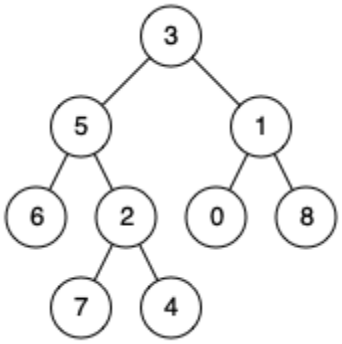
# Lowest Common Ancestor of a Binary Tree

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

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:**

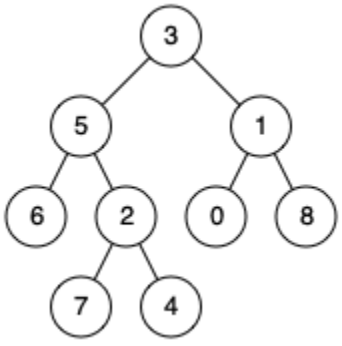



**Input:** root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 1

**Output:** 3

**Explanation:** The LCA of nodes 5 and 1 is 3.

**Example 2:**




**Input:** root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 4

**Output:** 5

**Explanation:** The LCA of nodes 5 and 4 is 5, since a node can be a descendant of itself according to the LCA definition.

**Example 3:**

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

**Output:** 1

**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 tree.