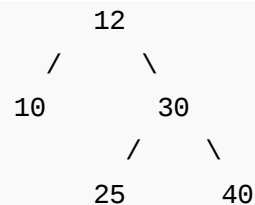


Print Left View of a Binary Tree

Given a Binary Tree, print left view of it. Left view of a Binary Tree is set of nodes visible when tree is visited from left side. Left view of following tree is 12, 10, 25.



The left view contains all nodes that are first nodes in their levels. A simple solution is to **do level order traversal** and print the first node in every level.

The problem can also be solved **using simple recursive traversal**. We can keep track of level of a node by passing a parameter to all recursive calls. The idea is to keep track of maximum level also. Whenever we see a node whose level is more than maximum level so far, we print the node because this is the first node in its level (Note that we traverse the left subtree before right subtree). Following is C implementation of this approach.

```
// C program to print left view of Binary Tree
#include<stdio.h>
#include<stdlib.h>

struct node
{
    int data;
    struct node *left, *right;
};

// A utility function to create a new Binary Tree node
```

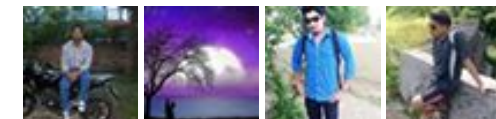
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```

struct node *newNode(int item)
{
    struct node *temp = (struct node *)malloc(sizeof(struct node));
    temp->data = item;
    temp->left = temp->right = NULL;
    return temp;
}

// Recursive function to print left view of a binary tree.
void leftViewUtil(struct node *root, int level, int *max_level)
{
    // Base Case
    if (root==NULL)    return;

    // If this is the first node of its level
    if (*max_level < level)
    {
        printf("%d\t", root->data);
        *max_level = level;
    }

    // Recur for left and right subtrees
    leftViewUtil(root->left, level+1, max_level);
    leftViewUtil(root->right, level+1, max_level);
}

// A wrapper over leftViewUtil()
void leftView(struct node *root)
{
    int max_level = 0;
    leftViewUtil(root, 1, &max_level);
}

// Driver Program to test above functions
int main()
{
    struct node *root = newNode(12);
    root->left = newNode(10);
    root->right = newNode(30);
    root->right->left = newNode(25);
    root->right->right = newNode(40);

    leftView(root);

    return 0;
}

```

Output:

12 10 25

Time Complexity: The function does a simple traversal of the tree, so the complexity is $O(n)$.

This article is contributed by Ramsai Chinthamani. Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above



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