Problem B. Greedily Increasing Subsequence

Time limit 5000 ms
Mem limit 1048576 kB
OS Linux

Given a permutation $A = (a_1, a_2, \ldots, a_N)$ of the integers $1, 2, \ldots, N$, we define the *greedily increasing subsequence* (GIS) in the following way.

Let $g_1 = a_1$. For every $i > 1$, let g_i be the leftmost integer in A that is strictly larger than g_{i-1}. If there for a given i is no such integer, we say that the GIS of the sequence is the sequence $(g_1, g_2, ..., g_{i-1})$.

Your task is to, given a permutation A, compute the GIS of A.

Input

The first line of input contains an integer $1 \le N \le 10^6$, the number of elements of the permutation A. The next line contains N distinct integers between 1 and N, the elements $a_1, \ldots, a_N$ of the permutation A.

Output

First, output a line containing the length l of the GIS of A. Then, output l integers, containing (in order) the elements of the GIS.

Explanation of sample 1

In this case, we have the permutation $2, 3, 1, 5, 4, 7, 6$. First, we have $g_1 = 2$. The leftmost integer larger than 2 is 3, so $g_2 = 3$. The leftmost integer larger than 3 is 5 (1 is too small), so $g_3 = 5$. The leftmost integer larger than 5 is 7, so $g_4 = 7$. Finally, there is no integer larger than 7. Thus, the GIS of $2, 3, 1, 5, 4, 7, 6$ is $2, 3, 5, 7$.

Sample 1

Input	Output
7 2 3 1 5 4 7 6	4 2 3 5 7

Sample 2

Input	Output
5 1 2 3 4 5	5 1 2 3 4 5

Sample 3

Input	Output
5 5 4 3 2 1	1 5