Module V

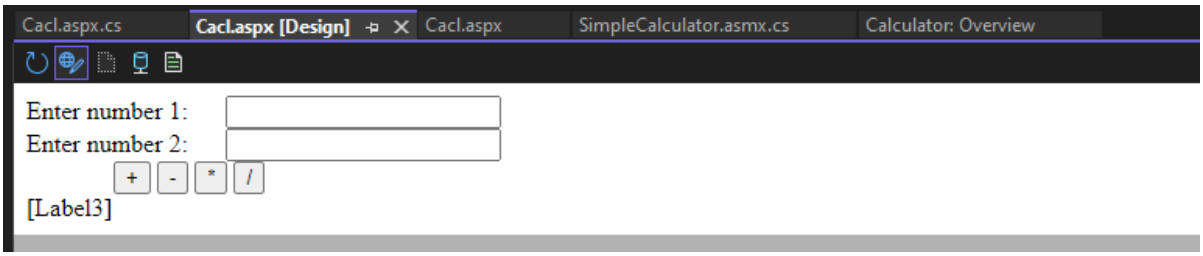
Web Services and WCF

Practical 1: Create xml based webservice to create calculator and consume it in website.Code:

SimpleCalculator.asmx.cs (web Service)

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Services;

namespace Calculator
{
    /// <summary>
    /// Summary description for SimpleCalculator
    /// </summary>
    [WebService(Namespace = "http://tempuri.org/")]
    [WebServiceBinding(ConformsTo = WsiProfiles.BasicProfile1_1)]
    [System.ComponentModel.ToolboxItem(false)]
    // To allow this Web Service to be called from script, using ASP.NET AJAX, uncomment the following line.
    // [System.Web.Script.Services.ScriptService]
    public class SimpleCalculator : System.Web.Services.WebService
    {

        [WebMethod]
        public string HelloWorld()
        {
            return "Hello World";
        }

        [WebMethod]
        public double add(double i, double j)
        {
            return i + j;
        }

        [WebMethod]
        public double mul(double i, double j)
        {
            return i * j;
        }

        [WebMethod]
        public double sub(double i, double j)
        {
```

```
            return i - j;
        }

        [WebMethod]
        public double div(double i, double j)
        {
            return i / j;
        }
    }
}
```



Calc.aspx

<%@ Page Language="C#" AutoEventWireup="true" CodeBehind="Cacl.aspx.cs" Inherits="Calculator.Cacl" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
</head>
<body>

    <form id="form1" runat="server">

            <asp:Label ID="Label1" runat="server" Text="Enter number 1:"></asp:Label>

            <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>

            <asp:Label ID="Label2" runat="server" Text="Enter number 2:"></asp:Label>

            <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>

            <asp:Button ID="Button1" runat="server" Text="+" OnClick="Button1_Click" />
            <asp:Button ID="Button2" runat="server" Text="-" OnClick="Button2_Click" />
            <asp:Button ID="Button3" runat="server" Text="*" OnClick="Button3_Click" />
            <asp:Button ID="Button4" runat="server" Text="/" OnClick="Button4_Click" />

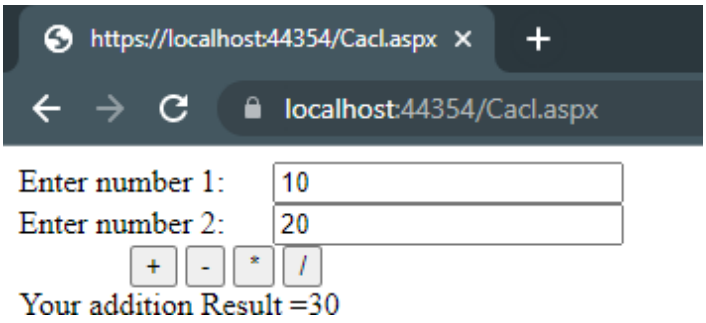
            <asp:Label ID="Label3" runat="server" Text=""></asp:Label>

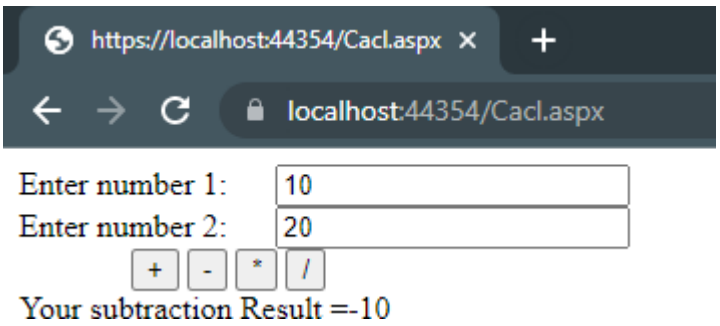
    </form>
</body>
</html>

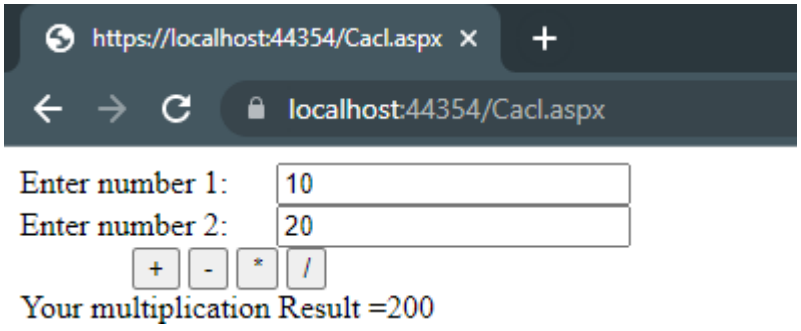
Calc.aspx.cs

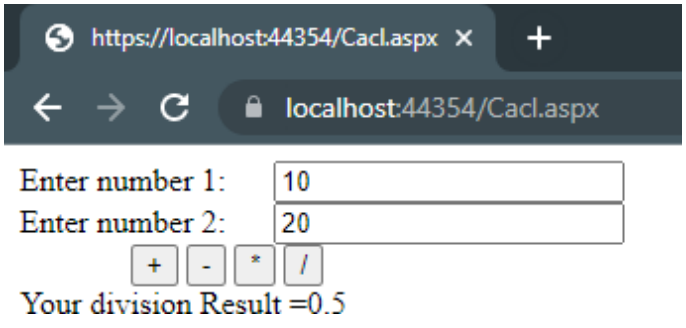
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;

namespace Calculator
{
   public partial class Cacl : System.Web.UI.Page
   {
      SimpleCalculator sc = new SimpleCalculator();

      protected void Page_Load(object sender, EventArgs e)
      {
         Label3.Text = "Your Result = "+sc.HelloWorld() ;
      }

      protected void Button1_Click(object sender, EventArgs e)
      {

         double sum = sc.add(Convert.ToDouble(TextBox1.Text),Convert.ToDouble(TextBox2.Text));
         Label3.Text = "Your addition Result =" +sum.ToString();
      }

      protected void Button2_Click(object sender, EventArgs e)
      {
         double sub = sc.sub(Convert.ToDouble(TextBox1.Text), Convert.ToDouble(TextBox2.Text));
         Label3.Text = "Your subtraction Result =" + sub.ToString();
      }

      protected void Button3_Click(object sender, EventArgs e)
      {
         double mul = sc.mul(Convert.ToDouble(TextBox1.Text), Convert.ToDouble(TextBox2.Text));
         Label3.Text = "Your multiplication Result =" + mul.ToString();
      }

      protected void Button4_Click(object sender, EventArgs e)
      {
```

```
        double div = sc.div(Convert.ToDouble(TextBox1.Text), Convert.ToDouble(TextBox2.Text));
        Label3.Text = "Your division Result =" + div.ToString();
    }
  }
}
```









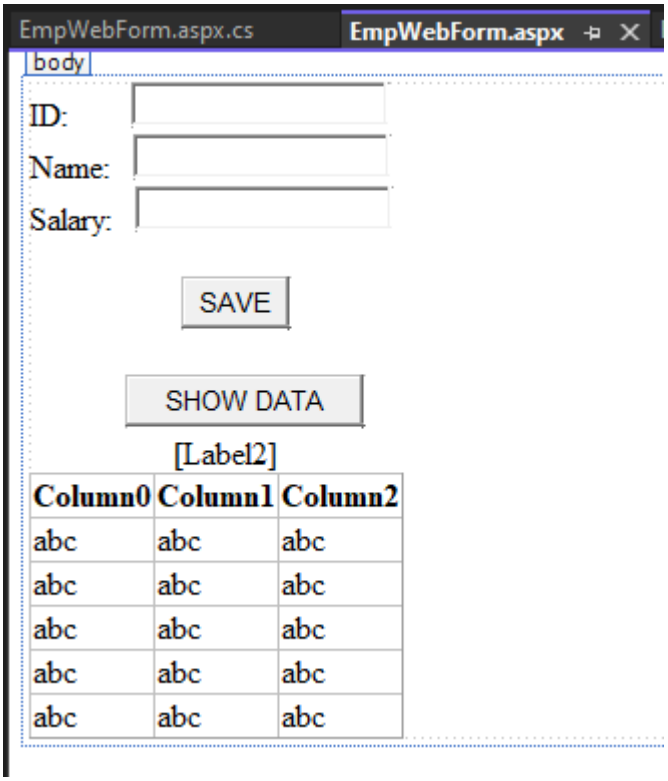
Practical 2: Design a Web Service to Fetch & insert Details of Students Table using ADO.NET. Design a Web Client to show contents of table in a Grid View.

Code:

EmpWebService.asmx.cs (WebService)

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Services;
using System.Data;
using System.Data.SqlClient;

namespace DBWebService

{
    /// <summary>
    /// Summary description for EmpWebService
    /// </summary>
    [WebService(Namespace = "http://tempuri.org/")]
    [WebServiceBinding(ConformsTo = WsiProfiles.BasicProfile1_1)]
    [System.ComponentModel.ToolboxItem(false)]
    // To allow this Web Service to be called from script, using ASP.NET AJAX, uncomment the following line.
    // [System.Web.Script.Services.ScriptService]
    public class EmpWebService : System.Web.Services.WebService
    {
        SqlConnection con;
        SqlDataAdapter adapt;
        DataSet ds;
        SqlCommand cmd;

        [WebMethod]
        public DataSet GetMember()
        {
            con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=C:\Users\Admin\Documents\Employee.mdf;Integrated Security=True;Connect Timeout=30");
```

```
            adapt = new SqlDataAdapter("select * from EmployeeTable",con);
            ds = new DataSet();
            adapt.Fill(ds, "Employee");
            return ds;
        }

        [WebMethod]
        public int SaveData(int Id, string Name, int Salary)
        {
            con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=C:\Users\Admin\Documents\Employee.mdf;Integrated Security=True;Connect Timeout=30");
            con.Open();
            cmd = new SqlCommand("insert into EmployeeTable values (" +Id+ "'" +Name+ "'," +Salary+ ")",con);
            int temp = cmd.ExecuteNonQuery();
            return temp;
        }
    }
}
```

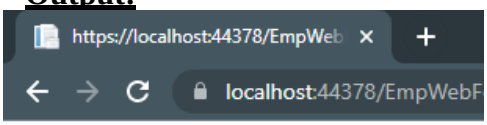


EmpWebForm.aspx.cs

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;

namespace DBWebService
{
    public partial class EmpWebForm : System.Web.UI.Page
    {
        protected void Page_Load(object sender, EventArgs e)
        {

        }

        protected void Button1_Click(object sender, EventArgs e)
        {
            int Id = Convert.ToInt32(TextBox1.Text);
            string Name = TextBox2.Text;
            int Salary = Convert.ToInt32(TextBox3.Text);
            EmpWebService myservice = new EmpWebService();
```

```
            int rowaffected = myservice.SaveData(Id, Name, Salary);
            if (rowaffected == 1)
            {
                Label2.Text = "Record is saved";
            }
            else
            {
                Label2.Text = "Sorry, Record is not saved. ... Try again!!";
            }
        }

        protected void Button2_Click(object sender, EventArgs e)
        {
            EmpWebService mys = new EmpWebService();
            mys.GetMember();
            GridView1.DataSource = mys.GetMember();
            GridView1.DataBind();
        }
    }
}
```

Output:



ID: 107
Name: Mitali
Salary: 32000

SAVE

SHOW DATA

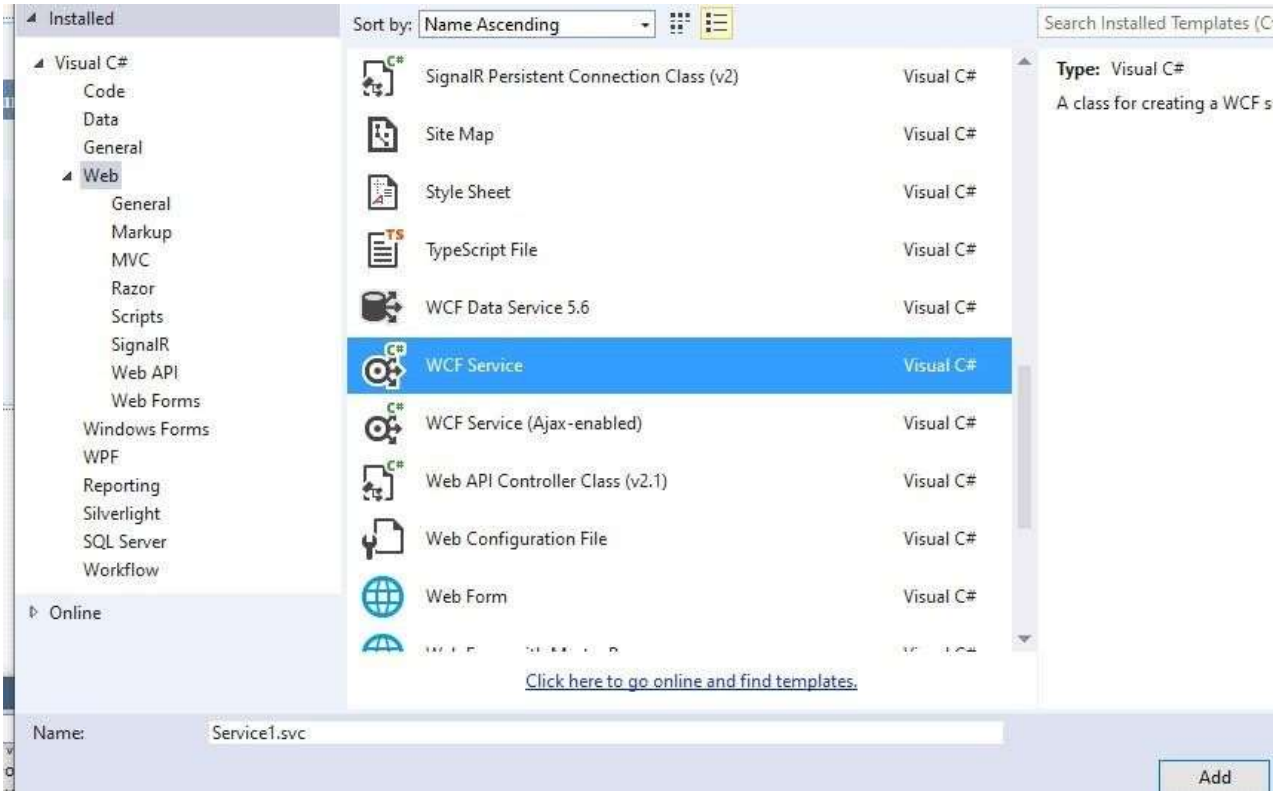
Record is saved

Id	Name	Salary
101	Pratiksha	50000
102	Lekha	60000
103	Kiran	20000
104	Priyanka	55000
105	Om	30000
106	Chitra	24000
107	Mitali	32000

Practical 4: Create a WCF Web Service Using Database

Design:

Column0	Column1	Column2
abc	abc	abc
abc	abc	abc
abc	abc	abc
abc	abc	abc
abc	abc	abc



Add WCF Service:

ServiceDB.cs:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Serialization;
using System.ServiceModel;
using System.Text;
using System.Data;
namespace WCF_DB
{
 // NOTE: You can use the "Rename" command on the "Refactor" menu to change the interface name "IServiceDB" in both code and config file together.
 [ServiceContract]
 public interface IServiceDB
 {
 [OperationContract]
 student GetStudent();
 }
 [DataContract]
 public class student
 {
 [DataMember]
 public DataTable StudentTable
 {
 get;
set;
 }
 }
}
```

ServiceDB.svc.cs:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Serialization;
using System.ServiceModel;
using System.Text;
using System.Data;
using System.Data.SqlClient;
namespace WCF_DB
{
 // NOTE: You can use the "Rename" command on the "Refactor" menu to change the class name "ServiceDB" in code, svc and config file together.
```

```
 // NOTE: In order to launch WCF Test Client for testing this service, please select ServiceDB.svc or
ServiceDB.svc.cs at the Solution Explorer and start debugging.
 public class ServiceDB : IServiceDB
 {
 SqlConnection con;
SqlDataAdapter ad;
SqlCommand cmd;
DataTable dt;
student st = new student();
 public student GetStudent()
 {
 con = new SqlConnection(@"Data
Source=(LocalDB)\v11.0;AttachDbFilename=C:\Users\Admin\Documents\webservice.mdf;Integrate
d Security=True;Connect Timeout=30");
 cmd = new SqlCommand("SELECT * FROM [EMP]",con);
 ad = new SqlDataAdapter(cmd);
 dt = new DataTable("e");
 ad.Fill(dt);
 st.StudentTable = dt;
 return st;
 }
 }
}
```

.CS File:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Data;
namespace WCF_DB
{
 public partial class WebForm1 : System.Web.UI.Page
 {
 protected void Page_Load(object sender, EventArgs e)
 {
 ServiceReference3.ServiceDBClient ob = new
ServiceReference3.ServiceDBClient();
ServiceReference3.student st = new
ServiceReference3.student();
 st = ob.GetStudent();
 DataTable dt = new DataTable();
```

```
dt = st.StudentTable; GridView1.DataSource
= dt.DefaultView;GridView1.DataBind();
}
}
}
```

Output:

ID	Name	Address
1	pooja	RoadPali
2	Mansi	Panvel
3	Ravita	Panvel
4	sneha	kal
5	Pratiksha	pune