

College of San Mateo  
Data Abstraction and Algorithms  
Assignment #3-A: Binary Trees and AVL Trees

Exercise 1:

List the elements of the following binary tree in *pre-order*, *in-order* and *post-order* traversals:

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

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

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

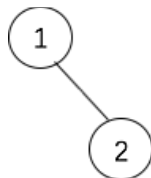
Exercise 2:

Consider insertion of the following sequence of integers into an empty AVL Tree:

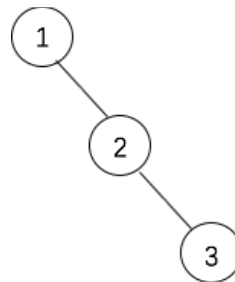
Insert 1



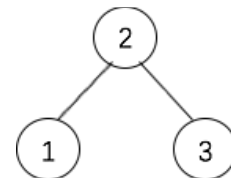
Insert 2



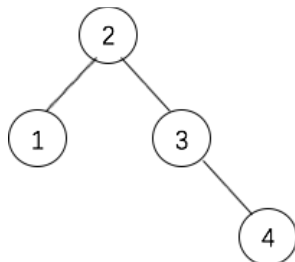
Insert 2, not balanced, case 4



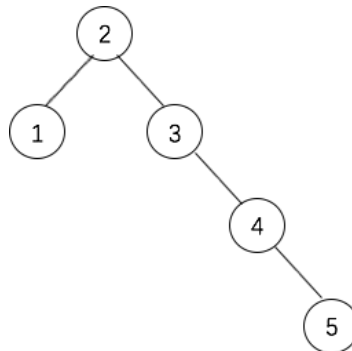
Balanced



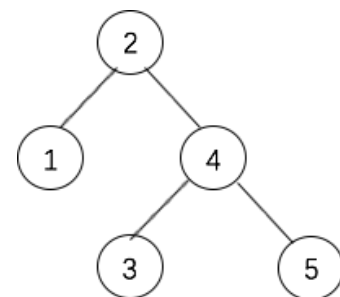
Insert 4



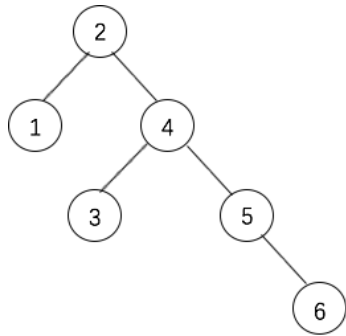
Insert 5, not balanced, case 4



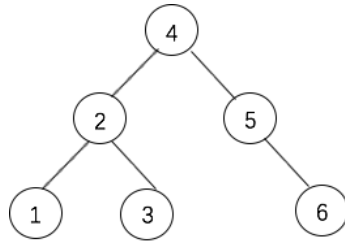
Balanced



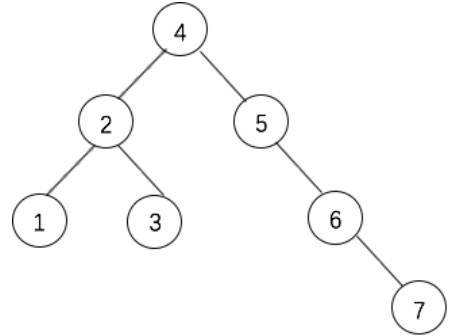
Insert 6, not balanced, case 4



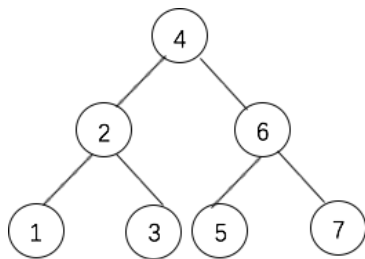
Balanced



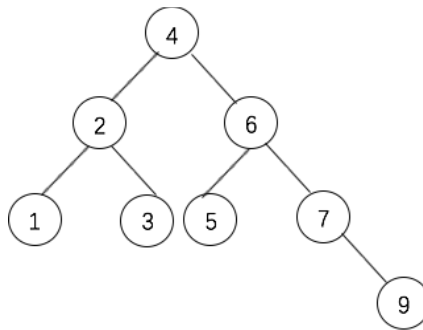
Insert 7, not balanced, case 4



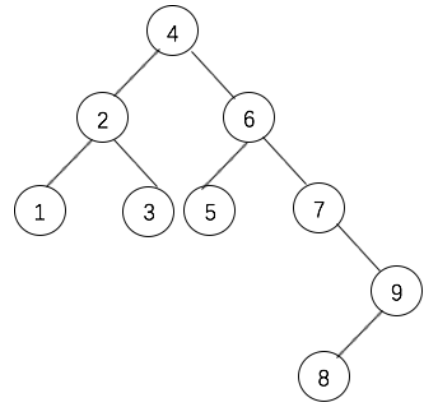
Balanced



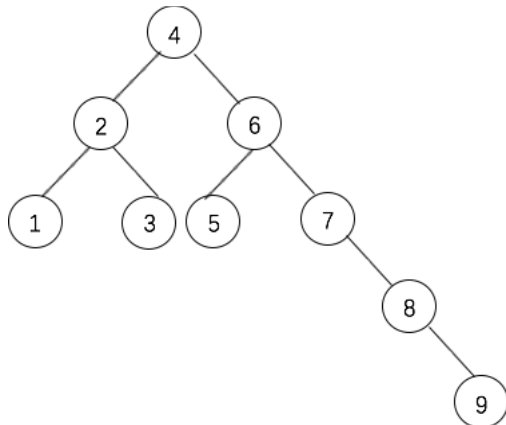
Insert 9



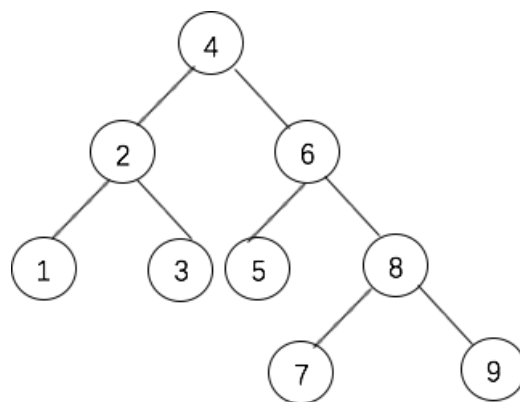
Insert 8, not balanced, case 3



First rotation



Second rotation, balanced



### Exercise 3:

Draw the AVL tree that would result after deleting V and then deleting F from the following AVL tree.

