

# Joon Plants A Tree

Joon likes planting trees. But the tree that he planted turns out to be a skewed tree. Joon plans on fixing his tree so it could be a binary search tree, and to do this he also uses a sorting method.

He makes sure that his new tree is a binary search tree by printing its order using some traversal methods. For some reason, he won't share the orders of it so you have to guess from the result that Joon gets.

## Input Format

1. First line is **N**, which is the number of nodes that Joon's trees will have.
2. Second line is **N** values of **X** that Joon will put in his trees.

## Constraints

$1 \leq N \leq 1000000$   $1 \leq X \leq 1000000$

## Output Format

3 lines of the binary search tree printed in 3 of the traversal methods

## Sample Input 0

```
10
1 2 3 4 5 6 7 8 9 10
```

## Sample Output 0

```
6 3 2 1 5 4 9 8 7 10
1 2 3 4 5 6 7 8 9 10
1 2 4 5 3 7 8 10 9 6
```

## Sample Input 1

```
5
3 6 7 9 11
```

## Sample Output 1

```
7 6 3 11 9
3 6 7 9 11
3 6 9 11 7
```