**National University of Computer & Emerging Sciences (NUCES) Islamabad,**

**Department of Computer Science**

**DATA STRUCTURES**

**LAB 13**

**Learning Outcomes**

**In this laboratory, you will implement the Binary Search Tree ADT, Balanced &imbalance Tree, Mirror property of BST**

**TASK 1**

Implement a binary search tree data structure in C++. The data structure should support the following operations:

Insertion of a new node with a given value.

Add function which checks recursively that a tree is balanced or not

You should implement the data structure using a Node class to represent each node in the tree, and a BinarySearchTree class to manage the tree as a whole. You should also define the necessary helper functions for the operations mentioned above.

**TASK 2**

Suppose you are given an array of integers representing the elements of a binary tree, and you need to create a binary search tree from it. Once the binary search tree is created, you need to perform the following tasks

* Implementation of a function to create a Mirror Tree.
* Insert function for a binary search tree using recursion.

Write a C++ program to implement the above tasks.