Yet Another Contest 4 P2 - Alchemy 2

Time limit: 2.0s **Memory limit:** 256M

After decades of searching, you have discovered a special machine that allows you to transform different elements into each other!

The world consists of N elements labelled from 1 to N. Internally, the machine stores a sequence $a_1, a_2, \ldots, a_N$ such that $1 \leq a_i \leq N$ for all i. If you place element x into the machine, the machine will transform this into element a_x. Note that it is possible that $a_x = x$, in which case the machine does not do anything.

Let b_i be the number of distinct elements that you can obtain, starting with only a sample of element i and by using the machine zero or more times. You know the sequence b, but do not know the sequence a. Can you find any possible sequence a, or determine that you must have made a mistake and that no such sequence exists?

Constraints

$1 \leq N \leq 10^6$

$1 \leq b_i \leq N$

Subtask 1 [30%]

For all $z > 1$ such that sequence b contains z, it is guaranteed that sequence b also contains $z - 1$.

Subtask 2 [70%]

No additional constraints.

Input Specification

The first line contains a single integer, N.

The second line contains N space-separated integers, $b_1, b_2, \ldots, b_N$.

Output Specification

If there is no possible sequence a which would produce sequence b, output -1 on a single line.

Otherwise, output $a_1, a_2, \ldots, a_N$, space-separated on a single line.

If there are multiple valid answers, you may output any of them.

Sample Input 1

```
3
2 2 3
```

Sample Output 1

```
2 1 1
```

Explanation for Sample Output 1

Starting with a sample of element 1 or element 2, we can obtain elements 1 and 2.

Starting with a sample of element 3, we can obtain elements 1, 2 and 3.

Note that $\{2, 1, 2\}$ is another valid possibility for sequence a, and would also be accepted.

Sample Input 2

```
3
2 2 2
```

Sample Output 2

```
-1
```

Explanation for Sample Output 2

It can be shown that no possible sequence a exists.