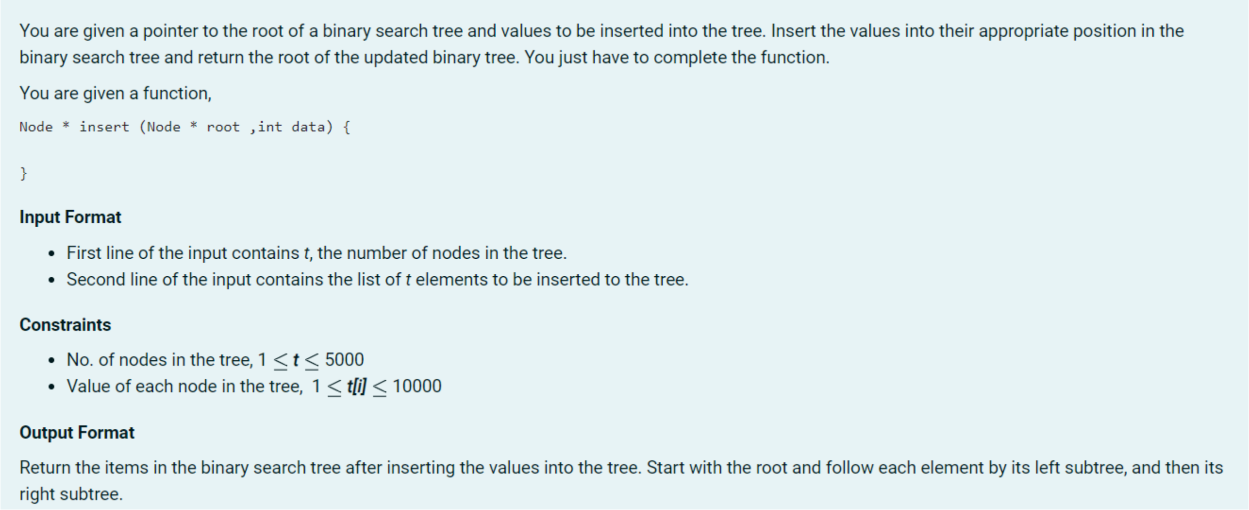
1.



You are given a pointer to the root of a binary search tree and values to be inserted into the tree. Insert the values into their appropriate position in the binary search tree and return the root of the updated binary tree. You just have to complete the function.

You are given a function,

```
Node * insert (Node * root ,int data) {

}
```

Input Format

- First line of the input contains *t*, the number of nodes in the tree.
- Second line of the input contains the list of *t* elements to be inserted to the tree.

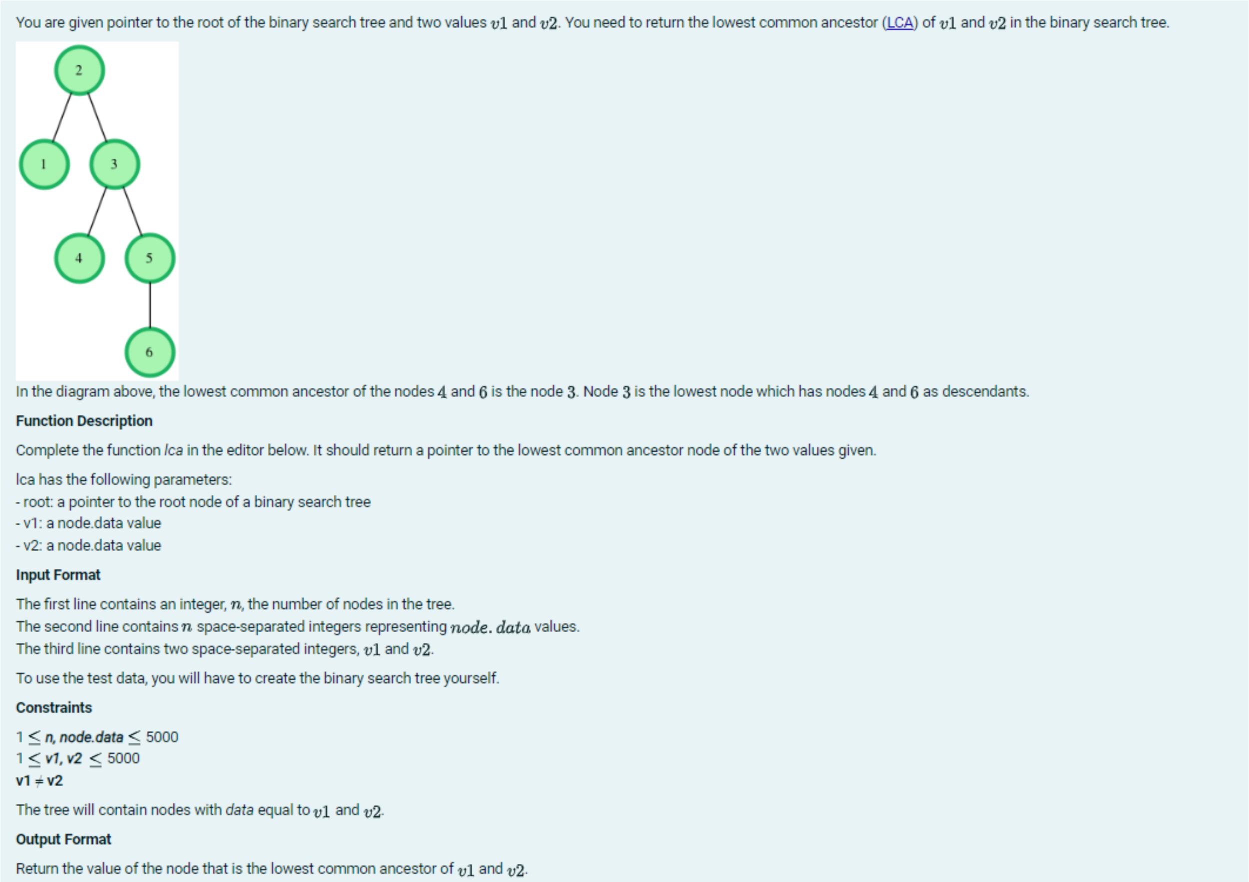
Constraints

- No. of nodes in the tree, $1 \leq t \leq 5000$
- Value of each node in the tree, $1 \leq t[i] \leq 10000$

Output Format

Return the items in the binary search tree after inserting the values into the tree. Start with the root and follow each element by its left subtree, and then its right subtree.

2.



You are given pointer to the root of the binary search tree and two values $v1$ and $v2$. You need to return the lowest common ancestor (LCA) of $v1$ and $v2$ in the binary search tree.

In the diagram above, the lowest common ancestor of the nodes 4 and 6 is the node 3. Node 3 is the lowest node which has nodes 4 and 6 as descendants.

Function Description

Complete the function *lca* in the editor below. It should return a pointer to the lowest common ancestor node of the two values given.

lca has the following parameters:
- root: a pointer to the root node of a binary search tree
- v1: a node.data value
- v2: a node.data value

Input Format

The first line contains an integer, n, the number of nodes in the tree.
The second line contains n space-separated integers representing $node.data$ values.
The third line contains two space-separated integers, $v1$ and $v2$.

To use the test data, you will have to create the binary search tree yourself.

Constraints

$1 \leq$ *n, node.data* ≤ 5000
$1 \leq$ *v1, v2* ≤ 5000
v1 ≠ v2

The tree will contain nodes with *data* equal to $v1$ and $v2$.

Output Format

Return the value of the node that is the lowest common ancestor of $v1$ and $v2$.