Module10

Using JavaScript and jQuery for Responsive MVC Web Applications

Module Overview

- Rendering and Executing JavaScript Code
- Using jQuery and jQueryUI

Lesson 1: Rendering and Executing JavaScript Code

- Adding JavaScript Files

- Calling JavaScript Procedures

- JavaScript Libraries

- Using Content Delivery Networks for JavaScript Libraries

- Using the NuGet Tool to Add Packages

- Demonstration: How to Use NuGet to Add a JavaScript Library

- You can add JavaScript code to add interactive functionalities to webpages

```
<script type="text/javascript">
        function HelloWorld() {
            alert('Hello World');
        }
</script>
```

- Adding JavaScript code involves:

  - Adding the JavaScript code to HTML

  - Defining the JavaScript code in JavaScript files:

    - You can define JavaScript code in a JavaScript file

    - Reference the JavaScript file in multiple HTML files

Calling JavaScript Procedures

- You can call JavaScript functions by using script blocks:
  - Define the JavaScript function in a script block
  - Reference the JavaScript file in HTML pages

```
<script type="text/javascript">
    HelloWorld()
</script>
```

- You can also use events to trigger JavaScript functions:
  - Use the **onclick** event to initiate the JavaScript function assigned to an HTML file

```
<input type="button" value="Hello" onclick="HelloWorld();" />
```

JavaScript Libraries

JavaScript libraries:

- Help reduce the amount of code you need to write
- Help reduce the time taken to debug an application
- Help make web applications more interactive

Some commonly used JavaScript libraries include:

- jQuery
- jQuery UI
- jQuery Mobile
- jQuery Validation
- jQuery Cycle
- jQuery DataTables

Using Content Delivery Networks for JavaScript Libraries

- Content Delivery Network (CDN):
  - Is a group of geographically distributed servers
  - Helps host contents for web applications
- Microsoft Ajax CDN hosts popular libraries such as:
  - jQuery
  - jQuery UI
  - jQuery Mobile
  - jQuery Validation
  - jQuery Cycle
  - jQuery DataTables
  - Ajax Control Toolkit
  - ASP.NET Ajax
  - ASP.NET MVC JavaScript Files

Using the NuGet Tool to Add Packages

- NuGet packages help add JavaScript libraries to your web application

- While using Microsoft Visual Studio 2013, you can:

  - Search for a NuGet package in the Nuget Store
  - Select the package that you want to use
  - On the Manage Nuget Packages page, click **Install**

Demonstration: How to Use NuGet to Add a JavaScript Library

In this demonstration, you will see how to:

1. Install the jQueryUI package by using **NuGet Package Manager**

2. Locate the supporting files for the package in your application

3. Link to a script file in a template view

Lesson 2: Using jQuery and jQueryUI

- Introduction to jQuery
- Linking to jQuery Libraries
- Accessing HTML Elements by Using jQuery
- Modifying HTML Elements by Using jQuery
- Calling a Web Service by Using jQuery
- Introduction to jQueryUI

Introduction to jQuery

- Characteristics of jQuery:
  - It is a cross-browser JavaScript library
  - It includes two companion modules—jQuery UI and jQuery Mobile

- Benefits of using jQuery:
  - It reduces the amount of code that you need to write
  - It reduces the development time of application

Features of jQuery Libraries:

- jQuery Original Version:
  - Is the uncompressed version of jQuery
  - Is optimized for development and debugging
- jQuery Minified Version:
  - Is the compressed version of jQuery
  - Is optimized for production
- Bundling:
  - Combines multiple JavaScript libraries into a single HTTP request
- Minification:
  - Compresses code in JavaScript files

Accessing HTML Elements by Using jQuery

- You can use the following selector to select elements by element name, id, or CSS class:

  $(element name|#id|.class)

- After accessing the HTML elements:
  - Modify the attributes on the elements
  - Define event handlers to respond to events

```
$("#HelloButton").click(function (event) {
    alert("Hello World");
});
```

  - Place the jQuery code in the **document.ready** event

Modifying HTML Elements by Using jQuery

jQuery functions include:

- The **val** function:
  - Allows to get or set the value of an HTML element

- The **css** function:
  - Allows to get or set the inline CSS style associated with an HTML element

- The **addclass** function:
  - Assigns the CSS class to an HTML element

The **ajax** function:

- Helps perform calls to web services

- Helps obtain the data returned from web services

- Includes parameters such as **type**, **url**, **data**, and **contentType**

Using the ajax Function

```
$.ajax({
    type: "POST",
    dataType: "json",
    url: "Customer.asmx/GetCustomerInfo",
    data: "{'ID': '123'}",
    contentType: "application/json;" +
        "charset=utf-8",
    success: function (msg) {
        alert("Data Saved: " + msg);
    },
    failure: function (msg) {
        alert(msg);
    }
});
```

jQuery UI is a library that contains widgets, effects, and utilities:

- jQuery Widgets:
  - Using jQuery functions, you can add widgets such as auto-complete boxes, buttons, date-pickers, dialog boxes, and menus to your webpage

- jQuery Effects:
  - Using jQuery functions, you can add effects such as color animations, class animations, appear, slide down, toggle, and hide and show

- jQuery Utilities:
  - Using the Position jQuery functions, you align your webpage content

Lab: Using JavaScript and jQuery for Responsive MVC 4 Web Applications

- Exercise 1: Creating and Animating the Slideshow View

- Exercise 2: Optional—Adding a jQueryUI ProgressBar Widget

Estimated Time: 40 minutes

You have been asked to add a slideshow page to the web application that will show all the photos in the database. Unlike the **All Photos** gallery, which shows thumbnail images, the slideshow will display each photo in a large size. However, the slideshow will display only one photo at a time, and cycle through all the photos in the order of ID.

You want to use jQuery to create this slideshow because you want to cycle through the photos in the browser, without reloading the page each time. You also want to animate slide transitions and show a progress bar that illustrates the position of the current photo in the complete list. You will use jQueryUI to generate the progress bar.

Begin by importing a partially complete view that will display all photos simultaneously in the correct format. Then, change styles and add jQuery code to the application to create your slideshow.

Lab Review

- What is the use of adding the two links to the _MainLayout.cshtml file in Task 1 of Exercise 2?

- You added <script> tags to the _MainTemplate.cshtml file to enable jQueryUI. Is this the optimal location for this link?

Module Review and Takeaways

- Review Question(s)