

101

The logo for Codeforces. It features three vertical bars of increasing height to the left of the word "CODEFORCES". The first bar is yellow, the second is blue, and the third is red. The word "CODEFORCES" is written in a bold, sans-serif font. "CODE" is in black, "FORCES" is in blue.

Problems and Solutions

Mojtaba Maleki

101 Codeforces Problems and solutions

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101 Codeforces Problems and Solutions

DEDICATION

Dedication to my noble father and kind mother

The two angels who gave up their desires bought the hardships and shielded themselves from the troubles and misfortunes so that I could reach the position where I am standing now.

101 Codeforces Problems and Solutions

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ACKNOWLEDGMENTS

Special thanks to my sister who is the most genius person I have ever seen.

101 Codeforces Problems and Solutions

INTRODUCTION

This book is about programming problems and solutions that contain 101 problems from one of the best programming test websites Codeforces "<https://codeforces.com>". All of the problems have been solved with simple solutions.

Most of the solutions are in java, but there are some solutions had been solved by python.

The best way of using this book is at first reading the problems, after a full understanding of problems go to the brainstorming part and write down your idea. In the next step, solve the problem. If you were successful in solving that, it is better to see our solutions too. If not, the best way is to check our answers and try again and again until you reach the answer.

The book is sorted from simple problems to hard ones and contains the problems in six 800, 900, 1000, 1100, 1200, 1300 score ranges.

This book is a great source for people or students who are at the beginning of programming and want to improve their programming skills.

As the writer of this book, the great advice that I can give you is, never give up. At the beginning of programming, it seems tiring and boring, but try to work hard and enjoy it at the same time. I am sure that you will be great at programming because most people would not try to read a book to improve their skills but you are doing. Then keep calm, you are in the right way.

BOOK TITLE

BOOK TITLE

800 SCORES PROBLEMS

BOOK TITLE

1_ 4A_Watermelon:

One hot summer day Pete and his friend Billy decided to buy a watermelon. They chose the biggest and the ripest one, in their opinion. After that the watermelon was weighed, and the scales showed w kilos. They rushed home, dying of thirst, and decided to divide the berry, however they faced a hard problem.

Pete and Billy are great fans of even numbers, that's why they want to divide the watermelon in such a way that each of the two parts weighs even number of kilos, at the same time it is not obligatory that the parts are equal. The boys are extremely tired and want to start their meal as soon as possible, that's why you should help them and find out, if they can divide the watermelon in the way they want. For sure, each of them should get a part of positive weight.

Input

The first (and the only) input line contains integer number w ($1 \leq w \leq 100$) — the weight of the watermelon bought by the boys.

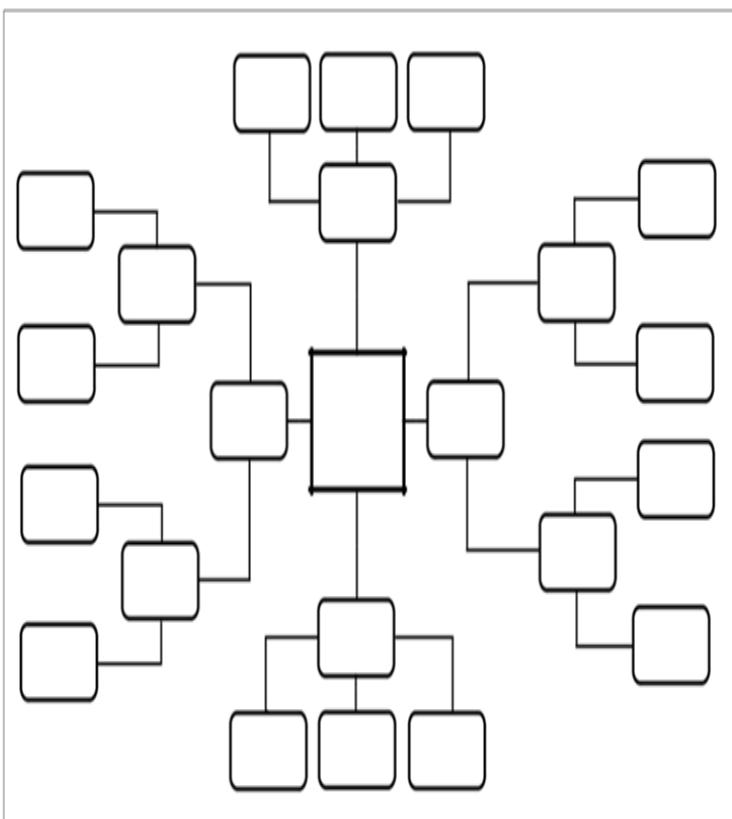
Output

Print YES, if the boys can divide the watermelon into two parts, each of them weighing even number of kilos; and NO in the opposite case.

How difficult was that? 1 2 3 4

How much did it take? ___ : ___ : ___

note:



Subject:

Date:

BOOK TITLE

Answer(python):

```
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        Scanner sc=new Scanner(System.in);
        int watermelon= sc.nextInt();

        if(watermelon/2==1) {
            System.out.println("no");
        }else if(watermelon%2==0) {
            System.out.println("yes");
        }else{
            System.out.println("no");
        }
    }
}
```

Answer(python):

```
x=int(input())
if(x/2==1):
    print("no")
elif(x%2==0):
    print("yes")
else:
    print("no")
```

2-71A- Way Too Long Words:

Sometimes some words like "localization" or "internationalization" are so long that writing them many times in one text is quite tiresome.

Let's consider a word too long, if its length is strictly more than 10 characters. All too long words should be replaced with a special abbreviation.

This abbreviation is made like this: we write down the first and the last letter of a word and between them we write the number of letters between the first and the last letters. That number is in decimal system and doesn't contain any leading zeroes.

Thus, "localization" will be spelt as "l10n", and "internationalization» will be spelt as "i18n".

You are suggested to automatize the process of changing the words with abbreviations. At that all too long words should be replaced by the abbreviation and the words that are not too long should not undergo any changes.

Input

The first line contains an integer n ($1 \leq n \leq 100$). Each of the following n lines contains one word. All the words consist of lowercase Latin letters and possess the lengths of from 1 to 100 characters.

Output

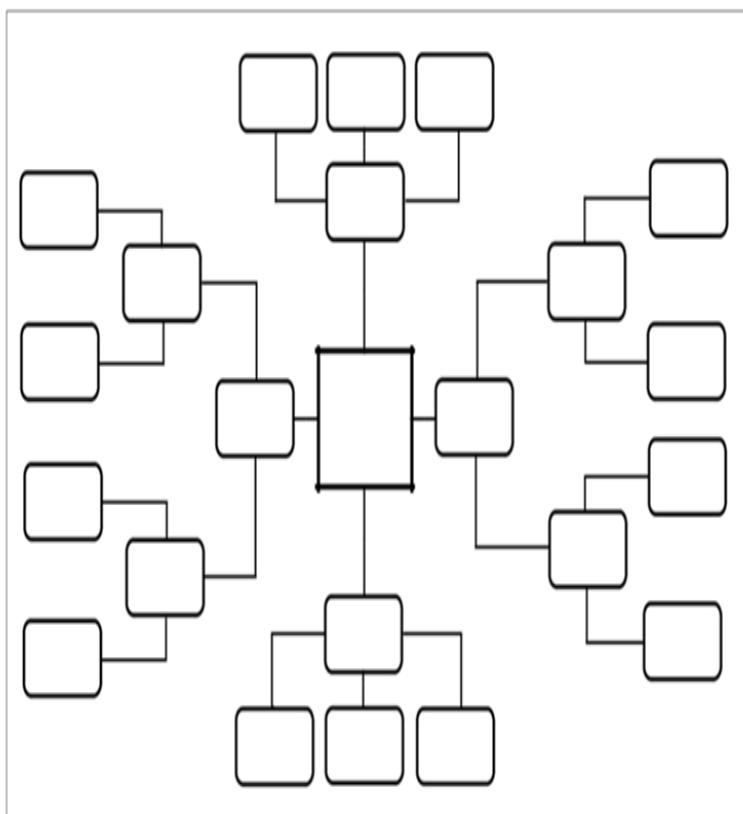
Print n lines. The i -th line should contain the result of replacing of the i -th word from the input data.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answers(java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);
        int number = scanner.nextInt();

        String[] arr = new String[number+1];

        for (int i = 0; i < number + 1; i++) {
            String word = scanner.nextLine();

            arr[i]=word;

        }
        for(int k=1;k<number+1;k++){
            String words=arr[k];

            if(words.length()>10){
                System.out.print(words.charAt(0));
                System.out.print(words.length()-2);
                System.out.println(words.charAt(words.length()-1));

            }else {
                System.out.println(words);
            }
        }
    }
}
```

Answers(python):

```
x=int(input())
for i in range(x):
    word=str(input())
    if(len(word)>=11):
        print(word[0],len(word)-2,word[-1],sep=' ')
    else:
        print(word)
```

3-231A-Teams:

One day three best friends Petya, Vasya and Tonya decided to form a team and take part in programming contests. Participants are usually offered several problems during programming contests. Long before the start the friends decided that they will implement a problem if at least two of them are sure about the solution. Otherwise, the friends won't write the problem's solution.

This contest offers n problems to the participants. For each problem we know, which friend is sure about the solution. Help the friends find the number of problems for which they will write a solution.

Input

The first input line contains a single integer n ($1 \leq n \leq 1000$) — the number of problems in the contest. Then n lines contain three integers each, each integer is either 0 or 1. If the first number in the line equals 1, then Petya is sure about the problem's solution, otherwise he isn't sure. The second number shows Vasya's view on the solution, the third number shows Tonya's view. The numbers on the lines are separated by spaces.

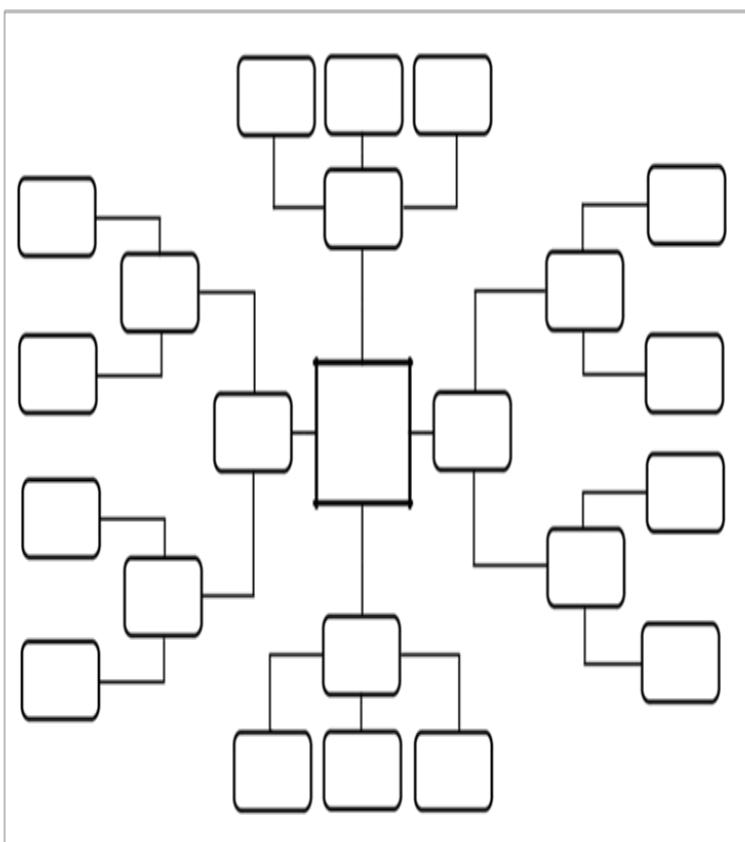
Output

Print a single integer — the number of problems the friends will implement on the contest.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answers(Java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        int z=0;

        //enter the number of times

        Scanner scanner = new Scanner(System.in);
        int number = scanner.nextInt();
        int[] array = new int[number*3];
        int ans = 0;
        for (int k = 0; k < number*3; k++) {
            int numbers = scanner.nextInt();
            array[k] = numbers;
        }
        int l = 0;
        int sum = 0;
        for (int i = 0; i < array.length; i++) {
            if (l < 3){
                sum += array[i];
                l++;
            }
            if (l == 3){
                if (sum > 1){
                    ans++;
                }
                l = 0;
                sum = 0;
            }
        }
        System.out.println(ans);

    }
}
```

4-158A-Next Round:

"Contestant who earns a score equal to or greater than the k -th place finisher's score will advance to the next round, as long as the contestant earns a positive score..." — an excerpt from contest rules.

A total of n participants took part in the contest ($n \geq k$), and you already know their scores. Calculate how many participants will advance to the next round.

Input

The first line of the input contains two integers n and k ($1 \leq k \leq n \leq 50$) separated by a single space.

The second line contains n space-separated integers a_1, a_2, \dots, a_n ($0 \leq a_i \leq 100$), where a_i is the score earned by the participant who got the i -th place. The given sequence is non-increasing (that is, for all i from 1 to $n - 1$ the following condition is fulfilled: $a_i \geq a_{i+1}$).

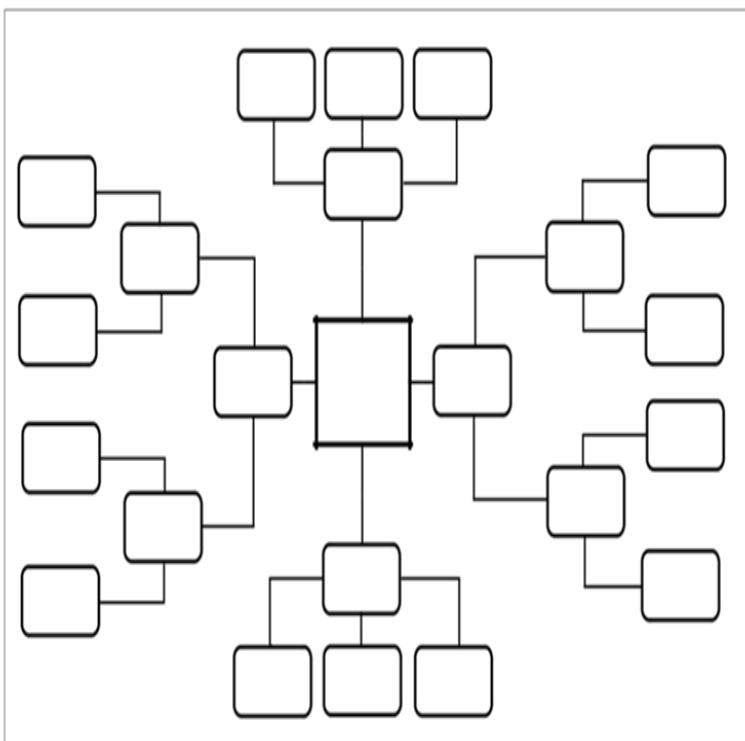
Output

Output the number of participants who advance to the next round.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int n = input.nextInt();
        int k = input.nextInt();
        int []arr=new int[n];
        int sum=0;

        for (int i = 0; i < n; i++) {
            int a = input.nextInt();
            arr[i]=a;

        }
        for (int j=0;j<n;j++) {
            if (arr[k-1]==0&&arr[j]==arr[k-1]) {
                sum=sum+0;
            }else if(arr[k-1]<=arr[j]){
                sum=sum+1;
            }else {
                sum=sum+0;
            }
        }
        System.out.println(sum);
    }
}
```

5-339A-Helpful Math:

Xenia the beginner mathematician is a third year student at

elementary school. She is now learning the addition operation.

The teacher has written down the sum of multiple numbers. Pupils should calculate the sum. To make the calculation easier, the sum only contains numbers 1, 2 and 3. Still, that isn't enough for Xenia. She is only beginning to count, so she can calculate a sum only if the summands follow in non-decreasing order. For example, she can't calculate sum $1+3+2+1$ but she can calculate sums $1+1+2$ and $3+3$.

You've got the sum that was written on the board. Rearrange the summands and print the sum in such a way that Xenia can calculate the sum.

Input

The first line contains a non-empty string s — the sum Xenia needs to count. String s contains no spaces. It only contains digits and characters "+". Besides, string s is a correct sum of numbers 1, 2 and 3. String s is at most 100 characters long.

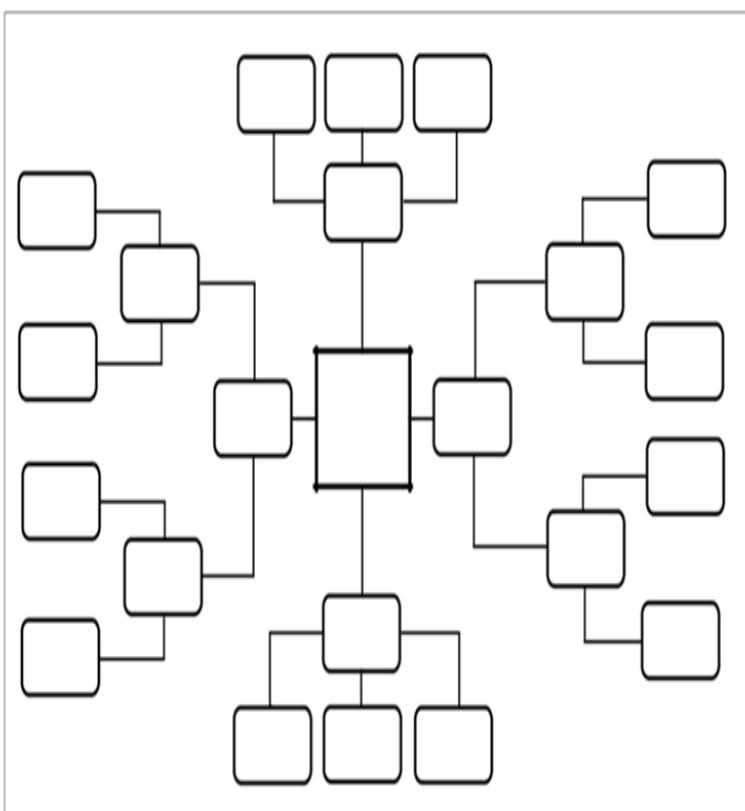
Output

Print the new sum that Xenia can count.

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String number = input.nextLine();
        int[] arr = new int[number.length()];
        int temp = 0;
        int [] final= new int[number.length()];
        int sum=(number.length()/2);
        int plus= '#';

        for (int i = 0; i < number.length(); i++) {
            if (number.charAt(i) == '1' || number.charAt(i) == '2' || number.charAt(i) == '3') {
                arr[i] = Integer.parseInt(String.valueOf(number.charAt(i)));
            }
        }
        //
        for (int i = 0; i < number.length(); i++) {
            for (int j = i + 1; j < number.length(); j++) {
                if (arr[i] >= arr[j]) {
                    temp = arr[i];
                    arr[i] = arr[j];
                    arr[j] = temp;
                }
            }
        }
    }
}
```

The rest answer is in the next page . . .

```
for (int z=0;z<number.length();z++){  
    if(z%2==0){  
        arr[z]=arr[sum];  
        sum=sum+1;  
    }else {  
        arr[z]=0;  
    }  
  
}  
for(int jj=0;jj<number.length();jj++){  
    if(arr[jj]==0){  
        System.out.print("+");  
    }else {  
        System.out.print(arr[jj]);  
    }  
}  
}
```

6-281A-Word Capitalization:

Capitalization is writing a word with its first letter as a capital letter.
Your task is to capitalize the given word.

Note, that during capitalization all the letters except the first one
remains unchanged.

Input

A single line contains a non-empty word. This word consists of
lowercase and uppercase English letters. The length of the word will
not exceed 10^3 .

Output

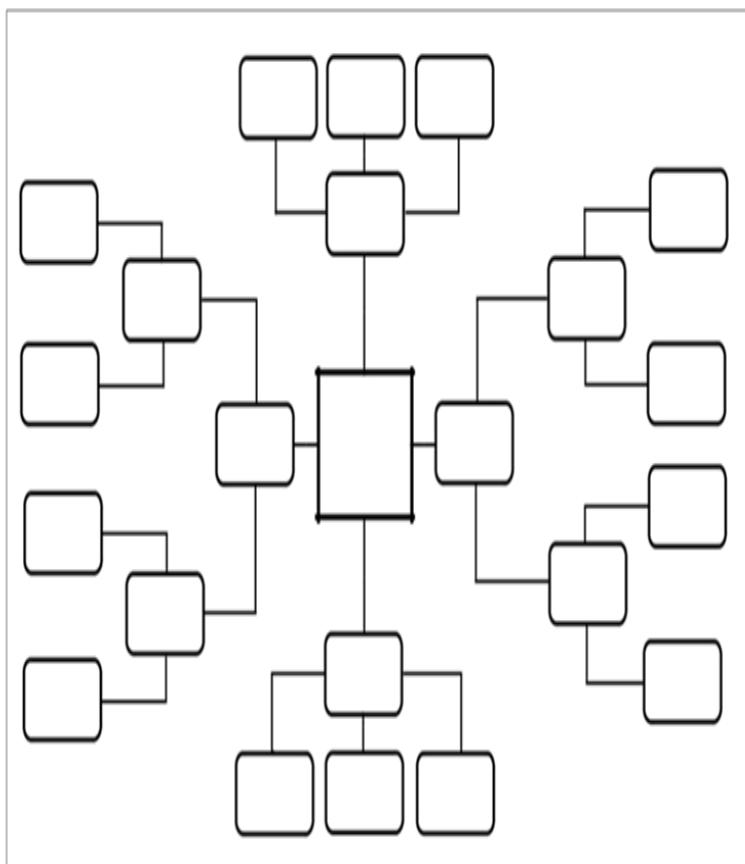
Output the given word after capitalization.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner input= new Scanner(System.in);
        String str= input.nextLine();

        String output = str.substring(0, 1).toUpperCase() + str.substring(1);

        System.out.println(output);

    }
}
```

7-236A-Boy or Girl:

Those days, many boys use beautiful girls' photos as avatars in forums. So it is pretty hard to tell the gender of a user at the first glance. Last year, our hero went to a forum and had a nice chat with a beauty (he thought so). After that they talked very often and eventually they became a couple in the network.

But yesterday, he came to see "her" in the real world and found out "she" is actually a very strong man! Our hero is very sad and he is too tired to love again now. So he came up with a way to recognize users' genders by their user names.

This is his method: if the number of distinct characters in one's user name is odd, then he is a male, otherwise she is a female. You are given the string that denotes the user name, please help our hero to determine the gender of this user by his method.

Input

The first line contains a non-empty string, that contains only lowercase English letters — the user name. This string contains at most 100 letters.

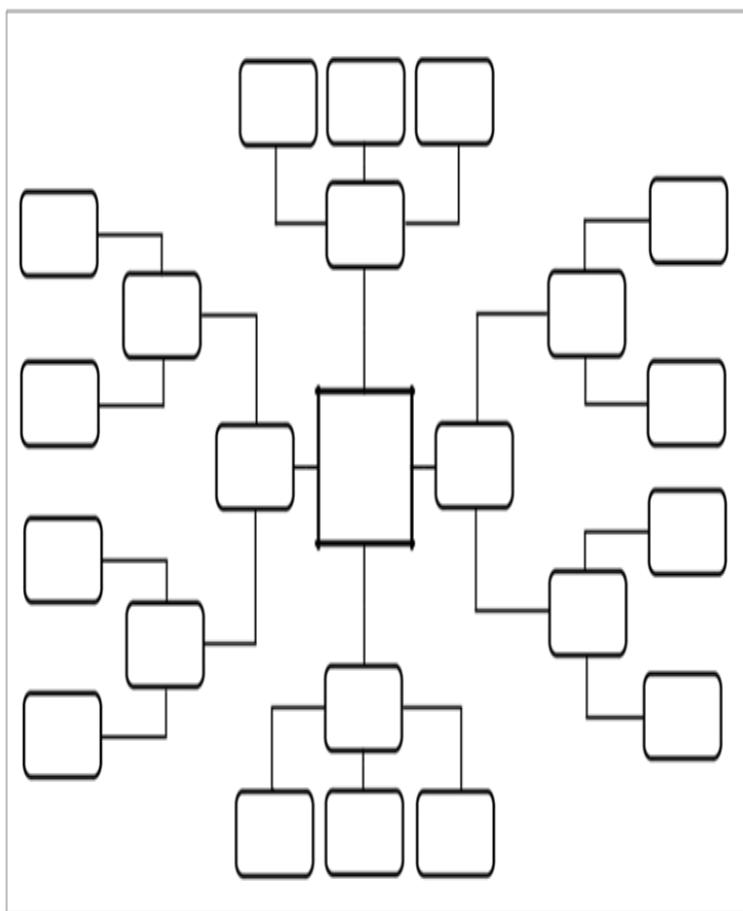
Output

If it is a female by our hero's method, print "CHAT WITH HER!" (without the quotes), otherwise, print "IGNORE HIM!" (without the quotes).

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String string = input.nextLine();

        char[] chars = string.toCharArray();
        Set<Character> charSet = new LinkedHashSet<Character>();
        for (char c : chars) {
            charSet.add(c);
        }

        StringBuilder sb = new StringBuilder();
        for (Character character : charSet) {
            sb.append(character);
        }

        String word = sb.toString();
        //System.out.println(word);
        if (word.length() % 2 == 0) {
            System.out.println("CHAT WITH HER!");
        } else {
            System.out.println("IGNORE HIM!");
        }
    }
}
```

8-546A-Soldier and banana:

A soldier wants to buy w bananas in the shop. He has to pay k dollars for the first banana, $2k$ dollars for the second one and so on (in other words, he has to pay $i \cdot k$ dollars for the i -th banana).

He has n dollars. How many dollars does he have to borrow from his friend soldier to buy w bananas?

Input

The first line contains three positive integers k, n, w ($1 \leq k, w \leq 1000$, $0 \leq n \leq 10^9$), the cost of the first banana, initial number of dollars the soldier has and number of bananas he wants.

Output

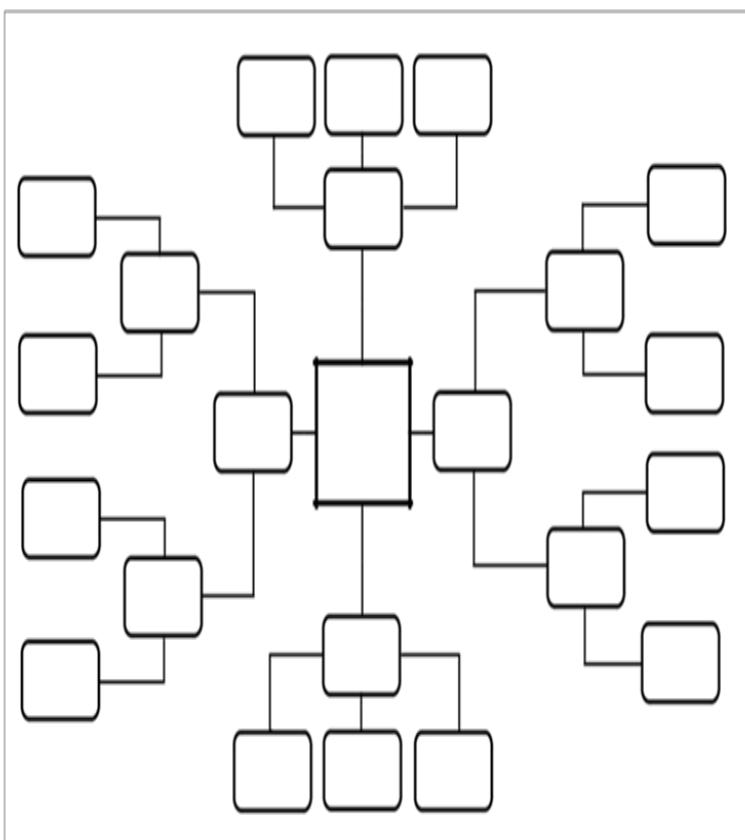
Output one integer — the amount of dollars that the soldier must borrow from his friend. If he doesn't have to borrow money, output 0.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);
        int k= sc.nextInt();
        int n= sc.nextInt();
        int w= sc.nextInt();

        int price=(w* (2*k+ (w-1)*k))/2;

        int need=price-n;
        if(need>=0) {
            System.out.println(need);

        }else{
            System.out.println("0");
        }

    }
}
```

Answer(pyton):

```
k,n,w=map(int,input().split())
price=int((w*(2*k+(w-1)*k))/2)
sum=int(0)

result=price-n

if(result>=0):
    print(result)
else:
    print("0")
```

8-791A-Bear and Big brother:

Bear Limak wants to become the largest of bears, or at least to become larger than his brother Bob.

Right now, Limak and Bob weigh a and b respectively. It's guaranteed that Limak's weight is smaller than or equal to his brother's weight.

Limak eats a lot and his weight is tripled after every year, while Bob's weight is doubled after every year.

After how many full years will Limak become strictly larger (strictly heavier) than Bob?

Input

The only line of the input contains two integers a and b ($1 \leq a \leq b \leq 10$) — the weight of Limak and the weight of Bob respectively.

Output

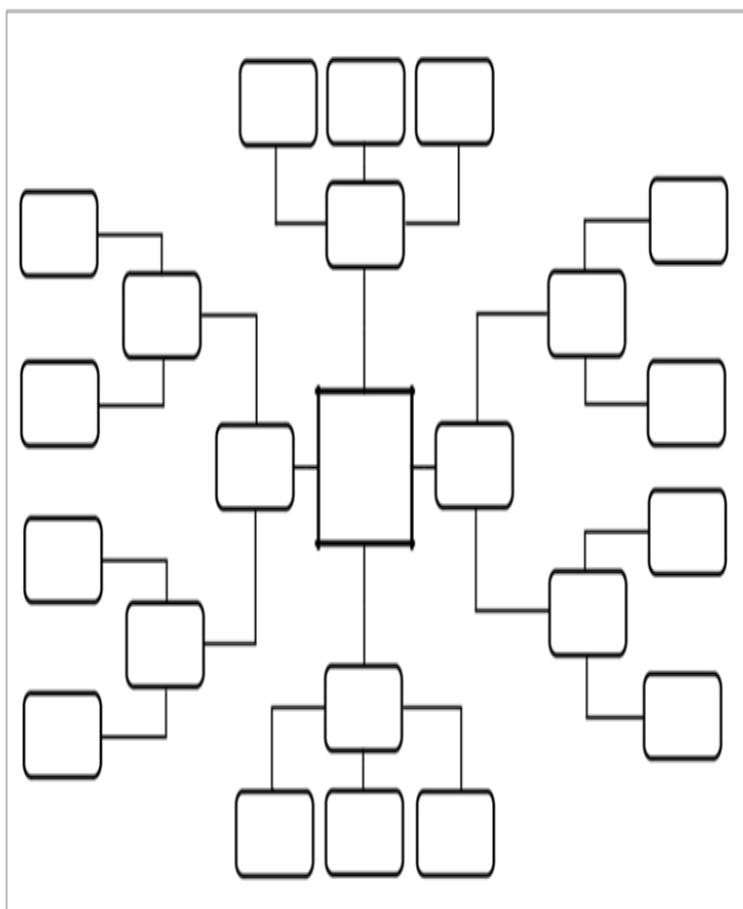
Print one integer, denoting the integer number of years after which Limak will become strictly larger than Bob.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int a = input.nextInt();
        int b = input.nextInt();
        int sum =0;

        while (true) {
            if(a>b) {
                break;
            }else{
                a=3*a;
                b=2*b;
                sum=sum+1;
            }
        }
        System.out.println(sum);
    }
}
```

9-977A-Wrong Subtraction:

Little girl Tanya is learning how to decrease a number by one, but she does it wrong with a number consisting of two or more digits. Tanya subtracts one from a number by the following algorithm:

- if the last digit of the number is non-zero, she decreases the number by one;
- if the last digit of the number is zero, she divides the number by 10 (i.e. removes the last digit).

You are given an integer number n

. Tanya will subtract one from it k times. Your task is to print the result after all k subtractions.

It is guaranteed that the result will be positive integer number.

Input

The first line of the input contains two integer numbers n and k ($2 \leq n \leq 109$, $1 \leq k \leq 50$) — the number from which Tanya will subtract and the number of subtractions correspondingly.

Output

Print one integer number — the result of the decreasing n by one k times. It is guaranteed that the result will be positive integer number.

Answer (Java):

```
//package com.company;
import java.util.Arrays;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int numbers = input.nextInt();
        int number= input.nextInt();

        for(int i=0;i<number;i++) {
            if(numbers%10!=0) {
                numbers=numbers-1;
            }else {
                numbers=numbers/10;
            }

        }
        System.out.println(numbers);
    }
}
```

10-617A-Elephant:

An elephant decided to visit his friend. It turned out that the elephant's house is located at point 0 and his friend's house is located at point $x(x > 0)$ of the coordinate line. In one step the elephant can move 1, 2, 3, 4 or 5 positions forward. Determine, what is the minimum number of steps he need to make in order to get to his friend's house.

Input

The first line of the input contains an integer x ($1 \leq x \leq 1\,000\,000$) — The coordinate of the friend's house.

Output

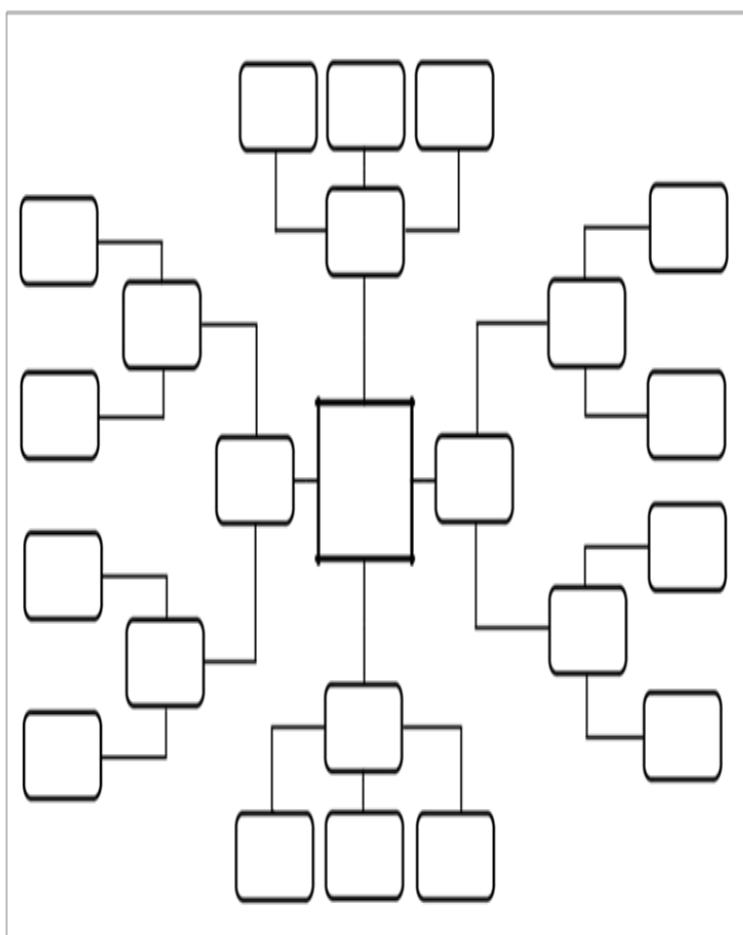
Print the minimum number of steps that elephant needs to make to get from point 0 to point x .

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

BOOK TITLE

Answers(java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        Scanner input=new Scanner(System.in);
        int distance=input.nextInt();
        if(distance==1) {
            System.out.println("1");
        }else if(distance==2){
            System.out.println("1");
        }else if(distance==3){
            System.out.println("1");
        }else if(distance==4){
            System.out.println("1");
        }else if (distance%5==0){
            System.out.println(distance/5);
        }else if(distance%5!=0){
            System.out.println((distance/5)+1);
        }

    }
}
```

11-59A-Word:

Vasya is very upset that many people on the Net mix uppercase and

lowercase letters in one word. That's why he decided to invent an extension for his favorite browser that would change the letters' register in every word so that it either only consisted of lowercase letters or, vice versa, only of uppercase ones. At that as little as possible letters should be changed in the word. For example, the word HoUse must be replaced with house, and the word ViP — with VIP. If a word contains an equal number of uppercase and lowercase letters, you should replace all the letters with lowercase ones. For example, maTRIx should be replaced by matrix. Your task is to use the given method on one given word.

Input

The first line contains a word s — it consists of uppercase and lowercase Latin letters and possesses the length from 1 to 100.

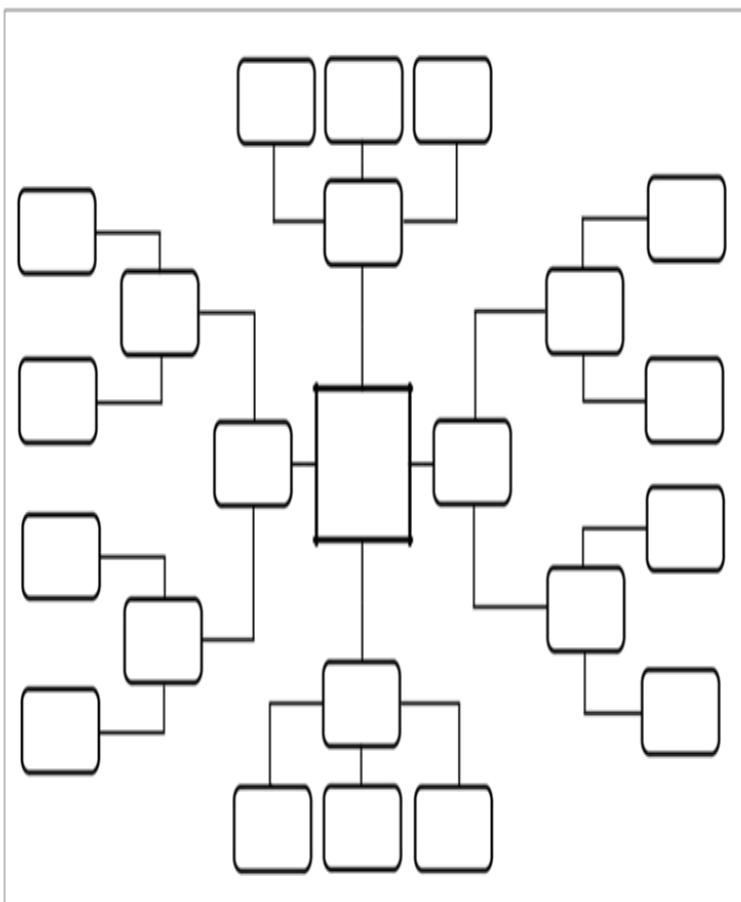
Output

Print the corrected word s . If the given word s has strictly more uppercase letters, make the word written in the uppercase register, otherwise - in the lowercase one.

How difficult was that?

How much did it take? _____ : _____

note:



Subject:

Date:

Answer(java):

```
package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        String word=input.nextLine();
        int l=0;
        int u=0;
        for(int i=0;i<word.length();i++) {
            if (Character.isLowerCase(word.charAt(i))) {
                l = l + 1;
            } else if (Character.isUpperCase(word.charAt(i))) {
                u = u + 1;
            }
        }
        if(l>u){
            for(int j=0;j<word.length();j++){
                System.out.print(Character.toLowerCase(word.charAt(j)));
            }
        }else if(l==u){
            for(int j=0;j<word.length();j++){
                System.out.print(Character.toLowerCase(word.charAt(j)));
            }
        }else if(l<u){
            for(int j=0;j<word.length();j++){

                System.out.print(Character.toUpperCase(word.charAt(j)));
            }
        }
    }
}
```

12-116A-Tram:

Linear Kingdom has exactly one tram line. It has n stops, numbered from 1 to n in the order of tram's movement. At the i -th stop a_i passengers exit the tram, while b_i passengers enter it. The tram is empty before it arrives at the first stop. Also, when the tram arrives at the last stop, all passengers exit so that it becomes empty.

Your task is to calculate the tram's minimum capacity such that the number of people inside the tram at any time never exceeds this capacity. Note that at each stop all exiting passengers exit before any entering passenger enters the tram.

Input

The first line contains a single number n ($2 \leq n \leq 1000$) — the number of the tram's stops.

Then n lines follow, each contains two integers a_i and b_i ($0 \leq a_i, b_i \leq 1000$) — the number of passengers that exits the tram at the i -th stop, and the number of passengers that enter the tram at the i -th stop. The stops are given from the first to the last stop in the order of tram's movement.

- The number of people who exit at a given stop does not exceed the total number of people in the tram immediately before it arrives at the stop. More formally,
 $\forall i \ (1 \leq i \leq n) : \sum_{j=1}^{i-1} b_j - \sum_{j=1}^{i-1} a_j \geq a_i$. This particularly means that $a_1 = 0$.

- At the last stop, all the passengers exit the tram and it becomes empty. More formally,
$$\sum_{j=1}^{n-1} b_j - \sum_{j=1}^{n-1} a_j = a_n.$$
- No passenger will enter the train at the last stop. That is,
 $b_n = 0.$

Output

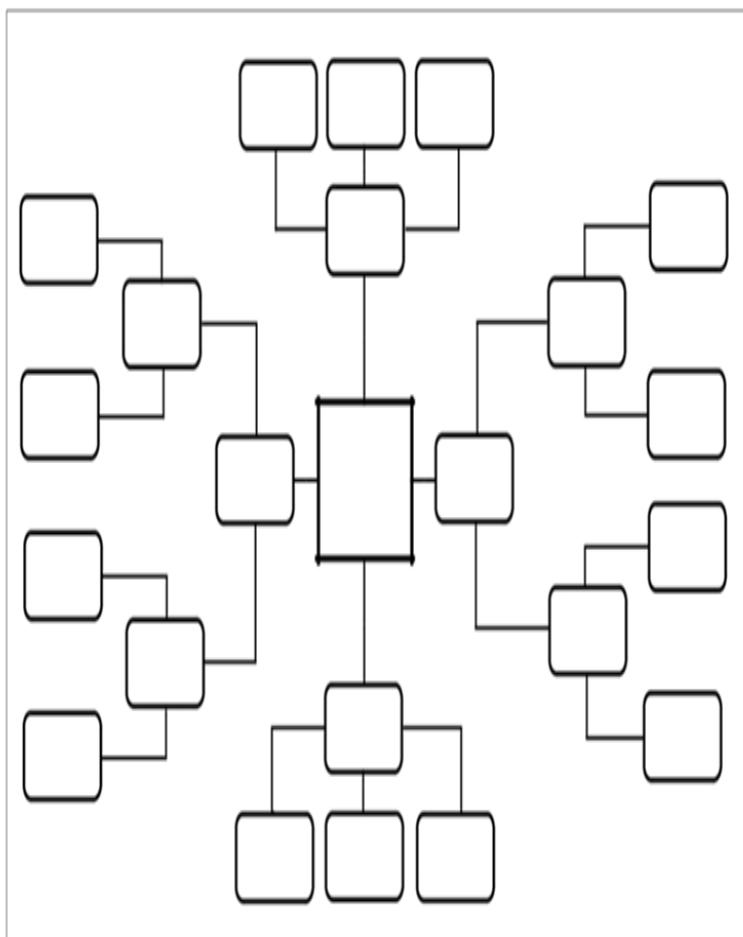
Print a single integer denoting the minimum possible capacity of the tram (0 is allowed).

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int number = sc.nextInt();
        int capacity = 0;
        int[] arr = new int[number];
        int[] arr1 = new int[number];
        int sum = 0;
        int max = 0;
        for (int i = 0; i < number; i++) {
            int exit = sc.nextInt();
            int enter = sc.nextInt();
            capacity = enter - exit;
            arr[i] = capacity;
            while (true) {
                if (arr[i] >= 0) {
                    sum = sum + arr[i];
                    arr1[i] = sum;
                    break;
                } else if (arr[i] < 0) {
                    sum = sum + arr[i];
                    arr1[i] = sum;
                    break;
                }
            }
        }
        for (int i = 0; i < number; i++) {
            if (arr1[i] > max)
                max = arr1[i];
        }
    }
    System.out.println(max);
}
```

13-110A-Nearly lucky number:

Petya loves lucky numbers. We all know that lucky numbers are the positive integers whose decimal representations contain only the lucky digits 4 and 7. For example, numbers 47, 744, 4 are lucky and 5, 17, 467 are not.

Unfortunately, not all numbers are lucky. Petya calls a number nearly lucky if the number of lucky digits in it is a lucky number. He wonders whether number n is a nearly lucky number.

Input

The only line contains an integer n ($1 \leq n \leq 10^{18}$).

Please do not use the %lld specifier to read or write 64-bit numbers in C++. It is preferred to use the cin, cout streams or the %I64d specifier.

Output

Print on the single line "YES" if n is a nearly lucky number. Otherwise,

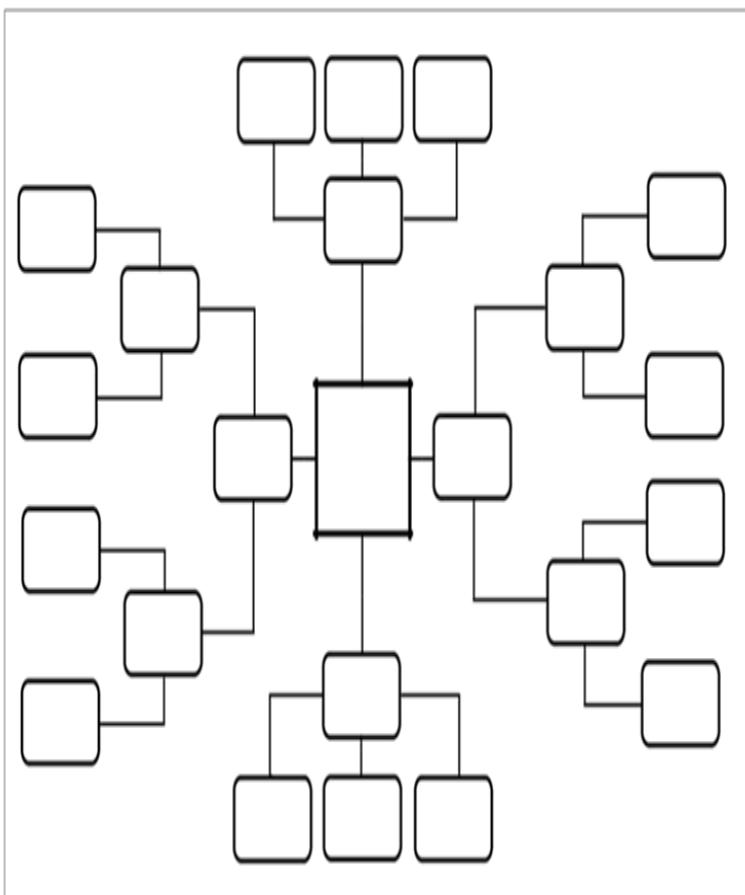
BOOK TITLE

print "NO" (without the quotes).

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.lang.String;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String number=input.nextLine();
        int sum=0;

        for(int i=0;i<number.length();i++) {
            if(number.charAt(i)=='7'||number.charAt(i)=='4') {
                //System.out.println("hi");
                sum=sum+1;
            }
        }

        if(sum==4 || sum==7) {
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

Answer (python):

```
number=str(input())
numbers=int(number)
sum=int(0)

for i in range (0, len(str(number))):
    if(number[i]=='7' or number[i]=='4'):
        sum=sum+1

if(sum==7 or sum==4):
    print("YES")
else:
    print("NO")
```

14-41A-Translation:

The translation from the Berland language into the Birland language is not an easy task. Those languages are very similar: a berlandish word differs from a birlandish word with the same meaning a little: it is spelled (and pronounced) reversely. For example, a Berlandish word code corresponds to a Birlandish word edoc. However, it's easy to make a mistake during the «translation». Vasya translated word s from Berlandish into Birlandish as t . Help him: find out if he translated the word correctly.

Input

The first line contains word s , the second line contains word t . The words consist of lowercase Latin letters. The input data do not consist unnecessary spaces. The words are not empty and their lengths do not exceed 100 symbols.

Output

If the word t is a word s , written reversely, print YES, otherwise print

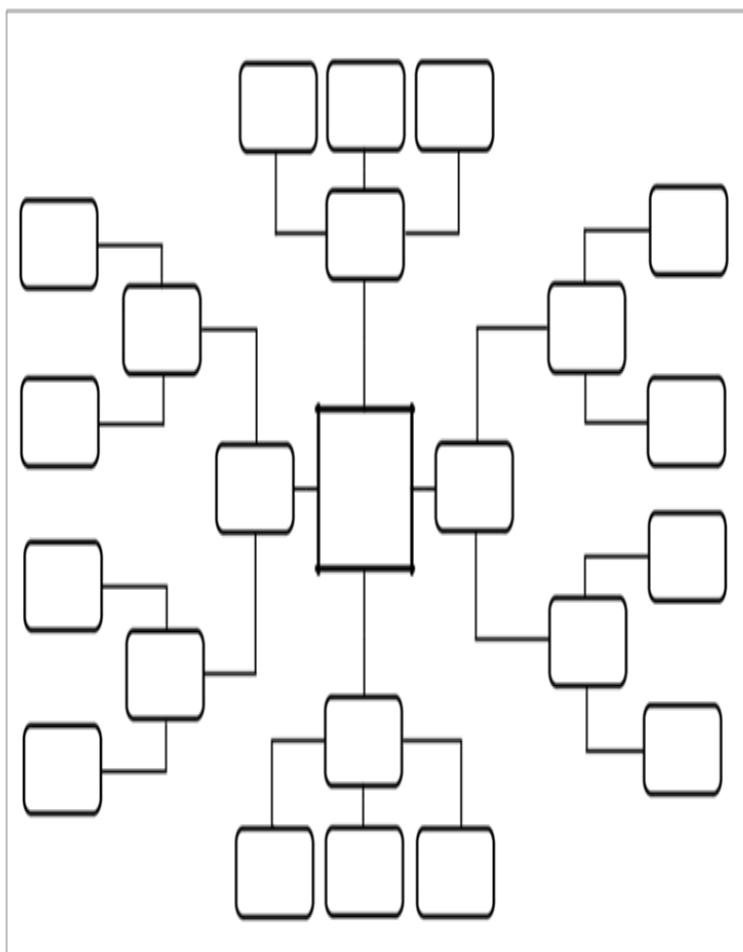
BOOK TITLE

NO.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String word = input.nextLine();
        String drow = input.nextLine();
        boolean check=true;
        for (int i=0;i<word.length();i++){
            if(word.charAt(word.length()-1-i) != drow.charAt(i)){
                check=false;
                break;
            }
        }
        if(check==true){
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

Answer(python):

```
word=str(input())
drow=str(input())
sum=int(0)
check=bool(True)

for i in range (len(word)):
    if(word[len(word)-1-i]!= drow[i]):
        check=False
        break
if(check==True):
    print("YES")
else:
    print("NO")
```

15-734A-Anton and Danik:

Anton likes to play chess, and so does his friend Danik.

Once they have played n games in a row. For each game it's known who was the winner — Anton or Danik. None of the games ended with a tie.

Now Anton wonders, who won more games, he or Danik? Help him determine this.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 100\,000$) — the number of games played.

The second line contains a string s , consisting of n uppercase English letters 'A' and 'D' — the outcome of each of the games. The i -th character of the string is equal to 'A' if the Anton won the i -th game and 'D' if Danik won the i -th game.

Output

If Anton won more games than Danik, print "Anton" (without quotes)

BOOK TITLE

in the only line of the output.

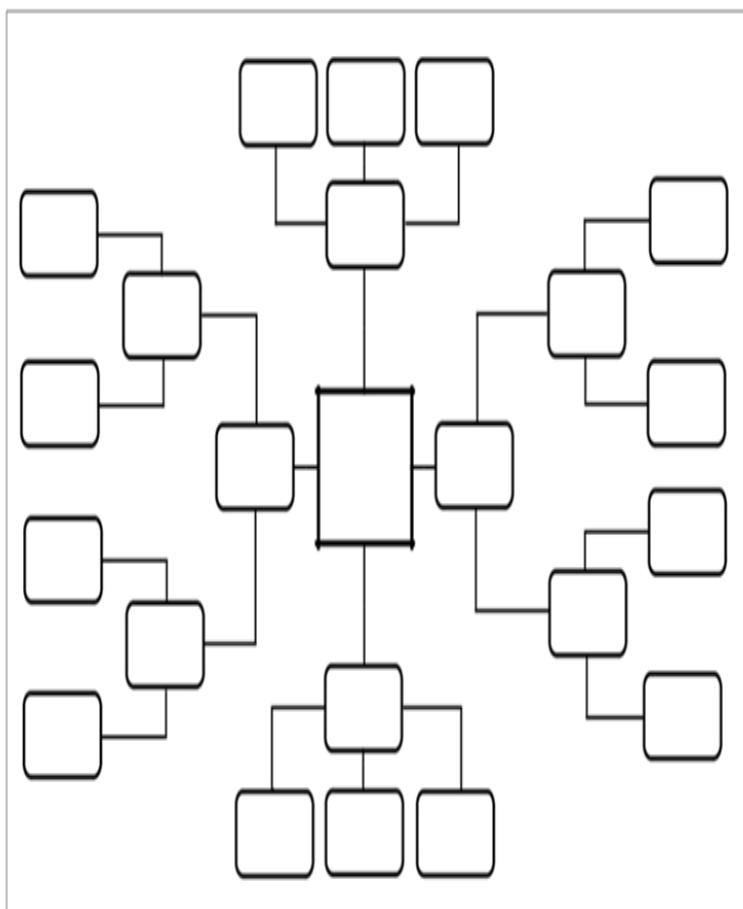
If Danik won more games than Anton, print "Danik" (without quotes) in the only line of the output.

If Anton and Danik won the same number of games, print "Friendship" (without quotes).

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner scanner=new Scanner(System.in);
        String numbers= scanner.nextLine();
        int number=Integer.parseInt(numbers);
        String word= scanner.nextLine();
        char []arr=new char[number];
        int A=0;
        int D=0;
        //System.out.println(number);
        //System.out.println(word);

        for(int i=0;i<number;i++){
            arr[i]=word.charAt(i);
        }
        for (int j=0;j<number;j++) {
            if (arr[j] == 'A') {
                A=A+1;

            }else {
                D=D+1;
            }
        }
        if(A>D) {
            System.out.println("Anton");
        }else if(A==D) {
            System.out.println("Friendship");
        }else if(A<D) {
            System.out.println("Danik");
        }
    }
}
```

16-271A-Beautiful year:

It seems like the year of 2013 came only yesterday. Do you know a curious fact? The year of 2013 is the first year after the old 1987 with only distinct digits.

Now you are suggested to solve the following problem: given a year number, find the minimum year number which is strictly larger than the given one and has only distinct digits.

Input

The single line contains integer y ($1000 \leq y \leq 9000$) — the year number.

Output

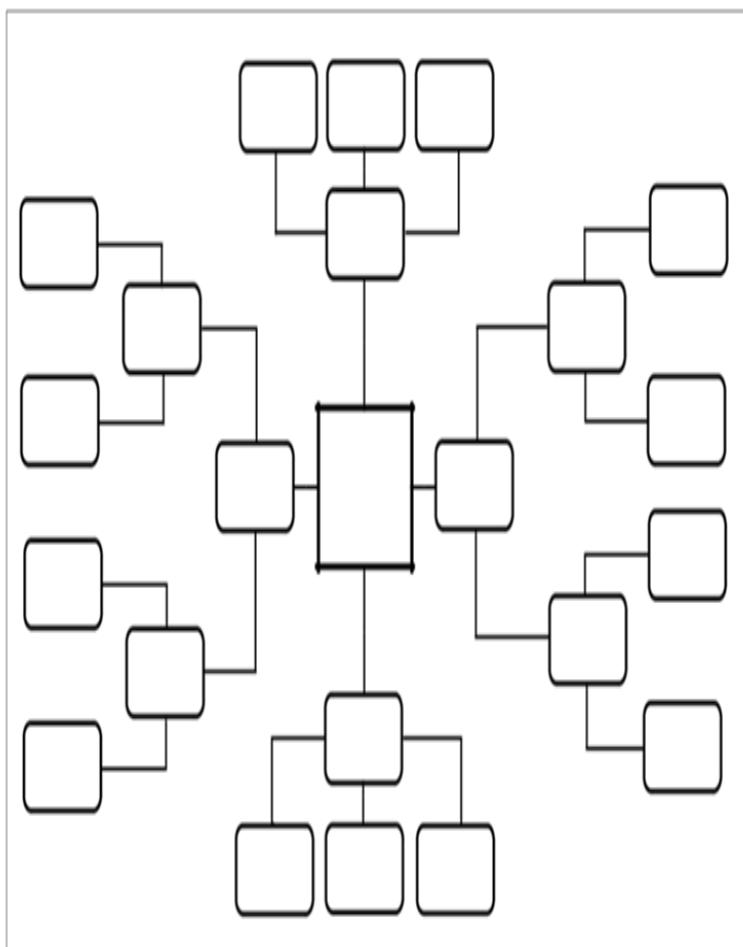
Print a single integer — the minimum year number that is strictly larger than y and all its digits are distinct. It is guaranteed that the answer exists.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        for(int i=number+1; i<10000;i++){
            String num= String.valueOf(i);
            if(num.charAt(0)!=num.charAt(1)&&num.charAt(0)!=num.charAt(2)&&num.charAt(0)!=num.charAt(3) &&
            num.charAt(1)!=num.charAt(2)&&num.charAt(1)!=num.charAt(3)&&num.charAt(2)!=num.charAt(3)){
                System.out.println(i);
                break;
            }
        }
    }
}
```

17-677A-Vanya and Fence:

Vanya and his friends are walking along the fence of height h and they do not want the guard to notice them. In order to achieve this the height of each of the friends should not exceed h . If the height of some person is greater than h he can bend down and then he surely won't be noticed by the guard. The height of the i -th person is equal to a_i .

Consider the width of the person walking as usual to be equal to 1, while the width of the bent person is equal to 2. Friends want to talk to each other while walking, so they would like to walk in a single row. What is the minimum width of the road, such that friends can walk in a row and remain unattended by the guard?

Input

The first line of the input contains two integers n and h ($1 \leq n \leq 1000$, $1 \leq h \leq 1000$) — the number of friends and the height of the fence, respectively.

The second line contains n integers a_i ($1 \leq a_i \leq 2h$), the i -th of them is equal to the height of the i -th person.

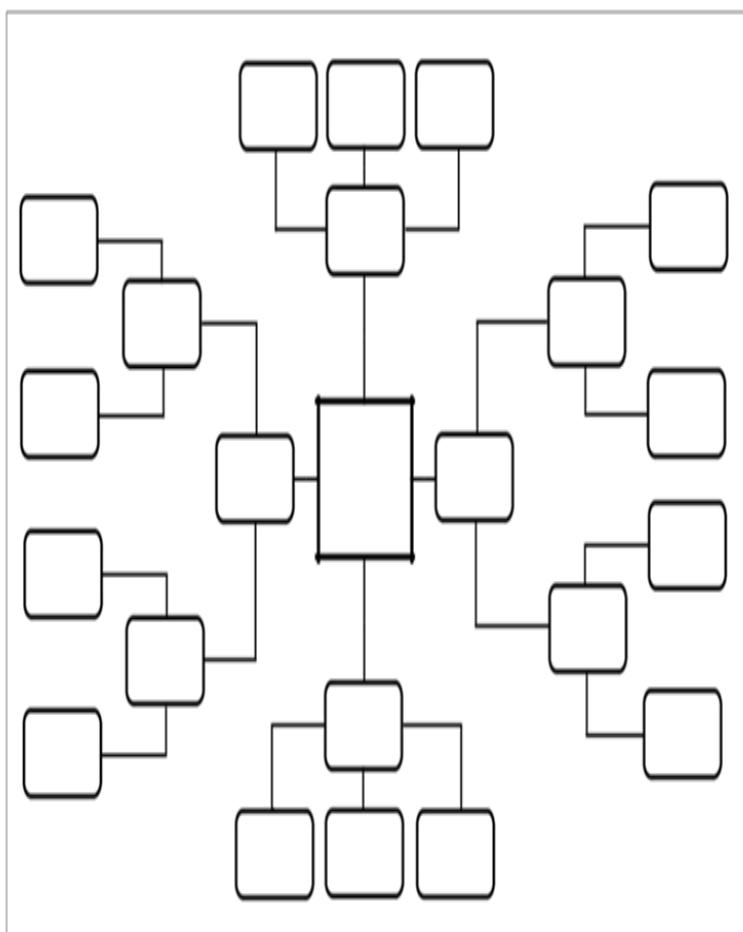
Output

Print a single integer — the minimum possible valid width of the road.

How difficult was that? 1 2 3 4

How much did it take? ___ : ___ : ___

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int wall = input.nextInt();
        int result = 0;

        for(int i=0;i<number;i++){
            int friends=input.nextInt();

            if(friends>wall){
                friends = friends / 2;
                result = result + 2;
            }else {
                result = result+1;
            }

        }
        System.out.println(result);
    }
}
```

18-467A-George and Accommodation:

George has recently entered the BSUCP (Berland State University for Cool Programmers). George has a friend Alex who has also entered the university. Now they are moving into a dormitory.

George and Alex want to live in the same room. The dormitory has n rooms in total. At the moment the i -th room has p_i people living in it and the room can accommodate q_i people in total ($p_i \leq q_i$). Your task is to count how many rooms has free place for both George and Alex.

Input

The first line contains a single integer n ($1 \leq n \leq 100$) — the number of rooms.

The i -th of the next n lines contains two integers p_i and q_i ($0 \leq p_i \leq q_i \leq 100$) — the number of people who already live in the i -th room and the room's capacity.

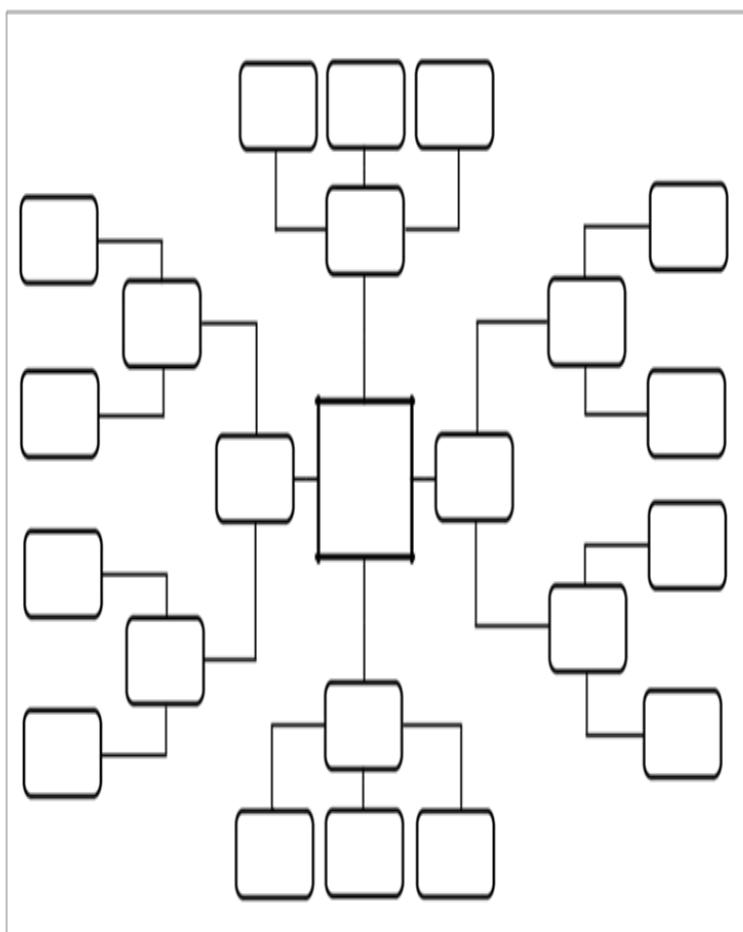
Output

Print a single integer — the number of rooms where George and Alex can move in.

How difficult was that? 1 2 3 4

How much did it take? ___ : ___ : ___

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.lang.String;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number=input.nextInt();
        int sum=0;
        for(int i=0;i<number;i++) {
            int number1=input.nextInt();
            int number2=input.nextInt();
            int result=number2-number1;

            if (result>=2) {
                sum=sum+1;
            }

        }
        System.out.println(sum);
    }
}
```

Answer(python):

```
//package com.company;

import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);
        int number= sc.nextInt();
        int sum=0;
        for(int i=0; i<number;i++){
            int room1=sc.nextInt();
            int room2=sc.nextInt();
            int result=Math.abs(room1-room2);
            // System.out.println(result);
            if(result>=2){
                sum=sum+1;
            }
        }
        System.out.println(sum);
    }
}
```

19-136A-Presents:

Little Petya very much likes gifts. Recently he has received a new laptop as a New Year gift from his mother. He immediately decided to give it to somebody else as what can be more pleasant than giving somebody gifts. And on this occasion he organized a New Year party at his place and invited n his friends there.

If there's one thing Petya likes more than receiving gifts, that's watching others giving gifts to somebody else. Thus, he safely hid the laptop until the next New Year and made up his mind to watch his friends exchanging gifts while he does not participate in the process. He numbered all his friends with integers from 1 to n . Petya remembered that a friend number i gave a gift to a friend number p_i . He also remembered that each of his friends received exactly one gift.

Now Petya wants to know for each friend i the number of a friend who has given him a gift.

Input

The first line contains one integer n ($1 \leq n \leq 100$) — the quantity of friends Petya invited to the party. The second line contains n space-

separated integers: the i -th number is p_i — the number of a friend who gave a gift to friend number i . It is guaranteed that each friend received exactly one gift. It is possible that some friends do not share Petya's ideas of giving gifts to somebody else. Those friends gave the gifts to themselves.

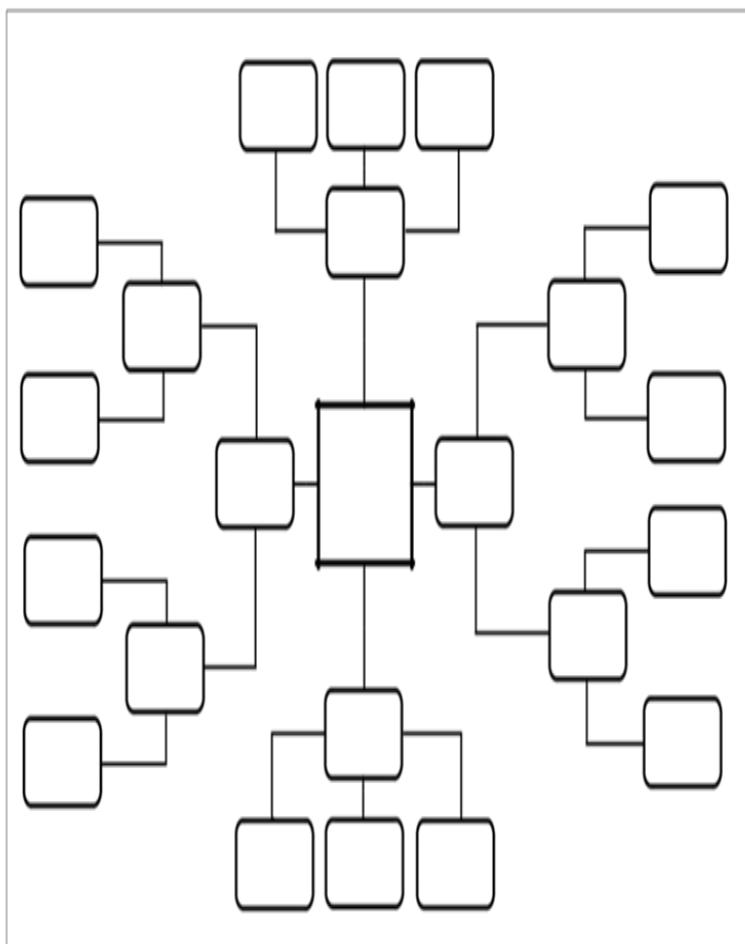
Output

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

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int[] arr = new int[number];
        int[] arr1 = new int[number];
        String numbers1 = "";

        for (int i = 0; i < number; i++) {
            int numbers = input.nextInt();
            arr[i] = numbers;
        }
        //System.out.println(Arrays.toString(arr));

        for (int j = 1; j < number+1; j++) {
            for (int z = 0; z < number; z++) {
                if (arr[z] == j) {
                    System.out.print((z+1)+" ");
                    arr1[j-1]=z+1;
                }
            }
        }
    }
}
```

20-344A-Magnets:

Mad scientist Mike entertains himself by arranging rows of dominoes. He doesn't need dominoes, though: he uses rectangular magnets instead. Each magnet has two poles, positive (a "plus") and negative (a "minus"). If two magnets are put together at a close distance, then the like poles will repel each other and the opposite poles will attract each other.

Mike starts by laying one magnet horizontally on the table. During each following step Mike adds one more magnet horizontally to the right end of the row. Depending on how Mike puts the magnet on the table, it is either attracted to the previous one (forming a group of multiple magnets linked together) or repelled by it (then Mike lays this magnet at some distance to the right from the previous one). We assume that a sole magnet not linked to others forms a group of its own.



Mike arranged multiple magnets in a row. Determine the number of groups that the magnets formed.

Input

The first line of the input contains an integer n ($1 \leq n \leq 100000$) — the number of magnets. Then n lines follow. The i -th line ($1 \leq i \leq n$) contains either characters "01", if Mike put the i -th magnet in the

"plus-minus" position, or characters "10", if Mike put the magnet in the "minus-plus" position.

Output

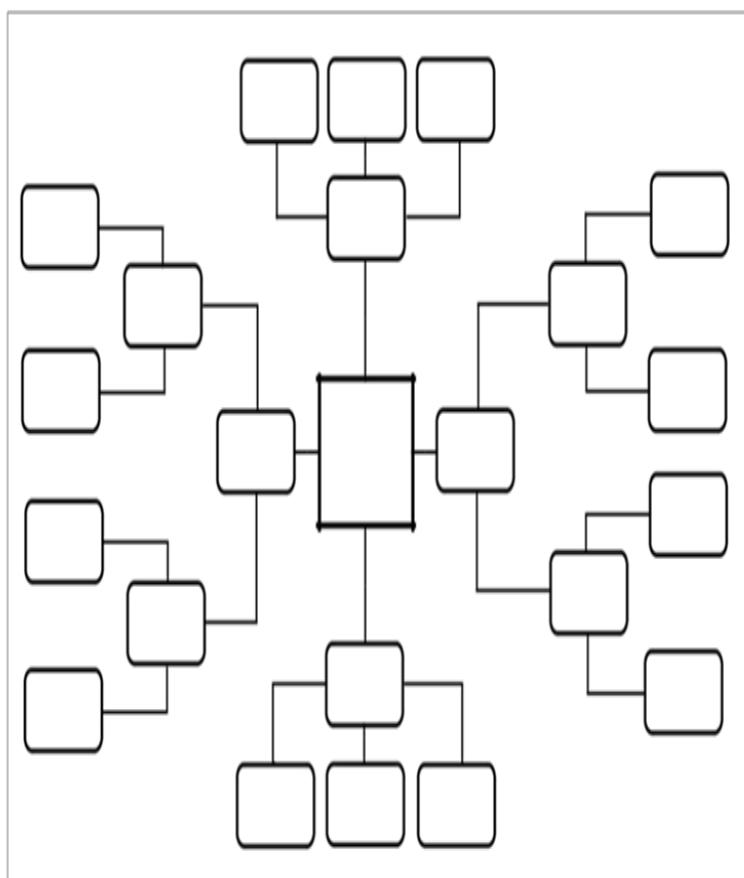
On the single line of the output print the number of groups of magnets.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String numbers=input.nextLine();
        int number= Integer.parseInt(numbers);
        String []arr=new String[number+1];
        int sum=0;

        for(int i=0;i<number;i++) {
            String magnets=input.nextLine();
            arr[i]=magnets;
        }
        for(int k=0;k<number;k++) {
            if(k+1==number) {
                continue;
            }
            int arr1=Integer.parseInt(arr[k]);
            int arr2=Integer.parseInt(arr[k+1]);

            if(arr1!=arr2) {
                sum=sum+1;
            }
        }
        System.out.println(sum+1);
    }
}
```

21-344A-In Search of an Easy Problem:

When preparing a tournament, Codeforces coordinators try their best to make the first problem as easy as possible. This time the coordinator had chosen some problem and asked n

people about their opinions. Each person answered whether this problem is easy or hard.

If at least one of these n

people has answered that the problem is hard, the coordinator decides to change the problem. For the given responses, check if the problem is easy enough.

Input

The first line contains a single integer n ($1 \leq n \leq 100$) — the number of people who were asked to give their opinions.

The second line contains n integers, each integer is either 0 or 1. If i -th integer is 0, then i -th person thinks that the problem is easy; if it is 1, then i -th person thinks that the problem is hard.

Output

Print one word: "EASY" if the problem is easy according to all responses, or "HARD" if there is at least one person who thinks the problem is hard.

You may print every letter in any register: "EASY", "easy", "EaSY" and "eAsY" all will be processed correctly.

Answer(java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        int number= input.nextInt();
        int sum=0;

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

            int numbers=input.nextInt();

            if(numbers==1) {
                sum=sum+1;
            }
        }

        if(sum>0) {
            System.out.println("HARD");
        }else{
            System.out.println("EASY");
        }

    }
}
```

22-750A-Hulk:

Dr. Bruce Banner hates his enemies (like others don't). As we all know, he can barely talk when he turns into the incredible Hulk. That's why he asked you to help him to express his feelings.

Hulk likes the Inception so much, and like that his feelings are complicated. They have n layers. The first layer is hate, second one is love, third one is hate and so on...

For example if $n = 1$, then his feeling is "I hate it" or if $n = 2$ it's "I hate that I love it", and if $n = 3$ it's "I hate that I love that I hate it" and so on.

Please help Dr. Banner.

Input

The only line of the input contains a single integer n ($1 \leq n \leq 100$) — the number of layers of love and hate.

Output

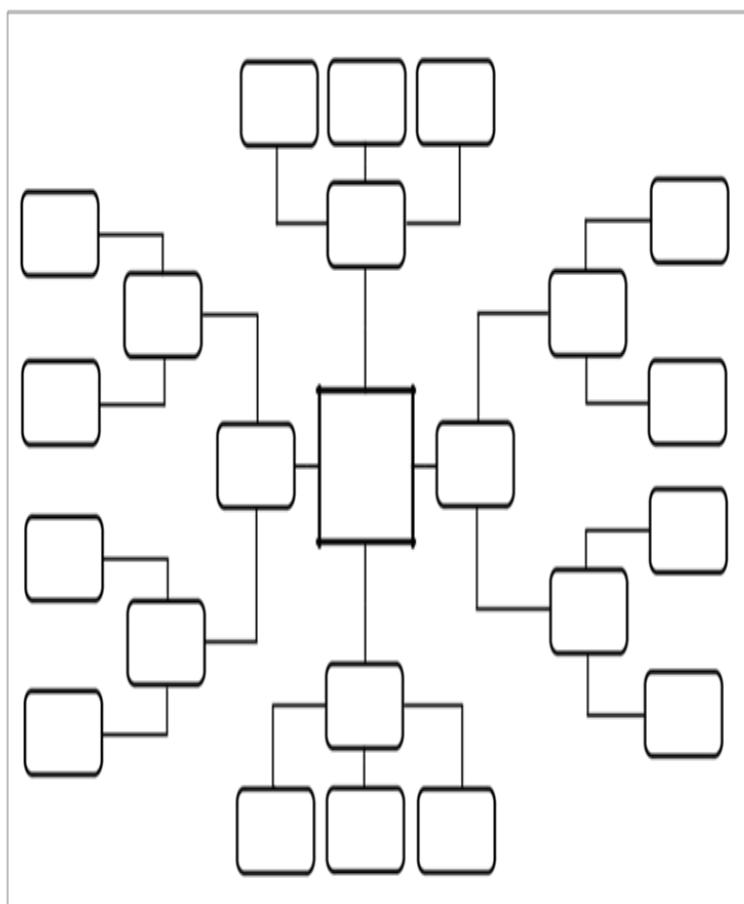
Print Dr.Banner's feeling in one line.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        Scanner sc = new Scanner(System.in);
        int num = sc.nextInt();

        if(num==1){
            System.out.println("I hate it");
        }else if(num==2){
            System.out.println("I hate that I love it");

            //even

        }else if (num % 2 == 0 && num!=2) {
            for (int i = 0; i < num/2-1; i++) {
                System.out.print("I hate that I love that ");
            }
            System.out.print("I hate that I love it");

            //odd

        } else if(num % 2 != 0 && num!=1){
            for (int i = 0; i < num/2; i++) {

                // System.out.print("i hate that i love that i hate that ");
                System.out.print("I hate that I love that ");

            }
            System.out.print("I hate it");

        }
    }
}
```

23-486A- Calculating Function:

For a positive integer n let's define a function

$$f: f(n) = -1 + 2 - 3 + \dots + (-1)^n n$$

Your task is to calculate $f(n)$ for a given integer n .

Input

The single line contains the positive integer n ($1 \leq n \leq 10^{15}$).

Output

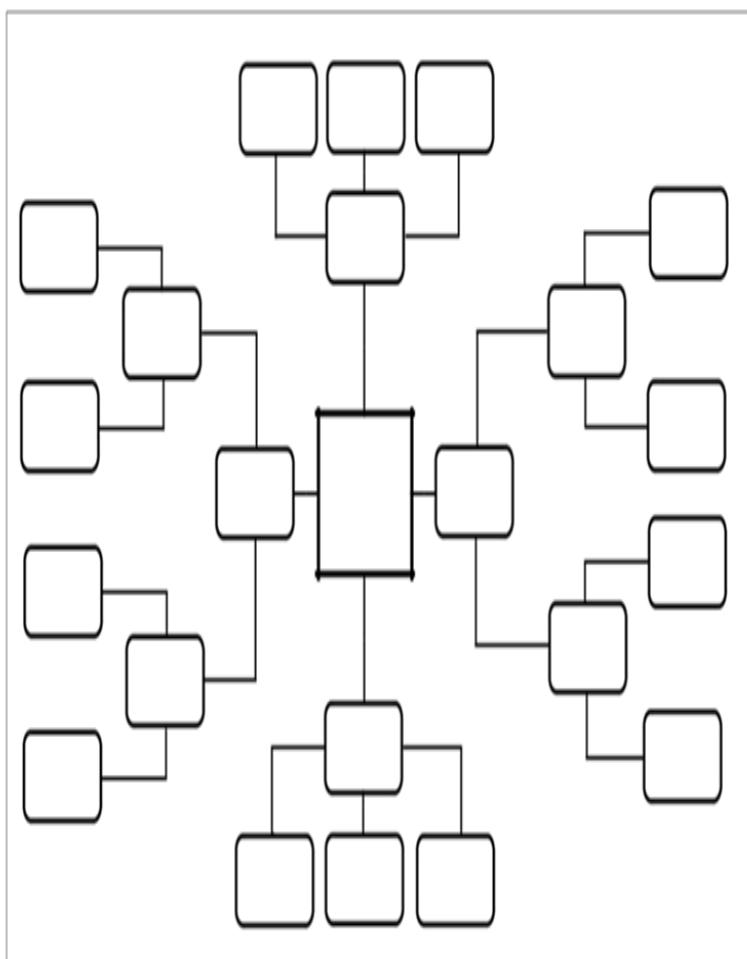
Print $f(n)$ in a single line.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        long n= input.nextLong();
        long result=0;
        if(n%2==0){
            result=n/2;
        }else {
            result=(n-1)/2-n;
        }
        System.out.println(result);
    }
}
```

24-200B-Drink:

Little Vasya loves orange juice very much. That's why any food and drink in his kitchen necessarily contains orange juice. There are n drinks in his fridge, the volume fraction of orange juice in the i -th drink equals p_i percent.

One day Vasya decided to make himself an orange cocktail. He took equal proportions of each of the n drinks and mixed them. Then he wondered, how much orange juice the cocktail has.

Find the volume fraction of orange juice in the final drink.

Input

The first input line contains a single integer n ($1 \leq n \leq 100$) — the number of orange-containing drinks in Vasya's fridge. The second line contains n integers p_i ($0 \leq p_i \leq 100$) — the volume fraction of orange juice in the i -th drink, in percent. The numbers are separated by a space.

Output

Print the volume fraction in percent of orange juice in Vasya's

cocktail. The answer will be considered correct if the absolute or relative error does not exceed 10^{-4} .

Answer(java):

```
//package com.company;

import java.util.Scanner;
import java.lang.String;

public class Main {

    public static void main(String[] args) {

        double volum=0;

        Scanner sc=new Scanner(System.in);
        double number= sc.nextDouble();

        for(double i=0;i < number;i++){

            double input = sc.nextDouble();
            volum += input;

        }

        double fi=volum/number;
        System.out.println(+fi);

    }
}
```

25-469A-I Wanna Be the Guy

There is a game called "I Wanna Be the Guy", consisting of n levels. Little X and his friend Little Y are addicted to the game. Each of them wants to pass the whole game.

Little X can pass only p levels of the game. And Little Y can pass only q levels of the game. You are given the indices of levels Little X can pass and the indices of levels Little Y can pass. Will Little X and Little Y pass the whole game, if they cooperate each other?

Input

The first line contains a single integer n ($1 \leq n \leq 100$).

The next line contains an integer p ($0 \leq p \leq n$) at first, then follows p distinct integers a_1, a_2, \dots, a_p ($1 \leq a_i \leq n$). These integers denote the indices of levels Little X can pass. The next line contains the levels Little Y can pass in the same format. It's assumed that levels are numbered from 1 to n .

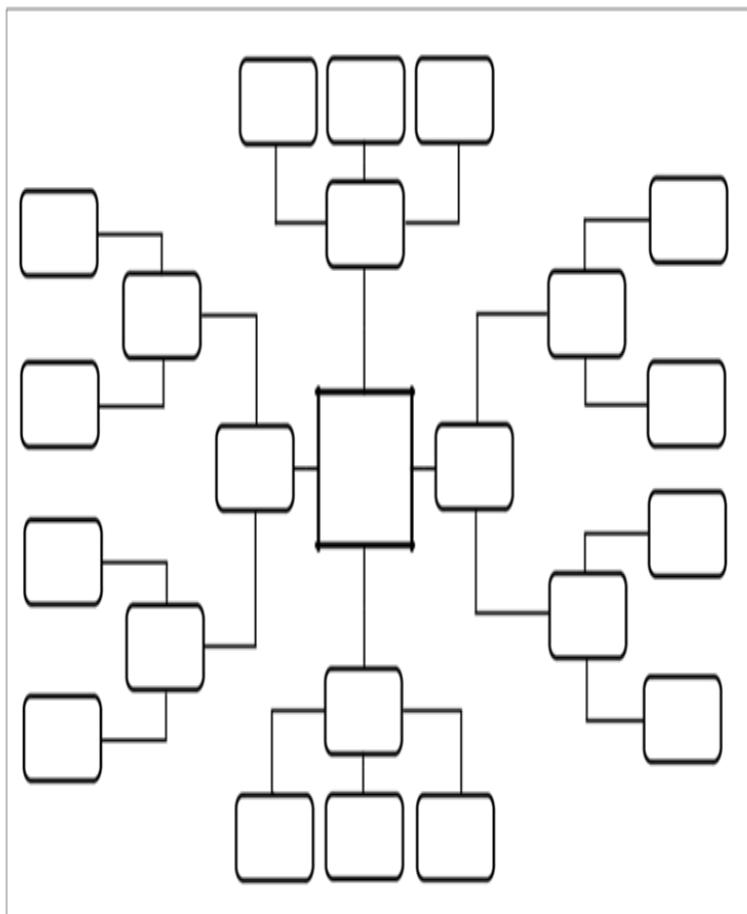
Output

If they can pass all the levels, print "I become the guy.". If it's impossible, print "Oh, my keyboard!" (without the quotes).

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```

//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int levels = input.nextInt();
        int first = 0;
        int sum = 0;

        int number = input.nextInt();
        int[] arr = new int[number];
        for (int k = 0; k < number; k++) {
            int numbers = input.nextInt();
            arr[k] = numbers;
        }

        int number1 = input.nextInt();
        int[] arr1 = new int[number1];
        for (int i = 0; i < number1; i++) {
            int numbers1 = input.nextInt();
            arr1[i] = numbers1;
        }

        if (number > number1) {
            first = number;
        } else {
            first = number1;
        }

        int[] array = new int[number + number1];
        for (int j = 0; j < first; j++) {
            if (j < number) {
                array[j] = arr[j];
            }
            if (j < number1) {
                array[j + number] = arr1[j];
            }
        }

        Arrays.sort(array);
        String arar = Arrays.toString(array);

        for (int l = 1; l <= levels; l++) {

            if (arar.indexOf(String.valueOf(l)) == -1 || arar.indexOf(String.valueOf(l)) == -1
                || arar.indexOf(String.valueOf(l)) == -1 || arar.indexOf(String.valueOf(l)) == -1) {
                //System.out.println("NO");
                sum = sum + 1;
            }

        }
        if (sum != 0) {
            System.out.println("Oh, my keyboard!");
        } else {
            System.out.println("I become the guy.");
        }
    }
}

```

26-1328A-Divisibility Problem:

You are given two positive integers a and b . In one move you can increase a by 1 (replace a with $a+1$). Your task is to find the minimum number of moves you need to do in order to make a divisible by b . It is possible, that you have to make 0 moves, as a is already divisible by b . You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 10^4$) — the number of test cases. Then t test cases follow. The only line of the test case contains two integers a and b ($1 \leq a, b \leq 10^9$).

Output

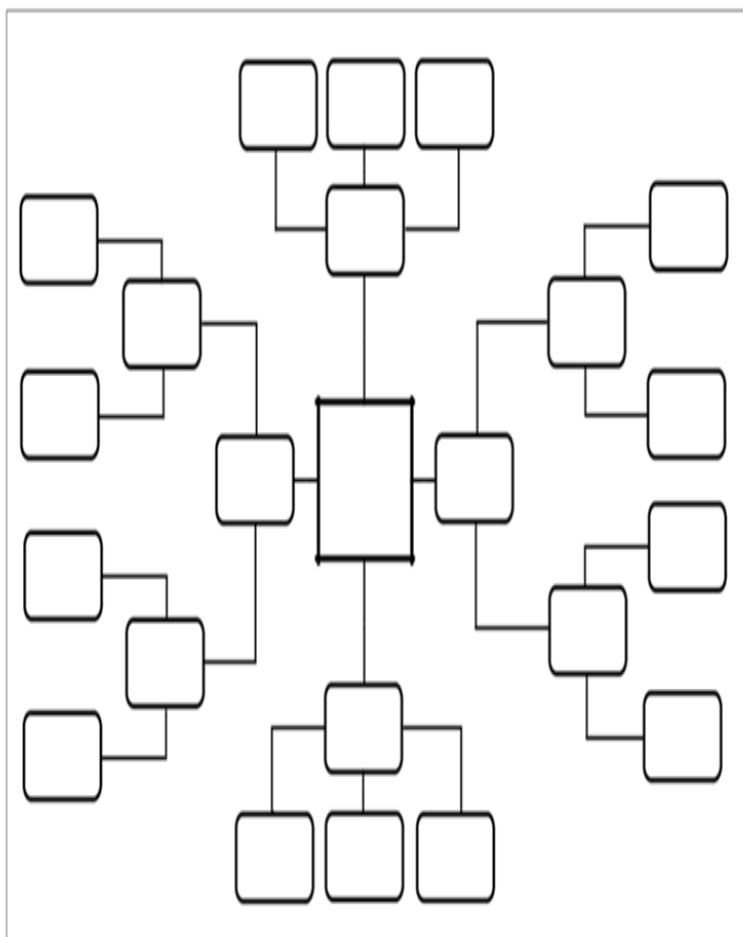
For each test case print the answer — the minimum number of moves you need to do in order to make a divisible by b .

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answers:

```

//package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int sum=0;
        int divisibility=0;
        int divisibility1=0;
        int wierd=0;
        for(int i=0;i<number;i++) {
            int num1= input.nextInt();
            int num2= input.nextInt();
            /*
            10/3=3.333
            4*3-10=2
            12-10=2
            */
            if (num1%num2==0) {
                System.out.println("0");
            }else {

                divisibility = num1 / num2;
                // System.out.println(divisibility);

                divisibility=divisibility+1;

                divisibility1 = (divisibility * num2) - num1;

                System.out.println(divisibility1);
            }
        }
    }
}

```

27-520A-Pangram:

A word or a sentence in some language is called a pangram if all the characters of the alphabet of this language appear in it at least once.

Pangrams are often used to demonstrate fonts in printing or test the output devices.

You are given a string consisting of lowercase and uppercase Latin letters. Check whether this string is a pangram. We say that the string contains a letter of the Latin alphabet if this letter occurs in the string in uppercase or lowercase.

Input

The first line contains a single integer n ($1 \leq n \leq 100$) — the number of characters in the string.

The second line contains the string. The string consists only of uppercase and lowercase Latin letters.

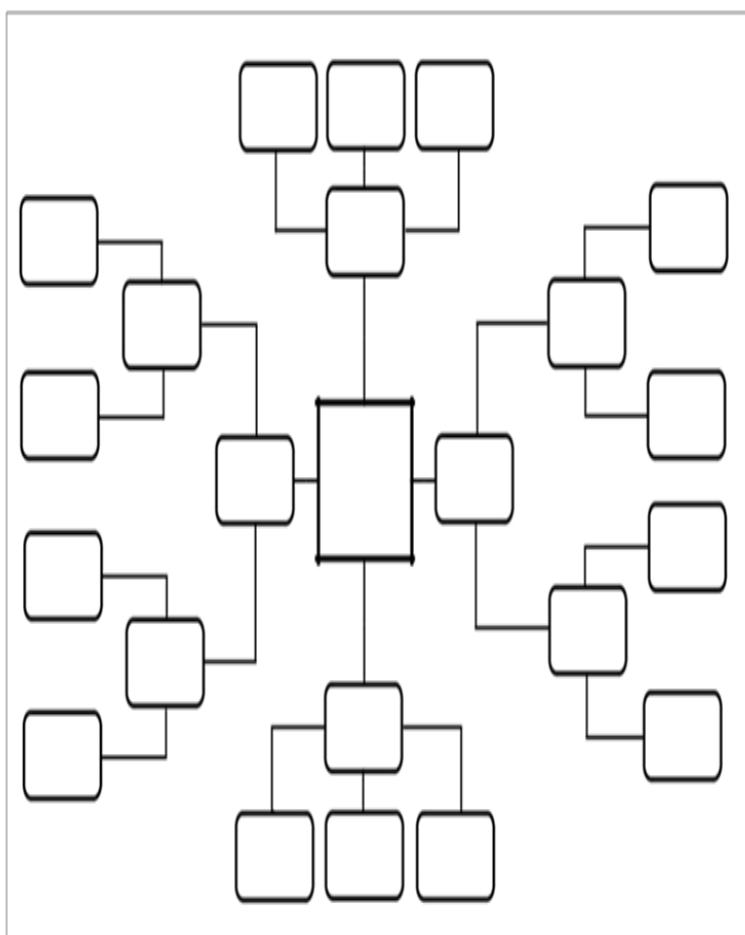
Output

Output "YES", if the string is a pangram and "NO" otherwise.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String word= input.nextLine();
        String words=input.nextLine();
        int number=Integer.parseInt(word);
        String alphabet1="ABCDEFGHIJKLMNOPQRSTUVWXYZ";
        String alphabet2="abcdefghijklmnopqrstuvwxyz";
        int sum=0;

        for(int i=0;i< alphabet1.length();i++){

            if(words.indexOf(alphabet1.charAt(i))==-1&&words.indexOf(alphabet2.charAt(i))==-1){
                sum=sum+1;
                // System.out.println("1: "+alphabet1.charAt(i));
                //System.out.println("2: "+alphabet2.charAt(i));

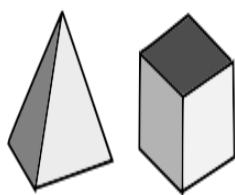
            }
        }
        if(sum>0){
            System.out.println("NO");
        }else {
            System.out.println("YES");
        }
    }
}
```

28-785A- Anton and Polyhedrons:

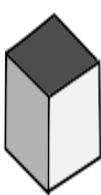
Anton's favourite geometric figures are regular polyhedrons. Note that there are five kinds of regular polyhedrons:

- Tetrahedron. Tetrahedron has 4 triangular faces.
- Cube. Cube has 6 square faces.
- Octahedron. Octahedron has 8 triangular faces.
- Dodecahedron. Dodecahedron has 12 pentagonal faces.
- Icosahedron. Icosahedron has 20 triangular faces.

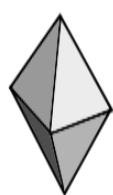
All five kinds of polyhedrons are shown on the picture below:



Tetrahedron



Cube



Octahedron



Dodecahedron



Icosahedron

Anton has a collection of n polyhedrons. One day he decided to know, how many faces his polyhedrons have in total. Help Anton and find this number!

Input

The first line of the input contains a single integer n ($1 \leq n \leq 200\,000$) — the number of polyhedrons in Anton's collection.

Each of the following n lines of the input contains a string s_i — the name of the i -th polyhedron in Anton's collection. The string can look like this:

- "Tetrahedron" (without quotes), if the i -th polyhedron in Anton's collection is a tetrahedron.
- "Cube" (without quotes), if the i -th polyhedron in Anton's collection is a cube.
- "Octahedron" (without quotes), if the i -th polyhedron in Anton's collection is an octahedron.
- "Dodecahedron" (without quotes), if the i -th polyhedron in Anton's collection is a dodecahedron.
- "Icosahedron" (without quotes), if the i -th polyhedron in Anton's collection is an icosahedron.

Output

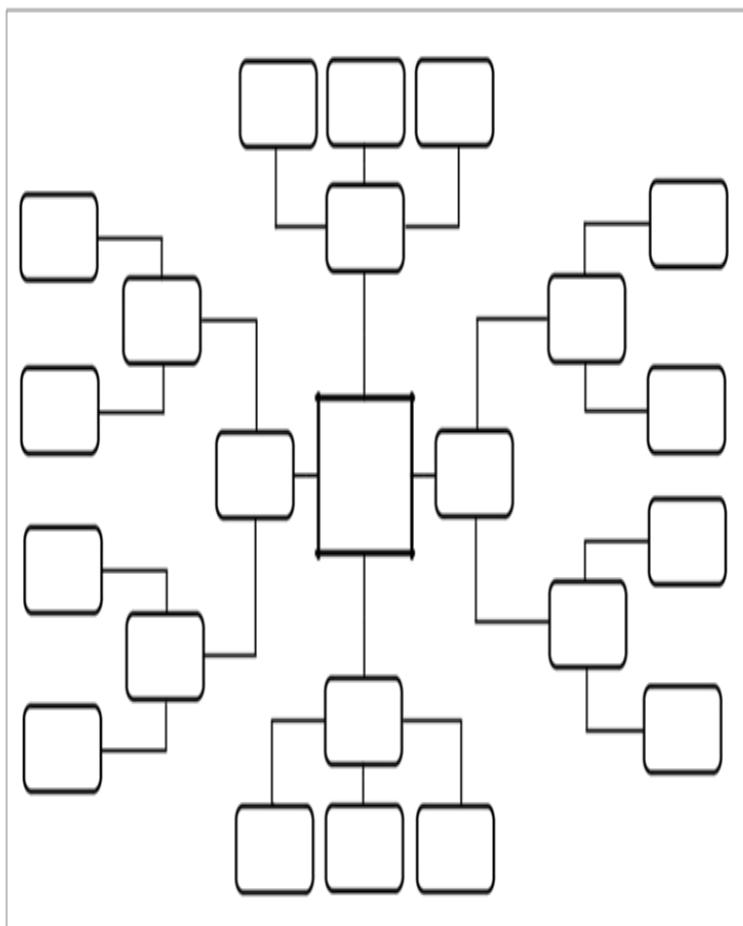
Output one number — the total number of faces in all the polyhedrons in Anton's collection.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String num = input.nextLine();
        int number = Integer.parseInt(num);
        String[] arr = new String[number];
        int total = 0;

        for (int j = 0; j < number; j++) {
            String word = input.nextLine();
            arr[j] = word;
        }
        // System.out.println(Arrays.toString(arr));
        for (int i = 0; i < number; i++) {
            if (arr[i].charAt(0) == 'T') {
                total = total + 4;
            } else if (arr[i].charAt(0) == 'C') {
                total = total + 6;
            } else if (arr[i].charAt(0) == 'O') {
                total = total + 8;
            } else if (arr[i].charAt(0) == 'D') {
                total = total + 12;
            } else if (arr[i].charAt(0) == 'I') {
                total = total + 20;
            }
        }
        System.out.println(total);
    }
}
```

29-996A-Hit the Lottery:

Allen has a LOT of money. He has n dollars in the bank. For security reasons, he wants to withdraw it in cash (we will not disclose the reasons here). The denominations for dollar bills are 1, 5, 10, 20, 100. What is the minimum number of bills Allen could receive after withdrawing his entire balance?

Input

The first and only line of input contains a single integer n ($1 \leq n \leq 109$).

Output

Output the minimum number of bills that Allen could receive.

Answer:

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int money= input.nextInt();

        int hun=Math.round(money/100);
        int remainder=money-hun*100;
        //
        int twenty=Math.round(remainder/20);
        int remainder1=remainder-twenty*20;
        //
        int ten=Math.round(remainder1/10);
        int remainder2=remainder1-ten*10;
        //
        int five=Math.round(remainder2/5);
        int remainder3=remainder2-five*5;
        //
        System.out.println(hun+twenty+ten+five+remainder3);
    }
}
```

30-750A- New Year and Hurry

Limak is going to participate in a contest on the last day of the 2016. The contest will start at 20:00 and will last four hours, exactly until midnight. There will be n problems, sorted by difficulty, i.e. problem 1 is the easiest and problem n is the hardest. Limak knows it will take him $5 \cdot i$ minutes to solve the i -th problem.

Limak's friends organize a New Year's Eve party and Limak wants to be there at midnight or earlier. He needs k minutes to get there from his house, where he will participate in the contest first.

How many problems can Limak solve if he wants to make it to the party?

Input

The only line of the input contains two integers n and k ($1 \leq n \leq 10$, $1 \leq k \leq 240$) — the number of the problems in the contest and the number of minutes Limak needs to get to the party from his house.

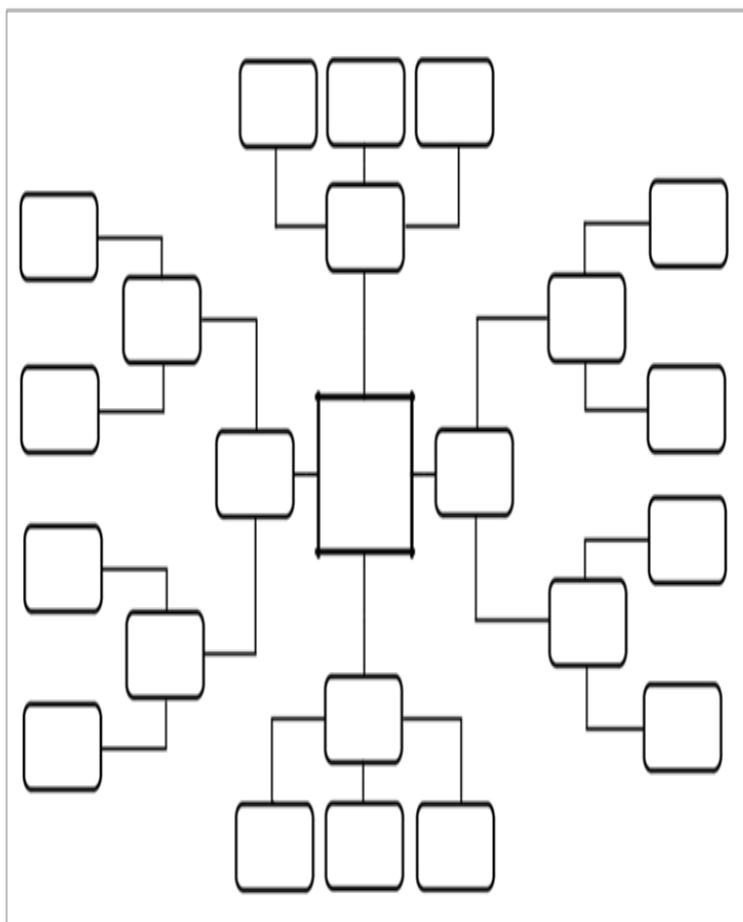
Output

Print one integer, denoting the maximum possible number of problems Limak can solve so that he could get to the party at midnight or earlier.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);
        int problems=scanner.nextInt();
        int k=scanner.nextInt();
        int remaining=240-k;
        int total=0;
        for (int i=1;i<=problems;i++) {
            int time=i*5;

            total=time+total;
            if (total>remaining) {
                total=total-time;
                System.out.println(i-1);
                break;
            }
            if (i==problems&&total<=remaining) {
                System.out.println(problems);
            }
        }
    }
}
```

31-581A-Vasya the Hipster:

One day Vasya the Hipster decided to count how many socks he had. It turned out that he had a red socks and b blue socks.

According to the latest fashion, hipsters should wear the socks of different colors: a red one on the left foot, a blue one on the right foot.

Every day Vasya puts on new socks in the morning and throws them away before going to bed as he doesn't want to wash them.

Vasya wonders, what is the maximum number of days when he can dress fashionable and wear different socks, and after that, for how many days he can then wear the same socks until he either runs out of socks or cannot make a single pair from the socks he's got. Can you help him?

Input

The single line of the input contains two positive integers a and b ($1 \leq a, b \leq 100$) — the number of red and blue socks that Vasya's got.

Output

Print two space-separated integers — the maximum number of days when Vasya can wear different socks and the number of days when he can wear the same socks until he either runs out of socks or

BOOK TITLE

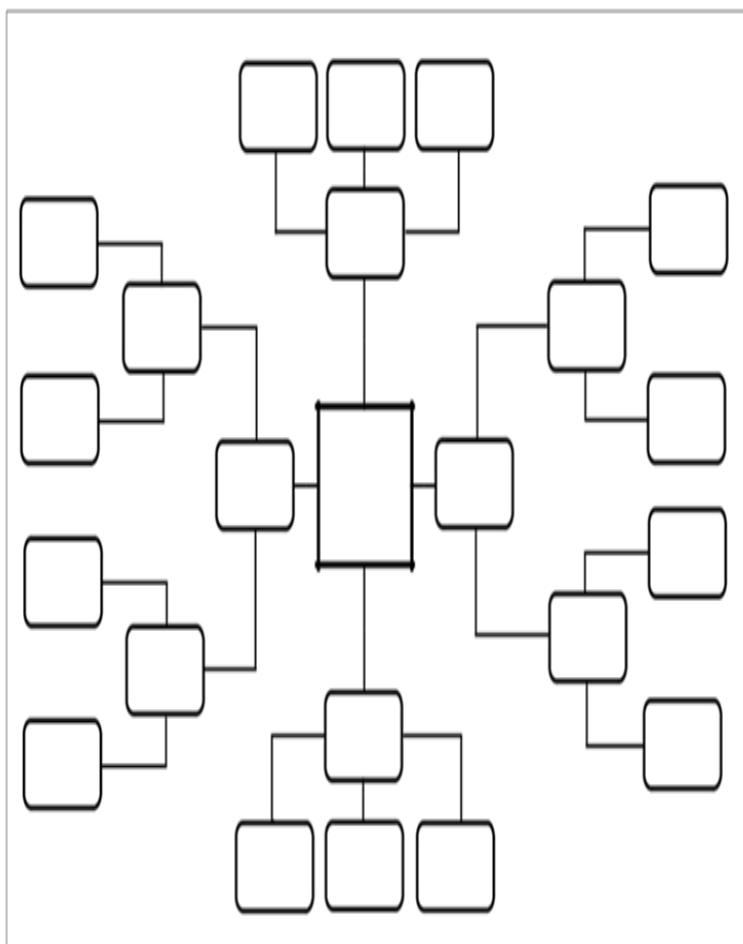
cannot make a single pair from the socks he's got.

Keep in mind that at the end of the day Vasya throws away the socks that he's been wearing on that day

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(java):

```

//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here
        Scanner input=new Scanner(System.in);
        int blue=input.nextInt();
        int red= input.nextInt();

        if(blue>=red){
            System.out.print(red);
            if ((blue-red)%2==0){
                System.out.print(" "+(blue-red)/2);
            }else if((blue-red)%2!=0){
                System.out.print(" "+((blue-red)-1)/2);
            }
        }else if(blue<red){
            System.out.print(blue);
            if ((red-blue)%2==0){
                System.out.print(" "+(red-blue)/2);
            }else if((red-blue)%2!=0){
                System.out.print(" "+(red-blue-1)/2);
            }
        }
    }
}

```

32-732A- Buy a Shovel:

Polycarp urgently needs a shovel! He comes to the shop and chooses an appropriate one. The shovel that Polycarp chooses is sold for k burles. Assume that there is an unlimited number of such shovels in

the shop.

In his pocket Polycarp has an unlimited number of "10-burle coins" and exactly one coin of r burles ($1 \leq r \leq 9$).

What is the minimum number of shovels Polycarp has to buy so that he can pay for the purchase without any change? It is obvious that he can pay for 10 shovels without any change (by paying the required amount of 10-burle coins and not using the coin of r burles). But perhaps he can buy fewer shovels and pay without any change. Note that Polycarp should buy at least one shovel.

Input

The single line of input contains two integers k and r ($1 \leq k \leq 1000$, $1 \leq r \leq 9$) — the price of one shovel and the denomination of the coin in Polycarp's pocket that is different from "10-burle coins".

Remember that he has an unlimited number of coins in the denomination of 10, that is, Polycarp has enough money to buy any number of shovels.

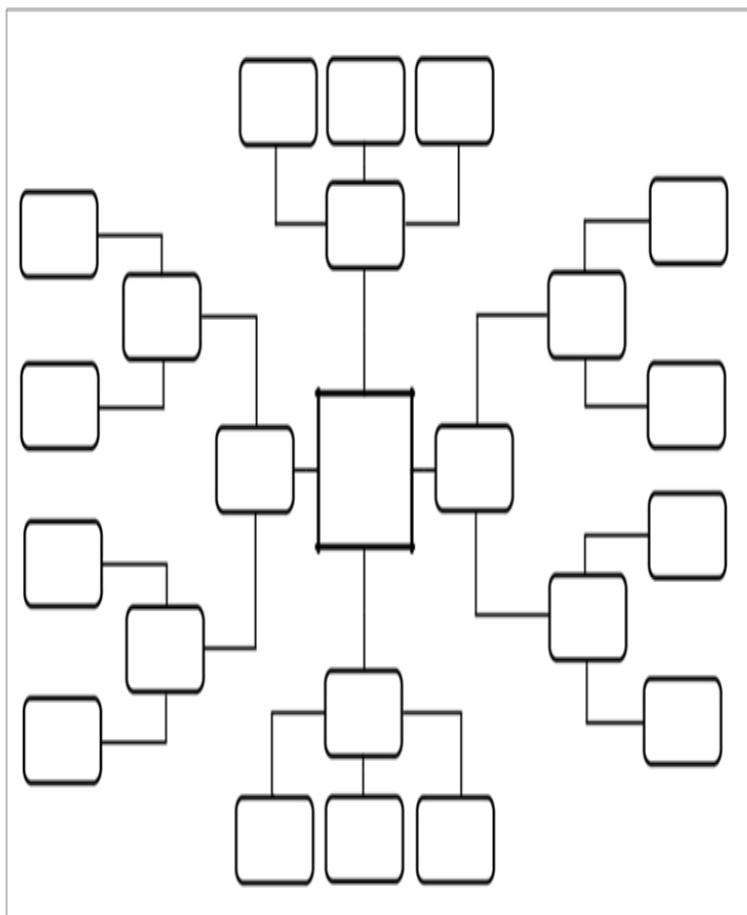
Output

Print the required minimum number of shovels Polycarp has to buy so that he can pay for them without any change.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject: _____ Date: _____

Answer(java):

```
//package com.company;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int price = scanner.nextInt();
        int r = scanner.nextInt();
        for(int i=1;i<10000000000;i++) {
            if ((i * price) % 10 == 0 || (i * price) % 10 == r) {
                System.out.println(i);
                break;
            }
        }
    }
}
```

33-427A- Police Recruits:

The police department of your city has just started its journey. Initially, they don't have any manpower. So, they started hiring new recruits in groups.

Meanwhile, crimes keeps occurring within the city. One member of the police force can investigate only one crime during his/her lifetime.

If there is no police officer free (isn't busy with crime) during the occurrence of a crime, it will go untreated.

Given the chronological order of crime occurrences and recruit hirings, find the number of crimes which will go untreated.

Input

The first line of input will contain an integer n ($1 \leq n \leq 10^5$), the number of events. The next line will contain n space-separated integers.

If the integer is -1 then it means a crime has occurred. Otherwise, the integer will be positive, the number of officers recruited together at that time. No more than 10 officers will be recruited at a time.

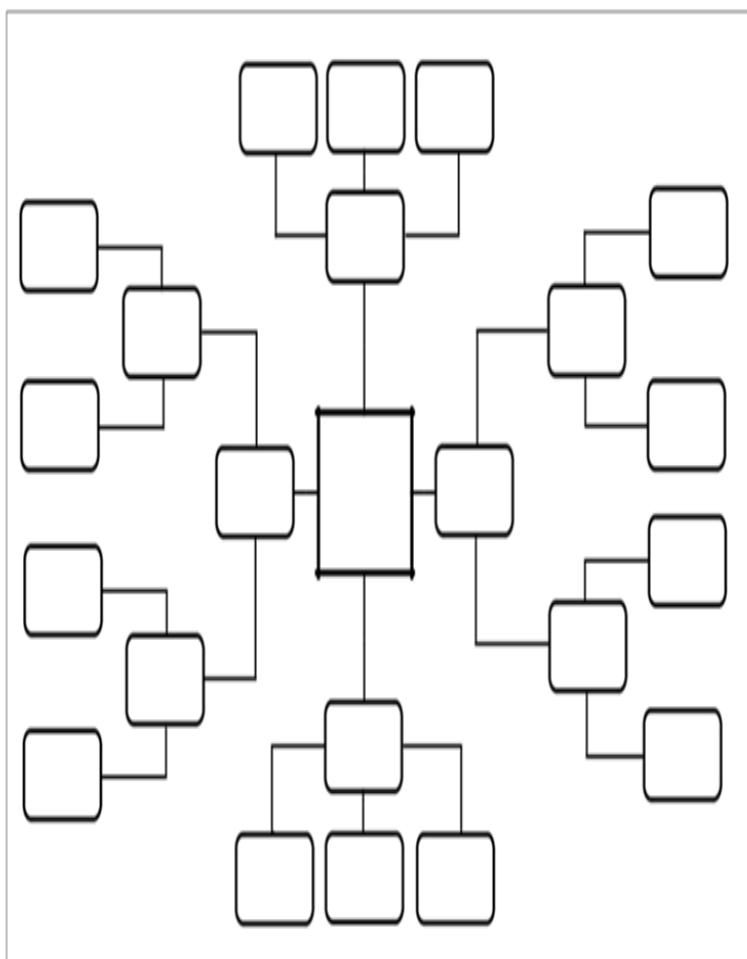
Output

Print a single integer, the number of crimes which will go untreated.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);
        int number=scanner.nextInt();
        int sum=0;
        int crime=0;
        int bodo=0;
        for (int i=0;i<number;i++) {
            int numbers=scanner.nextInt();
            if (numbers>0) {
                sum = sum + numbers;
            }else {
                if (sum>0) {
                    sum=sum+numbers;
                }else {
                    crime=crime+1;
                }
            }
        }

        System.out.println(crime);
    }
}
```

34-432A- Choosing Teams:

The Saratov State University Olympiad Programmers Training Center (SSU OPTC) has n students. For each student you know the number of times he/she has participated in the ACM ICPC world programming championship. According to the ACM ICPC rules, each person can participate in the world championship at most 5 times.

The head of the SSU OPTC is recently gathering teams to participate in the world championship. Each team must consist of exactly three people, at that, any person cannot be a member of two or more teams. What maximum number of teams can the head make if he wants each team to participate in the world championship with the same members at least k times?

Input

The first line contains two integers, n and k ($1 \leq n \leq 2000$; $1 \leq k \leq 5$). The next line contains n integers: y_1, y_2, \dots, y_n ($0 \leq y_i \leq 5$), where y_i shows the number of times the i -th person participated in the ACM ICPC world championship.

Output

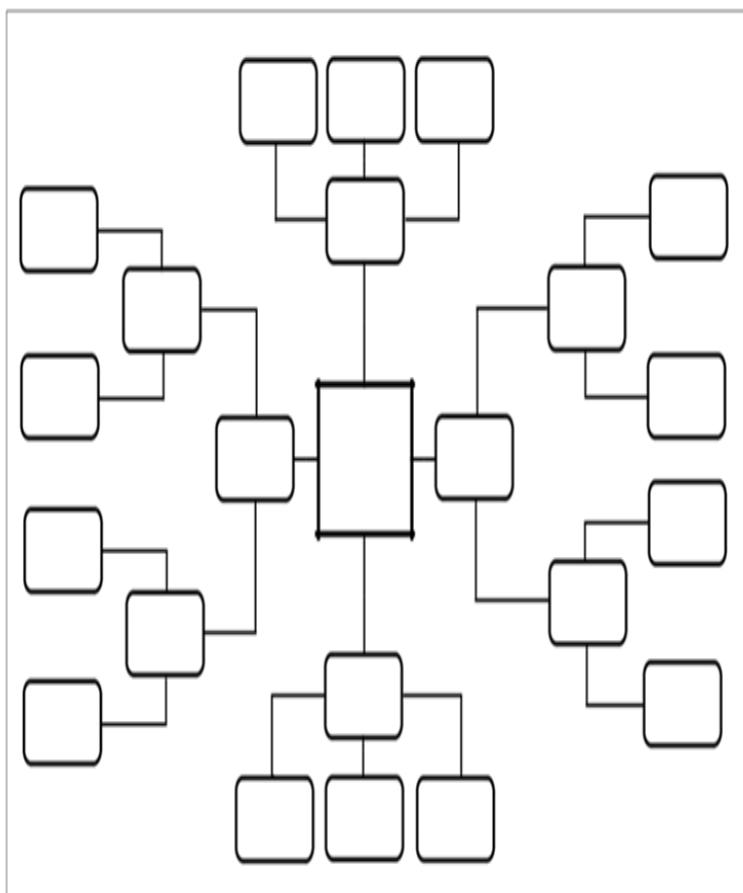
Print a single number — the answer to the problem.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        int number=input.nextInt();
        int plus= input.nextInt();
        int sum=0;
        for(int i=0;i<number;i++) {
            int numbers=input.nextInt();
            //System.out.println(number+plus);

            if(numbers+plus<=5) {
                //System.out.println("number: "+numbers);
                sum=sum+1;
            }
        }
        //System.out.println("sum: "+sum);
        if (sum<3){
            System.out.println("0");
        }else {
            System.out.println(Math.round(sum/3));
        }
    }
}
```

35-703A- Mishka and Game:

Mishka is a little polar bear. As known, little bears loves spending their free time playing dice for chocolates. Once in a wonderful sunny morning, walking around blocks of ice, Mishka met her friend Chris, and they started playing the game.

Rules of the game are very simple: at first number of rounds n is defined. In every round each of the players throws a cubical dice with distinct numbers from 1 to 6 written on its faces. Player, whose value after throwing the dice is greater, wins the round. In case if player dice values are equal, no one of them is a winner.

In average, player, who won most of the rounds, is the winner of the game. In case if two players won the same number of rounds, the result of the game is draw.

Mishka is still very little and can't count wins and losses, so she asked you to watch their game and determine its result. Please help her!

Input

The first line of the input contains single integer n ($1 \leq n \leq 100$) — the number of game rounds.

The next n lines contains rounds description. i -th of them contains pair of integers m_i and c_i ($1 \leq m_i, c_i \leq 6$) — values on dice upper face after Mishka's and Chris' throws in i -th round respectively.

Output

If Mishka is the winner of the game, print "Mishka" (without quotes) in the only line.

If Chris is the winner of the game, print "Chris" (without quotes) in the only line.

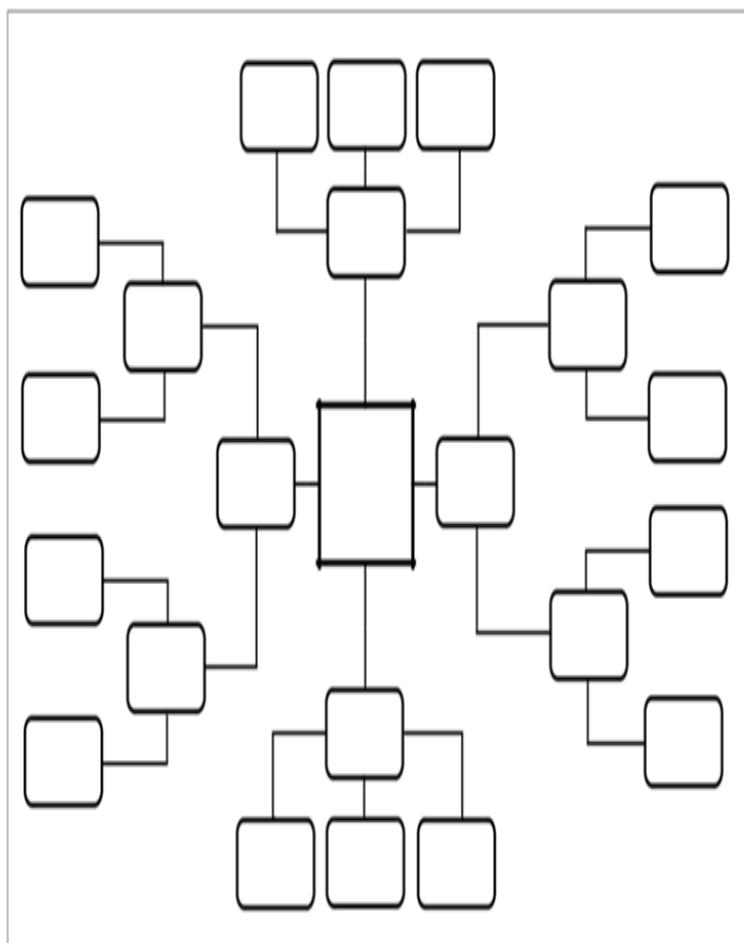
If the result of the game is draw, print "Friendship is magic!^^" (without quotes) in the only line.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answers(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        Scanner sc = new Scanner(System.in);
        int times = sc.nextInt();
        int[] tabel = new int[times];
        int sum=0;
        int hey=0;

        for (int i = 0; i < times; i++) {
            int k = sc.nextInt();
            int j = sc.nextInt();

            if (k > j) {
                tabel[i] = 1;
            } else if (k < j) {
                tabel[i] = 2;
            } else {

            }
        }
        for(int k=0;k< times;k++){
            if(tabel[k]==1){
                sum=sum+1;
            }else if(tabel[k]==2){
                hey=hey+1;
            }
        }

    }
    if(sum>hey){
        System.out.println("Mishka");
    }else if(sum==hey){
        System.out.println("Friendship is magic!^^");
    }else if(hey>sum){
        System.out.println("Chris");
    }
}
```

36-1433A-Boring Apartments:

There is a building consisting of 10 000 apartments numbered from 1 to 10 000 , inclusive. Call an apartment boring, if its number consists of the same digit. Examples of boring apartments are 11, 2, 777, 9999 and so on. Our character is a troublemaker, and he calls the intercoms of all boring apartments, till someone answers the call, in the following order:

- First he calls all apartments consisting of digit 1, in increasing order (1,11,111,1111).
- Next he calls all apartments consisting of digit 2, in increasing order (2,22,222,2222)
- And so on.

The resident of the boring apartment x answers the call, and our character stops calling anyone further. Our character wants to know how many digits he pressed in total and your task is to help him to count the total number of keypresses.

For example, if the resident of boring apartment 22 answered, then our character called apartments with numbers 1,11,111,1111,2,22 and the total number of digits he pressed is $1+2+3+4+1+2=13$. You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 36$) — the number of test cases.

The only line of the test case contains one integer x ($1 \leq x \leq 9999$) — the apartment number of the resident who answered the call. It is guaranteed that x consists of the same digit.

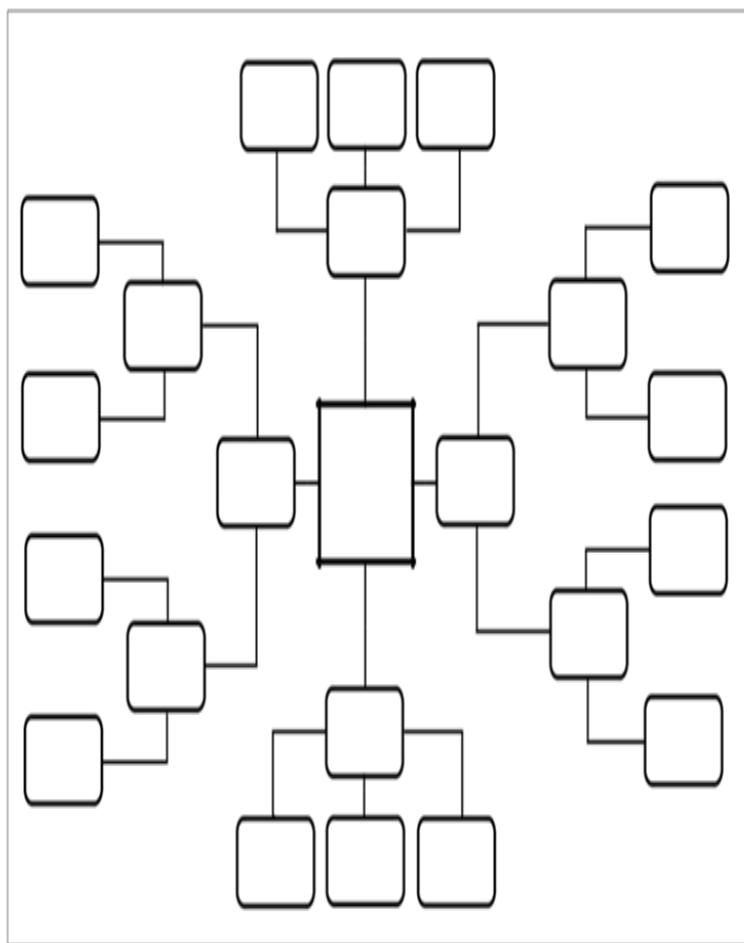
Output

For each test case, print the answer: how many digits our character pressed in total.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);

        int number= input.nextInt();
        int sum=0;
        int le=0;

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

            int numbers1= input.nextInt();
            String numbers=String.valueOf(numbers1);
            //System.out.println("here");

            char first=numbers.charAt(0);

            int ch=Character.getNumericValue(first);

            int length=numbers.length();

            if(length==1) {
                le = 1;
            }else if(length==2) {
                le = 3;
            }else if(length==3) {
                le = 6;
            }else if(length==4) {
                le = 10;
            }

            // System.out.println(ch);
            sum=( (ch-1)*10)+le;
            System.out.println(sum);

        }

    }
}
```

37-1512A-Spy Detected! :

You are given an array a consisting of n ($n \geq 3$) positive integers. It is known that in this array, all the numbers except one are the same (for example, in the array [4,11,4,4] all numbers except one are equal to 4).

Print the index of the element that does not equal others. The numbers in the array are numbered from one.

Input

The first line contains a single integer t ($1 \leq t \leq 100$). Then t test cases follow. The first line of each test case contains a single integer n ($3 \leq n \leq 100$) — the length of the array a . The second line of each test case contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 100$). It is guaranteed that all the numbers except one in the a array are the same.

Output

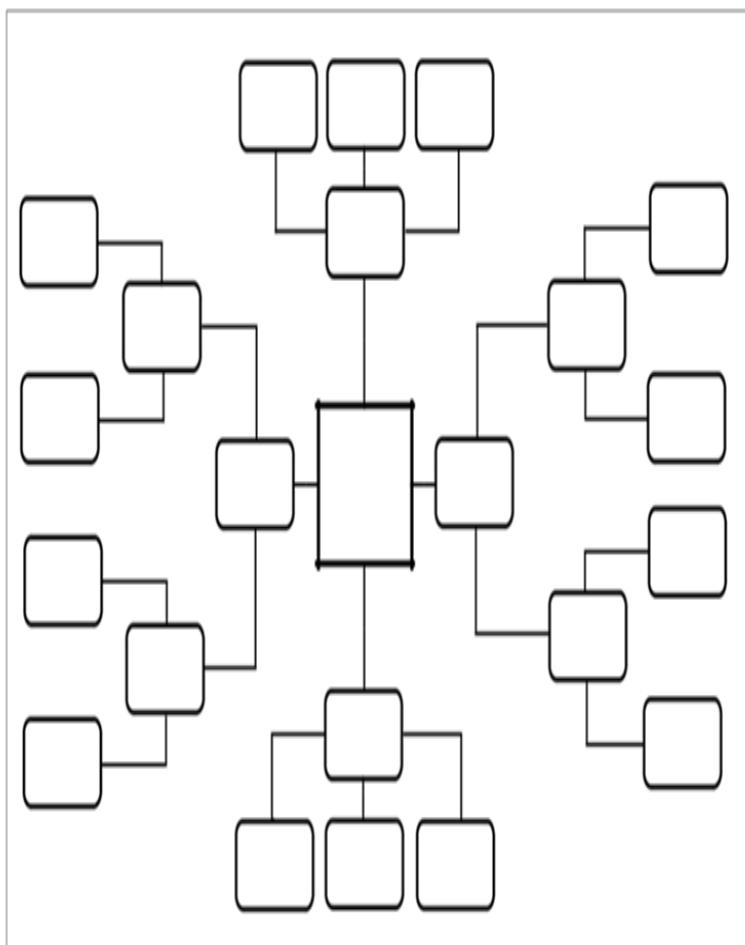
For each test case, output a single integer — the index of the element that is not equal to others.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int group = input.nextInt();
        int sum=0;
        for (int i=0;i<group;i++) {
            int number=input.nextInt();
            int [] arr=new int[number];
            int [] arr1=new int[number];
            for (int j=0;j<number;j++) {
                int numbers= input.nextInt();
                arr[j]=numbers;
                arr1[j]=numbers;
            }
            Arrays.sort(arr);
            if (arr[0]!=arr[1] && arr[1]==arr[2]) {
                for (int k=0;k<number;k++) {
                    if (arr1[k]==arr[0]){
                        System.out.println(k+1);
                    }
                }
            }else if (arr[number-1]!=arr[0] && arr[0]==arr[1]) {
                for (int k=0;k<number;k++) {
                    if (arr1[k]==arr[number-1]){
                        System.out.println(k+1);
                    }
                }
            }
        }
    }
}
```

38-1311A-Add Odd or Subtract Even:

You are given two positive integers a and b . In one move, you can change a in the following way:

- Choose any positive odd integer x ($x > 0$) and replace a with $a + x$;
- choose any positive even integer y ($y > 0$) and replace a with $a - y$.

You can perform as many such operations as you want. You can choose the same numbers x and y in different moves. Your task is to find the minimum number of moves required to obtain b from a . It is guaranteed that you can always obtain b from a . You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 104$) — the number of test cases. Then t test cases follow. Each test case is given as two space-separated integers a and b ($1 \leq a, b \leq 109$).

Output

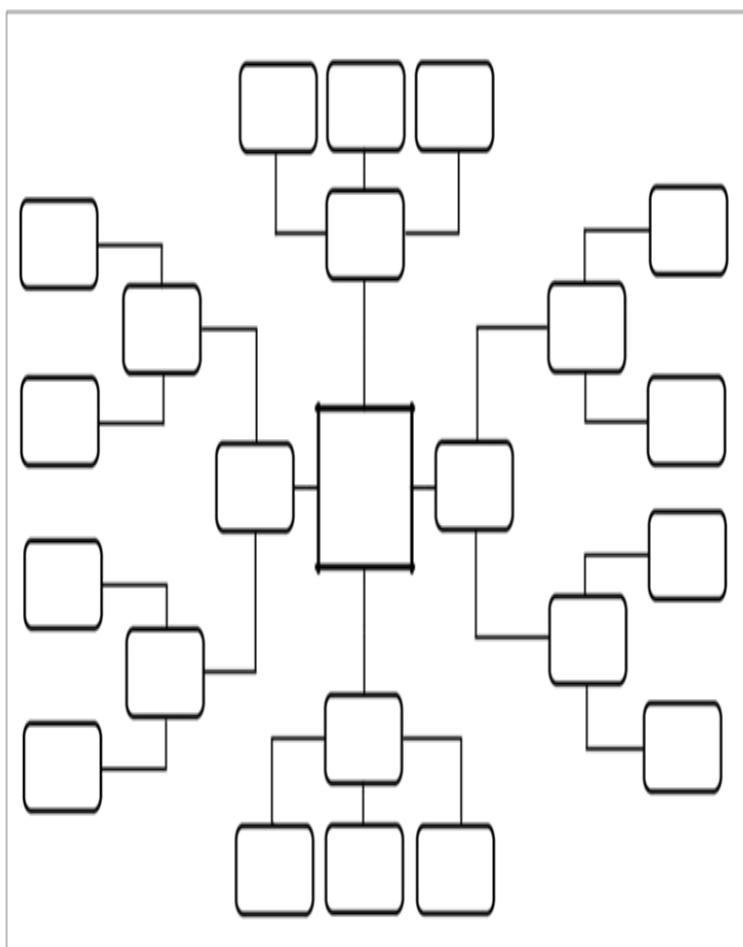
For each test case, print the answer — the minimum number of

moves required to obtain b from a if you can perform any number of moves described in the problem statement. It is guaranteed that you can always obtain b from a

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int times=input.nextInt();

        for (int k=0;k<times;k++) {

            int a = input.nextInt();
            int b= input.nextInt();

            if (a==b) {
                System.out.println("0");
            }else if (a>b && (a-b)%2==0){
                System.out.println("1");

            }else if (a<b && (b-a)%2!=0){
                System.out.println("1");

            }else {
                System.out.println("2");
            }
        }
    }
}
```

39-707A-Brain's Photos:

Small, but very brave, mouse Brain was not accepted to summer school of young villains. He was upset and decided to postpone his plans of taking over the world, but to become a photographer instead.

As you may know, the coolest photos are on the film (because you can specify the hashtag #film for such).

Brain took a lot of colourful pictures on colored and black-and-white film. Then he developed and translated it into a digital form. But now, color and black-and-white photos are in one folder, and to sort them, one needs to spend more than one hour!

As soon as Brain is a photographer not programmer now, he asks you to help him determine for a single photo whether it is colored or black-and-white.

Photo can be represented as a matrix sized $n \times m$, and each element of the matrix stores a symbol indicating corresponding pixel color.

There are only 6 colors:

- 'C' (cyan)
- 'M' (magenta)
- 'Y' (yellow)
- 'W' (white)
- 'G' (grey)
- 'B' (black)

The photo is considered black-and-white if it has only white, black and grey pixels in it. If there are any of cyan, magenta or yellow pixels in the photo then it is considered colored.

Input

The first line of the input contains two integers n and m ($1 \leq n, m \leq 100$) — the number of photo pixel matrix rows and columns respectively.

Then n lines describing matrix rows follow. Each of them contains m space-separated characters describing colors of pixels in a row. Each character in the line is one of the 'C', 'M', 'Y', 'W', 'G' or 'B'.

Output

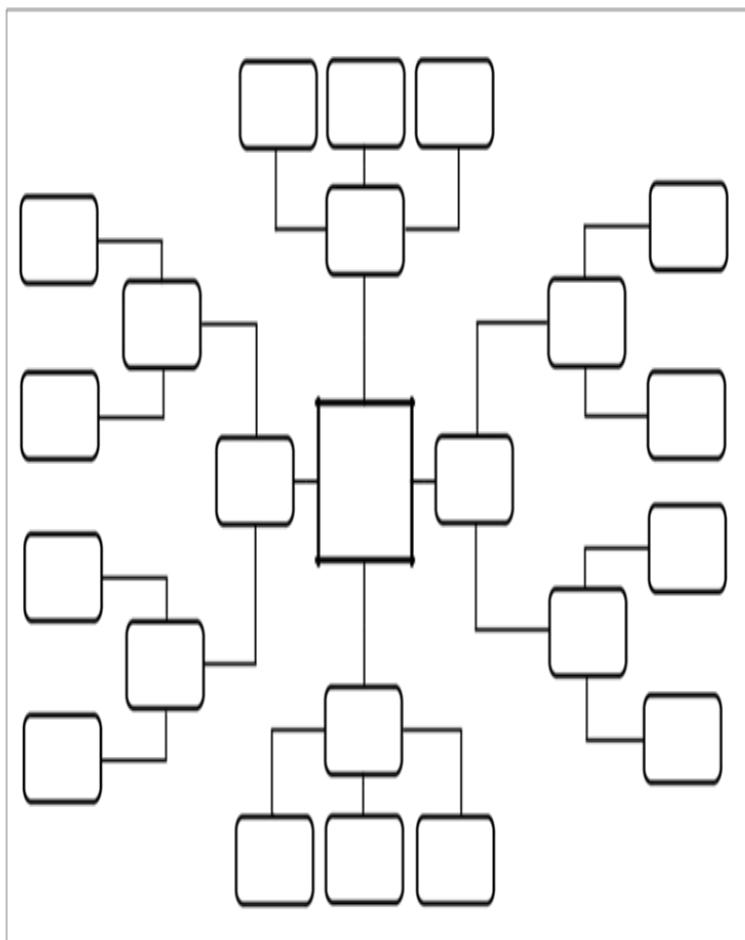
Print the "#Black&White" (without quotes), if the photo is black-and-white and "#Color" (without quotes), if it is colored, in the only line.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        String column=input.nextLine();
        int sum=0;
        int neg=0;
        String []arr=new String[number];

        for(int i=0;i<number;i++){
            String word= input.nextLine();

            arr[i]=word;
        }
        if(number==2&&arr[1].charAt(0)=='Y'||arr[0].charAt(0)=='Y') {
            neg=neg+1;
        }
        if(number==2&&arr[1].charAt(0)=='C') {
            neg=neg+1;
        }

        for (int k=0;k<number;k++) {
            String ch=arr[k];
            if(ch.indexOf('C')>0||ch.indexOf('M')>0||ch.indexOf('Y')>0) {
                sum=sum+1;
                break;
            }
        }
        if(neg>0){
            System.out.println("#Color");
        }else if(arr[0].charAt(0)=='C') {
            System.out.println("#Color");
        }else if(arr[0].charAt(0)=='M'){
            System.out.println("#Color");
        }else if(sum>0){
            System.out.println("#Color");
        }else{
            System.out.println("#Black&White");
        }
    }
}
```

40-1454A-Special Permutation:

You are given one integer n ($n > 1$). Recall that a permutation of length n is an array consisting of n distinct integers from 1 to n in arbitrary order. For example, [2,3,1,5,4] is a permutation of length 5, but [1,2,2] is not a permutation (2 appears twice in the array) and [1,3,4] is also not a permutation ($n=3$ but there is 4 in the array). Your task is to find a permutation p of length n that there is no index i ($1 \leq i \leq n$) such that $p_i = i$ (so, for all i from 1 to n the condition $p_i \neq i$ should be satisfied). You have to answer t independent test cases. If there are several answers, you can print any. It can be proven that the answer exists for each $n > 1$.

Input

The first line of the input contains one integer t ($1 \leq t \leq 100$) — the number of test cases. Then t test cases follow. The only line of the test case contains one integer n ($2 \leq n \leq 100$) — the length of the permutation you have to find.

Output

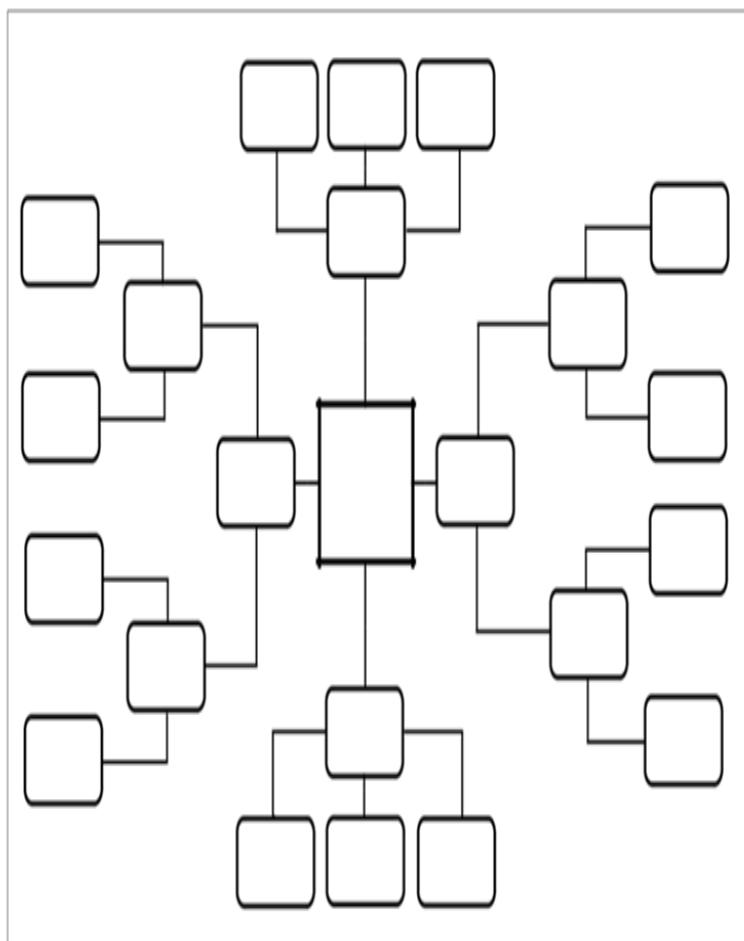
For each test case, print n distinct integers p_1, p_2, \dots, p_n — a permutation that there is no index i ($1 \leq i \leq n$) such that $p_i = i$ (so, for all i from 1 to n the condition $p_i \neq i$ should be satisfied). If there are several answers, you can print any. It can be proven that the answer exists for each $n > 1$.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

BOOK TITLE

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        int pos=0;
        boolean even=false;

        for(int i=0;i<number;i++){
            int numbers= input.nextInt();
            if (numbers%2==0){
                numbers=numbers+1;
                even=true;
            }

            int [] arr=new int[numbers];
            if (numbers%2==0){

            }

            for (int j=1;j<=numbers;j++){
                //System.out.println(Arrays.toString(arr));
                if (j==numbers){
                    continue;
                }
                if (j%2==0){
                    arr[j-2]=j;
                    pos=pos+1;
                }else{
                    arr[j]=j;
                }
            }
            //System.out.println(Arrays.toString(arr));

            if (numbers%2!=0){
                arr[numbers-1]=numbers;
            }
            //else {
            //    arr[0]=numbers;
            //}

            int hi=arr[numbers-1];
            int bye=arr[numbers-2];

            arr[numbers-1]=bye;
            arr[numbers-2]=hi;
            for (int k=0;k<arr.length;k++){
                if (even && arr[k]==numbers-1){
                    even=false;
                    continue;
                }
                System.out.print(arr[k]+" ");
                if (arr[k]==numbers-2 && numbers%2!=0){
                    System.out.println(" ");
                }
            }
        }
    }
}
```

41-630A-Again Twenty Five! :

The HR manager was disappointed again. The last applicant failed the interview the same way as 24 previous ones. "Do I give such a hard task?" — the HR manager thought. "Just raise number 5 to the power of n and get last two digits of the number. Yes, of course, n can be rather big, and one cannot find the power using a calculator, but we need people who are able to think, not just follow the instructions."

Could you pass the interview in the machine vision company in IT City?

Input

The only line of the input contains a single integer n ($2 \leq n \leq 2 \cdot 10^{18}$) — the power in which you need to raise number 5.

Output

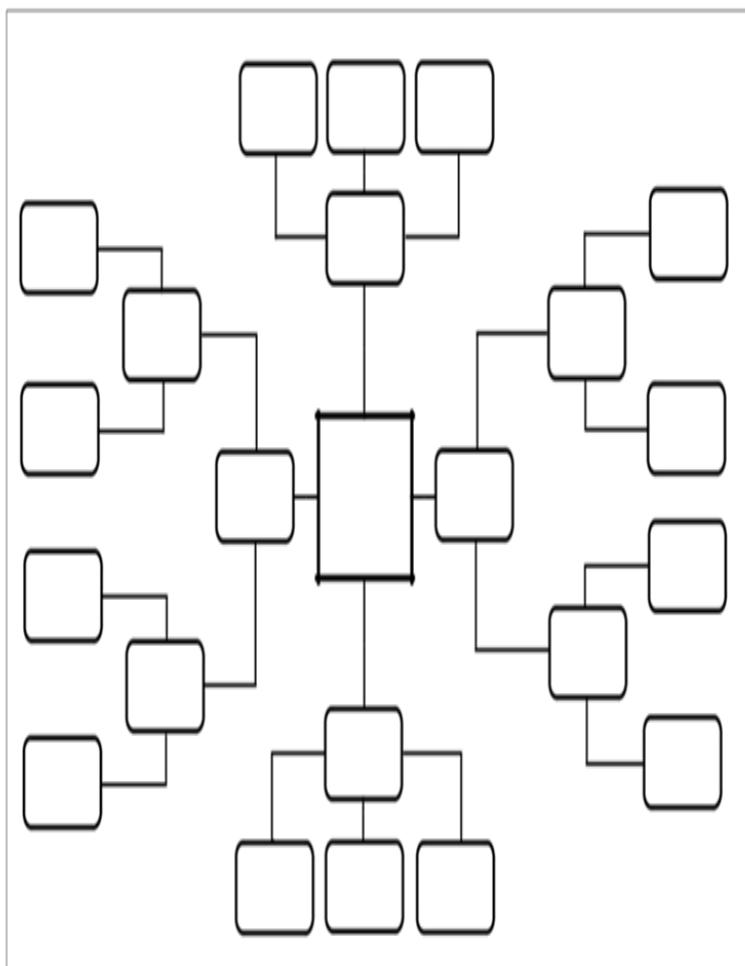
Output the last two digits of 5^n without spaces between them.

BOOK TITLE

How difficult was that?

How much did it take? _____ : _____

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        long number= input.nextLong();
        System.out.println("25");
    }
}
```

42-935A_ Fafa and his Company:

Fafa owns a company that works on huge projects. There are n employees in Fafa's company. Whenever the company has a new project to start working on, Fafa has to divide the tasks of this project among all the employees.

Fafa finds doing this every time is very tiring for him. So, he decided to choose the best l employees in his company as team leaders. Whenever there is a new project, Fafa will divide the tasks among only the team leaders and each team leader will be responsible of some positive number of employees to give them the tasks. To make this process fair for the team leaders, each one of them should be responsible for the same number of employees. Moreover, every employee, who is not a team leader, has to be under the responsibility of exactly one team leader, and no team leader is responsible for another team leader.

Given the number of employees n , find in how many ways Fafa could choose the number of team leaders l in such a way that it is possible to divide employees between them evenly.

Input

The input consists of a single line containing a positive integer n ($2 \leq n \leq 10^5$) — the number of employees in Fafa's company.

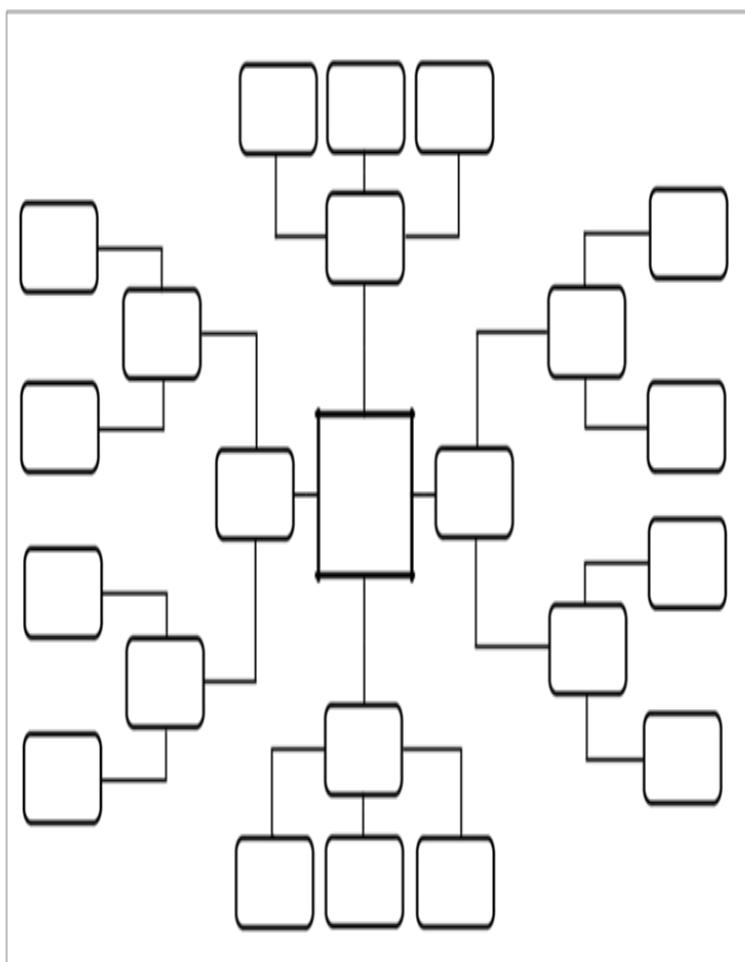
Output

Print a single integer representing the answer to the problem.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        int sum=0;

        for (int i=1;i<number;i++) {
            if (number%i==0 ) {
                sum+=1;
            }
        }

        System.out.println(sum);
    }
}
```

43-1283A- Minutes Before the New Year:

New Year is coming and you are excited to know how many minutes remain before the New Year. You know that currently the clock shows h hours and m minutes, where $0 \leq hh < 24$ and $0 \leq mm < 60$. We use 24-hour time format!

Your task is to find the number of minutes before the New Year. You know that New Year comes when the clock shows 0 hours and 0 minutes. You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 1439$) — the number of test cases. The following t lines describe test cases. The i -th line contains the time as two integers h and m ($0 \leq h < 24$, $0 \leq m < 60$). It is guaranteed that this time is not a midnight, i.e. the following two conditions can't be met at the same time: $h=0$ and $m=0$. It is guaranteed that both h and m are given without leading zeros.

Output

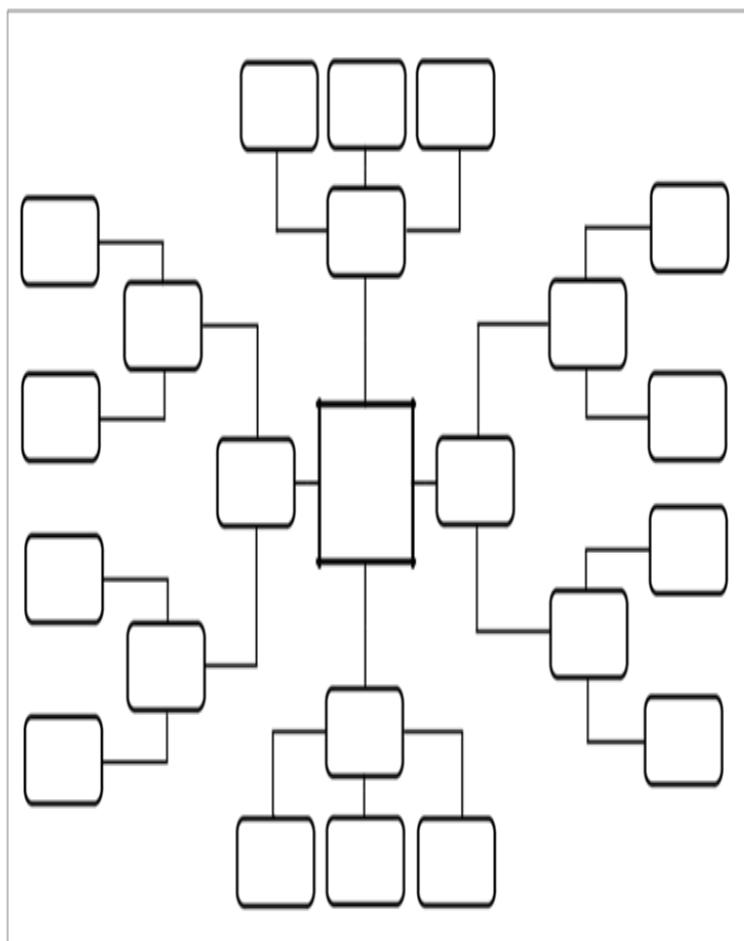
BOOK TITLE

For each test case, print the answer on it — the number of minutes before the New Year.

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int chour=24;
        int cmin=60;
        int hourtomin=0;
        int result=0;

        for(int i=0;i<number;i++) {
            int hour=input.nextInt();
            int minute=input.nextInt();

            hourtomin=(24-(hour+1))*60;

            result=cmin-minute+hourtomin;
            System.out.println(result);
        }

    }
}
```

44-1426A_Floor Number:

Vasya goes to visit his classmate Petya. Vasya knows that Petya's apartment number is n . There is only one entrance in Petya's house and the distribution of apartments is the following: the first floor contains 2 apartments, every other floor contains x apartments each. Apartments are numbered starting from one, from the first floor. I.e. apartments on the first floor have numbers 1 and 2, apartments on the second floor have numbers from 3 to $(x+2)$, apartments on the third floor have numbers from $(x+3)$ to $(2 \cdot x + 2)$, and so on.

Your task is to find the number of floor on which Petya lives. Assume that the house is always high enough to fit at least n apartments. You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 1000$) — the number of test cases. Then t test cases follow. The only line of the test case contains two integers n and x ($1 \leq n, x \leq 1000$) — the number of Petya's apartment and the number of apartments on each floor of the house except the first one (there are two apartments on the first floor).

Output

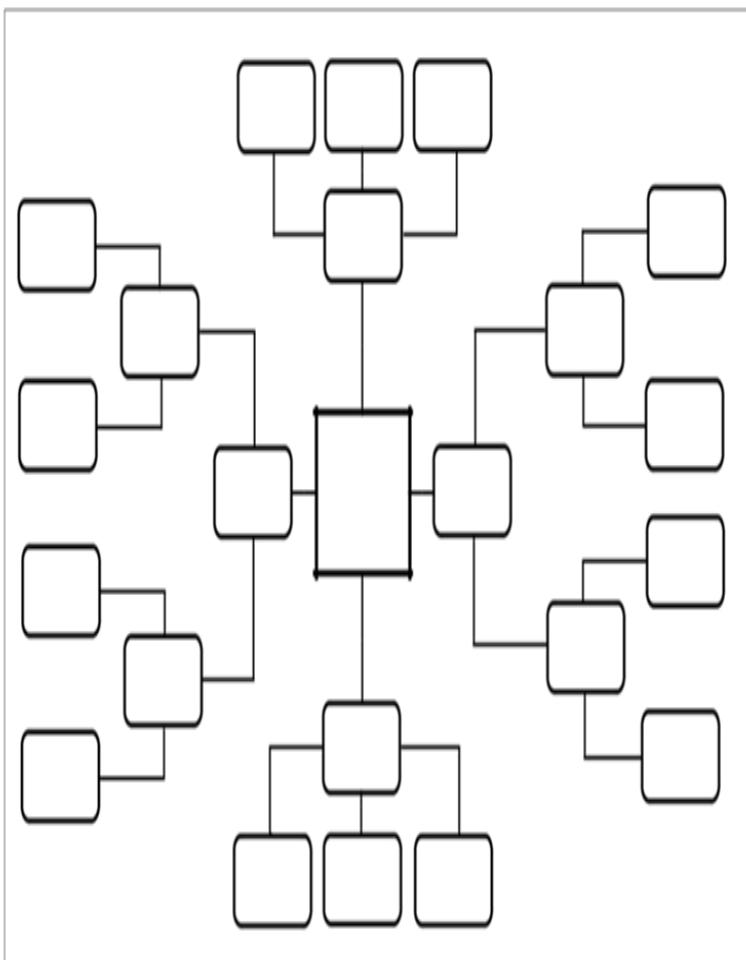
For each test case, print the answer: the number of floor on which Petya lives.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();

        for (int i = 0; i < number; i++) {
            int n = input.nextInt();
            int x = input.nextInt();
            if (n==1 || n==2){
                System.out.println("1");
            }else {
                System.out.println(Math.abs((n - 3) / x) + 2);
            }
        }
    }
}
```

45-1325A- EhAb AnD gCd:

You are given a positive integer x . Find any such 2 positive integers a and b such that $GCD(a,b)+LCM(a,b)=x$. As a reminder, $GCD(a,b)$ is the greatest integer that divides both a and b . Similarly, $LCM(a,b)$ is the smallest integer such that both a and b divide it. It's guaranteed that the solution always exists. If there are several such pairs (a,b) , you can output any of them.

Input

The first line contains a single integer t ($1 \leq t \leq 100$) — the number of testcases. Each testcase consists of one line containing a single integer, x ($2 \leq x \leq 109$).

Output

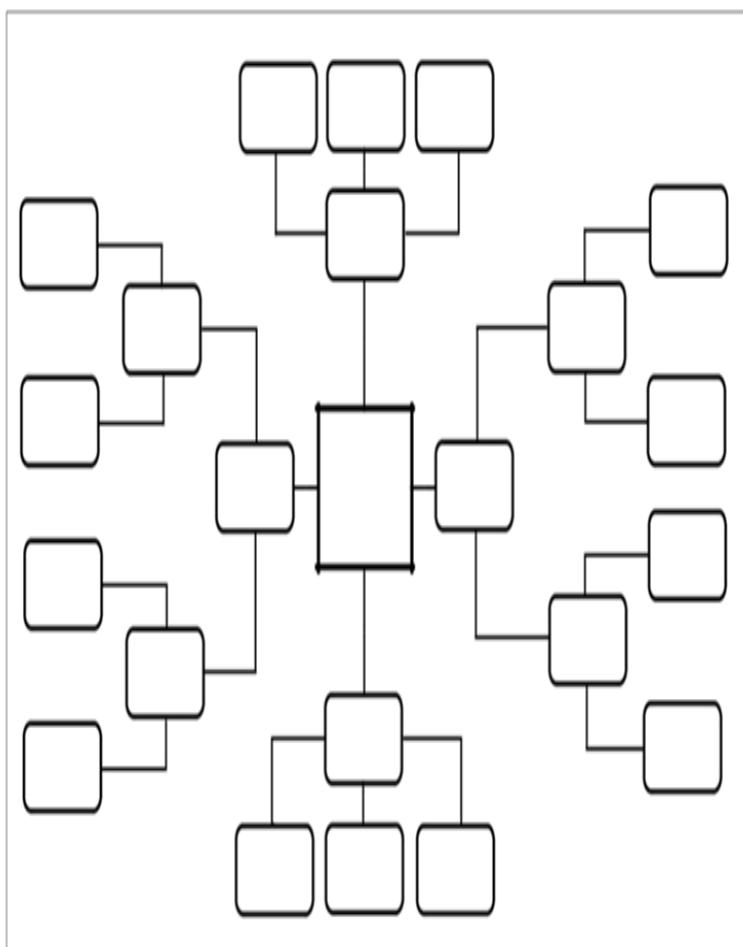
For each testcase, output a pair of positive integers a and b ($1 \leq a, b \leq 109$) such that $GCD(a,b)+LCM(a,b)=x$. It's guaranteed that the solution always exists. If there are several such pairs (a,b) , you can output any of them.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        for (int i=0;i<number;i++){
            int x= input.nextInt();
            System.out.println("1 "+(x-1));
        }
    }
}
```

46-1389A - LCM Problem:

Let $LCM(x,y)$ be the minimum positive integer that is divisible by both x and y . For example, $LCM(13,37)=481$, $LCM(9,6)=18$.

You are given two integers l and r . Find two integers x and y such that $l \leq x < y \leq r$ and $l \leq LCM(x,y) \leq r$.

Input

The first line contains one integer t ($1 \leq t \leq 10000$) — the number of test cases.

Each test case is represented by one line containing two integers l and r ($1 \leq l < r \leq 109$).

Output

For each test case, print two integers:

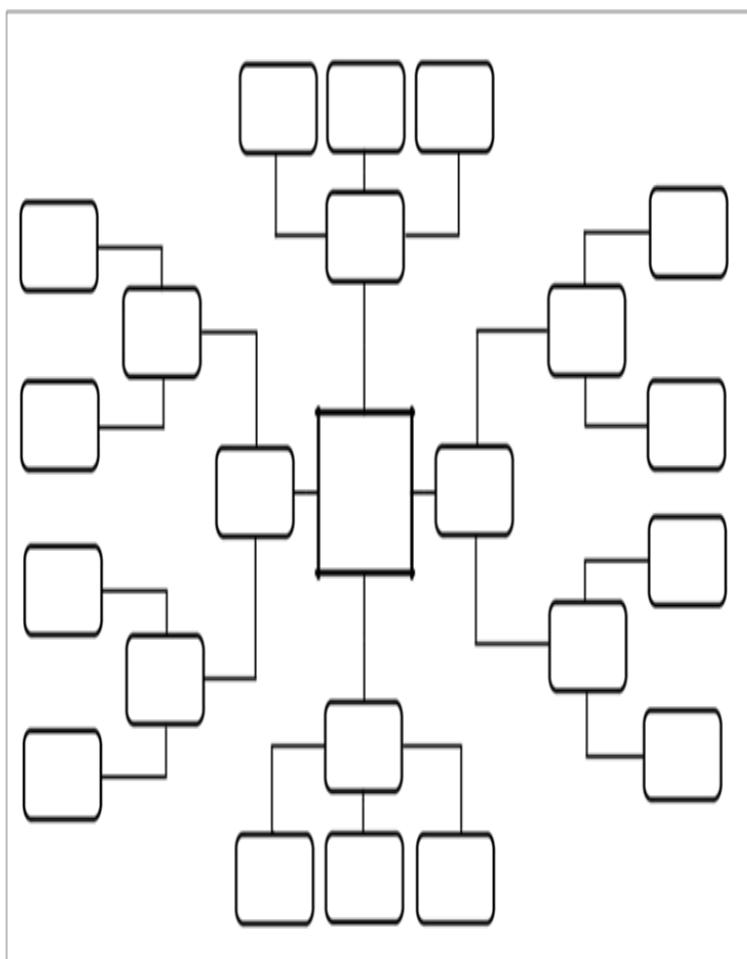
- if it is impossible to find integers x and y meeting the constraints in the statement, print two integers equal to -1 ;
- otherwise, print the values of x and y (if there are multiple valid answers, you may print any of them).

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer:

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int sum = 0;

        for (int i = 0; i < number; i++) {
            sum = 0;
            int numbers1 = input.nextInt();
            int numbers2 = input.nextInt();

            if (2 * numbers1 > numbers2) {
                System.out.println("-1 -1");

            } else {
                System.out.println(numbers1 + " " + numbers1 * 2);
            }
        }
    }
}
```

47-1186A - Vus the Cossack and a Contest:

Vus the **Cossack** holds a programming competition, in which n people participate. He decided to award them all with pens and notebooks. It is known that Vus has exactly m pens and k notebooks.

Determine whether the Cossack can reward all participants, giving each of them at least one pen and at least one notebook.

Input

The first line contains three integers n , m , and k ($1 \leq n, m, k \leq 100$) — the number of participants, the number of pens, and the number of notebooks respectively.

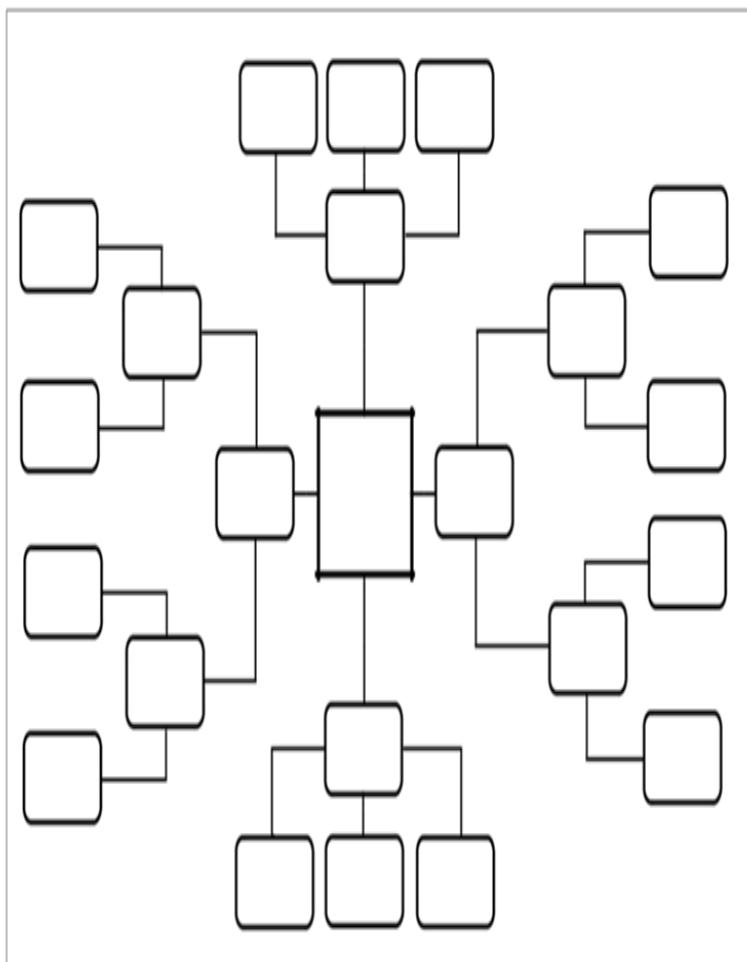
Output

Print "Yes" if it possible to reward all the participants. Otherwise, print "No". You can print each letter in any case (upper or lower).

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number1= input.nextInt();
        int number2= input.nextInt();
        int number3 = input.nextInt();

        if(number1>number2||number1>number3){
            System.out.println("NO");
        }else {
            System.out.println("YES");
        }
    }
}
```

48-32B-Borze:

Ternary numeric notation is quite popular in Berland. To telegraph the ternary number the Borze alphabet is used. Digit 0 is transmitted as «.», 1 as «-.» and 2 as «--». You are to decode the Borze code, i.e. to find out the ternary number given its representation in Borze alphabet.

Input

The first line contains a number in Borze code. The length of the string is between 1 and 200 characters. It's guaranteed that the given string is a valid Borze code of some ternary number (this number can have leading zeroes).

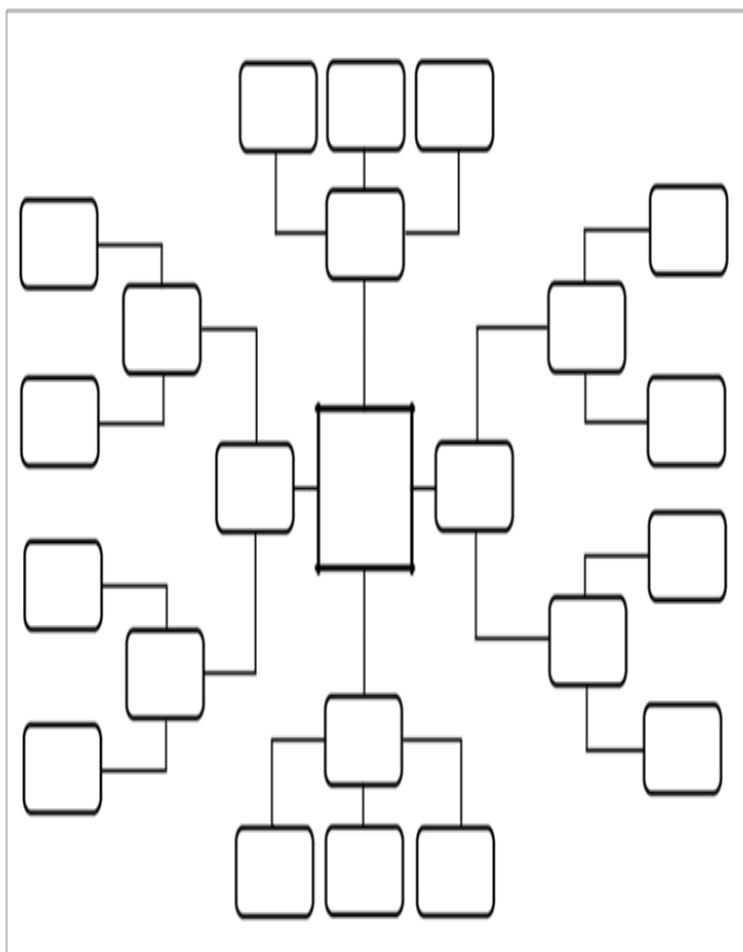
Output

Output the decoded ternary number. It can have leading zeroes.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        String borz= input.nextLine();

        for (int i=0;i<borz.length();i++) {

            if (borz.charAt(i)=='-'&&borz.charAt(i+1)=='.') {
                System.out.print("1");
                i=i+1;
            }else if(borz.charAt(i)=='-'&&borz.charAt(i+1)=='-') {
                System.out.print("2");
                i=i+1;
            }else {
                System.out.print("0");
            }
        }

    }
}
```

49-540A - Combination Lock:

Scrooge McDuck keeps his most treasured savings in a home safe with a combination lock. Each time he wants to put there the treasures that he's earned fair and square, he has to open the lock.



The combination lock is represented by n rotating disks with digits from 0 to 9 written on them. Scrooge McDuck has to turn some disks so that the combination of digits on the disks forms a secret combination. In one move, he can rotate one disk one digit forwards or backwards. In particular, in one move he can go from digit 0 to digit 9 and vice versa. What minimum number of actions does he need for that?

Input

The first line contains a single integer n ($1 \leq n \leq 1000$) — the number of disks on the combination lock.

The second line contains a string of n digits — the original state of the disks.

The third line contains a string of n digits — Scrooge McDuck's combination that opens the lock.

Output

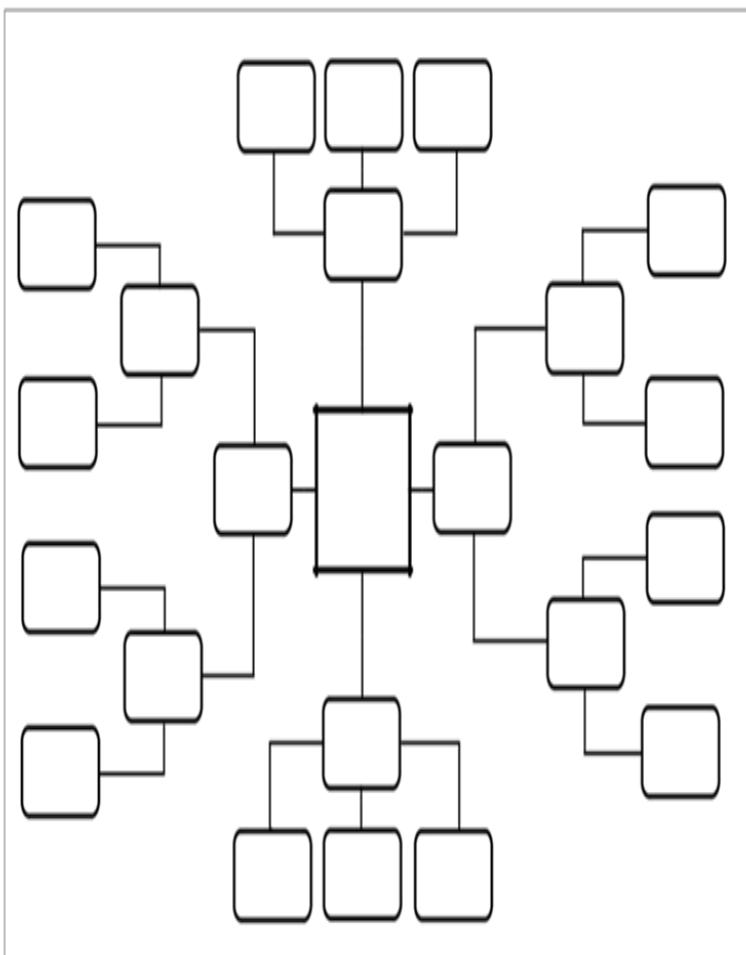
Print a single integer — the minimum number of moves Scrooge McDuck needs to open the lock.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        String number1 = input.nextLine();
        int number = Integer.parseInt(number1);
        String digit = input.nextLine();
        String pass = input.nextLine();
        int total =0;

        for (int i=0;i<number;i++) {
            int di=digit.charAt(i);
            int pa=pass.charAt(i);

            if (Math.abs(di-pa)<5) {
                total=total+Math.abs(di-pa);
            }else {
                if (di>pa){
                    total=total+Math.abs(pa+(9-di)+1);
                }else {
                    total=total+Math.abs(di+(9-pa)+1);
                }
            }
        }

        System.out.println(total);
    }
}
```

50-978B - File Name:

You can not just take the file and send it. When Polycarp trying to send a file in the social network "Codehorses", he encountered an unexpected problem. If the name of the file contains three or more "x" (lowercase Latin letters "x") in a row, the system considers that the file content does not correspond to the social network topic. In this case, the file is not sent and an error message is displayed.

Determine the minimum number of characters to remove from the file name so after that the name does not contain "xxx" as a substring. Print 0 if the file name does not initially contain a forbidden substring "xxx".

You can delete characters in arbitrary positions (not necessarily consecutive). If you delete a character, then the length of a string is reduced by 1. For example, if you delete the character in the position 2 from the string "exxxii", then the resulting string is "exxi".

Input

The first line contains integer n ($3 \leq n \leq 100$) — the length of the file name. The second line contains a string of length n consisting of lowercase Latin letters only — the file name.

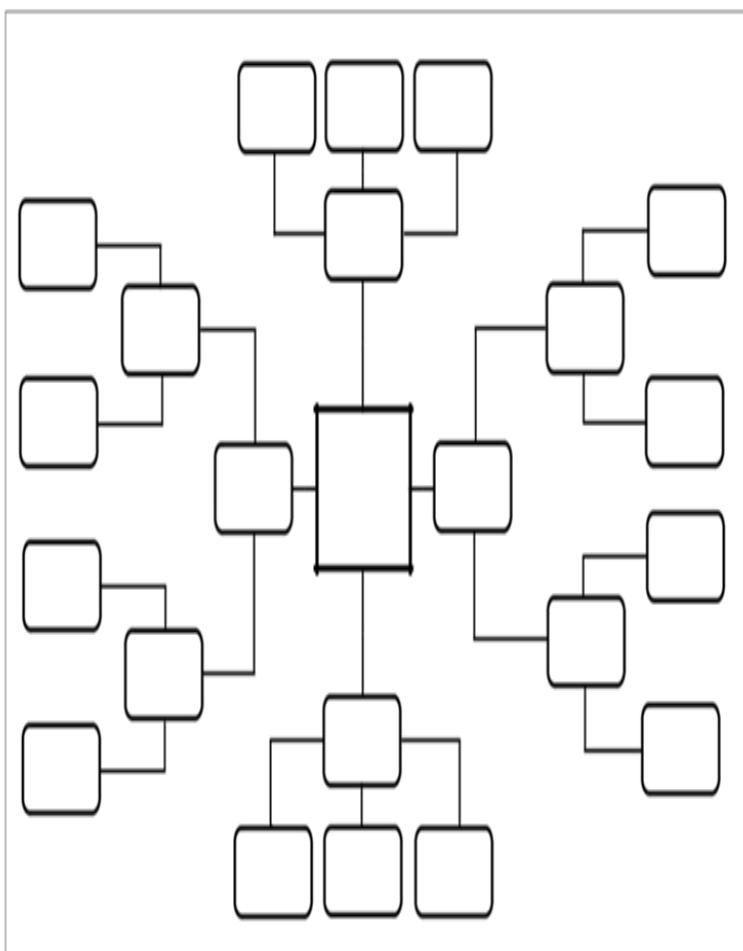
Output

Print the minimum number of characters to remove from the file name so after that the name does not contain "xxx" as a substring. If initially the file name does not contain a forbidden substring "xxx", print 0.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        String nu = input.nextLine();
        int number = Integer.parseInt(nu);
        int sum=0;
        int total=0;

        String word1 = input.nextLine();
        String word = word1+'0';
        if (word.contains("xxx")) {

            for (int i=0;i<number+1;i++) {
                if (word.charAt(i)=='x'){
                    sum=sum+1;
                }
                if (word.charAt(i) !='x') {
                    if (sum>=3){
                        total=total+sum-2;
                    }
                    sum=0;
                }
            }
            System.out.println(total);
        }else {
            System.out.println("0");
        }
    }
}
```

51-734B - Anton and Digits:

Recently Anton found a box with digits in his room. There are k_2 digits 2, k_3 digits 3, k_5 digits 5 and k_6 digits 6.

Anton's favorite integers are 32 and 256. He decided to compose these integers from digits he has. He wants to make the sum of these integers as large as possible. Help him solve this task!

Each digit can be used no more than once, i.e. the composed integers should contain no more than k_2 digits 2, k_3 digits 3 and so on. Of course, unused digits are not counted in the sum.

Input

The only line of the input contains four integers k_2, k_3, k_5 and k_6 — the number of digits 2, 3, 5 and 6 respectively ($0 \leq k_2, k_3, k_5, k_6 \leq 5 \cdot 10^6$).

Output

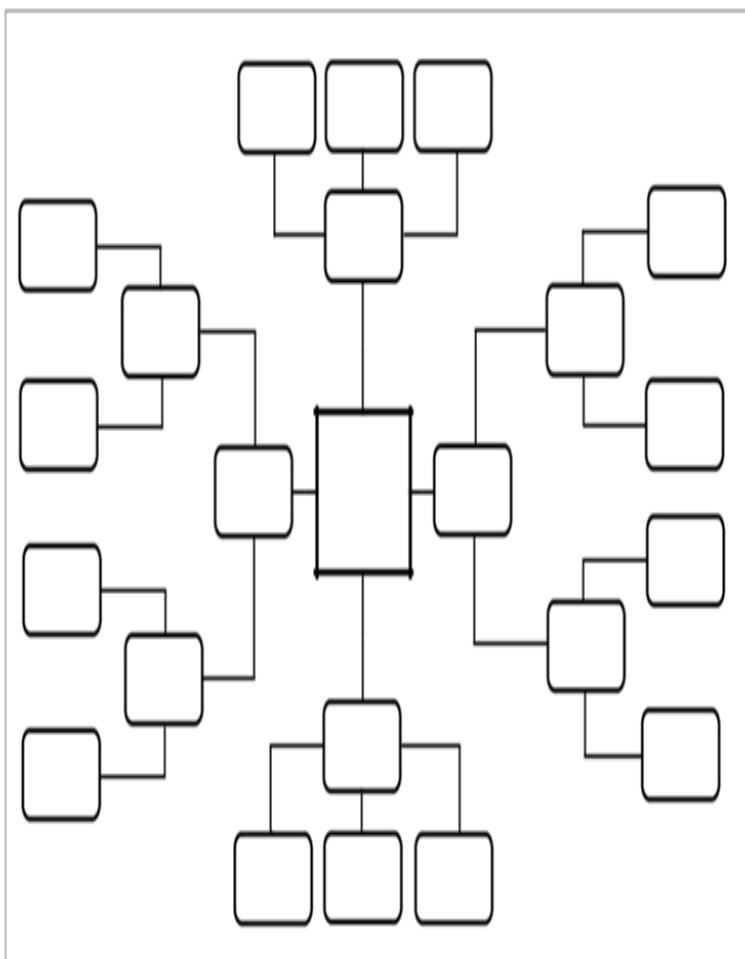
Print one integer — maximum possible sum of Anton's favorite integers that can be composed using digits from the box.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int k2= input.nextInt();
        int k3= input.nextInt();
        int k5= input.nextInt();
        int k6= input.nextInt();
        int sum1=0;
        int sum2=0;
        int sum=0;

        int []a256=new int[3];
        int []a32=new int[2];
        a256[0]=k2;
        a256[1]=k5;
        a256[2]=k6;

        Arrays.sort(a256);
        sum1=a256[0]*256;
        //System.out.println(sum1);

        a32[0]=k2-a256[0];
        a32[1]=k3;
        Arrays.sort(a32);
        sum2=(a32[0])*32;
        //System.out.println(sum2);
        sum=sum1+sum2;
        System.out.println(sum);

    }
}
```

52-599A - Patrick and Shopping:

Today Patrick waits for a visit from his friend Spongebob. To prepare for the visit, Patrick needs to buy some goodies in two stores located near his house. There is a d_1 meter long road between his house and the first shop and a d_2 meter long road between his house and the second shop. Also, there is a road of length d_3 directly connecting these two shops to each other. Help Patrick calculate the minimum distance that he needs to walk in order to go to both shops and return to his house.



Patrick always starts at his house. He should visit both shops moving only along the three existing roads and return back to his house. He doesn't mind visiting the same shop or passing the same road multiple times. The only goal is to minimize the total distance traveled.

Input

The first line of the input contains three integers d_1 , d_2 , d_3 ($1 \leq d_1, d_2, d_3 \leq 10^8$) — the lengths of the paths.

- d_1 is the length of the path connecting Patrick's house and the first shop;

- d_2 is the length of the path connecting Patrick's house and the second shop;
- d_3 is the length of the path connecting both shops.

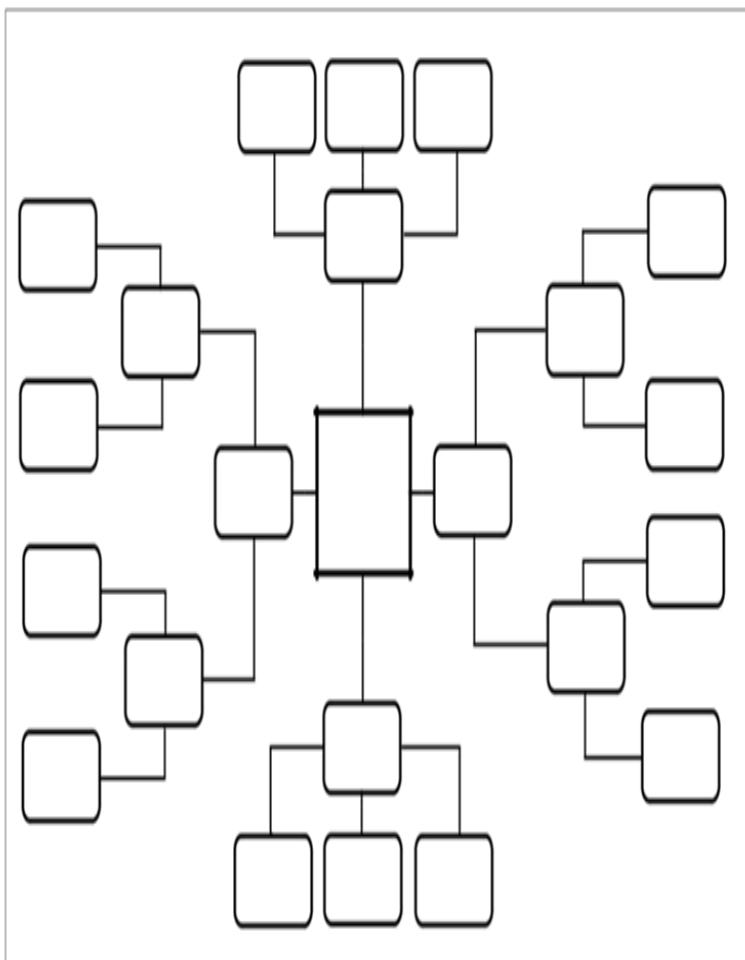
Output

Print the minimum distance that Patrick will have to walk in order to visit both shops and return to his house.

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

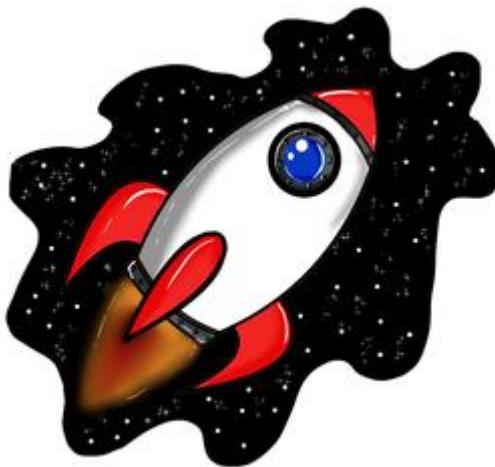
        Scanner input=new Scanner(System.in);
        int d1= input.nextInt();
        int d2= input.nextInt();
        int d3= input.nextInt();

        int way1=2*d1+2*d2;
        int way2=d1+d2+d3;
        int way3=d1+d3+d3+d1;
        int way4=2*d2+2*d3;

        int []arr=new int[]{way1,way2,way3,way4};
        Arrays.sort(arr);
        System.out.println(arr[0]);
    }
}
```

53-1481A-Space Navigation:

You were dreaming that you are traveling to a planet named Planetforces on your personal spaceship. Unfortunately, its piloting system was corrupted and now you need to fix it in order to reach Planetforces.



Space can be represented as the XY plane. You are starting at point $(0,0)$, and Planetforces is located in point (px,py) .

The piloting system of your spaceship follows its list of orders which can be represented as a string s . The system reads s from left to right. Suppose you are at point (x,y) and current order is s_i :

- if $s_i=U$, you move to $(x,y+1)$;
- if $s_i=D$, you move to $(x,y-1)$;
- if $s_i=R$, you move to $(x+1,y)$;
- if $s_i=L$, you move to $(x-1,y)$.

Since string s could be corrupted, there is a possibility that you won't reach Planetforces in the end. Fortunately, you can delete some orders from s but you can't change their positions.

Can you delete several orders (possibly, zero) from s in such a way, that you'll reach Planetforces after the system processes all orders?

Input

The first line contains a single integer t ($1 \leq t \leq 1000$) — the number of test cases.

Each test case consists of two lines. The first line in each test case contains two integers px

and py ($-105 \leq px, py \leq 105$; $(px, py) \neq (0, 0)$) — the coordinates of Planetforces (px, py) .

The second line contains the string s ($1 \leq |s| \leq 105$: $|s|$ is the length of string s) — the list of orders. It is guaranteed that the sum of $|s|$ over all test cases does not exceed 105.

Output

For each test case, print "YES" if you can delete several orders (possibly, zero) from s in such a way, that you'll reach Planetforces.

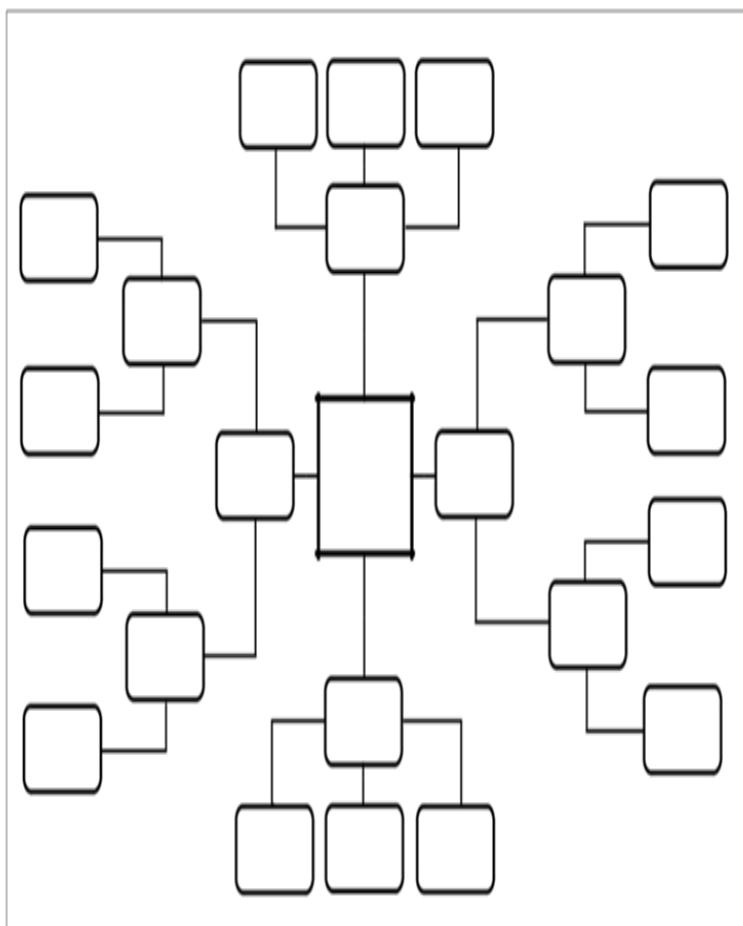
BOOK TITLE

Otherwise, print "NO". You can print each letter in any case (upper or lower).

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer:

```
t = int(input())
for _ in range(t):
    px, py = [int(i) for i in input().split()]
    s = input()
    orderDict = {"U": 0, "D": 0, "R": 0, "L": 0}
    for i in s:
        orderDict[i] += 1
    if 0 <= px <= orderDict["R"] and 0 <= py <= orderDict["U"]:
        print("YES")
    elif 0 <= px <= orderDict["R"] and -1*orderDict["D"] <= py <= orderDict["U"]:
        print("YES")
    elif -1*orderDict["L"] <= px <= 0 and 0 <= py <= orderDict["D"]:
        print("YES")
    elif -1*orderDict["L"] <= px <= 0 and -1*orderDict["D"] <= py <= orderDict["U"]:
        print("YES")
    else:
        print("NO")
```

54-686A-Free Ice Cream:

After their adventure with the magic mirror Kay and Gerda have returned home and sometimes give free ice cream to kids in the summer.

At the start of the day they have x ice cream packs. Since the ice cream is free, people start standing in the queue before Kay and Gerda's house even in the night. Each person in the queue wants either to take several ice cream packs for himself and his friends or to give several ice cream packs to Kay and Gerda (carriers that bring ice cream have to stand in the same queue).

If a carrier with d ice cream packs comes to the house, then Kay and Gerda take all his packs. If a child who wants to take d ice cream packs comes to the house, then Kay and Gerda will give him d packs if they have enough ice cream, otherwise the child will get no ice cream at all and will leave in distress.

Kay wants to find the amount of ice cream they will have after all people will leave from the queue, and Gerda wants to find the number of distressed kids.

Input

The first line contains two space-separated integers n and x ($1 \leq n \leq 1000$, $0 \leq x \leq 10^9$).

Each of the next n lines contains a character '+' or '-', and an integer

d_i , separated by a space ($1 \leq d_i \leq 10^9$). Record "+ d_i " in i -th line means that a carrier with d_i ice cream packs occupies i -th place from the start of the queue, and record "- d_i " means that a child who wants to take d_i packs stands in i -th place.

Output

Print two space-separated integers — number of ice cream packs left after all operations, and number of kids that left the house in distress.

Answer(python):

```
import sys

def main():
    n, pack = map(int, sys.stdin.readline().split())
    sad = 0

    for i in range(n):
        sign, numbers = sys.stdin.readline().split()
        numbers = int(numbers)
        if sign == "-" and numbers > pack:
            sad=sad+1
        elif sign=="-" and numbers<=pack:
            pack=pack-numbers
        elif sign=="+":
            pack=pack+numbers

    sys.stdout.write(str(pack) + " " + str(sad))

main()
```

55-1519B-The Cake Is a Lie:

There is a $n \times m$ grid. You are standing at cell $(1,1)$ and your goal is to finish at cell (n,m) . You can move to the neighboring cells to the right or down. In other words, suppose you are standing at cell (x,y) . You can:

- move right to the cell $(x,y+1)$ — it costs x burles;
- move down to the cell $(x+1,y)$ — it costs y burles.

Can you reach cell (n,m) spending exactly k burles?

Input

The first line contains the single integer t ($1 \leq t \leq 100$) — the number of test cases. The first and only line of each test case contains three integers n , m , and k ($1 \leq n, m \leq 100$; $0 \leq k \leq 104$) — the sizes of grid and the exact amount of money you need to spend.

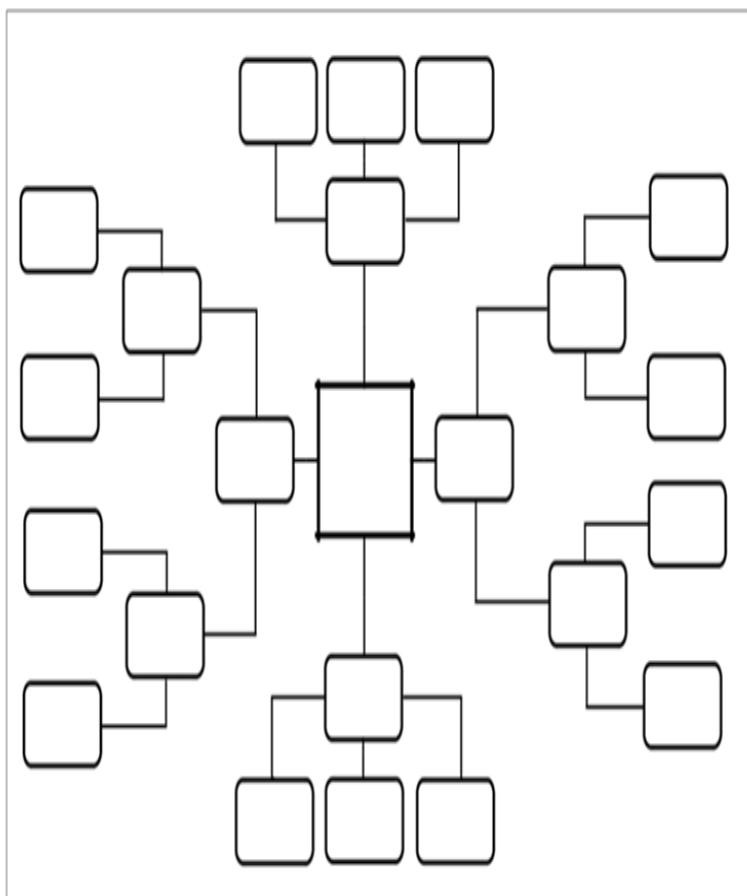
Output

For each test case, if you can reach cell (n,m) spending exactly k burles, print YES. Otherwise, print NO. You may print every letter in any case you want (so, for example, the strings yEs, yes, Yes and YES are all recognized as positive answer).

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

BOOK TITLE

Answer:

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();

        for (int i = 0; i < number; i++) {
            int x = input.nextInt();
            int y = input.nextInt();
            int k = input.nextInt();

            if (x*y-1==k) {
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }

        }
    }
}
```

56-1541A - Pretty Permutations:

There are n cats in a line, labeled from 1 to n , with the i -th cat at position i . They are bored of gyrating in the same spot all day, so they want to reorder themselves such that no cat is in the same place as before. They are also lazy, so they want to minimize the total distance they move. Help them decide what cat should be at each location after the reordering.

For example, if there are 3 cats, this is a valid reordering: [3,1,2]. No cat is in its original position. The total distance the cats move is $1+1+2=4$ as cat 1 moves one place to the right, cat 2 moves one place to the right, and cat 3 moves two places to the left.

Input

The first line contains a single integer t ($1 \leq t \leq 100$) — the number of test cases. Then t test cases follow.

The first and only line of each test case contains one integer n ($2 \leq n \leq 100$) — the number of cats.

It can be proven that under the constraints of the problem, an answer always exist.

Output

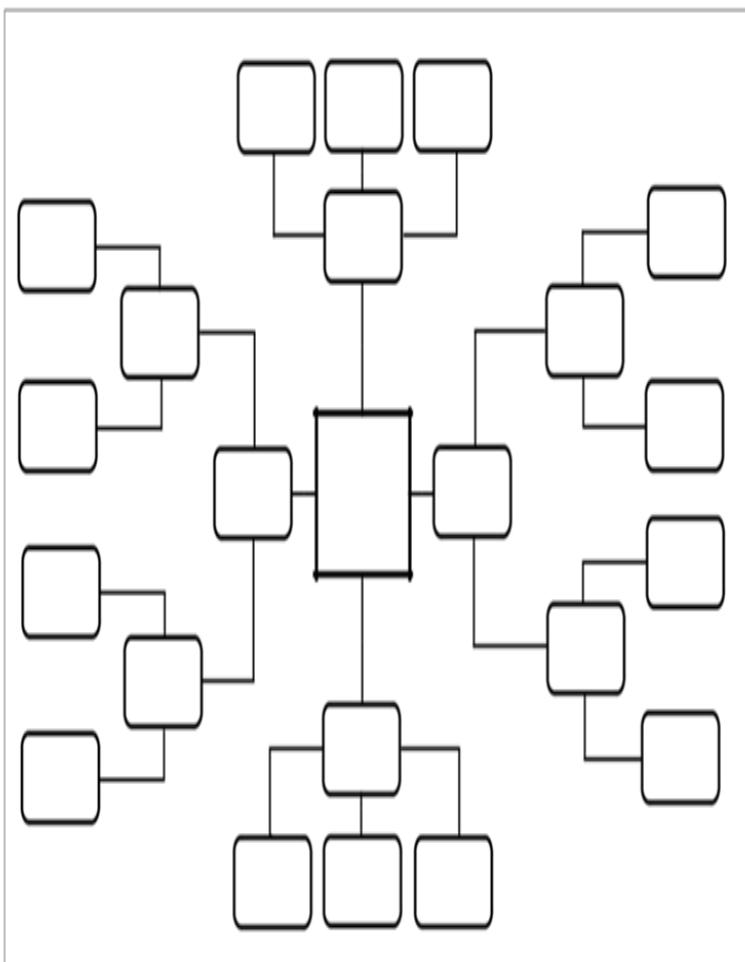
Output t answers, one for each test case. Each answer consists of n integers — a permutation with the minimum total distance. If there are multiple answers, print any.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```

import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number=input.nextInt();

        for (int i=0;i<number;i++) {
            int numbers= input.nextInt();
            int []arr=new int[numbers];
            int []arr1=new int[numbers];
            int []arr2=new int[numbers];
            int []arr3=new int[numbers];
            for (int j=0;j<numbers;j++) {
                arr[j]=j+1;
            }
            arr1=arr;
            arr2=arr;
            arr3=arr2;
            int original=arr1[numbers-1];

            // System.out.println(Arrays.toString(arr));
            for (int m=0;m<numbers;m++) {
                if (m+1==numbers) {
                    continue;
                }
                int test=arr1[m];

                arr[m]=arr2[m+1];
                arr[m+1]=test;
                m=m+1;

            }
            if (numbers%2==1){
                arr[numbers-1]=arr[numbers-2];
                arr[numbers-2]=original;

            }
            for (int l=0;l<numbers;l++) {
                System.out.print(arr[l] + " ");
            }
            System.out.println(" ");
        }
    }
}

```

57-282A - Bit++:

The classic programming language of Bitland is Bit++. This language is so peculiar and complicated.

The language is that peculiar as it has exactly one variable, called x . Also, there are two operations:

- Operation $++$ increases the value of variable x by 1.
- Operation $--$ decreases the value of variable x by 1.

A statement in language Bit++ is a sequence, consisting of exactly one operation and one variable x . The statement is written without spaces, that is, it can only contain characters " $+$ ", " $-$ ", " X ". Executing a statement means applying the operation it contains.

A programme in Bit++ is a sequence of statements, each of them needs to be executed. Executing a programme means executing all the statements it contains.

You're given a programme in language Bit++. The initial value of x is 0. Execute the programme and find its final value (the value of the variable when this programme is executed).

Input

The first line contains a single integer n ($1 \leq n \leq 150$) — the number of statements in the programme.

Next n lines contain a statement each. Each statement contains exactly one operation ($++$ or $--$) and exactly one variable x (denoted as letter « X »). Thus, there are no empty statements. The operation and the variable can be written in any order.

Output

Print a single integer — the final value of x .

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        String wo = input.nextLine();
        int number=Integer.parseInt(wo);
        int result=0;
        for (int i=0;i<number;i++){
            String word= input.nextLine();
            if (word.charAt(word.length()-1)=='+' || word.charAt(0)=='+') {
                result=result+1;
            } else if (word.charAt(0)=='-' || word.charAt(word.length()-1)=='-') {
                result=result-1;
            }
        }
        System.out.println(result);
    }
}
```

58-1537A-Arithmetic Array:

An array b of length k is called good if its arithmetic mean is equal to 1. More formally, if $b_1 + \dots + b_k = k$.

Note that the value $b_1 + \dots + b_k$ is not rounded up or down. For example, the array [1,1,1,2] has an arithmetic mean of 1.25, which is not equal to 1. You are given an integer array a of length n . In an operation, you can append a non-negative integer to the end of the array. What's the minimum number of operations required to make the array good?

We have a proof that it is always possible with finitely many operations.

Input

The first line contains a single integer t ($1 \leq t \leq 1000$) — the number of test cases. Then t test cases follow.

The first line of each test case contains a single integer n ($1 \leq n \leq 50$) — the length of the initial array a .

The second line of each test case contains n integers a_1, \dots, a_n ($-104 \leq a_i \leq 104$), the elements of the array.

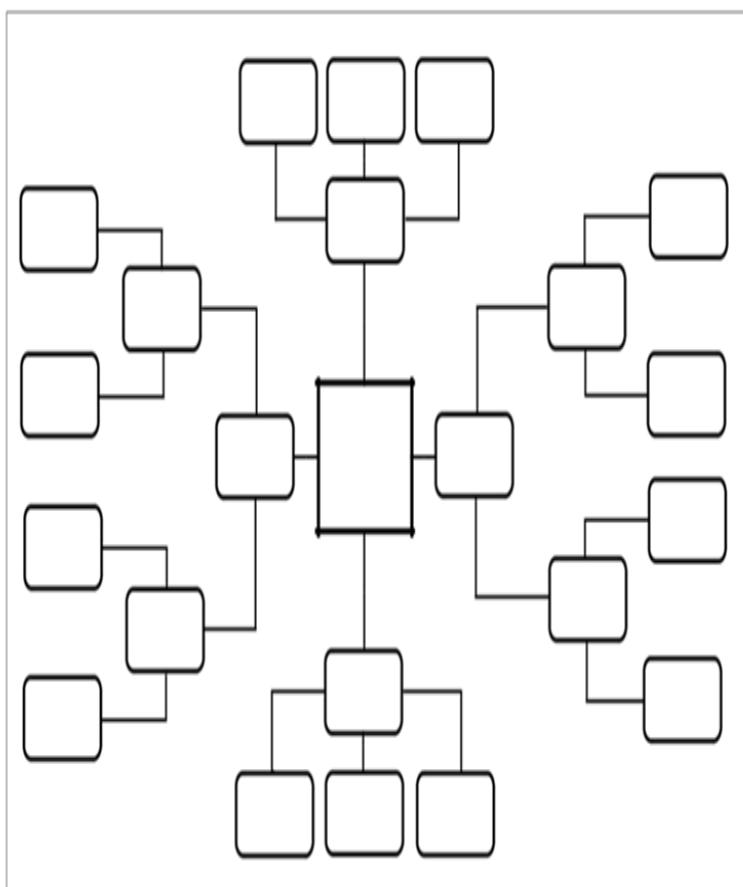
Output

For each test case, output a single integer — the minimum number of non-negative integers you have to append to the array so that the arithmetic mean of the array will be exactly 1.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int sum=0;

        int nu = input.nextInt();
        for (int i=0;i<nu;i++){
            int number = input.nextInt();
            for (int j=0;j<number;j++){
                int numbers= input.nextInt();
                sum=sum+numbers;
            }
            if (sum-number>=0) {
                System.out.println(sum - number);
            }else {
                System.out.println("1");
            }
            sum=0;
        }
    }
}
```

59-1285A_Mezo Playing Zoma:

Today, Mezo is playing a game. Zoma, a character in that game, is initially at position $x=0$. Mezo starts sending n commands to Zoma. There are two possible commands:

- 'L' (Left) sets the position $x:=x-1$;
- 'R' (Right) sets the position $x:=x+1$.

Unfortunately, Mezo's controller malfunctions sometimes. Some commands are sent successfully and some are ignored. If the command is ignored then the position x doesn't change and Mezo simply proceeds to the next command.

For example, if Mezo sends commands "LRLR", then here are some possible outcomes (underlined commands are sent successfully):

- "LRLR" — Zoma moves to the left, to the right, to the left again and to the right for the final time, ending up at position 0 ;
- "LRLR" — Zoma receives no commands, doesn't move at all and ends up at position 0 as well;
- "LRLR" — Zoma moves to the left, then to the left again and ends up in position -2.

Mezo doesn't know which commands will be sent successfully beforehand. Thus, he wants to know how many different positions may Zoma end up at.

Input

The first line contains n ($1 \leq n \leq 10^5$) — the number of commands Mezo sends.

The second line contains a string s of n commands, each either 'L' (Left) or 'R' (Right).

Output

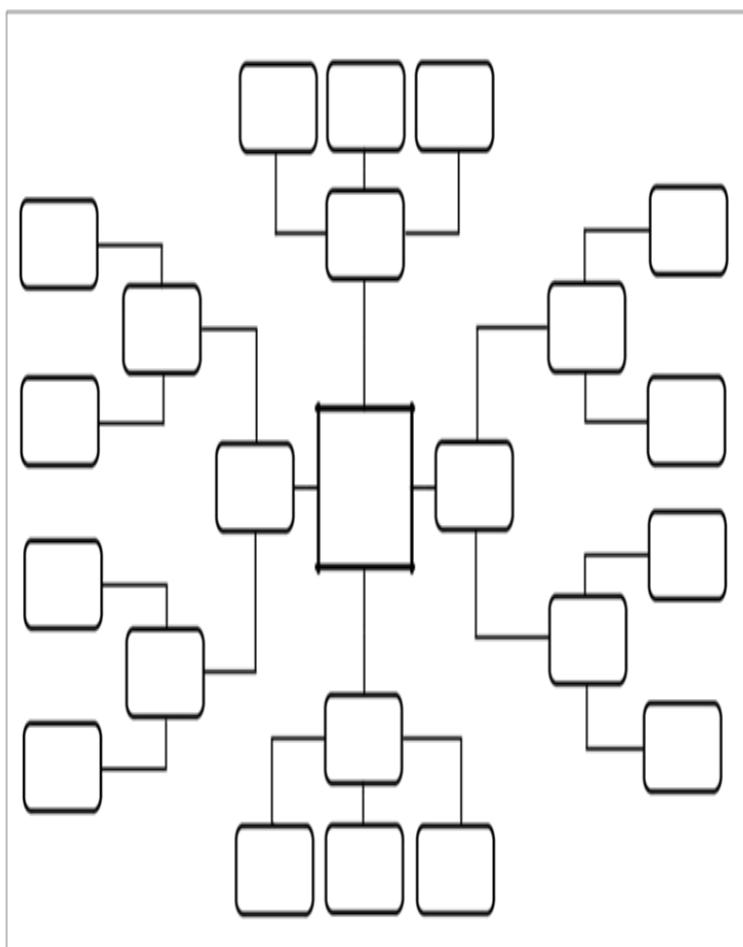
Print one integer — the number of different positions Zoma may end up at.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        String nu = input.nextLine();
        int number=Integer.parseInt(nu);
        String navigation=input.nextLine();
        int left=0;
        int right=0;
        for (int i=0;i<number;i++){
            if (navigation.charAt(i)=='L'){
                left=left-1;
            }else {
                right=right+1;
            }
        }
        System.out.println(right-left+1);
    }
}
```

BOOK TITLE

900 SCORES PROBLEMS

60-96A - Football:

Petya loves football very much. One day, as he was watching a football match, he was writing the players' current positions on a piece of paper. To simplify the situation he depicted it as a string consisting of zeroes and ones. A zero corresponds to players of one team; a one corresponds to players of another team. If there are at least 7 players of some team standing one after another, then the situation is considered dangerous. For example, the situation 0010011011111101 is dangerous and 11110111011101 is not. You are given the current situation. Determine whether it is dangerous or not.

Input

The first input line contains a non-empty string consisting of characters "0" and "1", which represents players. The length of the string does not exceed 100 characters. There's at least one player from each team present on the field.

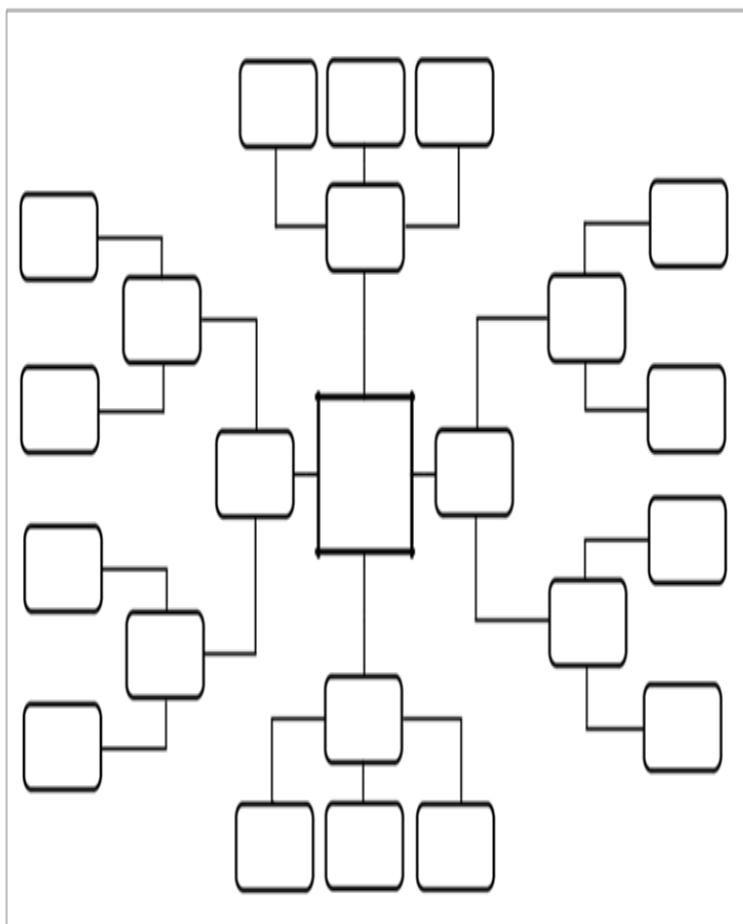
Output

Print "YES" if the situation is dangerous. Otherwise, print "NO".

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

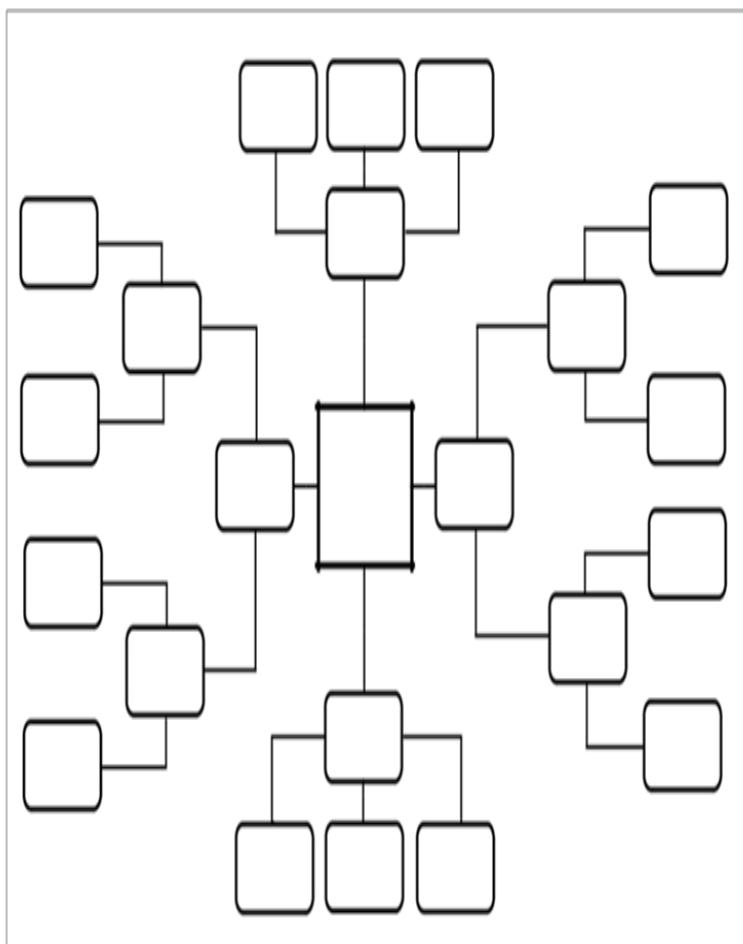
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String word = input.nextLine();
        //System.out.println(word.indexOf("0000000"));
        //System.out.println(word.indexOf("1111111"));
        if(word.indexOf("0000000")>=0 || word.indexOf("1111111")>=0) {
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(python):

```
x=str(input())
print()

if "0000000" in x or "1111111" in x:
    print("YES")
else:
    print("NO")
```

61-160A – Twins:

Imagine that you have a twin brother or sister. Having another person that looks exactly like you seems very unusual. It's hard to say if having something of an alter ego is good or bad. And if you do have a twin, then you very well know what it's like.

Now let's imagine a typical morning in your family. You haven't woken up yet, and Mom is already going to work. She has been so hasty that she has nearly forgotten to leave the two of her darling children some money to buy lunches in the school cafeteria. She fished in the purse and found some number of coins, or to be exact, n coins of arbitrary values a_1, a_2, \dots, a_n . But as Mom was running out of time, she didn't split the coins for you two. So she scribbled a note asking you to split the money equally.

As you woke up, you found Mom's coins and read her note. "But why split the money equally?" — you thought. After all, your twin is sleeping and he won't know anything. So you decided to act like that: pick for yourself some subset of coins so that the sum of values of your coins is strictly larger than the sum of values of the remaining coins that your twin will have. However, you correctly thought that if you take too many coins, the twin will suspect the deception. So, you've decided to stick to the following strategy to avoid suspicions: you take the minimum number of coins, whose sum of values is strictly more than the sum of values of the remaining coins. On this basis, determine what minimum number of coins you need to take to divide them in the described manner.

Input

The first line contains integer n ($1 \leq n \leq 100$) — the number of coins. The second line contains a sequence of n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 100$) — the coins' values. All numbers are separated with spaces.

Output

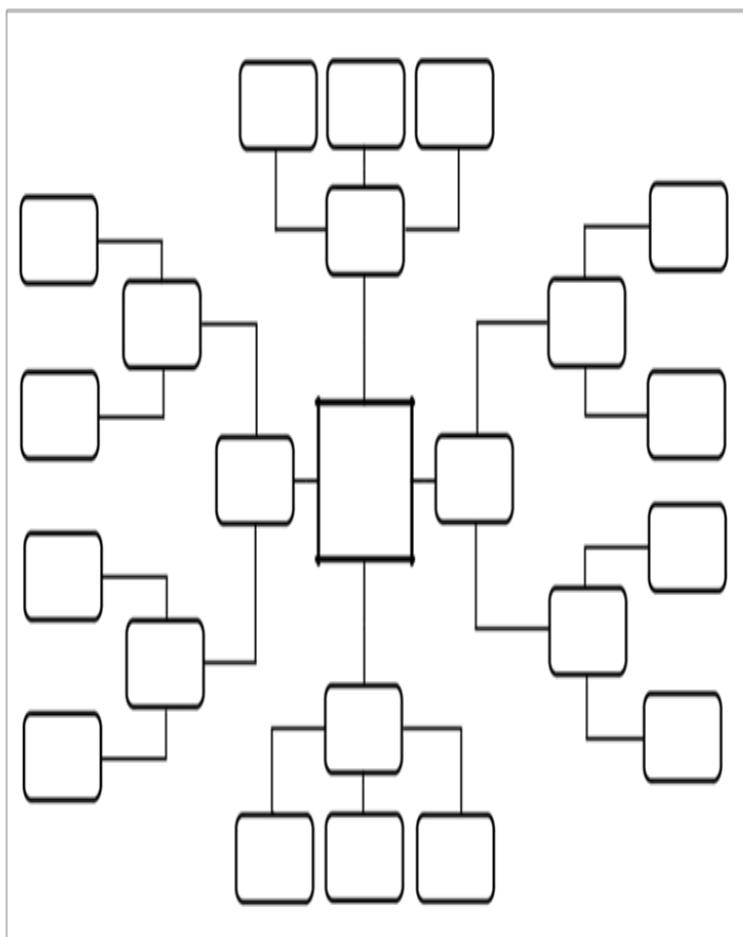
In the single line print the single number — the minimum needed number of coins.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? ___ : ___ : ___

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int[] arr = new int[number];
        int total = 0;
        int average = 0;
        int total1 = 0;
        for (int i = 0; i < number; i++) {
            int numbers = input.nextInt();
            total = total + numbers;
            arr[i] = numbers;
        }

        average = total / 2;
        Arrays.sort(arr);
        // System.out.println(Arrays.toString(arr));

        if (number == 1) {
            System.out.println("1");
        } else {

            for (int j = 0; j < number; j++) {

                total1 = total1 + arr[number - j - 1];
                //System.out.println("total: "+total);
                //System.out.println("average: "+average);
                if (total1 > average ) {
                    System.out.println(j + 1);
                    break;
                }
            }
        }
    }
}
```

62-133A – HQ9+:

HQ9+ is a joke programming language which has only four one-character instructions:

- "H" prints "Hello, World!" ,
- "Q" prints the source code of the program itself,
- "9" prints the lyrics of "99 Bottles of Beer" song,
- "+" increments the value stored in the internal accumulator.

Instructions "H" and "Q" are case-sensitive and must be uppercase. The characters of the program which are not instructions are ignored.

You are given a program written in HQ9+. You have to figure out whether executing this program will produce any output.

Input

The input will consist of a single line p which will give a program in HQ9+. String p will contain between 1 and 100 characters, inclusive. ASCII-code of each character of p will be between 33 (exclamation mark) and 126 (tilde), inclusive.

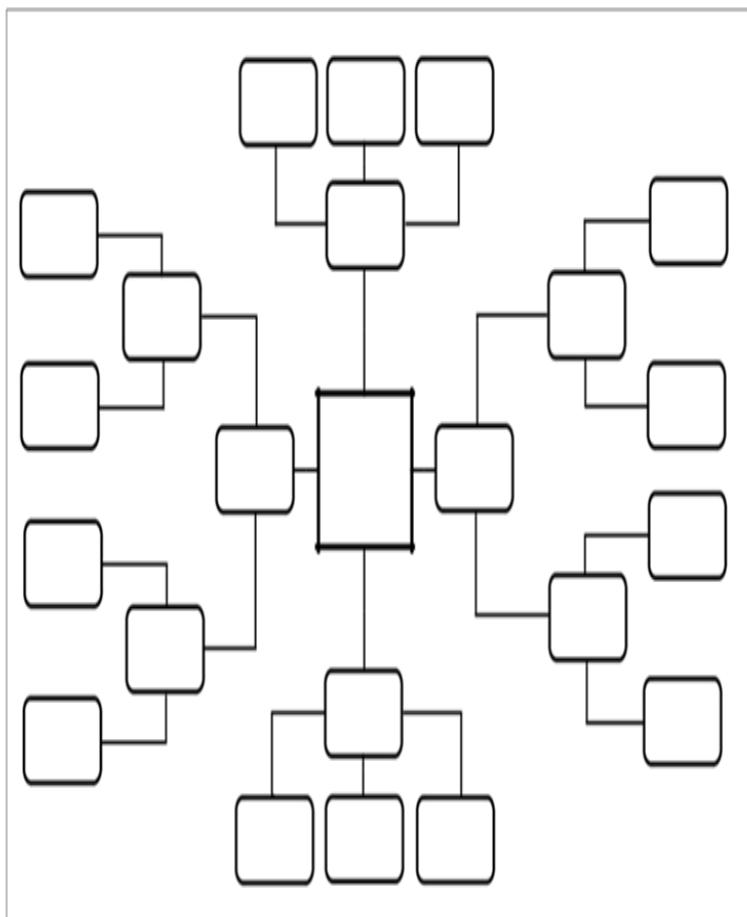
Output

Output "YES", if executing the program will produce any output, and "NO" otherwise.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject: _____ Date: _____

Answer(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        String word= input.nextLine();
        int sum=0;

        for(int i=0;i<word.length();i++) {

            char H=word.charAt(i);
            if (H=='H' || H=='Q' || H=='9') {
                sum=sum+1;
            }

        }

        if (sum>0) {
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

63-318A - Even Odds:

Being a nonconformist, Volodya is displeased with the current state of things, particularly with the order of natural numbers (natural

number is positive integer number). He is determined to rearrange them. But there are too many natural numbers, so Volodya decided to start with the first n . He writes down the following sequence of numbers: firstly all odd integers from 1 to n (in ascending order), then all even integers from 1 to n (also in ascending order). Help our hero to find out which number will stand at the position number k .

Input

The only line of input contains integers n and k ($1 \leq k \leq n \leq 10^{12}$).

Please, do not use the %lld specifier to read or write 64-bit integers in C++. It is preferred to use the cin, cout streams or the %I64d specifier.

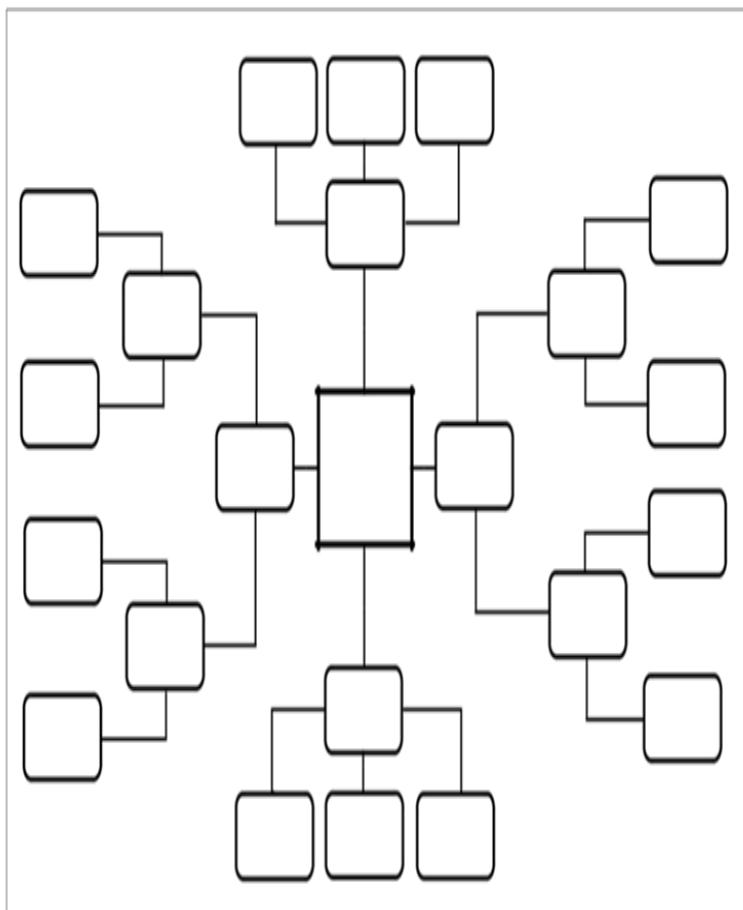
Output

Print the number that will stand at the position number k after Volodya's manipulations.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);

        long number = input.nextLong();
        long choose = input.nextLong();
        long mid=number/2;
        long a=0;
        if (number%2!=0) {
            mid++;
        }

        if (choose>mid){
            System.out.println((choose-mid)*2);
        }else {
            System.out.println(2*choose-1);
        }

    }
}
```

64-580A-Kefa and First Steps:

Kefa decided to make some money doing business on the Internet for exactly n days. He knows that on the i -th day ($1 \leq i \leq n$) he makes a_i money. Kefa loves progress, that's why he wants to know the length of the maximum non-decreasing subsegment in sequence a_i . Let us remind you that the subsegment of the sequence is its continuous fragment. A subsegment of numbers is called non-decreasing if all numbers in it follow in the non-decreasing order.

Help Kefa cope with this task!

Input

The first line contains integer n ($1 \leq n \leq 10^5$).

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$).

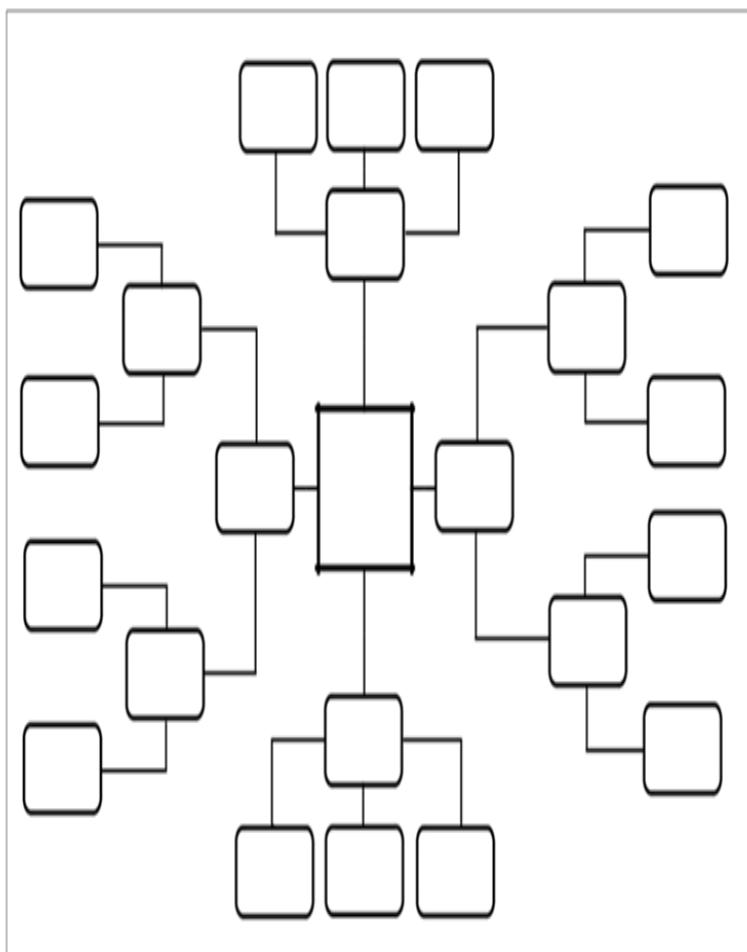
Output

Print a single integer — the length of the maximum non-decreasing subsegment of sequence a .

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```

import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        int number= input.nextInt();

        int [] arr=new int[number];
        int sum=0;
        int max=0;
        int []aarr=new int[number];

        for(int i=0;i<number;i++){
            int numbers=input.nextInt();

            arr[i]=numbers;
        }

        for(int j=0;j<number;j++) {
            if(j-1==-1){
                continue;
            }

            if(arr[j-1]<=arr[j]){
                sum=sum+1;
                aarr[j]=sum+1;
            }
            if (arr[j-1]>arr[j]){
                sum=0;
            }
        }
        // System.out.println(number+sum);
        // System.out.println("aarr: "+Arrays.toString(aarr));

        for (int z = 0; z < number; z++) {
            if(number==1){
                aarr[0]=1;
            }

            //Compare elements of array with max
            if(aarr[z] > max)
                max = aarr[z];
        }
        if(max==0){
            System.out.println('1');
        }else {
            System.out.println(max);
        }

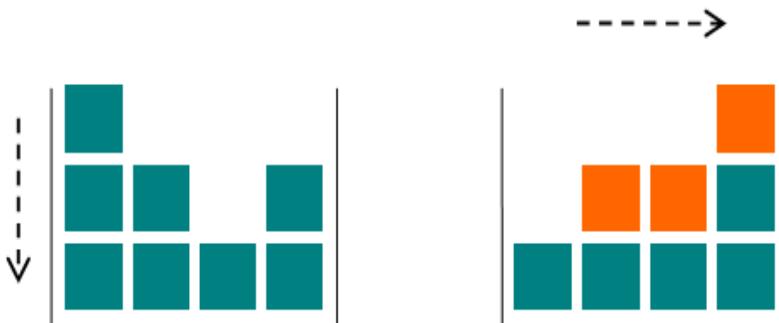
    }
}

```

65-405A - Gravity Flip:

Little Chris is bored during his physics lessons (too easy), so he has built a toy box to keep himself occupied. The box is special, since it has the ability to change gravity.

There are n columns of toy cubes in the box arranged in a line. The i -th column contains a_i cubes. At first, the gravity in the box is pulling the cubes downwards. When Chris switches the gravity, it begins to pull all the cubes to the right side of the box. The figure shows the initial and final configurations of the cubes in the box: the cubes that have changed their position are highlighted with orange.



Given the initial configuration of the toy cubes in the box, find the amounts of cubes in each of the n columns after the gravity switch!

Input

The first line of input contains an integer n ($1 \leq n \leq 100$), the number of the columns in the box. The next line contains n space-separated integer numbers. The i -th number a_i ($1 \leq a_i \leq 100$) denotes the

number of cubes in the i -th column.

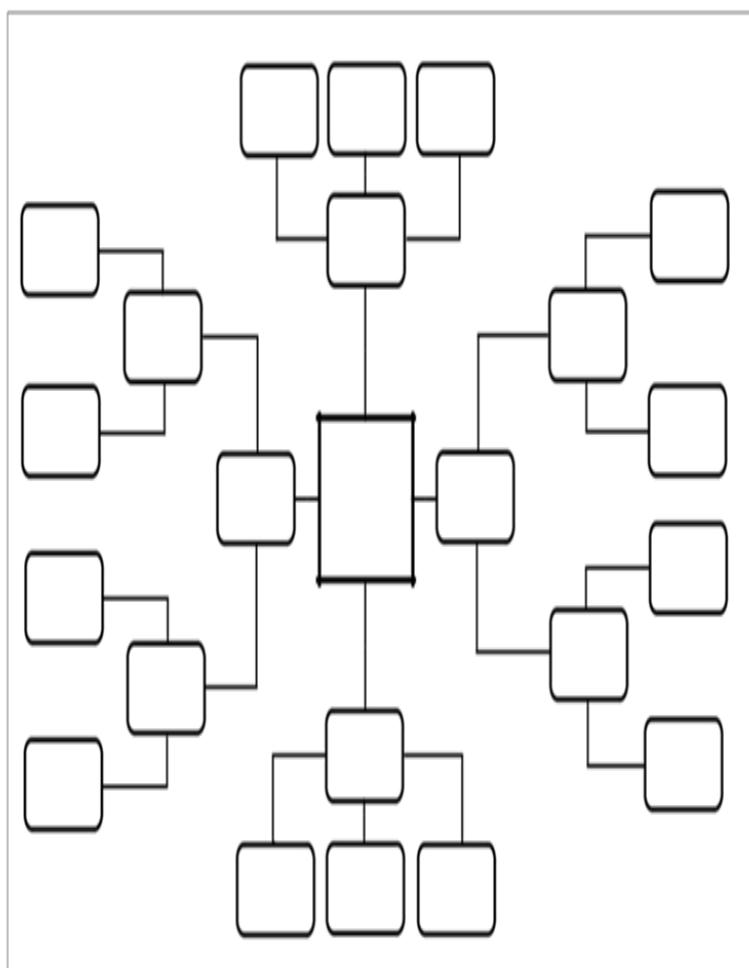
Output

Output n integer numbers separated by spaces, where the i -th number is the amount of cubes in the i -th column after the gravity switch.

How difficult was that?

How much did it take? _____ : _____

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int [] arr = new int[number];
        int [] new_array = new int[number];
        int given_number=1;
        for(int i=0;i<number;i++){
            int cubes=input.nextInt();
            arr[i]=cubes;
        }
        //
        for (int i = 0; i < arr.length; i++) {
            new_array[i] = arr[i];
        }

        // Adding new element
        //new_array[new_array.length - 1] = given_number;

        // Sorting new array
        Arrays.sort(new_array);

        // print array
        for (int i = 0; i < new_array.length; i++)
            System.out.print(new_array[i] + " ");

        //
    }
}
```

66-208A – Dubstep:

Vasya works as a DJ in the best Berland nightclub, and he often uses dubstep music in his performance. Recently, he has decided to take a couple of old songs and make dubstep remixes from them.

Let's assume that a song consists of some number of words. To make the dubstep remix of this song, Vasya inserts a certain number of words "WUB" before the first word of the song (the number may be zero), after the last word (the number may be zero), and between words (at least one between any pair of neighbouring words), and then the boy glues together all the words, including "WUB", in one string and plays the song at the club.

For example, a song with words "I AM X" can transform into a dubstep remix as "WUBWUBIWUBAMWUBWUBX" and cannot transform into "WUBWUBIAMWUBX".

Recently, Petya has heard Vasya's new dubstep track, but since he isn't into modern music, he decided to find out what was the initial song that Vasya remixed. Help Petya restore the original song.

Input

The input consists of a single non-empty string, consisting only of uppercase English letters, the string's length doesn't exceed 200 characters. It is guaranteed that before Vasya remixed the song, no word contained substring "WUB" in it; Vasya didn't change the word order. It is also guaranteed that initially the song had at least one word.

Output

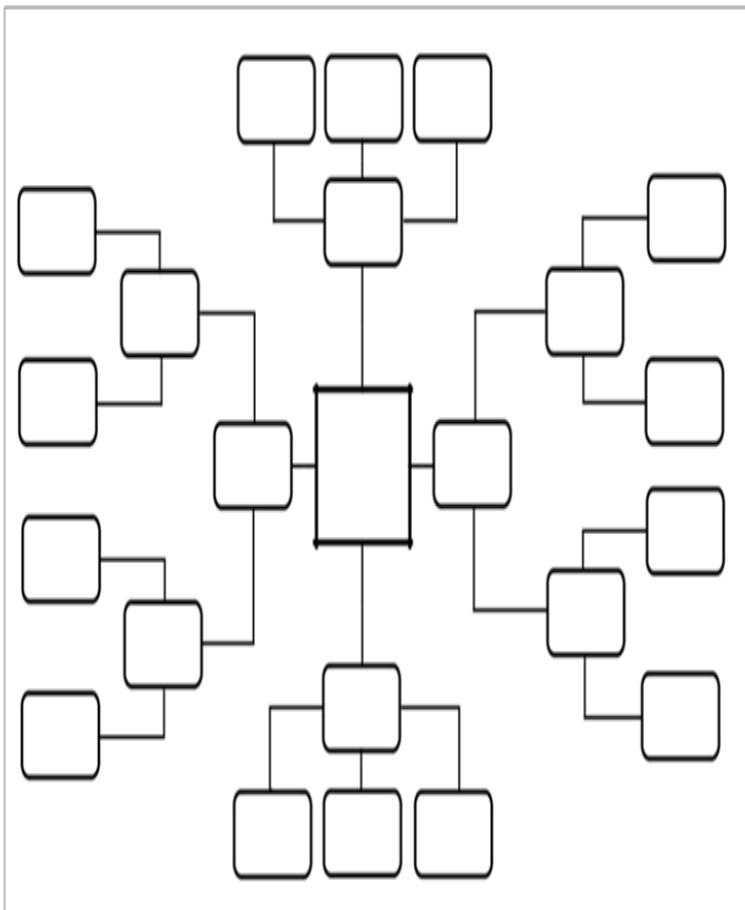
BOOK TITLE

Print the words of the initial song that Vasya used to make a dubstep remix. Separate the words with a space.

How difficult was that?

How much did it take? _____ : _____

note:



Subject:

Date:

Answer(Java):

```
import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

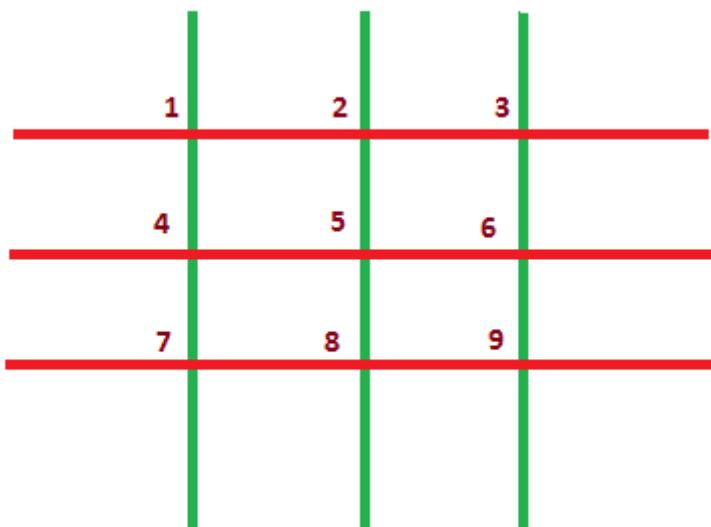
        Scanner input = new Scanner(System.in);
        String wub=input.nextLine();
        char []arr=new char[wub.length()+2];
        int sum =0;
        for(int i=0;i<wub.length();i++) {
            arr[i]= wub.charAt(i);
        }
        // System.out.println(Arrays.toString(arr));
        for (int k=0;k<wub.length()-2;k++) {
            if(arr[k]=='W'&&arr[k+1]=='U'&&arr[k+2]=='B') {
                // System.out.println("HERE");
                arr[k]='0';
                arr[k+1]='0';
                arr[k+2]='0';
            }
        }
        //System.out.println(Arrays.toString(arr));
        for(int j=0;j<wub.length()+1;j++) {
            if(j==wub.length() || j==wub.length()+1) {
                continue;
            }
            sum=0;
            if(arr[j]!='0') {
                System.out.print(wub.charAt(j));
                if(arr[j+1]=='0') {
                    sum=sum+1;
                }
                if(sum>0) {
                    System.out.print(" ");
                }
            }
        }
    }
}
```

67-451A - Game With Sticks:

After winning gold and silver in IOI 2014, Akshat and Malvika want to have some fun. Now they are playing a game on a grid made of n horizontal and m vertical sticks.

An intersection point is any point on the grid which is formed by the intersection of one horizontal stick and one vertical stick.

In the grid shown below, $n = 3$ and $m = 3$. There are $n + m = 6$ sticks in total (horizontal sticks are shown in red and vertical sticks are shown in green). There are $n \cdot m = 9$ intersection points, numbered from 1 to 9.



The rules of the game are very simple. The players move in turns. Akshat won gold, so he makes the first move. During his/her move, a player must choose any remaining intersection point and remove from the grid all sticks which pass through this point. A player will lose the game if he/she cannot make a move (i.e. there are no intersection points remaining on the grid at his/her move).

Assume that both players play optimally. Who will win the game?

Input

The first line of input contains two space-separated integers, n and m ($1 \leq n, m \leq 100$).

Output

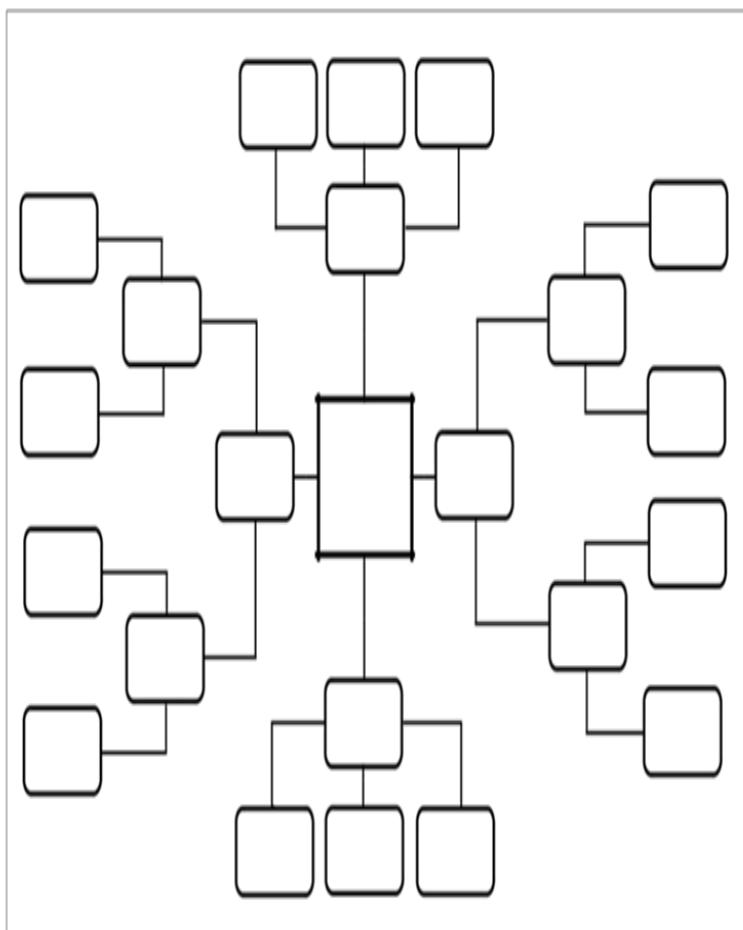
Print a single line containing "Akshat" or "Malvika" (without the quotes), depending on the winner of the game.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        // write your code here

        Scanner scanner = new Scanner(System.in);
        int m = scanner.nextInt();
        int n = scanner.nextInt();

        if (m * n==n || n*m==m ) {
            System.out.println("Akshat");

        }else if(m%2!=0 && n%2!=0) {
            System.out.println("Akshat");
        }else if (m>n&&n%2!=0 || n>m&&m%2!=0) {
            System.out.println("Akshat");
        }else if (m>n&&n%2==0 || n>m&&m%2==0) {
            System.out.println("Malvika");
        }else if (n%2==0&&m%2==0) {
            System.out.println("Malvika");
        }
    }
}
```

68-313A – Ilya and Bank Account:

Ilya is a very clever lion, he lives in an unusual city ZooVille. In this city all the animals have their rights and obligations. Moreover, they even have their own bank accounts. The state of a bank account is an integer. The state of a bank account can be a negative number. This means that the owner of the account owes the bank money.

Ilya the Lion has recently had a birthday, so he got a lot of gifts. One of them (the gift of the main ZooVille bank) is the opportunity to delete the last digit or the digit before last from the state of his bank account no more than once. For example, if the state of Ilya's bank account is -123, then Ilya can delete the last digit and get his account balance equal to -12, also he can remove its digit before last and get the account balance equal to -13. Of course, Ilya is permitted not to use the opportunity to delete a digit from the balance.

Ilya is not very good at math, and that's why he asks you to help him maximize his bank account. Find the maximum state of the bank account that can be obtained using the bank's gift.

Input

The single line contains integer n ($10 \leq |n| \leq 10^9$) — the state of Ilya's bank account.

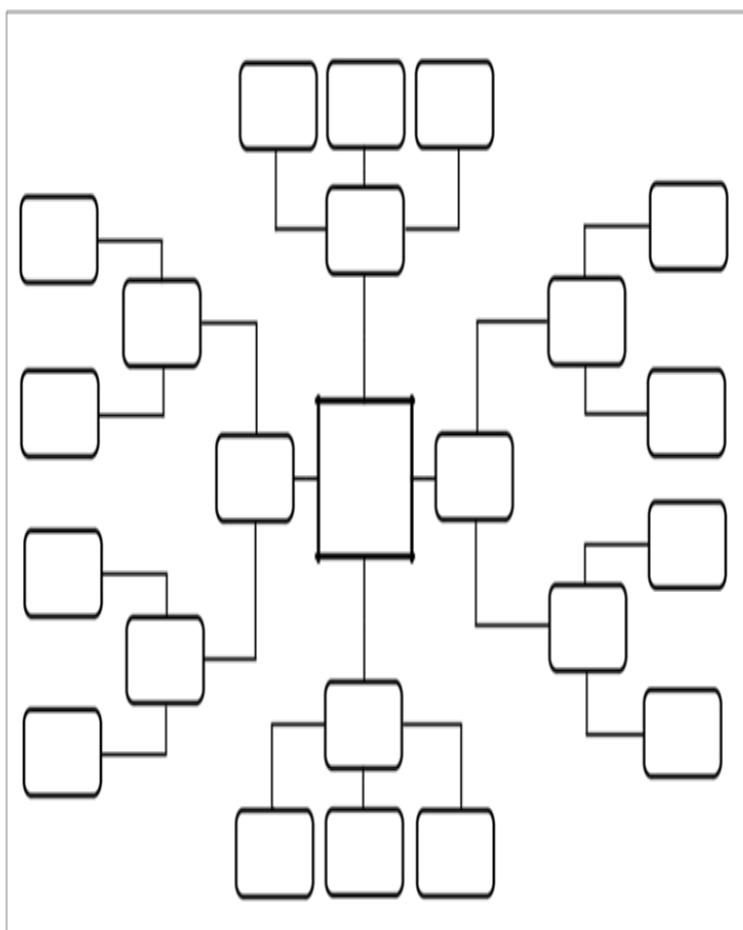
Output

In a single line print an integer — the maximum state of the bank account that Ilya can get.

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);
        int number= input.nextInt();
        int count=0;
        int lastdigit=0;
        int secondlast=0;

        if(number>=0) {
            System.out.println(number);
        }else {
            int lastdigits=number%10;

            lastdigit=number/10;

            secondlast=number/100;
            int secondlast1=secondlast*10;
            int secondlast2=secondlast1+lastdigits;

            if(secondlast2<lastdigit) {
                System.out.println(lastdigit);
            }else {
                System.out.println(secondlast2);
            }
        }
    }
}
```

69-1475A - Odd Divisor:

You are given an integer n . Check if n has an odd divisor, greater than one (does there exist such a number x ($x>1$) that n is divisible by x and x is odd).

For example, if $n=6$, then there is $x=3$. If $n=4$, then such a number does not exist.

Input

The first line contains one integer t ($1\leq t\leq 104$) — the number of test cases. Then t test cases follow. Each test case contains one integer n ($2\leq n\leq 1014$). Please note, that the input for some test cases won't fit into 32-bit integer type, so you should use at least 64-bit integer type in your programming language.

Output

For each test case, output on a separate line:

- "YES" if n
- has an odd divisor, greater than one;
- "NO" otherwise.

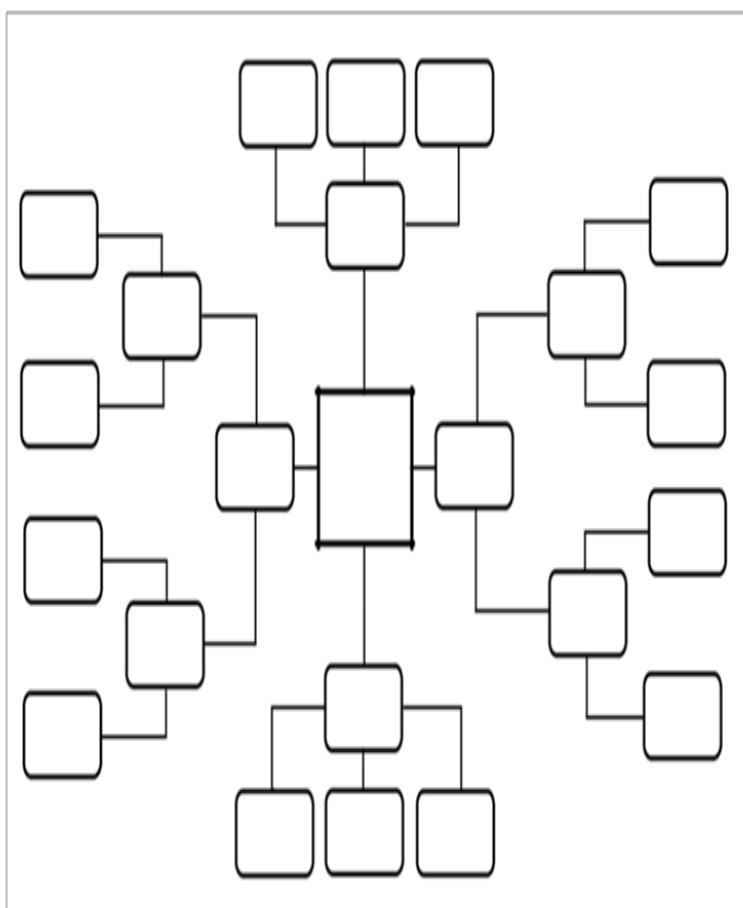
You can output "YES" and "NO" in any case (for example, the strings yes, Yes and YES will be recognized as positive).

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        long number = input.nextLong();
        long sum = 0;
        long eve = 0;

        for (int i = 0; i < number; i++) {
            long numbers = input.nextLong();
            sum=0;

            if (numbers % 2 != 0) {
                System.out.println("YES");
            } else {

                for (int j = 1; j < 100; j++) {
                    eve = (long) Math.pow(2, j);

                    if (numbers == eve) {
                        System.out.println("NO");
                        sum = sum + 1;
                        break;
                    }
                }
                if (sum == 0) {
                    System.out.println("YES");
                }
            }
        }
    }
}
```

70-1347B – Multiply by 2, divide by 6:

You are given an integer n . In one move, you can either multiply n by two or divide n by 6 (if it is divisible by 6 without the remainder). Your task is to find the minimum number of moves needed to obtain 1 from n or determine if it's impossible to do that.

You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 2 \cdot 10^4$) — the number of test cases. Then t test cases follow.

The only line of the test case contains one integer n ($1 \leq n \leq 10^9$).

Output

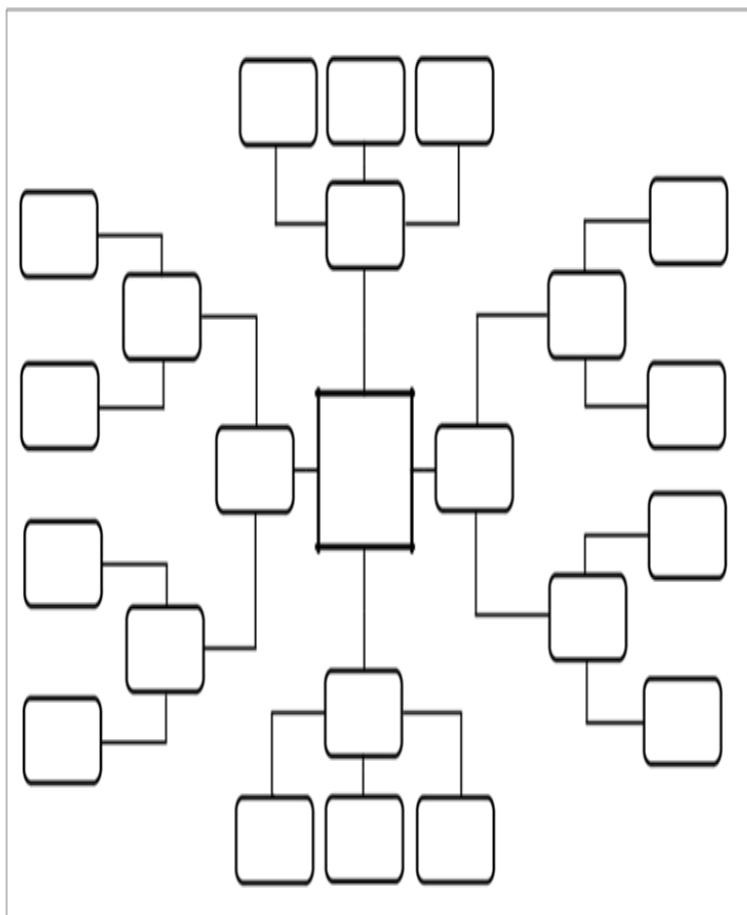
For each test case, print the answer — the minimum number of moves needed to obtain 1 from n if it's possible to do that or -1 if it's impossible to obtain 1 from n .

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject: _____ Date: _____

Answer(Java):

```
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        int number = input.nextInt();
        int sum = 0;

        for (int i = 0; i < number; i++) {
            int numbers = input.nextInt();
            sum = 0;

            while(sum<1000) {
                // System.out.println("HERE");
                if(number==1&&numbers==999838675) {
                    System.out.println(-1);
                    break;
                }

                //

                if (numbers == 1) {
                    break;
                }

                if (numbers % 6 == 0) {
                    numbers = numbers / 6;
                    sum = sum + 1;
                } else if (numbers % 6 != 0) {
                    numbers = 2 * numbers;
                    sum = sum + 1;
                }
            }

            if(sum>=1000){
                System.out.println("-1");

            }else if(number==1&&numbers==999838675){

            }else {
                System.out.println(sum);
            }

        }
    }
}
```

71-1475B - New Year's Number:

Polycarp remembered the 2020-th year, and he is happy with the arrival of the new 2021-th year. To remember such a wonderful moment, Polycarp wants to represent the number n as the sum of a certain number of 2020 and a certain number of 2021.

For example, if:

- $n=4041$, then the number n can be represented as the sum $2020+2021$;
- $n=4042$, then the number n can be represented as the sum $2021+2021$;
- $n=8081$, then the number n can be represented as the sum $2020+2020+2020+2021$;
- $n=8079$, then the number n cannot be represented as the sum of the numbers 2020 and 2021.

Help Polycarp to find out whether the number n can be represented as the sum of a certain number of numbers 2020 and a certain number of numbers 2021.

Input

The first line contains one integer t ($1 \leq t \leq 104$) — the number of test cases. Then t test cases follow.

Each test case contains one integer n ($1 \leq n \leq 106$) — the number that Polycarp wants to represent as the sum of the numbers 2020 and 2021.

Output

For each test case, output on a separate line:

- "YES" if the number n is representable as the sum of a certain number of 2020 and a certain number of 2021;
- "NO" otherwise.

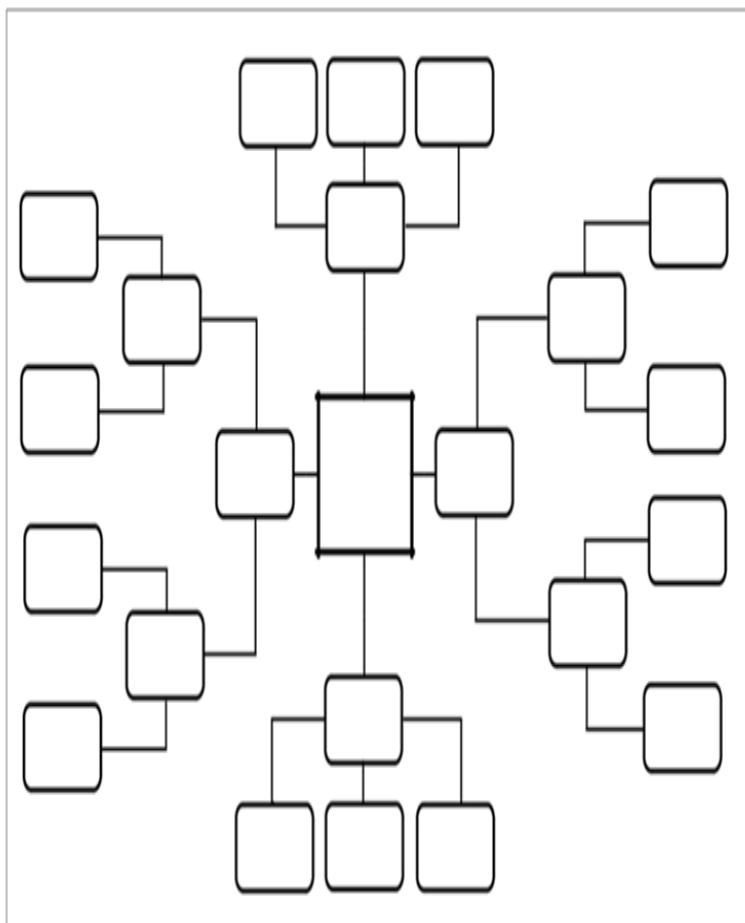
You can output "YES" and "NO" in any case (for example, the strings yEs, yes, Yes and YES will be recognized as positive).

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

BOOK TITLE

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int x=0;
        for (long i = 0; i < number; i++) {
            int n = input.nextInt();
            int y=n%2020;
            x=(n-y)/2020-y;
            if (x>=0){
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }
        }
    }
}
```

72-556A_Case of the Zeros and Ones:

Andrewid the Android is a galaxy-famous detective. In his free time he likes to think about strings containing zeros and ones.

Once he thought about a string of length n consisting of zeroes and ones. Consider the following operation: we choose any two adjacent positions in the string, and if one them contains 0, and the other contains 1, then we are allowed to remove these two digits from the string, obtaining a string of length $n - 2$ as a result.

Now Andreid thinks about what is the minimum length of the string that can remain after applying the described operation several times (possibly, zero)? Help him to calculate this number.

Input

First line of the input contains a single integer n ($1 \leq n \leq 2 \cdot 10^5$), the length of the string that Andreid has.

The second line contains the string of length n consisting only from zeros and ones.

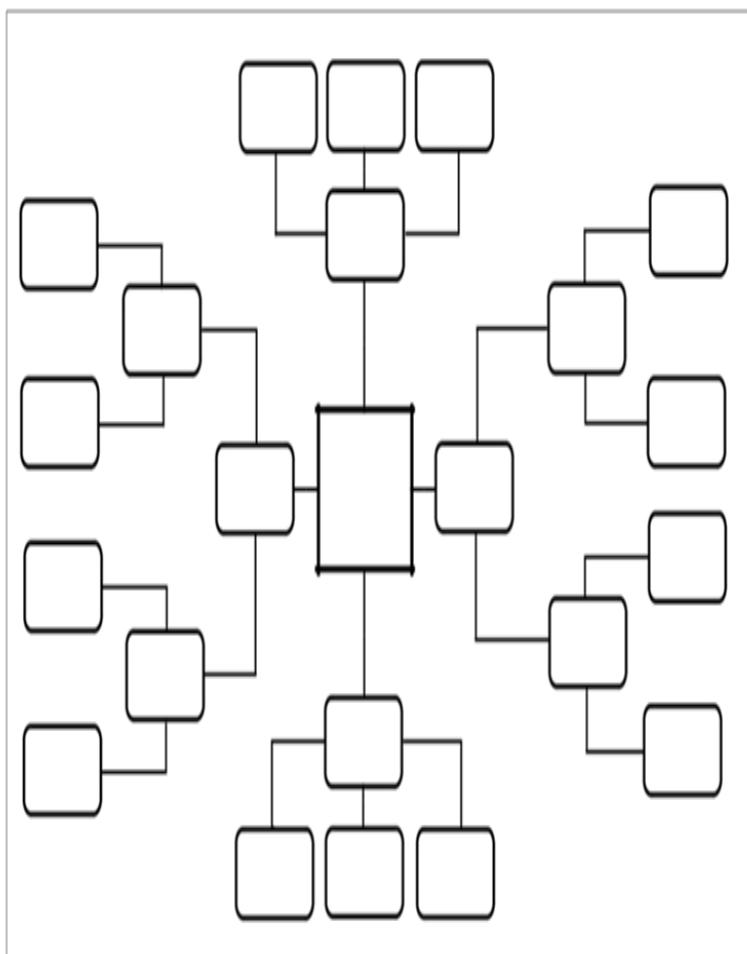
Output

Output the minimum length of the string that may remain after applying the described operations several times.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String num=input.nextLine();
        String word=input.nextLine();
        int number=Integer.parseInt(num);
        int sum=0;
        for (int i=0;i<number;i++) {
            if (word.charAt(i)=='1') {
                sum=sum+1;
            }else if(word.charAt(i)=='0') {
                sum=sum-1;
            }
        }
        System.out.println(Math.abs(sum));
    }
}
```

73-1337B - Kana and Dragon Quest game:

Kana was just an ordinary high school girl before a talent scout discovered her. Then, she became an idol. But different from the stereotype, she is also a gameholic.

One day Kana gets interested in a new adventure game called Dragon Quest. In this game, her quest is to beat a dragon.



The dragon has a hit point of x initially. When its hit point goes to 0 or under 0, it will be defeated. In order to defeat the dragon, Kana can cast the two following types of spells.

- Void Absorption Assume that the dragon's current hit point is h , after casting this spell its hit point will become $\lfloor h/2 \rfloor + 10$. Here $\lfloor h/2 \rfloor$ denotes h divided by two, rounded down.
- Lightning Strike This spell will decrease the dragon's hit point by 10. Assume that the dragon's current hit point is h , after casting this spell its hit point will be lowered to $h-10$.

Due to some reasons Kana can only cast no more than n Void Absorptions and m Lightning Strikes. She can cast the spells in any order and doesn't have to cast all the spells. Kana isn't good at math, so you are going to help her to find out whether it is possible to defeat the dragon.

Input

The first line contains a single integer t ($1 \leq t \leq 1000$) — the number of test cases. The next t lines describe test cases. For each test case the only line contains three integers x, n, m ($1 \leq x \leq 105, 0 \leq n, m \leq 30$) — the dragon's initial hit point, the maximum number of Void Absorptions and Lightning Strikes Kana can cast respectively.

Output

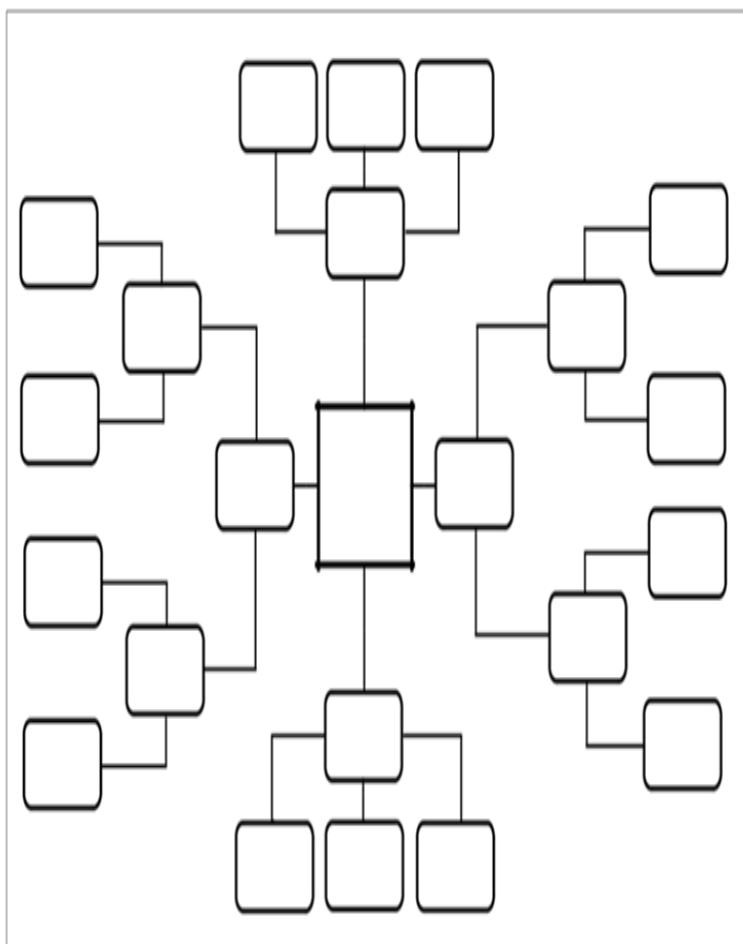
If it is possible to defeat the dragon, print "YES" (without quotes). Otherwise, print "NO" (without quotes). You can print each letter in any case (upper or lower).

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int flag=0;

        for (int i = 0; i < number; i++) {
            int x = input.nextInt();
            int n = input.nextInt();
            int m = input.nextInt();

            while(x>20 && n>0) {
                x = (x/2)+10;
                n=n-1;
                //System.out.println("x: "+x);
                //System.out.println("n: "+n);
            }
            while (x>0 && m>0) {
                x=x-10;
                m=m-1;
                //System.out.println("x: "+x);
                //System.out.println("m: "+m);
            }
            if (x<=0) {
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }
        }
    }
}
```

74-34B-Sale:

Once Bob got to a sale of old TV sets. There were n TV sets at that sale. TV set with index i costs a_i bellars. Some TV sets have a negative price — their owners are ready to pay Bob if he buys their useless apparatus. Bob can «buy» any TV sets he wants. Though he's very strong, Bob can carry at most m TV sets, and he has no desire to go to the sale for the second time. Please, help Bob find out the maximum sum of money that he can earn.

Input

The first line contains two space-separated integers n and m ($1 \leq m \leq n \leq 100$) — amount of TV sets at the sale, and amount of TV sets that Bob can carry. The following line contains n space-separated integers a_i ($-1000 \leq a_i \leq 1000$) — prices of the TV sets.

Output

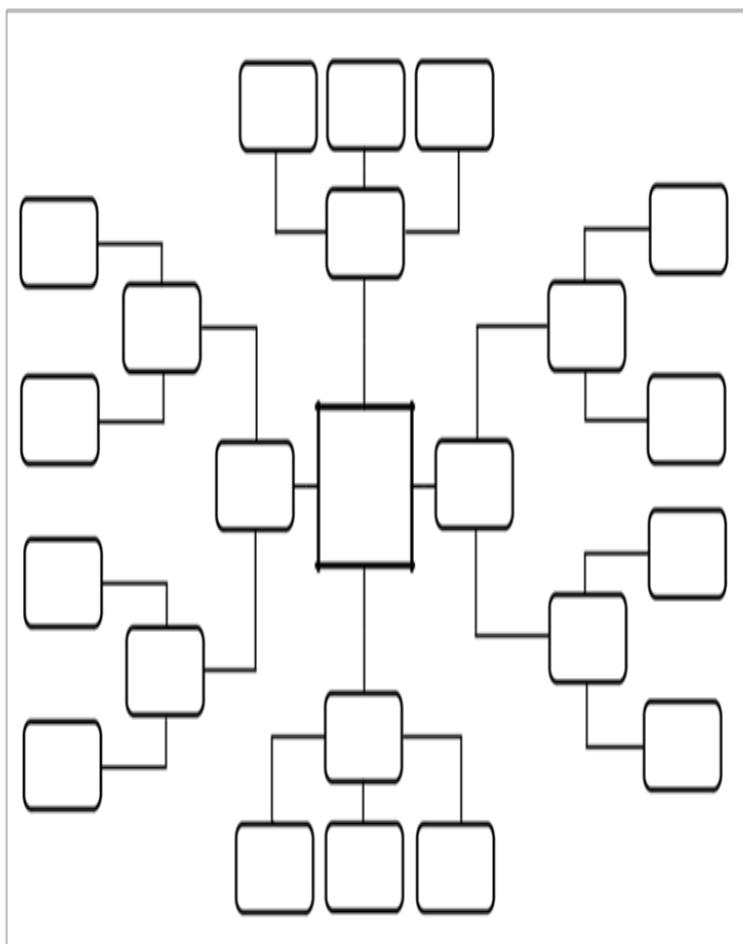
Output the only number — the maximum sum of money that Bob can earn, given that he can carry at most m TV sets.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int n = input.nextInt();
        int k = input.nextInt();
        int []dollar=new int[n];
        int sum=0;

        for (int i=0;i<n;i++) {
            dollar[i]=input.nextInt();
        }
        Arrays.sort(dollar);
        //System.out.println(Arrays.toString(dollar));
        for (int j=0;j<k;j++) {
            if (dollar[j]<0) {
                sum = dollar[j] + sum;
            }
        }
        System.out.println(Math.abs(sum));
    }
}
```

75-320A - Magic Numbers:

A magic number is a number formed by concatenation of numbers 1, 14 and 144. We can use each of these numbers any number of times. Therefore 14144, 141414 and 1411 are magic numbers but 1444, 514 and 414 are not.

You're given a number. Determine if it is a magic number or not.

Input

The first line of input contains an integer n , ($1 \leq n \leq 10^9$). This number doesn't contain leading zeros.

Output

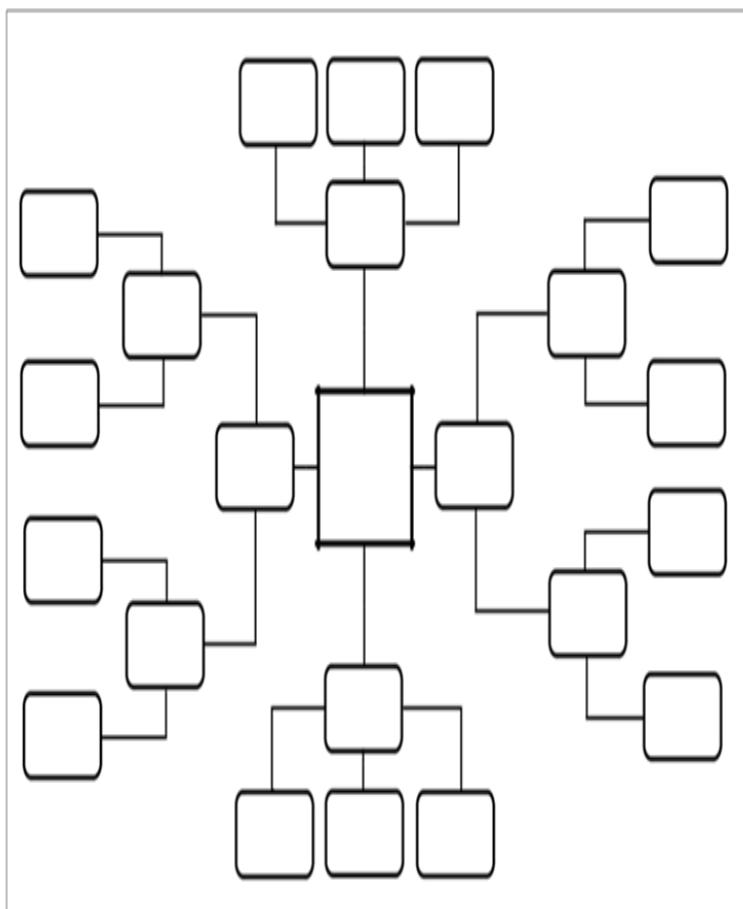
Print "YES" if n is a magic number or print "NO" if it's not.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

BOOK TITLE

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        String number = input.nextLine();
        boolean total = true;

        if (number.length() == 1) {
            if (number.charAt(0)=='1'){
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }
        } else if (number.length()==2) {
            if (number.contains("14") || number.contains("11")){
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }
        }else if (number.length()==3) {
            if (number.contains("111") || number.contains("144") || number.contains("114")||number.contains("141")) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }else {
            if (number.length() >= 2) {
                for (int i = 0; i < number.length() - 2; i++) {

                    if (number.contains("144")) {
                        number = number.replace("144", "!!!");
                    } else if (number.contains("14")) {
                        number = number.replace("14", "!!!");
                    } else if (number.contains("1")) {
                        number = number.replace("1", "!!!");
                    }
                }
                for (int i = 0; i < number.length(); i++) {
                    if (number.charAt(i) != '!') {
                        System.out.println("NO");
                        total = false;
                        break;
                    }
                }
                if (total == true) {
                    System.out.println("YES");
                }
            }
        }
    }
}
```

BOOK TITLE

1000 SCORES PROBLEMS

76-1A - Theatre Square:

Theatre Square in the capital city of Berland has a rectangular shape with the size $n \times m$ meters. On the occasion of the city's anniversary, a decision was taken to pave the Square with square granite flagstones. Each flagstone is of the size $a \times a$.

What is the least number of flagstones needed to pave the Square? It's allowed to cover the surface larger than the Theatre Square, but the Square has to be covered. It's not allowed to break the flagstones. The sides of flagstones should be parallel to the sides of the Square.

Input

The input contains three positive integer numbers in the first line: n , m and a ($1 \leq n, m, a \leq 10^9$).

Output

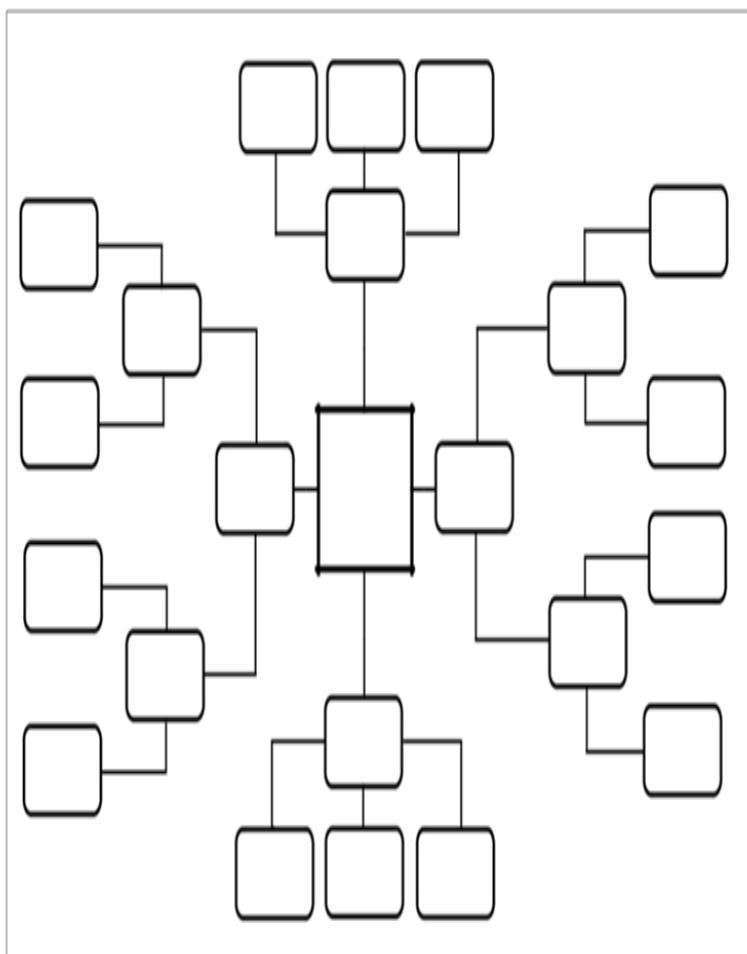
Write the needed number of flagstones.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        long n= input.nextInt();
        long m = input.nextInt();
        long a= input.nextInt();

        if(a==1) {
            System.out.println(m*n);
        }else if(a!=1){
            long result=((m+a-1)/a)*((n+a-1)/a);
            System.out.println(result);

        }
    }
}
```

77-118A - String Task:

Petya started to attend programming lessons. On the first lesson his task was to write a simple program. The program was supposed to do the following: in the given string, consisting of uppercase and lowercase Latin letters, it:

- deletes all the vowels,
- inserts a character "." before each consonant,
- replaces all uppercase consonants with corresponding lowercase ones.

Vowels are letters "A", "O", "Y", "E", "U", "I", and the rest are consonants. The program's input is exactly one string, it should return the output as a single string, resulting after the program's processing the initial string.

Help Petya cope with this easy task.

Input

The first line represents input string of Petya's program. This string only consists of uppercase and lowercase Latin letters and its length is from 1 to 100, inclusive.

Output

Print the resulting string. It is guaranteed that this string is not empty.

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        String word = input.nextLine();
        word=word.toLowerCase(Locale.ROOT);

        word=word.replaceAll("a","");
        word=word.replaceAll("e","");
        word=word.replaceAll("u","");
        word=word.replaceAll("o","");
        word=word.replaceAll("i","");
        word=word.replaceAll("y","");
        word=word.replaceAll("A","");
        word=word.replaceAll("E","");
        word=word.replaceAll("U","");
        word=word.replaceAll("O","");
        word=word.replaceAll("I","");
        word=word.replaceAll("Y","");

        String result="";
        char dot='.';
        for (int j=0;j<word.length();j++) {
            result=result+dot+word.charAt(j);
        }
        System.out.println(result);

    }
}
```

78-69A - Young Physicist:

A guy named Vasya attends the final grade of a high school. One day Vasya decided to watch a match of his favorite hockey team. And, as the boy loves hockey very much, even more than physics, he forgot to do the homework. Specifically, he forgot to complete his physics tasks. Next day the teacher got very angry at Vasya and decided to teach him a lesson. He gave the lazy student a seemingly easy task: You are given an idle body in space and the forces that affect it. The body can be considered as a material point with coordinates (0; 0; 0). Vasya had only to answer whether it is in equilibrium. "Piece of cake" — thought Vasya, we need only to check if the sum of all vectors is equal to 0. So, Vasya began to solve the problem. But later it turned out that there can be lots and lots of these forces, and Vasya can not cope without your help. Help him. Write a program that determines whether a body is idle or is moving by the given vectors of forces.

Input

The first line contains a positive integer n ($1 \leq n \leq 100$), then follow n lines containing three integers each: the x_i coordinate, the y_i coordinate and the z_i coordinate of the force vector, applied to the body ($-100 \leq x_i, y_i, z_i \leq 100$).

Output

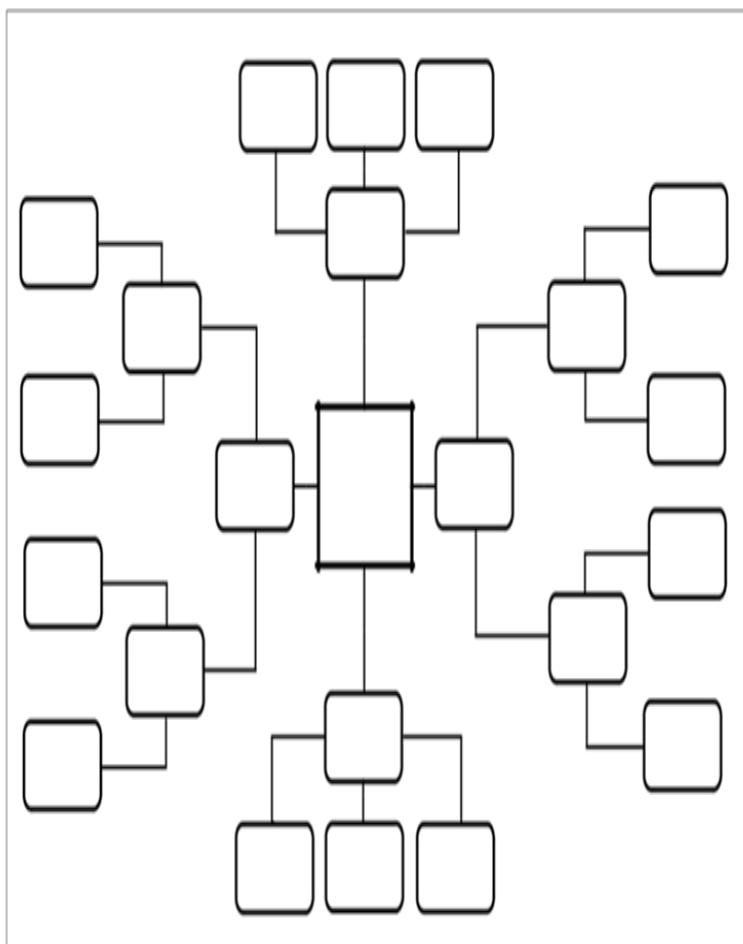
Print the word "YES" if the body is in equilibrium, or the word "NO" if it is not.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        int[] arr1=new int[number];
        int[] arr2=new int[number];
        int[] arr3=new int[number];
        int sum1=0;
        int sum2=0;
        int sum3=0;

        for(int i=0;i<number;i++) {
            int a=input.nextInt();
            int b=input.nextInt();
            int c=input.nextInt();
            arr1 [i]=a;
            arr2 [i]=b;
            arr3 [i]=c;
        }
        for(int j=0; j<number; j++) {

            sum1 = sum1 + arr1[j];
        }

        for(int k=0; k<number; k++) {

            sum2 = sum2 + arr2[k];
        }

        for(int z=0; z<number; z++) {

            sum3 = sum3 + arr1[z];
        }

        if(sum1==0&&sum2==0&&sum3==0) {
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

79-379A - New Year Candles:

Vasily the Programmer loves romance, so this year he decided to illuminate his room with candles.

Vasily has a candles. When Vasily lights up a new candle, it first burns for an hour and then it goes out. Vasily is smart, so he can make b went out candles into a new candle. As a result, this new candle can be used like any other new candle.

Now Vasily wonders: for how many hours can his candles light up the room if he acts optimally well? Help him find this number.

Input

The single line contains two integers, a and b ($1 \leq a \leq 1000$; $2 \leq b \leq 1000$).

Output

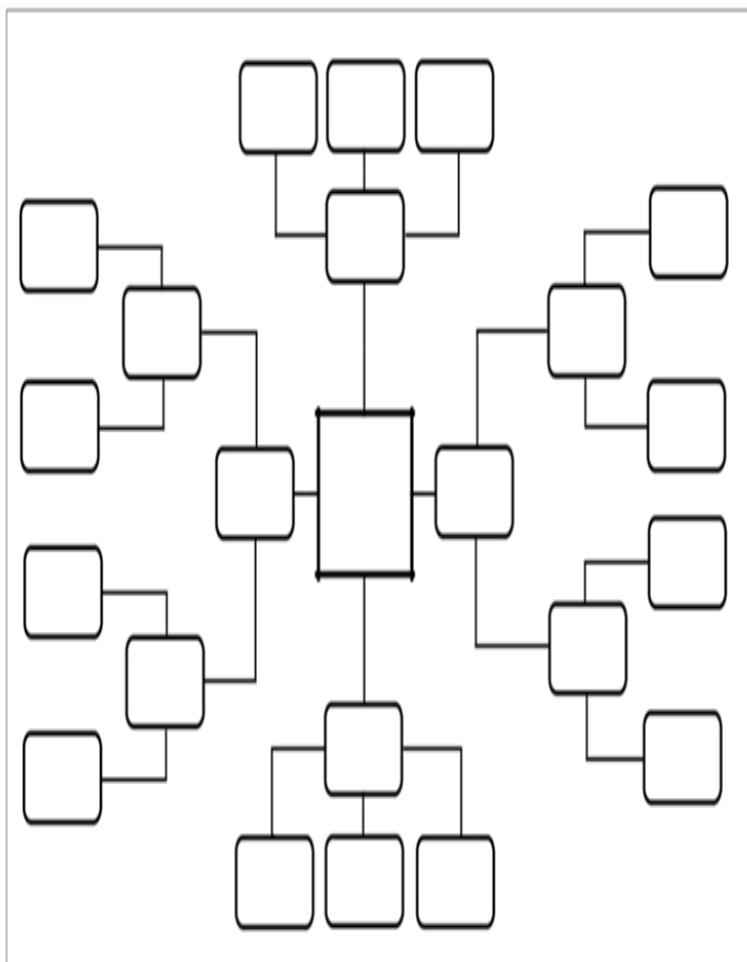
Print a single integer — the number of hours Vasily can light up the room for.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int candels=input.nextInt();
        int cantimes= input.nextInt();
        int burned=0;
        int out=0;
        int can=candels;

        if (cantimes<=candels){
            while (candels>=cantimes) {
                candels=candels-1;
                burned=burned+1;

                if (burned==cantimes){
                    //System.out.println("burned: "+burned);
                    // System.out.println("cantine: "+cantimes);
                    candels=candels+1;
                    out=out+1;
                    burned=0;

                }
                if (candels==0){
                    break;
                }
            }
            System.out.println(out+can+1);
        }else {
            System.out.println(candels);
        }

    }
}
```

80-1347C-Move Brackets:

You are given a bracket sequence s of length n , where n is even (divisible by two). The string s consists of n_2 opening brackets '(' and n_2 closing brackets ')'.

In one move, you can choose exactly one bracket and move it to the beginning of the string or to the end of the string (i.e. you choose some index i , remove the i -th character of s and insert it before or after all remaining characters of s).

Your task is to find the minimum number of moves required to obtain regular bracket sequence from s . It can be proved that the answer always exists under the given constraints.

Recall what the regular bracket sequence is:

- " $()$ " is regular bracket sequence;
- if s is regular bracket sequence then " $(+ s +)$ " is regular bracket sequence;
- if s and t are regular bracket sequences then $s + t$ is regular bracket sequence.

For example, " $()()$ ", " $((())()$ ", " $(())$ " and " $()$ " are regular bracket sequences, but " $)(", "()" and ")))$ " are not.

You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \leq t \leq 2000$) — the number of test cases. Then t test cases follow.

The first line of the test case contains one integer n ($2 \leq n \leq 50$) — the length of s . It is guaranteed that n is even. The second line of the test case containing the string s consisting of $n/2$ opening and $n/2$ closing brackets.

Output

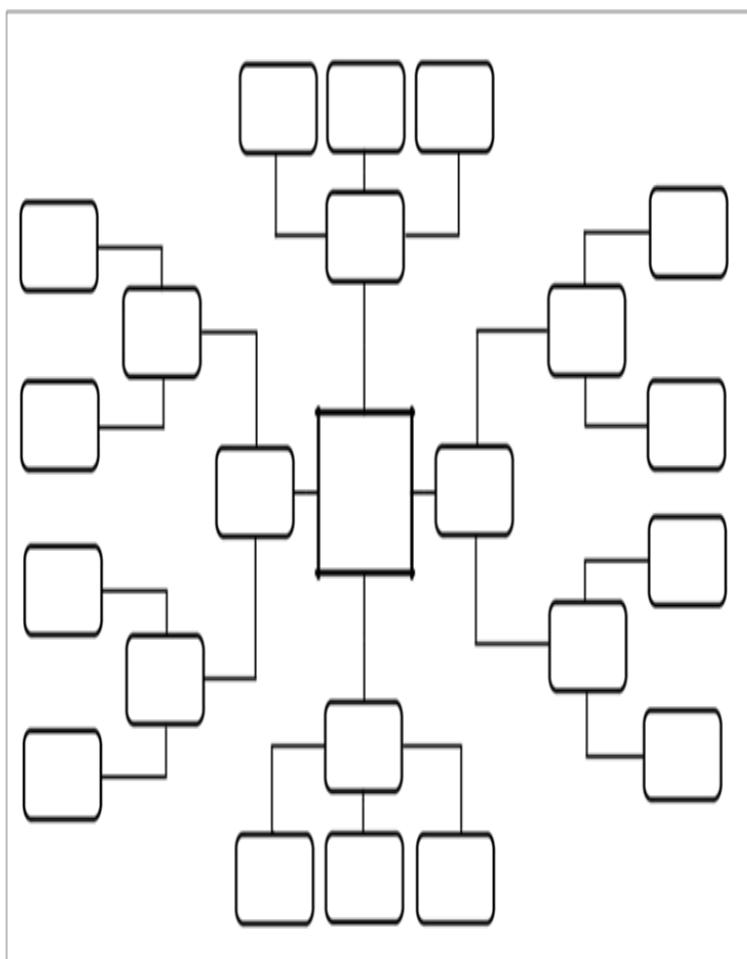
For each test case, print the answer — the minimum number of moves required to obtain regular bracket sequence from s . It can be proved that the answer always exists under the given constraints.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        String nu = input.nextLine();
        int number = Integer.parseInt(nu);
        int sum = 0;
        int move=0;

        for (int i = 0; i < number; i++) {
            move=0;
            String nu2=input.nextLine();
            int numbers=Integer.parseInt(nu2);
            String bra=input.nextLine();
            int [] arr=new int[numbers];
            for (int k=0;k<numbers;k++) {
                //System.out.println(sum);

                if (bra.charAt(k) == '(') {
                    //System.out.println("HERE 1 ->");
                    sum = sum + 1;
                } else if (bra.charAt(k) == ')') {
                    //System.out.println("HERE 2 ->");
                    sum = sum - 1;
                }
                arr[k]=sum;
            }
            Arrays.sort(arr);
            System.out.println(Math.abs(arr[0]));
        }
    }
}
```

81-584A_Olesya and Rodion:

Olesya loves numbers consisting of n digits, and Rodion only likes numbers that are divisible by t . Find some number that satisfies both of them.

Your task is: given the n and t print an integer strictly larger than zero consisting of n digits that is divisible by t . If such number doesn't exist, print - 1.

Input

The single line contains two numbers, n and t ($1 \leq n \leq 100$, $2 \leq t \leq 10$) — the length of the number and the number it should be divisible by.

Output

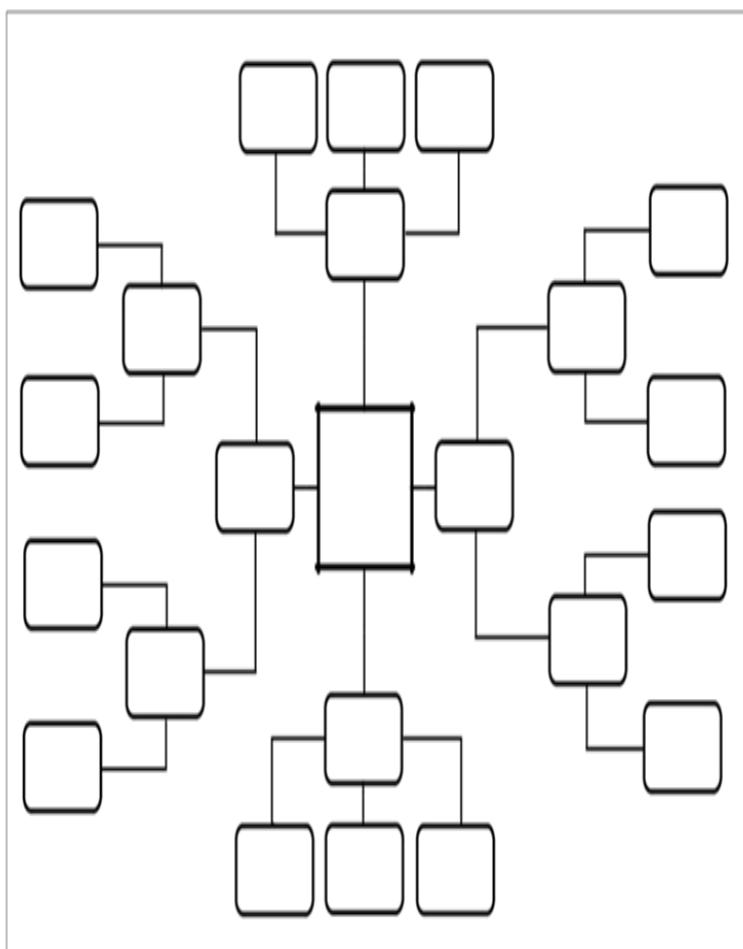
Print one such positive number without leading zeroes, — the answer to the problem, or - 1, if such number doesn't exist. If there are multiple possible answers, you are allowed to print any of them.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int length= input.nextInt();
        int division= input.nextInt();

        if (division==2){
            for (int i=0;i<length;i++) {
                System.out.print("2");
            }
        }else if(division==3){
            for (int i=0;i<length;i++) {
                System.out.print("3");
            }
        }else if(division==4){
            for (int i=0;i<length;i++) {
                System.out.print("4");
            }
        }else if(division==5){
            for (int i=0;i<length;i++) {
                System.out.print("5");
            }
        }else if(division==6){
            for (int i=0;i<length;i++) {
                System.out.print("6");
            }
        }else if(division==7){
            for (int i=0;i<length;i++) {
                System.out.print("7");
            }
        }else if(division==8){
            for (int i=0;i<length;i++) {
                System.out.print("8");
            }
        }else if(division==9){
            for (int i=0;i<length;i++) {
                System.out.print("9");
            }
        }else if(division==10){
            if (length>=2){
                for (int i=0;i<length-1;i++) {
                    System.out.print("1");
                }
                System.out.print("0");
            }else {
                System.out.print("-1");
            }
        }
    }
}
```

82-577A-Multiplication Table:

Let's consider a table consisting of n rows and n columns. The cell located at the intersection of i -th row and j -th column contains number $i \times j$. The rows and columns are numbered starting from 1.

You are given a positive integer x . Your task is to count the number of cells in a table that contain number x .

Input

The single line contains numbers n and x ($1 \leq n \leq 10^5$, $1 \leq x \leq 10^9$) — the size of the table and the number that we are looking for in the table.

Output

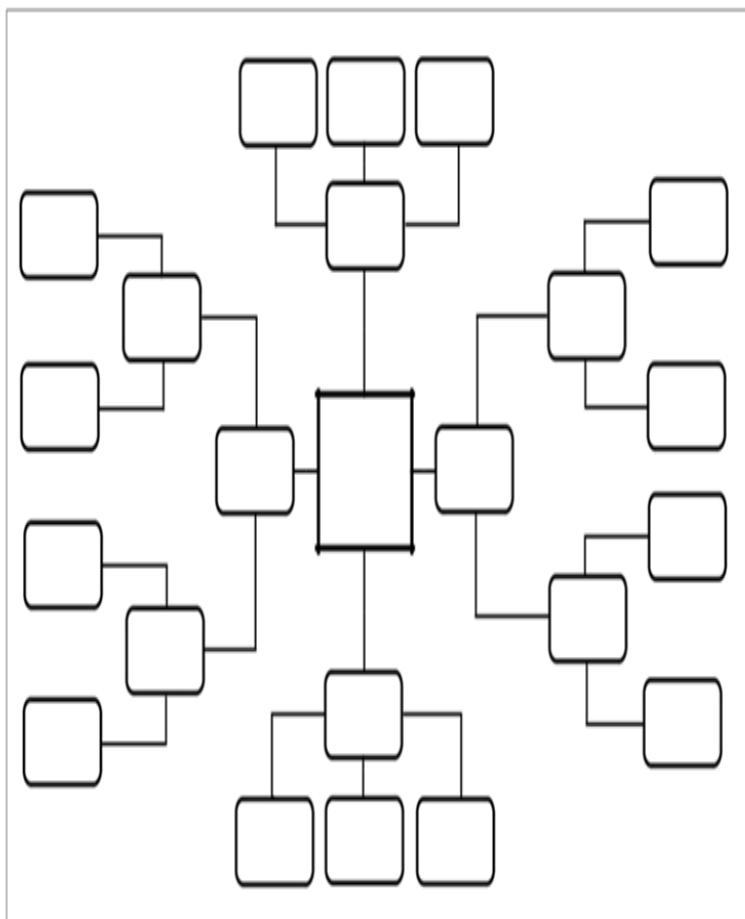
Print a single number: the number of times x occurs in the table.

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        int numbers= input.nextInt();
        int sum=0;
        for (int i=1;i<=number;i++){
            if (numbers%i==0 && numbers/i<=number) {
                //System.out.println("i: "+i);
                sum=sum+1;
            }
        }
        System.out.println(sum);
    }
}
```

8343A-Football:

One day Vasya decided to have a look at the results of Berland 1910 Football Championship's finals. Unfortunately he didn't find the overall score of the match; however, he got hold of a profound description of the match's process. On the whole there are n lines in that description each of which described one goal. Every goal was marked with the name of the team that had scored it. Help Vasya, learn the name of the team that won the finals. It is guaranteed that the match did not end in a tie.

Input

The first line contains an integer n ($1 \leq n \leq 100$) — the number of lines in the description. Then follow n lines — for each goal the names of the teams that scored it. The names are non-empty lines consisting of uppercase Latin letters whose lengths do not exceed 10 symbols. It is guaranteed that the match did not end in a tie and the description contains no more than two different teams.

Output

Print the name of the winning team. We remind you that in football

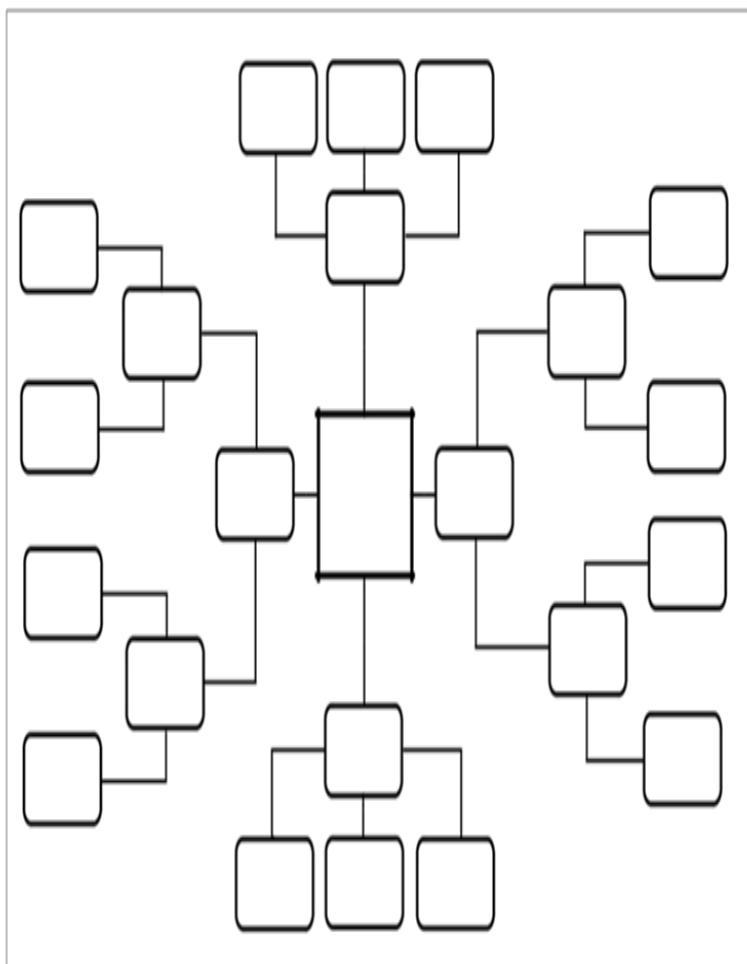
BOOK TITLE

the team that scores more goals is considered the winner.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

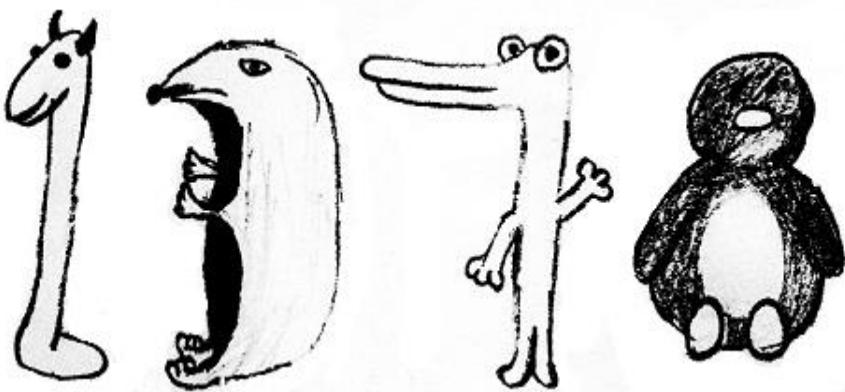
        Scanner input = new Scanner(System.in);
        String num=input.nextLine();
        int numbers = Integer.parseInt(num);
        String[] arr=new String[numbers];
        String[] arr1=new String[numbers];
        int sum=0;
        int neg=0;
        for (int i=0;i<numbers;i++) {
            String word= input.nextLine();
            arr[i]=word;
        }
        for (int z=0;z<numbers;z++) {
            if (numbers==1) {
                System.out.println(arr[0]);

            }else if (arr[z].equals(arr[0])) {
                sum=sum+1;
            }else {
                neg=neg+1;
                arr1[0]=arr[z];
            }
        }
        if (sum>neg) {
            System.out.println(arr[0]);
        }else if (sum<neg) {
            System.out.println(arr1[0]);
        }
    }
}
```

84-742A-Arpa's hard exam and Mehrdad's naive cheat:

There exists an island called Arpa's land, some beautiful girls live there, as ugly ones do.

Mehrdad wants to become minister of Arpa's land. Arpa has prepared an exam. Exam has only one question, given n , print the last digit of 1378^n .



Mehrdad has become quite confused and wants you to help him. Please help, although it's a naive cheat.

Input

The single line of input contains one integer n ($0 \leq n \leq 10^9$).

Output

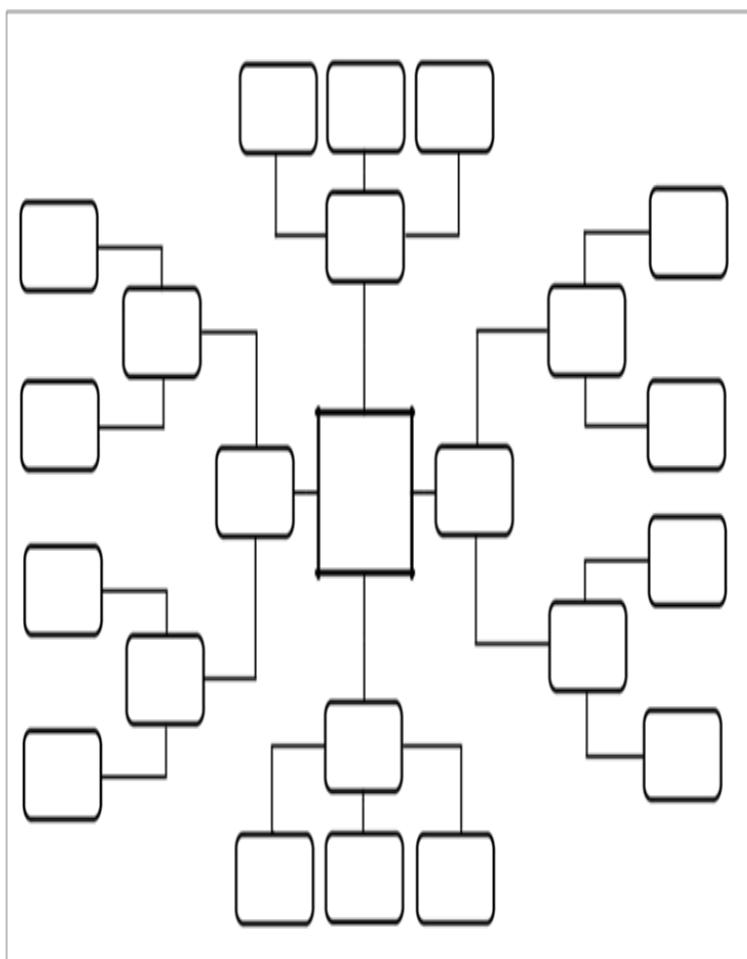
Print single integer — the last digit of 1378^n .

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        if (number==0){
            System.out.println("1");
        }else if (number%4==0){
            System.out.println("6");
        }else if (number%4==1){
            System.out.println("8");
        }else if (number%4==2){
            System.out.println("4");
        }else if (number%4==3){
            System.out.println("2");
        }
    }
}
```

85124A - The number of positions:

Petr stands in line of n people, but he doesn't know exactly which position he occupies. He can say that there are no less than a people standing in front of him and no more than b people standing behind him. Find the number of different positions Petr can occupy.

Input

The only line contains three integers n , a and b ($0 \leq a, b < n \leq 100$).

Output

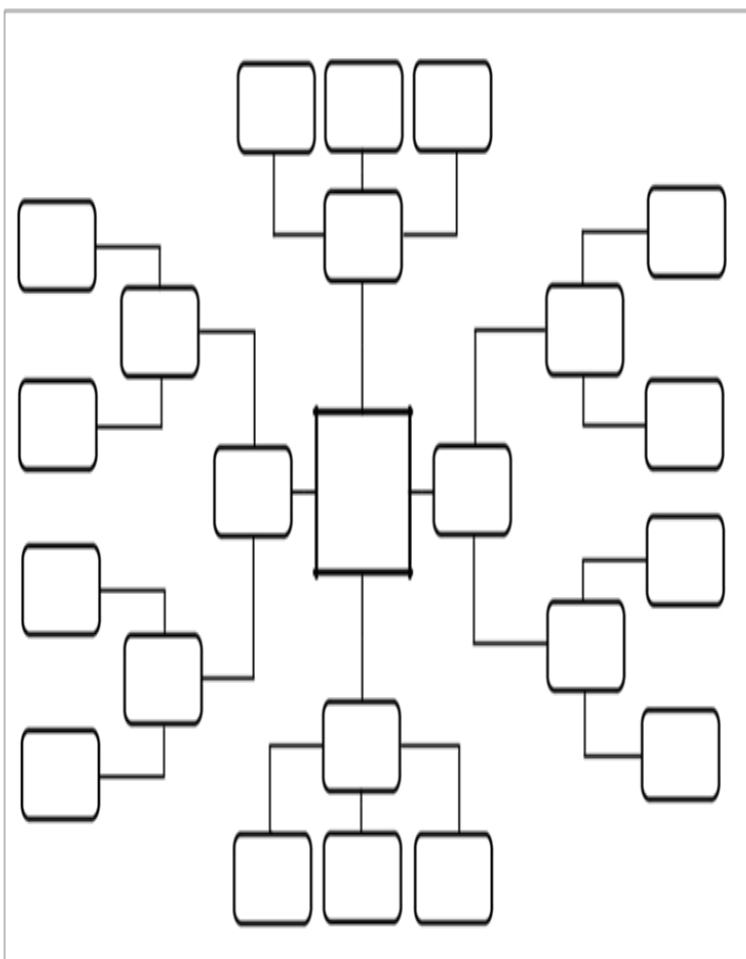
Print the single number — the number of the sought positions.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int n = input.nextInt();
        int a = input.nextInt();
        int b = input.nextInt();

        //no less than "a" in front
        //no more than "b" behind

        System.out.println(n-Math.max(a+1,n-b)+1);
    }
}
```

86-1326A - Bad Ugly Numbers:

You are given a integer n ($n > 0$). Find any integer s

which satisfies these conditions, or report that there are no such numbers:

In the decimal representation of s :

- $s > 0$,
- s consists of n digits,
- no digit in s equals 0,
- s is not divisible by any of its digits.

Input

The input consists of multiple test cases. The first line of the input contains a single integer t

($1 \leq t \leq 400$), the number of test cases. The next t lines each describe a test case.

Each test case contains one positive integer n

($1 \leq n \leq 105$).

It is guaranteed that the sum of n for all test cases does not exceed 105.

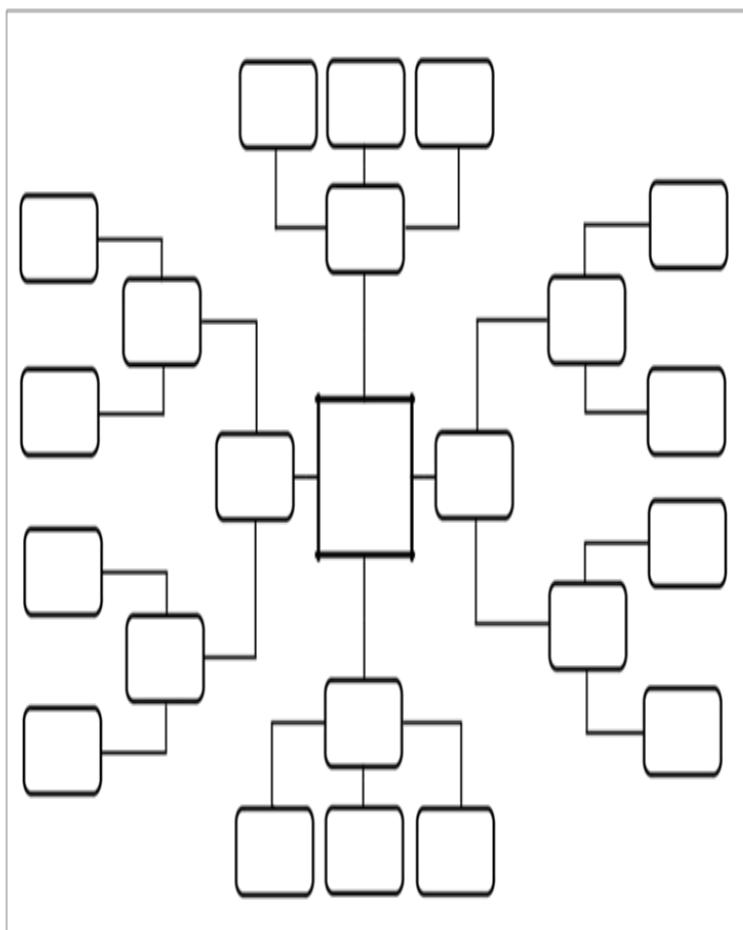
Output

For each test case, print an integer s which satisfies the conditions described above, or "-1" (without quotes), if no such number exists. If there are multiple possible solutions for s , print any solution.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();

        for (int i = 0; i < number; i++) {
            int numbers = input.nextInt();
            if (numbers == 1) {
                System.out.println("-1");
            } else {
                System.out.print("23");
                for (int j = 0; j < numbers - 2; j++) {

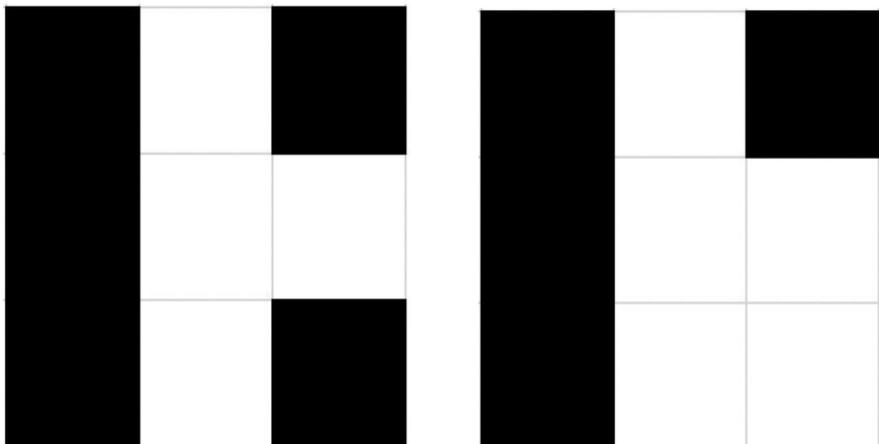
                    System.out.print("3");

                }
                System.out.println(" ");
            }
        }
    }
}
```

87-1333A-Little Artem:

Young boy Artem tries to paint a picture, and he asks his mother Medina to help him. Medina is very busy, that's why she asked for your help.

Artem wants to paint an $n \times m$ board. Each cell of the board should be colored in white or black. Let B be the number of black cells that have at least one white neighbor adjacent by the side. Let W be the number of white cells that have at least one black neighbor adjacent by the side. A coloring is called good if $B=W+1$. The first coloring shown below has $B=5$ and $W=4$ (all cells have at least one neighbor with the opposite color). However, the second coloring is not good as it has $B=4$, $W=4$ (only the bottom right cell doesn't have a neighbor with the opposite color).



Please, help Medina to find any good coloring. It's guaranteed that under given constraints the solution always exists. If there are several solutions, output any of them.

Input

Each test contains multiple test cases.

The first line contains the number of test cases t ($1 \leq t \leq 20$). Each of the next t lines contains two integers n, m ($2 \leq n, m \leq 100$) — the number of rows and the number of columns in the grid.

Output

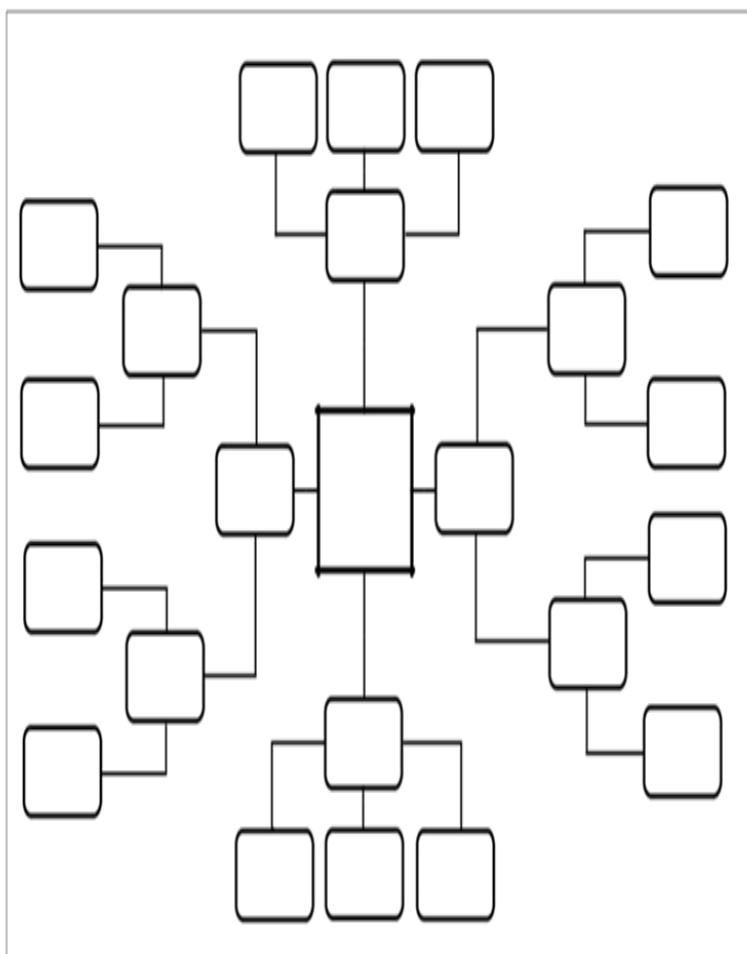
For each test case print n lines, each of length m , where i -th line is the i -th row of your colored matrix (cell labeled with 'B' means that the cell is black, and 'W' means white). Do not use quotes. It's guaranteed that under given constraints the solution always exists.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int b=0;

        for (int i = 0; i < number; i++) {
            int row = input.nextInt();
            int column = input.nextInt();
            b=column*row-1;
            int x=0;
            boolean ww=true;
            for (int k = 0; k < row; k++) {
                for (int j = 0; j < column*row; j++) {

                    if (ww) {
                        System.out.print("W");
                        ww=false;
                        x=x+1;
                    }

                    if (b>=1) {
                        if (x!=column-1) {
                            System.out.print("B");
                            x = x + 1;
                        }else if (x==column-1){
                            System.out.println("B");
                            x=0;
                        }
                        b=b-1;
                    }
                }
            }
        }
    }
}
```

88-1373A - Donut Shops:

There are two rival donut shops. The first shop sells donuts at retail: each donut costs a dollars. The second shop sells donuts only in bulk: box of b donuts costs c dollars. So if you want to buy x donuts from this shop, then you have to buy the smallest number of boxes such that the total number of donuts in them is greater or equal to x .

You want to determine two positive integer values:

1. how many donuts can you buy so that they are strictly cheaper in the first shop than in the second shop?
2. how many donuts can you buy so that they are strictly cheaper in the second shop than in the first shop?

If any of these values doesn't exist then that value should be equal to -1 . If there are multiple possible answers, then print any of them. The printed values should be less or equal to 109 . It can be shown that under the given constraints such values always exist if any values exist at all.

Input

The first line contains a single integer t ($1 \leq t \leq 1000$) — the number of testcases.

Each of the next t lines contains three integers a , b and c ($1 \leq a \leq 109$, $2 \leq b \leq 109$, $1 \leq c \leq 109$).

Output

For each testcase print two positive integers. For both shops print such x that buying x donuts in this shop is strictly cheaper than buying x donuts in the other shop. x should be greater than 0 and less or equal to 109.

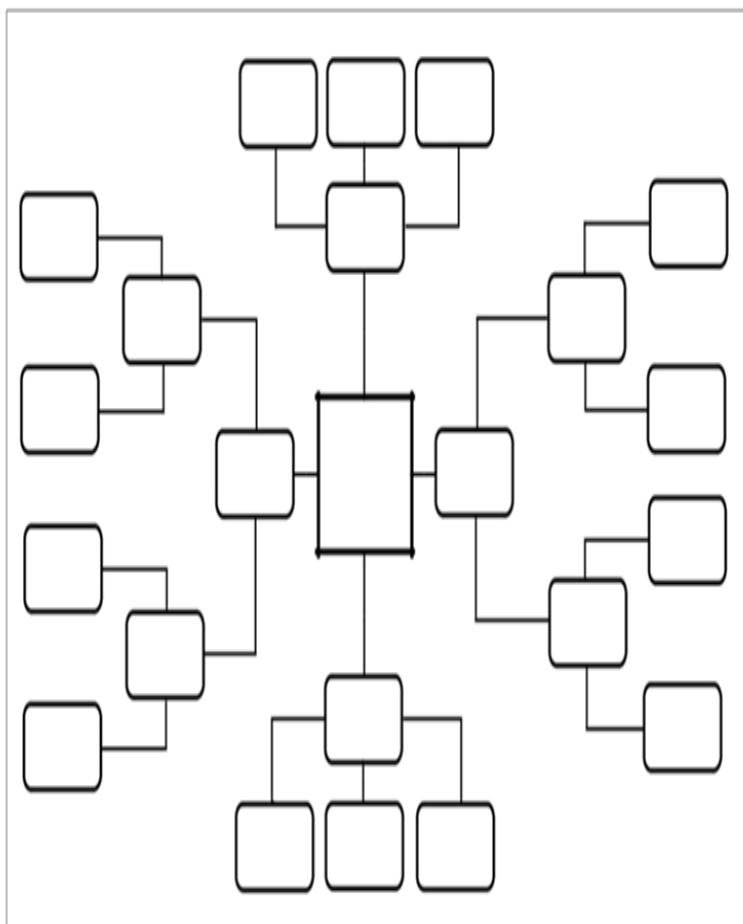
If there is no such x , then print -1. If there are multiple answers, then print any of them.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(python):

```
for i in range (int(input())):
    a, b, c = map(int, input().split())
    print(1 if a<c else -1,end=" ")
    print(b if c<a*b else -1)
```

BOOK TITLE

1100 SCORES PROBLEMS

89-270A - Fancy Fence:

Emuskald needs a fence around his farm, but he is too lazy to build it himself. So he purchased a fence-building robot.

He wants the fence to be a regular polygon. The robot builds the fence along a single path, but it can only make fence corners at a single angle a .

Will the robot be able to build the fence Emuskald wants? In other words, is there a regular polygon which angles are equal to a ?

Input

The first line of input contains an integer t ($0 < t < 180$) — the number of tests. Each of the following t lines contains a single integer a ($0 < a < 180$) — the angle the robot can make corners at measured in degrees.

Output

For each test, output on a single line "YES" (without quotes), if the robot can build a fence Emuskald wants, and "NO" (without quotes),

if it is impossible.

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

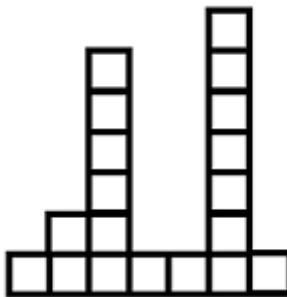
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number= input.nextInt();
        for (int i=0;i<number;i++) {
            int numbers= input.nextInt();
            if(360%(180-numbers)==0) {
                System.out.println("YES");
            }else {
                System.out.println("NO");
            }
        }
    }
}
```

90-363B - B. Fence:

There is a fence in front of Polycarpus's home. The fence consists of n

planks of the same width which go one after another from left to right. The height of the i -th plank is h_i meters, distinct planks can have distinct heights.



Fence for $n = 7$ and $h = [1, 2, 6, 1, 1, 7, 1]$

Polycarpus has bought a posh piano and is thinking about how to get it into the house. In order to carry out his plan, he needs to take exactly k consecutive planks from the fence. Higher planks are harder to tear off the fence, so Polycarpus wants to find such k consecutive planks that the sum of their heights is minimal possible.

Write the program that finds the indexes of k consecutive planks with minimal total height. Pay attention, the fence is not around Polycarpus's home, it is in front of home (in other words, the fence isn't cyclic).

Input

The first line of the input contains integers n and k ($1 \leq n \leq 1.5 \cdot 10^5$, $1 \leq k \leq n$) — the number of planks in the fence and the width of the hole for the piano. The second line contains the sequence of integers h_1, h_2, \dots, h_n ($1 \leq h_i \leq 100$), where h_i is the height

of the i -th plank of the fence.

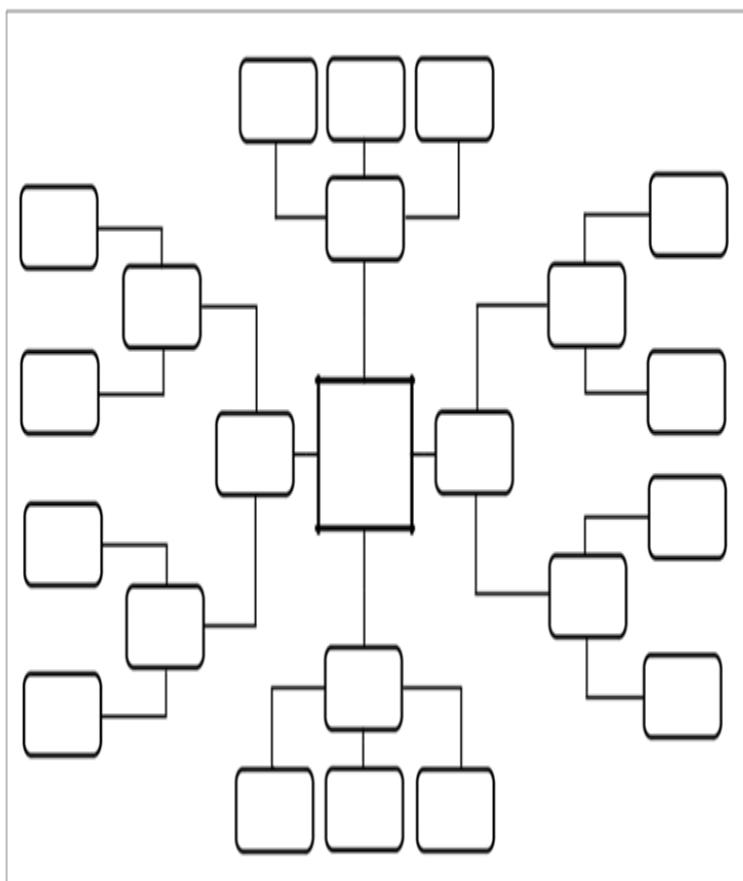
Output

Print such integer j that the sum of the heights of planks $j, j + 1, \dots, j + k - 1$ is the minimum possible. If there are multiple such j 's, print any of them.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int n = input.nextInt();
        int k = input.nextInt();
        int [] h=new int[n];

        for (int i=0;i<n;i++) {
            h[i]= input.nextInt();
        }

        int sum=0;
        int windowSum=0;
        int index=k-1;

        for(int j=0;j<k;j++) {
            sum=h[j]+sum;
        }

        windowSum=sum;

        for(int m=k;m<n;m++) {
            windowSum=windowSum+h[m]-h[m-k];
            if (windowSum<sum) {
                windowSum=sum;
                index=m;
            }
        }
        System.out.println(index-k+2);

    }
}
```

91-519B-A and B and Compilation Errors:

A and B are preparing themselves for programming contests.

B loves to debug his code. But before he runs the solution and starts debugging, he has to first compile the code.

Initially, the compiler displayed n compilation errors, each of them is represented as a positive integer. After some effort, B managed to fix some mistake and then another one mistake.

However, despite the fact that B is sure that he corrected the two errors, he can not understand exactly what compilation errors disappeared — the compiler of the language which B uses shows errors in the new order every time! B is sure that unlike many other programming languages, compilation errors for his programming language do not depend on each other, that is, if you correct one error, the set of other error does not change.

Can you help B find out exactly what two errors he corrected?

Input

The first line of the input contains integer n ($3 \leq n \leq 10^5$) — the initial number of compilation errors.

The second line contains n space-separated integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$) — the errors the compiler displayed for the first time.

The third line contains $n - 1$ space-separated integers b_1, b_2, \dots, b_{n-1} — the errors displayed at the second compilation. It is guaranteed that the sequence in the third line contains all numbers of the second string except for exactly one.

The fourth line contains $n - 2$ space-separated integers c_1, c_2, \dots, c_{n-2} — the errors displayed at the third compilation. It is guaranteed that the sequence in the fourth line contains all numbers of the third line except for exactly one.

Output

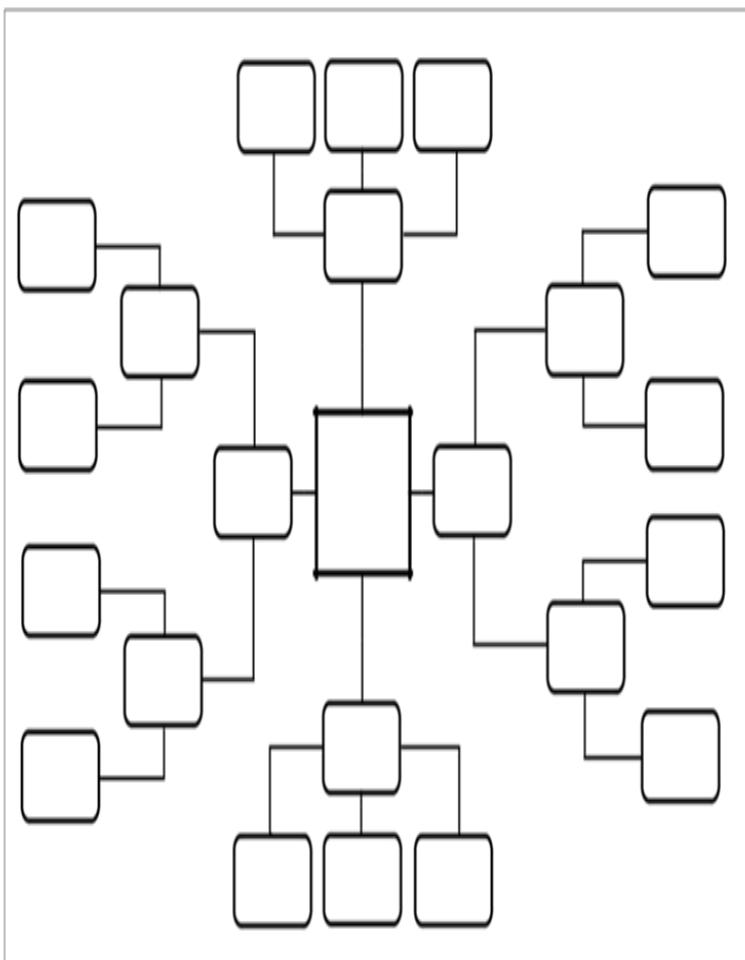
Print two numbers on a single line: the numbers of the compilation errors that disappeared after B made the first and the second correction, respectively.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Arrays;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();

        int sum1=0;
        int sum2=0;
        int sum3=0;

        for (int i = 0; i < number; i++) {
            int numbers1=input.nextInt();
            sum1=sum1+numbers1;
        }

        for (int j=0;j<number-1;j++) {
            int numbers2= input.nextInt();
            sum2=sum2+numbers2;
        }

        for (int k=0;k<number-2;k++) {
            int numbers3= input.nextInt();
            sum3=sum3+numbers3;
        }

        System.out.println(sum1-sum2);
        System.out.println(sum2-sum3);

    }
}
```

92-349A-Cinema Line:

The new "Die Hard" movie has just been released! There are n people at the cinema box office standing in a huge line. Each of them has a single 100, 50 or 25 ruble bill. A "Die Hard" ticket costs 25 rubles. Can the booking clerk sell a ticket to each person and give the change if he initially has no money and sells the tickets strictly in the order people follow in the line?

Input

The first line contains integer n ($1 \leq n \leq 10^5$) — the number of people in the line. The next line contains n integers, each of them equals 25, 50 or 100 — the values of the bills the people have. The numbers are given in the order from the beginning of the line (at the box office) to the end of the line.

Output

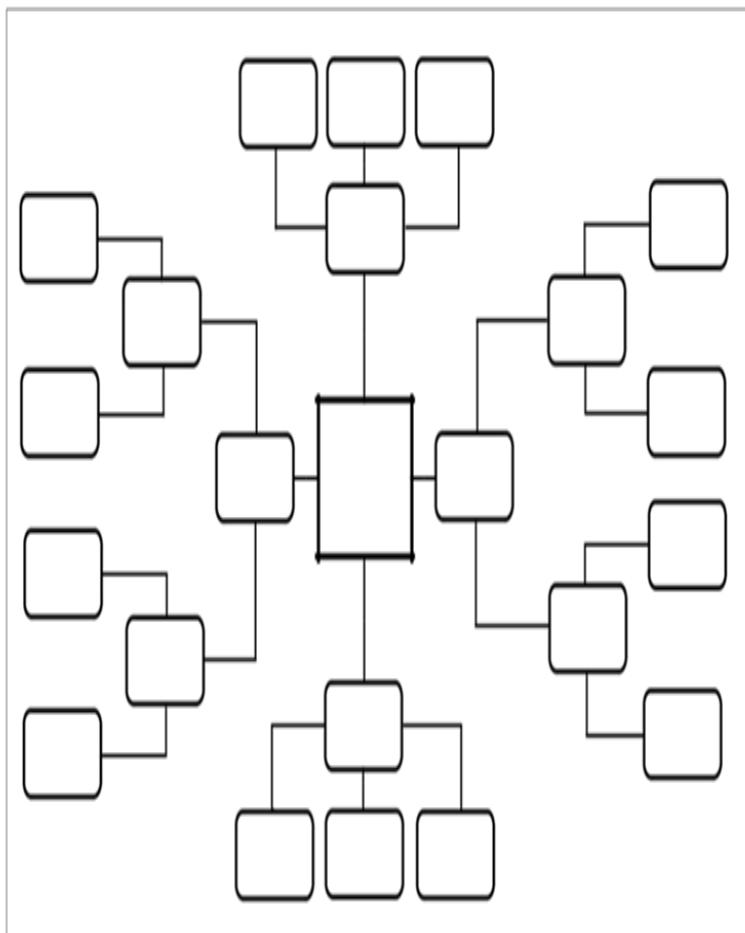
Print "YES" (without the quotes) if the booking clerk can sell a ticket to each person and give the change. Otherwise print "NO".

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int sum25=0;
        int sum50=0;
        int no=0;

        for (int i = 0; i < number; i++) {
            int money = input.nextInt();

            if (number==80001) {
                no=no-1;
            }

            if (number==80003) {
                no=no-1;
            }
            if (money==25) {
                sum25=sum25+1;
            }else if (money==50) {
                sum50=sum50+1;
            }
            if (money==50 && sum25>0) {
                sum25=sum25-1;
            }else if (money==100 && sum50>0 && sum25>0) {
                sum50=sum50-1;
                sum25=sum25-1;
            }else if (money==100 && sum25>1) {
                sum25=sum25-2;
            }else if (money==50 && sum25==0) {
                no=no+1;
            }else if (money==100 && sum50==0) {
                no=no+1;
            }else if (money==100 && sum25==0) {
                no=no+1;
            }else if(money==100&&sum25<1&&sum50<1) {
                no=no+1;
            }
        }
        if (no==0) {
            System.out.println("YES");
        }else {
            System.out.println("NO");
        }
    }
}
```

BOOK TITLE

1200 SCORES PROBLEMS

93-1352C - K-th Not Divisible by n:

You are given two positive integers n and k . Print the k -th positive integer that is not divisible by n .

For example, if $n=3$, and $k=7$, then all numbers that are not divisible by 3 are: 1,2,4,5,7,8,10,11,13.... The 7-th number among them is 10.

Input

The first line contains an integer t ($1 \leq t \leq 1000$) — the number of test cases in the input. Next, t test cases are given, one per line.

Each test case is two positive integers n ($2 \leq n \leq 109$) and k ($1 \leq k \leq 109$).

Output

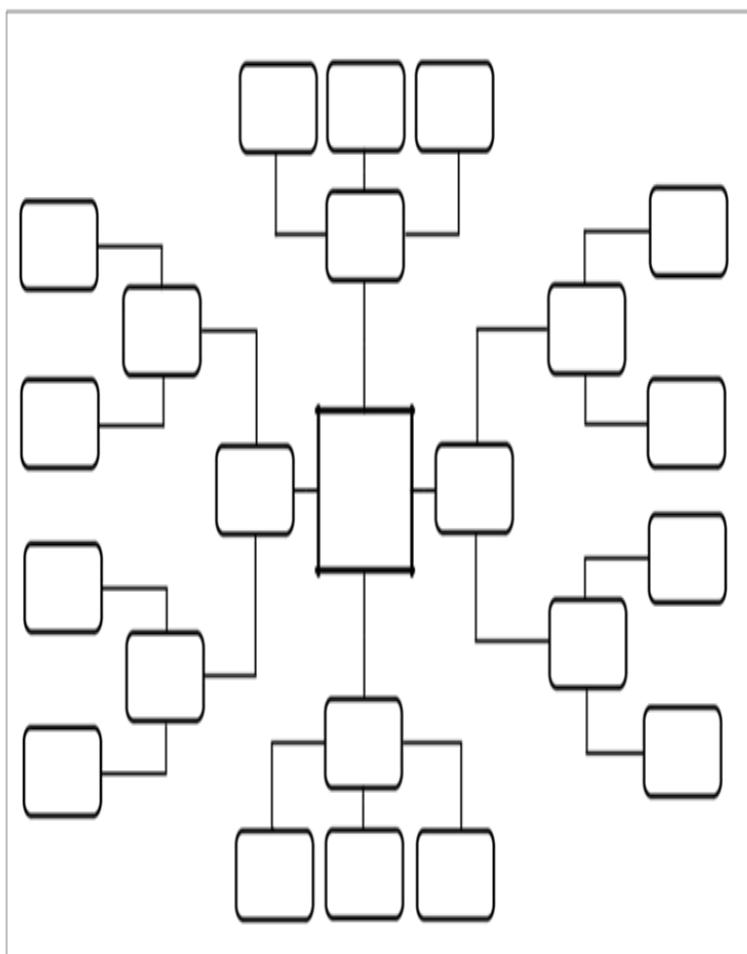
For each test case print the k -th positive integer that is not divisible by n .

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    static long findNthNumber(long n, long k) {
        long low=1L,high=Long.MAX_VALUE,mid;

        while(low<high) {

            mid=low+(high-low)/2;

            long count=mid-(mid/n); //counting the numbers that are not divisible

            if(count<k) {

                low=mid+1;

            }else {

                high = mid;

            }

        }

        return low;

    }

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        long number = input.nextLong();
        long total=0;

        for (long i = 0; i < number; i++) {
            long n = input.nextLong();
            long k = input.nextLong();
            System.out.println(findNthNumber(n,k));
        }
    }
}
```

94-1363A _ Odd Selection:

Shubham has an array a of size n , and wants to select exactly x elements from it, such that their sum is odd. These elements do not have to be consecutive. The elements of the array are not guaranteed to be distinct.

Tell him whether he can do so.

Input

The first line of the input contains a single integer t ($1 \leq t \leq 100$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains two integers n and x ($1 \leq x \leq n \leq 1000$) — the length of the array and the number of elements you need to choose.

The next line of each test case contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 1000$) — elements of the array.

Output

For each test case, print "Yes" or "No" depending on whether it is possible to choose x elements such that their sum is odd. You may

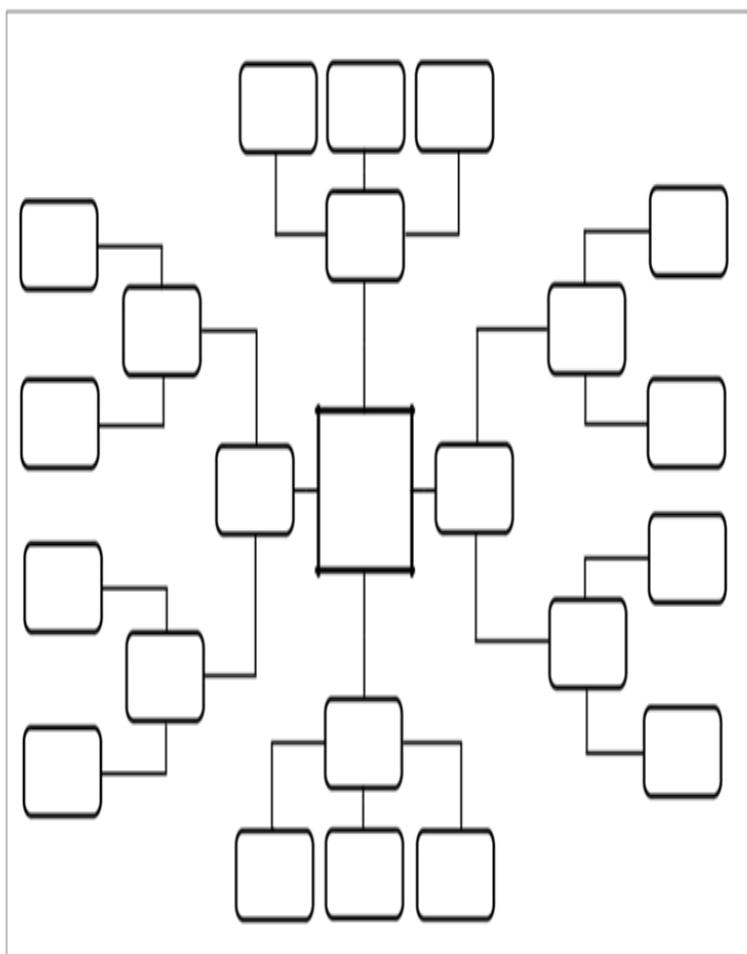
BOOK TITLE

print every letter in any case you want.

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int nueven = 0;
        int nuodd = 0;
        for (int i = 0; i < number; i++) {
            int n = input.nextInt();
            nueven = 0;
            nuodd = 0;
            int x = input.nextInt();
            for (int j = 0; j < n; j++) {
                int numbers = input.nextInt();

                if (numbers % 2 == 0) {
                    nueven = nueven + 1;
                } else {
                    nuodd = nuodd + 1;
                }
            }
            if (nuodd == 0 || x % 2 == 0 && nueven == 0) {
                System.out.println("NO");
            } else if (nueven >= x - 1 && nuodd >= 1) {
                System.out.println("YES");
            } else if ((nuodd - 1) % 2 == 0 && nuodd + nueven >= x) {
                System.out.println("YES");
            } else if (nuodd % 2 == 0 && nueven + nuodd - 2 >= x && nueven != 0) {
                System.out.println("YES");
            } else if (nuodd == x && nueven >= 1 && x % 2 == 0) {
                System.out.println("YES");
            } else if (x % 2 == 1 && nuodd >= x) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }
    }
}
```

95-1352B - Same Parity Summands:

You are given two positive integers n ($1 \leq n \leq 109$) and k ($1 \leq k \leq 100$). Represent the number n as the sum of k positive integers of the same parity (have the same remainder when divided by 2).

In other words, find a_1, a_2, \dots, a_k such that all $a_i > 0$, $n = a_1 + a_2 + \dots + a_k$ and either all a_i are even or all a_i are odd at the same time.

If such a representation does not exist, then report it.

Input

The first line contains an integer t ($1 \leq t \leq 1000$) — the number of test cases in the input. Next, t test cases are given, one per line.

Each test case is two positive integers n ($1 \leq n \leq 109$) and k ($1 \leq k \leq 100$).

Output

For each test case print:

- YES and the required values a_i , if the answer exists (if there are several answers, print any of them);
- NO if the answer does not exist.

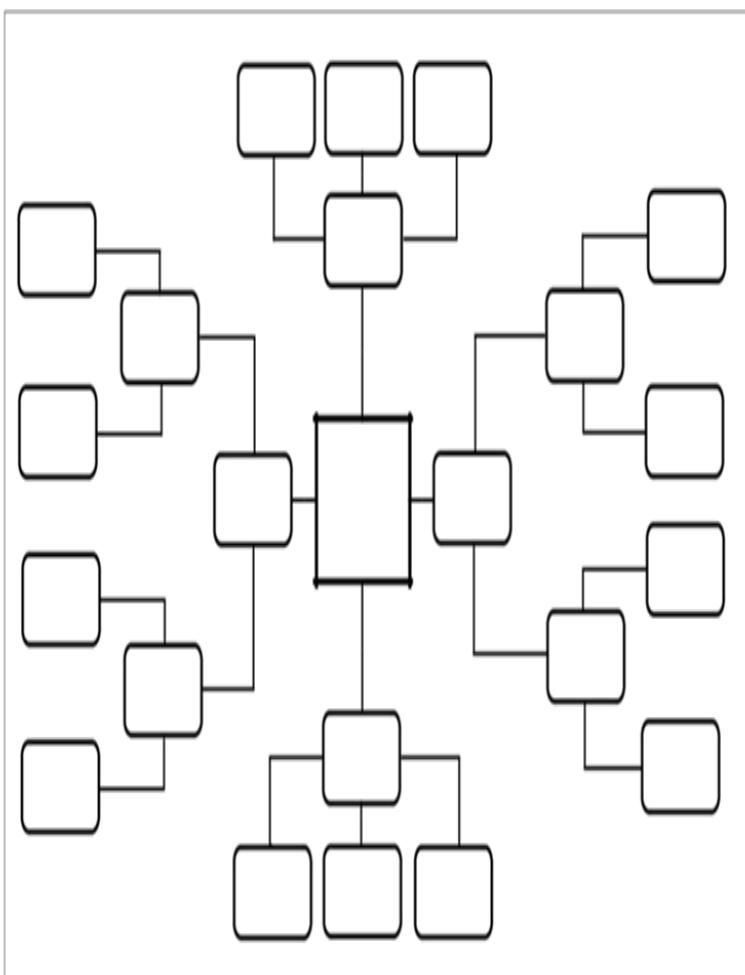
The letters in the words YES and NO can be printed in any case.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```

import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        for (int i = 0; i < number; i++) {
            int n = input.nextInt();
            int k = input.nextInt();
            int nT=n;
            int rem = 0;
            int sum=0;
            boolean zero=false;
            boolean first=false;

            if (n % k == 0) {
                System.out.println("YES");
                for (int j = 0; j < k; j++) {
                    System.out.print(n / k + " ");
                }
                System.out.println(" ");
                first=true;
            } else {
                int[] arr = new int[k];

                rem = n % k;
                n = n / k;

                for (int z = 0; z < k; z++) {
                    arr[z] = n;
                    if (z == k - 1) {
                        arr[z] = n + rem;
                    }
                }
                if (rem%2!=0) {
                    for (int m = 0; m < (k - 1); m++) {
                        if (m < k / 2) {
                            arr[m] = arr[m] + 1;
                        } else {
                            arr[m] = arr[m] - 1;
                        }
                    }
                }
                for (int y=0;y<k;y++) {
                    sum=sum+arr[y];
                }
            }
        }
    }
}

```

The rest of the answer is in the next page:

```
}

for (int f=k-1;f>=0;f--) {
    if (arr[f]<=0) {
        zero=true;
        break;
    }
}
//System.out.println(Arrays.toString(arr));
if (sum==nT && !zero){
    System.out.println("YES");
    for (int l=0;l<k;l++){
        System.out.print(arr[l]+" ");
    }
    System.out.println(" ");
    sum=0;
    zero=false;
}else{
    System.out.println("NO");
}
}
}
}
```

96-459A- Pashmak and Garden:

Pashmak has fallen in love with an attractive girl called Parmida since one year ago...

Today, Pashmak set up a meeting with his partner in a romantic garden. Unfortunately, Pashmak has forgotten where the garden is. But he remembers that the garden looks like a square with sides parallel to the coordinate axes. He also remembers that there is exactly one tree on each vertex of the square. Now, Pashmak knows the position of only two of the trees. Help him to find the position of two remaining ones.

Input

The first line contains four space-separated x_1, y_1, x_2, y_2 ($-100 \leq x_1, y_1, x_2, y_2 \leq 100$) integers, where x_1 and y_1 are coordinates of the first tree and x_2 and y_2 are coordinates of the second tree. It's guaranteed that the given points are distinct.

Output

If there is no solution to the problem, print -1. Otherwise print four space-separated integers x_3, y_3, x_4, y_4 that correspond to the coordinates of the two other trees. If there are several solutions you

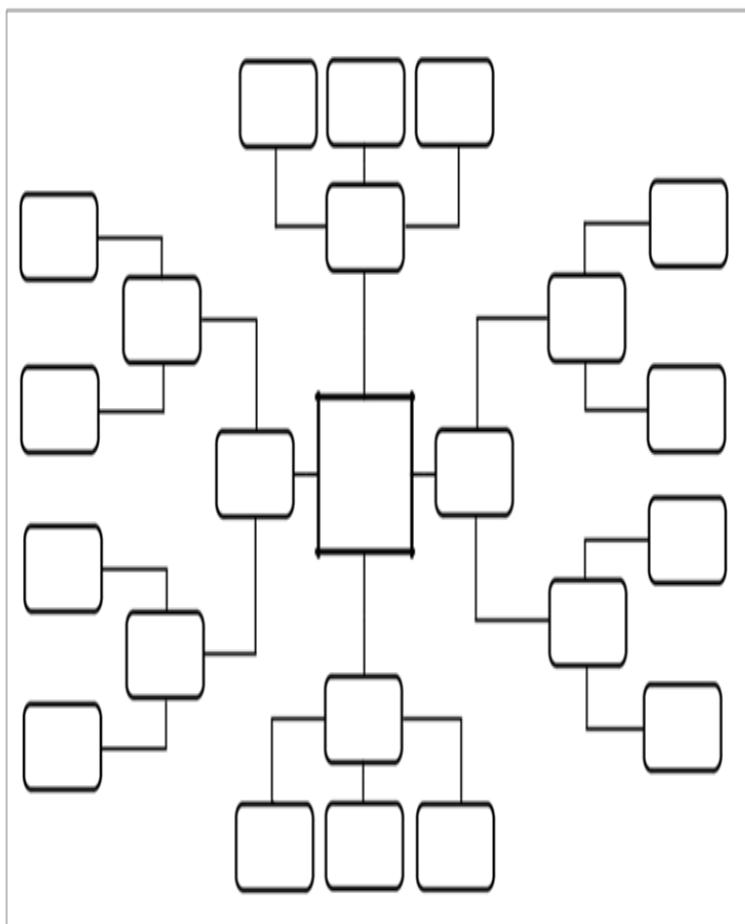
can output any of them.

Note that x_3, y_3, x_4, y_4 must be in the range ($-1000 \leq x_3, y_3, x_4, y_4 \leq 1000$).

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.util.*;
import java.io.*;

public class Main {
    public static void main(String args[]) throws IOException {
        Scanner sc = new Scanner(System.in);
        int x1 = sc.nextInt();
        int y1 = sc.nextInt();
        int x2 = sc.nextInt();
        int y2 = sc.nextInt();
        int x3 = 0;
        int y3 = 0;
        int x4 = 0;
        int y4 = 0;
        boolean isThereAnswer = true;
        if (x1 == x2 && y1 == y2) {
            isThereAnswer = false;
        } else if (x1 == x2) {
            x3 = x1 + Math.abs(y2 - y1);
            y3 = y1;
            x4 = x2 + Math.abs(y2 - y1);
            y4 = y2;
        } else if (y1 == y2) {
            x3 = x1;
            y3 = y1 + Math.abs(x2 - x1);
            x4 = x2;
            y4 = y2 + Math.abs(x2 - x1);
        } else if (Math.abs(x2 - x1) == Math.abs(y2 - y1)) {
            x3 = x1;
            y3 = y2;
            x4 = x2;
            y4 = y1;
        } else {
            isThereAnswer = false;
        }

        if (isThereAnswer)
            System.out.println(x3 + " " + y3 + " " + x4 + " " + y4);
        else
            System.out.println(-1);
    }
}
```

BOOK TITLE

1300 SCORES PROBLEMS

97-25A-IQ test:

Bob is preparing to pass IQ test. The most frequent task in this test is to find out which one of the given n numbers differs from the others. Bob observed that one number usually differs from the others in evenness. Help Bob — to check his answers, he needs a program that among the given n numbers finds one that is different in evenness.

Input

The first line contains integer n ($3 \leq n \leq 100$) — amount of numbers in the task. The second line contains n space-separated natural numbers, not exceeding 100. It is guaranteed, that exactly one of these numbers differs from the others in evenness.

Output

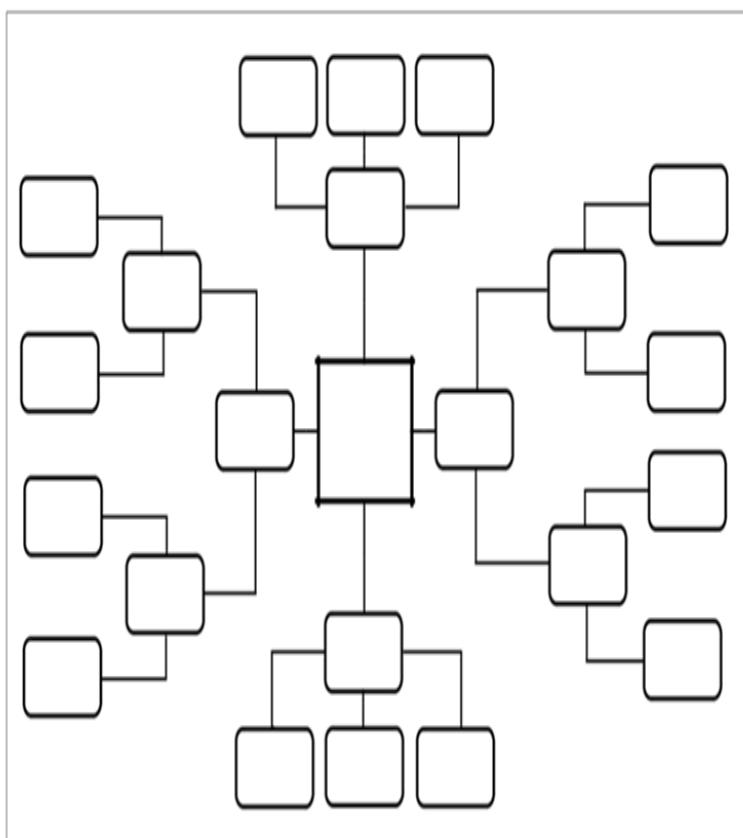
Output index of number that differs from the others in evenness. Numbers are numbered from 1 in the input order.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject: _____ Date: _____

Answer(Java):

```
//package com.company;

import java.util.Arrays;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        int number = input.nextInt();
        int[] arr = new int[number];
        int even=0;
        int odd=0;

        for(int i=0;i<number;i++) {
            int numbers= input.nextInt();
            arr[i]=numbers;
        }
        for (int j=0;j<number;j++) {
            if(arr[j]%2==0) {
                even=even+1;
            }else {
                odd=odd+1;
            }
        }
        if(even>odd) {
            for(int k=0;k<number;k++) {
                if(arr[k]%2!=0) {
                    System.out.println(k+1);
                    break;
                }
            }
        }else {

            for(int k=0;k<number;k++) {
                if(arr[k]%2==0) {
                    System.out.println(k+1);
                    break;
                }
            }
        }
    }
}
```

98-230B- T-primes:

We know that prime numbers are positive integers that have exactly two distinct positive divisors. Similarly, we'll call a positive integer t T-prime, if t has exactly three distinct positive divisors.

You are given an array of n positive integers. For each of them determine whether it is T-prime or not.

Input

The first line contains a single positive integer, n ($1 \leq n \leq 10^5$), showing how many numbers are in the array. The next line contains n space-separated integers x_i ($1 \leq x_i \leq 10^{12}$).

Please, do not use the %lld specifier to read or write 64-bit integers in C++. It is advised to use the cin, cout streams or the %I64d specifier.

Output

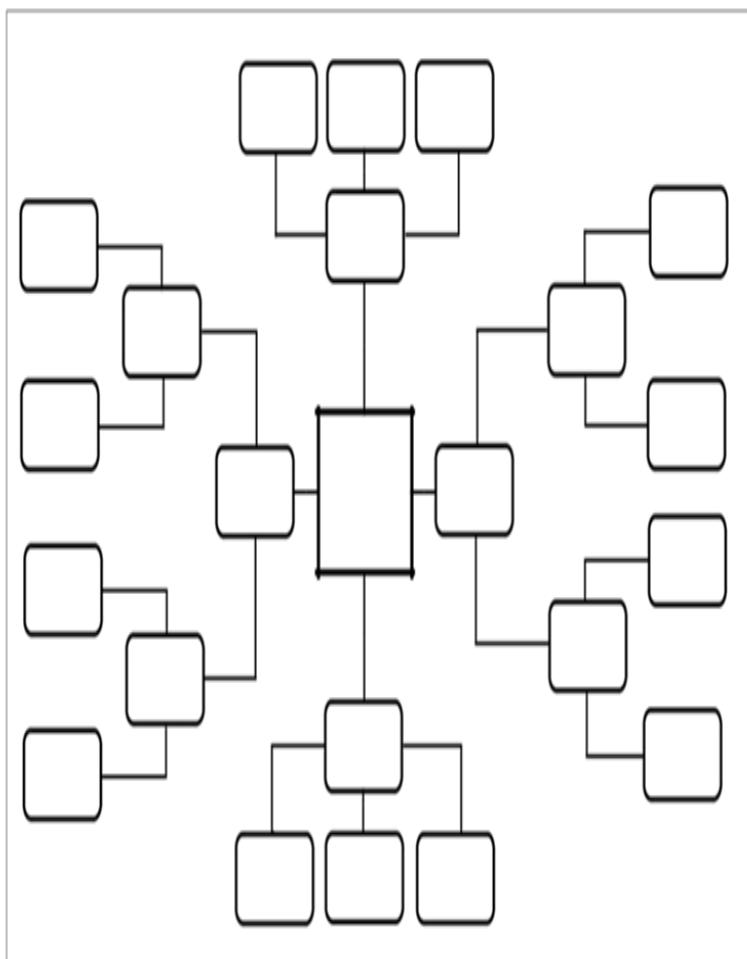
Print n lines: the i -th line should contain "YES" (without the quotes), if number x_i is T-prime, and "NO" (without the quotes), if it isn't.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
//package com.company;
import java.util.Scanner;
public class Main {

    public static boolean isPrime(long num) {
        int sum=0;
        if (num <= 1) {
            return false;
        }
        for (int i = 2; i <= Math.sqrt(num); i++) {
            sum=sum+1;

            if (sum>=1000){
                break;
            }
            if (num % i == 0) {
                return false;
            }
        }
        return true;
    }

    //////////////////////////////////////////////////////////////////

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        long number = input.nextLong();

        for(int i=0;i<number;i++) {
            long numbers = input.nextLong();

            if (Math.sqrt(numbers) != Math.round(Math.sqrt(numbers))) {
                System.out.println("NO");
            }else{
                if (isPrime((long) Math.sqrt(numbers))==true){
                    System.out.println("YES");
                }else {
                    System.out.println("NO");
                }
            }
        }
    }
}
```

99- 489C- Given Length and Sum of Digits... :

You have a positive integer m and a non-negative integer s . Your task is to find the smallest and the largest of the numbers that have length m and sum of digits s . The required numbers should be non-negative integers written in the decimal base without leading zeroes.

Input

The single line of the input contains a pair of integers m, s ($1 \leq m \leq 100, 0 \leq s \leq 900$) — the length and the sum of the digits of the required numbers.

Output

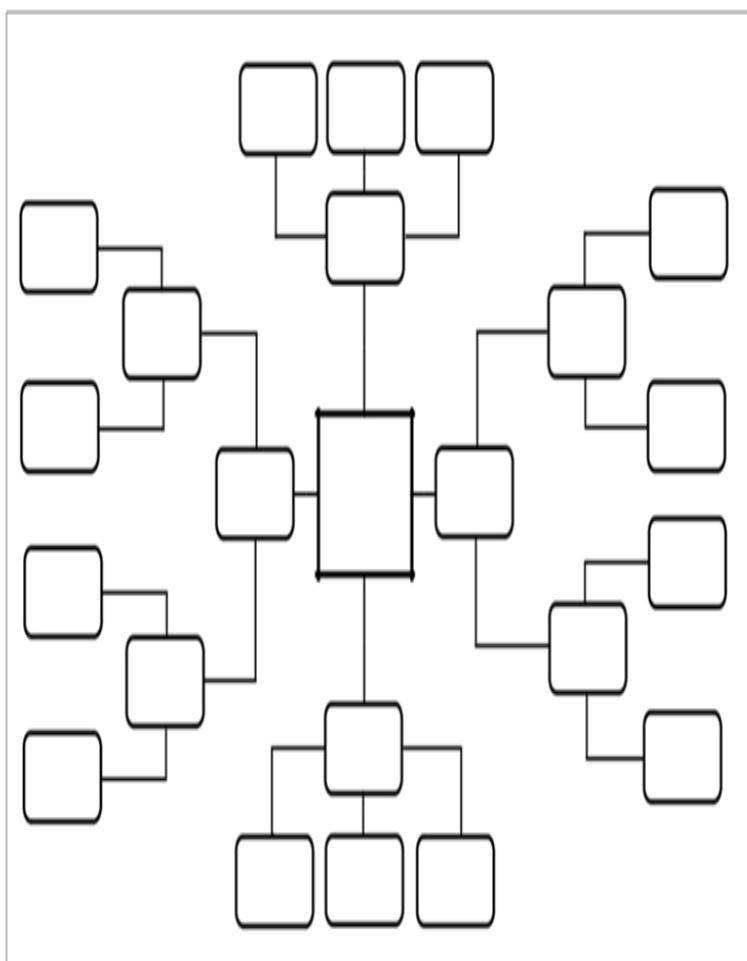
In the output print the pair of the required non-negative integer numbers — first the minimum possible number, then — the maximum possible number. If no numbers satisfying conditions required exist, print the pair of numbers "-1 -1" (without the quotes).

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```

import java.io.DataInputStream;
import java.io.FileInputStream;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) throws IOException {
        Scanner sc=new Scanner(System.in);
        int m=sc.nextInt();
        int n=sc.nextInt();
        int s=n;

        if(n>9*m) {
            System.out.println("-1 -1");
            return;
        }
        if(n==0) {
            if(m==1) System.out.println("0 0");
            else System.out.println("-1 -1");
            return;
        }

        int[] a=new int[m];
        int i;
        for(i=m-1;i>=0;i--) {
            if(n>9) {
                a[i] = 9;
                n -= 9;
            }
            else{
                a[i]=n;
                break;
            }
        }

        if(i!=0) {
            a[i]--;
            a[0]=1;
        }
        for(int j=0;j<m;j++) System.out.print(a[j]);
        System.out.print(" ");

        Arrays.fill(a,0);
        for(i=0;i<m;i++){
            if(s>9){
                a[i]=9;
            }
        }
    }
}

```

```
        s-=9;
    }
    else{
        a[i]=s;
        break;
    }
}
for(int j=0;j<m;j++) System.out.print(a[j]);

}

class node implements Comparable<node>{
    int n;
    int index;

    public node(int n,int index){
        this.n=n;
        this.index=index;
    }

    @Override
    public String toString() {
        return "node{" +
            "n=" + n +
            ", index=" + index +
            '}';
    }

    public int compareTo(node m){
        return this.n-m.n;
    }
}
```

100-520B-Two Buttons:

Vasya has found a strange device. On the front panel of a device there are: a red button, a blue button and a display showing some positive integer. After clicking the red button, device multiplies the displayed number by two. After clicking the blue button, device subtracts one from the number on the display. If at some point the number stops being positive, the device breaks down. The display can show arbitrarily large numbers. Initially, the display shows number n .

Bob wants to get number m on the display. What minimum number of clicks he has to make in order to achieve this result?

Input

The first and the only line of the input contains two distinct integers n and m ($1 \leq n, m \leq 10^4$), separated by a space.

Output

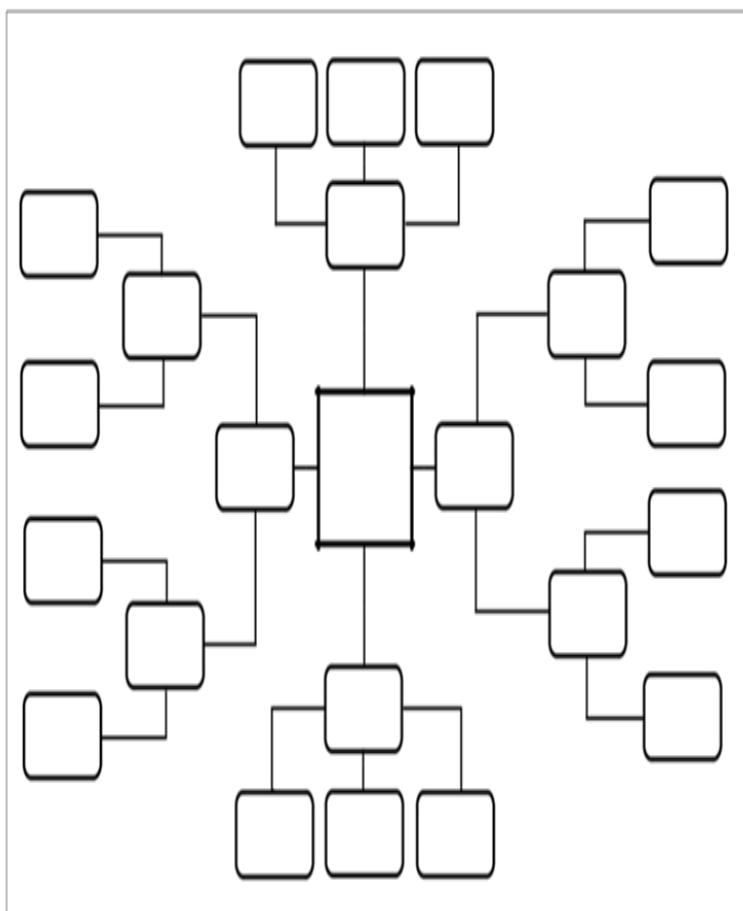
Print a single number — the minimum number of times one needs to push the button required to get the number m out of number n .

BOOK TITLE

How difficult was that?

How much did it take? : :

note:



Subject:

Date:

Answer(Java):

```
import java.io.*;
public class Buttons
{
    public static void main(String[] args) throws IOException
    {
        BufferedReader buff=new BufferedReader(new InputStreamReader(System.in));
        String [] in =buff.readLine().split("\\s");
        int m=Integer.parseInt(in[0]),n=Integer.parseInt(in[1]);
        int count=0;
        if(n>m)
        {
            while(n>m)
            {
                if(n%2==0)
                {
                    count++;n/=2;
                }
                else
                {
                    n+=1;count++;
                }
            }
        }
        if(n<m)count+=m-n;
        PrintWriter p=new PrintWriter(System.out);
        p.println(count);
        p.flush();
        p.close();
    }
}
```

101-550A-Two Substrings:

You are given string s . Your task is to determine if the given string s contains two non-overlapping substrings "AB" and "BA" (the substrings can go in any order).

Input

The only line of input contains a string s of length between 1 and 10^5 consisting of uppercase Latin letters.

Output

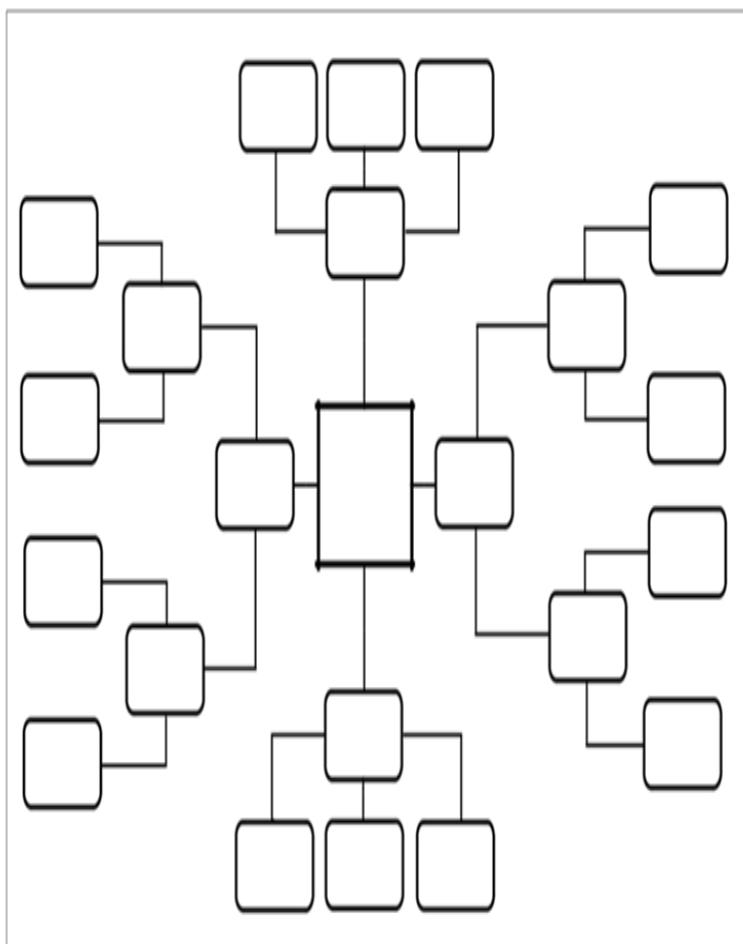
Print "YES" (without the quotes), if string s contains two non-overlapping substrings "AB" and "BA", and "NO" otherwise.

BOOK TITLE

How difficult was that? 1 2 3 4

How much did it take? : :

note:



Subject:

Date:

BOOK TITLE

Answer(Java):

```
import java.util.*;  
  
public class x  
{  
    public static void main(String[] args)  
    {  
        Scanner in= new Scanner(System.in);  
  
        String s=in.next();  
  
        boolean f1=false,s1=false;  
        int i;  
  
        for(i=0;i<s.length()-1;i++)  
        {  
            if(s.charAt(i)=='A' && s.charAt(i+1)=='B')  
            {  
                i+=2;f1=true;  
                break;  
            }  
        }  
  
        for(int j=i;j<s.length()-1;j++)  
        {  
            if(s.charAt(j)=='B' && s.charAt(j+1)=='A')  
            {  
                s1=true;  
                break;  
            }  
        }  
  
        boolean f2=false,s2=false;  
        for(i=0;i<s.length()-1;i++)  
        {  
            if(s.charAt(i)=='B' && s.charAt(i+1)=='A')  
            {  
                i+=2;f2=true;  
                break;  
            }  
        }  
    }  
}
```

```
i+=2;s2=true;
break;
}

for(int j=i;j<s.length()-1;j++)
{
    if(s.charAt(j)=='A' && s.charAt(j+1)=='B')
    {
        f2=true;
        break;
    }
}

//System.out.println(f1+" "+s1+" "+f2+" "+s2);

if((f1 && s1) || (f2 && s2))
    System.out.println("YES");
else
    System.out.println("NO");

}
```

BOOK TITLE

ABOUT THE AUTHOR



Mojtaba Maleki is a computer science student at the University of Debrecen in Hungary. He is interested in continuing my study on Machine Learning for his master. He decided to share His knowledge by publishing several books related to computer science. Meanwhile, He is in a professional area and have a good connection with his professors.

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