

PromptScratchpadOur Solution(s)Video Explanation

Run Code

Solution 1Solution 2

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 using System;
4 using System.Collections.Generic;
5
6 public class Program {
7     // O(n^2) time | O(d) space - where n is the number of
8     // nodes in each array, respectively, and d is the depth
9     // of the BST that they represent
10    public static bool SameBsts(List<int> arrayOne, List<int> arrayTwo) {
11        return areSameBsts(arrayOne, arrayTwo, 0, 0, Int32.MinValue, Int32.MaxValue);
12    }
13
14    public static bool areSameBsts(List<int> arrayOne, List<int> arrayTwo, int rootIdxOne,
15        int rootIdxTwo, int minVal, int maxVal) {
16        if (rootIdxOne == -1 || rootIdxTwo == -1) return rootIdxOne == rootIdxTwo;
17
18        if (arrayOne[rootIdxOne] != arrayTwo[rootIdxTwo]) return false;
19
20        int leftRootIdxOne = getIdxOffFirstSmaller(arrayOne, rootIdxOne, minVal);
21        int leftRootIdxTwo = getIdxOffFirstSmaller(arrayTwo, rootIdxTwo, minVal);
22        int rightRootIdxOne = getIdxOffFirstBiggerOrEqual(arrayOne, rootIdxOne, maxVal);
23        int rightRootIdxTwo = getIdxOffFirstBiggerOrEqual(arrayTwo, rootIdxTwo, maxVal);
24
25        int currentValue = arrayOne[rootIdxOne];
26        bool leftAreSame = areSameBsts(arrayOne, arrayTwo, leftRootIdxOne, leftRootIdxTwo,
27            minVal, currentValue);
28        bool rightAreSame = areSameBsts(arrayOne, arrayTwo, rightRootIdxOne,
29            rightRootIdxTwo, currentValue, maxVal);
30
31        return leftAreSame && rightAreSame;
32    }
33
34    public static int getIdxOffFirstSmaller(List<int> array, int startingIdx, int minVal) {
35        // Find the index of the first smaller value after the startingIdx.
36        // Make sure that this value is greater than or equal to the minVal,
37        // which is the value of the previous parent node in the BST. If it
38        // isn't, then that value is located in the left subtree of the
39        // previous parent node.
40        for (int i = startingIdx + 1; i < array.Count; i++) {
41            if (array[i] < array[startingIdx] && array[i] >= minVal) return i;
42        }
43        return -1;
44    }
45
46    public static int getIdxOffFirstBiggerOrEqual(List<int> array, int startingIdx, int maxVal) {
47        // Find the index of the first bigger/equal value after the startingIdx.
48        // Make sure that this value is smaller than maxVal, which is the value
49        // of the previous parent node in the BST. If it isn't, then that value
50        // is located in the right subtree of the previous parent node.
51        for (int i = startingIdx + 1; i < array.Count; i++) {
52            if (array[i] >= array[startingIdx] && array[i] < maxVal) return i;
53        }
54        return -1;
55    }
56 }
57
```