

## Practical 5

### Create Web Services



#### Objectives

Design and test Web service

You will learn to:

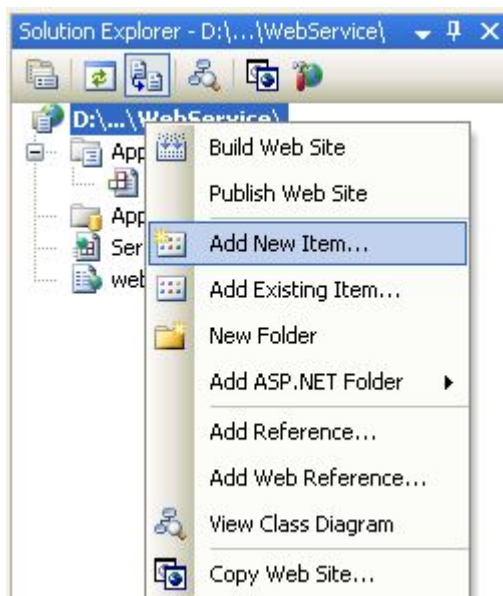
- Create XML Web service using the ASP.NET Web Service project template.
- Implement XML Math Web services.
- [Implement WebMail SOAP Web Service](#)
- Handle the error and exception.
- Design a proxy client.



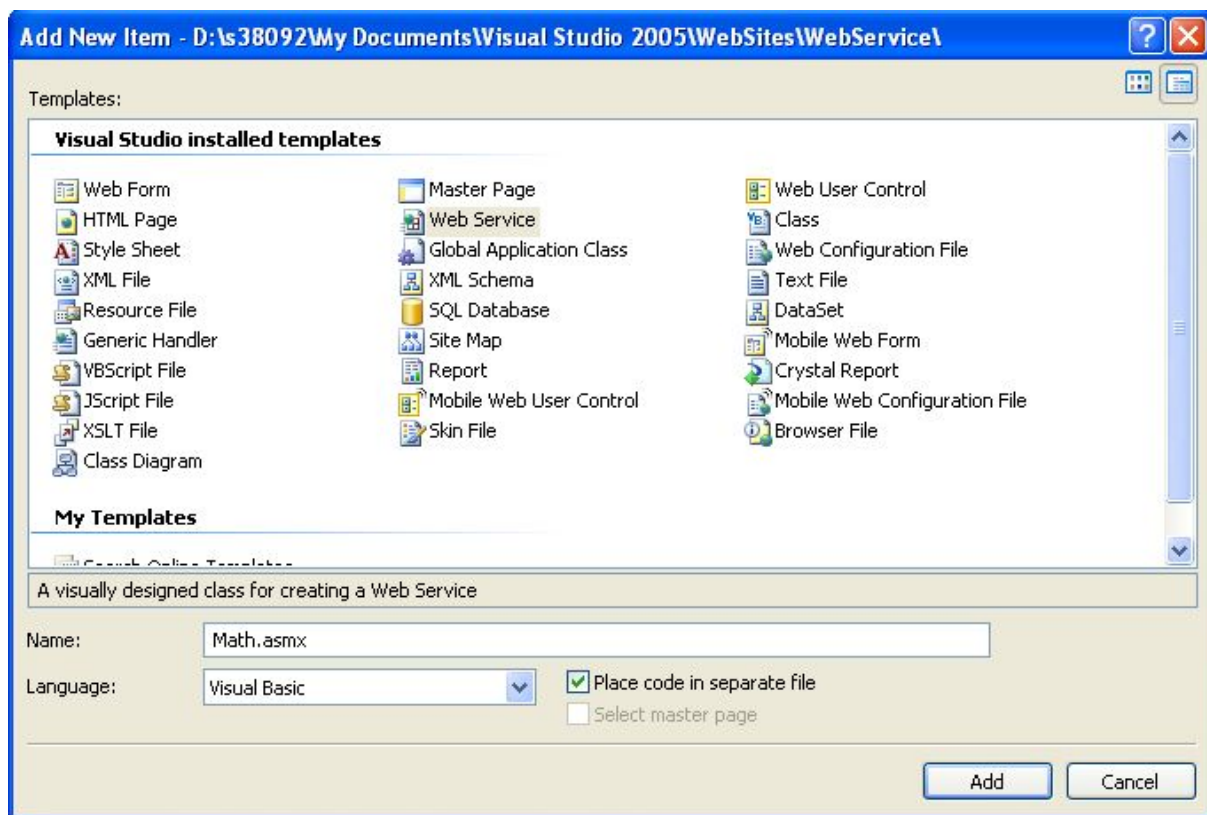
#### Tasks

##### A. Implementing the Math XML Web Service

1. Right click the Web service project, select **Add New Item**, and then click **Add Web Service**.



2. Enter the name of your Web service as Math.asmx



3. Click Add.
4. Implement the web service by referring to the following code segments.

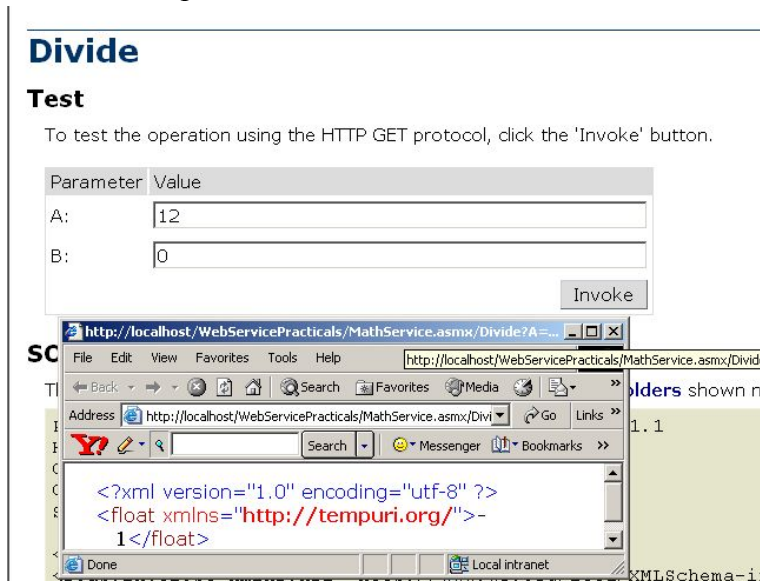
```
Imports System
Imports System.Web.Services
<WebService(Namespace:="http://tempuri.org/")> _
Public Class Math
    Inherits System.Web.Services.WebService
    <WebMethod()> Public Function Add(ByVal A As System.Single, ByVal B As System.Single) As
System.Single
        Return A + B
    End Function

    <WebMethod()> Public Function Subtract(ByVal A As System.Single, ByVal B As System.Single) As
System.Single
        Return A - B
    End Function
End Class
```

← Namespace

multiplication and division function.

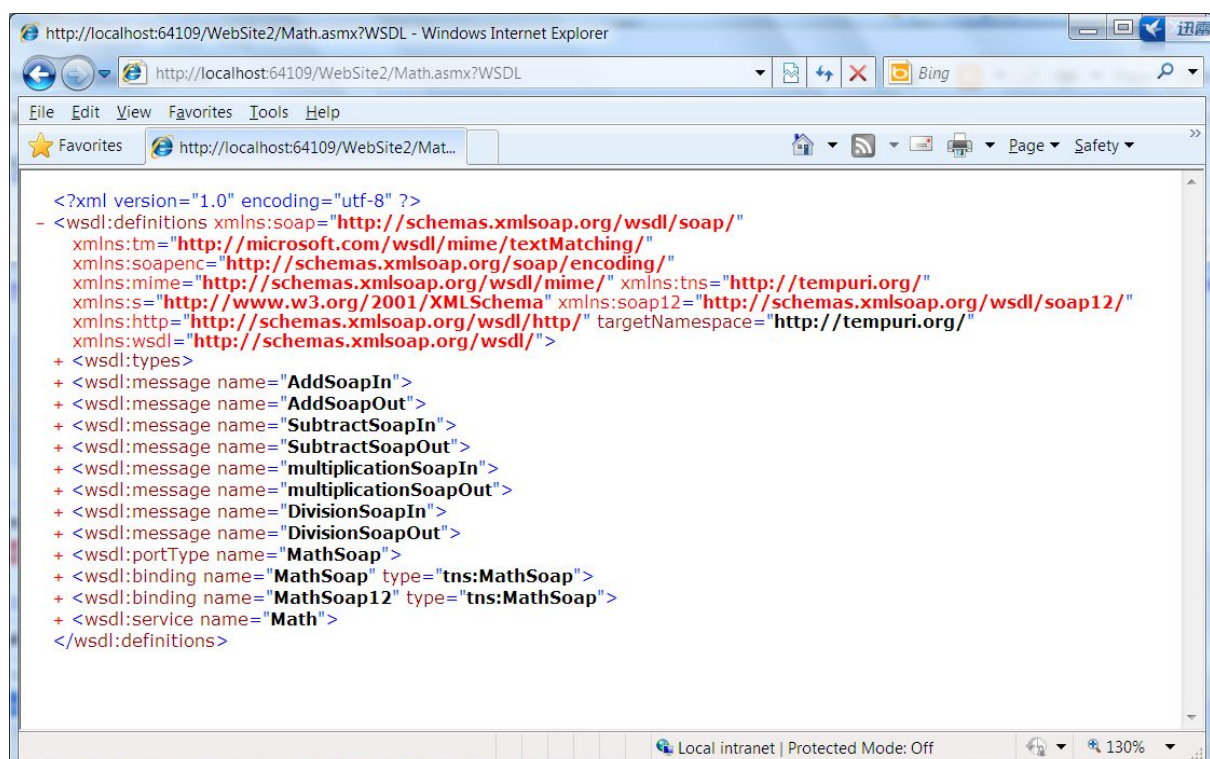
## 8. Test the multiplication and division method of the service



## 9. Is your service able to handle divided by zero error.

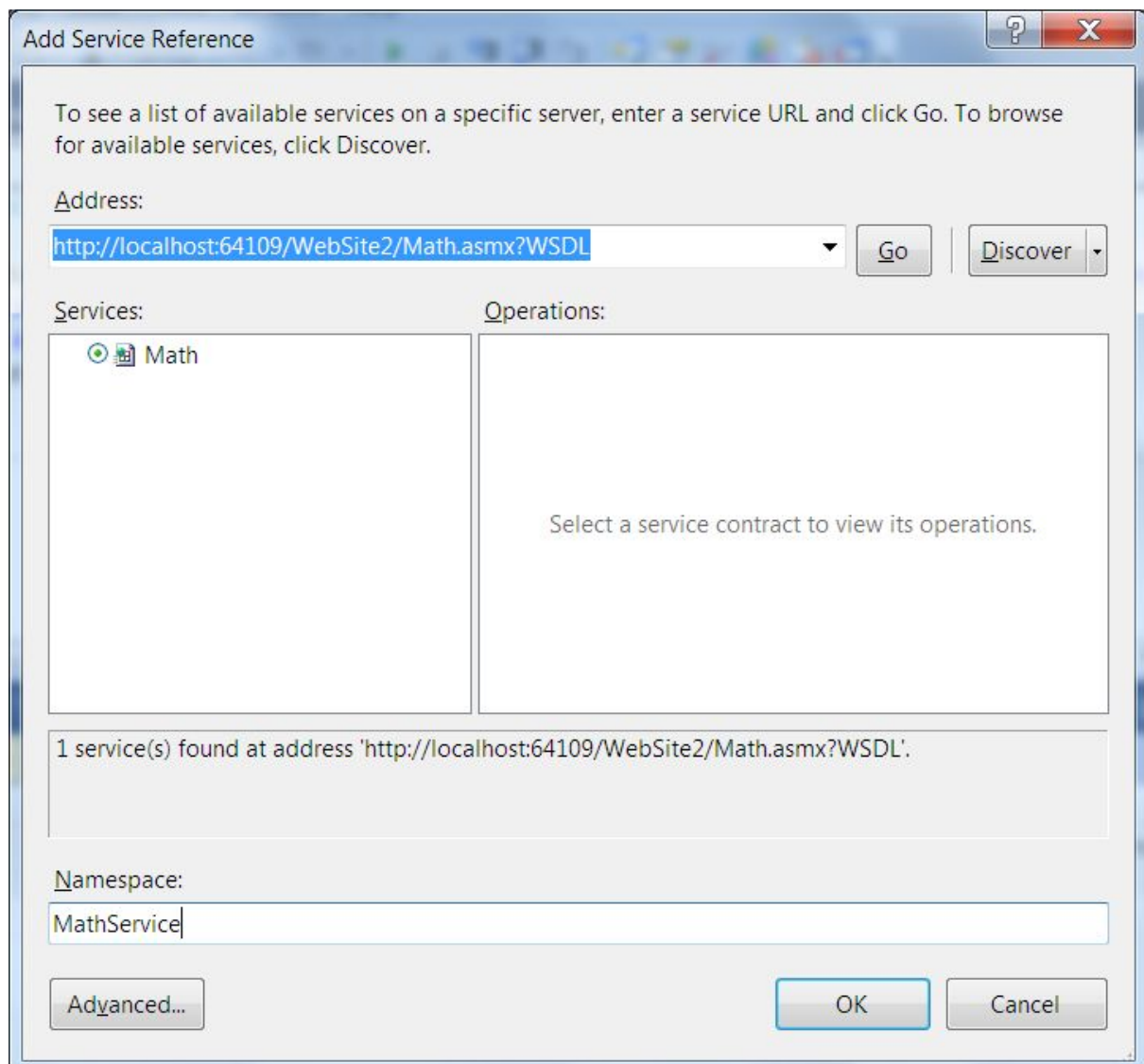
10. Improve the service such that it could handle `divideByZeroException` using try and catch structure.

## 11. View the WSDL file for the web service.

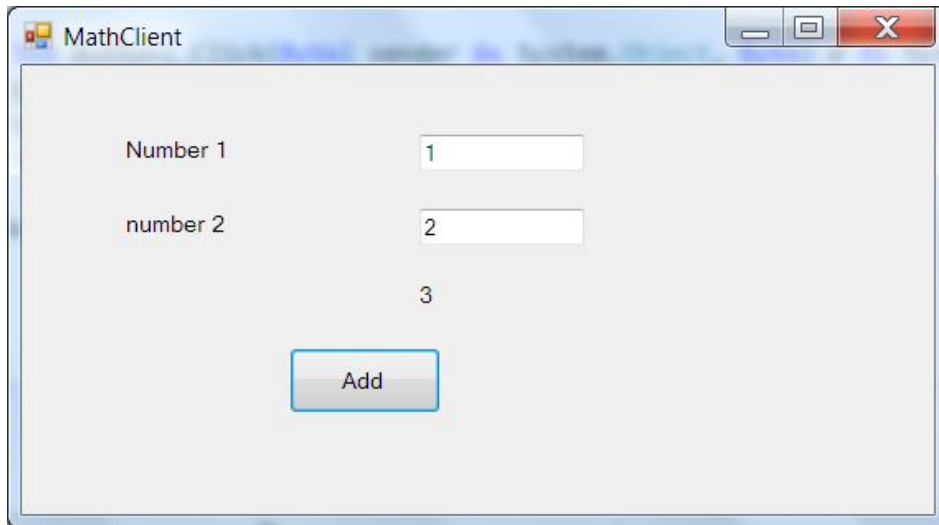


## B. Create a Window client to access the Math Web service

1. Right click the Web service project, select **Add Service reference**.
2. Key in the URL for the web service endpoint.



3. Add a new window form as follows



The image shows a window titled "MathClient" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains a form with the following elements:

- A label "Number 1" followed by a text input field containing the value "1".
- A label "number 2" followed by a text input field containing the value "2".
- A label "3" positioned below the "number 2" input field.
- A button labeled "Add" located below the "3" label.

4. Test the form.

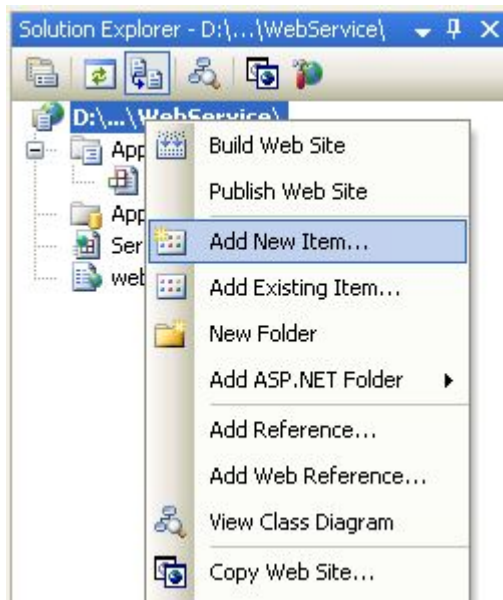
### C. Implementing WebMail XML Web Service

Try the sample code in action:

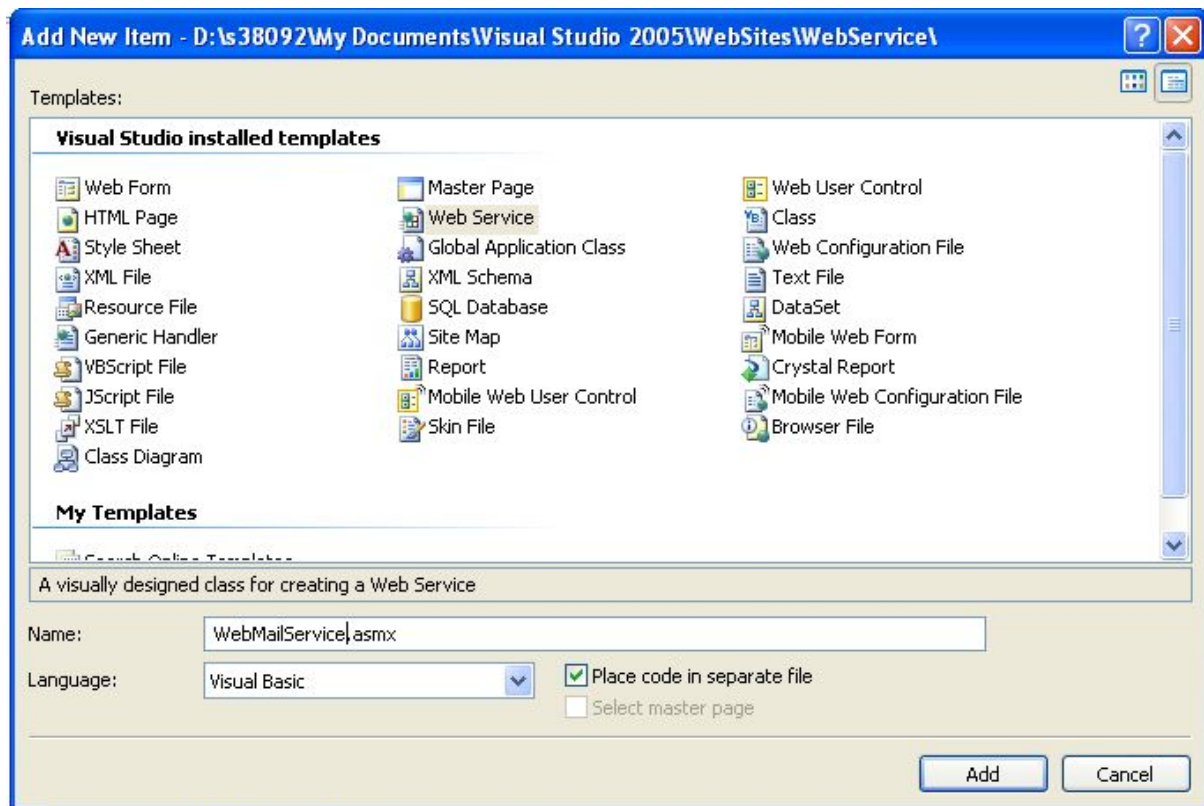
<http://cscsoap.azurewebsites.net/Practical4/MailService.asmx>

(no valid)

1. Right click the Web project (empty), select Add New Item, and then click Add Web Service.



2. Enter the name of your Web service as WebMailService.asmx



3. Click Add.
4. Implement the Web service by referring to the following code segments.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Services;
using System.Net.Mail;
using System.Xml.Serialization;
using System.Web.Script.Services;

/// <summary>
/// Summary description for MailService
/// </summary>
[WebService(Namespace = "http://tempuri.org/")]
[WebServiceBinding(ConformsTo = WsiProfiles.BasicProfile1_1)]
// 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 MailService : System.Web.Services.WebService {
```



```

public MailService () {

    //Uncomment the following line if using designed components
    //InitializeComponent();
}

[WebMethod(Description = "Send an SMTP mail message")]
public string Send(string msgFrom, [XmlElementAttribute(IsNullable = true)]string
msgTo, string msgSubject, string msgBody)
{
    string functionReturnValue = null;

    try
    {
        SmtpClient SendMailClient = new SmtpClient("smtp.sp.edu.sg");

        MailAddress fromAddress = new MailAddress(msgFrom);
        MailAddress toAddress = new MailAddress(msgTo);
        MailMessage msg = new MailMessage(fromAddress, toAddress);
        SendMailClient.Port = 25;

        //SendMailClient.UseDefaultCredentials = False
        // SendMailClient.Credentials = New System.Net.NetworkCredential("uid",
"password")

        msg.Subject = msgSubject;
        msg.Body = msgBody;

        SendMailClient.Send(msg);
        functionReturnValue = "OK";

    }
    catch (Exception ex)
    {
        functionReturnValue = "ERROR " ;

    }
    return functionReturnValue;
}

[WebMethod(Description = "Send an Gmail mail message")]
public string SendGmail(string msgFrom, [XmlElementAttribute(IsNullable =
true)]string msgTo, string msgSubject, string msgBody)
{
    string functionReturnValue = null;

    try

```



```

{
    // Gmail SMTP server address
    SmtpClient SendMailClient = new SmtpClient("smtp.gmail.com");

    MailAddress fromAddress = new MailAddress(msgFrom);
    MailAddress toAddress = new MailAddress(msgTo);
    MailMessage msg = new MailMessage(fromAddress, toAddress);
    // Set 465 or 587 port
    SendMailClient.Port = 587;
    SendMailClient.EnableSsl = true;
    SendMailClient.UseDefaultCredentials = false;
    /*put your own gmail account information below
    SendMailClient.Credentials = new
System.Net.NetworkCredential("****@gmail.com", "*****");

    msg.Subject = msgSubject;
    msg.Body = msgBody;

    SendMailClient.Send(msg);
    functionReturnValue = "OK";

}
catch (Exception ex)
{
    functionReturnValue = "ERROR ";

}
return functionReturnValue;
}
}

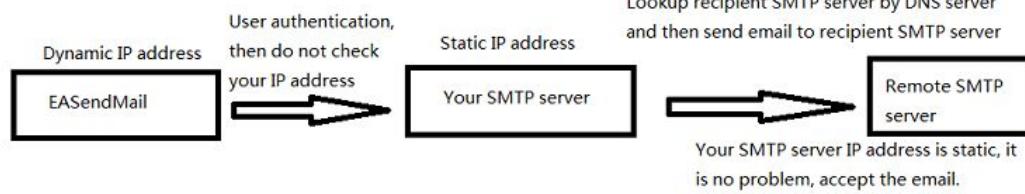
```

5. Change the name space property of the Web service attribute to [www.mdad.edu](http://www.mdad.edu)
6. Test the Web service in the IE browser.

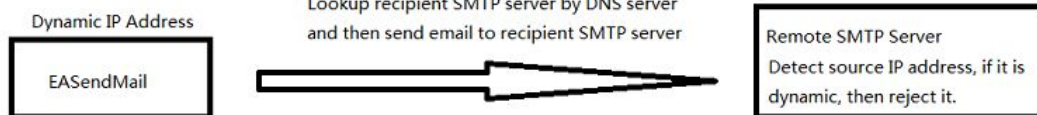
If your IP address is dynamic, most SMTP servers reject your connection due to anti-spam policy. We always suggest that you send email by a SMTP server that has a static internet IP address. When you relay email by your SMTP server, because you do user authentication at first before you send email to your SMTP server, so your SMTP server doesn't reject your connection even your IP address is dynamic. Finally your SMTP server sends email to remote SMTP server. Because

your SMTP server has a static IP, the email won't be rejected by remote SMTP server.

#### Relay Email by SMTP Server



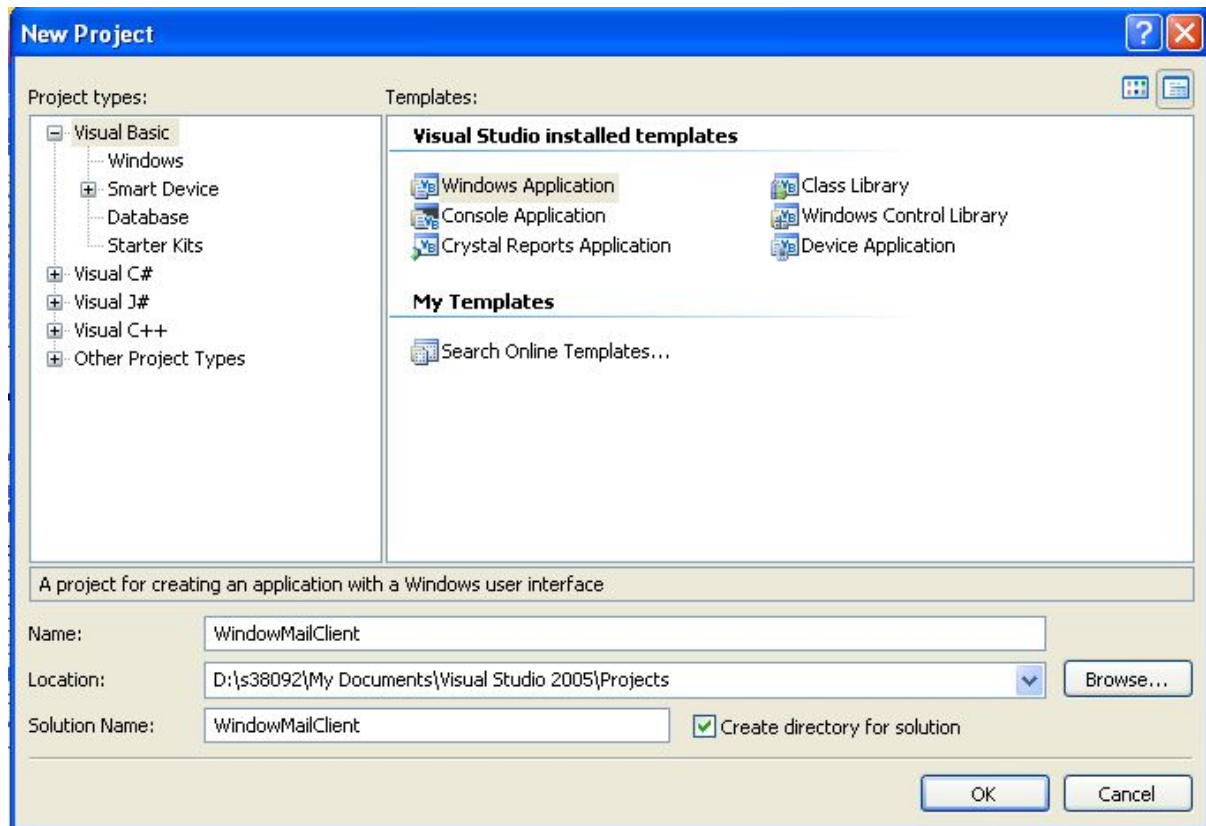
#### Send Email Directly



# D. Create a Window client to access the WebMail Web service

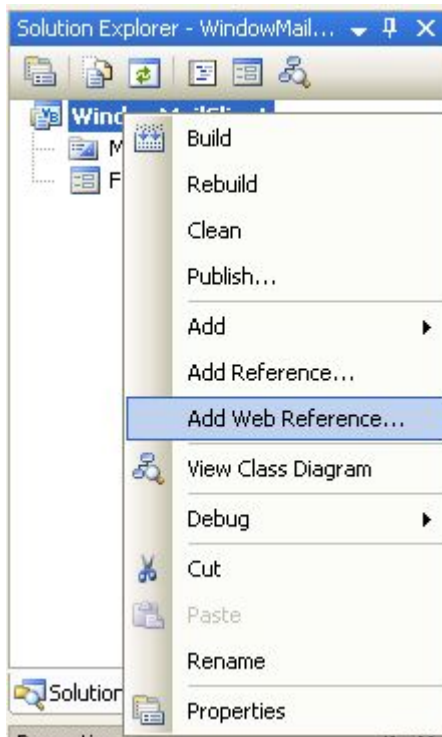
## To create a Windows project

7. On File menu, select **New Project**.
8. Select the project type: Visual Basic Projects and template: Windows Application.

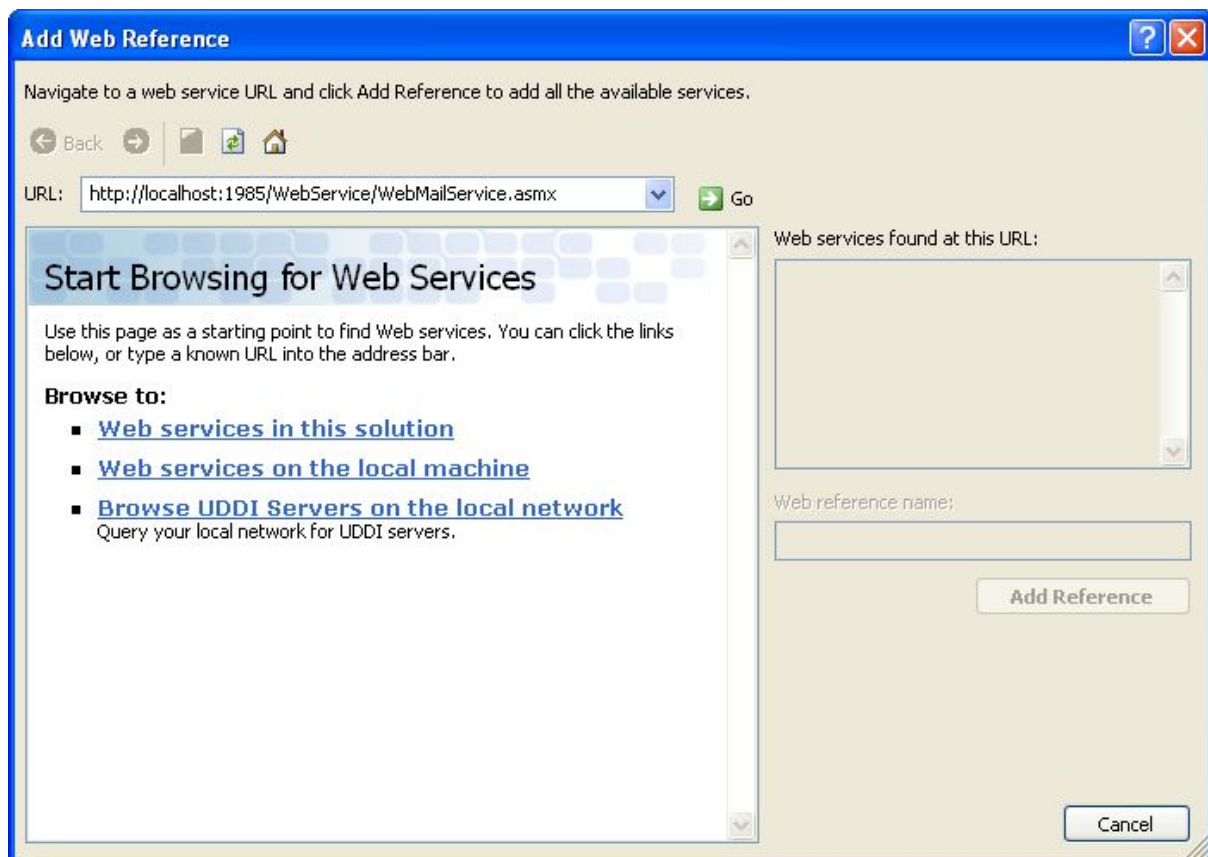


9. In the **Name** box, type WindowMailClient, and then click **OK**.
10. In **Solution Explorer**, right-click **WindowMailClient project**, click **Add Web Reference**.

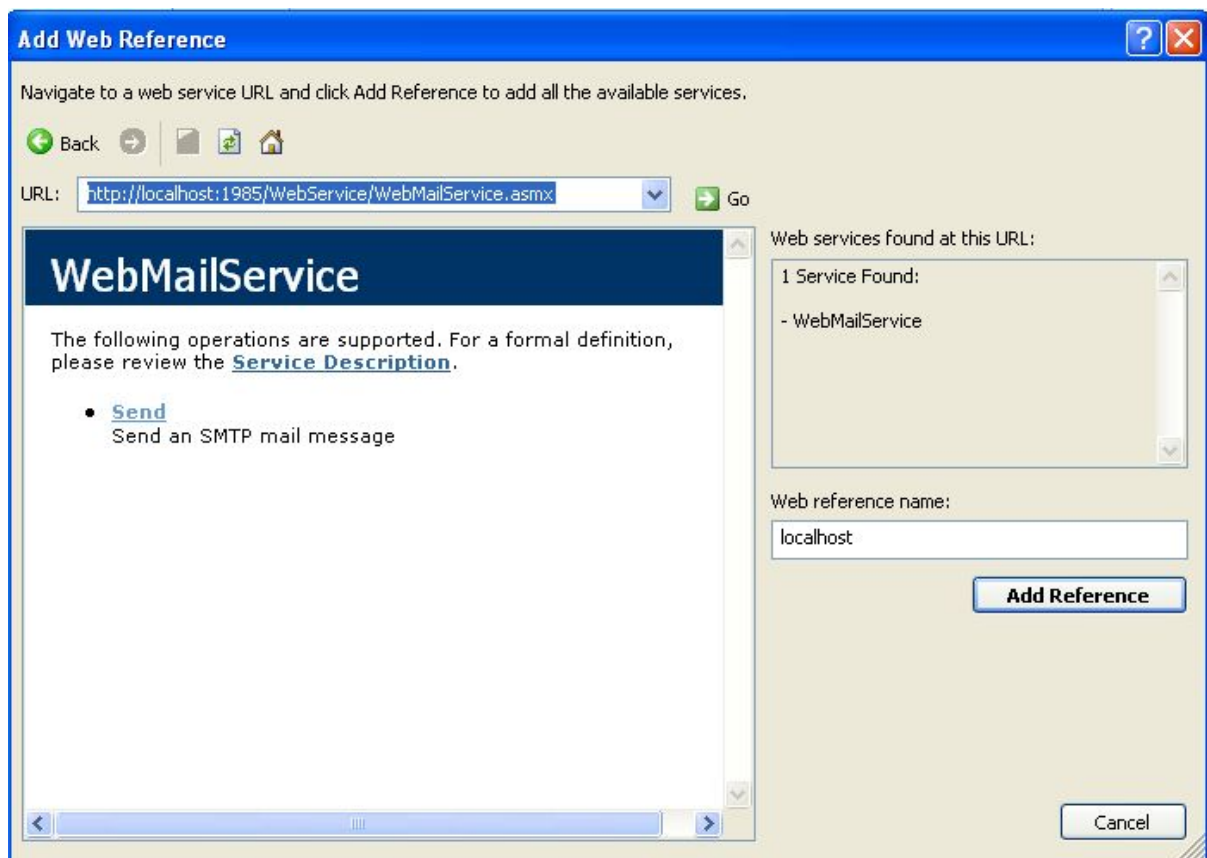
**Note:** Make sure the Web Mail XML Web Service is running.



11. In the **Address box**, type the **URL** (**http://localhost:1985/WebService/WebMailService.asmx** ) for the **WebMail Service**.



6. Click Go to extract the Web Service.



12. Click Add Reference. The web reference will be added into the client. A client side proxy has been generated. Examine the code in the Reference.vb.

```
Option Strict Off
Option Explicit On

Imports System
Imports System.ComponentModel
Imports System.Diagnostics
Imports System.Web.Services
Imports System.Web.Services.Protocols
Imports System.Xml.Serialization

'
'This source code was auto-generated by Microsoft.VSDesigner, Version
2.0.50727.42.
'
```

```

Namespace localhost

    '''<remarks/>
    <System.CodeDom.Compiler.GeneratedCodeAttribute("System.Web.Services",
"2.0.50727.42"), _
    System.Diagnostics.DebuggerStepThroughAttribute(), _
    System.ComponentModel.DesignerCategoryAttribute("code"), _
    System.Web.Services.WebServiceBindingAttribute(Name:="WebMailServiceSoap",
[Namespace]:="http://www.mdad.edu/")> _
    Partial Public Class WebMailService
        Inherits System.Web.Services.Protocols.SoapHttpClientProtocol

        Private SendOperationCompleted As System.Threading.SendOrPostCallback

        Private useDefaultCredentialsSetExplicitly As Boolean

        '''<remarks/>
        Public Sub New()
            MyBase.New
            Me.Url =
Global.WindowMailClient.My.MySettings.Default.WindowMailClient_localhost_WebMailSer
vice

            If (Me.IsLocalFileSystemWebService(Me.Url) = true) Then
                Me.UseDefaultCredentials = true
                Me.useDefaultCredentialsSetExplicitly = false
            Else
                Me.useDefaultCredentialsSetExplicitly = true
            End If
        End Sub

        Public Shadows Property Url() As String
            Get
                Return MyBase.Url
            End Get
            Set
                If (((Me.IsLocalFileSystemWebService(MyBase.Url) = true) _
                    AndAlso (Me.useDefaultCredentialsSetExplicitly =
false)) _
                    AndAlso (Me.IsLocalFileSystemWebService(value) =
false)) Then
                    MyBase.UseDefaultCredentials = false
                End If
                MyBase.Url = value
            End Set
        End Property

        Public Shadows Property UseDefaultCredentials() As Boolean
            Get
                Return MyBase.UseDefaultCredentials
            End Get
            Set
                If (value) Then
                    Me.useDefaultCredentialsSetExplicitly = true
                End Set
        End Property
    End Class
End Namespace

```

```

Namespace localhost

    '''<remarks/>
    <System.CodeDom.Compiler.GeneratedCodeAttribute("System.Web.Services",
"2.0.50727.42"), _
        System.Diagnostics.DebuggerStepThroughAttribute(), _
        System.ComponentModel.DesignerCategoryAttribute("code"), _

System.Web.Services.WebServiceBindingAttribute(Name:="WebMailServiceSoap",
[Namespace]:="http://www.mdad.edu/")> _
    Partial Public Class WebMailService
        Inherits System.Web.Services.Protocols.SoapHttpClientProtocol

        Private SendOperationCompleted As
System.Threading.SendOrPostCallback

        Private useDefaultCredentialsSetExplicitly As Boolean

        '''<remarks/>
        Public Sub New()
            MyBase.New
            Me.Url =
Global.WindowMailClient.My.MySettings.Default.WindowMailClient_localhost_W
ebMailService
            If (Me.IsLocalFileSystemWebService(Me.Url) = true) Then
                Me.UseDefaultCredentials = true
                Me.useDefaultCredentialsSetExplicitly = false
            Else
                Me.useDefaultCredentialsSetExplicitly = true
            End If
        End Sub

        Public Shadows Property Url() As String
            Get
                Return MyBase.Url
            End Get
            Set
                If (((Me.IsLocalFileSystemWebService(MyBase.Url) = true)
-
                                AndAlso (Me.useDefaultCredentialsSetExplicitly
= false)) _
                                AndAlso (Me.IsLocalFileSystemWebService(value)
= false)) Then
                    MyBase.UseDefaultCredentials = false
                End If
                MyBase.Url = value
            End Set
        End Property
    End Class
End Namespace

```





```

Private Function IsLocalFileSystemWebService(ByVal url As String) As
Boolean
    If ((url Is Nothing) _
        OrElse (url Is String.Empty)) Then
        Return false
    End If
    Dim wsUri As System.Uri = New System.Uri(url)
    If ((wsUri.Port >= 1024) _
        AndAlso (String.Compare(wsUri.Host, "localhost",
System.StringComparison.OrdinalIgnoreCase) = 0)) Then
        Return true
    End If
    Return false
End Function
End Class

'''<remarks/>

<System.CodeDom.Compiler.GeneratedCodeAttribute("System.Web.Services",
"2.0.50727.42")> _
    Public Delegate Sub SendCompletedEventHandler(ByVal sender As Object,
ByVal e As SendCompletedEventArgs)

    '''<remarks/>

<System.CodeDom.Compiler.GeneratedCodeAttribute("System.Web.Services",
"2.0.50727.42"), _
    System.Diagnostics.DebuggerStepThroughAttribute(), _
    System.ComponentModel.DesignerCategoryAttribute("code")> _
    Partial Public Class SendCompletedEventArgs
        Inherits System.ComponentModel.AsyncCompletedEventArgs

        Private results() As Object

        Friend Sub New(ByVal results() As Object, ByVal exception As
System.Exception, ByVal cancelled As Boolean, ByVal userState As Object)
            MyBase.New(exception, cancelled, userState)
            Me.results = results
        End Sub

        '''<remarks/>
        Public ReadOnly Property Result() As String
            Get
                Me.RaiseExceptionIfNecessary
                Return CType(Me.results(0),String)
            End Get
        End Property
    End Class

```

19.

Add a form to the WindowMailClient project and name the form as MailServiceClient.

The screenshot shows a window titled "Windows Mail Client". Inside the window, there are four input fields labeled "To", "From", "Subject", and "Body". The "Body" field is a larger text area. Below these fields is a button labeled "Send".

```
Partial Class _Default
    Inherits System.Web.UI.Page

    Dim msgfrom, msgTo, msgsubject, msgbody As String
    Dim strStatus As String

    'Declare a proxy object
    Dim pxyWebMail As localhost.WebMailService = New
localhost.WebMailService()
    ' Add if required login
    ' pxyWebMail.Credentials = System.Net.CredentialCache.DefaultCredentials

    msgfrom = txtFrom.Text
    msgTo = txtTo.Text
    msgsubject = txtSubject.Text
    msgbody = txtBody.Text

    strStatus = pxyWebMail.Send(msgfrom, msgTo, msgsubject, msgbody)
    If strStatus = "OK" Then
        MsgBox("Email is sent successfully")
    Else
        MsgBox(" Error " + strStatus)
    End If

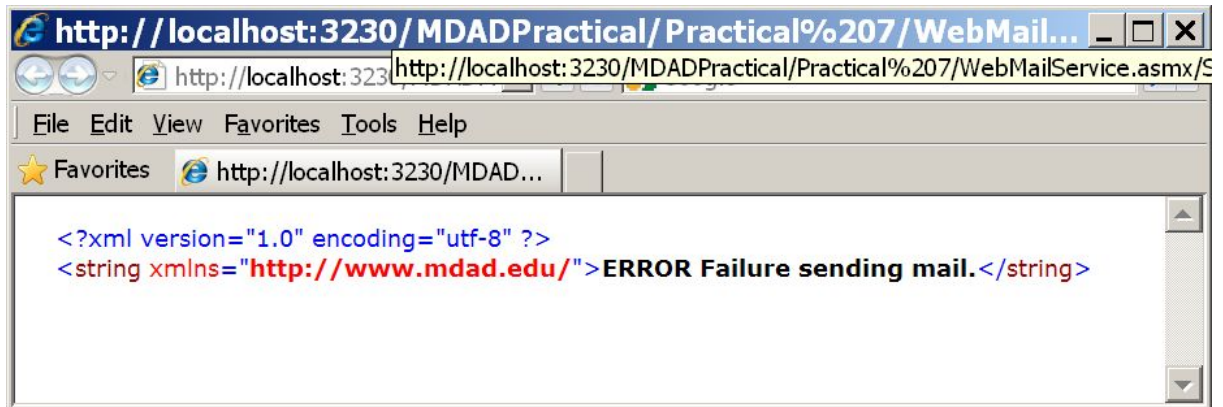
End Sub

End Class
```

## DEBUGGING NOTES:

## Case 1: Failure sending mail

(1) You may encounter error as follows:



(2) View your antivirus software



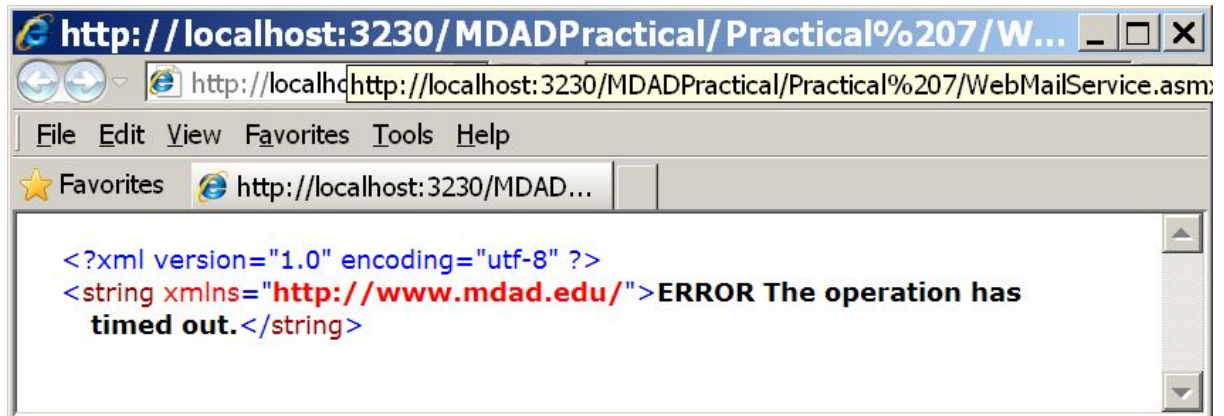
(3) Select view Logs. You may notice that connection to the smtp server has been blocked.

Network Threat Protection Logs - Traffic Log							
Date and Time	Action	Severity	Directi...	Protocol	Remote Host	Remote MAC	
29/06/2010 1...	Allowed	15	Outgoi...	ICMP [...	172.17.0.3	00-04-4E-2...	
29/06/2010 1...	Allowed	15	Outgoi...	ICMP [...	172.17.0.3	00-04-4E-2...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	
29/06/2010 1...	Blocked	5	Outgoi...	TCP	smtp.sp.edu.sg [164.78.252.105]	00-00-0C-0...	

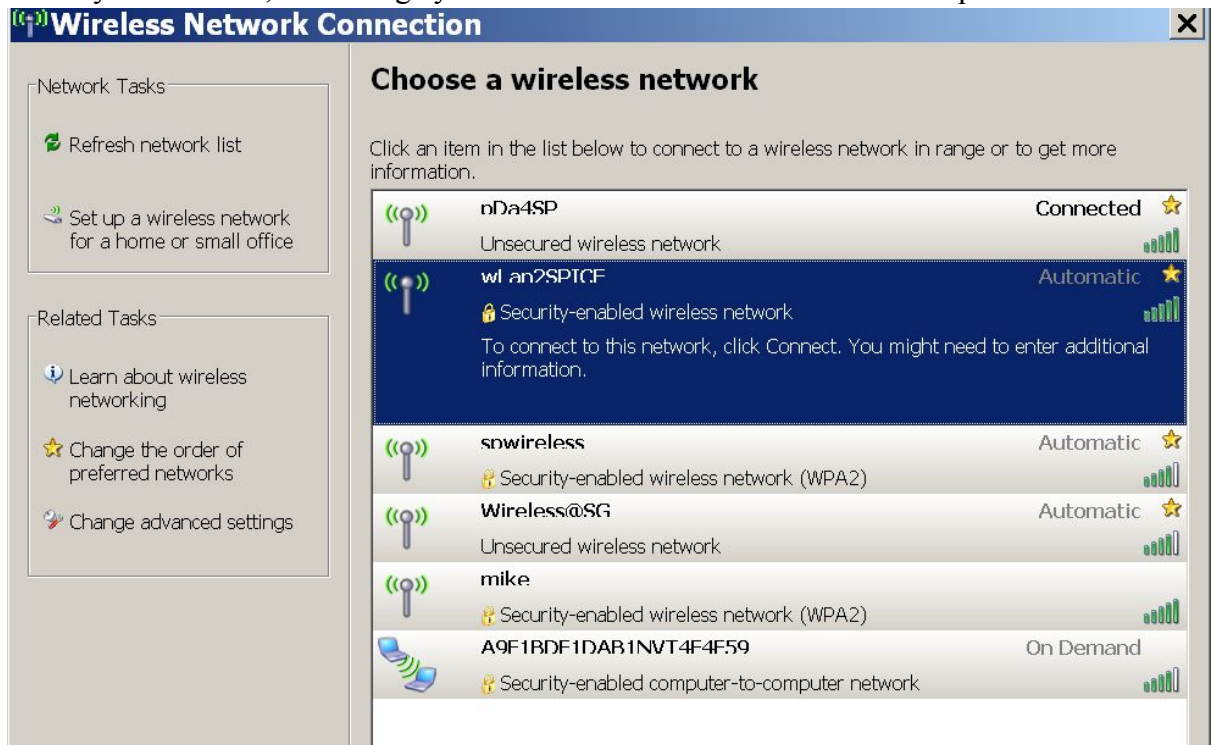
(4) Reconfigure the setting or disable the software temporarily.

## Case 2: Failure sending mail

(1) You may encounter the error as follows:



(2) Check your network, and change your network to either wLan2SPICE or spwireless.

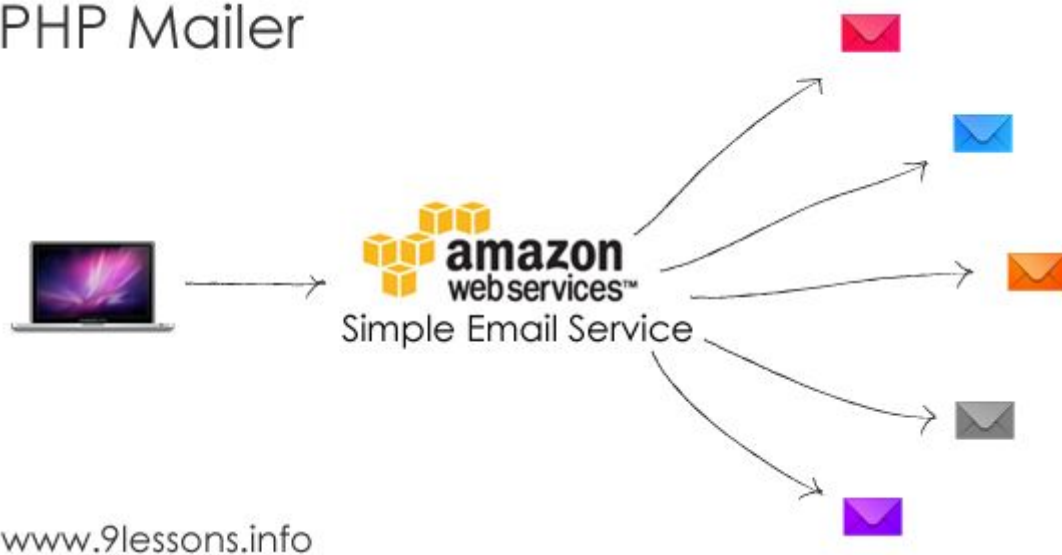


### Case Study:

Is that possible to use Amazon Simple Mail Service, or gmail smtp server in the web service?

<http://www.9lessons.info/2012/02/amazon-simple-email-service-smtp-using.html>

## PHP Mailer



I have been working with labs.9lessons application hosted at Amazon Web Services. Few days back I had enabled email notification system using Amazon Simple Email Service SMTP implemented with PHP Mailer class, I hope the following tutorial will help you to enable email notification system for your web projects.

Amazon Simple Email Service SMTP using PHP Mailer

Download Script Live Demo

The tutorial contains five PHP files in that three are PHPmailer files other SMTP config files.

class.phpmailer.php // PHP Mailer library

class.smtp.php

class.pop3.php

Send\_Mail.php // SMTP configer

index.php // Start Page

Send\_Mail.php

Here you have to give Amazon SES SMTP credentials.

```

1  <?php
2  function Send_Mail($to,$subject,$body)
3  {
4  require 'class.phpmailer.php';
5  $from = "from@email.com";
6  $mail = new PHPMailer();
7  $mail->IsSMTP(true); // SMTP
8  $mail->SMTPAuth = true; // SMTP authentication
9  $mail->Mailer = "smtp";
10 $mail->Host= "tls://email-smtp.us-east.amazonaws.com"; // Amazon SES
11 $mail->Port = 465; // SMTP Port
12 $mail->Username = "Amazon SMTP Username"; // SMTP Username
13 $mail->Password = "Amazon SMTP Password"; // SMTP Password
14 $mail->SetFrom($from, 'From Name');
15 $mail->AddReplyTo($from,'9lessons Labs');
```



```
1 $mail->Subject = $subject;
3 $mail->MsgHTML($body);
1 $address = $to;
4 $mail->AddAddress($address, $to);
1
5 if(!$mail->Send())
1 return false;
6 else
1 return true;
7
1 }
8 ?>
```

7

index.php

Here called Send\_Mail function and passing to, subject and body values.

```

1 <?php
2 require 'Send_Mail.php';
3 $to = "to@gmail.com";
4 $subject = "Test Mail Subject";
5 $body = "Hi<br/>Test Mail<br/>Amazon SES"; // HTML tags
6 Send_Mail($to,$subject,$body);
7 ?>

```

### GMail SMTP

You have to modify following line in above Send\_Mail.php code, gmail allow per day only 250 mail limit.

```

1 $mail->Host= "tls://smtp.gmail.com"; // GMail SMTP
2 $mail->Port = 465; // SMTP Port
3 $mail->Username = "Username@gmail.com"; // SMTP Username
4 $mail->Password = "Gmail Password"; // SMTP Password

```