CS5343 Assignment 2

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Assignment 2 Description

We have studied the algorithms for BST. Write a program to implement the deletion from a binary search tree. You first make a BST (algorithm given in class.) **DO NOT USE ARRAY REPRESENTATION FOR BST. THE NODE structure must NOT have parent pointer.** Your tree must have at least 15 nodes.

1. Make the BST and do a in-order traversal
2. Now delete the nodes as follows:
    a. a leaf node. Then do in-order traversal.
    b. a node that has a subtree. Then do in-order traversal again.

Submit code
submit screen shots.

Description of the program.

The program implements a class for a Binary Search Tree, called BST. The tree node holds an integer value as well as a left pointer and a right pointer. The class has a constructor and four methods, all methods are recursive with the exception of create tree:

1. BST – constructor creates a tree with the root = null.
2. insert – inserts the value into the tree using the binary search tree principles.
3. InorderTrav – displays the tree in in-order transversal.
4. createTree – requests user input, in this case 15 integers, and uses the insert method to build the binary search tree.
5. deleteNode – finds the value if it is in the tree and deletes it.

The program requests the user to enter 15 integers to build the tree, displays the integers in-order, requests the user to enter the leaf node to delete, deletes the indicated node, displays in-order, requests an internal node to delete, deletes the indicated node, and displays in-order again. The program also displays the root node. The program then requests the user to enter “y” or “n” to run again.

Compiling instructions.

This program was created using Microsoft Visual Studio. To compile open Visual Studio and create a new empty C++ project. Right click the source files folder under the solution explore window and click Add then Existing item. Browse to the file Source.cpp and double click. Save the project, click build, then “Local Windows Debugger.” The program should run.