AlgoExpert Quad Layout Swift 12px Sublime Monok

Run Code

Prompt Scratchpad Our Solution(s) Video Explanation

```
Solution 1 Solution 2 Solution 3
```

```
// Copyright © 2020 AlgoExpert, LLC. All rights reserved.
 1
 2
 3
   ▼ class Program {
 4
       // Average case: when the created BST is balanced
 5
       // O(nlog(n)) time | O(n) space - where n is the length of the array
 6
       // Worst case: when the the created BST is like a linked list
 8
       // O(n^2) time | O(n) space
 9 ▼
       static func rightSmallerThan(_ array: [Int]) -> [Int] {
         if array.count == 0 {
10 ▼
11
           return [Int]()
12
13
14
         var rightSmallerCounts = [Int]()
15 ▼
         for i in array {
16
           rightSmallerCounts.append(i)
17
         let lastIdx = array.count - 1
18
19
         var bst = SpecialBST(array[lastIdx])
20
         rightSmallerCounts[lastIdx] = 0
21
         for i in (0 ..< lastIdx).reversed() {</pre>
           bst.insert(array[i], i, &rightSmallerCounts)
22
23
24
         return rightSmallerCounts
25
       }
26
27
       class SpecialBST {
         var value: Int
28
29
         var leftSubtreeSize: Int = 0
30
31
         var left: SpecialBST?
32
         var right: SpecialBST?
33
         init(_ value: Int) {
34
           self.value = value
35
36
37
38
         func insert(_ value: Int, _ idx: Int, _ rightSmallerCounts: inout [Int], _ numSmallerAtInsertTime: Int = 0) {
39
           if value < self.value {</pre>
40
             leftSubtreeSize += 1
41 •
             if let left = self.left {
               left.insert(value, idx, &rightSmallerCounts, numSmallerAtInsertTime)
42
43
             } else {
44
               left = SpecialBST(value)
45
               rightSmallerCounts[idx] = numSmallerAtInsertTime
46
             }
47
             return
48
49
           var numSmaller = numSmallerAtInsertTime + leftSubtreeSize
50
51
           if value > self.value {
52
             numSmaller += 1
53
54
           if let right = self.right {
55 ▼
56
             right.insert(value, idx, &rightSmallerCounts, numSmaller)
57 ▼
           } else {
             right = SpecialBST(value)
58
59
             rightSmallerCounts[idx] = numSmaller
61
62
     }
63
    }
```