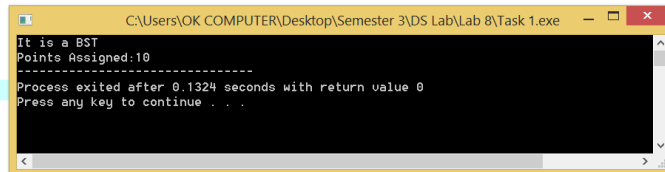


## DS LAB 08

### TASK 1

```
1  #include<iostream>
2  using namespace std;
3
4  class node
5  {
6      public:
7          int data;
8          node *right;
9          node *left;
10         node(int d)
11         {
12             data=d;
13             right=NULL;
14             left=NULL;
15         }
16     };
17     int isBSTUtil(node* node, int min, int max);
18     int isBSTUtil (node* node, int min, int max)
19     {
20         return(isBSTUtil(node, INT_MIN, INT_MAX));
21     }
22     int isBSTUtil(node* node, int min, int max)
23     {
24
25         if (node==NULL)
26             return 1;
27
28         if (node->data < min || node->data > max)
29
30             return 0;
31         return
32             isBSTUtil(node->left, min, node->data-1) && isBSTUtil(node->right, node->data+1, max);
33     }
34     int main()
35     {
36         node *root = new node(4);
37         root->right = new node(6);
38         root->left = new node(2);
39         root->left->right = new node(3);
40         root->left->left = new node(1);
41
42         if(isBST(root))
43             cout<<"It is a BST"<<endl<<"Points Assigned:10";
44         else
45             cout<<"It is not a BST"<<endl<<"Points Assigned:0";
46
47         return 0;
48     }
49
50
```



```
C:\Users\OK COMPUTER\Desktop\Semester 3\DS Lab\Lab 8\Task 1.exe
It is a BST
Points Assigned:10
-----
Process exited after 0.1324 seconds with return value 0
Press any key to continue . . .
```

### TASK 2(A)

```

1  #include<iostream>
2  using namespace std;
3  class node
4  {
5      public:
6      int data;
7      node *right;
8      node *left;
9      node(int d)
10     {
11         data=d;
12         right=NULL;
13         left=NULL;
14     }
15 }
16 };
17 class BinaryTree{
18     private:
19         node *root;
20     public:
21     node* addnode(node *root,int data1){
22         if(root==NULL){
23             return new node(data1);
24         }
25         if(data1<root->data){
26             root->left=addnode(root->left,data1);
27         }
28         else{

```

## TASK 2(B)

```

29         root->right=addnode(root->right,data1);
30     }
31     return root;
32 }
33 void display(node *root){
34     if(root==NULL){
35         return;
36     }
37     display(root->left);
38     cout<<root->data<<" ";
39     display(root->right);
40 }
41 };
42 int main(){
43     BinaryTree b;
44     node *root=NULL;
45     int arr[7]={ 15, 10, 20, 8, 12, 16, 25 };
46     for(int i=0;i<7;i++){
47         root=b.addnode(root,arr[i]);
48     }
49     cout<<"Array data passed to BST:";
50     b.display(root);
51 }

```

```

C:\Users\OK COMPUTER\Desktop\Semester 3\DS Lab\Lab 8\Task 2.exe
Array data passed to BST: 8 10 12 15 16 20 25
-----
Process exited after 0.08843 seconds with return value 0
Press any key to continue . . .

```