**T 125 - Forming Numericals**

Print the following pattern :

N = 1

1

N = 2

2 2 2

2 1 2

2 2 2

N = 3

3 3 3 3 3

3 2 2 2 3

3 2 1 2 3

3 2 2 2 3

3 3 3 3 3

and so on.

**Input Format**

One number N

**Constraints**

1 <= N <= 10

**Output Format**

The pattern

**Sample Input 0**

2

**Sample Output 0**

2 2 2

2 1 2

2 2 2

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

cin>>n;

int len = n \* 2 - 1;

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

{

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

{

int m = min(row, col);

m = min(m, len - row - 1);

m = min(m, len - col - 1);

cout<<( n - m)<<" ";

}

cout<<"\n";

}

return 0;

}

## T 118 - Worried Elements

The sadness of an element in an array is defined as the minimum distance between itself and another element whose value is the same as this element. If there is no other element with the same value, its sadness is -1.

Given an array of size N, find and print the sadness of every element.

**Input Format**

First line contains integer N. Second line contains N integers, the array arr[N].

**Constraints**

1 <= N <= 100  
1 <= arr[N] <= 100

**Output Format**

Output N integers separated by spaces, ith of them denoting the sadness of arr[i].

**Sample Input 0**

5

2 1 3 2 1

**Sample Output 0**

3 3 -1 3 3

#include<stdio.h>

int main()

{

int n,i,j;

int a[100],sad[100];

scanf("%d",&n);

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

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

}

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

if(a[i]==-1){

continue;

}else{

sad[i]=-1;

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

if(a[i]==a[j]){

sad[i]=j-i;

sad[j]=sad[i];

a[j]=-1;

break;

}

}

}

}

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

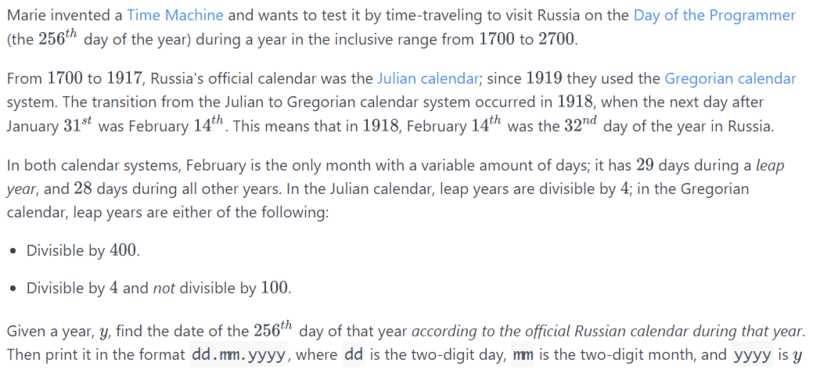
printf("%d ",sad[i]);

}

return 0;

}

## B D01 - Find The Coders Day



**Input Format**

A single integer denoting the year y.

**Constraints**

1700 <= y <= 2700

**Output Format**

Print the full date of Day of the Programmer during year y in the format dd.mm.yyyy, where dd is the two-digit day, mm is the two-digit month, and yyyy is y.

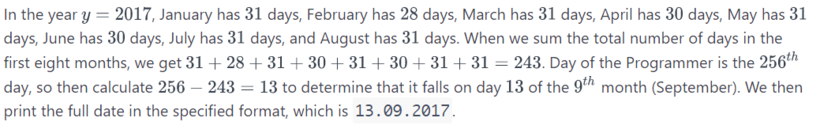
**Sample Input 0**

2017

**Sample Output 0**

13.09.2017

**Explanation 0**



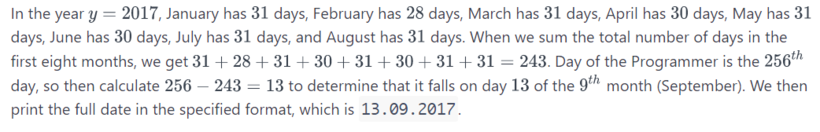
**Sample Input 1**

2016

**Sample Output 1**

12.09.2016

**Explanation 1**



#include<iostream>

using namespace std;

int main()

{

int year;

cin>>year;

if(year>=1700 && year<1918)

{

if (year % 4 == 0)

cout <<"12.09."<< year ;

else

{

cout <<"13.09."<< year ;

}

}

else if(year>1918)

{

if ((year % 4 == 0&&year%100)||(year%400==0))

{

cout <<"12.09."<< year ;

}

else

{

cout <<"13.09."<< year ;

}

}

else

{

cout <<"26.09."<< year ;

}

return 0;

}

## Z 415 Pascal and His Triangle

Pascal's Triangle in Mathematics is the following pattern :

1

1 1

1 2 1

1 3 3 1

and so on

For Cth element in row R, it is equal to the sum of elements C and C-1 in row R-1.  
The first and the last elements of every row are always 1.

Your task is given a number K, print the first K rows of the pascals triangle.

**Input Format**

Only one integer, the value of K.

**Constraints**

1 <= K <= 50

**Output Format**

Output K lines, the first K rows of the pascal's triangle.

**Sample Input 0**

4

**Sample Output 0**

1

1 1

1 2 1

1 3 3 1

Pascal's Triangle in Mathematics is the following pattern :

1

1 1

1 2 1

1 3 3 1

and so on

For Cth element in row R, it is equal to the sum of elements C and C-1 in row R-1.  
The first and the last elements of every row are always 1.

Your task is given a number K, print the first K rows of the pascals triangle.

**Input Format**

Only one integer, the value of K.

**Constraints**

1 <= K <= 50

**Output Format**

Output K lines, the first K rows of the pascal's triangle.

**Sample Input 0**

4

**Sample Output 0**

1

1 1

1 2 1

1 3 3 1

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

int k;

long long int c,i,j;

scanf("%d", &k);

if(k>=1 && k<=50)

{

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

{

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

{

if (j==0 || i==0)

c = 1;

else

c=c\*(i-j+1)/j;

printf("%lld ", c);

}

printf("\n");

}}

return 0;

}

## Pattern Printing 9

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/pattern-printing-9-1-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/pattern-printing-9-1-1/submissions)

Given a number N, print a pattern as shown below :

n = 1

\*

n = 2

\*

\*\*\*

\*

n = 3

\*

\*\*\*

\*\*\*\*\*

\*\*\*

\*

and so on..

Hint : Print the upper triangle and the lower reverse triangle separately.

**Input Format**

Only one integer, the number n.

**Constraints**

1 <= n <= 100

**Output Format**

The required pattern

**Sample Input 0**

1

**Sample Output 0**

\*

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

int n;

cin>>n;

int i,j,k;

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

{

k=0;

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

{

cout<<" ";

}

while(k!=2\*i-1)

{

cout<<"\*";

++k;

}

cout<<endl;

}

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

{

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

{

cout<<" ";

}

for(j=i;j<=2\*i-1;j++)

{

cout<<"\*";

}

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

cout<<"\*";

cout<<endl;

}

return 0;

}

## T 112 - Code in Airport

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/first-class-barua)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/first-class-barua/submissions)

On his way to Delhi Barua was caught by the airport security because they thought he looked too cool to be travelling with an economy class ticket. Fortunately one of the security guards was Barua's fan and decided to give him a chance to escape. They ask Barua to write down a number N on a piece of paper and then run the following pseudo-code on the number :

if N equals 1 :

release Barua

else if N is even :

N = N / 2;

else if N is odd :

N = 3 \* N + 3;

The guards obviously don't know how to code and hence ask your help to find out if they should release Barua. Print "Yes" if they should and "No" if they shouldn't. (w/o the quotation marks).

**Input Format**

One number N.

**Constraints**

(1 <= N <= 1x10^14)

**Output Format**

Yes or No

**Sample Input 0**

6

**Sample Output 0**

No

**Sample Input 1**

2

**Sample Output 1**

Yes

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

long long int a;

cin>>a;

while(a>=1)

{

if(a==1){ cout<<"Yes"; break; }

else if(a%2==0)

{ a/=2; }

else{ cout<<"No";

break;

}

}

return 0;

}

## T 131 - Confused Integer

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/existential-crisis)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/existential-crisis/submissions)

Our beloved integer X is confused. He was told that he is a positive integer which fits in a 32 bit signed integer that can be expressed as A^P where P > 1 and A > 0 where A and P both should be integers. Now he wonders, there is a possibility that he does not exist at all because he does not satisfy the A^P expressibility condition. Given the values of A and P, find out if X exists or not.

**Input Format**

Input contains the value of integer X.

**Constraints**

0 < X < 2x10^9

**Output Format**

Output "yes" if X can be expressed as A^P and "no" otherwise.

**Sample Input 0**

4

**Sample Output 0**

yes

**Explanation 0**

Yes as 2^2 = 4

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

long double n,m,d; cin>>n;

m=sqrt(n);

m\*=m;

if(m==n)

cout<<"yes";

else cout<<"no";

return 0;

}

## D M01 - Great Pattern

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/a-simple-pattern-problem)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/a-simple-pattern-problem/submissions)

Your task is simple, write a program in Java to print the following pattern :

N = 1

1

N = 2

1

1 2 1

1

N = 3

1

1 2 1

1 2 3 2 1

1 2 1

1

and so on..

### **INPUT**

Input consists of many test cases.  
First line contains the number of test case **T**.  
Each of the test case lines consists of one number **N** for that test case.

### **OUTPUT**

Print the pattern corresponding to the **N** value of each test case.  
Print a blank line between two test case outputs.

### **CONSTRAINTS**

**1** ≤ **T**, **N** ≤ **10**

**Sample Input 0**

3

1

2

3

**Sample Output 0**

1

1

1 2 1

1

1

1 2 1

1 2 3 2 1

1 2 1

1

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n,i,j,space,t;

scanf("%d",&t);

while(t--)

{

scanf("%d",&n);

space=n-1;

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

{

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

{

printf(" ");

}

for(j=1;j<=((i\*2)+2)/2;j++)

{

printf("%d ",j);

}

for(j=((i\*2)+1)/2;j>=1;j--)

{

printf("%d ",j);

}

printf("\n");

}

for(int i=n-1-1;i>=0;i--)

{

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

{

printf(" ");

}

for(j=1;j<=((i\*2)+2)/2;j++)

{

printf("%d ",j);

}

for(j=((i\*2)+1)/2;j>=1;j--)

{

printf("%d ",j);

}

printf("\n");

}

printf("\n");

}

return 0;

}

## Make Palindrome By Reversing

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/make-palindrome-by-reversing-1-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/make-palindrome-by-reversing-1-1/submissions)

Write a code that does the following :

iterations = 0

number = input()

while iterations < 5:

number = number + number.reverse()

if number is palindrome :

print number

print "YES"

iterations++;

print "NO"

**Input Format**

One number N.

**Constraints**

1 <= N <= 10^5

**Output Format**

One number, the final palindrome if possible then YES. If not possible then only a NO.

**Sample Input 0**

32

**Sample Output 0**

55

YES

**Sample Input 1**

39

**Sample Output 1**

363

YES

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int rev(int copy){

int c=0;

while(copy>0){

c\*=10;

c+=(copy%10);

copy/=10;

}

return c;

}

bool palin(int n){

int reve=rev(n);

return (n==reve)?true:false;

}

int main() {

int iterations = 0;

int number;

cin>>number;

while(iterations<5){

number = number + rev(number);

if(palin(number))

{cout<<number<<"\nYES";return 0;}

iterations++;

}

cout<<"NO";

return 0;

}

## F D05 - GCD Max

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/f-d05-gcd-max-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/f-d05-gcd-max-1/submissions)

Given an array a[N], write a program that prints the maximum GCD (Greatest Common Divisor ) of any subset of atleast size 2 the array.

GCD of two or more than two numbers is the biggest number that divides all of the given numbers.

**Input Format**

First line contains a number N, size of the array. Next N lines contain one integer each.

**Constraints**

1 <= N <= 1000 1 <= A[i] <= 1000

**Output Format**

Print the maximum possible GCD of any subset of size atleast 2 or print -1 if there is no such subset.

**Sample Input 0**

7

6

12

24

3

15

36

10

**Sample Output 0**

12

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int findgcd(int a, int b){

for(int i=min(a,b);i>=1;i--)

if(a%i==0 && b%i==0)

return i;

return 1;

}

int main() {

int N;cin>>N;

int A[N];

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

cin>>A[i];

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

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

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

int temp=A[i];

A[i]=A[j];

A[j]=temp;

}

// for(int i=0;i<N;i++)

// cout<<A[i]<<" ";

int gcd=-1;

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

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

if(findgcd(A[i],A[j])>gcd)

gcd=findgcd(A[i],A[j]);

cout<<gcd;

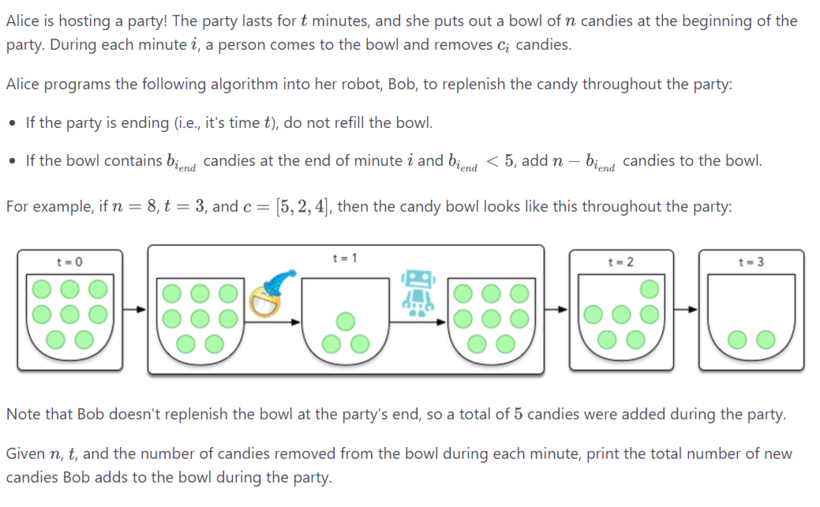
return 0;

}

## G M01 - Condiments in a Bowl

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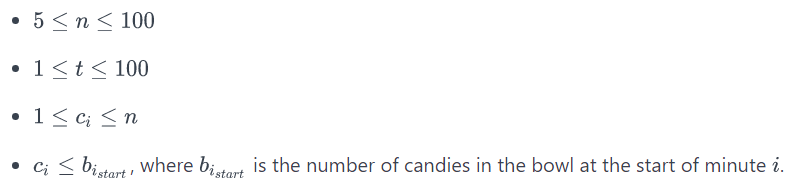
* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/candy-and-robot)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/candy-and-robot/submissions)



**Input Format**

image

**Constraints**



**Output Format**

Print the total number of new candies Bob adds to the bowl during the party.

**Sample Input 0**

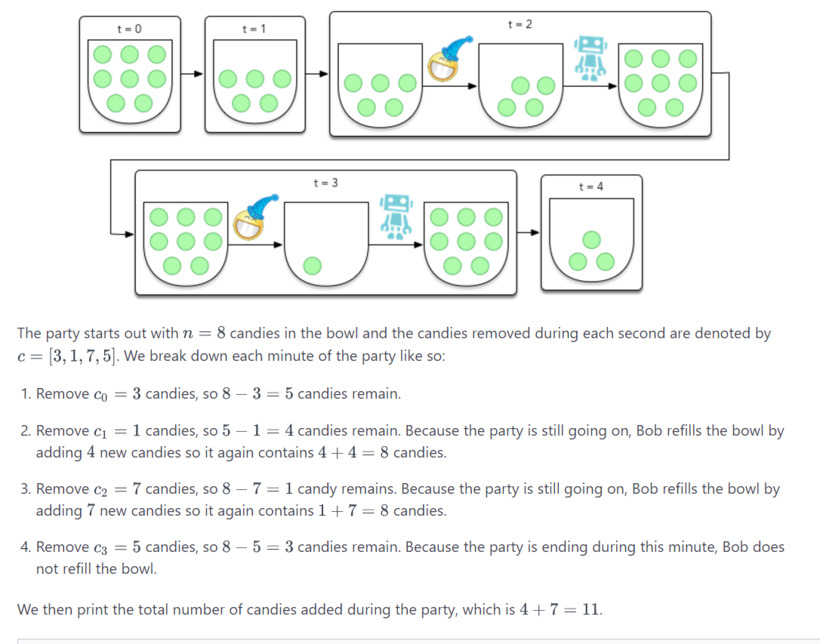
8 4

3 1 7 5

**Sample Output 0**

11

**Explanation 0**



#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int b,n,i,count=0,init;

cin>>b>>n;

init=b;

int c[n];

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

cin>>c[i];

}

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

b=b-c[i];

if(b <5&&b<100) {

count=count+(init-b);

b=init;

}

}

cout<<count;

return 0;

}

## C D02 - Prime Testing - 2

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-1-primality-testing-ii)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-1-primality-testing-ii/submissions)

You are given Q different queries. Each query consists of one number each i.e. N. You are to write a program that, for each query tests whether the number is prime or not. You must output Q different lines to stdout, ith line being "yes" if the N for ith query is a prime number and "no" otherwise.

**Input Format**

First line contains one integer, the number of queries Q.  
Next Q lines contain one integer each, the N for the queries.

**Constraints**

1 <= Q <= 10^5  
1 <= N <= 10^5

**Output Format**

Output Q lines, on each line you must print "yes" or "no" depending on the primality of the N in the query.

**Sample Input 0**

5

1

2

3

4

5

**Sample Output 0**

no

yes

yes

no

yes

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

int n;

scanf("%d", &n);

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

{

int x, flag = 0;

scanf("%d", &x);

if(x == 1)

printf("no\n");

else if(x==2||x==3)

printf("yes\n");

else if(x%2==0||x%3==0)

printf("no\n");

else

{

for(int j = 5; j <= x/2; j+=6)

{

if(x%j==0||x%(j+2)==0)

{

flag=1;

break;

}

}

if(flag == 1)

printf("no\n");

else

printf("yes\n");

}

}

return 0;

}

## C D03 - Prime Testing - 3

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-primality-testing-iii)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-primality-testing-iii/submissions)

You are given Q different queries. Each query consists of one number each i.e. N. You are to write a program that, for each query tests whether the number is prime or not. You must output Q different lines to stdout, ith line being "yes" if the N for ith query is a prime number and "no" otherwise.

**Input Format**

First line contains one integer, the number of queries Q.  
Next Q lines contain one integer each, the N for the queries.

**Constraints**

1 <= Q <= 10^6  
1 <= N <= 10^6

**Output Format**

Output Q lines, on each line you must print "yes" or "no" depending on the primality of the N in the query.

**Sample Input 0**

5

1

2

3

4

5

**Sample Output 0**

no

yes

yes

no

yes

## C D04 - Trouble with the Number System

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/barua-os-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/barua-os-1/submissions)

Barua has developed his own Operating System known as "Barua OS" ( BOS ). One day while booting up his system he runs into a bug. You want to impress Barua so you jump in and offer to solve the bug yourself.  
Barua doesn't like binary numbers very much and his operating system uses a new number system called BNS ( Barua Number System ).  
The following are the properties of a number represented in BNS form :

1. The number can only be made up of 2 distinct digits, one or zero.
2. The number cannot start with zero.
3. The number can have any number of zeroes, but only one instance of the digit one.

For example 100, 1000, 10000 are Barua Numbers whereas 101, 502, 625 are not Barua Numbers. Unfortunately one decimal number has crept into a list of Barua Numbers and Barua OS cannot find its product. Can you?

**Input Format:**

First line contains an integer N, total number of elements in the list.

Next N lines contains a number a[i] <= 10^18.

**NOTE :**  
Out of the N numbers, there will be at most 1 decimal number and the remaining numbers will be Barua Numbers.  
There may be no decimal numbers at all.

**Output Format:**  
Print one number, the product of all the numbers.

**Input Constraints:**

1 <= N <= 10^6

1 <= A[i] <= 10^18

**Sample Input 0**

4

100

121

10

100

**Sample Output 0**

12100000

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/ int n; cin>>n; long long int a[n],c=1,i,count=0;

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

cin>>a[i];

}

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

while(a[i]>0){

if(a[i]%10==0){a[i]=a[i]/10;

count++;}

else{

c=c\*a[i];

break;

}

}

}

cout<<c;

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

{

cout<<"0";

}

return 0;

}

## The Farmer's Enlightenment

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-farmers-enlightenment)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-farmers-enlightenment/submissions)

The farmers sons got upset when they realised that the farmer favors the strongest of them. The farmer realises his mistake and hence is now no longer interested in who the strongest son is. Rather, he wants to know the collective strength of all his sons since Unity is Strength. The collective strength of all his sons is equal to the sum of strengths of all the sons. Again, since the farmer never went to school he needs your help to find it out.

**Input Format**

Five space separated integers, ith of them denoting S[i].

**Constraints**

0 <= S[i] <= 100

**Output Format**

Output one number equal to the collective strength.

**Sample Input 0**

5 8 4 6 2

**Sample Output 0**

25

**Explanation 0**

5 + 8 + 4 + 6 + 2 = 25

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int a,sum=0;

while(cin>>a)

{

sum=sum+a;

}

cout<<sum;

return 0;

}

## Alice and Boat Trips

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/alice-and-boat-trips)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/alice-and-boat-trips/submissions)

Alice owns a company that transports tour groups between two islands. She has n trips booked, and each trip has pi passengers. Alice has m boats for transporting people, and each boat's maximum capacity is c passengers.

Given the number of passengers going on each trip, determine whether or not Alice can perform all n trips using no more than m boats per individual trip. If this is possible, print Yes; otherwise, print No.

**Input Format**

The first line contains three space-separated integers describing the respective values of n (number of trips), c (boat capacity), and m (total number of boats). The second line contains n space-separated integers describing the values of p0, p1, p2... pn-1

**Constraints**

1 <= n,c,m <= 100 1 <= pi <= 100

**Output Format**

Print Yes if Alice can perform all n booked trips using no more than m boats per trip; otherwise, print No.

**Sample Input 0**

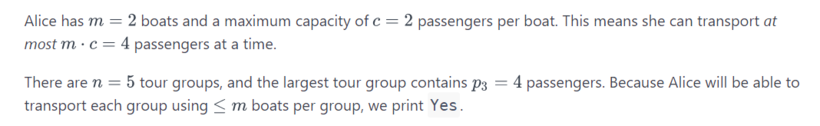
5 2 2

1 2 1 4 3

**Sample Output 0**

Yes

**Explanation 0**



**Sample Input 1**

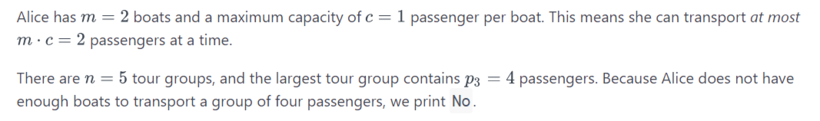
5 1 2

1 2 1 4 1

**Sample Output 1**

No

**Explanation 1**



#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n ,i, a,b,count=0;

int x[n];

scanf("%d",&n);

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

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

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

}

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

if(x[i]>(a\*b)){

count++;

}

}

if(count > 0){

printf("No");

}

else

printf("Yes");

return 0;

}

## Bug and Secret Santa

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/bug-and-secret-santa)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/bug-and-secret-santa/submissions)

Bug's friends play Secret Santa. He has n friends. Lets number them from 1 to n. For each friend i he knows pi, the person that i gave a gift to. Bug needs to find out ri for each friend i, which is the person that i received a gift from.

**Input Format**

First line contains one number n. Second line contains n space separated integers.

**Constraints**

1 <= n <= 100

**Output Format**

Print n space-separated integers: the i-th number should equal the number of the friend who gave a gift to friend number i.

**Sample Input 0**

4

2 3 4 1

**Sample Output 0**

4 1 2 3

**Explanation 0**

Ouput is

4 : because 1 received a gift from 4

1 : because 2 received a gift from 1

2 : because 3 received a gift from 2

3 : because 4 received a gift from 3

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n,p[100],i,x;

cin>>n;

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

{

cin>>x;

p[x-1]=i+1;

}

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

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

return 0;

}

## Z 444 Mr Arr and his Array

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/array-rotation-5)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/array-rotation-5/submissions)

Given an array, Mister Arr the owner of the array wants to move each element k places to its left. I.E. the array a[0],a[1],a[2],...a[n] becomes a[1],a[2]...a[n],a[0] after moving one place to the left. Note that the first element becomes the last element after each rotation. Mister Arr was up all night watching a football match and hence is sleeping now. He has given you the task to rotate the entire array K places to its left.

**Input Format**

The first line contains two space-separated integers denoting the respective values of n (the number of integers) and k (the number of left rotations you must perform). The second line contains n space-separated integers describing the respective elements of the array's initial state.

**Constraints**

1 <= n <= 10^5  
1 <= k <= n  
1 <= a[i] <= 10^6

**Output Format**

Print a single line of n space-separated integers denoting the final state of the array after performing d left rotations.

**Sample Input 0**

5 4

1 2 3 4 5

**Sample Output 0**

5 1 2 3 4

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main()

{

int n,m,i,d;

cin>>n;

int a[n];

cin>>d;

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

{

cin>>a[i];

}

m=d%n;

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

{

cout<<a[(m+i)%n]<<" ";

}

return 0;

}

## F D02 - Group of Jackals

**by**[**mycodejio**](https://www.hackerrank.com/profile/mycodejio)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/leader-sum)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/leader-sum/submissions)

The function accepts a positive integer array ‘array’ of size ’n’ as its argument. Implement the function to find the Jackal elements in the array and return their sum.

An element is a Jackal in the array if it is STRICTLY greater than all the elements to its right side. the rightmost element is always a Jackal.

**Input Format**

Complete the given Function

**Constraints**

The answer would lie in Integer range.

**Output Format**

Return the sum of the Jackal elements of the array

**Sample Input 0**

5

5 4 3 2 1

**Sample Output 0**

15

#include <bits/stdc++.h>

using namespace std;

int LearderSum(vector <int> array,int n) {

// Complete this function

int size=n;

int sumf=0;

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

{

int j;

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

{

if (array[i] <= array[j])

break;

}

if (j == size) // the loop didn't break

sumf+= array[i];

}

return sumf;

}

int main() {

int n;

cin >> n;

vector<int> array(n);

for(int array\_i = 0; array\_i < n; array\_i++){

cin >> array[array\_i];

}

int result = LearderSum(array,n);

cout << result << endl;

return 0;

}

## G M04 - The Elite N

https://hrcdn.net/s3_pub/hr-avatars/c05428cc-0733-4fc0-bbfd-160fb142f1ee/150x150.png**by**[**kumaradityagr**](https://www.hackerrank.com/profile/kumaradityagr)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-elite-n)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-elite-n/submissions)
* The Elite N are a number of people in a line, that you have to beat in order to be the Pokémon Champion.
* Each person has exactly one Pokémon, with a predetermined power level.
* When a battle occurs, the powers of both Pokémon steadily decrease until either reaches 0. This will be referred to as fainting.
* You have to make sure your Pokémon doesn't faint, i.e., its **power should remain > 0**
* You can take rest and restore your Pokémon to full power to start battling again. But it takes one day to do so.
* When you rest the current opponent also takes a rest restoring his powers to full.
* You can fight as many battles as possible in a day until you rest.
* Find the number of days you will need to defeat the Elite N and become the champion.
* **Note** that there might be a person stronger than you whom you **cannot defeat**. Hence you will have to lose.
* Print the number of days required to defeat the Elite N, and -1 if you can't.

**Input Format**

The first line of input contains your Pokémon's power, K. The second line contains the number of opponents, N. The next line contains n numbers A1, A2 ... An, where Ai is the power of the ith opponent.

**Constraints**

1. 1 <= k <= 1000
2. 1 <= n <= 100000
3. 1 <= a1, a2, a3, ..., an <= 1000

**Output Format**

Output only one number, the number of days taken to defeat the Elite N.

**Sample Input**

10

7

1 2 4 7 2 5 5

**Sample Output**

4

**Explanation**

On the first day you defeat 1st, 2nd and 3rd opponent. As the remaining power would be 3, you can't battle the 4th one. So you take rest. On the 2nd day, you defeat the 4th and the 5th opponent, then take rest. On the 3rd day, you defeat the 6th enemy only. As you cannot let your pokemon faint, you will have to take rest. On the 4th day you defeat the last of the Elite N and become the champion! :D

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

int k,n,pok[100000],day=1;

cin>>k>>n;

int pow = k;

int faint = 0;

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

{

cin>>pok[i];

if(k<=pok[i]){

faint++;

goto label;

}

}

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

if(pow>pok[i])

pow -=pok[i];

else if(pow<=pok[i])

{

day++;

pow = k;

i--;

}

}

label:

if(faint!=0)

cout<<"-1";

if(faint==0)

cout<<day;

return 0;

}

## Z 431 PaneerLove

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/z-431-paneerlove-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/z-431-paneerlove-1/submissions)

Chappu is addicted to Paneer! Nikau wants to keep her happy for n days. In order to be happy in i-th day, she needs to eat exactly a[i] kilograms of Paneer.

There is a big shop uptown and Nikau wants to buy Paneer for her from there. In i-th day, they sell Paneer for pi dollars per kilogram.

Nikau knows all numbers a1,...,an and p1,...,pn. In each day, he can buy arbitrary amount of Paneer, also he can keep some Paneer he has for the future.

Nikau is a little tired from cooking Paneer, so he asked for your help. Help him to minimize the total money he spends to keep Chappu happy for n days.

**Input Format**

The first line of input contains integer n (1<=n<=10^5), the number of days.

In the next n lines, i-th line contains two integers ai and pi (1<=ai, pi<=100), the amount of Paneer Chappu needs and the cost of Paneer in that day.

**Constraints**

1 <= n <= 10^5

**Output Format**

Print the minimum money needed to keep Chappu happy for n days, in one line.

**Sample Input 0**

3

1 3

2 2

3 1

**Sample Output 0**

10

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

long long int n,min=0,sum=0;

scanf("%lldd",&n);

long long int a[n],p[n];

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

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

min=p[0];

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

{

if(p[i]<min)

{

min=p[i];

}

sum+=min\*a[i];

}

printf("%lld",sum);

return 0;

}

## F D01 - Array as a Hill

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mountain-array)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mountain-array/submissions)

Array of integers is a hill, if:

* it is strictly increasing in the beginning;
* after that it is constant;
* after that it is strictly decreasing.
* The first block (increasing) and the last block (decreasing) may be absent. It is allowed that both of this blocks are absent.

For example, the following three arrays are a hill: [5, 7, 11, 11, 2, 1], [4, 4, 2], [7],  
but the following three are not unimodal: [5, 5, 6, 6, 1], [1, 2, 1, 2], [4, 5, 5, 6].

Write a program that checks if an array is a hill.

**Input Format**

The first line contains integer n (1 ≤ n ≤ 100) — the number of elements in the array.

The second line contains n integers a1, a2, ..., an (1 ≤ ai ≤ 1000) — the elements of the array.

**Output Format**

Print "yes" if the given array is a hill. Otherwise, print "no".

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

scanf("%d",&n);

int arr[n];

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

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

int i=0;

while(i<n-1 && arr[i]<arr[i+1]) i++;

while(i<n-1 && arr[i]==arr[i+1]) i++;

while(i<n-1 && arr[i]>arr[i+1]) i++;

if(i==n-1) printf("yes");

else printf("no");

return 0;

}

## Z 444 Mr Arr and his Array 1

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/z-444-mr-arr-and-his-array-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/z-444-mr-arr-and-his-array-1/submissions)

Given an array, Mister Arr the owner of the array wants to move each element k places to its left. I.E. the array a[0],a[1],a[2],...a[n] becomes a[1],a[2]...a[n],a[0] after moving one place to the left. Note that the first element becomes the last element after each rotation. Mister Arr was up all night watching a football match and hence is sleeping now. He has given you the task to rotate the entire array K places to its left.

**Input Format**

The first line contains two space-separated integers denoting the respective values of n (the number of integers) and k (the number of left rotations you must perform). The second line contains n space-separated integers describing the respective elements of the array's initial state.

**Constraints**

1 <= n <= 10^5  
1 <= k <= n  
1 <= a[i] <= 10^6

**Output Format**

Print a single line of n space-separated integers denoting the final state of the array after performing d left rotations.

**Sample Input 0**

5 4

1 2 3 4 5

**Sample Output 0**

5 1 2 3 4

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

int n,r,i;

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

int a[n];

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

{

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

}

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

{

int j,first;

first=a[0];

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

{

a[j]=a[j+1];

}

a[j]=first;

}

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

{

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

}

return 0;

}

## G D01 - Rotate The Array 3

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/rotate-the-array-3)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/rotate-the-array-3/submissions)

Given an array of integers of size n, rotate it's elements towards right K times.

Note: One rotation of the array (a0, a1, a2... an-1, an) results into (an, a1, a2...., an-2, an-1).

Explanation for a Sample i/o

Sample Input: 5 1 3 5 7 9 3

Sample Output: 5 7 9 1 3

Explanation: We have to perform 3 rotations : 1st rotation : 9 1 3 5 7 2nd rotation : 7 9 1 3 5 3rd rotation : 5 7 9 1 3

**Input Format**

First line contains an integer n. Second line contains n integers, denoting the array a[n]. Third line contains one integer k, the number of times the array is to be rotated.

**Constraints**

1 <= n <= 1000

**Output Format**

Output n integers, denoting the array a[n] after rotation.

**Sample Input 0**

5

1 3 5 7 9

3

**Sample Output 0**

5 7 9 1 3

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

int n,m,a[1000],i;

scanf("%d",&n);

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

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

scanf("%d",&m);

m=(n\*((m/n)+1))-m;

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

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

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

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

return 0;

}

## G D03 - Residue Arithmetic

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-3-19-residue-arithmetic)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-3-19-residue-arithmetic/submissions)

For operators with large integers, residue arithmetic is used. A residue of a number n modulo a prime p is defined as the remainder obtained when we divide a by p. FOr example, if residue of 100 modulo 3 is 1. Two large primes are chosen and all numbers are expressed as modulo those primes.

For example, if 7 and 3 were chosen as the primes, 25 would be represented as 4,1 in this representation, 3 would be represented as 3,3 and 30 would be represented as 2,0.

Now if we do 25 \* 3 - 30 in this model, we do the operation and compute the residue of the result with each of the primes in turn. SO with respect to the prime 7, the result is 4 \* 3 - 2 or 10 which has a residue of 3 modulo 7. With respect to 13, the operation is 12 \* 3 - 4 = 32 whose residue is 6 modulo 13. Hence the result is 3,6 in the residue notation. There is only one number less than 91 which has this representation, and that is 45, which is what we expect.

In this problem we will be given 3 numbers a,b and c in residue notation for two primes p and q, and we need to find the value of 2a + b - c in normal notation. It may be assumed that the result is less than p \* q and is non-negative. (c <= 2a + b)

### **Input**

First line consists of two primes  
Next 3 lines contains the three input numbers modulo those primes

### **Output**

Print the value of 2a + b - c in normal notation

**Sample Input 0**

23 29

7 1

2 25

4 21

**Sample Output 0**

35

**Explanation 0**

Values of a, b and c are 30, 25 and 50. 2a + b - c is hence 35.

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

long long int a,b,c,d,i,j,y[3],z;

cin>>a>>b;

for(i=0;i<3;i++)

{

cin>>c>>d;

for(j=2;j<=a\*b;j++)

{

if(j%a==c && j%b==d)

{

y[i]=j;

break;

}

}

}

z=2\*y[0]+y[1]-y[2];

cout<<z;

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

return 0;

}

## F M01 - Matrix Addition

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-20-sum-of-two-matrices)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-20-sum-of-two-matrices/submissions)

Just as 2D matrix, you can declare an array of as many dimensions as you want.

For example : 3D array : int arr3d[5][5][5], 4D array : int arr4d[5][5][5][5] and so on.

For this task, you are to write a program that adds two 3x3 matrices and prints the result

**Sample Input 0**

1 2 3

4 5 6

7 8 9

3 2 1

6 5 4

9 8 7

**Sample Output 0**

4 4 4

10 10 10

16 16 16

#include<stdio.h>

int main()

{

int mat1[3][3], mat2[3][3], res[3][3], i, j;

for(i=0; i<3; i++)

{

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

{

scanf("%d", &mat1[i][j]);

}

}

for(i=0; i<3; i++)

{

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

{

scanf("%d", &mat2[i][j]);

}

}

for(i=0; i<3; i++)

{

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

{

res[i][j] = mat1[i][j] + mat2[i][j];

}

}

for (i = 0; i < 3; i++)

{

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

{

printf("%d ", res[i][j]);

}printf("\n");

}

return 0;

}

## F M02 - Transpose 1

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-18-transpose-of-a-matrix)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-18-transpose-of-a-matrix/submissions)

Write a program that accepts an NxN matrix as input and prints its transpose.

Details about transpose : [https://en.wikipedia.org/wiki/Transpose](https://www.hackerrank.com/external_redirect?to=https://en.wikipedia.org/wiki/Transpose)

Note that you also have to take as input N, the size of the matrix.

Hint : Every element a[i][j] in old matrix becomes a[j][i] in transpose matrix Base Code :

**Sample Input 0**

3

1 2 3

4 5 6

7 8 9

**Sample Output 0**

1 4 7

2 5 8

3 6 9

#include<stdio.h>

int main()

{

int i, j, n;

scanf("%d", &n);

int matrix[n][n], transpose[n][n];

//your code here

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

{

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

{

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

}

}

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

{

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

{

printf("%d ",matrix[j][i]);

}

printf("\n");

}

return 0;

}

## F M03 - Transpose 2

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-19-transpose-of-a-matrix-ii)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-19-transpose-of-a-matrix-ii/submissions)

Write a program that accepts an NxM matrix as input and prints its transpose.

Details about transpose : [https://en.wikipedia.org/wiki/Transpose](https://www.hackerrank.com/external_redirect?to=https://en.wikipedia.org/wiki/Transpose)

Note that you also have to take as input N and M, the size of the matrix.

**Sample Input 0**

2 4

1 2 3 4

5 6 7 8

**Sample Output 0**

1 5

2 6

3 7

4 8

#include<stdio.h>

int main()

{

int i, j, n1,n2;

scanf("%d %d", &n1,&n2);

int matrix[n1][n2], transpose[n1][n2];

//your code here

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

{

for(j=0;j<n2;j++)

{

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

}

}

for(i=0;i<n2;i++)

{

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

{

printf("%d ",matrix[j][i]);

}

printf("\n");

}

return 0;

}

## F M04 - Matrix Product

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-21-product-of-two-matrices)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-3-21-product-of-two-matrices/submissions)

Write a program that takes as input two matrices and prints their product. If it is not possible to multiply the two matrices simply print -1.

Each matrix as input is of the form :

followed by number of lines with no. of elements on each line

More info on matrix multiplication : [https://en.wikipedia.org/wiki/Matrix\_multiplication](https://www.hackerrank.com/external_redirect?to=https://en.wikipedia.org/wiki/Matrix_multiplication)

Hint : you will need three nested for loops to achieve the goal

**Sample Input 0**

2 2

1 0

0 1

2 2

1 1

1 1

**Sample Output 0**

1 1

1 1

#include<stdio.h>

int main()

{

//your code here

int n, m, o, p;

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

int a[n][m];

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

{

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

{

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

}

}

scanf("%d %d", &o, &p);

int b[o][p];

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

{

for(int j=0; j<p; j++)

{

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

}

}

if(m != o)

{

printf("-1");

return 0;

}

int c[n][p];

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

{

for(int j=0; j<p; j++)

{

c[i][j] = 0;

for(int k=0; k<m; k++)

{

c[i][j] += a[i][k] \* b[k][j];

}

}

}

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

{

for(int j=0; j<p; j++)

{

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

}

printf("\n");

}

return 0;

}

## F M05 - Diagonal Addition

**by**[**keyurjain**](https://www.hackerrank.com/profile/keyurjain)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/sum-diagonal)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/sum-diagonal/submissions)

Find the sum of the diagonals of a NxN square matrix.

Hint : Can be solved using the same logic as problem 1 of zoho practice set.

**Input Format**

First line contains N, the size of the grid Then N^2 numbers giving the value of the row and column

**Constraints**

1 <= N <= 10

**Output Format**

Print the sum

**Sample Input 0**

3

1 2 3

4 5 6

7 8 9

**Sample Output 0**

25

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

int n,i,j,a[10][10],s=0;

scanf("%d",&n);

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

{

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

{

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

}

}

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

{

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

{

if((i==j) || (i+j==(n-1)))

{

s+=a[i][j];

}

}

}

printf("%d",s);

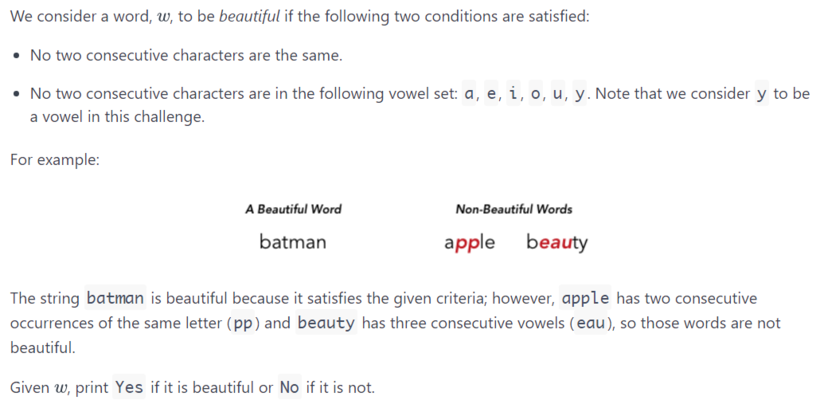
return 0;

}

## I M14 - Star Strings

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/beautiful-words-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/beautiful-words-1/submissions)



**Input Format**

A single string denoting w.

**Constraints**

1 <= strlen(w) <= 100 w contains only alphabets a-z (lowercase).

**Output Format**

Print "Yes" if it is beautiful otherwise "No".

**Sample Input 0**

abacaba

**Sample Output 0**

Yes

**Explanation 0**

Every pair of consecutive characters consists of one vowel and one consonant, so the word is beautiful and we print Yes.

**Sample Input 1**

badd

**Sample Output 1**

No

**Explanation 1**

There are two consecutive occurrences of d, so it is not beautiful and we print No.

**Sample Input 2**

yes

**Sample Output 2**

No

**Explanation 2**

The first pair of letters (y and e) both appear in our set of vowel characters, so the word is not beautiful and we print No.

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

string a;

int c=0,i,j,f=0;

cin>>a;

for(i=0;i<a.length()-1;i++)

{

j=i+1;

if(a[i]=='a' || a[i]=='e' || a[i]=='i' || a[i]=='o' || a[i]=='u' || a[i]=='y')

{

if(a[j]=='a' || a[j]=='e' || a[j]=='i' || a[j]=='o' || a[j]=='u' || a[j]=='y')

c++;

}

else if(a[i]==a[i+1])

f++;

}

if(f+c>0)

cout<<"No";

else

cout<<"Yes";

return 0;

}

## I M03 - Strings - Palindrome Or Not

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/palindrome-or-not-1-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/palindrome-or-not-1-1/submissions)

Write a program that identifies whether a given string is palindrome or not.

**Input Format**

One string S.

**Constraints**

1 <= strlen(S) <= 100

**Output Format**

Print "yes" if the string is a palindrome and "no" otherwise.

**Sample Input 0**

kayak

**Sample Output 0**

yes

**Sample Input 1**

banana

**Sample Output 1**

no

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

string a,b;

cin>>a;

b=a;

reverse(a.begin(),a.end());

if(a==b)

cout<<"yes";

else

cout<<"no";

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

return 0;

}

## Z 405 : Find the Length of the String

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-4-4-find-the-length-of-the-string)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/task-4-4-find-the-length-of-the-string/submissions)

Every string in C terminates with a null character i.e. ‘\0’. Input functions like scanf and gets append this null character to the end of the string by themselves.

This null character that denotes the end of the string can be used to find the length of any string. If str[x] is a null character, then x is the length of the string.

For this task, complete the strlen function that returns the length of a string.

**Sample Input 0**

Hello World!

**Sample Output 0**

12

#include<stdio.h>

int main()

{

char s[1000];

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

int i=0;

while(s[i]){

i++;

}

printf("%d", i);

return 0;

}

## Z 323 Percentage of Vowels

**by**[**keyurjain**](https://www.hackerrank.com/profile/keyurjain)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/percentage-of-vowels)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/percentage-of-vowels/submissions)

Bunny has a string. Bunny likes vowel and dislikes consonants so he would like to know what percentage of the characters in the string are vowels.

**Input Format**

Only one line of input that contains one string.

**Constraints**

One string that only contains lowercase or uppercase letters. The length of this string will not be greater than 100.

**Output Format**

Output the required percentage upto 4 decimal places.

**Sample Input 0**

bunnyyisastringlover

**Sample Output 0**

30.0000

**Explanation 0**

total characters : 20 vowels : 6 percentage = (6/20)\*100 = 30

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

string s;

int o,b=0,i;

double f;

cin>>s;

o=s.length();

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

{

if(s[i]=='a' || s[i]=='e' || s[i]=='i' || s[i]=='o' || s[i]=='u'|| s[i]=='A' || s[i]=='E' || s[i]=='I' || s[i]=='O' || s[i]=='U' )

b++;

}

f=((double)b/o)\*100;

printf("%.4f" ,f);

return 0;

}

## T 122 - Discover the right Character

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/column-title-in-a-spreadsheet)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/column-title-in-a-spreadsheet/submissions)

Given a positive integer, return its corresponding column title as it would appear in an Excel Spreadsheet.  
For Example :

* 1 -> A
* 2 -> B
* ....
* ....
* 26 -> Z
* 27 -> AA

**Input Format**

One integer denoting the column number.

**Constraints**

The integer size will be less than 32-bits.

**Output Format**

Output the corresponding column title.

**Sample Input 0**

27

**Sample Output 0**

AA

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

string convertToTitle(int n)

{

string r = "";

while (n > 0)

{

r = (char)(65 + (n - 1) % 26) + r;

n = (n - 1) / 26;

}

return r;

}

int main()

{

int a;

cin>>a;

cout<<convertToTitle(a);

return 0;

}

## T 123 - Discover The Right Number

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/column-number-in-a-spreadsheet)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/column-number-in-a-spreadsheet/submissions)

Given a column title as appears in an Excel Spreadsheet, return its corresponding column number.  
For Example :

* A -> 1
* B -> 2
* ....
* ....
* Z -> 26
* AA -> 27

**Input Format**

One string denoting the column title of an excel spreadsheet.

**Constraints**

The answer will always fit in a 32-bit integer.

**Output Format**

Output an integer.

**Sample Input 0**

AA

**Sample Output 0**

27

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int titleToNumber(string A) {

auto n = A.length();

int value = 0;

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

{

value += pow(26, i)\*(A[n-(i+1)] - 'A' + 1);

}

return value;

}

int main() {

char str[1000];

cin>>str;

cout<<titleToNumber(str);

return 0;

}

## I M18 - Decimal to Binary Number Conversion

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/i-m18-decimal-to-binary-number-conversion-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/i-m18-decimal-to-binary-number-conversion-1/submissions)

Write a program that takes as input one decimal number N, and prints its binary form.

**Input Format**

One number N.

**Constraints**

0 <= N <= 10^18

**Output Format**

Binary representation of the number N.

**Sample Input 0**

2

**Sample Output 0**

10

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() { /\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

long long int a;

int b[100];

int i=0,j;

cin>>a;

if(a>0)

{ while(a!=0)

{

b[i]=a%2;

a=a/2;

i++; }

for(j=i-1;j>=0;j--)

cout<<b[j];

}

else

cout<<0;

return 0;

}

## T 103 - Negative Marking

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-5-passing-examination)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-5-passing-examination/submissions)

Raju is giving his JEE Main exam. The exam has **Q** questions and Raju needs **S** marks to pass. Giving the correct answer to a question awards the student with 4 marks whereas giving the incorrect answer to a question awards the student with negative 3 (-3) marks. If a student chooses to not answer a question at all, he is awarded 0 marks.

Write a program to calculate the minimum accuracy that Raju will need in order to pass the exam.

### **Input**

Input consists of multiple test cases.  
Each test case consists of two integers **Q** and **S**

### **Output**

Print the minimum accuracy upto 2 decimal places  
Print -1 if it is impossible to pass the exam

**Sample Input 0**

2

10 40

10 33

**Sample Output 0**

100.00

90.00

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main()

{

int t;

cin>>t;

while(t--)

{ int q,s;

cin>>q>>s;

if(4\*q-s<0)

cout<<"-1\n";

else

{ float w = (float)(q\*4 - s)/7;

float result = ((float)(q-w)/q)\*100;

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

}

}

return 0;}

## I M01 - Lex Characters Unique

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/unique-characters-1-2)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/unique-characters-1-2/submissions)

Given a string consisting of lowercase english letters only, print all the unique characters in it in lexicographically increasing order.

**Input Format**

One string S.

**Constraints**

1 <= strlen(S) <= 1000

**Output Format**

One string consisting of the unique characters of string S in alphabetic order.

**Sample Input 0**

alohamora

**Sample Output 0**

ahlmor

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

#include <string>

#include <cstring>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

string s;

cin>>s;

int index = 0;

int n=s.length();

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

{

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

{

if(s[i]<s[j])

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

}

}

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

int j;

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

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

break;

if (j == i)

{s[index++] = s[i];

}}

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

{

cout<<s[i];}

return 0;

}

## I M02 - String Concatenation

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/a-pstring)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/a-pstring/submissions)

A string is called a pString if it can be represented as p concatenated copies of some string. For example, the string "aabaabaabaab" is at the same time a 1String, a 2String and a 4String, but it is not a 3String, a 5String, or a 6String and so on. Obviously any string is a 1String.

You are given a string s, consisting of lowercase English letters and a positive integer p. Your task is to find if it is possible to reorder the letters in the string s in such a way that the resulting string is a pString.

**Input Format**

The first input line contains integer p.  
The second line contains s, all characters in s are lowercase English letters.

**Constraints**

1 ≤ p ≤ 1000  
1 ≤ |s| ≤ 1000

**Output Format**

Print "YES" if it is possible to rearrange the letters in string s in such a way that the result is a pString. Print the result on a single output line. If it is not possible print "NO". (without quotes).

**Sample Input 0**

2

aazz

**Sample Output 0**

YES

**Explanation 0**

aazz can be rearranged to azaz which is a 2String

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

scanf("%d",&n);

char s[1010];

scanf("%s",s);

int h[26]={0},i;

for(i=0;s[i]!='\0';i++)

h[s[i]-'a']++;

for(i=0;i<26;i++)

{

if(h[i]!=0 )

{

if(h[i]%n != 0)

{

printf("NO\n");

return 0;

}

}

}

printf("YES");

return 0;

}

## I M13 - Newbie to Chat Room

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/rohan-says-hello)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/rohan-says-hello/submissions)

Rohan has recently learned to type and log on to the Internet. He immediately entered a chat room and decided to say hello to everybody. Rohan typed the word s. It is considered that Rohan managed to say hello if several letters can be deleted from the typed word so that it resulted in the word "hello". For example, if Rohan types the word "ahhellllloou", it will be considered that he said hello, and if he types "hlelo", it will be considered that Rohan got misunderstood and he didn't manage to say hello. Determine whether Rohan managed to say hello by the given word s.

**Input Format**

The first and only line contains the word s, which Rohan typed. This word consisits of small Latin letters, its length is no less that 1 and no more than 100 letters.

**Constraints**

Given

**Output Format**

If Rohan managed to say hello, print "YES", otherwise print "NO".

**Sample Input 0**

ahhellllloou

**Sample Output 0**

YES

**Sample Input 1**

hlelo

**Sample Output 1**

NO

#include <stdio.h>

#include <string.h>

#include <math.h>

#include <stdlib.h>

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

char s[100];

int i,j,k,l,m,c=-1;

scanf("%s",s);

for(i=0;s[i]!='\0';i++)

{ if(s[i]=='h')

{ for(j=i+1;s[j]!='\0';j++)

{ if(s[j]=='e')

{ for(k=j+1;s[k]!='\0';k++)

{ if(s[k]=='l')

{

for(l=k+1;s[l]!='\0';l++)

{ if(s[l]=='l') { for(m=l+1;s[m]!='\0';m++)

{ if(s[m]=='o') {

printf("YES"); c=0;

return 0;

}

}

}

}

}

}

}

}

}

}

if(c==-1)

printf("NO"); return 0; }

## I M16 - Exclusive Or

**by**[**CCC\_Coding\_Box**](https://www.hackerrank.com/profile/CCC_Coding_Box)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/i-m16-exclusive-or-1)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/i-m16-exclusive-or-1/submissions)

Find the XOR of two numbers and print it.

Hint : Input the numbers as strings.

**Input Format**

First line contains first number X and second line contains second number Y.  
The numbers will be given to you in binary form.

**Constraints**

0 <= X <= 2^1000  
0 <= Y <= 2^1000

**Output Format**

Output one number in binary format, the XOR of two numbers.

**Sample Input 0**

11011

10101

**Sample Output 0**

01110

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

#include<cstring>

using namespace std;

int main() {

char a[1000];

char b[1000];int c[1000];

scanf("%s",a);

scanf("%s",b);

// puts(b);

int n=strlen(a);

int m=strlen(b),i,j,k;

if(n>=m)

{

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

{

if(j>=0)

{

if((a[i]=='1'&&b[j]=='1')||(a[i]=='0'&&b[j]=='0'))

c[i]=0;

else

c[i]=1;

}

if(j<0&&a[i]=='0')

c[i]=0;

if(j<0&&a[i]=='1')

c[i]=1;

// printf("%d ",c[i]);

j--;

}

k=n;

}

else

{

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

{

if(j>=0)

{

if((b[i]=='1'&&a[j]=='1')||(b[i]=='0'&&a[j]=='0'))

c[i]=0;

else

c[i]=1;

}

if(j<0&&b[i]=='0')

c[i]=0;

if(j<0&&b[i]=='1')

c[i]=1;

j--;

}

k=m;

}

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

printf("%d",c[i]);

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

return 0;

}

## T 117 Spinning Matrix

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-2-matrix-rotations)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-2-matrix-rotations/submissions)

You are given a square matrix of dimension N. Let this matrix be called A.  
Your task is to rotate A in clockwise direction by S degrees, where S is angle of rotation.  
On the matrix, there will be 3 types of operations viz.

**Rotation**Rotate the matrix A by angle S, presented as input in form of A S

**Querying**Query the element at row K and column L, presented as input in form of Q K L

**Updation**Update the element at row X and column Y with value Z, presented as input in form of U X Y Z

Print the output of individual operations as depicted in Output Specification

**Input Format**

Input will consist of three parts, viz.  
1. Size of the matrix (N)  
2. The matrix itself (A = N \* N)  
3. Various operations on the matrix, one operation on each line. (Beginning either with A, Q or U)

-1 will represent end of input.

**Note:**  
Angle of rotation will always be multiples of 90 degrees only.  
All Update operations happen only on the initial matrix. After update all the previous rotations have to be applied on the updated matrix

**Constraints**

1<=N<=1000  
1<=Aij<=1000  
0<=S<=160000  
1<=K, L<=N  
1<=Q<=100000

**Output Format**

For each Query operation print the element present at K-L location of the matrix in its current state.

**Sample Input 0**

2

1 2

3 4

A 90

Q 1 1

Q 1 2

A 90

Q 1 1

U 1 1 6

Q 2 2

-1

**Sample Output 0**

3

1

4

6

**Explanation 0**

Initial Matrix  
1 2  
3 4

After 90 degree rotation, the matrix will become  
3 1  
4 2  
Now the element at A11 is 3 and A12 is 1.

Again the angle of rotation is 90 degree, now after the rotation the matrix will become  
4 3  
2 1  
Now the element at A11 is 4.

As the next operation is Update, update initial matrix i.e.  
6 2  
3 4

After updating, apply all the previous rotations (i.e. 180 = two 90 degree rotations).  
The matrix will now become  
4 3  
2 6  
Now A22 is 6.

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int a[1005][1005],n,x,y,z,s=0;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

cin>>n;

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

{

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

{

cin>>a[i][j];

}

}

while(1)

{

char c;

cin>>c;

if(c=='-') return 0;

else if(c=='A')

{

cin>>x;

x=x/90;

s=s+x;

s=s%4;

}

else if(c=='Q')

{

cin>>x>>y;

x--; y--;

if(s==0) cout<<a[x][y]<<endl;

else if(s==1) cout<<a[n-y-1][x]<<endl;

else if(s==2) cout<<a[n-x-1][n-y-1]<<endl;

else cout<<a[y][n-x-1]<<endl;

}

else {

cin>>x>>y>>z;

a[x-1][y-1]=z;

}

}

return 0;

}

## 02x22 - 7 Divisible Pairs

**by**[**CodeJio\_DSA**](https://www.hackerrank.com/profile/CodeJio_DSA)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/02x22-7-divisible-pairs)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/02x22-7-divisible-pairs/submissions)

You are given an array **A[N]** of size **N**.  
We define a 7-Divisible Pair as a pair of integers (i,j) such that **Ai** + **Aj** is divisible by **7**.  
Formally, a pair of integers **(i,j)** is a 7-Divisible pair if ( **Ai** + **Aj** ) % **7** = 0.  
Your task is to find the total number of 7-Divisible pairs from the given array.

**INPUT**

First line contains **N** the size of the array. (1 ≤ N ≤ 105).  
Second line contains the array elements that all lie between **1** and **105**.

**OUTPUT**

Output a single integer that denotes the number of pairs divisible by 7.

**Sample Input 0**

5

9 3 7 4 14

**Sample Output 0**

2

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

int k=7;

cin >> n;

int a[n];

int m[k];

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

m[i]=0;

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

cin >> a[i];

m[a[i]%k]++;

}

int sum=0;

sum+=(m[0]\*(m[0]-1))/2;

for(int i=1; i<=k/2 && i!=k-i; i++){

sum+=m[i]\*m[k-i];

}

if(k%2==0)

sum+=(m[k/2]\*(m[k/2]-1))/2;

cout<<sum;

return 0;

}

## T 102 - Square in a Circle

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-6-expanding-rings)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-6-expanding-rings/submissions)

A square is kept inside a circle. It keeps expanding untill all four of its vertices touch the circumfernce of the circle. Another smaller circle is kept inside the square now and it keeps expanding untill its circumference touches all four sides of the square. The outer and the inner circle form a ring. Find the area of this ring.

### **Input**

Input consists of multiple test cases.  
Each test case contains one integer **a** denoting the side-length of the square between the two circles.

### **Output**

Print the area of the ring.

**Sample Input 0**

3

3

4

5

**Sample Output 0**

7.068583

12.566371

19.634954

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

//#include <math>

#define \_USE\_MATH\_DEFINES

using namespace std;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

cin>>n;

double a,res,r1,r2;

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

{

cin>>a;

r1=a/2;

r2=a/sqrt(2);

res=acos(-1)\*((r2\*r2) - (r1\*r1));

printf("%.6lf\n", res);

}

return 0;

}

## The Smart Function

**by**[**mycodejio**](https://www.hackerrank.com/profile/mycodejio)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-smart-function)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/the-smart-function/submissions)

The function myfunc takes 2 integers n and m as input.  
The fucntion accepts two integers ’n’ and ‘m’ as its argument.  
Implement the function to find the sum of ’n’ and ‘m’ and check if the number of digits in ’n’ and number of digits in sum of ’n’ and ‘m’ are same.  
If they are same then return the sum of ’n’ and ‘m’ else return ’n’.

**Input Format**

The function would be called by giving 2 integer inputs

**Constraints**

0<= N , M <= 100000

**Output Format**

Return the expected value

**Sample Input 0**

178 62

**Sample Output 0**

240

#include <bits/stdc++.h>

using namespace std;

int MyFunc(int n, int m) {

// Complete this function

int temp, d1=0,d2=0;

int s=n+m;

int b=s;

int a=n;

while(a)

{

d1++;

a/=10;

}

while(b)

{

d2++;

b/=10;}

if(n==0)

d1=1;

if(s==0)

d2=1;

if(d1==d2)

return s;

else return n;

}

int main() {

int n;

int m;

cin >> n >> m;

//vector<int> array(n);

// for(int array\_i = 0; array\_i < n; array\_i++){

// cin >> array[array\_i];

// }

int result = MyFunc(n, m);

cout << result << endl;

return 0;

}

## T 105 - Series of Primes

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-3-9-nth-prime-number)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/mcv-3-9-nth-prime-number/submissions)

A prime number is a number that is divisible by only two numbers, 1 and itself. 1 is neither a prime number nor a composite number. Hence, 2 is the first prime number, 3 is the second prime number and so on..

Your task is to write a program that takes as input an integer N and prints the Nth prime number.

### **Input**

Input consists of a single integer N

### **Output**

Print the Nth prime number

**Sample Input 0**

1

**Sample Output 0**

2

**Sample Input 1**

2

**Sample Output 1**

3

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

#include <cstring>

using namespace std;

#define MAX\_SIZE 1000005

// Function to generate N prime numbers using

// Sieve of Eratosthenes

void SieveOfEratosthenes(vector<int> &primes)

{

// Create a boolean array "IsPrime[0..MAX\_SIZE]" and

// initialize all entries it as true. A value in

// IsPrime[i] will finally be false if i is

// Not a IsPrime, else true.

bool IsPrime[MAX\_SIZE];

memset(IsPrime, true, sizeof(IsPrime));

for (int p = 2; p \* p < MAX\_SIZE; p++)

{

// If IsPrime[p] is not changed, then it is a prime

if (IsPrime[p] == true)

{

// Update all multiples of p greater than or

// equal to the square of it

// numbers which are multiple of p and are

// less than p^2 are already been marked.

for (int i = p \* p; i < MAX\_SIZE; i += p)

IsPrime[i] = false;

}

}

// Store all prime numbers

for (int p = 2; p < MAX\_SIZE; p++)

if (IsPrime[p])

primes.push\_back(p);

}

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

int n;

cin>>n;

vector<int> primes;

SieveOfEratosthenes(primes);

cout<<primes[n-1];

return 0;

}

## T 126 Twist the Matrix

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/matrix-rotations)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/matrix-rotations/submissions)

You are given a square matrix of dimension N. Let this matrix be called A.  
Your task is to rotate A in clockwise direction byS degrees, where S is angle of rotation.  
On the matrix, there will be 3 types of operations viz.

**Rotation**Rotate the matrix A by angle S, presented as input in form of A S

**Querying**Query the element at row K and column L, presented as input in form of Q K L

**Updation**Update the element at row X and column Y with value Z, presented as input in form of U X Y Z

Print the output of individual operations as depicted in Output Specification

**Input Format**

Input will consist of three parts, viz.  
1. Size of the matrix (N)  
2. The matrix itself (A = N \* N)  
3. Various operations on the matrix, one operation on each line. (Beginning either with A, Q or U)

-1 will represent end of input.

**Note:**  
Angle of rotation will always be multiples of 90 degrees only.  
All Update operations happen only on the initial matrix. After update all the previous rotations have to be applied on the updated matrix

**Constraints**

1<=N<=1000  
1<=Aij<=1000  
0<=S<=160000  
1<=K, L<=N  
1<=Q<=100000

**Output Format**

For each Query operation print the element present at K-L location of the matrix in its current state.

**Sample Input 0**

2

1 2

3 4

A 90

Q 1 1

Q 1 2

A 90

Q 1 1

U 1 1 6

Q 2 2

-1

**Sample Output 0**

3

1

4

6

**Explanation 0**

Initial Matrix  
1 2  
3 4

After 90 degree rotation, the matrix will become  
3 1  
4 2  
Now the element at A11 is 3 and A12 is 1.

Again the angle of rotation is 90 degree, now after the rotation the matrix will become  
4 3  
2 1  
Now the element at A11 is 4.

As the next operation is Update, update initial matrix i.e.  
6 2  
3 4

After updating, apply all the previous rotations (i.e. 180 = two 90 degree rotations).  
The matrix will now become  
4 3  
2 6  
Now A22 is 6.

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int a[1005][1005],n,x,y,z,s=0;

int main() {

/\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

cin>>n;

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

{

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

{

cin>>a[i][j];

}

}

while(1)

{

char c;

cin>>c;

if(c=='-') return 0;

else if(c=='A')

{

cin>>x;

x=x/90;

s=s+x;

s=s%4;

}

else if(c=='Q')

{

cin>>x>>y;

x--; y--;

if(s==0) cout<<a[x][y]<<endl;

else if(s==1) cout<<a[n-y-1][x]<<endl;

else if(s==2) cout<<a[n-x-1][n-y-1]<<endl;

else cout<<a[y][n-x-1]<<endl;

}

else {

cin>>x>>y>>z;

a[x-1][y-1]=z;

}

}

return 0;

}

## Farthest String

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* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/farthest-string)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/farthest-string/submissions)

We define the Palindromic Distance of a String as the minimum number of characters that need to be modified in order to turn the String into a palindrome.

For example :

"cook" -> "cooc" (Palindrome),  
Hence Distance("cook") = 1.

"fluffy" -> "flufff" -> "ffufff" -> "ffffff" (Palindrome),  
Hence Distance("fluffy") = 3.

Now, you are given **N** number of strings, and your task is to find out which string has the farthest Distance from being a palindrome and print it.

### **INPUT**

First line contains number of strings **N**.  
Next **N** lines each contain one string.

### **OUTPUT**

Print one string that is the farthest out of all strings from being a palindrome.

### **CONSTRAINTS**

**1** ≤ **N** ≤ **103**  
Each string has length of atmost **1000**  
Strings consists of lowercase english characters only

**Sample Input 0**

7

philosopher

chamber

prisoner

goblet

phoenix

halfbloodprince

deathlyhallows

**Sample Output 0**

halfbloodprince

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

#include <string>

#include <cstring>

using namespace std;

int change(string s)

{

int n = s.length();

int cc = 0;

for(int i=0;i<n/2;i++)

{

if(s[i]== s[n-i-1])

continue;

cc+= 1;

}

return cc;

}

int main() {

int n;

cin>>n;

string s[n];

int count,p,t;

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

{

cin>>s[i];

}

count=change(s[0]);

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

{

t=change(s[i]);

if(t>count)

{ count=t;

p=i;

}}

cout<<s[p];

return 0;

}

## I M09 - String Conversion

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/zigzag-strings)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/zigzag-strings/submissions)

The string "GOTISPATHETIC" is written in a zigzag pattern on a given number of rows like this:

G---S---H---C-

-O-I-P-T-E-I--

--T---A---T---

And then read line by line: GSHCOIPTEITAT

Write the code that will take a string and make this conversion given a number of rows.

**Input Format**

One string and one integer- the number of rows.

**Output Format**

One string

**Sample Input 0**

GOTISPATHETIC

3

**Sample Output 0**

GSHCOIPTEITAT

#include <iostream>

#include <string>

using namespace std;

// Function to print given string in zig-zag form in k rows

void printZigZag(string str, int k)

{

// base case

if (k == 1)

{

cout << str;

return;

}

// print first row

for (int i = 0; i < str.length(); i += (k-1)\*2)

cout << str[i];

// print middle rows

for (int j = 1; j < k - 1; j++)

{

bool down = true;

for (int i = j; i < str.length();)

{

cout << str[i];

if (down) // going down

i += (k-j-1)\*2;

else // going up

i += (k-1)\*2 - (k-j-1)\*2;

down = !down; // switch direction

}

}

// print last row

for (int i = k - 1; i < str.length(); i += (k-1)\*2)

cout << str[i];

}

// main function

int main()

{

char str[100];

cin>>str;

int k;

cin>>k;

printZigZag(str, k);

return 0;

}

## F M05 - Happy Sighting

https://hrcdn.net/s3_pub/hr-avatars/05bc174d-13e9-4ea6-8f5e-afa4c5450f5a/150x150.png**by**[**ccc\_coding\_club**](https://www.hackerrank.com/profile/ccc_coding_club)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/paintings)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/paintings/submissions)

There are n pictures delivered for the new exhibition. The i-th painting has beauty ai. We know that a visitor becomes happy every time he passes from a painting to a more beautiful one.

We are allowed to arranged pictures in any order. What is the maximum possible number of times the visitor may become happy while passing all pictures from first to last. In other words, we are allowed to rearrange elements of array a in any order. What is the maximum possible number of indices i (1 <= i <= n - 1), such that ai + 1 > ai.

**Input Format**

The first line of the input contains integer n — the number of painting.

The second line contains the sequence a1, a2, ..., an, where ai means the beauty of the i-th painting.

**Constraints**

1 <= n <= 1000  
1 <= ai <= 1000

**Output Format**

Print one integer — the maximum possible number of neighbouring pairs, such that ai + 1 > ai, after the optimal rearrangement.

**Sample Input 0**

4

200 100 100 200

**Sample Output 0**

2

**Explanation 0**

Sample Ordering that gives answer 2 :

100 200 100 200

#include<iostream>

#include<cstdio>

#include<cstring>

#include<cmath>

#include<string>

#include<algorithm>

int n,x,a[1005],cnt,ans;

int main(){

scanf("%d",&n);

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

scanf("%d",&x);

a[x]++;

}

while (1){

if (n==0) break;

int cnt=0;

for (int i=1;i<=1000;i++) if (a[i]) cnt++,a[i]--,n--;

ans+=cnt-1;

}

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

}

## T 104 - Elements of equal size

**by**[**CodeJio\_Test**](https://www.hackerrank.com/profile/CodeJio_Test)

* [**Problem**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-8-min-product-array)
* [**Submissions**](https://www.hackerrank.com/contests/jan-20-ccc-srm-postfest-ktr-problem-solving-c-1-9/challenges/cv-8-min-product-array/submissions)

You are given a task to find the sum of Products of corresponding elements of two arrays of the same size.  
Given that k modifications are allowed on the first array, what is the minimum product that can be obtained?  
In each modification, one array element of the first array can either be increased or decreased by 2.

Note- the product sum is Summation (A[i]\*B[i]) for all i from 1 to n where n is the size of both arrays

\*Hint : \*  
You should try to use all the k operations on any single element of the modifiable array a

**Input Format**

1. First line of the input contains n and k delimited by whitespace
2. Second line contains the Array A (modifiable array) with its values delimited by spaces
3. Third line contains the Array B (non-modifiable array) with its values delimited by spaces

**Constraints**

1. 1 ≤ N ≤ 10^5
2. 0 ≤ |A[i]|, |B[i]| ≤ 10^5
3. 0 ≤ K ≤ 10^9

**Output Format**

Output the minimum sum of products of the two arrays.

**Sample Input 0**

3 5

1 2 -3

-2 3 -5

**Sample Output 0**

-31

**Explanation 0**

Here total numbers are 3 and total modifications allowed are 5. So we modified A[2], which is -3 and increased it by 10 (as 5 modifications are allowed).  
Now final sum will be  
(1 \* -2) + (2 \* 3) + (7 \* -5)  
-2 + 6 - 35  
-31  
  
-31 is our final answer.

**Sample Input 1**

5 3

2 3 4 5 4

3 4 2 3 2

**Sample Output 1**

25

**Explanation 1**

Here total numbers are 5 and total modifications allowed are 3. So we modified A[1], which is 3 and decreased it by 6 (as 3 modifications are allowed).  
Now final sum will be  
(2 \* 3) + (-3 \* 4) + (4 \* 2) + (5 \* 3) + (4 \* 2)  
6 - 12 + 8 + 15 + 8  
25  
  
25 is our final answer.

#include<stdio.h>

#include<malloc.h>

struct prod{

int a,b;

}\*t;

int main(){

int n,i,k,min=999,max=-999,index,mi;

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

t=(struct prod \*)malloc(n\*sizeof(struct prod));

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

scanf("%d",&((t+i)->a));

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

scanf("%d",&((t+i)->b));

if(((t+i)->b)>max && ((t+i)->b)>0){

max=(t+i)->b;

mi=i;

}

if(((t+i)->b)<min && ((t+i)->b)<0){

min=(t+i)->b;

index=i;

}}

if(min<0)

(t+index)->a=((t+index)->a)+(k\*2);

else

(t+mi)->a=((t+mi)->a)-(k\*2);

k=0;

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

k+=(t+i)->a\*(t+i)->b;

}

printf("%d",k);

return 0;

}