CSE291 Data Structures Lab

Lab Sheet 9

Binary Search Trees

1. Write a C++ program to insert elements into a Binary Search Tree and perform the in order, preorder and postorder traversal. *(reference is uploaded in resources)*
2. Write a C++ program to do the following in Binary Search Tree.
   a. Height of BST.
   b. Search an element in BST.
   c. Minimum element in BST.
   d. Maximum element in BST.
   e. Successor of a node in BST.
   f. Predecessor of a node in BST.

(*hint for 3a* : Algorithm to find Height of BST

```
Find_Height(root){
        If(root==null)
                return -1
        else{
                 Left_height= Find_Height(root->left)
                Right_height= Find_Height(root->right)
                return max(Left_height, Right_height)+1
        }
    }
```

)

3. Implement the algorithm to delete an element in Binary search tree.
4. Write a C++ program to check whether a given binary tree is BST or not.
   (*hint*: Do In-Order Traversal of the given tree and store the result in a temp array. Check if the temp array is sorted in ascending order, if it is, then the tree is BST.)

5. Implement an algorithm count the number of nodes in Binary search tree that lie in the given range.
