

exp_8/a.c

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  struct Node {
5      int data;
6      struct Node* left;
7      struct Node* right;
8  };
9
10 struct Node* createNode(int data) {
11     struct Node* newNode = (struct Node*) malloc(sizeof(struct Node));
12     newNode->data = data;
13     newNode->left = newNode->right = NULL;
14     return newNode;
15 }
16
17 struct Node* insert(struct Node* root, int data) {
18     if (root == NULL) return createNode(data);
19     if (data < root->data)
20         root->left = insert(root->left, data);
21     else if (data > root->data)
22         root->right = insert(root->right, data);
23     return root;
24 }
25
26 int search(struct Node* root, int data) {
27     if (root == NULL) return 0;
28     if (root->data == data) return 1;
29     else if (data < root->data)
30         return search(root->left, data);
31     else
32         return search(root->right, data);
33 }
34
35 void inorder(struct Node* root) {
36     if (root != NULL) {
37         inorder(root->left);
38         printf("%d ", root->data);
39         inorder(root->right);
40     }
41 }
42
43 int main() {
44     struct Node* root = NULL;
45     int choice, value;
46     while (1) {
47         printf("\n1: Insert\n2: Search\n3: Inorder Traversal\n0: Exit\nEnter choice:");
48     }
```

```
48     scanf("%d", &choice);
49     if (choice == 0) break;
50     switch (choice) {
51         case 1:
52             printf("Enter value to insert: ");
53             scanf("%d", &value);
54             root = insert(root, value);
55             break;
56         case 2:
57             printf("Enter value to search: ");
58             scanf("%d", &value);
59             if (search(root, value))
60                 printf("Found %d in BST\n", value);
61             else
62                 printf("%d not found in BST\n", value);
63             break;
64         case 3:
65             printf("Inorder traversal: ");
66             inorder(root);
67             printf("\n");
68             break;
69         default:
70             printf("Invalid choice\n");
71     }
72 }
73 return 0;
74 }
75
```