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CSE 310 Recitation 6

Objectives:

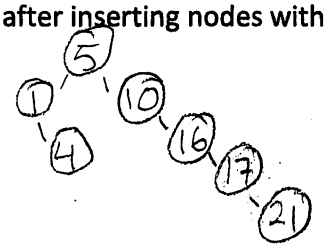
1. Binary Search Tree (BST)

Instruction

1. For all recitation: **the solution should be clearly typed or written and must be saved in .pdf or .jpg format**. Note: **unreadable answer receives no credits!**
2. All recitation must be submitted through the link posted on Blackboard, we do NOT accept any hand-in submissions or submissions sent through emails!

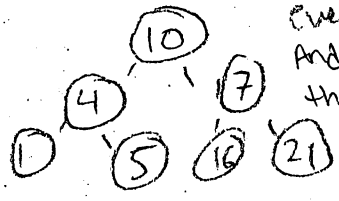
Question

1. [2 pts] Show the BST after inserting nodes with key values 5, 1, 10, 4, 16, 17, 21 in this order.



2. [3 pts] What is the minimum possible height of a BST with the set of data provided in question #1? In what order then the data should be provided in question #1 such that after insertion you obtain a BST with minimum possible height.

The minimum possible height would be $\lg(n)$. To get the minimum height you would need to insert the values in this order: 10, 4, 17, 1, 5, 16, 21. The median should be the root usually because it is evenly distributed on the left and right. And medians of medians is how you determine the next term for the left and right.



3. [1 pt] Suppose that we have numbers between 1 and 100 in a binary search tree, and we want to search for the number 36. Which of the following sequences could not be the sequence of nodes examined?

(A) 2, 25, 41, 39, 33, 34, 38, 36

(B) 92, 22, 91, 24, 89, 25, 35, 36

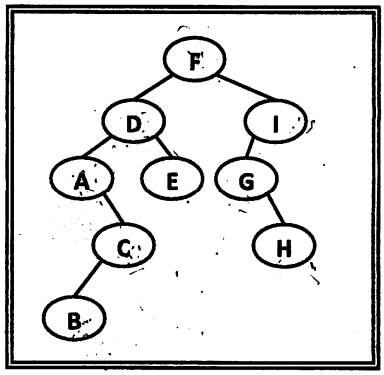
(C) 96, 20, 91, 24, 90, 92, 45, 36

(D) 3, 42, 41, 21, 26, 40, 27, 36 Answer: C

(E) 93, 27, 34, 62, 29, 39, 35, 36

4. (1)[1 pt] Is the following tree a Binary Search Tree or not? (Circle one answer)

Yes **No**



(2) [3 pts]For above binary tree print the pre-order, in-order and post-order traversal.

Pre-order: F, D, A, C, B, E, I, G, H

In-order: A, B, C, D, E, F, G, H, I

Post-order: B, C, A, E, D, H, G, I, F