An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

RTMENT OF INFORMATION TECHNOLOGY

DATASTRUCTURES

II YEAR III SEM

UNIT 2 –TREE DATASTRUCTURES

TOPIC 6 – AVL TREE

ng the height of a tree

sical Tree /Manmade Tree

he idea to make a tree as height balanced?

AVL TREE

nced Tree

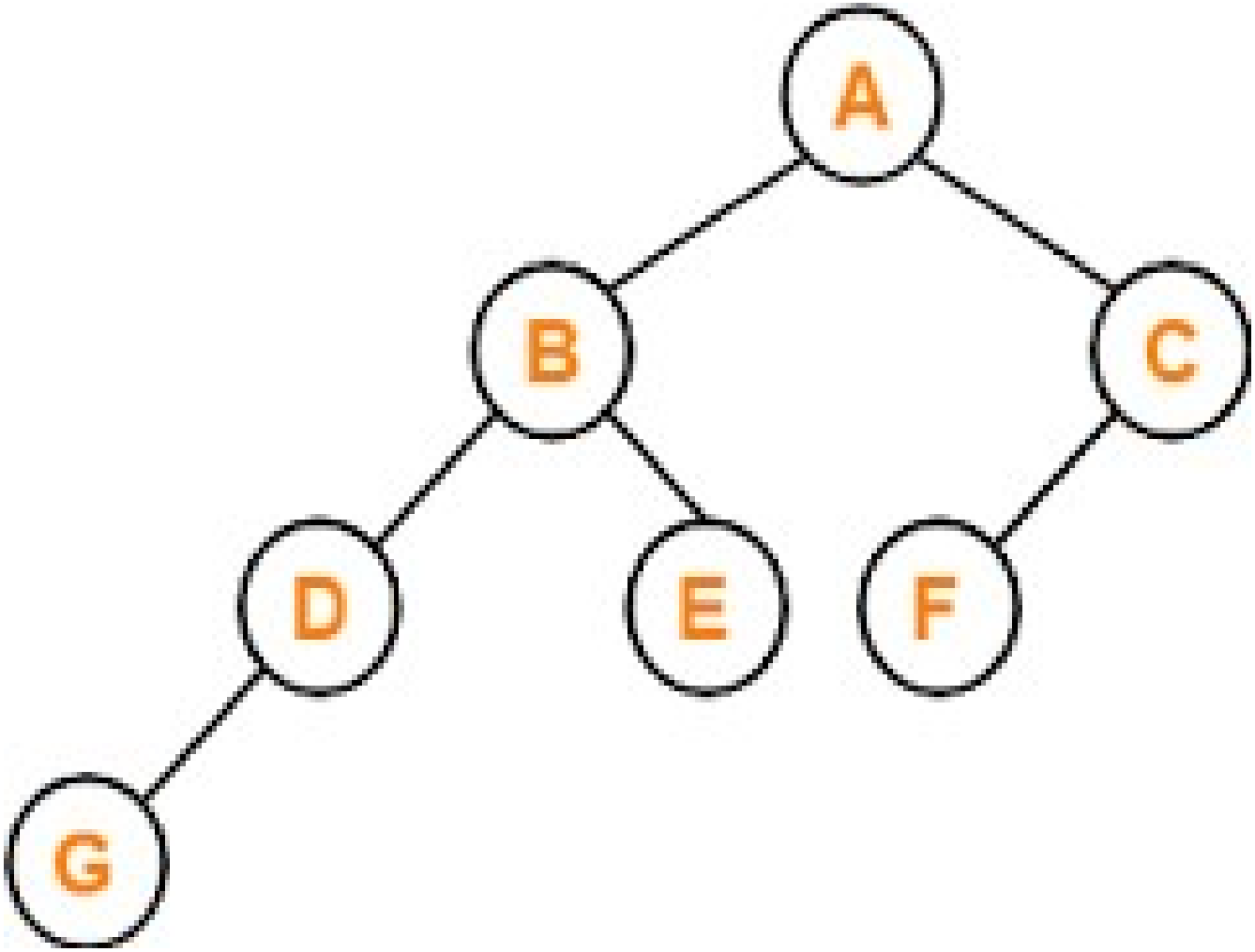
Adelson, **Velski** & **Landis**

s height balanced if:

are height balanced

1, where h_L - h_R are the heights of T_L and T_R

nce factor of a node in a binary tree can have value



Picture Source : btechsy

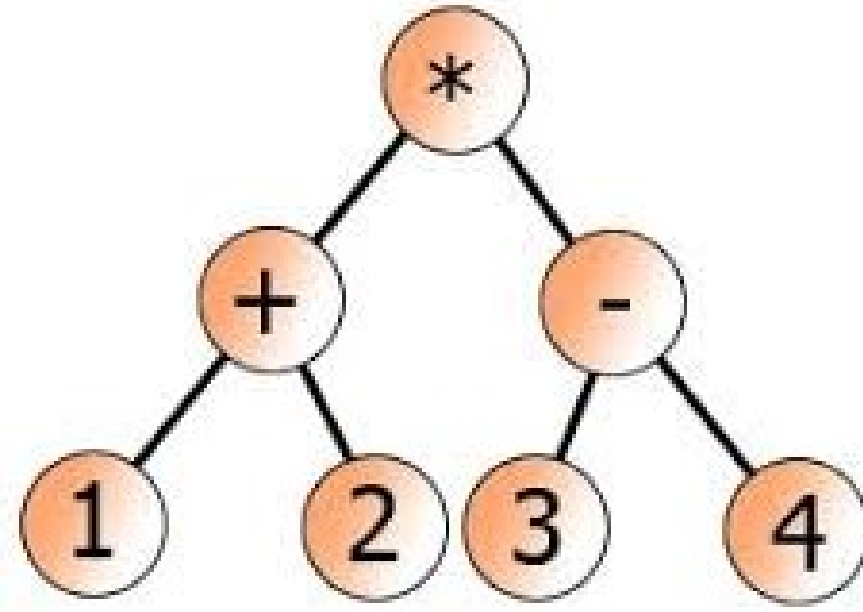
ng expression trees

ng arithmetic expressions

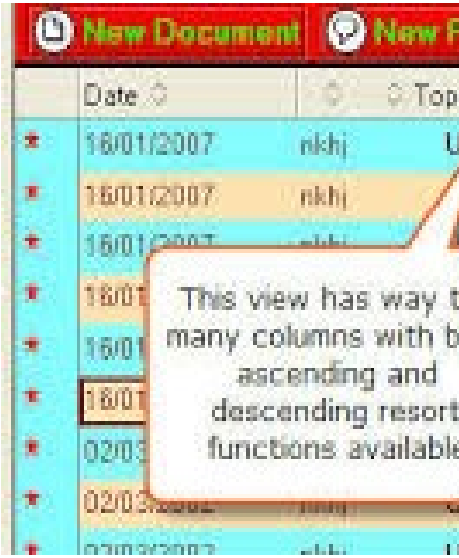
mic sorting

emory Area management

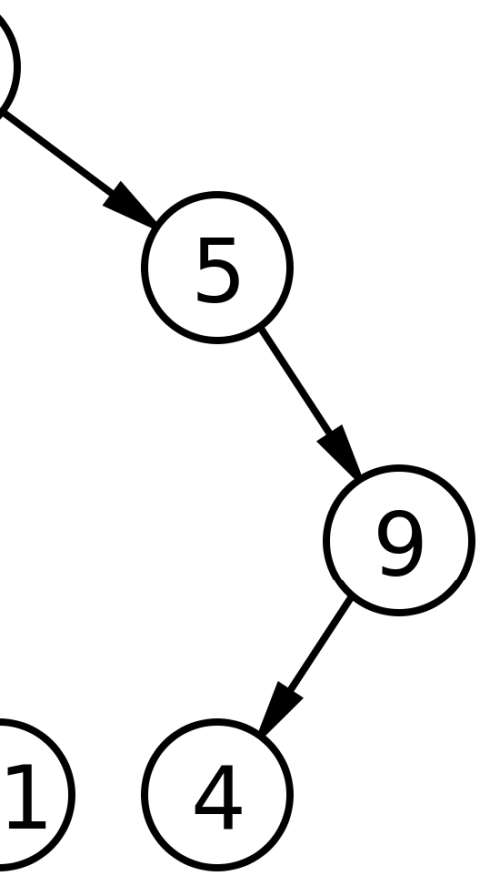
s indexing



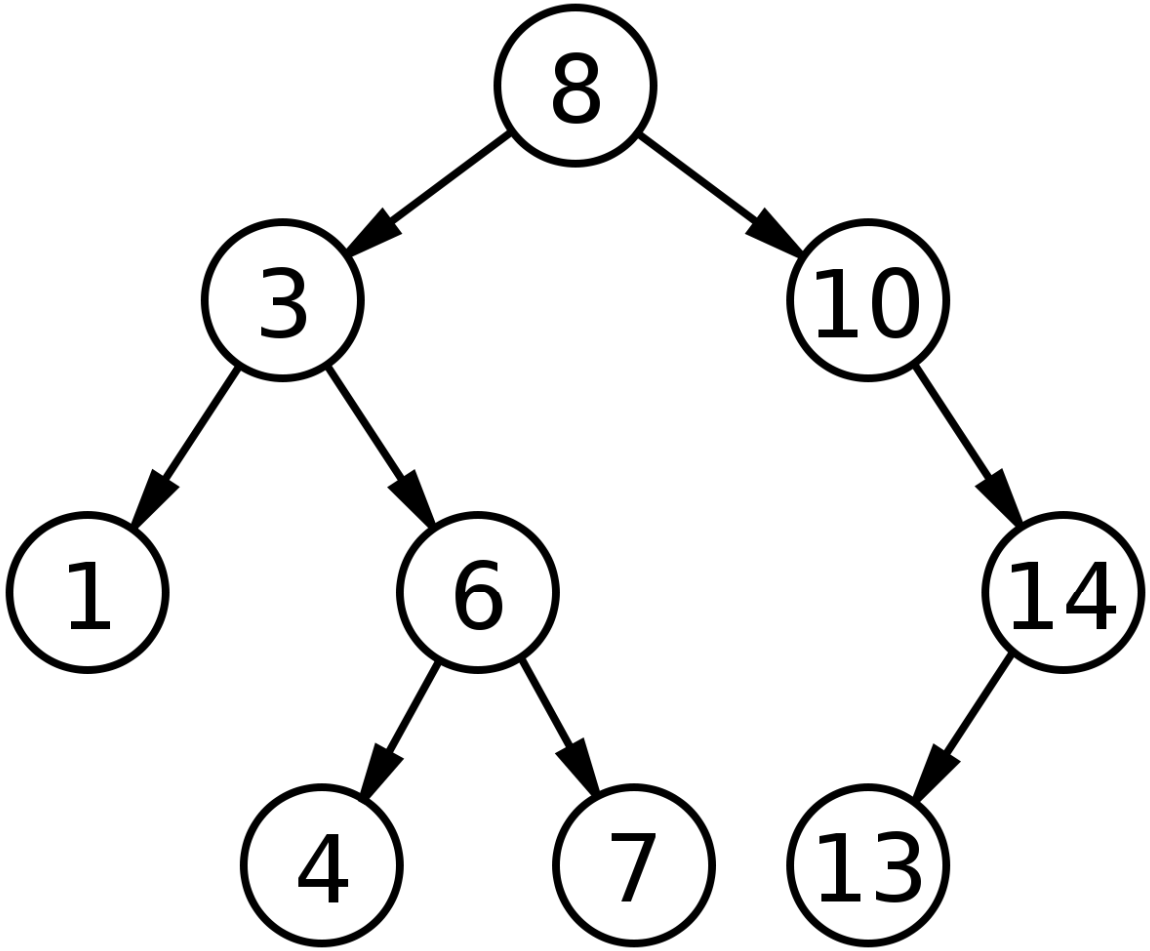
((1+2)*(3-4))

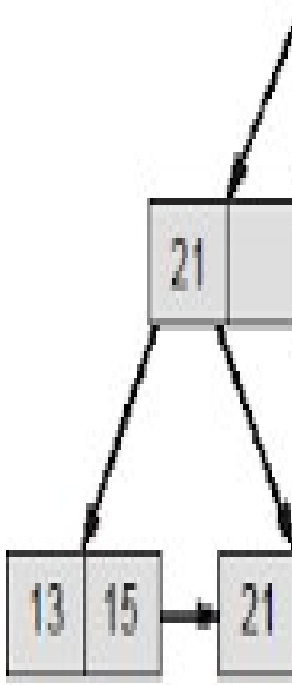


Which of the following is the example for AVL tree?



B



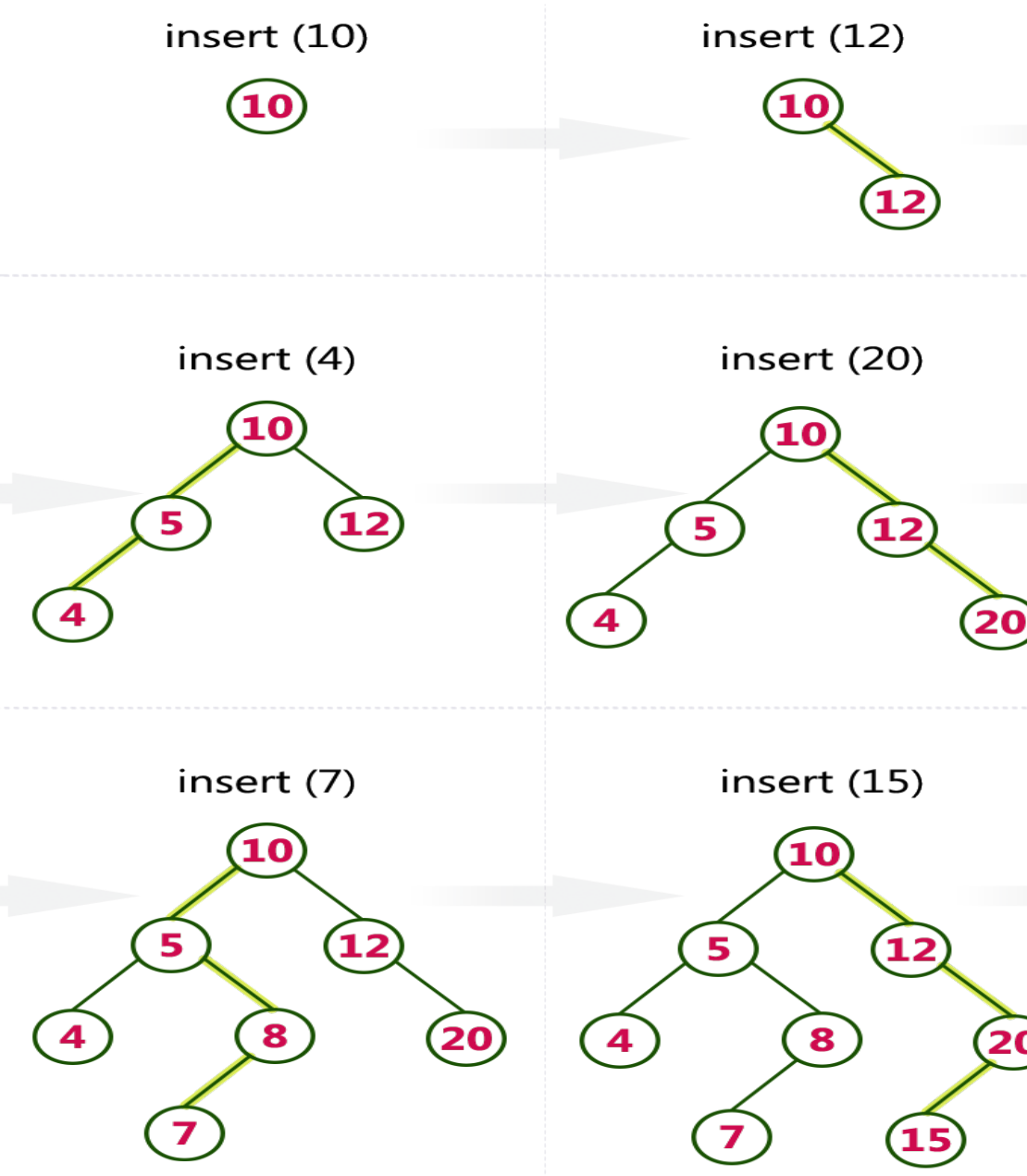


OPERATIONS

elete()

Create()

Display()



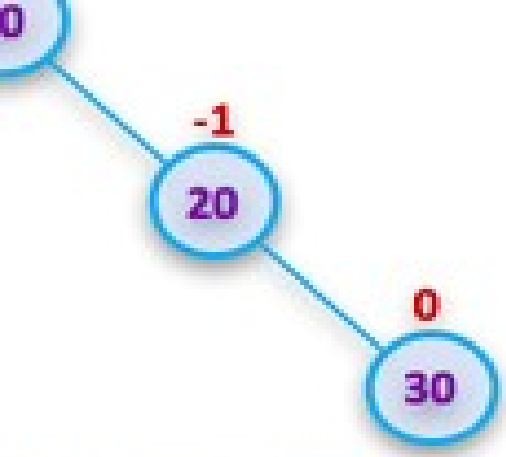
ct and place the following elements in a AVL tree.

2,5,4,20,8,7,15 and 13

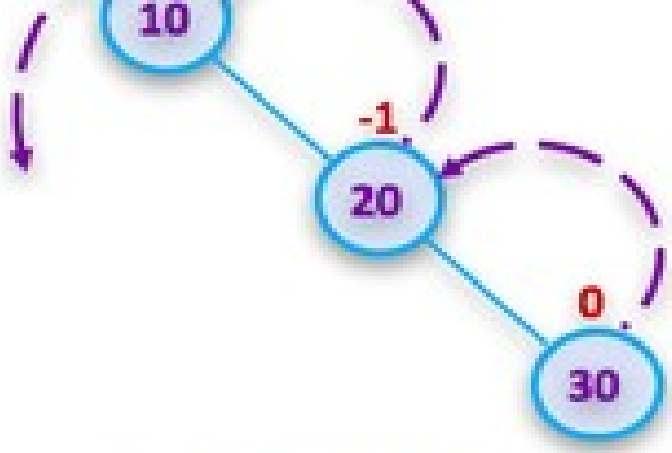
tion is the process of moving the nodes to either left or r
e tree balanced in terms of its height.

lance itself, an AVL tree may perform the following four kin
ons −

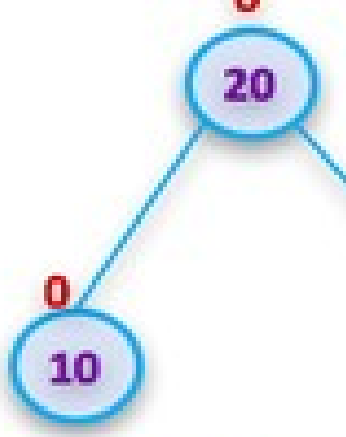
eft rotation (Single)
ight rotation (Single)
eft-Right rotation (Double)
ight-Left rotation (Double)



e is imbalanced

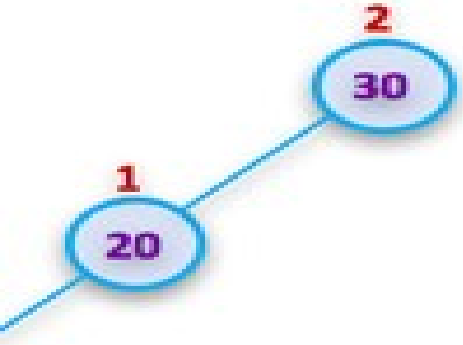


To make balanced we use
LL Rotation which moves
nodes One position to left

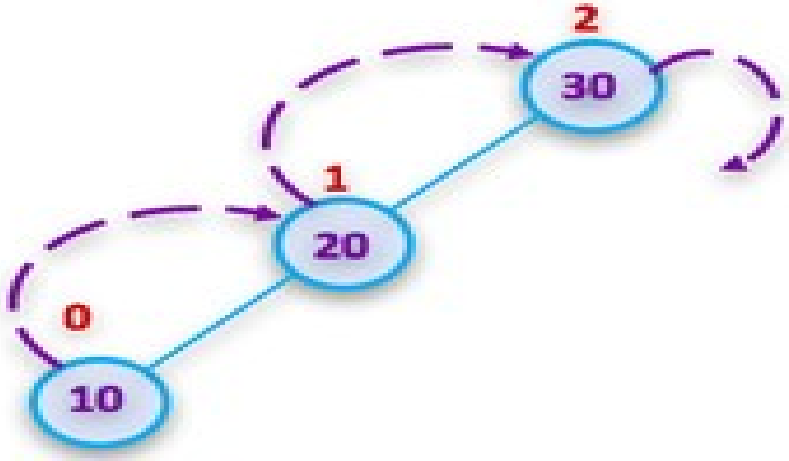


After LL Ro
Tree is bala

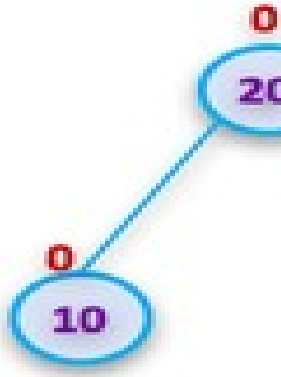
30,20 and 10



s imbalanced
node 30 has
actor 2



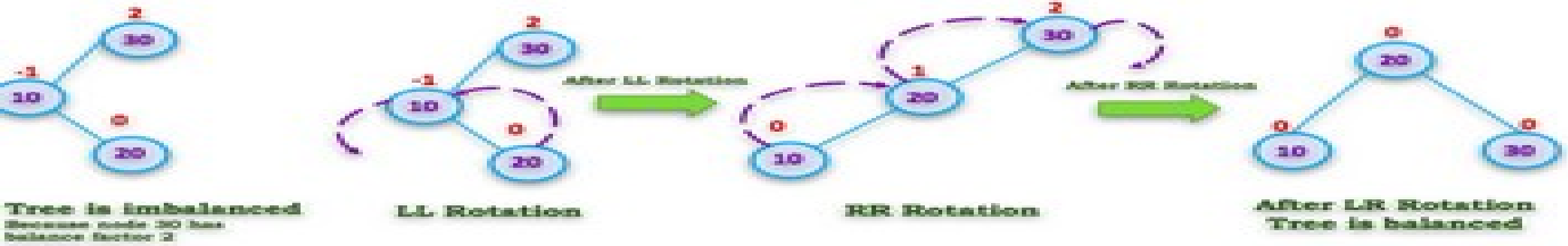
To make balanced we use
RR Rotation which moves
nodes One position to Right



After RR
Tree is b

LR Rotation is combination of single left rotation followed by single rotation. In LR Rotation, first every node moves one position to left one position to right from the current position. To understand LR ion, let us consider following insertion operations into an AVL Tree...

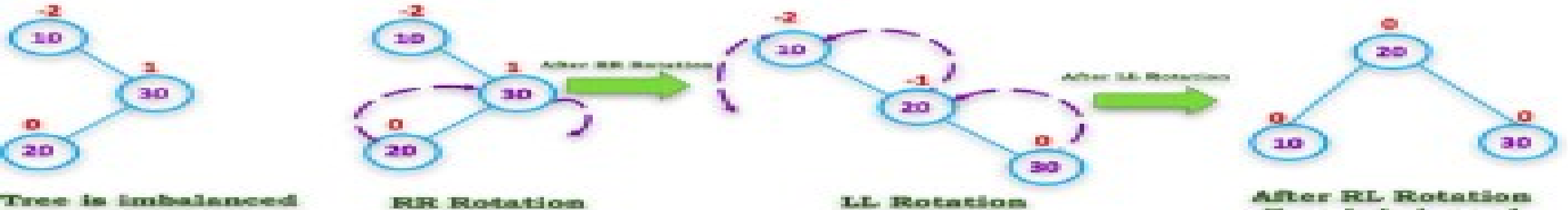
Insert 30,10 and 20



ight Left Rotation (Double — RL Rotation)

RL Rotation is combination of single right rotation followed by single otation. In RL Rotation, first every node moves one position to right one position to left from the current position. To understand RL ion, let us consider following insertion operations into an AVL Tree...

Insert 10,30 and 20



/ece.uwaterloo.ca/~dwharder/aads/Lecture_materials

uora.com/datastructuresctures/realtimeexamples

lpoints.com/datast/AVL