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Aim:

1. build BST.
2. traverse the tree.
3. search the element in the tree.

Code:

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

using namespace std;

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

Node* create_node(int input) {
    Node* general_node = new Node;
    general_node->data = input;
    general_node->left = nullptr;
    general_node->right = nullptr;
    return general_node;
}

Node* insert_node(Node* root, int value) {
    if (root == nullptr)
    {
        Node* tree_node = create_node(value);
        return tree_node;
    }
    else if (value > root->data)
    {
        root->right = insert_node(root->right, value);
    }
    else {
        root->left = insert_node(root->left, value);
    }
    return root;
}

bool search(Node* root, int target) {
    if (root == nullptr)
    {
```



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```
        return false;
    }

    if (target == root->data) {
        return true;
    }
    else if (target > root->data) {
        return search(root->right, target);
    }
    else {
        return search(root->left, target);
    }
}

void InOrder(Node* root) {
    if (root == nullptr)
    {
        return;
    }
    InOrder(root->left);
    cout << root->data << " ";
    InOrder(root->right);
}

int main() {
    int nodes[] = { 5,3,2,4,1 };
    Node* root = create_node(nodes[0]);
    int length = sizeof(nodes) / sizeof(nodes[0]);
    for (int i = 1; i < length; i++)
    {
        insert_node(root, nodes[i]);
    }

    InOrder(root);
    cout << "" << endl;
    if (search(root, 3)) {
        cout << "Element exists" << endl;
    }
    else {
        cout << "Element does not exist" << endl;
    }
}
```



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Output:

```
Microsoft Visual Studio Debug Console
1 2 3 4 5 6 7
Element exists

C:\Users\Vivek\source\repos\Lab6BST\x64\Debug\Lab6BST.exe
Press any key to close this window . . .
```