```
1  // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3  using System.Collections.Generic;
4
5  public class Program {
6    // O(n) time | O(n) space - where n is the length of the array
7    public static BST MinHeightBst(List<int> array) {
8      return constructMinHeightBst(array, null, 0, array.Count - 1);
9    }
10
11   public static BST constructMinHeightBst(List<int> array, BST bst, int startIdx,
12     int endIdx) {
13     if (endIdx < startIdx) return null;
14     int midIdx = (startIdx + endIdx) / 2;
15     BST newBstNode = new BST(array[midIdx]);
16     if (bst == null) {
17       bst = newBstNode;
18     } else {
19       if (array[midIdx] < bst.value) {
20         bst.left = newBstNode;
21         bst = bst.left;
22       } else {
23         bst.right = newBstNode;
24         bst = bst.right;
25       }
26     }
27     constructMinHeightBst(array, bst, startIdx, midIdx - 1);
28     constructMinHeightBst(array, bst, midIdx + 1, endIdx);
29     return bst;
30   }
31
32   public class BST {
33     public int value;
34     public BST left;
35     public BST right;
36
37     public BST(int value) {
38       this.value = value;
39       left = null;
40       right = null;
41     }
42
43     // We don't use this method for this solution.
44     public void insert(int value) {
45       if (value < this.value) {
46         if (left == null) {
47           left = new BST(value);
48         } else {
49           left.insert(value);
50         }
51       } else {
52         if (right == null) {
53           right = new BST(value);
54         } else {
55           right.insert(value);
56         }
57       }
58     }
59   }
60 }
61
```