

Longest Increasing Subsequence

Time limit: 1 sec

Given a sequence of **N** integers $S = \langle s_1, s_2, s_3, \dots, s_n \rangle$, a subsequence of **S** is a sequence derived from **S** by deleting zero or more elements from **S** without changing the order of the element. For example, $P = \langle s_2, s_4, s_n \rangle$ is a subsequence of **S** while

$Q = \langle s_4, s_1, s_2 \rangle$ is not. An increasing subsequence is a subsequence such that their members appears in increasing order. For example, let **S** be $\langle 3, 1, 4, 5, 2 \rangle$, a sequence $\langle 3, 4, 5 \rangle$ is an increasing subsequence of **S** while $\langle 3, 1, 5 \rangle$, while being a subsequence of **S**, is not an increasing subsequence.

Given a sequence **S**, your task is to find the length of the longest increasing subsequence of **S**.

Input

- The first line of the input is the length **N** of the sequence ($1 \leq \mathbf{N} \leq 10,000$)
- The second line of the input contains **N** integers describing the sequence **S**. The value of each elements is non-negative not exceeding 10,000. All values are distinct.

Output

The output must contain exactly one line giving the length of the longest increasing subsequence.

Example

Input	Output
5 3 1 4 5 2	3
13 7 0 10 21 1 6 22 4 3 5 9 8 71	6