Exp 6

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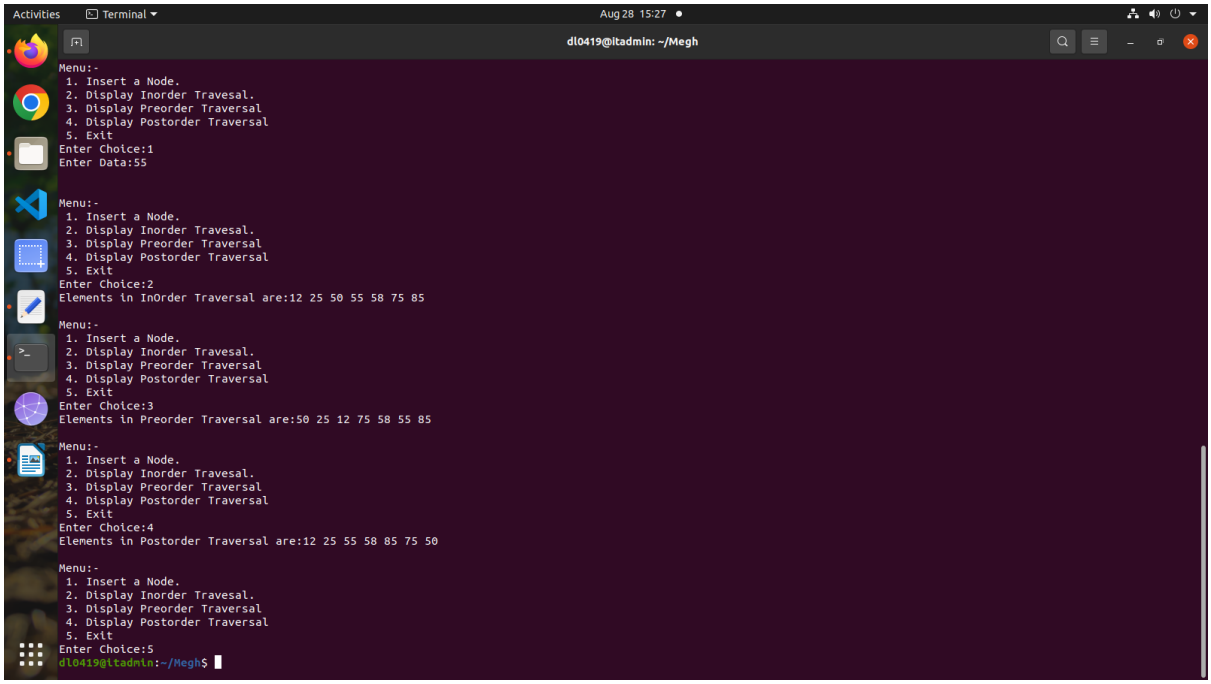
Program:-

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

struct node{
        int data;
        struct node *L;
        struct node *R;
};
struct node *tree;
void create();
struct node *insert(int);
void inorder(struct node *);
void preorder(struct node *);
void postorder(struct node *);

void create(){
        tree=NULL;
}

struct node *insert(int x){
        struct node *p, *temp, *root;
        p=(struct node *)malloc(sizeof(struct node));
        p->data=x;
        p->L=NULL;
        p->R=NULL;
        if(tree==NULL){
                tree =p;
                tree->L=NULL;
                tree->R=NULL;
        }
        else{
                root = NULL;
                temp=tree;
```

```
                while (temp!=NULL){
                        root=temp;
                        if (x<temp->data)
                                temp=temp->L;
                        else
                                temp=temp->R;
                }
                if(x<root->data)
                        root->L=p;
                else
                        root->R=p;
        }
        return tree;
}

void inorder(struct node *tree){
        if(tree!=NULL){
                inorder(tree->L);
                printf("%d ", tree->data);
                inorder(tree->R);
        }
}

void preorder(struct node *tree){
        if(tree!=NULL){
                printf("%d ", tree->data);
                preorder(tree->L);
                preorder(tree->R);
        }
}

void postorder(struct node *tree){
        if(tree!=NULL){
                postorder(tree->L);
                postorder(tree->R);
                printf("%d ", tree->data);
        }
}

int main(){
```

```
	printf("\nBinary Trees");
	int ch, x;
	create ();
	do{
		printf("\n\nMenu:-\n 1. Insert a Node.\n 2. Display Inorder
Travesal.\n 3. Display Preorder Traversal\n 4. Display Postorder Traversal\n 5.
Exit");
		printf("\nEnter Choice:");
		scanf("%d", &ch);
		switch(ch){
		case 1:
			printf("Enter Data:");
			scanf("%d", &x);
			tree = insert(x);
			break;
		case 2:
			printf("Elements in InOrder Traversal are:");
			inorder(tree);
			break;
		case 3:
			printf("Elements in Preorder Traversal are:");
			preorder(tree);
			break;
		case 4:
			printf("Elements in Postorder Traversal are:");
			postorder(tree);
			break;
		case 5:
			printf("Exiting");
			break;
		default:
			printf("Wrong Input");
		}
	}while(ch!=5);
	return 0;
}
```

Output:-


Activities
Terminal
Aug 28 15:27
dl0419@itadmin: ~/Megh
Menu:-
1. Insert a Node.
2. Display Inorder Travesal.
3. Display Preorder Traversal
4. Display Postorder Traversal
5. Exit
Enter Choice:1
Enter Data:55
Menu:-
1. Insert a Node.
2. Display Inorder Travesal.
3. Display Preorder Traversal
4. Display Postorder Traversal
5. Exit
Enter Choice:2
Elements in InOrder Traversal are:12 25 50 55 58 75 85
Menu:-
1. Insert a Node.
2. Display Inorder Travesal.
3. Display Preorder Traversal
4. Display Postorder Traversal
5. Exit
Enter Choice:3
Elements in Preorder Traversal are:50 25 12 75 58 55 85
Menu:-
1. Insert a Node.
2. Display Inorder Travesal.
3. Display Preorder Traversal
4. Display Postorder Traversal
5. Exit
Enter Choice:4
Elements in Postorder Traversal are:12 25 55 58 85 75 50
Menu:-
1. Insert a Node.
2. Display Inorder Travesal.
3. Display Preorder Traversal
4. Display Postorder Traversal
5. Exit
Enter Choice:5
dl0419@itadmin:~/Megh$