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Exam : 070-315

Title : Developing and Implementing Web Applications
with Microsoft Visual C# .NET

PART I: Creating User Services (55 questions)

SECTION 1: Create ASP.NET pages.

SUBSECTION A: Add and set directives on ASP.NET pages.

(3 questions)

QUESTION 1

You create an ASP.NET application for CertKing 's intranet. All employee on the intranet use Internet Explorer.

A page named UserAccount.aspx contains several controls that require postback to the server for event processing. The event handlers for these controls require access to a database in order to complete their processing.

Each time UserAccount.aspx performs a postback, there is a brief period of time in which the browser window is blank while the page is refreshed. The control that had the focus prior to the postback does not have the focus after the page is re-rendered. This factor results in confusion and invalid data entry by some of the users.

You need to modify UserAccount.aspx to prevent the browser window from going blank after a postback and to maintain the correct control focus after events are processed. You need to accomplish this task with the minimum amount of development effort.

What should you do?

A. Add the following attribute to the HTML code for the controls that cause the postbacks:

RunAt="client"

B. Add the following attribute to the HTML code for the controls that cause the postbacks:

EnableViewState="True"

C. Add the following attribute to the Page directive for UserAccount.aspx:

SmartNavigation="True"

D. Add the following attribute to the OutputCache directive for UserAccount.aspx:

Location="client"

Answer: C

Explanation: When a page is requested by an Internet Explorer 5 browser, or later, smart navigation enhances the user's experience of the page by performing the following:

- eliminating the flash caused by navigation.
- persisting the scroll position when moving from page to page.
- persisting element focus between navigations.
- retaining only the last page state in the browser's history.

Smart navigation is best used with ASP.NET pages that require frequent postbacks but with visual content that does not change dramatically on return.

Reference: .NET Framework Class Library, Page.SmartNavigation Property [C#]

QUESTION 2

You are a Web developer for a CertKing bookstore. You create a Web user control named CK BookTopics that is defined in a file named CK BookTopics.ascx. CK BookTopics displays a list of book topics based on an author's profile identification number. The profile identification number is stored in a public property of CK BookTopics named AuthorProfile.

You create an ASP.NET page named AuthorPage.aspx that contains an instance of the CK BookTopics Web user control. AuthorPage.aspx is opened by an HTTP-GET request that has two parameters. The parameters are named publisherID and authorProfileID. The value of authorProfileID is a profile identification number.

You want to enable output caching for the CK BookTopics Web user control. You need to ensure that the cached control is varied only by an author's profile identification number.

What should you do?

A. Add the following element to the OutputCache directive for AuthorPage.aspx:

```
VaryByParam="TkBookTopics.AuthorProfile"
```

B. Add the following element to the OutputCache directive for AuthorPage.aspx:

```
VaryByControl="TkBookTopics.AuthorProfile"
```

C. Add the following element to the OutputCache directive for CK BookTopics.ascx:

```
VaryByParam="none"
```

D. Add the following element to the OutputCache directive for CK BookTopics.ascx:

```
VaryByControl="authorProfileID"
```

Answer: D

Explanation: You can vary user control output to the cache in two ways:

1. With the user control name and the parameter. The VaryByParam attribute of the @ OutputCache directive must be used. A) and C) are inadequate since both the control name and the parameter must be specified.

2. With the VaryByControl attribute just the parameter should be supplied. This is the case in D), but not in B).

Reference: .NET Framework Developer's Guide, Caching Multiple Versions of a User Control, Based on Parameters [C#]

QUESTION 3

You are maintaining an ASP.NET application named CertKing SalesForecast. The application is written in Visual C# .NET. The application includes a page named FirstQuarter.aspx that resides within the Sales namespace. The page class is named FirstQuarter.

You discover that another developer inadvertently deleted the Page directive for FirstQuarter.aspx. You want to create a new Page directive to allow FirstQuarter.aspx to work properly.

Which directive should you use?

A. <% @ Page Language="c#"

```
Codebehind="FirstQuarter.aspx.cs"
```

```
Inherits="FirstQuarter"%>
```

B. <% @ Page Language="c#"

```
Codebehind="FirstQuarter.aspx.cs"
ClassName="Sales.FirstQuarter"%>
C. <% @ Page Language="c#"
Codebehind="FirstQuarter.aspx.cs">
Inherits="Sales.FirstQuarter"%>
D. <% @ Page Language="c#"
Codebehind="FirstQuarter.aspx.cs"
ClassName="Sales.FirstQuarter"
Inherits="FirstQuarter"%>
```

Answer: C

Explanation: The Inherits attribute in the @ Page directive defines a code-behind class for the page to inherit. As FirstQuarter.aspx resides within the Sales namespace we should use

```
Inherits="Sales.FirstQuarter
```

Note: The @ Page directive defines page-specific (.aspx file) attributes used by the ASP.NET page parser and compiler.

Reference: .NET Framework General Reference, @ Page

Incorrect Answers

A: As FirstQuarter.aspx resides within the Sales namespace we should use

```
Inherits="Sales.FirstQuarter
```

B, D: The ClassName attribute specifies the class name for the page that will be automatically compiled dynamically when the page is requested. We should not use ClassName here.

SUBSECTION B: Separate user interface resources from business logic. (1 question)

QUESTION 1

You are creating an ASP.NET application for the mortgage services department of CertKing Inc. The application will be used for generating documents required during the closing process of a home purchase.

CertKing already has a component written in Visual C# .NET that identifies which forms are required to be printed based on a set of criteria specified by the closing agent. The name of the component namespace is CertKing .Mortgage. The name of the class is Closing.

You create an ASP.NET page named Purchase.aspx. You add a reference to the assembly that contains the CertKing .Mortgage namespace. The code behind file for Purchase.aspx includes the following code:
using CertKing .Mortgage;

You add a method to the code-behind file to instantiate the Closing class.

Which code segment should you include in the method to instantiate the class?

A. Closing CK Closing = new Closing();

B. Closing CK Closing =

```
Server.CreateObject(" CertKing .Mortgage.Closing");
```

C. object CK Closing =

```
Server.CreateObject("closing");  
D. Type CK Type =  
Type.GetTypeFromProgID(" CertKing .Mortgage.Closing",  
"localhost", true);
```

Answer: A

Explanation: We simply instantiate an object with the class with the New constructor.

Note: Web Forms pages have code-behind files associated with them. These files are created automatically when you create a new Web form. They have the same base name as the Web form with the .vb or .cs filename extension added

Incorrect Answers

B, C: The CreateObject function creates and returns a reference to a COM object. CreateObject cannot be used to create instances of classes in Visual Basic unless those classes are explicitly exposed as COM components.

D: The Type.GetTypeFromProgID method is provided for COM support. Program IDs are not used in Microsoft .NET Framework because they have been superceded by the concept of namespace.

SECTION 2: Add Web server controls, HTML server controls, user controls, and HTML code to ASP.NET pages.

SUBSECTION A: Set properties on controls. (4 questions)

QUESTION 1

You create a class named CK Format that has two public properties. One of the properties is named Size, and the other property is named Color. You want to use the CK Format class in custom server controls to expose format properties to container pages.

You add the following statements to a custom server control named MessageRepeater:

```
private CK Format _formatter = new CK Format();  
public CK Format Format  
{  
    get { return _formatter; }  
}
```

You create a container page named MessageContainer.aspx to test your custom control. You register the control as follows:

```
<%# Register Tagprefix=" CertK ctl" Namespace="MessageControls"  
Assembly="MessageControls" %>
```

You want to add an instance of the control to a test page so that the size property is set to 10 and the color property is set to red.

Which code should you use?

A. < CertK ctl:MessageRepeater Format-Color="red"

Format-Size="10" />

B. < CertK ctl:MessageRepeater Format-Color="red"

Format-Size="10" runat="server" />

C. < CertK ctl:MessageRepeater Color="red"

Size="10" runat="server" />

D. < CertK ctl:MessageRepeater Format="Color:red;size:10" />

Answer: B

Explanation: ASP.NET has a special syntax for setting subproperties. The "-" syntax denotes a subproperty. The Format.Color and Format.Size properties are denoted by Format-Color and Format-Size respectively. We should also specify that the control should run at the server.

Incorrect Answers

A: As this is a custom server control we should specify that it should run at the server.

C, D: We must use the "-" syntax denotes a subproperties

QUESTION 2

You create an ASP.NET page named Location.aspx. Location.aspx contains a Web user control that displays a drop-down list box of counties. The Web user control is named CountyList and is defined in a file named CountyList.ascx. The name of the DropDownList control in CountyList.ascx is CK County. You try to add code to the Page.Load event handler for Location.aspx, but you discover that you cannot access CK County from mode in Location.aspx. You want to ensure that code within Location.aspx can access properties of CK County.

What should you do?

A. In the code-behind file for CountyList.ascx add the following line of code:

protected DropDownList CK County;

B. In the code-behind file for CountyList.ascx, add the following line of code:

public DropDownList CK County;

C. In the code-behind file for Location.aspx, add the following line of code:

protected DropDownList CK County;

D. In the code-behind file for Location.aspx, add the following line of code:

public DropDownList CK County;

Answer: B

Explanation: We must declare the CK County as public in the file in which it is defined (CountyList.ascx).

Note: The Public keyword in the Dim statement declares elements to be accessible from anywhere within the same project, from other projects that reference the project, and from an assembly built from the project.

Reference: Visual Basic Language Concepts, Accessibility

Incorrect Answers

A, C: The Protected keyword in the Dim statement declares elements to be accessible only from within the same class, or from a class derived from this class. However, do not want to protect MyCount, at the contrary we must make it public.

D: We must declare it public in the files, in which it is defined, not Location.aspx where it is only used.

QUESTION 3

You create an ASP.NET page that uses images to identify areas where a user can click to initiate actions. The users of the application use Internet Explorer.

You want to provide a pop-up window when the user moves the mouse pointer over an image. You want the pop-up window to display text that identifies the action that will be taken if the user clicks the image. What should you do?

- A. For each image, set the AlternateText property to specify the text you want to display, and set the ToolTip property to True.
- B. For each image, set the ToolTip property to specify the text you want to display.
- C. In the onmouseover event handler for each image, add code that calls the RaiseBubbleEvent() method of the System.Web.UI.WebControls.Image class.
- D. In the onmouseover event handler for each image, add code that calls the ToString() method of the System.Web.UI.WebControls.Image class.

Answer: B

Explanation: WebControl.ToolTip property gets or sets the text displayed when the mouse pointer hovers over the Web server control. The use of the ToolTip property meets the requirement of this scenario.

Reference: .NET Framework Class Library, WebControl.ToolTip Property [C#]

Incorrect Answers

A: The AlternateText property is used to specify the text to display if the image is not available.

C: The RaiseBubbleEvent is not useful here.

Note: ASP.NET server controls such as the Repeater, DataList and DataGrid Web controls can contain child controls that raise events. Rather than each button raising an event individually, events from the nested controls are "bubbled"-that is, they are sent to the control's parent.

D: The ToStringMethod() would not by itself provide the functionality required.

QUESTION 4

You create a user control named Address that is defined in a file named Address.ascx. Address displays address fields in an HTML table.

Some container pages might contain more than one instance of the Address user control. For example, a page might contain a shipping address and a billing address. You add a public property named TKCaption to the Address user control. The caption property will be used to distinguish the different instances.

You want the caption to be displayed in the first <td> element of the table of address fields. You need to add code to the <td> element of the table to display the caption.

Which code should you use?

- A. `<td><%=TKCaption%></td>`
- B. `<td><script runat="server">TKCaption</script></td>`
- C. `<td><script>document.write("TKCaption");</script></td>`
- D. `<td>=TKCaption</td>`

Answer: A

Explanation: CK Caption is a public property contained on the Web server. We reference it with the `<%=TKCaption%>` element

Incorrect Answers

B, C: Scripts are not called for. We just want to display a property.

D: To access the public property we must use an <% %> element.

SUBSECTION B: Load controls dynamically. (3 questions)

QUESTION 1

You create an ASP.NET page named `Subscribe.aspx` for users to subscribe to e-mail lists. You include an existing user control named `ListSubscribe` in your page. `ListSubscribe` has two constituent controls. One control is a `TextBox` control named `listNameText`, and the other control is a `Button` control named `subscribeButton`. `ListSubscribe` is defined in the `ListSubscribe.ascx` file.

To add `ListSubscribe` to `Subscribe.aspx`, you add the following tag:

```
<email:ListSubscribe id="ctlSubscribe" runat="server"/>
```

You add a `Label` control named `listNameLabel` to the container page. When a user subscribes to a list by entering a list name in `listNameText` and clicking the `subscribeButton` button, you want the page to display the list name in `listNameLabel`.

Which two actions should you take? (Each correct answer presents part of the solution. Choose two)

A. Add the following statement to the declaration section of `ListSubscribe.ascx`:

```
public TextBox listNameText;
```

B. Add the following statement to the declaration section of `Subscribe.aspx`:

```
public TextBox listNameText;
```

C. Add the following statement to the `Page.Load` event handler for `Subscribe.aspx`:

```
if (!Page.IsPostBack)
{
    listNameLabel.Text = ctlSubscribe.listNameText.Text;
}
```

D. Add the following statement to the `Page.Load` event handler for `Subscribe.aspx`:

```
if (Page.IsPostBack)
{
    listNameLabel.Text = ctlSubscribe.listNameText.Text;
}
```

E. Add the following statement to the `Page.Load` event handler for `ListSubscribe.ascx`:

```
if (!Page.IsPostBack)
{
    listNameLabel.Text = listNameText.Text;
}
```

F. Add the following statement to the `Page.Load` event handler for `ListSubscribe.ascx`:

```
if (Page.IsPostBack)
{
    listNameLabel.Text = listNameText.Text;
}
```

Answer: A, D

Explanation:

A: We must expose the `listNameText` control by declaring it as public. The `ListSubscribe.ascx` file contains the `listNameText` control so we expose it in this file.

Note: The controls that make up a user control are called constituent controls. These controls are normally declared private, and thus cannot be accessed by the developer. If you want to make properties

of these controls available to future users, you must expose them to the user.

D: If the control is reloaded in the Subscribe.aspx file due to a response to a client postback we should set the listNameLabel.Text property.

Note: The UserControl.IsPostBack property gets a value indicating whether the user control is being loaded in response to a client postback, or if it is being loaded and accessed for the first time.

Reference:

Visual Basic and Visual C# Concepts, Exposing Properties of Constituent Controls
.NET Framework Class Library, UserControl.IsPostBack Property

Incorrect Answers

B: The listNameText control is defined in ListSubscribe.aspx, not in Subscribe.aspx.

C: This would only copy the text when the page is initially loaded.

E, F: We should use the Page.Load event of Subscribe.aspx, not for ListSubscribe.aspx.

QUESTION 2

You create an ASP.NET server control to display date and time information. You want to enable other programmers who use your control to customize the style properties of a Label control named timeTKLabel. The timeTKLabel control displays the date and time.

You create two custom property procedures to accomplish this goal. One procedure modified the BackColor property of the constituent controls. The other procedure modifies the ForeColor property of the constituent controls.

In addition to these two custom property procedures, you want to allow users to apply one of two predefined styles. The predefined styles are created in the following function:

```
public Style GetStyle(int styleType)
{
    Style myStyle = new Style();
    switch (styleType)
    {
        case 1:
            myStyle.ForeColor = System.Drawing.Color.White;
            myStyle.BackColor = System.Drawing.Color.Black;
            break;
    }
    return myStyle;
}
```

You want to write a public method that will apply these styles. You do not want to overwrite the ForeColor property and BackColor property if the Label control of these properties are already set by using the custom property procedures.

Which code segment should you use for this method?

A. public void PickStyle(int styleType)

```
{
    Style myStyle = GetStyle(styleType);
    timeTKLabel.ApplyStyle(myStyle);
}
```

B. public void PickStyle(int styleType)

```
{
```

```

Style myStyle = GetStyle(styleType);
timeTKLabel.MergeStyle(myStyle);
}
C. public void PickStyle(int styleType)
{
Style myStyle = GetStyle(styleType);
timeTKLabel.ForeColor = myStyle.ForeColor;
timeTKLabel.BackColor = myStyle.BackColor;
}
D. public void PickStyle(int styleType)
{
Style myStyle = GetStyle(styleType);
timeTKLabel.CssClass = myStyle.CssClass;
}

```

Answer: B

Explanation: The `WebControl.MergeStyle` method copies any nonblank elements of the specified style to the Web control, but will not overwrite any existing style elements of the control. This method is used primarily by control developers.

Reference: .NET Framework Class Library, `WebControl.MergeStyle` Method [C#]

Incorrect Answers

A: `WebControl.ApplyStyle` Method copies any nonblank elements of the specified style to the Web control, overwriting any existing style elements of the control. We don't want to overwrite any existing style elements however.

C: We don't want to overwrite any existing style elements.-

D: The `WebControl.CssClass` Property gets or sets the Cascading Style Sheet (CSS) class rendered by the Web server control on the client. It not useful in this scenario though.

QUESTION 3

You are a Web developer for a travel company called CertKing travels. You are developing a Web site for customers who participate in the company's frequent flyer program.

The frequent flyer program includes three levels of award for customers. The levels are named Emerald, Ruby, and Diamond. For each award level, the page contains content specific to that award level. The page contents are contained in three user controls, which are named `Emerald.ascx`, `Ruby.ascx`, and `Diamond.ascx`.

You want to dynamically load and display the proper page header based on the value contained in a variable named `awardLevel`. The `awardLevel` variable is a property of the page. In addition, you want to minimize the mount of memory resources each page uses.

Which code should you use in the `Page.Load` event handler?

```

A. UserControl headerUserControl;
switch(awardLevel)
{
case "Emerald":
headerUserControl =
(UserControl)LoadControl("Emerald.ascx");

```

```
break;
case "Ruby":
headerUserControl =
(UserControl)LoadControl("Ruby.ascx");
break;
case "Diamond":
headerUserControl =
(UserControl)LoadControl("Diamond.ascx");
break;
Controls.Add(headerUserControl);
}
B. UserControl headerUserControl;
switch(awardLevel)
{
case "Emerald":
headerUserControl =
(UserControl)LoadControl("Emerald.ascx");
break
case "Ruby":
headerUserControl =
(UserControl)LoadControl("Ruby.ascx");
break;
case "Diamond":
headerUserControl =
(UserControl)LoadControl("Diamond.ascx");
break;
}
C. emeraldheaderUserControl.Visible = false;
rubyheaderUserControl.Visible = false;
diamondheaderUserControl.Visible = false;
switch(awardLevel)
{
case "Emerald":
emeraldHeaderControl.Visible = true;
break;
case "Ruby":
rubyHeaderControl.Visible = true;
break;
case "Diamond":
diamondHeaderControl.Visible = true;
break
}
D. UserControl emeraldHeaderControl;
UserControl rubyHeaderControl;
UserControl diamondHeaderControl;
emeraldHeaderControl =
```

```
(UserControl)LoadControl("Emerald.aspx");
rubyHeaderControl =
(UserControl)LoadControl("Ruby.aspx");
diamondHeaderControl =
(UserControl)LoadControl("Diamond.aspx");
switch(awardLevel)
{
case "Emerald":
Controls.Add(emeraldHeaderControl);
break;
case "Ruby":
Controls.Add(rubyHeaderControl);
break;
case "Diamond":
Controls.Add(diamondHeaderControl);
break;
}
```

Answer: A

Explanation: The `TemplateControl.LoadControl` method obtains a `UserControl` object from a user control file.

Reference: .NET Framework Class Library, `TemplateControl.LoadControl` Method [C#]

Incorrect Answers

B: We must add the control in order to display it.

C: We must load the user controls.

D: Loading all three controls increase the demand on the system resource.

SUBSECTION C: Apply templates. (1 question)

QUESTION 1

You are creating an ASP.NET application for CertKing 's Internet Web site. You want to create a toolbar that will be displayed at the top of each page in the Web site. The toolbar will contain only static HTML code. The toolbar will be used in only your application.

Your plan to create the toolbar as a reusable component for your application. You need to create the toolbar as quickly as possible.

What should you do?

A. Create a new Web Control Library project.

Create the toolbar within a Web custom control.

B. Add a new Web user control to your ASP.NET project.

Create the toolbar within the Web user control.

C. Add a new Web Form to your ASP.NET project.

Use HTML server controls to design the toolbar within the Web Form and save the Web Form with an .ascx extension.

D. Add a new component class to your ASP.NET project.

Use HTML server controls to design the toolbar within the designer of the component class.

Answer: B

Explanation: Web user controls enable you to easily define controls as you need them for your applications, using the same programming techniques that you use to write Web Forms pages.

Reference: Visual Basic and Visual C# Concepts, Introduction to Web User Controls

Incorrect Answers

A: You can use the Web Control Library project template to author custom Web server controls. However, since the toolbar is only going to be used in this application there is no need of the complexity of a Web customer control.

C: An HTML server control would be inadequate.

D: The Component class provides the base implementation for the IComponent interface and enables object-sharing between applications. It does not fit in this scenario.

SUBSECTION D: Set styles on ASP.NET pages by using cascading style sheets. (0 questions)

SUBSECTION E: Instantiate and invoke an ActiveX control. (0 questions)

SECTION 3: Implement navigation for the user interface.

SUBSECTION A: Manage the view state. (0 questions)

SUBSECTION B: Manage data during postback events. (2 questions)

QUESTION 1

You create an ASP.NET page that displays customer order information. This information is displayed in two separate DataGrid controls on the page. The first DataGrid control displays the current year orders, and the second DataGrid control displays all orders from previous years. The page uses both the System.Data.SqlClient namespace and the System.Data namespace.

The information is stored in a Microsoft SQL Server database named CertKing SQL1. A customer's complete order history information is obtained from the database by calling a stored procedure named GetOrders and passing the customer's identification number as a parameter.

The Page.Load event handler populates a DataView object named CK DataView with the result of calling the GetOrders stored procedure. The following code segment in the Page.Load event handler is then used to bind the two DataGrid controls to myData view:

```
tkDataView:
dataGridCurrentYear.DataSource = CK DataView;
tkDataView.RowFilter = "OrderDate >= #01/01/" +
Now.Year + "#"
dataGridCurrentYear.DataBind();
dataGridPreviousYears.DataSource = CK DataView;
tkDataView.RowFilter = "OrderDate < #01/01/" +
Now.Year + "#";
DataGridPreviousYears.DataBind();
Page.DataBind();
```

During testing, you discover that both DataGrid controls are displaying order information for the previous years only.

What should you do to correct this problem?

- A. Remove the Page.DataBind() statement.
- B. Remove the dataGridPreviousYears.DataBind() statement.
- C. Add a Response.Flush() statement immediately before the Page.DataBind() statement.
- D. Add a Response.Flush() statement immediately before the dataGridPreviousYears.DataBind() statement.

Answer: A

Explanation: Both datagrids use the same DataView. The Page.DataBind method binds a data source to the invoked server control and all its child controls. We should remove this statement.

Reference: .NET Framework Class Library, Control.DataBind Method [C#]

Incorrect Answers

B: We must bind each data grid control to its data source

C, D: The HttpResponse Flush method sends all currently buffered output to the client. It is not useful in this scenario.

QUESTION 2

You are creating an e-commerce site for CertKing . Your site is distributed across multiple servers in a Web farm.

Users will be able to navigate through the pages of the site and select products for purchase. You want to use a DataSet object to save their selections. Users will be able to view their selections at any time by clicking a Shopping Cart link.

You want to ensure that each user's shopping cart DataSet object is saved between requests when the user is making purchases on the site.

What should you do?

- A. Create a StateBag object.

Use the StateBag object to store the DataSet object in the page's ViewState property.

- B. Use the HttpSessionState object returned by the Session property of the page to store the DataSet object.

Use the Web.config file to configure an out-of-process session route.

- C. Use the Cache object returned by the page's Cache property to store a DataSet object for each user.

Use an HttpCachePolicy object to set a timeout period for the cached data.

- D. Use the Session_Start event to create an Application variable of type DataSet for each session.

Store the DataSet object in the Application variable.

Answer: B

Explanation: An HttpSessionState object provides access to session-state values as well as session-level settings and lifetime management methods. We should use an out-of-process session to ensure that each user's shopping cart DataSet object is saved between requests

Note: ASP.NET provides three distinct ways to store session data for your application: in-process session state, The out-of-process solutions are primarily useful if you scale your application across multiple processors or multiple computers, or where data cannot be lost if a server or process is restarted.

Reference:

.NET Framework Class Library, HttpSessionState Class [C#]

.NET Framework Developer's Guide, Developing High-Performance ASP.NET Applications [C#]

Incorrect Answers

A: A StateBag object manages the view state of ASP.NET server controls, including pages. This object implements a dictionary. It would not be useful in this scenario however.

C: A cache is not a secure storage location.

D: As multiple servers are going to be used an Application variable is not the best solution.

SUBSECTION C: Use session state to manage data across pages. (3 Questions)

QUESTION 1

You are creating a new ASP.NET page named ItemList that displays item and price information for many different items. When a user logs on to the Web site, the page retrieves the current list of prices from a database. ItemList will be accessed by several thousand registered users.

When a price list is retrieved for a user, the prices remain valid for as long as the user continues to access the page. Users are allowed to keep the same price list for several days.

When ItemList is posted back to the server, you want to ensure that the price list was not altered on the user's computer. You also want to minimize the memory resources consumed on the Web server.

Which three parameters should you add to the Page directive in ItemList? (Each correct answer presents part of the solution. Choose three)

A. EnableSessionState="True"

B. EnableSessionState="False"

C. EnableSessionState="ReadOnly"

D. EnableViewState="True"

E. EnableViewState="False"

F. EnableViewStateMac="True"

G. EnableViewStateMac="False"

Answer: B, D, F

Explanation:

To minimize the memory resources consumed on the Web server we need to use view state instead of session state. Setting EnableViewState to true will only cost us bandwidth, not memory resources.

B: Disable session state

D: Enable view state

F: A view state MAC is an encrypted version the hidden variable that a page's view state is persisted to when sent to the browser. When you set this attribute to true, the encrypted view state is checked to verify that it has not been tampered with on the client.

Reference:

.NET Framework Developer's Guide, Developing High-Performance ASP.NET Applications

.NET Framework General Reference, @ Page

.NET Framework Developer's Guide, Session State

Incorrect Answers

A: An enabled Session state would require additional server resources.

C: A readonly Session state would still require additional server resources.

E: We need view state to be eanbled.

G: To ensure that client has not changed the data we set `EnableViewStateMac`

QUESTION 2

You create an ASP.NET page named `CertKing Calendar.aspx` that shows scheduling information for projects in your company. The page is accessed from various other ASP and ASP.NET pages hosted throughout the company's intranet. All employees on the intranet use Internet Explorer.

`CertKing Calendar.aspx` has a Calendar control at the top of the page. Listed below the Calendar control is detailed information about project schedules on the data selected. When a user selects a date in the calendar, the page is refreshed to show the project schedule details for the newly selected date.

Users report that after viewing two or more dates on `CertKing Calendar.aspx`, they need to click the browser's Back button several times in order to return to the page they were viewing prior to accessing `CertKing Calendar.aspx`.

You need to modify `CertKing Calendar.aspx` so that the users need to click the Back button only once. What should you do?

A. Add the following statement to the `Page.Load` event handler for `CertKing Calendar.aspx`:
`Response.Expires(0);`

B. Add the following statement to the `Page.Load` event handler for `CertKing Calendar.aspx`:
`Response.Cache.SetExpires (DateTime.Now());`

C. Add the following attribute to the Page directive for `CertKing Calendar.aspx`:
`EnableViewState="True"`

D. Add the following attribute to the Page directive for `CertKing Calendar.aspx`:
`SmartNavigation="True"`

Answer: D

Explanation: the user's experience of the page by performing the following:

- retaining only the last page state in the browser's history.

This is what is required in this scenario.

- eliminating the flash caused by navigation.
- persisting the scroll position when moving from page to page.
- persisting element focus between navigations.

Reference: .NET Framework Class Library, `Page.SmartNavigation` Property [C#]

Incorrect Answers

A: This is not a page expiration problem.

B: This is not a caching problem.

C: The `Page.EnableViewState` property Gets or sets a value indicating whether the page maintains its view state, and the view state of any server controls it contains, when the current page request ends.

QUESTION 3

You are creating an ASP.NET application for CertKing . Customers will use the application to file claim forms online.

You plan to deploy the application over multiple servers. You want to save session state information to optimize performance.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two)

- A. Modify the Web.config file to support StateServer mode.
- B. Modify the Web.config file to support SQLServer mode.
- C. Modify the Web.config file to support InProc mode.
- D. In the Session_Start procedure in the Global.asax file, set the EnableSession property of the WebMethod attribute to true.
- E. In the Session_Start procedure in the Global.asax file, set the Description property of the WebMethod attribute to sessionState.

Answer: A, B

Explanation:

A With StateServer mode session state is using an out-of-process Windows NT Server to store state information. This mode is best used when performance is important but you can't guarantee which server a user will request an application from. With out-of-process mode, you get the performance of reading from memory and the reliability of a separate process that manages the state for all servers. As this scenario requires that we should optimize performance, not reliability, StateServer mode is the preferred solution.

B: Indicates that session state is stored on the SQL Server. In SQL mode, session states are stored in a SQL Server database and the worker process talks directly to SQL. The ASP.NET worker processes are then able to take advantage of this simple storage service by serializing and saving (using .NET serialization services) all objects within a client's Session collection at the end of each Web request.

Note: HTTP is a stateless protocol, which means that it does not automatically indicate whether a sequence of requests is all from the same client or even whether a single browser instance is still actively viewing a page or site. As a result, building Web applications that need to maintain some cross-request state information (shopping carts, data scrolling, and so on) can be extremely challenging without additional infrastructure help.

ASP.NET provides the following support for sessions:

A session-state facility that is easy to use, familiar to ASP developers, and consistent with other .NET Framework APIs.

A reliable session-state facility that can survive Internet Information Services (IIS) restarts and workerprocess restarts without losing session data.

A scalable session-state facility that can be used in both Web farm (multicomputer) and Web garden (multiprocess) scenarios and that enables administrators to allocate more processors to a Web application to improve its scalability.

A session-state facility that works with browsers that do not support HTTP cookies.

A throughput equivalent to that of ASP (or better) for core session-state scenarios (50/50 read/write when putting items into shopping carts, modifying last page visited, validating credit card details, and so on)

Reference:

.NET Framework Developer's Guide, Session State

Incorrect Answers

C: With InProc mode session state is in process with an ASP.NET worker process. InProc is the default. However, since we are using multiple servers, we cannot use InProc mode.

D: This will not allow session information to be stored over multiple servers

E: The Description property of the WebMethod attribute supplies a description for an XML Web service method that will appear on the Service help page.

SECTION 4: Validate user input. (3 questions)

QUESTION 1

You are creating an ASP.NET page to enroll new members in a health care program for CertKing employees. One of the requirements for membership is that a participant must be at least 65 years old. You need to ensure that each prospective member enters a name in a TextBox control named nameTextBox and a date of birth in a TextBox control named birthdayTextBox. In addition, you need to verify that prospective members meet the age requirement.

What should you do?

A. Add a CustomValidator to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox.

Write code to validate the date of birth.

Add a RegularExpressionValidator control to the page.

In the Properties window, set the ControlToValidate property to nameTextBox, and create a regular expression to validate the name.

B. Add a CompareValidator control to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox.

Write code that sets the Operator and ValueToCompare properties to validate the date of birth.

Add a RequiredFieldValidator control to the page.

In the Properties window, set the ControlToValidate property to nameTextBox.

C. Add a RangeValidator control to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox.

Write code that sets the MinimumValue and MaximumValue properties to validate the date of birth.

Add a CompareValidator control to the page.

In the Properties window, set the ControlToValidate property to nameTextBox.

Add a second CompareValidator control to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox.

Write code that sets the Operator and ValueToCompare properties of the two CompareValidator controls to validate the name and date of birth.

D. Add a CustomValidator control to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox, and write code to validate the date of birth.

Add a RequiredFieldValidator control to the page.

In the Properties window, set the ControlToValidate property to nameTextBox.

Add a second RequiredFieldValidator control to the page.

In the Properties window, set the ControlToValidate property to birthdayTextBox.

Answer: D

Explanation: To check the data of the birthdayTextBox we can use a CustomValidator control page and add appropriate program code to validate that the birth date is in the correct range.

We use two RequiredFieldValidators to ensure that both textboxes are non-empty.

Note: The CustomValidator Control evaluates the value of an input control to determine whether it passes

customized validation logic.

The RequiredFieldValidator Control evaluates the value of an input control to ensure that the user enters a value.

Reference: .NET Framework General Reference, RequiredFieldValidator Control

Incorrect Answers

A: The RegularExpressionValidator control evaluates the value of an input control to determine whether it matches a pattern defined by a regular expression. It is not useful in this scenario.

B: We should use two RequiredFieldValidator, one for each textbox.

C: It would be hard to use a RangeValidator for the birthday Textbox. It is better to use a CustomerValidator control.

QUESTION 2

You are creating an ASP.NET page for recording contact information for CertKing Inc. The page contains a TextBox control named emailTextBox and a TextBox control named phone TextBox. Your application requires users to enter data in both of these text boxes.

You add two RequiredFieldValidator controls to the page. One control is named emailRequired, and the other control is named phoneRequired. You set the ControlToValidate property of emailRequired to emailTextBox. You set the ControlToValidate property of phoneRequired to phoneTextBox. In addition, you add a ValidationSummary control at the bottom of the page.

If the user attempts to submit the page after leaving emailTextBox blank, you want the word "Required" to appear next to the text box.

If the user leaves phoneTextBox blank, you also want the "Required" to appear next to the text box.

If the user attempts to submit the page after leaving emailTextBox or phoneTextBox blank, you also want to display a message at the bottom of the page. You want to display a bulleted list, showing which required entries are missing. If emailTextBox is blank, you want the bulleted list to include the following phrase: "E-mail is a required entry". If phoneTextBox is blank, you want the bulleted list to include the following phrase: "Telephone number is a required entry".

What should you do?

A. Set the InitialValue property of each RequiredFieldValidator control to "Required".

Set the ErrorMessage property of emailRequired to "E-mail is a required entry."

Set the ErrorMessage property of phoneRequired to "Telephone number is a required entry."

B. Set the Display property of each RequiredFieldValidator control to Dynamic.

Set the ErrorMessage property of emailRequired and phoneRequired to Dynamic.

Set the Text property of emailRequired to "E-mail is a required entry."

Set the Text property of phoneRequired to "Telephone number is a required entry."

C. Set the InitialValue property of each RequiredFieldValidator control to "Required".

Set the Text property of emailRequired to "E-mail is a required entry."

Set the Text property of phoneRequired to "Telephone number is a required entry."

D. Set the Text property of each RequiredFieldValidator control to "Required".

Set the ErrorMessage property of emailRequired to "E-mail is a required entry."

Set the ErrorMessage property of phoneRequired to "Telephone number is a required entry."

Answer: D

Explanation: The Text property of the RequiredFieldValidator is used to specify the text to display in the validation control. We want to display "Required".

The ErrorMessage property is used to specify the text to display in the validation control when validation fails.

Reference:

Visual Basic and Visual C# Concepts, Validating Required Entries for ASP.NET Server Controls

.NET Framework Class Library, RequiredFieldValidator Members

Incorrect Answers

A: We should use the Text property, not the InitialValue property, to specify the text to display in the validation control.

B: The ErrorMessage property should be set to the text to display in the validation control, not to dynamic.

C: We must use the ErrorMessage property.

QUESTION 3

You create an ASP.NET page that allows a user to enter a requested delivery date in a TextBox control named requestTKDate. The date must be no earlier than two business days after the order date, and no later than 60 business days after the order date. You add a CustomValidator control to your page. In the Properties window, you set the ControlToValidate property to requestTKDate.

You need to ensure that the date entered in the requestDate TextBox control falls within the acceptable range of values. In addition, you need to minimize the number of round trips to the server.

What should you do?

A. Set the AutoPostBack property of requestDate to False.

Write code in the ServerValidate event handler to validate the date.

B. Set the AutoPostBack property of requestDate to True.

Write code in the ServerValidate event handler to validate the date.

C. Set the AutoPostBack property of requestDate to False.

Set the ClientValidationFunction property to the name of a script function contained in the HTML page that is sent to the browser.

D. Set the AutoPostBack property of requestDate to True.

Set the ClientValidationFunction property to the name of a script function contained in the HTML page that is sent to the browser.

Answer: C

Explanation: Set CustomValidator.ClientValidationFunction property to the name of the function that performs the client-side validation. Because the client validation function runs on the target browser, the function must be written using a scripting language supported by the browser, such as JScript or VBScript.

The AutoPostBack property gets or sets a value indicating whether an automatic postback to the server will occur whenever the user changes the content of the text box. We should set it to false as we want to avoid server round trips.

Reference:

.NET Framework Class Library, CustomValidator.ClientValidationFunction Property [C#]

.NET Framework Class Library, TextBox.AutoPostBack Property [C#]

Incorrect Answers

A, B: We want to validate the control with client side script to save a server round-trip.

D: If the AutoPastBack is set to true an automatic postback to the server will occur whenever the user changes the text in the text box. This is what we want to avoid.

SECTION 5: Implement error handling in the user interface.

SUBSECTION A: Configure custom error pages. (3 questions)

QUESTION 1

You deploy an ASP.NET application. When an error occurs, the user is redirected to a custom error page that is specified in the Web.config file.

Users report that one particular page is repeatedly generating errors. You need to gather detailed error information for the page. You need to ensure that users of the application continue to see the custom error page if they request pages that generate errors.

What should you do?

- A. In the Web.config file, set the mode attribute of the customErrors element to RemoteOnly and access the page from a browser on your client computer.
- B. In the Web.config file, set the mode attribute of the customErrors element to RemoteOnly and access the page from a browser on the server.
- C. Modify the Page directive so that the Trace attribute is set to True and the LocalOnly attributes is set to true, and then access the page from a browser on the server.
- D. Modify the Web.config file to include the following element:

```
<trace enabled="true" LocalOnly="false"
PageOutput="true"/>
```

Access the application from a browser on your client computer.

Answer: B

Explanation: The RemoteOnly option specifies that custom errors are shown only to remote clients and ASP.NET errors are shown to the local host. This meets the requirements since you will be able to see the ASP.NET errors while the users still will see the custom error page.

Reference: .NET Framework General Reference, <customErrors> Element

Incorrect Answers

A: If you use the RemoteOnly option and access the page from a client computer you would only see the custom error page, not see the detailed error information.

C: The LocalOnly Trace attribute indicates that the trace viewer (trace.axd) is available only on the host Web server. This is not relevant in this scenario.

D: The LocalOnly attribute only affects the availability of the Trace.vxd tool.

QUESTION 2

You create an ASP.NET application for CertKing. You create an exception class named DataCollisionEx. The exception class is defined in CK Namespace. You want the exception to be thrown from any page in which a user attempts to edit data that has been changed by another user during the edit. You want to use centralized error handling.

You need to write code for the Application_Error event handler of your application. You want the event handler to direct the user to a page named DataCollision.aspx when DataCollisionEx exception is thrown. You want the DataCollision.aspx page to retrieve error information from the server object and format the message for the user. You want other exceptions to direct the user to the default error page that is

enabled by the Web.config file.

Which code should you include in the Application_Error event handler?

A. Type argExType;

Exception ex;

```
argExType = Type.GetType("TkNamespace.DataCollisionEx");
```

```
ex = Server.GetLastError();
```

```
if (ex.GetType().Equals(argExType))
```

```
{
```

```
Response.Redirect("DataCollision.aspx");
```

```
}
```

```
Else
```

```
{
```

```
Server.ClearError();
```

```
}
```

B. Type argExType;

Exception ex;

```
argExType = Type.GetType("TkNamespace.DataCollisionEx");
```

```
ex = Server.GetLastError();
```

```
if (ex.GetType().Equals(argExType))
```

```
{
```

```
Response.Redirect("DataCollision.aspx");
```

```
}
```

C. Type argExType;

Exception ex;

```
argExType = Type.GetType("TkNamespace.DataCollisionEx");
```

```
ex = Server.GetLastError().InnerException;
```

```
if (ex.GetType().Equals(argExType))
```

```
{
```

```
Response.Redirect("DataCollision.aspx");
```

```
}
```

D. Type argExType;

Exception ex;

```
argExType = Type.GetType("TkNamespace.DataCollisionEx");
```

```
ex = Server.GetLastError().InnerException;
```

```
if (ex.GetType().Equals(argExType))
```

```
{
```

```
Response.Redirect("DataCollision.aspx");
```

```
}
```

```
Else
```

```
{
```

```
Server.ClearError();
```

```
}
```

Answer: C

Explanation: We use the GetLastError method to retrieve the last error. We use the InnerException property to catch the earlier exception.

Note: When an exception X is thrown as a direct result of a previous exception Y, the InnerException property of X should contain a reference to Y.

The HttpServerUtility.ClearError method clears the previous exception.

Reference:

.NET Framework Class Library, Exception.InnerException Property [C#]

.NET Framework Class Library, HttpServerUtility.ClearError Method [C#]

Incorrect Answers

A: We should retrieve the previous error with the InnerException property. Furthermore, we should not clear the previous exception.

B: We should retrieve the previous error with the InnerException property.

D: We should not clear the previous exception.

QUESTION 3

You create an ASP.NET application that will run on CertKing 's Internet Web site. Your application contains 100 Web pages. You want to configure your application so that it will display customized error messages to users when an HTTP code error occurs.

You want to log the error when an ASP.NET exception occurs. You want to accomplish these goals with the minimum amount of development effort.

Which two actions should you take? (Each correct answer presents part of the solution. Choose two)

A. Create an Application_Error procedure in the Global.asax file for your application to handle ASP.NET code errors.

B. Create an applicationError section in the Web.config file for your application to handle ASP.NET code errors.

C. Create a CustomErrors event in the Global.asax file for your application to handle HTTP errors.

D. Create a CustomErrors section in the Web.config file for your application to handle HTTP errors.

E. Add the Page directive to each page in the application to handle ASP.NET code errors.

F. Add the Page directive to each page in the application to handle HTTP errors.

Answer: A, D

Explanation:

A: Any public event raised by the HttpApplication class is supported using the syntax Application_EventName. For example, a handler for the Error event can be declared protected void Application_Error(Object sender, EventArgs e).

D: The <customErrors> element, which is used in the Web.config file, provides information about custom error messages for an ASP.NET application.

Reference:

.NET Framework Developer's Guide, Handling Public Events

.NET Framework General Reference, <customErrors> Element

Incorrect Answers

B: There is no such thing as an applicationError section in the Web.config file.

C: There is no such thing as CustomErros event in the Global.asax file.

E, F: It is not necessary to add a Page Directive to each page.

SUBSECTION B: Implement Global.asax, application, page-level, and

page event error handling.

SECTION 6: Implement online user assistance.

SECTION 7: Incorporate existing code into ASP.NET pages.

QUESTION 1

You are creating an ASP.NET application for CertKing . An earlier version of the application uses ActiveX components that are written in Visual Basic 6.0. The new ASP.NET application will continue to use the ActiveX components.

You want the marshaling of data between your ASP.NET application and the ActiveX components to occur as quickly as possible.

Which two actions should you take? (Each correct answer presents part of the solution. Choose two)

- A. Use ODBC binding.
- B. Use late binding.
- C. Use early binding
- D. Set the AspCompat attribute of the Page directive to true.
- E. Set the AspCompat attribute of the Page directive to false.

Answer: C, D

Explanation:

C: Early binding is a better choice for performance reasons.

D: When using single-threaded (STA) COM components, such as components developed using Visual Basic, from an ASP.NET page, you must include the compatibility attribute aspcompat=true in an <%@ Page > tag on the ASP.NET page.

Reference: .NET Framework Developer's Guide, COM Component Compatibility

Incorrect Answers

A: ODBC is set of legacy database drivers. OleDb and SQL should be used. Furthermore, database drivers are irrelevant in this scenario.

B: While late binding to components is still supported, early binding is a better choice for performance reasons.

E: The aspcompat attribute must be set to true.

SECTION 8: Display and update data.

SUBSECTION A: Transform and filter data. (3 questions)

QUESTION 1

You are creating an ASP.NET application that delivers customized news content over the Internet. Users make selections from an ASP.NET page. Your code creates a DataSet object named CK NewsItems, which contains the news items that meet the criteria selected by the user.

You create a style sheet named NewsStyle.xsl that renders the data in CK NewsItems in HTML format.

You write the following code segment:

```
XmlDataDocument doc = new XmlDataDocument(TkNewsItems);
```

```
XslTransform tran = new XslTransform();
```

```
tran.Load("NewsStyle.xsl");
```

You want to display the transformed data as HTML text.

Which line of code should you add to the end of the code segment?

A. `tran.Transform(doc, null, Response.OutputStream);`

B. `tran.Transform(doc, null, Request.InputStream);`

C. `CK NewsItems.WriteXml(Response.OutputStream);`

D. `CK NewsItems.WriteXml(tran.ToString());`

Answer: A

Explanation: The `XsltTransform.Transform` method transforms the XML data in the `XPathNavigator` using the specified args and outputs the result to a `Stream`. We should use the `Response.OutputStream` to enable output of text to the outgoing HTTP response stream.

Reference: .NET Framework Class Library, `XsltTransform.Transform` Method (`XPathNavigator`, `XsltArgumentList`, `Stream`) [C#]

Incorrect Answers

B: We want to display data, not read data, so we must use `Response.OutputStream` not `Request.InputStream`.

C, D: We want to generate HTML, not XML data. We should use the `XsltTransform.Transform` method, not the `DataSet.WriteXml` method.

QUESTION 2

You create an ASP.NET application to display a sorted list of products in a `DataGrid` control. The product data is stored in a Microsoft SQL Server database named `CertKing DB`. Each product is identified by a numerical value named `ProductID`, and each product has an alphabetic description named `ProductName`. You write ADO.NET code that uses a `SqlDataAdapter` object and a `SqlCommand` object to retrieve the product data from the database by calling a stored procedure.

You set the `CommandType` property of the `SqlCommand` object to `CommandType.StoredProcedure`.

You set the `CommandText` property of the object to `procProductList`. Your code successfully files a `DataTable` object with a list of products that is sorted by `ProductID` in descending order.

You want the data to be displayed in reverse alphabetic order by `ProductName`.

What should you do?

A. Change the `CommandType` property setting of the `SqlCommand` object to `CommandType.Text`.

Change the `CommandText` property setting of the `SqlCommand` object to the following:

```
SELECT * FROM procProductList ORDER BY ProductName DESC;
```

Bind the `DataGrid` control to the `DataTable` object.

B. Create a new `DataView` object based on the `DataTable` object.

Set the `Sort` Property of the `DataView` object to `"ProductName DESC"`.

Bind the `DataGrid` control to the `DataView` object.

C. Set the `AllowSorting` property of the `DataGrid` control to `True`.

Set the `SortExpression` property of the `DataGridColumn` that displays `ProductName` to

```
"ProductName DESC".
```

Bind the `DataGrid` control to the `DataTable` object.

D. Set the `DisplayExpression` property of the `DataTable` object to `"ORDER BY ProductName DESC"`.

Bind the `DataGrid` control to the `DataTable` object.

Answer: B

Explanation: We can create a DataView object, set the appropriate Sort Property and bind the DataGrid control to the DataView, and not the DataTable object.

Reference: .NET Framework Developer's Guide, Sorting and Filtering Data Using a DataView [C#]

Incorrect Answers

A: procProductList is a stored procedure. It cannot be used in the FROM clause of a SELECT statement.

C: The DataGrid.AllowSorting property gets or sets a value that indicates whether sorting is enabled. The DataGridColumn.SortExpression property gets or sets the name of the field or expression to pass to the OnSortCommand method when a column is selected for sorting. However, the sorting only occurs when a user clicks the column header.

D: The DataTable.DisplayExpression gets or sets the expression that will return a value used to represent this table in the user interface. This is only a display string. We cannot use it to sort the DataTable.

QUESTION 3

You are a Web developer for an online research service CertKing Research Inc. You are creating an ASP.NET application that will display research results to users of the CertKing Web site.

You use a DataGrid control to display a list of research questions and the number of responses received for each question. You want to modify the control so that the total number of responses received is displayed in the footer of the grid. You want to perform this task with the minimum amount of development effort.

What should you do?

A. Override the OnPreRender event and display the total when the footer row is created.

B. Override the OnItemCreated event and display the total when the footer row is created,

C. Override the OnItemDataBound event and display the total when the footer row is bound.

D. Override the OnLayout event and display the total in the footer row.

Answer: C

Explanation: The ItemDataBound event is raised after an item is data bound to the DataGrid control. This event provides you with the last opportunity to access the data item before it is displayed on the client. After this event is raised, the data item is nulled out and no longer available.

Reference: .NET Framework Class Library, DataGrid.ItemDataBound Event [C#]

Incorrect Answers

A: The OnPreRender method notifies the server control to perform any necessary prerendering steps prior to saving view state and rendering content.

B: The ItemCreated event is raised when an item in the DataGrid control is created, both during round-trips and at the time data is bound to the control.

D: The OnLayout Method raises the Layout event that repositions controls and updates scroll bars.

SUBSECTION B: Bind data to the user interface. (1 question)

QUESTION 1

You are a Web developer for CertKing . You create an ASP.NET application that accesses sales and

marketing data. The data is stored in a Microsoft SQL Server 2000 database on a server named CertK 01. The company purchases a factory automation software application. The application is installed on CertK 01, where it creates a second instance of SQL Server 2000 named Factory and a database named FactoryDB. You connect to FactoryDB by using Windows Integrated authentication.

You want to add a page to your ASP.NET application to display inventory data from FactoryDB. You use a SqlConnection object to connect to the database. You need to create a connection string to FactoryDB in the instance of SQL Server named Factory on CertK 01.

Which string should you use?

- A. "Server= CertK 01;Data Source=Factory; Initial Catalog=FactoryDB;Integrated Security=SSPI"
- B. "Server= CertK 01;Data Source=Factory; Database=FactoryDB;Integrated Security=SSPI"
- C. "Data Source= CertK 01\Factory;Initial Category=Factory; Integrated Security=SSPI"
- D. "Data Source= CertK 01\Factory;Database=FactoryDB; Integrated Security=SSPI"

Answer: D

Explanation: The Data Source attribute of the connection string contains the name, instance or network address of the instance of SQL Server to which to connect. In this scenario we are to connect to the Factory Instance on CertK 01 so we use CertK 01\Factory as data source.

To specify the database we should either use the Database or the Initial Catalog attribute. Here we use Database=FactoryDB.

Note: The SQL Server .NET Data Provider provides connectivity to Microsoft SQL Server version 7.0 or later using the SqlConnection object. The connection string includes the source database name, and other parameters needed to establish the initial connection.

Reference:

.NET Framework Class Library, SqlConnection.ConnectionString Property [C#]

Incorrect Answers

A, B: There is no Server attribute in the connection string. Instead we should use the Data Source attribute to specify the server and the instance.

C: There is no Initial Category attribute in the connection string. We can use Database or the Initial Catalog attribute to specify the database.

SUBSECTION C: Use controls to display data. (3 questions)

QUESTION 1

You create an ASP.NET page that contains a DataGrid control. The control displays data that is retrieved from a database named CertKing DB. You want your users to be able to sort the data in either ascending or descending order.

You write code to sort the data in the DataGrid control by using the SortOrder property when a user clicks in a column. The values stored for the SortOrder property are "ASC" for ascending order, and "DESC" for descending order. You want to preserve the value during postbacks.

A user selects descending order. Which code should you use to save and retrieve the value?

A. // Save

```
Application["SortOrder"] = "DESC";
```

// Retrieve

```
string val = (string) Application["SortOrder"];
```

B. // Save

```
Cache["SortOrder"] = "DESC";
```

// Retrieve

```
string val = (string) Cache["SortOrder"];
```

C. // Save

```
ViewState["SortOrder"] = "DESC";
```

// Retrieve

```
string SortOrder = (string) ViewState["SortOrder"];
```

D. // Save

```
Cache["SortOrder"] = "SortOrder";
```

// Retrieve

```
string val = (string) Cache["DESC"];
```

Answer: C

Explanation: An ASP.NET server control inherits a property named ViewState from Control that enables it to participate easily in state management. ViewState is persisted to a string variable by the ASP.NET page framework and sent to the client and back as a hidden variable. Upon postback, the page framework parses the input string from the hidden variable and populates the ViewState property of each control.

Reference: .NET Framework Developer's Guide, Maintaining State in a Control [C#]

Incorrect Answers

A: The application state is not adequate here since only a single application would apply to all users.

B, D: A cache would not be a secure place to save this information. Caching is used for performance reasons.

QUESTION 2

You are creating an ASP.NET page for a travel service. The page contains a CheckBoxList control that contains travel destinations. Customer can select favorite destinations to receive weekly e-mail updates of travel packages.

The CheckBoxList control is bound to a database table of possible destinations. Each destination is ranked according to its popularity. You modify the page to sort the destination list by rank, from the most popular to the least popular. The list has three columns.

You want the most popular destination to be on the top row of the check box list at run time.

Which property setting should you use for the CheckBoxList control?

A. Set the RepeatDirection property to Vertical.

B. Set the RepeatDirection property to Horizontal.

C. Set the RepeatLayout property to Flow.

D. Set the RepeatLayout property to Table.

Answer: B

Explanation: The DataList.RepeatDirection property is used to get or select whether the DataList control displays vertically or horizontally. If this property is set to RepeatDirection.Horizontal, the items in the list are

displayed in rows loaded from left to right, then top to bottom, until all items are rendered.

Reference:

.NET Framework Class Library, `DataList.RepeatDirection` Property [C#]

.NET Framework Class Library, `DataList.RepeatLayout` Property [C#]

Incorrect Answers

A: If the `DataList.RepeatDirection` property is set to `RepeatDirection.Vertical`, the items in the list are displayed in columns loaded from top to bottom, then left to right, until all items are rendered.

C, D: `DataList.RepeatLayout` Property gets or sets whether the control is displayed in a table or flow layout. It does not affect the order in which the items are displayed.

QUESTION 3

You are creating an ASP.NET application to track CertKing sales orders. The application uses an ADO.NET `DataSet` object that contains two `DataTable` objects. One table is named `Orders`, and the other table is named `OrderDetails`. The application displays data from the `Orders` table in a list box. You want the order details for an order to be displayed in a grid when a user selects the order in the list box. You want to modify these objects to enable your code to find all the order details for the selected order.

What should you do?

A. Add a `DataRelation` object to the `Relations` collection of the `DataSet` object.

B. Use the `DataSet.Merge` method to connect the `Orders` table and the `OrderDetails` table to each other.

C. Add a `ForeignKeyConstraint` to the `OrderDetails` table.

D. Add a keyref constraint to the `DataSet` schema.

Answer: A

Explanation: In order to enable the `DataGrid` to display from multiple tables we need to relate the tables with `DataRelation`.

Reference: Visual Basic and Visual C# Concepts, Introduction to the Windows Forms `DataGrid` Control

Incorrect Answers

B: We don't want to merge the two datasets into a single dataset.

C: A `ForeignKeyConstraint` represents an action restriction enforced on a set of columns in a primary key/foreign key relationship when a value or row is either deleted or updated. However, a foreign key constraint does not create a relation between the tables.

D: We need to define a relation not a constraint.

SECTION 9: Instantiate and invoke Web services or components.

SUBSECTION A: Instantiate and invoke a Web service. (3 questions)

QUESTION 1

You are creating an ASP.NET application for CertKing . The company deploys an XML Web service that returns a list of encyclopedia articles that contain requested keywords.

You want to create a class that calls the XML Web service.

What should you do?

- A. Select Add Web Service from the Project menu in Visual Studio .NET and browse to the XML Web service.
- B. Select Add Reference from the Project menu in Visual Studio .NET and browse to the XML Web service.
- C. Select Add Web Reference from the Project menu in Visual Studio .NET and browse to the XML Web service.
- D. Run the Type Library Importer (Tlbimp.exe) and provide it with the URL for the XML Web service.
- E. Run the Web Services Discover tool (Disco.exe) and provide it with the URL for the XML Web service.

Answer: C

Explanation: You can add a Web reference to projects that use XML Web services that are published on the Internet or on your local Web servers.

To add a Web reference to a project

1. In Solution Explorer, select a project that supports adding Web references.
2. On the Project menu, choose Add Web Reference.
3. In the Add Web Reference dialog box, type the URL for the XML Web service in the Address text box, and then choose the Arrow Icon.
4. Verify that the items in the Available References box are the items you want to reference in your project, and then choose Add Reference.
5. In Solution Explorer, expand the Web References folder to note the namespace for the Web reference classes that are available to the items in your project.

Reference: Visual Studio, Adding and Removing Web References

Incorrect Answers

A, B: We should use the Add Web reference command, not Add Web Service or Add Reference.

D: The Type Library Importer converts the type definitions found within a COM type library into equivalent definitions in a common language runtime assembly.

E: The Web Services Discovery tool discovers the URLs of XML Web services located on a Web server and saves documents related to each XML Web service on a local disk.

QUESTION 2

You are creating an ASP.NET application for an online payment service. The service allows users to pay their bills electronically by using a credit card.

The application includes a payment page named Payment.aspx. This page contains a form for entering payee, payment amount, and credit card information. When a user needs to submit a new billing address to a payee, the page form allows the user to provide the new address information.

If the user indicates a change of address, the application needs to provide the information to the ProcessAddressChange.aspx page for processing as soon as the user submits the payment page information. The ProcessAddressChange.aspx page processes the request for a change of address but does not provide any display information for the user.

When the requested processing is complete, Payment.aspx displays status results to the user.

You need to add a line of code to Payment.aspx to perform the functionality in ProcessAddressChange.aspx. Which line of code should you use?

- A. Response.Redirect("ProcessAddressChange.aspx");
- B. Response.WriteFile("ProcessAddressChange.aspx");
- C. Server.Transfer("ProcessAddressChange.aspx", True);

D. Server.Execute("ProcessAddressChange.aspx");

Answer: D

Explanation: The HttpServerUtility.Execute method executes a request to another page using the specified URL path to the page. The Execute method continues execution of the original page after execution of the new page is completed.

Reference:

.NET Framework Class Library, HttpServerUtility.Execute Method (String) [C#]

Incorrect Answers

A: The HttpResponse.Redirect method Redirects a client to a new URL and specifies the new URL.

B: The HttpResponse.WriteFile method writes the specified file directly to an HTTP content output stream.

C: The HttpServerUtility.Transfer method Terminates execution of the current page and begins execution of a new page using the specified URL path to the page.

QUESTION 3

You are creating an ASP.NET application for CertKing . Your application will call an XML Web service run by Wide World Importers. The XML Web service will return an ADO.NET DataSet object containing a list of companies that purchase wine.

You need to make the XML Web service available to your application.

What should you do?

A. On the .NET tab of the Reference dialog box, select System.Web.Services.dll.

B. In the Web References dialog box, type the address of the XML Web service.

C. Add a using statement to your Global.asax.cs file, and specify the address of the XML Web service.

D. Write an event handler in the Global.asax.cs file to import the .wsdl and .disco files associated with the XML Web service.

Answer: B

Explanation: Web references differ from traditional references and components in that they refer to XML Web services published on either a local intranet or the Internet.

Procedure to add a Web reference to a project

1. In Solution Explorer, select a project that supports adding Web references.

2. On the Project menu, choose Add Web Reference.

3. In the Add Web Reference dialog box, type the URL for the XML Web service in the Address text box,

4. Verify that the items in the Available References box are the items you want to reference in your project, and then choose Add Reference.

5. In Solution Explorer, expand the Web References folder to note the namespace for the Web reference classes that are available to the items in your project.

Reference: Visual Studio, Adding and Removing Web References

SUBSECTION B: Instantiate and invoke a COM or COM+ component. (2 Questions)

QUESTION 1

You are a Web developer for CertKing Publishing. You are performing a migration of your company's Web page with the minimum amount of development effort. You also want the migration to be accomplished as quickly as possible.

The page contains a COM component named CertKing .BookList. The component is written in Microsoft Visual Basic 6.0. When you open the new page, you receive the following error message: "Server error - The component ' CertKing .BookList' cannot be created."

You need to ensure that you can open the Web page successfully.

What should you do?

A. Write a manage component to perform the tasks that the Lucerne.BookList component currently performs.

B. Set the AspCompat attribute of the Page directive to true.

C. Add the following line of code to the Page.Load event handler:

```
RegisterRequiresPostBack(" CertKing .BookList");
```

D. Add the following attribute to the processModel element of the Web.config file:

```
comImpersonationLevel = Delegate
```

Answer: B.

Explanation: If the older file contains calls to COM components - for example, ADO code then we must add the AspCompat attribute to the page directive in HTML view. The aspcompat attribute forces the page to execute in single-threaded (STA) mode.

Note: You can work with and run existing ASP pages (.asp files) as-is in Visual Studio. You can use ASP pages and ASP.NET pages in the same project. It is useful to convert ASP pages to ASP.NET Web Forms pages so that you can take advantage of the enhanced features of the newer architecture.

Reference: Visual Basic and Visual C# Concepts, Migrating ASP Pages to Web Forms Pages

QUESTION 2

You are creating an ASP.NET application for CertKing . Customers will use this application to manage their own insurance policies. For example, a customer can use the application to renew policies.

An existing COM component named CertK PolicyLibrary.dll contains the logic for calculating the renewal premium. CertK PolicyLibrary.dll is written in Visual Basic 6.0. The class that performs the calculations is named cPolicyActions. The CalculateRenewal function of cPolicyActions accepts a policy identification number and returns a premium as a Double.

You need to use CertK PolicyLibrary.dll in your ASP.NET application. You also need to enable the application to use the cPolicyActions class.

What should you do?

A. Run the following command in a command window:

```
TLBIMP.EXE CertK PolicyLibrary.DLL /out: CertK PolicyLibrary.NET.DLL
```

Copy the original CertK PolicyLibrary.dll to the /bin directory of your ASP.NET application.

B. Run the following command in a command window:

```
TLBEXP.EXE CertK PolicyLibrary.DLL /out: CertK PolicyLibrary.NET.DLL
```

Copy the original CertK PolicyLibrary.dll to the /bin directory of your ASP.NET application.

C. Select Add Existing Item from the Project menu in Visual Studio .NET and browse to CertK PolicyLibrary.dll.

D. Select Add Reference from the Project menu in Visual Studio .NET, select the COM tab, and browse to

CertK PolicyLibrary.dll.

Answer: D

Explanation: To add a reference to a COM object from a .NET application:

1. Open a new or existing Microsoft Visual C# .NET project in Visual Studio .NET.
2. Click the Project menu and select Add Reference.
3. In the Add Reference window, click the COM tab.
4. Scroll down the list of components and select the one you want to reference, such as Microsoft CDO For Exchange 2000 Library. Click Select. After the component name appears in the Selected Components window, click OK.

Note: The COM component must have been previously registered on the server for this to succeed.

Reference: Using COM Interoperability in Visual Basic .NET

Incorrect Answers

A: TBLIMP is required if Visual Studio .NET macros must reference COM components. TLBIMP "wraps" the component, enabling Visual Studio .NET macros to reference it. However, TLBIMP is not required if we are going to reference a COM object from a Visual Studio .NET application.

B: Tlbexp.exe generates a type library that contains definitions of the types defined in the assembly. Applications such as Visual Basic 6.0 can use the generated type library to bind to the .NET types defined in the assembly. However, the requirements of this scenario are the opposite: we want to reference a COM object from a Visual Studio .NET application.

C: We must specify that we are referencing a COM object.

SUBSECTION C: Instantiate and invoke a .NET component.

SUBSECTION D: Call native functions by using platform invoke.

SECTION 10: Implement globalization.

SUBSECTION A: Implement localizability for the user interface. (3 Questions)

QUESTION 1

As a software developer at CertKing you are creating an ASP.NET application that will display facts about the solar system. This application will support localization for users from France, Germany, Japan, and the United States. To see information about a particular planet, the user will select the planet from a drop-down list box on SolarSystem.aspx.

You want to display the planet names in the drop-down list box in the language appropriate to the individual who is using the application.

What should you do?

A. Create a database table named Planets.

Create three column named PlanetID, LocaleID, and Description.

Use SqlCommand.ExecuteReader to query the table for the locale specified in the request.

Using the locale specified in the request, translate the values by using the TextInfo.OEMCodePage property.

Populate the drop-down list box with the translated text.

B. Create a DataTable object named Planets.

Populate the Planets DataTable object by using string constants.

Using the locale specified in the request, translate the values by using a UnicodeEncoding object.

Bind the DataSource property of the drop-down list box to the DataTable object.

C. Create a database table named Planets.

Create two columns named PlanetID and Description

Use a SqlDataAdapter to load the planet information into a DataSet object.

Using the locale specified in the request, use the String format provider to translate the values.

Bind the DataSource property of the drop-down list box to the DataSet.DefaultView object.

D. Create string resources assemblies for each locale.

Using the locale specified in the request, use a ResourceManager to load the appropriate assembly.

Populate an array with the string values from the assembly.

Bind the DataSource property of the drop-down list box to the array.

Answer: D

Explanation: The ResourceManager class provides convenient access to culture-correct resources at run time.

Reference: .NET Framework Tutorials, ResourceManager

QUESTION 2

You are creating an ASP.NET page that enables users to select a country and view information on tourist attractions in that country. Users select a country from a list box named countryList. The list box displays country names. The list box also contains hidden country codes.

Your code retrieves a cached DataTable object that contains tourist attraction descriptions and a numeric country code named CountryID. The DataTable object is named attractionsTable.

You want to extract an array of DataRow objects from the DataTable object. You want to include tourist attractions for only the selected country.

Which code segment should you use?

A. `DataRow[] result = attractionsTable.Select("CountryID = " + countryList.SelectedItem.Text);`

B. `DataRow[] result = attractionsTable.Select("CountryID = " + countryList.SelectedItem.Value);`

C. `DataRow result = attractionsTable.Rows.Find("CountryID = " + countryList.SelectedItem.Value);`

D. `DataRow result = attractionsTable.Rows.Find(countryList.SelectedItem.Value);`

Answer: B

Explanation: The DataTable.Select method gets an array of all DataRow objects that match the filter criteria in order of primary key (or lacking one, order of addition.). The filter will compare CountryID values. We should use Country codes and not country names. We should therefore use the Value of the selected item, not the Text.

Reference: .NET Framework Class Library, DataTable.Select Method (String) [C#]

.NET Framework Class Library, ListControl.SelectedItem Property [C#]

Incorrect Answers

A: The `ListBox.TextBox` property gets or searches for the text of the currently selected item in the `ListBox`. However, this would retrieve names of countries, but the filter use comparison to a `CountryID` column. We must use the country code, not the country name.

C, D: The `DataRowCollection.Find` method is not appropriate in this scenario. It retrieves only a single row, not an array of rows.

QUESTION 3

You create an ASP.NET application to provide corporate news and information to CertKing 's employees. The application is used by employees in New Zealand.

`Default.aspx` has a Web Form label control named `currentDateLabel`. The `Page.Load` event handler for `Default.aspx` included the following line of code:

```
currentDateLabel.Text = DateTime.Now.ToString("D")
```

You need to ensure that the data is displayed correctly for employees in New Zealand. What should you do?

A. In the `Web.config` file for the application, set the `culture` attribute of the globalization element to `en-NZ`.

B. In the `Web.config` file for the application, set the `uiCulture` attribute of the globalization element to `en-NZ`.

C. In Visual Studio .NET, set the `responseEncoding` attribute in the page directive for `Default.aspx` to `UTF-8`.

D. In Visual Studio .NET, save the `Default.aspx` page for both versions of the application by selecting `Advanced Save Options` from the `File` menu and selecting `UTF-8`.

Answer: A

Explanation: The `culture` attribute of the globalization element specifies the default culture for processing incoming Web requests.

Reference: .NET Framework General Reference, `<globalization>` Element

Incorrect Answers

B: The `uiculture` attribute of the globalization specifies the default culture for processing locale-dependent resource searches. It does not apply in this scenario.

C, D: The `UTF8Encoding` Class encodes Unicode characters using UCS Transformation Format, 8-bit form (UTF-8). This encoding supports all Unicode character values and surrogates. However, it does not help in displaying data in New Zealand format.

SUBSECTION B: Convert existing encodings.

SUBSECTION C: Implement right-to-left and left-to-right mirroring.

SUBSECTION D: Prepare culture-specific formatting.

QUESTION 1

You are a Web developer for CertKing . You are creating an online inventory Web site to be used by employees in Germany and the United States. When a user selects a specific item from the inventory, the site needs to display the cost of the item in both United States currency and German currency. The cost must be displayed appropriately for each locale.

You want to create a function to perform this task.

Which code should you use?

A. private string CK GetDisplayValue(double value,string inputRegion)

```
{  
string display;  
RegionInfo region;  
region = new RegionInfo(inputRegion);  
display = value.ToString("C");  
display += region.CurrencySymbol;  
return display;  
}
```

B. private string CK GetDisplayValue(double value,string inputCulture)

```
{  
string display;  
NumberFormatInfo LocalFormat = (NumberFormatInfo)  
NumberFormatInfo.CurrentInfo.Clone();  
display = value.ToString("C", LocalFormat);  
return display;  
}
```

C. private string CK GetDisplayValue(double value,string inputRegion)

```
{  
string display;  
RegionInfo region;  
region = new RegionInfo(inputRegion);  
display = value.ToString("C");  
display += region.ISOCurrencySymbol;  
return display;  
}
```

D. private string CK GetDisplayValue(double value, string inputCulture)

```
{  
string display;  
CultureInfo culture;  
culture = new CultureInfo(inputCulture);  
display = value.ToString("C", culture);  
return display;  
}
```

Answer: D

Explanation: We create a new CultureInfo object based on the inputCulture parameter. We then produce the result with "C" constant, representing the current culture, and the new CultureInfo object: display = value.ToString("C", culture)

Note: The CultureInfo Class contains culture-specific information, such as the language, country/region, calendar, and cultural conventions associated with a specific culture. This class also provides the information

required for performing culture-specific operations, such as casing, formatting dates and numbers, and comparing strings.

Reference:

.NET Framework Developer's Guide, Formatting Numeric Data for a Specific Culture [C#]

Incorrect Answers

B: The NumberFormatInfo class defines how currency, decimal separators, and other numeric symbols are formatted and displayed based on culture. However, we should create a CultureInfo object, not a NumberFormatInfo object).

A, C: We should use the CultureInfo class not the RegionInfo class.

Note: In contrast to CultureInfo, RegionInfo does not represent preferences of the user and does not depend on the user's language or culture.

SECTION 11: Handle events.

SUBSECTION A: Create event handlers. (7 questions)

QUESTION 1

You are creating a DataGrid control named CK Grid for a travel service. Each row in myGrid contains a travel reservation and an Edit command button. In each row, the fields that contain travel reservation information are read-only labels. You want all the fields to change to text boxes when a user clicks the Edit command button in the row.

You are writing the following event handler for the EditCommand event. (Line numbers are included for reference only)

```
1 private void CK Grid_EditCommand(object s,  
DataGridCommandEventArgs e)  
2  
3 }
```

Which code should you add at line 2 of the event handler?

- A. CK Grid.EditItemIndex = e.Item.ItemIndex;
- B. CK Grid.DataKeyField = e.Item.AccessKey;
- C. CK Grid.SelectedIndex = e.Item.ItemIndex;
- D. CK Grid.CurrentPageIndex = e.Item.ItemIndex;

Answer: A

Explanation: The EditItemIndex property is used to programmatically control which item is being edited. Setting this property to an index of an item in the DataGrid control will enable editing controls for that item in the EditCommandColumn.

Reference: .NET Framework Class Library, DataGrid.EditItemIndex Property [C#]

Incorrect Answers

B: The DataKeyfield is used to get or set the key field in the data source specified by the DataSource property.

C: The SelectedIndex property is used to determine the index of the item selected by the user in the

DataGrid control.

D: The `CurrentPageIndex` property is used to determine the currently displayed page in the DataGrid control when paging is enabled. This property is also used to programmatically control which page is displayed.

QUESTION 2

You create an ASP.NET application for an online insurance site CertKing Insurance. A page named `VehicleInformation.aspx` has the following Page directive:

```
<%@ Page Language="c#"
CodeBehind="VehicleInformation.aspx.cs"
AutoEventWireup="false" inherits="InsApp.VehicleInfo"%>
```

`VehicleInformation.aspx` had a `TextBox` control named `vehicleIDNumber` in which the user can enter a vehicle identification number (VIN). The HTML code for this control is as follows:

```
<asp:TextBox ID="vehicleIDNumber" Columns="20"
Runat="server"/>
```

You need to implement a `TextChanged` event handler for `vehicleIDNumber`. You want this event handler to retrieve information about a vehicle by using an XML Web service that charges for each access. The page will then be redisplayed with additional information about the vehicle obtained from the XML Web service.

You are implementing the `TextChanged` event handler.

Which two courses of action should you take? (Each correct answer presents part of the solution. Choose two)

- A. In the Page directive for `VehicleInformation.aspx`, ensure that the `AutoEventWireup` attribute is set to "true".
- B. In the Page directive for `VehicleInformation.aspx`, ensure that the `EnableViewState` attribute is set to "true".
- C. In the `vehicleIDNumber` HTML element, ensure that the `AutoPostBack` attribute is set to "false". Include code for the client-side `onserverchange` event to submit the Web Form for processing by the server.
- D. In the `vehicleIDNumber` HTML element, ensure that the `AutoPostBack` attribute is set to "true". Include code in the `TextChanged` event handler to query the XML Web service.

Answer: B, D

Explanation:

B: The `Page.EnableViewState` property value indicates whether the page maintains its view state, and the view state of any server controls it contains, when the current page request ends.

D: The `AutoPostBack` property is used to specify whether an automatic postback to the server will occur whenever the user changes the content of the text box. As we want we want to use an XML Web service we must set the attribute to true.

Reference:

.NET Framework Class Library, `Control.EnableViewState` Property [C#]

.NET Framework Class Library, `TextBox.AutoPostBack` Property [C#]

Incorrect Answers

A: `AutoEventWireup` is used to automatically associate page events and methods. It does not provide a solution for this scenario.

C: We are required to use a XML Web service. The AutoPostBack attribute must be set to false.

QUESTION 3

You are creating a Web Form for CertKing 's human resources department. You create a Web user control named Employee that allows the user to edit employee information. Each instance of the control on your Web Form will contains information about a different employee.

You place the Employee control on the Web Form and name the control CK1 . You also add the Employee control to the ItemTemplate of a Repeater control named repeaterEmployees.

Each Employee control in repeaterEmployees contains several TextBox controls. You want your Web Form to handle TextChanged events that are raised by these TextBox controls.

Which event handler should you use?

- A. private void CK1 _TextChanged(object source, EventArgs e)
- B. private void repeaterEmployees_ItemDataBound(object source, RepeaterItemEventArgs e)
- C. private void repeaterEmployees_DataBinding(object source, RepeaterItemEventArgs e)
- D. private void repeaterEmployees_ItemCommand(object source, RepeaterCommandEventArgs e)

Answer: B

Explanation: The ItemDataBound event occurs after an item in the Repeater is data-bound but before it is rendered on the page.

Note: The Repeater Web server control is a basic container control that allows you to create custom lists out of any data available to the page.

Reference: Visual Basic and Visual C# Concepts, Introduction to the Repeater Web Server Control .NET Framework Class Library, Repeater Events

Incorrect Answers

A: The Repeater class does not have any TextChanged event.

C: The DataBinding event occurs when the server control binds to a data source.

D: The Repeater.ItemCommand event is raised in response to button clicks in individual items in a Repeater control.

QUESTION 4

You create an ASP.NET application for online sales site for the CertKing Corporation. A page named OrderTKVerify.aspx displays a detailed listing of the items ordered, their quantity, and their unit price. OrderTKVerify.aspx then displays the final order total at the end of the page.

The Web Form within OrderTKVerify.aspx includes a Web server control button for order submission. The control includes the following HTML element generate by Visual Studio .NET.

```
<asp:button id="submitOrderButton" runat="server"
Text="Submit Order"></asp:button>
```

The primary event handler for submitOrderButton is named submitOrderButton_Click and runs on the server. A client-side function named verifyBeforeSubmit() displays a dialog box that asks the user to verify the intent to submit the order.

You need to ensure that `verifyBeforeSubmit()` runs before `submitOrderButton_Click`.

What should you do?

A. Modify the HTML element as follows:

```
<asp:button id="submitOrderButton" runat="server"
Text="Submit Order"
onClick="verifyBeforeSubmit();"></asp:button>
```

B. Modify the HTML elements as follows:

```
<asp:button id="submitOrderButton" runat="server"
Text="Submit Order"
ServerClick="verifyBeforeSubmit();"></asp:button>
```

C. Add the following code to the `Page.Load` event handler for `OrderTKVerify.aspx`:

```
submitOrderButton.Attribute.Add("onclick",
"verifyBeforeSubmit());
```

D. Add the following code to the `Page.Load` event handler for `OrderTKVerify.aspx`:

```
submitOrderButton.Attribute.Add("ServerClick",
"verifyBeforeSubmit());
```

Answer: C

Explanation: The proposed solution demonstrates how to specify and code an event handler for the `Click` event in order to display a simple message on the Web page.

Reference: .NET Framework Class Library, `Button.OnClick` Method [C#]

Incorrect Answers:

The `OnClick` property of the button control is for server side procedures not client side ones (not A)

QUESTION 5

You create an ASP .NET page for CertKing 's sales department. Employees in the sales department will use the page to review and modify customer purchase orders that are associated with sales invoices. The page contains a `DataGrid` control named `OrderHeader` that displays the customer company name, the purchase order (PO) number, and the related sales invoice order number.

You define `OrderHeader` by using the following HTML element:

```
<asp:DataGrid id="OrderHeader" runat="server"
AutoGenerateColumns="False" DataKeyField="OrderID"
```

In addition, you define the following HTML element for the `EditItemTemplate` for the `PONumber` field:

```
<EditItemTemplate>
<asp:TextBox ID="PONumber" width="30"
Text='<%# Container.DataItem("PONumber") %>'
Runat="server" />
</EditItemTemplate>
```

You define the `UpdateCommand` event handler for `OrderHeader` as follows:

```
private void OrderHeader_UpdateCommand(object source,
System.Web.UI.WebControls.DataGridCommandEventArgs e)
```

In the `UpdateCommand` event handler, you define a variable named `PurchaseOrder`. This variable is a string. You need to set this variable equal to the new value of the item being updates.

Which statement should you include in the `UpdateCommand` event handler?

A. `purchaseOrder = e.Item.Cells[1].Text;`

- B. purchaseOrder = (TextBox)e.Item.Cells[1].Controls["PONumber"].Text;
- C. purchaseOrder = ((TextBox)e.Item.Cells[1].Controls[0]).Text;
- D. purchaseOrder = PONumber.Text;

Answer: C

Explanation: The proposed solution works, but a more practical answer that works also would be ((TextBox)e.Item.Cells[0].FindControl("PONumber")).Text;

QUESTION 6

You are creating an ASP.NET application for CertKing 's intranet. Employees will use this application to schedule conference rooms for meetings. The scheduling page includes a Calendar control that employees can use to choose a date to reserve a room. The Calendar control is defined as follows:

```
<asp:calendar id="WorkDays" runat="server"
OnDayRender="WorkDays_DayRender"/>
```

You want to display a message that reads "Staff Meeting" below every Friday displayed in the calendar. You also want to find all the weekdays for the current month displayed in the calendar and show them with a yellow highlight.

You are writing code for the WorkDays.DayRender event handler to perform these tasks. You write the following code. (Line numbers are included for reference only)

```
1 private void WorkDays_Render(object source,
DayRenderEventArgs e)
2 {
3
4 }
```

Which code should you add at line 3 of the event handler?

- A. if (e.Day.Date.DayOfWeek == DayOfWeek.Friday)
 - {
 - e.Cell.Controls.Add(new LiteralControl("Staff Meeting"));
 - }
- if (!e.Day.IsWeekend)
 - {
 - e.Cell.BackColor = System.Drawing.Color.Yellow;
 - }
- B. if ((e.Day.Date.Day == 6) && e.DayIsOtherMonth)
 - {
 - e.Cell.Controls.Add(new LiteralControl("Staff Meeting"));
 - e.Cell.BackColor = System.Drawing.Color.Yellow;
 - }
- C. if (e.Day.Date.Day == 6)
 - {
 - e.Cell.Controls.Add(new

```

LiteralControl("Staff Meeting"));
}
if (!e.Day.IsWeekend && !e.Day.IsOtherMonth)
{
e.Cell.BackColor = System.Drawing.Color.Yellow;
}
D. if (e.Day.Date.DayOfWeek == DayOfWeek.Friday)
{
e.Cell.Controls.Add(new
LiteralControl("Staff Meeting"));
}
if (!e.Day.IsWeekend && !e.Day.IsOtherMonth)
{
e.Cell.BackColor = System.Drawing.Color.Yellow;
}

```

Answer: D

Explanation: The statement `e.Day.Date.DayOfWeek == DayOfWeek.Friday` checks if the Date is a Friday. If this is the case we add the appropriate text.

We then use another if-statement to check that the date is not a weekend and that the date is not a weekend. If both the conditions are true we change the background color to yellow.

Note: The `CalendarDay.IsOtherMonth` property gets a value that indicates whether the date represented by an instance of this class is in a month other than the month displayed in the Calendar control.

Reference:

.NET Framework Class Library, `CalendarDay.IsOtherMonth` Property [C#]

Incorrect Answers

A: We should check if the date is in the month that is displayed by the calendar.

B: We need two separate if-statements to specify both conditions.

C: The `e.Day.Date.Day == 6` comparison checks if the day is the 6th day in the month. This is not appropriate for this scenario.

QUESTION 7

You are creating an ASP.NET application called CertK App that will be used by companies to quickly create information portals customized to their business. CertK App stored commonly used text strings in application variables for use by the page in your application.

You need your application to initialize these text strings only when the first user accesses the application. What should you do?

A. Add code to the `Application_OnStart` event handler in the `Global.asax` file to set the values of the text strings.

B. Add code to the `Application_BeginRequest` event handler in the `Global.asax` file to set the values of the text strings.

C. Add code to the `Session_OnStart` event handler in the `Global.asax` file to set the values of the text strings.

D. Include code in the `Page.Load` event handler for the default application page that sets the values if the text strings when the `IsPostBack` property of the Page object is `False`.

E. Include code in the Page.Load event handler for the default application page that sets the values of the text strings when the IsNewSession property of the Session object is set to True.

Answer: A

Explanation: The OnStart event only occurs when the first user starts the application.

Reference: .NET Framework Class Library, ServiceBase Class [C#]

Incorrect Answers

B: The HttpApplication.BeginRequest event occurs as the first event in the HTTP pipeline chain of execution when ASP.NET responds to a request.

C: This would set the values every time a new session is started.

D, E: We should use the OnStart event handler of the application, not the Page.Load event handler.

SUBSECTION B: Raise events. (2 questions)

QUESTION 1

You create an ASP.NET application to keep track of CertKing 's employees. Employees will use the application to indicate whether they are currently in the office or out of the office.

The main page of the application is named ShowBoard.aspx. This page contains a Repeater control named CertK iEmployeeStatus that is bound to the results of a stored procedure if the back-end database. The stored procedure provides all employee identification numbers (IDs), all employee names, and each employee's current status of either In of the employee is in the office or Out if the employee is out of the office.

The HTML code for CertK iEmployeeStatus is as follows:

```
<asp:repeater id=" CertK iEmployeeStatus" runat="server">
<ItemTemplate>
<%# Container.DataItem["EmployeeName"] %>
(<%# Container.DataItem["Status"] %>) <br/>
</ItemTemplate>
</asp:repeater>
```

The code-behind file for ShowBoard.aspx contains a private procedure named ChangeInStatus that toggles the status for an employee by using the employee's ID.

You need to add a button for each employee listed by CertK iEmployeeStatus. When an employee clicks the button, you want the button to call ChangeInOutStatus and pass the employee ID to toggles the status of the employee.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two)

A. Add the following HTML code to the ItemTemplate element of CertK iEmployeeStatus:

```
<input type="button" id="changeStatusButton"
alt=<%# Container.DataItem["EmployeeID"]%>
OnClick="changeStatusButton" Runat="server"
Value="Change Status"/>
```

Add the following subroutine to the code-behind file for ShowBoard.aspx:

```
public void changeStatusButton(
```

```
System.Object sender, System.EventArgs e)
{
    ChangeInOutStatus((int)sender.Attributes["alt"]);
}
```

B. Add the following HTML code to the Item Template element of CertK iEmployeeStatus:

```
<input type="button" id="changeStatusButton"
alt=< %# Container.DataItem["EmployeeID"]%>
OnServerClick="changeStatusButton" Runat="server"
Value="Change Status"/>
```

Add the following subroutine to the code-behind file for ShowBoard.aspx:

```
Public void changeStatusButton(
System.Object sender, System.EventArgs e)
{
    ChangeInOutStatus((int)(sender.Attributes["alt"]));
}
```

C. Add the following HTML code to the ItemTemplate element of CertK iEmployeeStatus:

```
<asp:Button id="changeStatusButton" Runat="Server"
Text="Change Status"
CommandArgument=< %# Container.DataItem["EmployeeID"]%>
/>
```

Add the following code to the ItemCommand event of CertK iEmployeeStatus:

```
if (source.id == "changeStatusButton")
{
    ChangeInOutStatus(
(int)e.CommandSource.CommandArgument);
}
```

D. Add the following HTML code to the ItemTemplate element of CertK iEmployeeStatus:

```
<asp:Button id="changeStatusButton" Runat="server"
Text="Change Status"
CommandArgument=< %# Container.DataItem["EmployeeID"]%>
/>
```

Add the following code to the ItemCommand event of CertK iEmployeeStatus:

```
if (e.CommandSource.id == "changeStatusButton")
{
    ChangeInOutStatus((int)e.CommandArgument);
}
```

Answer: B, D

Explanation:

B: The ServerClick event is raised when the HtmlButton control is clicked. This event causes a roundtrip to occur from the client to the server and back. It is deliberately different from the client-side OnClick event. In the event that a conflict exists between code run with a ServerClick event and code run by a client-side OnClick event, the server-side event instructions will override the client-side code.

D: The CommandSource property is used to determine the source of the command.

Reference: .NET Framework Class Library, HtmlButton.OnServerClick Method [C#]

QUESTION 2

You create a Web custom control named CK Toggle that users can turn on and off. The CK Toggle control includes a Button control named toggleButton. You write an event handler named toggleButton_Click for the toggleButton.Click event. This event adjusts the BorderStyle property to signify whether the Button is toggled on or off.

You want to add code to the CK Toggle class so that when toggleButton is clicked, pages that contain instances of CK Toggle can process custom event handling code. You add the following code to the TKToggle class:

```
public event EventHandler ChangedValue;  
protected void OnChangedValue(EventArgs e)  
{  
    ChangedValue(this, e);  
}
```

You need to add code to the toggleButton_Click so that pages that contain instances of CK Toggle can handle the ChangedValue event and process custom event handling code.

Which lines of code are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two)

- A. ChangedValue(this, EventArgs.Empty);
- B. s.Click += new System.EventHandler(this.OnChangedValue);
- C. OnChangedValue(EventArgs.Empty);
- D. OnChangedValue(this, EventArgs.Empty);

Answer: B, C

Explanation:

B: To wire your event handler to the instance, you must create an instance of EventHandler that takes a reference to OnChangedValue in its argument and add this delegate instance to the Click event.

C: We can invoke the OnChangedValue event. We must use only the EventArgs parameter.

Note: To consume an event in an application, you must provide an event handler (an event-handling method) that executes program logic in response to the event and register the event handler with the event source. This process is referred to as event wiring.

Reference:

C# Programmer's Reference, Events Tutorial
.NET Framework Developer's Guide, Consuming Events [C#]

Incorrect Answers

A: We must use the OnChangedValue event.

D: We should specify only the EventArgs parameter.

SECTION 12: Implement accessibility features. (1 question)

QUESTION 1

Your company CertKing Inc. hosts an ASP.NET application that provides customer demographic information. Some of the demographics data is presented by using images.

The target audience for the application includes a significant number of users who have low vision. These individuals use various browsers that vocalize the textual content of Web pages. These users need to receive the content of the images in vocalized form.

You need to modify the application to make it accessible for your target audience. You need to accomplish this task with the minimum amount of development effort.

How should you modify the application?

- A. Modify all ASP.NET pages in the application so that the view state is enabled.
- B. Modify all ASP.NET pages in the application to add custom logic that conveys the demographic information in either textual or graphical format.
- C. Modify all images in the application so that the ToolTip property conveys the same demographic information as the image.
- D. Modify all images in the application so that the AlternateText property conveys the same demographic information as the image.

Answer: D

Explanation: The AlternateText property is used by accessibility utilities such as the Windows XP narrator in order to present graphics as speech.

SECTION 13: Use and edit intrinsic objects. Intrinsic objects include response, request, session, server, and application.

SUBSECTION A: Retrieve values from the properties of intrinsic objects. (0 questions)

SUBSECTION B: Set values on the properties of intrinsic objects. (2 Questions)

QUESTION 1

Your ASP.NET application uses the Microsoft .NET Framework security classes to implement role-based security. You need to authorize a user based on membership in two different roles.

You create a function named ValidateTKRole that has three arguments. The argument named User is the user name, the argument named Role1 is the first role to verify, and the argument named Role2 is the second role to verify. You want ValidateTKRole to return a value of true if the specified user has membership in either of the specified roles.

You write the following code:

```
PrincipalPermission principalPerm1 =  
new PrincipalPermission("User", "Role1");  
PrincipalPermission principalPerm2 =  
new PrincipalPermission("User", "Role");
```

Which code segment should you use to complete the function?

- A. `return principalPerm1.IsUnrestricted() && principalPerm2.IsUnrestricted();`

- B. `return principalPerm1.IsSubsetOf(principalPerm2);`
- C. `return principalPerm1.Intersect(principalPerm2).Demand();`
- D. `return principalPerm1.Union(principalPerm2).Demand();`

Answer: D

Explanation: The `SecurityPermission.Union` method creates a permission that is the union of the current permission and the specified permission. This ensures that `ValidateRole` returns a value of true if either permissions is true.

Reference: .NET Framework Class Library, `SecurityPermission.Union` Method [C#]

Incorrect Answers

- A: The `SecurityPermission.IsUnrestricted` method returns a value indicating whether the current permission is unrestricted.
- B: The `SecurityPermission.IsSubsetOf` method determines whether the current permission is a subset of the specified permission.
- C: `Intersect` would require that both conditions were true in order to return true.

QUESTION 2

You are creating an ASP.NET page for CertKing 's Web site. Customers will use the ASP.NET page to enter payment information.

You add a `DropDownList` control named `cardTypeList` that enables customers to select a type of credit card. You need to ensure that customers select a credit card type. You want a default value of `Select` to be displayed in the `cardTypeList` control.

You want the page validation to fail if a customer does not select a credit card type from the list.

What should you do?

- A. Add a `RequiredFieldValidator` control and set its `ControlToValidate` property to `cardTypeList`. Set the `InitialValue` property of the `RequiredFieldValidator` control to `Select`.
- B. Add a `RequiredFieldValidator` control and set its `ControlToValidate` property to `cardTypeList`. Set the `DataTextField` property of the `cardTypeList` control to `Select`.
- C. Add a `CustomValidator` control and set its `ControlToValidate` property to `cardTypeList`. Set the `DataTextField` property of the `cardTypeList` control to `Select`.
- D. Add a `RegularExpressionValidator` control and set its `ControlToValidate` property to `cardTypeList`. Set the `ValidateExpression` property of the `RegularExpressionValidator` control to `!Select`.

Answer: A

Explanation: We use a `RequiredFieldValidator` control to ensure that users enter a `cardTypeList`. We use the `InitialValue` property of the `RequiredFieldValidator` control to specify the default or initial value of the `cardTypeList` control.

Note: The `RequiredFieldValidator` Control evaluates the value of an input control to ensure that the user enters a value.

`RequiredFieldValidator.InitialValue` property gets or sets the initial value of the associated input control.

SUBSECTION C: Use intrinsic objects to perform operations. (3 Questions)

QUESTION 1

You create an ASP.NET application for CertKing Motors. The application allows users to purchase automobile insurance policies online. A page named InsuredAuto.aspx is used to gather information about the vehicle being insured.

InsuredAuto.aspx contains a TextBox control named vehicleIDNumber. The user enters the vehicle identification number (VIN) of the vehicle into vehicleIDNumber and then clicks a button to submit the page. The Button control is named submitButton. Upon submission of the page, additional vehicle information is obtained for the VIN, and the page is redisplayed for showing the vehicle information.

You define vehicleIDNumber by using the following HTML tag:

```
<asp:TextBox id="vehicleIDNumber" runat="server"
EnableViewState="True"/>
```

Valid VINs are composed of numbers and uppercase letters. You need to include code that converts any lowercase letters to uppercase letters so that the properly formatted VIN is displayed after the page is submitted and redisplayed.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two)

A. Add the following code to the vehicleIDNumber.TextChanged event handler for InsuredAuto.aspx:

```
vehicleIDNumber.Text = vehicleIDNumber.Text.ToUpper();
```

B. Add the following code to the submitButton.Click event handler for InsuredAuto.aspx:

```
vehicleIDNumber.Text = vehicleIDNumber.Text.ToUpper();
```

C. Add the following code to the Page.Init event handler for InsuredAuto.aspx:

```
vehicleIDNumber.Text = vehicleIDNumber.Text.ToUpper();
```

D. Add the following code to the Page.Render event handler for InsuredAuto.aspx:

```
vehicleIDNumber.Text = vehicleIDNumber.Text.ToUpper();
```

Answer: A, B

Explanation:

A: The TextBox.TextChanged event occurs when the content of the text box is changed upon server postback.

B: When the user hits the submit button additional information is obtained for the VIN. We must therefore convert the text to upper case.

Reference: .NET Framework Class Library, Page Members

Incorrect Answers

C: The Page.Init event only occurs when the server control is initialized, which is the first step in its lifecycle. This occurs only when the page is loaded.

D: The Page class does have a re-render event, but it does not have a render event.

QUESTION 2

You create an ASP.NET application for CertKing 's purchasing department. A page in the application displays a list of products based on the supplier, the product category, or the price. The URL of the page includes this information as parameters.

You want to store multiple versions of your ASP.NET page in the cache based in the parameter values.

You want each version of the page to be cached for 300 seconds.

You need to add code to the page to accomplish this goal.

Which code segment should you use?

- A. `Response.Cache.SetExpires(DateTime.Now.AddSeconds(300));`
`Response.Cache.VaryByParams["?"] = true;`
- B. `Response.Cache.SetExpires(DateTime.Now.AddSeconds(300));`
`Response.Cache.VaryByParams["All"] = true;`
- C. `Response.Cache.SetCacheability(HttpCacheability.Public);`
`Response.Cache.`
`SetLastModified(DateTime.Parse("00:05:00"));`
`Response.Cache.VaryByParams["All"] = true;`
- D. `Response.Cache.SetCacheability(HttpCacheability.Public);`
`Response.Cache.SetExpires(DateTime.Now.AddSeconds(300));`
`Response.Cache.VaryByParams["*"] = true;`

Answer: D

Explanation: Cachability corresponds to the Location attribute. The Public value corresponds to any location. We use the SetExpires to set the cache duration. Finally we use the "*" string to specify that all parameter values are cached.

Reference:

.NET Framework Developer's Guide, Caching Versions of a Page, Based on Parameters [C#]

.NET Framework Developer's Guide, Setting Expirations for Page Caching [C#]

Incorrect Answers

A, B: Cachability has to be set.

C: We should use "*", not "all" when specify VaryByParams.

QUESTION 3

You create an ASP.NET application to display sales analysis information for CertKing . A page named TkSalesSummary.aspx displays three separate sections of information.

For each section, you write code that calls a stored procedure in a database. The code for each section calls a different stored procedure. After the stored procedure runs, the results are immediately written in HTML format to the Response object for the application.

You do not want users to wait until the results are returned from all three stored procedures before they begin to receive content rendered in their browser. What are two possible ways to achieve this goal?

(Each correct answer presents a complete solution. Choose two)

- A. Set the SuppressContent property of the Response object to False.
- B. Set the BufferOutput property of the Response object to False.
- C. Set the CacheControl property of the Response object to Public.
- D. Insert the following statement after each section is written to the Response object for the application:
`Response.Clear();`
- E. Insert the following statement after each section is written to the Response object for the application:
`Response.ClearContent();`
- F. Insert the following statement after each section is written to the Response object for the application:
`Response.Flush();`

Answer: B, F

Explanation:

B: The `HttpResponse.BufferOutput` property gets or sets a value indicating whether to buffer output and send it after the entire page is finished processing.

F: The flush method forces all currently buffered output to be sent to the client.

Reference:

.NET Framework Class Library, `HttpResponse.BufferOutput` Property [C#]

.NET Framework Class Library, `HttpResponse.Flush` Method [C#]

Incorrect Answers

A: The `HttpResponse.SuppressContent` property gets or sets a value indicating whether to send HTTP content to the client.

C: Caching would not meet the requirements of this scenario.

D, E: The `HttpResponse.Clear` and `HttpResponse.ClearContent` methods just clear all content output from the buffer stream.

PART II: Creating and Managing Components and .NET Assemblies (5 questions)

SECTION 1: Create and modify a .NET assembly.

SUBSECTION A: Create and implement satellite assemblies. (2 questions)

QUESTION 1

You create an ASP.NET application named CK App. You create an assembly named CK App.dll in a directory named CK Dir. The assembly includes a default resource file named `strings.resources` that adequately supports English-speaking users of the application. You create an additional resource file named `strings.ja.resources` to enable support for Japanese-speaking users. The resource file is located in the CK Dir/ja subdirectory. You want to create a satellite assembly for CK App.dll that will use the new resource file.

What should you do?

A. Run the Assembly Linker (Al.exe) to embed `strings.ja.resources` in the output assembly.

Place the output assembly in CK Dir.

B. Run the Assembly Linker (Al.exe) to embed `strings.ja.resources` in the output assembly.

Place the output assembly in CK Dir/ja.

C. Run the Assembly Linker (Al.exe) to link `strings.ja.resources` to the output assembly.

Place the output assembly in CK Dir.

D. Run the Assembly Linker (Al.exe) to link `strings.ja.resources` to the output assembly.

Place the output assembly in CK Dir/ja.

Answer: B

Explanation: Assemblies contain resources. We embed the `strings.ja.resources` in the assembly.

After you have compiled your satellite assemblies, they all have the same name. The runtime differentiates between them based upon the culture specified at compile time with Al.exe's `/culture` option and by each

assembly's directory location.

Reference: .NET Framework Developer's Guide, Creating Satellite Assemblies

Incorrect Answers

A: We must put the Japanese assembly into a separate folder.

C, D: We must embed the resource file within the assembly, not link it.

QUESTION 2

You are creating an ASP.NET application that will be published in several languages. You develop a satellite assembly that will include the localized resources for one of the other languages. The satellite assembly will also contain code that accesses Enterprise Services.

CertKing has a build team that is responsible for compiling and publishing all software applications created by your group. The build team is also responsible for digitally signing the software with a public/private key pair.

The build team permits you to have access to CertKing's public key, but not the private key. In order to test your localized satellite assembly, you need to digitally sign the assembly.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two)

A. Create a test certificate for your satellite assembly by using the Software Publisher Certificate Test tool (Cert2spc.exe).

B. Compile the satellite assembly by using the Resource File Generator (Resgen.exe) with the /compile switch.

C. Compile the satellite assembly by using the Assembly Linker (Al.exe) with the /delay+ switch.

D. Use the Global Assembly Cache tool (Gacutil.exe) to install the assembly in the global assembly cache.

E. Generate a new public/private key pair by using the Strong Name tool (Sn.exe).

Use the new key pair to sign the assembly temporarily for testing purposes.

Answer: C, E

Explanation:

C: The /delay switch specifies whether the assembly will be fully or partially signed. When an assembly is delay signed, Al.exe does not compute and store the signature, but just reserves space in the file so the signature can be added later.

E: The Strong Name tool helps sign assemblies with strong names. Sn.exe provides options for key management, signature generation, and signature verification.

The -R and -Rc options are useful with assemblies that have been delay signed. In this scenario, only the public key has been set at compile time and signing is performed later when the private key is known.

Reference:

.NET Framework Tools Strong Name Tool (Sn.exe)

.NET Framework Tools, Assembly Linker (Al.exe)

.NET Framework Tools, Software Publisher Certificate Test Tool (Cert2spc.exe)

Incorrect Answers

A: The Software Publisher Certificate Test tool creates a Software Publisher's Certificate (SPC) from one or more X.509 certificates. Cert2spc.exe is for test purposes only. However, there is no need of a SPC since we already have access to the company's public key.

B: Resgen is not useful for signing assemblies.

Note: The Resource File Generator converts .txt files and .resx (XML-based resource format) files to

common language runtime binary .resources files that can be embedded in a runtime binary executable or compiled into satellite assemblies.

D: The Global Assembly Cache tool allows you to view and manipulate the contents of the global assembly cache and download cache. However, it cannot be used to digitally sign an assembly.

SUBSECTION B: Create resource-only assemblies. (2 questions)

QUESTION 1

You create English, French, and German versions of a test engine ASP.NET application you are developing for CertKing Inc. You have separate resource files for each language version. You need to deploy the appropriate resource file based on the language settings of the server.

What should you do?

- A. Create an installer and set the `Installer.Context` property for each version of your application.
- B. Create an installer that has a launch condition to verify the locale settings.
- C. Create an installer that has a custom action to install only location-specific files.
- D. Create an installer that has an `MsiConfigureProduct` function to install the appropriate version.

Answer: C

Explanation: Custom actions are a Windows Installer feature that allows you to run code at the end of an installation to perform actions that cannot be handled during installation. This is an appropriate solution for this scenario as we only want to deploy the resource files on the server.

Note: Resources can be composed of a wide range of elements, including interface elements that provide information to the user (for example a bitmap, icon, or cursor); custom resources that contain data an application needs; version resources that are used by setup APIs; and menu and dialog box resources.

Reference:

Visual Studio, Working with Resource Files

Visual Studio, Custom Actions

Incorrect Answers

- A: We just want to deploy the resource files. We do not need to set the `Context` property in the application.
- B: We don't need any launch conditions. We just want to deploy the resource files.
- D: We just want to deploy the resource files.

QUESTION 2

You create an ASP.NET application named CK Project. You write code to specify the namespace structure of CK Project by including all class declarations within a namespace named CK Namespace.

You want to compile CK Project so that the fully qualified namespace of each class is CK Namespace. You want to prevent the fully qualified namespace of each class from being CK Project.TKNamespace.

You need to make changes in the Common Properties folder of the Property Pages dialog box for TKProject.

What should you do?

- A. Change the value of the `AssemblyName` property to CK Namespace.
- B. Clear the value of the `AssemblyName` property and leave it blank.
- C. Change the value of the `RootNamespace` property to CK Namespace.
- D. Clear the value of the `RootNamespace` property and leave it blank.