

Counter game

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.

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.