

## D. Tree Construction

time limit per test: 2 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

During the programming classes Vasya was assigned a difficult problem. However, he doesn't know how to code and was unable to find the solution in the Internet, so he asks you to help.

You are given a sequence  $a$ , consisting of  $n$  **distinct** integers, that is used to construct the binary search tree. Below is the formal description of the construction process.

1. First element  $a_1$  becomes the root of the tree.
2. Elements  $a_2, a_3, \dots, a_n$  are added one by one. To add element  $a_i$  one needs to traverse the tree starting from the root and using the following rules:
  - a. The pointer to the current node is set to the root.
  - b. If  $a_i$  is greater than the value in the current node, then its right child becomes the current node. Otherwise, the left child of the current node becomes the new current node.
  - c. If at some point there is no required child, the new node is created, it is assigned value  $a_i$  and becomes the corresponding child of the current node.

### Input

The first line of the input contains a single integer  $n$  ( $2 \leq n \leq 100\,000$ ) — the length of the sequence  $a$ .

The second line contains  $n$  distinct integers  $a_i$  ( $1 \leq a_i \leq 10^9$ ) — the sequence  $a$  itself.

### Output

Output  $n - 1$  integers. For all  $i > 1$  print the value written in the node that is the parent of the node with value  $a_i$  in it.

### Examples

input
3 1 2 3
output
1 2

input
5 4 2 3 1 6
output
4 2 2 4

### Note

Picture below represents the tree obtained in the first sample.

Picture below represents the tree obtained in the second sample.