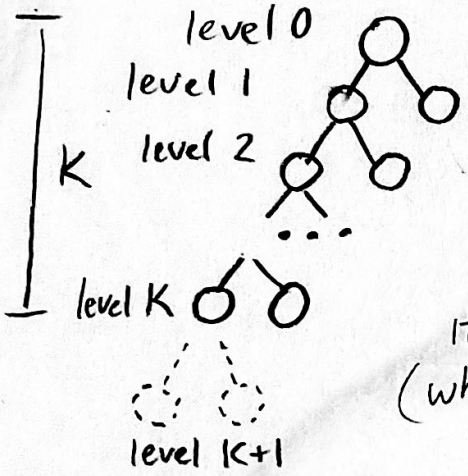
Q5.3 If the Condition holds true for height = K, it will also hold true for height = K+1

Suppose we have a full binary tree of height K with the minimum number of possible nodes, which looks like this...



In this situation, the tree has 2K+1 nodes, two nodes for each level from level K to 1 & one node for level 0.

If we were to consider making this tree have height K+1, the minimum # of nodes it can have is 2 more than 2K+1.
(which results from giving a node of level K two children)

Since a full binary tree of height K+1 has at least 2K+3 nodes or more, it satisfies

$$\#\text{ of nodes} \geq 2(K+1)+1$$
$$\#\text{ of nodes} \geq 2K+3$$