



JavaScript Level One

JavaScript Level One



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- Welcome to the first JavaScript Section!
- This will begin to build our understanding of adding interactive functionality to our websites!



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- Javascript support is built directly into modern web browsers.
- We can run Javascript directly into the browser console, or as a full .js script connected to an HTML file.



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- Javascript is a full programming language, meaning unlike HTML or CSS it supports things such as arrays, loops, and general logic.
- We will briefly cover major programming concepts as we encounter them with JS!



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- Eventually we will show how to use Javascript to directly change the HTML or CSS shown on a page.
- To begin with however, we will focus on just the Javascript basics by itself.



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- We'll start off with JS in the console.
- Later on we will have full .js scripts and connect them to our HTML.
- All the code used in this section can be found as .js scripts under the Javascript_Level_One folder.



Let's get started!

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Part 1 - Javascript Basics

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- Let's go to our browser, open up our console and walk through the basics of Javascript.



Part 2 - Connecting Javascript

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- We learned quite a bit in the last lecture, so let's take a break and just show you how to connect Javascript to an HTML file!
- We'll open up Atom and the browser for this!



Part 3 - First JS Exercise

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- Let's get some practice with your new skills!
- You will create a very simple website that takes in a weight in Imperial pounds (lbs) and converts it to kilograms.



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- The HTML is already done, all your work will be in the connected .js file.
- The relevant files are:
 - Part3_Exercise.html
 - Part3.js



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- At the bottom of the HTML file is the connection to the solution .js file, make sure to change it to your own .js file before you start!
- Let's quickly explore the exercise!



Part 4 - Operators

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- It is time to learn about Comparison and Logical Operators with Javascript.
- These operators allow us to begin to add logic to our Javascript Code.
- There are also 5 optional quick exercises at the end of this lecture!



Part 5 - Control Flow

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- Control Flow is a fundamental aspect of any full programming language.
- It allows us to execute code if a certain situation arises.
- We use it in combination with logical and comparison operators.



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- In case this is your first time programming, let's briefly go over the main concepts.
- If you've programmed in other languages before, you may find it more useful just to reference the notes for the JS syntax!



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- We will initiate some condition check that returns a boolean, either True or False.
- Based off those results we use control flow to execute a specific block of code.



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- IF statement
- ```
if (condition){
 //Execute some Code
}
```



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- IF ELSE statement
- ```
if (condition){  
    //Execute some Code  
}else{  
    // Execute some other Code  
}
```



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- IF, ELSE IF, ELSE statement
- ```
if (condition one){
 //Execute some Code
}else if(condition two){
 // Execute some other Code
}else{
 // Execute some backup Code
}
```





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- Alright, let's code through some examples!



# Part 6 - While Loops

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- Let's learn about While Loops.
- Loops allow us to automatically repeat blocks of code.
- The While Loop will continually execute code as long as a condition remains true.



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- While Loop
- ```
while(condition){  
    // Execute some code while  
    // this condition is true  
}
```



Part 7 - For Loops

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- Let's learn about For Loops
- If you've only dealt with Python before, you may want to watch this lecture as the syntax will appear quite different to you!



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- For Loops allow you to continually execute code a specific number of times.
- Javascript has three types of For Loops:
 - For - loops through a number of times
 - For/In - loops through a JS object
 - For/of - used with arrays



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- A quick note, previously we used the notation:
 - `num = num + 1`
 - `num += 1`
 - `num++`
- These are all the same



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- For Loop
- ```
for (statement1;statement2;statement3){
 // Execute some code
}
```



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- Statement 1 is executed before the loop (the code block) starts.
- ```
for (statement1;statement2;statement3){  
    // Execute some code  
}
```



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- Statement 1 is executed before the loop (the code block) starts.
- ```
for (var i = 0; statement2; statement3){
 // Execute some code
}
```



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- Statement 2 defines the condition for running the loop
- ```
for (var i = 0; statement2; statement3){  
    // Execute some code  
}
```



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- Statement 2 defines the condition for running the loop
- ```
for (var i = 0; i < 5; statement3){
 // Execute some code
}
```



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- Statement 3 is executed each time after the loop cycles through.
- ```
for (var i = 0; i < 5; statement3){  
    // Execute some code  
}
```



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- Statement 3 is executed each time after the loop cycles through.
- ```
for (var i = 0; i < 5; i++) {
 // Execute some code
}
```



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- This is the most common For Loop structure you will see in Javascript
- ```
for (var i = 0; i < 5; i++) {  
    // Execute some code  
}
```




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- For example a string is just a sequence of characters.
- Imagine we wanted to print each letter in a particular string.
- We could use the following...



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- Print every letter
- ```
var word = "hello"
for (var i = 0; i < word.length ; i++){
 console.log(word[i])
}
```



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- Let's see some examples of these two types of For Loops, later on we will cover the For/Of method when we discuss arrays.



# Part 8 - Loop Exercises

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- Located under the Javascript\_Level\_One folder, the file is:
  - Part8\_Loops\_Exercise.js



# Part 8 - Loop Exercises Solutions

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# Part 9 - JS Level One Project

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- We've completed all the lectures for JS Level One, now it is time for a project!
- For this project you will be creating a simple website that asks a visitor questions using JS and the `prompt()` function.





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- Through these questions you will secretly be checking to see if there is a spy present!
- The spy is going to answer the questions in a very particular way.



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- Behind the scenes you will use JS to check for these certain correct answers to the questions.
- If you find the spy, you will leave a message in the console for them to check!



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- You will need to check the `Part9_JS_Project.html` file for the full instructions.
- An example solution is located under `Part9.js` , so remember to link to your own .js script before getting started!



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- Let's briefly explore the instruction page and an example!



# Part 9 - JS Level One Project - Solution

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