

// 14. Write a C program to implement the Tree Traversals (Inorder, Preorder, Postorder)

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
struct node {  
    int value;  
    struct node* left;  
    struct node* right;
```

```
};
```

```
// Inorder traversal
```

```
void InOrder(struct node* root) {  
    if (root == NULL) return;  
    InOrder(root->left);  
    printf("%d ", root->value);  
    InOrder(root->right);  
}
```

```
// PreOrder traversal
```

```
void PreOrder(struct node* root) {  
    if (root == NULL) return;  
    printf("%d ", root->value);  
    PreOrder(root->left);  
    PreOrder(root->right);  
}
```

```
// PostOrder traversal
```

```
void PostOrder(struct node* root) {  
    if (root == NULL) return;  
    PostOrder(root->left);  
    PostOrder(root->right);  
    printf("%d ", root->value);  
}
```

```
// Create a new Node
```

```
struct node* createNode(int value) {  
    struct node* newNode = malloc(sizeof(struct node));  
    newNode->value = value;  
    newNode->left = NULL;  
    newNode->right = NULL;  
    return newNode;  
}
```

```
int main() {
```

```
    struct node* root = createNode(1);  
    root->left = createNode(2);  
    root->right = createNode(3);  
    root->left->left = createNode(4);  
    root->left->right = createNode(5);
```

```

root->right->left = createNode(6);
root->right->right = createNode(7);
printf("Inorder traversal:\t");
InOrder(root);
printf("\nPreOrder traversal:\t");
PreOrder(root);
printf("\nPostOrder traversal:\t");
PostOrder(root);
}

```

```

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[*] enqueue,deque,display.c vdefs.h inorder,preorder,postorder.c
Project Classes Debug
1 // 14. Write a C program to implement the Tree Traversals (Inorder, Preorder, Postorder)
2 #include <stdio.h>
3 #include <stdlib.h>
4 struct node {
5     int value;
6     struct node* left;
7     struct node* right;
8 };
9 // Inorder traversal
10 void InOrder(struct node* root) {
11     if (root == NULL) return;
12     InOrder(root->left);
13     printf("%d ", root->value);
14     InOrder(root->right);
15 }
16 // PreOrder traversal
17 void PreOrder(struct node* root) {
18     if (root == NULL) return;
19     printf("%d ", root->value);
20     PreOrder(root->left);
21     PreOrder(root->right);
22 }
23 // PostOrder traversal
24 void PostOrder(struct node* root) {
25     if (root == NULL) return;
26     PostOrder(root->left);
27     PostOrder(root->right);
28     printf("%d ", root->value);
29 }
30 // Create a new Node
31 struct node* createNode(int value) {
32     struct node* newNode = malloc(sizeof(struct node));
33     newNode->value = value;
34     newNode->left = NULL;
35     newNode->right = NULL;

```

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(globals)

Project Classes Debug

[\*] enqueue,deque,display.c vdefs.h inorder,preorder,postorder.c

```
19 printf("%d ", root->value);
20 PreOrder(root->left);
21 PreOrder(root->right);
22 }
23 // PostOrder traversal
24 void PostOrder(struct node* root) {
25     if (root == NULL) return;
26     PostOrder(root->left);
27     PostOrder(root->right);
28     printf("%d ", root->value);
29 }
30 // Create a new Node
31 struct node* createNode(int value) {
32     struct node* newNode = malloc(sizeof(struct node));
33     newNode->value = value;
34     newNode->left = NULL;
35     newNode->right = NULL;
36     return newNode;
37 }
38 int main() {
39     struct node* root = createNode(1);
40     root->left = createNode(2);
41     root->right = createNode(3);
42     root->left->left = createNode(4);
43     root->left->right = createNode(5);
44     root->right->left = createNode(6);
45     root->right->right = createNode(7);
46     printf("Inorder traversal:\n");
47     InOrder(root);
48     printf("\nPreOrder traversal:\n");
49     PreOrder(root);
50     printf("\nPostOrder traversal:\n");
51     PostOrder(root);
52 }
```

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D:\data structures lab\inorder,preorder,postorder.exe

Inorder traversal: 4 2 5 1 6 3 7 PreOrder traversal: 1 2 4 5 3 6 7  
PostOrder traversal: 4 5 2 6 7 3 1

Process exited after 5.734 seconds with return value 2  
Press any key to continue . . .