Balanced Binary Search Trees (BBSTs)

Learning Objectives

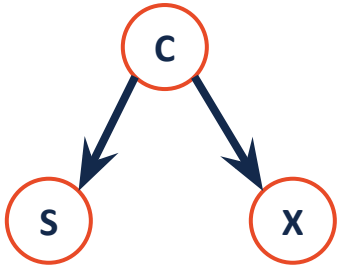
1. Define Balance of a Node
2. Evaluate whether a tree is balanced or not
3. Perform Simple Rotations on a Tree

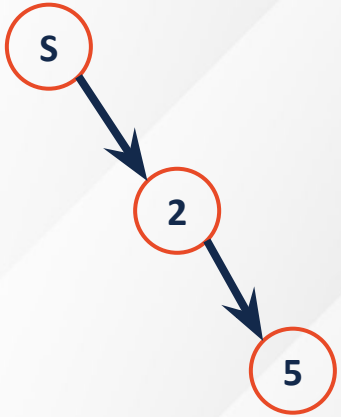
Motivation

Binary Search Trees

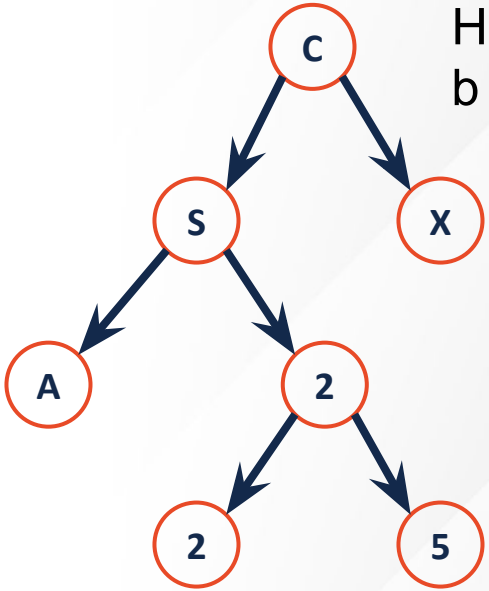
- Find
- Insert
- Remove

Balanced





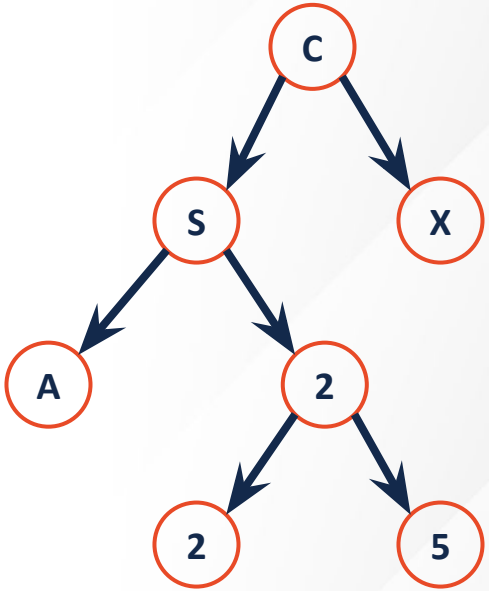
Balanced



Height balance:
$b = height(T_R) - height(T_L)$

Tree Balanced

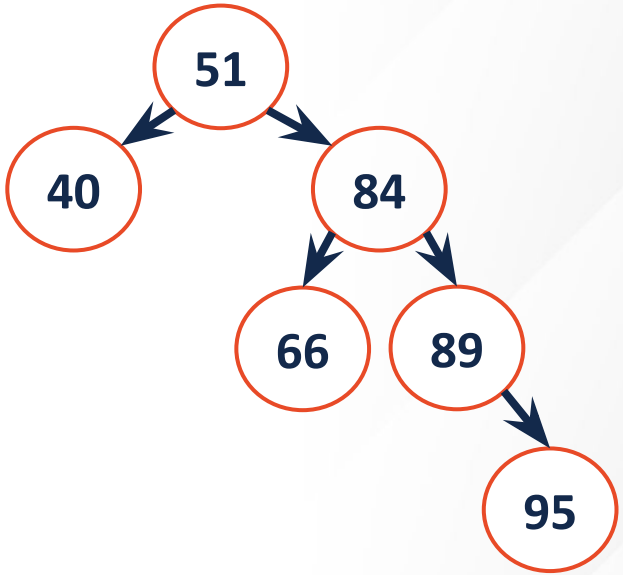
A tree is height balanced if: |b| <= 1



BST Rotation

1. BST Property

2. Changes sticks into mountains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84
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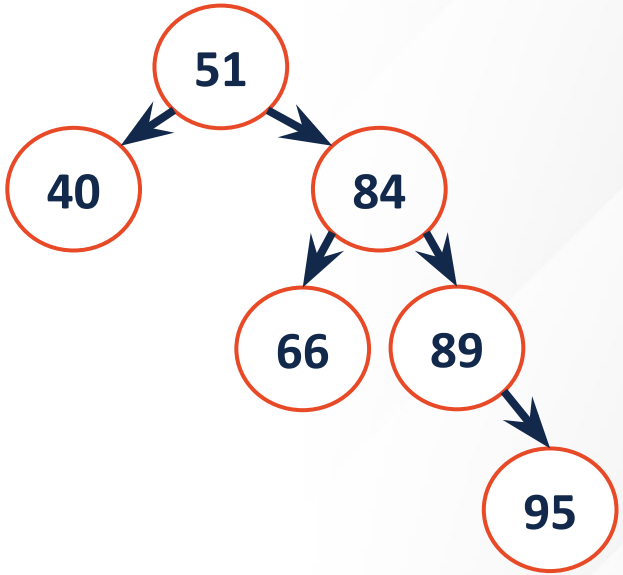
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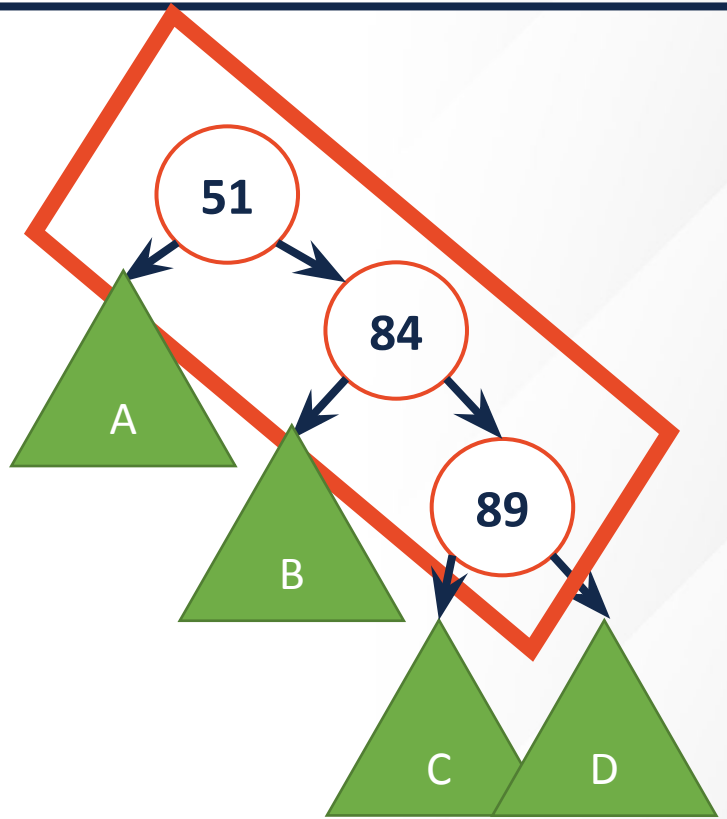
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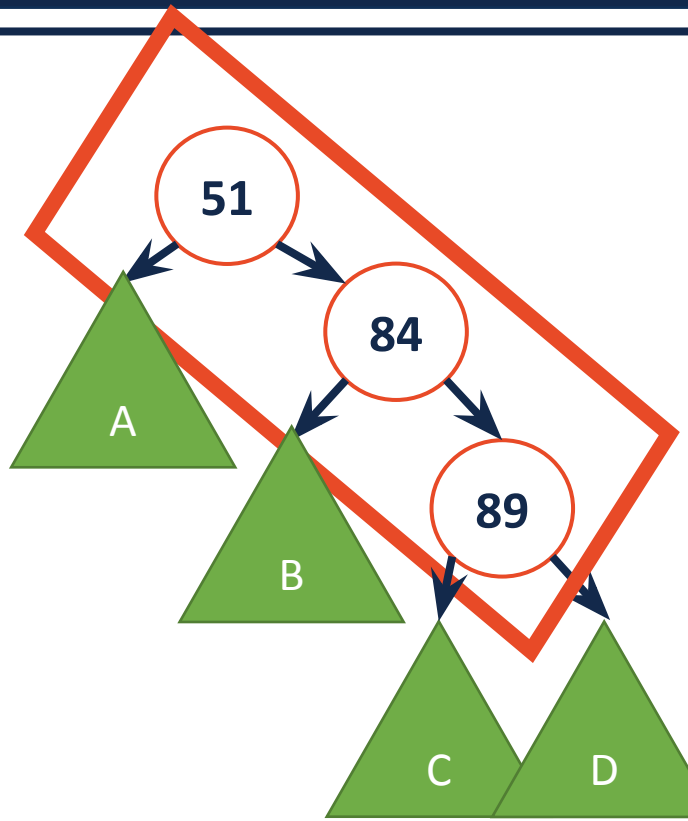
A
B
C
D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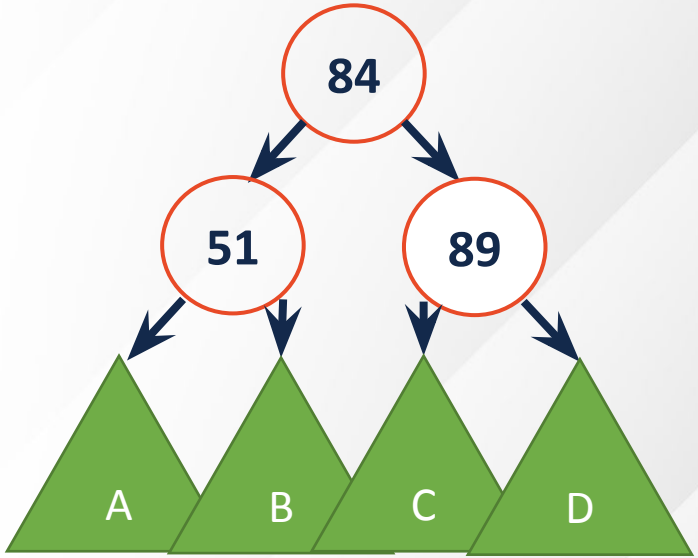
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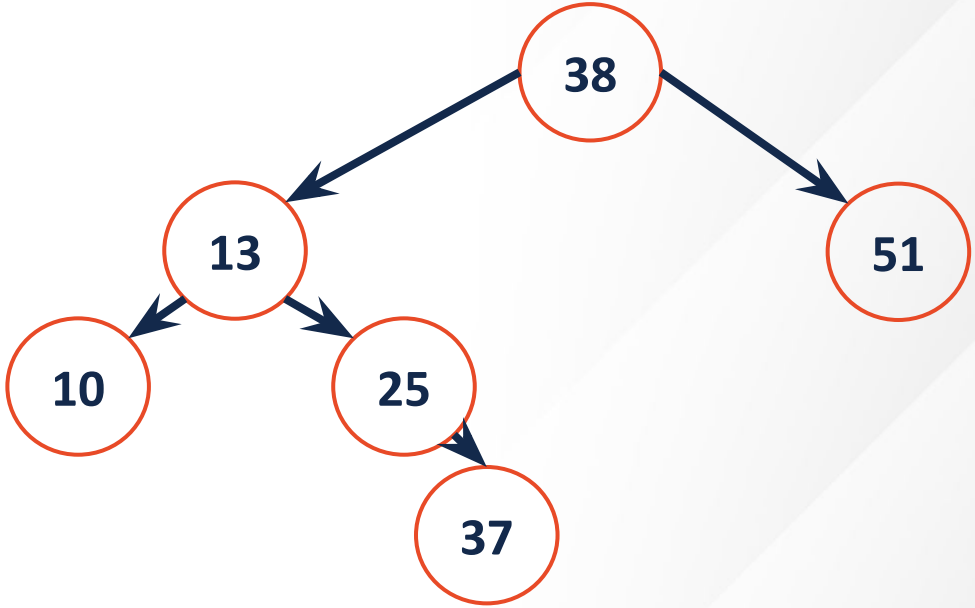
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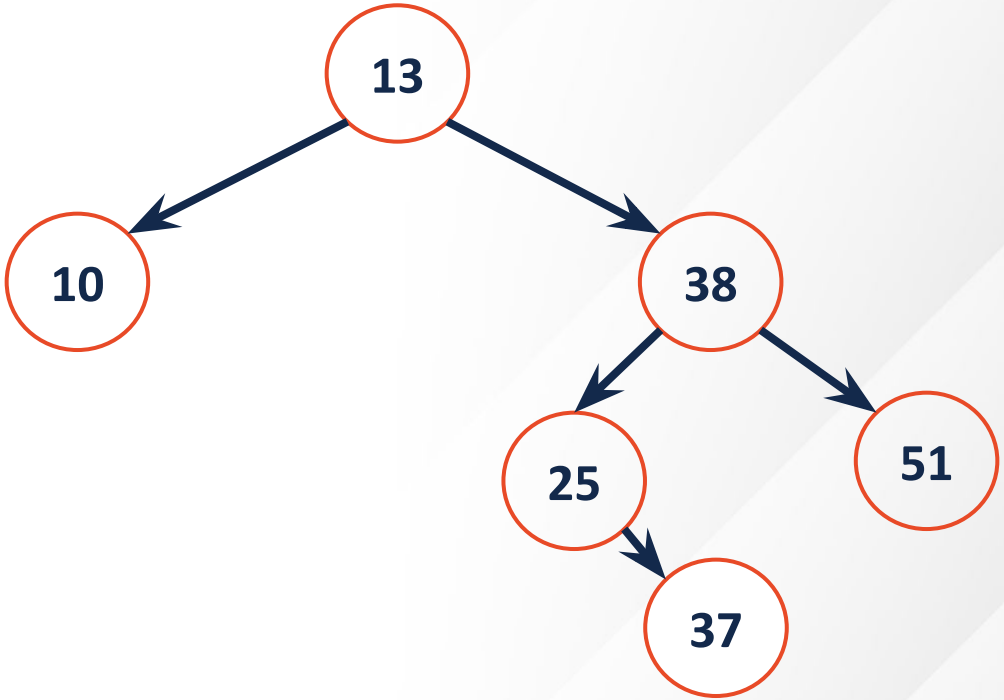
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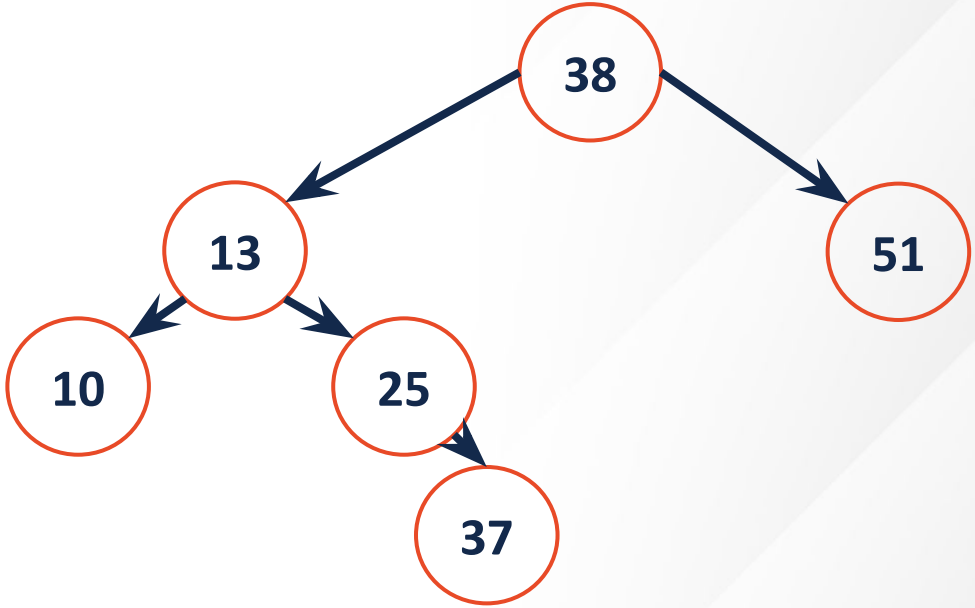
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