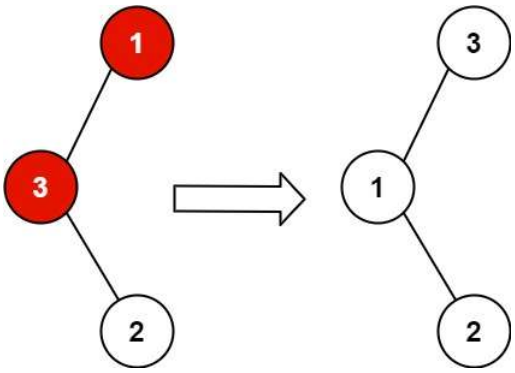
99. Recover Binary Search Tree

Medium 5199 176 Add to List Share

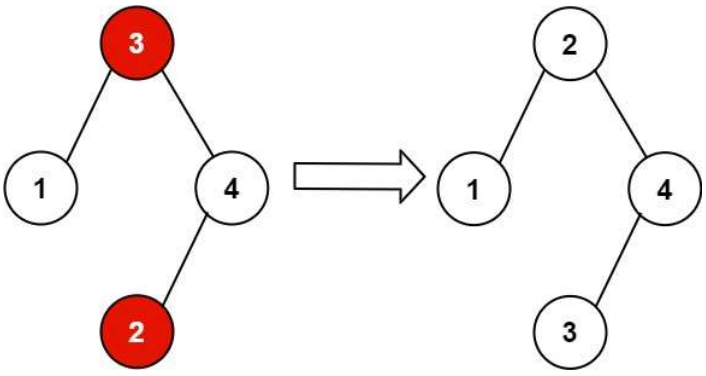
You are given the `root` of a binary search tree (BST), where the values of **exactly** two nodes of the tree were swapped by mistake. *Recover the tree without changing its structure.*

Example 1:




```
Input: root = [1,3,null,null,2]
Output: [3,1,null,null,2]
Explanation: 3 cannot be a left child of 1 because 3 > 1. Swapping 1 and 3 makes the BST valid.
```

Example 2:




```
Input: root = [3,1,4,null,null,2]
Output: [2,1,4,null,null,3]
Explanation: 2 cannot be in the right subtree of 3 because 2 < 3. Swapping 2 and 3 makes the BST valid.
```

Constraints:

- The number of nodes in the tree is in the range `[2, 1000]`.
- -2^{31} `<= Node.val <=` 2^{31} `- 1`

Follow up: A solution using `O(n)` space is pretty straight-forward. Could you devise a constant `O(1)` space solution?

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```java
/**
 * Definition for a binary tree node.
 * public class TreeNode {
 *     int val;
 *     TreeNode left;
 *     TreeNode right;
 *     TreeNode() {}
 *     TreeNode(int val) { this.val = val; }
 *     TreeNode(int val, TreeNode left, TreeNode right) {
 *         this.val = val;
 *         this.left = left;
 *         this.right = right;
 *     }
 * }
 */
class Solution {
    public void recoverTree(TreeNode root) {

    }
}
```