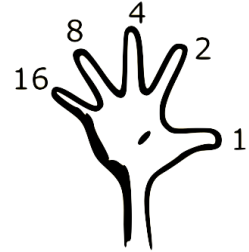


Problem C: Eden Math

Filename: *eden*

Time limit: *1 second*

Anya, a student at Eden Academy, seeks to collect Stella Stars to outshine Lord Damian. To ace her mission, she's mastering binary counting with her fingers. Given a decimal number, determine which fingers Anya should raise to represent it in binary. Can you help Anya count her way to victory?



The Problem

Given a decimal number, help Anya figure out which fingers she should have up.

The Input

The first line of input will contain a single positive integer, c ($1 \leq c \leq 31$), representing the number of questions asked on the exam. Each of the input cases follow.

Each input case consists of a single integer representing the decimal number x ($1 \leq x \leq 31$).

The Output

A string indicating only the fingers Anya should raise to represent the input number in binary. Use the first letter of each finger (T for thumb, I for index, M for middle, R for ring, and L for little) in the order from thumb to pinky, with no separators. If a finger should be raised, include its corresponding letter; otherwise, exclude it.

Sample Input

3
5
10
31

Sample Output

TM
IR
TIMRL