T.C. İSTANBUL KÜLTÜR ÜNİVERSİTESİ

COM5005 – WEB PROGRAMMING

LAB 07 – ASP.NET MVC5 OVERVIEW

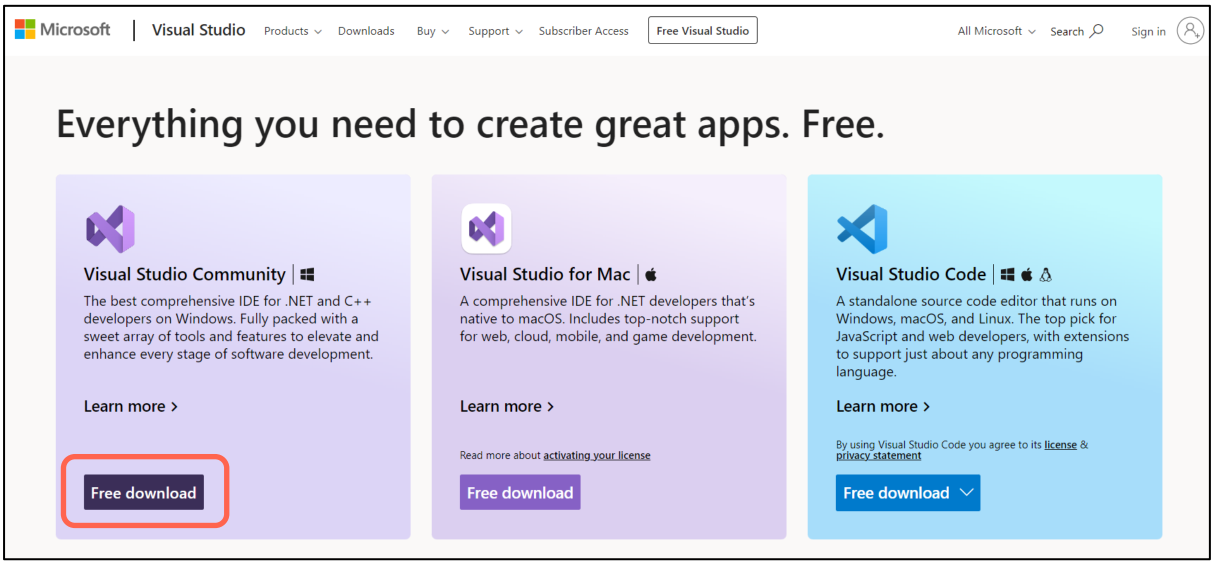
After completing this Lab, you will be able to

- How to use Visual Studio 2022 for Web Programming
- How to start a new MVC project
- What are the concepts of Model, View, Controller? What is used for?
- Create a new .html, .cs and .js file.

PROCEDURE 1 – How to get Visual Studio

Step 1 – Go to https://visualstudio.microsoft.com/tr/free-developer-offers/

Step 2 – Download the Visual Studio 2022 Community edition via:



Everything you need to create great apps. Free.

Visual Studio Community

The best comprehensive IDE for .NET and C++ developers on Windows. Fully packed with a sweet array of tools and features to elevate and enhance every stage of software development.

Visual Studio for Mac

A comprehensive IDE for .NET developers that's native to macOS. Includes top-notch support for web, cloud, mobile, and game development.

Read more about activating your license

Visual Studio Code

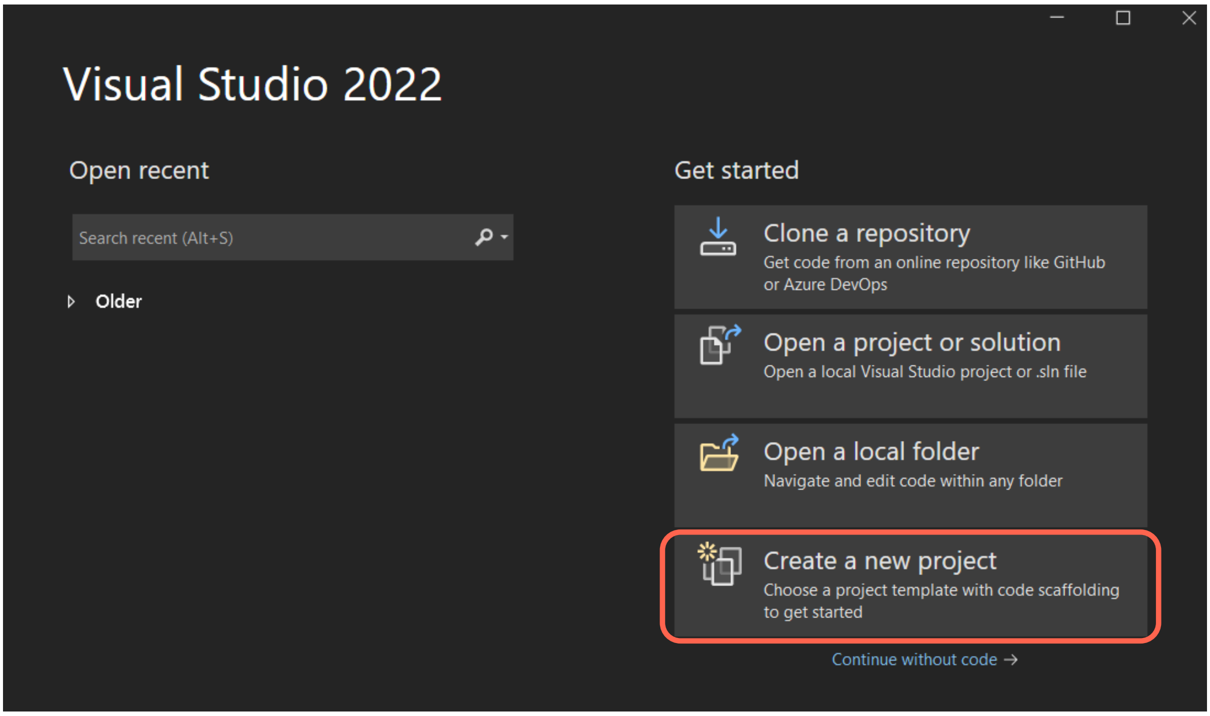
A standalone source code editor that runs on Windows, macOS, and Linux. The top pick for JavaScript and web developers, with extensions to support just about any programming language.

By using Visual Studio Code you agree to its license & privacy statement

Step 3 – Select the modules that is required and select the language that you want visual studio is installed for.

PROCEDURE 2 – How to use Visual Studio 2022 for Web Programming

Step 1 – Start Visual Studio 2022 Program.



Clone a repository
Get code from an online repository like GitHub or Azure DevOps

Open a project or solution
Open a local Visual Studio project or .sln file

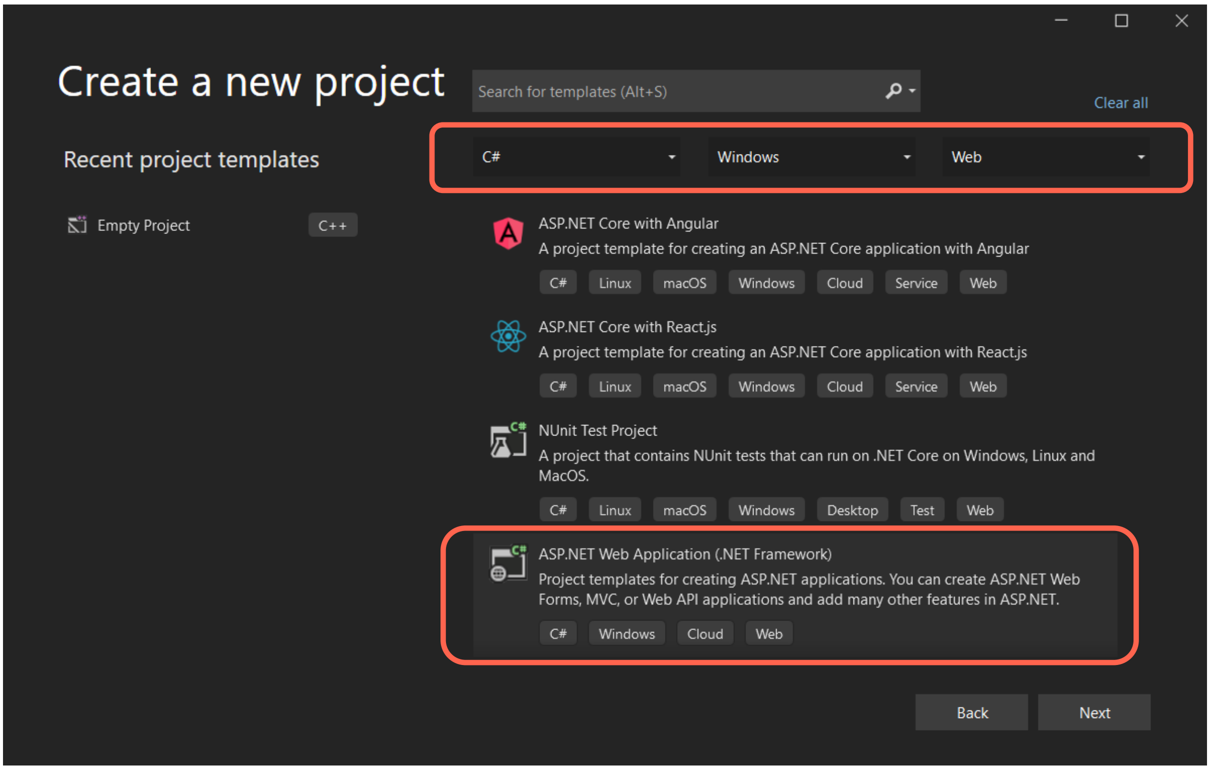
Open a local folder
Navigate and edit code within any folder

Create a new project
Choose a project template with code scaffolding to get started

Step 2 – Select the "**Create a new Project**"

Step 3 – Select **C#** from the languages, "**Windows**" as the Platform, "**Web**" as the Project type.

Step 4 – Find the "ASP.NET Web Application (.NET Framework)"



Create a new project

Search for templates (Alt+S)

Clear all

Recent project templates

Empty Project C++

C# | Windows | Web

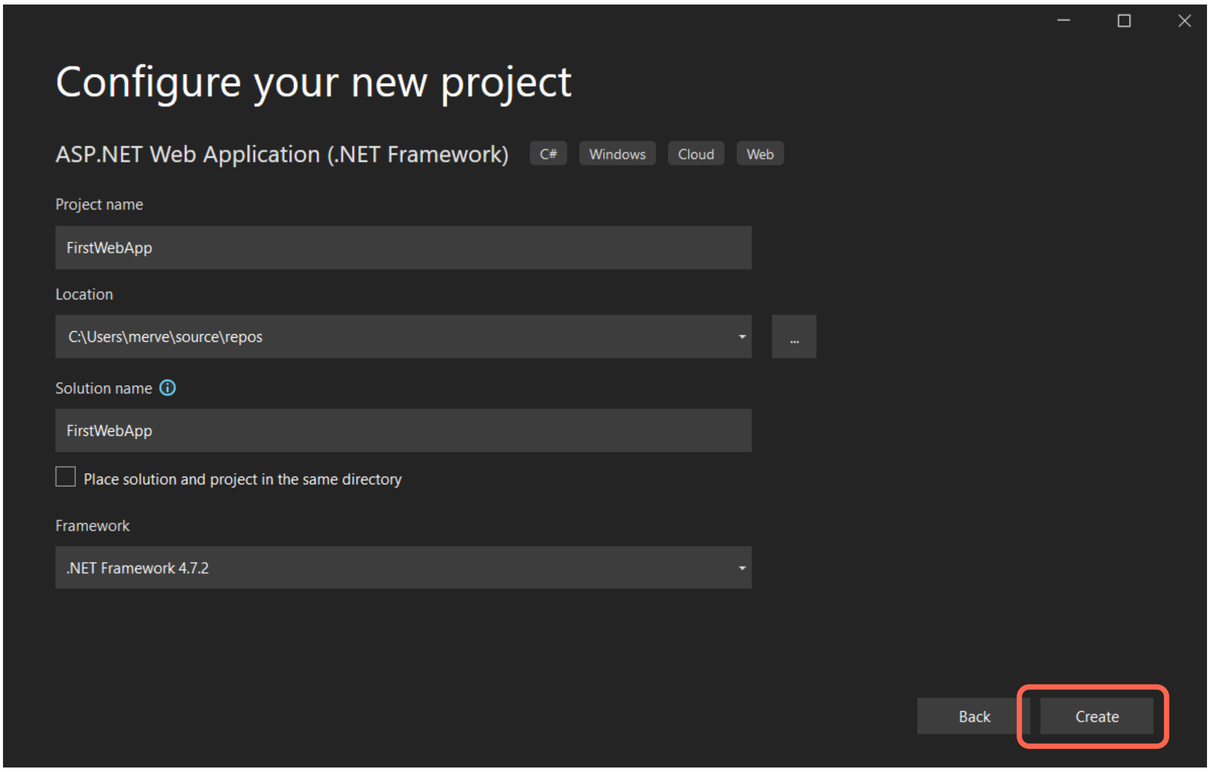
ASP.NET Core with Angular
A project template for creating an ASP.NET Core application with Angular
C# Linux macOS Windows Cloud Service Web

ASP.NET Core with React.js
A project template for creating an ASP.NET Core application with React.js
C# Linux macOS Windows Cloud Service Web

NUnit Test Project
A project that contains NUnit tests that can run on .NET Core on Windows, Linux and MacOS.
C# Linux macOS Windows Desktop Test Web

ASP.NET Web Application (.NET Framework)
Project templates for creating ASP.NET applications. You can create ASP.NET Web Forms, MVC, or Web API applications and add many other features in ASP.NET.
C# Windows Cloud Web

Step 5 – Configure the Project name and location and continue.



Configure your new project

ASP.NET Web Application (.NET Framework) C# Windows Cloud Web

Project name
FirstWebApp

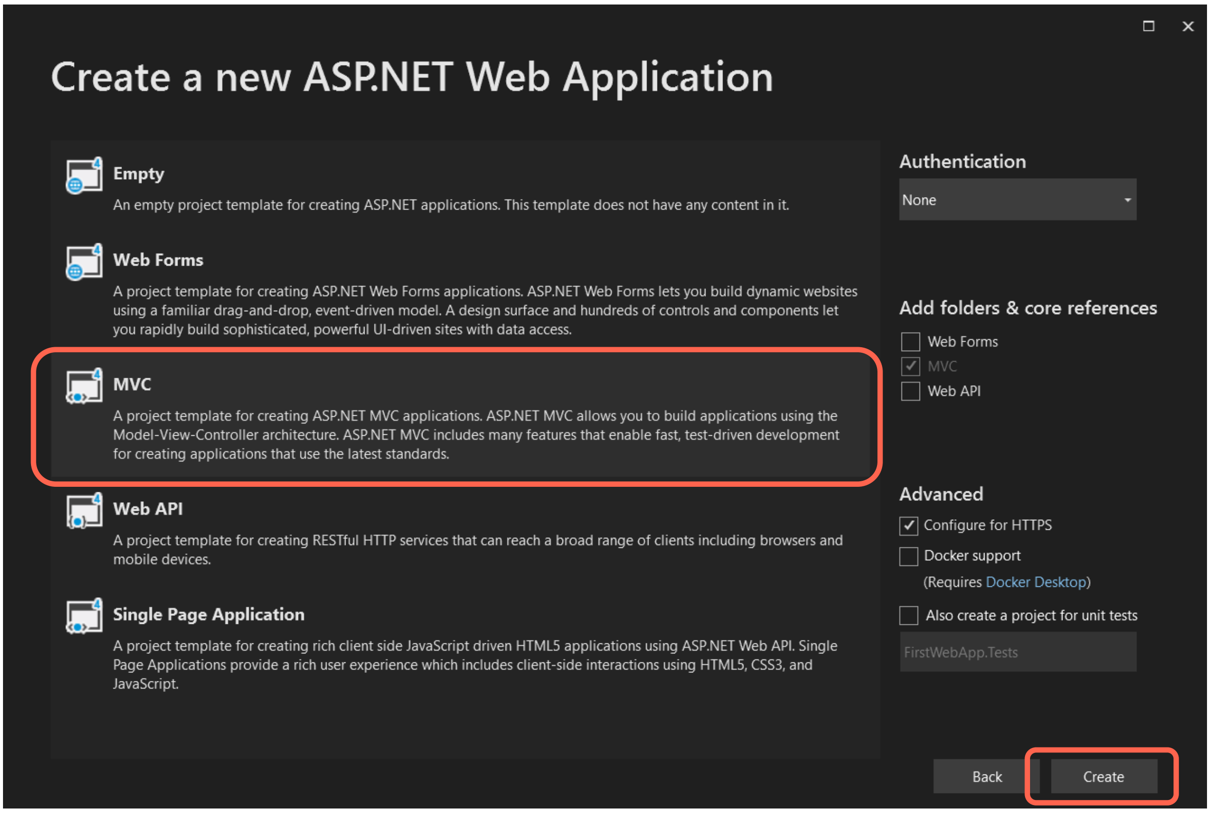
Location
C:\Users\merve\source\repos

Solution name
FirstWebApp

□ Place solution and project in the same directory

Framework
.NET Framework 4.7.2

Step 5 – Pick the “**MVC**” from the menu, to create the MVC Application and continue.



Create a new ASP.NET Web Application

Empty
An empty project template for creating ASP.NET applications. This template does not have any content in it.

Web Forms
A project template for creating ASP.NET Web Forms applications. ASP.NET Web Forms lets you build dynamic websites using a familiar drag-and-drop, event-driven model. A design surface and hundreds of controls and components let you rapidly build sophisticated, powerful UI-driven sites with data access.

MVC
A project template for creating ASP.NET MVC applications. ASP.NET MVC allows you to build applications using the Model-View-Controller architecture. ASP.NET MVC includes many features that enable fast, test-driven development for creating applications that use the latest standards.

Web API
A project template for creating RESTful HTTP services that can reach a broad range of clients including browsers and mobile devices.

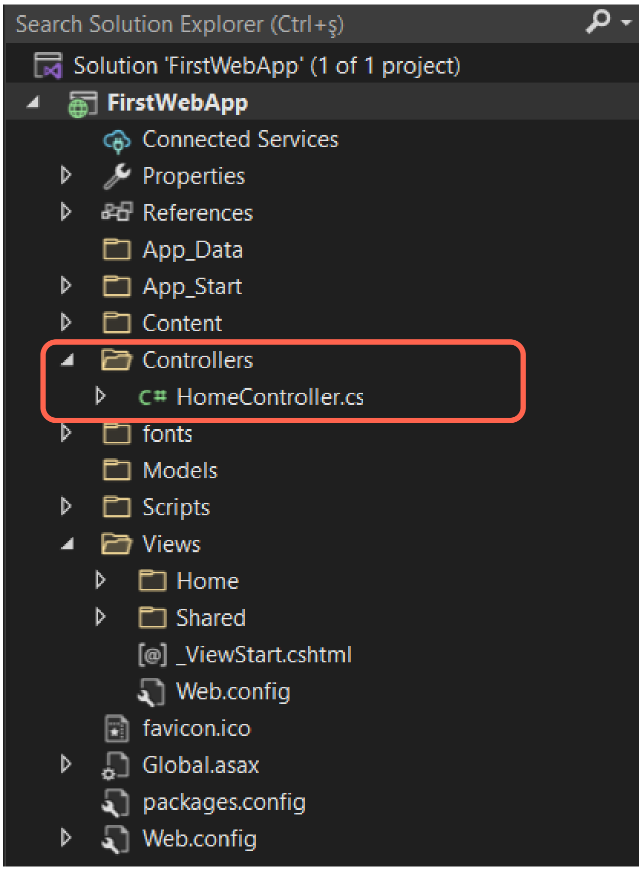
Single Page Application
A project template for creating rich client side JavaScript driven HTML5 applications using ASP.NET Web API. Single Page Applications provide a rich user experience which includes client-side interactions using HTML5, CSS3, and JavaScript.

Authentication: None

Add folders & core references
□ Web Forms
☑ MVC
□ Web API

Advanced
☑ Configure for HTTPS
□ Docker support
(Requires Docker Desktop)
□ Also create a project for unit tests
FirstWebApp.Tests

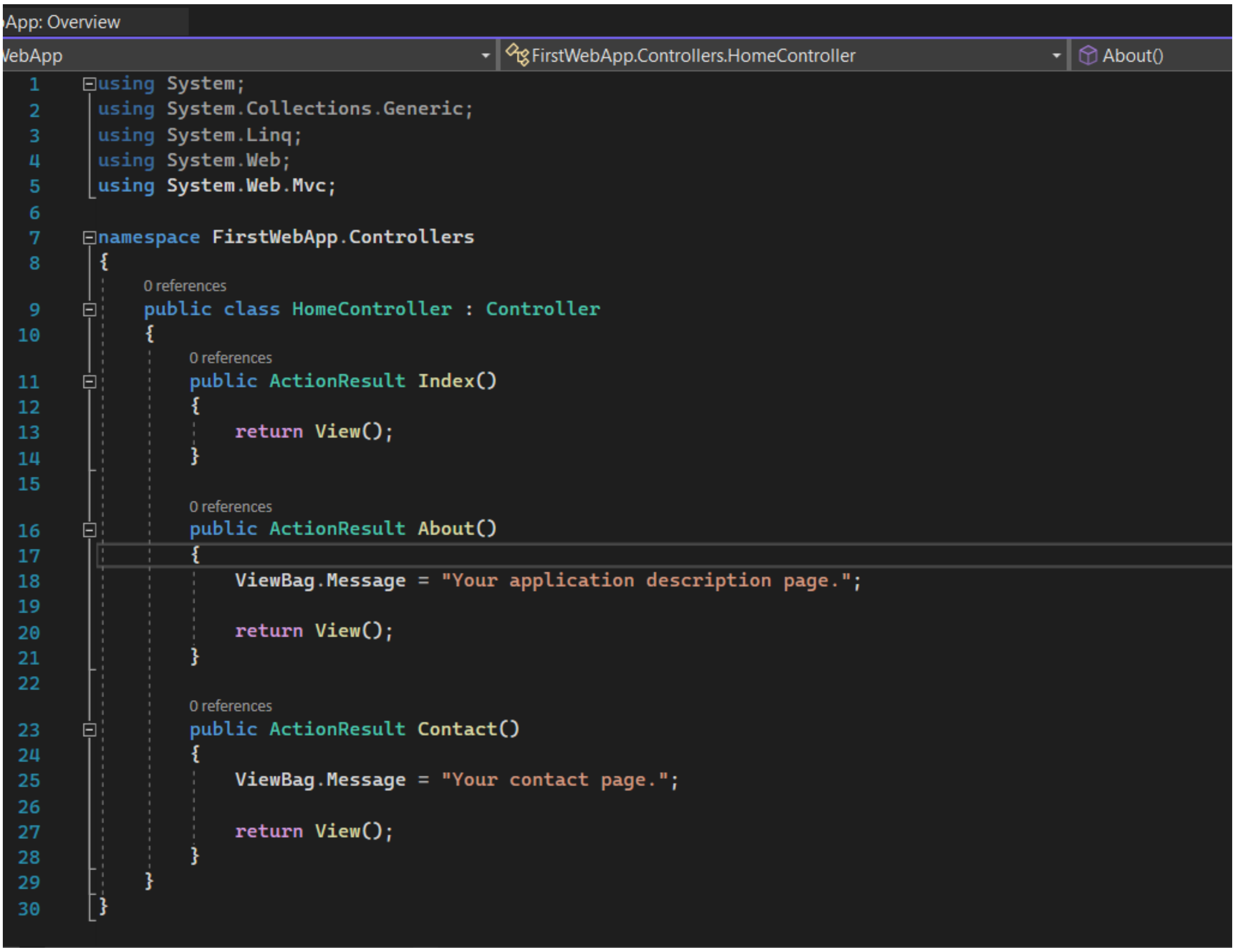
Step 6 – Check the contents from the Solution Explorer.



```
Search Solution Explorer (Ctrl+ş)
Solution 'FirstWebApp' (1 of 1 project)
◢ FirstWebApp
    Connected Services
  ▷ Properties
  ▷ References
    App_Data
  ▷ App_Start
  ▷ Content
  ◢ Controllers
    ▷ HomeController.cs
  ▷ fonts
    Models
  ▷ Scripts
  ◢ Views
    ▷ Home
    ▷ Shared
      _ViewStart.cshtml
      Web.config
    favicon.ico
  ▷ Global.asax
    packages.config
  ▷ Web.config
```

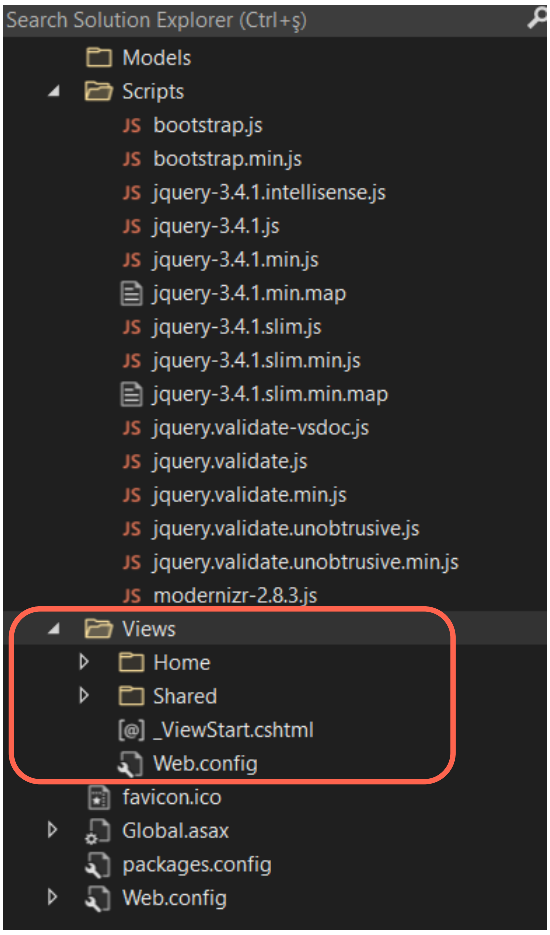
Step 7 – Check the contents of the folders and search what they are about.

Step 8 – Check the “**HomeController.cs**” fil.



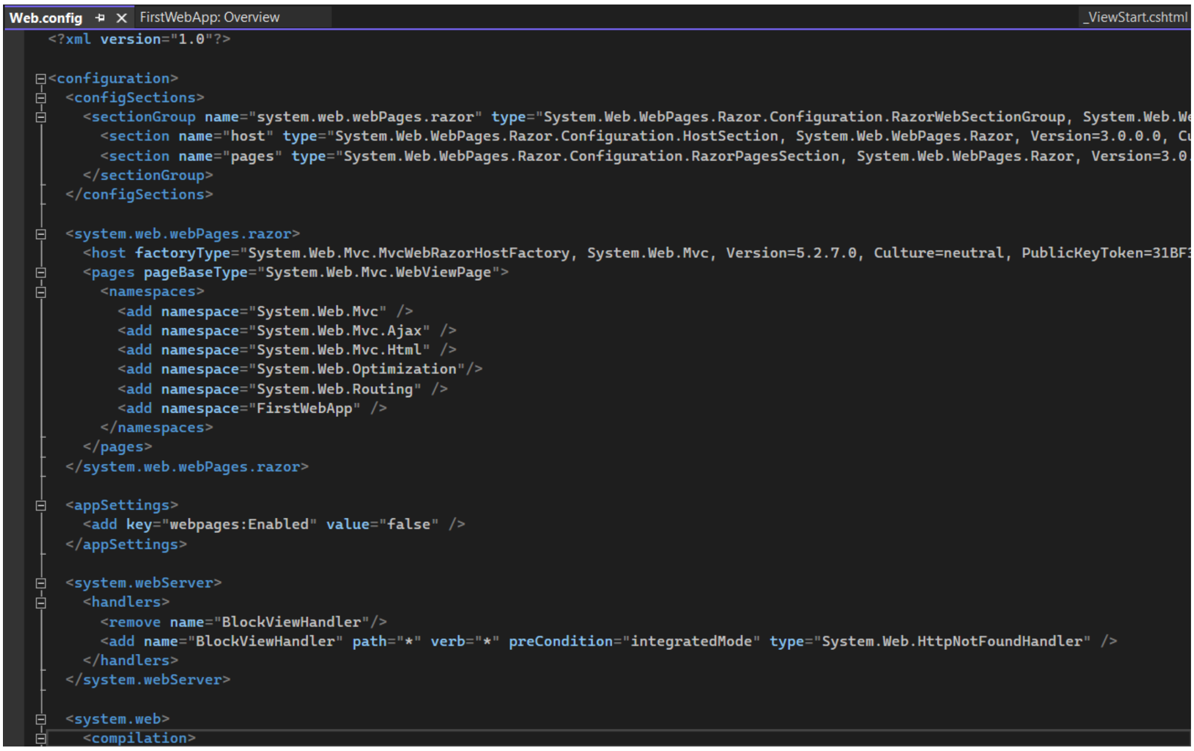
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Mvc;

namespace FirstWebApp.Controllers
{
    public class HomeController : Controller
    {
        public ActionResult Index()
        {
            return View();
        }

        public ActionResult About()
        {
            ViewBag.Message = "Your application description page.";

            return View();
        }

        public ActionResult Contact()
        {
            ViewBag.Message = "Your contact page.";

            return View();
        }
    }
}
```

Step 9 – Check the Views Folder.



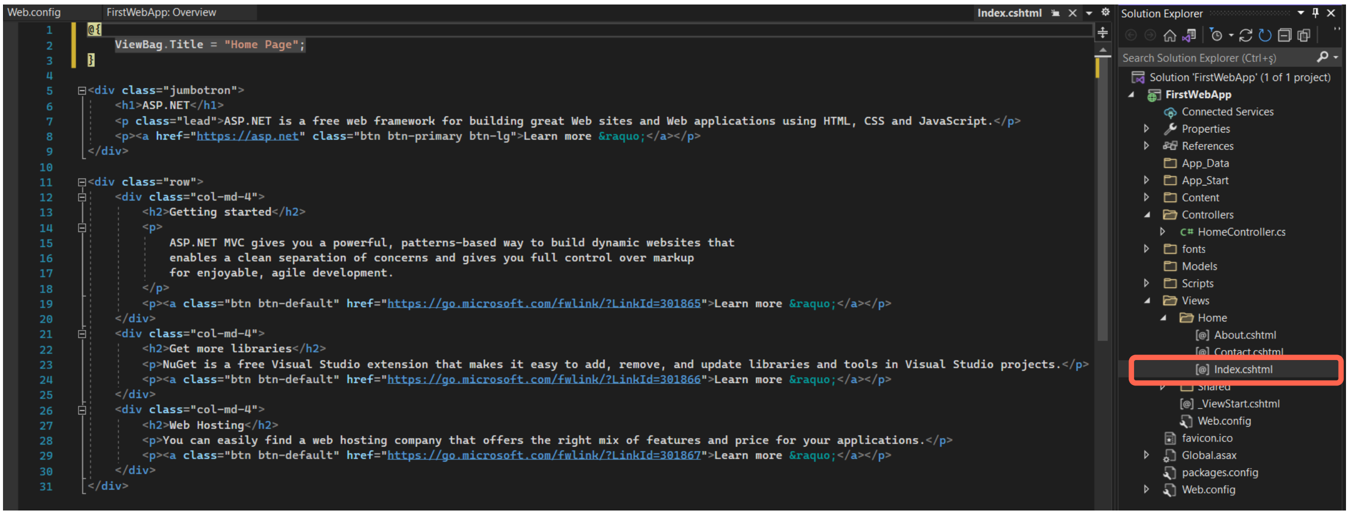
```
Search Solution Explorer (Ctrl+ş)
    Models
  ◢ Scripts
        bootstrap.js
        bootstrap.min.js
        jquery-3.4.1.intellisense.js
        jquery-3.4.1.js
        jquery-3.4.1.min.js
        jquery-3.4.1.min.map
        jquery-3.4.1.slim.js
        jquery-3.4.1.slim.min.js
        jquery-3.4.1.slim.min.map
        jquery.validate-vsdoc.js
        jquery.validate.js
        jquery.validate.min.js
        jquery.validate.unobtrusive.js
        jquery.validate.unobtrusive.min.js
        modernizr-2.8.3.js
  ◢ Views
      ▷ Home
      ▷ Shared
        _ViewStart.cshtml
        Web.config
    favicon.ico
  ▷ Global.asax
    packages.config
  ▷ Web.config
```

Step 10 – Look inside the "**Web.config**" file.



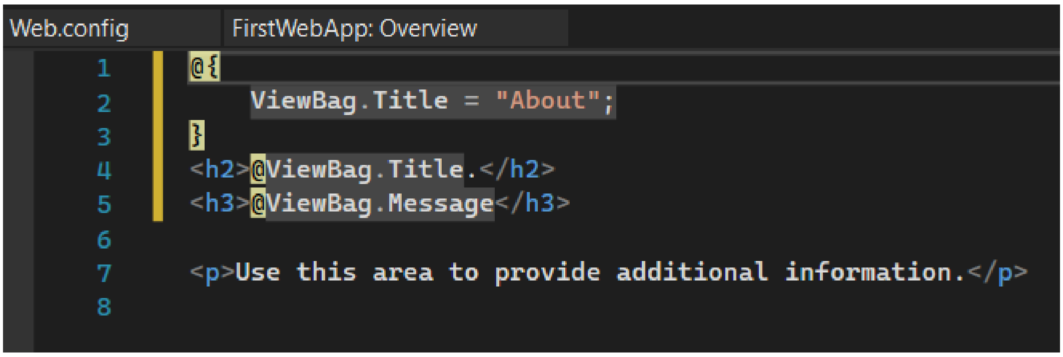
```
<?xml version="1.0"?>

<configuration>
  <configSections>
    <sectionGroup name="system.web.webPages.razor" type="System.Web.WebPages.Razor.Configuration.RazorWebSectionGroup, System.Web.We
      <section name="host" type="System.Web.WebPages.Razor.Configuration.HostSection, System.Web.WebPages.Razor, Version=3.0.0.0, Cu
      <section name="pages" type="System.Web.WebPages.Razor.Configuration.RazorPagesSection, System.Web.WebPages.Razor, Version=3.0.
    </sectionGroup>
  </configSections>

  <system.web.webPages.razor>
    <host factoryType="System.Web.Mvc.MvcWebRazorHostFactory, System.Web.Mvc, Version=5.2.7.0, Culture=neutral, PublicKeyToken=31BF3
    <pages pageBaseType="System.Web.Mvc.WebViewPage">
      <namespaces>
        <add namespace="System.Web.Mvc" />
        <add namespace="System.Web.Mvc.Ajax" />
        <add namespace="System.Web.Mvc.Html" />
        <add namespace="System.Web.Optimization"/>
        <add namespace="System.Web.Routing" />
        <add namespace="FirstWebApp" />
      </namespaces>
    </pages>
  </system.web.webPages.razor>

  <appSettings>
    <add key="webpages:Enabled" value="false" />
  </appSettings>

  <system.webServer>
    <handlers>
      <remove name="BlockViewHandler"/>
      <add name="BlockViewHandler" path="*" verb="*" preCondition="integratedMode" type="System.Web.HttpNotFoundHandler" />
    </handlers>
  </system.webServer>

  <system.web>
    <compilation>
```

Step 10 – Look inside the "**Index.cshtml**" file from the Views folder.



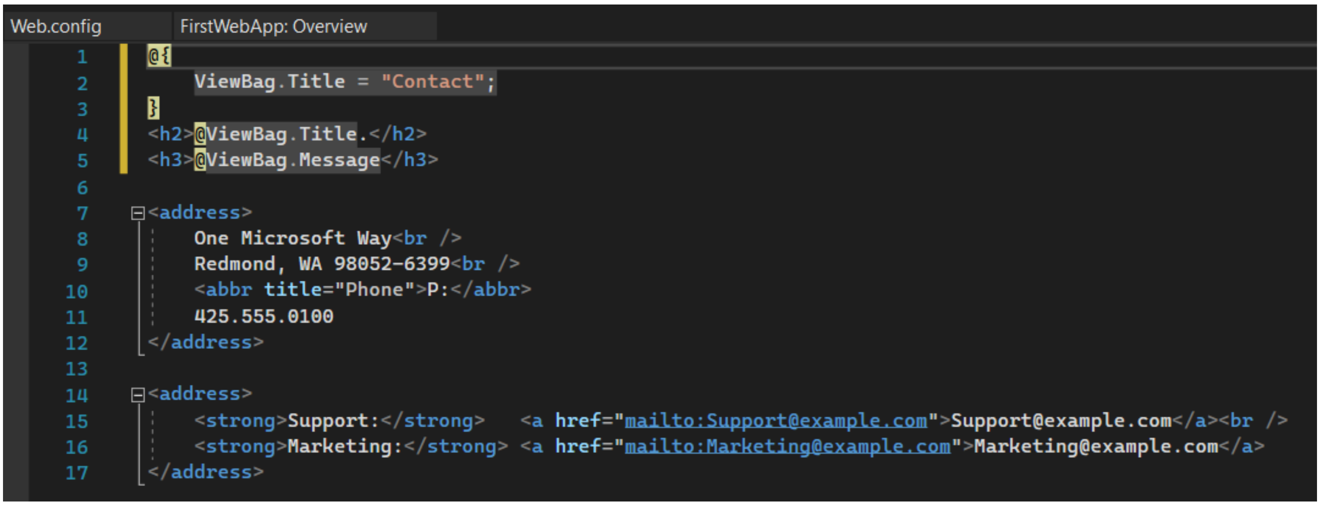
```
@{
    ViewBag.Title = "Home Page";
}

<div class="jumbotron">
    <h1>ASP.NET</h1>
    <p class="lead">ASP.NET is a free web framework for building great Web sites and Web applications using HTML, CSS and JavaScript.</p>
    <p><a href="https://asp.net" class="btn btn-primary btn-lg">Learn more &raquo;</a></p>
</div>

<div class="row">
    <div class="col-md-4">
        <h2>Getting started</h2>
        <p>
            ASP.NET MVC gives you a powerful, patterns-based way to build dynamic websites that
            enables a clean separation of concerns and gives you full control over markup
            for enjoyable, agile development.
        </p>
        <p><a class="btn btn-default" href="https://go.microsoft.com/fwlink/?LinkId=301865">Learn more &raquo;</a></p>
    </div>
    <div class="col-md-4">
        <h2>Get more libraries</h2>
        <p>NuGet is a free Visual Studio extension that makes it easy to add, remove, and update libraries and tools in Visual Studio projects.</p>
        <p><a class="btn btn-default" href="https://go.microsoft.com/fwlink/?LinkId=301866">Learn more &raquo;</a></p>
    </div>
    <div class="col-md-4">
        <h2>Web Hosting</h2>
        <p>You can easily find a web hosting company that offers the right mix of features and price for your applications.</p>
        <p><a class="btn btn-default" href="https://go.microsoft.com/fwlink/?LinkId=301867">Learn more &raquo;</a></p>
    </div>
</div>
```

Step 11 – Have a look inside of "**About.cshtml**" file.



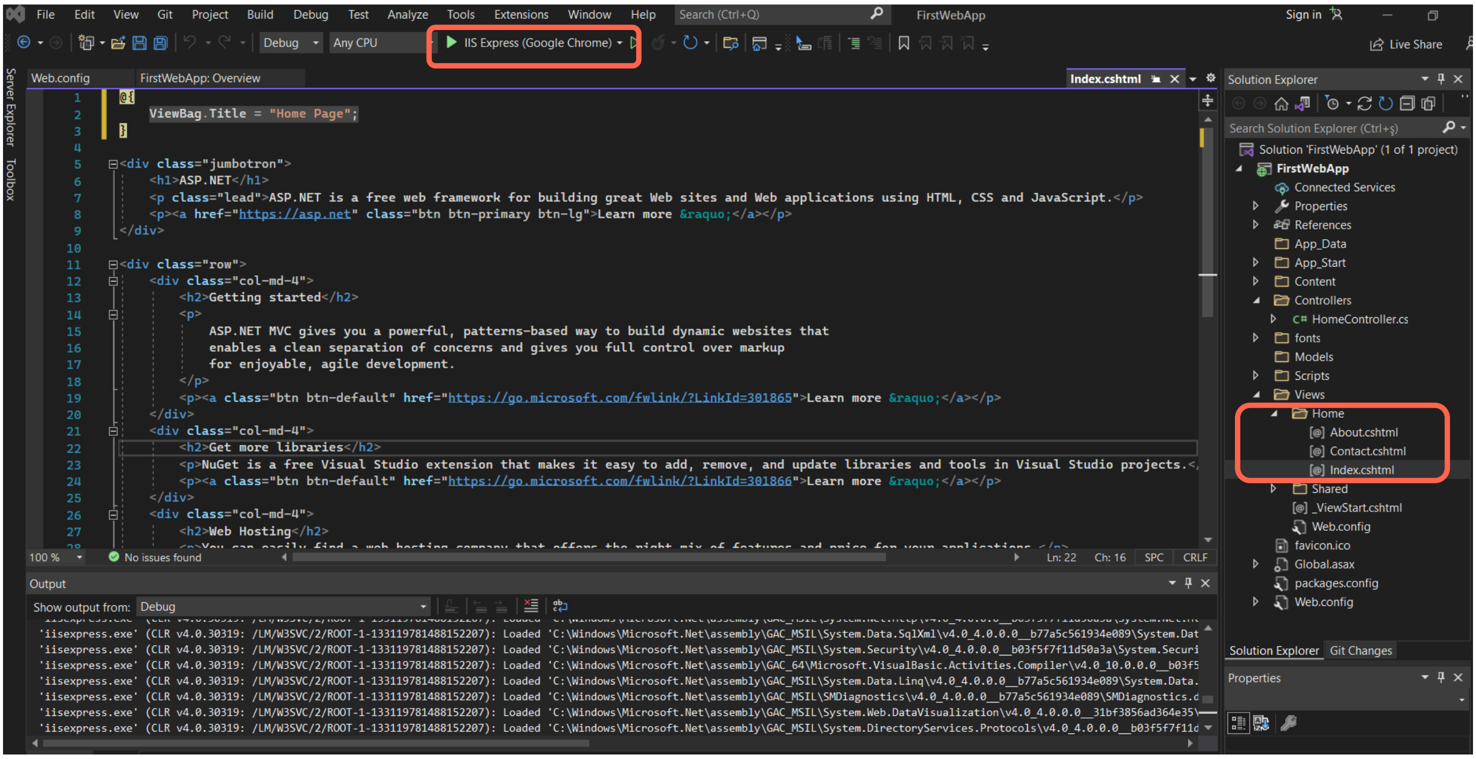
```
@{
    ViewBag.Title = "About";
}
<h2>@ViewBag.Title.</h2>
<h3>@ViewBag.Message</h3>

<p>Use this area to provide additional information.</p>
```

Step 12 – Have a look inside of "**Contact.cshtm**" file.



```
@{
    ViewBag.Title = "Contact";
}
<h2>@ViewBag.Title.</h2>
<h3>@ViewBag.Message</h3>

<address>
    One Microsoft Way<br />
    Redmond, WA 98052-6399<br />
    <abbr title="Phone">P:</abbr>
    425.555.0100
</address>

<address>
    <strong>Support:</strong>   <a href="mailto:Support@example.com">Support@example.com</a><br />
    <strong>Marketing:</strong> <a href="mailto:Marketing@example.com">Marketing@example.com</a>
</address>
```

Step 13 – Go to the **“Index.cshtml”** and Run the Project from there and see the browser to look at it.



```
@{
    ViewBag.Title = "Home Page";
}

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    <p class="lead">ASP.NET is a free web framework for building great Web sites and Web applications using HTML, CSS and JavaScript.</p>
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</div>

<div class="row">
    <div class="col-md-4">
        <h2>Getting started</h2>
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    </div>
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        <p><a class="btn btn-default" href="https://go.microsoft.com/fwlink/?LinkId=301866">Learn more &raquo;</a></p>
    </div>
    <div class="col-md-4">
        <h2>Web Hosting</h2>
```
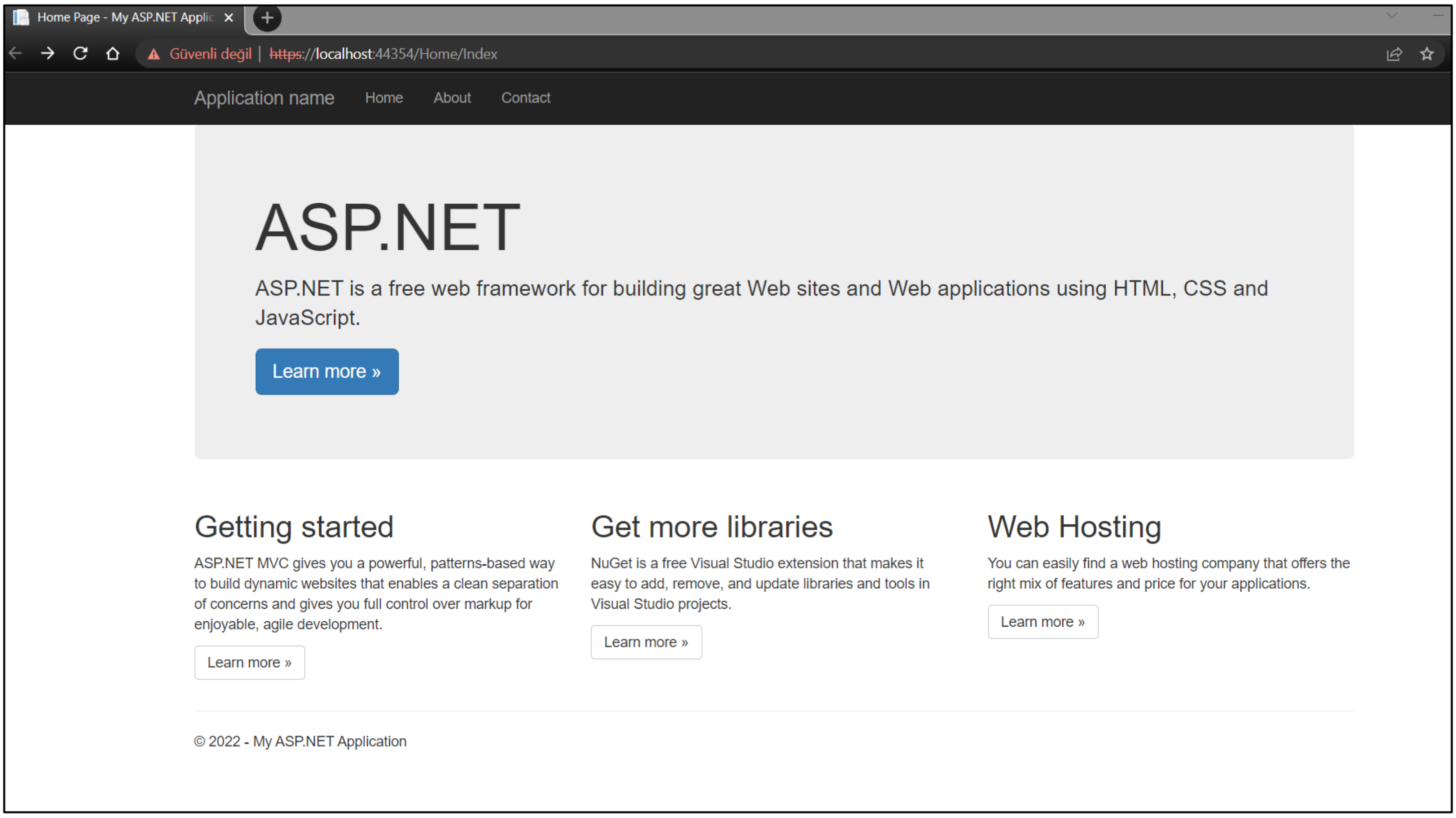

```
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Data.SqlXml\v4.0_4.0.0.0__b77a5c561934e089\System.Dat
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Security\v4.0_4.0.0.0__b03f5f7f11d50a3a\System.Securi
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_64\Microsoft.VisualBasic.Activities.Compiler\v4.0_10.0.0.0__b03f5
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Data.Linq\v4.0_4.0.0.0__b77a5c561934e089\System.Data.
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\SMDiagnostics\v4.0_4.0.0.0__b77a5c561934e089\SMDiagnostics.d
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Web.DataVisualization\v4.0_4.0.0.0__31bf3856ad364e35\
'iisexpress.exe' (CLR v4.0.30319: /LM/W3SVC/2/ROOT-1-133119781488152207): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.DirectoryServices.Protocols\v4.0_4.0.0.0__b03f5f7f11d
```

** Execute the code and review the results.



Home Page - My ASP.NET Applic
Güvenli değil | https://localhost:44354/Home/Index
Application name
Home
About
Contact

ASP.NET

ASP.NET is a free web framework for building great Web sites and Web applications using HTML, CSS and JavaScript.

Learn more »

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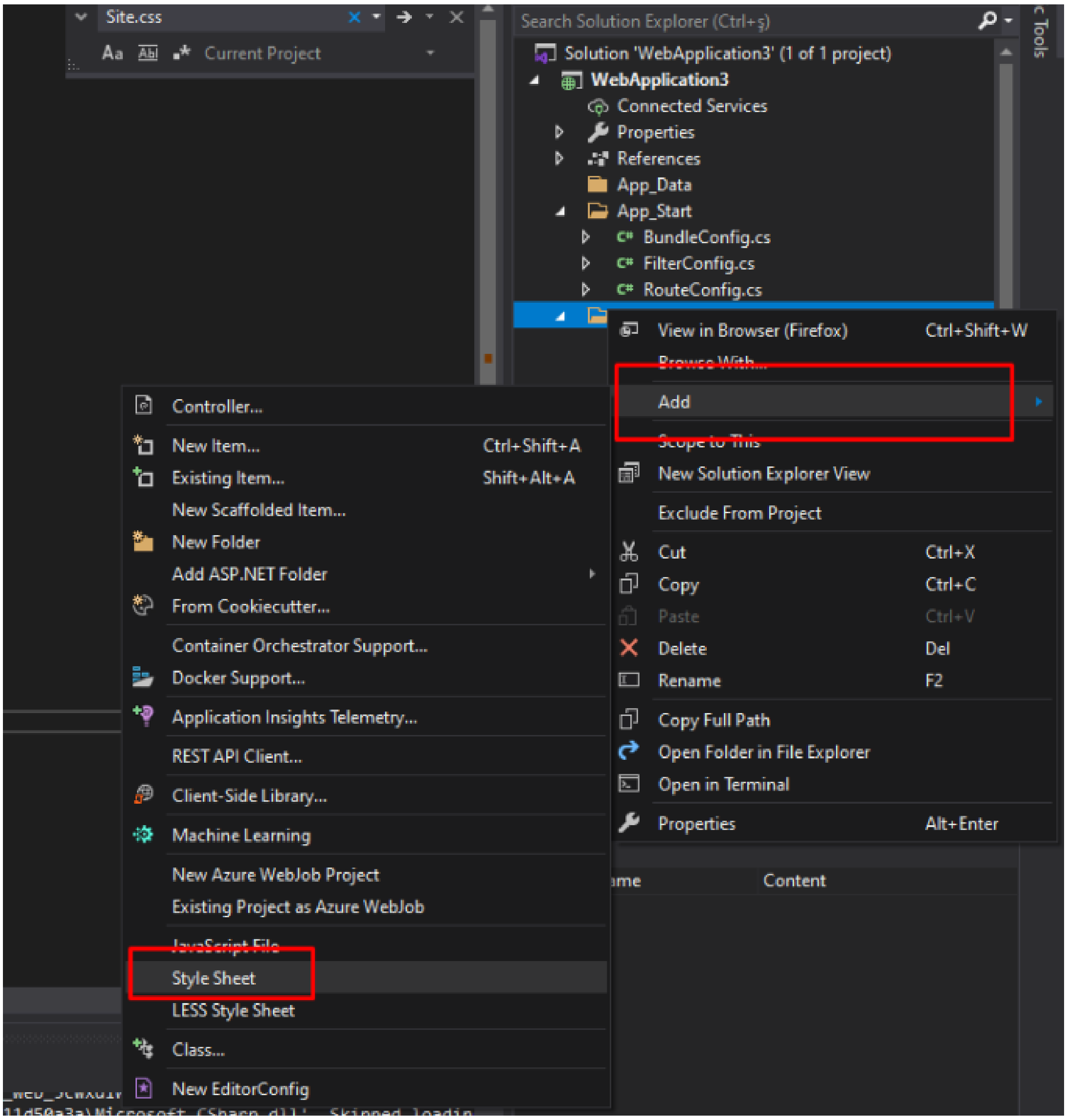
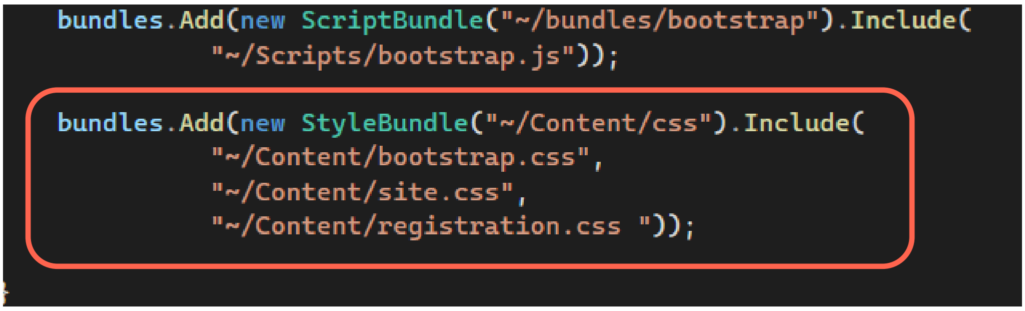
31/10/2025

PROCEDURE 3 – Creating a new HTML web page, creating new CSS file and adding a new Tab to the menu on Web Page.

Step 1 – To add the **CSS** file to a Project, right click to “**Content**”, “**Add**” and “**Style Sheet**”.

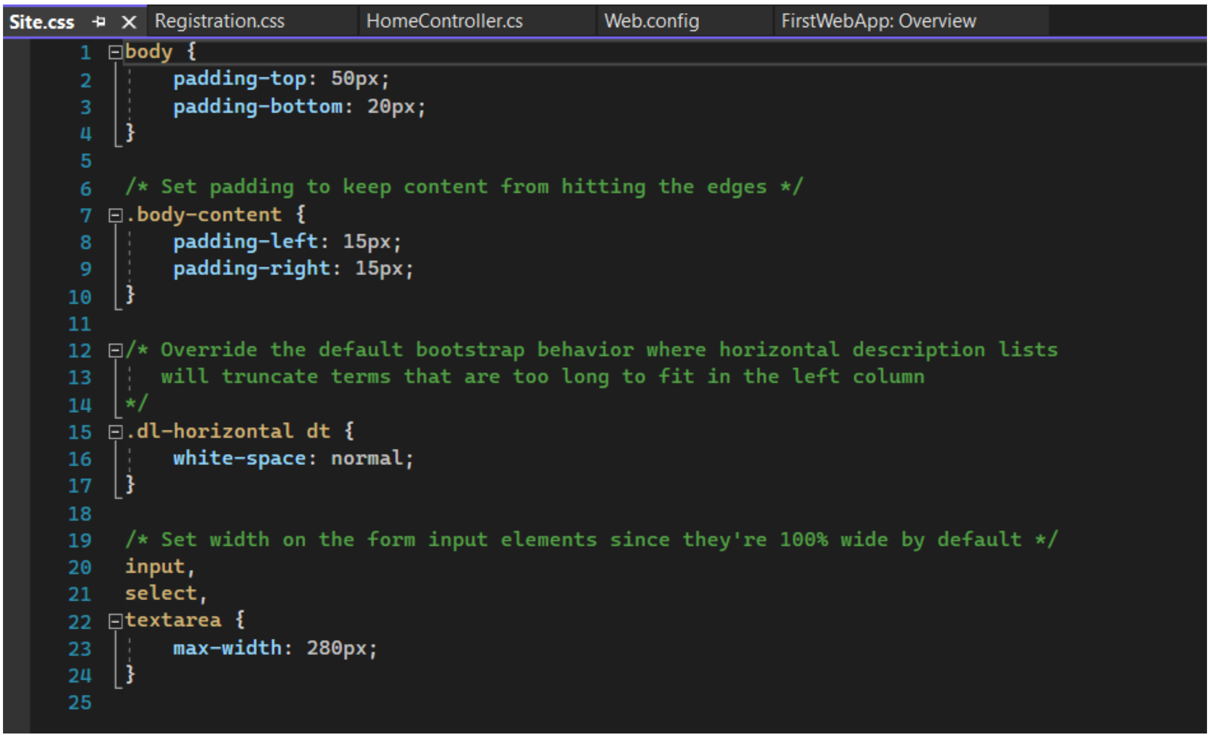


Step 2 – To show this CSS file to Project, add this CSS file to “BundleConfig.cs” file under “App_Start” Folder.



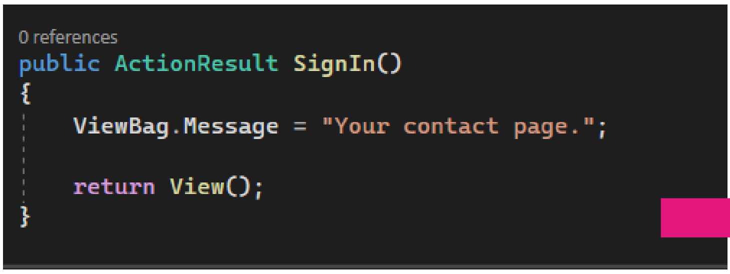
```
bundles.Add(new ScriptBundle("~/bundles/bootstrap").Include(
          "~/Scripts/bootstrap.js"));

bundles.Add(new StyleBundle("~/Content/css").Include(
          "~/Content/bootstrap.css",
          "~/Content/site.css",
          "~/Content/registration.css "));
```

Step 3 – If you do not want to add an external file to the Project, you can do the adjustments to the site.css file instead. Note that the changes you do there will be applied to the whole Project.

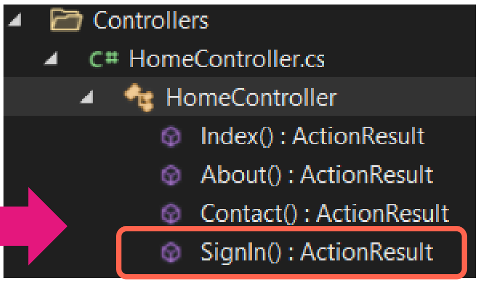


```css
body {
    padding-top: 50px;
    padding-bottom: 20px;
}

/* Set padding to keep content from hitting the edges */
.body-content {
    padding-left: 15px;
    padding-right: 15px;
}

/* Override the default bootstrap behavior where horizontal description lists
   will truncate terms that are too long to fit in the left column
*/
.dl-horizontal dt {
    white-space: normal;
}

/* Set width on the form input elements since they're 100% wide by default */
input,
select,
textarea {
    max-width: 280px;
}
```

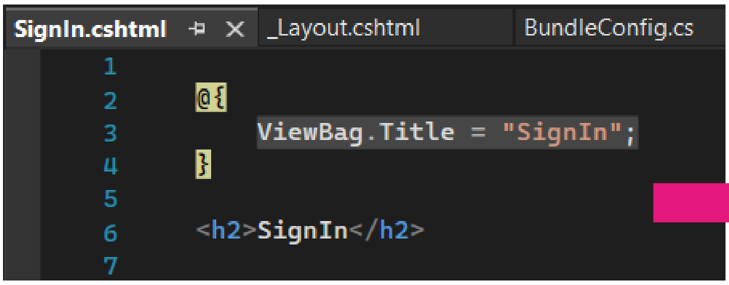
Step 4 – To add another Action to the Controller, you need to go inside the "Controllers" subject, and your *.cs file to elaborate. Add "Sign In" action to the controller.



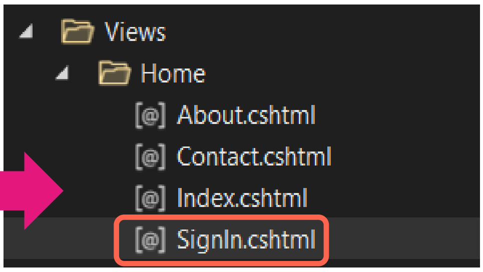
```csharp
0 references
public ActionResult SignIn()
{
    ViewBag.Message = "Your contact page.";

    return View();
}
```



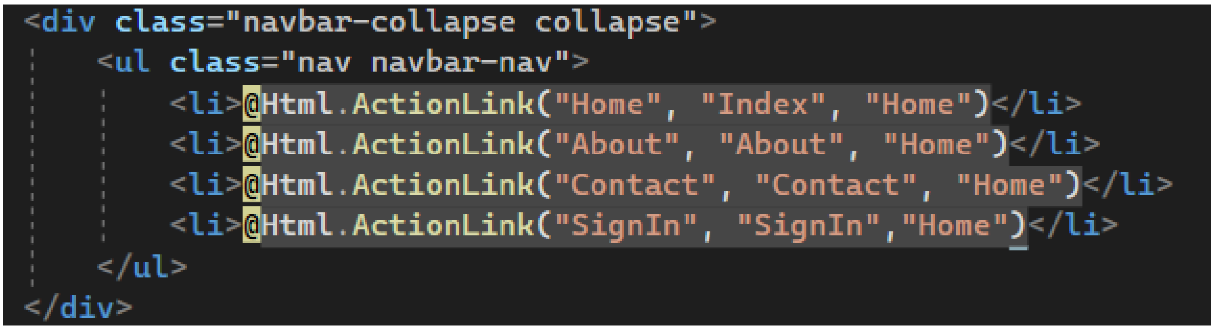
Step 5 – This was the only the action of the page. The page also needs to be created. To add this page, go to the Views\Home\ and right click to it, and add "View" from there. You can name it **"Sign In",** or you can just copy another *.cshtml page and paste it into home folder.



```
@{
    ViewBag.Title = "SignIn";
}

<h2>SignIn</h2>

```

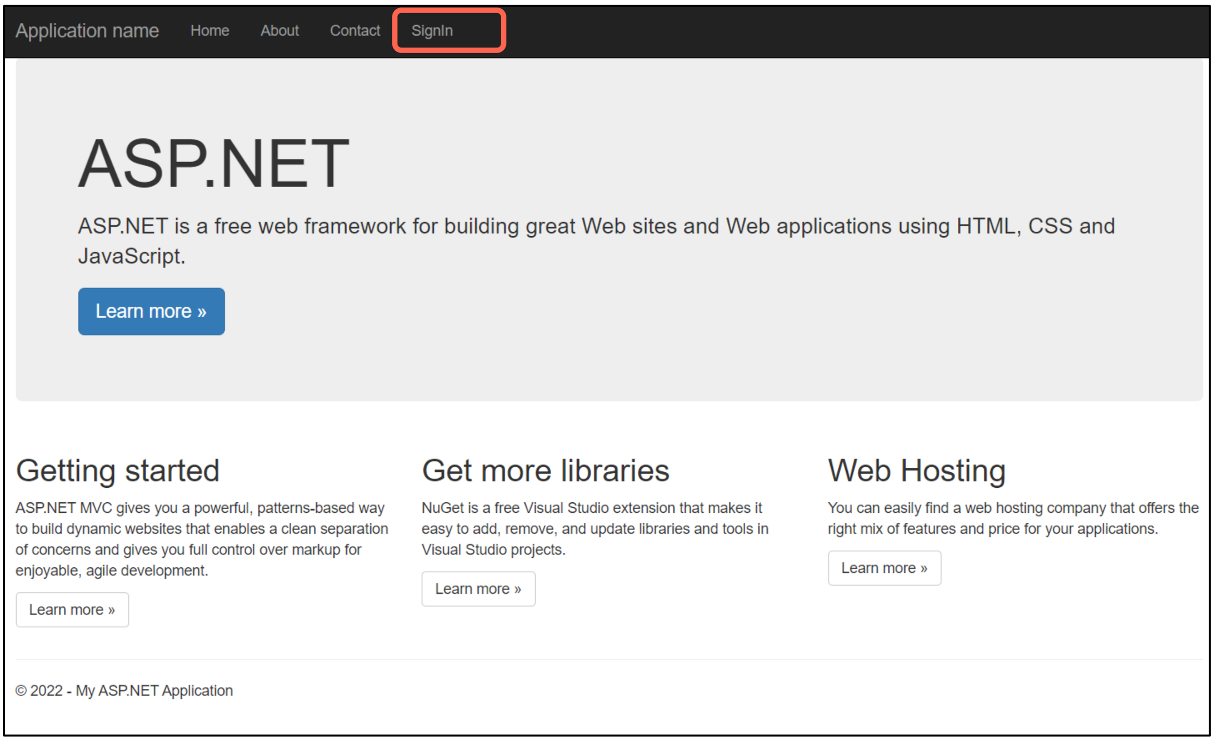


Step 6 – To add this page into our structure, go to the "_Layout.cshtml "page and add the **"Sign In"** page into it.



```
<div class="navbar-collapse collapse">
    <ul class="nav navbar-nav">
        <li>@Html.ActionLink("Home", "Index", "Home")</li>
        <li>@Html.ActionLink("About", "About", "Home")</li>
        <li>@Html.ActionLink("Contact", "Contact", "Home")</li>
        <li>@Html.ActionLink("SignIn", "SignIn","Home")</li>
    </ul>
</div>
```

Step 7 – Run the code to see if the "Sign In" is added to the Bar and see if it Works.



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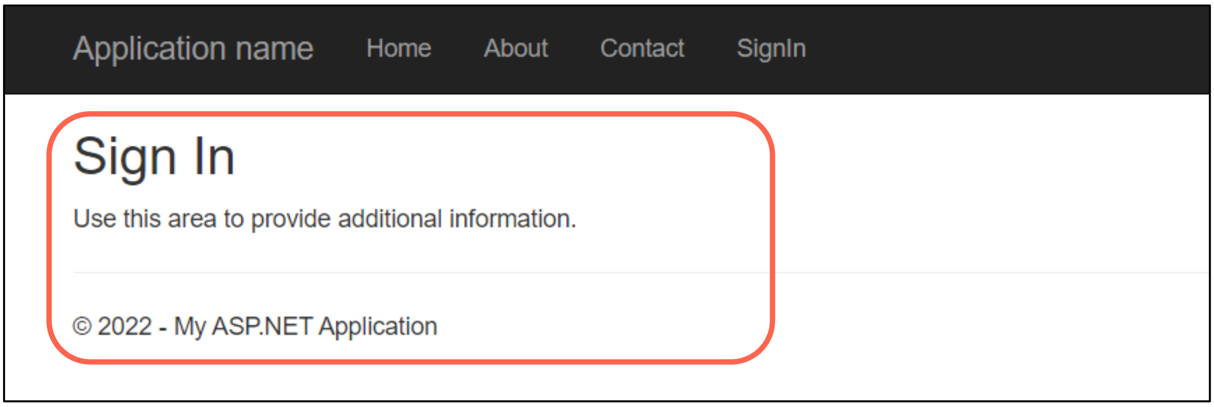

Sign In

Use this area to provide additional information.

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