1.Pattern Print

Consider a staircase of size :4

```
   #
  ##
 ###
####
```

Observe that its base and height are both equal to , and the image is drawn using # symbols and spaces. *The last line is not preceded by any spaces.*

Write a program that prints a staircase of size .

Input Format

A single integer, , denoting the size of the staircase.

Output Format

Print a staircase of size using # symbols and spaces.

Note: The last line must have spaces in it.

Sample Input

```
6
```

Sample Output

```
     #
    ##
   ###
  ####
 #####
```

2.Time Display

Given the time in numerals we may convert it into words, as shown below:

5:00->five o’clock
5:01->one minute past five
5:30->half past five
5:40->twenty minutes to six
5:45->quarter to six

Write a program which prints the time in words for the input given in the format mentioned above.

Input Format

There will be two lines of input:
, representing the hours
, representing the minutes

Constraints

Output Format

Display the time in words.

Sample Input

```
5
47
```

Sample Output

thirteen minutes to six

3.Alpha Numeric Sorting

Given text comprising of words and numbers, sort them both in ascending order and print them in a manner that a word is followed by a number. Words can be in upper or lower case. You have to convert them into lowercase and then sort and print them.

Input Format:

First line contains total number of test cases, denoted by N
Next N lines, each contains a text in which words are at odd position and numbers are at even position and are delimited by space

Output Format:

Words and numbers sorted in ascending order and printed in a manner that a word is followed by a number.

Constraints:
1. Text starts with a word
2. Count of words and numbers are the same.
3. Duplicate elements are not allowed.
4. Words should be printed in lower case.
5. No special characters allowed in text.

Sample Input and Output

SNo.	Input	Output
1	2 Sagar 35 sanjay 12 ganesH 53 ramesh 19 Ganesh 59 suresh 19 rakesh 26 laliT 96	ganesh 12 ramesh 19 sagar 35 sanjay 53 ganesh 19 lalit 26 rakesh 59 suresh 96

4.Super ASCII String Checker

In the Byteland country a string "S" is said to super ascii string if and only if count of each character in the string is equal to its ascii value.

In the Byteland country ascii code of 'a' is 1, 'b' is 2 ...'z' is 26.

Your task is to find out whether the given string is a super ascii string or not.

Input Format:

First line contains number of test cases T, followed by T lines, each containing a string "S".

Output Format:

For each test case print "Yes" if the String "S" is super ascii, else print "No"

Constraints:

1<=T<=100
1<=|S|<=400, S will contains only lower case alphabets ('a'-'z').

Sample Input and Output

SNo.	Input	Output
1	2 bba scca	Yes No

Explanation:

In case 1, viz. String "bba" -
The count of character 'b' is 2. Ascii value of 'b' is also 2.
The count of character 'a' is 1. Ascii value of 'a' is also 1.
Hence string "bba" is super ascii.

5.Matrix Rotations

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

1.Rotation

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

2.**Q**uerying

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

3.**U**pdation

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

Print the output of individual operations as depicted in Output Specification

Input Format:

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

-1 will represent end of input.

Note:

•Angle of rotation will always be multiples of 90 degrees only.

•All Update operations happen only on the initial matrix. After update all the previous rotations have to be applied on the updated matrix

Output Format:

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

Constraints:

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

Sample Input and Output

SNo.	Input	Output
1	2 1 2 3 4 A 90 Q 1 1 Q 1 2 A 90 Q 1 1 U 1 1 6 Q 2 2 -1	 3 1 4 6

Explanation:

Initial Matrix
1 2
3 4

After 90 degree rotation, the matrix will become
3 1
4 2
Now the element at A_{11} is 3 and A_{12} is 1.

Again the angle of rotation is 90 degree, now after the rotation the matrix will become
4 3
2 1
Now the element at A_{11} is 4.

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

After updating, apply all the previous rotations (i.e. 180 = two 90 degree rotations).
The matrix will now become
4 3
2 6
Now A_{22} is 6.

6.Hexogonal Triangle

In NASA, two researchers, Mathew and John, started their work on a new planet, but while practicing research they faced a mathematical difficulty. In order to save the time they divided their work.
So scientist Mathew worked on a piece and invented a number computed with the following formula:
A Mathew number is computed as follows using the formula:
H(n) = n(2n-1)
And scientist John invented another number which is built by the following formula which is called John number:
T(n) = n(n+1)/2
Now Mathew and John are jumbled while combining their work. Now help them combine their research work by finding out number in a given range that satisfies both properties. Using the above formula, the first few Mathew-John numbers are:
1 6 15 28... …

Input Format:

Input consists of 3 integers T1,T2,M separated by space . T1 and T2 are upper and lower limits of the range. The range is inclusive of both T1 and T2. Find Mth number in range [T1,T2] which is actually a Mathew-John number.

Line 1	T1 T2 M,where T1 is upper limit of the range, T2 is lower limit of the range and M ,where Mth element of the series is required

Output Format:

Print Mth number from formed sequence between T1 and T2(inclusive).

	For Valid Input,print
Line 1	Print Mth number from formed sequence between T1 and T2 Or No number is present at this index
	For Invalid Input,print
	Invalid Input

Sample Input and Output

SNo.	Input	Output
1	90 150 2	120
2	20 80 6	No number is present at this index
3	-5 3 a	Invalid Input

7.Counter Game

Louise and Richard play a game. They have a counter set to N . Louise gets the first turn and the turns alternate thereafter. In the game, they perform the following operations.

1. If N is not a power of 2 , reduce the counter by the largest power of 2 less than N .
2. If N is a power of 2 , reduce the counter by half of N.
3. The resultant value is the new N which is again used for subsequent operations.

The game ends when the counter reduces to 1, i.e.,N==1 , and the last person to make a valid move wins.

Given N , your task is to find the winner of the game.

Update If they set counter to 1 , Richard wins, because its Louise' turn and she cannot make a move.

Input Format

The first line contains an integer T , the number of testcases.
T lines follow. Each line contains N, the initial number set in the counter.

Output Format

For each test case, print the winner's name in a new line. So if Louise wins the game, print "Louise". Otherwise, print "Richard". (Quotes are for clarity)

Sample Input

1
6

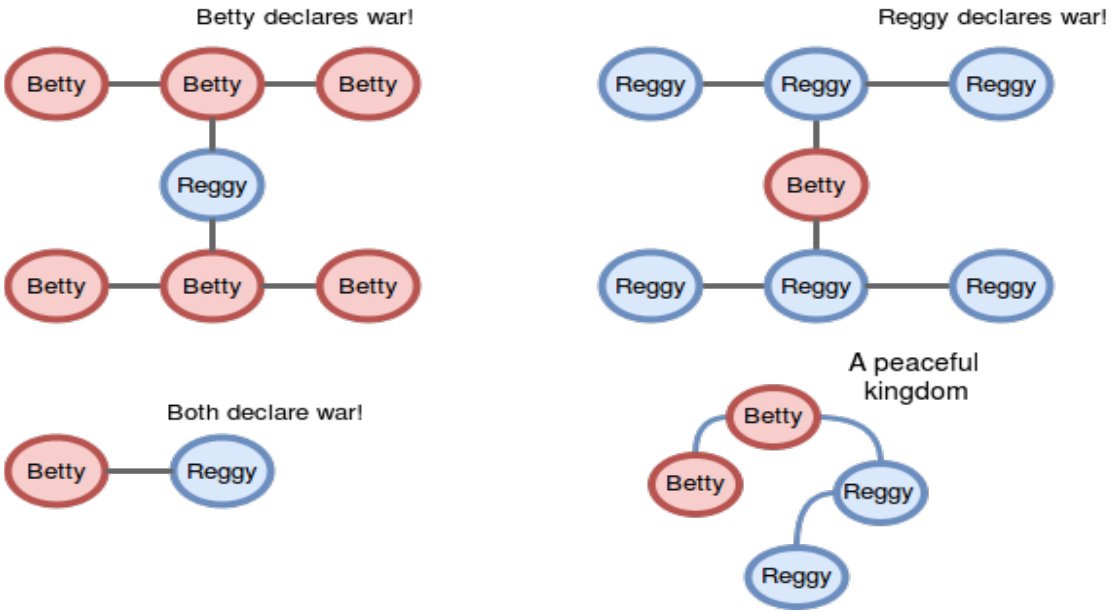
Sample Output

Richard

8.**KINGDOM DIVISION**

King Arthur has a large kingdom that can be represented as a tree, where nodes correspond to cities and edges correspond to the roads between cities. The kingdom has a total of cities numbered from 1 to n .

The King wants to divide his kingdom between his two children, Reggie and Betty, by giving each of them 0 or more cities; however, they don't get along so he must divide the kingdom in such a way that they will not invade each other's cities. The first sibling will invade the second sibling's city if the second sibling has no other cities directly connected to it. For example, consider the kingdom configurations below:



Given a map of the kingdom's cities, find and print the number of ways King Arthur can divide it between his two children such that they will not invade each other. As this answer can be quite large, it must be modulo $10^9 + 7$.

Input Format

The first line contains a single integer denoting (the number of cities in the kingdom).
Each of the n-1 subsequent lines contains two space-separated integers u and v, describing a road connecting cities and u & v.

Constraints

It is guaranteed that all cities are connected.

Subtasks

2<=n<=20 for 40% of the maximum score.

Output Format

Print the number of ways to divide the kingdom such that the siblings will not invade each other, modulo $10^9 +7$.

Sample Input

```
5
1 2
1 3
3 4
3 5
```

Sample Output

```
4
```