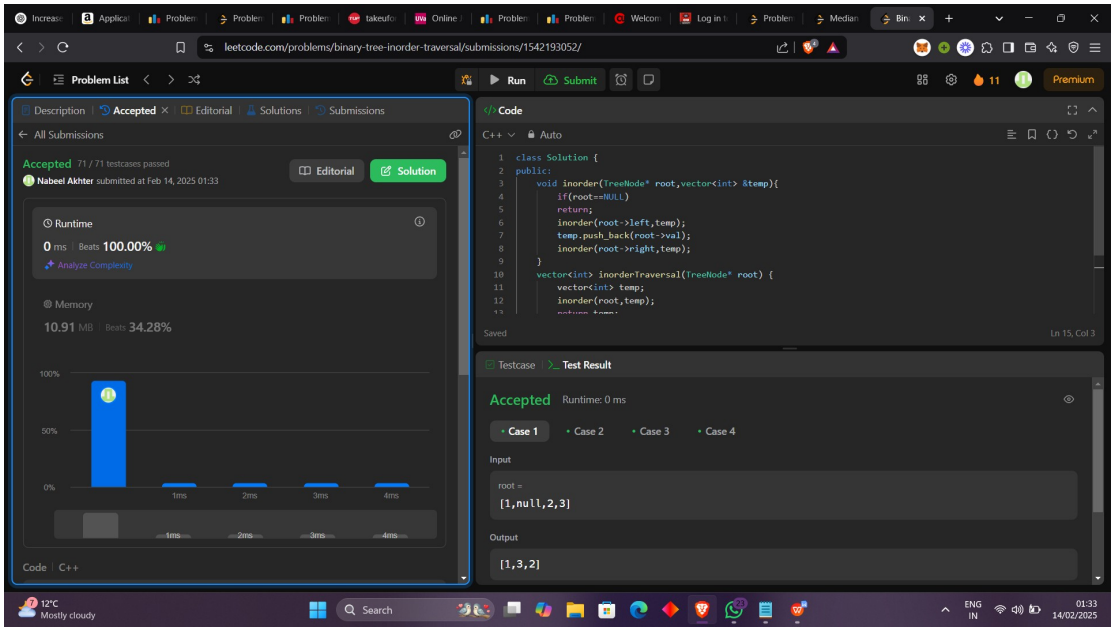
94. Binary tree Inorder traversal

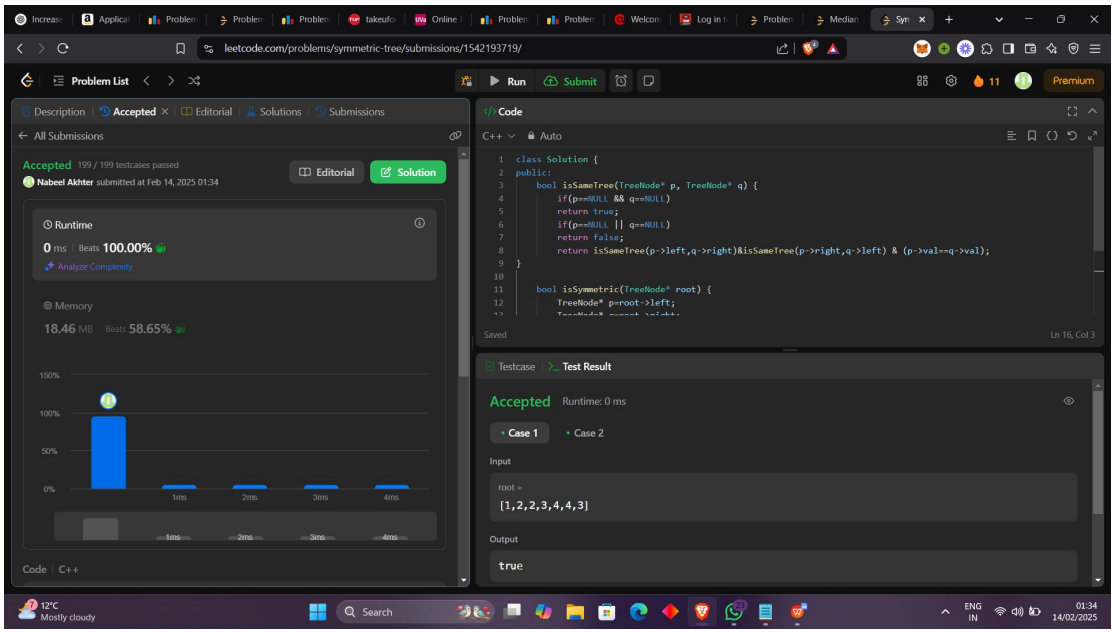
```
class Solution {
public:
    void inorder(TreeNode* root,vector<int> &temp){
        if(root==NULL)
        return;
        inorder(root->left,temp);
        temp.push_back(root->val);
        inorder(root->right,temp);
    }
    vector<int> inorderTraversal(TreeNode* root) {
        vector<int> temp;
        inorder(root,temp);
        return temp;
    }
};
```



101. Symmetric Tree

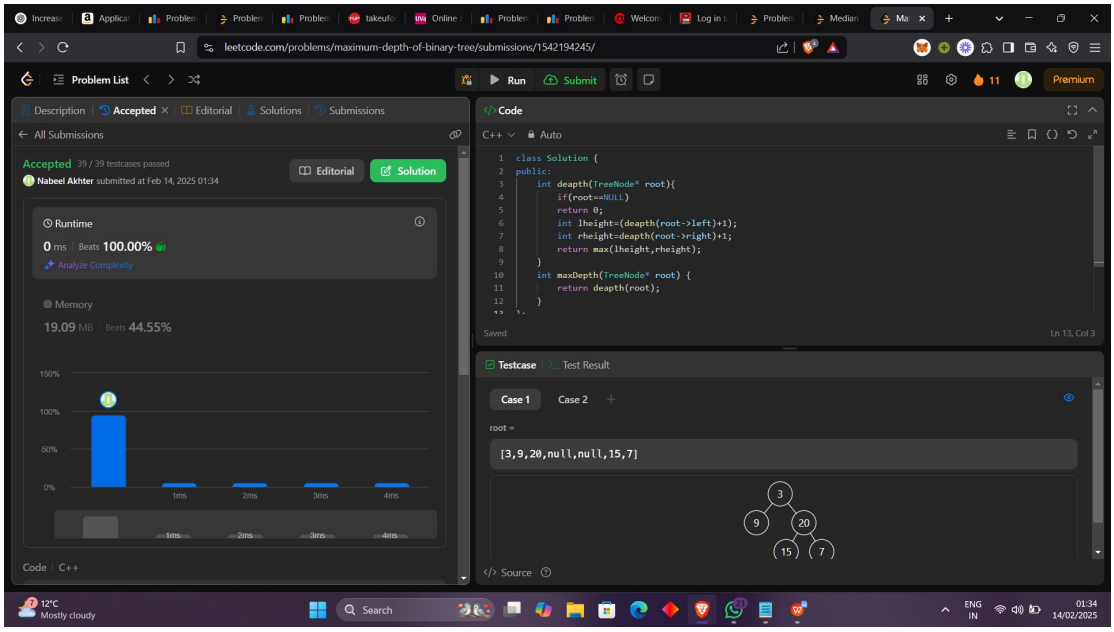
```
class Solution {
public:
    bool isSameTree(TreeNode* p, TreeNode* q) {
        if(p==NULL && q==NULL)
        return true;
        if(p==NULL || q==NULL)
        return false;
        return isSameTree(p->left,q->right)&isSameTree(p->right,q->left) & (p->val==q->val);
    }
```

```
    bool isSymmetric(TreeNode* root) {
        TreeNode* p=root->left;
        TreeNode* q=root->right;
        return isSameTree(p,q);
    }
};
```



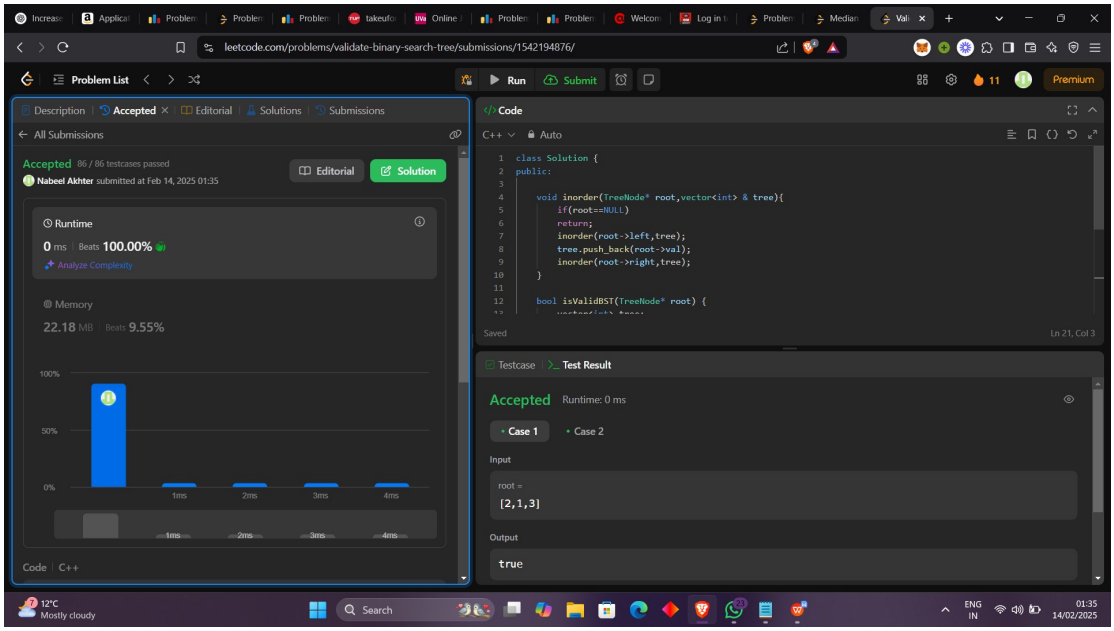
104. Maximum Deapth of a Binary Tree

```
class Solution {
public:
    int deapth(TreeNode* root){
        if(root==NULL)
        return 0;
        int lheight=(deapth(root->left)+1);
        int rheight=deapth(root->right)+1;
        return max(lheight,rheight);
    }
    int maxDepth(TreeNode* root) {
        return deapth(root);
    }
};
```



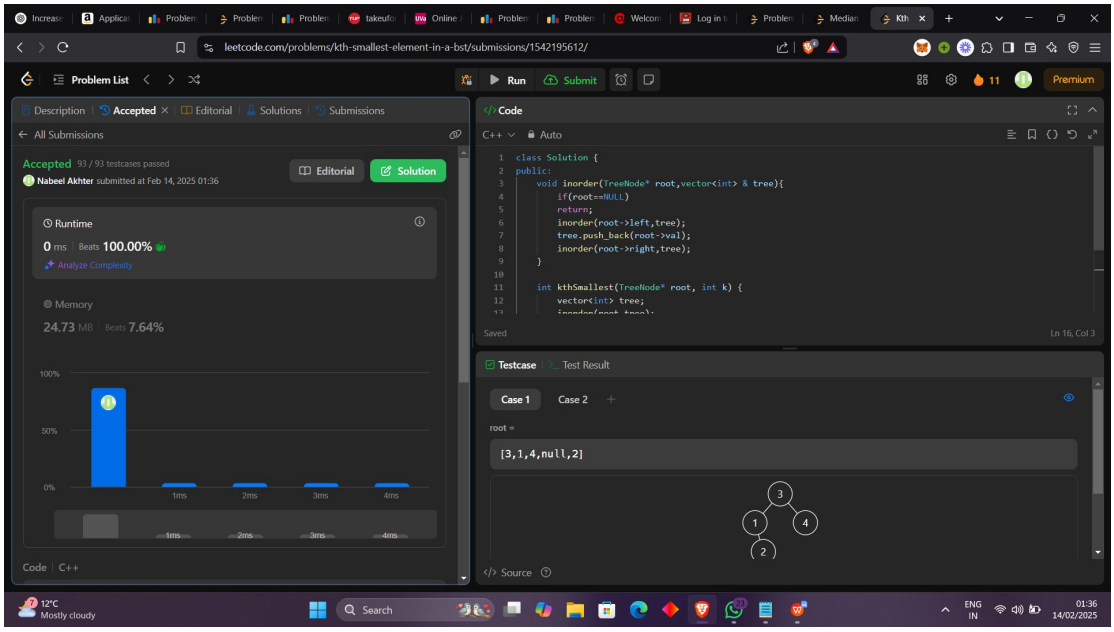
98. Validate Binary Search Tree

```
class Solution {
public:

    void inorder(TreeNode* root,vector<int> & tree){
        if(root==NULL)
        return;
        inorder(root->left,tree);
        tree.push_back(root->val);
        inorder(root->right,tree);
    }

    bool isValidBST(TreeNode* root) {
        vector<int> tree;
        inorder(root,tree);
        for(int i=1;i<tree.size();i++){
            if(tree[i]<=tree[i-1])
            return 0;
        }
        return 1;
    }
};
```



230. Kth smallest Element in a Binary Search Tree

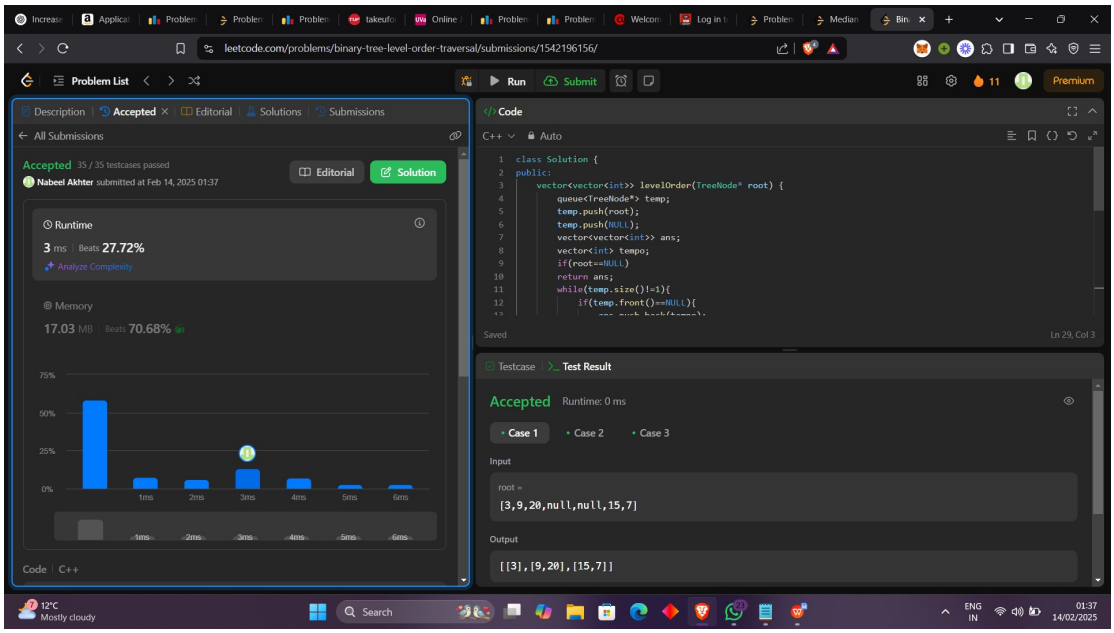
```
class Solution {
public:
    void inorder(TreeNode* root,vector<int> & tree){
        if(root==NULL)
        return;
        inorder(root->left,tree);
        tree.push_back(root->val);
        inorder(root->right,tree);
    }

    int kthSmallest(TreeNode* root, int k) {
        vector<int> tree;
        inorder(root,tree);
        return tree[k-1];
    }
};
```



102. Binary Tree Level Order Traversal

```
class Solution {
public:
    vector<vector<int>> levelOrder(TreeNode* root) {
        queue<TreeNode*> temp;
        temp.push(root);
        temp.push(NULL);
        vector<vector<int>> ans;
        vector<int> tempo;
        if(root==NULL)
        return ans;
        while(temp.size()!=1){
            if(temp.front()==NULL){
                ans.push_back(tempo);
                tempo.clear();
                temp.push(NULL);
            }
            else{
                tempo.push_back(temp.front()->val);
                if(temp.front()->left!=NULL)
                temp.push(temp.front()->left);
                if(temp.front()->right!=NULL)
                temp.push(temp.front()->right);
            }
            temp.pop();
        }
        ans.push_back(tempo);
        return ans;
    }
```

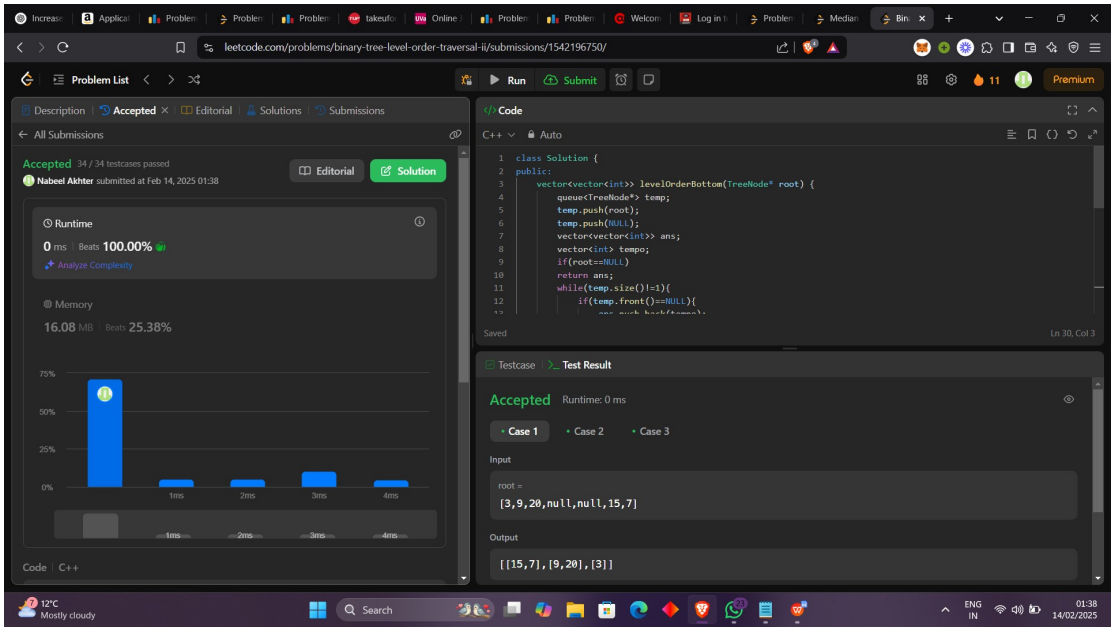
};



107. Binary Tree Level Order Traveral II

```
class Solution {
public:
    vector<vector<int>> levelOrderBottom(TreeNode* root) {
        queue<TreeNode*> temp;
        temp.push(root);
        temp.push(NULL);
        vector<vector<int>> ans;
        vector<int> tempo;
        if(root==NULL)
        return ans;
        while(temp.size()!=1){
            if(temp.front()==NULL){
                ans.push_back(tempo);
                tempo.clear();
                temp.push(NULL);
            }
            else{
                tempo.push_back(temp.front()->val);
                if(temp.front()->left!=NULL)
                temp.push(temp.front()->left);
                if(temp.front()->right!=NULL)
                temp.push(temp.front()->right);
            }
            temp.pop();
        }
        ans.push_back(tempo);
        reverse(ans.begin(),ans.end());
        return ans;
```

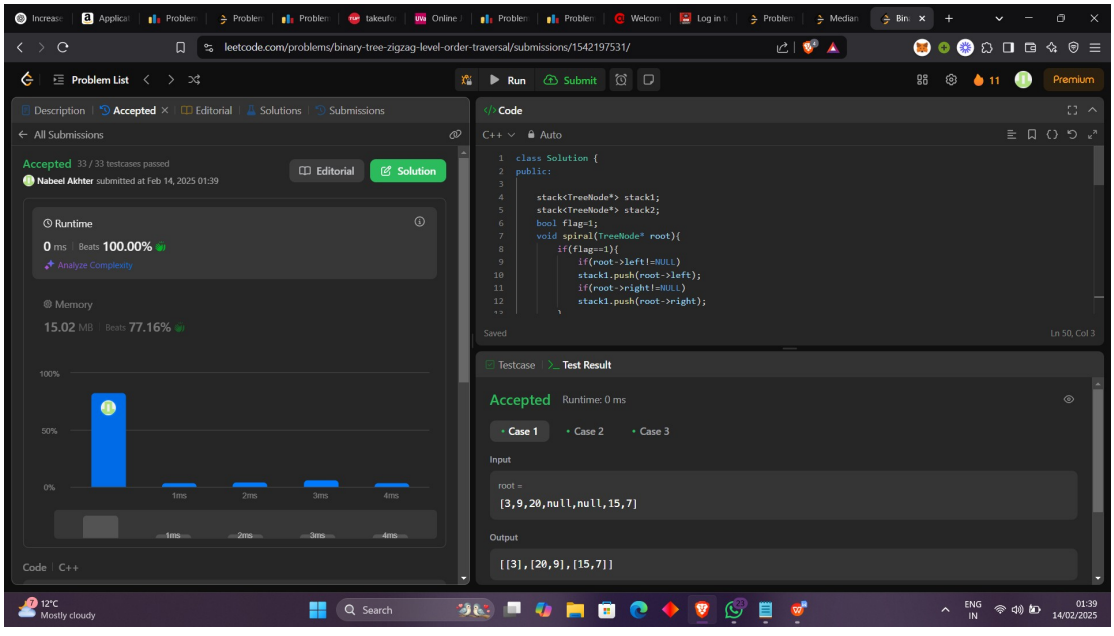
```
    }
};
```



103. Binary Tree Zigzag Level Order Traversal

```
class Solution {
public:

    stack<TreeNode*> stack1;
    stack<TreeNode*> stack2;
    bool flag=1;
    void spiral(TreeNode* root){
        if(flag==1){
            if(root->left!=NULL)
            stack1.push(root->left);
            if(root->right!=NULL)
            stack1.push(root->right);
        }
        else{
            if(root->right!=NULL)
            stack2.push(root->right);
            if(root->left!=NULL)
            stack2.push(root->left);
        }
    }

    vector<vector<int>> zigzagLevelOrder(TreeNode* root) {
        vector<vector<int>> ans;
        if(root==NULL)
        return ans;
```

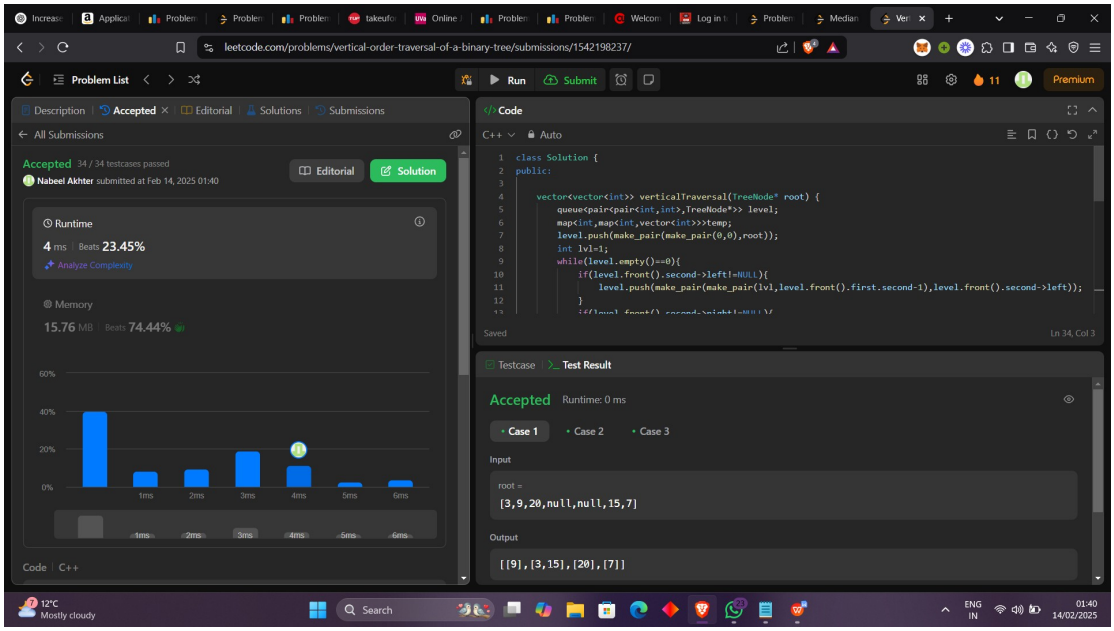
```
        stack2.push(root);
        while(stack2.empty()==0 || stack1.empty()==0){
            vector<int> temp;
            while(stack2.empty()==0){
                spiral(stack2.top());
                temp.push_back(stack2.top()->val);
                stack2.pop();
            }
            if(temp.size()!=0)
            ans.push_back(temp);
            temp.clear();
            flag=flag^1;
            while(stack1.empty()==0){
                spiral(stack1.top());
                temp.push_back(stack1.top()->val);
                stack1.pop();
            }
            if(temp.size()!=0)
            ans.push_back(temp);
            flag=flag^1;
            temp.clear();
        }
        return ans;
    }
};
```



987. Vertical Order Traveral of a Binary Tree

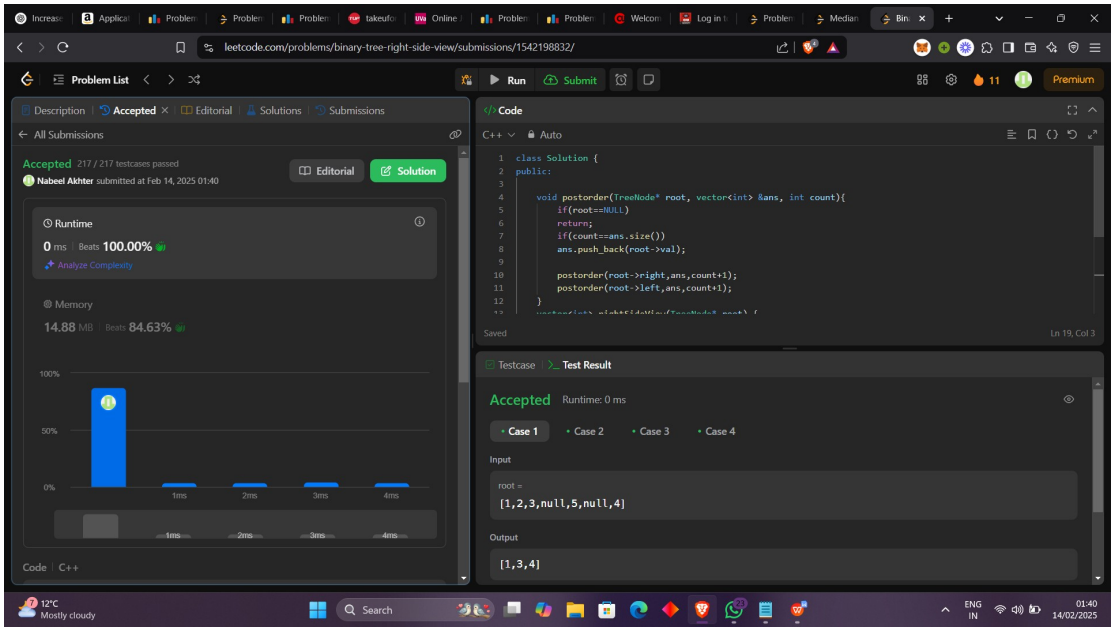
```
class Solution {
public:
```

```
    vector<vector<int>> verticalTraversal(TreeNode* root) {
        queue<pair<pair<int,int>,TreeNode*>> level;
        map<int,map<int,vector<int>>>temp;
        level.push(make_pair(make_pair(0,0),root));
        int lvl=1;
        while(level.empty()==0){
            if(level.front().second->left!=NULL){
                level.push(make_pair(make_pair(lvl,level.front().first.second-
1),level.front().second->left));
            }
            if(level.front().second->right!=NULL){

level.push(make_pair(make_pair(lvl,level.front().first.second+1),level.front().second-
>right));
            }

temp[level.front().first.second][level.front().first.first].push_back(level.front().second-
>val);
            level.pop();
            if(level.empty()!=1 && level.front().first.first==lvl)
            lvl++;
        }
        vector<vector<int>> ans;
        for(auto it:temp){
            vector<int> temporary;
            for(auto i:it.second){
                sort(i.second.begin(),i.second.end());
                for(auto a:i.second){
                    temporary.push_back(a);
                }
            }
            ans.push_back(temporary);
        }
        return ans;
    }
};
```



199. Binary Tree Right Side View

```
class Solution {
public:

    void postorder(TreeNode* root, vector<int> &ans, int count){
        if(root==NULL)
        return;
        if(count==ans.size())
        ans.push_back(root->val);

        postorder(root->right,ans,count+1);
        postorder(root->left,ans,count+1);
    }
    vector<int> rightSideView(TreeNode* root) {
        vector<int> ans;
        int count=0;
        postorder(root,ans,count);
        return ans;
    }
};
```


leetcode.com/problems/binary-tree-right-side-view/submissions/1542198832/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 217 / 217 testcases passed
Nabeel Akhter submitted at Feb 14, 2025 01:40
Editorial
Solution
Runtime
0 ms Beats 100.00%
Analyze Complexity
Memory
14.88 MB Beats 84.63%
100%
50%
0%
1ms
2ms
3ms
4ms
Code | C++
Code
C++
Auto
class Solution {
public:
void postorder(TreeNode* root, vector<int> &ans, int count){
if(root==NULL)
return;
if(count==ans.size())
ans.push_back(root->val);
postorder(root->right,ans,count+1);
postorder(root->left,ans,count+1);
}
Saved
Ln 19, Col 3
Testcase
Test Result
Accepted
Runtime: 0 ms
Case 1
Case 2
Case 3
Case 4
Input
root =
[1,2,3,null,5,null,4]
Output
[1,3,4]
12°C
Mostly cloudy
Search
ENG
IN
01:40
14/02/2025