# CS 180: Data Structures, Fall 2012
# Homework 7

## Due *at the beginning of class* on Monday, Oct. 29

1. (a) Suppose that we start with an initially empty max heap, and that the following items are inserted: 12, 24, 11, 6, 34, 21, 4, 30, 55, 19

    Draw the heaps that results after these operations **in this order**. While I do not require you to show your work, I encourage you to do so for the purposes to partial credit and to double check your work.

   (b) Now draw the max heap that results after removeMax is called on your heap from part a. Again, I encourage you to show your work.

2. Consider the following two tree traversal outputs:

    Preorder: ILOVECOMPUTERS
    Inorder: OLEVIOCTUPMRES

    Draw the binary tree which results in these two outputs for the specified traversals.

3. (a) Draw the binary search tree that results after the following elements are inserted into an initially empty BST **in this order**: 12, 24, 11, 6, 34, 21, 4, 30, 55, 19

   (b) Now draw the BST after delete(6) is called.

   (c) Now draw the BST after delete(12) is called.

4. (a) Your classmate claims that the order in which a set of elements is inserted into an AVL tree does not matter - the same search tree results each time. Give a (small) example to show they are wrong.

   (b) Now this same classmate claims that a postorder traversal of a heap will list its keys in sorted order. Give a (small) example of a heap that proves he is still wrong.