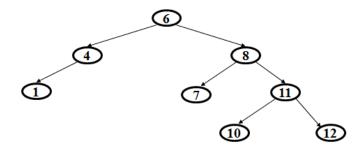
The AVL Balance Condition:

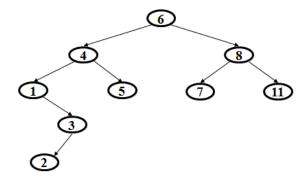
Left and right subtrees of every node have <u>heights</u> differing by at most 1

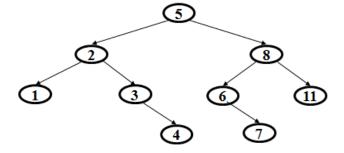
Ensures small depth: We will show that an AVL tree of height h must have a lot of nodes (*roughly* 2h)

Note: height of a null tree is -1, height of tree with a single node is 0

Which of these are AVL Trees?







Let s(h) be the minimum # of nodes in an AVL tree of height h, then:

$$\mathbf{S}(h) = \mathbf{S}(h-1) + \mathbf{S}(h-2) + 1$$

where $\mathbf{S}(-1) = 0$ and $\mathbf{S}(0) = 1$

<u>h</u> <u>Minimal AVL Tree</u>

S (h)