Print incrementally

Given N*N* elements, construct a search binary tree with N*N* elements and then print the value of nodes in that tree in ascending order.

Input Format

The first line contains an integer N*N* (0≤N≤1.000)(0≤*N*≤1.000). The second line contains N*N* positive integers that are the value of the elements. The element values are positive integers that do not exceed 106106. The data is guaranteed that the values of the elements are different.

Output Format

Printing in ascending order of values, numbers separated by a space.

Sample test

inputcopy
5 10 25 78 32 40
outputcopy
10 25 32 40 78