1. SPECIAL YEAR

Allen lives in a village in Kerala. Kerala has various unique blossoms growing due to its marsh environment. Fire lily is one rare flower that grow in Allen's village. It doesn't grow on all seasons and years. It grows only on special years. Allen has noted down all the special years and found that the special year contains 4 digits which are consecutive and can be in any order. Further, he has also found that "Blue Lotus" grows during partially special years. A partially special year is a year in which only 3 digits are consecutive in any order.

Given a year, write a program to find whether "Fire Lily" grows or "Blue Lotus" grows or "No Rare Flowers" grow on that particular year.

Input format

The first line of input consists of an integer representing the year.

Output Format

Print "Fire Lily" or "Blue Lotus" or "No Rare Flowers" based on the given input year.

Assume : the Input is always a 4 digit number

Sample Input1

4235

Sample output1

Fire Lily

Sample Input2

4238

Sample output2

Blue Lotus

Sample Input3

1969

Sample output3

No Rare Flowers

2. Glenn's Direction

Glenn is the camera-man for Bear Grylic's adventures. He is the one who acts as a navigation system for Grylis. Glenn wants to write a program that can tell Grylics the current facing direction. Glenn only knows the initial facing direction and the set of directions followed by them while walking.

Help them to find the current facing direction by writing a program.

For simplicity, he wants the program to work with only with integers (ie) each move is represented by a single digit. Here is the integer representation he wants to use:

0 – moves right by one unit.

1 – moves top by one unit

2 – moves left by one unit

3 – moves down by one unit.

Input Format

The first line of input is the initial direction {"North", "East"," West" or "South"}

The second line of the input is N, the number of directions (moves) he has taken

The third line consists of N space separated integers.

Output Format

Print the final direction {"North", "East"," West" or "South"}

Sample Input1

East

7

0 2 0 0 2 2 2

Sample output1

North

Sample Input2

North

9

0 2 0 2 0 2 0 3 2 0 1

Sample output2

West

3. TICK TOCK

Anitha is very fond of Clocks that ring every hour and she purchased a new one for her new flat. She enjoyed listening to the Tick Tock ringing sound of the clock during the daytime. But in the night time, her infant woke up every time the clock rang.

As it is a programmable clock. She decided to program the clock in such a way that it didn't ring between 8 pm and 7 am (both inclusive)

Given the time in IST as input, write a program to find whether the clock should ring or not.

Input and Output Format:

Input consists an integer that corresponds to the time in IST. The valid range of time is between 1 and 24.
Output consists of a string Output is either "Tick Tock", "No Tick Tock" or "Invalid Input"
Refer sample input and output1:

Sample Input and Output1:

Enter the time
18
Tick Tock

Sample Input and Output2:

Enter the time
21
No Tick Tock

Sample Input and Output3:

Enter the time
27
Invalid Input

4. Mahirl and Absolute Difference

Mahirl has learnt about finding the absolute difference of 2 numbers.

To test her on this topic, het teacher gave her an interesting assignment.

Given an array of integers, she need to find out if the absolute difference of values of any two consecutive array integers ia at most D (ie all two consecutive array elements should difference by at most D)

Can you please help Mahirl in this task?

Input Format
The first and second line of the input contains two integers N and D denoting the size of the array and value of D respectively.
The next n line of the input contains N integers, which are the integers present in the array.

Assume that the maximum size of the array is 20.

Output Format
Output consists of a string that is either "YES" or "NO"

Print YES , if the absolute difference between any two consecutive integer is at most D. otherwise print NO.

Sample Input:
4
2
6
7
9
8

Sample output1:
YES

Sample input2:
2
4
40
50

Sample Output2:

NO

5. TARGET PRACTICE

In a rifle shooting centre, a shooting competition was conducted for the beginners. Each contestant was given 1 chance to shoot on the marked target which is "x" in from their shooting position. As all contestants were beginners, none of them shot exactly on the target line. The organizers decided to give the price to the contestant who shot close to the target.

Given the distance that each contestants shot at, write a program to decide the winner.

Input and Output Format:

The first line of the input consists of an integer x, that corresponds to the target distance.

The second line of the input consists of an integer N, that corresponds to number of contestants.

Next n lines of the input consist of the distance (in m) at which each contestant shot at

Output consists of a single integer that corresponds to the distance shot by the winner

Refer sample input and output for formatting specifications.

Sample Input and output:

Enter the target line distance

10

Enter the number of contestants

3

Enter the distances shot at by the contestants.

8

7

11

The winner's shot is at a distance 11

6. Gift Wrapper

Dave has a rectangular gift wrapper of certain length and breadth. He wants to wrap a gift of a certain radius and height (only on the cylindrical part and not on top and bottom) using the wrapper, but he wants to do it without cutting it. Given the length and breadth of the wrapper and also the radius and height of the gift. Find if Dave can wrap the gift without having to cut the wrapper. If he can wrap the wrapper, display the excess in length and breadth of the wrapper. If he cannot wrap the wrapper, print the scarce length and breadth.

Note: There may be excess in length or width, in case he cannot wrap the wrapper also.

Assumptions:
1) If it is possible to wrap the gift in both the ways i.e. length-wise as well as beadth-wise take length-wise as the solution.
2) If it is not possible to wrap the gift in both the ways take length-wise as the solution, and find the excess/scarce.
3) Value of PI is 3.14.

Input Format:
The first line of input consists of two space separated integers R and H, which represents the radius and height of the gift respectively.
The second line of input consists of two space separated integers L and B, which represents the length and breadth of the wrappers respectively.

Output Format:
Print Yes if the wrapper can be wrapped around the gift without cutting, else print No.
Print the corresponding excess/scarce in length and breadth in the wrapper.
Note : Round off to 2 decimal places

Sample Input1:
40 8
31.4 10

Sample Output1:
Yes
Excess Length = 62.80
Excess Breadth =2.00

Sample Input2:
50 20
100 14

Sample Output2:
No
Source Length = 214
Scarce Breadth =6.00

7. LUCKY PRIZE VIII

In all the theatres, in the Amphi Multiplex, prizes will be given to few Lucky Winners every day. The lucky winners will be decided based on the Ticket number and the criteria for that day.

The criteria set for that day 8 is that prizes will be given to all ticket holders whose ticket number satisfy the condition given below.
All the digits in the ticket number are a part of the Fibonacci series.

[Hint : The first two terms in the Fibonacci series are 0 and 1. The remaining terms in the Fibonacci series are the sum of the preceding 2 terms]

Given a ticket number, write a program to determine whether that ticket holder will be a lucky prize winner or not.

Input and Output format:
Input consists of an integer that corresponds to the ticket number.
Output consists of a String that is either "Winner" or "Not a Winner"

Sample Input1:
1552

Sample Output1:
Winner

Sample Input1:
1563

Sample Output2:
Not a Winner

8. LUCKY PRIZE 1

In all the theatres, in the Amphi Multiplex, prizes will be given to few Lucky Winners every day. The lucky winners will be decided based on the Ticket number and the criteria for that day.

The criteria set for that day 1 is that prizes will be given to all ticket holders whose ticket number satisfy the condition given below.
1. All the digits in the ticket number are prime.
2. The sum of the digits in the ticket number is divisible by 3

[Hint : 1 is neither prime nor composite.]

Given a ticket number, write a program to determine whether that ticket holder will be a lucky prize winner or not.

Input and Output format:
Input consists of an integer that corresponds to the ticket number.
Output consists of a String that is either "Winner" or "Not a Winner"

Sample Input1:
573

Sample Output1:
Winner

Sample Input1:
778

Sample Output2:
Not a Winner

9. PRIME ARRAY

Write a program to determine whether the given array is a prime array or not. An array is said to be a prime array if all the elements in the array are prime

If the size of the input array is negative or if any of the input elements is negative, print "Invalid Input" and terminate the program.

Input and Output Format:

Input consists of n+1 integers. The first integer corresponds to n, the number of elements in the array. The next 'n' integers correspond to the elements in the array.
Output consists of a string that is either "YES" OR "NO". Print "YES" if the input array is a Prime array. Print "NO" if the input array is not a Prime Array

Refer sample output for formatting specifications

Sample Input1:
6
2
7
71
3
13
11

Sample output1:
YES

Sample Input2:
-4

Sample output2:
Invalid Input

Sample Input3:
4
1
-2

Sample output3:
Invalid Input

10. Bus Game

In a village, N kids were playing the bus game.
The rules for the bus game is as follows:
Starting from the number 1, the kids keep telling the consecutive numbers one by one. A number 'X' will be given. The kid who gets the number divisible by X should say "Bus", instead of the original number and the next kid will continue with the next number. This will go in a circular manner. If any kid says correctly that kid is out of the game.
The kids are very clever. So they won't make any mistake while feeling the numbers. They make mistake only while telling "Bus"

Write a program to find the kid's number (index starting from 1) who went wrong.

Input format:
The first input is an integer, that corresponds to the number of kids N
The second input is an integer, that corresponds to the number X
The following lines are strings, which correspond to the number said by the kids. The input stops only when any kids says incorrectly

Output format:
Output is an integer value which represents the kids number who went wrong

Sample Input:
5
4
1
2
3
Bus
5
6
7
8

Sample output
3