EL9343 Homework 4

All problem/exercise numbers are for the third edition of CLRS text book

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1. Given an empty AVL tree and sequence {5, 1, 2, 4, 11, 17, 3, 7}, insert each element of the sequence to the AVL tree, one at a time, following the given order of the sequence. Draw all the 8 AVL trees after each insertion.

2. Given sequence { 2, 11, 5, 7 }, remove each element from the final AVL tree obtained in problem 1, one at a time, following the given order. Draw all 4 AVL trees after each deletion.

3. Exercise 22.2-6.

4. Given an O(V + E)-time algorithm to compute a path in a connected undirected graph G = (V, E) that traverses each edge in E exactly once in each direction.

5. Exercise 22.3-12.

6. Exercise 22.4-1.

7.Show how the procedure Strongly-Connected-Components works on the graph in Figure 1. Show the finishing times computed in line 1 and the forest produced in line 3. Assume DFS considers vertices in alphabetical order and and the adjacency lists are also alphabetical order.

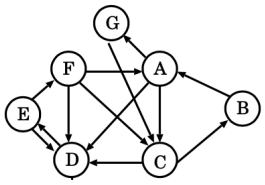

Figure 1: Directed Graph for Question 7

8. Problem 22-1.

9. Problem 22-3.