Counter game ★

Your Counter game submission got 100.00 points.

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Louise and Richard have developed a numbers game. They pick a number and check to see if it is a power of 2. If it is, they divide it by 2. If not, they reduce it by the next lower number which is a power of 2. Whoever reduces the number to 1 wins the game. Louise always starts.

Given an initial value, determine who wins the game.

Example

$n = 132$

It's Louise's turn first. She determines that 132 is not a power of 2. The next lower power of 2 is 128, so she subtracts that from 132 and passes 4 to Richard. 4 is a power of 2, so Richard divides it by 2 and passes 2 to Louise. Likewise, 2 is a power so she divides it by 2 and reaches 1. She wins the game.

Update If they initially set counter to 1, Richard wins. Louise cannot make a move so she loses.

Function Description

Complete the counterGame function in the editor below.

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Difficulty	Medium
Max Score	100
Submitted By	9861

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MORE DETAILS

counterGame has the following parameter(s):

- int n: the initial game counter value

Returns

- string: either `Richard` or `Louise`

Input Format

The first line contains an integer t, the number of testcases.

Each of the next t lines contains an integer n, the initial value for each game.

Constraints

- $1 \leq t \leq 10$
- $1 \leq n \leq 2^{64} - 1$

Sample Input

```
1
6
```

Sample Output

```
Richard
```

Explanation

- As 6 is not a power of 2, Louise reduces the largest power of 2 less than 6 i.e., 4, and hence the counter reduces to 2.
- As 2 is a power of 2, Richard reduces the counter by half of 2 i.e., 1. Hence the counter reduces to 1.

As we reach the terminating condition with $N == 1$, Richard wins the game.

Change Theme Language Python 3

```python
#!/bin/python3

import math
import os
import random
import re
import sys

#
# Complete the 'counterGame' function below.
#
# The function is expected to return a STRING.
# The function accepts LONG_INTEGER n as parameter.
#

def counterGame(n):
    # Initialize the player
    louise = True

    # Count the number of set bits in n-1
    bit_count = bin(n - 1).count('1')

    # Switch players based on the count of set bits
    louise = not (bit_count % 2 == 0)

    # Return the winner
    if louise:
        return 'Louise'
```

Line: 45 Col: 1

Run Code **Submit Code**

Upload Code as File Test against custom input

Congratulations

You solved this challenge. Would you like to challenge your friends? Next Challenge

Test case 0
Test case 1
Test case 2
Test case 3
Test case 4
Test case 5
Test case 6

Compiler Message

```
Success
```

Input (stdin) Download

```
1
6
```

Expected Output Download

```
Richard
```