##Binary tree zig

# 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 printFromTopToBottom(self, root):

"""

:type root: TreeNode

:rtype: List[List[int]]

"""

stack = [(root,0)]

ret = []

while stack:

cur,level = stack.pop(0)

if cur:

stack.append((cur.left,level+1))

stack.append((cur.right,level+1))

if len(ret)==level:

ret.append([])

ret[level].append(cur.val)

for i in range(len(ret)):

if i%2:

ret[i].reverse()

return ret