**CMPSC 412 – Lab-6** (25 points)

**Binary Search Tree - Basics**

**Due date: 10/11/2022**

**Lab Exercises:**

**Exercise-1: (10 points)**

Develop a BinarySearchtree.py which can perform the following functions:

* Insert node to a tree
* Perform In-order traversal
* Perform Pre-order traversal
* Perform Post-order traversal
* Find a node
* Minimum value in the tree
* Maximum value in the tree

**Exercise-2: (7.5 points)**

Write a function to remove a node from a tree data structure? This function should consider all the three cases: case-1: remove a leaf node, case-2: remove a node with one child and case-3: remove a node with two children.

Perform the time complexity for this function. Briefly explain?

**Exercise-3: (7.5 points)**

Write a function which takes two trees and merges the two trees. The function should return the merged tree. Perform the time complexity for this function. Briefly explain?

Note: create a tree with minimum 10 values and demonstrate all the functions. Attach the screenshots of the results. Balancing the tree is not necessary for these exercises.