

## Problem H

### Save My Files!

**Time Limit: 1 second**

Alice's computer is infected by a malware. Her personal files are encrypted, thus she cannot read the content of any document. Within only 5 hours, you should find a way to restore her files, otherwise, these files will be encrypted forever.



You know that the author of the malware in Alice's computer loves to play with permutations of a set of  $N$  integers. An integer  $x \in \{1, 2, \dots, N\}$  is mapped into  $\pi(x) \in \{1, 2, \dots, N\}$ . Of course,  $\pi(x) \neq \pi(y)$  for  $x \neq y$ . All permutations of a set of  $N$  integers  $\{1, 2, \dots, N\}$  are sorted in lexical order.

You know that the malware in Alice's computer uses a very simple encryption method - **Permutation Cipher**: an integer  $x \in \{1, 2, \dots, N\}$  is encrypted into  $\pi(x) \in \{1, 2, \dots, N\}$ .

You also know that this malware only uses **Self-Reversible Permutation**. A permutation is called Self-Reversible Permutation if it satisfies the following condition:

$$\pi(\pi(x)) = x \text{ for all } x \in \{1, 2, \dots, N\}$$

You should recover the permutation  $\pi$  that was used to encrypt Alice's files.

Luckily, you find that the malware in her computer left a secret file containing a secret sequence of numbers  $A = (a_1, a_2, \dots, a_N)$ , a permutation of the set of  $N$  integers from 1 to  $N$ . The secret permutation  $\pi$  is the Self-Reversible Permutation with the **smallest lexical order**, and its lexical order must be greater than the lexical order of the sequence  $A$ .

### Input

The first line contains an integer  $N$  ( $2 \leq N \leq 100$ ).

The second line contains  $N$  distinct integers  $a_1, a_2, \dots, a_N$ , a permutation of  $\{1, 2, \dots, N\}$ .

### Output

Display in one line  $N$  distinct integers  $\pi(1), \pi(2), \dots, \pi(N)$  of the permutation that was used to encrypt Alice's files. In any test case, you can always find such permutation.

### Sample Input

### Sample Output

5	3 2 1 4 5
3 1 2 4 5	

Explanation: In the output of this example,  $\pi(\pi(3)) = \pi(1) = 3$ ;  $\pi(\pi(2)) = \pi(2) = 2 \dots$