

Biyani's Think Tank

Concept based notes

Net Frame work and Programming in ASP.NET

MCA

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Biyani's
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Preface

I am glad to present this book, especially designed to serve the needs of the students. The book has been written keeping in mind the general weakness in understanding the fundamental concepts of the topics. The book is self-explanatory and adopts the “Teach Yourself” style. It is based on question-answer pattern. The language of book is quite easy and understandable based on scientific approach.

Any further improvement in the contents of the book by making corrections, omission and inclusion is keen to be achieved based on suggestions from the readers for which the author shall be obliged.

I acknowledge special thanks to Mr. Rajeev Biyani, *Chairman* & Dr. Sanjay Biyani, *Director (Acad.)* Biyani Group of Colleges, who are the backbones and main concept provider and also have been constant source of motivation throughout this endeavour. They played an active role in coordinating the various stages of this endeavour and spearheaded the publishing work.

I look forward to receiving valuable suggestions from professors of various educational institutions, other faculty members and students for improvement of the quality of the book. The reader may feel free to send in their comments and suggestions to the under mentioned address.

Author

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Unit 1

.Net Framework and Programming in Asp.Net

Q.1 What do you mean by ASP ?

Ans ASP means Active Server Pages. It is developed by Microsoft Technology. To execute ASP pages you must need IIS (Internet Information Services), therefore, to execute IIS you must have Windows NT 4.0 or later. ASP is similar to HTML, it contains text, HTML, XML and scripts these scripts are run on server. The extension of ASP page is .asp.

The advantage of using ASP is it provides security because the code of the file cannot be viewed from the browser which the user generally tries to see through the "Source Code".

The ASP scripts are executed on the server therefore browser does not required to support the scripting.

Q.2 What is .NET ?

Ans .NET is a software that executes on the Windows Operating System platform. It provides to the developer the tools, libraries and the services to developer web services and software application much faster and easier.

.NET eliminates the boundaries between the applications and the Internet. User can access their information from any device and anywhere.

.NET depend on four Internet standards.

HTTP

SOAP

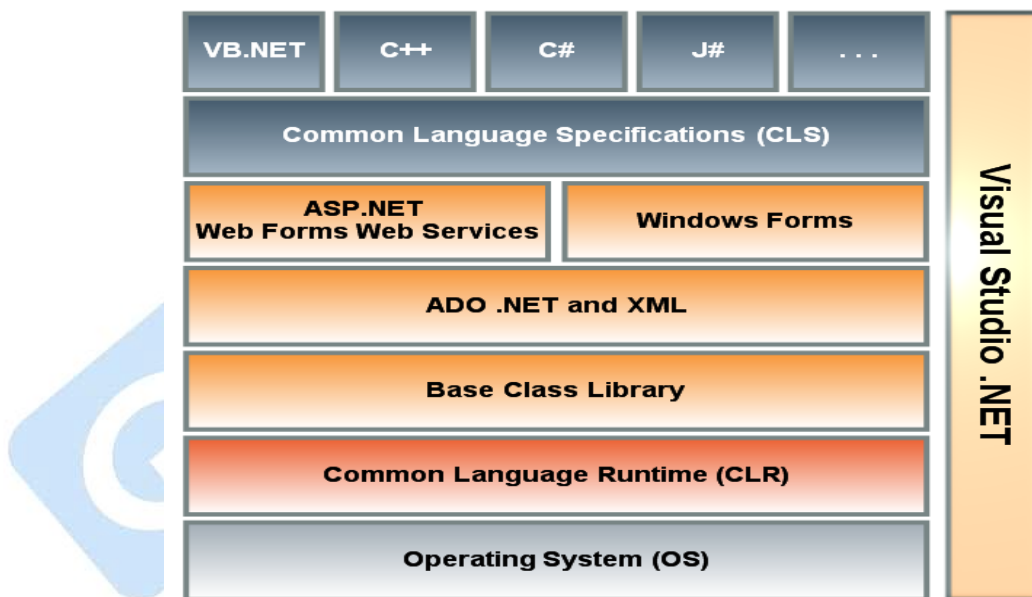
XML

UDDI

This technology is a revolutionary one, that enables the user to do things that were never before possible such as integrate fax, e-mail, and phone services, centralize data storage and synchronize all of a users computing devices to be automatically updated.

Q.3 What do you understand by .NET framework ?

Ans .Net Framework is a software developed by the Microsoft for creating, deploying and executing applications and services which use .NET technologies like desktop applications and web services. It has very large library and also provides the language interoperability (each language can use code written in other languages) across several programming languages. Programs written in .NET framework execute in CLR (Common Language Runtime) an virtual machine which provides various important services like security, memory management and exception handling. The Class Library provides user interface, data access, database connectivity, cryptography, web application development, numeric algorithms, and network communications. The Class Library and the CLR together made the .NET framework.



Q.4 What are the advantages of .NET framework ?

Ans .NET framework offer various advantages to developers

- 1) **Consistent Programming Model:** Data accessing is same in C# and VB with slight syntactical differences. Both the programs import the System.Data namespace, establish connection with database, run query and display the data.
- 2) **Direct Support for Security :** It enables the developer and the system administrator to specify security.

- 3) **Simplified Development efforts:** It makes the debugging easy with support for Runtime diagnostics.
- 4) **Support Multiple devices:** .NET results in software that's more reliable and secure and works on multiple devices like laptops, Smartphones and Pocket PCs.
- 5) .NET provides a stable, scalable and secure environment for software development.
- 6) .NET can lower costs by speeding development and connecting systems.

Q.5 What is ASP.NET ?

Ans ASP.NET is the next generation version of ASP(now also called Classic ASP). It is a platform where developer can develop web applications and get the services requires to build web applications. It provides lots of new features and technologies ASP.NET is fully integrated into the .NET framework, which enables the developer to take advantage of CLR, type safety, inheritance etc.

Q.6 Explain the origin of .NET ?

OR

Why .NET has evolved ?

OR

What is the history of .NET ?

Ans Around 1995, Java became very much popular due to its platform-independent feature. Because of this Microsoft was started loosing the market to capture the market again it started a new project called the "Next Generation windows Services" . It took three years to develop and the result was .Net Framework 1.0, in Feb.2002 which is also a part of the first release of Microsoft Visual Studio .Net called Visual Studio.Net 2002

After one year Visual Studio .Net 2003 was released with .net Framework 1.1 and the final version of .Net Framework was released in Nov.2005 with Visual Studio .Net 2005. The .NET framework 3.0 work with Windows Server 2008 and Windows Vista. Version 3.5 work with Windows 7, Windows XP and Windows Server 2003. On 12 April 2010, .NET Framework 4.0 was released alongside Visual Studio 2010.

Q.7 What do you need for ASP.NET ?**Ans**

1. Windows Server 2003, Windows Server 2008, Windows 2000, windows XP or Windows Vista
2. Visual Studio 2008 (this will install the .NET framework 3.5)
3. SQL Server 2000, 2005, 2008.
4. Microsoft Access or SQL Server Express Edition.

Q.8 What are the important features of .Net ?**Ans****1. Routing**

Routing help in connecting the user with the meaningful URL and get the actual physical file.

2. Common Language Runtime(CLR)

CLR support the developer to write base classes in VB.Net, child classes in C# and aggregate this tree from Managed C++.

3. Session State compression

The ASP.NET session state is a mechanism to maintain session-specific data through subsequent requests.

4. Common Type System(CTS)

The .NET Common Language Runtime is the root layer of the .NET Framework. Applications and components are compiled to MSIL

5. AJAX Library

Support the programmer to develop database driven application easily. It is a client-side library which provides server based user controls and asynchronous page rendering controls

6. Assemblies

It is divided into 4 parts

- a) Assembly Manifest: Contains name, version, culture and information about reference assemblies
- b) Type Metadata: Contains information about types defined in the assembly.
- c) MSIL: Contains MSIL Code

d) Resources: Files such as BMP or JPG file or any other files required by application.

7. XML at the Core

Serialization, streaming, parsing, transforming and schema support are the XML features of the .Net runtime.

Q.9 What is Microsoft Intermediate Language (MSIL) ?

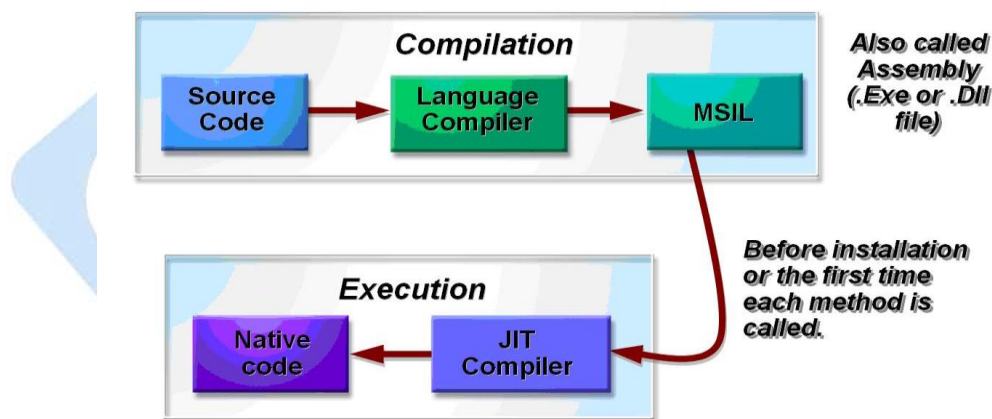
OR

How MSIL compile ?

Ans MSIL stands for Microsoft Intermediate Language or can also called Intermediate Language (IL) or Common Intermediate Language (CIL). MSIL is a CPU-independent set of instructions that can be efficiently converted to the native code. During compilation, compiler converts the source code into MSIL.

During the runtime ,the Common Language Runtime(CLR) Just In Time (JIT) compiler converts the MSIL code into native code to the Operating System.

Code Compilation and Execution Process in .net



Q.10 What is .NET Binaries(aka Assemblies) ?

Ans

1. The physically grouping of your code called Assemblies.
2. Assemblies are the result of your program which creates the logical grouping of functionality.

3. It is a logical unit of code.
4. It physically exists as DLL or EXE.
5. DLL are non executable assemblies.
6. Each assembly contains very important information such as versioning details, Meta data details and manifest file etc.
7. Every assembly file contains information about itself. This information is called as Assembly Manifest.

Q.11 What do you mean by Meta Data ?

Or

What information is contained in MetaData ?

Ans .NET provides several automatic functions, to carry-out those function .NET requires lot of information about an application. The design of .NET requires applications to carry that information within them. It means applications are self-describing. The collected binary information that describes an application is metadata.

Information Contained in Metadata

- 1.Assembly Information
- 2.Types
- 3.Attribute Information.

Q.12 What do you understand by .Net Namespaces ? Give Some examples of it ?

Ans A section of code that is identified by a unique name is called namespace . All classes, methods, interfaces etc. which are exists in the particular name space are uniquely identified by this namespace. In other words, they(namespaces) help in organizing .NET Framework Class Library into the logical grouping as per their functionality, usability and the category they should belong to.

Examples

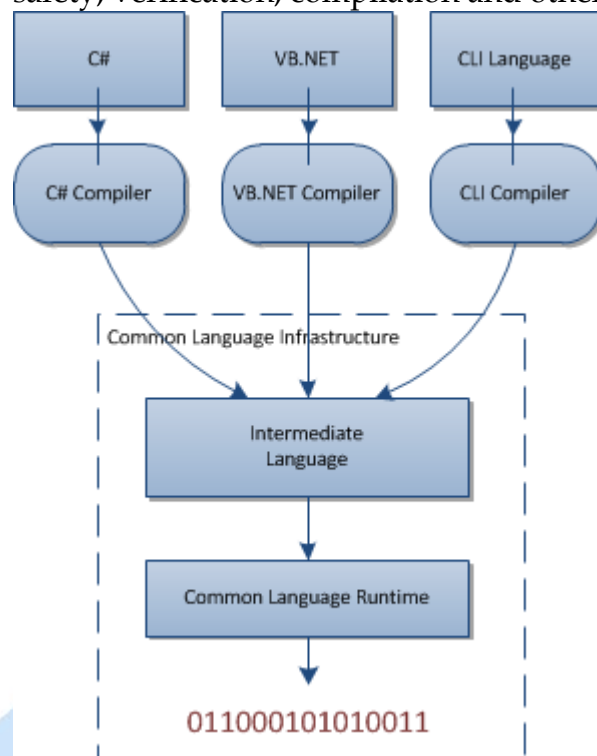
- a) System: contains all base data types and other important classes like those related to generating random numbers etc.
- b) System.Collections: Contain classes for standard colledtion types like hash tables ,array lists.
- c) System.Text: Contains classes for encoding ,decoding and manipulating the strings.Etc.

Q.13 What is CLR ? Why it is used ?

Ans CLR stands for Common Language Runtime. It is a platform on which applications are hosted and executed.

Programs coded for .NET framework run in a environment that manages the program's runtime requirements. This environment is called CLR.

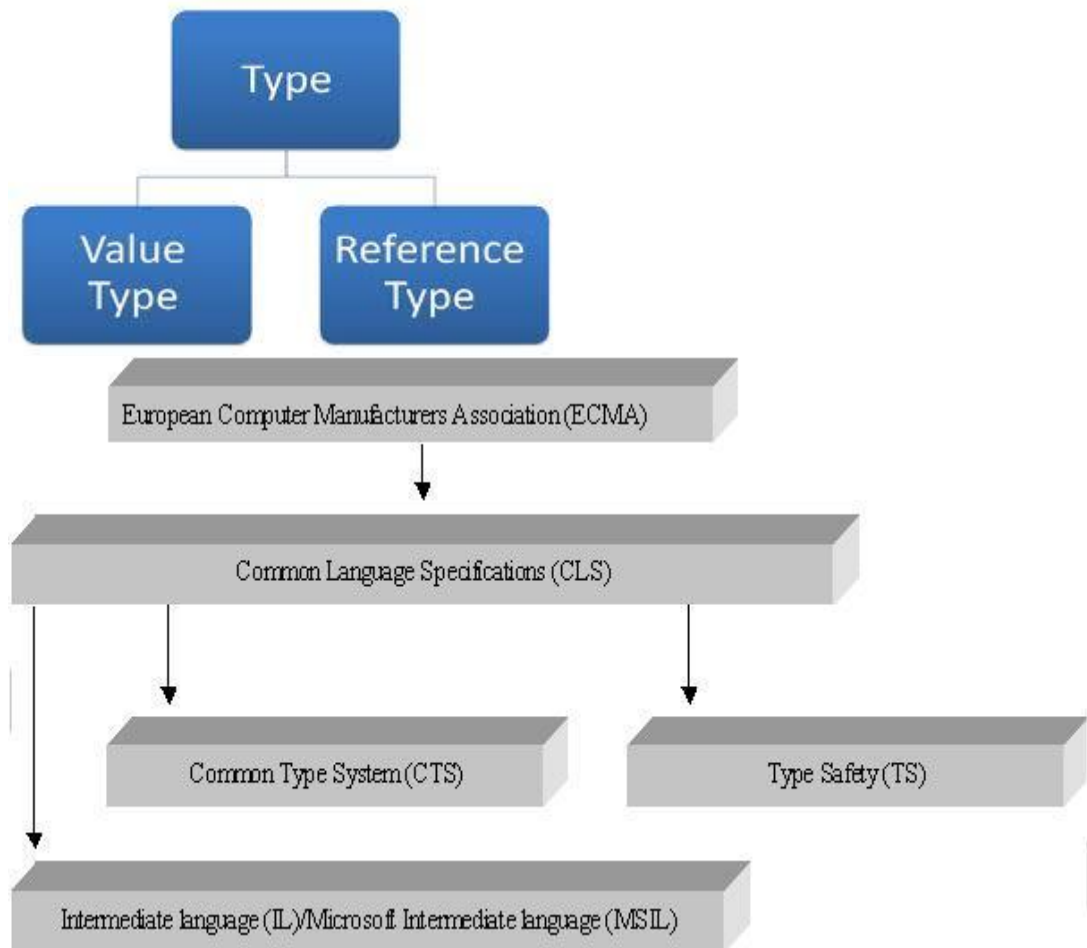
CLR used to manage memory,threadexection, code execution, code safety, verification, compilation and other system services.

**Q.14 What is CTS ? What is its purpose ?**

Ans CTS stands for Common Type System. It is the component of the CLR that shows the types supported by the CLR. There are two types

- a) Value Types
- b) Reference Types

The purpose of CTS is to set the rules for the language compilers. It explains how the types are used, declared, and managed in the runtime and provides support for cross-language integration and type safety.



Q.15 What is CLS ?

Ans CLS stands for Common Language Specification. It is just a subset of the entire set of features supported by the CLR. The CLS includes things such as calling virtual methods, overloading methods, Byte, Char, Decimal etc and does not include things such as unsigned type like UInt32, UInt16 etc. CLS array must have a lower bound of zero. CLS defines a subset of the CTS to enable cross-language interoperability.

Q.16 How you can use .NET application using command line compiler and visual studio.net IDE ?

Ans

1) COMMAND LINE COMPILER

Csc.exe is the c# command line compiler which is among one of the programs included in the .NET SDK. When the client requests the web

pages for the first time from the browser, ASP.NET compiles them (web pages) into DLL by using csc.exe .

Using the command line compiler

- a) If you installed Visual Studio.NET.Choose **Start->All Programs-> Microsoft Visual Studio .NET -> Tools -> Visual Studio.NET Command Prompt.**
- b) Another option to open the command prompt is the command prompt type: csc.exe

2) VISUAL STUDIO .NET IDE

All the .NET based applications have Visual Studio .NET IDE(Integrated Development Environment) as their development environment which comes with rich features. VS.NET IDE comes with many features and options which simplify the development of application by handling complexities.

When you opens VS.NET from **Start -> All Programs -> Microsoft Visual Studio .NET -> Microsoft Visual Studio .NET** the window that is displayed first is the Start Page.



Unit II

Basics of ASP.NET

Q.1 What is ASP.NET ?

OR

Give a brief introduction of ASP.NET ?

Ans ASP.NET is the next generation version of ASP(now also called Classic ASP). It is a platform where developer can develop web applications and get the services requires to build web applications. It provides lots of new features and technologies ASP.NET is fully integrated into the .NET framework, which enables the developer to take advantage of CLR, type safety, inheritance etc.

Q.2 How a programmer can create and deploy ASP.NET applications ?

Ans CREATION

- 1) To open a new ASP.NET web application, open Visual Studio .NET and from the main menu select **File -> New Project**. From the 'New Project' dialogue, click on 'Visual Basic Projects' under project types and ASP.NET web application under templates.
- 2) Change the name of the form "**firstpage.aspx**" on solution Explorer and on Web Form drag a Label,Textbox and a Button from the toolbox. Double-click the button to open its event. Write the following code in the click event of the button.

The code is written below:

```
Protected Sub Button1_Click(ByVal sender As Object, ByVal e As
System.EventArgs)Handles
Button1.Click
TextBox1.Text = "Welcome to Biyani College"
End Sub
```


The above code displays “Welcome to Biyani College” on a TextBox Web Server Control.

DEPLOYMENT

Deployment means take the application and install it on another machine, usually by the use of a setup application.

- 1) To avoid problem in deployment , the deployment process must be planned during the initial design stage.
- 2) Any special deployment considerations like server capacity, desktop security etc. shoul be built into the design from the start,resulting in a smoother deployment process.
- 3) Environment should be addressed early in which to test the deployment.
- 4) Unit testing of the deployment must be tested in an environment that resembles the target system. It eliminates the dependencies that do not exist on a targeted computer.

Q.3 What do you understand by web forms ?

Ans Web forms are based on ASP.NET.

- 1.web forms provide a browser based user interface.
- 2.All server controls must be appear in <form>tag.
3. Web forms are divided into two parts:

Templates: which contains HTML-based layout information.

Component: which contains all the logic related to the controls.

4. Web forms are on the System.Web.UI.Pageclass.The class hierarchy for the page class is shown below.

- a) Object
- b) Control
- C) Template Control
- d) Page

5. ASP.NET Web Forms provide an easy and powerful way to develop dynamic Web UI.

Q.4 What are rich controls ?

Ans Web controls have a standardized set of property names. They are derived from the **System.Web.UI.WebControls.WebControl**base class. They are divided into four categories:

- **Basic Web Controls:** They are used to draw on the form to increase user interaction with the application.
- **Validation Controls:** Controls that interact with other form controls to validate the data that they contain.
- **List Controls :** These control types allow data to be bound to them for display purposes of some kind.
- **Rich Controls:** Controls, such as the Calendar control, that display richer content and capabilities than other controls.

Rich controls are the task-specific controls which are built with multiple HTML elements and have rich functionality. Example, Calendar control and AdRotator control.

Q.5 What isPostBack? Why it is done ?

Ans PostBack is the process of submitting an ASP.NET application to the server. It is required because to check the credentials of the page against the database. **Example**, Login Page. A user has entered the username and password and click the login button. As the button is clicked the page goes to the server and check from the database whether the user is an authenticated user or not.

Q.6 What do you understand by Cross-Page Posting ?

Ans Cross-Page enables the user to post the values of the controls of page (say page1.aspx to page2.aspx). Example,

Page1.aspx

Enter your name:


```
<asp:Textbox ID="TextBox1" Runat="server">
```

```
</asp:Textbox>
```

```
<p>
```

When do you want to fly?


```
<asp:Calendar ID="Calendar1" Runat="server"></asp:Calendar></p>
```

```
<br />
```

```
<asp:Button ID="Button1" Runat="server" Text="Submit page to  
itself" OnClick="Button1_Click" />
```

```
<asp:Button ID="Button2" Runat="server" Text="Submit page to  
Page2.aspx" PostBackUrl="~/Page2.aspx" />
```

C#

```
protected void Button1_Click (object sender, System.EventArgs e)
```

```
{
```

```
    Label1.Text = "Hello " + TextBox1.Text + "<br />" +
```

```

        "Date Selected: " + Calendar1.SelectedDate.ToShortDateString());
    }
}

```

Page2.aspx

```

protected void Page_Load(object sender, EventArgs e)
{
    TextBox pp_Textbox1;
    Calendar pp_Calendar1;
    pp_Textbox1 = (TextBox)PreviousPage.FindControl("Textbox1");
    pp_Calendar1 = (Calendar)PreviousPage.FindControl("Calendar1");
    Label1.Text = "Hello " + pp_Textbox1.Text + "<br />" + "Date
    Selected: " + pp_Calendar1.SelectedDate.ToShortDateString();
}

```

To get the value of the previous page controls, create an instance of that control. That instance get populated with the help of the PreviousPage property method FindControl(). The String value assigned to the FindControl() method is the **ID** value.

Q.7 Explain the Web Controls ?

OR

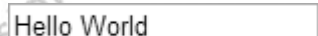
What are the various Web Controls ?

Ans Web control is an object that are used to drawn on a web form to increase the user interaction and understanding with the application. There are various Web Controls:-

1. **TextBox** :Use to enter or edit the data. **ID** attribute to reference the control in the server-side code. "**runat=server**" make the controls to create on the server and become programmable.

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

This code creates a text box on the form that looks like



2. **Label**: Simple text display. The control uses the **Text** attribute to assign the content of the control.

```
<asp:Label ID="Label1" runat="server" Text="Hello World" />
```

the TextBox control can allow user to input their password into a form. This is done by changing the **TextMode** attribute of the TextBox control to Password

```
<asp:TextBox ID="TextBox1"
```

```
runat="server"TextMode="Password"></asp:TextBox>
```



Using the Focus() Method

The Focus() method enables you to dynamically place the end user's cursor in an appointed form element.

C# Code

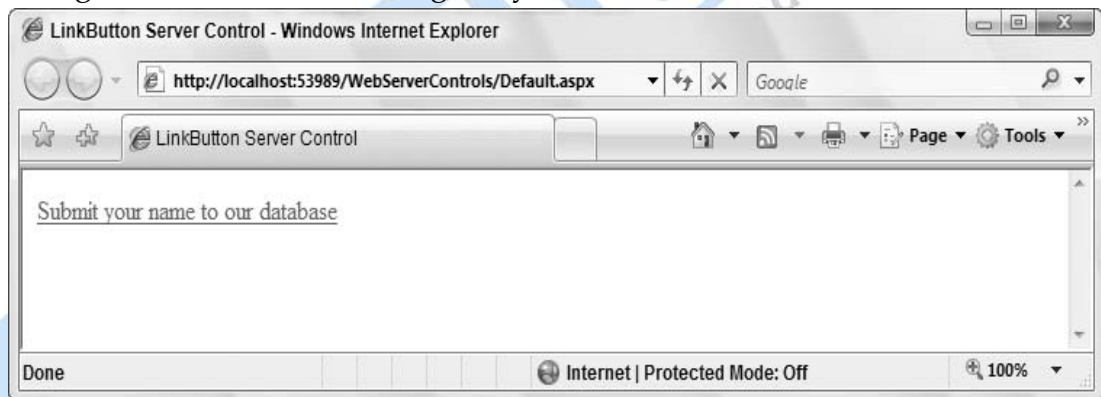
```
protected void Page_Load(object sender, EventArgs e)
{
    TextBox1.Focus();
}
```

When the page using this method is loaded in the browser, the cursor is already placed inside of the textbox.

3. **LinkButton**: This button use as hyperlink.

```
<asp:LinkButton ID="LinkButton1"
Runat="server"OnClick="LinkButton1_Click">
    Submit your name to our database
</asp:LinkButton>
```

Using the LinkButton control gives you



4. **Button**: They are used to submit forms. Most common event is OnClick event.

C# Code

```
protected void Button1_Click(object sender, EventArgs e)
{
    // Code here
}
```

5. **ImageButton**: Displays an image and works like a button.

```
<asp:ImageButton ID="ImageButton1" runat="server"
OnClick="ImageButton1_Click" ImageUrl="MyButton.jpg" />
```

6. **DropDownList**: Allows user to select choice from the list.

```
<asp:DropDownList ID="DropDownList1" runat="server">
  <asp:ListItem>Car</asp:ListItem>
  <asp:ListItem>Airplane</asp:ListItem>
  <asp:ListItem>Train</asp:ListItem>
</asp:DropDownList>
```



7. **ListBox**: Allows the user to make one or more selection from the list.

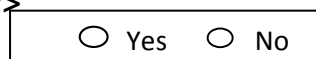
```
<asp:ListBox ID="ListBox1" runat="server">
  <asp:ListItem>Hematite</asp:ListItem>
  <asp:ListItem>Halite</asp:ListItem>
  <asp:ListItem>Limonite</asp:ListItem>
  <asp:ListItem>Magnetite</asp:ListItem>
</asp:ListBox>
```

This generates



8. **RadioButton**: Displays a button that can be turn on or off.

```
<asp:RadioButton ID="RadioButton1" runat="server" Text="Yes"
  GroupName="Set1" />
<asp:RadioButton ID="RadioButton2" runat="server" Text="No"
  GroupName="Set1"/>
```



GroupName enables the radio button on the web form to work together.

9. **RadioButtonList**: Creates a group of radio buttons where only one button in the group can be selected at a time.

```
<asp:RadioButtonList ID="RadioButtonList1" runat="server">
```

```

        <asp:ListItem
Selected="True">English</asp:ListItem>
        <asp:ListItem>Russian</asp:ListItem>
        <asp:ListItem>Finnish</asp:ListItem>
        <asp:ListItem>Swedish</asp:ListItem>
    </asp:RadioButtonList>

```

if the Selected property is set to True, one of the ListItem objects is selected by default when the page is generated for the first time.

- English
 Russian
 Finnish
 Swedish

10. Calendar: Allows the user to select a date from a graphical calendar display.

```

    <asp:Calendar ID="Calendar1" runat="server">
</asp:Calendar>

```

June 2008						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

11. FileUpload: This control presents the user a text box and a Browse button such that a file to be uploaded can be selected.

C# Code

```

protected void Button1_Click(object sender, EventArgs e)
{
    if (FileUpload1.HasFile)
    try {
        FileUpload1.SaveAs("C:\\Uploads\\" +
FileUpload1.FileName);
        Label1.Text = "File name: " +

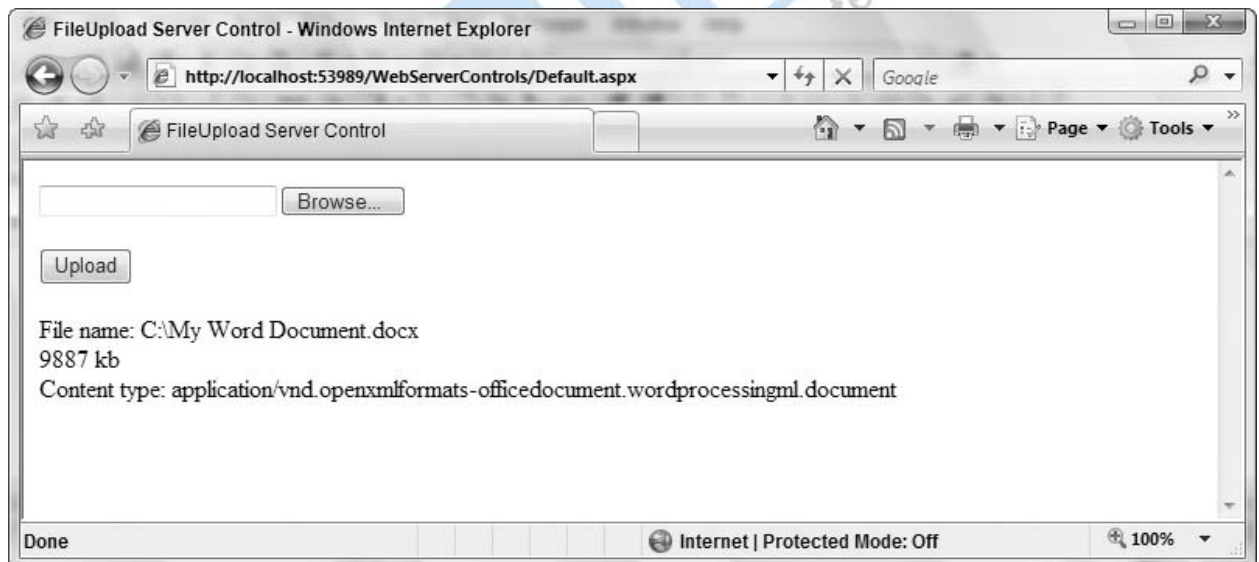
```

```

        FileUpload1.PostedFile.FileName + "<br>" +
        FileUpload1.PostedFile.ContentLength + " kb<br>" +
        "Content type: " +
        FileUpload1.PostedFile.ContentType;
    }
    catch (Exception ex) {
        Label1.Text = "ERROR: " + ex.Message.ToString();
    }
    else
    {
        Label1.Text = "You have not specified a file.";
    }
}

<input type="file" name="FileUpload1" id="FileUpload1" />
<p>
<input type="submit" name="Button1" value="Upload" id="Button1"
/></p>

```



11. HyperLink: Allow end users to transfer from one page to another.

```

<asp:HyperLink ID="HyperLink1" runat="server" Text="Go to this
page here"
NavigateUrl="~/Default2.aspx"></asp:HyperLink>

```

This control creates a hyperlink on your page with the text *Go to this page here*. When the link is clicked, the user is redirected to the value

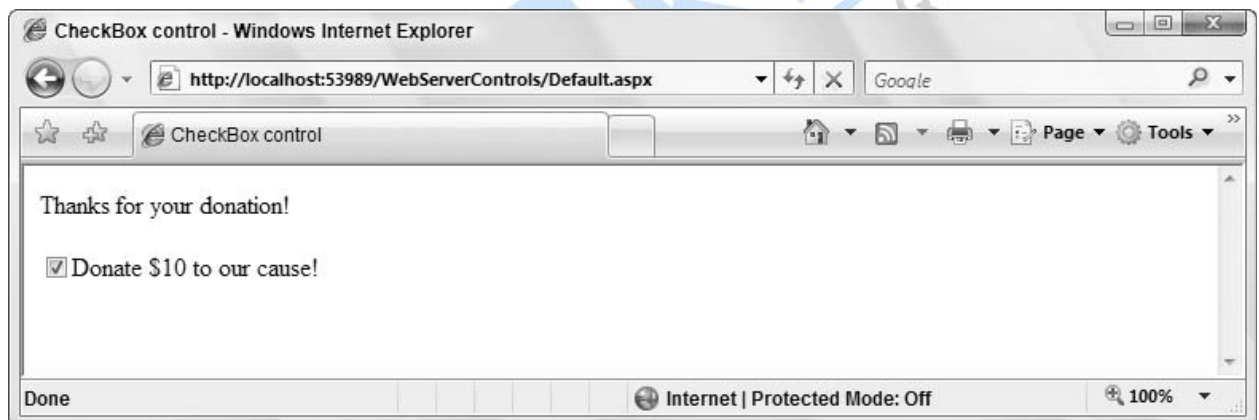
that is placed in the `NavigateUrl` property (in this case, the `Default2.aspx` page).

- 13. CheckBox:** The `CheckBox` control allows you to place single check boxes on a form; the `CheckBoxList` control allows you to place collections of check boxes on the form.

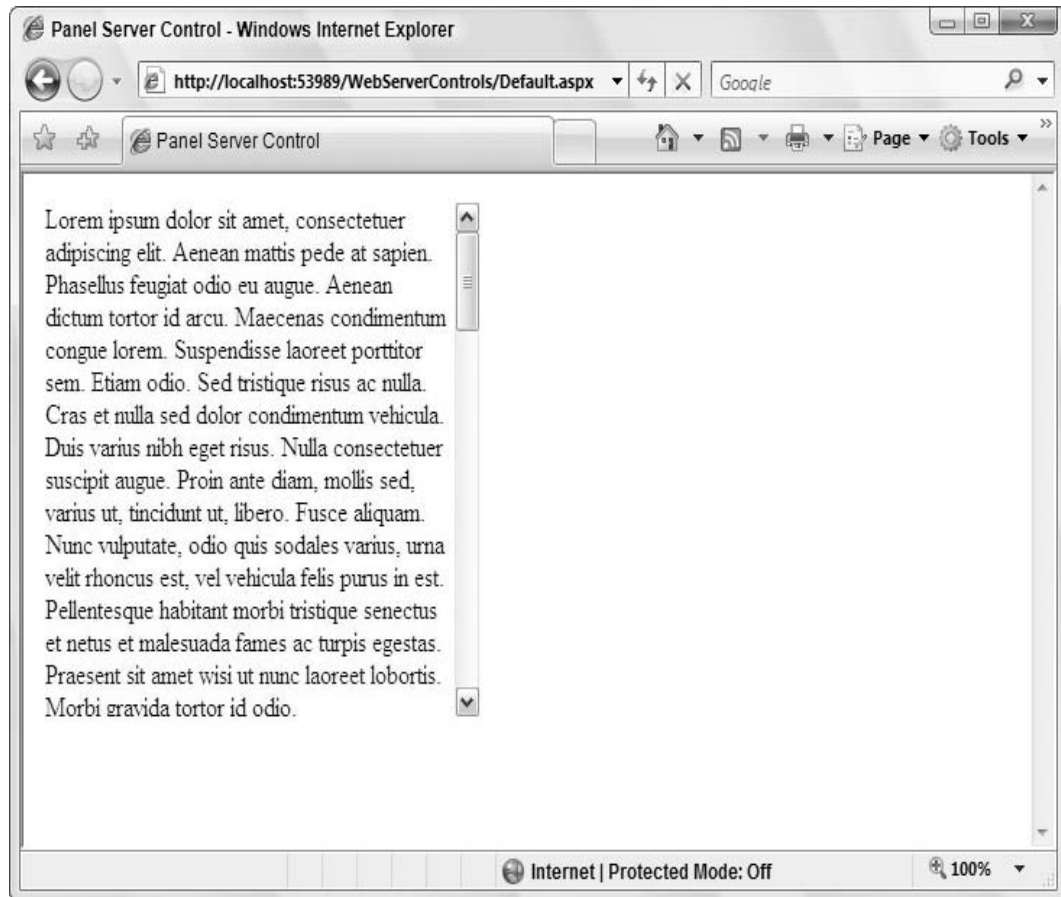
Code

```
protected void CheckBox1_CheckedChanged(object sender, EventArgs e)
{
    Response.Write("Thanks for your donation!");
}
```

This produces a page that contains a single check box asking for a monetary donation. The attribute's value points to the `CheckBox1_CheckedChanged` event, which fires when the user checks the check box.

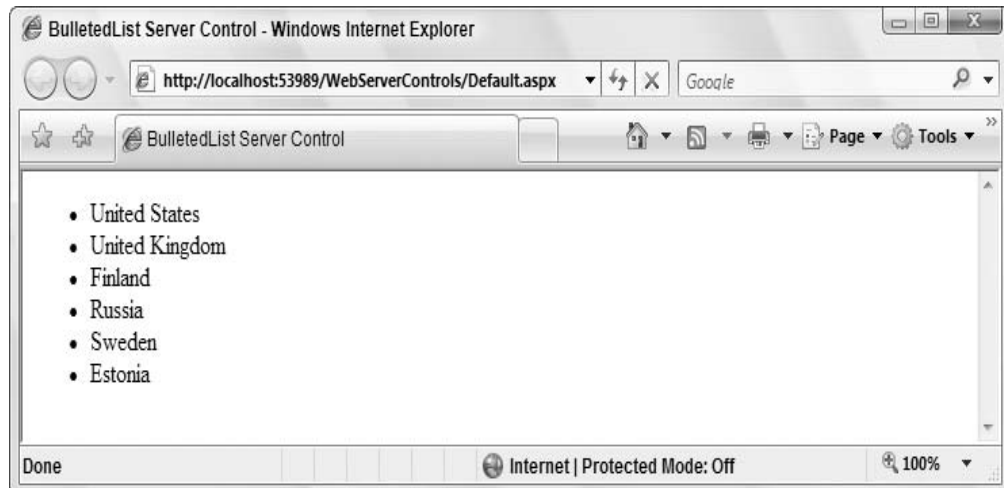


- 14. Image:** Enables user to work with images that are appearing on the web page. `ImageUrl` points to the file location of the image.
- ```
<asp:Image ID="Image1" runat="server"
ImageUrl="~/MyImage1.gif" />
```
- 15. Panel:** It encapsulates set of controls you can use to layout your page.
- ```
<form id="form1" runat="server">
    <asp:Panel ID="Panel1" runat="server" Height="300"
Width="300" ScrollBars="auto">
        <p>Lorem ipsum dolor sit amet...</p>
    </asp:Panel>
</form>
```

16. **BulletedList:** Display list of items in ordered or unordered fashion.

```
<asp:BulletedList ID="Bulletedlist1" runat="server">
<asp:ListItem>United States</asp:ListItem>
<asp:ListItem>United Kingdom</asp:ListItem>
<asp:ListItem>Finland</asp:ListItem>
<asp:ListItem>Russia</asp:ListItem>
<asp:ListItem>Sweden</asp:ListItem>
<asp:ListItem>Estonia</asp:ListItem>
</asp:BulletedList>
```



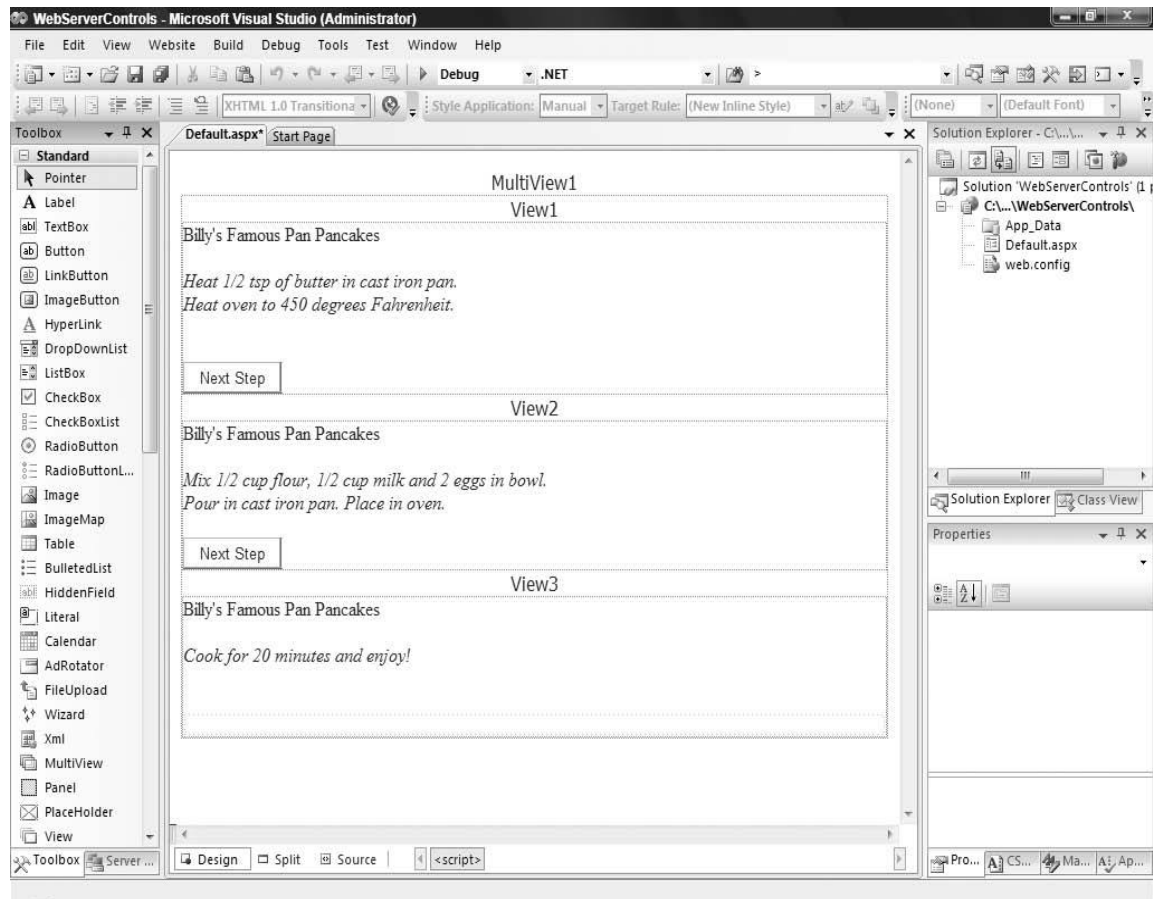
17. MultiView and View Control: They work together to enable the capability to turn on or off the ASP.NET sections of the pages.

```

<form id="form1" runat="server">
  <asp:MultiView ID="MultiView1" runat="server">
    <asp:View ID="View1" runat="server">
      Billy's Famous Pan Pancakes<p />
      <i>Heat 1/2 tsp of butter in cast iron pan.<br />
      Heat oven to 450 degrees Fahrenheit.<br />
      </i><p />
      <asp:Button ID="Button1" runat="server" Text="Next
Step"
      OnClick="NextView" />
    </asp:View>
    <asp:View ID="View2" runat="server">
      Billy's Famous Pan Pancakes<p />
      <i>Mix 1/2 cup flour, 1/2 cup milk and 2 eggs in
bowl.<br />
      Pour in cast iron pan. Place in oven.</i><p />
      <asp:Button ID="Button2" runat="server" Text="Next
Step"
      OnClick="NextView" />
    </asp:View>
    <asp:View ID="View3" runat="server">
      Billy's Famous Pan Pancakes<p />
      <i>Cook for 20 minutes and enjoy!<br />
      </i><p />
    </asp:View>
  </asp:MultiView>
</form>

```

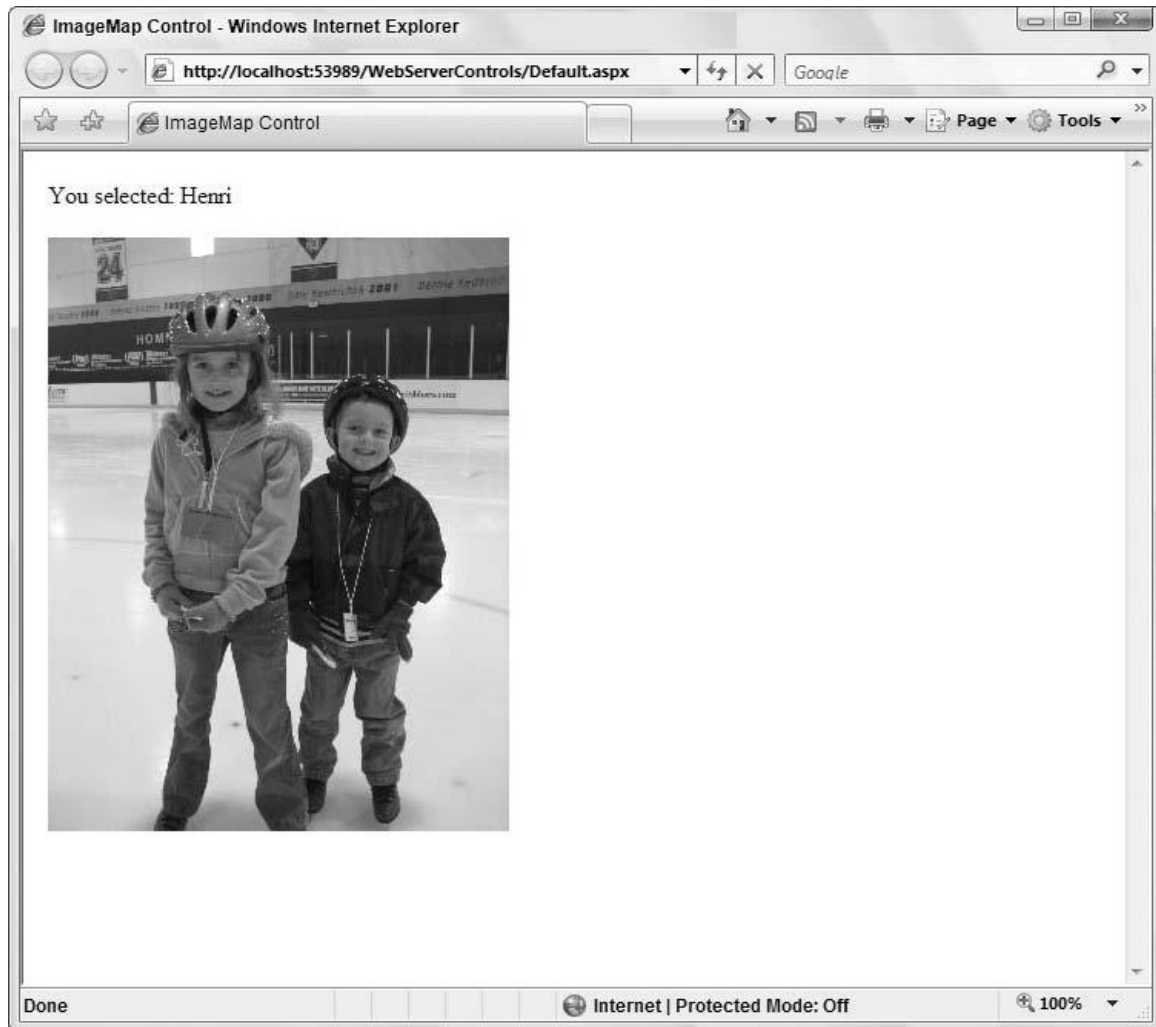
```
</asp:MultiView>
</form>
```



18. ImageMap: Enables you to turn an image into a navigation menu.

```
<asp:ImageMap ID="Imagemap1" runat="server" ImageUrl="Kids.jpg"
Width="300" OnClick="Imagemap1_Click" HotSpotMode="PostBack">
  <asp:RectangleHotSpot Top="0" Bottom="225" Left="0" Right="150"
  AlternateText="Sofia" PostBackValue="Sofia">
  </asp:RectangleHotSpot>
  <asp:RectangleHotSpot Top="0" Bottom="225" Left="151" Right="300"
  AlternateText="Henri" PostBackValue="Henri">
  </asp:RectangleHotSpot>
</asp:ImageMap>
```

The control takes the Top, Bottom, Left, and Right coordinates of the rectangle that is to be the hotspot. In place of `<asp:RectangleHotSpot>` control, you can also use the `<asp:CircleHotSpot>` and the `<asp:PolygonHotSpot>` controls.



Q.8 What are Custom Web Controls ?

Ans Visual Basic provides the most helpful feature to the programmer's is custom controls. They permit you to combine existing controls with code and create the new controls that will work with your application's design requirements. These controls can also be created as applications so that other programmer's can use them.

Q.9 Explain validations with the help of which you can control user inputs ?

Ans Validations controls are some hidden controls that validate input provided by user at the client end, against some predetermined patterns. Validations controls are:-

1) **RequiredField Validator Control**

It is used to make an input control a required field. In this, the validation fails if the input value does not change from its initial value. **ControlToValidate** shows on which control validation is applied.

```
<asp:TextBox ID="TextBox1" Runat="server"></asp:TextBox>
<asp:RequiredFieldValidator ID="RequiredFieldValidator1"
  Runat="server" Text="Required!" ControlToValidate="TextBox1">
  </asp:RequiredFieldValidator>
```

2) RangeValidator Control

It is used to check that the user enters an input value that falls between two values (Minimum and Maximum values).

```
<asp:RangeValidator ID="RangeValidator1" Runat="server"
  ControlToValidate="TextBox1" Type="Integer"
  Text="You must be between 30 and 40"
  MaximumValue="40" MinimumValue="30">
  </asp:RangeValidator>
```

3) RegularExpressionValidator Control

It is used to perform pattern matching. It checks that the entry matches a pattern defined by a regular expression. Expression for e-mail.

```
<asp:RegularExpressionValidator ID="RegularExpressionValidator1"
  Runat="server" ControlToValidate="TextBox1"
  Text="You must enter an email address"
  ValidationExpression="\w+([-+.]\\w+)*@[\\w+([-.]\\w+)*\\.\\w+([-
  .]\\w+)*">
  </asp:RegularExpressionValidator>
```

4) CompareValidator Control

It is used to compare the value entered by the user into an input control with the value entered into another input control or with an existing value. **ControlToCompare** with which control comparison is made.

```
<p>
  Password<br>
```



```

<asp:TextBox ID="TextBox1" Runat="server"
  TextMode="Password"></asp:TextBox>
  &nbsp;
<asp:CompareValidator ID="CompareValidator1"
  Runat="server" Text="Passwords do not match!"
  ControlToValidate="TextBox2"
  ControlToCompare="TextBox1"></asp:CompareValidator>
</p>

```

5) CustomValidator Control

It checks that whether the input received matches with the condition that is being set for the control e.g. if a condition of accepting only numbers divisible by 5 is set for a particular field, then the control evaluates every entered number and generates an error message if it is not divisible by 5.

```

<asp:CustomValidator ID="CustomValidator1"
  Runat="server" ControlToValidate="TextBox1"
  Text="Number must be divisible by 5"
  ClientValidationFunction="validateNumber">
</asp:CustomValidator>

```

```

<script type="text/javascript">
  function validateNumber(oSrc, args) {
    args.IsValid = (args.Value % 5 == 0);
  }
</script>

```

The string value provided to **ClientValidationFunction** property is the name of the client-side function that you want this validation check to employ when the CustomValidator control is triggered. In this case, it is validateNumber:
ClientValidationFunction="validateNumber"

6) Validation Summary Control

This control can be used to display the error messages from all validation controls in a single location.

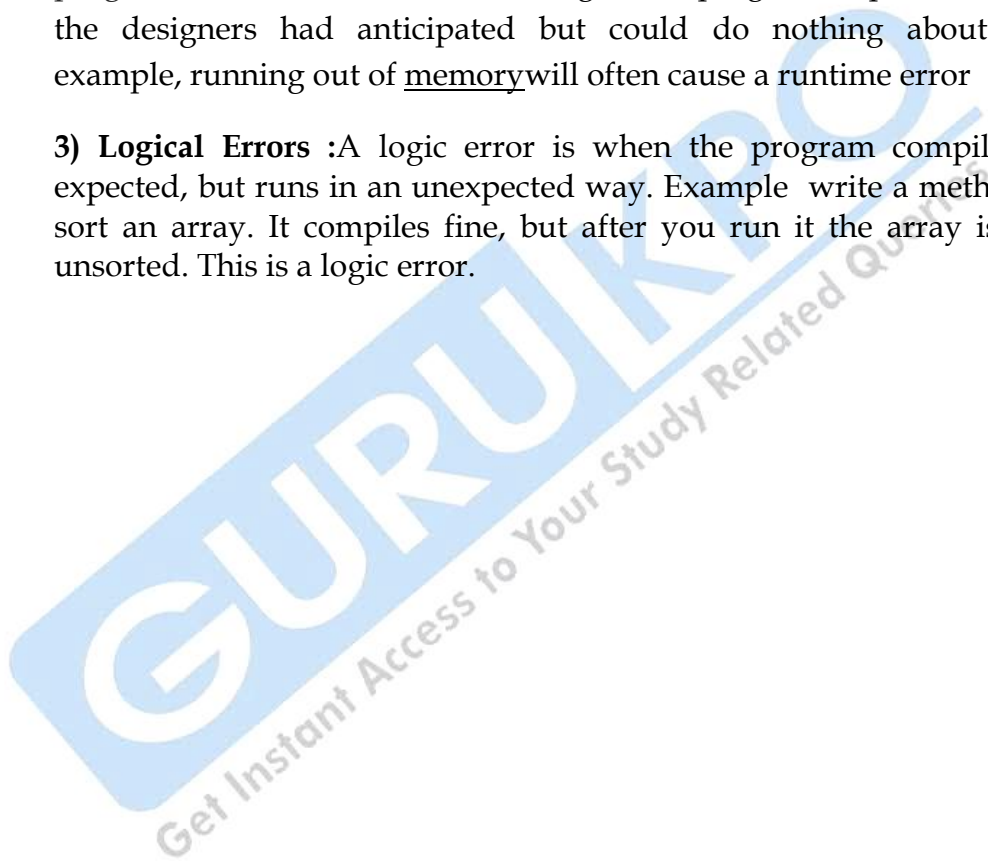
Q.10 How you can debug ASP.NET pages ?

Ans The process of going through the code to identify the cause of errors and fixing them is called Debugging. There are three types of errors:

1) Syntax Errors:an error of language that resides in code that does not match to the syntax of the programming language; "syntax errors can be recognized at compilation time"; " a common syntax error is to omit a parenthesis"

2) Runtime Errors :An error that occurs during the execution of a program. Runtime errors indicate bugs in the program or problems that the designers had anticipated but could do nothing about. For example, running out of memory will often cause a runtime error

3) Logical Errors :A logic error is when the program compiles as expected, but runs in an unexpected way. Example write a method to sort an array. It compiles fine, but after you run it the array is still unsorted. This is a logic error.



Unit III

Advanced ASP .NET

Q.1 What is the use of ASP.NET Configuration ?

Ans. XML configuration files manages the configuration in ASP.NET. All the information needed to configure an ASP.NET application's core setting as well as the custom setting specific to user's own application, is stored in these configuration files.

Web.config file is included by all web applications because that configures fundamental settings, everything from the way error messages are shown to the security settings that lock-out unwanted visitors.

Q.2 What do you mean business objects ?

Ans. They are called business objects because they enforce "business rules". They are the components in the second layer of your application that provide the extra layer between code and the data source. For Example, if you try to submit a purchase order without any items, the appropriate business object would throw an exception and refuse to continue. In this case, no .NET error has occurred- instead you have detected the presence of a condition that should not be allowed according to your application's logic.

Q.3 What do you understand by caching in asp.net ? Explain its types ?

Ans. The ability to store data in main memory and then allow the retrieval of the same as and when they are requested it can give high performance and scalable applications. This is one of the most striking features in Microsoft's ASP.NET.

ASP.NET provides three types of caching:

- 1) Page Output Caching: The whole page is cached in the memory so that all the request for the same page can be addressed(fullfill) from cache itself.
- 2) Page Fragment Caching: Only the specific portion of the page is cached, not the entire page.

- 3) Data Caching: It allows us to cache frequently the used data and then retrieved the same data from the cache when it is needed.

Q.4 What are HTTP Handlers ?

Ans. An HTTP handlers is a class the intercepts and handles requests for a resource of a given type on a web server. HTTP handlers are a key feature of ASP.NET

Example, when you request an .aspx file, a built in HTTP handler intercepts the request and takes charge of loading and executing the .aspx file. ASP.NET also provides built-in HTTP handlers for .asmx, .ascx, .cs and .vb files as well as other file types. The <httpHandlers> element of the machine.config file contains a list of the standard HTTP handlers configured for your web server.

Q.5 What are the key concepts that are important for the ASP.NET security ?

Ans. ASP.NET provides more control for having security for your applications. There are three key concepts for that are important for ASP.NET security models:-

- 1) Authentication: Identifying users that access your application.
- 2) Authorization: Determining users' rights when they attempt to perform tasks in your solution.
- 3) Impersonation: Establishing the Windows identity used to execute your application code.

What you have to do to enable security on a machine? Nothing- code automatically runs within the security context of the CLR.

Unit IV

Building Web Services

Q.1 Give a brief introduction of web services ?

OR

What are web services ?

Ans. Web services are an application that integrate the web based applications using the SOAP,UDDI open standards etc. over the internet. It exposes functionality to clients ,providing some service or access to data in a controlled manner.

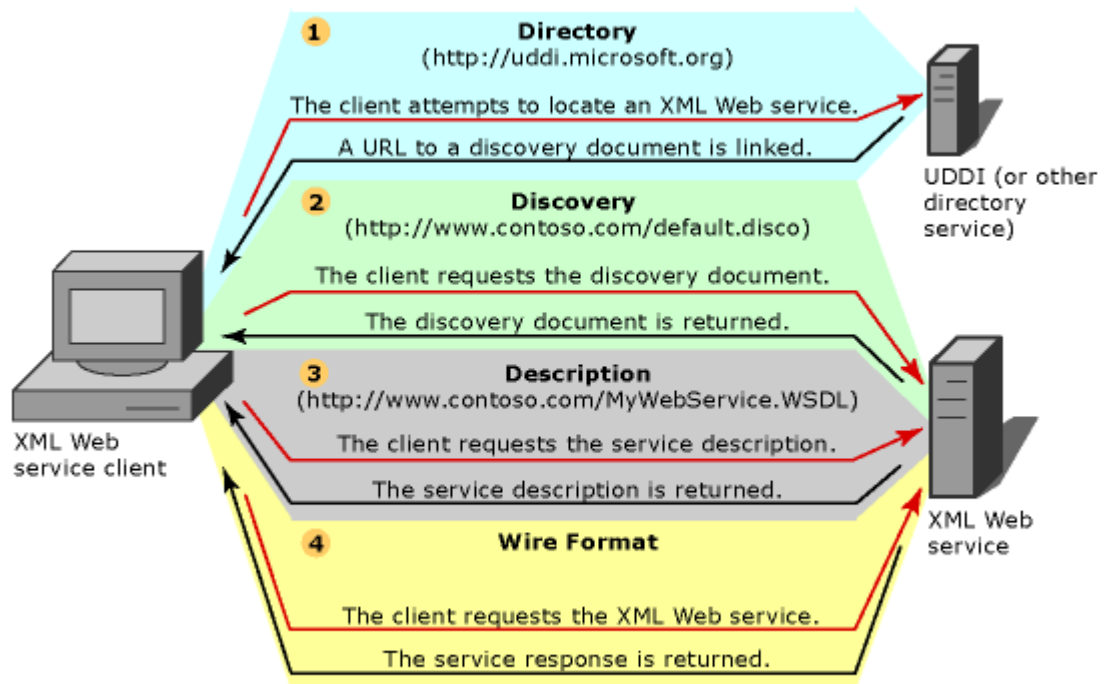
.NET web service is a web application that consists of a number of pages or access points that are used to call functions.

Q.2 Explain the Infrastructure of Web Services ?

Ans. Web Services must not dependent on the OS, object mode and programming language.

The infrastructure of a web service consists:-

1. **Web Services Directory:** It provides the centralized locations where you can publish information about your web service.
2. **Web Services Discovery:** It is the searching(discovery)mechanism, which can locate the required web service.
3. **Web Services Description:** It is an XML document written in an XML language known as WSDL.WSDL socument defines message formats like HTTP-GET and HTTP-POST to communicate between a web service and a client.
4. **Web Services Wire Format:** Web service can use any Remote Proceddure Call (RPC) protocol such as DCOM or Common object Request Broker Architecture(CORBA) to transmit data.



Q.3 Define SOAP ? Explain its characteristics ?

Ans. It is a simple XML based protocol to enable the applications to exchange information over HTTP.

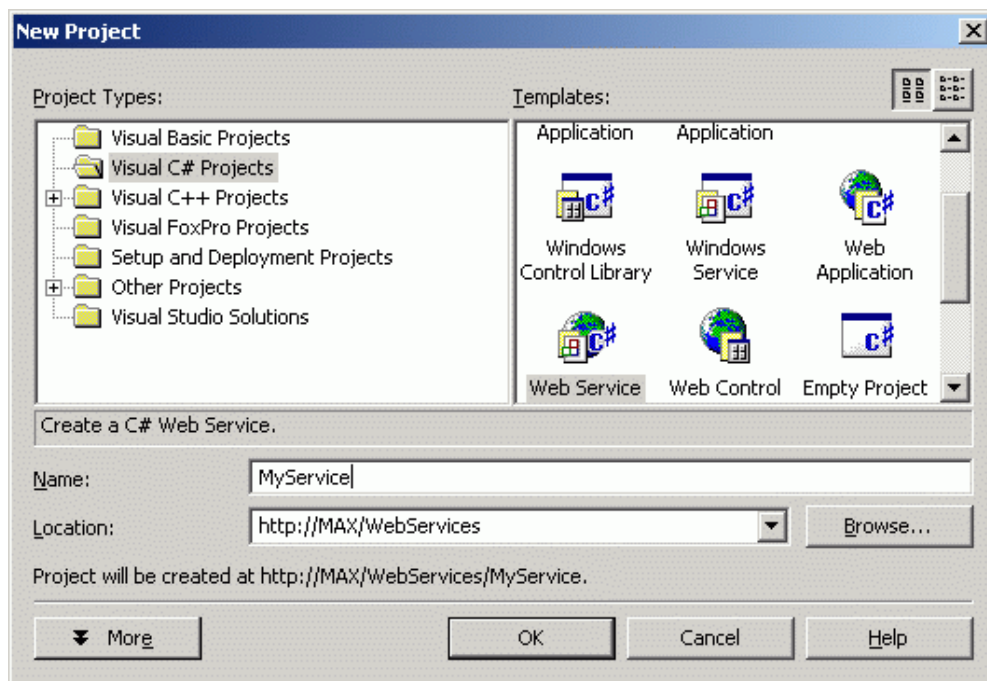
Characteristics

1. Communication protocol
2. Establish communication between applications.
3. Format for sending messages
4. Platform Independent
5. Language Independent
6. Based on XML.
7. Simple and Extensible

Q.4 How you can build a simple web services ?

Ans. To create a Web service within the VS.NET IDE, start the **New Project Wizard** by choosing **New** from the **File menu** and then choosing **Project**

Example , create a **service** called **MyService** in the **/WebServices** directory on your local machine. The files will be created in the **/WebServices/MyService** directory.



A new namespace will be defined called **MyService**, and within this namespace will be a set of classes that define your Web Service.

The resulting Web service will contain the following files by default:

- 1) **AssemblyInfo.cs**: Contains assembly information for the Web Service.
- 2) **Global.asax**: Contains references to the global Web application page and code, including .cs and .resx files.
- 3) **Service1.asmx**: Contains references to the web service page access point and code, including .cs and .resx files.
- 4) **Web.config**: contains web application configuration settings.
- 5) **WebService1.csproj**: Contains project settings and references to the VS project support files, including the .webinfo file.

- 6) **WebService1.vsdisco**: Contains the web service dynamic discovery support document.

The default class has been created for your service is *WebService1*, and is within the *MyService* namespace. The code is

```
namespace MyService
{
    [WebService(Namespace="http://codeproject.com/webservices/",
        Description="This is a demonstration WebService.")]
    public class WebService1 : System.Web.Services.WebService
    {
        public WebService1()
        {
            //CODEGEN: This call is required by the ASP+ Web Services
            Designer
            InitializeComponent();
        }
        ...

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

If you compile and run the service as-is you'll get a long involved message indicating you should choose a new namespace, so we add the namespace, and the *WebService* description as follows:

```
[WebService(Namespace="http://codeproject.com/webservices/",
    Description="This is a demonstration WebService.")]
```

To test the service you can right click on *WebService1.asmx* in the Solution Explorer in Visual Studio and choose "View in Browser".

Q.5 How you can deploy and publish web service ?

Ans. Deploying a web service involves copying the *.asmx* file and any assemblies utilized by the web service not a part of the Microsoft .NET Framework to the web server on which it will exist.

Create a special document, and Active Server Method Extension file(ASMX) and place it in a publicly available web on your server.

Example, consider that you want to publish a class called `sample` that contains a single method called `DOMath` that accepts two inputs of the type `double`, performs a multiplication operation on the inputs and returns a single output of the type `double`, i.e., the result of the math operation. Create this class in ASMX file.

Simply placing this ASMX file in your web, you are now publishing a web service.

Q.6 How you can consume web service ?

Ans. After creating the web service, you can consume the web service using the protocols that the service is configured to response.

- 1) **Using HTTP GET Protocol:** To use the page, make a call to the web service name and pass the required parameter to service. This call will return an XML document that includes the results of the service.
- 2) **Using HTTP POST Protocol:** It is similar to HTTP GET protocol, user call the web service page and post the parameters to the page as required.
- 3) **Using the SOAP Protocol:** Soap directly call components and execute methods. The web service will return the data as an XML document.



Unit V

Ado.Net

Q.1 What is ADO.NET ?

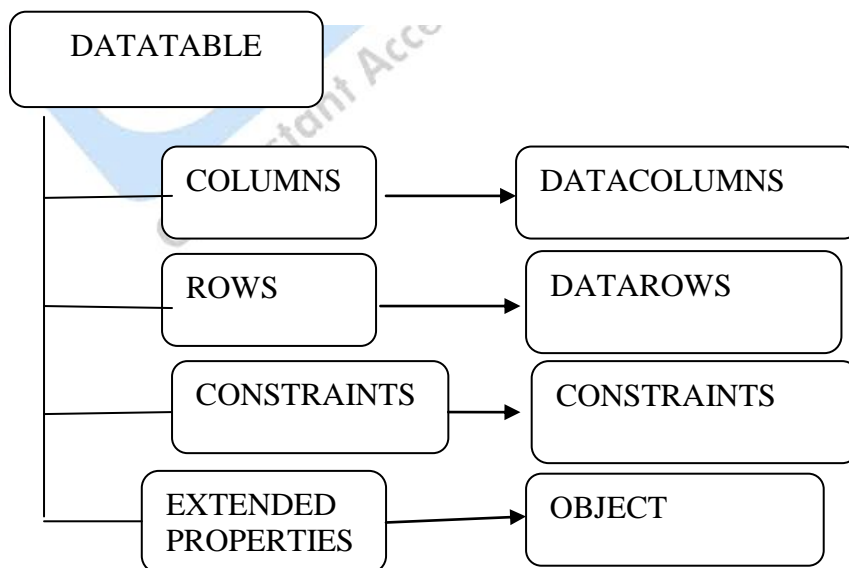
Ans. ADO.NET is an object-oriented set of libraries which enables user the communicate with the datasources (like database). It is made from a set of classes that are used for connecting to a database, providing access to relational data, XML, and application data, and retrieving results.

Q.2 Explain the Data Table in ASP.NET?

Ans. A Datable to database table - it contains a set of columns with some properties and might have zero or more rows of data. It may also have primary, which can be one or more columns.

A DataTable can have an arbitrary number of extended properties associated with it. Example, a column might have an input mask used to validate the contents of that column - U.S. Social Security number.

When a data table has been populated by selecting data from a database, reading data from a file, or manually populating within code - the rows collection will contain this retrieved data.



Q.3 What is dataset ?

Ans. Data Sets holds only the data and never communicate with a data source. It is an in-memory data store that can hold numerous tables. It stores disconnected information drawn from a database and allows you to manipulate it as a single packaged object.

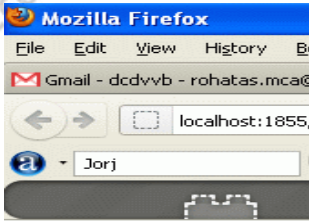
Q.4 What do you understand by data views ? Explain with an example ?

Ans. Data view enables you to create different views of the data stored in a Data Table. With the help of DataView ,you can expose the data in a table with different sort orders, and you can filter the data by row state or based on a filter expression.

Example, showing data in gridview

```
SqlConnection con = new SqlConnection("Data Source=.; uid=sa;
pwd=wintellect;database=Rohatash;");
string strSQL = "Select * from UserDetail";
SqlDataAdapter dt = new SqlDataAdapter(strSQL, con);
DataSet ds = new DataSet();
dt.Fill(ds, "UserDetail");
con.Close();
DataView dv = new DataView();
GridView1.DataSource = ds.Tables[0].DefaultView;
GridView1.DataBind();
```

Now run the application.



The screenshot shows a Mozilla Firefox browser window with a menu bar (File, Edit, View, History, B...), a Gmail address bar (dcdvrb - rohatas.mca@), and a search bar (Jorj). Below the browser, a table displays user details:

UserID	UserName
100	Rohatash
100	Rohatash
4	Manoj
8	Jorj
9	yong

Q.5 Define OLEDB and SQL Managed Providers ?

Ans. ADO.NET offers two Managed Providers. The SQL Managed Provider provides a direct link into Microsoft's SQL Server database application whereas the OleDb Managed Provider is used for all other data providers.

OleDb Managed Provider

For creating a link with data store and negotiate commands, OleDb Managed Provider take the help of OLEDB and COM Interop.

System.Data.OleDb namespace should be imported for using the OleDb Managed Provider.

SQL Managed Provider

It is developed for Microsoft SQL Server 7.0 or greater. It links and negotiates with SQL Server without the help of OLEDB. For using the SQL Managed Provider, you must import the System.Data.SqlClient namespace.

Q.6 Explain OLEDB Data Adapter Type ?

Ans. OLEDB Data Adapter exists between the database and DataSet which establishes all communication between the two. DataAdapter use Fill method to fill DataTable or DataSet with data from the database.

DataAdapter gives four properties that represent database commands:

- 1) **Select Command:** It select records in the datasource (database).
- 2) **Delete Command:** Delete records from the dataset.
- 3) **Insert Command:** Insert new records into the datasource(database).
- 4) **Update Command:** Update records in a data source (database).

Multiple Choice Questions

1. Which of the following is not a .NET compatible language?
 - 1) C#
 - 2) J#
 - 3) VB.NET
 - 4) **Java**

2. Common language specification(CLS)
 - 1) is an execution engine for all .net application
 - 2) is similar to JVM as in Java
 - 3) **defines standard rules for defining .Net compliant languages**
 - 4) is a compiler

3. What is CTS in .NET?
 - 1) **Defines rules concerning data types**
 - 2) Defines a set of rules for all compilers to generate manage code for .NET
 - 3) Describes a set of features that different languages have in common
 - 4) None of the above

4. Types supported by CTS
 - 1) Value type
 - 2) Refernce types
 - 3) **Both**

5. Content of assembly can be viewed using
 - 1) **ILDASM.exe**
 - 2) ILDASM.dll
 - 3) ILDASM.inc
 - 4) ILDASM.aspx

6. using or Imports statement
 - 1) allows references to members of a namespace without using the fully qualified name
 - 2) **use to reference an external library**

3) both a and b

7. Which of the following is not true about .Net structure?

- 1) structures are value types
- 2) structures use new keyword upon instantiation
- 3) structures can have events as member
- 4) **structures are reference types.**

8. Which of the following is not true for garbage collection?

- 1) It manages the reclamation of unused memory
- 2) It deals with circular references
- 3) **You can be certain when an object will be reclaimed by garbage collector**
- 4) It disposes unreferenced objects

9. JIT compiler is a part of the runtime execution environment

- 1) **Yes**
- 2) No

10. Which of the following is not JIT compiler type?

- 1) Pre-JIT
- 2) ECONO-JIT
- 3) Normal-JIT
- 4) **Abnormal-JIT**

11. Which of the following is not true for .NET exception?

- 1) All exceptions in .NET are derived from Exception base class
- 2) **Exceptions can't be generated programmatically**
- 3) We have system exceptions and application exceptions in .NET

12. What is strong name?

- 1) It is similar to GUID in COM
- 2) It is required when we need to deploy assembly in GAC
- 3) It helps GAC to differentiate between two versions

4) All of the above

13. .NET obfuscation solution

- 1) Decompiles DLL back into actual source code
- 2) It determines if or not a piece of code is allowed to run
- 3) **Prevent a .NET DLL to be decompiled**
- 4) None of the above

14. Which of the following does the actual .Net code execute?

- 1) CLS
- 2) MSIL
- 3) CTS
- 4) **CLR**

15. When does Garbage collector run?

- 1) Every one minute
- 2) **When application is running low of memory**
- 3) It runs randomly

16. Which tool can be used to precompile a window application?

- 1) **ngen.exe**
- 2) caspol.exe
- 3) caspol.dll
- 4) ngen.dll

17. .Net remote server object must implement

- 1) ISingleCall
- 2) **ISerializable**
- 3) IUnknown
- 4) IMarshalByValue

18. Limitation of XML serialization

- 1) It can't serialize DataSet objects
- 2) **It doesn't serialize type information**
- 3) It can't serialize XmlNode object
- 4) All of the above

19. Which of the CLR component allows .net application exchange data with COM application?

- 1) Base class library
- 2) **COM marshaller**
- 3) Class loader
- 4) Thread support

20. FEATURES of automatic memory management in .Net

- 1) Allocating memory
- 2) Releasing memory
- 3) Implementing finalizers
- 4) **All of the above**

21. _____ contains information about the assembly and the resources that it depends on

- 1) MSIL
- 2) **Assembly manifest**
- 3) GAC
- 4) Type metadata

22. Which of the following is not the content of the assembly manifest?

- 1) Version number
- 2) Strong name
- 3) Culture
- 4) Assembly name
- 5) **Assembly source code**

23. What are the configuration files used by the .Net Framework?

- 1) Machine configuration, Machine.config file
- 2) Application configuration file
- 3) Security configuration file
- 4) **All of the above**

24. Which of the following is the tool to modify configuration files?

- 1) Mscorcfg.msc
- 2) Caspol.exe
- 3) **a and b**
- 4) IISASSEMBLY.exe

25. Which of the following statements is correct about Managed Code?

- 1) Managed code is the code that is compiled by the JIT compilers
- 2) Managed code is the code where resources are Garbage Collected
- 3) Managed code is the code that runs on top of Windows.
- 4) Managed code is the code that can run on top of Linux.
- 5) **Managed code is the code that is written to target the services of the CLR.**

26. Which of the following components of the .NET framework provide an extensible set of classes that can be used by any .NET compliant programming language?

- 1) **NET class libraries**
- 2) Common Language Runtime
- 3) Common Language Infrastructure
- 4) Component Object Model
- 5) Common Type System

27. Choose the form in which Postback occurs.

- 1) HTMLForms
- 2) Winforms
- 3) **Webforms**

28. Web.config file is used...

- 1) Configures the time that the server-side codebehind module is called
- 2) **To store the global information and variable definitions for the application**
- 3) To configure the web server
- 4) To configure the web browser

29. Which of the following object is not an ASP component?

- 1) **LinkCounter**
- 2) Counter
- 3) File Access

4) AdRotator

30. The first event triggers in an aspx page is.

- 1) **Page_Init()**
- 2) Page_Load()
- 3) Page_click()

31. Difference between Response.Write() and Response.Output.Write().

- 1) Response.Output.Write() allows you to flush output
- 2) Response.Output.Write() allows you to stream output
- 3) **Response.Output.Write() allows you to write formatted output**
- 4) Response.Output.Write() allows you to buffer output

32. Which of the following method must be overridden in a custom control?

- 1) **The Render() method**
- 2) The Paint() method
- 3) The default constructor
- 4) The Control_Build() method

33. How do we create a FileSystemObject?

- 1) **Server.CreateObject("Scripting.FileSystemObject")**
- 2) Create("FileSystemObject")
- 3) Server.CreateObject("FileSystemObject")
- 4) Create Object:"Scripting.FileSystemObject"

34. Which of the following tool is used to manage the GAC?

- 1) RegSvr.exe
- 2) **GacUtil.exe**
- 3) GacMgr.exe
- 4) GacSvr32.exe

35. What class does the ASP.NET Web Form class inherit from by default?

- 1) **System.Web.UI.Page**
- 2) System.Web.Form
- 3) System.Web.GUI.Page
- 4) System.Web.UI.Form

36. We can manage states in asp.net application using

- 1) Session Objects
- 2) Application Objects
- 3) Viewstate
- 4) **All of the above**

37. Attribute must be set on a validator control for the validation to work.

- 1) **ControlToValidate**
- 2) ControlToBind
- 3) ValidateControl

38. Caching type supported by ASP.Net

- 1) Output Caching
- 2) DataCaching
- 3) **a and b**
- 4) none of the above

39. What is used to validate complex string patterns like an e-mail address?

- 1) Extended expressions
- 2) Basic expressions
- 3) Irregular expressions
- 4) **Regular expressions**

40. File extension used for ASP.NET files.

- 1) .Web
- 2) .ASP
- 3) **ASPX**
- 4) None of the above

41. An alternative way of displaying text on web page using

- 1) **asp:label**
- 2) asp:listitem
- 3) asp:button

42. Why is Global.asax is used?

- 1) Declare Global variables

- 2) No use
- 3) **Implement application and session level events**

43. Which of the following is not a member of ADODBCommand object?

- 1) ExecuteScalar
- 2) **ExecuteStream**
- 3) Open
- 4) ExecuteReader

44. Which DLL translate XML to SQL in IIS?

- 1) **SQLISAPI.dll**
- 2) SQLXML.dll
- 3) LISXML.dll
- 4) SQLIIS.dll

45. Default Session data is stored in ASP.Net.

- 1) StateServer
- 2) Session Object
- 3) **InProcess**
- 4) all of the above

46. Default scripting language in ASP.

- 1) EcmaScript
- 2) JavaScript
- 3) PERL
- 4) **VBScript**

47. Caching improves web application performance by storing responses to frequent requests in memory but caching an item incurs considerable overhead.

- 1) **True**
- 2) False

48. Which of the following is used to cache multiple responses for web form based on different control selections?

- 1) Output cache directive
- 2) OnRemoveCallback delegate
- 3) **VaryByParam attribute**

49. Which of the following is used to monitor an application's use of the cache?

- 1) Alerts snap-in
- 2) MMC performance logs
- 3) **Both Alerts snap-in and MMC performance logs are used**

50. Which of the following is used to detect when cached data is about to be unloaded from memory?

- 1) **OnRemoveCallback directive**
- 2) OutputCache directive
- 3) Alerts snap-in
- 4) VaryByParam attribute

51. Which ASP.NET performance counter is the best indicator of inefficient caching?

- 1) **Turnover rate performance counter**
- 2) Misses cache counter
- 3) Hits cache counter
- 4) Entries cache counter

52. Which of the following is the process of granting access to the users based on identity?

- 1) **Authentication**
- 2) Authorization
- 3) Impersonation

53. _____ is the process of assigning a user account to an unknown user.

- 1) **Impersonation**
- 2) Authorization
- 3) Authentication

54. Which one of the authentication way identifies and authorizes users based on the server's user list?

- 1) **Windows authentication**
- 2) Forms authentication

- 3) Passport authentication

55. Which authentication type OS best suited for multiple commercial web application?

- 1) Passport
- 2) Forms
- 3) Windows
- 4) **Anonymous**

56. Which type is best suited for public internet web application?

- 1) **Windows authentication**
- 2) Passport authentication
- 3) Anonymous

57. What standard, protocol or language was generalized to become a standard protocol for sending messages of any type, using any protocol?

- 1) **SOAP**
- 2) SGML
- 3) SQL
- 4) ADO

58. Which of the following statements is not true about XML Schemas:

- 1) They are used to define the content and structure of data.
- 2) They define a set of symbols and the relationships of those symbols.
- 3) They are themselves XML documents.
- 4) **They have their own syntax.**

59. The most popular way to materialize XML documents is to use:

- 1) DTD
- 2) HTML
- 3) **XSLT**
- 4) SOAP

60. What is not true about SOAP?

- 1) SOAP originally meant Simple Object Access Protocol.
- 2) SOAP was defined as an XML-based standard for providing remote procedure calls over the Internet.
- 3) SOAP now is just a name, not an acronym
- 4) **SOAP was an early form of XML.**

61. HTML is an application of a more robust document markup language called:

- 1) XHTML.
- 2) XML.
- 3) **SGML.**
- 4) None of the above is correct.

62. What is not true about XML?

- 1) **Web page display is the most important application of XML.**
- 2) With XML, there is a clear separation between document structure, content and materialization
- 3) XML is more powerful than HTML.
- 4) XML documents have two sections.

63. Which of the following is not true about ADO.NET?

- 1) ADO.NET enables to create distributed data sharing applications
- 2) ADO.NET uses XML to transfer data across applications and data source
- 3) **ADO.NET doesn't support disconnected architecture**
- 4) The classes of ADO.NET are defined in the System.Data namespace

64. Which of the following illustrates the benefit of ADO.NET?

- 1) Interoperability
- 2) It uses DataSet to represent data in memory that can store data from multiple tables and multiple sources
- 3) Disconnected data access
- 4) **All of above**

65. Which of the following is the object of .NET data provider?

- 1) Connection
- 2) Command
- 3) Data Reader
- 4) **All of above**

66. DataAdapter object populates a DataSet and resolves updates with the data source. Yes or No?

- 1) **Yes**
- 2) No

67. When you create a relationship between tables in ADO.NET DataSet

- 1) UniqueConstraint is added to the parent table
- 2) a ForeignKeyConstraint is added to the child table by default
- 3) **Both a and b**

68. Which of the following is not true for ADO.NET DataSet?

- 1) DataSet provides a disconnected view of a data source.
- 2) Dataset enables to store data from multiple tables and multiple sources
- 3) We can create relationship between the tables in a DataSet
- 4) **All of above are true**

69. Which of the following method of the command object is best suited when you have aggregate functions in a SELECT statement?

- 1) **ExecuteScalar**
- 2) ExecuteReader
- 3) ExecuteNonQuery

70. Which of the following is the event that is exposed by the DataTable object?

- 1) RowChanged
- 2) ColumnChanged
- 3) RowChanging
- 4) **All of above**

71. Which of the following is not the method of DataAdapter?

- 1) Fill
- 2) FillSchema
- 3) **ReadData**
- 4) Update

72. Which of the following is the method provided by the DataSet object to generate XML?

- 1) ReadXML
- 2) WriteXML
- 3) GetXML
- 4) **All of above**

73. ADO.NET provides the ability to create and process in-memory databases called:

- 1) views.
- 2) relations.
- 3) tables.
- 4) **datasets.**

74. _____ is considered to be one of the foundations of data access in the Microsoft world.

- 1) ODBC
- 2) **OLE DB**
- 3) ADO
- 4) JPCD

75. Which of the following are goals of OLE DB?

- 1) Create object interfaces for DBMS functionality pieces only.
- 2) Increase flexibility only.
- 3) Object interface over any type of data only
- 4) **All of the above as goals of OLE DB**

76. In OLE DB, actions that an object can perform are called:

- 1) properties.
- 2) collections.
- 3) **methods.**
- 4) abstractions.

77. _____ is an object-oriented interface that encapsulates data-server functionality.

- 1) ODBC
- 2) **OLE DB**
- 3) JPCD
- 4) ADO

78. In OLE DB, a service provider:

- 1) does not own data only
- 2) transforms data through OLE DB interfaces only.
- 3) is both a consumer and a provider of data only.
- 4) **All of the above are true of an OLE DB service provider.**

1 (4)	2 (3)	3 (1)	4 (3)	5 (1)	6 (2)	7 (4)	8 (3)	9 (1)	10 (4)
11 (2)	12 (4)	13 (3)	14 (4)	15 (2)	16 (1)	17 (2)	18 (2)	19 (2)	20 (4)
21 (2)	22 (5)	23 (4)	24 (3)	25 (5)	26 (1)	27 (3)	28 (2)	29 (1)	30 (1)
31 (3)	32 (1)	33 (1)	34 (2)	35 (1)	36 (4)	37 (1)	38 (3)	39 (4)	40 (3)
41 (1)	42 (3)	43 (2)	44 (1)	45 (3)	46 (4)	47 (1)	48 (3)	49 (3)	50 (1)
51 (1)	52 (1)	53 (1)	54 (1)	55 (4)	56 (1)	57 (1)	58 (4)	59 (3)	60 (4)

61 (3)	62 (1)	63 (3)	64 (4)	65 (4)	66 (1)	67 (3)	68 (4)	69 (1)	70 (4)
71 (3)	72 (4)	73 (4)	74 (2)	75 (4)	76 (3)	77 (2)	78 (4)		

ASSIGNMENT

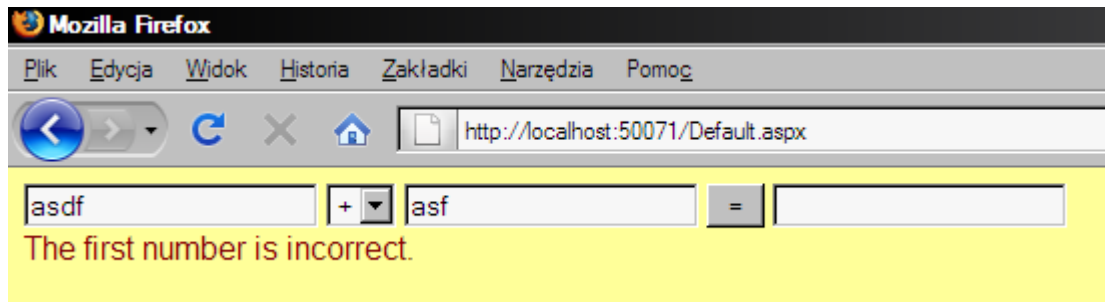
Q1. Draw a calculator

Default.aspx.cs

```
protected void Page_Load(object sender, EventArgs e)
{
    if (!IsPostBack)
    {
        operatorDropDownList.Items.Add("+");
        operatorDropDownList.Items.Add("-");
        operatorDropDownList.Items.Add("/");
        operatorDropDownList.Items.Add("*");
    }
}
protected void calculateButton_Click(object sender, EventArgs e)
{
    resultTextBox.Text = "";
    double left, right;
    if (!double.TryParse(leftTextBox.Text, out left))
    {
        statusLabel.Text = "The first number is incorrect.";
    }
    else if (!double.TryParse(rightTextBox.Text, out right))
    {
        statusLabel.Text = "The second number is incorrect.";
    }
    else if (operatorDropDownList.SelectedValue == "/" &&
Math.Abs(right) < 1e-307)
    {
        statusLabel.Text = "Divide by 0";
    }
}
```



```
else
{
    double result = 0;
    switch (operatorDropDownList.SelectedValue)
    {
        case "+":
            result = left + right;
            break;
        case "-":
            result = left - right;
            break;
        case "*":
            result = left * right;
            break;
        case "/":
            result = left / right;
            break;
    }
    resultTextBox.Text = result.ToString();
    statusLabel.Text = "";
}
}
```



Q2. Draw Login page using ASP.NET ?

ColumnName	DataType
UserId	Int(set identity property=true)
UserName	varchar(50)

Password	varchar(50)
FirstName	varchar(50)
LastName	varchar(50)

Default.aspx

```

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>Login Form</title>
</head>
<body>
<form id="form1" runat="server">
<div>
<table>
<tr>
<td>
Username:
</td>
<td>
<asp:TextBox ID="txtUserName" runat="server"/>
<asp:RequiredFieldValidator ID="rfvUser" ErrorMessage="Please enter
Username" ControlToValidate="txtUserName" runat="server" />
</td>
</tr>
<tr>
<td>
Password:
</td>
<td>
<asp:TextBox ID="txtPWD" runat="server" TextMode="Password"/>
<asp:RequiredFieldValidator ID="rfvPWD" runat="server"
ControlToValidate="txtPWD" ErrorMessage="Please enter Password"/>
</td>
</tr>
<tr>
<td>
</td>
<td>
<asp:Button ID="btnSubmit" runat="server" Text="Submit"
onclick="btnSubmit_Click" />

```

```
</td>
</tr>
</table>
</div>
</form>
</body>
</html>
```

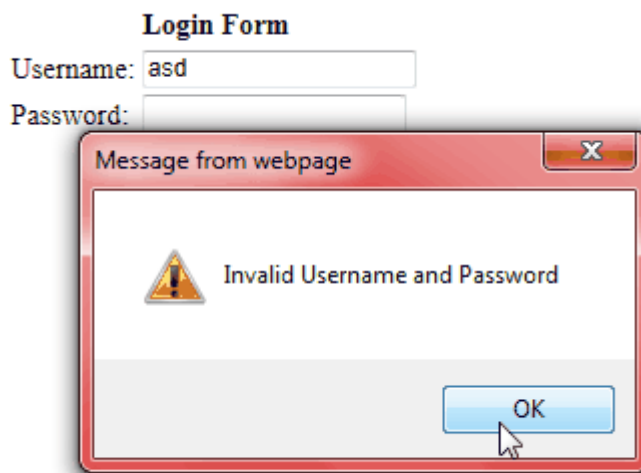
C# Code

```
using System;
using System.Data;
using System.Data.SqlClient;
using System.Configuration;

protected void btnSubmit_Click(object sender, EventArgs e)
{
    SqlConnection con = new
    SqlConnection(ConfigurationManager.ConnectionStrings["dbconnection"].Co
    nnectionString);
    con.Open();
    SqlCommand cmd = new SqlCommand("select * from UserInformation where
    UserName =@username and Password=@password",con);
    cmd.Parameters.AddWithValue("@username", txtUserName.Text);
    cmd.Parameters.AddWithValue("@password", txtPWD.Text);
    SqlDataAdapter da = new SqlDataAdapter(cmd);
    DataTable dt = new DataTable();
    da.Fill(dt);
    if(dt.Rows.Count>0)
    {
        Response.Redirect("Details.aspx");
    }
    else
    {
        ClientScript.RegisterStartupScript(Page.GetType(), "validation", "<script
        language='javascript'>alert('Invalid Username and Password')</script>");
    }
}
```

Web.config

```
<connectionStrings>  
<add name="dbconnection" connectionString="Data  
Source=SureshDasari;Integrated Security=true;Initial  
Catalog=MySampleDB"/>  
</connectionStrings>
```



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Glossary

API : All **Operating Systems** provide a way for applications to use their system **resources** by using an Application Programming Interface or API. This is usually defined by an extensive list of **functions** and **classes** and **variables**

ADO: ADO is short for Activex Data Objects and is a set of COM classes for accessing databases such as SQL Server or MySql.

ADO allows connections to databases to be defined by a connection string. Once connected, SQL queries can be run on those databases to insert new data, modify existing data or return results from them.

Assembly : On the .NET platform, an Assembly is a file of object code plus extra information which prevents version mismatches and increases security.

An assembly can be an Executable file- an EXE or a Dynamic Link Library, -a DLL.

Bounds Error: In a data structure where an array is used, the array dimension's are bounded. There is a lower and an upper bound. For example `int values[10]`

Defines a ten element int array. The lower bound is 0, the upper is 9. If you attempt to access an element outside of this range 0..9, then you have a bounds error.

ASP.NET

Active Server Pages.NET is the next generation of Active Server Pages and is part of the Microsoft .NET Framework. It supports code written in any .NET Consumer (see Glossary: .NET Consumer). It fully leverages .NET Assemblies and the use of ASP.NET Server Controls.

BaseCLX

BaseCLX components are Borland CLX components designed for business logic functionality such as math, system utilities, etc. They are cross platform components that can be used in the Microsoft Windows environment - via

Delphi - and on several distributions of Linux - via the Kylix development environment.

Black Box

A black box component is a compiled component that a developer can only access through exposed interfaces. Black box components are inherently more secure than white box components because there is no risk that a developer could alter the source code and change the behavior of the component.

CLR (Common Language Runtime)

The .NET Common Language Runtime is the root layer of the .NET Framework. Applications and components are compiled to MSIL. The CLR then uses JIT (Just-in-Time compilation) to compile the IL code to native code for the underlying platform. Currently, the CLR runs on the Windows platform. However, a version of the CLR for Unix is in development.

CLX

The Component Library for Cross Platform was created by Borland to allow developers to create components that can be used on both the Windows and Linux platforms. Based on Borland's Visual Component Library (VCL) and using Delphi syntax, CLX components can be used to create single-source applications for use on multiple platforms.

COM

Microsoft's Component Object Model. It is a reference model for how components are built, and it specifies how components "speak" to each other and how they are referenced within an application.

Container

In order to utilize a component's functionality, it must be instantiated (referenced) from within a compatible container. COM components, for example, can only be used in a COM-aware container such as Visual Studio, Internet Explorer, Internet Information Server, etc. Additionally, different types of components may or may not work properly within certain containers. OCXs, for example, require a Control Container such as Visual

Studio and may not work properly within other containers such as MS Access. The "Compatible Container" information is included to provide developers with containers in which the component has been successfully tested.

Cookies

Cookies are files that are downloaded via a client browser to identify a user to a particular Web site. It can contain a variety of information including username, password, profile, etc. Cookies are used to enhance a user's Web experience by "remembering" session information, user preferences, etc. Most browsers allow you to either notify the user before accepting cookies or simply not accept them.

DAO

Microsoft Data Access Objects provide an object oriented approach to accessing data via the Microsoft Jet database engine. It is a shared component of Microsoft Office and can be used by any application that supports automation.

DataCLX

DataCLX components are Borland CLX components designed for providing access to data sources. They are cross platform components that can be used in the Microsoft Windows environment - via Delphi - and on several distributions of Linux - via the Kylix development environment.

DCOM

Microsoft's Distributed COM. It is a reference model for building components that can communicate with other components and application on different computers, usually in a client/server relationship.

DLL

DLLs are "callable" dynamically-linked libraries that can be used in any environment with call capability. A DLL can contain one or more functions that can be used by other applications or components. Not to be confused with ActiveX DLLs.

Executable

An executable is essentially a program. It can be run independently of a host application. The only requirements for an executable are a compatible operating system and any associated runtime library.

FTP

The File Transfer Protocol is an Internet Standard Protocol for transferring files between computers over TCP/IP. It is most commonly used to download files from an Internet server to the local machine. FTP servers require the client to logon, but can be configured to allow that logon to be anonymous.

Free Threading

Free Threading is a multi-threading model that supports more than one thread per apartment. Multiple calls to a component can occur on different threads. While free threading can be faster than apartment threading, care must be taken with free threaded components to insure that the threads are synchronized properly

HTML

The Hypertext Markup Language is a "tagged" language for transferring data using HTTP. It allows you to format text, include pictures, and insert hyperlinks to other data. The Web browser reads the "tags" and displays the data accordingly.

HTTP

The Hypertext Transmission Protocol is an Internet standard protocol for exchanging files (text, images, sound, video, etc.) over the Internet. It is generally used to copy a Web page from an Internet Web server to the client machine, and to send the client page requests to the server.

HTTPS

The Secure Hypertext Transmission Protocol is an Internet standard protocol that allows Web clients to create a secure connection to a Web server. All data (text, images, sound, etc.) is encrypted before being sent by the server, then

decrypted by the client. HTTPS requires that the server has a digital certificate in order to validate its identity to the client.

IDE

An Integrated Development Environment (IDE) is a tool used to develop applications and components in the specified development language. For example, a developer can write a Visual Basic application in any text editor. The VB IDE simplifies development by integrating all aspects of the development process including modules, forms, components, syntax checking, the VB compiler, and the package and deployment wizard.

IDL

An Interface Definition Language file is a file that contains definitions of interfaces to components, consisting of an interface header and interface body. The header contains attributes that apply to the interface as a whole. The body contains individual interface definitions such as data types used in remote procedure calls and prototypes for the remote procedures. While not required, an IDL makes it easier for a developer to define and query information about a component'

IIS

Internet Information Server is Microsoft's Web server software for making content available on the Internet. It consists of a WWW service for providing Web pages and Web applications on the World Wide Web, an FTP service to allow files to be uploaded/downloaded, an SMTP service for sending email, and an NNTP service for hosting newsgroup forums. IIS V3.0 and higher also provide Active Server Page functionality.

Lines of Code

This is the number of lines of code that are in the current version of this product. If your company knows how much it costs to write a "Line of Code" in a specific development language such as C++ or Java, then in conjunction with "Development Language Used" this value can be used to determine the cost of building this product yourself, which you can compare with the cost of purchasing it "off-the-shelf".

Metadata

Metadata refers to an organization's entire accumulated data. In addition to traditional warehouse data such as personnel, products, prices, services, etc., metadata also refers to documented processes, formats, even intellectual property.

MSIL (Microsoft Intermediate Language)

MSIL is the common language that all .NET development languages compile to. This allows components and applications written in any .NET development language to interoperate. MSIL is the "common" language used by the .NET Common Language Runtime (CLR). It is compiled to native code for the underlying platform by the CLR.

MTS Compatible

These are COM components that execute in the Microsoft Transaction Server (MTS) runtime environment. They are inherently scalable for distributed, enterprise-wide computing because a component on a client machine(s) can communicate with a component on a server(s). MTS components must be DLLs. EXEs and OCXs are not supported.

ODBC

Open Database Connectivity is an Application Programming Interface (API) that provides access to a variety of data sources. It is an industry standard for exchanging data. As such, it allows computers in a multi-platform environment to access data on a SQL (or any ODBC-compliant) database.

OLE

Object Linking and Embedding is a technology that uses the Microsoft Component Object Model (COM) to allow for the creation of compound documents. OLE-enabled applications can contain a variety of objects. For example: a Word document can contain an Excel spreadsheet, or a PowerPoint presentation can contain an AVI file.

OLE DB

OLE DB is an Application Programming Interface (API) that provides access to a variety of data sources. It is designed to give clients in a Microsoft COM environment access to all types of data such as Microsoft SQL.

Operating System

Many component and tool types are only supported by specific operating systems such as Microsoft Windows, Sun Solaris, Unix, Linux, etc. This information is specified to provide the developer with the supported operating systems for the product.

RDBMS

Remote Database Management System. Refers to the back-end database system that houses an organization's data. There are several types of RDBMS including SQL, Oracle, dBase, Paradox, and more.

Repository

A repository is a database containing software rather than data. This software can be in the form of executables, components, libraries, UML models, and more. Most repositories include an application that is used to manage its own database.

Reusable Component

Reusable component is a generic term for any self-contained block of code that encapsulates specific business logic or user interface functionality. It can exist as either a "white box" component (source code) or as a "black box" component (binary code, accessed via exposed interfaces).

Reverse Engineering

Software reverse engineering is the process of "de-compiling" byte code back into usable source code to determine how a program works. In order to protect their intellectual property, many software developers use code obfuscation to make reverse engineering more difficult.

RPC

Remote Procedure Call is a protocol that an application or component can use to request a service from an application or component located on another computer, without being required to understand network details.

SOAP

The Simple Object Access Protocol is an industry standard protocol for component interoperability over the Internet. It is built on the existing standards of XML and HTTP to allow components of all platforms to communicate via standard protocols.

Source Code

Source code is a listing of the actual commands of a component or application and is written in a particular development language such as Visual Basic, Visual C++, or Java. Components that come with source code are referred to as "White box" components, since all of the underlying logic is exposed. Developers can modify source code to add functionality.

Visual Basic

Microsoft Visual Basic consists of two parts the Visual Basic language and the VB Integrated Development Environment (IDE). VB is a high-level, easily learned programming language for developing applications and components. If a component is listed as being compatible with a particular version of VB (i.e. VB 3.0, VB 4.0), it requires the specified version. For example, the current version of VB is V6.0. VB 6 is 32Bit only and does NOT support 16Bit VBXs.

Visual Studio

Microsoft Visual Studio is a suite of programming languages for developing applications and components. It consists of Visual Basic, Visual C++, Visual Interdev, Visual J++, and Visual FoxPro. If a component is listed as compatible with a particular version of Visual Studio, it is by definition compatible with all five IDEs.

Visual Studio.NET

Visual Studio.NET is the suite of development languages written by Microsoft to allow development for the .NET platform. It includes Visual Basic.NET, C++.NET, and a new language: C#. All Visual Studio.NET languages are considered .NET Extenders (see Glossary: .NET Extenders).

VisualCLX

VisualCLX components are Borland CLX components designed for user interface functionality such as grids, treeviews, listboxes, etc. They are cross platform components that can be used in the Microsoft Windows environment - via Delphi - and on several distributions of Linux - via the Kylix development environment.

.NET Framework

Microsoft's version of COM that brings complete integration with Internet technologies. .NET Framework components are able to implement their interfaces as services, which allows applications to use the functions of a component across the Internet without being required to load the component on the client machine

.NET Web Service

A Web Service is programmable logic that is accessible via standard Web protocols. It uses SOAP to describe the interfaces to the service, enabling cross-platform Internet clients to use that logic via XML protocols.

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