Problem 1469: Find All The Lonely Nodes

Problem Information

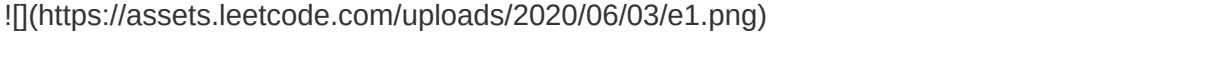
Difficulty: Easy
Acceptance Rate: 84.04%
Paid Only: Yes
Tags: Tree, Depth-First Search, Breadth-First Search, Binary Tree

Problem Description

In a binary tree, a **lonely** node is a node that is the only child of its parent node. The root of the tree is not lonely because it does not have a parent node.

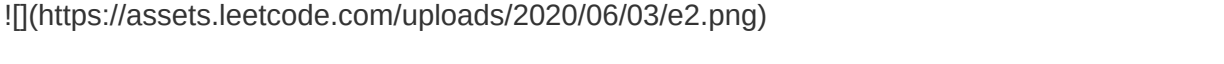
Given the `root` of a binary tree, return _an array containing the values of all lonely nodes_ in the tree. Return the list **in any order**.

Example 1:



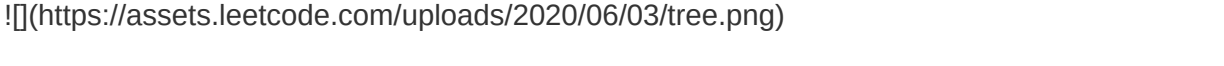
Input: root = [1,2,3,null,4] **Output:** [4] **Explanation:** Light blue node is the only lonely node. Node 1 is the root and is not lonely. Nodes 2 and 3 have the same parent and are not lonely.

Example 2:



Input: root = [7,1,4,6,null,5,3,null,null,null,null,null,2] **Output:** [6,2] **Explanation:** Light blue nodes are lonely nodes. Please remember that order doesn't matter, [2,6] is also an acceptable answer.

Example 3:



Input: root = [11,99,88,77,null,null,66,55,null,null,44,33,null,null,22] **Output:** [77,55,33,66,44,22] **Explanation:** Nodes 99 and 88 share the same parent. Node 11 is the root. All other nodes are lonely.

Constraints:

* The number of nodes in the `tree` is in the range `[1, 1000].` * `1 <= Node.val <= 106`

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:
vector<int> getLonelyNodes(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 List<Integer> getLonelyNodes(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 getLonelyNodes(self, root: Optional[TreeNode]) -> List[int]:
```