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Frontend Basics

An intro to HTML/CSS & JS!

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Today's Agenda

HTML	CSS	JavaScript
An intro to HTML	An intro to CSS	An intro to JavaScript

Coding Demonstration
Coding a basic webpage

HTML

What's HTML?
Elements, attributes, and more!

Learn more here: www.w3schools.com/html

What is HTML?

HTML (HyperText Markup Language) is a **standard markup language** used to create documents that will be displayed on a browser.

An HTML document is composed of a series of **elements**.

Every HTML document uses a **DOM model**.

It's the most fundamental language for web development!

HTML Basics

All HTML documents begin with a <!DOCTYPE html> declaration, followed by <html>, <head>, and <body> elements.

An HTML element is defined by a **start tag**, **content**, and an **end tag**.
(e.g. <tagname> Content… </tagname>).

Basic HTML elements include **headings** (<h1>, <h2>, etc.), **paragraphs** (<p>) and **lists** (<ul>, <li>).

Some HTML elements have **attributes**, such as links (<a **href**="#">), images (<img **src**="cat.jpg">), and forms (<input **type**="text">).

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>Page Title</title>
5  <link rel="stylesheet" href="css/styles.css">
6  </head>
7  <body>
8      <div class="container" id="workshop-box">
9          <h1>Here's a...</h1>
10         <img src="images/cat.jpg">
11         <p>Cute cat!</p>
12     </div>
13 </body>
14 </html>
```

Best Practices

Ideally, an HTML document should be **accessible**.

Examples include:

1. Adding **alt text** to images (e.g. <img src="cat.jpg" alt="image of a cat">)
2. Adding **metadata** (e.g. <meta charset="UTF-8"> in <head>)
3. Using **semantic elements** (e.g. <header>, <main>, <footer> etc.)

CSS

What's CSS?
Selectors, declarations, and more!

Learn more here: www.w3schools.com/css

What is CSS?

CSS (Cascading Style Sheets) is a **style sheet language** meant to **describe** how elements within an HTML document are displayed.

An CSS file contains **selectors** with **declarations** that defines an HTML element's display.

CSS lessens the workload, and one CSS file is applicable to multiple HTML files.

CSS is often always stored as **external stylesheets** (i.e. .css files).

CSS Basics

A **CSS rule** consists of a **selector** and **declaration**.
(e.g. h1 {font-size: 2em; })

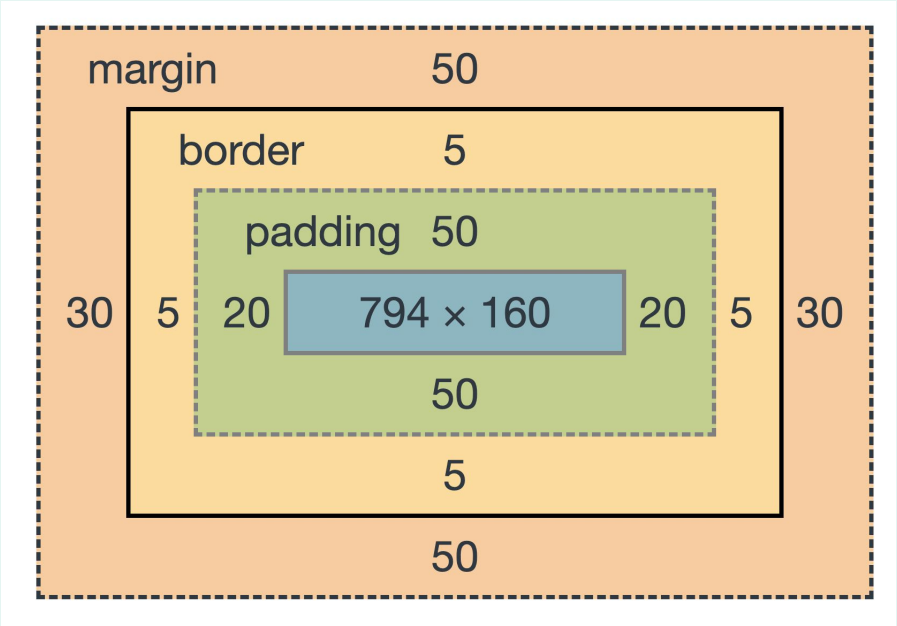
A selector can be either an **id** (e.g. #main-container) or a **class** (e.g. .container)

There are many CSS properties, which control properties such as **element size** (e.g width, height, max-height, etc), **display & positioning** (e.g. display, float, position, etc) and **colours & backgrounds** (e.g. color, background-color, background-image, etc.).

When working with **borders**, **padding**, and **margin**, CSS follows a **box model**.

```
3   .container {
4       width: 200px;
5   }
6
7   #workshop-box {
8       font-family: 'Inter', Arial, sans-serif;
9       border: 10px solid #305dbf;
10      border-radius: 5px;
11      padding: 10px 20px;
12  }
13
14  img {
15      width: 100px;
16      height: 100px;
17  }
18
19
```

The Box Model



JavaScript

What's JavaScript?
Arrow functions, variables, and more!

Learn more here: www.w3schools.com/js

What is Javascript?

JavaScript is a **programming language** that is used to define a web page's behaviour.

JavaScript can **change HTML content**. (e.g. document.getElementById("demo").innerHTML = "Hello JavaScript";).

JavaScript is:

- Meant to program the behaviour of web apps
- Designed to be easy to learn
- One of the world's most popular programming languages

In this workshop, we'll only learn just enough for the live demonstration.

Variables

```
1    var num1 = 1;
2    let num2 = 2;
3    const num3 = 3;
```

Variables are containers for **storing data**.

A variable is declared with:

- **const** if you would like the data to be **immutable**.
- **var** if you would like the data to be **mutable** and **function-scoped**
  - Nowadays, you don't usually use var!
- **let** if you would like the data to be **mutable** and **block-scoped**

Data Types

Data types define the **type** of a **variable**.

JavaScript is not strongly-typed language, meaning the same variable can hold different values.

```
1   let length = 16; // Int
2   let lastName = "Zhang" // String
3   lastName = 1;
4   let isHappy = true; // Boolean
5   let x = {firstName: "Brian", lastName: "Zhang"}; // Object
6   let names = ["Brian", "Brian"]; // Array
```

Functions

A function—like in other programming languages—is a piece of code that is executed when something calls it.

Arrow functions provide **closure** to the environment around it. It allows us to shorten function syntax, writing “const hello = () => {}” rather than “const hello = function() {}”!

```
1   function myFunction(p1, p2) {
2       return p1 * p2;
3   }
```

```
1   const hello = () => {
2     return "Hello World!";
3   }
```

Now Let's Code!

Thanks for Coming!

Additional Resources

- www.w3schools.com/js
- www.w3schools.com/css
- www.w3schools.com/html