

8308 Escape Room

As you know, escape rooms became very popular since they allow you to play the role of a video game hero. One such room has the following quiz. You know that the locker password is a permutation of N numbers. A permutation of length N is a sequence of distinct positive integers, whose values are at most N . You got the following hint regarding the password - the length of the longest increasing subsequence starting at position i equals A_i . Therefore you want to find the password using these values. As there can be several possible permutations you want to find the lexicographically smallest one. Permutation P is lexicographically smaller than permutation Q if there is an index i such that $P_i < Q_i$ and $P_j = Q_j$ for all $j < i$.

It is guaranteed that there is at least one possible permutation satisfying the above constraints.

Can you open the door?

Input

The input file contains several test cases, each of them as described below.

The first line of the input contains one integer N ($1 \leq N \leq 10^5$).

The next line contains N space-separated integer A_i ($1 \leq A_i \leq N$).

It's guaranteed that at least one possible permutation exists.

Output

For each test case, print in one line the lexicographically smallest permutation that satisfies all the conditions.

Sample Input

```
4
1 2 2 1
1
1
```

Sample Output

```
4 2 1 3
1
```