Longest Increasing Subsequence

Time limit: 1.0s   **Memory limit:** 64M
PyPy 3: 128M
Python 3: 128M

Given an array of integers, find and output the length of the longest increasing subsequence.

Input Specification

Line 1: N, the length of the array.

Line 2: An array A containing N integers, with each element separated by a single space.

Output Specification

The only line of output should contain the length of the longest increasing subsequence.

Constraints

$1 \leq N \leq 1\,000\,000$

$0 \leq A_i < 10^9$

Sample Input 1

```
5
1 5 2 6 4
```

Sample Output 1

```
3
```

Sample Input 2

```
5
1 2 2 2 2
```

Sample Output 2

2