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\* Definition for a binary tree node.

\* struct TreeNode {

\* int val;

\* TreeNode \*left;

\* TreeNode \*right;

\* TreeNode() : val(0), left(nullptr), right(nullptr) {}

\* TreeNode(int x) : val(x), left(nullptr), right(nullptr) {}

\* TreeNode(int x, TreeNode \*left, TreeNode \*right) : val(x), left(left), right(right) {}

\* };

\*/

class Solution {

public:

vector<vector<int>> bfs(TreeNode \*root){

vector<int> v;

vector<vector<int>> v1;

bool ltr = true;

if(root==NULL){

return v1;

}

queue<TreeNode\*> q;

q.push(root);

q.push(NULL);

while(!q.empty()){

TreeNode\* f = q.front();

if(f==NULL){

if (!ltr){

reverse(v.begin(),v.end());

}

//cout<<endl;

v1.push\_back(v);

v.erase(v.begin(),v.end());

ltr = !ltr;

q.pop();

if(!q.empty()){

q.push(NULL);

}

}

else{

//cout<<f->data<<",";

v.push\_back(f->val);

q.pop();

if(f->left){

q.push(f->left);

}

if(f->right){

q.push(f->right);

}

}

}

return v1;

}

vector<vector<int>> zigzagLevelOrder(TreeNode\* root) {

return bfs(root);

}

};