

CENG205 DATA STRUCTURES**ASSIGNMENT 3**

- 1) Write a program that creates a **Binary Search Tree**, generates 10 random numbers between 1 and 25, adds them to the tree, traverses the tree with the preorder, postorder and inorder methods and prints them to the screen as in Figure 1.

The numbers being placed in the tree are:

16 7 14 24 8 5 11 23 9 12

The preorder traversal is:

16 7 5 14 8 11 9 12 24 23

The inorder traversal is:

5 7 8 9 11 12 14 16 23 24

The postorder traversal is:

5 9 12 11 8 14 7 23 24 16

Figure 1. Output

```
struct treeNode {  
    struct treeNode *leftPtr;  
    int data;  
    struct treeNode *rightPtr;  
};  
typedef struct treeNode TreeNode;  
  
typedef TreeNode *TreeNodePtr;  
//prototypes  
void insertNode( TreeNodePtr *treePtr, int value );  
void preorder ( TreeNodePtr treePtr );  
void inorder ( TreeNodePtr treePtr );  
void postorder ( TreeNodePtr treePtr );
```