

Eurovision Lights

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

A Cypriot dance group is rehearsing a routine to *Fuego*, the song performed by Eleni Foureira for Cyprus at Eurovision 2018. For the lighting effect, the stage lamps will be switched on one by one.

There are n lamps in a row, numbered from 1 to n from left to right. Initially, all lamps are off. At each step, exactly one lamp that is still off is switched on. After n steps, all lamps are on.

A lit segment is a maximal nonempty group of consecutive lamps that are on. For example, if lamps 2, 3, and 5 are on in a row of 5 lamps, there are two lit segments: $[2, 3]$ and $[5, 5]$.

For every i from 1 to n , you are given a number a_i : the required number of lit segments immediately after step i . Find any order of switching on the lamps that gives these numbers, or determine that no such order exists.

Input

The first line contains one integer n ($1 \leq n \leq 1000$), the number of lamps.

The second line contains n integers $a_1, a_2, \dots, a_n$ ($0 \leq a_i \leq n$), the required numbers of lit segments.

Output

If no suitable order exists, print -1 .

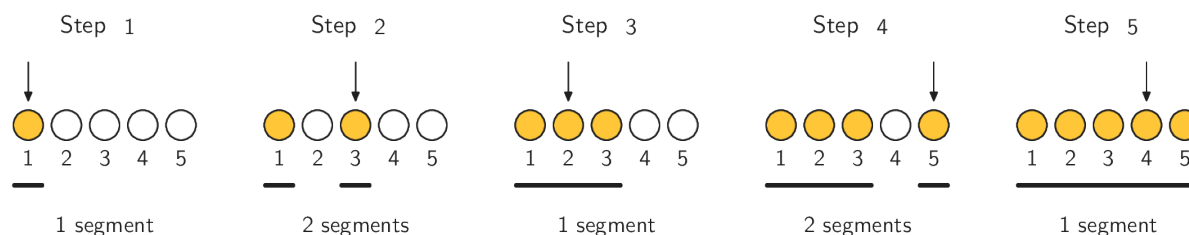
Otherwise, print a permutation $p_1, p_2, \dots, p_n$ of the integers from 1 to n , where p_i is the lamp switched on at step i . If there are several suitable orders, print any of them.

Examples

standard input	standard output
5 1 2 1 2 1	1 3 2 5 4
4 1 2 1 2	-1
1 1	1

Note

In the first example, lamps are switched on in the order 1, 3, 2, 5, 4. Filled circles are lit lamps, arrows mark the newly lit lamp, and bars show the lit segments.



In the second example, the final number of lit segments must be 1, so the required sequence is impossible. In the third example, the only lamp is switched on.