8) Write a program

a) To construct a binary Search tree.

b) To traverse the tree using all the methods i.e., in-order, preorder and post order

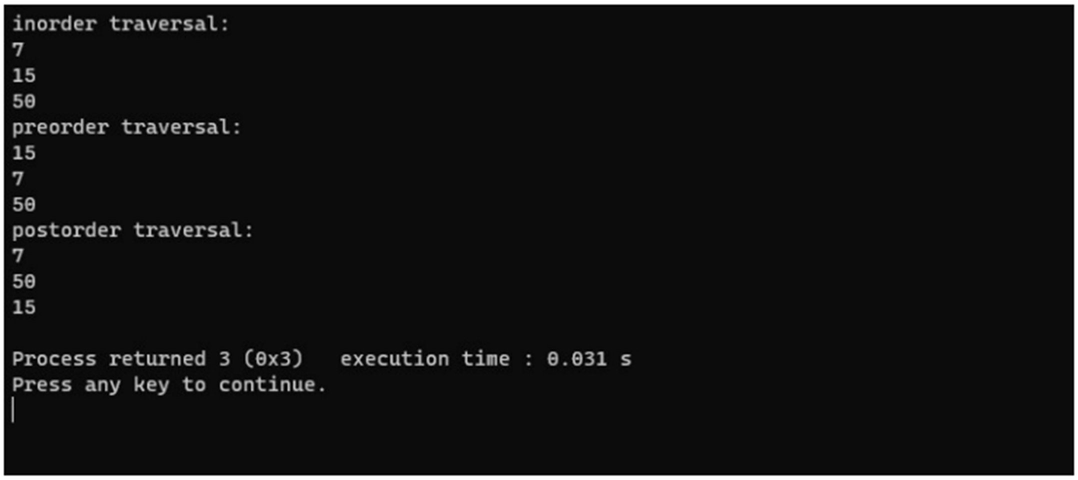
c) To display the elements in the tree.

```
#include<stdio.h>
#include<stdlib.h>
struct node{
int data;
struct node* left_side;
struct node* right_side
};
struct node* newnode(int x)
{
 struct node* temp=malloc(sizeof(struct node));
 temp->data=x;
 temp->left_side=NULL;
 temp->right_side=NULL;
 return temp;
}
struct node* insert(struct node* root,int x)
{
1
 if(root==NULL)
 {
 return newnode(x);
 }
 else if(x>root->data)
 {
 root->right_side=insert(root->right_side,x);
 }
 else
 {
 root->left_side=insert(root->left_side,x);
 }
 return root;
}
void inorder(struct node* root)
{
 if(root!=NULL)
 {
 inorder(root->left_side);
 printf("%d\n",root->data);
 inorder(root->right_side);
 }
2
}
void postorder(struct node* root)
{
 if(root!=NULL)
 {
 postorder(root->left_side);
 postorder(root->right_side);
 printf("%d\n",root->data);
 }
}
void preorder(struct node* root)
{
 if(root!=NULL)
 {
 printf("%d\n",root->data);
 preorder(root->left_side);
 preorder(root->right_side);
 }
}
void main()
{
 struct node* root=NULL;
 root=insert(root,15);
```

```
 root=insert(root,7);
 root=insert(root,50);
 printf("inorder traversal:\n");
 inorder(root);
 printf("preorder traversal:\n");
 preorder(root);
 printf("postorder traversal:\n");
 postorder(root);
```

}

Output:



```
inorder traversal:
7
15
50
preorder traversal:
15
7
50
postorder traversal:
7
50
15

Process returned 3 (0x3)   execution time : 0.031 s
Press any key to continue.
```