Week8

```
//binary tree and traversal
#include <stdio.h>
#include <stdlib.h>
struct node{
   int data;
   struct node *left;
   struct node *right;
   }*root=NULL;
struct node *create(struct node *t,int ele){

   if(t==NULL){
      struct node *temp=(struct node *) malloc (sizeof(struct node));
      temp->data=ele;
      temp->left=temp->right=NULL;
      return temp;
   }
   else{
         if(ele<t->data){
            t->left=create(t->left,ele);
         }
         else{
            t->right=create(t->right,ele);
         }

   }
   return t;
}
void pre(struct node *root){
   struct node *r;
   r=root;
```

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

        in(r->left);
        printf("%d\t",r->data);
        in(r->right);
    }
}

void post(struct node *root){
    struct node *r;
    r=root;
    if(r!=NULL){

        post(r->left);
        post(r->right);
        printf("%d\t",r->data);
    }
}
void main(){
    int n,ele;
    printf("enter the no of elements:");
    scanf("%d",&n);
```

```
    for(int i=0;i<n;i++){
        printf("enter the element %d:",i+1);
        scanf("%d",&ele);
        root=create(root,ele);
    }
    printf("display the elements in preorder traversal:");
    pre(root);
    printf("\ndisplay the elements in inorder traversal:");
    in(root);
    printf("\ndisplay the elements in postorder traversal:");
    post(root);

}
```

Output

```
enter the no of elements:10
enter the element 1:20
enter the element 2:10
enter the element 3:5
enter the element 4:15
enter the element 5:25
enter the element 6:22
enter the element 7:50
enter the element 8:18
enter the element 9:40
enter the element 10:70
display the elements in preorder traversal:20   10      5       15      18      25      22      50      40      70
display the elements in inorder traversal:5     10      15      18      20      22      25      40      50      70
display the elements in postorder traversal:5   18      15      10      22      40      70      50      25      20
```