333. Largest BST Subtree Premium

Medium | Topics | Companies | Hint

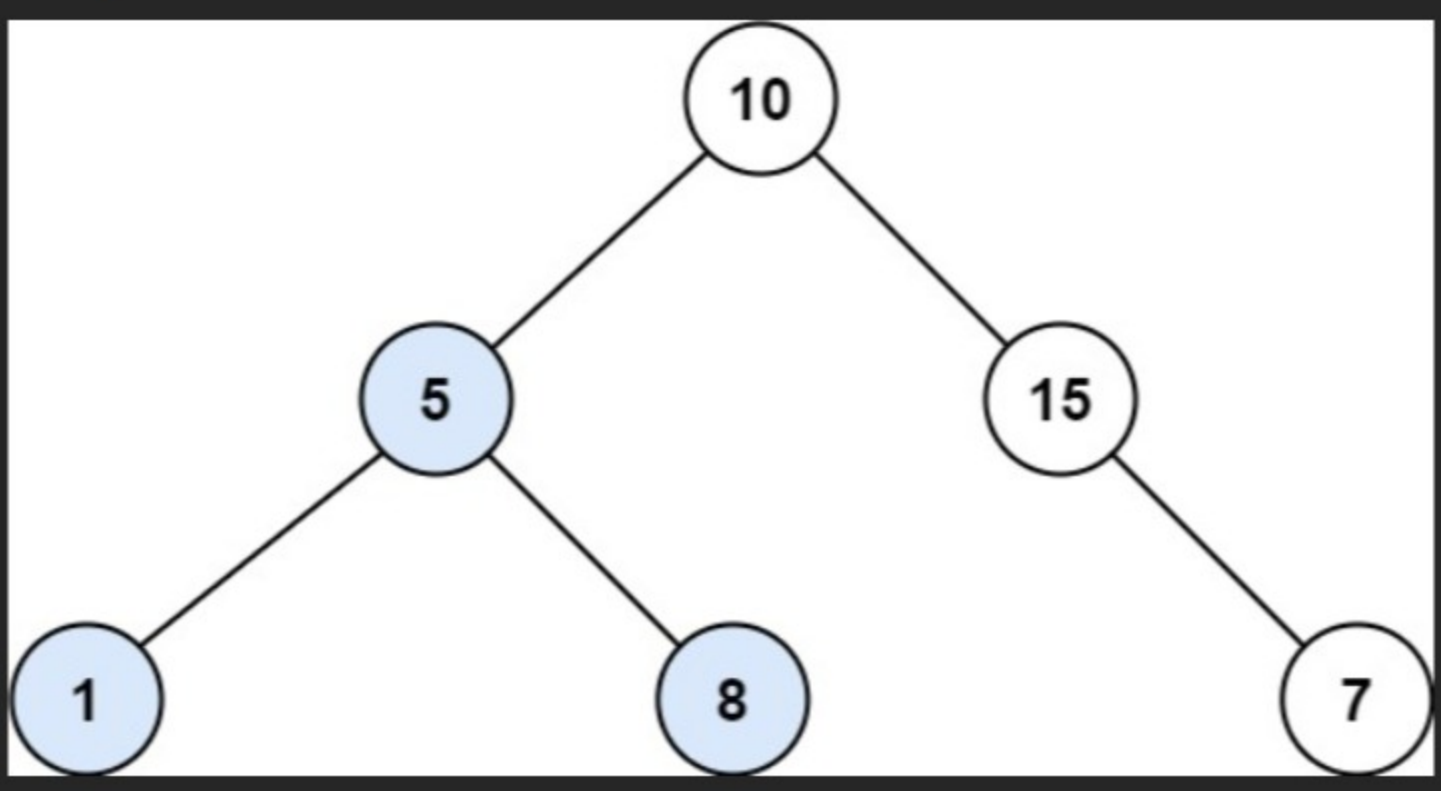
Given the root of a binary tree, find the largest subtree, which is also a Binary Search Tree (BST), where the largest means subtree has the largest number of nodes.

A **Binary Search Tree (BST)** is a tree in which all the nodes follow the below-mentioned properties:

- The left subtree values are less than the value of their parent (root) node's value.
- The right subtree values are greater than the value of their parent (root) node's value.

Note: A subtree must include all of its descendants.

Example 1:




```
Input: root = [10,5,15,1,8,null,7]
Output: 3
Explanation: The Largest BST Subtree in this case is the highlighted one. The return value is the subtree's size, which is 3.
```

Example 2:

```
Input: root = [4,2,7,2,3,5,null,2,null,null,null,null,null,1]
Output: 2
```

Constraints:

- The number of nodes in the tree is in the range `[0, 10^4]`.
- `-10^4 <= Node.val <= 10^4`

Follow up: Can you figure out ways to solve it with `O(n)` time complexity?

Seen this question in a real interview before? 1/5

Yes No

Accepted 115.5K | Submissions 258.4K | Acceptance Rate 44.7%

Topics

Dynamic Programming | Tree | Depth-First Search | Binary Search Tree | Binary Tree

Companies

0 - 3 months

Meta 4

0 - 6 months

Microsoft 2

6 months ago

TikTok 5

Hint 1

You can recursively use algorithm similar to 98. Validate Binary Search Tree at each node of the tree, which will result in O(nlogn) time complexity.

Discussion (17)