AVL 1 Introduction

Difference in height between left &right must always <=1

If difference is more than one then there is violation of the Tree

1-We start with a 4 the difference between height between left and right is 0

There is no violation because there is no children.

2-now I have added 2 I got one child on the left and right side no child. Its still equal to one no problem

3-I add to 8 to right child. There is no violation left side is 1 and right side is 1

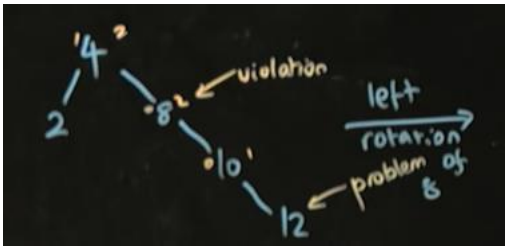
4-I add to 10 on the right child now. I have one child on right of the 8 and zero child on left on the 8

I've got two children on right side and one children on left side of the 4 number.

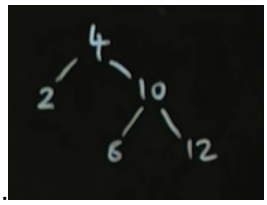
That's okay im still balanced.

5-I add 12 right side. Now for 10 number I have one child on right side and zero child for left side.

I have Two children right of the 8 and 0 of the left. We have violation here.So my difference in heights at eight is bigger than one. So I have a violation of tree. 12 cause to problem.



To fix the violation I rotate the grandparent 8

So result is. 

now I got one child of the each side of the 10 number. For 4 number she has 2 children on the right but left is 1

Another ex.

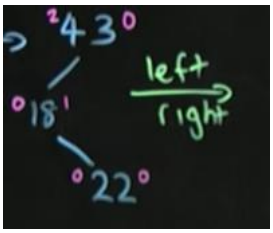
- Here 8 has 2 child on left of he 8 but right side is 0. We have violation here.2 causes the violation.so we make rotation like last example 4 becomes grandparent

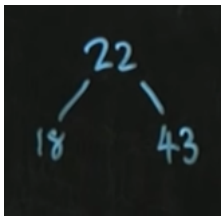
I 've got one one child on either side.

AVL Tree 7 complete example of adding data to an AVL tree.

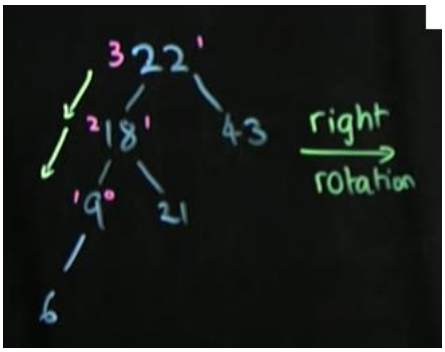
Avl trees are type of a tree where you maintain where you maintaintce balance byensuring the difference in height of the left subtree and the right subtree is never more than one.

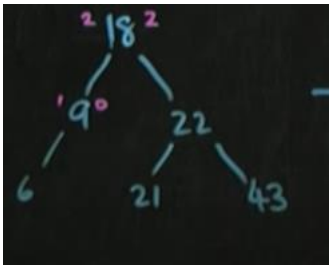
LEFT -RIGHT Rotation



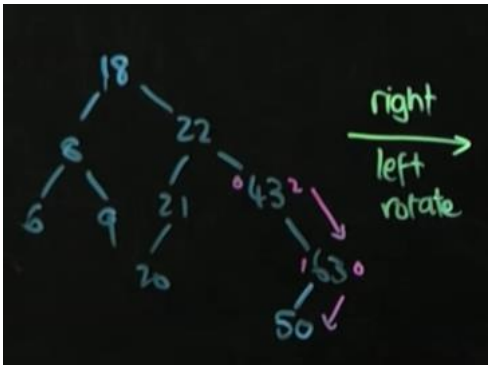


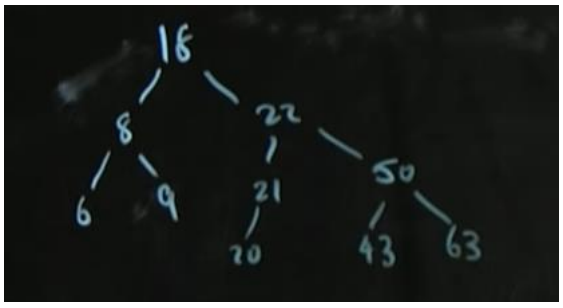
Right rotation(If violation on left side)



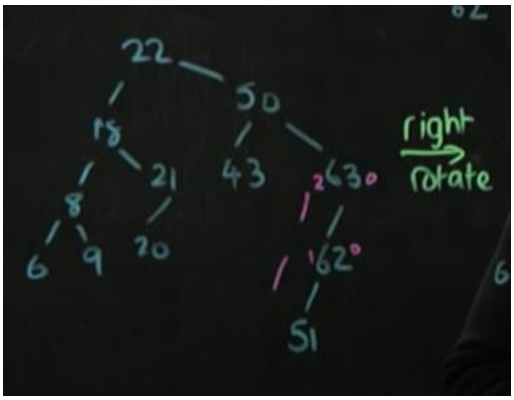


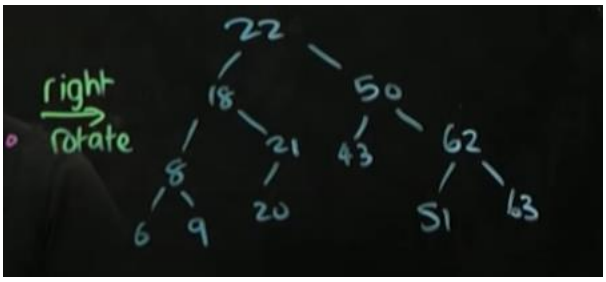
RIGHT LEFT ROTATION





IF inbalanced on the left child then process in on right





In inbalanced on the right child then process on left.