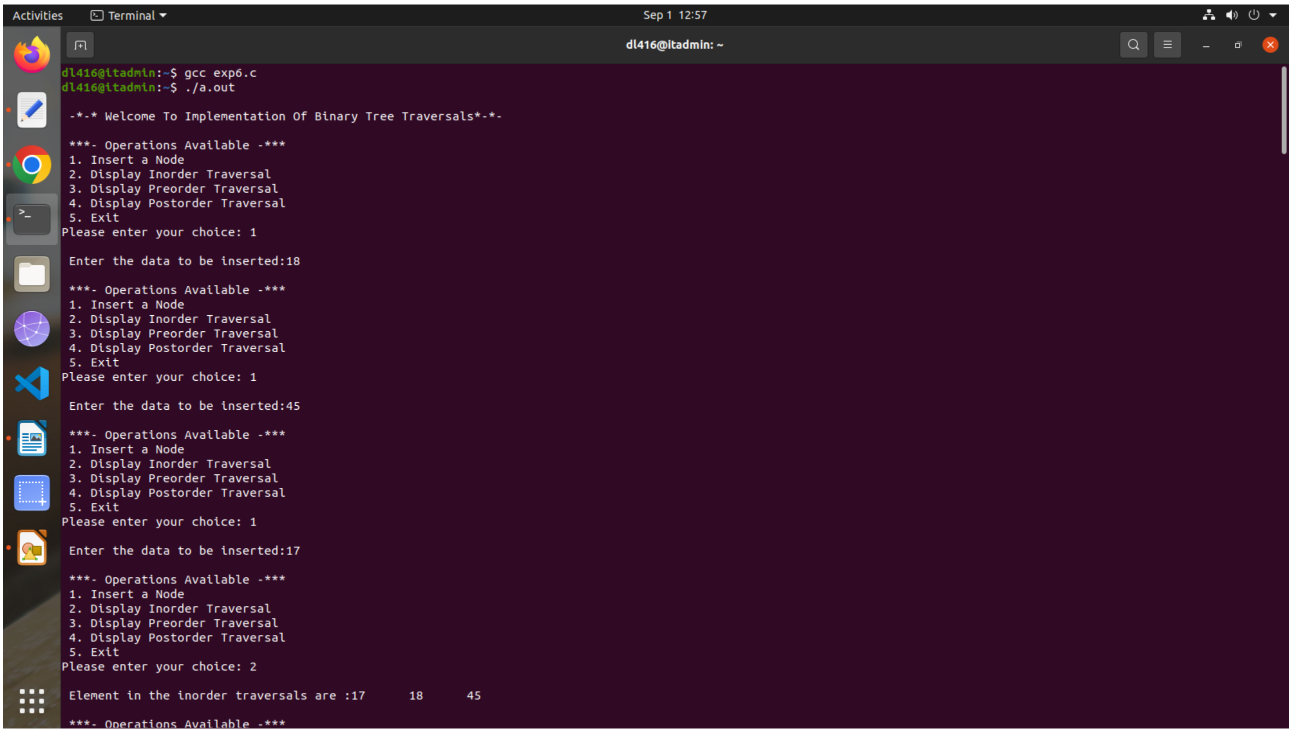
Amogh joshi
roll no. 18
batch – S1
Class :SY IT

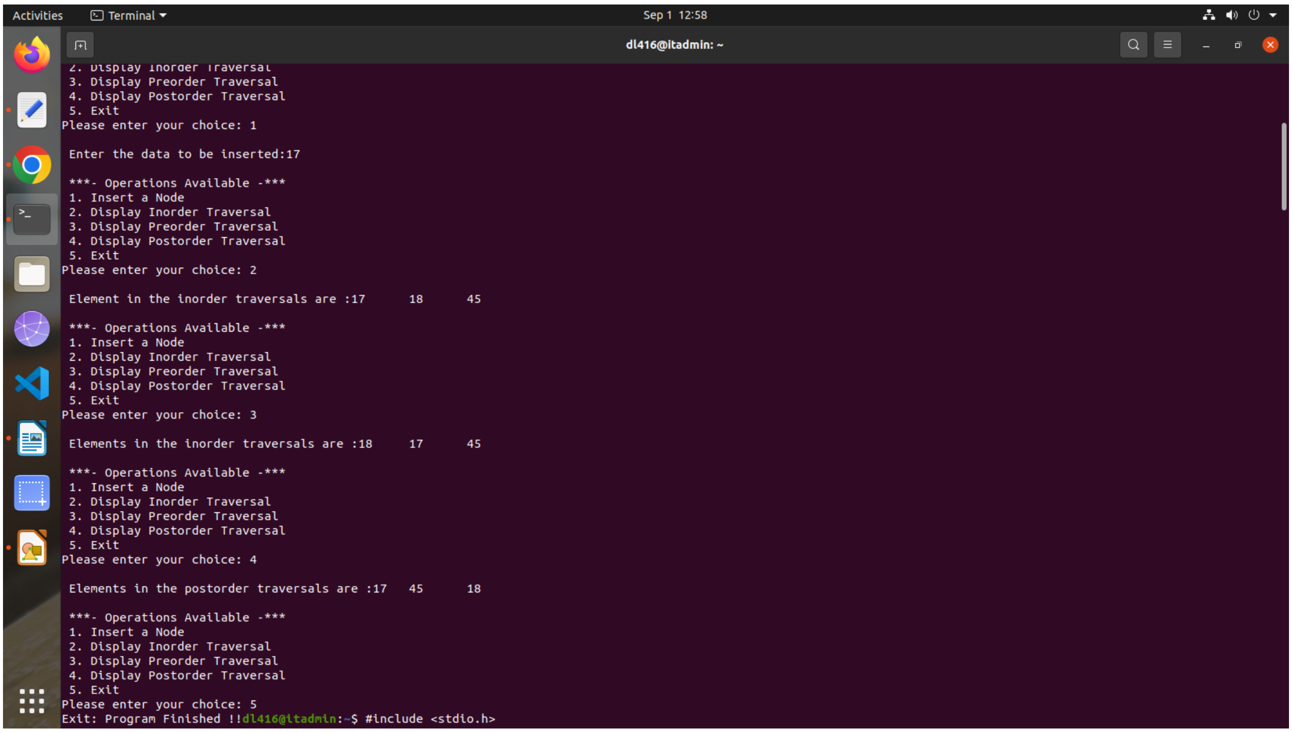
```
#include <stdio.h>
#include <stdlib.h>
#include <malloc.h>


struct node
{
    int data;
    struct node *left;
    struct node *right;k

};
struct node *tree;
void create(struct node *);
struct node *insert(struct node *,int);
void inorder(struct node *);
void preorder(struct node *);
void postorder(struct node *);

void main()
{
  printf("\n -*-* Welcome To Implementation Of Binary Tree Traversals*-*- \n");
  int choice,x;
  struct node *ptr;
  create(tree);
  do
  {k
    printf("\n ***- Operations Available -*** ");
    printf("\n 1. Insert a Node");
    printf("\n 2. Display Inorder Traversal");
    printf("\n 3. Display Preorder Traversal");
    printf("\n 4. Display Postorder Traversal");
    printf("\n 5. Exit \n");
    printf("Please enter your choice: ");
    scanf("%d", &choice);
    switch (choice)
    {
    case 1:
    printf("\n Enter the data to be inserted:");
    scanf("%d",&x);
    tree = insert(tree,x);
    break;

    case 2:
    printf("\n Element in the inorder traversals are :");
    inorder(tree);
```

```
     printf("\n");
     break;

     case 3:
     printf("\n Elements in the inorder traversals are :");
     preorder(tree);
     printf("\n");
     break;

     case 4:
     printf("\n Elements in the postorder traversals are :");
     postorder(tree);
     printf("\n");
     break;

     case 5:
     printf("Exit: Program Finished !!");
     break;

     default:
     printf("\n Please enter a valid option 1,2,3,4,5.");
     break;
     }
   } while (choice != 5);
}

void create(struct node *tree)
{
  tree = NULL;
}

struct node *insert(struct  node *tree, int x)
{
   struct node *p, *temp, *root;
   p = (struct node *)malloc(sizeof(struct node));
   p->data = x;
   p->left = NULL;
   p->right = NULL;
   if (tree == NULL)
   {
   tree = p;
   tree->left = NULL;
   tree->right = NULL;
   }
   else
   {
   root = NULL;
   temp = tree;
   while (temp !=NULL)
   {
   root = temp;
   if (x < temp->data)
```

```
      temp = temp->left;
   else
     temp = temp->right;
   }
   if (x < root->data)
      root->left = p;
   else
      root->right = p;
   }
   return tree;
}

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

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

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



```
dl416@itadmin:~$ gcc exp6.c
dl416@itadmin:~$ ./a.out

 -*-* Welcome To Implementation Of Binary Tree Traversals*-*-

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 1

 Enter the data to be inserted:18

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 1

 Enter the data to be inserted:45

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 1

 Enter the data to be inserted:17

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 2

 Element in the inorder traversals are :17      18      45

 ***- Operations Available -***
```



```
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 1

 Enter the data to be inserted:17

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 2

 Element in the inorder traversals are :17      18      45

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 3

 Elements in the inorder traversals are :18     17      45

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 4

 Elements in the postorder traversals are :17   45      18

 ***- Operations Available -***
 1. Insert a Node
 2. Display Inorder Traversal
 3. Display Preorder Traversal
 4. Display Postorder Traversal
 5. Exit
Please enter your choice: 5
Exit: Program Finished !!dl416@itadmin:~$ #include <stdio.h>
```