Websites!

with Grady

2 Down... 1 to Go!

1. HTML
2. CSS
3. **JavaScript**

Important to remember: **Syntax**

- Computers are very nitpicky and particular about the **specific way** in which you type your code!
  - For example: `<h1 class = “example”>` is okay.
    - ANYTHING ELSE is not okay
- This is especially important in JavaScript because if something is out of place, the program may not work the way you want it to! (or at all...)

JavaScript is super different!

- It is a **scripting language** a.k.a. a **programming language** for websites
  - HTML & CSS are **not** programming languages!
    - HTML = **markup language**
    - CSS = **stylesheet**
  - The difference is that the other two languages can tell the computer what to display (HTML) and how to display it (CSS) but they can't make the computer ***do*** anything
- JavaScript can make the computer do things!
  - Everything from animations to data manipulation and more!

How do we use JavaScript?

- Everything that your JavaScript does will go inside a **function**
  - These functions can be **“called”** by the webpage in various ways
    - For example, a button press can call a function, as could loading a new page and pressing a key on the keyboard
    - When a function is called, the computer runs all the code in that function and then stops

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

Let’s go through this short example and identify what all of these things mean…

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This **keyword** tells the computer that the following code is a function.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This is the **name** of the function. You can use this name to call the function from other functions.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

Sometimes, we may want to send a variable from another part of the program into our function. We would type the variables in between these parenteses. We won’t be doing this today.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

These are the **opening curly brace** and the **closing curly brace**. All of the code in this program must go **between** these curly braces.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This line is called a **variable declaration**. It is when we create a **variable** in our program that we can use and change in order to accomplish what we need to get done.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This keyword tells the computer we are creating a variable.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This is the **name** of the variable. We can set this to be whatever we want! The only rule is that it has to be one word. So `variable name` is **not** okay but `variableName` is **totally** okay.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This equals sign is used to set a **value** to a variable. The values can be a number, text, etc.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This is the **value** of the variable. When it is text (like it is above) then we must put it in quotation marks.

The anatomy of a function

```
function example () {

    var x = “Hello World!”;

}
```

This **semicolon** marks the end of a single line of code. Every line will end in a semicolon such as this one.

The `<script>` tag

- Each language has their own unique tag for where the code for that language goes.
  - HTML tag is **`<html>`**
  - CSS tag is **`<style>`**
  - *JavaScript tag is* **`<script>`**
    - **All JavaScript code goes in between the opening tag `<script>` and the closing tag `</script>`**

Let’s write some JavaScript!

- We are going to make a site where you push a button and make a secret message pop up!

Let’s write some JavaScript!

```
<!DOCTYPE html>

<html>

    <h1>Hello world!</h1>

</html>
```

Let's write some JavaScript!

```
<!DOCTYPE html>

<html>

    <h1>Hello world!</h1>

    <button>Click me!</button>

</html>
```

Let's write some JavaScript!

```
<!DOCTYPE html>

<html>

    <h1>Hello world!</h1>

    <button onclick = "displayMessage()">Click me!</button>

</html>
```

Let's write some JavaScript!

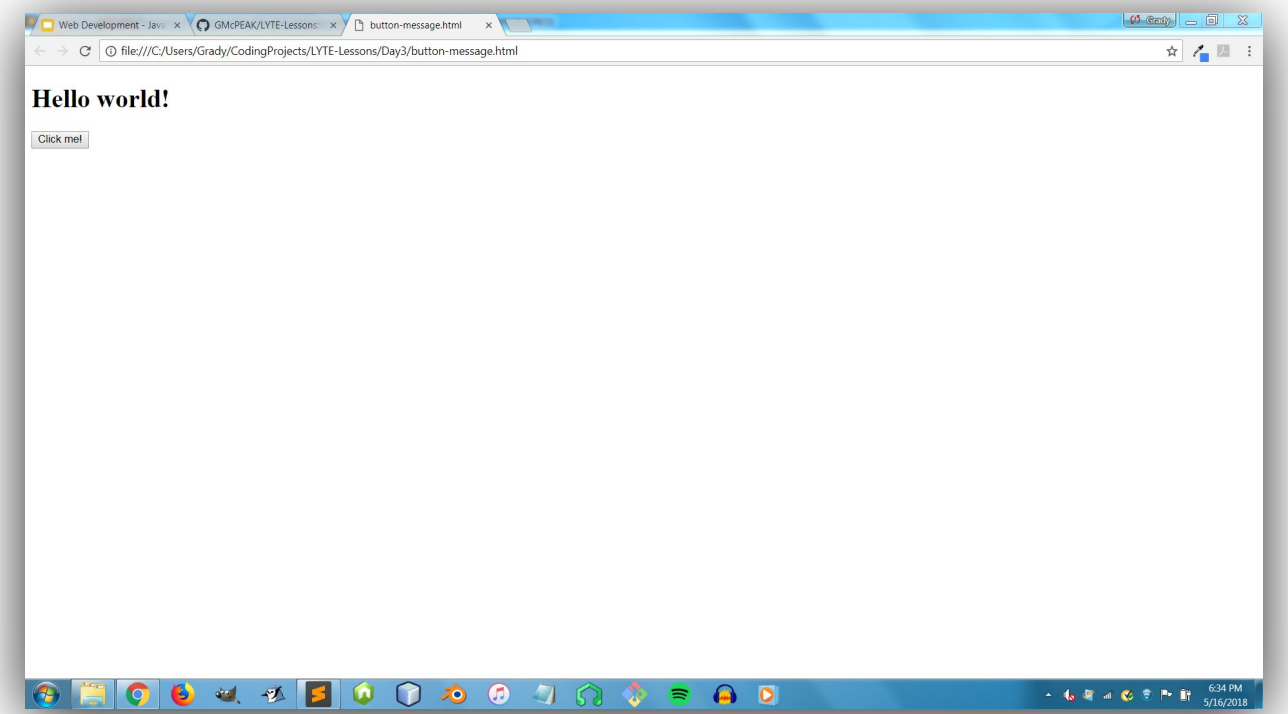
```
<!DOCTYPE html>

<html>

    <h1>Hello world!</h1>

    <button onclick = "displayMessage()">Click me!</button>

</html>

<script>

</script>
```

Let's write some JavaScript!

```
<!DOCTYPE html>

<html>

     <h1>Hello world!</h1>

     <button onclick = "displayMessage()">Click me!</button>

</html>

<script>

function displayMessage () {

          alert("Secret message goes here!");

     }

</script>
```

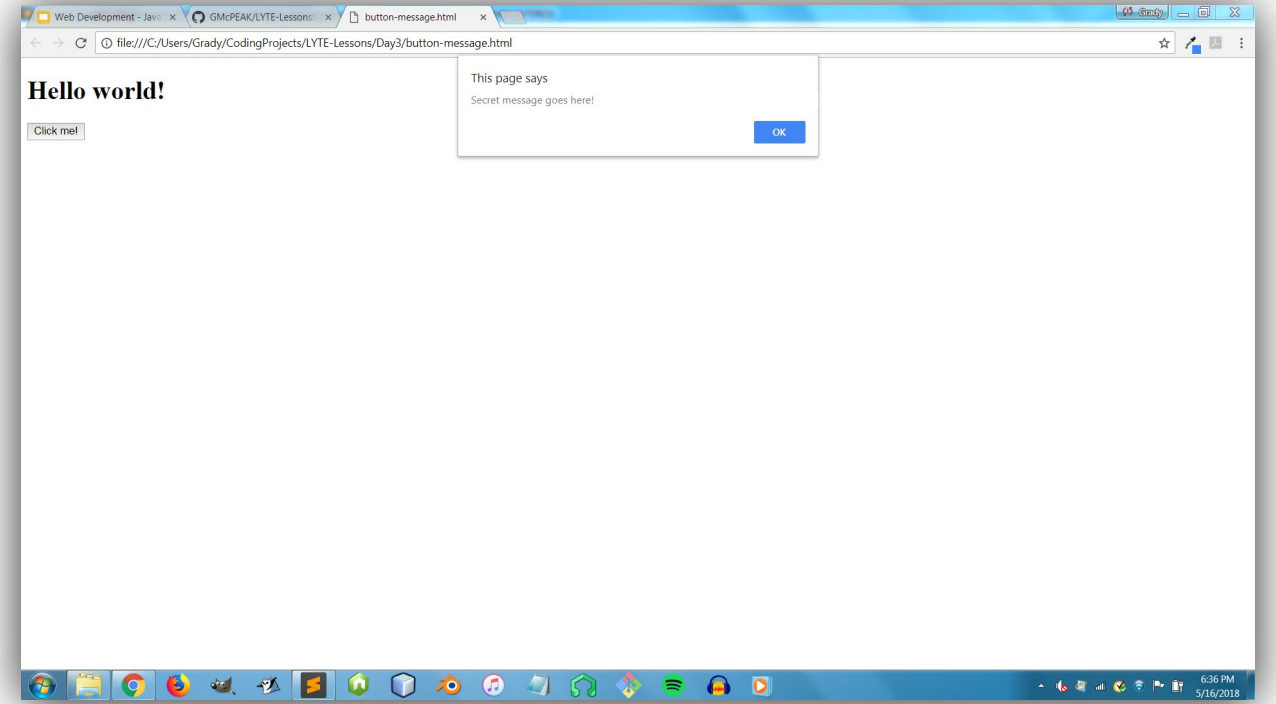
Let's write some JavaScript!

Your site should look like this...



Let's write some JavaScript!

And when you press the button, it should look like this...



Mixing all 3 languages!

- Here, all three languages are working together to create something!

```
<!DOCTYPE html>
<html>
     <h1 id = "colorful">Hello world!</h1>
     <button onclick = "changeColor()">Click me!</button>
</html>
<script>
     function changeColor () {
          var x = document.getElementById("colorful");
          x.style.color = "blue";
     }
</script>
```

Mixing all 3 languages!

- **HTML** in red

```
<!DOCTYPE html>
<html>
     <h1 id = "colorful">Hello world!</h1>
     <button onclick = "changeColor()">Click me!</button>
</html>
<script>
     function changeColor () {
          var x = document.getElementById("colorful");
          x.style.color = "blue";
     }
</script>
```

Mixing all 3 languages!

- **CSS** in blue

```
<!DOCTYPE html>
<html>
     <h1 id = "colorful">Hello world!</h1>
     <button onclick = "changeColor()">Click me!</button>
</html>
<script>
     function changeColor () {
          var x = document.getElementById("colorful");
          x.style.color = "blue";
     }
</script>
```

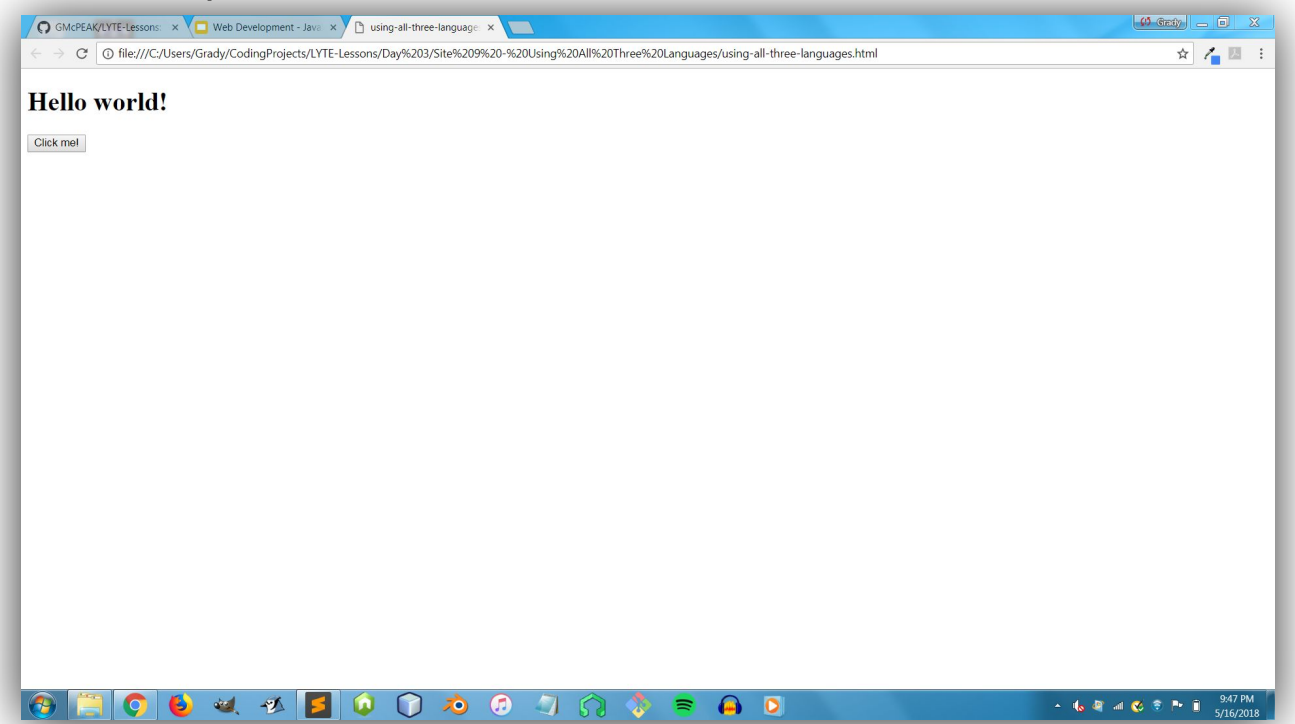
Mixing all 3 languages!

- **JavaScript** in green

```
<!DOCTYPE html>
<html>
     <h1 id = "colorful">Hello world!</h1>
     <button onclick = "changeColor()">Click me!</button>
</html>
<script>
     function changeColor () {
          var x = document.getElementById("colorful");
          x.style.color = "blue";
     }
</script>
```

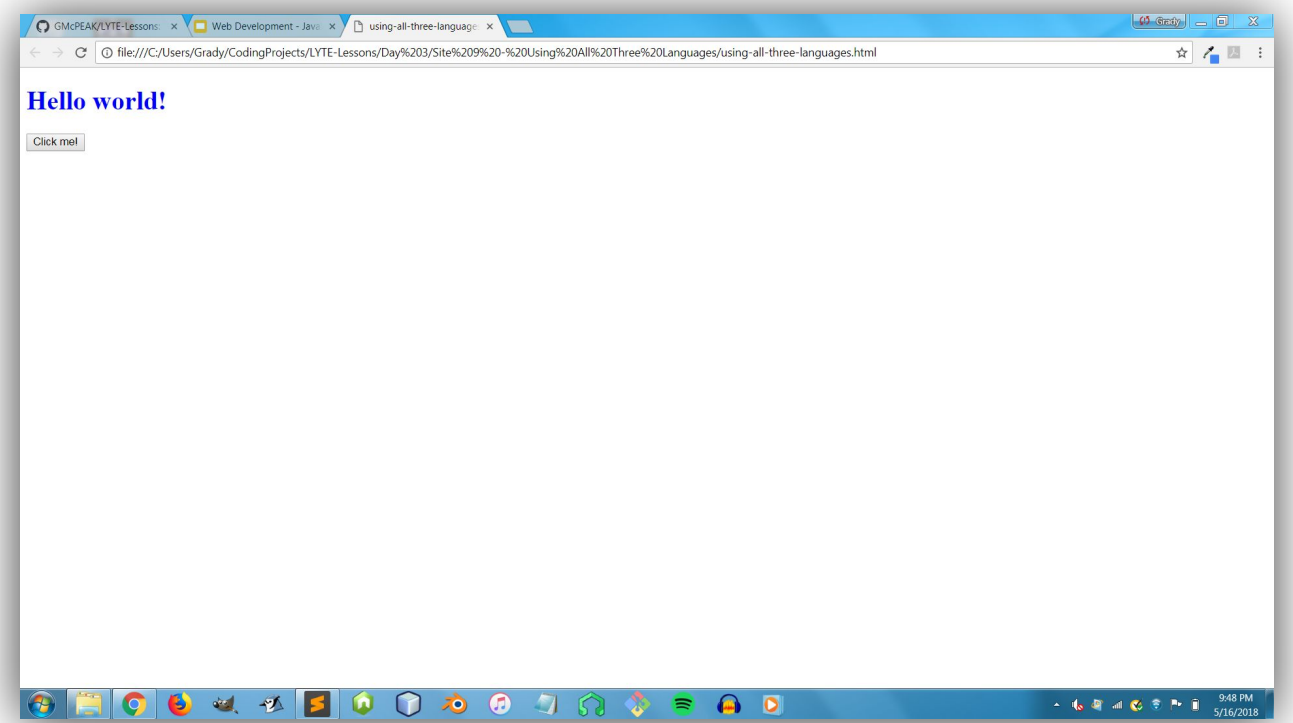
Mixing all 3 languages!

(Before button click)



Mixing all 3 languages!

(After button click)



Resources

All webpages, slide shows, images, and **bonus sites** from these lessons can be found on a website called **GitHub**.

You can find all this stuff at https://github.com/GMcPEAK/LYTE-Lessons

Resources

- *The sources below are excellent for various aid and further instruction on how to learn even more about code!*
  - **W3Schools -** web pages on various important concepts in web development
  - **FreeCodeCamp -** free interactive walkthrough lessons on programming
  - **Codecademy -** more learning and instruction
  - **StackOverflow -** a forum where people can post code-related questions and other users can provide answers
  - **... and more!**