AlgoExpert Quad Layout Swift 12px Sublime Monokai 00:00:00

Prompt Scratchpad Our Solution(s) Video Explanation Run Code

Solution 1

```
1\, // Copyright @ 2020 AlgoExpert, LLC. All rights reserved.
   class Program {
       class BinaryTree {
           var value: Int?
           var left: BinaryTree?
           var right: BinaryTree?
 8
           init(value: Int) {
9
10
               self.value = value
11
               left = nil
12
               right = nil
13
14
15
16
       // O(n) time | O(log(n)) space
17
       func maxPathSum(tree: BinaryTree?) -> Int {
18
           let rootMaxSumTuple = findMaxSum(tree: tree)
19
           return rootMaxSumTuple.1
20
21
       func findMaxSum(tree: BinaryTree?) -> (Int, Int) {
22
23
           if tree === nil {
24
               return (0, 0)
25
26
27
           let leftMaxSumTuple = findMaxSum(tree: tree?.left)
28
           let rightMaxSumTuple = findMaxSum(tree: tree?.right)
29
           let childStraightMaxSum = max(leftMaxSumTuple.0, rightMaxSumTuple.0)
30
           let value = tree!.value!
31
32
           let currentStraightMaxSum = max(value + childStraightMaxSum, value)
33
34
           let currentTriangleMaxSum = max(leftMaxSumTuple.0 + value + rightMaxSumTuple.0, currentStraightMaxSum)
35
           let currentMaxSum = max(max(leftMaxSumTuple.1, rightMaxSumTuple.1), currentTriangleMaxSum)
36
           return (currentStraightMaxSum, currentMaxSum)
37
38
39 }
```