



# Polytechnic Tutoring Center

## Final Exam Review - CS 1134, Fall 2021

**Disclaimer: This mock exam is only for practice. It was made by tutors in the Polytechnic Tutoring Center and is not representative of the actual exam given by the CS Department.**

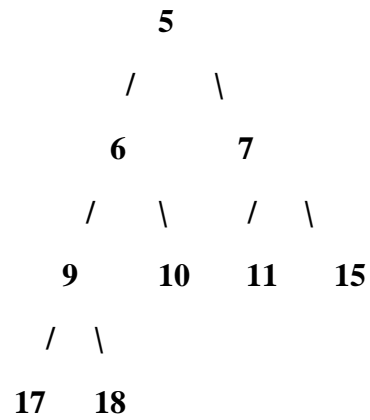
1. Given the preorder traversal of a binary search tree is as follows: 9 5 4 3 7 6 8 13 11 12 15...

a. Draw the described tree.

b. Now that you have the tree, what is its postorder traversal?

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2. Given a min heap with the structure as defined below, redraw the minheap after performing the following operations...



- a. Insert 8

- b. Delete min

3. Write a function which recursively determines if a binary tree is balanced or not. By balanced, we mean that the right and left subtrees have at most a difference in height of 1. Note: You may use a helper if this helps you.

4. Define a non-recursive function which will print out the specified level of a tree, using only a stack and a queue and constant additional space.

5. Draw the resultant Hash Table after inserting the below items into the table (of size 13), with hash function  $h(k) = k \bmod 13$ . Use linear probing to deal with the collisions.

Insert 32, 5, 23, 29, 26, 41, 39, 42, 17, 19