Assignment 6

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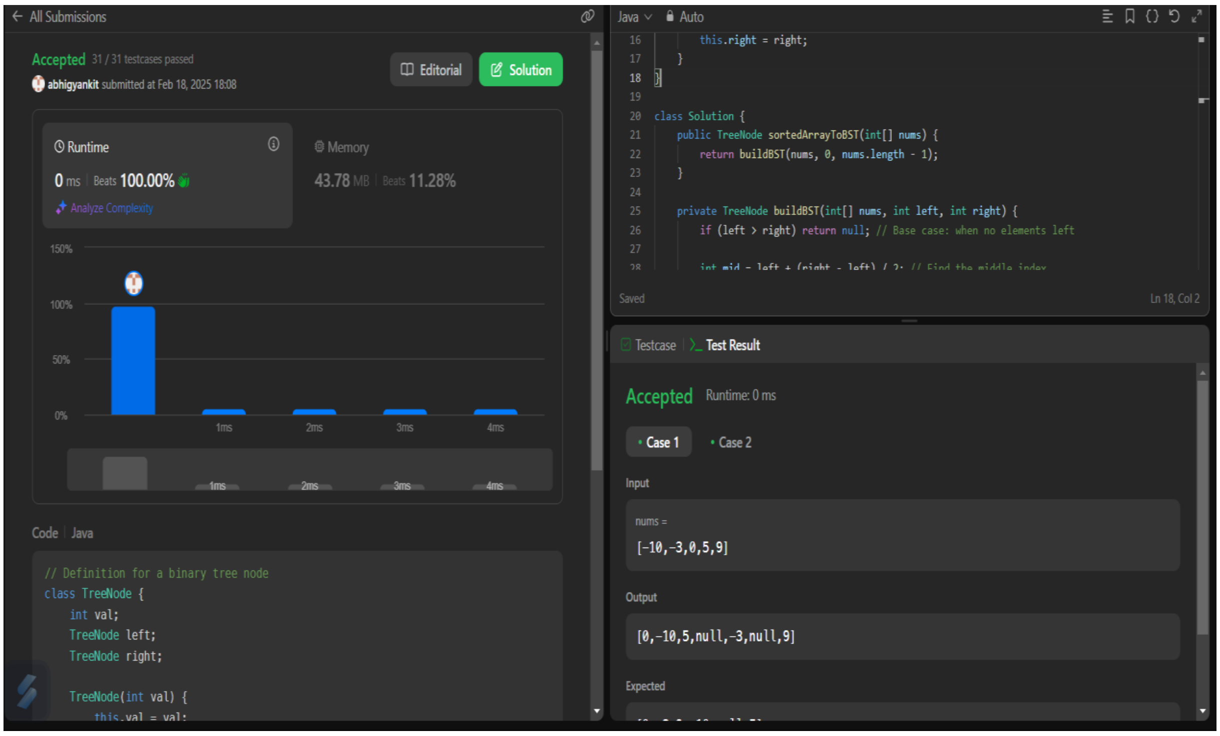
Branch: BE_CSE	**Semester: 6th**
Section: IOT_637-B	**Subject: AP Lab II**

108. Convert Sorted Array to Binary Search Tree

```
class TreeNode {
    int val;
    TreeNode left;
    TreeNode right;
    TreeNode(int val) {
        this.val = val;
        this.left = null;
        this.right = null;
    }
    TreeNode(int val, TreeNode left, TreeNode right) {
        this.val = val;
        this.left = left;
        this.right = right;
    }
}
class Solution {
    public TreeNode sortedArrayToBST(int[] nums) {
        return buildBST(nums, 0, nums.length - 1);
    }
    private TreeNode buildBST(int[] nums, int left, int right) {
        if (left > right) return null; // Base case: when no elements left
        int mid = left + (right - left) / 2; // Find the middle index
        TreeNode root = new TreeNode(nums[mid]); // Middle element becomes root
        root.left = buildBST(nums, left, mid - 1);  // Construct left subtree
        root.right = buildBST(nums, mid + 1, right); // Construct right subtree
        return root;
    }
    // Utility function to print inorder traversal (for testing)
    public void inorderTraversal(TreeNode root) {
        if (root != null) {
            inorderTraversal(root.left);
            System.out.print(root.val + " ");
            inorderTraversal(root.right);
        }
    }
    // Main method for testing
    public static void main(String[] args) {
        Solution solution = new Solution();
        int[] nums = {-10, -3, 0, 5, 9};
        TreeNode root = solution.sortedArrayToBST(nums);
        System.out.println("Inorder Traversal of BST:");
        solution.inorderTraversal(root);
    }
}
```



Accepted 31 / 31 testcases passed
abhigyankit submitted at Feb 18, 2025 18:08

Runtime
0 ms | Beats 100.00%

Memory
43.78 MB | Beats 11.28%

Code | Java

```
// Definition for a binary tree node
class TreeNode {
    int val;
    TreeNode left;
    TreeNode right;

    TreeNode(int val) {
        this.val = val;
```

```
        this.right = right;
    }
}

class Solution {
    public TreeNode sortedArrayToBST(int[] nums) {
        return buildBST(nums, 0, nums.length - 1);
    }

    private TreeNode buildBST(int[] nums, int left, int right) {
        if (left > right) return null; // Base case: when no elements left

        int mid = left + (right - left) / 2; // Find the middle index
```

Saved
Ln 18, Col 2

Accepted Runtime: 0 ms

Input

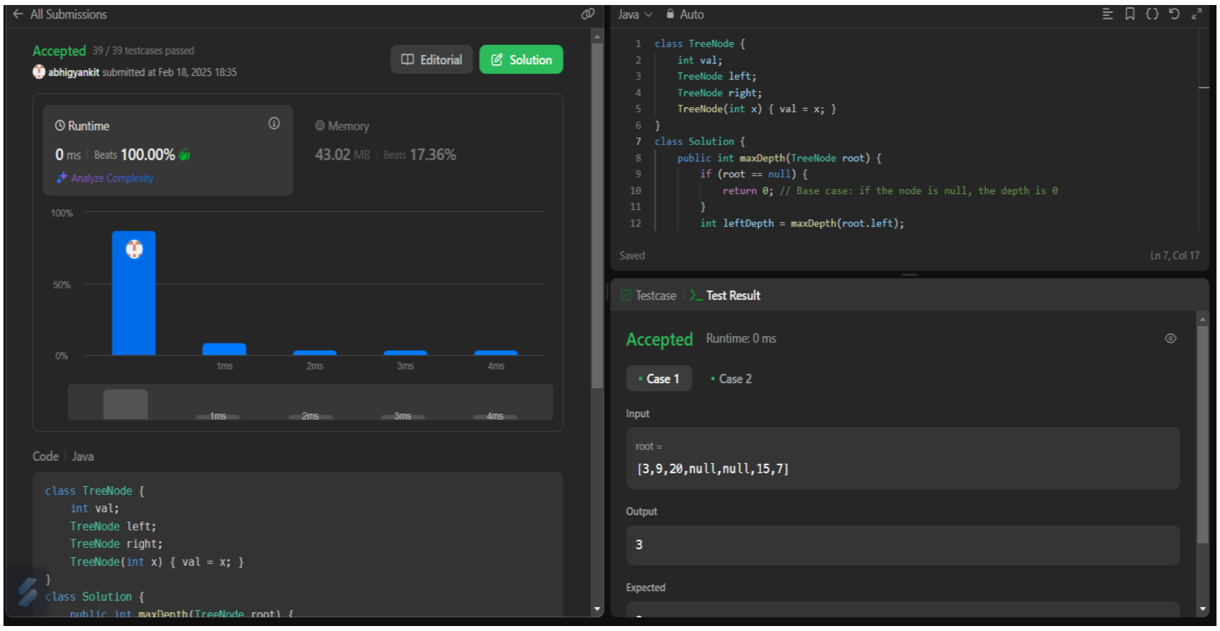
nums =
```
[-10,-3,0,5,9]
```

Output
```
[0,-10,5,null,-3,null,9]
```

Expected

104. Maximum Depth of Binary Tree

```
class TreeNode {
    int val;
    TreeNode left;
    TreeNode right;
    TreeNode(int x) { val = x; }
}
class Solution {
    public int maxDepth(TreeNode root) {
        if (root == null) {
            return 0; // Base case: if the node is null, the depth is 0
        }
        int leftDepth = maxDepth(root.left);
        int rightDepth = maxDepth(root.right);
        return Math.max(leftDepth, rightDepth) + 1;
    }
}
```



Accepted 39 / 39 testcases passed

abhigyankit submitted at Feb 18, 2025 18:35

Runtime
0 ms | Beats 100.00%

Memory
43.02 MB | Beats 17.36%

Code | Java

```
class TreeNode {
    int val;
    TreeNode left;
    TreeNode right;
    TreeNode(int x) { val = x; }
}
class Solution {
    public int maxDepth(TreeNode root) {
```

```
class TreeNode {
    int val;
    TreeNode left;
    TreeNode right;
    TreeNode(int x) { val = x; }
}
class Solution {
    public int maxDepth(TreeNode root) {
        if (root == null) {
            return 0; // Base case: if the node is null, the depth is 0
        }
        int leftDepth = maxDepth(root.left);
```

Saved   Ln 7, Col 17

Testcase | Test Result

Accepted Runtime: 0 ms

Case 1   Case 2

Input

root =
```
[3,9,20,null,null,15,7]
```

Output
```
3
```

Expected