EXP NO:06 IMPLEMENTATION OF BINARY SEARCH TREE DATE:

AIM : TO IMPLEMENT A BINARY SEARCH TREE.

A MENU DRIVEN PROGRAM THAT DOES THE FOLLOWING

I] INSERT DATA IN THE BINARY SEARCH TREE.

II]DISPLAY THE TRANSVERSALS.

Code:

```
#include<stdio.h>

#include<stdlib.h>

struct node
{
int data;
struct node *left,*right;
};

struct node *make_a_node(int child) //Function to make a ,node insert data to that node and return a pointer to that node
{
struct node *temp;
temp=(struct node *)malloc(sizeof(struct node));
temp->data=child;
return temp;
}
struct node* insert(int child,struct node *root) // function to recursively transverse and insert data in a binary search tree
{
if(root==NULL) //if the present root node does not exist then make one
{
root = make_a_node(child);
return root;
}
else if (child < root->data)
{
root->left=insert(child,root->left);
}
else if (child > root->data)
{
root->right=insert(child,root->right);
}
return root;
}

void preorder(struct node *root)
{
```

```
if(root!=NULL)
{
printf("%d\t",root->data);
preorder(root->left);
preorder(root->right);
}
}

void inorder(struct node *root)
{
if(root!=NULL)
{
preorder(root->left);
printf("%d\t",root->data);
preorder(root->right);
}
}

void postorder(struct node *root)
{
if(root!=NULL)
{
postorder(root->left);
postorder(root->right);
printf("%d\t",root->data);
}
}
int main()
{
int data,child,con,o;
struct node *root=NULL;
do{
printf("\nEnter 1 to insert data in the binary search tree\nEnter 2 to display the
tranversals\n");
scanf("%d",&o);
switch (o)
{
case 1:
printf("\nEnter data to be inserted in bst: ");
scanf("%d",&child);
root=insert(child,root);
break;
case 2:
printf("\nPreorder: ");
preorder(root);
printf("\nInorder: ");
inorder(root);
printf("\nPostorder: ");
postorder(root);
```

```
break;

default:printf("\nWrong Choice");
break;
}
printf("\nDo you want to continue(1/0): ");
scanf("%d",&con);
}
while(con==1);
return 0;
}
```

Output:

Enter 1 to insert data in the binary search tree

Enter 2 to display the tranversals

1

Enter data to be inserted in bst: 10

Do you want to continue(1/0): 1

Enter 1 to insert data in the binary search tree

Enter 2 to display the tranversals

1

Enter data to be inserted in bst: 14

Do you want to continue(1/0): 1

Enter 1 to insert data in the binary search tree

Enter 2 to display the tranversals

1

Enter data to be inserted in bst: 12

Do you want to continue(1/0): 1

Enter 1 to insert data in the binary search tree

Enter 2 to display the tranversals

1

Enter data to be inserted in bst: 7

Do you want to continue(1/0): 1

Enter 1 to insert data in the binary search tree

Enter 2 to display the tranversals

2

Preorder: 10 7 14 12

Inorder: 7 10 14 12

Postorder: 7 12 14 10

Do you want to continue(1/0): 0