**TOP VIEW :**

**vector<int> topView(Node \*root)**

**{**

**//Your code here**

**queue<pair<Node \*,int>>q;**

**vector<int>v;**

**map<int,int>mpp;**

**q.push({root,0});**

**while(!q.empty())**

**{**

**auto node=q.front();**

**root=node.first;**

**int ind=node.second;**

**q.pop();**

**if(mpp.find(ind)==mpp.end())**

**{**

**mpp[ind]=root->data;**

**}**

**if(root->left)**

**q.push({root->left,ind-1});**

**if(root->right)**

**q.push({root->right,ind+1});**

**}**

**for(auto it:mpp)**

**{**

**v.push\_back(it.second);**

**}**

**return v;**

**BOTTOM VIEW :**

**vector <int> bottomView(Node \*root) {**

**// Your Code Here**

**if (root==NULL)return{};**

**vector<int>v;**

**queue<pair<Node \*,int>>q;**

**map<int,int>mpp;**

**q.push({root,0});**

**while(!q.empty())**

**{**

**auto node=q.front();**

**root=node.first;**

**int ind=node.second;**

**q.pop();**

**mpp[ind]=root->data;**

**if(root->left)**

**q.push({root->left,ind-1});**

**if(root->right)**

**q.push({root->right,ind+1});**

**}**

**for(auto it:mpp)**

**{**

**v.push\_back(it.second);**

**}**

**return v;**

**LEFT VIEW:**

**void LeftNode(Node \*root,vector<int>&v,int l)**

**{**

**if(root==NULL)return;**

**if(v.size()==l)**

**v.push\_back(root->data);**

**// if(root->left== NULL )return ;**

**LeftNode(root->left,v,l+1);**

**LeftNode(root->right,v,l+1);**

**}**

**vector<int> leftView(Node \*root)**

**{**

**vector<int>v;**

**int i=0;**

**LeftNode(root,v,i);**

**return v;**

**}**

**RIGHT VIEW :**

**void RightNode(Node \*root,vector<int>&v,int l)**

**{**

**if(root==NULL)return ;**

**//if(root->left ==NULL and root->right==NULL )return ;**

**if(v.size()==l)**

**v.push\_back(root->data);**

**RightNode(root->right,v,l+1);**

**RightNode(root->left,v,l+1);**

**//v.push\_back(root->data);**

**}**

**vector<int> rightView(Node \*root)**

**{**

**// Your Code here**

**vector<int>v;**

**int i;**

**RightNode(root,v,i);**

**return v;**

**}**