

Build an ASP.NET Core MVC App with EF Core

One-Day Hands-On Lab

Lab 10

This lab adds support for client-side libraries, updates the `_Layout.cshtml` file by creating partials for the major sections, and adds GDPR support. Prior to starting this lab, you must have completed Lab 13.

Part 1: Manage Client-Side Libraries

Step 1: Install Library Manager

- [Visual Studio] Library Manager is part of Visual Studio 2019.
- [Command Line] Install the Library Manager CLI Tooling as a global tool:

```
dotnet tool install --global Microsoft.Web.LibraryManager.Cli --version 2.1.113
```

Step 2: Delete the lib directory from the default template

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

Step 3: Add the libman.json file

- [Visual Studio] Right click on the `AutoLot.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”.
- [Command Line] Create a new `libman.json` file with the following command:

```
libman init
```

Step 4: Update the libman.json file

- Update the libman.json file to the following JSON:

```
{
  //https://api.cdnjs.com/libraries?output=human
  //https://api.cdnjs.com/libraries/jquery?output=human
  "version": "1.0",
  "defaultProvider": "cdnjs",
  "defaultDestination": "wwwroot/lib",
  "libraries": [
    {
      "library": "jquery@3.6.0",
      "destination": "wwwroot/lib/jquery",
      "files": [ "jquery.js", "jquery.min.js" ]
    },
    {
      "library": "jquery-validate@1.19.3",
      "destination": "wwwroot/lib/jquery-validation",
      "files": [ "jquery.validate.js", "jquery.validate.min.js", "additional-methods.js",
"additional-methods.min.js" ]
    },
    {
      "library": "jquery-validation-unobtrusive@3.2.12",
      "destination": "wwwroot/lib/jquery-validation-unobtrusive",
      "files": [ "jquery.validate.unobtrusive.js", "jquery.validate.unobtrusive.min.js" ]
    },
    {
      "library": "twitter-bootstrap@4.6.0",
      "destination": "wwwroot/lib/bootstrap",
      "files": [ "css/bootstrap.css", "js/bootstrap.bundle.js", "js/bootstrap.js"
    ]
    },
    {
      "library": "font-awesome@5.15.4",
      "destination": "wwwroot/lib/font-awesome/",
      "files": [ "js/all.js", "css/all.css",
        "sprites/brands.svg", "sprites/regular.svg", "sprites/solid.svg",
        "webfonts/fa-brands-400.eot", "webfonts/fa-brands-400.svg",
        "webfonts/fa-brands-400.ttf", "webfonts/fa-brands-400.woff",
        "webfonts/fa-regular-400.eot", "webfonts/fa-regular-400.svg",
        "webfonts/fa-regular-400.ttf", "webfonts/fa-regular-400.woff",
        "webfonts/fa-solid-900.eot", "webfonts/fa-solid-900.svg",
        "webfonts/fa-solid-900.ttf", "webfonts/fa-solid-900.woff"
      ]
    }
  ]
}
```

Step 5: Update the client-side libraries

- [Visual Studio] Right click on the libman.json file and select Restore Client-Side Libraries.
- [Command Line]

```
libman restore
```

Part 2: Update the Layout and ValidationScriptsPartial views

Step 1: Update the _Layout.cshml file

- In the Views\Shared directory, update _Layout.cshml file to the following:

```
@using Microsoft.AspNetCore.Hosting
@using Microsoft.Extensions.Hosting
@inject IWebHostEnvironment Env

<!DOCTYPE html>
<html lang="en">
<head>
    <partial name="Partials/_Head"/>
</head>
<body>
<header>
    <partial name="Partials/_Menu"/>
</header>
<div class="container">
    <partial name="_CookieConsentPartial"/>
    <main role="main" class="pb-3">
        @RenderBody()
    </main>
</div>

<footer class="border-top footer text-muted">
    <div class="container">
        &copy; 2020 - AutoLot.Web - @Env.EnvironmentName - <a asp-area="" asp-controller="Home"
asp-action="Privacy">Privacy</a>
    </div>
</footer>
<partial name="Partials/_JavaScriptFiles"/>
@RenderSection("Scripts", required: false)
</body>
</html>
```

Step 2: Add the `_CookieConsentPartial.cshml` file

- Create a new view file named `_CookieConsentPartial.cshml` in the Views\Shared folder. Update the content to the following:

```
@using Microsoft.AspNetCore.Http.Features
@using AutoLot.Mvc.Controllers
@using AutoLot.Services.Utilities

@{
    var consentFeature = Context.Features.Get<ITrackingConsentFeature>();
    var showBanner = !consentFeature?.CanTrack ?? false;
    var cookieString = consentFeature?.CreateConsentCookie();
}

@if (showBanner)
{
    <div id="cookieConsent" class="alert alert-info alert-dismissible fade show" role="alert">
        Use this space to summarize your privacy and cookie use policy. <a asp-area="" asp-
        controller="Home" asp-action="Privacy">Learn More</a>.
        <button type="button" class="accept-policy close" data-dismiss="alert" aria-label="Close"
        data-cookie-string="@cookieString">
            <span aria-hidden="true">Accept</span>
        </button>
    </div>
    <script>
        (function () {
            var button = document.querySelector("#cookieConsent button[data-cookie-string]");
            button.addEventListener("click", function (event) {
                document.cookie = button.dataset.cookieString;
                window.location =
'@Url.Action(nameof(HomeController.Index),nameof(HomeController).RemoveController());';
            }, false);
        })();
    </script>
}
```

Step 3: Add the Layout Partial files

- Create a new folder named `Partials` under the `Views\Shared` folder.
- Create a new view file named `_Head.cshtml` in the `Views\Shared\Partials` folder. Update the content to the following:

```
<meta charset="utf-8"/>
<meta name="viewport" content="width=device-width, initial-scale=1.0"/>
<title>@ViewData["Title"] - AutoLot.Pages</title>
<environment include="Development,Local">
  <link rel="stylesheet" href="~/lib/bootstrap/css/bootstrap.css" asp-append-version="true"/>
</environment>
<environment exclude="Development,Local">
  <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css"
  asp-fallback-href="~/lib/bootstrap/css/bootstrap.css"
  asp-fallback-test-class="sr-only" asp-fallback-test-property="position"
  asp-fallback-test-value="absolute" crossorigin="anonymous"
  integrity="sha384-ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7x9JvoRxT2MZw1T"/>
</environment>
<link rel="stylesheet" href="~/lib/font-awesome/css/all.css" asp-append-version="true"/>
<link rel="stylesheet" href="~/css/site.css" asp-append-version="true"/>
```

- Create a new view file named `_JavaScriptFiles.cshtml` in the `Views\Shared\Partials` folder. Update the content to the following:

```
<environment include="Development,Local">
  <script src="~/lib/jquery/jquery.js" asp-append-version="true"></script>
  <script src="~/lib/bootstrap/js/bootstrap.bundle.js" asp-append-version="true"></script>
</environment>
<environment exclude="Development,Local">
  <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.5.1/jquery.min.js"
  asp-fallback-src="~/lib/jquery/jquery.min.js" asp-fallback-test="window.jQuery"
  crossorigin="anonymous"
  integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8=">
</script>
  <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.bundle.min.js"
  asp-fallback-src="~/lib/bootstrap/js/bootstrap.bundle.min.js"
  asp-fallback-test="window.jQuery && window.jQuery.fn && window.jQuery.fn.modal"
  crossorigin="anonymous"
  integrity="sha384-xrRywqdh3PHs8keKZN+8zzc5TX0GRTLCcmivcbNJWm2rs5C8PRhceEn3czEjhA09o">
</script>
</environment>
<script src="~/js/site.js" asp-append-version="true"></script>
```

- Create a new view file named `_Menu.cshtml` in the `Views\Shared\Partials` folder. Update the content to the following:

```
@using Microsoft.Extensions.Options
@using Microsoft.AspNetCore.Http.Features
@using AutoLot.Models.ViewModels
@inject IOptionsMonitor<DealerInfo> DealerInfoMonitor
@{
    var dealerInfo = DealerInfoMonitor.CurrentValue;
    var consentFeature = Context.Features.Get<ITrackingConsentFeature>();
    var showBanner = !consentFeature?.CanTrack ?? false;
}
<nav class="navbar navbar-expand-sm navbar-light bg-white border-bottom box-shadow mb-3">
    <div class="container">
        <a class="navbar-brand" asp-area="" asp-controller="Home" asp-action="Index">
            @dealerInfo.DealerName</a>
        <button class="navbar-toggler" type="button" data-toggle="collapse"
            data-target=".navbar-collapse" aria-controls="navbarSupportedContent" aria-expanded="false"
            aria-label="Toggle navigation">
            <span class="navbar-toggler-icon"></span>
        </button>
        <div class="navbar-collapse collapse d-sm-inline-flex flex-sm-row-reverse">
            <ul class="navbar-nav flex-grow-1">
                <li class="nav-item dropdown"><a class="nav-link dropdown-toggle text-dark"
                    data-toggle="dropdown">Inventory <i class="fa fa-car"></i></a>
                </li>
                <li class="nav-item"><a class="nav-link text-dark" asp-area="" asp-controller="Home"
                    asp-action="RazorSyntax">Razor Syntax <i class="fas fa-cut"></i></a>
                </li>
                <li class="nav-item">
                    <a class="nav-link text-dark" asp-area="" asp-controller="Home" asp-action="Privacy">
                        Privacy <i class="fa fa-user-secret"></i></a>
                </li>
            </ul>
            @if (showBanner)
            {
                <li class="nav-item">
                    <a class="nav-link text-dark" asp-controller="Home" asp-action="GrantConsent"
                        title="Accept Cookie Policy">Accept Cookie Policy
                    <i class="fas fa-cookie-bite"></i></a>
                </li>
            }
            else
            {
                <li class="nav-item">
                    <a class="nav-link text-dark" asp-controller="Home" asp-action="WithdrawConsent"
                        title="Revoke Cookie Policy">Revoke Cookie Policy <i class="fas fa-cookie"></i></a>
                </li>
            }
            <li class="nav-item">
                <a class="nav-link text-dark" asp-area="Admin" asp-controller="Makes" asp-action="Index"
                    title="Makes Admin">Makes Admin<i class="fas fa-cog"></i></a>
            </li>
        </ul>
    </div>
</div>
</nav>
```

Part 3: Update/Create the Partial views and templates

- Update the `_ValidationScriptsPartial.cshtml` view to the following:

```
<environment include="Development">
  <script src="~/lib/jquery-validation/jquery.validate.js" asp-append-version="true"></script>
  <script src="~/lib/jquery-validation-unobtrusive/jquery.validate.unobtrusive.js" asp-append-
version="true"></script>
</environment>
<environment exclude="Development">
  <script
    src="https://cdnjs.cloudflare.com/ajax/libs/jquery-validate/1.19.1/jquery.validate.min.js"
    asp-fallback-src="~/lib/jquery-validation/jquery.validate.min.js"
    asp-fallback-test="window.jQuery && window.jQuery.validator"
    crossorigin="anonymous"
    integrity="sha256-F6h55Qw6sweK+t7SiOJX+2bpSAa3b/fn1rVCJvEj1A=">
  </script>
  <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery-validation-
unobtrusive/3.2.11/jquery.validate.unobtrusive.min.js"
    asp-fallback-src="~/lib/jquery-validation-unobtrusive/jquery.validate.unobtrusive.min.js"
    asp-fallback-test="window.jQuery && window.jQuery.validator &&
window.jQuery.validator.unobtrusive" crossorigin="anonymous"
    integrity="sha256-9GycpJnliUjJDVDqP0UEu/bsm9U+3dnQUH8+3W10vkY=">
  </script>
</environment>
```

- Move the `_ViewImports.cshtml` file to the project root directory and update the markup to the following:

```
@using AutoLot.Mvc
@using AutoLot.Mvc.Models
@using AutoLot.Models.Entities
@addTagHelper *, Microsoft.AspNetCore.Mvc.TagHelpers
@addTagHelper *, AutoLot.Mvc
@addTagHelper *, WebOptimizerCore
```

- Move the `_ViewStart.cshtml` file to the project root directory
- Create a new folder named `DisplayTemplates` under the `Views\Shared` folder and add a Partial View named `DateTime.cshtml` in the new folder and update the markup to the following:

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

Part 4: Update the Startup class for GDPR

- Navigate to the ConfigureServices method and add the following code after the call to services.AddControllersWithViews():

```
services.Configure<CookiePolicyOptions>(options =>
{
    // This lambda determines whether user consent for non-essential cookies is
    // needed for a given request.
    options.CheckConsentNeeded = context => true;
    options.MinimumSameSitePolicy = SameSiteMode.None;
});
// The TempData provider cookie is not essential. Make it essential
// so TempData is functional when tracking is disabled.
services.Configure<CookieTempDataProviderOptions>(
    options => { options.Cookie.IsEssential = true; });
services.AddSession(options => { options.Cookie.IsEssential = true; });
```

- Navigate to the Configure method and add the following line of code before the call to UseRouting:

```
app.UseStaticFiles();
app.UseCookiePolicy();
app.UseRouting();
```

Part 5: Update the HomeController for GDPR

- Update the using statements for the HomeController to the following:

```
using System.Diagnostics;
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Logging;
using AutoLot.Mvc.Models;
using AutoLot.Services.Utilities;
using Microsoft.AspNetCore.Http.Features;
```

- Add the GrantConsent action method:

```
[HttpGet]
public IActionResult GrantConsent()
{
    HttpContext.Features.Get<ITrackingConsentFeature>().GrantConsent();
    return RedirectToAction(nameof(Index), nameof(HomeController).RemoveController(),
        new {area = ""});
}
```

- Add the WithdrawConsent action method:

```
[HttpGet]
public IActionResult WithdrawConsent()
{
    HttpContext.Features.Get<ITrackingConsentFeature>().WithdrawConsent();
    return RedirectToAction(nameof(Index), nameof(HomeController).RemoveController(),
        new {area = ""});
}
```


Summary

In this lab you finished the added support for client-side libraries, updated the layout, and GDPR support.

Next steps

In the next part of this tutorial series, you will create the Menu View Component and custom Tag Helpers.