Experiment No. - 5

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Branch: BE-CSE(LEET)
Section/Group: 20BCS-ST-801/B
Semester: 6th
Date of Performance: 07/03/2023
Subject Name: Competitive coding - II
Subject Code: 20CSP-351

1. **Aim/Overview of the practical:**

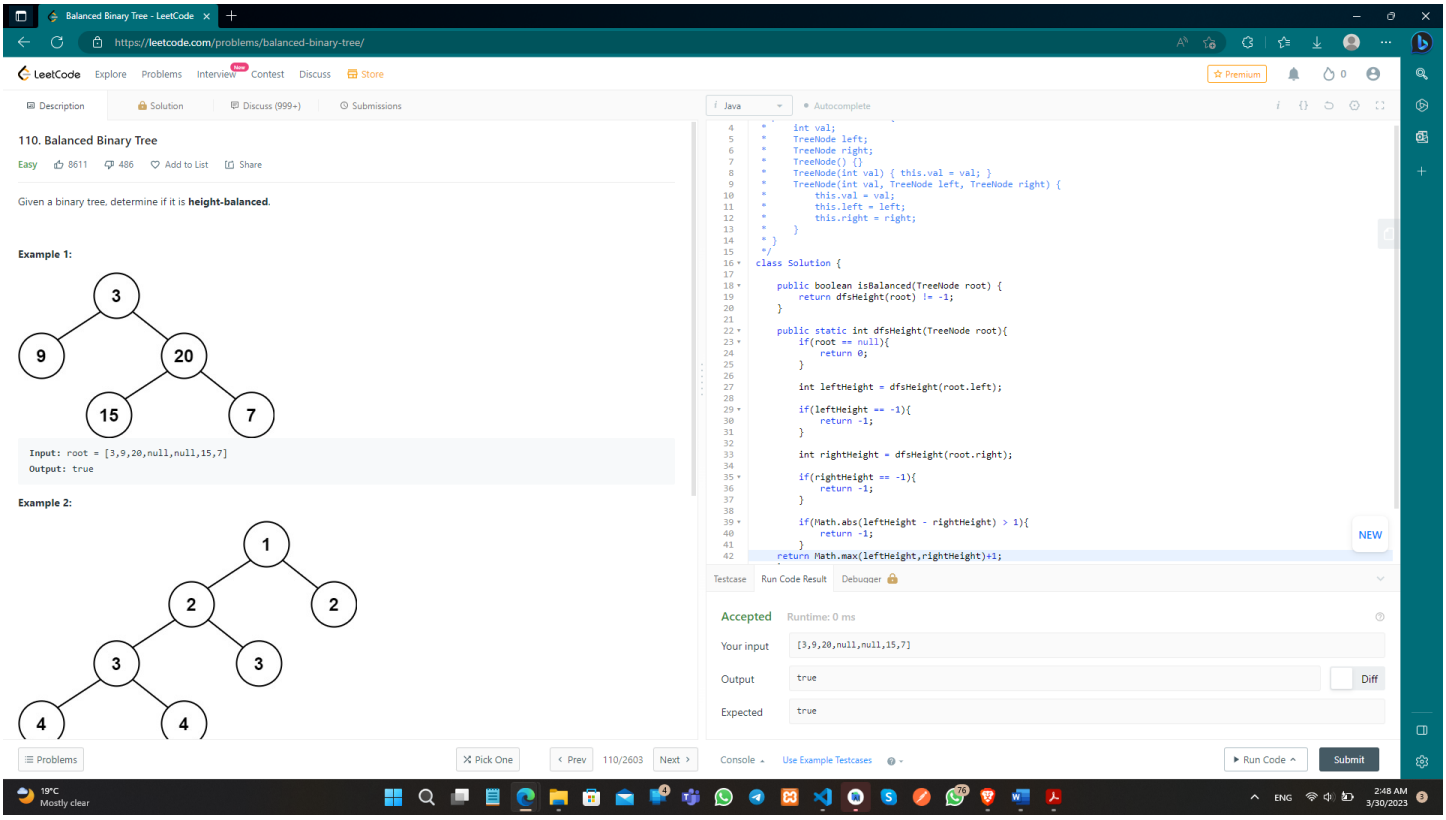
   Q.1 Balance Binary Tree.

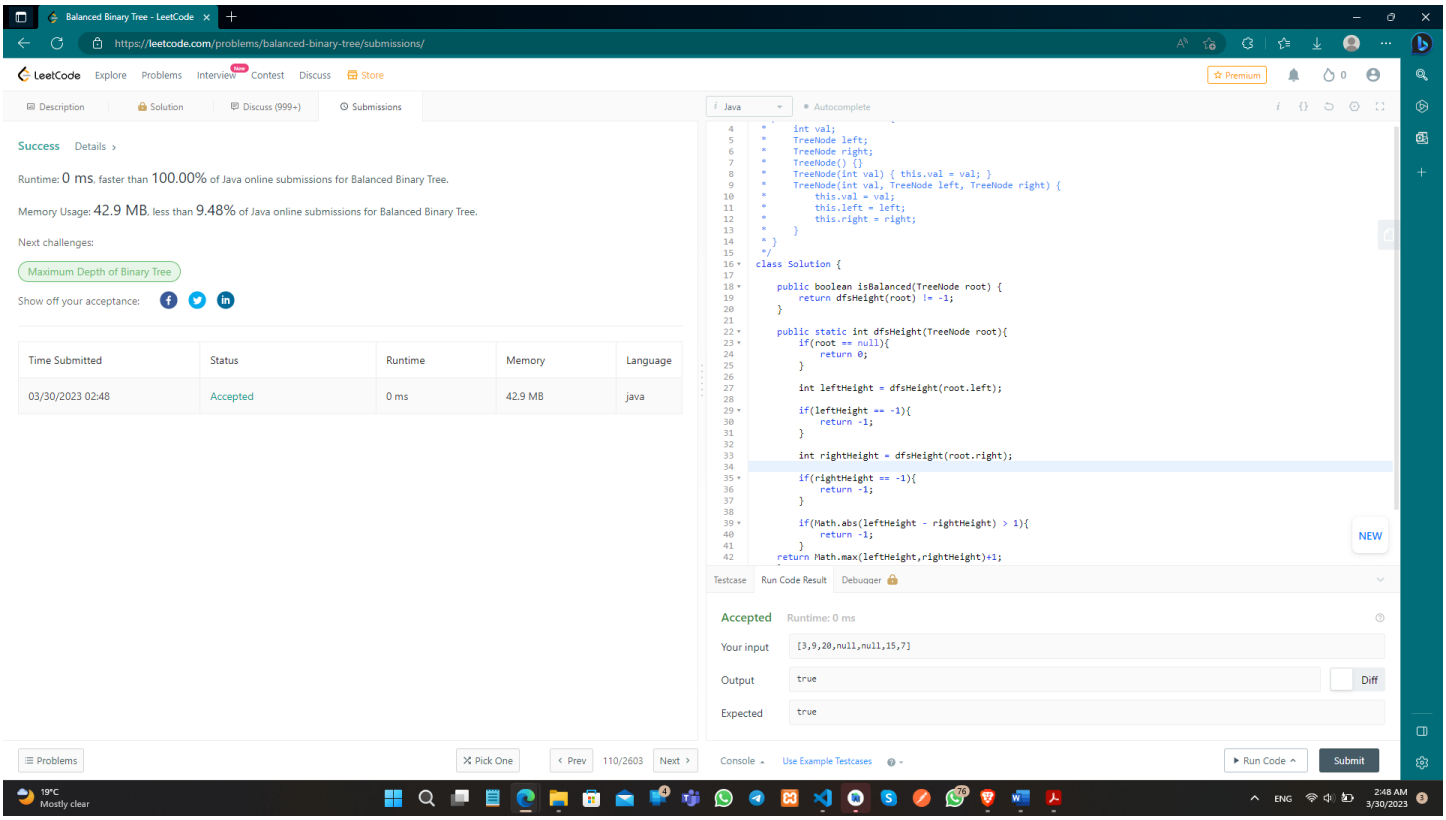
   https://leetcode.com/problems/balanced-binary-tree/

2. **Apparatus / Simulator Used:**
   - Windows 7 or above
   - Google Chrome
3. **Objective:**
   - To understand the concept of Tree
   - To implement the concept of Balance Binary Tree.
4. **Code:**

```
class Solution {

    public boolean isBalanced(TreeNode root) {
        return dfsHeight(root) != -1;
    }

    public static int dfsHeight(TreeNode root){
        if(root == null){
            return 0;
        }

        int leftHeight = dfsHeight(root.left);

        if(leftHeight == -1){
            return -1;
        }

        int rightHeight = dfsHeight(root.right);

        if(rightHeight == -1){
            return -1;
        }

        if(Math.abs(leftHeight - rightHeight) > 1){
            return -1;
        }
    return Math.max(leftHeight,rightHeight)+1;
    }
}
```

5. Result/Output/Writing Summary:





Submitted By: Vivek Kumar

1. **Aim/Overview of the practical:**

   Q.2 Path Sum
   https://leetcode.com/problems/path-sum/

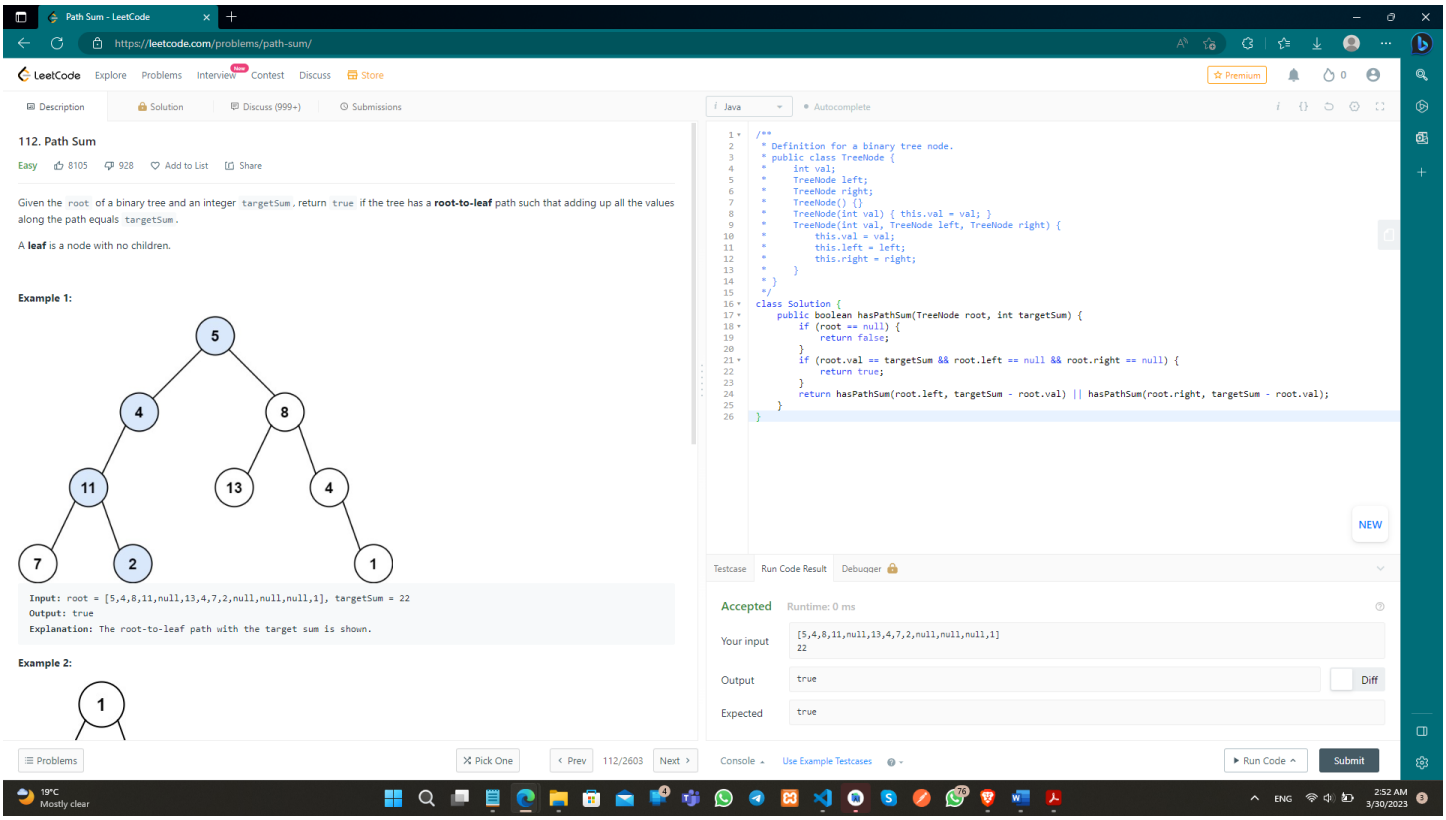
2. **Apparatus / Simulator Used:**
   - Windows 7 or above
   - Google Chrome

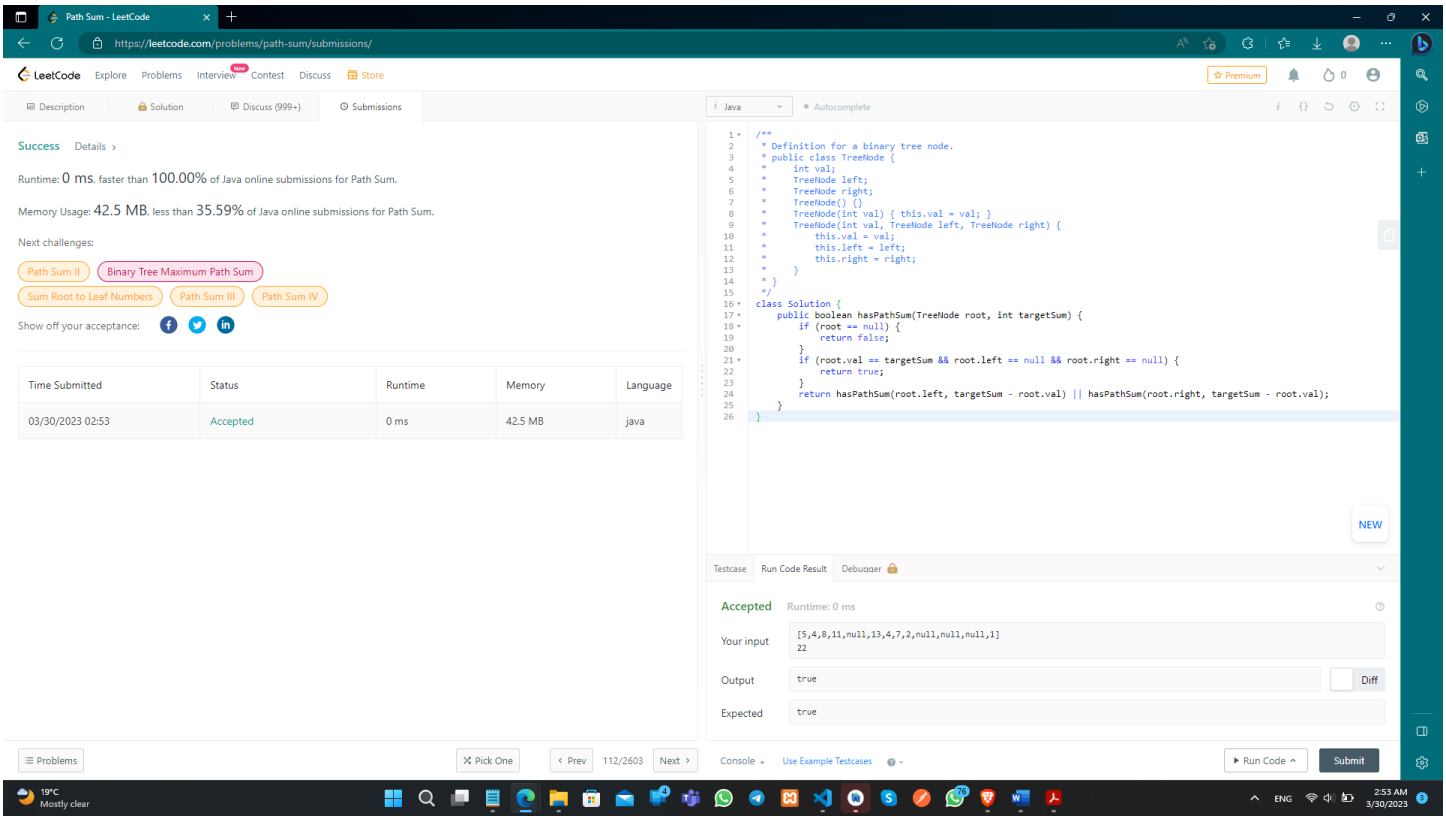
3. **Objective:**
   - To understand the concept of Tree traversal.
   - To implement the concept of calculate the path sum.

4. **Code:**

```
class Solution {
    public boolean hasPathSum(TreeNode root, int targetSum) {
        if (root == null) {
            return false;
        }
        if (root.val == targetSum && root.left == null && root.right == null) {
            return true;
        }
        return hasPathSum(root.left, targetSum - root.val) || hasPathSum(root.right, targetSum - root.val);
    }
}
```

5. Result/Output/Writing Summary:





Learning outcomes (What I have learnt):

- Learned the concept of Balanced Binary Tree.
- Learnt about Tree and Path Sum.