The game of Nim (2)   P49499_en

This is another problem about the game of Nim, which is thoroughly explained in problem . But here, we may have a huge number of sets, each with a huge number of marbles.

Input

Input consists of several cases. Every case begins with the number of sets n, followed by the number of marbles of each set, all between 0 and 10^9. Assume $0 \leq n \leq 10^5$.

Output

For every case, tell if it is a winning or a losing configuration.

Hint

You should use a mathematical trick to solve this problem.

Sample input

```
6  1 1 0 0 5 0
1  2
0
4  0 3 3 0
5  1000 43210 17 123456 42
5  1000 43210 17 43801 42
```

Sample output

```
winning
winning
losing
losing
winning
losing
```

Problem information

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