

int ara[26];

void mapp()

{

int i=0;

for(i=0;i<=25;i++){

m['A'+i]=i;

}

}

void addEdge(int u, int v)

{

adj[u].push\_back(v);

adj[v].push\_back(u);

}

void DFSUtil(int u,bool visited[])

{

visited[u] = true;

for (it=adj[u].begin();it!=adj[u].end();++it)

if (visited[\*it] == false)

DFSUtil(\*it,visited);

}

int countTrees(int len)

{

bool visited[26];

memset(visited,false,sizeof(visited));

int res = 0;

for (int u=0; u<len; u++)

{

if (visited[ara[u]] == false)

{

DFSUtil(ara[u],visited);

res++;

}

}

return res;

}

int main()

{

int t;

mapp();

cin>>t;

string str,str1;

int i,j,len;

while(t--){

memset(ara,0,sizeof(ara));

while(cin>>str && str[0]!='\*'){

addEdge(m[str[1]],m[str[3]]);

}

getchar();

getline(cin,str1);

len=str1.length();

for(i=0,j=0;i<len;i+=2,j++){

ara[j]=m[str1[i]];

}

int p=countTrees(j);

int ig=0;

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

if(adj[ara[i]].empty()) ++ig;

}

cout<<"There are "<<p-ig<<" tree(s) and "<<ig<<" acorn(s)."<<endl;

for(i=0;i<26;i++) adj[i].clear();

}

return 0;

}

### 10583 - Ubiquitous Religions

#include<bits/stdc++.h>

using namespace std;

int numDisjointSets;

void make\_sets(int number\_of\_elements,int parent[],int ran[])

{

int i;

for(i = 1; i <= number\_of\_elements; i++)

{

parent[i] = i;

ran[i] = 1;

}

}

int find\_set(int element,int parent[])

{

if(element != parent[element])

parent[element] = find\_set(parent[element],parent);

return parent[element];

}

void Set\_union(int x, int y,int parent[],int ran[])

{

int rx, ry;

rx = find\_set(x,parent);

ry = find\_set(y,parent);

if(rx == ry)

return;

numDisjointSets--;

if(ran[rx] > ran[ry])

{

ran[rx] += ran[ry];

parent[ry] = rx;

}

else

{

ran[ry] += ran[rx];

parent[rx] = ry;

}

}

int main()

{

int n,m,i,j,k,p,q,l=1;

while(cin>>n>>m && (n || m))

{

int parents[n+1];

int ran[n+1];

numDisjointSets=n;

make\_sets(n,parents,ran);

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

cin>>p>>q;

Set\_union(p,q,parents,ran);

}

cout<<"Case "<<l<<": "<<numDisjointSets<<endl;

++l;

}

return 0;

}

### 793 - Network Connections(\*\*handle Presentation Error )

#include<bits/stdc++.h>

using namespace std;

int numDisjointSets;

void make\_sets(int number\_of\_elements,int parent[],int ran[])

{

int i;

for(i = 1; i <= number\_of\_elements; i++)

{

parent[i] = i;

ran[i] = 1;

}

}

int find\_set(int element,int parent[])

{

if(element != parent[element])

parent[element] = find\_set(parent[element],parent);

return parent[element];

}

void Set\_union(int x, int y,int parent[],int ran[])

{

int rx, ry;

rx = find\_set(x,parent);

ry = find\_set(y,parent);

if(rx == ry)

return;

numDisjointSets--;

if(ran[rx] > ran[ry])

{

ran[rx] += ran[ry];

parent[ry] = rx;

}

else

{

ran[ry] += ran[rx];

parent[rx] = ry;

}

}

bool isSameSet(int i, int j,int parent[])

{

return find\_set(i,parent) == find\_set(j,parent);

}

int main()

{

int n,m,i,j,k,p,q,t;

char ch;

string str1,str;

scanf("%d",&t);

for(j=1;j<=t;j++)

{

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

int u=0,s=0;

int parents[n+1];

int ran[n+1];

make\_sets(n,parents,ran);

while(1){

if(!getline(cin,str1) || str1.empty()) break;

sscanf(str1.c\_str(),"%c %d %d",&ch,&p,&q);

if(ch=='c') Set\_union(p,q,parents,ran);

else{

if(isSameSet(p,q,parents)) ++s;

else ++u;

}

}

if(j!=1) printf("\n");

cout<<s<<","<<u<<endl;

}

return 0;

}

### 11362 - Phone List

#include<bits/stdc++.h>

using namespace std;

vector<string> s;

int main()

{

long long int t,i,p;

bool cs;

string str,str1;

cin>>t;

while(t--){

cs=false;

cin>>p;

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

cin>>str;

s.push\_back(str);

}

sort(s.begin(),s.end());

for(i=0;i<s.size()-1;i++){

str1=s[i+1].substr(0,s[i].length());

if(str1==s[i]){

cout<<"NO"<<endl;

cs=true;

break;

}

}

if(cs==false) cout<<"YES"<<endl;

s.clear();

}

return 0;

}

### uva 11503 Virtual Friends Solution

#include<bits/stdc++.h>

using namespace std;

map<string, int> m;

map<string, int> :: iterator it;

int parent[100002];

int ran[100002];

int findset(int element)

{

if(element != parent[element])

parent[element] = findset(parent[element]);

return parent[element];

}

void Set\_union(int x, int y)

{

int rx, ry;

rx = findset(x);

ry = findset(y);

if(rx == ry)

return;

if(ran[rx] > ran[ry])

{

ran[rx] += ran[ry];

parent[ry] = rx;

}

else

{

ran[ry] += ran[rx];

parent[rx] = ry;

}

}

int main()

{

int n,i,j,x,y,t,p1,p2;

string str1,str;

cin>>t;

while(t--){

cin>>n;

for(i=0;i<=100002;i++){

parent[i]=i;

ran[i]=1;

}

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

cin>>str>>str1;

it=m.find(str);

if(it==m.end()){

m[str]=m.size();

x=m[str];

}

else{

x=m[str];

}

it=m.find(str1);

if(it==m.end()){

m[str1]=m.size();

y=m[str1];

}

else{

y=m[str1];

}

p1=findset(x);

p2=findset(y);

if(p1==p2){

cout<<ran[p1]<<endl;

}

else{

Set\_union(x,y);

p1=findset(x);

cout<<ran[p1]<<endl;

}

}

m.clear();

}

return 0;

}

### 583 - Prime Factors

#include<bits/stdc++.h>

using namespace std;

vector<long long int>v;

void seive()

{

int m=46345;

int limit = sqrt(m);

int p[m+1];

memset(p,1,sizeof(p));

for(long long int i=2; i<=limit; i++)

{

if(p[i])

{

for(long long int j=i\*2; j<=m; j=j+i)

{

p[j]=0;

}

}

}

for(int i=2; i<=m; i++)

{

if(p[i])

{

v.push\_back(i);

}

}

}

void fact(long long int t)

{

long long int i=0,len=v.size(),n=t;

bool c=false;

while(v[i]\*v[i]<=t && i<len){

while(t%v[i] == 0)

{

t=t/v[i];

if(!c)

{

cout<<" "<<v[i];

c=true;

}

else

cout<<" x "<<v[i];

}

++i;

}

if(t>1)

{

if(t==n) cout<<" "<<t;

else cout<<" x "<<t;

}

cout<<endl;

}

int main()

{

seive();

long long int t;

while(cin>>t)

{

if(t==0) break;

if(t<0)

{

cout<<t<<" = -1 x";

t=abs(t);

fact(t);

}

else

{

cout<<t<<" =";

fact(t);

}

}

return 0; // 2147483647

}

### 336 - A Node Too Far

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

### using namespace std;

### list<int> l[200];

### list<int> :: iterator it1;

### map<int,int> mp;

### map<int,int> :: iterator it;

### void add\_edge(int u,int v)

### {

### l[u].push\_back(v);

### l[v].push\_back(u);

### }

### void bfs(int start,int d[],int s)

### {

### int visit[s];

### memset(visit,0,sizeof(visit));

### queue <int > q;

### q.push(start);

### visit[start]=1;

### d[start]=0;

### while(!q.empty()){

### int x=q.front();

### for(it1=l[x].begin();it1 != l[x].end();++it1){

### if(visit[\*it1]==0){

### q.push(\*it1);

### d[\*it1]=d[x]+1;

### // p[\*it1]=x;

### visit[\*it1]=1;

### }

### }

### q.pop();

### }

### }

### int fun(int t,int d)

### {

### int s=mp.size(),ct=0;

### int dep[s];

### memset(dep,9999999,sizeof(dep));

### bfs(t,dep,s);

### for(int i=0;i<s;i++){

### if(d>=dep[i]) ++ct;

### }

### return s-ct;

### }

### int main()

### {

### int n,i,j,cs=1,a,b,x,y,p,q,s;

### while(cin>>n && n)

### {

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

### cin>>p>>q;

### it=mp.find(p);

### if(it==mp.end()){

### s=mp.size();

### mp[p]=s;

### a=mp[p];

### }

### else a=mp[p];

### it=mp.find(q);

### if(it==mp.end()){

### s=mp.size();

### mp[q]=s;

### b=mp[q];

### }

### else b=mp[q];

### add\_edge(a,b);

### }

### while(cin>>x>>y && (x || y)){

### it=mp.find(x);

### if(it==mp.end()) {

### a=mp.size();

### mp[x]=a;

### a=mp[x];

### }

### else a=mp[x];

### p=fun(a,y);

### cout<<"Case "<<cs<<": "<<p<<" nodes not reachable from node "<<x<<" with TTL = "<<y<<"."<<endl;

### ++cs;

### }

### for(i=0;i<200;i++) l[i].clear();

### mp.clear();

### }

### }

### 10814 - Simplifying Fractions

### //package Tal;

### import java.util.Scanner;

### import java.math.BigInteger;

### public class Main {

### public static void main(String args[])

### {

### Scanner sc =new Scanner(System.in);

### int N;

### N=sc.nextInt();

### for(int i=1;i<=N;i++){

### BigInteger n1=sc.nextBigInteger();

### sc.next();

### BigInteger n2= sc.nextBigInteger();

### BigInteger p=n1.gcd(n2);

### System.out.println(n1.divide(p)+" / "+n2.divide(p));

### }

### }

### 

### }

### 488 - Triangle Wave

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

### using namespace std;

### int main()

### {

### int t,cs=1,a,j,i,m,k,f;

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

### while(cs<=t)

### {

### cin>>a;

### cin>>f;

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

### m=1;

### for(j=1;j<=a;j++){

### for(k=1;k<=m;k++){

### cout<<j;

### }

### cout<<endl;

### ++m;

### }

### for(j=m-2;j>=1;j--){

### for(k=j;k>=1;k--){

### cout<<j;

### }

### cout<<endl;

### }

### if(i != f) cout<<endl;

### }

### if(cs != t) cout<<endl;

### ++cs;

### }

### }

### 12356 - Army Buddies

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

### using namespace std;

### int rr[100005];

### int ll[100005];

### int main()

### {

### int l,s,b,r,i,x,y;

### while(cin>>s>>b && (s || b))

### {

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

### rr[i]=i+1;

### ll[i]=i-1;

### }

### while(b--){

### cin>>l>>r;

### if(ll[l]<1 || ll[l]>s) cout<<"\* ";

### else {

### x=ll[l];

### cout<<x<<" ";

### }

### if(rr[r]>s || rr[l]<1) cout<<"\*"<<endl;

### else {

### y=rr[r];

### cout<<y<<endl;

### }

### ll[rr[r]]=ll[l];

### rr[ll[l]]=rr[r];

### }

### cout<<"-"<<endl;

### }

### }

### 11371 - Number Theory for Newbies

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

### using namespace std;

### int main()

### {

### long long int n,mx,mn,dif,res;

### int i,p;

### string str,str1;

### while(cin>>n)

### {

### stringstream ss;

### ss<<n;

### ss>>str;

### sort(str.begin(),str.end());

### str1=str;

### reverse(str.begin(),str.end());

### stringstream sb;

### if(str1[0]=='0'){

### i=0;

### while(str1[i]=='0'){

### p=i;

### ++i;

### }

### swap(str1[0],str1[i]);

### }

### sb<<str1;

### sb>>mn;

### stringstream sc;

### sc<<str;

### sc>>mx;

### dif=mx-mn;

### res=(dif/9);

### cout<<mx<<" - "<<mn<<" = "<<dif<<" = 9 \* "<<res<<endl;

### }

### return 0;

### }

### 10281 - Average Speed

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

### using namespace std;

### int main()

### {

### double h,m,s,sp=0.00,vg,h1=0.00,m1=0.00,s1=0.00,mn,sc,hr,total,now,v=0.00;

### char str[20];

### double dis=0;

### while(gets(str) != NULL){

### if(strlen(str)<9){

### sscanf(str,"%lf:%lf:%lf",&h,&m,&s);

### mn=m-m1,sc=s-s1,hr=h-h1;

### total=((hr\*3600.00)+(mn\*60.00)+sc);

### now=(total\*v)/1000.00;

### sp+=now;

### m1=m,s1=s,h1=h;

### cout<<str<<" "<<setprecision(2)<<fixed<<sp<<" "<<"km"<<endl;

### }

### else

### {

### sscanf(str,"%lf:%lf:%lf %lf",&h,&m,&s,&vg);

### mn=m-m1,sc=s-s1,hr=h-h1;

### total=(hr\*3600.00)+(mn\*60.00)+sc;

### now=(total\*v)/1000.00;

### sp+=now;

### v=(vg\*1000.00);

### v=v/3600.00;

### m1=m,s1=s,h1=h;

### }

### }

### return 0;

### }

### 10229 - Modular Fibonacci

# \*\***Matrix Exponentiation algo….**

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

### using namespace std;

### #define ll long long int

### ll pow\_two(int n)

### {

### ll res=1,two=2;

### for(;n>0;n>>=1){

### if(n&1)res=res\*two;

### two=two\*two;

### }

### return res;

### }

### ll mat[2][2]={{1,1},{1,0}};

### void mul(ll a[2][2],ll b[2][2],ll mod)

### {

### int i,j,k;

### ll m[2][2];

### for(i=0;i<2;i++)

### {

### for(j=0;j<2;j++){

### m[i][j]=0;

### for(k=0;k<2;k++){

### m[i][j]=(((a[i][k]\*b[k][j])+m[i][j])%mod);

### }

### }

### }

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

### for(j=0;j<2;j++) a[i][j]=m[i][j];

### }

### }

### ll power(ll a[2][2],ll n,ll mod)

### {

### if(n==1) {

### return (mat[0][0]);

### }

### power(a,n/2,mod);

### mul(a,a,mod);

### if(n%2==1) mul(a,mat,mod);

### return (a[0][0]);

### }

### ll fun(ll mod,ll n)

### {

### if(n==0) return 0%mod;

### else if(n==1) return 1%mod;

### ll a[2][2];

### for(ll i=0;i<2;i++)

### for(ll j=0;j<2;j++) a[i][j]=mat[i][j];

### ll ans=power(a,n-1,mod);

### return ans;

### }

### int main()

### {

### ll n,m,ans;

### while(cin>>n>>m)

### {

### ll mod=pow\_two(m);

### ans=fun(mod,n);

### cout<<ans<<endl;

### }

### return 0;

### }

### 10976 - Fractions Again?!

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

### using namespace std;

### #define ll long long int;

### int main()

### {

### int n,i,j,s,p,k;

### vector<pair<int,int>> v;

### vector<pair<int,int>> ::iterator it;

### while(cin>>n)

### {

### s=2\*n;

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

### {

### p=i\*n;

### if(p%(i-n)==0){

### k=p/(i-n);

### v.push\_back(make\_pair(k,i));

### }

### }

### cout<<v.size()<<endl;

### for(it=v.begin();it!=v.end();it++){

### cout<<"1/"<<n<<" = 1/"<<it->first<<" + 1/"<<it->second<<endl;

### }

### v.clear();

### }

### return 0;

### }

### 12086 - Potentiometers

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

### using namespace std;

### void update(int tree[],int id,int add,int n)

### {

### while(id<=n)

### {

### tree[id]+=add;

### id+=(id & (-id));

### }

### }

### int \*create(int ara[],int n)

### {

### int i;

### int \*tree=new int[n+1];

### for(i=0;i<=n;i++) tree[i]=0;

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

### {

### update(tree,i,ara[i],n);

### }

### return tree;

### }

### int getsum(int tree[],int id)

### {

### int sum=0;

### while(id>0)

### {

### sum+=tree[id];

### id-=(id & (-id));

### }

### return sum;

### }

### int main()

### {

### int t,i,j,r,ans,l,in,p,l\_ans,r\_ans,cs=1,n,x;

### string ch;

### bool ok = false;

### while(cin>>n && n)

### {

### if (ok) putchar(10);

### else ok = true;

### cout<<"Case "<<cs<<":"<<endl;

### getchar();

### int ara[n+1];

### for(i=1;i<=n;i++) cin>>ara[i];

### int \*tree=create(ara,n);

### tree[0]=0;

### while(cin>>ch){

### if(ch[0]=='E') break;

### else if(ch[0]=='S'){

### cin>>in>>p;

### l\_ans=getsum(tree,in-1);

### r\_ans=getsum(tree,in);

### x=r\_ans-l\_ans;

### ans=p-x;

### update(tree,in,ans,n);

### }

### else{

### cin>>l>>r;

### l\_ans=getsum(tree,l-1);

### r\_ans=getsum(tree,r);

### cout<<(r\_ans-l\_ans)<<endl;

### }

### }

### ++cs;

### }

### return 0;

### }

### 924 - Spreading The News

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

### using namespace std;

### #define ll long long int

### #define llu long long unsigned int

### vector<int> adj[2510];

### void BFS(int start,int depth[],int n)

### {

### int i,j,k,x,p;

### bool visit[n];

### memset(visit,false,sizeof visit);

### int dep[n];

### memset(dep,0,sizeof dep);

### dep[start]=0,visit[start]=true;

### queue<int> q;

### q.push(start);

### while(!q.empty()){

### x=q.front();

### q.pop();

### for(i=0;i<adj[x].size();i++){

### p=adj[x][i];

### if(!visit[p]){

### visit[p]=true;

### dep[p]=dep[x]+1;

### q.push(p);

### }

### }

### }

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

### ++depth[dep[i]];

### }

### }

### int main()

### {

### int n,a,b,i,e,j,p,q,frnd,day,t;

### cin>>n;

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

### cin>>t;

### while(t--){

### cin>>p;

### adj[i].push\_back(p);

### }

### }

### cin>>q;

### int depth[n];

### while(q--){

### memset(depth,0,sizeof depth);

### cin>>a;

### BFS(a,depth,n);

### day=0,frnd=0;

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

### if(frnd<depth[i]) {

### frnd=depth[i];

### day=i;

### }

### }

### if(frnd==0) cout<<"0"<<endl;

### else cout<<frnd<<" "<<day<<endl;

### }

### }

### 10653 - Bombs! NO they are Mines!!

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

### using namespace std;

### #define ll long long int

### #define llu long long unsigned int

### int fx[]={+0,+0,-1,+1};

### int fy[]={-1,+1,+0,+0};

### int ara[1005][1005];

### bool valid(int x,int y,int r,int c)

### {

### if(0<=x && x<r && 0<=y && y<c && ara[x][y]!=-1) return true;

### else return false;

### }

### int BFS(int sx,int sy,int ex,int ey,int r,int c)

### {

### int i,j,x,y,p,x1,y1;

### bool visit[r][c];

### memset(visit,false,sizeof visit);

### queue<pair<int,int>> q;

### visit[sx][sy]=true;

### int depth[r][c];

### depth[sx][sy]=0;

### q.push(make\_pair(sx,sy));

### while(!q.empty()){

### x1=q.front().first;

### y1=q.front().second;

### if(x1==ex && y1==ey) return depth[x1][y1];

### q.pop();

### for(i=0;i<4;i++){

### x=x1+fx[i];

### y=y1+fy[i];

### if(valid(x,y,r,c) && !visit[x][y]){

### depth[x][y]=depth[x1][y1]+1;

### visit[x][y]=true;

### q.push(make\_pair(x,y));

### }

### }

### }

### }

### int main()

### {

### int n,m,k,i,j,p,q,bomb,number,sx,sy,ex,ey;

### while(cin>>n>>m){

### if(n==0 && m==0) return 0;

### memset(ara,0,sizeof ara);

### cin>>bomb;

### while(bomb--){

### cin>>p>>number;

### while(number--){

### cin>>q;

### ara[p][q]=-1;

### }

### }

### cin>>sx>>sy;

### cin>>ex>>ey;

### int c= BFS(sx,sy,ex,ey,n,m);

### cout<<c<<endl;

### }

### }

### 11094 - Continents

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

### using namespace std;

### #define ll long long int

### #define llu long long unsigned int

### const int mx=1e7;

### int fx[]={+0,+0,-1,+1};

### int fy[]={-1,+1,+0,+0};

### int ara[25][25];

### bool valid(int x,int y,int r,int c)

### {

### if(0<=x && x<r && 0<=y && y<c && ara[x][y]!=-1) return true;

### else return false;

### }

### int BFS(int sx,int sy,int r,int c)

### {

### int i,j,k,l,m,p,ct,x1,y1,x,y;

### queue<pair<int,int>> q;

### q.push(make\_pair(sx,sy));

### ct=0;

### ara[sx][sy]=0;

### while(!q.empty())

### {

### ++ct;

### x1=q.front().first;

### y1=q.front().second;

### q.pop();

### for(i=0;i<4;i++){

### x=x1+fx[i];

### y=y1+fy[i];

### if(y<0) y=c-1;

### else if(y>=c) y=0;

### if(valid(x,y,r,c) && ara[x][y]==1){

### ara[x][y]=0;

### q.push(make\_pair(x,y));

### }

### }

### }

### return ct;

### }

### int main()

### {

### int n,m,i,j,k,p,q,x,y,ans;

### char ch;

### string str;

### bool bl=false;

### while(scanf("%d%d",&n,&m) != EOF)

### {

### char test[n][m];

### memset(ara,0,sizeof ara);

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

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

### cin>>test[i][j];

### }

### }

### cin>>x>>y;

### ch=test[x][y];

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

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

### if(test[i][j]==ch) ara[i][j]=1;

### }

### }

### BFS(x,y,n,m);

### ans=0;

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

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

### if(ara[i][j]==1) ans=max(ans,BFS(i,j,n,m));

### }

### }

### cout<<ans<<endl;

### }

### }

### 11953 - Battleships

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

### using namespace std;

### #define ll long long int

### #define llu long long unsigned int

### int fx[]={+0,+0,-1,+1};

### int fy[]={-1,+1,+0,+0};

### int ara[105][105];

### bool valid(int x,int y,int sz)

### {

### if(0<=x && x<sz && 0<=y && y<sz && (ara[x][y]==1 || ara[x][y]==0)) return true;

### else return false;

### }

### void BFS(int sx,int sy,int sz)

### {

### int x,y,x1,y1,p,i,j,ct=0;

### queue<pair<int,int>> q;

### q.push(make\_pair(sx,sy));

### ara[sx][sy]=-1;

### while(!q.empty())

### {

### x1=q.front().first;

### y1=q.front().second;

### q.pop();

### for(i=0;i<4;i++){

### x=x1+fx[i];

### y=y1+fy[i];

### if(valid(x,y,sz)){

### ara[x][y]=-1;

### q.push(make\_pair(x,y));

### }

### }

### }

### }

### int main()

### {

### char ch;

### int n,m,i,j,k,p,q,x,y,ans,t,cs=1;

### cin>>t;

### while(cs<=t)

### {

### cin>>n;

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

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

### cin>>ch;

### if(ch=='.') ara[i][j]=-1;

### else if(ch=='@') ara[i][j]=1;

### else ara[i][j]=0;

### }

### }

### ans=0;

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

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

### if(ara[i][j]==0){

### BFS(i,j,n);

### ++ans;

### }

### }

### }

### cout<<"Case "<<cs<<": "<<ans<<endl;

### ++cs;

### }

### }

### 12442 - Forwarding Emails

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

### using namespace std;

### #define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

### #define ll long long int

### #define llu long long unsigned int

### const int sz=5e4+10;

### bool visit[sz];

### vector<int> ad[sz];

### int deep[sz];

### int DFS(int start)

### {

### visit[start]=true;

### int i,j,p,x,ct,mx;

### ct=0;

### mx=0;

### for(i=0;i<ad[start].size();i++){

### x=ad[start][i];

### if(!visit[x]){

### ct=DFS(x);

### mx=(mx,ct);

### }

### }

### visit[start]=false;

### deep[start]=ct;

### return mx+1;

### }

### int main()

### {

### Kopa\_TestCase;

### int n,i,j,p,q,ct,ans,mx,cs=1,t;

### cin>>t;

### while(cs<=t)

### {

### for(i=0;i<sz;i++) ad[i].clear();

### memset(visit,false,sizeof visit);

### cin>>n;

### memset(deep,-1,sizeof deep);

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

### cin>>p>>q;

### ad[p].push\_back(q);

### }

### int index=-1,ans=-1;

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

### if(deep[i]==-1){

### ct=DFS(i);

### if(ct>ans) {

### ans=ct;

### index=i;

### }

### }

### }

### cout<<"Case "<<cs<<": "<<index<<endl;

### ++cs;

### }

### }

### 10567 - Helping Fill Bates

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

### using namespace std;

### #define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

### #define ll long long int

### #define llu long long unsigned int

### int main()

### {

### Kopa\_TestCase;

### vector<int> p[258];

### vector<int> :: iterator it;

### int n,i,jk,ans,index,start,x,q;

### string str,str1;

### cin>>str;

### for(i=0;str[i];i++){

### p[str[i]].push\_back(i);

### }

### cin>>q;

### while(q--){

### bool bl=true;

### cin>>str1;

### index=-1;

### for(i=0;str1[i];i++){

### it=upper\_bound(p[str1[i]].begin(),p[str1[i]].end(),index);

### if(it==p[str1[i]].end()){

### bl=false;

### break;

### }

### else{

### x=it-p[str1[i]].begin();

### index=p[str1[i]][x];

### }

### if(!i) start=index;

### }

### if(bl==false) cout<<"Not matched"<<endl;

### else cout<<"Matched "<<start<<" "<<index<<endl;

### }

### }

### 11876 - N + NOD (N)

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

### using namespace std;

### #define ll long long int;

### #define llu long long unsigned int;

### const int sz=1000020;

### vector<int> ans;

### vector<int> ::iterator it;

### int ara[sz+5];

### void Limon()

### {

### int sum;

### int i,j;

### int p=sz/2+5;

### ara[1]=1;

### for(i=2;i<sz;i++) ara[i]=2;

### for(i=2;i<p;i++){

### for(j=2\*i;j<=sz;j+=i){

### ara[j]+=1;

### }

### }

### ans.push\_back(1);

### i=1;

### while(i<(sz-20))

### {

### sum=(i+ara[i]);

### ans.push\_back(sum);

### i=sum;

### }

### }

### int main()

### {

### int n,i,j,k,t,cs=1,ct,p,a,b,q;

### cin>>t;

### Limon();

### while(cs<=t)

### {

### cin>>a>>b;

### p=(upper\_bound(ans.begin(),ans.end(),a-1))-ans.begin();

### q=(upper\_bound(ans.begin(),ans.end(),b))-ans.begin();

### cout<<"Case "<<cs<<": "<<q-p<<endl;

### ++cs;

### }

### }

### 10706 - Number Sequence

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

### using namespace std;

### #define ll long long int

### #define llu long long unsigned int

### const int sz=31500;

### ll sum[sz];

### string ans;

### int digit(int a)

### {

### int ct=0;

### while(a){

### a/=10;

### ++ct;

### }

### return ct;

### }

### void fun()

### {

### string str;

### int i,j,ct=0,div=0,s=0;

### sum[0]=0;

### ans="";

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

### div+=digit(i);

### sum[i]=sum[i-1]+div;

### stringstream ss;

### ss<<i;

### ss>>str;

### ans+=str;

### }

### }

### int main()

### {

### ll n,i,j,k,t,cs=1,ct,p,a,b,q,x;

### fun();

### cin>>t;

### while(t--){

### cin>>n;

### x=(upper\_bound(sum,sum+sz,n))-sum;

### p=sum[--x];

### if(p==n) {

### p=sum[--x];

### cout<<ans[n-p-1]<<endl;

### }

### else cout<<ans[n-p-1]<<endl;

### }

|  |  |
| --- | --- |
| }544 - Heavy Cargo |  |

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

### using namespace std;

### map<string,int> mp;

### const int sz=205;

### vector<pair<int,int>> ad[sz];

### int tree(int s1,int s2,int n,int e)

### {

### priority\_queue<pair<int,int>> qu;

### bool visit[n];

### memset(visit,false,sizeof visit);

### visit[s1]=true;

### qu.push(make\_pair(0,s1));

### int mn=0,w,wt,x,a,i;

### vector<pair<int,int>> ans;

### while(!qu.empty())

### {

### w=qu.top().first;

### x=qu.top().second;

### qu.pop();

### if(!visit[x])

### {

### visit[x]=true;

### ans.push\_back(make\_pair(w,x));

### }

### if(x==s2)

### break;

### for(i=0; i<ad[x].size(); i++)

### {

### a=ad[x][i].second;

### if(!visit[a])

### {

### wt=ad[x][i].first;

### qu.push(make\_pair(wt,a));

### }

### }

### }

### mn=1e6;

### for(i=0; i<ans.size(); i++)

### {

### mn=min(ans[i].first,mn);

### }

### return mn;

### }

### int main()

### {

### int n,i,j,k,l,e,p,q,x,y,ct,ans,cs=1,w;

### string str1,str2;

### while(cin>>n>>e && n && e)

### {

### mp.clear();

### for(i=0; i<sz; i++)

### ad[i].clear();

### for(i=0; i<e; i++)

### {

### cin>>str1>>str2>>w;

### if(mp.count(str1))

### p=mp[str1];

### else

### {

### p=mp.size();

### mp[str1]=p;

### }

### if(mp.count(str2))

### q=mp[str2];

### else

### {

### q=mp.size();

### mp[str2]=q;

### }

### ad[p].push\_back(make\_pair(w,q));

### ad[q].push\_back(make\_pair(w,p));

### }

### cin>>str1>>str2;

### ans=tree(mp[str1],mp[str2],n,e);

### cout<<"Scenario #"<<cs<<endl;

### cout<<ans<<" tons"<<endl;

### cout<<endl;

### ++cs;

### }

### }[Submit](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=submit_problem&problemid=485&category=24)

### 957 - Popes

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

//const int sz=

int main()

{

Kopa\_TestCase;

int n,m,i,j,k,x,y,p,q,ans,ct,a,b,e,yr,ans\_l,ans\_r,mx,l,r;

while(cin>>yr)

{

cin>>n;

int ara[n+1];

ara[0]=0;

for(i=1;i<=n;i++) cin>>ara[i];

mx=0;

l=0,p=0,r=0;

while(r<n){

++r;

while((ara[r]-ara[l]+1)>yr) ++l;

p=r-l+1;

if(p>mx){

ans\_l=l,ans\_r=r,mx=p;

}

}

cout<<mx<<" "<<ara[ans\_l]<<" "<<ara[ans\_r]<<endl;

}

}

### 10034 - Freckles

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

//typedef node N;

struct node

{

double x,y;

}N[101];

double dist(int i,int j)

{

double x=(N[i].x-N[j].x);

double y=(N[i].y-N[j].y);

double val=sqrt((x\*x)+(y\*y));

return (val);

}

double tree(int n)

{

double wt,ans,k;

int x,i,j;

double w[n][n];

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

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

k=dist(i,j);

w[i][j]=k,w[j][i]=k;

}

}

bool visit[n];

memset(visit,false,sizeof visit);

priority\_queue<pair<double,int>,vector<pair<double,int>>,greater<pair<double,int>>> q;

q.push(make\_pair(0.00,0));

ans=0.0;

while(!q.empty())

{

wt=q.top().first;

x=q.top().second;

q.pop();

if(visit[x]) continue;

visit[x]=true;

ans+=wt;

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

if(i==x) continue;

else{

if(!visit[i]) q.push(make\_pair(w[x][i],i));

}

}

}

return ans;

}

int main()

{

Kopa\_TestCase;

string str;

int n,m,i,j,k,x,y,p,q,ans,ct,a,b,e,yr,ans\_l,ans\_r,mx,l,r,t,cs=1;

cin>>t;

getline(cin,str);

while(cs<=t){

cin>>n;

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

cin>>N[i].x>>N[i].y;

}

double sum=tree(n);

printf("%.2lf\n",sum);

if(cs!=t)printf("\n");

++cs;

}

}

### 11631 - Dark roads

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

const int sz=200009;

vector<pair<int,int>> ad[sz];

int tree(int n)

{

int wt,ans,k,x,a,w;

bool visit[n+1];

memset(visit,false,sizeof visit);

priority\_queue<pair<double,int>,vector<pair<double,int>>,greater<pair<double,int>>> q;

q.push(make\_pair(0,0));

ans=0;

while(!q.empty())

{

wt=q.top().first;

x=q.top().second;

q.pop();

if(visit[x]) continue;

visit[x]=true;

ans+=wt;

for(int i=0;i<ad[x].size();i++){

a=ad[x][i].second;

w=ad[x][i].first;

if(!visit[a]) q.push(make\_pair(w,a));

}

}

return ans;

}

int main()

{

Kopa\_TestCase;

string str;

int n,m,i,j,k,x,y,p,q,ans,ct,a,b,e,yr,ans\_l,ans\_r,mx,l,r,t,cs=1,w;

while(cin>>n>>m && n&& m)

{

for(i=0;i<=n+2;i++) ad[i].clear();

ll sum=0;

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

cin>>p>>q>>w;

ad[p].push\_back(make\_pair(w,q));

ad[q].push\_back(make\_pair(w,p));

sum+=w;

}

ans=tree(n);

cout<<sum-ans<<endl;

}

}

### 11228 - Transportation system.

#include<bits/stdc++.h>

using namespace std;

const int sz=1005;

double ar;

double rl,r;

int state;

struct node

{

double x,y;

}N[sz];

double dist(int x,int y)

{

double a=(N[x].x-N[y].x);

double b=(N[x].y-N[y].y);

double p=sqrt((a\*a)+(b\*b));

return p;

}

void tree(int n)

{

bool visit[n];

double w,k;

int a,i,j;

memset(visit,false,sizeof visit);

double ds[n][n];

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

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

k=dist(i,j);

ds[i][j]=k;

ds[j][i]=k;

}

}

priority\_queue<pair<double,int>,vector<pair<double,int>>,greater<pair<double,int>>> q;

q.push(make\_pair(0.00,0));

while(!q.empty()){

w=q.top().first;

a=q.top().second;

q.pop();

if(visit[a]) continue;

visit[a]= true;

if(w>ar) ++state,rl+=w;

else r+=w;

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

if(i!=a && !visit[i]) q.push(make\_pair(ds[a][i],i));

}

}

}

int main()

{

int n,i,j,k,cs=1,a,b,p,q,x,ct,ans,t;

cin>>t;

while(cs<=t)

{

cin>>n>>ar;

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

cin>>N[i].x>>N[i].y;

}

rl=0.00,r=0.00,state=1;

tree(n);

if((rl-floor(rl))>0.50) rl=ceil(rl);

else rl=floor(rl);

if(abs(r-floor(r))>0.50) r=ceil(r);

else r=floor(r);

cout<<"Case #"<<cs<<": "<<state<<" "<<(int)r<<" "<<(int)rl<<endl;

++cs;

}

}

### 929 - Number Maze

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define pii pair<int,pair<int,int>>

#define mkp make\_pair

const int sz= 1005;

int ara[sz][sz];

int n,m;

int dx[]={+0,+0,-1,+1};

int dy[]={-1,+1,+0,+0};

bool valid(int x,int y)

{

if(0<=x && x<n && 0<=y && y<m) return true;

else return false;

}

int dikstra()

{

int i,j,k,x,y,p,a,x1,y1;

int dist[n][m];

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

for(j=0;j<m;j++) dist[i][j]=1000000;

priority\_queue<pii,vector<pii>,greater<pii>> q;

dist[0][0]=ara[0][0];

q.push(mkp(dist[0][0],mkp(0,0)));

while(!q.empty())

{

x1=q.top().second.first;

y1=q.top().second.second;

q.pop();

for(i=0;i<4;i++){

x=x1+dx[i];

y=y1+dy[i];

if (valid(x,y) && dist[x1][y1]+ara[x][y]<dist[x][y]){

dist[x][y]=dist[x1][y1]+ara[x][y];

q.push(mkp(dist[x][y],mkp(x,y)));

}

}

}

return dist[n-1][m-1];

}

int main()

{

int i,j,k,l,t,ans;

cin>>t;

while(t--){

cin>>n>>m;

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

for(j=0;j<m;j++) cin>>ara[i][j];

ans=dikstra();

cout<<ans<<endl;

}

}

|  |  |
| --- | --- |
|  |  |
| 821 - Page Hopping |

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

const int inf=1000000;

int dist[105][105];

void fload\_warshal(int n)

{

int i,j,k,w,t;

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

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

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

if(dist[i][k]+dist[k][j]<dist[i][j]) dist[i][j]=(dist[i][k]+dist[k][j]);

}

}

}

}

int main()

{

int m,n,k,p,cs=1,a,b,c,d,i,j;

while(cin>>a>>b && a && b)

{

n=max(a,b);

for(i=1;i<105;i++){

for(j=1;j<105;j++)

{

dist[i][j]=inf;

}

}

dist[a][b]=1;

while(cin>>c>>d && c && d){

dist[c][d]=1;

n=max(n,max(c,d));

}

fload\_warshal(n);

ll sum=0;

int pr=0;

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

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

if(i!=j && (dist[i][j] <inf)) {

sum+=dist[i][j],++pr;

}

}

}

double ans=(double)sum/pr;

cout<<"Case "<<cs<<": average length between pages = "<<setprecision(3)<<fixed<<ans<<" clicks"<<endl;

++cs;

}

}

### 10140 - Prime Distance

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

const int sz=4644000;

vector<int> ans;

bool ara[sz+2];

void seive()

{

memset(ara,false,sizeof ara);

int i,j,sq;

ans.push\_back(2);

ara[2]=true;

for(i=3;i<=sz;i+=2) ara[i]=true;

sq=sqrt(sz);

for(i=3;i<=sq;i+=2){

if(ara[i]){

for(j=i\*i;j<=sz;j+=i) ara[j]=false;

}

}

for(i=3;i<=sz;i+=2)

if(ara[i]) ans.push\_back(i);

}

bool isprime(ll n)

{

if(n<sz){

if(ara[n]) return true;

else return false;

}

ll i,sq=sqrt(n);

for(i=0;ans[i]<=sq;i++){

if(n%ans[i]==0) return false;

}

return true;

}

int main()

{

ll a,b,c,d,i,j,mx,mn,n\_a,n\_b,d\_a,d\_b,dis,f\_p;

bool f;

seive();

while(cin>>a>>b)

{

mn=1e15,mx=0;

f=false;

for(i=a;i<=b;i++){

if(isprime(i)){

if(!f) f\_p=i,f=true;

else if(f){

dis=i-f\_p;

if(mx<dis){

d\_a=f\_p;

d\_b=i;

mx=dis;

}

if(mn>dis){

n\_a=f\_p;

n\_b=i;

mn=dis;

}

f\_p=i;

}

}

}

if(mn==1e15 && mx==0) cout<<"There are no adjacent primes."<<endl;

else cout<<n\_a<<","<<n\_b<<" are closest, "<<d\_a<<","<<d\_b<<" are most distant."<<endl;

}

}

### 10258 - Contest Scoreboard

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

set<int> st;

struct node

{

int r,time,s,par;

bool solved[10];

int tm[12];

}man[102];

void Set()

{

int j;

for(int i=0;i<102;i++){

man[i].r=i;

man[i].s=0;

man[i].time=0;

man[i].par=0;

for(j=0;j<12;j++) man[i].tm[j]=0,man[i].solved[j]=false;

}

}

bool cmp(struct node a ,struct node b)

{

if(a.par != b.par) return a.par>b.par;

else if(a.s != b.s) return a.s>b.s;

else if(a.time != b.time) return a.time<b.time;

else a.r<b.r;

}

int main()

{

int t,i,j,n,p,tim;

char ch,str[20];

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

while(t--)

{

Set();

st.clear();

while(gets(str) && str[0]!='\0')

{

sscanf(str,"%d %d %d %c",&n,&p,&tim,&ch);

man[n].par=1;

st.insert(n);

if(ch=='C' && !man[n].solved[p]){

man[n].s+=1;

man[n].time+=(man[n].tm[p]+tim);

man[n].solved[p]=true;

}

else if(ch=='I'){

man[n].tm[p]+=20;

}

}

sort(man,man+102,cmp);

int sz=st.size();

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

cout<<man[i].r<<" "<<man[i].s<<" "<<man[i].time<<endl;

}

if(t) cout<<endl;

}

}

**558 Wormholes**

**Using Edges :**

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

**using namespace std;**

**const int sz=1005;**

**const int edge=2005;**

**int n,m;**

**int dist[sz];**

**int n\_a[edge],n\_b[edge],wt[edge];**

**bool bellman()**

**{**

**int i,j,k,w;**

**dist[0]=0;**

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

**{**

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

**if(dist[n\_b[j]]>(dist[n\_a[j]]+wt[j])) dist[n\_b[j]]=(dist[n\_a[j]]+wt[j]);**

**}**

**}**

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

**if(dist[n\_b[j]]>(dist[n\_a[j]]+wt[j])) return false;**

**}**

**return true;**

**}**

**int main()**

**{**

**int i,j,k,l,p,w,q,src,t;**

**cin>>t;**

**while(t--)**

**{**

**cin>>n>>m;**

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

**{**

**cin>>n\_a[i]>>n\_b[i]>>wt[i];**

**}**

**for(i=0;i<n;i++) dist[i]=99999999;**

**bool bl=bellman();**

**if(!bl) cout<<"possible"<<endl;**

**else cout<<"not possible"<<endl;**

**}**

**}**

Using Vertices :

complexity : E^3;

#include<bits/stdc++.h>

**using** **namespace** std;

**const** **int** sz=1005;

**int** n,m;

vector<pair<**int**,**int**>> ad[sz];

**int** dist[sz];

**bool** belman(**int** src)

{

**int** p,w,q,x,i,j,k;

dist[src]=0;

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

{

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

**for**(k=0;k<ad[j].size();k++){

p=ad[j][k].second;

w=ad[j][k].first;

**if**(dist[p]>dist[j]+w) dist[p]=w+dist[j];

}

}

}

**for**(i=0;i<n;i++){ */// Checking Negative Cycle ...........*

**for**(k=0;k<ad[i].size();k++){

p=ad[i][k].second;

w=ad[i][k].first;

**if**(dist[p]>dist[i]+w) **return** **false**;

}

}

**return** **true**;

}

**int** main()

{

**int** i,j,k,l,p,w,q,src,t;

cin>>t;

**while**(t--){

**for**(i=0;i<sz;i++) ad[i].clear();

cin>>n>>m;

**for**(i=1;i<=m;i++)

{

cin>>p>>q>>w;

ad[p].push\_back(make\_pair(w,q));

}

**for**(i=0;i<n;i++) dist[i]=99999999;

**bool** bl =belman(0);

**if**(!bl) cout<<"possible"<<endl;

**else** cout<<"not possible"<<endl;

}

}

### 10161 - Ant on a Chessboard

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

#define llu long long unsigned int

// const int sz=

int main()

{

ll n,j,k,l,m,p,r,c,mid;

while(cin>>n && n)

{

ll sq=(int)(ceil(sqrt(n)));

l=sq\*sq;

mid=l-(sq-1);

if(sq&1){

if(mid<n) r=sq,c=sq-(n-mid);

else c=sq,r=sq-(mid-n);

}

else{

if(mid<n) c=sq,r=sq-(n-mid);

else r=sq,c=sq-(mid-n);

}

cout<<c<<" "<<r<<endl;

}

}

### 11715 - Car

Time limit: 1.000 secon

#include<bits/stdc++.h>

using namespace std;

int main()

{

int cs=1,t,i,j,k,p;

double a,b,c,d,e;

while(cin>>p && p)

{

cin>>a>>b>>c;

if(p==1)

{

e=((b-a)/c);

d=(a\*c)+((0.5)\*(e\*c\*c));

}

else if(p==2)

{

e=(b-a)/c;

d=(a\*e)+(0.5\*(c\*e\*e));

}

else if(p==3)

{

d=sqrt((a\*a)+(2\*b\*c));

e=(d-a)/b;

}

else{

d=sqrt((a\*a)-(2\*b\*c));

e=(a-d)/b;

}

cout<<"Case "<<cs<<": "<<setprecision(3)<<fixed<<d<<" "<<e<<endl;

++cs;

}

return 0;

}

### 701 - The Archeologists' Dilemma

#include<bits/stdc++.h>

#define ll long long int

using namespace std;

int main()

{

double i,j,l,m,p,x,y;

int n;

bool bl;

char str[20];

while(gets(str))

{

bl=false;

sscanf(str,"%d",&n);

l=strlen(str)+1;

if(n<=0) {

cout<<"no power of 2"<<endl;

continue;

}

for(i=l;i<10000000000;i++){

x=log2(n)+(i\*log2(10));

y=log2(n+1.00)+(i\*log2(10));

if(ceil(x)==floor(y)){

cout<<(int)ceil(x)<<endl;

bl=true;

break;

}

}

if(!bl) cout<<"no power of 2"<<endl;

}

}

### 674 - Coin Change

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

#define llu long long unsigned

int ara[]={1,5,10,25,50};

ll dp[6][8000];

ll fun(int i,int x)

{

if(i==5){

if(x==0) return 1;

else return 0;

}

ll a,b;

if(x-ara[i]>=0){

if(dp[i][x-ara[i]]==-1) dp[i][x-ara[i]]=a=fun(i,x-ara[i]);

else a=dp[i][x-ara[i]];

}

else a=0;

if(dp[i+1][x]==-1) dp[i+1][x]=b=fun(i+1,x);

else b=dp[i+1][x];

dp[i][x]=a+b;

return (a+b);

}

int main()

{

ll i,j,k,l,m,x;

memset(dp,-1,sizeof (dp));

while(cin>>x)

{

ll ans=fun(0,x);

cout<<ans<<endl;

}

}

### 11078 - Open Credit System

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

const int MX=-15000000;

int main()

{

int n,i,j,k,t;

cin>>t;

while(t--){

cin>>n;

int ara[n];

for(i=0;i<n;i++) cin>>ara[i];

int mn=ara[n-1];

int ans=-150000000;

for(i=n-2;i>=0;i--){

ans=max(ans,ara[i]-mn);

mn=min(ara[i],mn);

}

cout<<ans<<endl;

}

}

### 471 - Magic Numbers

#include<bits/stdc++.h>

using namespace std;

#define ll long long int

const ll sesh=9876543210;

bool test[10];

bool check(ll p)

{

ll x;

memset(test,false,sizeof test);

while(p){

x=p%10;

if(test[x]) return false;

test[x]=true;

p/=10;

}

return true;

}

int main()

{

ll n,i,j,k,p,q;

int t;

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

while(t--){

cin>>n;

for(i=1;i\*n<=sesh;i++){

p=i\*n;

if(check(p) && check(i)) cout<<p<<" / "<<i<<" = "<<n<<endl;

}

if(t) cout<<endl;

}

}

### 11733 - Airports

#include<bits/stdc++.h>

using namespace std;

#define Kopa\_TestCase ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

const int sz=100000;

const int nd=10006;

pair<int,pair<int,int>> ad[sz];

int parent[nd];

void init(int n)

{

for(int i=0;i<=n+2;i++) parent[i]=i;

}

int Find(int p)

{

while(parent[p] != p){

p=parent[p];

}

return p;

}

int main()

{

int a,n,m,i,j,c,k,l,b,ct,ans,p,s,cs=1,t,x,qq,y,box,sum,q,w;

cin>>t;

while(cs<=t){

cin>>n>>m>>a;

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

cin>>p>>q>>w;

ad[i]=(make\_pair(w,make\_pair(p,q)));

}

init(n);

sort(ad,ad+m);

sum=0;

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

w=ad[i].first;

if(a<=w) break;

p=ad[i].second.first;

q=ad[i].second.second;

x=Find(p),y=Find(q);

if(x!=y){

sum+=w;

parent[y]=x;

}

}

ct=0;

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

if(Find(i)==i) ++ct;

}

cout<<"Case #"<<cs<<": "<<sum+(ct\*a)<<" "<<ct<<endl;

++cs;

}

}

### 11137 - Ingenuous Cubrency

#include<bits/stdc++.h>

using namespace std;

#define Fast ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

const int sz= 10009;

ll dp[sz][23];

int lmt=21;

ll fun(int i,int x)

{

if(x==0) return 1;

if(i>lmt) return 0;

if(dp[x][i] != -1) return dp[x][i];

ll a=0,b=0;

int p=i\*i\*i;

if(p>x) return 0;

if(x-p>=0){

if(dp[x-p][i] != -1) a=dp[x-p][i];

else a=dp[x-p][i]=fun(i,x-p);

}

if(dp[x][i+1] != -1) b=dp[x][i+1];

else b=dp[x][i+1]=fun(i+1,x);

dp[x][i]=a+b;

return dp[x][i];

}

int main()

{

int n,i,j,p,x;

ll ans;

memset(dp,-1ll,sizeof dp);

while(cin>>x)

{

ans=fun(1,x);

cout<<ans<<endl;

}

}

### 247 - Calling Circles

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define sf scanf

#define pf printf

#define pb push\_back

const int sz=27;

bool visit[sz];

vector<int> ad[sz];

vector<int> ad1[sz];

vector<int> xx;

vector<int> tl;

map<string,int> mp;

map<int,string> mp1;

void dfs1(int v)

{

visit[v]=true;

for(int i=0;i<ad[v].size();i++){

if(visit[ad[v][i]]==false) dfs1(ad[v][i]);

}

xx.pb(v);

return ;

}

void dfs2(int v)

{

visit[v]=true;

tl.push\_back(v);

for(int i=0;i<ad1[v].size();i++)

if(visit[ad1[v][i]]==false) dfs2(ad1[v][i]);

return ;

}

int main()

{

Khela\_Sesh;

int a,b,c,i,j,k,n,p,q,x,y,sum,ct,ct1,m,mid,l,r,len,ans,mx,t,s,f,sq,cs=1;

char ch,ch1;

double d;

string str1,str2,str;

bool bl,bl1;

while(cin>>n>>m && (n || m))

{

memset(visit,false,sizeof visit);

for(i=0;i<sz;i++) ad[i].clear();

for(i=0;i<sz;i++) ad1[i].clear();

mp.clear();

mp1.clear();

xx.clear(),tl.clear();

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

cin>>str>>str1;

if(mp.count(str)==0) {

p=mp.size();

mp[str]=p;

mp1[p]=str;

}

else p=mp[str];

if(mp.count(str1)==0) {

q=mp.size();

mp[str1]=q;

mp1[q]=str1;

}

else q=mp[str1];

ad[p].pb(q);

ad1[q].pb(p);

}

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

if(visit[i]==false) dfs1(i);

}

if(cs>1) cout<<endl;

cout<<"Calling circles for data set "<<cs<<":"<<endl;

memset(visit,false,sizeof visit);

for(i=xx.size()-1;i>=0;i--){

tl.clear();

if(visit[xx[i]]==false) {

dfs2(xx[i]);

for(j=0;j<tl.size();j++){

if(j+1 == tl.size()) cout<<mp1[tl[j]]<<endl;

else cout<<mp1[tl[j]]<<", ";

}

}

}

++cs;

}

}

### 11838 - Come and Go

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define sf scanf

#define pf printf

#define pb push\_back

const int sz=2010;

bool visit[sz];

vector<int> ad[sz];

vector<int> ad1[sz];

vector<int> xx;

void dfs1(int v)

{

visit[v]=true;

for(int i=0;i<ad[v].size();i++){

if(visit[ad[v][i]]==false) dfs1(ad[v][i]);

}

xx.pb(v);

return ;

}

void dfs2(int v)

{

visit[v]=true;

for(int i=0;i<ad1[v].size();i++)

if(visit[ad1[v][i]]==false) dfs2(ad1[v][i]);

return ;

}

int main()

{

Khela\_Sesh;

int a,b,c,i,j,k,n,p,q,x,y,sum,ct,ct1,m,mid,l,r,len,ans,mx,t,s,f,sq,cs=1;

char ch,ch1;

double d;

string str1,str2,str;

bool bl,bl1;

while(cin>>n>>m && (n || m))

{

memset(visit,false,sizeof visit);

for(i=0;i<=n+3;i++) ad[i].clear();

for(i=0;i<=n+3;i++) ad1[i].clear();

xx.clear();

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

cin>>p>>q>>r;

if(r==2) ad[p].pb(q),ad[q].pb(p),ad1[p].pb(q),ad1[q].pb(p);

else ad[p].pb(q),ad1[q].pb(p);

}

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

if(visit[i]==false) dfs1(i);

}

bl=true;

memset(visit,false,sizeof visit);

x=xx.size()-1;

dfs2(xx[x]);

for(i=xx.size()-2;i>=0;i--){

x=xx[i];

if(visit[x]==false) {

bl=false;

}

}

if(!bl) cout<<"0"<<endl;

else cout<<"1"<<endl;

}

}

### 796 - Critical Links

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define sf scanf

#define pf printf

#define pb push\_back

const int sz=110;

vector<int> ad[sz];

int dis[sz],low[sz];

bool visit[sz];

bool art[sz][sz];

int lal=0;

void init(int n)

{

lal=0;

for(int i=0;i<=n+5;i++) {

ad[i].clear();

dis[i]=0,low[0]=0,visit[i]=false;

}

memset(art,false,sizeof art);

}

void dfs(int u,int parent,int dept)

{

visit[u]=true;

dis[u]=low[u]=dept;

for(int i=0;i<ad[u].size();i++){

int v=ad[u][i];

if(visit[v] && v!=parent) {

low[u]=min(low[u],dis[v]);

}

if(!visit[v])

{

dfs(v,u,dept+1);

low[u]=min(low[u],low[v]);

if(low[v]>dis[u]){

art[v][u]=art[u][v]=true;

++lal;

}

}

}

}

int main()

{

Khela\_Sesh;

int a,b,c,i,j,k,n,p,q,x,y,sum,ct,ct1,m,mid,l,r,len,ans,mx,t,s,f,sq;

char ch,ch1;

double d;

string str1,str2,str;

bool bl,bl1;

while(sf("%d",&n)==1)

{

init(n);

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

sf("%d ",&p);

sf("(%d)",&x);

while(x--){

sf("%d",&q);

ad[p].push\_back(q);

ad[q].push\_back(p);

}

}

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

if(visit[i]==false) dfs(i,-1,1);

}

pf("%d critical links\n",lal);

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

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

if(art[i][j]) pf("%d - %d\n",i,j);

}

}

pf("\n");

}

}

### 10776 - Determine The Combination

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define pf printf

#define sf scanf

#define f first

#define s second

#define pb push\_back

//const int sz;

vector<char> ans;

int n;

int len;

string str;

void fun(int in)

{

if(ans.size()==n){

for(auto xx : ans) cout<<xx;

cout<<endl;

return ;

}

for(int i=in+1,j=0;i<len;i++,j++){

if(j==0 || (j>0 && (str[i] != str[i-1]))){

ans.push\_back(str[i]);

fun(i);

ans.pop\_back();

}

}

}

int main()

{

Khela\_Sesh

int a,b,c,i,j,k,t,q,p,x,y,sum,ct,ct1,m,mid,l,r,x1,y1,mx,mn;

char ch;

double d;

string str1,str2;

bool bl,bl1;

while(cin>>str>>n)

{

//cout<<str<<" "<<n<<endl;

sort(str.begin(),str.end());

ans.clear();

len=str.length();

fun(-1);

}

}

### \*\*\*\*10534 - Wavio Sequence

#include <bits/stdc++.h>

using namespace std;

const int sz=1e4+10;

vector<int> s;

int main()

{

int n,i,j,k,l,x;

while(cin>>n)

{

s.clear();

int l[n];

int r[n];

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

cin>>x;

s.push\_back(x);

}

vector<int> rf;

rf.push\_back(s[0]);

l[0]=1;

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

auto it=lower\_bound(rf.begin(),rf.end(),s[i]);

if(it==rf.end()) rf.push\_back(s[i]);

else \*it=s[i];

l[i]=rf.size();

}

rf.clear();

r[n-1]=1;

rf.push\_back(s[n-1]);

for(i=n-2;i>=0;i--){

auto it=lower\_bound(rf.begin(),rf.end(),s[i]);

if(it==rf.end()){

rf.push\_back(s[i]);

}

else \*it=s[i];

r[i]=rf.size();

}

int mx=0;

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

mx=max(mx,min(l[i],r[i]));

}

cout<<2\*mx-1<<endl;

}

}

### 10684 - The jackpot

#include<bits/stdc++.h>

using namespace std;

#define ll long long int;

#define lu long long unsigned;

int main()

{

int n,i,j,k,m,x,mx,mx1,p,last,tl;

while(cin>>n && n)

{

mx=0,tl=0;

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

cin>>x;

tl+=x;

mx=max(tl,mx);

if(tl<0) tl=0;

}

if(mx==0) cout<<"Losing streak."<<endl;

else cout<<"The maximum winning streak is "<<mx<<"."<<endl;

}

}

### 481 - What Goes Up

#include<bits/stdc++.h>

using namespace std;

#define ll long long int;

#define lu long long unsigned;

vector<int> input;

vector<int> rf;

vector<int> in;

vector<int> ans;

void cholo(int n)

{

int i,j,last,p,k,x;

last=0;

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

int sz=rf.size();

x=lower\_bound(rf.begin(),rf.end(),input[i])-rf.begin();

if(x==sz) {

rf.push\_back(input[i]);

in.push\_back(i);

}

else {

rf[x]=input[i];

in[x]=i;

}

k=x? in[x-1] : -1;

ans.push\_back(k);

if(x==sz || x==sz-1) last=i;

}

cout<<rf.size()<<endl;

cout<<"-"<<endl;

stack<int> st;

while(ans[last] != -1){

st.push(input[last]);

last=ans[last];

}

st.push(input[last]);

while(!st.empty()){

k=st.top();

cout<<k<<endl;

st.pop();

}

}

int main()

{

int n,i,j,k,m,x,mx,mx1,p,last,tl;

char str[100];

while(gets(str))

{

if(strlen(str)==0) break;

sscanf(str,"%d",&x);

input.push\_back(x);

}

cholo(input.size());

}

### 11456 – Trainsorting

#include <iostream>

#include <cstdio>

#include <algorithm>

#include <vector>

#include <cstring>

Using namespace std;

Const int MAXN = 2010;

Int n;

Int arr[MAXN];

Int main(){

Int nCase;

Scanf("%d", &nCase);

While (nCase--) {

Scanf("%d", &n);

For (int i = 0; i < n; ++i)

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

Vector<int>vt1, vt2;

Vector<int>::iterator iter;

Int ans = 0;

For (int i = n - 1; i >= 0; --i) {

Int len1, len2;

Iter = lower\_bound(vt1.begin(), vt1.end(), arr[i]);

If (iter == vt1.end()) {

Vt1.push\_back(arr[i]);

Len1 = vt1.size();

} else{

\*iter = arr[i];

Len1 = iter - vt1.begin() + 1;

}

Iter = lower\_bound(vt2.begin(), vt2.end(), -arr[i]);

If (iter == vt2.end()) {

Vt2.push\_back(-arr[i]);

Len2 = vt2.size();

} else {

\*iter = -arr[i];

Len2 = iter - vt2.begin() + 1;

}

Ans = max(ans, len1 + len2 - 1);

}

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

}

Return 0;

}

### 10616 - Divisible Group Sums

#include<bits/stdc++.h>

using namespace std;

#define sf scanf

#define pf printf

int dp[202][41][12];

int ara[202];

int num,n,mod;

int cholo(int in,int sum,int ct)

{

if(ct==num)

{

if(sum==0) return 1;

else return 0;

}

if(in>=n) return 0;

if(dp[in][sum][ct] != -1) return dp[in][sum][ct];

dp[in][sum][ct]=cholo(in+1,((sum+ara[in])%mod),ct+1)+cholo(in+1,sum,ct);

return dp[in][sum][ct];

}

int main()

{

int i,j,k,cs=1,q,xx,p;

bool bl;

while(cin>>n>>q && (n || q))

{

bl=false;

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

{

cin>>ara[i];

}

xx=1;

while(xx<=q)

{

cin>>mod>>num;

if(!bl) {

cout<<"SET "<<cs<<":"<<endl;

bl=true;

}

memset(dp,-1,sizeof dp);

p=cholo(0,0,0);

cout<<"QUERY "<<xx<<": "<<p<<endl;

++xx;

}

++cs;

}

}

### 11504 - Dominos

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define pf printf

#define sf scanf

#define f first

#define s second

#define pb push\_back

#define mk make\_pair

#define pii pair<int ,int>

const int sz=1e5+10;

vector<int> ad[sz];

vector<int> ad1[sz];

vector<int> track;

bool visit[sz];

int cycle;

void DFS(int s)

{

visit[s]=true;

for(auto xx: ad[s]){

if(visit[xx]==false) DFS(xx);

}

track.pb(s);

}

void DFS1(int s)

{

visit[s]=true;

for(auto xx: ad[s])

{

if(visit[xx]==false) DFS1(xx);

}

}

int main()

{

Khela\_Sesh

int a,b,c,i,j,k,q,p,x,y,sum,ct,ct1,m,l,r,len,x1,y1,mn,t,n,mx;

char ch;

double d;

string str1,str2;

bool bl,bl1;

sf("%d",&t);

while(t--)

{

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

track.clear();

cycle=1;

for(i=0;i<=n+3;i++) {

ad[i].clear();

ad1[i].clear();

visit[i]=false;

}

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

{

sf("%d %d",&p,&q);

ad[p].pb(q);

ad1[q].pb(p);

}

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

if(visit[i]==false) DFS(i);

}

memset(visit,false,sizeof visit);

int siz=track.size();

for(i=siz-1;i>=0;i--){

if(visit[track[i]]==false) {

DFS(track[i]);

++cycle;

}

}

pf("%d\n",cycle-1);

}

}

### 15 - Network

#include<bits/stdc++.h>

using namespace std;

#define Khela\_Sesh ios\_base::sync\_with\_stdio(false); cin.tie(0); cout.tie(0);

#define ll long long int

#define llu long long unsigned int

#define pf printf

#define sf scanf

#define f first

#define s second

#define pb push\_back

#define mk make\_pair

#define pii pair<int ,int>

const int sz=100+10;

vector<int> ad[sz];

int dis[sz],Back[sz];

bool visit[sz];

int tim;

int source;

int child;

bool arti[sz];

void ArtiP(int v)

{

visit[v]=true;

++tim;

dis[v]=Back[v]=tim;

for(auto xx: ad[v])

{

if(!visit[xx]){

ArtiP(xx);

Back[v]=min(Back[xx],Back[v]);

if(Back[xx]>=dis[v] && v != source ) arti[v]=true;

else if(v==source){

++child;

if(child==2) arti[source]=true;

}

}

else Back[v]=min(dis[xx],Back[v]);

}

}

int main()

{

Khela\_Sesh

int a,b,c,i,j,k,q,p,x,y,sum,ct,ct1,m,l,r,len,x1,y1,mn,t,n,mx;

char ch;

double d;

string str1,str2,str;

bool bl,bl1;

while(cin>>n && n)

{

cin.ignore();

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

ad[i].clear();

visit[i]=false;

arti[i]=false;

}

while(getline(cin,str) && str != "0"){

stringstream ss(str);

ss>>p;

while(ss>>q){

ad[p].pb(q);

ad[q].pb(p);

}

}

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

if(visit[i]==false){

tim=0,child=0,source=i;

ArtiP(i);

}

}

ct=0;

for(i=1;i<=n;i++) if(arti[i]) ++ct;

cout<<ct<<endl;

}

}