623. Add One Row to Tree

Description

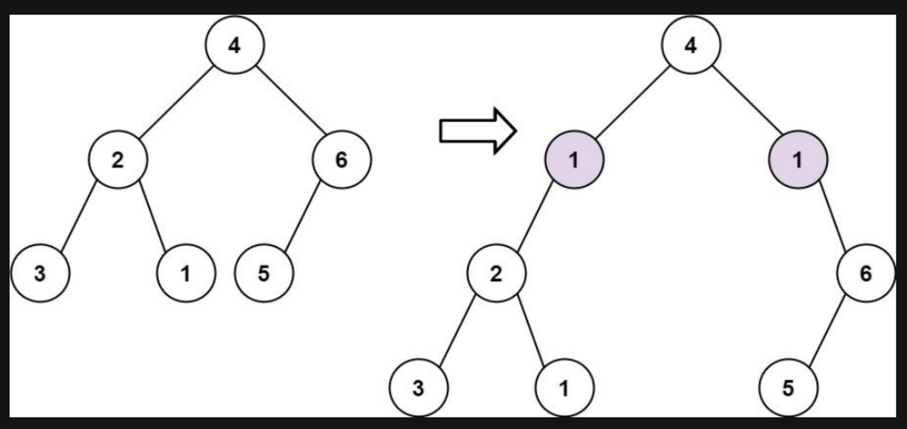
Given the `root` of a binary tree and two integers `val` and `depth`, add a row of nodes with value `val` at the given depth `depth`.

Note that the `root` node is at depth `1`.

The adding rule is:

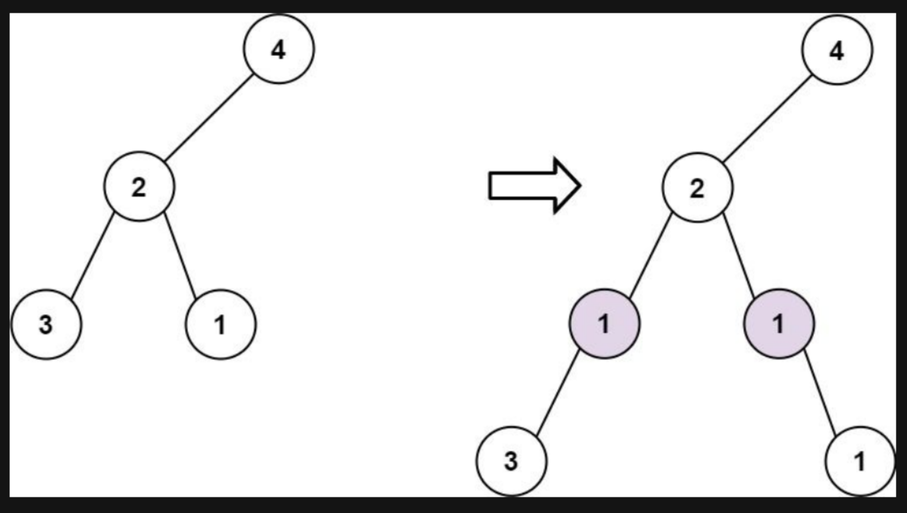
- Given the integer `depth`, for each not null tree node `cur` at the depth `depth - 1`, create two tree nodes with value `val` as `cur`'s left subtree root and right subtree root.
- `cur`'s original left subtree should be the left subtree of the new left subtree root.
- `cur`'s original right subtree should be the right subtree of the new right subtree root.
- If `depth == 1` that means there is no depth `depth - 1` at all, then create a tree node with value `val` as the new root of the whole original tree, and the original tree is the new root's left subtree.

Example 1:




```
Input: root = [4,2,6,3,1,5], val = 1, depth = 2
Output: [4,1,1,2,null,null,6,3,1,5]
```

Example 2:




```
Input: root = [4,2,null,3,1], val = 1, depth = 3
Output: [4,2,null,1,1,3,null,null,1]
```

Constraints:

- The number of nodes in the tree is in the range `[1, 10^4]`.
- The depth of the tree is in the range `[1, 10^4]`.
- `-100 <= Node.val <= 100`
- `-10^5 <= val <= 10^5`
- `1 <= depth <= the depth of tree + 1`