

Longest Perfect Increasing Subsequence

Dhrubo has a sequence of N integers. He is trying to find the longest perfect increasing subsequence of that sequence. But he is not very expert in finding longest perfect increasing subsequences. So he needs your help.

A subsequence is a sequence that can be derived by another sequence by deleting elements without changing the order of the remaining elements. An increasing subsequence of a sequence is a subsequence where the elements are sorted in increasing order.

Difference between an increasing subsequence and a perfect increasing subsequence is that in a perfect increasing subsequence the difference between any two consecutive elements is always 1.

For example, let's consider a sequence $S = \{5, 2, 6, 3, 7, 8, 4\}$

$\{5, 3, 4\}$ is subsequence of sequence S but not an increasing subsequence.

$\{5, 7, 8\}$ is an increasing subsequence of sequence S , but not a perfect increasing subsequence.

But $\{5, 6, 7, 8\}$ is perfect increasing subsequence as the difference between any two consecutive elements is exactly 1.

Note that, a single element will always be perfect increasing subsequence. So $\{5\}$, $\{2\}$, $\{7\}$ are also perfect increasing subsequence of S .

INPUT:

First line of the input contains an integer N ($1 \leq N \leq 10^5$) denoting the length of the sequence.

Next line contains N integers separated by space which is the sequence. These integers will be greater than 0 and will not be greater than 10^6 .

OUTPUT:

A single integer in a line denoting the length of the longest perfect increasing subsequence.

Sample Input: #1

9

5 1 5 6 2 3 8 7 4

Sample Output: #1

4

Sample Input: #2

8

2 2 1 3 5 4 5 6

Sample Output: #2

5

(set by : Nashir Ahmed)