Smallest Natural Number

Description

For a given group of natural numbers, please find the smallest natural number that **doesn't** appear in it.

For example, for the group $[10, 1, 4, 11, 5, 9, 2, 4, 6, 1, 0]$, the smallest natural number that doesn't appear is 3 .

Input

The input contains several test cases.

For each test case, the first line contains a positive integer n denoting the number of numbers in the given group. The second line contains n integers, separated by spaces, representing all the numbers the group contains.

Output

For each test case, print one single integer in a line, indicating the the smallest natural number that doesn't appear in the group.

Sample Input/Output

Input

```
11
10 1 4 11 5 9 2 4 6 0 1
4
3 2 1 0
2
1 2
```

Output

```
3
4
0
```

Constraint

$1 \leq n \leq 10^6$, and all integers in the input file are in $[0, 10^9]$.