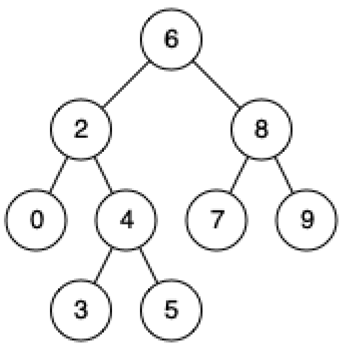
235. Lowest Common Ancestor of a Binary Search Tree

Given a binary search tree (BST), find the lowest common ancestor (LCA) node of two given nodes in the BST.

According to the definition of LCA on Wikipedia: “The lowest common ancestor is defined between two nodes p and q as the lowest node in T that has both p and q as descendants (where we allow **a node to be a descendant of itself**).”

Example 1:

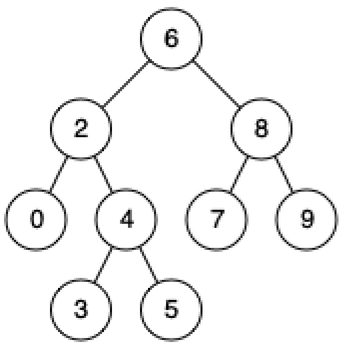


Input: root = [6,2,8,0,4,7,9,null,null,3,5], p = 2, q = 8

Output: 6

Explanation: The LCA of nodes 2 and 8 is 6.

Example 2:



Input: root = [6,2,8,0,4,7,9,null,null,3,5], p = 2, q = 4

Output: 2

Explanation: The LCA of nodes 2 and 4 is 2, since a node can be a descendant of itself according to the LCA definition.

Example 3:

Input: root = [2,1], p = 2, q = 1

Output: 2

Constraints:

- The number of nodes in the tree is in the range [2, 10^5].
- -10^9 <= Node.val <= 10^9
- All Node.val are **unique**.
- p != q
- p and q will exist in the BST.

```python
# Definition for a binary tree node.
# class TreeNode(object):
#     def __init__(self, x):
#         self.val = x
#         self.left = None
#         self.right = None

class Solution(object):
    def lowestCommonAncestor(self, root, p, q):
        """
        :type root: TreeNode
        :type p: TreeNode
        :type q: TreeNode
        :rtype: TreeNode
        """
        while True:
            if root.val > p.val and root.val > q.val:
                root = root.left
            elif root.val < p.val and root.val < q.val:
                root = root.right
            else:
                return root
```