LESSON 07 - INTRO TO PROGRAMMING

CONGRATULATIONS!!

AGENDA

- Learning Objectives
- Review HTML/CSS and the DOM
- Introduction To Programming
- What JS Can Do
- Reading JS
- Lab

LEARNING OBJECTIVES:

AFTER TODAY, YOU SHOULD BE ABLE TO...

- Gain an overview of the Javascript landscape and its placement in the web development ecosystem
- Practice programmatic thinking by writing pseudo-code and reading Javascript code
- Predict DOM output / changes by reading JS code.

HOUSEKEEPING

But first, a few housekeeping notes...

CLASSROOM CULTURE & VALUES

- Be present and involved
- Be respectful of other people's time
- Honor your commitments
- Be patient!
- Step out of your comfort zone
- Share your Knowledge

Increased Lab Time

Important:

Going forward, when starting your homework, please duplicate the "starter_code" folder/create new folder in the Assignment directory for that week, and rename it to: first/last initials + " homework"

`MS homework`

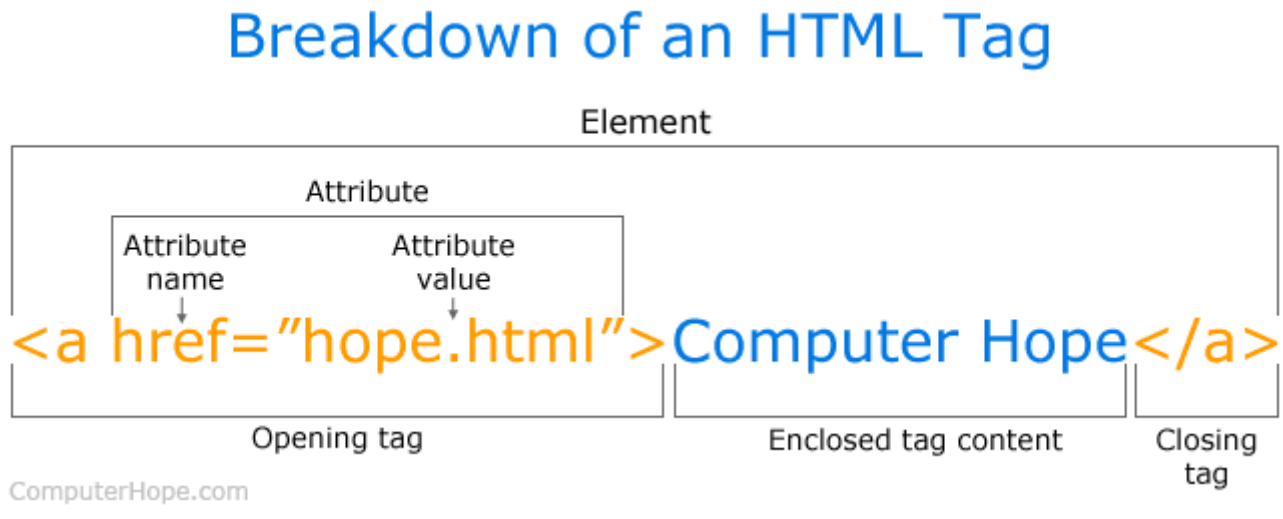
1 ON 1 - PROGRESS AUDITS

Lastly, going forward, Open Office Hours will be ***appointment only***

HTML/CSS AND THE DOM REVIEW

HTML ELEMENTS

ANATOMY OF AN HTML ELEMENT



CONTENT TAGS

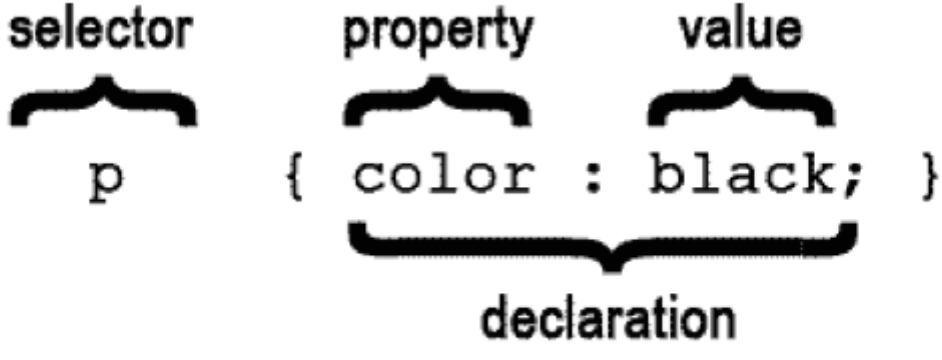
- `<p> ... </p>`
- `<h1> ... </h1>`
- `<span> ... </span>`
- `<a href="#"> ... </a>`
- `<img src="...">`
- And more...

STRUCTURAL TAGS

- `<div> ... </div>`
- `<section> ... </section>`
- `<header> ... </header>`
- `<aside> ... </aside>`
- `<nav> ... </nav>`
- `<footer> ... </footer>`
- And more...

CSS PROPERTIES

ANATOMY OF A CSS DECLARATION



CSS SPECIFICITY AND INHERITANCE

```
body {
    font-family: 'Helvetica', sans-serif;
    color: black;
    font-size: 22px;
}

footer .container p {
    color: white;
    font-size: 14px;
}
```

CLASS AND ID SELECTORS

- **ID:** The `id` attribute is unique. It can only be used once in an HTML document. Use the hashtag (#) to select the id in CSS

```
#id-name {
...
}
```

- **Class:** The `class` attribute, on the other hand, is **NOT** unique. It is designed to be used repeatedly in an HTML document. Use the period (.) to select the class in CSS

```
.class-name {
...
}
```

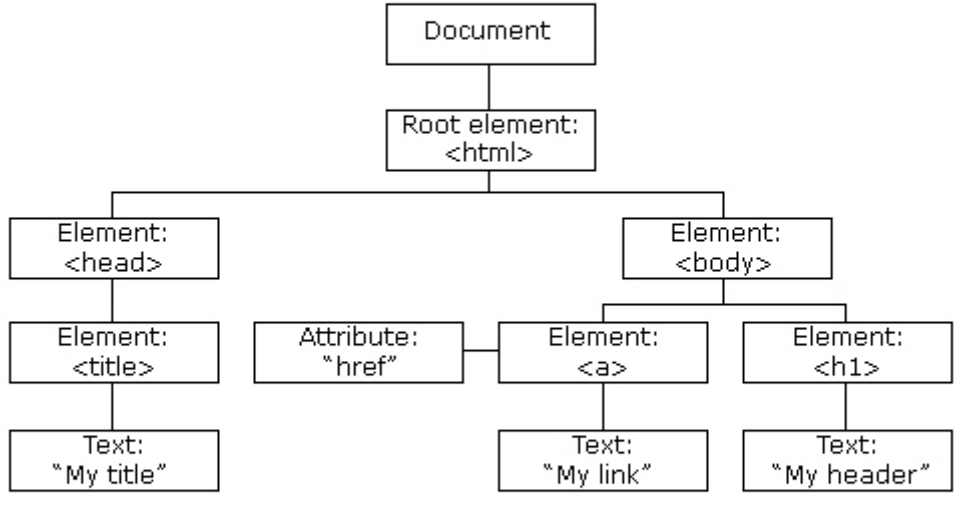
HTML DOCUMENT STRUCTURE

BASIC HTML TEMPLATING

```
<!DOCTYPE html>
<html>
    <head>
        <title> ... </title>
        <link rel="stylesheet" type="text/css" href="">
    </head>

    <body>
        ...
    </body>
</html>
```

DOCUMENT OBJECT MODEL



PULSE CHECK HTML/CSS AND THE DOM REVIEW

Given the DOM tree, can you write out the HTML structure?

INTRODUCTION TO PROGRAMMING

WHAT IS A PROGRAM

A **program** is a set of instructions that you write to tell a computer what to do.

Thus, **programming** is the task of writing those instructions in a language that the computer can understand.

BECOMING A PROGRAMMER...

... isn't about the programming language. It is about changing how **YOU** think.

But first, we need to know how the computer thinks...

HOW DOES A COMPUTERS "THINK"?

The short answer is that they don't think.

The slightly longer answer is that while computers don't think, they act as if they do, by sequentially executing simple instructions.

The only things a computer knows are the things we tell it.

Meaning... you need to **BE EXPLICIT!!**

PULSE CHECK REVIEW

Can you identify the different places JS is used on this website: MSiddeeq.com?

PSEUDOCODE

Note:

- **CURRENT TIME:** 7:15pm
- *5 minutes*

Note:

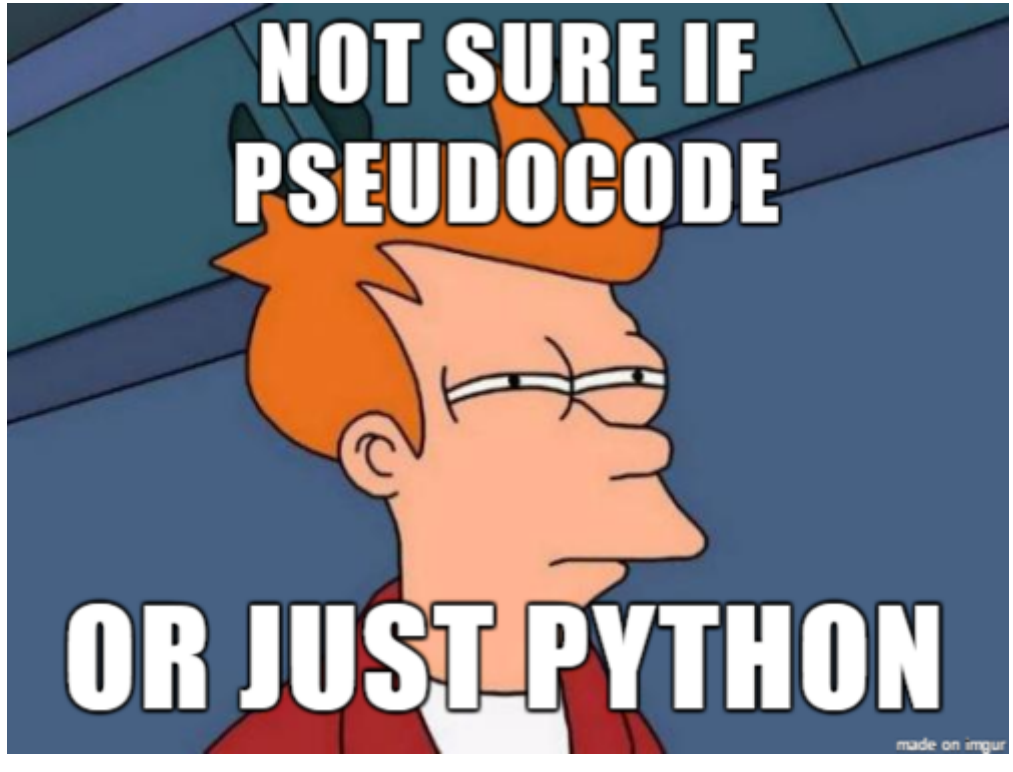
WHAT IS PSEUDOCODE?

Pseudocode is the logical representation of your program written in plain english.

It is **NOT** written in any specific coding language.

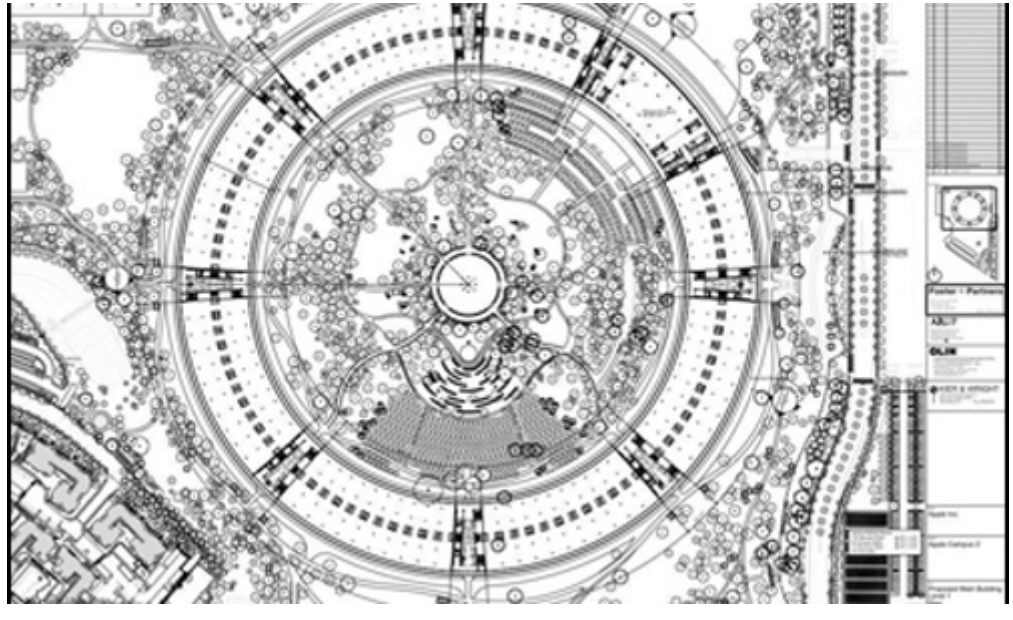
It is meant to help a developer plan out the flow of a program *before* they start writing the actual code

Ideally, it should also help non-programmers understand what a program is supposed to do



RENDERING (PSEUDOCODE)

BLUEPRINT (CODE)



THERMOSTAT

WE DO: Let's write pseudo code that determines when the thermostat's AC turns on or off.

THERMOSTAT PSEUDOCODE RESULT

```
Set target temperature to 72 degrees

Repeat the following steps:

    Get current temperature

    If target temperature < current temperature
        then, turn on the A/C

    If target temperature >= current temperature
        then, turn off the A/C
```

ROCK PAPER SCISSORS

YOU DO: Your turn to write psuedo code for a game of "Rock Paper Scissors"

ROCK, PAPER, SCISSORS PSEUDOCODE RESULT

```
Get available options (rock, paper, scissors)

Get user selection (user types in selection)

Get computer selection (select from available options)

If user selection is the same as computer selection
    then, say âItâs a tieâ

If user selection is ârockâ AND computer selection is âpaperâ
    then, say âYou Loseâ

If user selection is âscissorsâ AND computer selection is âpap
    then, say âYou Winâ
```

REMEMBER

Focus on solving the problem first! Then, you can come back and simplify your (pseudo)code (this is called refactoring)

5 MINUTE BREAK

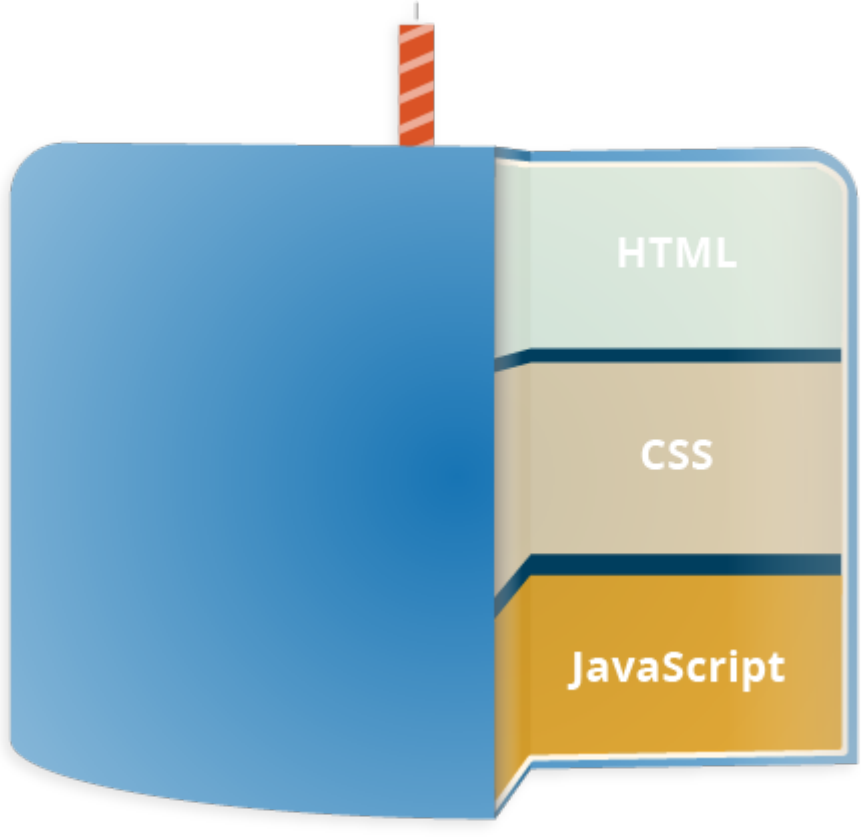
INTRO TO JAVASCRIPT

WHAT IS JAVASCRIPT?

Technically... Javascript is an object-oriented computer programming language commonly used to create interactive effects within web browsers.

Put simply, Javascript is just a series of instructions for your web browser.

It is the third layer of the "layer cake" of standard web technologies, two of which (HTML and CSS) we've covered in the last 3 weeks.



And if HTML is the "skeleton" (structure) and CSS is the "skin" (look & feel)...

Then, Javascript is the "muscle" that makes websites interactive.

Javascript is primarily used for (among other things):

- DOM manipulation
- Input/Output
- Client-side data validation
- Displaying popup windows and dialog boxes
- Application Programming Interfaces (APIs)
- Server-side database

PULSE CHECK REVIEW

Let's take a look at some JS on some familiar websites...

Can you identify the different places JS is used?

As you can see, JS is primarily used for DOM manipulation on my website.

We'll go deeper into the different parts of Javascript in the coming weeks...

COLOR SWITCHER

WE DO: Codepen

TRAFFIC LIGHT

YOU DO: Codepen

LEARNING OBJECTIVES REVIEW

- We gained an overview of the Javascript landscape and its placement in the web development ecosystem
- We practiced programmatic thinking by writing pseudo-code and reading Javascript code
- We predicted DOM output / changes by reading JS code.

EXIT TICKETS

Let's spend 5-10 minutes to fill out today's Exit Survey

LESSON 08 PREVIEW

We will introduce jQuery and how it relates to Javascript

Also, begin thinking about what you want to do for your final projects