

Problem 1902: Depth of BST Given Insertion Order

Problem Information

Difficulty: Medium

Acceptance Rate: 42.56%

Paid Only: Yes

Tags: Array, Tree, Binary Search Tree, Binary Tree, Ordered Set

Problem Description

You are given a **0-indexed** integer array `order` of length `n`, a **permutation** of integers from `1` to `n` representing the **order** of insertion into a **binary search tree**.

A binary search tree is defined as follows:

- * The left subtree of a node contains only nodes with keys **less than** the node's key.
- * The right subtree of a node contains only nodes with keys **greater than** the node's key.
- * Both the left and right subtrees must also be binary search trees.

The binary search tree is constructed as follows:

- * `order[0]` will be the **root** of the binary search tree.
- * All subsequent elements are inserted as the **child** of **any** existing node such that the binary search tree properties hold.

Return the**depth** of the binary search tree.

A binary tree's **depth** is the number of **nodes** along the **longest path** from the root node down to the farthest leaf node.

Example 1:

****Input:**** order = [2,1,4,3] ****Output:**** 3 ****Explanation:**** The binary search tree has a depth of 3 with path 2->3->4.

****Example 2:****

****Input:**** order = [2,1,3,4] ****Output:**** 3 ****Explanation:**** The binary search tree has a depth of 3 with path 2->3->4.

****Example 3:****

****Input:**** order = [1,2,3,4] ****Output:**** 4 ****Explanation:**** The binary search tree has a depth of 4 with path 1->2->3->4.

****Constraints:****

* `n == order.length` * `1 <= n <= 105` * `order` is a permutation of integers between `1` and `n`.

Code Snippets

C++:

```
class Solution {
public:
    int maxDepthBST(vector<int>& order) {
        }
};
```

Java:

```
class Solution {
public int maxDepthBST(int[] order) {
        }
}
```

Python3:

```
class Solution:  
    def maxDepthBST(self, order: List[int]) -> int:
```