

cs311 Yoshii HW4 Binary Search Tree (based on week 8)

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**DUE:** Week 10 Monday

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

**Your name: Eduardo Martinez**

**Date turned in: 10/29/16**

**\*Did you do the extra credit?[5pts] <answer here or we will not look for it>**

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**Purpose:** To learn the representation and implementation of a binary search tree.  
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**Review Questions: [3pts] Your score:**

- Q1. Depth first traversal is the same as pre order traversal.  
Q1. When we add a new node to an existing binary search tree, it will always become a leaf.  
Q2. When we delete a node with 2 children from a binary search tree, we replace the node with  
    Max of the left sub-tree.

**PROGRAMMING: Binary Search Tree [2+11=13pts] Your score:**

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**Your job is to complete my bintree.cpp according to my instructions  
And test it with my hw4Client.C**

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

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

**Submit these 3 files:**

1. this assignment sheet
2. bintree.cpp updated
3. Test script of compilation and test results (one run)

**EXTRA credit [5pts] – highly recommended to do**

**Must work perfectly to receive any points. No partial credit. So, if it does not work perfectly, do not submit it. Check your output against mine.**

Do this separately from HW4. After your HW4 is completed, make a copy of the files and rename them as **binstreeEC.h**, **binstreeEC.cpp**, **hw4EC.cpp**, and then add the functionality to compute and store the height of each node.

Ideally this should be done each time Insertvertex or Deletevertex is called – updating all nodes so that the tree can be balanced as soon as a bad balance factor is noticed.

However, to make this assignment easier, you should simply compute, store and display the height and the balance factor of all nodes when ShowPostOrder is called.

- Need to update the header file to allow storing of the height and balance factor in each node
- Need to update the implementation file to compute, store, and display the height of each node in ShowPostOrder.
- Update the hw4Client.C so that ShowPostOrder is called right after each ShowInOrder.

Submit these 4 additional files:

- The header **binstreeEC.h**, implementation **binstreeEC.cpp** and client **hw4EC.cpp**.
- The test results **TestEC**