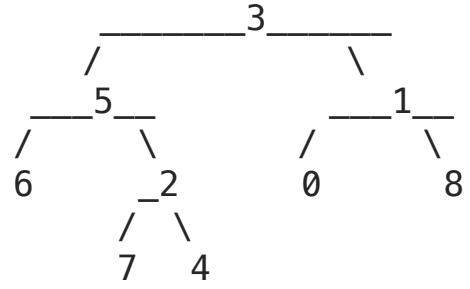
Lowest Common Ancestor of a Binary Tree

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 v and w as the lowest node in T that has both v and w as descendants (where we allow a node to be a descendant of itself).”



For example, the lowest common ancestor (LCA) of nodes 5 and 1 is 3. Another example is LCA of nodes 5 and 4 is 5, since a node can be a descendant of itself according to the LCA definition.

Test 1:

Input :

3 5 1 6 2 0 8 null null 7 4

7 5

Output:

5

Test 2:

Input :

3 5 1 6 2 0 8 null null 7 4

0 4

Output:

3

Binary Tree Zigzag Level Order Traversal

Given a binary tree, return the *zigzag level order* traversal of its nodes' values. (ie, from left to right, then right to left for the next level and alternate between).

For example:

Given binary tree `[3,9,20,null,null,15,7]`,

```
    3
   / \
  9  20
    /  \
   15   7
```

return its zigzag level order traversal as:

```
[
  [3],
  [20,9],
  [15,7]
]
```

Test 1:

Input :

3 9 20 null null 15 7

Output:

3

20 9

15 7

Test 2:

Input :

3 9 null null 32 6 null 6 15 7]

Output:

3

9

32

6

6 15

7