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

**Department of Computer Science**

**DATA STRUCTURES**

**LAB 12**

**Learning Outcomes**

**In this laboratory, you will implement the Binary Search Tree ADT**

**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.
* Deletion of a node with a given value.
* Breadth first traversal of the binary search tree using a queue

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

* Traverse the binary search tree in in-order traversal and print the elements.
* Traverse the binary search tree in pre-order traversal and print the elements.
* Traverse the binary search tree in post-order traversal and print the elements.

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