# Tower Breakers, Revisited!



Two players (numbered  ${\bf 1}$  and  ${\bf 2}$ ) are playing a game of Tower Breakers! The rules of the game are as follows:

- Player 1 always moves first, and both players always move optimally.
- ullet Initially there are N towers of various heights.
- The players move in alternating turns. In each turn, a player can choose a tower of height X and reduce its height to Y, where  $1 \le Y < X$  and Y evenly divides X.
- If the current player is unable to make any move, they lose the game.

Given the value of N and the respective height values for all towers, can you determine who will win? If the first player wins, print 1; otherwise, print 2.

### **Input Format**

The first line contains an integer, T, denoting the number of test cases.

Each of the  ${f 2T}$  subsequent lines defines a test case. Each test case is described over the following two lines:

- 1. An integer, N, denoting the number of towers.
- 2. N space-separated integers,  $h_0, h_1, \ldots, h_{N-1}$ , where each  $h_i$  describes the height of tower i.

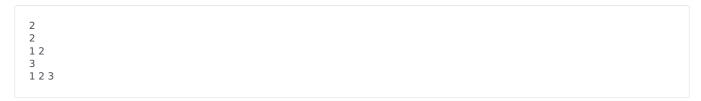
#### **Constraints**

- $1 \le T \le 100$
- $1 \le N \le 100$
- $1 < h_i < 10^6$

#### **Output Format**

For each test case, print a single integer denoting the winner (i.e., either 1 or 2) on a new line.

## **Sample Input**



# **Sample Output**

```
1
2
```

# **Explanation**

Test Case 0:

Player 1 reduces the second tower to height 1 and subsequently wins.

Test Case 1:

There are two possible moves:

- 1. Reduce the second tower to  ${f 1}$
- 2. Reduce the third tower to  ${\bf 1}$ .

Whichever move player  ${\bf 1}$  makes, player  ${\bf 2}$  will make the other move. Thus, player  ${\bf 2}$  wins.