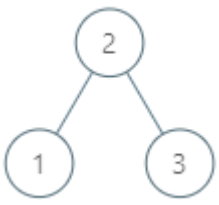
285. Inorder Successor in BST

Medium 1645 72 Add to List Share

Given the `root` of a binary search tree and a node `p` in it, return *the in-order successor of that node in the BST*. If the given node has no in-order successor in the tree, return `null`.

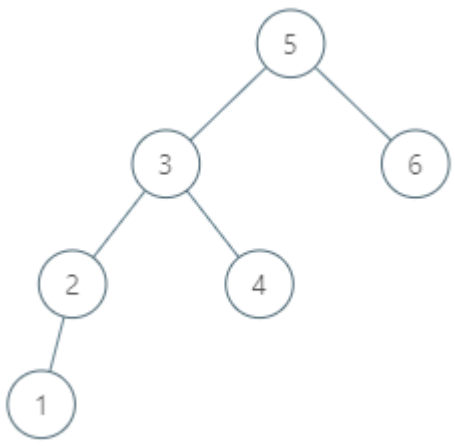
The successor of a node `p` is the node with the smallest key greater than `p.val`.

Example 1:




```
Input: root = [2,1,3], p = 1
Output: 2
Explanation: 1's in-order successor node is 2. Note that both p and the return value is of TreeNode type.
```

Example 2:




```
Input: root = [5,3,6,2,4,null,null,1], p = 6
Output: null
Explanation: There is no in-order successor of the current node, so the answer is null.
```

Constraints:

- The number of nodes in the tree is in the range `[1, 10^4]`.
- `-10^5 <= Node.val <= 10^5`
- All Nodes will have unique values.

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1  #
   Definition
   for a
   binary tree
   node.
2  # class
   TreeNode:
3  #     def
   __init__(se
   lf, x):
4  #
   self.val =
   x
5  #
   self.left =
   None
6  #
   self.right
   = None
7
8  class
   Solution:
9      def
   inorderSucc
   essor(self,
   root:
   'TreeNode',
   p:
   'TreeNode')
   ->
   'TreeNode':
10
```