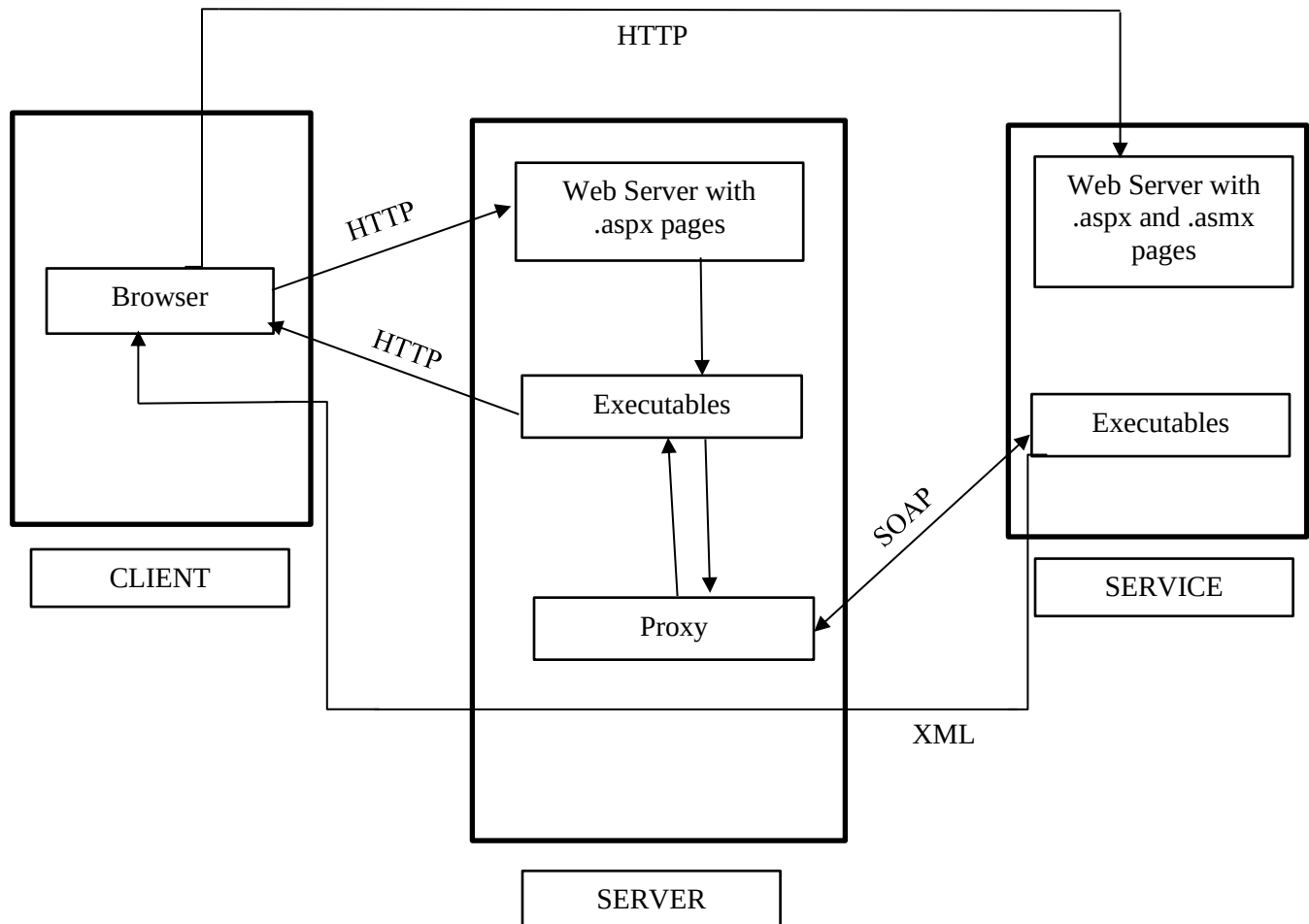


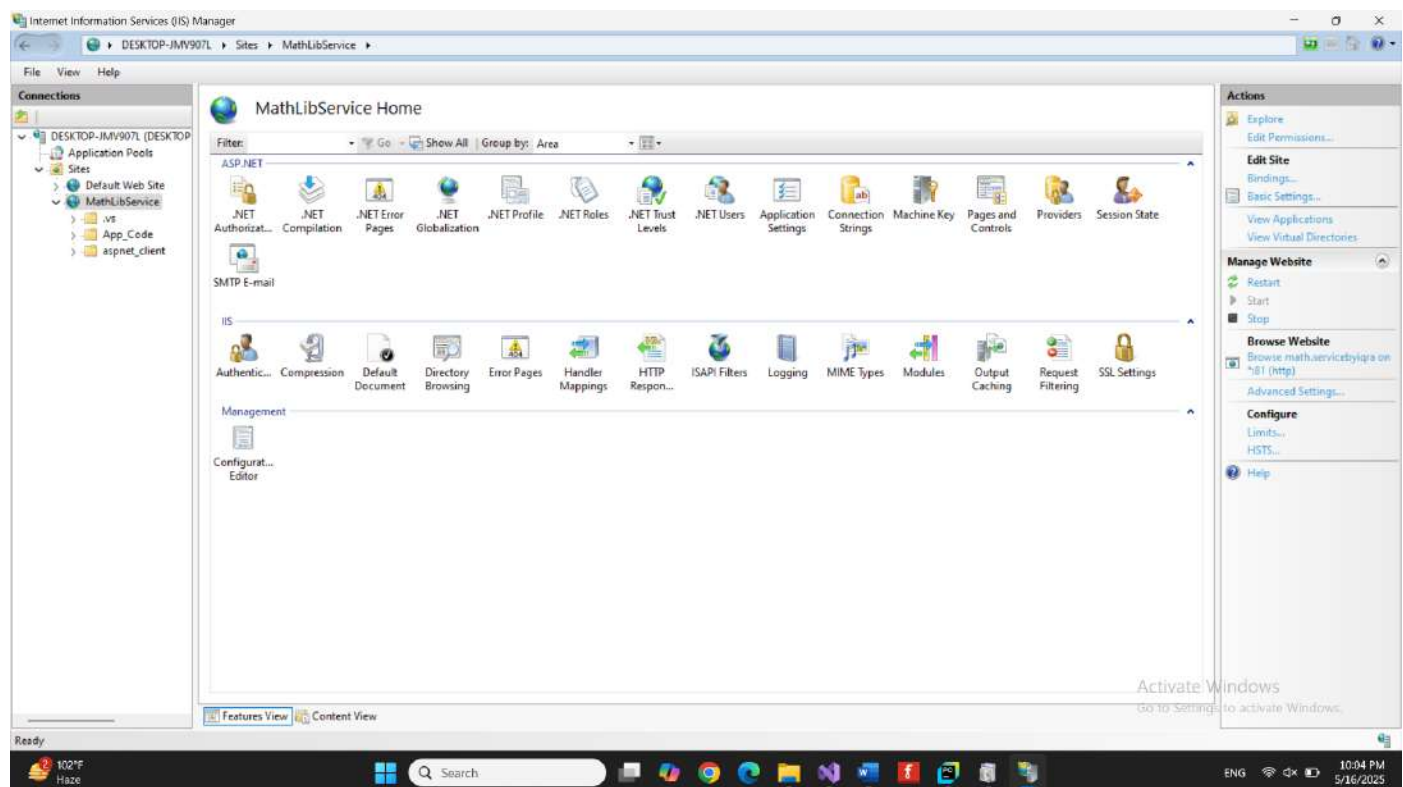
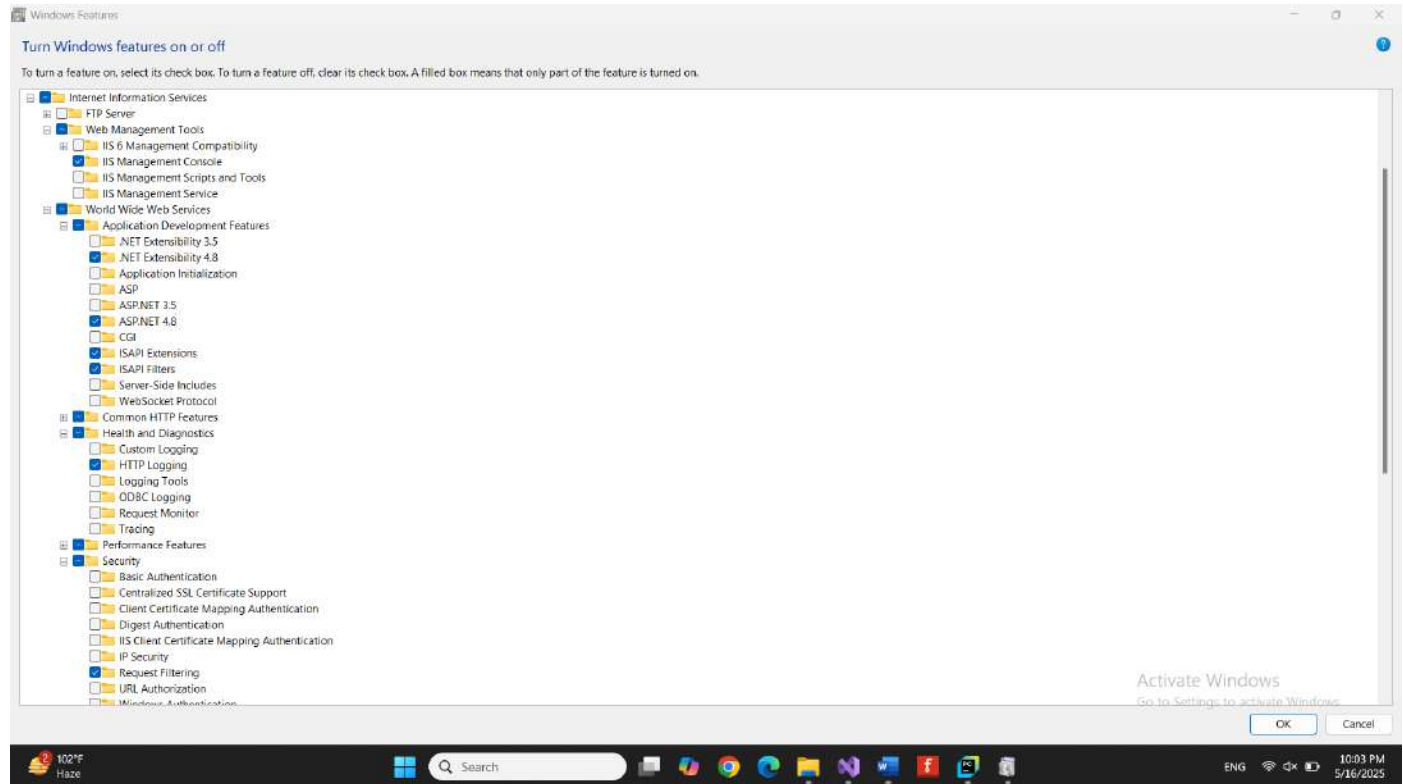
WEB SERVICES

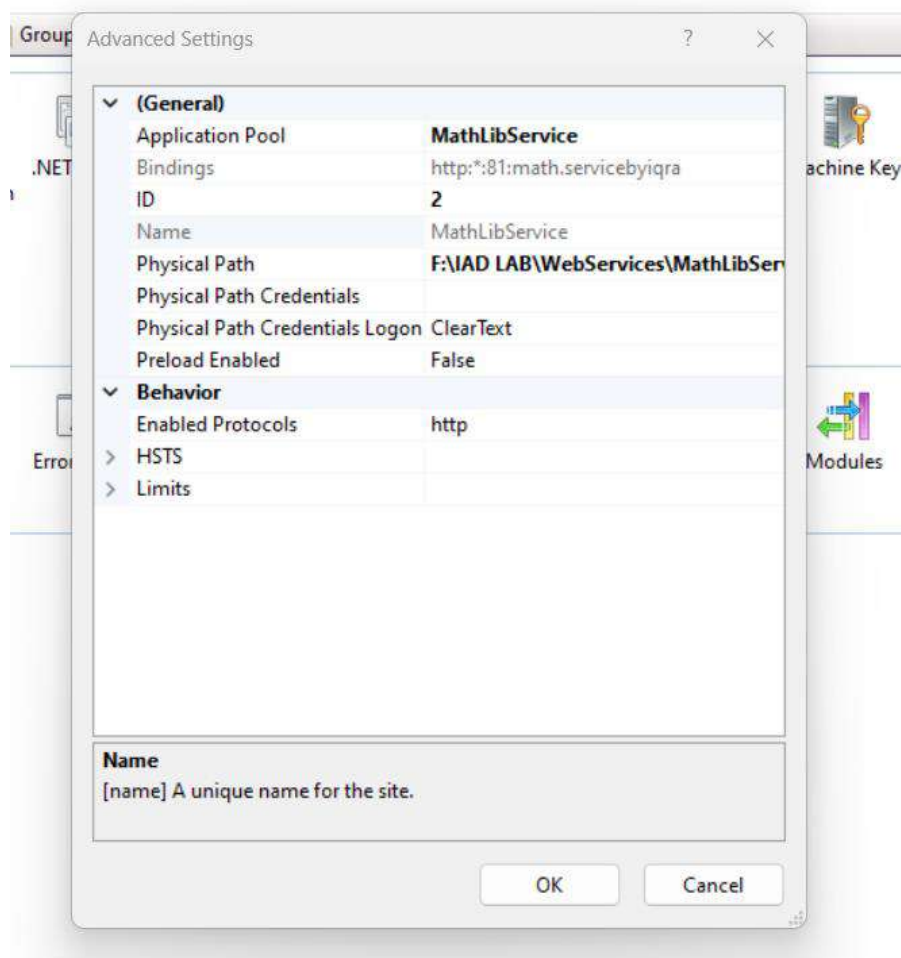
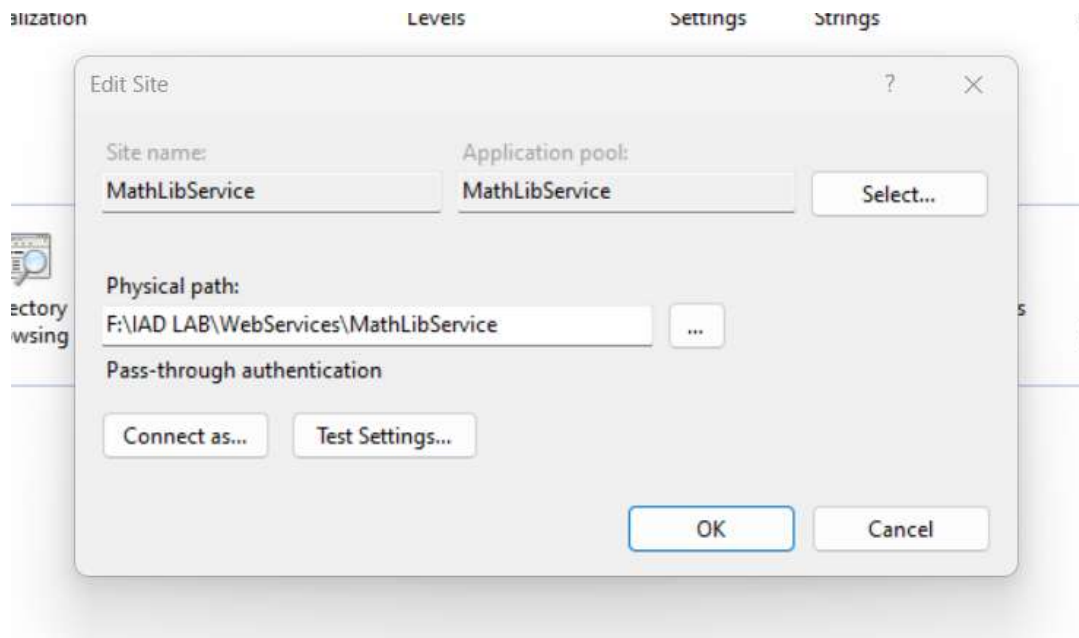
Web Services Execution Model

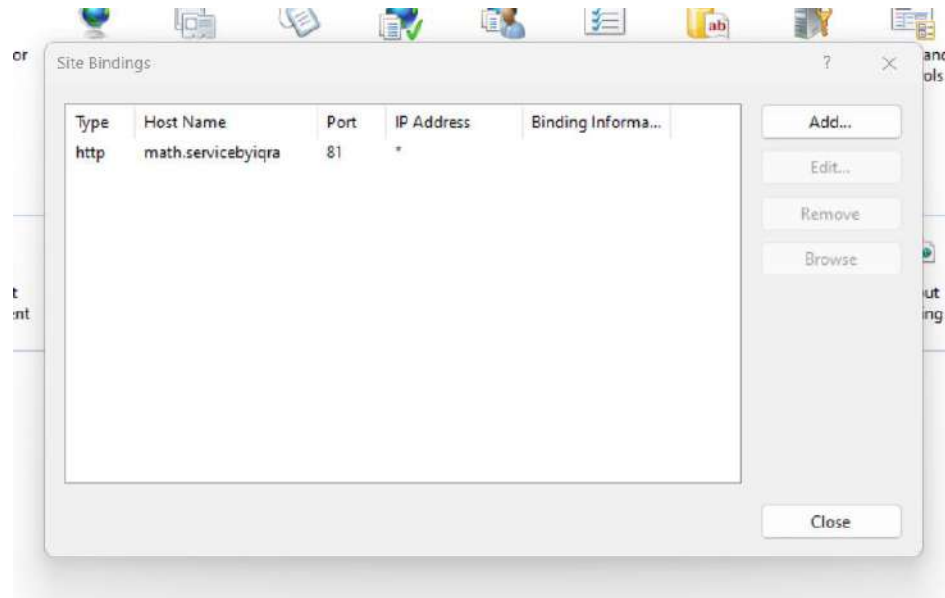


Developing Web Service (MathLibService)

IIS Configuration







WebService.asmx

```
<%@ WebService Language="VB" CodeBehind="~/App_Code/WebService.vb" Class="MathLibService" %>
```

WebService.vb

```
Imports System.Web.Services
Imports System.Web.Services.Protocols
Imports System.ComponentModel

<WebService(Namespace:="http://tempuri.org/")>
<WebServiceBinding(ConformsTo:=WsiProfiles.BasicProfile1_1)>
<Global.Microsoft.VisualBasic.CompilerServices.DesignerGenerated()>
Public Class MathLibService
    Inherits System.Web.Services.WebService

    <WebMethod()>
    Public Function Add(ByVal a As Integer, ByVal b As Integer) As String
        Return (a + b).ToString()
    End Function

    <WebMethod()>
    Public Function Subtract(ByVal a As Integer, ByVal b As Integer) As String
        Return (a - b).ToString()
    End Function

    <WebMethod()>
    Public Function Multiply(ByVal a As Integer, ByVal b As Integer) As String
        Return (a * b).ToString()
    End Function
End Class
```

```
<WebMethod(>
Public Function Divide(ByVal a As Integer, ByVal b As Integer) As String
    If b = 0 Then
        Return "Cannot divide by zero"
    End If
    Return (a / b).ToString()
End Function
End Class
```

Testing the Web Service

The screenshot shows a web browser window with the title "MathLibService Web Service". The address bar shows "math.servicebyiqra:81". The page content includes a list of supported operations: Add, Divide, Multiply, and Subtract. Below this, there is a note about the default namespace and a recommendation to change it. The page also contains code snippets for C#, Visual Basic, and C++ that demonstrate how to use the web service. At the bottom, there is a Windows taskbar with the date and time 10:06 PM 5/16/2025.

MathLibService

The following operations are supported. For a formal definition, please review the [Service Description](#).

- [Add](#)
- [Divide](#)
- [Multiply](#)
- [Subtract](#)

This web service is using <http://tempuri.org/> as its default namespace.

Recommendation: Change the default namespace before the XML Web service is made public.

Each XML Web service needs a unique namespace in order for client applications to distinguish it from other services on the Web. <http://tempuri.org/> is available for XML Web services that are under development, but published XML Web services should use a more permanent namespace.

Your XML Web service should be identified by a namespace that you control. For example, you can use your company's Internet domain name as part of the namespace. Although many XML Web service namespaces look like URLs, they need not point to actual resources on the Web. (XML Web service namespaces are URIs.)

For XML Web services created using ASP.NET, the default namespace can be changed using the `WebService` attribute's `Namespace` property. The `WebService` attribute is an attribute applied to the class that contains the XML Web service methods. Below is a code example that sets the namespace to "http://microsoft.com/webservices/":

C#

```
[WebService(Namespace="http://microsoft.com/webservices/")]
public class MyWebService {
    // Implementation
}
```

Visual Basic

```
<WebService(Namespace="http://microsoft.com/webservices/")> Public Class MyWebService
    ' Implementation
End Class
```

C++

```
[WebService(Namespace="http://microsoft.com/webservices/")]
public ref class MyWebService {
    // Implementation
}
```

For more details on XML namespaces, see the W3C recommendation on [Namespaces in XML](#).

For more details on WSDL, see the [WSDL Specification](#).

For more details on URIs, see [RFC 2396](#).

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MathLibService Web Service

mathservicebyiqra81/WebService.aspx?op=Add

MathLibService

Click [here](#) for a complete list of operations.

Add

Test

To test the operation using the HTTP POST protocol, click the 'Invoke' button.

Parameter	Value
a:	21
b:	71

SOAP 1.1

The following is a sample SOAP 1.1 request and response. The placeholders shown need to be replaced with actual values.

```
POST /WebService.aspx HTTP/1.1
Host: math.servicebyiqra
Content-Type: text/xml; charset=utf-8
Content-Length: length
SOAPAction: "http://tempuri.org/Add"

<?xml version='1.0' encoding='utf-8'?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <Add xmlns="http://tempuri.org/">
      <int><a>
        <int><b>
      </Add>
    </soap:Body>
  </soap:Envelope>

HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: length

<?xml version='1.0' encoding='utf-8'?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <AddResponse xmlns="http://tempuri.org/">
      <AddResult><string></AddResult>
    </AddResponse>
  </soap:Body>
</soap:Envelope>
```

SOAP 1.2

The following is a sample SOAP 1.2 request and response. The placeholders shown need to be replaced with actual values.

MathLibService Web Service

mathservicebyiqra81/WebService.aspx/Add

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<string xmlns="http://tempuri.org/">92</string>
```

Activate Windows
Go to Settings to activate Windows.

Using the Web Service (ServiceClient)

Calculator.aspx

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="Calculator.aspx.vb"
Inherits="Calculator" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
    <style>
        body{
            margin: 30px;
        }
    </style>
</head>

<body>
<form id="form1" runat="server">
    <div >
        <h1>CALCULATOR</h1>
        Enter First Number:   <asp:TextBox
ID="txtNum1" runat="server" height="20px" Width="100px"/><br />
        Enter Second Number:   <asp:TextBox
ID="txtNum2" runat="server" height="20px" Width="100px"/><br />
        <asp:Button ID="btnAdd" runat="server" Text="Add" Height="30px"/><br />
        <asp:Button ID="btnSub" runat="server" Text="Subtract" Height="30px"/><br />
        <asp:Button ID="btnMul" runat="server" Text="Multiply" Height="30px"/><br />
        <asp:Button ID="btnDiv" runat="server" Text="Divide" Height="30px"/>
        <br /><br />
        Result: <asp:Label ID="lblResult" runat="server" />
    </div>
</form>

</body>
</html>
```

Calculator.aspx.vb

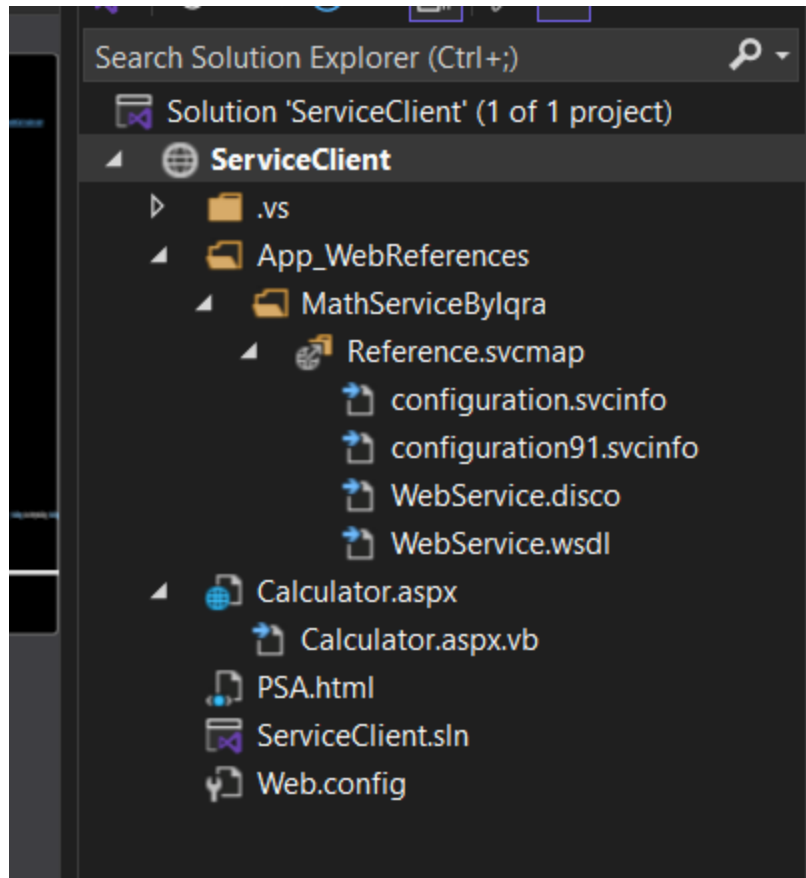
```
Imports System.Web.Services
Imports MathServiceByIqra
Imports System.Web.UI
Partial Class Calculator
    Inherits Page
    Dim proxy As New MathLibServiceSoapClient()
    Protected Sub btnAdd_Click(sender As Object, e As EventArgs) Handles btnAdd.Click
        Dim a As Integer = Integer.Parse(txtNum1.Text)
        Dim b As Integer = Integer.Parse(txtNum2.Text)
        lblResult.Text = "Result: " & proxy.Add(a, b)
    End Sub
    Protected Sub btnSub_Click(sender As Object, e As EventArgs) Handles btnSub.Click
        Dim a As Integer = Integer.Parse(txtNum1.Text)
        Dim b As Integer = Integer.Parse(txtNum2.Text)
        lblResult.Text = "Result: " & proxy.Subtract(a, b)
    End Sub
End Class
```

```
End Sub
Protected Sub btnMul_Click(sender As Object, e As EventArgs) Handles btnMul.Click
    Dim a As Integer = Integer.Parse(txtNum1.Text)
    Dim b As Integer = Integer.Parse(txtNum2.Text)
    lblResult.Text = "Result: " & proxy.Multiply(a, b)
End Sub
Protected Sub btnDiv_Click(sender As Object, e As EventArgs) Handles btnDiv.Click
    Dim a As Integer = Integer.Parse(txtNum1.Text)
    Dim b As Integer = Integer.Parse(txtNum2.Text)
    lblResult.Text = "Result: " & proxy.Divide(a, b)
End Sub
End Class
```

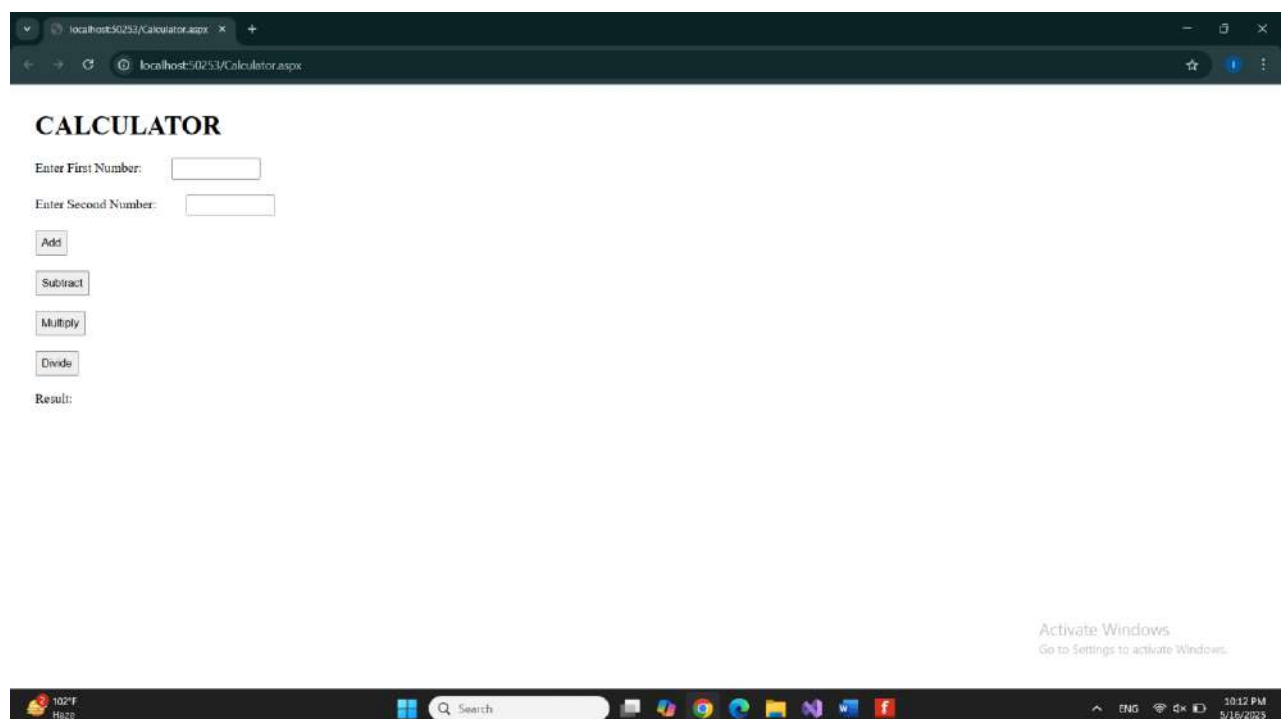
Web.Config

```
<?xml version="1.0"?>
<configuration>
  <!--
    For a description of web.config changes see
    http://go.microsoft.com/fwlink/?LinkId=235367.

    The following attributes can be set on the <httpRuntime> tag.
  -->
  <system.web>
    <httpRuntime targetFramework="4.8.1" />
  </system.web>
  <system.web>
    <compilation debug="false" targetFramework="4.8.1"/>
    <pages controlRenderingCompatibilityVersion="4.0"/>
    <customErrors mode="Off"/>
  </system.web>
  <system.serviceModel>
    <bindings>
      <basicHttpBinding>
        <binding name="MathLibServiceSoap"/>
      </basicHttpBinding>
    </bindings>
    <client>
      <endpoint address="http://math.servicebyiqra:81/WebService.asmx"
        binding="basicHttpBinding" bindingConfiguration="MathLibServiceSoap"
        contract="MathServiceByIqra.MathLibServiceSoap" name="MathLibServiceSoap"/>
    </client>
  </system.serviceModel>
</configuration>
```

Demonstration





CALCULATOR

Enter First Number:

Enter Second Number:

Add

Subtract

Multiply

Divide

Result: Result: 115

Activate Windows
Go to Settings to activate Windows.



CALCULATOR

Enter First Number:

Enter Second Number:

Add

Subtract

Multiply

Divide

Result: Result: -79

Activate Windows
Go to Settings to activate Windows.





CALCULATOR

Enter First Number:

Enter Second Number:

Add

Subtract

Multiply

Divide

Result: Result: 1746

Activate Windows
Go to Settings to activate Windows.



CALCULATOR

Enter First Number:

Enter Second Number:

Add

Subtract

Multiply

Divide

Result: Result: 0.185567010309278

Activate Windows
Go to Settings to activate Windows.

