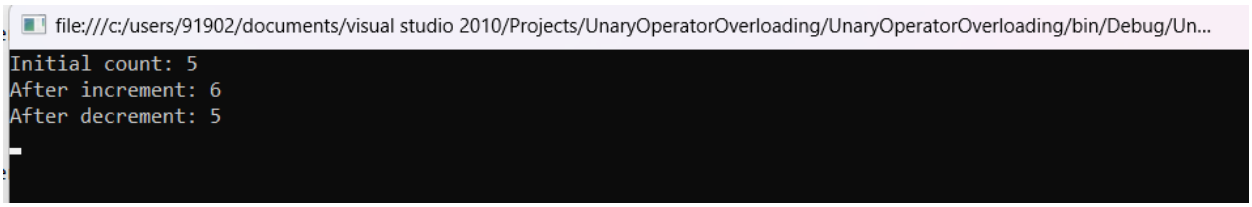
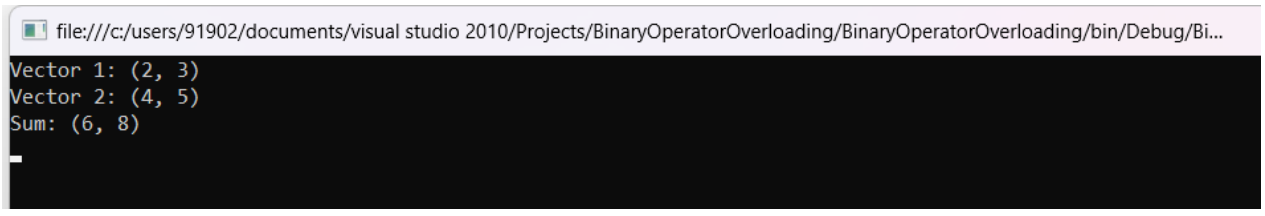
Unary Operator Overloading

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace UnaryOperatorOverloading
{
   class Counter
   {
      public int Count { get; set; }

      public Counter(int count)
      {
         Count = count;
      }

      public static Counter operator ++(Counter counter)
      {
         return new Counter(counter.Count + 1);
      }

      public static Counter operator --(Counter counter)
      {
         return new Counter(counter.Count - 1);
      }
   }

   class Program
   {
      static void Main()
      {
         Counter myCounter = new Counter(5);
           Console.WriteLine("Initial count: " + myCounter.Count);

         myCounter++; // Increment using unary operator
         Console.WriteLine("After increment: " + myCounter.Count);

         myCounter--; // Decrement using unary operator
         Console.WriteLine("After decrement: " + myCounter.Count);
           Console.ReadLine();
      }
   }
}
```



Binary Operator Overloading

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace BinaryOperatorOverloading
{
   class Vector
   {
      public int X { get; set; }
      public int Y { get; set; }

      public Vector(int x, int y)
      {
         X = x;
         Y = y;
      }
       public static Vector operator +(Vector v1, Vector v2)
      {
         int sumX = v1.X + v2.X;
         int sumY = v1.Y + v2.Y;
         return new Vector(sumX, sumY);
      }

      public override string ToString()
      {
         return "(" + X + ", " + Y + ")";
      }
   }
   class Program
   {
      static void Main()
      {
         Vector vector1 = new Vector(2, 3);
         Vector vector2 = new Vector(4, 5);

         Vector sum = vector1 + vector2; // Adding two Vector objects using binary operator

         Console.WriteLine("Vector 1: " + vector1);
         Console.WriteLine("Vector 2: " + vector2);
         Console.WriteLine("Sum: " + sum);
         Console.ReadLine();
      }
   }
}
```



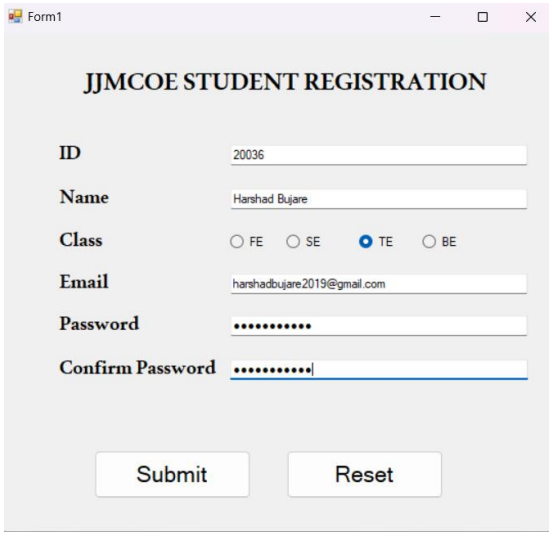
Window Based Student Registration Form With Validations

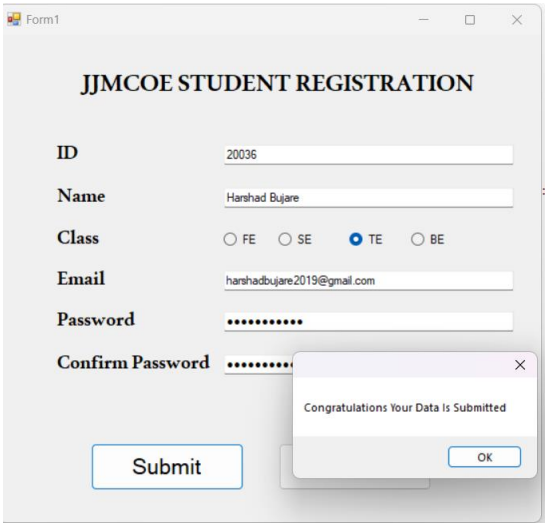
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Text.RegularExpressions;

namespace WindowFormStudentRegistration
{
   public partial class Form1 : Form
   {
      string emailpattern = "^[a-z0-9!1#$%&'*+/=?^_`{|}~-]+(?:\\.[a-z0-9!#$%&'*+/=?^_`{|}~-
]+)*@(?:[a-z0-9](?:[a-z0-9-]*[a-z0-9])?\\.)+[a-z0-9](?:[a-z0-9-]*[a-z0-9])?$";

      string passpattern = @"^(?=.*[a-z])(?=.*[A-Z])(?=.*\d)(?=.*[!@#$%^&*]).{8,}$";

      public Form1()
      {
         InitializeComponent();
      }

      private void label1_Click(object sender, EventArgs e)
      {

      }

      private void label3_Click(object sender, EventArgs e)
      {

      }

      private void button2_Click(object sender, EventArgs e)
      {
         txtID.Clear();
         txtName.Clear();
         txtEmail.Clear();
         txtPass.Clear();
         txtConPass.Clear();
         txtID.Focus();

      }

      private void txtID_Leave(object sender, EventArgs e)
      {
         if (string.IsNullOrEmpty(txtID.Text) == true)
         {
            txtID.Focus();
            errorProvider1.SetError(this.txtID, "Please Fill Data");
         }
         else
```

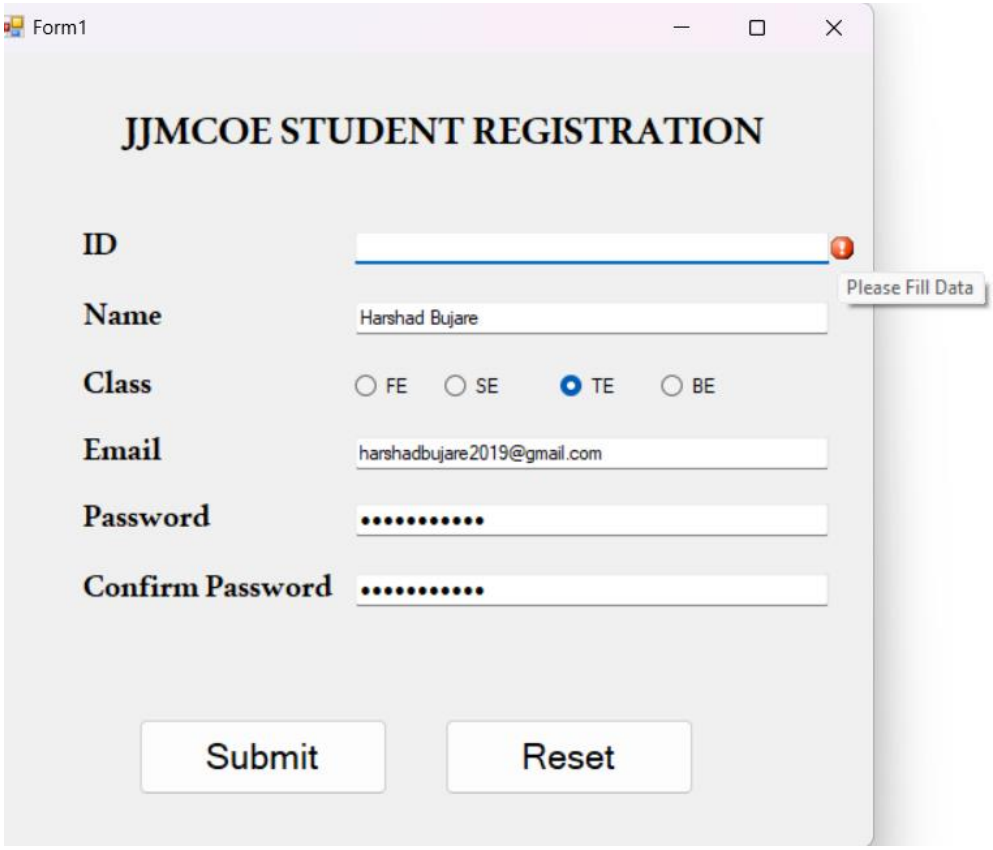
```
    {
        errorProvider1.Clear();
    }
}

private void txtID_KeyPress(object sender, KeyPressEventArgs e)
{
    char ch = e.KeyChar;
    if (char.IsDigit(ch) == true)
    {
        e.Handled = false;
    }
    else if (ch == 8)
    {
        e.Handled = false;
    }
    else
    {
        e.Handled = true;
    }
}

private void txtName_Leave(object sender, EventArgs e)
{
    if (string.IsNullOrEmpty(txtName.Text) == true)
    {
        txtName.Focus();
        errorProvider2.SetError(this.txtName, "Please Fill Data");
    }
    else
    {
        errorProvider2.Clear();
    }
}

private void txtName_KeyPress(object sender, KeyPressEventArgs e)
{
    char ch = e.KeyChar;
    if (char.IsLetter(ch) == true)
    {
        e.Handled = false;
    }
    else if (ch == 8)
    {
        e.Handled = false;
    }
    else if (ch == 32)
    {
        e.Handled = false;
    }
    else
    {
        e.Handled = true;
    }
}
```

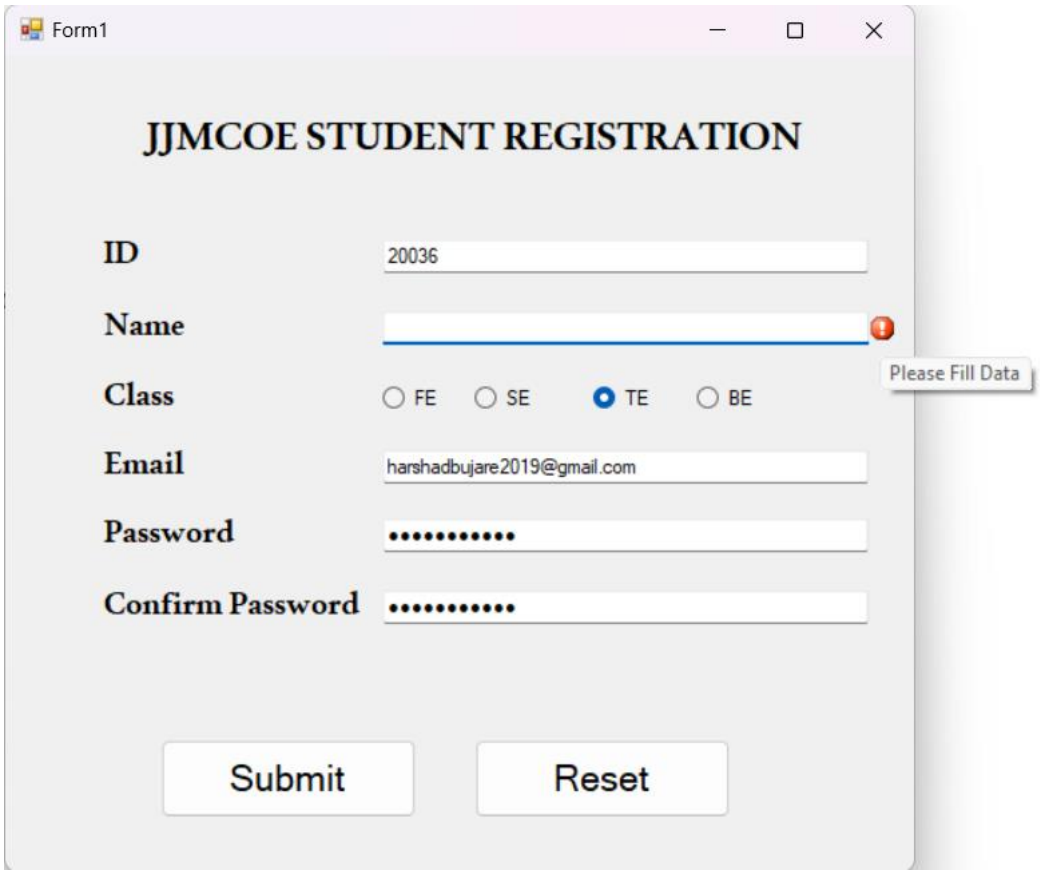
```
private void txtEmail_Leave(object sender, EventArgs e)
{
   if (Regex.IsMatch(txtEmail.Text, emailpattern) == false)
   {
      txtEmail.Focus();
      errorProvider3.SetError(this.txtEmail, "Please Enter Valid Data");
   }
   else
   {
      errorProvider3.Clear();
   }
}

private void txtPass_Leave(object sender, EventArgs e)
{
   if (Regex.IsMatch(txtPass.Text, passpattern) == false)
   {
      txtPass.Focus();
      errorProvider4.SetError(this.txtPass, "Please Enter Strong Password");
   }
   else
   {
      errorProvider4.Clear();
   }
}

private void txtConPass_Leave(object sender, EventArgs e)
{
   if (txtConPass.Text != txtPass.Text)
   {
      txtConPass.Focus();
      errorProvider5.SetError(this.txtConPass, "Enter Same Password");
   }
   else
   {
      errorProvider5.Clear();
   }
}

private void button1_Click(object sender, EventArgs e)
{
   if (string.IsNullOrEmpty(txtID.Text) == true)
   {
      txtID.Focus();
      errorProvider1.SetError(this.txtID, "Please Fill Data");
   }
   else if (string.IsNullOrEmpty(txtName.Text) == true)
   {
      txtName.Focus();
      errorProvider2.SetError(this.txtName, "Please Fill Data");
   }
   else if (Regex.IsMatch(txtEmail.Text, emailpattern) == false)
   {
      txtEmail.Focus();
```

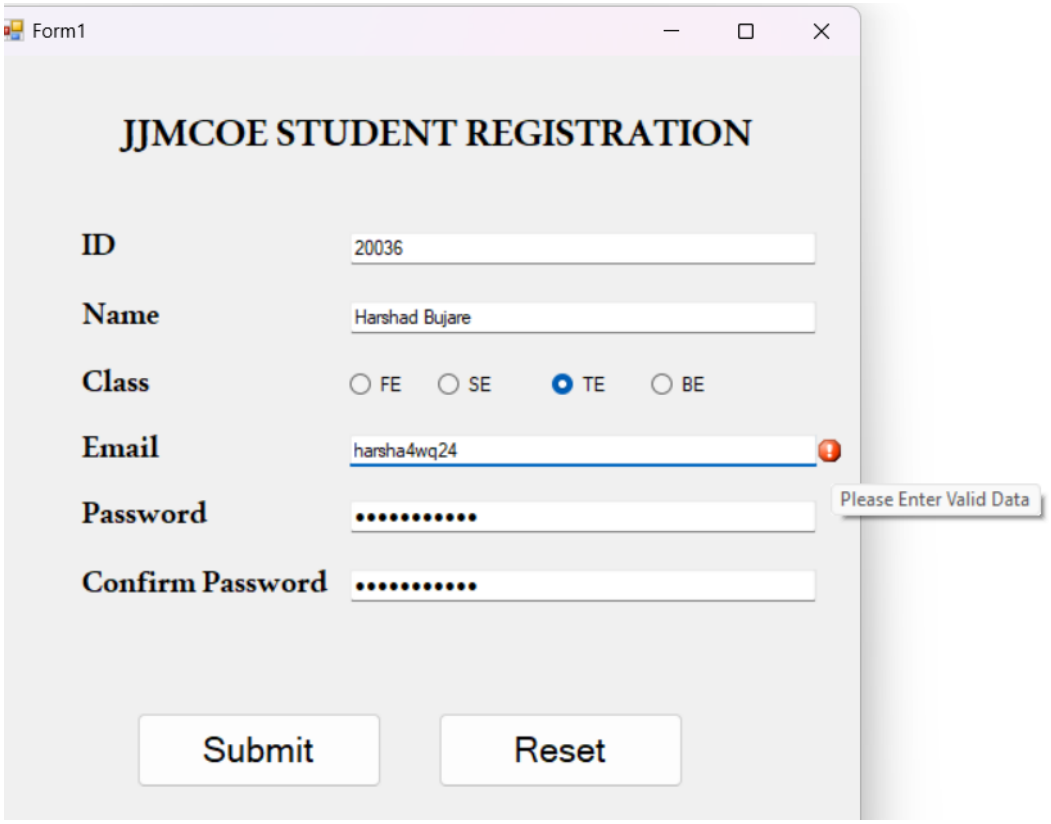
```
            errorProvider3.SetError(this.txtEmail, "Please Enter Valid Data");
        }
        else if (Regex.IsMatch(txtPass.Text, passpattern) == false)
        {
            txtPass.Focus();
            errorProvider4.SetError(this.txtPass, "Please Enter Strong Password");
        }
        else if (txtConPass.Text != txtPass.Text)
        {
            txtConPass.Focus();
            errorProvider5.SetError(this.txtConPass, "Enter Same Password");
            MessageBox.Show("Please Enter a Same Password");
        }
        else
        {
            MessageBox.Show("Congratulations Your Data Is Submitted");
        }

    }
  }
}
```

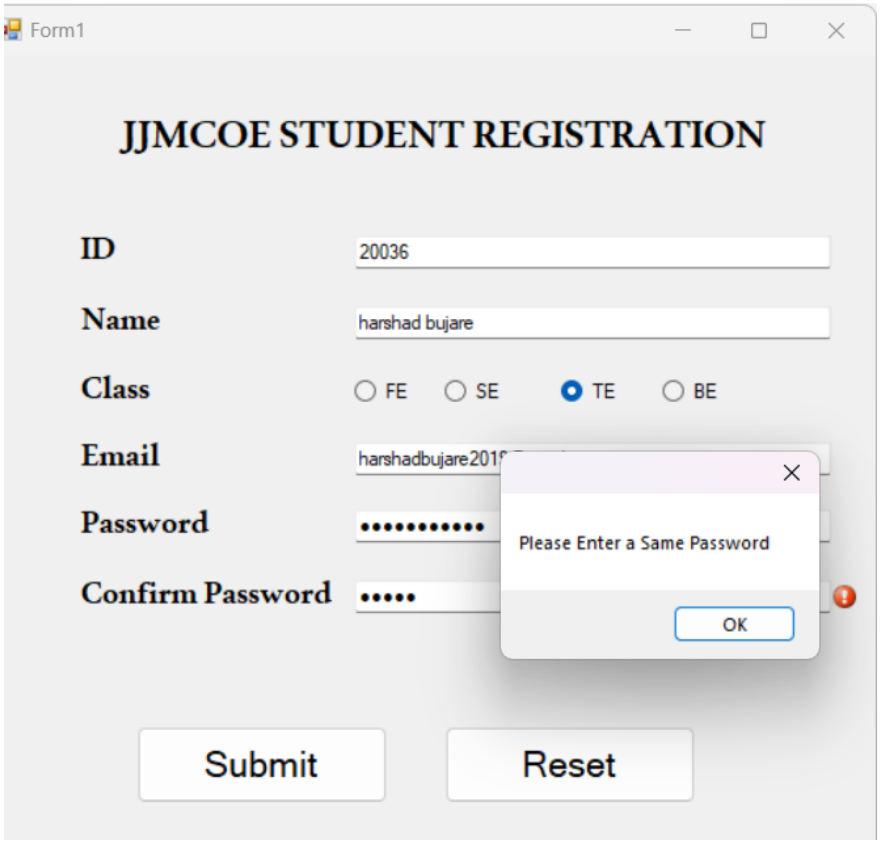





Form1
JJMCOE STUDENT REGISTRATION
ID
Please Fill Data
Name
Harshad Bujare
Class
FE
SE
TE
BE
Email
harshadbujare2019@gmail.com
Password
Confirm Password
Submit
Reset


Form1
JJMCOE STUDENT REGISTRATION
ID
20036
Name
Please Fill Data
Class
FE
SE
TE
BE
Email
harshadbujare2019@gmail.com
Password
Confirm Password
Submit
Reset


Form1
JJMCOE STUDENT REGISTRATION
ID
20036
Name
Harshad Bujare
Class
FE
SE
TE
BE
Email
harsha4wq24
Password
Confirm Password
Please Enter Valid Data
Submit
Reset


Form1
JJMCOE STUDENT REGISTRATION
ID
20036
Name
harshad bujare
Class
FE
SE
TE
BE
Email
Password
Confirm Password
Please Enter a Same Password
OK
Submit
Reset

Window Based JJMCOE Library System Form With Validations and Database With CRUD Operation

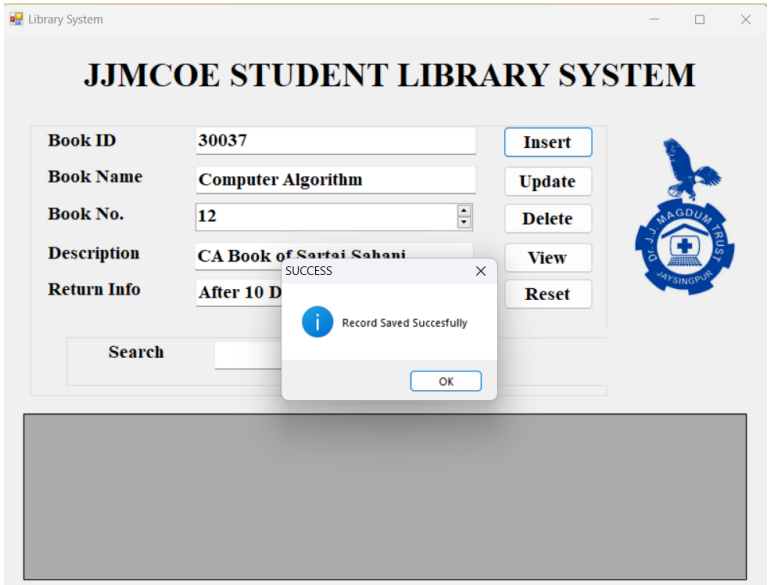
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Configuration;
using System.Data.OleDb;

namespace CRUDLibrary
{
   public partial class Form1 : Form
   {
      string cs = ConfigurationManager.ConnectionStrings["DBCS"].ConnectionString;
      public Form1()
      {
         InitializeComponent();
      }

      private void label2_Click(object sender, EventArgs e)
      {

      }

      private void groupBox1_Enter(object sender, EventArgs e)
      {

      }

      private void label5_Click(object sender, EventArgs e)
      {

      }

      private void label6_Click(object sender, EventArgs e)
      {

      }

      private void label1_Click(object sender, EventArgs e)
      {

      }

      private void label7_Click(object sender, EventArgs e)
      {

      }

      private void textBox5_TextChanged(object sender, EventArgs e)
```

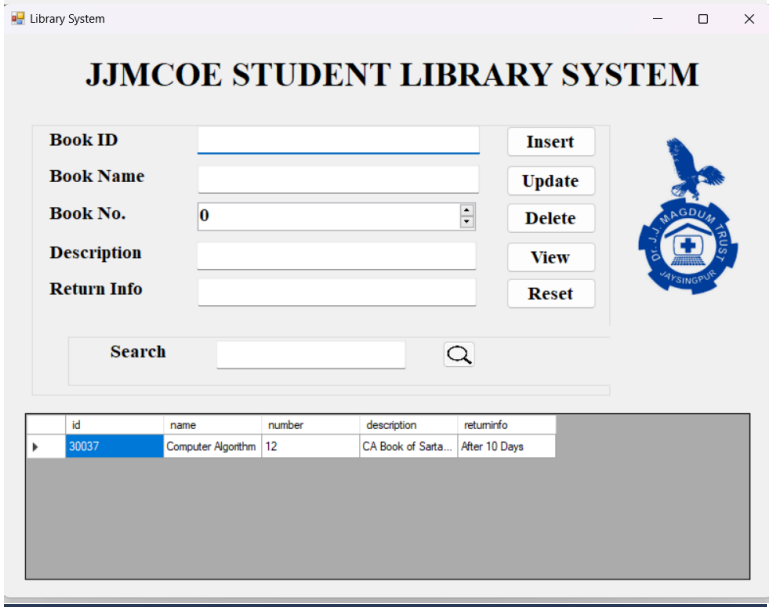
```
{
    OleDbConnection con = new OleDbConnection(cs);
    con.Open();
    string query = "select * from Library where name like @name + '%'";
    OleDbDataAdapter da = new OleDbDataAdapter(query, con);
    da.SelectCommand.Parameters.AddWithValue("@name", txtSearch.Text.Trim());
    DataTable dt = new DataTable();
    da.Fill(dt);

    if (dt.Rows.Count > 0)
    {
        dataGridView1.DataSource = dt;
    }
    else
    {
        MessageBox.Show("No Record Found");
        dataGridView1.DataSource = null;
    }
}

private void Form1_Load(object sender, EventArgs e)
{

}

private void btninsert_Click(object sender, EventArgs e)
{
    if (string.IsNullOrEmpty(textID.Text) == true)
    {
        textID.Focus();
        errorProvider1.SetError(this.textID, "Please Enter ID");
    }
    else if (string.IsNullOrEmpty(textName.Text) == true)
    {
        textName.Focus();
        errorProvider2.SetError(this.textName, "Please Enter Name");
    }
    else if (string.IsNullOrEmpty(BookNo.Text) == true)
    {
        BookNo.Focus();
        errorProvider3.SetError(this.BookNo, "Please Enter Book Number");
    }
    else if (string.IsNullOrEmpty(description.Text) == true)
    {
        description.Focus();
        errorProvider4.SetError(this.description, "Please Enter Book Description");
    }
    else if (string.IsNullOrEmpty(returninfo.Text) == true)
    {
        returninfo.Focus();
        errorProvider5.SetError(this.returninfo, "Please Enter Book returm details");
    }
    else
    {
        errorProvider1.Clear();
```

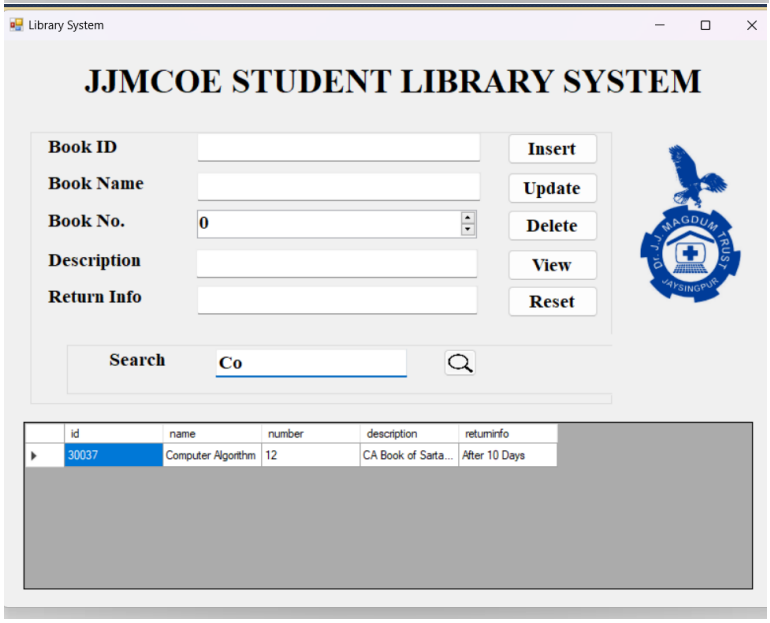
```
            errorProvider2.Clear();
            errorProvider3.Clear();
            errorProvider4.Clear();
            errorProvider5.Clear();

            OleDbConnection con = new OleDbConnection(cs);
            con.Open();

            string query2 = "select * from Library where id=@id";
            OleDbCommand cmd2 = new OleDbCommand(query2, con);
            cmd2.Parameters.AddWithValue("@id", textID.Text);
            OleDbDataReader dr = cmd2.ExecuteReader();
            if (dr.HasRows == true)
            {
               MessageBox.Show(textID.Text + " ID has already taken...!!");
            }
            else
            {
               string query = "insert into Library values(@id, @name, @number, @description,
@returninfo)";
               OleDbCommand cmd = new OleDbCommand(query, con);
               cmd.Parameters.AddWithValue("@id", textID.Text);
               cmd.Parameters.AddWithValue("@name", textName.Text);
               cmd.Parameters.AddWithValue("@number", BookNo.Value);
               cmd.Parameters.AddWithValue("@description", description.Text);
               cmd.Parameters.AddWithValue("@returninfo", returninfo.Text);

               int a = cmd.ExecuteNonQuery();
               if (a > 0)
               {
                  MessageBox.Show("Record Saved Succesfully", "SUCCESS",
MessageBoxButtons.OK, MessageBoxIcon.Information);
                  display();
                  reset();
               }
               else
               {
                  MessageBox.Show("Failed", "Failed", MessageBoxButtons.OK,
MessageBoxIcon.Information);
               }
               con.Close();
            }
         }
      }

      void reset()
      {
         textID.Clear();
         textName.Clear();
         BookNo.Value = 0;
         description.Clear();
         returninfo.Clear();
         textID.Focus();
      }
      void display()
```

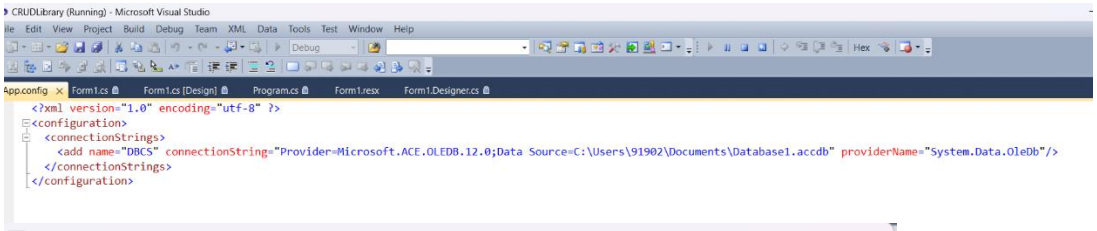
```
    {
        OleDbConnection con = new OleDbConnection(cs);
        con.Open();
        string query = "select * from Library";
        OleDbDataAdapter da = new OleDbDataAdapter(query, con);
        DataTable dt = new DataTable();
        da.Fill(dt);
        dataGridView1.DataSource = dt;
    }

    private void btnreset_Click(object sender, EventArgs e)
    {
        reset();
    }

    private void btmview_Click(object sender, EventArgs e)
    {
        display();
    }

    private void dataGridView1_DoubleClick(object sender, EventArgs e)
    {
        textID.Text = dataGridView1.SelectedRows[0].Cells[0].Value.ToString();
        textName.Text = dataGridView1.SelectedRows[0].Cells[1].Value.ToString();
        BookNo.Text = dataGridView1.SelectedRows[0].Cells[2].Value.ToString();
        description.Text = dataGridView1.SelectedRows[0].Cells[3].Value.ToString();
        returninfo.Text = dataGridView1.SelectedRows[0].Cells[4].Value.ToString();
    }

    private void btnupdate_Click(object sender, EventArgs e)
    {
        OleDbConnection con = new OleDbConnection(cs);
        con.Open();

        string query = "UPDATE Library set id=@id, name=@name, number=@number,
description=@description, returninfo=@returninfo WHERE id=@id";
        OleDbCommand cmd = new OleDbCommand(query, con);
        cmd.Parameters.AddWithValue("@id", textID.Text);
        cmd.Parameters.AddWithValue("@name", textName.Text);
        cmd.Parameters.AddWithValue("@number", BookNo.Value);
        cmd.Parameters.AddWithValue("@description", description.Text);
        cmd.Parameters.AddWithValue("@returninfo", returninfo.Text);

        int a = cmd.ExecuteNonQuery();
        if (a > 0)
        {
            MessageBox.Show("Record updated Succesfully", "SUCCESS", MessageBoxButtons.OK,
MessageBoxIcon.Information);
            display();
            reset();
        }
        else
        {
            MessageBox.Show("Failed", "Failed", MessageBoxButtons.OK,
MessageBoxIcon.Information);
```

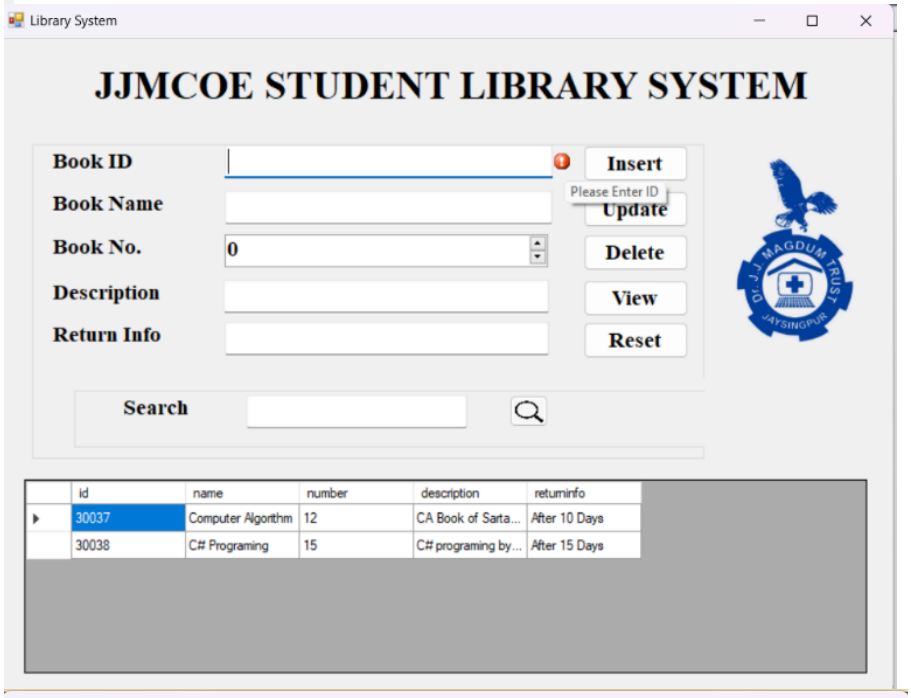
```
        }
        con.Close();
    }

    private void btndelete_Click(object sender, EventArgs e)
    {
        OleDbConnection con = new OleDbConnection(cs);
        con.Open();

        string query = "delete from Library where id=@id";
        OleDbCommand cmd = new OleDbCommand(query, con);
        cmd.Parameters.AddWithValue("@id", textID.Text);


        int a = cmd.ExecuteNonQuery();
        if (a > 0)
        {
            MessageBox.Show("Record Deleted Succesfully", "SUCCESS", MessageBoxButtons.OK,
MessageBoxIcon.Information);
            display();
            reset();
        }
        else
        {
            MessageBox.Show("Failed", "Failed", MessageBoxButtons.OK,
MessageBoxIcon.Information);
        }
        con.Close();
    }

    private void search_Click(object sender, EventArgs e)
    {
        OleDbConnection con = new OleDbConnection(cs);
        con.Open();
        string query = "select * from Library where name like @name + '%'";
        OleDbDataAdapter da = new OleDbDataAdapter(query, con);
        da.SelectCommand.Parameters.AddWithValue("@name", txtSearch.Text.Trim());
        DataTable dt = new DataTable();
        da.Fill(dt);

        if (dt.Rows.Count > 0)
        {
            dataGridView1.DataSource = dt;
        }
        else
        {
            MessageBox.Show("No Record Found");
            dataGridView1.DataSource = null;
        }
    }
  }
}
```

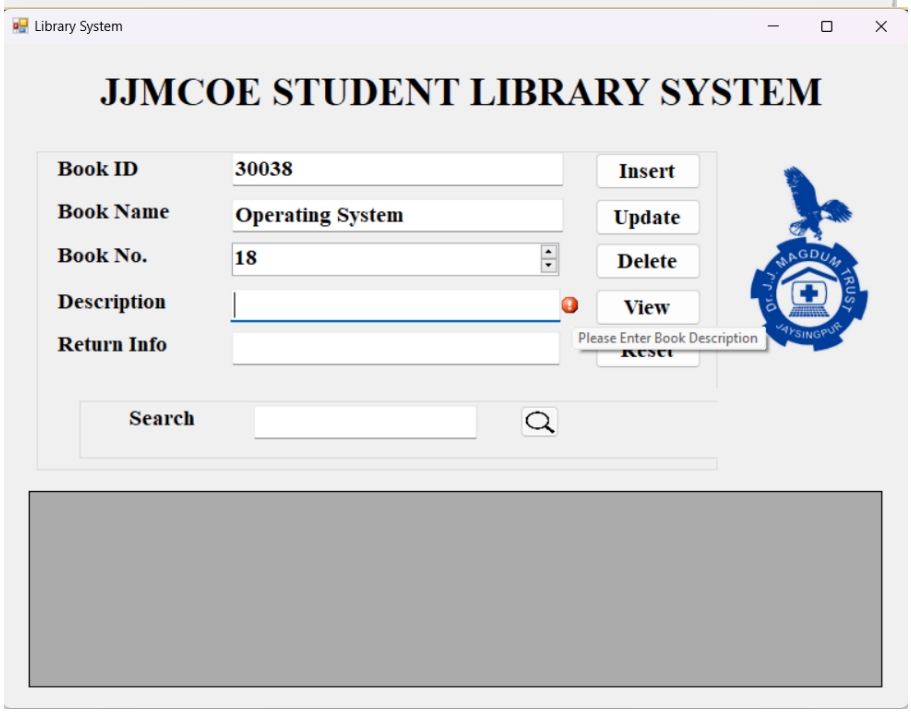

Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
30037
Book Name
Computer Algorithm
Book No.
12
Description
CA Book of Sartaj Sahani
Return Info
After 10 D
Insert
Update
Delete
View
Reset
Search
SUCCESS
Record Saved Succesfully
OK

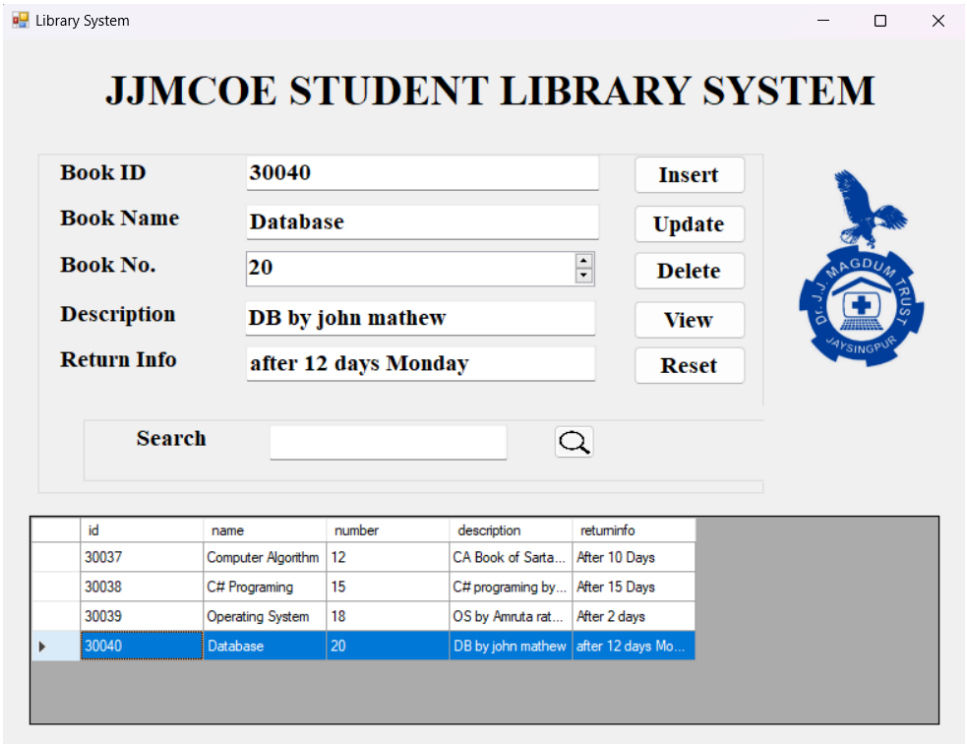

Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
Book Name
Book No.
0
Description
Return Info
Insert
Update
Delete
View
Reset
Search
id
name
number
description
returninfo
30037
Computer Algorithm
12
CA Book of Sarta...
After 10 Days

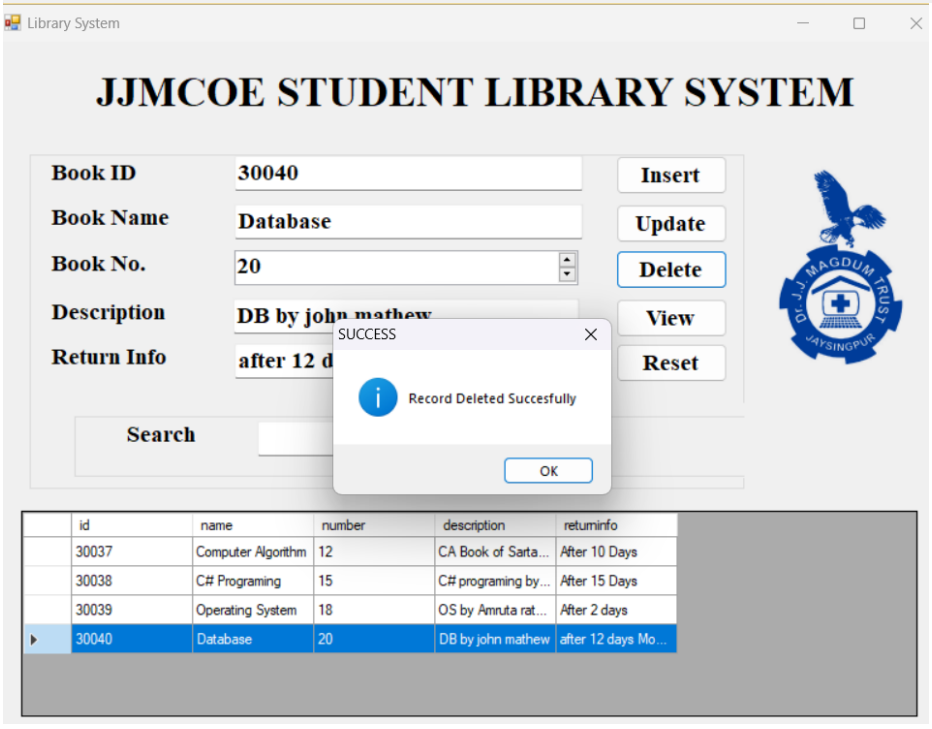

Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
Book Name
Book No.
0
Description
Return Info
Insert
Update
Delete
View
Reset
Search
Co
id
name
number
description
returninfo
30037
Computer Algorithm
12
CA Book of Sarta...
After 10 Days

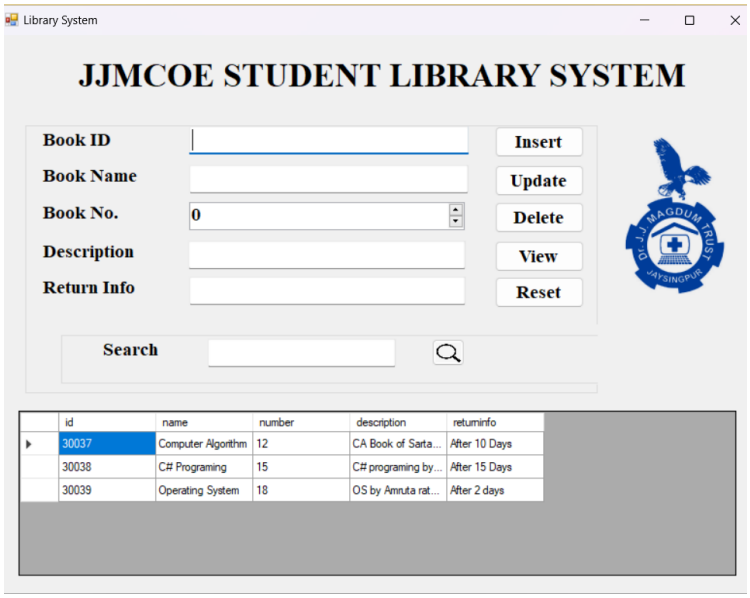

CRUDLibrary (Running) - Microsoft Visual Studio
File Edit View Project Build Debug Team XML Data Tools Test Window Help
App.config
Form1.cs
Form1.cs [Design]
Program.cs
Form1.resx
Form1.Designer.cs
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
<connectionStrings>
<add name="DBCS" connectionString="Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\Users\91902\Documents\Database1.accdb" providerName="System.Data.OleDb"/>
</connectionStrings>
</configuration>

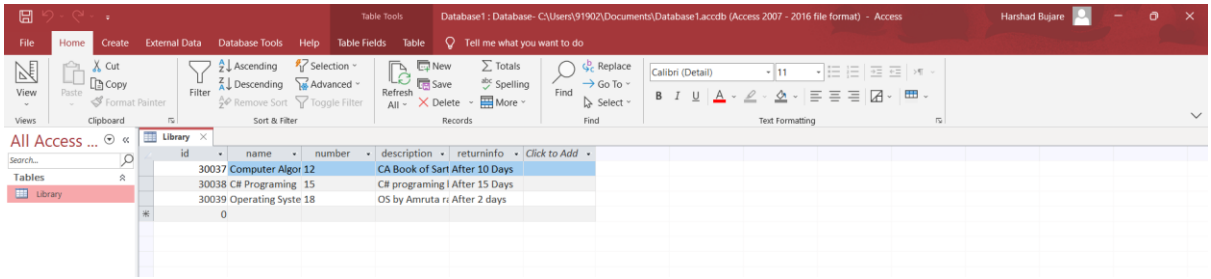

Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
Book Name
Book No.
0
Description
Return Info
Search
Insert
Please Enter ID
Update
Delete
View
Reset
id
name
number
description
returninfo
30037
Computer Algorithm
12
CA Book of Sarta...
After 10 Days
30038
C# Programing
15
C# programing by...
After 15 Days

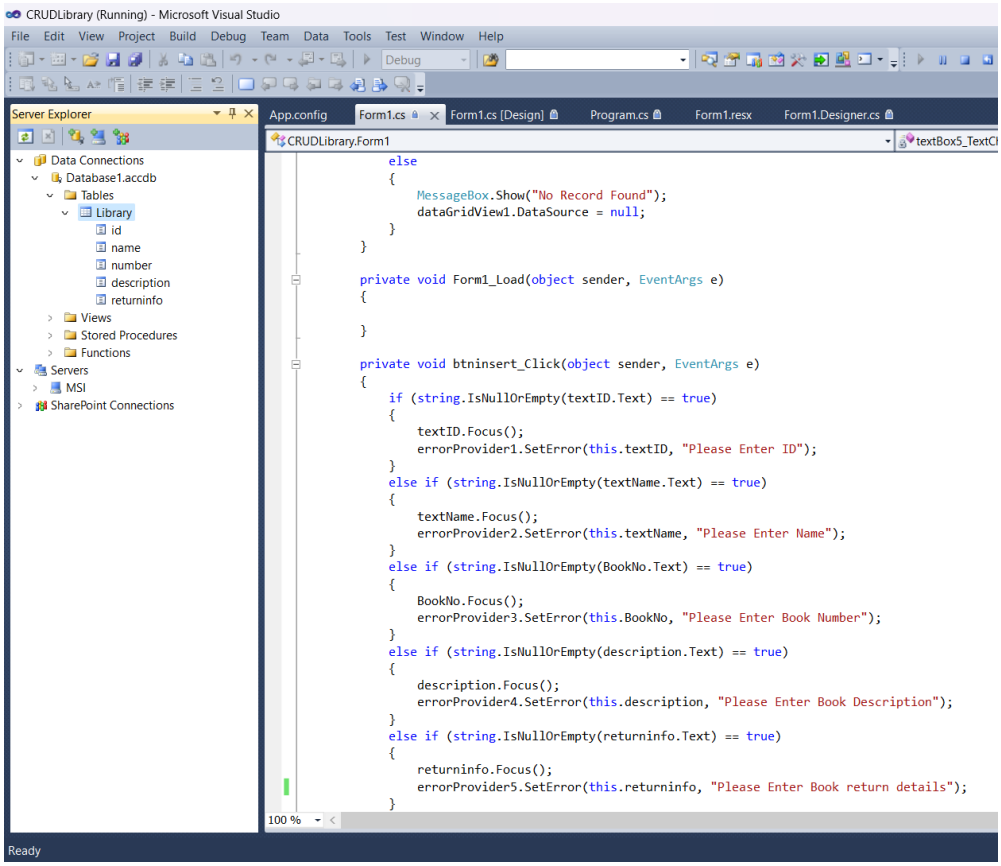

Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
30038
Book Name
Operating System
Book No.
18
Description
Return Info
Search
Insert
Update
Delete
View
Please Enter Book Description


Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
30040
Book Name
Database
Book No.
20
Description
DB by john mathew
Return Info
after 12 days Monday
Insert
Update
Delete
View
Reset
Search
id
name
number
description
returninfo
30037
Computer Algorithm
12
CA Book of Sarta...
After 10 Days
30038
C# Programing
15
C# programing by...
After 15 Days
30039
Operating System
18
OS by Amruta rat...
After 2 days
30040
Database
20
DB by john mathew
after 12 days Mo...


Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
30040
Book Name
Database
Book No.
20
Description
Return Info
Insert
Update
Delete
View
Reset
Search
SUCCESS
Record Deleted Succesfully
OK
id
name
number
description
returninfo
30037
Computer Algorithm
12
CA Book of Sarta...
After 10 Days
30038
C# Programing
15
C# programing by...
After 15 Days
30039
Operating System
18
OS by Amruta rat...
After 2 days
30040
Database
20
DB by john mathew
after 12 days Mo...


Library System
JJMCOE STUDENT LIBRARY SYSTEM
Book ID
Book Name
Book No.
Description
Return Info
Search
Insert
Update
Delete
View
Reset
0
id name number description returninfo
30037 Computer Algorithm 12 CA Book of Sarta... After 10 Days
30038 C# Programing 15 C# programing by... After 15 Days
30039 Operating System 18 OS by Amruta rat... After 2 days


Database1 : Database- C:\Users\91902\Documents\Database1.accdb (Access 2007 - 2016 file format) - Access
Harshad Bujare
All Access ...
Tables
Library
id name number description returninfo
30037 Computer Algor 12 CA Book of Sart After 10 Days
30038 C# Programing 15 C# programing I After 15 Days
30039 Operating Syste 18 OS by Amruta ra After 2 days


CRUDLibrary (Running) - Microsoft Visual Studio
Server Explorer
Data Connections
Database1.accdb
Tables
Library
id
name
number
description
returninfo
Views
Stored Procedures
Functions
Servers
MSI
SharePoint Connections
App.config
Form1.cs
Form1.cs [Design]
Program.cs
Form1.resx
Form1.Designer.cs
CRUDLibrary.Form1
textBox5_TextCl
else
{
MessageBox.Show("No Record Found");
dataGridView1.DataSource = null;
}
}
private void Form1_Load(object sender, EventArgs e)
{
}
private void btninsert_Click(object sender, EventArgs e)
{
if (string.IsNullOrEmpty(textID.Text) == true)
{
textID.Focus();
errorProvider1.SetError(this.textID, "Please Enter ID");
}
else if (string.IsNullOrEmpty(textName.Text) == true)
{
textName.Focus();
errorProvider2.SetError(this.textName, "Please Enter Name");
}
else if (string.IsNullOrEmpty(BookNo.Text) == true)
{
BookNo.Focus();
errorProvider3.SetError(this.BookNo, "Please Enter Book Number");
}
else if (string.IsNullOrEmpty(description.Text) == true)
{
description.Focus();
errorProvider4.SetError(this.description, "Please Enter Book Description");
}
else if (string.IsNullOrEmpty(returninfo.Text) == true)
{
returninfo.Focus();
errorProvider5.SetError(this.returninfo, "Please Enter Book return details");
}
100 %
Ready