Indian Institute of Technology (Indian School of Mines) Dhanbad
Data Structures Lab (NCSC104)
B.Tech (CSE)

Assignment- 9 (Binary Search Tree & AVL Tree) [2+2+3+3]

1. **Write a program to Check if a Binary Tree is BST or not.**

   Hint: A Binary Search Tree (BST) is a node-based binary tree data structure with the following properties. All keys in the left subtree are smaller than the root and all keys in the right subtree are greater. Both the left and right subtrees must also be binary search trees. Each key must be distinct.
2. **Write a program to convert a binary tree into a binary search tree.**

   Hint: The conversion must be done in such a way that keeps the **original structure** of the Binary Tree.
3. **Write a program to Find the maximum sum leaf to root path in a Binary Tree**

4. **Write a program to design an AVL tree and insert a new node in the leaf node of the AVL tree.**
   Hint: The AVL tree is a self-balancing binary search tree in which each node maintains an extra factor which is called the **balance factor** whose value is either -1, 0, or 1.