

Rajalakshmi Engineering College

Name: LIRESH NV
Email: 241501100@rajalakshmi.edu.in
Roll no: 241501100
Phone: 9840466142
Branch: REC
Department: I AI & ML FA
Batch: 2028
Degree: B.E - AI & ML

Scan to verify results



NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 5_COD_Question 2

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Mike is learning about Binary Search Trees (BSTs) and wants to implement various operations on them. He wants to write a basic program for creating a BST, inserting nodes, and printing the tree in the pre-order traversal.

Write a program to help him solve this program.

Input Format

The first line of input consists of an integer N, representing the number of values to insert into the BST.

The second line consists of N space-separated integers, representing the values to insert into the BST.

Output Format

The output prints the space-separated values of the BST in the pre-order traversal.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5

3 1 5 2 4

Output: 3 1 2 5 4

Answer

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

```
struct Node {
    int data;
    struct Node* left;
    struct Node* right;
};
```

```
struct Node* createNode(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->left = newNode->right = NULL;
    return newNode;
}
```

// You are using GCC

```
struct Node* insert(struct Node* root, int value) {
    //Type your code here
    if (root == NULL)
        return createNode(value);

    if (value < root->data)
        root->left = insert(root->left, value);
    else
        root->right = insert(root->right, value);
    return root;
}
```

```
}
```

```
void printPreorder(struct Node* node) {  
    if (node == NULL)  
        return;
```

```
    // Print the data of the node first (Pre-order: root -> left -> right)  
    printf("%d ", node->data);
```

```
    // Then recur on left subtree  
    printPreorder(node->left);
```

```
    // Finally recur on right subtree  
    printPreorder(node->right);  
    //Type your code here  
}
```

```
int main() {  
    struct Node* root = NULL;
```

```
    int n;  
    scanf("%d", &n);
```

```
    for (int i = 0; i < n; i++) {  
        int value;  
        scanf("%d", &value);  
        root = insert(root, value);  
    }
```

```
    printPreorder(root);  
    return 0;
```

```
}
```

Status : Correct

Marks : 10/10