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Data structure Homework

Experiment Part

Session4-Part2

Write a program to input a Binary Tree, and output the preorder, in-order, post-order traversal results

```c
#include<stdio.h>
#include<conio.h>
typedef struct node
{
    int data;
    struct node *left;
    struct node *right;
} node;

node *create()
{
    node *p;
    int x;
    printf("Enter data(-1 for no node):");
    scanf("%d",&x);

    if(x==-1)
    return NULL;

    p=(node*)malloc(sizeof(node));
    p->data=x;
    printf("Enter left child of %d:\n",x);
    p->left=create();
    printf("Enter right child of %d:\n",x);
    p->right=create();
    return p;
}
```

```c
28    void preorder(node *t)
29    {
30      if(t!=NULL)
31      {
32        printf("  %d",t->data);
33        preorder(t->left);
34        preorder(t->right);
35      }
36    }
37    void inorder(node *t)
38    {
39      if(t!=NULL)
40      {
41        inorder(t->left);
42        printf("  %d",t->data);
43        inorder(t->right);
44      }
45    }
46    void postorder(node *t)
47    {
48      if(t!=NULL)
49      {
50        postorder(t->left);
51        postorder(t->right);
52        printf("  %d",t->data);
53      }
54    }
54    }
55    void main()
56    {
57      node *root;
58      root=create();
59      printf("\nThe pre-order traversal of tree is: ");
60      preorder(root);
61      printf("\nThe in-order traversal of tree is: ");
62      inorder(root);
63      printf("\nThe post-order traversal of tree is: ");
64      postorder(root);
65      getch();
66    }
67
68
```

Result:

Output will be

```
"E:\Home Work\DS&A\Bainary_tree\bin\Debug\Bainary_tree.exe"                          —    □    ✕

Please Enter data(-1 for no node):5
Please Enter left child of 5:
Please Enter data(-1 for no node):2
Please Enter left child of 2:
Please Enter data(-1 for no node):7
Please Enter left child of 7:
Please Enter data(-1 for no node):-1
Please Enter right child of 7:
Please Enter data(-1 for no node):-1
Please Enter right child of 2:
Please Enter data(-1 for no node):-1
Please Enter right child of 5:
Please Enter data(-1 for no node):-1

The pre-order traversal of tree is:    5   2   7
The in-order traversal of tree is:     7   2   5
The post-order traversal of tree is:   7   2   5
```