

B. Gluttony

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

You are given an array a with n distinct integers. Construct an array b by permuting a such that for every non-empty subset of indices $S = \{x_1, x_2, \dots, x_k\}$ ($1 \leq x_i \leq n$, $0 < k < n$) the sums of elements on that positions in a and b are different, i. e.

Input

The first line contains one integer n ($1 \leq n \leq 22$) — the size of the array.

The second line contains n space-separated distinct integers a_1, a_2, \dots, a_n ($0 \leq a_i \leq 10^9$) — the elements of the array.

Output

If there is no such array b , print -1 .

Otherwise in the only line print n space-separated integers b_1, b_2, \dots, b_n . Note that b must be a permutation of a .

If there are multiple answers, print any of them.

Examples

| input |
|----------|
| 2 1 2 |
| output |
| 2 1 |

| input |
|--------------------|
| 4 1000 100 10 1 |
| output |
| 100 1 1000 10 |

Note

An array x is a permutation of y , if we can shuffle elements of y such that it will coincide with x .

Note that the empty subset and the subset containing all indices are not counted.