

```
Start here x Binary_Tree.c x
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 // Node structure
5 struct Node {
6     int data;
7     struct Node *left, *right;
8 };
9
10 // Create a new node
11 struct Node* createNode(int value) {
12     struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
13     newNode->data = value;
14     newNode->left = newNode->right = NULL;
15     return newNode;
16 }
17
18 // Insert into BST
19 struct Node* insert(struct Node* root, int value) {
20     if (root == NULL)
21         return createNode(value);
22
23     if (value < root->data)
24         root->left = insert(root->left, value);
25     else if (value > root->data)
26         root->right = insert(root->right, value);
27
28     return root;
29 }
30
31 // Inorder Traversal
32 void inorder(struct Node* root) {
33     if (root != NULL) {
34         inorder(root->left);
35         printf("%d ", root->data);
36         inorder(root->right);
37     }
38 }
39
40 // Preorder Traversal
41 void preorder(struct Node* root) {
42     if (root != NULL) {
43         printf("%d ", root->data);
44         preorder(root->left);
45         preorder(root->right);
46     }
47 }
48
49 // Postorder Traversal
50 void postorder(struct Node* root) {
```

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```
Start here X Binary_Tree.c X
49 // Postorder Traversal
50 void postorder(struct Node* root) {
51     if (root != NULL) {
52         postorder(root->left);
53         postorder(root->right);
54         printf("%d ", root->data);
55     }
56 }
57
58 int main() {
59     struct Node* root = NULL;
60     int choice, value;
61
62     while (1) {
63         printf("\n----- MENU ----- \n");
64         printf("1. Insert element into BST\n");
65         printf("2. Inorder Traversal\n");
66         printf("3. Preorder Traversal\n");
67         printf("4. Postorder Traversal\n");
68         printf("5. Display elements (Inorder)\n");
69         printf("6. Exit\n");
70         printf("Enter your choice: ");
71         scanf("%d", &choice);
72
73         switch (choice) {
74             case 1:
75                 printf("Enter value to insert: ");
76                 scanf("%d", &value);
77                 root = insert(root, value);
78                 break;
79
80             case 2:
81                 printf("Inorder Traversal: ");
82                 inorder(root);
83                 printf("\n");
84                 break;
85
86             case 3:
87                 printf("Preorder Traversal: ");
88                 preorder(root);
89                 printf("\n");
90                 break;
91
92             case 4:
93                 printf("Postorder Traversal: ");
94                 postorder(root);
95                 printf("\n");
96                 break;
97
98             case 5:
99                 printf("Display elements (Inorder): ");
100                 inorder(root);
101                 printf("\n");
102                 break;
103
104             case 6:
105                 exit(0);
106                 break;
107
108             default:
109                 printf("Invalid choice\n");
110                 break;
111         }
112     }
113 }
```

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```
Start here X Binary_Tree.c X
67 printf("4. Postorder Traversal\n");
68 printf("5. Display elements (Inorder)\n");
69 printf("6. Exit\n");
70 printf("Enter your choice: ");
71 scanf("%d", &choice);
72
73 switch (choice) {
74     case 1:
75         printf("Enter value to insert: ");
76         scanf("%d", &value);
77         root = insert(root, value);
78         break;
79
80     case 2:
81         printf("Inorder Traversal: ");
82         inorder(root);
83         printf("\n");
84         break;
85
86     case 3:
87         printf("Preorder Traversal: ");
88         preorder(root);
89         printf("\n");
90         break;
91
92     case 4:
93         printf("Postorder Traversal: ");
94         postorder(root);
95         printf("\n");
96         break;
97
98     case 5:
99         printf("Elements in BST (Inorder Display): ");
100         inorder(root);
101         printf("\n");
102         break;
103
104     case 6:
105         printf("Exiting...\n");
106         exit(0);
107
108     default:
109         printf("Invalid choice! Try again.\n");
110 }
111
112 return 0;
113
114
115
```

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```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 80
Invalid choice! Try again.
```

```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 60
```

```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 70
```

```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 50
```

```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 30
```

```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 10
```

```
----- MENU -----
1. Insert element into BST
```

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```
----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 40

----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 20

----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 60

----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 1
Enter value to insert: 90

----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 2
Inorder Traversal: 10 20 30 40 50 60 70 80 90

----- MENU -----
1. Insert element into BST
2. Inorder Traversal
3. Preorder Traversal
4. Postorder Traversal
5. Display elements (Inorder)
6. Exit
Enter your choice: 3
Preorder Traversal: 80 70 50 30 10 20 40 60 90

----- MENU -----
1. Insert element into BST
```

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