ASP.NET CORE MVC MODULE 08

USING LAYOUTS, CSS, JAVASCRIPT IN ASP.NET CORE MVC

Summer 2021 – Web Development using ASP .Net Core MVC

MAIN SOURCES FOR THESE SLIDED

- Unless otherwise specified, the main sources for these slides are:
  - https://github.com/MicrosoftLearning/20486D-DevelopingASPNETMVCWebApplications ←for homework
  - https://docs.microsoft.com/en-us/aspnet/core/mvc/overview?view=aspnetcore-5.0 ←for "textbook"

CONTINUE ON YOUR OWN

- Today we'll cover topics from module 08.
- I encourage you to continue on your own through the remaining modules
  - Module 09: Client-Side Development: it includes Bootstrap, Bundling and Minification,…
  - Module 10: unit testing, repository pattern, exception handling in MVC, logging information
  - Module 11: authorization, authentication, login, logout, some cybersecurity topics (SQL injection, XSS, CSRF)
  - Module 12: caching, websockets, SignalR (two-way communications between client and server – chat appl.)
  - Module 13, Implementing Web APIs

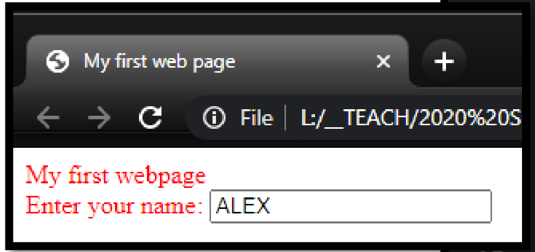
HTML + CSS + JAVASCRIPT – EXTRA - SKIP

- Source: Learn HTML - For Beginners, by YouAccel Training, Udemy.com
    - https://www.udemy.com/course/learn-html-for-beginners/learn/lecture/14509278#overview

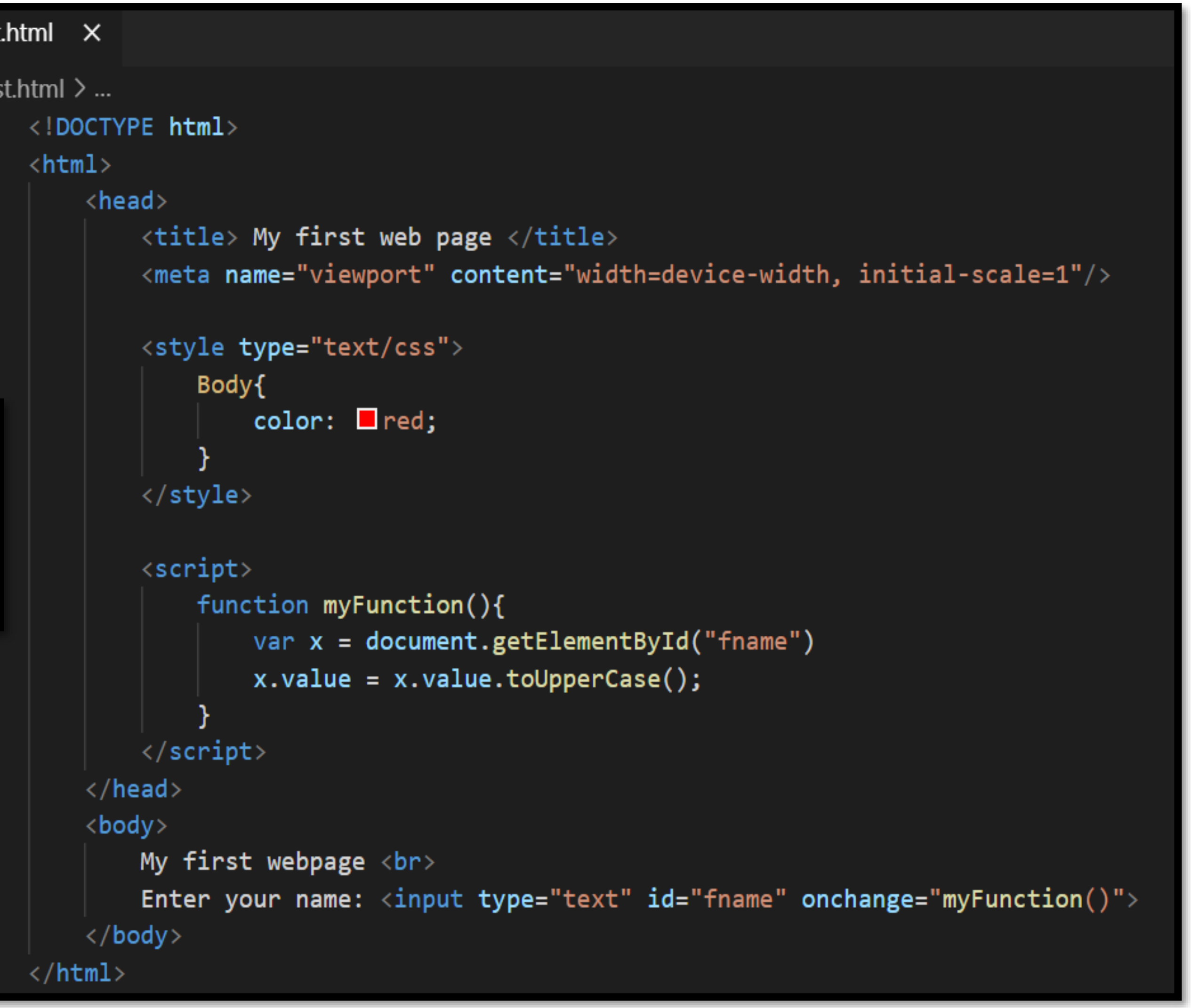
- **HTML**: to organize the data
    - Table
    - Headers
    - Paragraphs
    - …

- **CSS**: to format the output
    - Color
    - Orientation
    - Size
    - …

- **JS**: for an interactive experience
    - Event handlers
    - JQuery
    - Bootstrap



My first webpage
Enter your name: ALEX



```
<!DOCTYPE html>
<html>
    <head>
        <title> My first web page </title>
        <meta name="viewport" content="width=device-width, initial-scale=1"/>

        <style type="text/css">
            Body{
                color: 🟥red;
            }
        </style>

        <script>
            function myFunction(){
                var x = document.getElementById("fname")
                x.value = x.value.toUpperCase();
            }
        </script>
    </head>
    <body>
        My first webpage <br>
        Enter your name: <input type="text" id="fname" onchange="myFunction()">
    </body>
</html>
```

LAYOUTS IN ASP.NET CORE

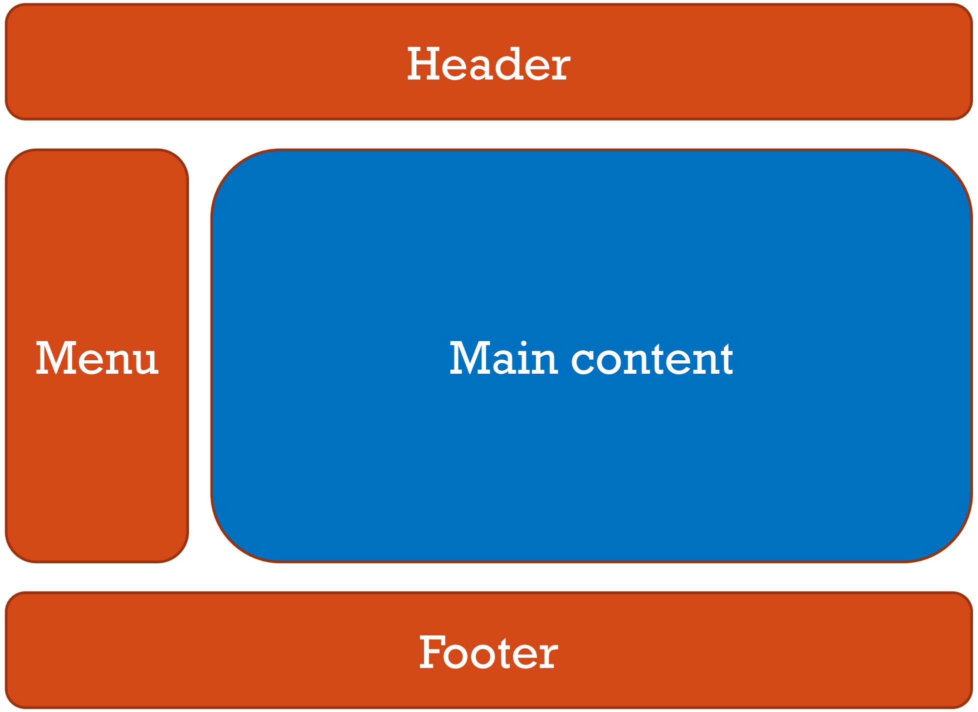
- Source: page 2724+

- When you want to apply a consistent style to your web pages, use **layouts**
  - They help provide the user with a consistent experience as they navigate from one page to another.
  - **Layouts** help reduce duplicate code in views

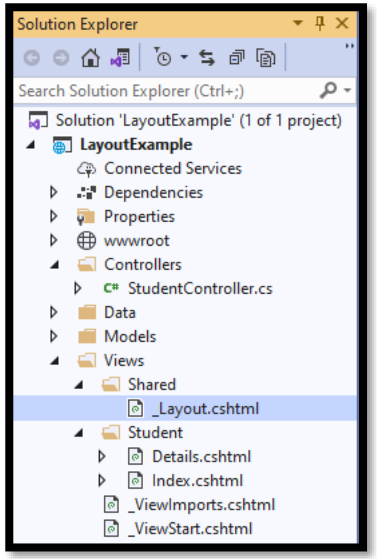
- **Layouts** typically include user interface elements such:
  - header,
  - navigation/menu elements,
  - footer.

- A **layout** can have multiple **sections**
  - In the example to the right, there are three **sections**

- Convention:
  - Views/Shared/_Layout.cshtml
  - One can have multiple layouts in a project!



TO **CREATE** A LAYOUT



Solution Explorer

Search Solution Explorer (Ctrl+;)

```
Solution 'LayoutExample' (1 of 1 project)
  LayoutExample
    Connected Services
    Dependencies
    Properties
    wwwroot
    Controllers
      StudentController.cs
    Data
    Models
    Views
      Shared
        _Layout.cshtml
      Student
        Details.cshtml
        Index.cshtml
      _ViewImports.cshtml
      _ViewStart.cshtml
```

- Source: page 2724+
  - Check out the example on page 2725!

- "The layout defines a top level template for views in the app."

- Notice the HTML structure present in the layout ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔

- Main points to point out:

- **RenderBody**() ← this is when the content of a view will be placed

- **RenderSection**() ←views can define one ore more sections.
  - Note: the layout decides where to put them. More on **sections** below …

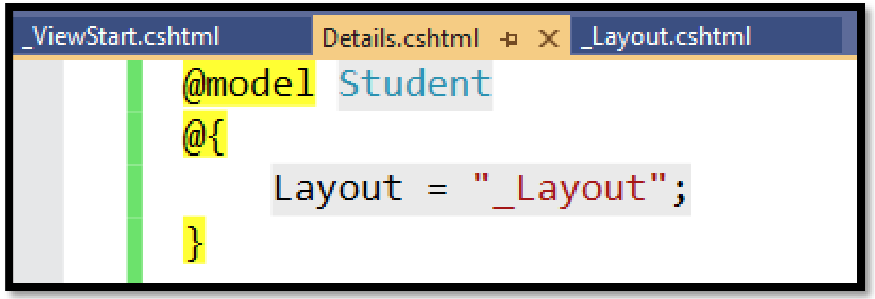
- **ViewBag.Title**: because the code in the **view** file runs before the **layout** one can use the ViewBag to "pass" values from the view to the layout.

An example of a layout:

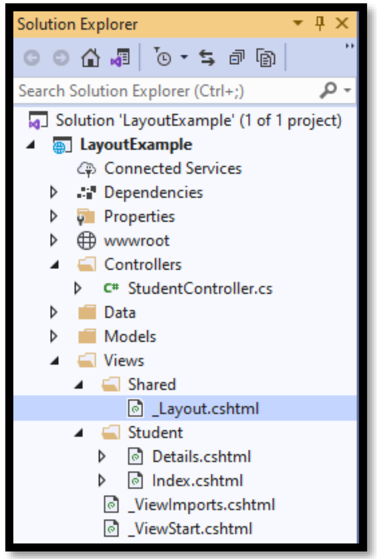
```
<!DOCTYPE html>
<html>
<head>
    <title>@ViewBag.Title</title>
</head>
<body>
     <div>
          @RenderBody()
     </div>
     @RenderSection("footer", false)
</body>
</html>
```

TO USE A LAYOUT

- Add a **Layout** directive at the beginning of <u>each</u> **view** using a particular **layout**

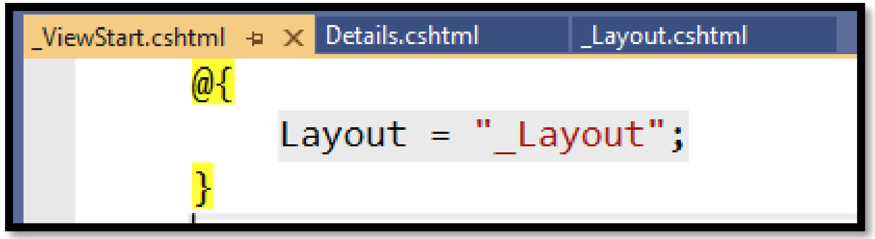


```
@model Student
@{
    Layout = "_Layout";
}
```



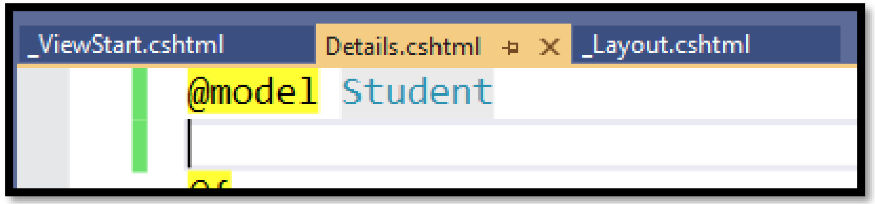
```
Solution 'LayoutExample' (1 of 1 project)
  LayoutExample
    Connected Services
    Dependencies
    Properties
    wwwroot
    Controllers
      StudentController.cs
    Data
    Models
    Views
      Shared
        _Layout.cshtml
      Student
        Details.cshtml
        Index.cshtml
      _ViewImports.cshtml
      _ViewStart.cshtml
```

- When all views use the same layout, instead of the above, you can add the **Layout** directive to the following file (create it if need it!): the **Views_ViewStart.cshtml**
  - The code in the **_ViewStart.cshtml** file runs **<u>before</u>** all the other **views** in the web application



```
@{
    Layout = "_Layout";
}
```

- Notice: when a layout is used,
  the views won't need the entire HTML structure



```
@model Student

@{
```

SECTIONS

- Source: page 2724+

- A layout can reference one or more **sections**.
  - **RenderSection** is where those sections will be added into the page
  - The 1st parameter of the **RenderSection** method is an identifier for the section
  - The 2nd parameter of the **RenderSection** method specifies whether that section must be defined by a view. (If a required section is not defined an **exception** is thrown)

An example of a view:

```
@{
   Layout = "_Layout";
}

@section mySection {
   Contents of the mySection section
}

<div>
        These are the main contents
</div>
```

An example of a layout:

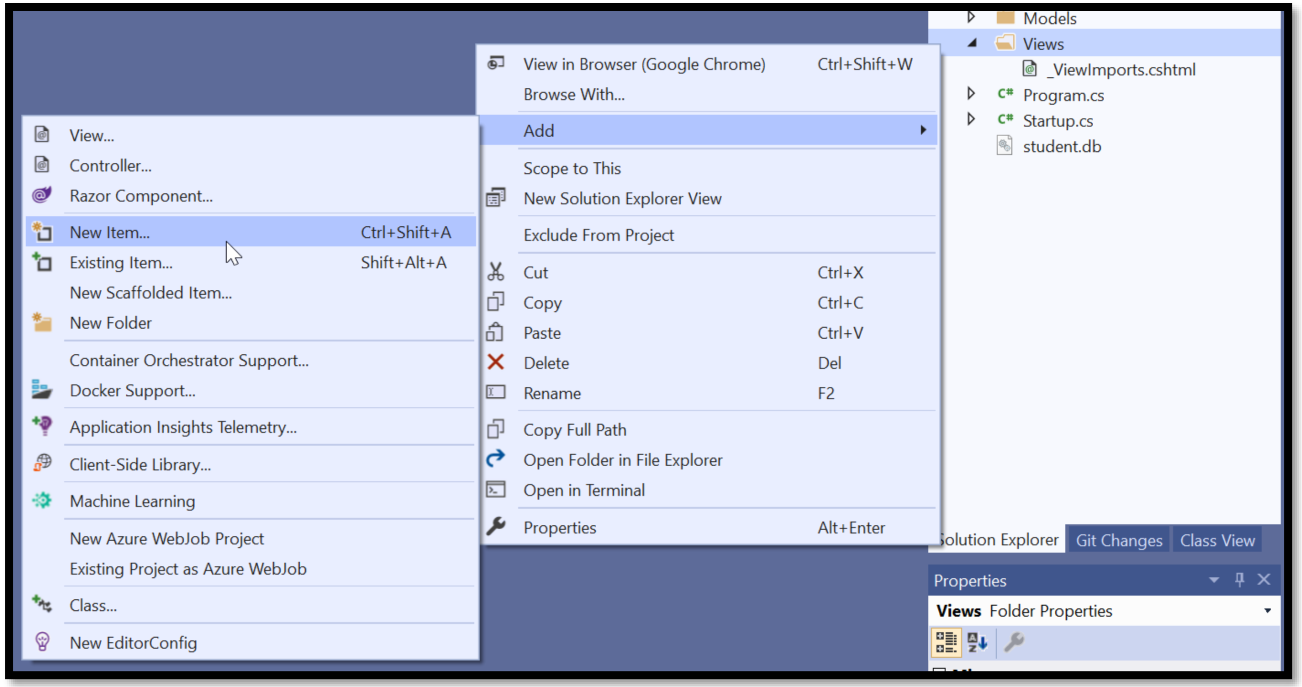
```
<!DOCTYPE html>
<html>
<head>
   <title>@ViewBag.Title</title>
</head>
<body>
    <div>
       @RenderBody()
    </div>
    @RenderSection("mySection", false)
</body>
</html>
```

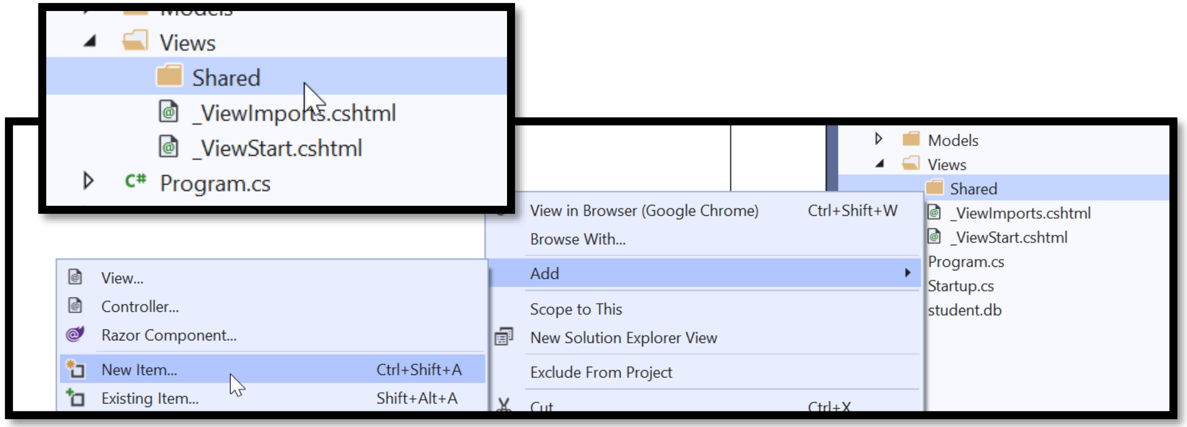
IN-CLASS DEMO

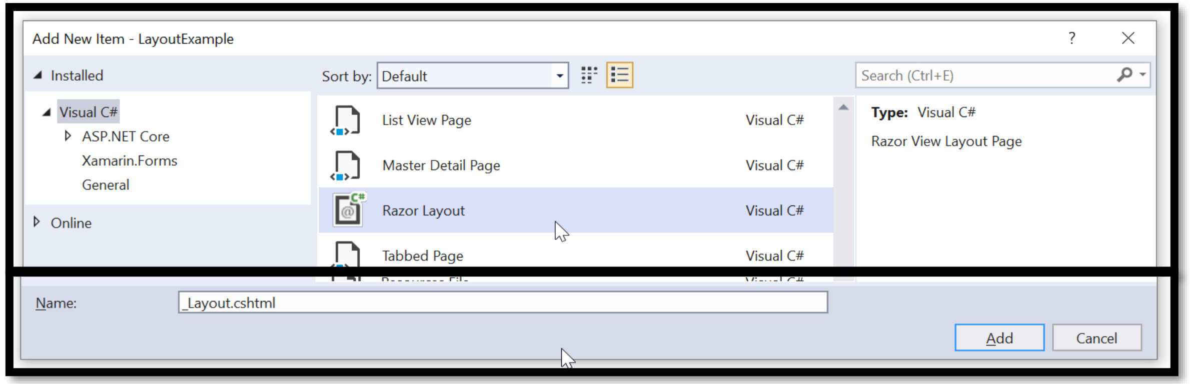
Demonstration: How to Create a Layout and Link it to a View

- Source/Steps
  - https://github.com/MicrosoftLearning/20486D-DevelopingASPNETMVCWebApplications/blob/master/Instructions/20486D_MOD08_DEMO.md#demonstration-how-to-create-a-layout-and-link-it-to-a-view

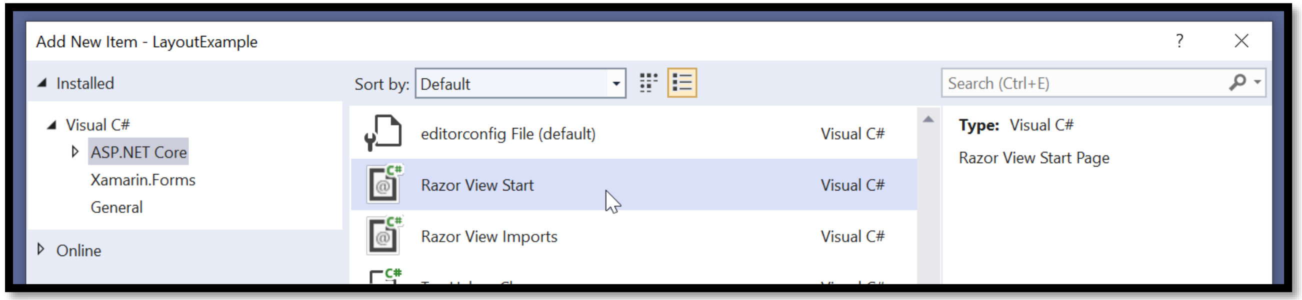
SCREENSHOTS FROM THE DEMO

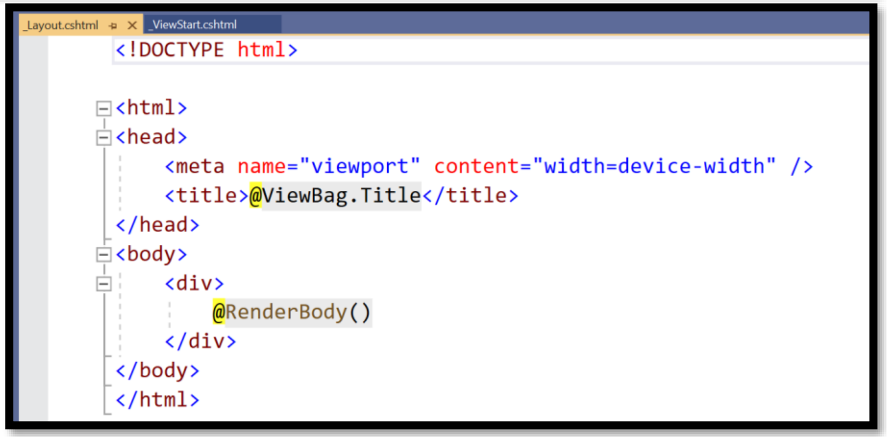




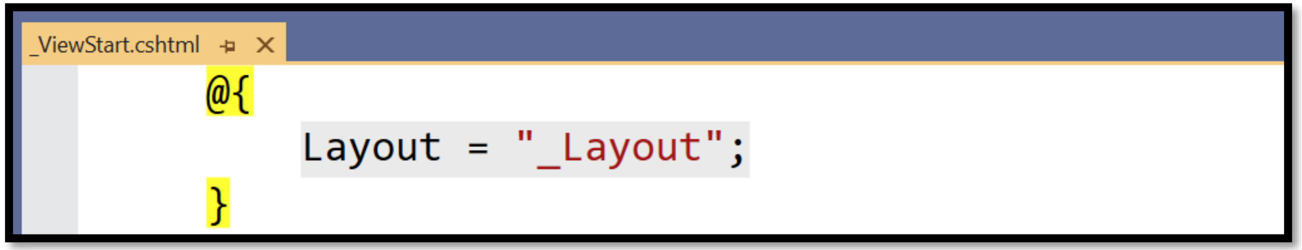


Name: _Layout.cshtml



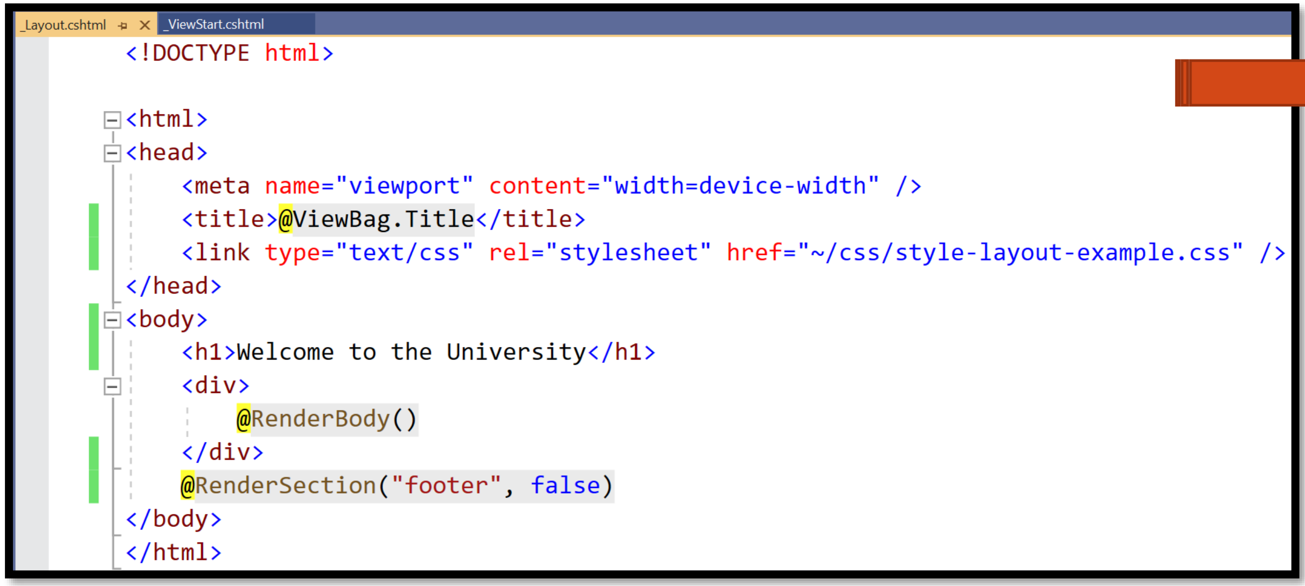


```
<!DOCTYPE html>

<html>
<head>
    <meta name="viewport" content="width=device-width" />
    <title>@ViewBag.Title</title>
</head>
<body>
    <div>
        @RenderBody()
    </div>
</body>
</html>
```

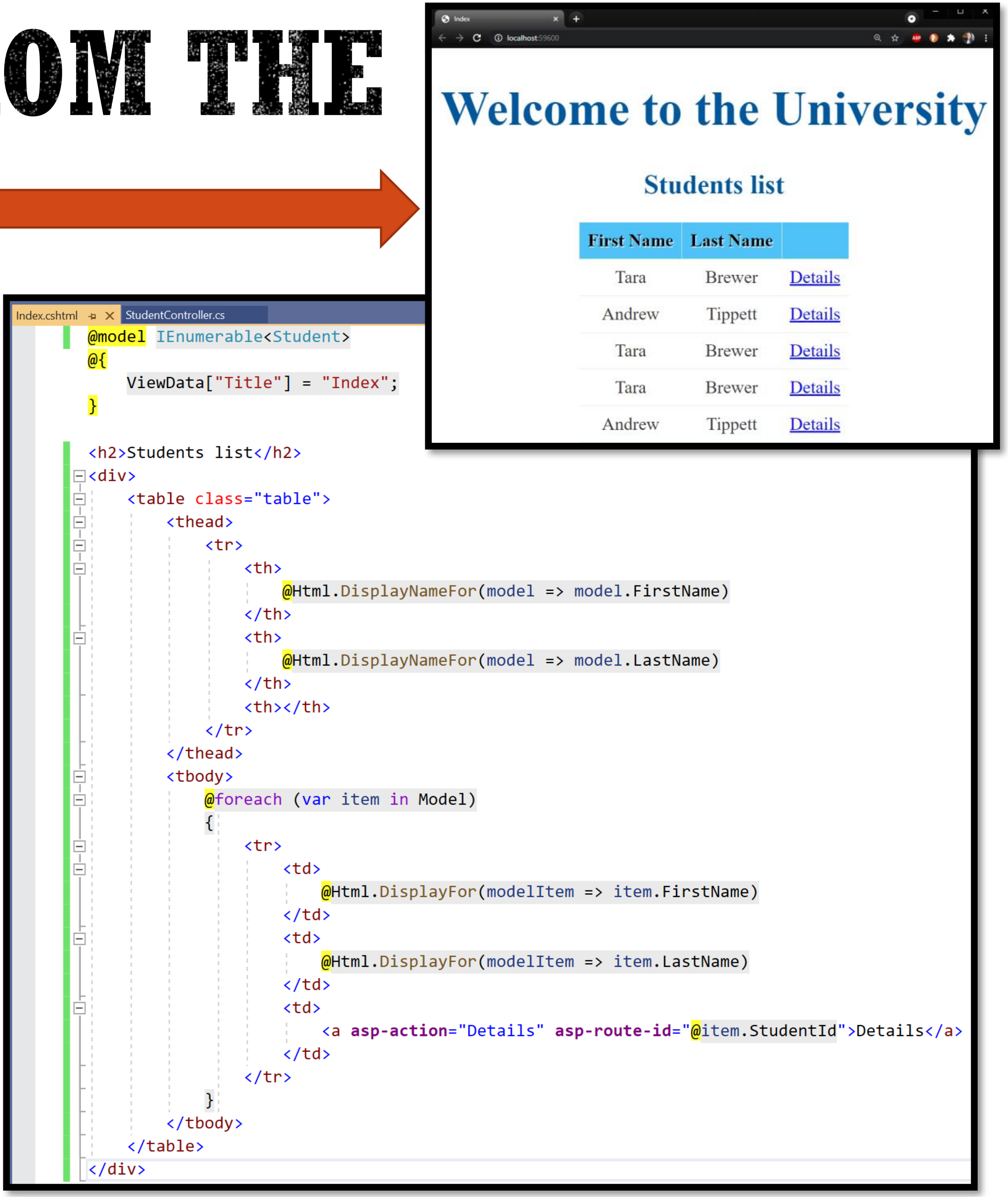


```
@{
    Layout = "_Layout";
}
```

SCREENSHOTS FROM THE



```
<!DOCTYPE html>

<html>
<head>
    <meta name="viewport" content="width=device-width" />
    <title>@ViewBag.Title</title>
    <link type="text/css" rel="stylesheet" href="~/css/style-layout-example.css" />
</head>
<body>
    <h1>Welcome to the University</h1>
    <div>
        @RenderBody()
    </div>
    @RenderSection("footer", false)
</body>
</html>
```

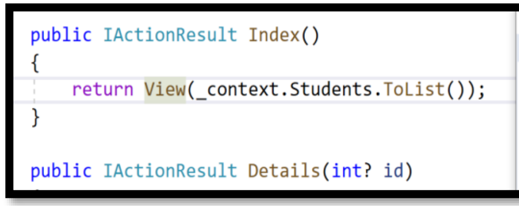


Welcome to the University

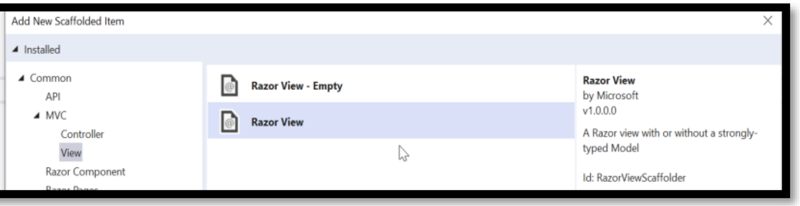
Students list

First Name	Last Name	
Tara	Brewer	Details
Andrew	Tippett	Details
Tara	Brewer	Details
Tara	Brewer	Details
Andrew	Tippett	Details

```
@model IEnumerable<Student>
@{
    ViewData["Title"] = "Index";
}

<h2>Students list</h2>
<div>
    <table class="table">
        <thead>
            <tr>
                <th>
                    @Html.DisplayNameFor(model => model.FirstName)
                </th>
                <th>
                    @Html.DisplayNameFor(model => model.LastName)
                </th>
                <th></th>
            </tr>
        </thead>
        <tbody>
            @foreach (var item in Model)
            {
                <tr>
                    <td>
                        @Html.DisplayFor(modelItem => item.FirstName)
                    </td>
                    <td>
                        @Html.DisplayFor(modelItem => item.LastName)
                    </td>
                    <td>
                        <a asp-action="Details" asp-route-id="@item.StudentId">Details</a>
                    </td>
                </tr>
            }
        </tbody>
    </table>
</div>
```



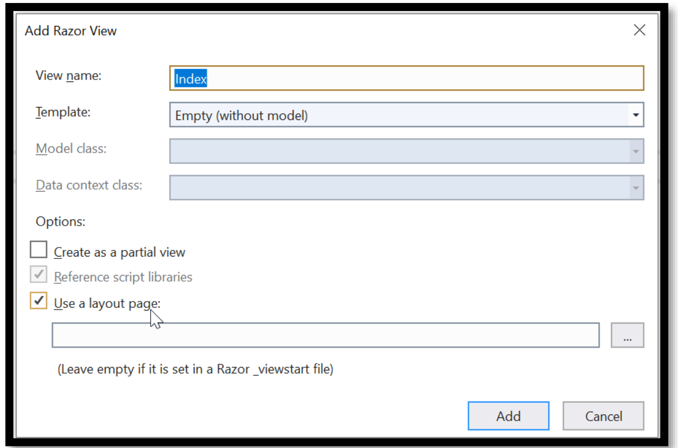
```
public IActionResult Index()
{
    return View(_context.Students.ToList());
}

public IActionResult Details(int? id)
```



Razor View
by Microsoft
v1.0.0.0

A Razor view with or without a strongly-typed Model

Id: RazorViewScaffolder



Add Razor View

View name: Index

Template: Empty (without model)

Model class:

Data context class:

Options:

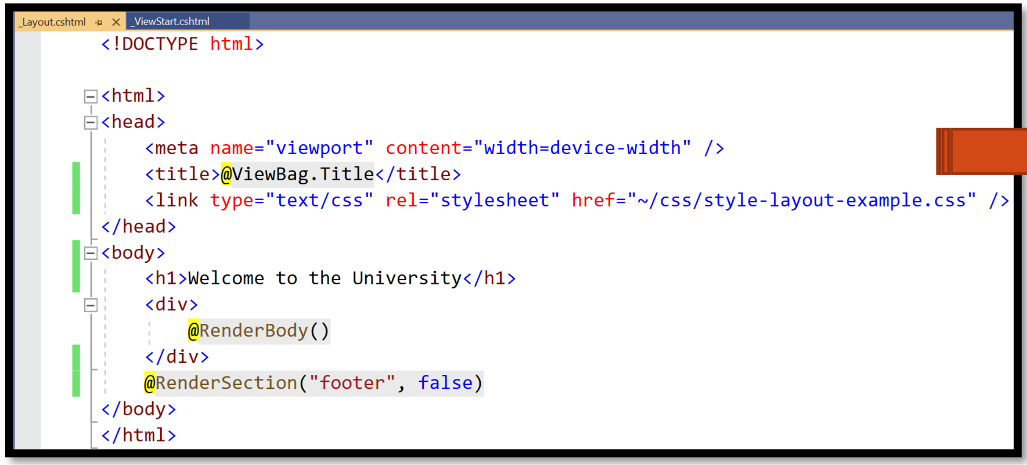
☐ Create as a partial view

☑ Reference script libraries

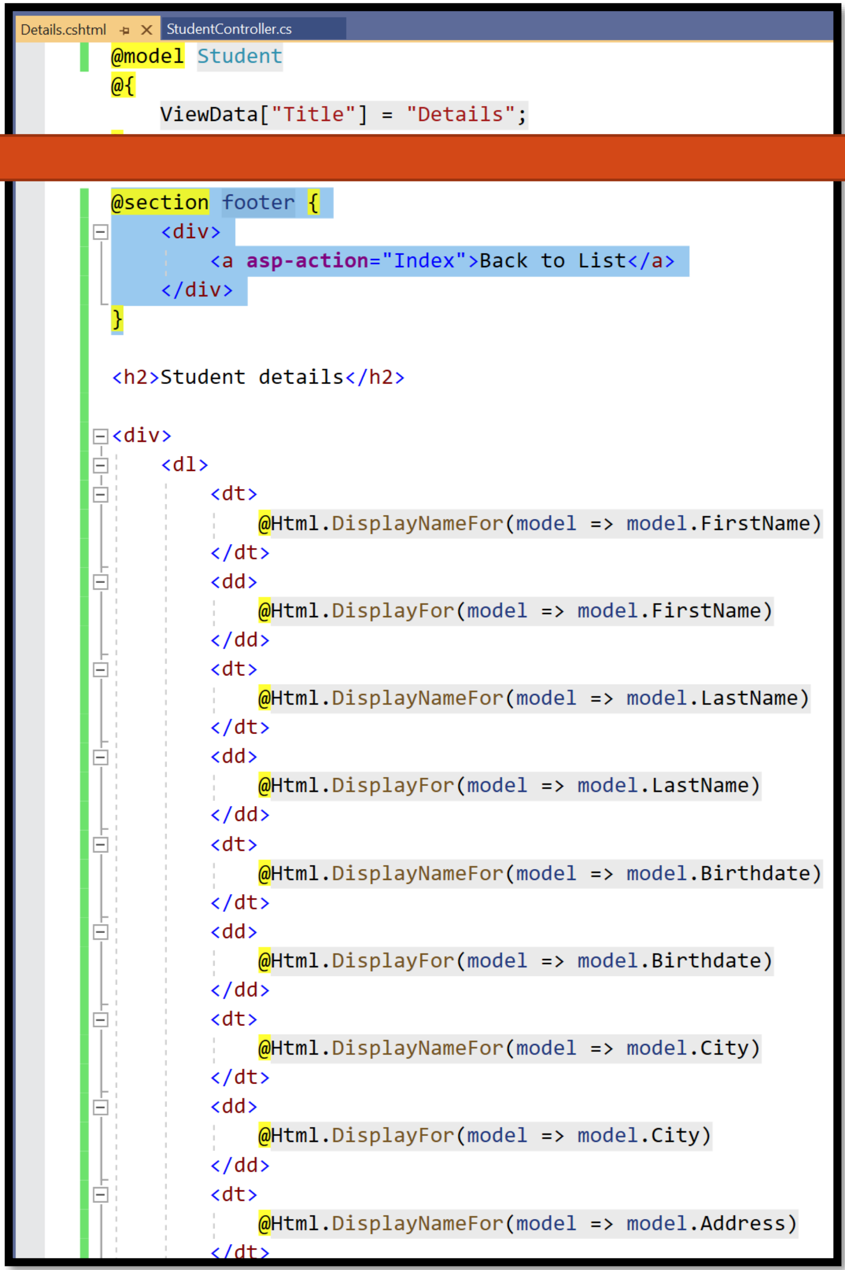
☑ Use a layout page:

(Leave empty if it is set in a Razor _viewstart file)

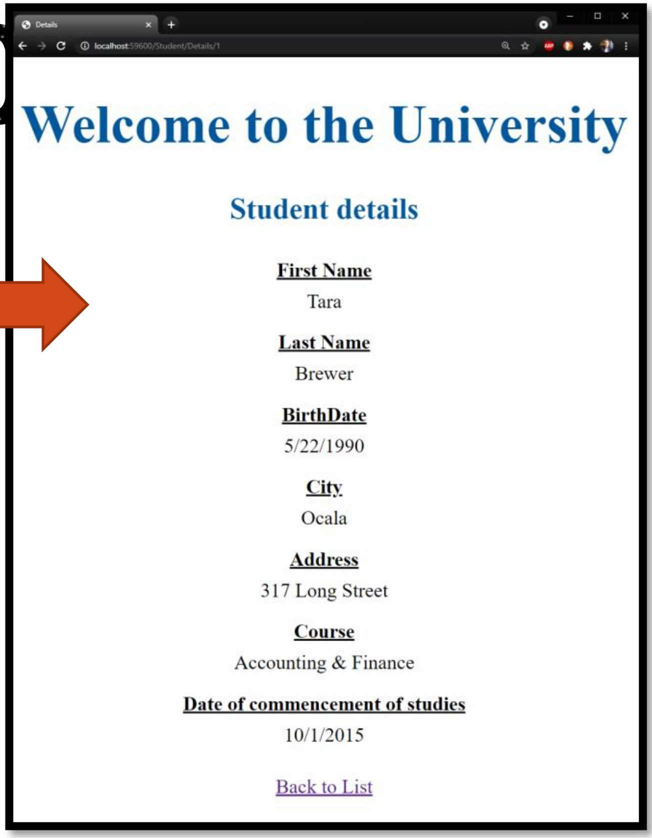
SCREENSHOTS FROM THE D



```
<!DOCTYPE html>

<html>
<head>
    <meta name="viewport" content="width=device-width" />
    <title>@ViewBag.Title</title>
    <link type="text/css" rel="stylesheet" href="~/css/style-layout-example.css" />
</head>
<body>
    <h1>Welcome to the University</h1>
    <div>
        @RenderBody()
    </div>
    @RenderSection("footer", false)
</body>
</html>
```



```
@model Student
@{
    ViewData["Title"] = "Details";

@section footer {
    <div>
        <a asp-action="Index">Back to List</a>
    </div>
}

<h2>Student details</h2>

<div>
    <dl>
        <dt>
            @Html.DisplayNameFor(model => model.FirstName)
        </dt>
        <dd>
            @Html.DisplayFor(model => model.FirstName)
        </dd>
        <dt>
            @Html.DisplayNameFor(model => model.LastName)
        </dt>
        <dd>
            @Html.DisplayFor(model => model.LastName)
        </dd>
        <dt>
            @Html.DisplayNameFor(model => model.Birthdate)
        </dt>
        <dd>
            @Html.DisplayFor(model => model.Birthdate)
        </dd>
        <dt>
            @Html.DisplayNameFor(model => model.City)
        </dt>
        <dd>
            @Html.DisplayFor(model => model.City)
        </dd>
        <dt>
            @Html.DisplayNameFor(model => model.Address)
        </dt>
```



Welcome to the University

Student details

First Name
Tara

Last Name
Brewer

BirthDate
5/22/1990

City
Ocala

Address
317 Long Street

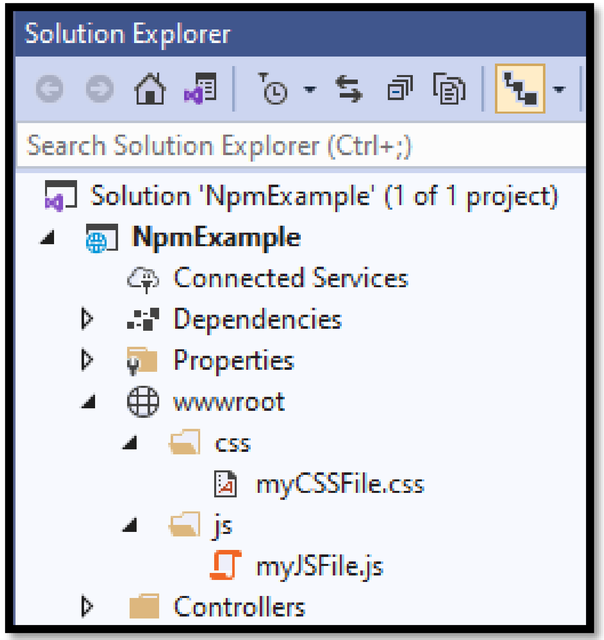
Course
Accounting & Finance

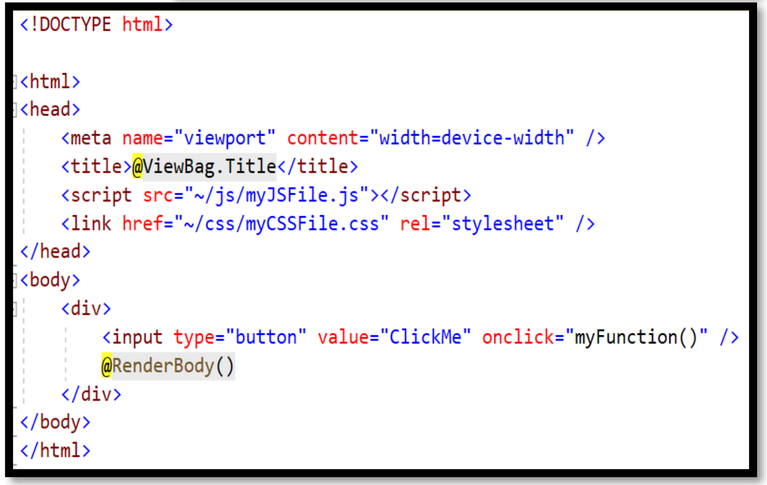
Date of commencement of studies
10/1/2015

Back to List

WORKING WITH CSS & JAVASCRIPT

- To work with **CSS** and **JavaScript files**, you'll need the following:
- Create those files.
- Then put them inside **wwwroot** folder. For example:
- Make them accessible to clients by using the following method call inside the **Configure** method in **Startup**.cs
  - `app.UseStaticFiles();`
- Then, in a **view** (or **_Layout.cshtml**) provide references to your files
  - `<script src="~/js/myJSFile.js"></script>`
  - `<link href="~/css/myCSSFile.css" rel="stylesheet" />`
- Make use of them, as appropriate.

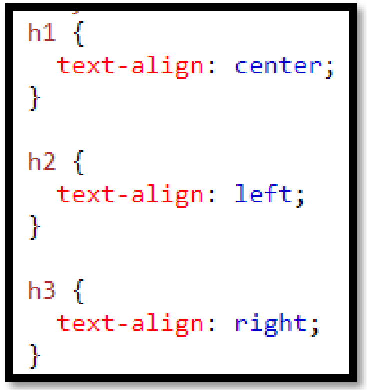




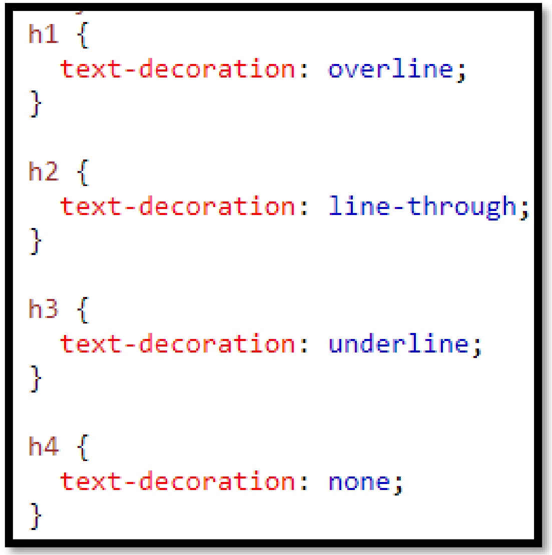
```
<!DOCTYPE html>

<html>
<head>
    <meta name="viewport" content="width=device-width" />
    <title>@ViewBag.Title</title>
    <script src="~/js/myJSFile.js"></script>
    <link href="~/css/myCSSFile.css" rel="stylesheet" />
</head>
<body>
    <div>
        <input type="button" value="ClickMe" onclick="myFunction()" />
        @RenderBody()
    </div>
</body>
</html>
```

PRACTICE AND REVIEW

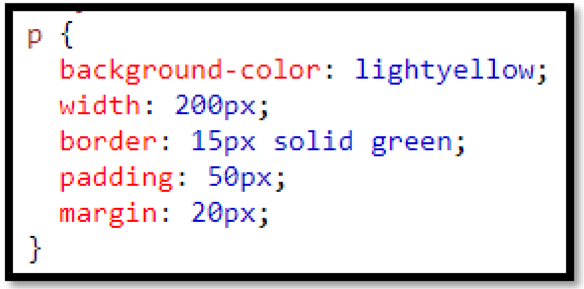
- Create a CSS file and link it to a **view**.
- In the CSS file add some code. Here are some suggestions



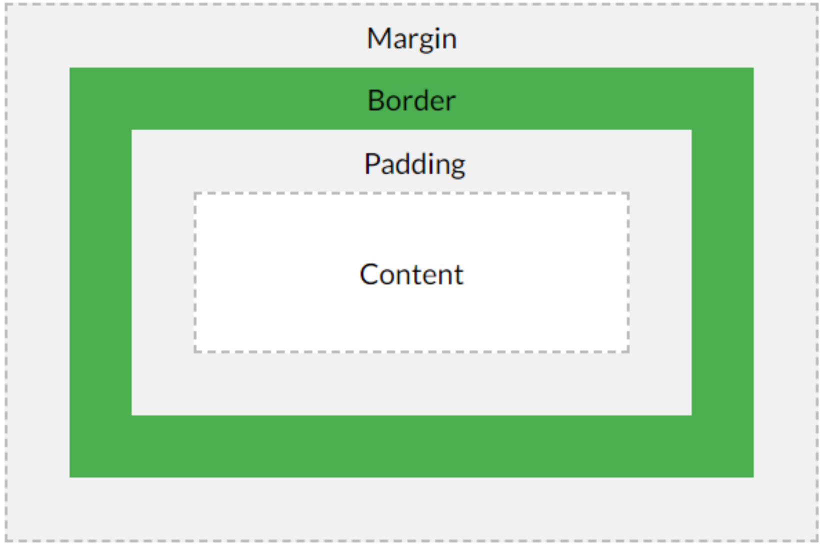
```css
h1 {
  text-align: center;
}

h2 {
  text-align: left;
}

h3 {
  text-align: right;
}
```



```css
h1 {
  text-decoration: overline;
}

h2 {
  text-decoration: line-through;
}

h3 {
  text-decoration: underline;
}

h4 {
  text-decoration: none;
}
```



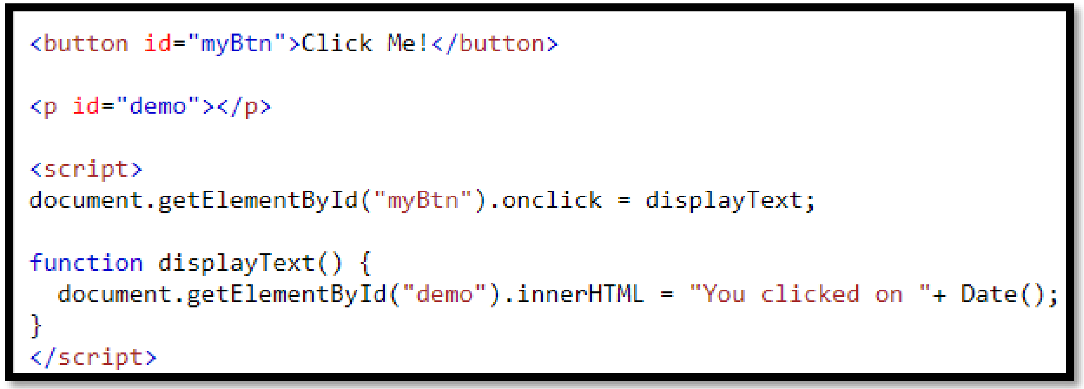
```css
p {
  background-color: lightyellow;
  width: 200px;
  border: 15px solid green;
  padding: 50px;
  margin: 20px;
}
```



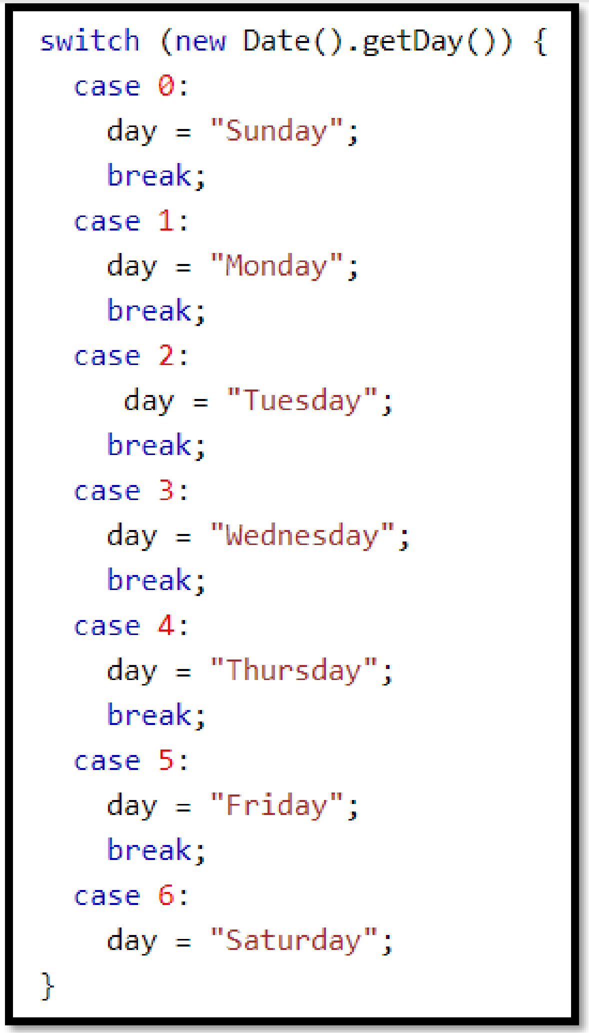
- Sources:
  - https://www.w3schools.com/css/css_text_align.asp
  - https://www.w3schools.com/css/css_text_decoration.asp
  - https://www.w3schools.com/css/css_boxmodel.asp

PRACTICE AND REVIEW

- Create a JavaScript file and link it to a **view**.
- In the JS file add some code. Here are some suggestions



```
<button id="myBtn">Click Me!</button>

<p id="demo"></p>

<script>
document.getElementById("myBtn").onclick = displayText;

function displayText() {
  document.getElementById("demo").innerHTML = "You clicked on "+ Date();
}
</script>
```



```
switch (new Date().getDay()) {
  case 0:
    day = "Sunday";
    break;
  case 1:
    day = "Monday";
    break;
  case 2:
     day = "Tuesday";
    break;
  case 3:
    day = "Wednesday";
    break;
  case 4:
    day = "Thursday";
    break;
  case 5:
    day = "Friday";
    break;
  case 6:
    day = "Saturday";
}
```

- Sources:
  - https://www.w3schools.com/js/js_htmldom_document.asp
  - https://www.w3schools.com/js/js_htmldom_events.asp
  - https://www.w3schools.com/js/js_htmldom_eventlistener.asp
  - https://www.w3schools.com/js/js_switch.asp

USING EXTERNAL LIBRARIES

- Just like in C#, where we make use of libraries so we don't "reinvent the wheel", we can also make use of JavaScript libraries.
  - One very common JavaScript library is jQuery (more details below).

- To use such libraries, one can:

- Download such source files form their official sources (e.g. https://jquery.com/download), then put them inside the wwwroot and link to those files.
  - If those files are ling, it may take a while for clients to load your pages.

- Use a Content Delivery Network
  - "A content delivery network (CDN) refers to a geographically distributed group of servers which work together to provide fast delivery of Internet content." (source). There are several CDNs to choose from
  - http://ajax.aspnetcdn.com/ajax/jquery/jquery-3.3.1.min.js ← microsoft
  - http://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js ← google

- Use a package manager (such as npm, NuGet, etc) - skipped
  - The demo will show how to use npm …

JQUERY

- jQuery is a free open source and **cross-browser JavaScript library.**
  - "It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simple"
  - "Lightweight Footprint: Only 30kB minified and gzipped"
  - "Supports CSS3 selectors to find elements as well as in style property manipulation"
  - Source: https://jquery.com/

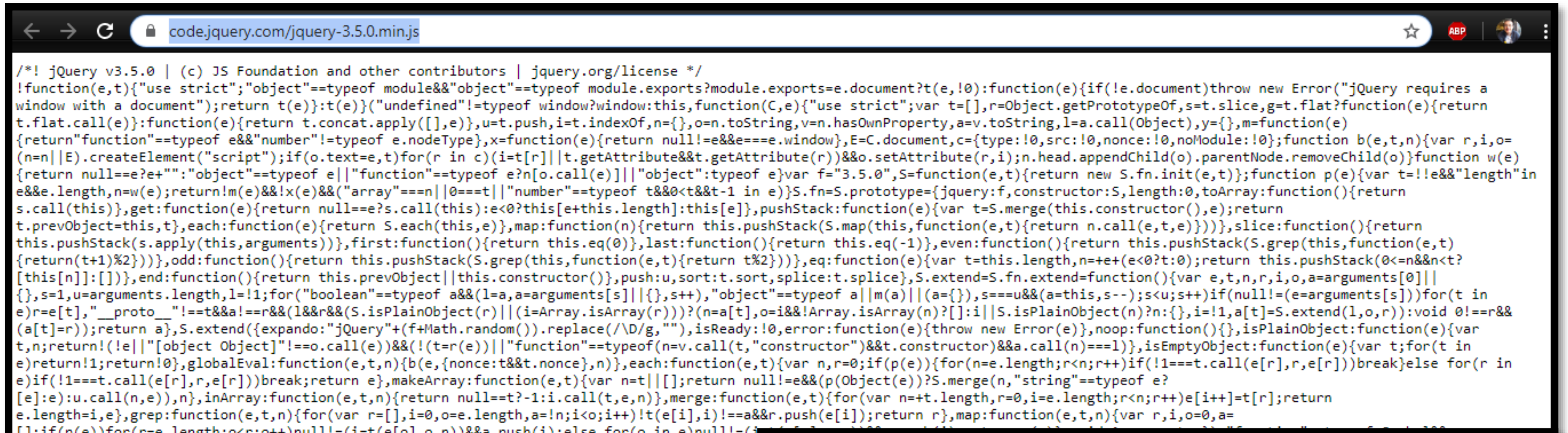
- **Benefits** of using jQuery:
  - It reduces the amount of code that you need to write
  - It reduces the application development time

- jQuery files:
  - jQuery **original** version: ← jQuery-<version>.js
    - Is the uncompressed version of jQuery
    - Is optimized for development and debugging
  - jQuery **minified** version: ← jQuery-<version>.min.js
    - Is the compressed version of jQuery
    - Is optimized for production
    - It excludes deprecated code and the source code of the JavaScript libraries

INTRODUCTION TO JQUERY - SKIP

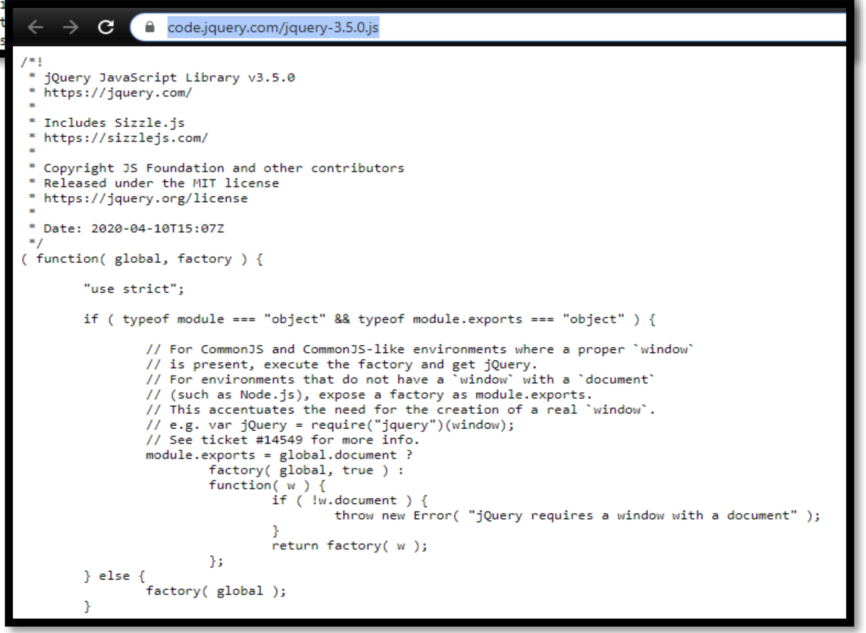
- On your own, … , see (uncompressed!)

- https://code.jquery.com/jquery-3.5.0.min.js ← 88KB



```
/*! jQuery v3.5.0 | (c) JS Foundation and other contributors | jquery.org/license */
!function(e,t){"use strict";"object"==typeof module&&"object"==typeof module.exports?module.exports=e.document?t(e,!0):function(e){if(!e.document)throw new Error("jQuery requires a
window with a document");return t(e)}:t(e)}("undefined"!=typeof window?window:this,function(C,e){"use strict";var t=[],r=Object.getPrototypeOf,s=t.slice,g=t.flat?function(e){return
t.flat.call(e)}:function(e){return t.concat.apply([],e)},u=t.push,i=t.indexOf,n={},o=n.toString,v=n.hasOwnProperty,a=v.toString,l=a.call(Object),y={},m=function(e)
{return"function"==typeof e&&"number"!=typeof e.nodeType},x=function(e){return null!=e&&e===e.window},E=C.document,c={type:!0,src:!0,nonce:!0,noModule:!0};function b(e,t,n){var r,i,o=
(n=n||E).createElement("script");if(o.text=e,t)for(r in c)(i=t[r]||t.getAttribute&&t.getAttribute(r))&&o.setAttribute(r,i);n.head.appendChild(o).parentNode.removeChild(o)}function w(e)
{return null==e?e+"":"object"==typeof e||"function"==typeof e?n[o.call(e)]||"object":typeof e}var f="3.5.0",S=function(e,t){return new S.fn.init(e,t)};function p(e){var t=!!e&&"length"in
e&&e.length,n=w(e);return!m(e)&&!x(e)&&("array"===n||0===t||"number"==typeof t&&0<t&&t-1 in e)}S.fn=S.prototype={jquery:f,constructor:S,length:0,toArray:function(){return
s.call(this)},get:function(e){return null==e?s.call(this):e<0?this[e+this.length]:this[e]},pushStack:function(e){var t=S.merge(this.constructor(),e);return
t.prevObject=this,t},each:function(e){return S.each(this,e)},map:function(n){return this.pushStack(S.map(this,function(e,t){return n.call(e,t,e)}))},slice:function(){return
this.pushStack(s.apply(this,arguments))},first:function(){return this.eq(0)},last:function(){return this.eq(-1)},even:function(){return this.pushStack(S.grep(this,function(e,t)
{return(t+1)%2}))},odd:function(){return this.pushStack(S.grep(this,function(e,t){return t%2}))},eq:function(e){var t=this.length,n=+e+(e<0?t:0);return this.pushStack(0<=n&&n<t?
[this[n]]:[])},end:function(){return this.prevObject||this.constructor()},push:u,sort:t.sort,splice:t.splice},S.extend=S.fn.extend=function(){var e,t,n,r,i,o,a=arguments[0]||
{},s=1,u=arguments.length,l=!1;for("boolean"==typeof a&&(l=a,a=arguments[s]||{},s++),"object"==typeof a||m(a)||(a={}),s===u&&(a=this,s--);s<u;s++)if(null!=(e=arguments[s]))for(t in
e)r=e[t],"__proto__"!==t&&a!==r&&(l&&r&&(S.isPlainObject(r)||(i=Array.isArray(r)))?(n=a[t],o=i&&!Array.isArray(n)?[]:i||S.isPlainObject(n)?n:{},i=!1,a[t]=S.extend(l,o,r)):void 0!==r&&
(a[t]=r));return a},S.extend({expando:"jQuery"+(f+Math.random()).replace(/\D/g,""),isReady:!0,error:function(e){throw new Error(e)},noop:function(){},isPlainObject:function(e){var
t,n;return!(!e||"[object Object]"!==o.call(e))&&(!(t=r(e))||"function"==typeof(n=v.call(t,"constructor")&&t.constructor)&&a.call(n)===l)},isEmptyObject:function(e){var t;for(t in
e)return!1;return!0},globalEval:function(e,t,n){b(e,{nonce:t&&t.nonce},n)},each:function(e,t){var n,r=0;if(p(e)){for(n=e.length;r<n;r++)if(!1===t.call(e[r],r,e[r]))break}else for(r in
e)if(!1===t.call(e[r],r,e[r]))break;return e},makeArray:function(e,t){var n=t||[];return null!=e&&(p(Object(e))?S.merge(n,"string"==typeof e?
[e]:e):u.call(n,e)),n},inArray:function(e,t,n){return null==t?-1:i.call(t,e,n)},merge:function(e,t){for(var n=+t.length,r=0,i=e.length;r<n;r++)e[i++]=t[r];return
e.length=i,e},grep:function(e,t,n){for(var r=[],i=0,o=e.length,a=!n;i<o;i++)!t(e[i],i)!==a&&r.push(e[i]);return r},map:function(e,t,n){var r,i,o=0,a=
[];if(p(e))for(r=e.length;o<r;o++)null!=(i=t(e[o],o,n))&&a.push(i);else for(o in e)null!=(i
(S.fn[Symbol.iterator]=t[Symbol.iterator]),S.each("Boolean Number String Function Array Dat
"+t+"]"]=t.toLowerCase()});var d=function(n){var e,d,b,o,i,h,f,g,w,u,l,T,C,a,E,v,s,c,y,S="s
```

- https://code.jquery.com/jquery-3.5.0.js
  - 281 KB



```
/*!
 * jQuery JavaScript Library v3.5.0
 * https://jquery.com/
 *
 * Includes Sizzle.js
 * https://sizzlejs.com/
 *
 * Copyright JS Foundation and other contributors
 * Released under the MIT license
 * https://jquery.org/license
 *
 * Date: 2020-04-10T15:07Z
 */
( function( global, factory ) {

	"use strict";

	if ( typeof module === "object" && typeof module.exports === "object" ) {

		// For CommonJS and CommonJS-like environments where a proper `window`
		// is present, execute the factory and get jQuery.
		// For environments that do not have a `window` with a `document`
		// (such as Node.js), expose a factory as module.exports.
		// This accentuates the need for the creation of a real `window`.
		// e.g. var jQuery = require("jquery")(window);
		// See ticket #14549 for more info.
		module.exports = global.document ?
			factory( global, true ) :
			function( w ) {
				if ( !w.document ) {
					throw new Error( "jQuery requires a window with a document" );
				}
				return factory( w );
			};
	} else {
		factory( global );
	}
```

JQUERY

- Sources:
  - https://www.w3schools.com/jquery/default.asp
  - https://www.w3schools.com/jquery/jquery_intro.asp
  - https://www.w3schools.com/jquery/jquery_get_started.asp

- jQuery is probably the most popular JavaScript library.

- Some of the largest companies that use jQuery:
  - Google
  - IBM
  - Microsoft
  - Netflix

- "jQuery will run exactly the same in all major browsers."

- "Many users already have downloaded jQuery from Google when visiting another site. As a result, it will be loaded from cache when they visit your site, which leads to faster loading time."
- "Most CDN's will make sure that once a user requests a file from it, it will be served from the server closest to them, which also leads to faster loading time."

JQUERY SYNTAX

- Source: https://www.w3schools.com/jquery/jquery_syntax.asp
- Basic syntax is: $(selector).action()

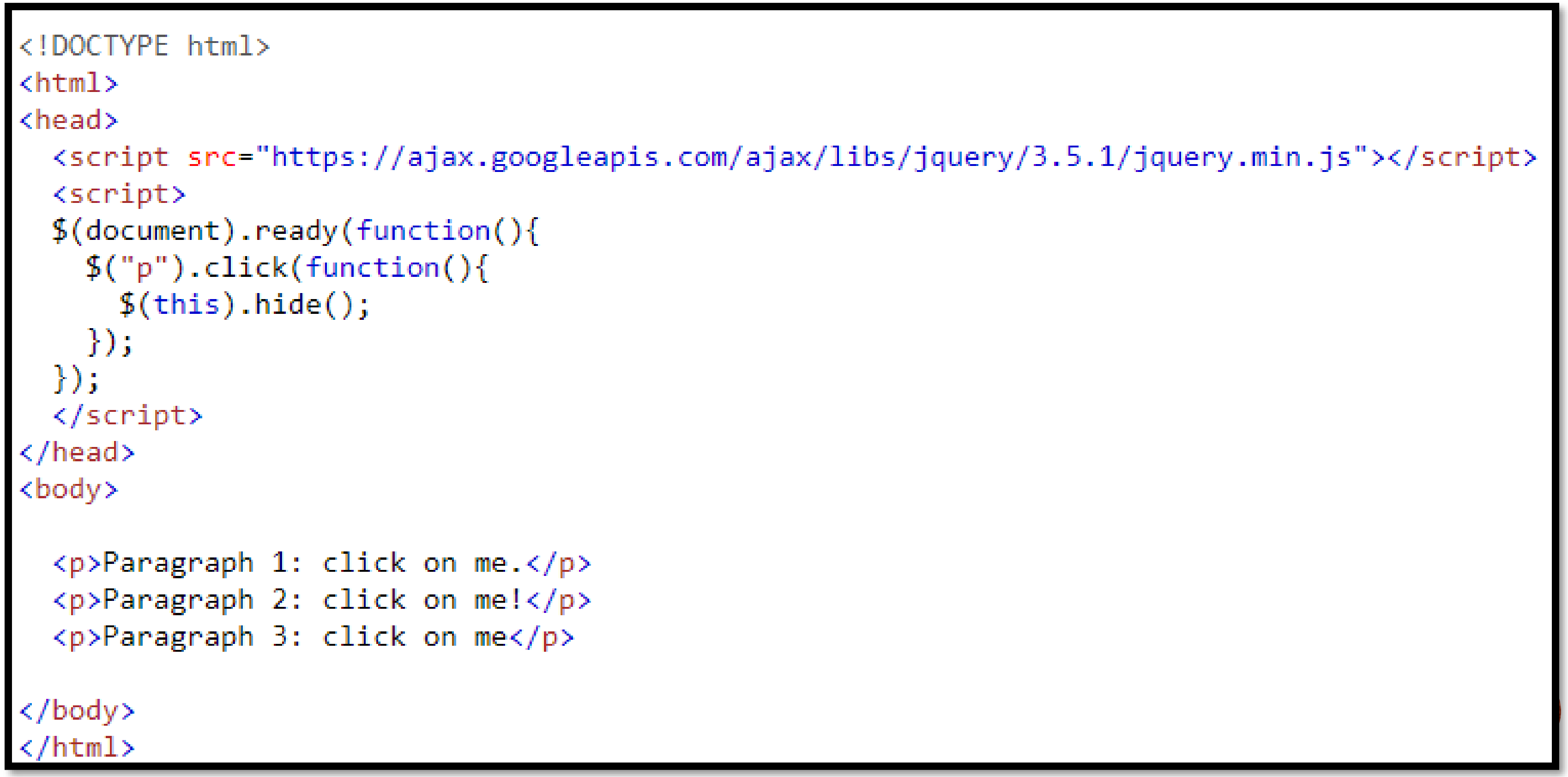
- Where:
- $ ← gives you access **jQuery**
- selector ← remember the CSS selectors? These are used to "query" the HTML **elements**
- action() ← the action to be performed on the selected element(s)

- To prevent jQuery code from running before the webpage is finished loading (“is ready”) we put all the jQuery code inside:
  - $(document).ready(function(){ /* jQuery methods go here... */ });

- Let’s go over the following example:
  - **https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_hide**

JQUERY SYNTAX

- Source: https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_hide
- Go over every line … what do they do?



```
<!DOCTYPE html>
<html>
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
  <script>
  $(document).ready(function(){
    $("p").click(function(){
      $(this).hide();
    });
  });
  </script>
</head>
<body>

  <p>Paragraph 1: click on me.</p>
  <p>Paragraph 2: click on me!</p>
  <p>Paragraph 3: click on me</p>

</body>
</html>
```

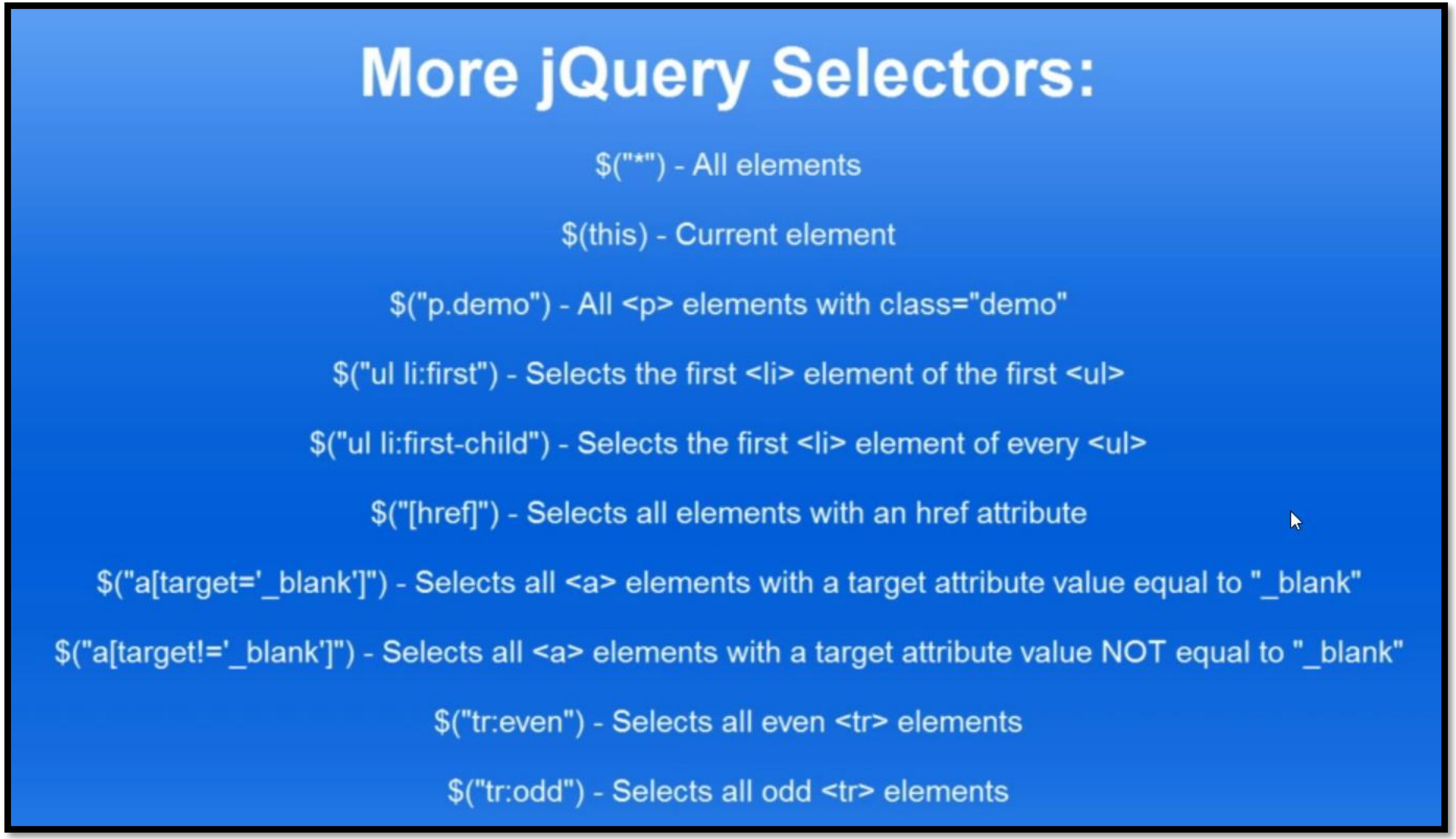
JQUERY SELECTORS

- Source:
  - https://www.udemy.com/course/bootstrap-jquery-certification-course-for-beginners/learn/lecture/15113832#overview

- Example:
  - $("#someID")
  - accesses the HTML element with the someID id

- Example:
  - $("p")
  - accesses all instances of the p element

- Example:
  - $("p, div.big, #someID")
  - accesses multiple types of elements at once



More jQuery Selectors:

$("*") - All elements

$(this) - Current element

$("p.demo") - All <p> elements with class="demo"

$("ul li:first") - Selects the first <li> element of the first <ul>

$("ul li:first-child") - Selects the first <li> element of every <ul>

$("[href]") - Selects all elements with an href attribute

$("a[target='_blank']") - Selects all <a> elements with a target attribute value equal to "_blank"

$("a[target!='_blank']") - Selects all <a> elements with a target attribute value NOT equal to "_blank"

$("tr:even") - Selects all even <tr> elements

$("tr:odd") - Selects all odd <tr> elements

JQUERY EVENT HANDLERS

- Source: https://www.w3schools.com/jquery/jquery_events.asp

- Example:
  ```
  $("p").click(function(){
    // write your action (click event handler) in here!
  });
  ```

- Examples:
  - https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_dblclick
  - https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_mouseenter
  - https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_focus_blur

- Here is a list of other common DOM events:

Mouse Events	Keyboard Events	Form Events	Document/Window Events
click	keypress	submit	load
dblclick	keydown	change	resize
mouseenter	keyup	focus	scroll
mouseleave		blur	unload

JQUERY – SOME OTHER EXAMPLES

- https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_fadein

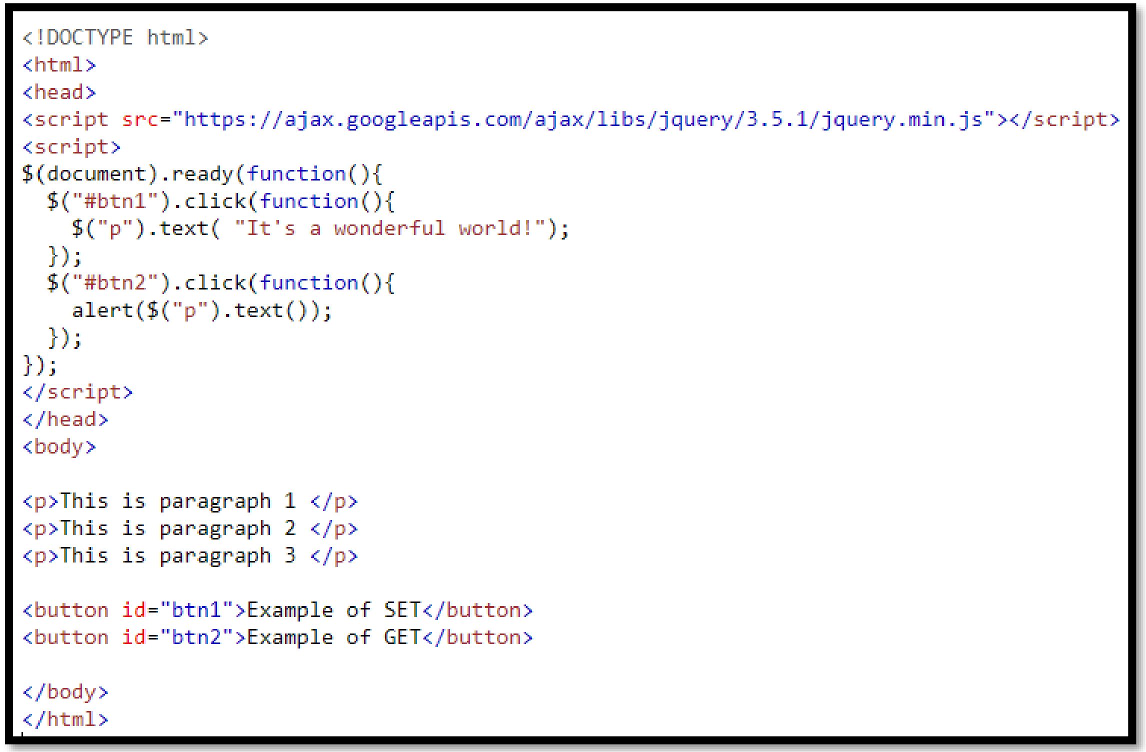
JQUERY HTML

- Source: https://www.w3schools.com/jquery/jquery_dom_get.asp

- text() – get/set the **text content** of selected elements (depends on the selector)
- html() – get/set the **content** of selected elements (including HTML markup)
- val() – get/set the **value** of **form fields**

- Example: https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_dom_html_get

- What will the following do?



```html
<!DOCTYPE html>
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script>
$(document).ready(function(){
  $("#btn1").click(function(){
    $("p").text( "It's a wonderful world!");
  });
  $("#btn2").click(function(){
    alert($("p").text());
  });
});
</script>
</head>
<body>

<p>This is paragraph 1 </p>
<p>This is paragraph 2 </p>
<p>This is paragraph 3 </p>

<button id="btn1">Example of SET</button>
<button id="btn2">Example of GET</button>

</body>
</html>
```

JQUERY …

- There are lots of other useful function …please check out the sources ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔

- https://www.w3schools.com/jquery/jquery_dom_add.asp
  - append() - Inserts content at the end of the selected elements
  - prepend() - Inserts content at the beginning of the selected elements
  - after() - Inserts content after the selected elements
  - before() - Inserts content before the selected elements

- https://www.w3schools.com/jquery/jquery_css_classes.asp
  - addClass() - Adds one or more classes to the selected elements
  - removeClass() - Removes one or more classes from the selected elements
  - toggleClass() - Toggles between adding/removing classes from the selected elements
  - css() - Sets or returns the style attribute

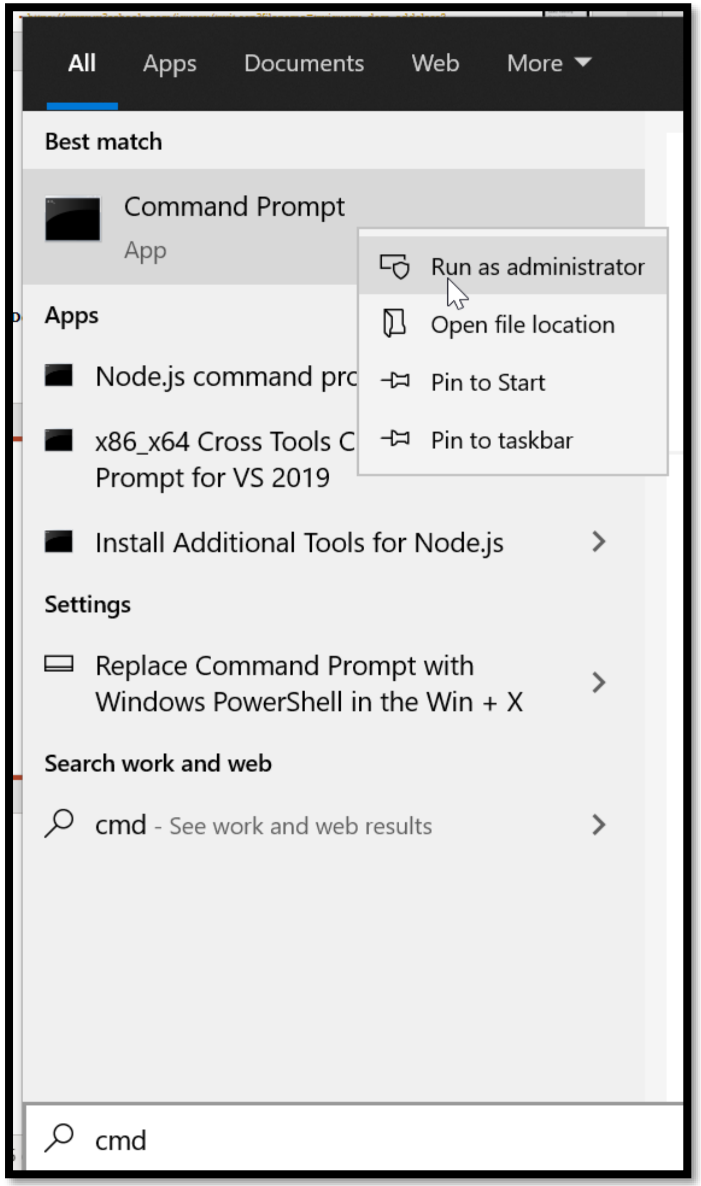
- See an example:
  - https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_dom_addclass2

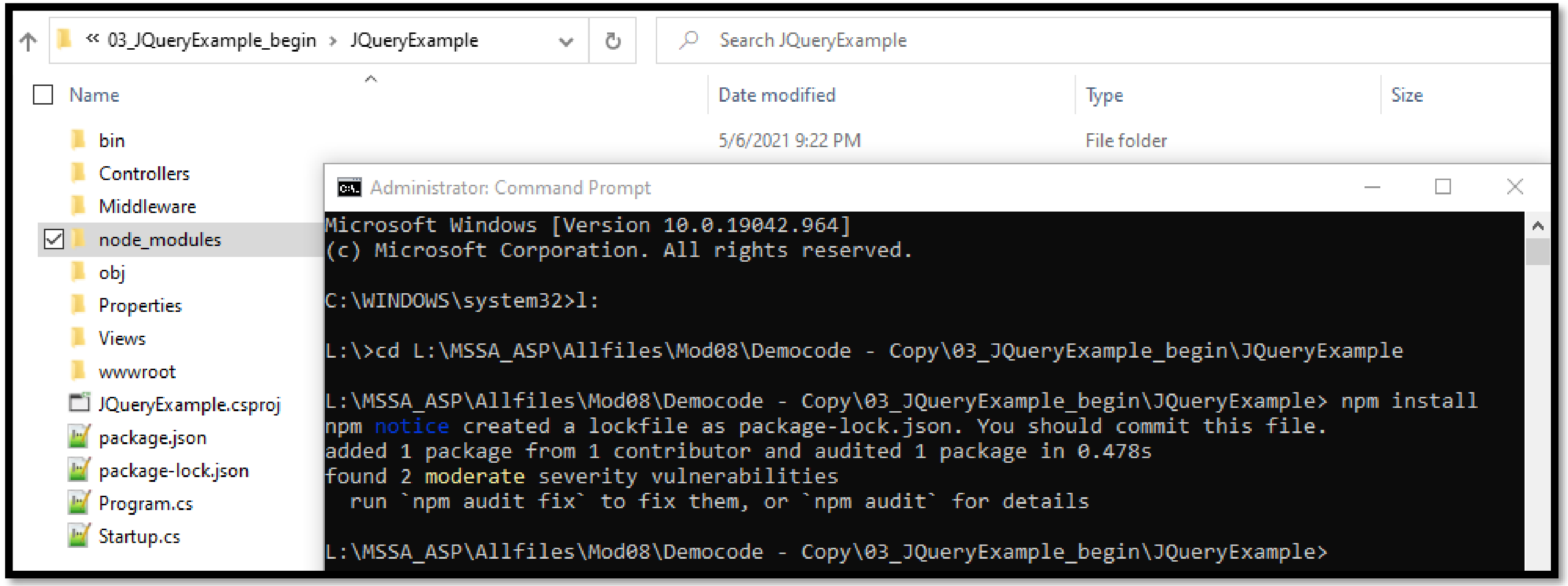
IN-CLASS DEMO

Demonstration: How to Modify HTML Elements by using jQuery

- Source/Steps
  - https://github.com/MicrosoftLearning/20486D-DevelopingASPNETMVCWebApplications/blob/master/Instructions/20486D_MOD08_DEMO.md#demonstration-how-to-modify-html-elements-by-using-jquery

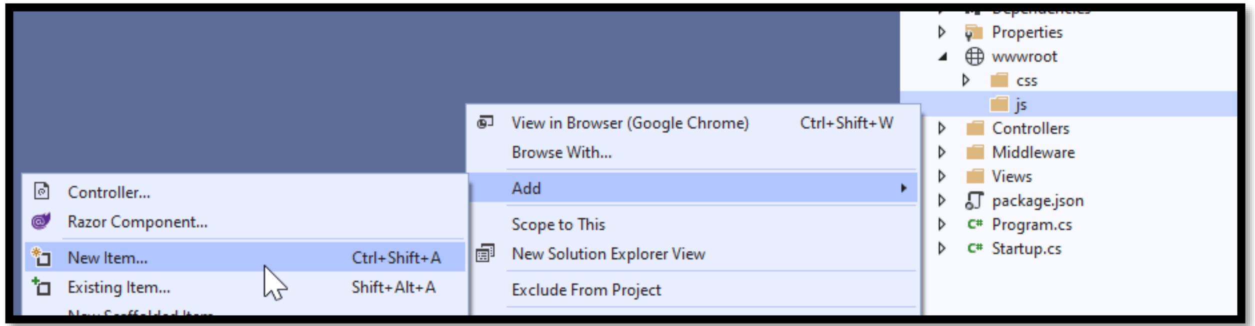
SCREENSHOTS FROM THE DEMO

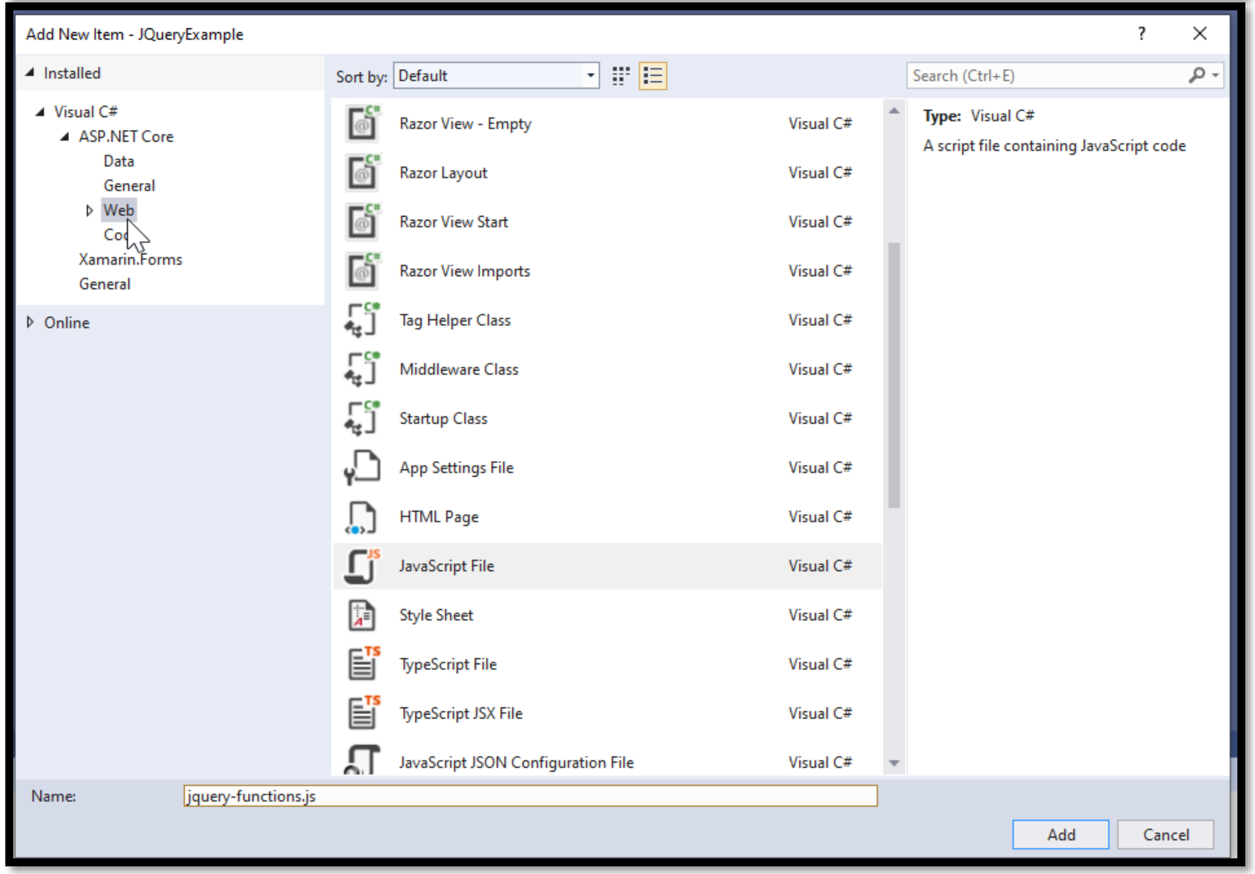




```
Microsoft Windows [Version 10.0.19042.964]
(c) Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>l:

L:\>cd L:\MSSA_ASP\Allfiles\Mod08\Democode - Copy\03_JQueryExample_begin\JQueryExample

L:\MSSA_ASP\Allfiles\Mod08\Democode - Copy\03_JQueryExample_begin\JQueryExample> npm install
npm notice created a lockfile as package-lock.json. You should commit this file.
added 1 package from 1 contributor and audited 1 package in 0.478s
found 2 moderate severity vulnerabilities
  run `npm audit fix` to fix them, or `npm audit` for details

L:\MSSA_ASP\Allfiles\Mod08\Democode - Copy\03_JQueryExample_begin\JQueryExample>
```

SCREENSHOTS FROM THE DEMO



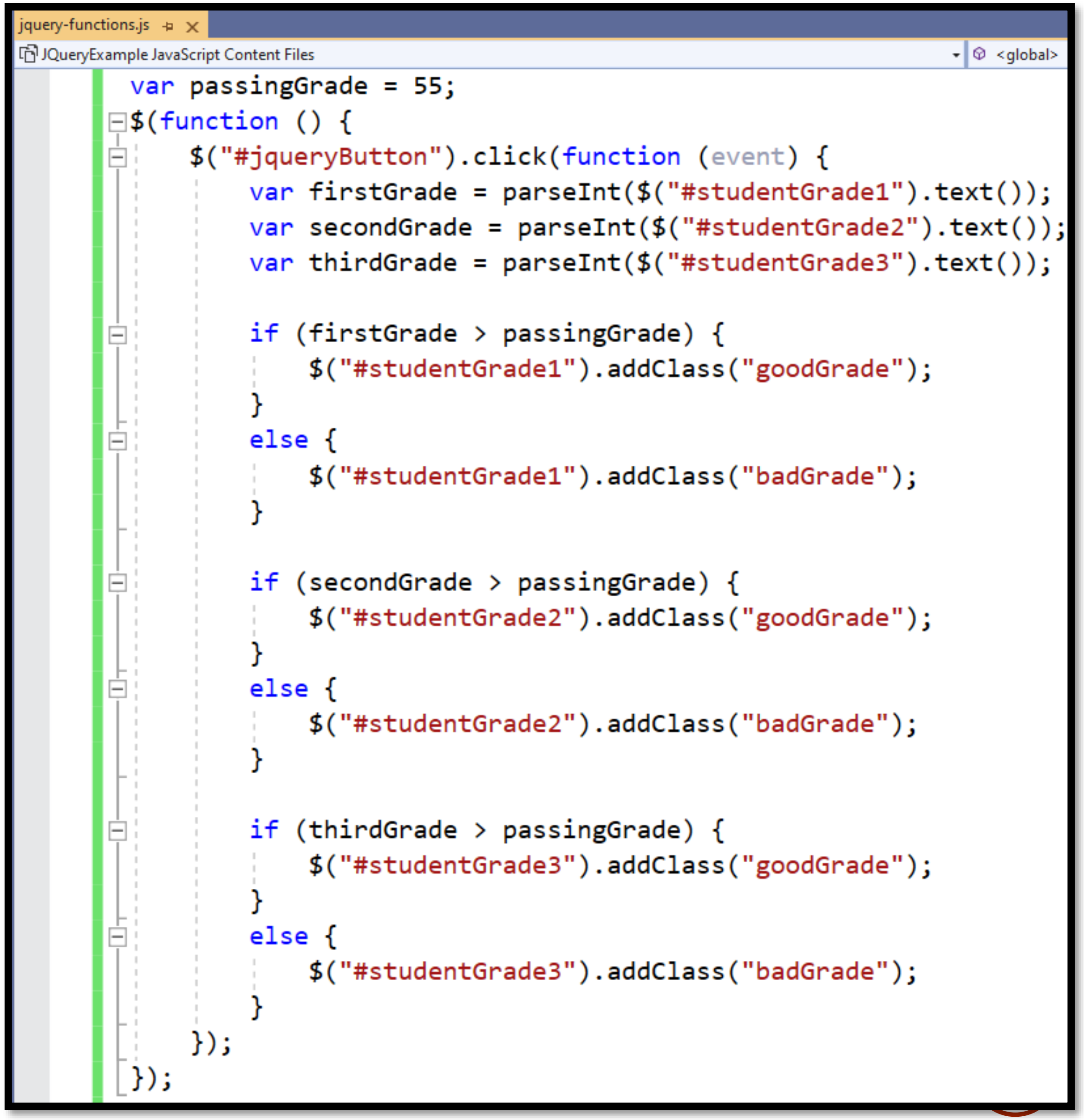


Razor View - Empty	Visual C#
Razor Layout	Visual C#
Razor View Start	Visual C#
Razor View Imports	Visual C#
Tag Helper Class	Visual C#
Middleware Class	Visual C#
Startup Class	Visual C#
App Settings File	Visual C#
HTML Page	Visual C#
JavaScript File	Visual C#
Style Sheet	Visual C#
TypeScript File	Visual C#
TypeScript JSX File	Visual C#
JavaScript JSON Configuration File	Visual C#

Type: Visual C#

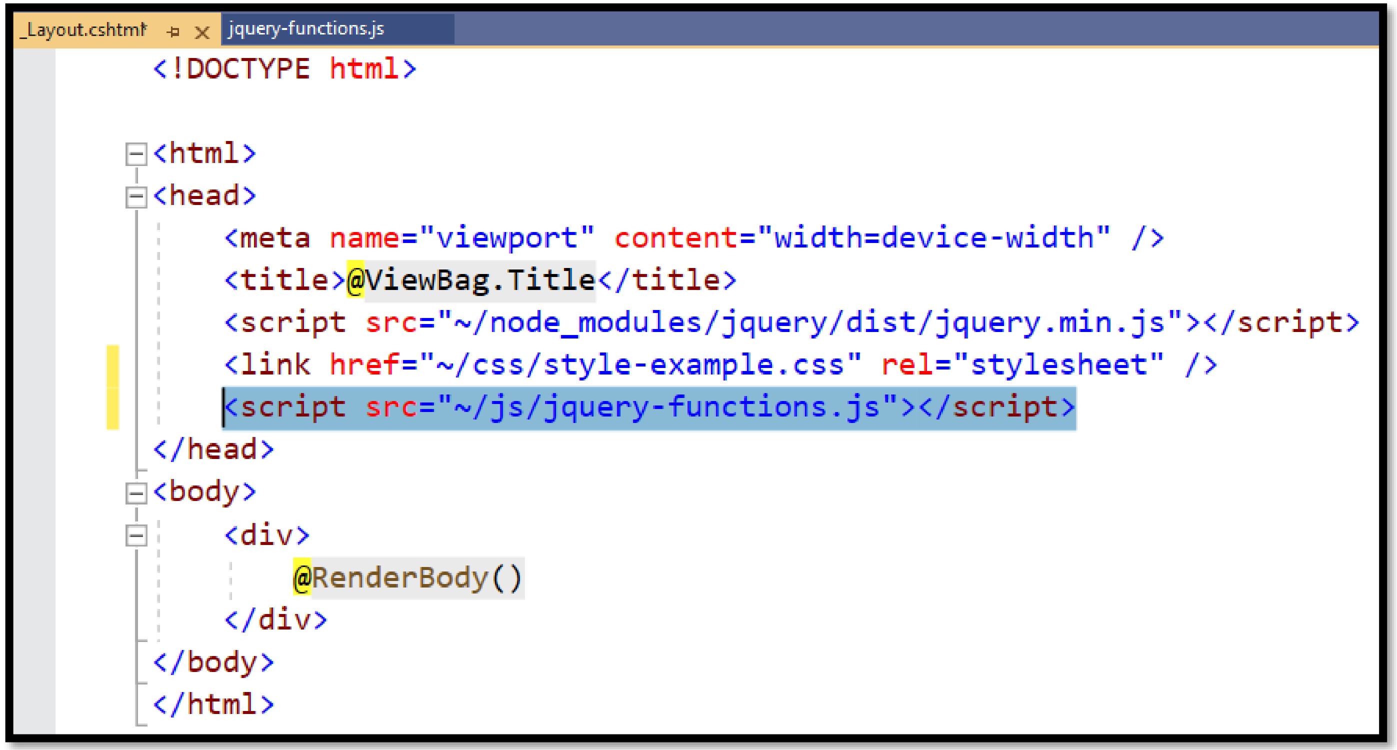
A script file containing JavaScript code

Name: jquery-functions.js

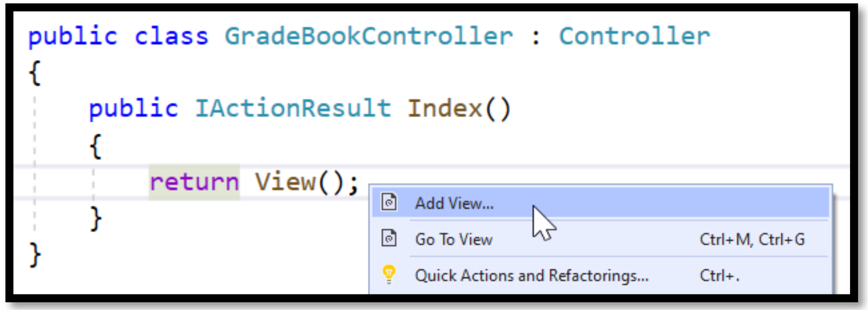


```
var passingGrade = 55;
$(function () {
    $("#jqueryButton").click(function (event) {
        var firstGrade = parseInt($("#studentGrade1").text());
        var secondGrade = parseInt($("#studentGrade2").text());
        var thirdGrade = parseInt($("#studentGrade3").text());

        if (firstGrade > passingGrade) {
            $("#studentGrade1").addClass("goodGrade");
        }
        else {
            $("#studentGrade1").addClass("badGrade");
        }

        if (secondGrade > passingGrade) {
            $("#studentGrade2").addClass("goodGrade");
        }
        else {
            $("#studentGrade2").addClass("badGrade");
        }

        if (thirdGrade > passingGrade) {
            $("#studentGrade3").addClass("goodGrade");
        }
        else {
            $("#studentGrade3").addClass("badGrade");
        }
    });
});
```

SCREENSHOTS FROM THE DEMO

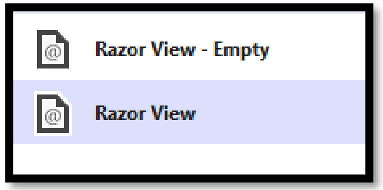


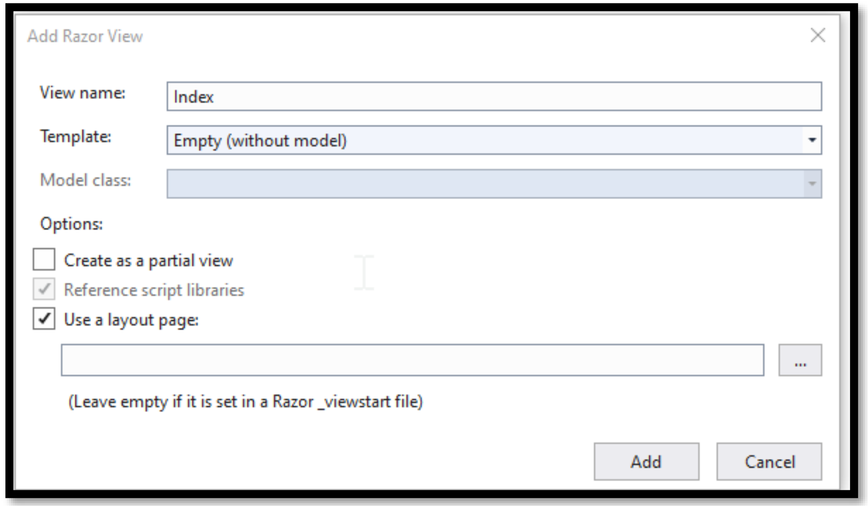
```
<!DOCTYPE html>

<html>
<head>
    <meta name="viewport" content="width=device-width" />
    <title>@ViewBag.Title</title>
    <script src="~/node_modules/jquery/dist/jquery.min.js"></script>
    <link href="~/css/style-example.css" rel="stylesheet" />
    <script src="~/js/jquery-functions.js"></script>
</head>
<body>
    <div>
        @RenderBody()
    </div>
</body>
</html>
```



```
public class GradeBookController : Controller
{
    public IActionResult Index()
    {
        return View();
    }
}
```

Add View...
Go To View Ctrl+M, Ctrl+G
Quick Actions and Refactorings... Ctrl+.





Add Razor View

View name: Index

Template: Empty (without model)

Model class:

Options:

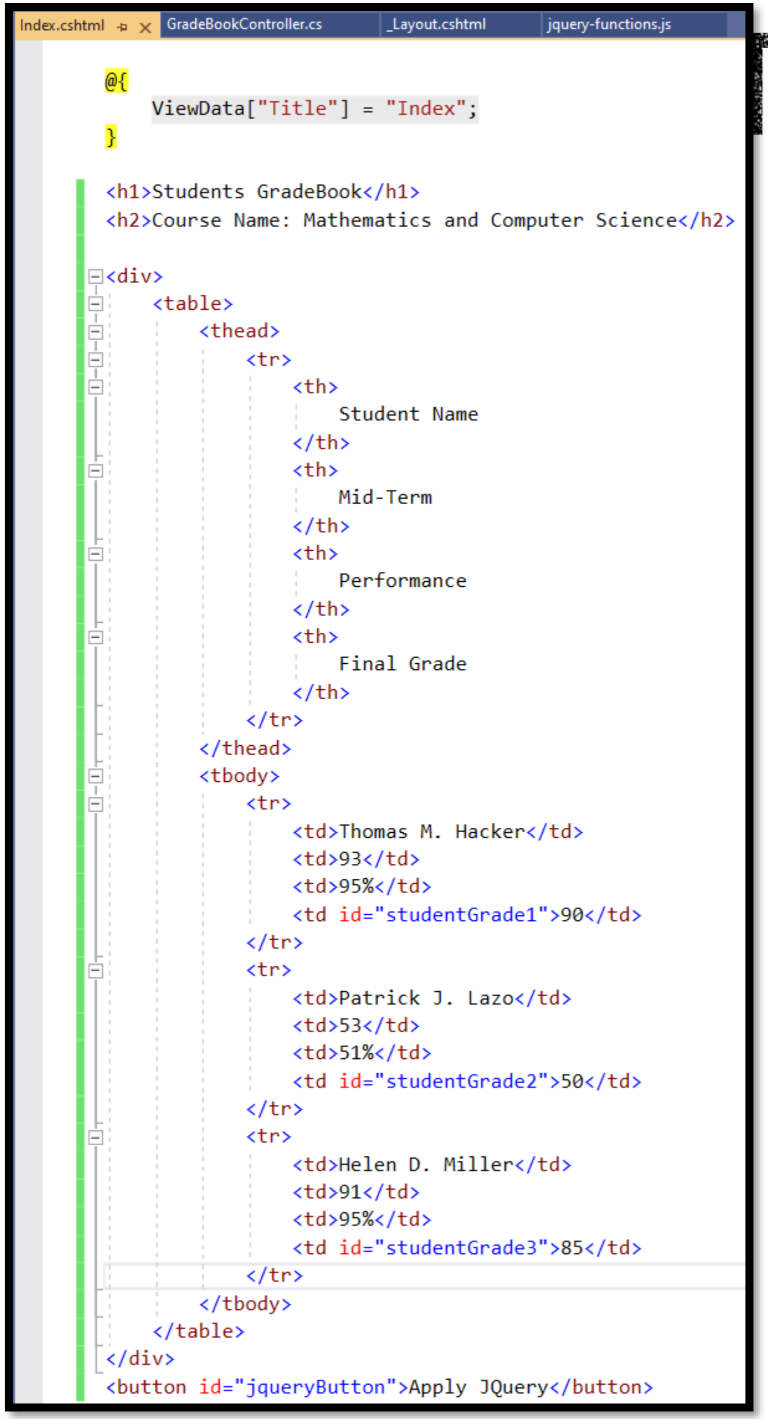
□ Create as a partial view

☑ Reference script libraries

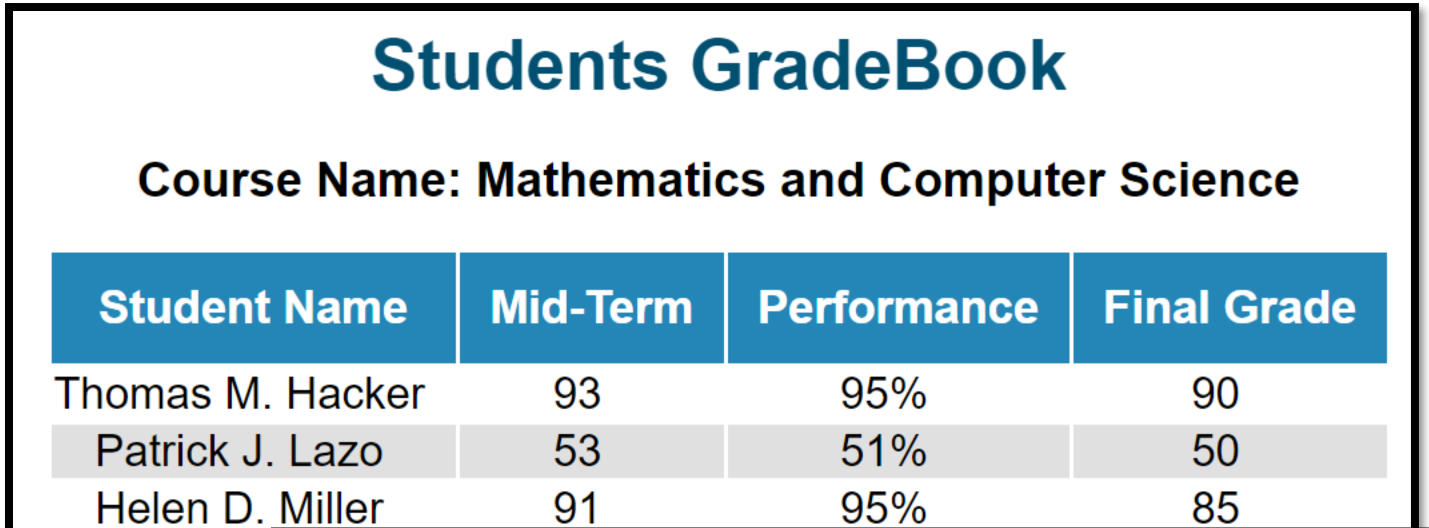
☑ Use a layout page:

(Leave empty if it is set in a Razor _viewstart file)

SHOTS FROM THE DEMO



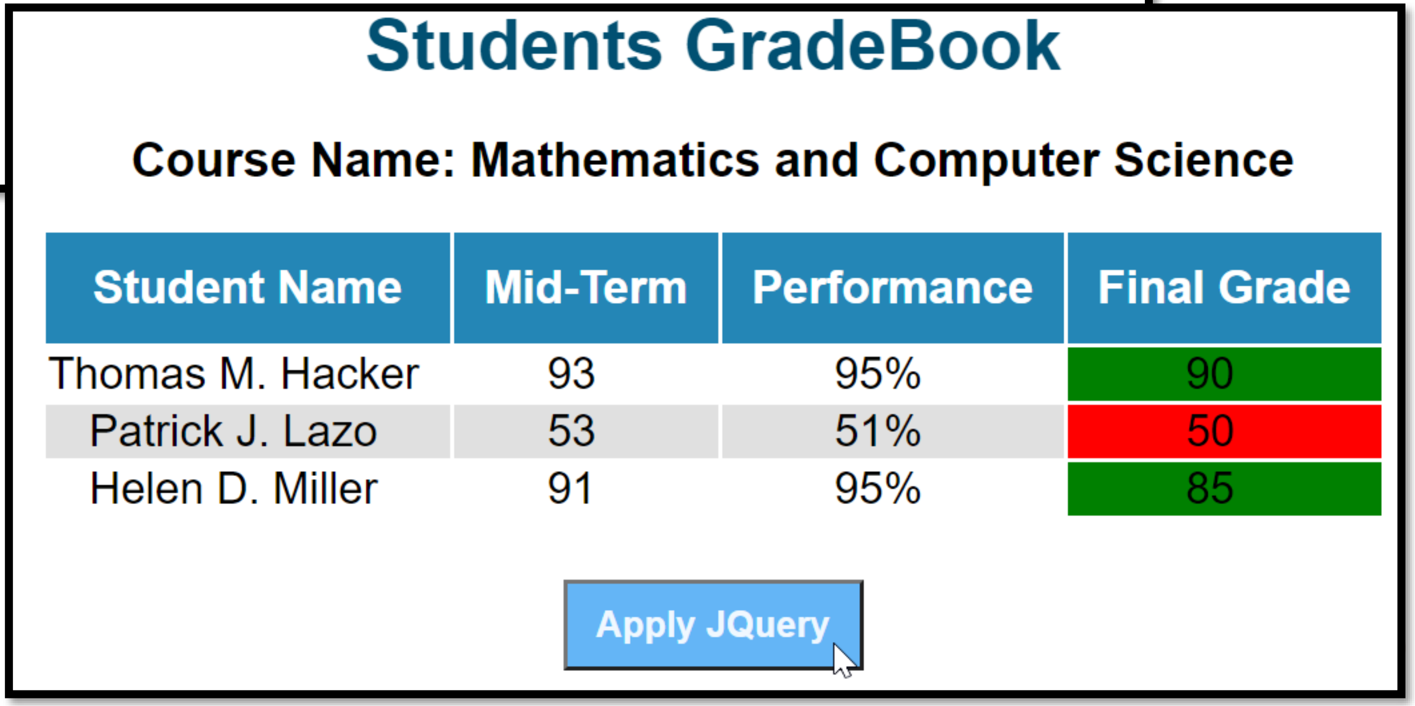
```
@{
    ViewData["Title"] = "Index";
}

<h1>Students GradeBook</h1>
<h2>Course Name: Mathematics and Computer Science</h2>

<div>
    <table>
        <thead>
            <tr>
                <th>
                    Student Name
                </th>
                <th>
                    Mid-Term
                </th>
                <th>
                    Performance
                </th>
                <th>
                    Final Grade
                </th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Thomas M. Hacker</td>
                <td>93</td>
                <td>95%</td>
                <td id="studentGrade1">90</td>
            </tr>
            <tr>
                <td>Patrick J. Lazo</td>
                <td>53</td>
                <td>51%</td>
                <td id="studentGrade2">50</td>
            </tr>
            <tr>
                <td>Helen D. Miller</td>
                <td>91</td>
                <td>95%</td>
                <td id="studentGrade3">85</td>
            </tr>
        </tbody>
    </table>
</div>
<button id="jqueryButton">Apply JQuery</button>
```



Students GradeBook

Course Name: Mathematics and Computer Science

Student Name	Mid-Term	Performance	Final Grade
Thomas M. Hacker	93	95%	90
Patrick J. Lazo	53	51%	50
Helen D. Miller	91	95%	85



Students GradeBook

Course Name: Mathematics and Computer Science

Student Name	Mid-Term	Performance	Final Grade
Thomas M. Hacker	93	95%	🟩 90
Patrick J. Lazo	53	51%	🟥 50
Helen D. Miller	91	95%	🟩 85

LAB/HOMEWORK: USING LAYOUTS, CSS AND JAVASCRIPT IN ASP.NET CORE MVC

- **Module 08**
  - Exercise 1: Applying a Layout and Link Views to it
  - Exercise 2: Using CSS
  - Exercise 3: Using JavaScript
  - Exercise 4: Using jQuery

- You will find the **high-level** steps on the following page:
  https://github.com/MicrosoftLearning/20486D-DevelopingASPNETMVCWebApplications/blob/master/Instructions/20486D_MOD08_LAB_MANUAL.md

- You will find the **detailed** steps on the following page:
  https://github.com/MicrosoftLearning/20486D-DevelopingASPNETMVCWebApplications/blob/master/Instructions/20486D_MOD08_LAK.md

- For your homework submit one zipped folder with your complete solution.