

- **Vendor: Microsoft**
- **Exam Code: 70-486**
- **Exam Name: Developing ASP.NET MVC 4 Web Applications**
- **Question 61 -- Question 90**

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Case Study 1 - Olympic Marathon Runners (QUESTION 61 - QUESTION 71)

For help on how to answer the questions, click the Instructions button on the question screen.

Background

You are developing an ASP.NET MVC application in Visual Studio 2012 that will be used by Olympic marathon runners to log data about training runs.

Business Requirements

- The application stores date, distance, and duration information about a user's training runs.
- The user can view, insert, edit, and delete records.
- The application must be optimized for accessibility.
- All times must be displayed in the user's local time.

Technical Requirements

Data Access:

Database access is handled by a public class named RunnerLog.DataAccess.RunnerLogDb. All data retrieval must be done by HTTP GET and all data updates must be done by HTTP POST.

Layout:

All pages in the application use a master layout file named \Views\Shared_Layout.cshtml.

Models:

The application uses the \Models\LogModel.cs model.

Views:

All views in the application use the Razor view engine. Four views located in \Views\RunLog are named:

_CalculatePace.cshtml
EditLog.cshtmlGetLog.c
shtmlInsertLog.cshtml

The application also contains a \Views\Home\Index.cshtml view.

Controllers:

The application contains a \Controllers\RunLogController.cs controller.

Images:

A stopwatch.png image is located in the \Images folder.

Videos:

A map of a runner's path is available when a user views a run log. The map is implemented as an Adobe Flash application and video. The browser should display the video natively if possible, using H264, Ogg, or WebM formats, in that order. If the video cannot be displayed, then the Flash application should be used.

Security:

You have the following security requirements:

- The application is configured to use forms authentication.
- Users must be logged on to insert runner data.
- Users must be members of the Admin role to edit or delete runner data.
- There are no security requirements for viewing runner data.
- You need to protect the application against cross-site request forgery.
- Passwords are hashed by using the SHA1 algorithm.

RunnerLog.Providers.RunLogRoleProvider.cs contains a custom role provider. Relevant portions of the application files follow. (Line numbers are included for reference only.)

Application Structure

Controllers\RunLogController.cs

```
RC01 public class RunLogController : Controller
RC02 {
RC03     public ActionResult GetLog()
RC04     {
RC05         List<LogModel> log = RunnerLogDb.GetLogsFromDatabase();
RC06         return View(log);
RC07     }
RC08
RC09     public ActionResult InsertLog()
RC10     {
RC11         LogModel log = new LogModel();
RC12         log.RunDate = DateTime.Now;
RC13         return View(log);
RC14     }
RC15
RC16     [HttpPost]
RC17     public ActionResult InsertLog(LogModel log)
RC18     {
RC19         RunnerLogDb.InsertLog(log);
RC20         return RedirectToAction("GetLog");
RC21     }
RC22
RC23     public ActionResult DeleteLog(int id)
RC24     {
RC25         RunnerLogDb.DeleteLog(id);
RC26         return RedirectToAction("GetLog");
RC27     }
RC28
RC29     public ActionResult EditLog(int id)
RC30     {
RC31         LogModel log = RunnerLogDb.GetRunnerLog(id);
RC32         return View(log);
RC33     }
RC34 }
```

Models\LogModel.cs

```
RC01 public class RunLogController : Controller
RC02 {
RC03     public ActionResult GetLog()
RC04     {
RC05         List<LogModel> log = RunnerLogDb.GetLogsFromDatabase();
RC06         return View(log);
RC07     }
RC08
RC09     public ActionResult InsertLog()
RC10     {
RC11         LogModel log = new LogModel();
RC12         log.RunDate = DateTime.Now;
RC13         return View(log);
RC14     }
RC15
RC16     [HttpPost]
RC17     public ActionResult InsertLog(LogModel log)
RC18     {
RC19         RunnerLogDb.InsertLog(log);
RC20         return RedirectToAction("GetLog");
RC21     }
RC22
RC23     public ActionResult DeleteLog(int id)
RC24     {
RC25         RunnerLogDb.DeleteLog(id);
RC26         return RedirectToAction("GetLog");
RC27     }
RC28
RC29     public ActionResult EditLog(int id)
RC30     {
RC31         LogModel log = RunnerLogDb.GetRunnerLog(id);
RC32         return View(log);
RC33     }
RC34 }
```

Views\RunLog_CalculatePace.cshtml

```
CP01 @model RunnerLog.Models.LogModel
CP02 @(Convert.ToInt32(Model.Time.TotalMinutes / Model.Distance)) Min
CP03 @(Convert.ToInt32(Model.Time.TotalSeconds % 60 / Model.Distance)) Seconds
```

Views\RunLog\EditLog.cshtml

```
EL01 @model RunnerLog.Models.LogModel
EL02 <h2>Edit Log Item</h2>
EL03 <script src="@Url.Content("~/Scripts/jquery.validate.min.js")"></script>
EL04 <script src="@Url.Content("~/Scripts/jquery.validate.unobtrusive.min.js")"></
script>
EL05 @using (Html.BeginForm()) {
EL06     @Html.AntiForgeryToken()
EL07     @Html.ValidationSummary(true)
EL08     <fieldset>
EL09         <legend>LogModel</legend>
EL10         <h3>
EL11             Log Id: @Model.Id
EL12         </h3>
EL13         <div>
EL14             @Html.LabelFor(model => model.Distance)
EL15         </div>
EL16         <div>
EL17             @Html.EditorFor(model => model.Distance)
EL18             @Html.ValidationMessageFor(model => model.Distance)
EL19         </div>
EL20         <div>
EL21             @Html.LabelFor(model => model.Time)
EL22         </div>
EL23         <div>
EL24             @Html.EditorFor(model => model.Time)
EL25             @Html.ValidationMessageFor(model => model.Time)
EL26         </div>
EL27         <p>
EL28             <input type="submit" value="Save" />
EL29         </p>
EL30     </fieldset>
EL31 }
```

Views\RunLog\GetLog.cshtml

```
GL01 @model List<RunnerLog.Models.LogModel>
GL02 <h2>View Runs </h2>
GL03 <table>
GL04     <tr>
GL05         <th>Id </th>
GL06         <th>Date </th>
GL07         <th>Distance </th>
GL08         <th>Duration </th>
GL09         <th>Avg Mile Pace </th>
GL10     </tr>
GL11     @foreach (RunnerLog.Models.LogModel log in Model)
GL12     {
GL13         <tr>
GL14             <td>
GL15                 @Html.DisplayFor(model => log.Id)
GL16             </td>
GL17             <td>
GL18             </td>
GL19             <td>
GL20             <td>
GL21                 @Html.DisplayFor(model => log.Distance)
GL22             </td>
GL23             <td>
GL24                 @Html.DisplayFor(model => log.Time)
GL25             </td>
GL26             <td>
GL27             </td>
GL28             <td>
GL29             <td>
GL30                 @Html.ActionLink("Edit", "EditLog", new { id = log.Id })
GL31             </td>
GL32             <td>
GL33                 @Html.ActionLink("Delete", "DeleteLog", new { id = log.Id })
GL34             </td>
GL35         </tr>
GL36     }
GL37 </table>
```

Views\RunLog\InsertLog.cshtml


```
IL01 @model RunnerLog.Models.LogModel
IL02 <script src="@Url.Content("~/Scripts/jquery.validate.min.js")"></script>
IL03 <script src="@Url.Content("~/Scripts/jquery.validate.unobtrusive.min.js")"></
IL04 @using (Html.BeginForm())
IL05 {
IL06     @Html.ValidationSummary(true)
IL07     <fieldset>
IL08         <legend>LogModel</legend>
IL09
IL10         <div>
IL11             @Html.LabelFor(model => model.RunDate)
IL12         </div>
IL13         <div>
IL14             @Html.EditorFor(model => model.RunDate)
IL15             @Html.ValidationMessageFor(model => model.RunDate)
IL16         </div>
IL17         <div>
IL18             @Html.LabelFor(model => model.Distance)
IL19         </div>
IL20         <div>
IL21             @Html.EditorFor(model => model.Distance)
IL22             @Html.ValidationMessageFor(model => model.Distance)
IL23         </div>
IL24         <div>
IL25             @Html.LabelFor(model => model.Time) HH:MM:SS
IL26         </div>
IL27         <div>
IL28             @Html.EditorFor(model => model.Time)
IL29             @Html.ValidationMessageFor(model => model.Time)
IL30         </div>
IL31         <p>
IL32             <input type="submit" value="Create" />
IL33         </p>
IL34     </fieldset>
IL35 }
```

Views\Shared_Layout.cshtml

```
L001 <!DOCTYPE html>
L002 <html lang="en">
L003 <head>
L004 ...
L005 </head>
L006 <body>
L007 ...
L008 <footer>
L009
L010 <script type="text/javascript">
L011     var c = document.getElementById('myCanvas');
L012     var ctx = c.getContext('2d');
L013     ctx.font = '30pt Calibri';
L014     ctx.strokeStyle = 'gray';
L015     ctx.lineWidth = 3;
L016     ctx.strokeText('London 2012', 80, 30);
L017 </script>
L018 </footer>
L019 </body>
L020 </html>
```

QUESTION 61

Drag and Drop Question

You need to implement the Views\RunLog_CalculatePace.cshtml partial view from Views\Runlog\GetLog.cshtml to display the runner's average mile pace.

How should you implement the view?

(To answer, drag the appropriate code segments to the correct location or locations. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

Available code segments:

- @Html.Partial(
- @Html.Action(
- "_CalculatePace.cshtml", log)
- "_CalculatePace", log)
- "_CalculatePace")

Partial view template structure:

```
<td>
    @Html.DisplayFor(model => log.Time)
</td>
<td>
    [ ]
</td>
<td>
    @Html.ActionLink(
        "Delete", "DeleteLog",
        new { id = log.Id })
</td>
```

Answer:

QUESTION 62

You need to make the "Distance" header of the table bold in the Views/RunLog/GetLog.cshtml view. Which code segment should you use?

- A. `table > tr { font-weight: bold; }`
- B. `table > th:last-child { font-weight: bold; }`
- C. `table > first-child { font-weight: bold; }`
- D. `table > tr > th:nth-child(2) { font-weight: bold; }`

Answer:

Explanation:

Answer is "no one":

1. `<th>` is bold by default

http://www.w3schools.com/tags/tag_th.asp

The text in `<th>` elements are bold and centered by default.

The text in `<td>` elements are regular and left-aligned by default.

1. `table > tr` selects no element, should be simply "table tr"

2. `nth-child(2)` is 2nd column, i.e. "Date"

QUESTION 63

Drag and Drop Question

You need to implement security according to the business requirements.

How should you modify RunLogController?

(To answer, drag the appropriate code segment to the correct location or locations. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

[Authorize(Roles = "Admin")]

[Authorize]

[Authorize(Users = "Admin")]

[AllowAnonymous]

[Authorize(Users = "*")]

```
public class RunLogController : Controller
{
    public ActionResult GetLog()
    ...

    public ActionResult InsertLog()
    ...

    public ActionResult DeleteLog(int id)

    public ActionResult EditLog(int id)
    ...
}
```

Answer:

[Authorize(Roles = "Admin")]

[Authorize(Users = "Admin")]

[Authorize(Users = "*")]

[Authorize]

```
public class RunLogController : Controller
{
    [AllowAnonymous]
    public ActionResult GetLog()
    ...

    public ActionResult InsertLog()
    ...

    [Authorize(Roles = "Admin")]
    public ActionResult DeleteLog(int id)

    [Authorize(Roles = "Admin")]
    public ActionResult EditLog(int id)
    ...
}
```

QUESTION 64

You need to extend the edit functionality of RunLogController. Which code segment should you

use?

- ☐ A.

```
[HttpGet]
[ActionName("EditLog")]
[ValidateAntiForgeryToken]
public ActionResult EditLog(LogModel log)
{
    ...
}
```
- ☐ B.

```
[HttpPost]
[ActionName("EditLog")]
public ActionResult EditLogValidated(LogModel log)
{
    ...
}
```
- ☐ C.

```
[HttpPost]
[ActionName("EditLog")]
[ValidateAntiForgeryToken]
public ActionResult EditLogValidated(LogModel log)
{
    ...
}
```
- ☐ D.

```
[HttpPost]
[ActionName("EditLog")]
[RequireHttps]
public ActionResult EditLogValidated(LogModel log)
{
    ...
}
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: C

QUESTION 65

Drag and Drop Question

You need to ensure that the application uses RunLogRoleProvider custom role provider.

How should you modify the web.config file?

(To answer, drag the appropriate line of code to the correct location or locations. Each line of code

may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

The screenshot shows a configuration interface for role providers. On the left, a list of providers is available for selection. On the right, the XML configuration for the role manager is displayed, with fields for enabling the role manager, adding providers, specifying the provider type, and setting the application name.

Answer:

The screenshot shows the same configuration interface as above, but with the correct configuration applied. The 'defaultProvider=RLRoleProvider' is selected for the role manager, and the 'RunnerLog.Providers.RunLogRoleProvider' is selected as the type for the 'RLRoleProvider'.

QUESTION 66

Drag and Drop Question

You need to ensure that only valid parameters are passed to the EditLog action.

How should you build the route?

(To answer, drag the appropriate code segments to the correct location or locations. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
id = @"\d+"
```

```
url: "RunLog/EditLog/{id}",
```

```
action = "EditLog",
```

```
defaults: new
```

```
constraints: new
```

```
routes.MapRoute(
```

```
name: "EditLog",
```

```
{
```

```
{
```

```
{
```

```
controller = "RunLog",
```

```
{
```

```
},
```

```
{
```

```
{
```

```
{
```

```
}
```

```
);
```

Answer:

id = @"\d+"	routes.MapRoute(name: "EditLog", url: "RunLog/EditLog/{id}", defaults: new { controller = "RunLog", action = "EditLog", constraints: new { id = @"\d+" } });
-------------	--

QUESTION 67

If the canvas element is supported by the client browser, the application must display "London 2012" in the footer as text formatted by JavaScript at the end of the _Layout.cshtml file. You need to modify the layout to ensure that "London 2012" is displayed as either formatted text or as plain text, depending on what the client browser supports. Which code segment should you add?

- A. <canvas id="myFooter">
@(Request.Browser.JavaApplets ? new HtmlString("London 2012") : null) </canvas>
- B. <canvas id="myFooter">London 2012</canvas>
- C. <canvas id="myCanvas">London 2012</canvas>
- D. <canvas id="myCanvas"><canvas>
<p>London 2012</p>

Answer: C

QUESTION 68

You need to add an action to RunLogController to validate the users' passwords. Which code segment should you use?

- ☐ A.

```
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = MD5.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```
- ☐ B.

```
[RequireHttps]
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = SHA1.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```
- ☐ C.

```
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = SHA1.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```
- ☐ D.

```
[RequireHttps]
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = MD5.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: B

QUESTION 69

You need to implement the map of the runners' paths.

How should you build the video viewer?

(To answer, select the appropriate options in the answer area.)

Work Area

`<video width="320" height="240">`

`<` `>`

`<` `>`

`<` `>`

`<` `width="320" height="240">`

`<` `name="movie" value="map.swf" />`

`<` `src="map.swf" />`

`</` `>`

`</video>`

Answer:

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<http://www.passleader.com/70-486.html>

Work Area

`<video width="320" height="240">`

`<` `>`

`source src="map.mp4" type="video/mp4"`
`source src="map.ogv" type="video/ogg"`
`source src="map.webm" type="video/webm"`

`<` `>`

`source src="map.mp4" type="video/mp4"`
`source src="map.ogv" type="video/ogg"`
`source src="map.webm" type="video/webm"`

`<` `>`

`source src="map.mp4" type="video/mp4"`
`source src="map.ogv" type="video/ogg"`
`source src="map.webm" type="video/webm"`

`<` `width="320" height="240">`

`embed`
`object`
`video`
`canvas`

`<` `name="movie" value="map.swf" />`

`object`
`param`
`option`
`embed`

`<` `src="map.swf" />`

`video`
`param`
`embed`
`source`

`</` `>`

`embed`
`object`
`video`
`canvas`

`</video>`

QUESTION 70

You need to make all of the rows in the table bold in the Views/RunLog/GetLog.cshtml view. Which code segment should you use?

- A. `table > th:last-child { font-weight: bold; }`
- B. `table + first-child { font-weight: bold; }`
- C. `table > tr > th:nth-child(2) { font-weight: bold; }`
- D. `table > tr { font-weight: bold; }`

Answer: D

QUESTION 71

You need to display the "miles" unit description after the distance in the GetLog view. Which line of code should you use to replace line GL21? (Each correct answer presents a complete solution. Choose all that apply.)

- A. `@log.Distance miles`
- B. `@Html.DisplayFor(model => log.Distance) miles`
- C. `@log.Distance.ToString() @Html.TextArea("miles")`
- D. `@Html.DisplayFor(model => log.Distance.ToString()) + " miles"`

Answer: AB

Case Study 2 - Shopping Web Application (QUESTION 72 - QUESTION 86)

For help on how to answer the questions, click the Instructions button on the question screen.

Background

You are developing an online shopping web application.

Business Requirements

- A user is not required to provide an email address. If a user enters an email address, it must be verified to be a valid email address.
- Information about the first product on the product page must fade out over time to encourage the user to continue browsing the catalog.
- Administrators must be able to edit information about existing customers.
- Administrators also must be able to specify a default product on the product page.

Technical Requirements

General:

- The web store application is in a load-balanced web farm.
- The load balancer is not configured to use server affinity.
- The web store application is an ASP.NET MVC application written in Visual Studio 2012.

Products:

- The value of the productId property must always be greater than 0.
- The Products page for mobile devices must display to mobile users.
- The Products page for desktop devices must display to desktop users.

Storage:

- The data must be stored in a serialized XML data format.
- Serialized objects must be schema-independent.

Exception handling:

- Exceptions originating from IIS must display a page with support contact information.

- Some page links expire, and users who access these links encounter 404 errors.
- Exceptions must be logged by using the WriteLog method of the Utility class.

Browser and device support:

- The application must support image format conversions from .bmp to .jpeg for mobile devices.
- The application must support image format conversions from .bmp to .png for desktop devices.

Application Structure**Customer.cs**

```
public class Customer
{
    const string EmailRegex = @"($^)|([A-Za-z0-9_\.-]*@[A-Za-z0-9-]*\.[A-Za-z]*)";
    const string EmailErrorMessage = "Please enter a valid email address";

    public string Email { get; set; }
    public string Name { get; set; }
}
```

Product.cs

```
public class Product
{
    public string ProductId { get; set; }
    public string Name { get; set; }
    public decimal Price { get; set; }
}
```

web.config

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
    <add key="PreserveLoginUrl" value="true" />
    <add key="ClientValidationEnabled" value="true" />
    <add key="UnobtrusiveJavaScriptEnabled" value="true" />
  </appSettings>
  <system.web>
    <compilation debug="true" targetFramework="4.5" />
    <httpRuntime targetFramework="4.5"
encoderType="System.Web.Security.AntiXss.AntiXssEncoder,
System.Web, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a" />
    <machineKey compatibilityMode="Framework45" />
    <sessionState mode="..." customProvider="DefaultSessionProvider">
      <providers>
        <add name="DefaultSessionProvider"
type="System.Web.Providers.DefaultSessionStateProvider,
System.Web.Providers, Version=1.0.0.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35"
connectionStringName="DefaultConnection" applicationName="/" />
      </providers>
    </sessionState>
  </system.web>
  <system.webServer>
    <validation validateIntegratedModeConfiguration="false" />
    <modules runAllManagedModulesForAllRequests="true" />
  </system.webServer>
</configuration>
```

QUESTION 72

You need to ensure that new customers enter a valid email address.

Which code should you use?

(Each correct answer presents part of the solution. Choose all that apply.)

- ☐ A. `[RegularExpression(emailPattern, ErrorMessage = EmailErrorMessage)]
[DataType(DataType.EmailAddress)]
public string Email { get; set; }`
- ☐ B. `[RegularExpression(EmailRegex, ErrorMessage = EmailErrorMessage,
ErrorMessageResourceType = DataType.EmailAddress)]
[ComplexType]
public string Email { get; set; }`
- ☐ C. `<%: Html.Raw(m => m.Email) %>`
- ☐ D. `<%: Html.TextBoxFor(m => m.Email) %>`

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: AD

QUESTION 73

You need to implement the requirements for handling IIS errors. What should you do?

- ☐ A. Update the **customErrors** attribute in the web.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">  
<errorstatusCode="404"redirect="Error/Error404"/>  
</customErrors>
```

- ☐ B. Update the **customErrors** attribute in the app.config file as follows.

```
<customErrorsmode="Off"defaultRedirect="CustomErrorView">  
<errorstatusCode="404"redirect="Error/Error404"/>  
</customErrors>
```

- ☐ C. Update the **customErrors** attribute in the app.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">  
<errorstatusCode="401"redirect="Error/Error401"/>  
</customErrors>
```

- ☐ D. Update the **customErrors** attribute in the web.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">  
<errorstatusCode="403"redirect="Error/Error403"/>  
</customErrors>
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: A

QUESTION 74

You need to add a method to the ProductController class to meet the exception handling requirements for logging. Which code segment should you use?

- ☒ A.

```
protected override void OnException(ExceptionContext filterContext)
{
    Utility.WriteLog(filterContext.Exception);

    if (filterContext.HttpContext.IsCustomErrorEnabled)
    {
        filterContext.ExceptionHandled = true;
        this.View("Error").ExecuteResult(this.ControllerContext);
    }
}
```
- ☐ B.

```
protected override void OnException(ExceptionContext filterContext)
{
    Utility.WriteLog(filterContext.Exception);

    if (System.Diagnostics.Debugger.IsAttached)
    {
        filterContext.ExceptionHandled = true;
        this.View("Error").ExecuteResult(this.ControllerContext);
    }
}
```
- ☐ C.

```
protected override void OnException(ExceptionContext filterContext)
{
    if (!System.Diagnostics.Debugger.IsLogging())
    {
        Utility.WriteLog(filterContext.Exception);
        filterContext.ExceptionHandled = true;
        this.View("Error").ExecuteResult(this.ControllerContext);
    }
}
```
- ☐ D.

```
protected override void OnException(ExceptionContext filterContext)
{
    Utility.WriteLog(filterContext.Exception);

    if (filterContext.HttpContext.IsDebuggingEnabled)
    {
        filterContext.ExceptionHandled = true;
        this.View("Error").ExecuteResult(this.ControllerContext);
    }
}
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: A

QUESTION 75

You are designing a Windows Communication Foundation (WCF) service that uses the Product class.

You need to update the class to meet the storage requirement.

What should you do?

(Each correct answer presents part of the solution. Choose all that apply.)

- A. Mark the Product class with the DataContract attribute.
- B. Mark the public members of the Product class with the DataContractFormat attribute.
- C. Mark the Product class with the CollectionDataContract attribute.
- D. Mark the public members of the Product class with the DataMember attribute.

Answer: AD

QUESTION 76

An advertising campaign was recently launched. Some of the ads contain a link to products that no longer exist or have IDs that have changed.

You need to ensure that all product links display a product.

Which code segment should you use to configure the route?

- ☐ A.

```
routes.MapRoute(  
    "Product",  
    "Product/{action}/{productName}",  
    new { action = "Show", productName = DefaultProduct }  
);
```
- ☐ B.

```
routes.MapRoute(  
    "Product",  
    "{productName}/{action}/{id}",  
    new { action = "Show", productName = DefaultProduct }  
);
```
- ☐ C.

```
routes.MapPageRoute(  
    "Product",  
    "{productName}/{action}/{id}",  
    "~/product.aspx",  
    false,  
    new RouteValueDictionary { { "action", "Show" }, { "productName",  
DefaultProduct } });
```
- ☐ D.

```
routes.MapPageRoute(  
    "Product",  
    "Product/{action}/{productName}",  
    "~/product.aspx",  
    false,  
    new RouteValueDictionary { { "action", "Show" }, { "productName",  
DefaultProduct } });
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

Answer: A

QUESTION 77

You need to modify the application to meet the productId requirement.
What should you do?

- A. Modify the RegisterGlobalFilters method of the Global.asax.es file as follows.
Contract.Assume<ArgumentException>(productId != 0);
- B. Modify the GetDealPrice method of ProductController as follows.
Contract.Requires<ArgumentException>(productId > 0);
- C. Modify the RegisterGlobalFilters method of the Global.asax.es file as follows.
Contract.Requires<ArgumentException>(productId > 0);
- D. Modify the GetDealPrice method of ProductController as follows.
Contract.Assume<ArgumentException>(productId > 0);

Answer: B

QUESTION 78

You need to implement the business requirements for managing customer data.
What should you do?
(Each correct answer presents part of the solution. Choose all that apply.)

- A. Add a class named CustomerController to the Controllers folder.
Then add a method named Edit to the class.
- B. Create a new controller named Administration in the Controllers folder.
Add an action named EditCustomer to the controller.
- C. Add a folder named Customer to the Views folder.
Then create a view inside this folder named Edit.aspx.
- D. Create a new folder named EditCustomer to the Views folder.
In the new folder, create a new file named Administration.aspx.

Answer: AC

QUESTION 79

When users attempt to retrieve a product from the product page, a run-time exception occurs if the product does not exist.
You need to route the exception to the CustomException.aspx page.
Which method should you add to MvcApplication?

- ☐ A.

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(IndexOutOfRangeException),
        View = "CustomException",
    });
}
```
- ☐ B.

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(NullReferenceException),
        View = "CustomException",
    });
}
```
- ☐ C.

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(IndexOutOfRangeException),
        Handler = "CustomException",
    });
}
```
- ☐ D.

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(NullReferenceException),
        Handler = "CustomException",
    });
}
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: B

QUESTION 80

You updated the web.config file with the HTTP run-time value required to display an alternative version of the site.

You need to ensure that the correct page displays to the users.

Which code segment should you use to update the controller?

- A. `if (Request.IsTabletDevice)`
B. `if (Request.Browser.IsBrowser("Mobile"))`
C. `if (Request.UserAgent["Tablet"])`
D. `if (Request.Browser.IsMobileDevice)`

Answer: D

QUESTION 81

The GetDealPrice method must be called by using Ajax.

You need to get the price of a product by using the GetDealPrice method of the ProductController. Which code segment should you use?

(Each correct answer presents a complete solution. Choose all that apply.)

☐ A.

```
$.ajax({
  type: "POST",
  dataType: "json",
  contentType: "application/json",
  url: "Product/GetDealPrice",
  data: '{"productId': '" + productId + "'",
  success: function (data) {
    $(".price").html(data.d);
  }
});
```

☐ B.

```
$.load({
  dataType: "json",
  contentType: "application/json",
  url: "Product/GetDealPrice/" + productId,
  success: function (data) {
    $(".price").html(data.d);
  }
});
```

☐ C.

```
$.ajax({
  type: "GET",
  dataType: "json",
  contentType: "application/json",
  url: "Product/GetDealPrice/" + productId,
  success: function (data) {
    $(".price").html(data.d);
  }
});
```

☐ D.

```
$.getJSON("Product/GetDealPrice/" + productId
function (data) {
  $(".price").html(data.d);
}
);
```

A. Option A

- B. Option B
- C. Option C
- D. Option D

Answer: CD

QUESTION 82

You need to implement client-side animations according to the business requirements. Which line of code should you use?

(Each correct answer presents a complete solution. Choose all that apply.)

- A. `$("body h1:nth-child(1)").fadeIn(1000);`
- B. `$("body h1:nth-child(1)").fadeOut(1000);`
- C. `$("body h1:nth-child(1)").animate({ opacity: 0 });`
- D. `$("body h1:nth-child(1)").animate({ opacity: 1 });`

Answer: BC

QUESTION 83

You need to implement client-side animations according to the business requirements. Which line of code should you use?

(Each correct answer presents a complete solution. Choose all that apply.)

- A. `$ ("h1: first").animate ({ opacity: 0 });`
- B. `$("h1:first").fadeIn(1000);`
- C. `$("h1:first").animate({ opacity: 1 });`
- D. `$("h1:first").fadeOut(1000);`

Answer: AD

QUESTION 84

You need to configure session storage in the web.config file to meet the technical requirements for scalability.

Which SessionState mode should you use?

(Each correct answer presents a complete solution. Choose all that apply.)

- A. StateServer
- B. InProc
- C. AutoDetect
- D. SqlServer

Answer: AD

QUESTION 85

You need to implement the mobile device support requirements. How should you build the ProcessRequest method? (To answer, select the appropriate options in the answer area.)

Work Area

```
protected override void ProcessRequest(HttpContext httpContext)
{
    var response = httpContext.Response;
    var mobileFormat = ;
    
    "image/gif"
    "image/jpeg"
    "image/bmp"
    var normalFormat = ;
    
    "image/gif"
    "image/jpeg"
    "image/bmp"

    if (httpContext..ContentType ==  )
    
    Request
    Application
    Handler
    
    "image/gif"
    "image/jpeg"
    "image/bmp"

    {
        if (httpContext..)
        
        Request
        Application
        Handler
        Browser.IsMobileDevice
        Browser.IsBrowser("MobileDevice")
        Mobile == "android|ip(hone|od)"
        Mobile == "+mobile|tablet"

        {
            WriteImage(response, mobileFormat);
        }
        else
        {
            WriteImage(response, normalFormat);
        }
    }
    else
    {
        base.ProcessRequest(httpContext);
    }
}
```

Answer:

Work Area

```
protected override void ProcessRequest(HttpContext httpContext)
{
    var response = httpContext.Response;
    var mobileFormat = ;
    var normalFormat = ;

    if (httpContext..ContentType == )
    {
        if (httpContext..)
        {
            WriteImage(response, mobileFormat);
        }
        else
        {
            WriteImage(response, normalFormat);
        }
    }
    else
    {
        base.ProcessRequest(httpContext);
    }
}
```

QUESTION 86

You need to update the routes to ensure that a product is always displayed on the product page. Which code segment should you use?

- ☐ A.

```
routes.MapRoute(
    "Product",
    "{productName}/{action}/{id}",
    new { action = "Show", productName = DefaultProduct }
);
```
- ☐ B.

```
routes.MapRoute(
    "Product",
    "Product/{action}/{productName}",
    new { action = "Show", productName = DefaultProduct }
);
```
- ☐ C.

```
routes.MapPageRoute(
    "Product",
    "Product/{action}/{productName}",
    "~/product.aspx",
    false,
    new RouteValueDictionary { { "action", "Show" }, { "productName", DefaultProduct }
});
```
- ☐ D.

```
routes.MapPageRoute(
    "Product",
    "{productName}/{action}/{id}",
    "~/product.aspx",
    false,
    new RouteValueDictionary { { "action", "Show" }, { "productName", DefaultProduct }
});
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: B

Case Study 3 - Video Transcoding Service (QUESTION 87 - QUESTION 95)

For help on how to answer the questions, click the Instructions button on the question screen.

Background

You are developing a video transcoding service. This service is used by customers to upload video files, convert video to other formats, and view the converted files. This service is used by customers all over the world.

Business Requirements

- The user-facing portion of the application is an ASP.NET MVC application.
- It provides an interface for administrators to upload video and schedule transcoding.
- It also enables administrators and users to download the transcoded videos.
- When videos are uploaded, they are populated with metadata used to identify the video.
- The video metadata is gathered by only one system when the video upload is complete.
- Customers require support for Microsoft Internet Explorer 7 and later.
- The application contains a header that is visible on every page.
- If the logged-on user is an administrator, then the header will contain links to administrative functions. This information is read from a cookie that is set on the server.
- The administrative links must not be present if an error condition is

present.

Technical Requirements

User Experience:

- The front-end web application enables a user to view a list of videos.
- The main view of the application is the web page that displays the list of videos.
- HTML elements other than the list of videos are changed with every request requiring the page to reload.

Compatibility:

- Some customers use browsers that do not support the HTTP DELETE verb.
- These browsers send a POST request with an HTTP header of X-Delete when the intended action is to delete.

Transcoding:

- The video transcoding occurs on a set of Windows Azure worker roles.
- The transcoding is performed by a third-party command line tool named transcode.exe. When the tool is installed, an Environment variable named transcode contains the path to the utility.
- A variable named license contains the license key. The license for the transcoding utility requires that it be unregistered when it is not in use.
- The transcoding utility requires a significant amount of resources. A maximum of 10 instances of the utility can be running at any one time. If an instance of the role cannot process an additional video, it must not prevent any other roles from processing that video.
- The utility logs errors to a Logs directory under the utilities path.
- A local Azure directory resource named perf is used to capture performance data.

Development:

- Developers must use Microsoft Remote Desktop Protocol (RDP) to view errors generated by the transcode.exe utility.
- An x509 certificate has been created and distributed to the developers for this purpose.
- Developers must be able to use only RDP and not any other administrative functions.

Application Structure

TranscodeWorkerRole.cs

```
public class TranscodeWorkerRole : RoleEntryPoint
{
    public override void Run()
    {
        while (true)
        {
            var nextWorkItem = GetWorkItem();
            TranscodeService.Start(new [] { nextWorkItem } );
        }
    }

    private string GetWorkItem()
    {
        ...
    }
}
```

ThumbnailGenerator.cs

```
public class TranscodeWorkerRole : RoleEntryPoint
{
    public override void Run()
    {
        while (true)
        {
            var nextWorkItem = GetWorkItem();
            TranscodeService.Start(new [] { nextWorkItem } );
        }
    }

    private string GetWorkItem()
    {
        ...
    }
}
```

VideoController.cs

```
[Authorize]
public class VideoController : Controller
{
    public FileResult DownloadVideo(string videoId)
    {
        var stream = GetVideoStream(videoId);
        return File(stream, "video/mpeg");
    }

    [HttpPost]
    public ActionResult UploadVideo(string videoId)
    {
        return View();
    }

    [HttpDelete]
    public ActionResult DeleteVideo(string videoId)
    {
        return View();
    }

    public ActionResult VideoMetadata(string videoId)
    {
        var metadata = HttpRuntime.Cache[videoId];
        if (metadata == null)
        {
            metadata = LoadMetadata(videoId);
            HttpRuntime.Cache[videoId] = metadata;
        }
        return View(metadata);
    }

    public ActionResult ListVideos()
    {
        return View();
    }
}
```

DeleteHandler.cs

```
public class DeleteHandler : DelegatingHandler
{
    protected override Task<HttpResponseMessage> SendAsync
    (HttpRequestMessage request,
    CancellationToken cancellationToken)
    {
        ...
    }
}
```

VideoAdminAttributes.cs

```
public class VideoAdminAttribute : Attribute
{
    private IEnumerable<string> Admins()
    {
        ...
    }
}
```

AdminVerifierFactory.cs

```
public class AdminVerifierFactory : DefaultControllerFactory
{
    public override IController CreateController(RequestContext requestContext,
    string controllerName)
    {
        return base.CreateController(requestContext, controllerName) as Controller;
    }
}
```

ImageConverter.cs

```
public class ImageConverter : MvcHandler
{
    private void WriteImage(HttpResponse response, string format)
    {
        ...
    }
}
```

QUESTION 87

You need to ensure that developers can connect to a Windows Azure role by using RDP.
What should you do?

- A. Export a certificate without a private key.
Upload the .cer file to the Management Certificates section on the Azure Management Portal.
- B. Export a certificate with a private key.
Upload the .pfx file to the Management Certificates section on the Azure Management Portal.
- C. Export a certificate without a private key.
Upload the .cer file to the Certificates section under the TranscodeWorkerRole hosted service on the Azure Management Portal.
- D. Export a certificate with a private key.
Upload the .pfx file to the Certificates section under the TranscodeWorkerRole hosted service on the Azure Management Portal.

the Azure Management Portal.

Answer: D

QUESTION 88

Customers download videos by using HTTP clients that support various content encodings. You need to configure caching on the DownloadVideo action to maximize performance. Which attribute should you add?

- ☐ A. `[OutputCache(Location = OutputCacheLocation.Downstream, VaryByParam = "videoId", VaryByCustom = "browser")]`
- ☐ B. `[OutputCache(Location = OutputCacheLocation.Any, VaryByCustom = "compressionMethod", VaryByContentEncoding = "all")]`
- ☐ C. `[OutputCache(Location = OutputCacheLocation.ServerAndClient, VaryByHeader = "Cache-Control")]`
- ☐ D. `[OutputCache(Location = OutputCacheLocation.Downstream, VaryByContentEncoding = "gzip;q=1.0, compress; q=0.5, */q=0")]`
- ☐ E. `[OutputCache(Location = OutputCacheLocation.Any, VaryByParam = "videoId", VaryByContentEncoding = "gzip;q=1.0, compress; q=0.5, */q=0")]`

- A. Option A
- B. Option B
- C. Option C
- D. Option D
- E. Option E

Answer: E

QUESTION 89

You need to ensure that all the MVC controllers are secure. Which code segment should you use as the body for the CreateController method in AdminVerifierFactory.es?

- ☐ A.

```
var controller = base.CreateController(requestContext, controllerName) as Controller;

var attributes = controller.GetType().Attributes.ToString();

if (!attributes.Contains("VideoAdminAttribute"))
    throw new Exception("Not an Administrator");

return controller;
```
- ☐ B.

```
if (requestContext.HttpContext.Items["Administrator"] == null)
    throw new Exception("Not an Administrator");

return base.CreateController(requestContext, controllerName) as Controller;
```
- ☐ C.

```
var controller = base.CreateController(requestContext, controllerName) as Controller;

var hasFilter = controller.GetType().CustomAttributes.Any
    (x => x.AttributeType.Name == "VideoAdminAttribute");

if (hasFilter == null)
    throw new Exception("Not an Administrator");

return controller;
```
- ☐ D.

```
if (requestContext.RouteData.Values["Administrator"] == null)
    throw new Exception("Not an Administrator");

return base.CreateController(requestContext, controllerName) as Controller;
```

- A. Option A
B. Option B
C. Option C
D. Option D

Answer: C

QUESTION 90

You are creating a new authentication system that uses an HTTP header value. The existing authentication system must continue to operate normally.

You need to implement the custom authentication.

What should you do? (Each correct answer presents a complete solution. Choose all that apply.)

- A. Create a class derived from `ActionResult` and check for a valid HTTP header value in the `ExecuteResult` method.
Change all actions to return this new class.
- B. Create an `HttpHandler` to check for a valid HTTP header value in the `ProcessRequest` method.
- C. Create an `HttpModule` and check for a valid HTTP header value in the `AuthenticateRequest` event.
- D. Create a class derived from `AuthorizeAttribute` and check for a valid HTTP header value in the `AuthorizeCore` method.
Change usages of the existing `AuthorizeAttribute` to use the new class.

Answer: CD

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