**CS311 Yoshii HW4 - Binary Search Tree (based on Notes-8A)**

**DUE: Week 9 Sat (EC is due on Monday with no late work accepted)**

**Reminder that you cannot submit HW or EX via email.**

**TOTAL: 16 pts Your score is:**

**Your name:**

**Date turned in:**

**Review Questions: [3pts] Your score:**

**Q1. Depth first traversal is the same as \_\_\_\_\_ order traversal.**

**Q2. When we add a new node to an existing binary search tree, it will always become a \_\_\_\_\_\_.**

**Q3. When we delete a node with 2 children from a binary search tree, we replace the node with**

\_\_\_\_ \_\_\_\_.

**PROGRAM: Binary Search Tree [5+8=13pts] Your score:**

**Starting with HW4, you have to answer preparation questions before you start programming. Read my comments in programs carefully to answer the questions.**

**Implementation:**

**Test results (required):**

**Total 8 points:**

**Q’s 5 points:**

**Q) Preparation before Programming [3pts]**

**For the functions in binstree.cpp, show who calls what as follows:**

**Destructor calls \_\_\_\_\_\_** post-order traversal of the tree deleting each vertex.

**Display calls \_\_\_\_\_** recursive call for in-order traversal of the tree, printing each element.

**Search calls \_\_\_\_\_\_\_ \_\_** searches tree by starting at root, searches left subtree, then right subtree.

**DeleteVertex calls \_\_\_\_\_\_\_\_** removes a specific vertex.

**Remove calls \_\_\_\_\_\_\_\_\_\_** searches for max element to replace when deleting a vertex with 2 children below.

**FindMax calls \_\_\_\_\_\_\_\_\_\_\_** removes the max element in left subtree of V

**Q. State of the program statement [2pts]**

* **Does your program compile without errors?**
* **List any bugs you are aware of, or state “No bugs”:**

**\*\* Make sure you have used the Binary Tree Visualizers.** [**Link**](http://cgi.csusm.edu/ryoshii/MyVisualizers/BST/bstVis.html)[**link**](http://cgi.csusm.edu/ryoshii/MyVisualizers/BST/addndel/btadd.html)[**link**](http://cgi.csusm.edu/ryoshii/MyVisualizers/BST/addndel/btadd.html) **\*\***

**Your job is to complete binstree.cpp according to my instructions.**

* **Do not forget to set Up-links.**
* **Do not forget to display balance and height even if it is 0.**

**And test it with my hw4client.cpp (unchaged) 🡺 Test.txt**

**\*\* Make sure the output is what you expected/drew. Check carefully against bstOutput.txt\*\***

**SUBMIT THESE 3 FILES:**

1. **This assignment sheet**
2. **binstree.cpp updated**
3. **Test.txt script of compilation and test results (one run)**

* **Whether working or not, test result must include the lines for compiling your files or we will not grade your program i.e. 0 points for the program.**
* **Did you check your comments and style against CS311 How To Comment.doc??**
* **Did you answer all the questions**