#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 = NULL;

newNode->right = NULL;

return newNode;

}

void inorderTraversal(struct Node\* root) {

if (root != NULL) {

inorderTraversal(root->left);

printf("%d ", root->data);

inorderTraversal(root->right);

}

}

void preorderTraversal(struct Node\* root) {

if (root != NULL) {

printf("%d ", root->data);

preorderTraversal(root->left);

preorderTraversal(root->right);

}

}

void postorderTraversal(struct Node\* root) {

if (root != NULL) {

postorderTraversal(root->left);

postorderTraversal(root->right);

printf("%d ", root->data);

}

}

struct Node\* insertNode(struct Node\* root, int data) {

if (root == NULL) {

return createNode(data);

}

if (data < root->data) {

root->left = insertNode(root->left, data);

} else if (data > root->data) {

root->right = insertNode(root->right, data);

}

return root;

}

int main() {

struct Node\* root = NULL;

int choice, data;

do {

printf("1. Insert a node\n");

printf("2. Display the tree (Inorder Traversal)\n");

printf("3. Display the tree (Preorder Traversal)\n");

printf("4. Display the tree (Postorder Traversal)\n");

printf("5. Exit\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice) {

case 1:

printf("Enter data to insert: ");

scanf("%d", &data);

root = insertNode(root, data);

break;

case 2:

printf("Binary Tree (Inorder Traversal): ");

inorderTraversal(root);

printf("\n");

break;

case 3:

printf("Binary Tree (Preorder Traversal): ");

preorderTraversal(root);

printf("\n");

break;

case 4:

printf("Binary Tree (Postorder Traversal): ");

postorderTraversal(root);

printf("\n");

break;

case 5:

printf("Exiting the program.\n");

break;

default:

printf("Invalid choice. Please enter a valid option.\n");

}

} while (choice != 5);

return 0;

}



