

```

Code :
#include <bits/stdc++.h>
using namespace std;

class Node
{
public:
    int data;
    Node *left;
    Node *right;

    Node(int data)
    {
        this->data = data;
        this->left = NULL;
        this->right = NULL;
    }
};

Node *insertInBST(Node *root, int data)
{
    if (root == NULL)
    {
        root = new Node(data);
        return root;
    }
    if (root->data > data)
    {
        root->left = insertInBST(root->left, data);
    }
    else
    {
        root->right = insertInBST(root->right, data);
    }
    return root;
}

void takeInput(Node *&root)
{
    cout << "Enter Elements you want to Insert(Enter -1 to exit) : ";
    int data;
    cin >> data;
    while (data != -1)
    {
        root = insertInBST(root, data);
        cin >> data;
    }
}

bool searchInBST(Node *root, int key)
{
    if (root == NULL)
    {
        return false;
    }
}

```

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if (root->data == key)
{
    return true;
}
else if (root->data > key)
{
    // left part
    return searchInBST(root->left, key);
}
else
{
    return searchInBST(root->right, key);
}
}

```

```

Node *minEle(Node *root)
{
    Node *temp = root;
    while (temp->left != NULL)
    {

        temp = temp->left;
    }
    return temp;
}

```

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Node *maxEle(Node *root)
{
    while (root->right != NULL)
    {
        root = root->right;
    }
    return root;
}

```

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Node *deleteFromBST(Node *root, int key)
{
    if (root == NULL)
    {
        return root;
    }
    if (root->data == key)
    {
        // 0 child
        if (root->left == NULL && root->right == NULL)
        {
            delete root;
            return NULL;
        }
        // 1 left child
        if (root->left != NULL && root->right == NULL)
        {
            Node *temp = root->left;
            delete root;
            return temp;
        }
    }
}

```

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    }

    // 1 right child
    if (root->left == NULL && root->right != NULL)
    {
        Node *temp = root->right;
        delete root;
        return temp;
    }

    // 2 child
    if (root->left != NULL && root->right != NULL)
    {
        int mini = minEle(root)->data;
        root->data = mini;
        root->right = deleteFromBST(root->right, mini);
        return root;
    }
}
else if (root->data > key)
{
    root->left = deleteFromBST(root->left, key);
    return root;
}
else
{
    root->right = deleteFromBST(root->right, key);
    return root;
}
}

```

```

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

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

void postorder(Node *root)
{
    if (root == NULL)
    {

```

```

    return;
}
postorder(root->left);
postorder(root->right);
cout << root->data << " ";
}

```

```

int main()
{

```

```

    Node *root = NULL;

```

```

    while (true)
    {

```

```

        cout << "1.Insert Elements." << endl;
        cout << "2.Search Element." << endl;
        cout << "3.Delete Element." << endl;
        cout << "4.Print Elements." << endl;
        cout << "5.Exit." << endl;
        cout << endl;

```

```

        int choice;

```

```

        cout << "Enter your choice : ";

```

```

        cin >> choice;

```

```

        cout << endl;

```

```

        switch (choice)
        {

```

```


```

```

        case 1:

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```

            takeInput(root);

```

```

            break;

```

```

        case 2:

```

```

            cout << "Enter Element You Want to Search : ";

```

```

            int ele;

```

```

            cin >> ele;

```

```

            if (searchInBST(root, ele))
            {

```

```


```

```

                cout << "Element Found!" << endl;

```

```

            }

```

```

            else

```

```

            {

```

```

                cout << "Element not Found!" << endl;

```

```

            }

```

```

            cout << endl;

```

```

            break;

```

```

        case 3:

```

```

            cout << "Enter Element You Want to Delete : ";

```

```

            int ele2;

```

```

            cin >> ele2;

```

```

            root = deleteFromBST(root, ele2);

```

```

            cout << endl;

```

```

            break;

```

```

        case 4:

```

```

            cout << "Inorder : ";

```

```

            inorder(root);

```

```

            cout << endl;

```

```

        cout << "Preorder : ";
        preorder(root);
        cout << endl;
        cout << "Postorder : ";
        postorder(root);
        cout << endl;
        cout << endl;
        break;
    case 5:
        cout << "Exiting the Program.." << endl;
        exit(0);
    default:
        cout << "Enter Valid Input.." << endl;
    }
}
}
}

```

Output :

1.Insert Elements.  
 2.Search Element.  
 3.Delete Element.  
 4.Print Elements.  
 5.Exit.

Enter your choice : 1

Enter Elements you want to Insert(Enter -1 to exit) : 10 8 9 7 13 11 18 -1

1.Insert Elements.  
 2.Search Element.  
 3.Delete Element.  
 4.Print Elements.  
 5.Exit.

Enter your choice : 4

Inorder : 7 8 9 10 11 13 18

Preorder : 10 8 7 9 13 11 18

Postorder : 7 9 8 11 18 13 10

1.Insert Elements.  
 2.Search Element.  
 3.Delete Element.  
 4.Print Elements.  
 5.Exit.

Enter your choice : 2

Enter Element You Want to Search : 13

Element Found!

1.Insert Elements.  
 2.Search Element.  
 3.Delete Element.  
 4.Print Elements.

5.Exit.

Enter your choice : 2

Enter Element You Want to Search : 23

Element not Found!

1.Insert Elements.

2.Search Element.

3.Delete Element.

4.Print Elements.

5.Exit.

Enter your choice : 3

Enter Element You Want to Delete : 13

1.Insert Elements.

2.Search Element.

3.Delete Element.

4.Print Elements.

5.Exit.

Enter your choice : 4

Inorder : 7 8 9 10 11 11 18

Preorder : 10 8 7 9 11 11 18

Postorder : 7 9 8 11 18 11 10

1.Insert Elements.

2.Search Element.

3.Delete Element.

4.Print Elements.

5.Exit.

Enter your choice : 3

Enter Element You Want to Delete : 9

1.Insert Elements.

2.Search Element.

3.Delete Element.

4.Print Elements.

5.Exit.

Enter your choice : 4

Inorder : 7 8 10 11 11 18

Preorder : 10 8 7 11 11 18

Postorder : 7 8 11 18 11 10

1.Insert Elements.

2.Search Element.

3.Delete Element.

4.Print Elements.

5.Exit.

Enter your choice : 5

Exiting the Program..