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Screenshots

Module 8: Using Layouts, CSS and JavaScript in ASP.NET Core

Lab: Using Layouts, CSS and JavaScript in ASP.NET Core

Scenario

You have been asked to add a slideshow to the homepage of a zoo web application that will show some of the animals' photos. 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 order.

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 have been also asked to add a purchase page, to enable customers to buy adult, child, and senior tickets to the zoo. You will use jQuery to do calculations on the page. You will also use client-side validation to validate the input typed by the users.

Exercise 1: Applying a Layout and Link Views to it

Scenario

To construct a web application with a consistent look and feel, a layout should be added to the web application. In this exercise, you will create a layout and link views to it.

The main tasks for this exercise are as follows:

- Create a layout
- Add a view and link it to the layout
- Add _ViewStart.cshtml
- Add existing views to the web application
- Add a section to the layout
- Run the application

Task 1: Create a layout

1. Navigate to **D:\Allfiles\Mod08\Labfiles\01_ZooSite_begin**, and then double-click **ZooSite.sln**.

Note: If a **Security Warning for ZooSite** dialog box appears, verify that the **Ask me for every project in this solution** check box is cleared, and then click OK.

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3. In the **NewFolder** box, type Shared, and then press Enter.
4. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, right-click **Shared**, point to **Add**, and then click **New Item...**.
5. In the **Add New Item -- ZooSite** dialog box, select **Razor Layout** from the list of templates, and then click **Add**.
6. In the **_Layout.cshtml** code window, place the cursor after the **>** (greater than) sign of the **body** tag, press Enter, and then type the following code:

```
<ul class="nav">
    <li><a href="@Url.Action("Index", "Zoo")">Attractions</a></li>
    <li><a href="@Url.Action("VisitorDetails", "Zoo")">Visitor Info</a></li>
    <li><a href="@Url.Action("BuyTickets", "Zoo")">Tickets</a></li>
</ul>
```

7. Place the cursor after the **>** (greater than) sign of the **
** tag, press Enter, and then type the following code:

```
<div class="header-container">
    <h1 class="content">Welcome to Zoo Center</h1>
    <div class="slider-buttons">
        <img src="~/images/prevArrow.png" class="prev" onclick="prevImage()" />
        <img src="~/images/nextArrow.png" class="next" onclick="nextImage()" />
    </div>
</div>
```

Task 2: Add a view and link it to a layout

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, expand **Controllers**, and then click **ZooController.cs**.
2. In the **ZooController.cs** code window, right-click the following code, and then click **Add View...**.

```
public IActionResult Index()
```

3. In the **Add New Scaffolded Item** dialog box, ensure that the **Razor View** template (not the Empty template) is selected, and click **Add**.
4. In the **Add Razor View** dialog box, ensure that the value in the **View name** textbox is **Index**.
5. In the **Add Razor View** dialog box, ensure that the **Create as a partial view** check box is cleared and the **Use a layout page** check box is selected, and then click the **...** (browse) button.
6. In the **Select a Layout Page** dialog box, under **Project folders**, expand **Views**, and then click

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7. In the **Select a Layout Page** dialog box, under **Contents of folder**, click **_Layout.cshtml**, and then click **OK**.

8. In the **Add Razor View** dialog box, click **Add**.

9. In the **Index.cshtml** code window, place the cursor at the beginning of the document, type the following code, and then press Enter.

```
@model IEnumerable<ZooSite.Models.Photo>
```

10. In the **Index.cshtml** code window, select the following code:

```
<h1>Index</h1>
```

11. Replace the selected code with the following code:

```
<h1 class="main-title">Zoo Attractions</h1>
<div class="container">
</div>
```

12. In the **Index.cshtml** code window, in the **DIV** element, type the following code:

```
@foreach (var item in Model)
{
    <div class="photo-index-card">
        @if (item.PhotoFileName != null)
        {
            <div class="image-wrapper">
                <img class="photo-display-img" src="@Url.Action("GetImage", "Zoo",
            </div>
        }
        <h3 class="display-picture-title">
            @Html.DisplayFor(modelItem => item.Title)
        </h3>
        <div>
            <span class="display">
                @Html.DisplayFor(model => item.Description)
            </span>
        </div>
    </div>
}
```

Task 3: Add _ViewStart.cshtml

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **Views**, point to **Add**, and then click **New Item...**.

3. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, expand **Zoo**, and then click **Index.cshtml**.

4. In the **Index.cshtml** code window, delete the following code:

```
Layout = "~/Views/Shared/_Layout.cshtml";
```

Task 4: Add existing views to the web application

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, right-click **Zoo**, point to **Add**, and then click **Existing Item...**.

2. In the **Add Existing Item - ZooSite** dialog box, go to **D:\Allfiles\Mod08\Labfiles\ZooViews**, select all the **.cshtml** files, and then click **Add**.

Task 5: Add a section to the layout

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Shared**, click **_Layout.cshtml**.

2. In the **_Layout.cshtml** code window, locate the following code:

```
<div>
    @RenderBody()
</div>
```

3. Place the cursor after the **>** (greater than) sign of the ** ** tag, press Enter, and then type the following code:

```
@RenderSection("Scripts", false)
```

Task 6: Run the application

1. In the **ZooSite -- Microsoft Visual Studio** window, on the **File** menu, click **Save All**.

2. In the **ZooSite - Microsoft Visual Studio** window, on the **Debug** menu, click **Start Without Debugging**.

> **Note**: The browser displays the **Index.cshtml** file content, but the HTML content has not been styled by a CSS file yet.

3. In the menu bar, click **Visitor Info**.

- [ ] 4. In the menu bar, click **Tickets**.

> **Note**: Examine the browser content.

- [ ] 5. In Microsoft Edge, click **Close**.

> **Results**: After completing this exercise, you will have added a layout and linked views to it. You have also used the **_ViewStart** file in the web application.

Exercise 2: Using CSS

Scenario

To improve the appearance of the web application, a CSS stylesheet should be used. In this exercise, you will add a CSS file to the web application, and add a link from the layout to the CSS file.

The main tasks for this exercise are as follows:

- Add an existing CSS file to the project
- Link the layout to the CSS file
- Style the menu
- Style the photos section in Index.cshtml
- Style a form in BuyTickets.cshtml
- Run the application

Task 1: Add an existing CSS file to the project

- [ ] 1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **wwwroot**, point to **Add**, and then click **New Folder**.

- [ ] 2. In the **NewFolder** box, type **css**, and then press Enter.

- [ ] 3. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, right-click **css**, point to **Add**, and then click **Existing Item...**.

- [ ] 4. In the **Add Existing Item - ZooSite** dialog box, go to **D:\Allfiles\Mod08\Labfiles\ZooCSS**, click **zoo-style.css**, and then click **Add**.

- [ ] 5. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, under **css**,

> **Note**: Examine the content of the file.

- [ ] 6. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, click **Program.cs**.
- [ ] 7. In the **Program.cs** code window, verify that it contains the following line of code:

```
app.UseStaticFiles();
```

Task 2: Link the layout to the CSS file

- [ ] 1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Shared**, click **_Layout.cshtml**.
- [ ] 2. In the **_Layout.cshtml** code window, locate the following code:

```
<title>@ViewBag.Title</title>
```

- [ ] 3. Place the cursor after the **>** (greater than) sign of the **</title>** tag, press Enter, and then type the following code:

```
<link type="text/css" rel="stylesheet" href="~/css/zoo-style.css"/>
```

Task 3: Style the menu

- [ ] 1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, under **css**, click **zoo-style.css**.
- [ ] 2. At the end of the **zoo-style.css** file, add the following code:

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```
        margin: 0;
        padding: 0;
        overflow: hidden;
        background-color: #85754e;
        position: fixed;
        top: 0;
        left: 0;
        width: 100%;
    }

    .nav li {
        float: left;
    }

    .nav li a {
        display: block;
        color: white;
        text-align: center;
        padding: 14px 16px;
        text-decoration: none;
    }

    .nav li a:hover:not(.active) {
        background-color: #016b6b;
    }

    .active {
        background-color: #008484;
        color: #fff;
    }
```

Task 4: Style the photos section in Index.cshtml

- [ ] 1. In the **zoo-style.css** code window, add the following code to the end of the file:

```
.photo-index-card {
    background-color: #ffffff;
    padding: 0;
    margin: 10px 5px 15px 18px;
    padding-bottom: 25px;
    width: 355px;
    border: 1px solid #d6d4d4;
    border-radius: 10px;
    overflow: hidden;
}
```

Task 5: Style a form in BuyTickets.cshtml

- [ ] 1. In the **zoo-style.css** code window, add the following code to the end of the file:

```
    clear: both;
}

.info .form-field div {
    width: 172px;
    text-align: right;
    float: right;
}

.info label {
    width: 118px;
    display: inline-block;
    margin-bottom: 10px;
}

.info input{
    border-radius: 2px;
    line-height: 20px;
    border: 1px solid #ccc6c6;
    background-color: #f9f6f6;
    width: 100%;
}
```

- [ ] 2. In the **zoo-style.css** code window, add the following code to the end of the file:

```
input.submit-btn {
    width: 100px;
    margin-top: 12px;
    height: 29px;
    background-color: orange;
    font-weight: bold;
    box-shadow: inset 0px 0px 4px #b77006;
    border: 1px solid #a59797;
}

input.submit-btn[disabled] {
    opacity: 0.8;
    background-color: whitesmoke;
    box-shadow: none;
}
```

Task 6: Run the application

- [ ] 1. In the **ZooSite -- Microsoft Visual Studio** window, on the **File** menu, click **Save All**.
- [ ] 2. In the **ZooSite - Microsoft Visual Studio** window, on the **Debug** menu, click **Start Without Debugging**.

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is properly styled by the CSS file.

- [ ] 3. In the **Zoo Attractions** page, in the **Welcome to Zoo Center** header, click the **right arrow**.

> **Note**: Currently, clicking the button has no effect since no JavaScript code has been added the web application yet.

- [ ] 4. In the menu bar, click **Visitor Info**.

> **Note**: Examine the browser content to check that it has been properly styled.

- [ ] 5. In the menu bar, click **Tickets**.
- [ ] 6. On **Step 1 - Choose Tickets**, in the each of the **Adult**, **Child**, and **Senior** boxes, select one or more tickets.

> **Note**: Currently the total cost of the tickets is not updated on the page since no JavaScript code has been added to the web application yet.

- [ ] 7. On **Step 2 - Buy Tickets**, type your name in the **First Name** and **Last Name** boxes.
- [ ] 8. On **Step 2 - Buy Tickets**, in the **Address** box, type your address (or invent one).
- [ ] 9. On **Step 2 - Buy Tickets**, in the **Email** box, type abcd.
- [ ] 10. On **Step 2 - Buy Tickets**, in the **Phone** box, type a random number.

> **Note**: Currently you can't buy the tickets (the **Buy** button is disabled) and there is no validation since the functionality has not applied yet.

- [ ] 11. In Microsoft Edge, click **Close**.

> **Results**: After completing this exercise, you will have added an existing CSS file to a web application, and added a link from a layout to the CSS file. You will also have added CSS selectors to a CSS file.

Exercise 3: Using JavaScript

To calculate the total cost of the tickets, you have been asked to add a function in JavaScript. In this exercise, you will add a JavaScript file and add a link to the JavaScript file from a view.

The main tasks for this exercise are as follows:

- Add a JavaScript file
- Link a view to the JavaScript file
- Write the code of the JavaScript file

Task 1: Add a JavaScript file

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **wwwroot**, point to **Add**, and then click **New Folder**.
2. In the **NewFolder** box, type **js**, and then press Enter.
3. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, right-click **js**, point to **Add**, and then click **New Item...**.
4. In the **Add New Item -- ZooSite** dialog box, in the templates list pane, click **JavaScript File**.
5. In the **Add New Item -- ZooSite** dialog box, in the **Name:** textbox, type **form-functions**, and then click **Add**.

Task 2: Link a view to the JavaScript file

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Zoo**, click **BuyTickets.cshtml**.
2. In the **BuyTickets.cshtml** code window, locate the following code:

```
@section Scripts {
}
```

3. Place the cursor after the **{** (opening brace) sign, press Enter, and then type the following code:

```
<script src="~/js/form-functions.js"></script>
```

Task 3: Write the code of the JavaScript file

1. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, under **js**, click **form-functions.js**.
2. In the **form-functions.js** code window, type the following code:

```
        var sum = 0;

        for (var i = 0; i < rows.length; i++) {
            sum = sum + parseFloat(parseFloat(rows[i].innerHTML.substring(1, rows[i].in
        }

        document.getElementById("sum").innerHTML = "Total: $" + sum;
    }
```

✓ **Results**: After completing this exercise, you have added a native JavaScript file to the application.

Exercise 4: Using jQuery

Scenario

You have been asked to handle click events, modify elements, and change the style of elements. You are also asked to apply client-side validation in the web application. In this exercise, you will add several client-side packages to the web application and you will use the packages to add client-side functionality.

The main tasks for this exercise are as follows:

- Add a copy of the jQuery library to the project
- Use jQuery to add event handlers
- Use jQuery to modify elements
- Use jQuery for Client-side validation
- Run the application

Task 1: Add the jQuery JavaScript library

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **ZooSite**, point to **Add**, and then click **Client-Side Library...**.
2. In the **Add Client-Side Library** dialog box, in the search box, type jq, and then press Enter.
3. In the **Add Client-Side Library** dialog box, from the search results, choose **jquery** to get the latest stable version of the jQuery library.
4. In the **Add Client-Side Library** dialog box, verify that the **Target Location** is set to **wwwroot/lib/jquery/**, and click **Install**.
5. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Shared**, click **_Layout.cshtml**.

```
<link type="text/css" rel="stylesheet" href="~/css/zoo-style.css"/>
```

7. Place the cursor after the **>** (greater than) sign, press Enter, and then type the following code:

```
<script src="~/lib/jquery/jquery.min.js"></script>
```

Task 2: Use jQuery to add event handlers

1. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, under **js**, click **form-functions.js**.

2. In the **form-functions.js** code window, locate the following code:

```
function calculateSum() {
    var rows = document.querySelectorAll("#totalAmount tr .sum");
    var sum = 0;

    for (var i = 0; i < rows.length; i++) {
        sum = sum + parseFloat(parseFloat(rows[i].innerHTML.substring(1, rows[i].in
    }

    document.getElementById("sum").innerHTML = "Total: $" + sum ;
}
```

3. Insert a line containing **$(function() {** before this code, and then add a line containing **});** after. The result should look like the following:

```
$(function() {
    function calculateSum() {
        var rows = document.querySelectorAll("#totalAmount tr .sum");
        var sum = 0;

        for (var i = 0; i < rows.length; i++) {
            sum = sum + parseFloat(parseFloat(rows[i].innerHTML.substring(1, rows[i
        }

        document.getElementById("sum").innerHTML = "Total: $" + sum ;
    }
});
```

4. In the **form-functions.js** code window, locate the following code:

```
$(function() {
```

5. Ensure that the cursor is after the **{** (opening brace) sign, press Enter, and then type the following code:

```
        var value = parseInt(target.val());
        var container = target.parent();
        var price = container.prev();
        var label = price.prev();

        $("#" + label.text()).remove();
    });
```

Task 3: Use jQuery to modify elements

1. In the **form-functions.js** code window, locate the following code:

```
$("#" + label.text()).remove();
```

2. Place the cursor at the end of the located code, press Enter twice, and then type the following code:

```
if (value) {
    $("#summary").addClass("display-div").removeClass("hidden-div");

    var correctCost = (price.text().substring(1, price.text().length));
    var calc = parseInt(value * correctCost);

    var msg = label.text() + " ticket - " + value.toString() + "x" + price.text() +
    var row = $("<tr id='" + label.text() +"'>");
    row.append($("<td>").html(msg));
    $("#totalAmount").append(row);
}
if ($("#totalAmount tr").length === 0) {
    $("#summary").addClass("hidden-div").removeClass("display-div");
    $("#formButtons input").attr('disabled', 'disabled');
    $("#comment").show();
}
else {
    $("#formButtons input").removeAttr('disabled');
    $("#comment").hide();
}

calculateSum();
```

3. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, right-click **js**, point to **Add**, and then click **New Item...**.

4. In the **Add New Item -- ZooSite** dialog box, select **Web** in the left-hand pane, and in the templates list pane, click **JavaScript File**.

5. In the **Add New Item -- ZooSite** dialog box, in the **Name:** textbox, type **menubar-functions**, and then click **Add**.

```
$(function() {
    var path = window.location.pathname;

    $(".nav li a").each(function(index, value) {
        var href = $(value).attr('href');
        if (path === href) {
            $(this).closest('li').addClass('active');
        }
    });
});
```

7. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **wwwroot**, right-click **js**, point to **Add**, and then click **New Item...**.

8. In the **Add New Item -- ZooSite** dialog box, select **Web** in the left-hand pane, and in the templates list pane, click **JavaScript File**.

9. In the **Add New Item -- ZooSite** dialog box, in the **Name:** textbox, type **slider-functions**, and then click **Add**.

10. In the **slider-functions.js** code window, type the following code:

```
var images = ['/images/header.jpg', '/images/waters.jpg'];
var current = 0;

function nextImage() {
    current++;
    if (current === images.length) {
        current = 0;
    }
    $('.header-container').css('background-image', 'url(' + images[current] + ')');
}

function prevImage() {
    current--;
    if (current < 0) {
        current = images.length-1;
    }
    $('.header-container').css('background-image', 'url(' + images[current] + ')');
}
```

11. In the **ZooSite -- Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Shared**, click **_Layout.cshtml**.

12. In the **_Layout.cshtml** code window, locate the following code:

```
<script src="~/lib/jquery/jquery.min.js"></script>
```

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```
<script src="~/js/menubar-functions.js"></script>
<script src="~/js/slider-functions.js"></script>
```

Task 4: Client-side validation using jQuery

1. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **ZooSite**, point to **Add**, and then click **Client-Side Library...**.
2. In the **Add Client-Side Library** dialog box, in the search box, type **jquery-valid**, and then press Enter.
3. In the **Add Client-Side Library** dialog box, from the search results, choose **jquery-validate**.
4. In the **Add Client-Side Library** dialog box, verify that the **Target Location** is set to **wwwroot/lib/jquery-validate/**, and click **Install**.
5. A second time, in the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, right-click **ZooSite**, point to **Add**, and then click **Client-Side Library...**.
6. In the **Add Client-Side Library** dialog box, in the search box, type **jquery-valid**, and then press Enter.
7. In the **Add Client-Side Library** dialog box, from the search results, choose **jquery-validation-unobtrusive**.
8. In the **Add Client-Side Library** dialog box, verify that the **Target Location** is set to **wwwroot/lib/jquery-validation-unobtrusive/**, and click **Install**.
9. In the **ZooSite - Microsoft Visual Studio** window, in Solution Explorer, under **Views**, under **Zoo**, click **BuyTickets.cshtml**.
10. In the **BuyTickets.cshtml** code window, locate the following code:

```
@section Scripts {
    <script src="~/js/form-functions.js"></script>
}
```

11. Place the cursor after the **{** (opening brace) sign, press Enter, and then type the following code:

```
<script src="~/lib/jquery-validate/jquery.validate.min.js"></script>
<script src="~/lib/jquery-validation-unobtrusive/jquery.validate.unobtrusive.min.js
```

Task 5: Run the application

1. In the **ZooSite -- Microsoft Visual Studio** window, on the **File** menu, click **Save All**.

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- [ ] 3. In the **Zoo Attractions** page, in the **Welcome to Zoo Center** header, click the **right arrow**, and then click the **left arrow**.

> **Note**: The browser displays the header with the slider, and the hero image slider functionality is applied by the **slider-functions.js** JavaScript file.

- [ ] 4. In the menu bar, click **Tickets**.

> **Note**: The **Buy** button is disabled, and there is a message **Please Choose Tickets** near the button.

- [ ] 5. On **Step 1 - Choose Tickets**, choose one or more tickets for the **Adult**, **Child**, and **Senior** boxes.

> **Note**: The **Buy** button is now enabled, and the message **Please Choose Tickets** has disappeared. In addition, an **Order Summary** section is added which shows the total price of the tickets.

- [ ] 6. On **Step 2 - Buy Tickets**, in the **First Name** box, type your first name.
- [ ] 7. On **Step 2 - Buy Tickets**, in the **Last Name** box, type your last name.
- [ ] 8. On **Step 2 - Buy Tickets**, in the **Address** box, type enter some text.
- [ ] 9. On **Step 2 - Buy Tickets**, in the **Email** box, type abcd, and then press Tab.

> **Note**: Client side validation detects that the email address is not valid.

- [ ] 10. On **Step 2 - Buy Tickets**, in the **Email** box, type bill@foo.com, and then press Tab.

> **Note**: The error message in the browser disappears.

- [ ] 11. On **Step 2 - Buy Tickets**, in the **Phone** box, type some digits, and then click **Buy**.

> **Note**: You should see the **ThankYou.cshtml** page. If you added letters instead of numbers, it will fail validation.

- [ ] 12. In Microsoft Edge, click **Close**.

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- **Results**: After completing this exercise, you will have added jQuery to a web application, modified HTML elements by using jQuery, performed client-side validation, and handled JavaScript events.