Problem 1022: Sum of Root To Leaf Binary Numbers

Problem Information

Difficulty: Easy
Acceptance Rate: 73.59%
Paid Only: No
Tags: Tree, Depth-First Search, Binary Tree

Problem Description

You are given the `root` of a binary tree where each node has a value `0` or `1`. Each root-to-leaf path represents a binary number starting with the most significant bit.

* For example, if the path is `0 -> 1 -> 1 -> 0 -> 1`, then this could represent `01101` in binary, which is `13`.

For all leaves in the tree, consider the numbers represented by the path from the root to that leaf. Return _the sum of these numbers_.

The test cases are generated so that the answer fits in a **32-bits** integer.

Example 1:

![](https://assets.leetcode.com/uploads/2019/04/04/sum-of-root-to-leaf-binary- numbers.png)

Input: root = [1,0,1,0,1,0,1] **Output:** 22 **Explanation:**(100) + (101) + (110) + (111) = 4 + 5 + 6 + 7 = 22

Example 2:

Input: root = [0] **Output:** 0

Constraints:

* The number of nodes in the tree is in the range `[1, 1000]`. * `Node.val` is `0` or `1`.

Code Snippets

C++:

```
/**
* Definition for a binary tree node.
* struct TreeNode {
* int val;
* TreeNode *left;
* TreeNode *right;
* TreeNode() : val(0), left(nullptr), right(nullptr) {}
* TreeNode(int x) : val(x), left(nullptr), right(nullptr) {}
* TreeNode(int x, TreeNode *left, TreeNode *right) : val(x), left(left),
right(right) {}
* };
*/
class Solution {
public:
int sumRootToLeaf(TreeNode* root) {

}
};
```

Java:

```
/**
* Definition for a binary tree node.
* public class TreeNode {
* int val;
* TreeNode left;
* TreeNode right;
* TreeNode() {}
* TreeNode(int val) { this.val = val; }
* TreeNode(int val, TreeNode left, TreeNode right) {
* this.val = val;
* this.left = left;
* this.right = right;
* }
* }
```

```
*/
class Solution {
public int sumRootToLeaf(TreeNode root) {

}
}
```

Python3:

```
# Definition for a binary tree node.
# class TreeNode:
# def __init__(self, val=0, left=None, right=None):
# self.val = val
# self.left = left
# self.right = right
class Solution:
def sumRootToLeaf(self, root: Optional[TreeNode]) -> int:
```