**Leetcode – Algorithm – Medium – Count Complete Tree Node**

Graphical user interface, text, application, email

Description automatically generated

Solution Idea :

(1)the number of node in n level complete tree

Total number of nodes : 2\*\*n -1

(2)Relation of left subtree and right subtree

We estimating the level of the subtree by counting the left tree node recurively

If the level of two subtrees equal => left subtree is complete  
If the level of left subtree is larger => right subtree is complete  
It is impossible to have the level of right subtree is larger as complete tree is assumed

(3)Recursion

We may check the level of left subtree and right subtree

If the level of two subtrees equal => 2\*\*(the level of left subtree) + f(right subtree)  
If the level of left subtree is larger => 2\*\*(the level of right subtree) + f(left subtree)

\*\* 2\*\*(the level of complete tree)   
count (1) the number of current node and (2) the number of node in the complete