AVL Tree

An AVL tree is a Balanced Tree.

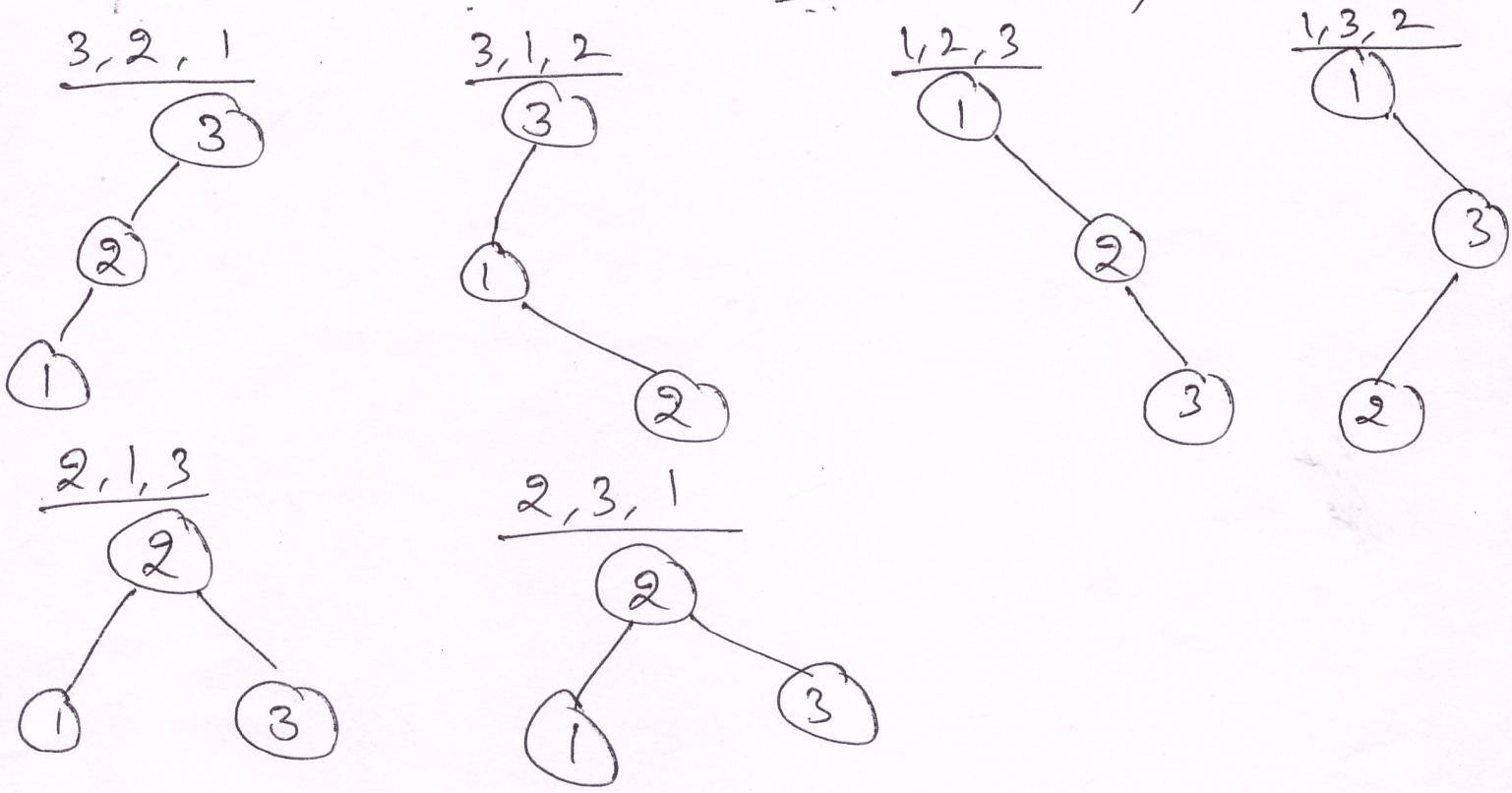
AVL stands for "Adelson, Velski & Landis"
[Names of its inventors]

Let us consider the values 1, 2, 3.

The no of Binary Trees which can be constructed with these three values is 6 (3!)

i.e, if n is the no of elements

n! is the no of Binary Tree orders

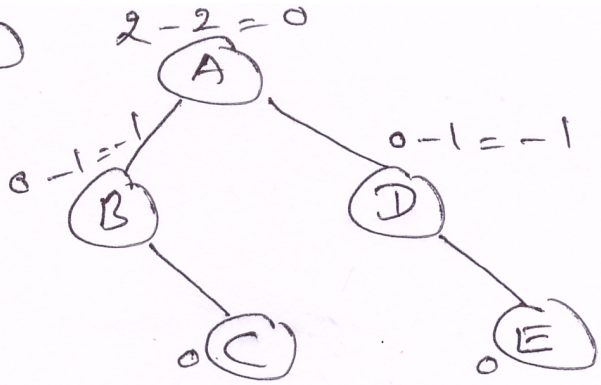


The height of the Binary Tree is the key factor (Balance factor)

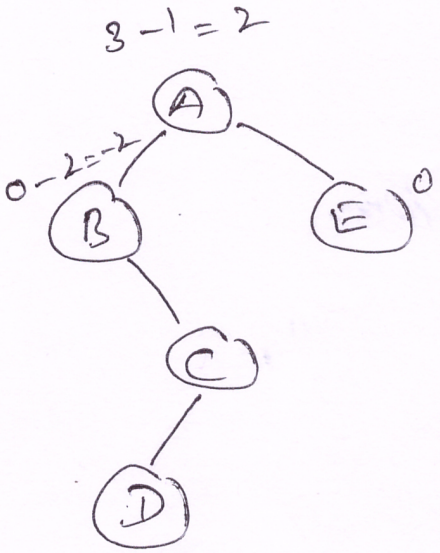
Balance factor = height of Left sub-tree − height of Right sub-tree

$= \{-1, 0, 1\}$

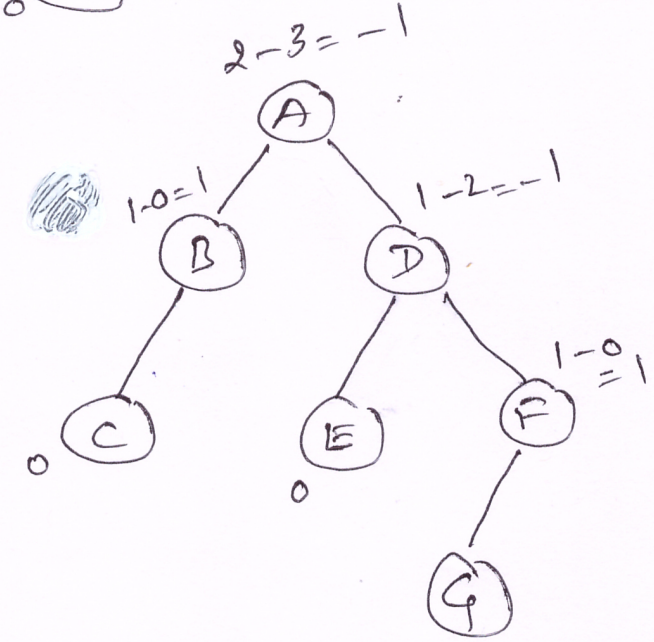
Example: (1)



(2)



(3)



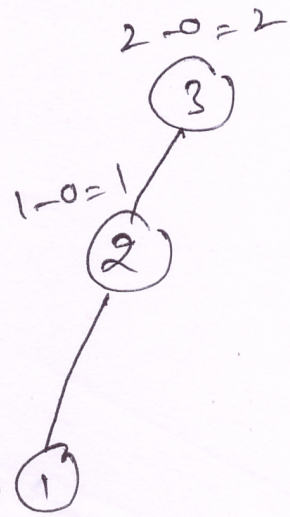
(1) is Balanced Tree

(2) is Not a Balanced Tree

(3) is a Balanced Tree

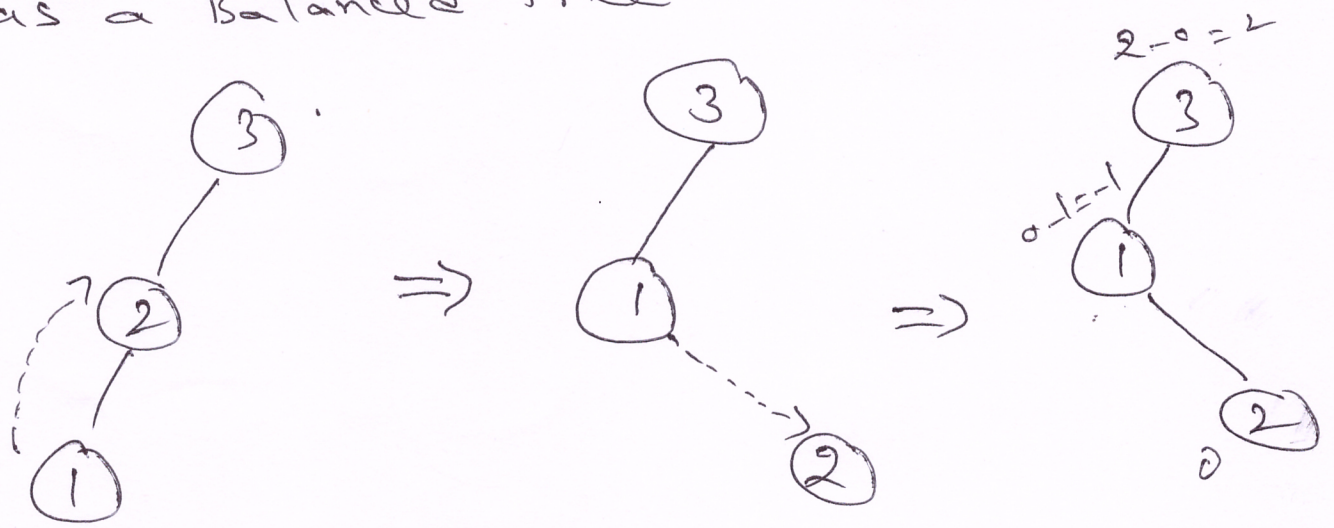
To make an unbalanced tree, the technique used to make it a balanced tree is the concept of AVL Tree.

for an example:

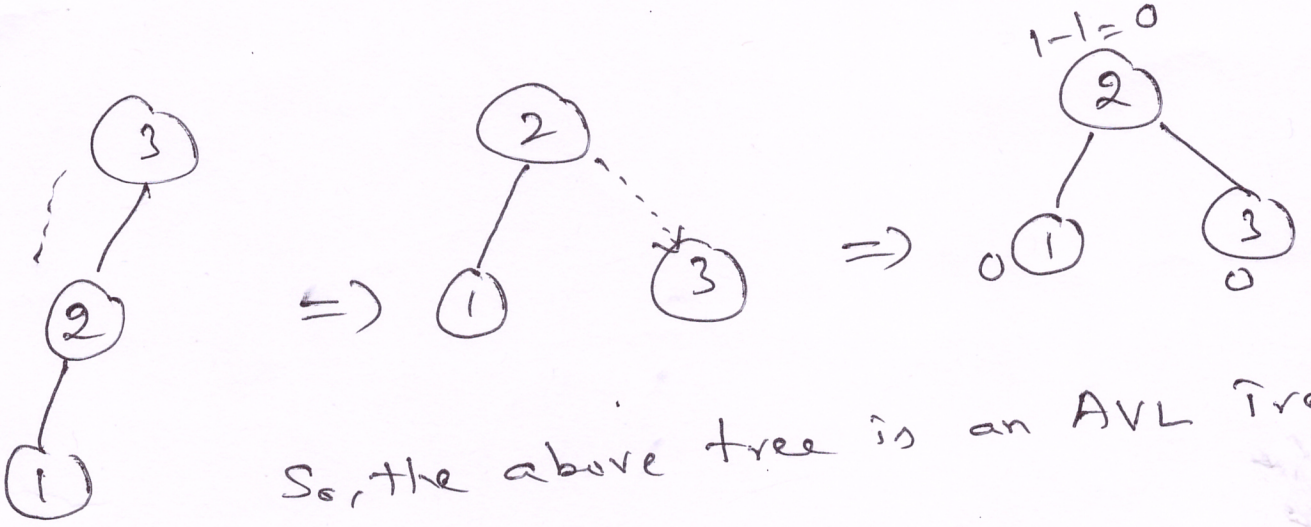


Balance factor
$= \{-1, 0, 1\}$

Perform Rotation to make the above tree as a Balanced Tree



This rotation makes unbalanced.
So, it cannot be considered



So, the above tree is an AVL Tree