CPSC 131 Homework 9

Deadline: Monday, Dec 2 (Mon, Wed sections)
Tuesday, Dec 3 (Tue, Thu sections)

Turn in your submission as hard copy in class.

#1 (30 points)

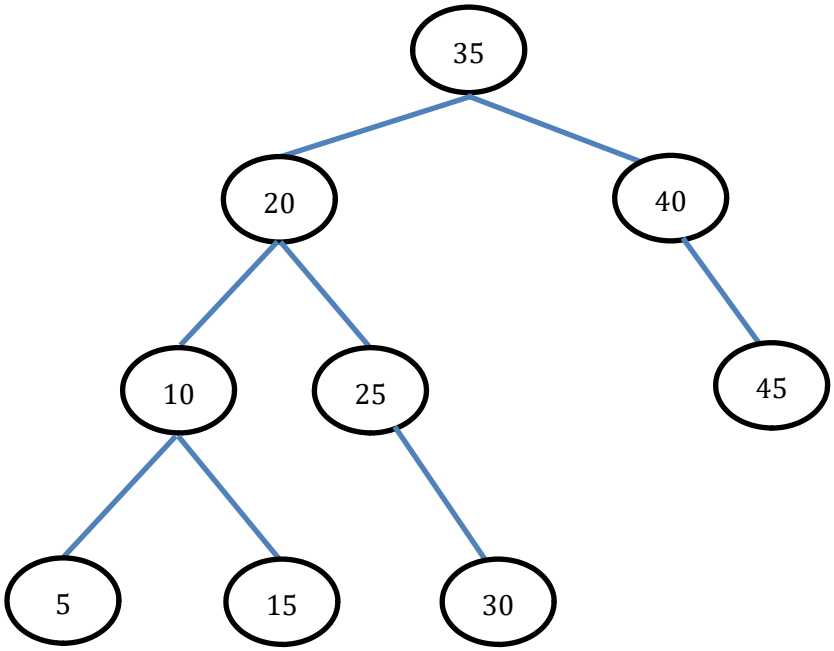

Figure 1. AVL Tree

a) Inserting a node (10 points: 1, 2, 7)
   i) Draw the Binary Search Tree resulting from the **insertion** of an entry with key **32** into the AVL tree in Figure 1.

   ii) Indicate on this tree the three nodes that will be involved in Trinode restructuring

iii) Perform the trinode restructuring (using the handout on Titanium) and draw the final AVL tree.

b) Inserting a node (10 points: 2, 8)

i) Draw the Binary Search Tree resulting from the **insertion** of an entry with key **28** into the AVL tree in Figure 1. (**start all over from the tree in figure 1**, not from the result of part a). Indicate on this tree the three nodes that will be involved in Trinode restructuring

ii) Perform the trinode restructuring (using the handout on Titanium) and draw the final AVL tree.

c) Deleting a node (10 points each, 2,2,5,1)

i) Draw the Binary Search Tree resulting from the **deletion** of the entry with key **40** into the AVL tree in Figure 1. (**start all over from the tree in figure 1**, not from the result of part a or b)

ii) If the tree is unbalanced, indicate on this tree the three nodes that will be involved in Trinode restructuring

iii) If the tree is unbalanced, perform the trinode restructuring and draw the final AVL tree.

iv) Is the tree balanced? If not, repeat step iii