

Homework 2

Due Date: March 5, 2019

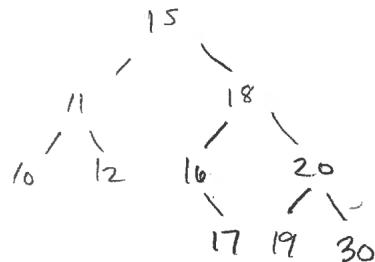
(1) (15 pts) What is the largest possible height of an AVL tree with 20 nodes?

This is solved by using the modified fibannacci sequence algorithm of $S(5) = S(4) + S(3) + 1 = 20$, Hence the largest possible height is 5.

(2) (15 pts) What is the minimum number of nodes in an AVL tree of height 10?

We solve this by a modified fibinnacci sequence. Using the equation: $S(h) = S(h-1) + S(h-2) + 1$ with $h(0) = 1$ and $h(1) = 2$, which gives us the minimum number of nodes in a AVL tree of height h. Using this formula $h(10) = 232$

(3) (10 pts) Show the result of inserting the following sequence of keys into an initally empty AVL tree: 15, 10, 11, 16, 12, 30, 18, 20, 19, 17.



(4) (10 pts) For a B+ Tree where $M=3$ and $L=5$ shown below, show how an insert of 77 is handled. *Use the method of splitting vs redistributing*

