Group A1

Title:- Construct The Tree And Print The Nodes

```
#include<iostream>
using namespace std;

struct TreeNode
{
    int data;
    TreeNode *left;
    TreeNode *right;
};
class BinTree
{
    TreeNode *root,Temp;
    public:
        TreeNode* create();
        TreeNode* insert(TreeNode *);
        void Inorder(TreeNode *);
        void PostOrder(TreeNode *);
        void PreOrder(TreeNode *);
        void Display(TreeNode *);
};
TreeNode* BinTree::create()
{
    TreeNode *p;
    cout<<"\nEnter the Data For Root Node";
    p = new TreeNode;
    cin>>p->data;
    p->left=NULL;
    p->right=NULL;
    root=p;
    cout<<"Node Has Been Inserted "<<root->data;
    return root;
}
TreeNode* BinTree::insert(TreeNode *root)
{
    int db;
    char ans,ans2;
    TreeNode *node;
    node = new TreeNode;
do{
    cout<<"\nEnter the Data";
    cin>>db;
    if(db==-1)
    {
        return NULL;
    }
    else
    {
        node->data=db;
        node->left=NULL;
        node->right=NULL;
            cout<<"Do You wana Insert This Node at Left";
            cin>>ans;
            if(ans=='y')
            {
                root->left=node;
                cout<<"\nInserted at Left";
            }
            else if(root->right==NULL)
            {
                cout<<"\nDo You Wana Insert This Node At Right";
                cin>>ans;
                if(ans=='y')
                    root->right=node; cout<<"\nInserted at Right";

            }
    }
    cout<<"\nCountinue??";
    cin>>ans2;
 }while(ans2=='y');
    return root;
}
void BinTree::PreOrder(TreeNode *root)
{
    if(root)
    {
        cout<<"\t"<<root->data;
        PreOrder(root->left);
        PreOrder(root->right);
    }
}
void BinTree::Inorder(TreeNode *root)
{
    if(root)
    {
        Inorder(root->left);
        cout<<"\t"<<root->data;
        Inorder(root->right);
    }
}
void BinTree::PostOrder(TreeNode *root)
{
    if(root)
    {
        PostOrder(root->left);
        PostOrder(root->right);
        cout<<"\t"<<root->data;
    }
}
void BinTree::Display(TreeNode *root)
{
    TreeNode *temp=NULL;
    temp=root;
    while(temp!=NULL)
    {
        if(temp->left!=NULL)
        {
            cout<<temp->data;
            temp=temp->left;
        }
        else if(temp->right!=NULL){
            cout<<temp->data;
            temp=temp->right;
        }
    }
}
int main()
{
    BinTree B1;
    TreeNode *root;
    int in; char b;
    do
    {
        cout<<"\n1.Create\n2.Insert\n3.Preorder\n4.Inorder\n5.Postorder\n6.Displa
y\nEnter Tour choice";
        cin>>in;
        switch(in)
        {
            case 1: root=B1.create();
                    break;
            case 2: B1.insert(root);
                    break;
            case 3: B1.PreOrder(root);
```

```
                    break;
            case 4: B1.Inorder(root);
                    break;
            case 5: B1.PostOrder(root);
                    break;
            case 6: B1.Display(root);
                    break;

        }
        cout<<"\nDo You Want to Perform any other Operations ??";
        cin>>b;
    } while (b=='y');
    return 0;
}
```

Output:-

```
                  1.Create

        2.Insert

        3.Preorder

        4.Inorder

        5.Postorder

        6.Display

        Enter Tour choice1



        Enter the Data For Root Node50

        Node Has Been Inserted 50

        Do You Want to Perform any other Operations ??y



        1.Create

        2.Insert

        3.Preorder

        4.Inorder
```

```
5.Postorder

6.Display

Enter Tour choice2


Enter the Data60

Do You wana Insert This Node at Lefty


Inserted at Left

Countinue??y


Enter the Data60

Do You wana Insert This Node at Leftn


Do You Wana Insert This Node At Righty


Inserted at Right

Countinue??y


Enter the Data-1


Do You Want to Perform any other Operations ??y


1.Create

2.Insert

3.Preorder
```

```
4.Inorder

5.Postorder

6.Display

Enter Tour choice3

        50      60      60

Do You Want to Perform any other Operations ??y


1.Create

2.Insert

3.Preorder

4.Inorder

5.Postorder

6.Display

Enter Tour choice4

        60      50      60

Do You Want to Perform any other Operations ??y


1.Create

2.Insert

3.Preorder

4.Inorder

5.Postorder

6.Display

Enter Tour choice5

        60      60      50
```

```
Do You Want to Perform any other Operations ??y


1.Create

2.Insert

3.Preorder

4.Inorder

5.Postorder

6.Display

Enter Tour choice
```