MONASH University

FIT5032 Suzhou Studio 4

Chief Examiner: ABM Russel

TOPICS

- Basics of JavaScript and jQuery
- How to integrate the above with ASP.NET

INSTRUCTIONS

- Form a group of 2-3 students.

EFOLIO TASK 4.1 (PASS AND CREDIT LEVEL)

DESCRIPTION:

- JavaScript example – Notify.js
- Understand the difference between defer and async

WHAT TO SUBMIT (INDIVIDUAL):

- Screenshot of a website using Notify.js and code
- A document explaining the difference between defer and async, provide examples of scenario of using it

EVALUATION CRITERIA:

- Notify.js working on the page
- Correct explanation of difference between defer and async with appropriate examples of scenario of using it

EFOLIO TASK 4.2 (DISTINCTION AND HIGH DISTINCTION LEVEL)

DESCRIPTION:

- Use of Bootstrap datepicker

WHAT TO SUBMIT:

- A screenshot demonstrating uses of Bootstrap datepicker (with 20th August set as a default date)

EVALUATION CRITERIA:

- Correct screenshot of a Bootstrap datepicker working on the page

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STUDIO ACTIVITIES

Introduction to JavaScript

JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else.

How JavaScript works:

When you load a web page in your browser, you are running your code (the HTML, CSS, and JavaScript) inside an execution environment (the browser tab). This is like a "factory" that takes in raw materials (the code) and outputs a product (the web page).

The JavaScript is executed by the browser's JavaScript engine, it is executed after the HTML and CSS have been assembled and put together into a web page. This ensures that the structure and style of the page are already in place by the time the JavaScript starts to run.

Where to put the JavaScript:

The modern-day JavaScript normally put the external JavaScript file (Explained in the following parts) to the header section of your script, and then identify it with [async] / [defer] attribute, in normal situations, we use [defer] attribute as most of the JavaScript we use today have dependencies. If it is Internal JavaScript, the script file is usually loaded at the end of your document.

To see further explanations, you could read the following resources:

https://stackoverflow.com/questions/436411/where-should-i-put-script-tags-in-html-markup

https://stackoverflow.com/questions/33732726/when-can-we-use-async

Basic Example of JavaScript

Internal JavaScript (Not advisable)

The script is directly written inside your .html page, in Asp.Net's example, it is written in. cshtml pages.

To make your JavaScript logic work, you need to declare JavaScript tags (similar to html tags) as follows:

<script>

// JavaScript goes here

</script>

Example of using Internal JavaScript:

```
<html>
    <head>
    </head>
    <body>
        <div id="test1">This is a simple message</div>
    </body>
    <script>
        //The line below means it will execute the code inside the function() when the page
is fully loaded
        document.addEventListener("DOMContentLoaded", function () {
            document.getElementById("test1").innerHTML = "This is a replaced message";
            //This line of code firstly find the element (In this case it is a div element)
through the id called "test1", and then replace the content to "This is a replaced message".
```

```
        });
    </script>
</html>
```

You could try and copy the code above into a .txt file such as test1.txt and rename the txt to .html file (test1.html) to see the effect. You could edit the file anytime using a software called “Notepad++”

External JavaScript

The JavaScript code is put into an external file with a file extension called “.js”. It is a preferable solution as you can specify when to load the script. The details about when to load the script is covered in the previous section - *How JavaScript works*.

Example of using External JavaScript:

Step 1:

Create a .txt document (such as script.txt), put the content below inside the txt file, then change the file name extension to .js (script.js).

```
document.getElementById("test1").innerHTML = "This is a replaced message";
```

Step 2:

Create a .txt file such as test2.txt, Then copy and paste the code blow inside the .html file then rename the txt to .html file (test2.html), please note the js file and html file needs to be within the same folder to access. All these files are editable by notepad++

```
<html>
    <head>
        <script src="script.js" defer></script>
    </head>
    <body>
        <div id="test1" class=”simpleCssClass”>This is a simple message</div>
    </body>
</html>
```

If you wish to learn more about JavaScript, please check the following site:
https://www.w3schools.com/js/default.asp
https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps/What_is_JavaScript

Practise

After you read the links above, can you tell what does this JavaScript do? (Search the keyword by using JavaScript + the key term you are not sure). After you have made assumption, copy this code into a html file and run the html page to verify your assumptions.

```
<!DOCTYPE html>
<html>
    <head>
        <script>
            function preferedBrowser() {
                prefer = document.forms[0].browsers.value;
                alert("You prefer browsing internet with " + prefer);
            }
        </script>
    </head>

    <body>

        <form>
```

```
            Choose which browser you prefer:
            <select id="browsers" onchange="preferedBrowser()">
                <option value="Chrome">Chrome</option>
                <option value="Internet Explorer">Internet Explorer</option>
                <option value="Firefox">Firefox</option>
            </select>
        </form>

    </body>
</html>
```

Can you also try to write a JavaScript that can perform a countdown timer for 10 seconds, with the ability to show "Congrats!" when times up

jQuery

What is jQuery

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers.

In short, jQuery contains a lot of functionalities that can help writing JavaScript easier, it is similar to the library concept in Java.

When and where to load jQuery?

As jQuery is a JavaScript library, most of the plugins are dependent on it, the jQuery shall be loaded at the earliest convenience. It shall be loaded the same way as external JavaScript with defer attribute inside.

Syntax

The syntax is a bit different when writing in jQuery compared to JavaScript.

For example, the same code provided in the section *Internal Javascript* could be shortened to as follows using jQuery:

```
<script>
    $(document).ready(function () {
        $('#test1').text("This is a replaced message");
        //# in this example is referring to the id that is mentioned in HTML document, if you want to mention CSS class, for example, 'simpleCssClass' mentioned in Part 2, you use $('.simpleCssClass')
    });
</script>
```

If you wish to learn more about jQuery, please visit the following site:

https://learn.jquery.com/

Add a jQuery plugin inside ASP.NET MVC Project

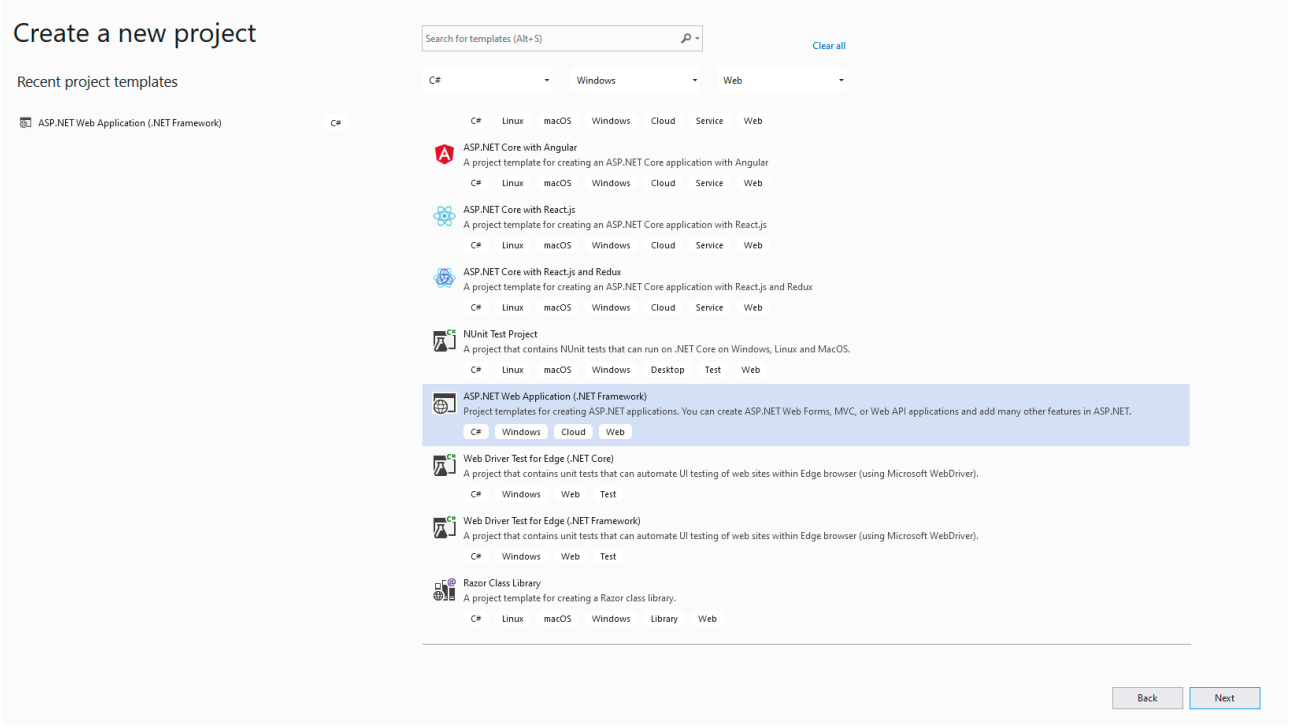
In this example, we will provide a step by step tutorials regarding how to add and use a jQuery plugin inside the Asp.net MVC project:

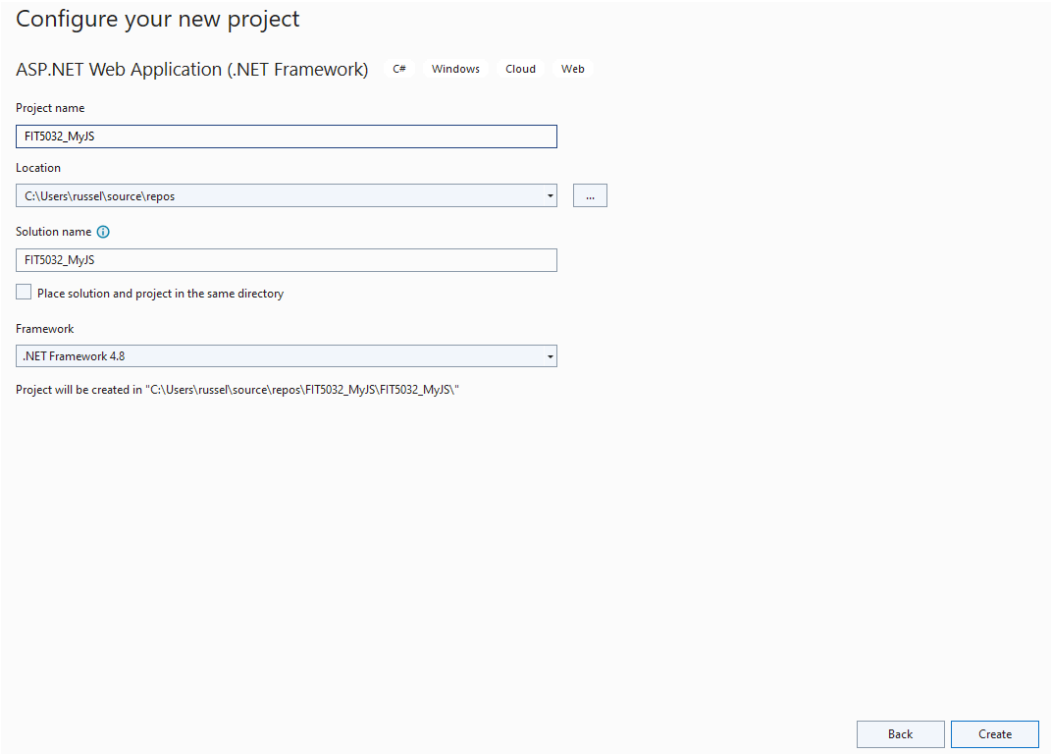
The plugin we use is called Notify.js, you could have a look at their official website to have a basic understand of what this plugin do:
https://notifyjs.jpillora.com/

The following example is based on ASP.NET Framework MVC using .NET Framework on Windows. However, you may get started with ASP.NET Core MVC using cross-platform .NET 6 LTS and above as target framework.

Step 1:

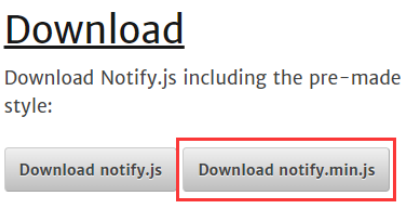
Under ASP.NET MVC Framework, create a MVC project first:





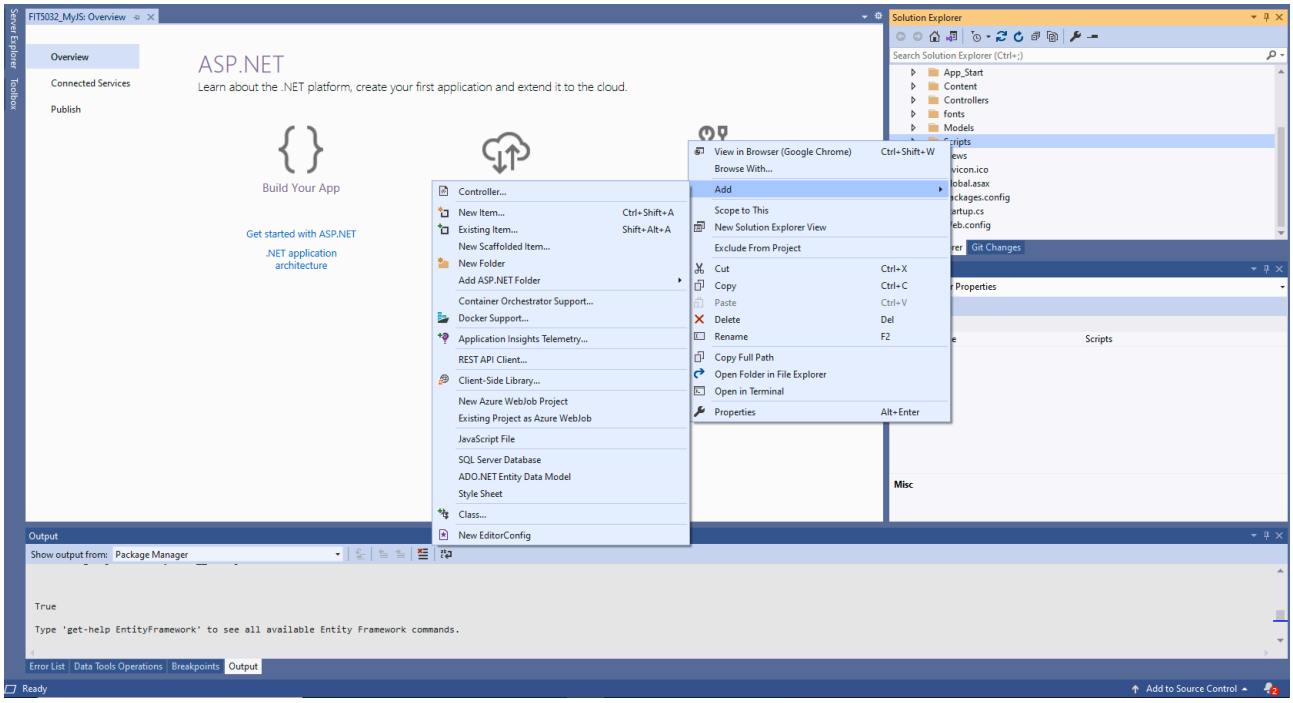
Step 2:

Download plugin file as highlighted below into your laptop/ desktop from https://notifyjs.jpillora.com/



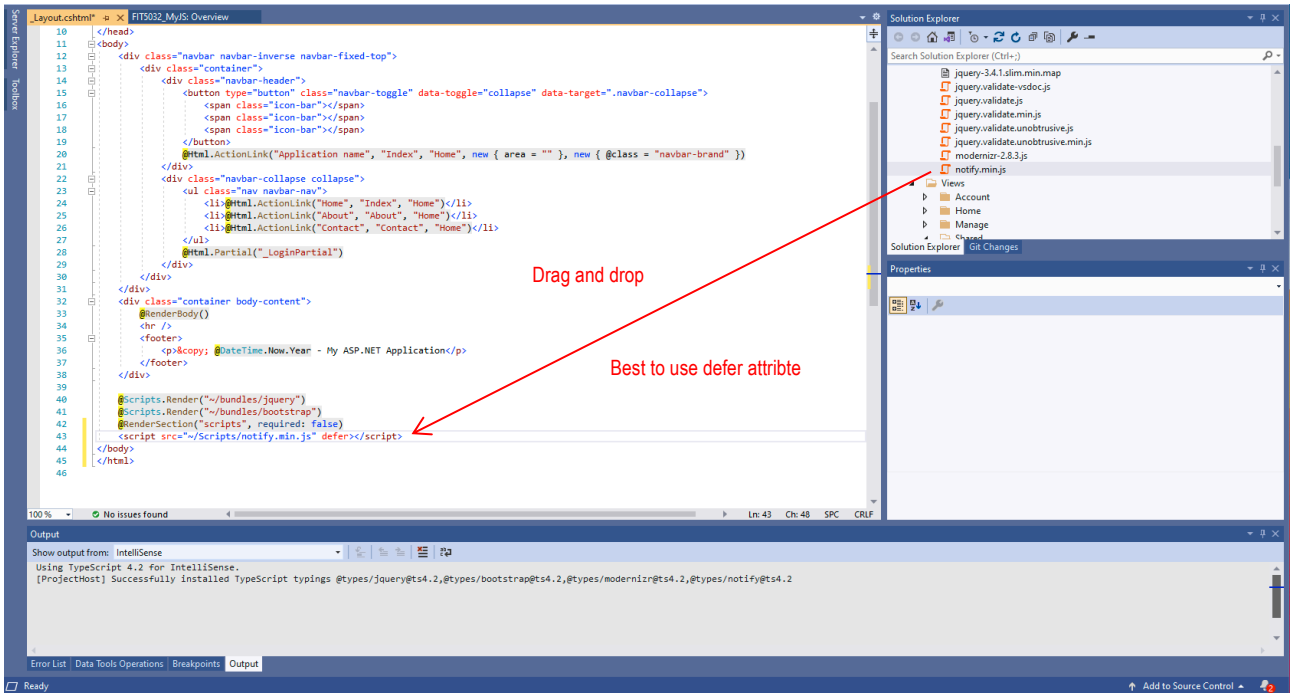
Step 3:

Right click on your Scripts folder and choose Add=>Existing item, choose the notify.min.js. After selection, the notify.min.js will be added into your Scripts folder.



Step 4:

Go to Shared => _Layout.cshtml file, drag and drop the notify.min.js at the end of the body. Please be noted that notify.js is built based on jQuery library, it shall be loaded after jQuery library has been loaded. It would be best to write the deferred attributes inside too.



Step 5:

Assuming you are using this notification plugin at every page, then write your JavaScript code below after you have loaded the notify.js plugin.

```
<script>
    $(document).ready(function () {
        $.notify("Testing on notify JS", "success");
    });
</script>
```

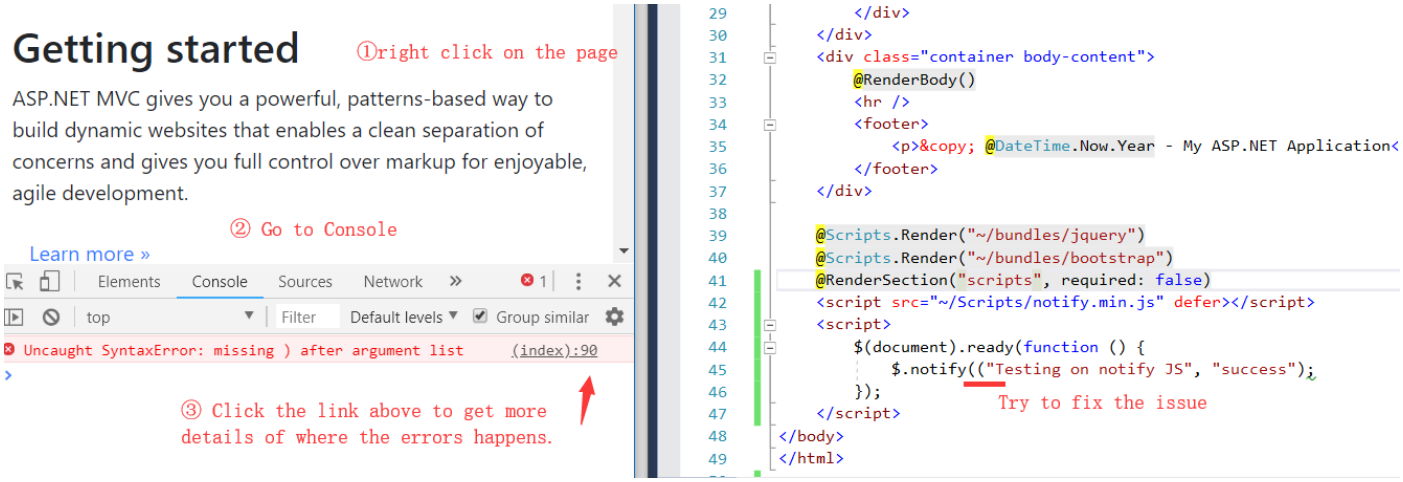
The final look of the _layout.cshtml will be looks like:

```
38
39          @Scripts.Render("~/bundles/jquery")
40          @Scripts.Render("~/bundles/bootstrap")
41          @RenderSection("scripts", required: false)
42          <script src="~/Scripts/notify.min.js" defer></script>
43          <script>
44              $(document).ready(function () {
45                  $.notify("Testing on notify JS", "success");
46              });
47          </script>
48      </body>
```

After finish step 5, please try to finish the following attempt:

- What if I only wish the “testing on notify JS” message in index only, what modifications do you need to achieve this?
- How to change this internal JavaScript template to External?

*Some of you might notice it is quite hard to debug the JavaScript. You could perform JavaScript debug using Chrome Developer Tool. You can call it by right click on the webpage and then choose “Inspect” option. And switch to Console tab. Chrome browser will tell you the possible mistakes you have made.


Getting started
①right click on the page
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.
② Go to Console
Learn more »
Elements
Console
Sources
Network
top
Filter
Default levels
Group similar
Uncaught SyntaxError: missing) after argument list
(index):90
③ Click the link above to get more details of where the errors happens.

@RenderBody()
<hr />
<footer>
<p>© @DateTime.Now.Year - My ASP.NET Application<
</footer>

@Scripts.Render("~/bundles/jquery")
@Scripts.Render("~/bundles/bootstrap")
@RenderSection("scripts", required: false)
<script src="~/Scripts/notify.min.js" defer></script>
<script>
$(document).ready(function () {
$.notify(("Testing on notify JS", "success");
});
Try to fix the issue
</script>
</body>
</html>