543. Diameter of Binary Tree
Easy

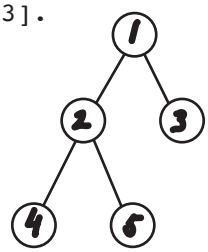
Given the root of a binary tree, return the length of the diameter of the tree.

The diameter of a binary tree is the length of the longest path between any two nodes in a tree. This path may or may not pass through the root.

The length of a path between two nodes is represented by the number of edges between them.

Example 1:

Input: root = [1,2,3,4,5]
Output: 3
Explanation: 3 is the length of the path [4,2,1,3] or [5,2,1,3].



Example 2:

Input: root = [1,2]
Output: 1.

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class TreeNode:
    def __init__(self, val=0, left=None, right=None):
        self.val = val
        self.left = left
        self.right = right

class Solution:
    def diameterOfBinaryTree(self, root: Optional[TreeNode]) -> int:
        result = [0]

        def dfs(root):
            if not root:
                return -1

            left_side_height = dfs(root.left)
            right_side_height = dfs(root.right)
            result[0] = max(result[0], left_side_height + right_side_height + 2)

            return max(left_side_height, right_side_height) + 1

        dfs(root)
        return result[0]
```