

Build an EF and ASP.NET Core 2.2 App HOL

Lab 8

This lab walks you through managing client-side libraries and creating the Views for the application. Prior to starting this lab, you must have completed Lab 7.

Part 1: Add the Images and CSS

Step 1: Add the images

- 1) Delete the images from the `wwwroot\Images` folder.
- 2) Add the images from the `Assets\Lab8\Images` folder to the `wwwroot\Images` folder.

Step 2: Update the CSS for the site

- 1) Delete `site.min.css` and `site.css` from the `wwwroot\css` folder
- 2) Add the `site.css` file from the `Assets\Lab8\css` folder to the `wwwroot\css` folder.

Part 2: Manage Client-Side Libraries

Visual Studio:

Library Manager is installed with Visual Studio 2017 15.8 and later. Confirm the installation by opening Tools -> Extensions and Updates and searching for “Microsoft Library Manager”. If it’s not in the list of installed tools, search for it online in the Extensions and Updates dialog.

Visual Studio Code:

- 1) Install the Library Manager CLI Tooling as a global tool:

```
dotnet tool install -g Microsoft.Web.LibraryManager.CLI
```

Step 1: Delete the lib directory from the default template

- 1) Delete the `wwwroot\lib` folder. It will be replaced with files using library manager.

Step 2: Add the libman.json file

Visual Studio

- 1) Right click on the SpyStore.Hol.Mvc project and select Manage Client-Side Libraries. This adds the libman.json file to the root of the project. Right click on the libman.json file and select “Enable restore on build”. This will prompt for you to allow another Nuget package (Microsoft.Web.LibraryManager.Build) to be restored into the project.

Visual Studio Code

- 1) Create a new libman.json file with the following command:

```
libman init
```

- 2) Add the library manager restore on build package:

```
dotnet add SpyStore.Hol.Mvc package Microsoft.Web.LibraryManager.Build
```

Step 3: Update the libman.json file

- 1) Copy the libman.json file from Assets\Lab8 to the root of the SpyStore.Mvc project (this will overwrite the file you just created).

Step 5: Update the _ValidationScriptsPartial.cshtml file

- 1) The destination folders for the libraries are slightly different than the destination folders in the ASP.NET Core template. Any files that load CSS or JavaScript files need to be updated. The files affected are the _Layout.cshtml and _ValidationScriptsPartial.cshtml. The _Layout file will be replaced by a file copied into the project later in this lab, so only _ValidationScriptPartial.cshtml needs to be updated for the new locations. Update the two src tag for jQuery Validation by removing the “/dist” from the path in both places in the file. The updated line is shown here:

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

Part 3: Create the Shared Views and Templates

Step 1: Copy and Update the _Layout.cshtml file

- 1) Copy the _Layout.cshtml file from Assets\Lab8\Views\Shared into the Views\Shared folder of the SpyStore.Hol.Mvc project, overwriting the existing one. Update the <environment> tag helpers for the “Local” environment, as shown here:

NOTE: There are four environment tag helpers total in the page, two include and two exclude

```
<environment include="Development, Local">
</environment>
<environment exclude="Development, Local">
</environment>
```

Step 2: Update the _ViewImports.cshtml File

- 1) Open the _ViewImports.cshtml file in the Views folder. This file is loaded before any Views at or below the level of this file in the directory tree. This enables a central place to include all of the using statements for the Views. Update the using statements to match the following:

```
@using SpyStore.Hol.Mvc
@using SpyStore.Hol.Mvc.Models
@using SpyStore.Hol.Models.Entities
@using SpyStore.Hol.Models.ViewModels
@using System.Collections.Generic
@using Microsoft.AspNetCore.Mvc.Rendering
@using SpyStore.Hol.Mvc.Models.ViewModels
@addTagHelper *, Microsoft.AspNetCore.Mvc.TagHelpers
```

Step 3: Create the DateTime DisplayTemplate

- 1) Create a new folder named DisplayTemplates under the Views\Shared folder. Add a Partial View named DateTime.cshtml in the new folder.
- 2) Clear out the existing code and replace it with the following:

```
@using System.Threading.Tasks
@model DateTime?
@if (Model == null)
{
    @:Unknown
}
else
{
    if (ViewData.ModelMetadata.IsNullableValueType)
    {
        @:@(Model.Value.ToString("d"))
    }
    else
    {
        @:@(((DateTime)Model).ToString("d"))
    }
}
```

Step 4: Copy the AddToCartViewModel Editor Template

Views named for types will be rendered when an Html helper is used to edit or display a model (or model property) of that type.

- 3) Create a new folder named EditorTemplates under the Views\Shared folder. Copy the AddToCartViewModel.cshtml file from the Assets\Lab8\Views\Shared\EditorTemplates into the new folder.

Step 5: Create the AddToCart View

This view doubles as the Product Details view

4) Add a View named AddToCart.cshtml to the Views\Shared folder and update the code to the following:

```
@model AddToCartViewModel
@{
    ViewData["Title"] = @ViewBag.Title;
}
<h3>@ViewBag.Header</h3>
<form method="post"
        asp-controller="Cart"
        asp-action="AddToCart"
        asp-route-customerId="@ViewBag.CustomerId"
        asp-antiforgery="true"
        id="myForm">
    @Html.EditorForModel()
    <div asp-validation-summary="All" class="text-danger"></div>
</form>
@{
    if (ViewBag.CameFromProducts != null && ViewBag.CameFromProducts)
    {
        <div>
            <a href="#" onclick="window.history.go(-1); return false;">Back to List</a>
        </div>
    }
}
@section Scripts {
    @{
        <partial name="_ValidationScriptsPartial" />
    }
}
```

Part 4: Create the LoginView Partial

Step 1: Create the View

- 1) Add a new View named LoginView to the Views\Shared folder. This view also contains the Search form. Update the markup to the following:

```
<ul class="nav navbar-nav">
  <li><a asp-controller="Cart" asp-action="Index" title="Shopping Cart" class="nav-link">
    Cart <span class="fa fa-shopping-cart"></span></a></li>
  <li><a asp-controller="Orders" asp-action="Index" title="Order History" class="nav-link">
    Orders <span class="fa fa-tag"></span></a></li>
  <li><a href="#" class="dropdown-toggle nav-link" data-toggle="dropdown">SEARCH
    <span class="fa fa-search"></span></a>
    <div class="dropdown-menu dropdown-menu-right bg-primary">
      <form asp-controller="Products" asp-action="Search"
        class="form-inline justify-content-end" role="search">
        <div class="input-group md-4">
          <label class="sr-only" for="searchString">Search</label>
          <input type="text" id="searchString" name="searchString"
            class="form-control" placeholder="SEARCH">
          <span class="input-group-append">
            <button class="btn btn-light" type="submit">
              <span class="fa fa-search"></span>
            </button>
          </span>
        </div>
      </form>
    </div>
  </li>
</ul>
```

Step 2: Add the Login Partial to the Layout

- 1) Add the login partial view to the layout using the new Partial View Tag Helper:

```
<header class="navbar navbar-expand-sm navbar-light bg-primary navbar-static-top">
  <div class="container">
    <div class="navbar-header">
      <!--omitted for brevity -->
    </div>
    <nav class="collapse navbar-collapse header-collapse" id="navbarSupportedContent">
      <ul class="nav navbar-nav ml-auto">
        <li class="nav-item dropdown categories-dropdown d-block d-lg-none">
          <!--omitted for brevity -->
        </li>
        <partial name="LoginView"/>
      </ul>
    </nav>
  </div>
</header>
```

Part 5: Copy the Products and Order Views and Templates

These views contain many examples of Tag Helpers in action. Spend some time exploring the views after copying them into the project. Copy the folders Views\Products and Views\Orders from Assets\Lab8 into the Views folder of the SpyStore.Hol.Mvc project.

Part 6: Create the Cart Views and Templates

Step 1: Create the CartRecordViewModel EditorTemplate

- 1) Create a new folder named Cart under the Views folder. Create a new folder named EditorTemplates under the Views\Cart folder. Add a Partial View named CartRecordViewModel.cshtml in the new folder, clear out the existing code and replace it with the following:

```
@using Newtonsoft.Json
@model CartRecordViewModel
@{
    var formName = "updateCartForm" + Model.Id;
    var ts = JsonConvert.SerializeObject(Model.Timestamp).Replace("\"", "");
}
<nohtml>
    <form asp-controller="Cart" asp-action="Update" asp-route-id="@Model.Id" id="@formName"
method="post">
        <div asp-validation-summary="ModelOnly" class="text-danger"></div>
        <span asp-validation-for="Quantity" class="text-danger"></span>
        <input type="hidden" asp-for="Id" />
        <input type="hidden" id="Timestamp" name="Timestamp" value=@ts />
        <input type="hidden" asp-for="CustomerId" />
        <input type="hidden" asp-for="UnitsInStock" />
        <input type="hidden" asp-for="ProductId" />
        <input type="hidden" asp-for="LineItemTotal" />
        <input asp-for="Quantity" class="cart-quantity text-right" />
        <button class="btn btn-link btn-sm" onClick="updateCart($('#@formName')[0],
'@Url.Action("Update", "Cart", new {id = @Model.Id})", @Model.Id);return false;">Update</button>
    </form>
    <form asp-controller="Cart" asp-action="Delete" asp-route-id="@Model.Id" id="deleteCartForm"
method="post">
        <input type="hidden" asp-for="Id" />
        <input type="hidden" id="Timestamp" name="Timestamp" value=@ts />
        <button class="btn btn-link btn-sm">Remove</button>
    </form>
</nohtml>
```

- 2) In order to correctly serialize and deserialize the Timestamp property (which is a Byte[] in C#), we convert it into JSON and then use that value in the form. Ajax calls and serialization/deserialization of Byte[] is problematic, and needs some help.

Step 2: Copy the Index View

Copy the Index.cshtml file from Assets\Lab8\Views\Cart into the Views\Cart folder. This view contains the AJAX call to update the cart. Take some time to explore the file.

Step 3: Create the Update View

- 1) Add a View named `Update.cshtml` in the `Views\Cart` folder.
- 2) Clear out the existing code and replace it with the following:

```
@model CartRecordViewModel
<tr id="row_@Model.Id">
  <td>
    <div class="product-cell-detail">
      
      <a class="h5" asp-controller="Products" asp-action="Details"
        asp-route-id="@Model.ProductId">@Html.DisplayFor(model => model.ModelName)</a>
      <div class="small text-muted">@Html.DisplayFor(model => model.CategoryName)</div>
      <div class="small text-muted d-none d-sm-block">
        @Html.DisplayFor(model => model.Description)
      </div>
    </div>
  </td>
  <td class="text-right"> @Html.DisplayFor(model => model.CurrentPrice) </td>
  <td class="text-right cart-quantity-row"> @Html.EditorForModel() </td>
  <td class="text-right"> @Html.DisplayFor(model => model.UnitsInStock) </td>
  <td class="text-right">
    <span id="rawTotal_@Model.ProductId" class="d-none">@Model.LineItemTotal</span>
    <span id="total_@Model.ProductId">@Html.DisplayFor(model => model.LineItemTotal)</span>
  </td>
</tr>
```

Part 9: Bundle and Minify the JavaScript

Step 1: Update the `_ViewImports.cshtml` file

- 1) Before the `@addTagHelper` for `Microsoft.AspNetCore.Mvc.TagHelpers`, add the following line:

```
@addTagHelper *, WebOptimizer.Core
```

Step 2: Update the `Startup.cs` file

- 1) In the `Configure` method, add `app.UseWebOptimizer` *before* the `UseStaticFiles` call.

```
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    //omitted for brevity

    app.UseWebOptimizer();
    app.UseStaticFiles();
    //omitted for brevity
}
```

Step 3: Minimize the JavaScript and CSS files

To minimize specific files or to create bundles, add configuration options into the `AddWebOptimizer()` method.

- 1) In the `ConfigureServices` method, add `services.AddWebOptimizer`. If not configured any farther, this automatically minimizes all JS and CSS files.
- 2) Add `MinifyCssFiles` and `MinifyJsFiles` to minimize the files. Wrap the call in an if statement to disable bundling and minification in the Development and Local environments, but minify and bundle in any other environments.

```
if (!_env.IsDevelopment() || _env.EnvironmentName == "Local")
{
    services.AddWebOptimizer(false, false);
}
else
{
    services.AddWebOptimizer(options =>
    {
        options.MinifyCssFiles(); //Minifies all CSS files
        //options.MinifyJsFiles(); //Minifies all JS files
        options.MinifyJsFiles("js/site.js");
        //options.AddJavaScriptBundle("js/validations/validationCode.js", "js/validations/**/*.js");
    });
}
```

- 3) The validation scripts are going to be built in Lab 11:

Summary

The lab updated the CSS for the site, managed client side libraries, and added the Views and Templates.

Next steps

In the next part of this tutorial series, you will create the menu using a View Components.