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Focus Web Developer

Week 1 - Lesson 3

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Lesson Topics

- Developing Environments
- HTML with embedded JavaScript
- HTML with external JavaScript
- Creating HTML docs

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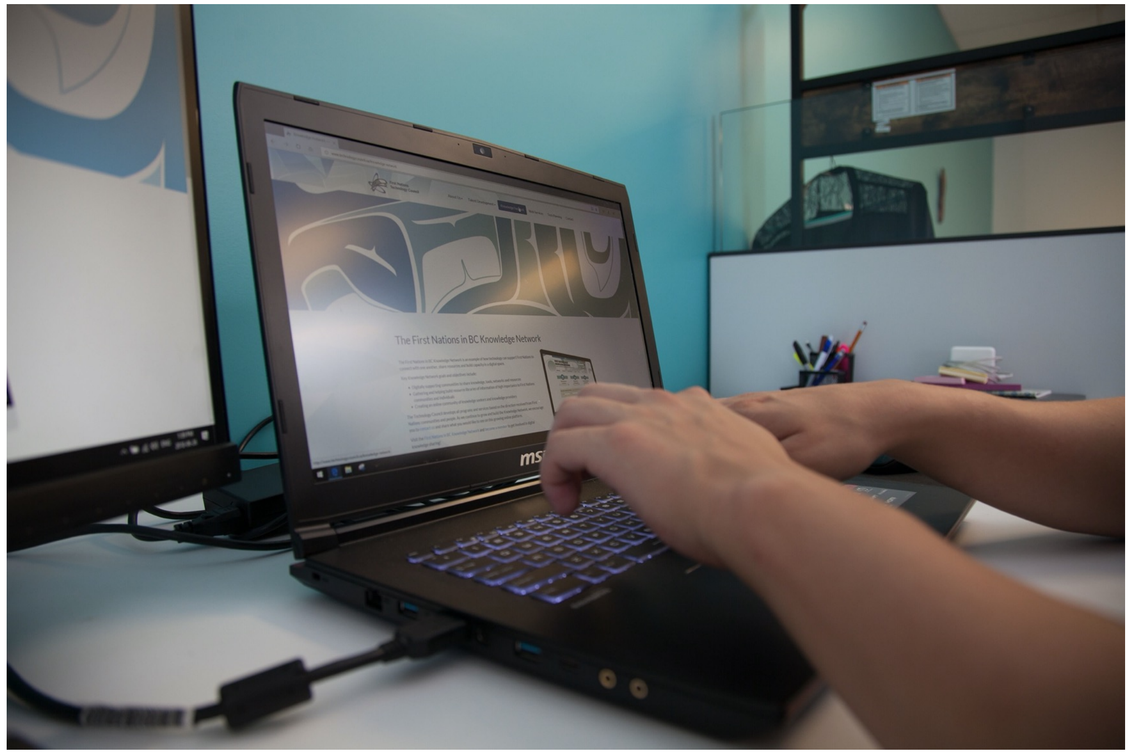
Developing Environment

Today, will use a **text editor** to create an:

- HTML Page with **embedded** JavaScript
- HTML Page with an **external** JavaScript file

These are going to be our **Developing Environments** for JS today.



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Text Editors

Benefits:

- allows us to create code
- does not add unwanted symbols
- used to create HTML files
- used to create CSS files
- used to create JavaScript files

Example Text Editors:

- NotePad
- NotePad ++
- Atom
- Vim
- Brackets

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Text Editors

We will be using Atom

- Free to use
- Allows creation of HTML, CSS, JS
- Code colouring
- Works well with projects
- Automatic Tag Closing - download here: https://atom.io/packages/autoclose-html

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Embedded JavaScript

HTML Page with **embedded** JavaScript:

- The JS is written in the *same document* as your HTML – this means there will be *two* languages in *one* document
- JS code **must** appear between <script></script> tags
  - ➢ JS code lines end with a semicolon ;

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External JavaScript

HTML Page with an **external** JavaScript file:

- The JS is written in a *different document* as your HTML – this means your HTML file must reference your external JS file*

index.html — ~/Google Drive/Teaching/NVIT/Focus Web Dev Instructional Co...

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>firstName_lastName_1_3_2</title>
5      <meta charset="UTF-8" >
6      <!-- this is an example of using an external JS file -->
7      <script src = "scripts.js"></script>
8    </head>
9    <body>
10     <h1>Your nation</h1>
11     <p> What's your story?</p>
12   </body>
13 </html>
```

scripts.js — ~/Google Drive/Teaching/NVIT/Focus...

scripts.js

```
1  alert("Hello Turtle Island!");
2
```

*JavaScript files have a file extension of .js

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Development Environment

HTML Pages with embedded JS (or external JS) are good Developing Environments because they:

- are easy to set up
- get us practicing writing HTML, CSS, JS
- Does not need any other tools such as environment tools

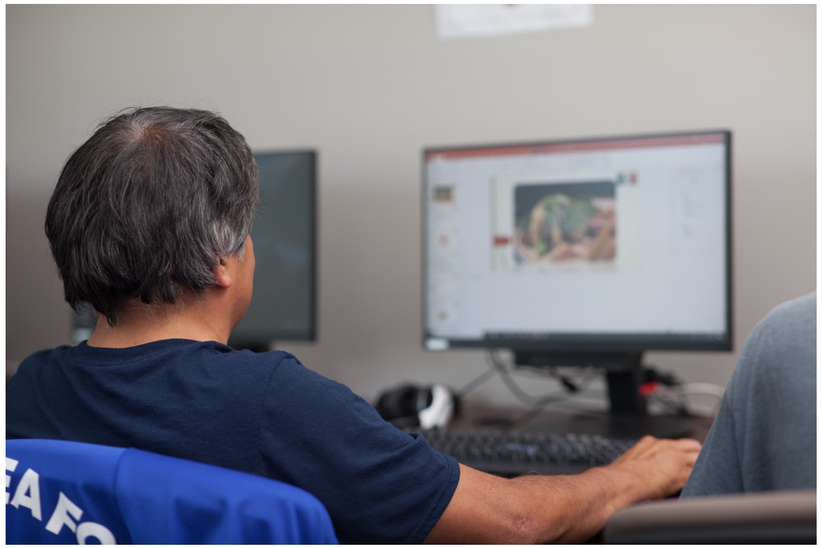
Activity 1

Create an HTML file with embedded JS

Create a new html document in Atom

1. Name the file firstName_lastName_1_3_1.html

2. Follow along with the creation of the file
    - ❑ Write HTML structure
    - ❑ Embed JS



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HTML with Embedded JS

<!DOCTYPE html>

<html>

<html/>

HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head></head>
    <body></body>
</html>
```

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HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
    </head>
    <body>
    </body>
</html>
```

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HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
        <title></title>
    </head>
    <body>
    </body>
</html>
```

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HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
    </head>
    <body>
    </body>
</html>
```

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HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
        <meta charset=“UTF-8” >
    </head>
    <body>
    </body>
</html>
```

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HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
        <meta charset=“UTF-8” >
    </head>
    <body>
        <h1>A JavaScript Embedded Web Page</h1>
    </body>
</html>
```

HTML with Embedded JS

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
        <meta charset="UTF-8" >
    </head>
    <body>
        <h1>A JavaScript Embedded Web Page</h1>
        <p>Hello World, this is my first JavaScript Embedded Web Page!</p>
    </body>
</html>
```

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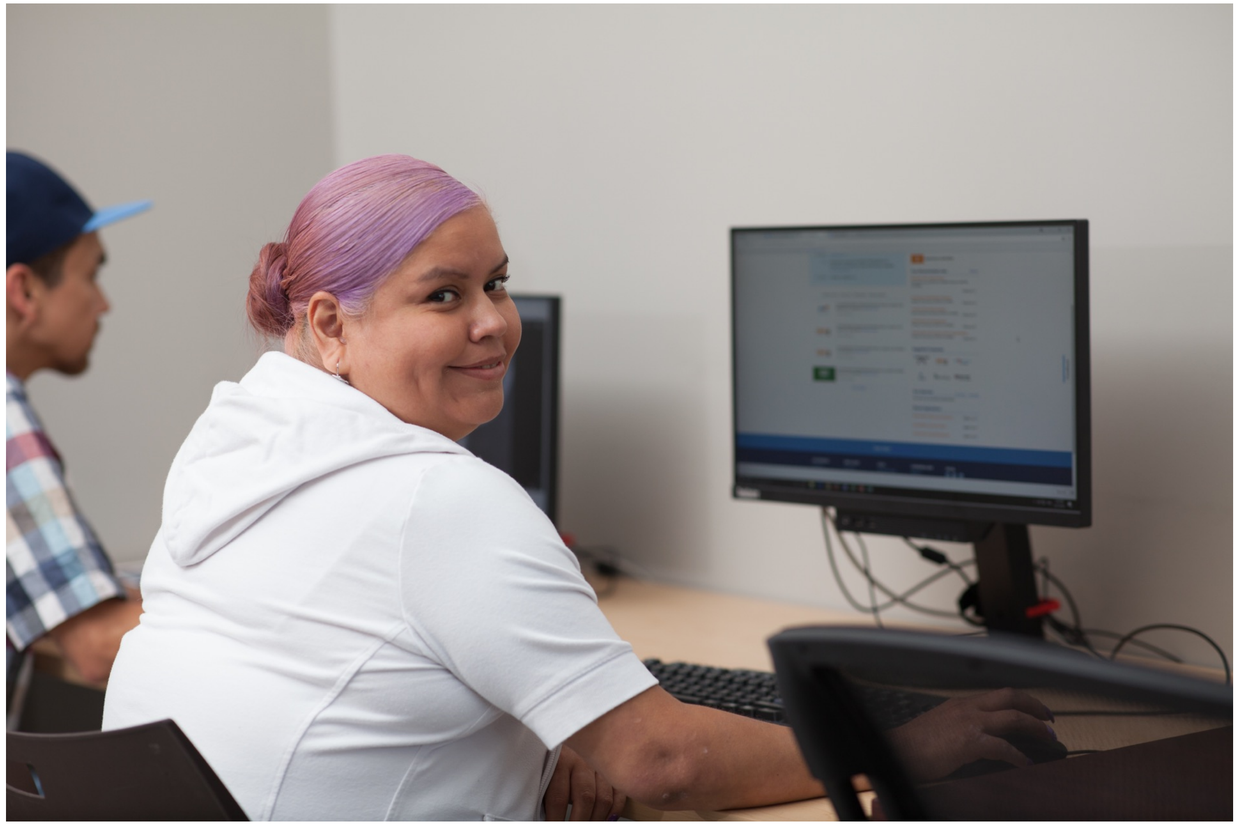
HTML with Embedded JS

Test your Web Page!

If something doesn’t look like it should:

- ❑ Check for typos
- ❑ Check for missing closing tags



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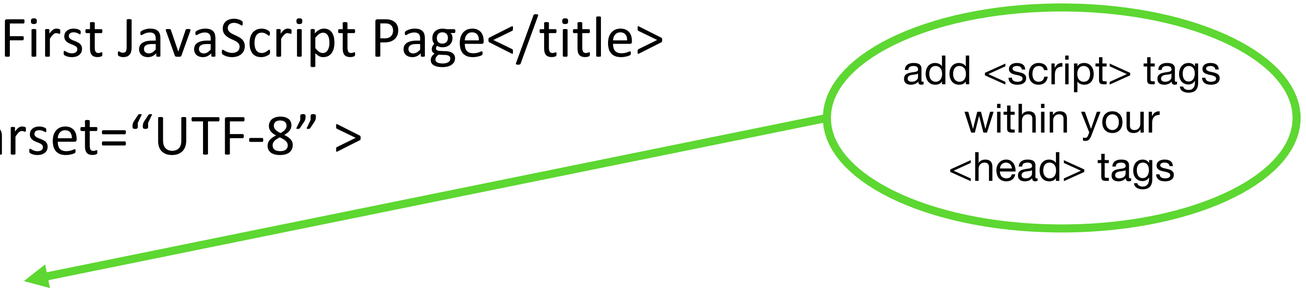
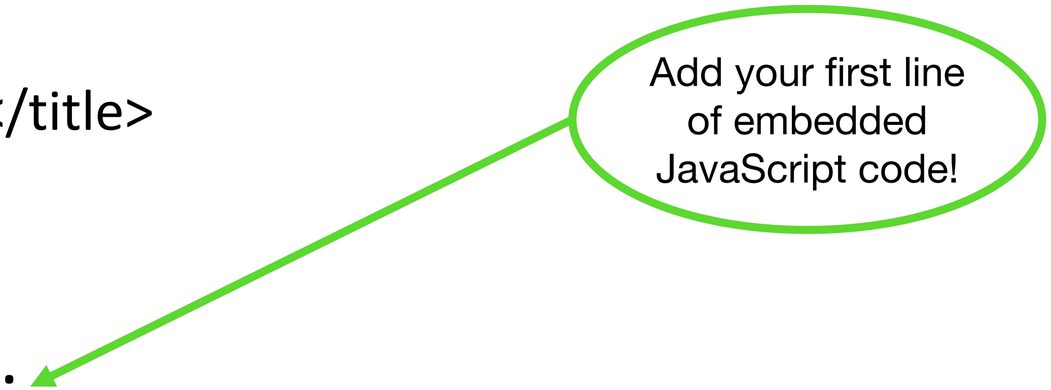
Development Environment

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
        <meta charset="UTF-8" >
        <script>
        </script>
    </head>
...
```



Development Environment

```
<!DOCTYPE html>
<html>
    <head>
        <title>My First JavaScript Page</title>
        <meta charset="UTF-8" >
        <script>
            alert("Hello Turtle Island!");
        </script>
    </head>
...
```



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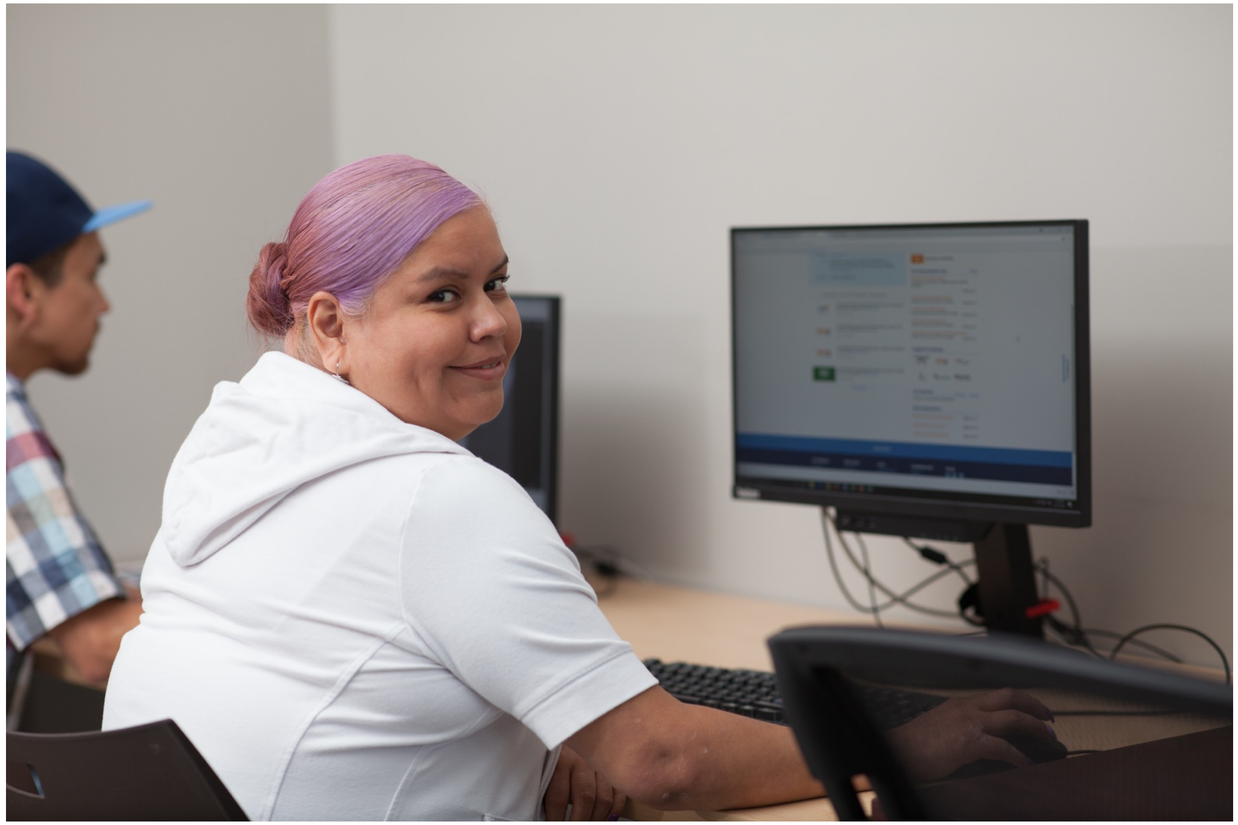
HTML with Embedded JS

Test your Web Page!

If something doesn’t look like it should:

- ❑ Check for typos
- ❑ Check for missing closing tags



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JavaScript Functions

```
alert("Hello Turtle Island!");
```

We are **calling** a pre-written JavaScript **function** to create a pop up that says “Hello Turtle Island”

- alert(); is the **function**
- “Hello Turtle Island” is the **argument** that is **passed** to the function
- in JS it is possible to create your own functions!

JavaScript Functions

The general format for a JS function is:

functionName (parameter1, parameter2, parameter3…);

- Pre-written functions have pre-specified types and numbers of parameters that may be **passed** to it
  - **parameters** – the variable required by the function
  - **argument –** the specific value of the parameter being used
  - **calling** a function – using a function
  - **passing** information – inputting values for the function to use

JavaScript Functions

The alert(); function specifics (look up on W3 Schools)

Syntax

```
alert(message)
```

Generic syntax of the alert() function

Parameter Values

Parameter	Type	Description
message	String	Optional. Specifies the text to display in the alert box, or an object converted into a string and displayed

alert() only accepts strings as arguments

Technical Details

Return Value:	No return value

The function doesn't provide anything back to the computer

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JavaScript Functions

```
alert("Hello Turtle Island!");
```

- We are **calling** the alert() function and **passing** the **string** “Hello Turtle Island” to to function as our **argument**

Activity 2

Create a new web page with embedded JavaScript

Create a new HTML file with embedded JS

1. Name the file firstName_lastName_1_3_2.html
2. Set the title as firstName_lastName_1_3_2
3. Put the name of your nation in the h1 tag
4. Write a paragraph about your nation
5. Create a pop-up that displays the name of your nation

HTML with external JS

*Now, w*e will practice JavaScript by creating an HTML file and a separate JS file.

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HTML with external JS

Benefits of using external JS files:

- Easier to stay organized - JS code can be long and it will be harder to read if it is embedded in HTML
- Easier to find and fix issues with JS code
- Multiple JS files can be used in one HTML file
- Other peoples' JS files can be used – these are called **libraries**
- **Best Practice** for Web Development

Best practice for Web Development

Separate the different components in to separate layers:

- Structure Layer (HTML5)
- Presentation Layer (CSS)
- Functionality Layer (JavaScript)

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Best practice for Web Development

By creating a separate JavaScript file we are helping to keep our layers separate which helps with:

- Finding issues
- Using other peoples work
- Attaching as many JavaScript files as we need

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Discussion

In groups, discuss the following about coding:

1. What did you find difficult?
2. What did you like?
3. What would you like to get better at?

Please feel free to use this time to share things that you have learned and think would be useful for others to know!

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Activity 3

HTML with external JS

1. Recreate your HTML file from Activity 2 today, but name it firstName_lastName_1_3_3.html
2. Check to make sure that it works with the pop-up
3. Create external JS file named ”scripts.js”
4. Remove the JS code from HTML and put it in “scripts.js”
5. Attach external JS file in HTML
6. Test your code!

You may use these vague instructions or check out the next slides for a detailed solution

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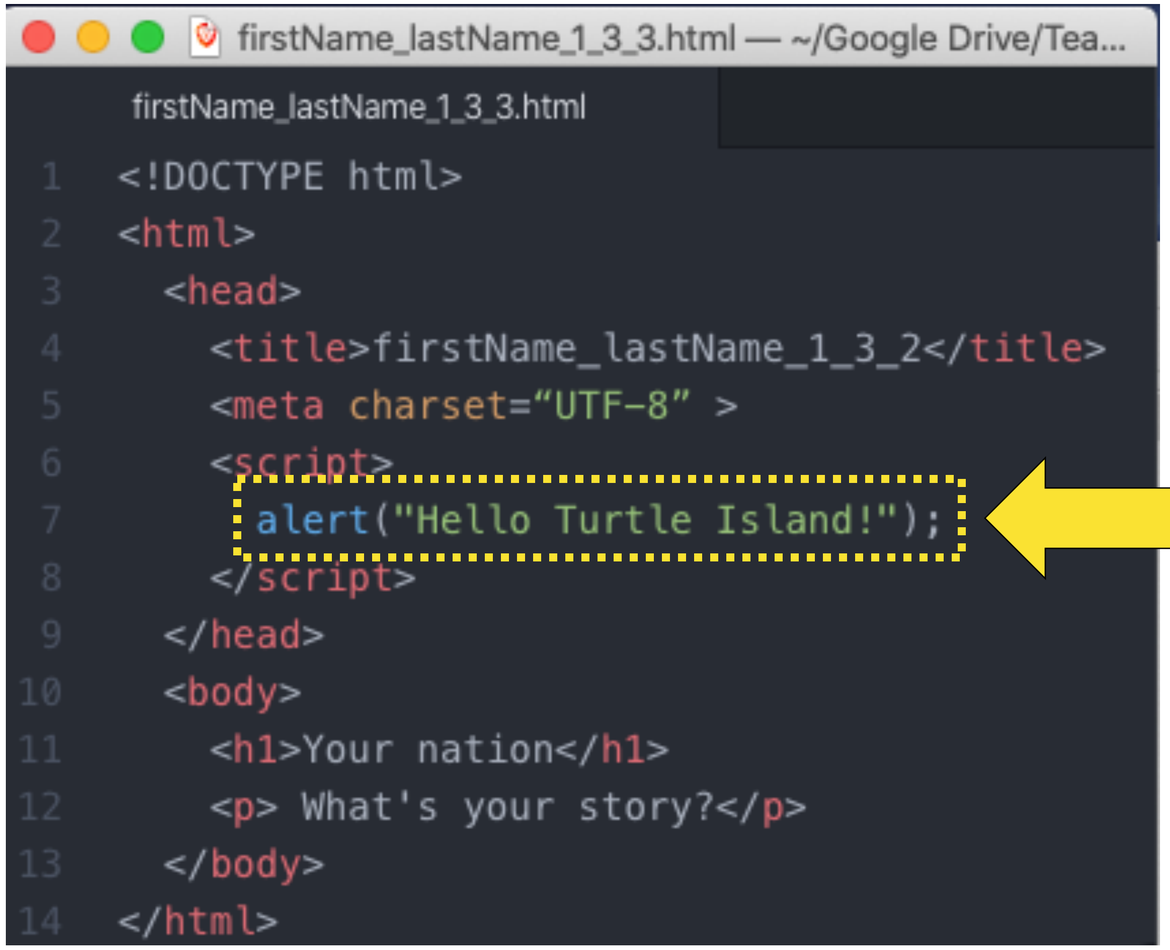
Activity 3 Solution (Steps 1-3)

Step 1: Copy and paste your HTML file from Activity 2 and rename it

Step 2: Check that your new HTML file works

Step 3: In Atom, create a new file named “scripts.js” – make sure this file is located in the **same folder** as your new HTML file

Activity 3 Solution (Step 4)



This line is the JS code, cut (Ctrl+x) and paste (Ctrl+v) it into your scripts.js file

Step 4 continued on next slide…

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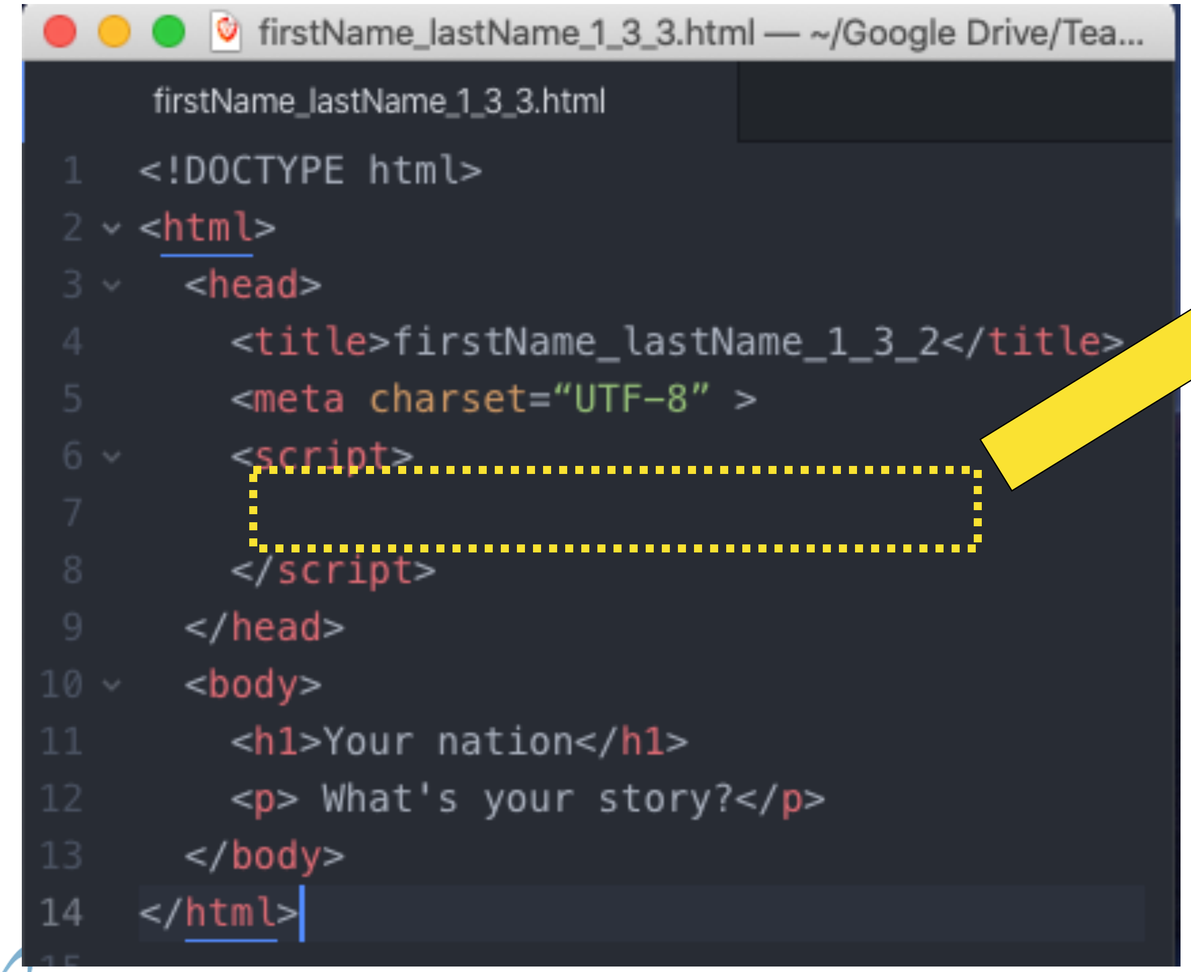
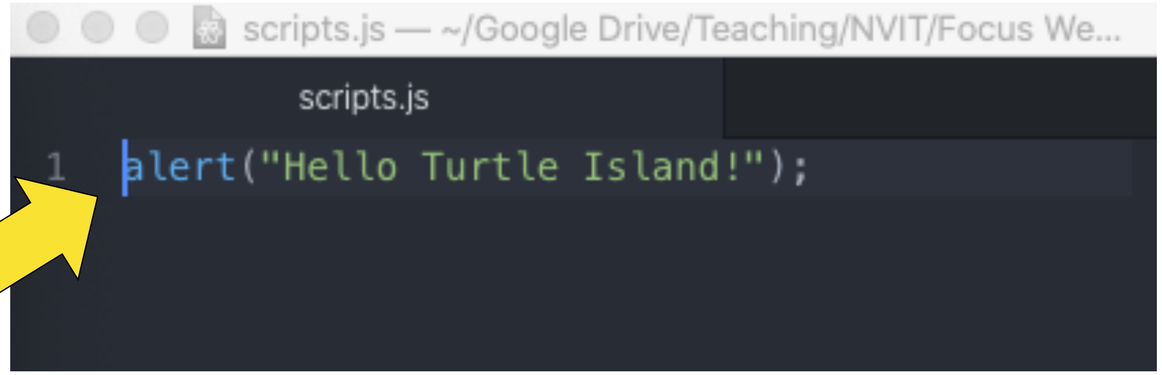
Activity 3 Solution (Step 4)





This is what your HTML and JS files should look like after Step 4

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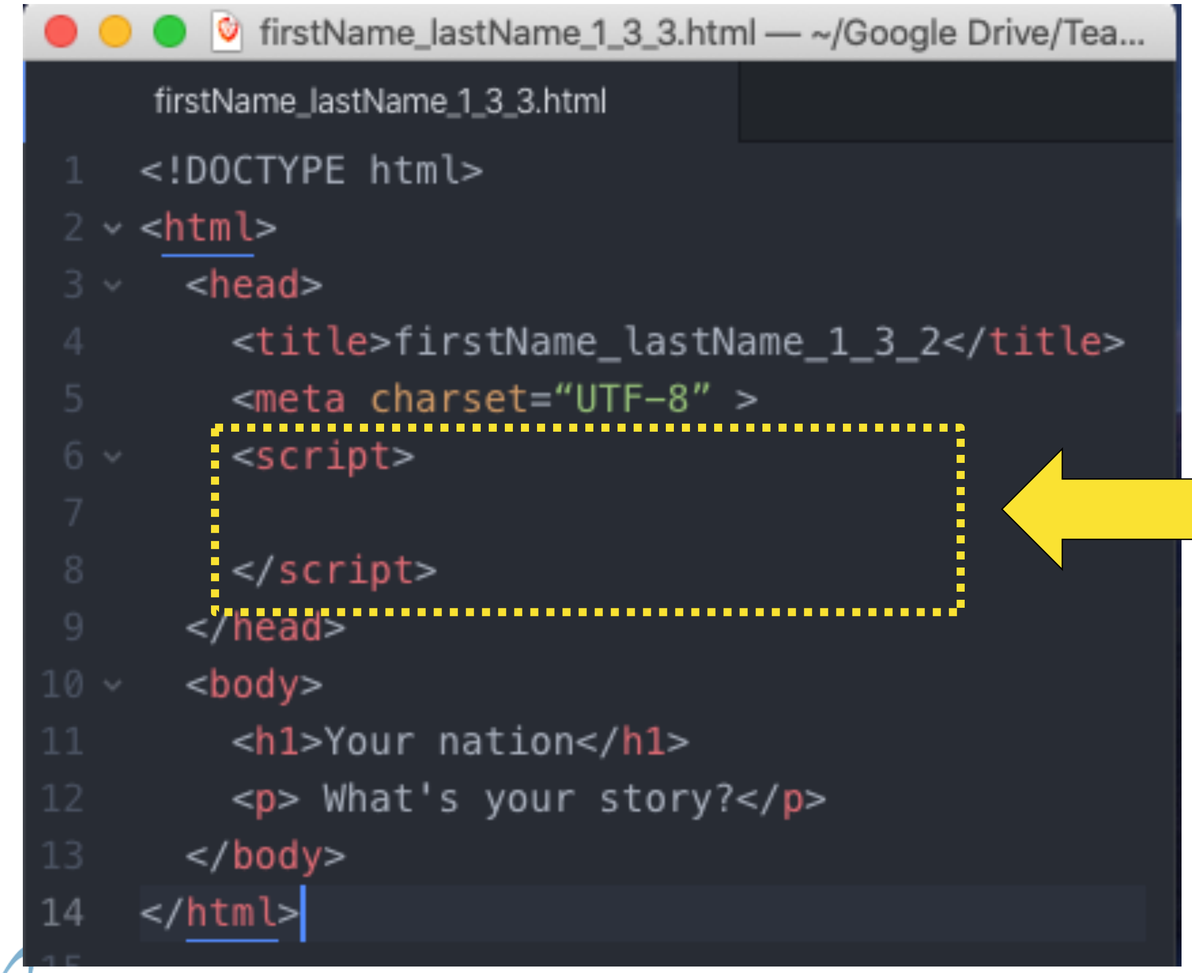
Activity 3 Solution (Step 5)



"attach" your JS file by changing the opening tag to:
<script src = "scripts.js">

Note: in this case, it is "best practice" to put the closing script tag on the same line as the opening script tag

Step 5 continued on next slide…

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Activity 3 Solution (Step 5)

firstName_lastName_1_3_3.html — ~/Google Drive/Tea...

firstName_lastName_1_3_3.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>firstName_lastName_1_3_2</title>
5      <meta charset="UTF-8" >
6      <script src = "scripts.js"></script>
7    </head>
8    <body>
9      <h1>Your nation</h1>
10     <p> What's your story?</p>
11   </body>
12 </html>
13
```

scripts.js — ~/Google Drive/Teaching/NVIT/Focus We...

scripts.js

```
1  alert("Hello Turtle Island!");
2
```

This is what your HTML and JS files should look like after Step 5

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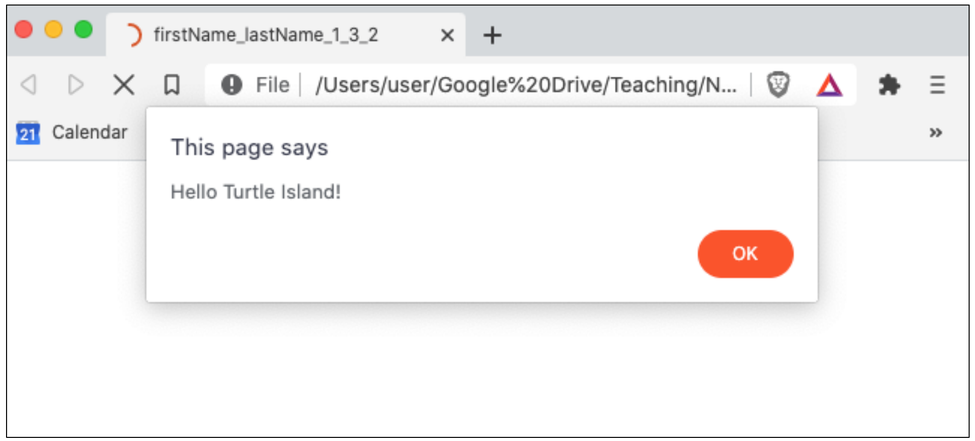
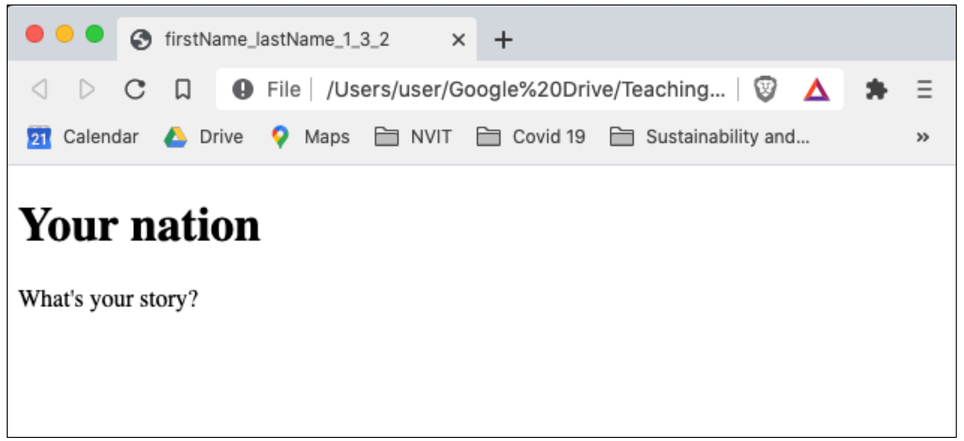
Activity 3 Solution (Step 6)

✓ Test your code by opening your HTML file with your favourite web browser. Hopefully, it looks something like this!



Before clicking “OK”



After clicking “OK”

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Attaching an external JS file

The **general format** used to attach a JS file to an HTML file is:

<script src = “filename” ></script>

- src means “source”
- = means “set to”
- ” ” around filename mean that filename is a string
- filename is the name of the file being used

Attaching an external JS file

A few more notes notes about <script src = “filename” ></script>

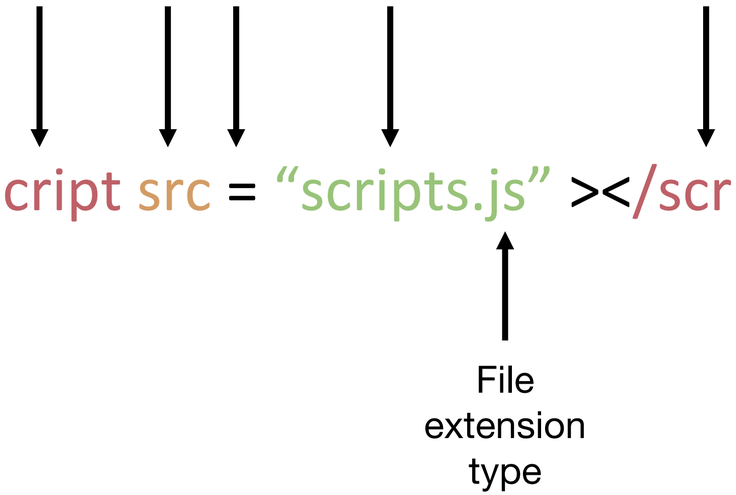
- Although there is nothing between <script></script> both tags are still needed because <script> is not a self-closing tag
- filename may include a relative path if the JS file is not located in the same folder as the HTML file
- filename must include the file type extension (.js)

Attaching an external JS file

Compare:

general format `<script src = “filename” ></script>`

specific format `<script src = “scripts.js” ></script>`



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Best Practice for external JS files

- Attach external JS to HTML in one line of code by putting <script> tags on the same line
- Name the external JS file “**scripts.js**”
- The **.js** means it is a JavaScript file
- Save scripts.js in the same folder as your html file

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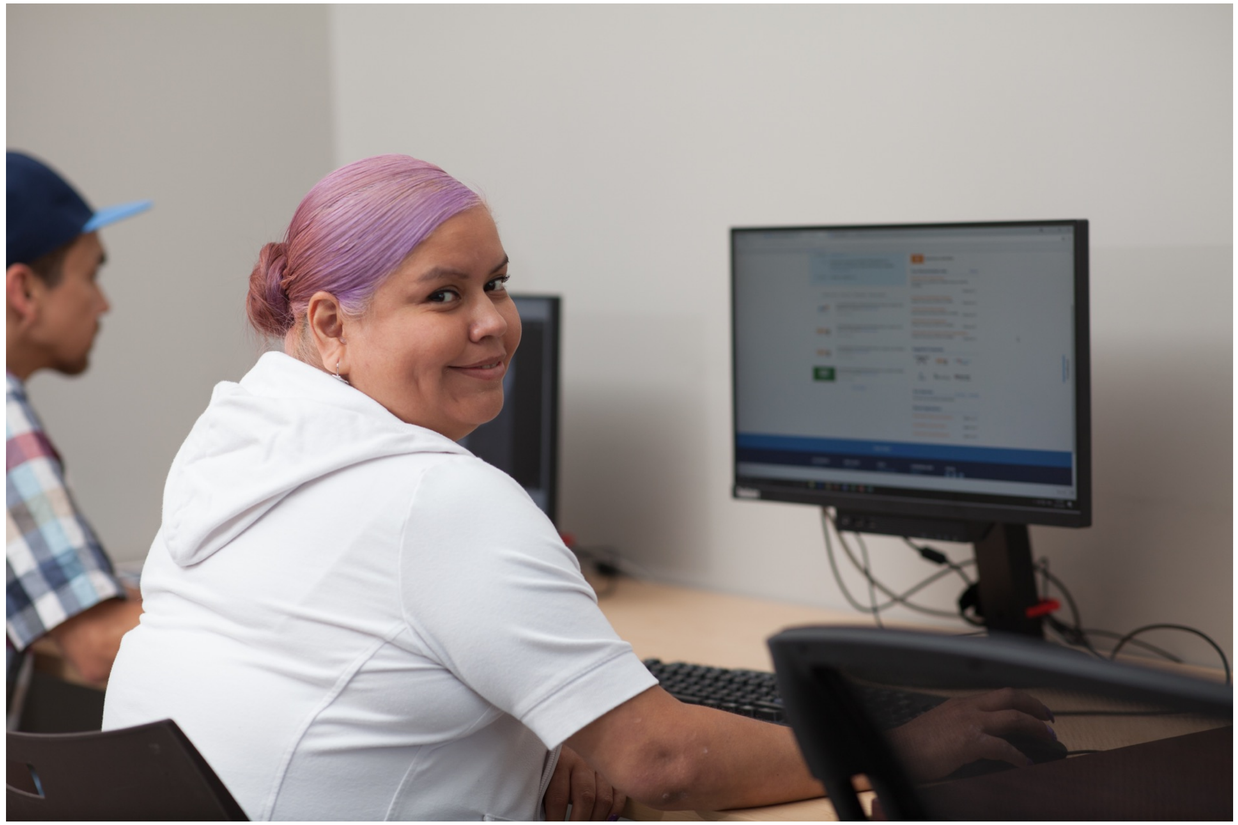
HTML with Embedded JS

Test your Web Page!

If something doesn’t look like it should:

- ❑ Check for typos
- ❑ Check for missing closing tags



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Keep up the great work!

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Class Wrap-up

How did class go today?

What are you looking forward to adding to your website?

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