Homework 4

(Maximum 50 points)

Due beginning of class Friday October 2, 2015

Show the steps of deriving your answers.

1. **(25 points) [AVL tree operations]** Construct an AVL tree by inserting nodes with the keys A, V, L, T, R, E, E. (There are two duplicate keys E. Insert the second E as E' and insert it to the left subtree of E.) Show the resulting tree structure after inserting each key, and for each key show the steps of any rotations performed to fix the violation of AVL tree property.

2. **(25 points) [Splay tree operations]** Construct a splay tree by inserting nodes with the keys S, P, L, A, Y, T. Show the resulting tree structure after inserting each key, and for each key show the steps of any rotations performed to splay the new node up to the root. If the number of edges from the root to the newly inserted node is an odd number, then do a single rotation at the bottom and follow it with double rotations.

Last modified: September 24, 2015