National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Computing

CS250: Data Structure and Algorithms

Class: BSCS 5AB

Lab 4: Binary Search Trees

Date:18th October, 2016

Time: 9am- 12pm / 2pm – 5pm

Instructors: Shamyl Bin Mansoor / Akhtar Munir

Lab 4: Binary Search Trees

Introduction

In this lab we will be implementing a Binary Search Tree using linked lists.

Objectives

To understand the implementation of a BST along with its operations

Tools/Software Requirement

Visual Studio c++.

Description

In a binary search tree:

- Assume each node of a binary tree stores a data item
- Assume data items are of some type that can be ordered and all items are distinct (No two items have the same value).
- A *binary search tree* is a binary tree such that
- for every node X in the tree:
    - the values of all the items in its left subtree are smaller than the value of the item in X
    - the values of all items in its right subtree are greater than the value of the item in X.

Lab Tasks

You are required to upload the lab tasks on LMS and the name of that tasks must be in this format YourFullName_reg#.cpp

Remember to comment your code properly.

Task 1

Implement a Binary Search Tree using linked lists and program the following operations:

- Insertion in the BST
- Traversal using In-order, post-order and pre-order.

Deliverable

Students are required to upload the lab task on LMS before the deadline.