

Description

Solution

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1740. Find Distance in a Binary Tree

Medium

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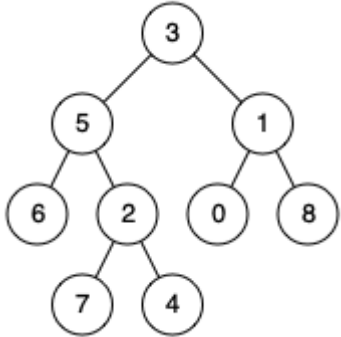
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Given the root of a binary tree and two integers `p` and `q`, return *the distance between the nodes of value `p` and value `q` in the tree*.

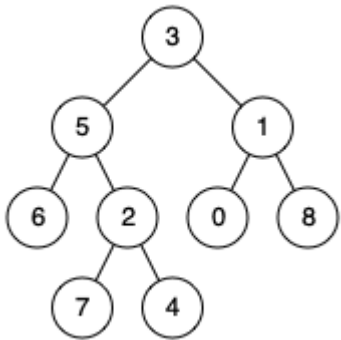
The **distance** between two nodes is the number of edges on the path from one to the other.

Example 1:



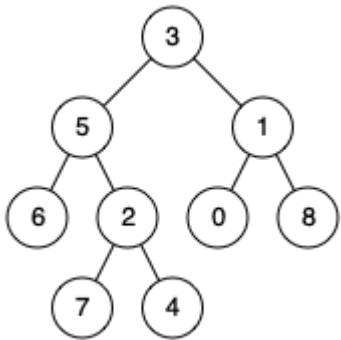
Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 0
Output: 3
Explanation: There are 3 edges between 5 and 0: 5-3-1-0.

Example 2:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 7
Output: 2
Explanation: There are 2 edges between 5 and 7: 5-2-7.

Example 3:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 5
Output: 0
Explanation: The distance between a node and itself is 0.

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- $0 \leq \text{Node.val} \leq 10^9$.
- All `Node.val` are **unique**.
- `p` and `q` are values in the tree.

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Hash Table Tree Depth-First Search Breadth-First Search Binary Tree

Hide Hint 1 ^

Get the LCA of p and q.

Hide Hint 2 ^

The answer is the sum of distances between p-LCA and q-LCA

```
1 /**
2  * Definition for a binary tree node.
3  * public class TreeNode {
4  *     int val;
5  *     TreeNode left;
6  *     TreeNode right;
7  *     TreeNode() {}
8  *     TreeNode(int val) { this.val = val; }
9  *     TreeNode(int val, TreeNode left, TreeNode right) {
10 *         this.val = val;
11 *         this.left = left;
12 *         this.right = right;
13 *     }
14 * }
15 */
16 class Solution {
17     public int findDistance(TreeNode root, int p, int q) {
18
19     }
20 }
```