COMP 5112.   Lab 3: Tree Data Structures

Question 1

Suppose that we want to store the *keys* 1,4,5,10,16,17,21 into a binary search tree.

- Draw a (possible) binary search tree of height 2.

- Draw a (possible) binary search tree of height 4.

- Draw a (possible) binary search tree of height 6.

Question 2

Suppose that we have numbers between 1 and 1000 in a binary search tree, and we want to search for the number 363. For each sequence, check whether it can be a **POSSIBLE** sequence of nodes examined.

- 2, 252, 401, 398, 330, 344, 397, 363.

- 924, 220, 911, 244, 898, 258, 362, 363.

- 925, 202, 911, 240, 912, 245, 363.

Hint: *Use the "search" algorithm to check whether a sequence is possible*

Question 3

Using the AVL tree in figure 1

1. Draw the tree after doing a single left rotation of node 10 and 13.

2. Draw the tree after doing a double rotation: left rotate node 10 and 13, then right rotate 13 and 18.
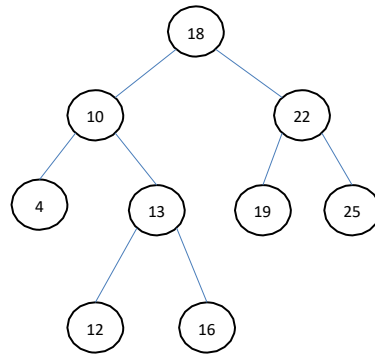

Figure 1: An
AVL Tree