

Solution 1Solution 2Solution 3

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 ▾ class Program {
4     // O(n) time | O(n) space - where n is the length of the array
5     ▾ static func minHeightBST(_ array: [Int]) -> BST? {
6         return constructMinHeightBst(array, nil, 0, array.count - 1)
7     }
8
9     ▾ static func constructMinHeightBst(_ array: [Int], _ bst: BST?, _ startIdx: Int, _ endIdx: Int) -> BST? {
10     ▾     if endIdx < startIdx {
11         return nil
12     }
13
14     var tree = bst
15     var midIdx = (startIdx + endIdx) / 2
16     var newBstNode = BST(value: array[midIdx])
17     ▾ if let t = tree {
18     ▾     if array[midIdx] < t.value {
19         t.left = newBstNode
20     ▾     } else {
21         t.right = newBstNode
22     }
23 }
24
25 tree = newBstNode
26 constructMinHeightBst(array, tree, startIdx, midIdx - 1)
27 constructMinHeightBst(array, tree, midIdx + 1, endIdx)
28 return tree
29 }
30
31 ▾ class BST {
32     var value: Int
33     var left: BST?
34     var right: BST?
35
36     ▾ init(value: Int) {
37         self.value = value
38     }
39
40     // We don't use this method for this solution.
41     ▾ func insert(value: Int) {
42     ▾     if value < self.value {
43     ▾         if let left = self.left {
44             left.insert(value: value)
45     ▾         } else {
46             left = BST(value: value)
47         }
48     ▾     } else {
49     ▾         if let right = self.right {
50             right.insert(value: value)
51     ▾         } else {
52             right = BST(value: value)
53         }
54     }
55 }
56 }
57 }
58
```

