Day 2: Tower Breakers, Revisited!

Two players (numbered 1 and 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.

- Initially there are N towers of 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 $1 \leq Y < X$ 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 $2T$ 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

- $1 \leq T \leq 100$

- $1 \leq N \leq 100$

- $1 \leq h_i \leq 10^6$

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

```
2
2
1 2
3
1 2 3
```

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 1

2. Reduce the third tower to 1.

Whichever move player 1 makes, player 2 will make the other move. Thus, player 2 wins.