**Module #10 - Jiggle into Javascript (Required)**

You've been through a lot already, but now it's time to bring out the big guns!

Using Javascript, you'll be able to power your websites with effects, with interactivity, with data communication, and with much more. Throughout the course of the bootcamp, you'll be spending nearly 15 weeks on Javascript alone. It's a critical tool in every web developer's arsenal so let's take an introductory look now.

**The Joys of Javascript**

Javascript (or JS for short) is a high-level dynamic programming language that underpins the web. Javascript, along with HTML and CSS, is one of the core technologies that makes our web experience what it is.

Like C++, Java, Ruby, and Python, Javascript is written with all the fixings expected of a complete programming langauge. In it, you will find variables, conditionals, loops, functions, and so much more. We'll be using Javascript extensively to create the logic that defines the behavior of our web applications.



**How to Javascript**

While the full power of Javascript is beyond the scope of this pre-work, let's get a small taste of what's possible.

Go ahead and open your Sublime editor and create a new file called index.html. Then copy the below code into this file and save it somewhere on your computer.



<!DOCTYPE html>

<html>

<head>

<title>Jiggle Into JavaScript</title>

</head>

<body>

<p>Press the buttons to move the box!</p>

<div id="box" style="height:150px; width:150px; background-color:orange; margin:25px"></div>

<button id="shrinkBtn">Shrink</button>

<button id="growBtn">Grow</button>

<button id="resetBtn">Reset</button>

<script type="text/javascript">

</script>

</body>

</html>

If you view this page in the browser, you should see a page that looks like the below.

Pretty fancy!

The thing is... if you try clicking the buttons, you will quickly realize that they have no impact on the position of the box. No fun whatsoever. This is where Javascript comes in.

Copy the below code over your previous HTML file and re-save.



 <!DOCTYPE html>

<html>

<head>

<title>Jiggle Into JavaScript</title>

</head>

<body>

<p>Press the buttons to move the box!</p>

<div id="box" style="height:150px; width:150px; background-color:orange; margin:25px"></div>

<button id="shrinkBtn">Shrink</button>

<button id="growBtn">Grow</button>

<button id="resetBtn">Reset</button>

<script type="text/javascript">

document.getElementById("shrinkBtn").addEventListener("click", function(){

document.getElementById("box").style.height = "25px";

});

document.getElementById("growBtn").addEventListener("click", function(){

document.getElementById("box").style.height = "250px";

});

document.getElementById("resetBtn").addEventListener("click", function(){

document.getElementById("box").style.height = "150px";

});

</script>

</body>

</html>

Now open the file once again in the browser.

This time, clicking the buttons will lead to changes in box height.

**The Magic Behind the Magic**

So how did that work?

The essence of this interactivity sits between our two script tags on lines 16 and 36. There you'll see a series of code blocks responsible for the changes being made. Let's take a moment to dissect the components:

1. The lines each begin with document.getElementById. In a way, this is simply a reference to say, "If you ever click the button with an id that matches then do *something*". These id's (e.g. shrinkBtn, growBtn, and resetBtn) correlate with the id's of the buttons in the HTML.
2. The lines then continue, to say that we'll addEventListener("click"...). This code effectively means that we'll be *watching* for any clicks on our targeted buttons.
3. We then open up a function with some code inside. This code targets the box id and re-styles the height to an arbitrary pixel size. In a way, we're using Javascript to dynamically change the CSS of our box in response to button clicks.

While the syntax may seem scary, the concepts are simple. Take a few moments to experiment some more. [Here](http://www.w3schools.com/jsref/dom_obj_style.asp) you can find an entire table of changes you can make using the document.style syntax we're using above.

**Is That All?**

Unfortunately, this simple example doesn't even scratch the surface. Through Javascript (and its cousin jQuery), you can build truly powerful web applications with complex user interfaces, with dynamic live-reloading data visualizations, with geolocation tools, and with so much more. There's so much that Javascript can do so come prepared to have your mind blown repeatedly over the course of the coming six months.

**Your Turn!**

Now it's time to step up to the JS bat. For the final assignment of this pre-work, you'll be taking your elementary knowledge of Javascript to create a similar box-modifying application. The syntax might be tricky, but through a little persistence, you'll be box-changing in no time.

**Assignment (Required):**

* [Watch That Box](https://the-coding-bootcamp.gitbooks.io/pre-work-book/content/assignment10.html)

**Additional Reading:**

* [W3 Schools - Intro to JS](http://www.w3schools.com/js/js_intro.asp)

**Supplemental Resources (Recommended):**

* [Learn Javascript - CodeCademy](https://www.codecademy.com/learn/javascript)
* [Javascript Road Trip - Code School](https://www.codeschool.com/learn/javascript)

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**Assignment #10: Jiggle into JavaScript**

**Overview**

In this assignment, you will be using Javascript to change the CSS properties of a box upon button clicks.

**Before You Begin**

You may want to spend a little time reading through each of the below references. Just skim enough to get the high-points.

* [onClick Events](http://www.w3schools.com/jsref/event_onclick.asp)
* [JavaScript Click Exampls](http://www.w3schools.com/js/tryit.asp?filename=tryjs_events_onclick)
* [JavaScript HTML DOM Events](http://www.w3schools.com/js/js_htmldom_events.asp)

**Instructions**

1. Create two files on your computer using Sublime Text. One should be called index.html, and the other should be called javascript.js. These should be in the same directory.
2. Then copy (and save) the code below into your HTML file. This is your starting HTML.



 <!DOCTYPE html>

<html>

<head>

<title>Jiggle Into JavaScript</title>

<!-- <script type="text/javascript" src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.1.0/jquery.min.js"></script> -->

</head>

<body>

<p>Press the buttons to change the box!</p>

<div id="box" style="height:150px; width:150px; background-color:orange; margin:25px"></div>

<button id="button1">Grow</button>

<button id="button2">Blue</button>

<button id="button3">Fade</button>

<button id="button4">Reset</button>

<script type="text/javascript" src="javascript.js"></script>

</body>

</html>

   3. Now write your Javascript in the Javascript.js file such that clicking the buttons  
       re-styles the box appropriately (i.e. When a user hits "Grow" the box should increase in  
       size, when a user hits "Fade" the box should change opacity, etc.).

   4. After you finish, include both your HTML file and CSS file in your Pre-Work Submission  
       folder.

   5. After you finish, upload your code to (however they are going to upload it).

**Bonus**

Try adding a few buttons of your own, with different CSS effects. There's a LOT more than box-changing that you can do with Javascript, but it's a fun start!

**Hints**

* Push yourself here. Be resourceful and use Google searches if you get stuck. There's plenty of material to learn from.
* If you don't quite get it to work, submit what you have! No shame in not knowing just yet. You've got six months to figure this stuff out.

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