AVL Trees Example

Insert 3

Insert 2

Insert 1 (non-AVL)

AVL

Insert 4

Insert 5 (non-AVL)

AVL

Insert 6 (non-AVL)

AVL

Insert 7 (non-AVL)
AVL Tree

Insert a node

h
h +1

No longer AVL, must rebalance

h
h +2

Two ways to expand subtree of height h+2:

h

h +2

Apply a Single Rotation

h
h +1

h +2

Apply a Double Rotation

Note: the symmetrical case is handled identically (i.e. mirror image)
Single Rotation:

Double Rotation: