

Subtree with Maximum Value

Given a binary tree `root`, return the maximum sum of a subtree. A subtree is defined to be some node in `root` including all of its descendants. A subtree sum is the sum of all the node values in the subtree. A subtree can be null in which case its sum is `0`.

Constraints

- $1 \leq n \leq 100,000$ where `n` is the number of nodes in `root`

- **Input**

Visualize

`root = [3, [0, null, null], [2, [0, null, null], null]]`

link: <https://binarysearch.com/problems/Subtree-with-Maximum-Value>

```
def solve(self, root):
    sm = [0]
    self.helper(root, sm)
    return sm[0]

def helper(self, root, sm):
    if root is None:
        return 0
    lt = self.helper(root.left, sm)
    rt = self.helper(root.right, sm)
    sm[0] = max(sm[0], lt+rt+root.val)
    return lt+rt+root.val
```