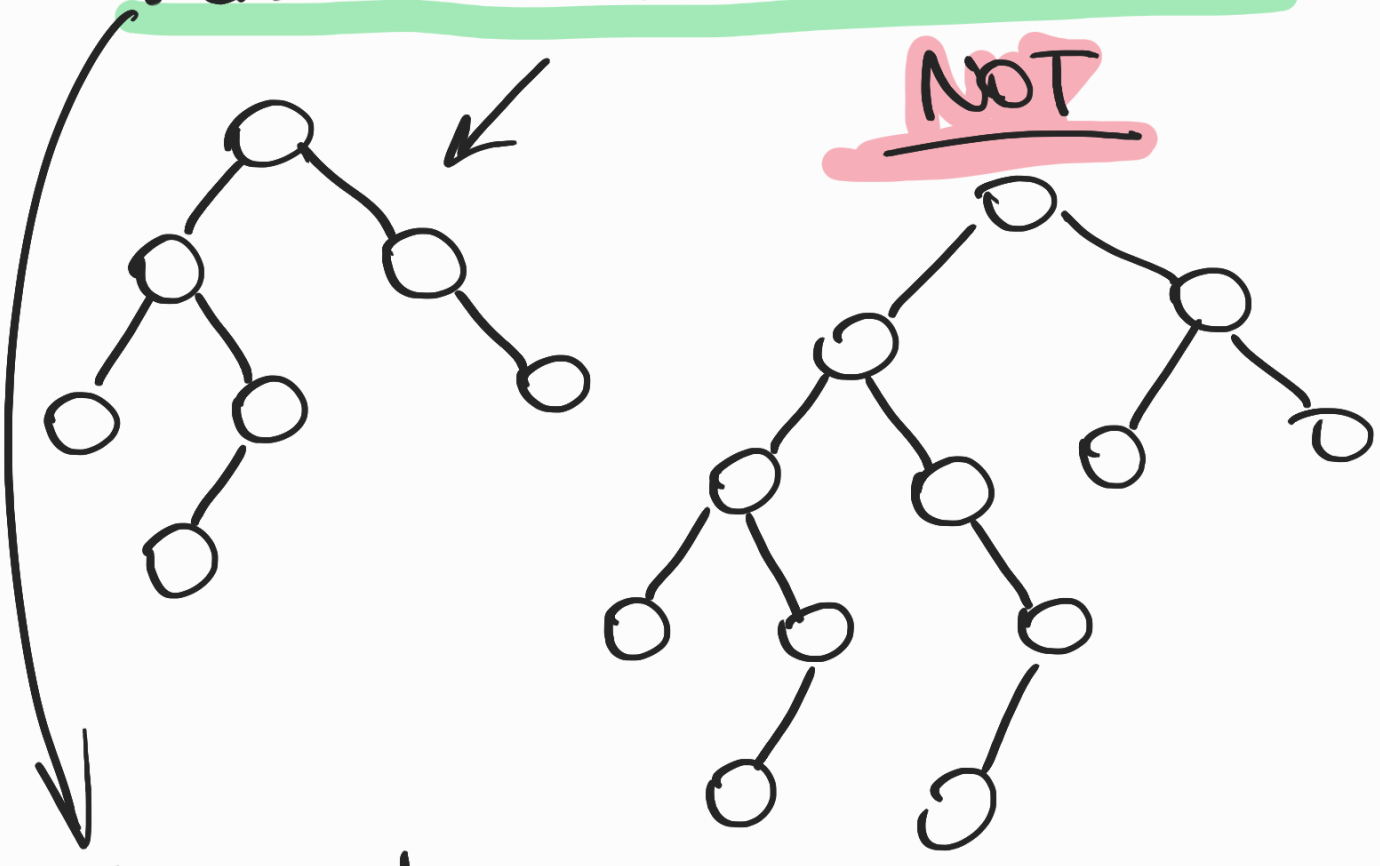
DETERMINE IF A BINARY TREE IS HEIGHT-BALANCED?

HEIGHT-BALANCED TREE



a tree where no leaf is much farther away from the root than any other leaf. Different balancing schemes allow different definitions of "much farther" and different amounts of work to keep them balanced.

Consider a height-balancing scheme where following conditions should be checked to determine

If a binary tree is balanced:

An empty tree is balanced.

A non-empty tree is balanced if:

1) Left subtree of T is balanced
2) Right subtree of T is balanced
3) The difference between heights of left subtree and right subtree is not more than 1.

time complexity: $O(n^2)$

n - number of nodes in tree