LAB-10-ASSIGNMENT

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Q1. One way left threaded binary tree (in cpp)

```cpp
// CS23B1034
// K V Jaya Harsha
#include <iostream>
using namespace std;
struct Node{
    int data;
    Node *left;
    Node *right;
    bool leftThreaded;
    Node(int key){
        data = key;
        left = right = nullptr;
        leftThreaded = false;
    }
};
Node *createNode(int key){
    return new Node(key);
}
Node *insert(Node *root, int key){
    if (root == nullptr){
        return createNode(key);
    }

    if (key < root->data){
        if (root->left == nullptr){
            Node *newNode = createNode(key);
            newNode->left = root->left;
            newNode->leftThreaded = true;
            root->left = newNode;
            root->leftThreaded = false;
        }
        else{
            root->left = insert(root->left, key);
        }
    }
    else{
        root->right = insert(root->right, key);
    }
    return root;
}
void inorder(Node *root){
    if (root == nullptr)
        return;
    if (!root->leftThreaded){
        inorder(root->left);
    }
    cout << root->data << " ";
    inorder(root->right);
}
int main(){
    Node *root = nullptr;
    root = insert(root, 54);
    insert(root, 76);
    insert(root, 64);
    insert(root, 91);
    insert(root, 32);
    insert(root, 47);
    insert(root, 72);
    insert(root, 21);
    insert(root, 9);
    cout << "Displaying Threaded BST: ";
    inorder(root);
    cout << endl;
    return 0;
}
```

```
 threaded-bst-one-way-left-threaded } ; if ($?) { .\
one-way-left-threaded }
Displaying Threaded BST: 9 21 32 47 54 64 72 76 91
PS C:\Users\harsh\OneDrive\Documents\Desktop\challen
ab-10>
```