19/02/2024 WEEK-08

Q:-1) Write a program a) To construct a BST;
b) Traverse the tree using inorder, preorder, postorder
c) Display the elements in the tree.

2) Delete the Middle Node of a Linked List (leet code)
3) Odd Even Linked List (leet code)

1) I/p ⇒

```
#include <stdio.h>
#include <stdlib.h>
struct Node {
    int data;
    struct Node* left;
    struct Node* right;
};
struct Node* createNode(int data) {
    struct Node* newNode = (struct Node*)malloc
                           (sizeof(struct Node));
    newNode->data = data;
    newNode->left = newNode->right = NULL;
    return newNode;
}
struct Node* insert(struct Node* root, int data)
{
    if (root == NULL) {
        return createNode(data);
    }
    if (data < root->data) {
        root->left = insert(root->left, data);
    }
    else if (data > root->data) {
        root->right = insert(root->right, data);
    }
    return root;
}
void inorderTra(struct Node* root) {
    if (root != NULL) {
        inorderTra(root->left);
        printf("%d", root->data);
        inorderTraversal(root->right);
    }
}
void postTra(struct Node* root) {
    if (root != NULL) {
        postorderTra(root->left);
        postTra(root->right);
        printf("%d", root->data);
    }
}
void preTra(struct Node* root) {
    if (root != NULL) {
        printf("%d", root->data);
        preTra(root->left);
        preTra(root->right);
    }
}
void display(struct Node* root) {
    printf("Elements in tree: ");
    inorderTra(root); printf("\n");
```

O/P:

Elements in the tree: 20 30 40 50 60 70 80

Inorder traversal: 20 30 40 50 60 70 80

Postorder traversal: 20 40 30 60 80 70 50

Preorder traversal: 50 30 20 40 70 60 80

19.02.24