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PROGRAM: Tree Traversal

Write a C program to implement a Binary tree and perform the following tree traversal operation.

1. Inorder Traversal
2. Preorder Traversal
3. Postorder Traversal

```
#include<stdio.h>
#include<stdlib.h>

struct tree
{
int data;
struct tree *left;
struct tree *right;
}*root=NULL;

void insert();
void preorder();
void postorder();
void inorder();


void insert()
{
   while (1)
   {
      struct tree *parent,*ptr=root;
      int value;
      int flag=0;
      printf("Enter the value to be inserted\n");
      scanf("%d",&value);

      while(ptr!=NULL && flag==0)
      {
         if(value<ptr->data)
         {
            parent=ptr;
            ptr=ptr->left;
         }
```

```
            else if(value>ptr->data)
            {
               parent=ptr;
               ptr=ptr->right;
            }
            else if(value==ptr->data)
            {
               printf("No duplicate value");
               flag=1;
            }
         }
         struct tree *newnode;
         newnode=malloc(sizeof(struct tree));
         newnode->data=value;

         if(parent==NULL)
         {
            root=newnode;
         }
         else if(value<parent->data)
         {
            parent->left=newnode;
         }
         else
         {
            parent->right=newnode;
         }
         printf("Insert more elements? 1/0: ");
         int k;
         scanf("%d",&k);
         if (k==1)
         continue;
         else
         break;
      }
   }
```

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```
void inorder(struct tree *ptr)
{
   if(ptr!=NULL)
   {
      inorder(ptr->left);
      printf("%d ",ptr->data);
      inorder(ptr->right);
   }
}

void preorder(struct tree *ptr)
{
   if(ptr!=NULL)
   {
      printf("%d ",ptr->data);
      preorder(ptr->left);
      preorder(ptr->right);
   }
}

void postorder(struct tree *ptr)
{
   if(ptr!=NULL)
   {
      postorder(ptr->left);
      postorder(ptr->right);
      printf("%d ",ptr->data);
   }
}
```

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```
int main()
{
   int key;
   struct tree *ptr=NULL;
   int choice;
   while(1)
   {
      printf("Enter your choice:-
\n1.Insert\n2.Postorder\n3.Inorder\n4.Preorder\n");
      scanf("%d",&choice);
      switch(choice)
      {
         case 1:
         insert();
         break;

         case 2:
         postorder(root);
         break;

         case 3:
         ptr=root;
         inorder(root);
         break;

         case 4:
         ptr=root;
         preorder(root);
         break;
      }
      printf("\nWant to continue? 1/0 ");
      int m;
      scanf("%d",&m);
      if (m==1)
      continue;
      else
      break;
   }
}
```