C# and .Net framework

1.Design and implement a Student Registration form using C# and Windows Forms. The form should allow users to input and save student details into a database.

To create database:

```
CREATE TABLE Students (
   StudentID INT IDENTITY PRIMARY KEY,
   FirstName NVARCHAR(50) NOT NULL,
   LastName NVARCHAR(50) NOT NULL,
   DateOfBirth DATE,
   Email NVARCHAR(100) NOT NULL,
   PhoneNumber NVARCHAR(15),
   CourseEnrolled NVARCHAR(50)
);
```

Code for the Student Registration Form:

```
Using System;
Using System.Data.SqlClient;
Using System.Windows.Forms;

Public partial class RegistrationForm : Form
{
   Public RegistrationForm()
   {
      InitializeComponent();
   }
}


private void btnSave_Click(object sender, EventArgs e)
{
   if (ValidateForm())
   {
      using (SqlConnection conn = new SqlConnection("your_connection_string"))
      {
         string query = "INSERT INTO Students (FirstName, LastName, DateOfBirth,
Email, PhoneNumber, CourseEnrolled) " +
                        "VALUES (@FirstName, @LastName, @DateOfBirth, @Email,
@PhoneNumber, @CourseEnrolled)";
         SqlCommand cmd = new SqlCommand(query, conn);

         cmd.Parameters.AddWithValue("@FirstName", txtFirstName.Text);
         cmd.Parameters.AddWithValue("@LastName", txtLastName.Text);
         cmd.Parameters.AddWithValue("@DateOfBirth", dtpDateOfBirth.Value);
         cmd.Parameters.AddWithValue("@Email", txtEmail.Text);
```

```
            cmd.Parameters.AddWithValue("@PhoneNumber", txtPhoneNumber.Text);
            cmd.Parameters.AddWithValue("@CourseEnrolled", cmbCourse.Text);

            conn.Open();
            cmd.ExecuteNonQuery();
            MessageBox.Show("Student registered successfully!");
            ClearForm();
        }
    }
}


Private bool ValidateForm()
{
    If (string.IsNullOrWhiteSpace(txtFirstName.Text) ||
string.IsNullOrWhiteSpace(txtLastName.Text) ||
        String.IsNullOrWhiteSpace(txtEmail.Text) || !txtEmail.Text.Contains("@"))
    {
        MessageBox.Show("Please fill all required fields with valid data.");
        Return false;
    }
    Return true;
}

Private void ClearForm()
{
    txtFirstName.Clear();
    txtLastName.Clear();
    txtEmail.Clear();
    txtPhoneNumber.Clear();
    cmbCourse.SelectedIndex = -1;
    dtpDateOfBirth.Value = DateTime.Now;
}


Private void btnDisplay_Click(object sender, EventArgs e)
{
    Using (SqlConnection conn = new SqlConnection("your_connection_string"))
    {
        SqlDataAdapter da = new SqlDataAdapter("SELECT * FROM Students", conn);
        DataTable dt = new DataTable();
        Da.Fill(dt);
        dataGridView1.DataSource = dt;
    }
}
```

2. Design and implement a Student Fee Payment System using C# and Windows Forms. The application should allow students to enter their details, pay their fees, and generate a bill with a unique bill number.

```
Private void btnPayFee_Click(object sender, EventArgs e)
{
   Decimal baseFee = (rbtnHostel.Checked) ? 50000 : 30000; // Hostel/Day Scholar fees
   DateTime dueDate = dtpDueDate.Value;
   DateTime paymentDate = DateTime.Now;
   Int lateDays = (paymentDate > dueDate) ? (paymentDate – dueDate).Days : 0;
   Decimal lateFee = lateDays * 100;

   Decimal totalFee = baseFee + lateFee;
   String billNumber = “BILL-“ + Guid.NewGuid().ToString().Substring(0, 8);

   MessageBox.Show($”Bill Number: {billNumber}\nTotal Fees: {totalFee}\nLate Fees:
{lateFee}”);
}
```

3. Design and implement a Web Service using C# and ASP.NET to expose functionality for client applications to consume. The web service should provide a specific set of operations, such as retrieving data or performing a calculation.

```
Using System.Web.Services;

[WebService(Namespace = http://yournamespace.com/)]
Public class StudentService : WebService
{
   [WebMethod]
   Public decimal CalculateFee(string studentType, DateTime dueDate, DateTime paymentDate)
   {
      Decimal baseFee = (studentType == “Hostel”) ? 50000 : 30000;
      Int lateDays = (paymentDate > dueDate) ? (paymentDate – dueDate).Days : 0;
      Decimal lateFee = lateDays * 100;
      Return baseFee + lateFee;
   }
}
```

```
Var client = new StudentService();
Decimal totalFee = client.CalculateFee(“Hostel”, DateTime.Parse(“2024-05-01”),
DateTime.Now);
Console.WriteLine(“Total Fee: “ + totalFee);
```

4. our college is organizing an Alumni Meet on May 5, 2024. The alumni cell is in the process of creating a database to store a list of registered alumni who will attend the event. You are tasked with designing a registration form and implementing it using ADO.NET.

Database Structure:

```
CREATE TABLE Alumni (
   AlumniID INT IDENTITY PRIMARY KEY,
   Name NVARCHAR(50),
   Email NVARCHAR(100),
   PhoneNumber NVARCHAR(15),
   Department NVARCHAR(50)
);
```

Register Button:

```
Private void btnRegister_Click(object sender, EventArgs e)
{
   Using (SqlConnection conn = new SqlConnection("your_connection_string"))
   {
      String query = "INSERT INTO Alumni (Name, Email, PhoneNumber, Department)
VALUES (@Name, @Email, @PhoneNumber, @Department)";
      SqlCommand cmd = new SqlCommand(query, conn);

      Cmd.Parameters.AddWithValue("@Name", txtName.Text);
      Cmd.Parameters.AddWithValue("@Email", txtEmail.Text);
      Cmd.Parameters.AddWithValue("@PhoneNumber", txtPhoneNumber.Text);
      Cmd.Parameters.AddWithValue("@Department", cmbDepartment.Text);

      Conn.Open();
      Cmd.ExecuteNonQuery();
      MessageBox.Show("Alumni registered successfully!");
      ClearForm();
   }
}
```

Display Button:

```
Private void btnDisplay_Click(object sender, EventArgs e)
{
   Using (SqlConnection conn = new SqlConnection("your_connection_string"))
   {
      String department = cmbDepartment.Text;
      SqlDataAdapter da = new SqlDataAdapter("SELECT * FROM Alumni WHERE Department
= @Department", conn);
```

```
        Da.SelectCommand.Parameters.AddWithValue("@Department", department);



        DataTable dt = new DataTable();
        Da.Fill(dt);
        dataGridView1.DataSource = dt;
    }
}
```