.NET C# BOOTCAMP

FRONTEND TECHNOLOGIES

HTML

GOALS FOR TODAY

- The website as communication
- Your development toolchain
- Introduction to HTML

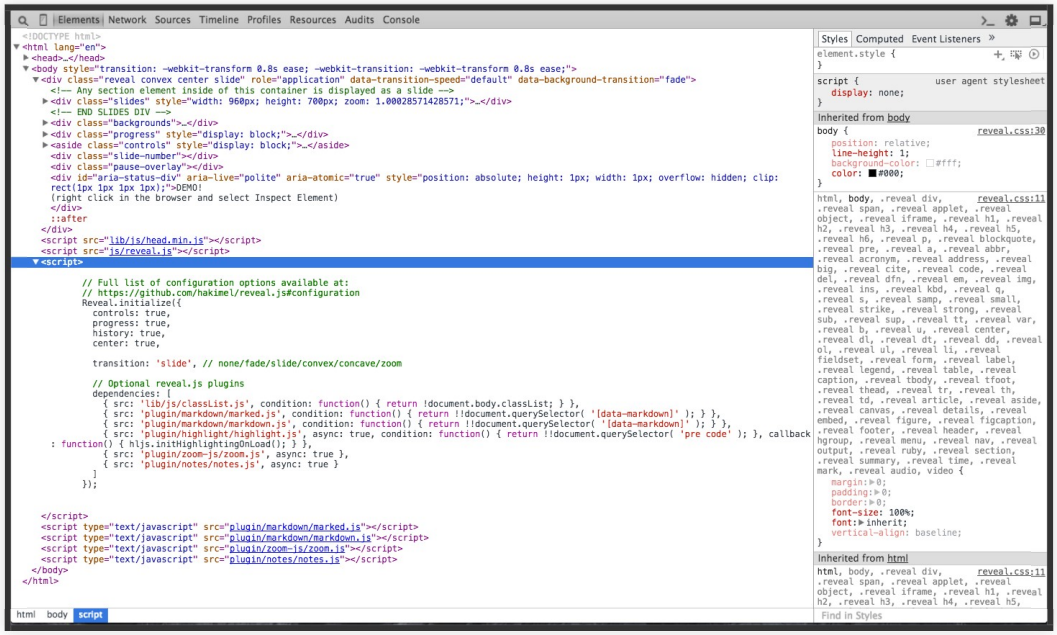
THE WEBSITE AS COMMUNICATION

Every website on the internet uses HTML & CSS.

...most of them use JavaScript as well, in one form or another.

DEMO!

(right click in the browser and select `Inspect Element`)


Elements Network Sources Timeline Profiles Resources Audits Console
<!DOCTYPE html>
<html lang="en">
<head>…</head>
<body style="transition: -webkit-transform 0.8s ease; -webkit-transition: -webkit-transform 0.8s ease;">

<!-- Any section element inside of this container is displayed as a slide -->
…
<!-- END SLIDES DIV -->
…
…
<aside class="controls" style="display: block;">…</aside>

DEMO!
(right click in the browser and select Inspect Element)

::after

<script src="lib/js/head.min.js"></script>
<script src="js/reveal.js"></script>
<script>
// Full list of configuration options available at:
// https://github.com/hakimel/reveal.js#configuration
Reveal.initialize({
controls: true,
progress: true,
history: true,
center: true,
transition: 'slide', // none/fade/slide/convex/concave/zoom
// Optional reveal.js plugins
dependencies: [
{ src: 'lib/js/classList.js', condition: function() { return !document.body.classList; } },
{ src: 'plugin/markdown/marked.js', condition: function() { return !!document.querySelector('[data-markdown]'); } },
{ src: 'plugin/markdown/markdown.js', condition: function() { return !!document.querySelector('[data-markdown]'); } },
{ src: 'plugin/highlight/highlight.js', async: true, condition: function() { return !!document.querySelector('pre code'); }, callback
: function() { hljs.initHighlightingOnLoad(); } },
{ src: 'plugin/zoom-js/zoom.js', async: true },
{ src: 'plugin/notes/notes.js', async: true }
]
});
</script>
<script type="text/javascript" src="plugin/markdown/marked.js"></script>
<script type="text/javascript" src="plugin/markdown/markdown.js"></script>
<script type="text/javascript" src="plugin/zoom-js/zoom.js"></script>
<script type="text/javascript" src="plugin/notes/notes.js"></script>
</body>
</html>
html body script
Styles Computed Event Listeners
element.style {
}
script { user agent stylesheet
display: none;
}
Inherited from body
body { reveal.css:30
position: relative;
line-height: 1;
background-color: #fff;
color: #000;
}
html, body, .reveal div, reveal.css:11
.reveal span, .reveal applet, .reveal
object, .reveal iframe, .reveal h1, .reveal
h2, .reveal h3, .reveal h4, .reveal h5,
.reveal h6, .reveal p, .reveal blockquote,
.reveal pre, .reveal a, .reveal abbr,
.reveal acronym, .reveal address, .reveal
big, .reveal cite, .reveal code, .reveal
del, .reveal dfn, .reveal em, .reveal img,
.reveal ins, .reveal kbd, .reveal q,
.reveal s, .reveal samp, .reveal small,
.reveal strike, .reveal strong, .reveal
sub, .reveal sup, .reveal tt, .reveal var,
.reveal b, .reveal u, .reveal center,
.reveal dl, .reveal dt, .reveal dd, .reveal
ol, .reveal ul, .reveal li, .reveal
fieldset, .reveal form, .reveal label,
.reveal legend, .reveal table, .reveal
caption, .reveal tbody, .reveal tfoot,
.reveal thead, .reveal tr, .reveal th,
.reveal td, .reveal article, .reveal aside,
.reveal canvas, .reveal details, .reveal
embed, .reveal figure, .reveal figcaption,
.reveal footer, .reveal header, .reveal
hgroup, .reveal menu, .reveal nav, .reveal
output, .reveal ruby, .reveal section,
.reveal summary, .reveal time, .reveal
mark, .reveal audio, video {
margin: 0;
padding: 0;
border: 0;
font-size: 100%;
font: inherit;
vertical-align: baseline;
}
Inherited from html
html, body, .reveal div, reveal.css:11
.reveal span, .reveal applet, .reveal
object, .reveal iframe, .reveal h1, .reveal
h2, .reveal h3, .reveal h4, .reveal h5,
Find in Styles

TERMINOLOGY

TERMINOLOGY

Some key terms or phrases that are used as a matter of course in the software industry. You may know some or all of these, or you may have heard the terms but be unclear about their actual meaning. They are common jargon among developers

WEB DEVELOPMENT

Web development is a broad term for the work involved in developing a web site for the Internet. In industry parlance, 'web development' usually refers to the more code-related tasks such as programming JavaScript, coding HTML and CSS. It can even extend to tasks related to the back end server infrastructure such as creating web services and handling business logic for a company or product.

WEB DESIGN

The process of planning & structuring a website; specifically, the visual aspects and assets for the site. Recently, this job description has also begun to include interaction design. That is, designing the user experience (UX), information architecture, and the flow of the application or site.

WEB SITE

A largely informational web page. While they may include dynamic elements and react to user inputs. The general purpose of a web site is to provide information about a person, business, product, or service.

WEB APPLICATION

A more recent term to indicate a web site whose sole purpose is not just informational, but rather functional. Web applications have become robust enough to do everything from our taxes, manage our personal calendars, or even do standard desktop publishing tasks.

YOUR DEVELOPMENT TOOLCHAIN

CHECKLIST

- Google Chrome
- Sublime Text / Atom.io

HTML 101

HTML

HYPERTEXT MARKUP LANGUAGE

- Developed by Tim Berners-Lee
- Developed in 1989 at CERN
- Originally developed as a way to share documents

HTML

STRUCTURE

```
<html>
  <head>
    <title>My First Website!</title>
  </head>
  <body>

    <p>Look at the amazing content of my awesome website.</p>

    <img src="Cat-picture.jpg" alt="The internet is powered by cat pictures">

  </body>
</html>
```

CSS

PRESENTATION

```css
body {
  background-color: white;
  font-size: 18px;
  color: blue;
}

p {
  text-align: center;
  font-weight: bold;
}

img {
  border: 1px solid black;
  padding: 50px;
}
```

HTML

HYPERTEXT MARKUP LANGUAGE

HTML ELEMENTS

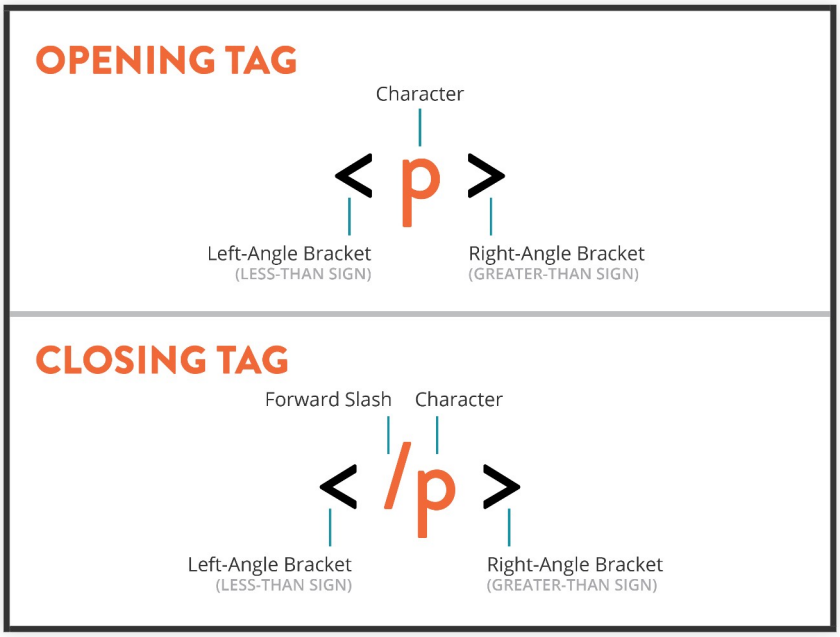
An element is an individual component of HTML

HTML TAGS

A tag marks the beginning and end of an element.

Tags are containers. They tell you something about the content between the opening & closing tags.

ANATOMY OF AN HTML ELEMENT



EXAMPLE

```
<p>This is a paragraph</p>
```

A paragraph elment consists of an opening `<p>` tag and a closing `</p>` tag and the content between the tags.

DIFFERENT KINDS OF ELEMENTS

Elements can be either container elements (they hold content) or stand-alone elements, sometimes called self-closing elements.

DIFFERENT KINDS OF ELEMENTS

Paragraph elements are containers

```
<p>Hi, I contain content</p>
```

Image elements are stand-alone

```
<img src="james.jpg" />
```

ATTRIBUTES

1. Provide additional information about HTML elements
2. Attribute tags include `class`, `id`, `style`, `language`, and `src` (source)
3. Attributes are positioned inside the opening tag, before the right bracket
4. Attributes are paired with values. Key / value pairs are an important concept in programming.
5. Selected from a pre-defined set of possible attributes depending on the element.

VALUES

1. Values are assigned to attributes
2. Values must be contained inside quotation marks

EXAMPLE ATTRIBUTES

```
<p id="trademark">An inline element<p>
```

EXAMPLE ATTRIBUTES

```
<div class="container">
  A bunch of stuff!
</div>
```

DOCTYPE

The first element on every HTML page. It tells the browser to expect HTML and what version to use.

HTML 5

```
<!doctype html>
```

HTML 4

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd" >
```

HTML TAG

After the doctype, all page content must be contained in the `<html>` tags

MAIN HTML TAGS

Tag	Description
`head`	Contains the page title and metadata
`body`	Contains all of the visible content
`title`	Optional tag. This is the name of your page. Nested in the `head` tag

NESTING

HTML elements 'nest' inside of one another. The element that opens first closes last.

NESTING EXAMPLE

```
<body>
  <div class="outer-div">
    <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod
    tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam</p>

    <a href="http://www.google.com">Google</a>

    <div class="inner-div">
      <ol>
        <li>Thing 1</li>
        <li>Thing 2</li>
        <li>Thing 3</li>
      </ol>
    </div>
  </div>
</body>
```

CONTENT TAGS

COMMON CONTENT TAGS

Tag	Description
`div`	defacto container element
`p`	used for body copy
`h1 thru h6`	designating titles/subtitles
`ol`	create a numbered list
`ul`	create an unordered list
`li`	list elements

SAMPLE HTML PAGE

```
<!DOCTYPE html>
<html>
<head>
  <title>My Totally Rad Website!</title>
</head>
<body>
  <h1>HELLO I AM JAMES AND THIS MY WEBSITE</h1>
  <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit,
    sed do eiusmod tempor incididunt ut labore et dolore magna
    aliqua. Ut enim ad minim veniam, quis nostrud exercitation
    ullamco laboris nisi ut aliquip ex ea commodo</p>

  <h4>My favorite things</h4>
  <ol>
    <li>Coding</li>
    <li>Board Games</li>
    <li>Quadcopters</li>
  </ol>
</body>
</html>
```

LINKS

ANCHOR ELEMENT

Links to other sites on the web (or within your project) are created using this element.

```
<a href="http://facebook.com">Facebook</a>
```

```
<a href="about.html">About Me</a>
```

LINK ELEMENT

Unlike the anchor element. The `<link>` specifies relationships between the current document and an external resource.

Most often this manifests as how CSS files are included with an HTML file.

```
<link src="main.css" rel='stylesheet' />
```

HTML COMMENTS

Like any other good coding language, HTML offers comments. They operat like comments in any other language. They are ignored by the browser engine.

```
<!-- Hello, I am a comment. -->
```

TABLES

TABLE ELEMENT

Tables are a way to represent complex information in a grid format. They are made of rows and columns.

Tables are compound elements (similar to lists) they are made up of several elements.

Element	Description
`<table>`	Table element
`<tr>`	Table row
`<td>`	Table cell
`<th>`	Table header cell (optional)

TABLE EXAMPLE

```
<table>
  <tr>
    <th>Business</th>
    <th>Numbers</th>
    <th>Synergy</th>
  </tr>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
    <td>Cell 3</td>
  </tr>
  <tr>
    <td>Cell 4</td>
    <td>Cell 5</td>
    <td>Cell 6</td>
  </tr>
</table>
```

Business	Numbers	Synergy
Cell 1	Cell 2	Cell 3
Cell 4	Cell 5	Cell 6

STYLED TABLES

Id	Name	Email	Investments	Action
261	Alfred Alan	aalan@gmail.com	Stocks	
227	Alison Smart	asmart@biztalk.com	Residential Property	
246	Ally Emery	allye@easymail.com	Stocks	
212	Andrew Phips	andyp@mycorp.com	Stocks	
218	Andy Mitchel	andym@hotmail.com	Stocks	
221	Ann Melan	ann_melan@iinet.com	Residential Property	
243	Ben Bessel	benb@hotmail.com	Stocks	
232	Bensen Romanolf	benr@albert.net	Bonds	
233	Brad Cole	bradc@hotmail.com	Stocks	
241	Catherine Benchman	cathb@hotmail.com	Stocks	

74 items found, displaying 1 to 10.
[First/Prev] **1**, 2, 3, 4, 5, 6, 7, 8 [Next/Last]

Table caption

Header	Header	Header	Header	Header	Header
sample data	sample data	sample data	sample data	sample data	sample data
sample data	sample data	sample data	sample data	sample data	sample data
sample data	sample data	sample data	sample data	sample data	sample data
sample data	sample data	sample data	sample data	sample data	sample data
sample data	sample data	sample data	sample data	sample data	sample data
footer	footer	footer	footer	footer	footer

A NOTE ON TABLES

You may be thinking it now or you may think later that tables would be a great way to position content for site...

Don't do that. Just... don't. Trust me on this. It's not a good idea and it will give me an ulcer.

(srsly, don't)

WHAT'S WRONG WITH THIS CODE?

Look at the following examples and tell me what is wrong with the code.


<html>
<head>
<body>
</head>
</body>
</html>

```
<html>
  <head>
    <title>The Best Site Evar!!
  </head>
  <body>

    <p>Check out this riveting content!</p>

  </body>
</html>
```

```
<p style=hotStuff>Check out this riveting content!</p>
```

FOLDER STRUCTURE

This stuff is not exciting but it's *important*.

MAKING FOLDERS

Let's make sure you know how to make a folder in your operating system. This might seem like a silly thing to be sure we all know how to do but it's important because you'll making lots of folders in this class.

THE RULE OF THREES

In the beginning our projects will be very simple but as our projects grow in complexity it will be beneficial to organize them. My personal rule is that if i have 3 of the same kind of file (.html, .css, etc). I will make a folder for them.

RECAP

You should understand and be able to use:

- HTML elements
- Proper nesting
- HTML Comments
- Correct folder structure

CODE ALONG

LET'S MAKE OUR FIRST WEBSITE

1. Make a folder, name it `FirstWebsite`
2. Make a file, name it `index.html`
3. Follow Along

CSS

PART TWO: CSS

GOALS FOR TODAY

- CSS Styles
- Linking HTML and CSS
- Inline and Block Elements
- Character Codes

CSS 101

CASCADING STYLE SHEETS

(remember that 'cascading' part)

CSS IN THE WILD

```
ge .slides section {
    padding: 30px;
    min-height: 700px;
    -moz-box-sizing: border-box;
    box-sizing: border-box; }

    .reveal.page .slides section.past {
    z-index: 12; }

    .reveal.page .slides section:not(.stack):before {
    content: '';
    position: absolute;
    display: block;
```

CSS RULES

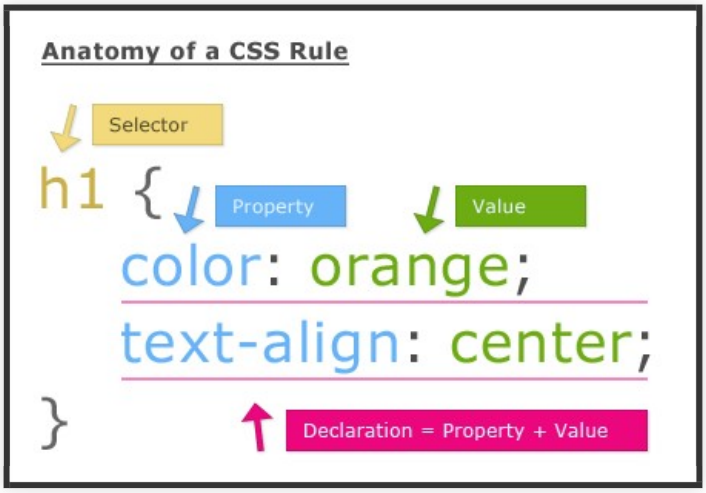
Individual components of CSS are called rules

CSS RULES

CSS rules are made up of two parts:

- One or more selectors
- One or more declarations
- The declaration must be inside curly braces that follows the selector

CSS SYNTAX


Anatomy of a CSS Rule
Selector
h1 {
Property
Value
color: orange;
text-align: center;
}
Declaration = Property + Value

CSS COMMENTS

Just like HTML, CSS offers comments:

```
a CSS comment,
  it can be multi-line */
```

CSS DECLARATIONS

- Declarations are made up of the property and value of the style you want to apply.
- They can be grouped together so that more than one declaration may be applied to a selected element.
- Declaration groups must be surrounded by curly brackets.
- Declarations must end in a semicolon.

```
.selector {
  background-color: red;
  color: white;
  border: 1px solid black;
  border-radius: 5px;
}
```

CSS SELECTOR

The selector instructs the browser to search the page for any HTML element that matches the given criteria. It applies any applicable declarations to that element.

CSS SELECTOR - ELEMENT

Elements can be selected by their element name. In this case, all elements of that element type will be selected and have the styles applied.

CSS SELECTOR - ELEMENT

```
p {
  position: absolute;
  top: 0px;
  left: -100px;
}
```

CSS SELECTOR - CLASS

Elements can be selected based on HTML attributes such as class. In this case all elements that have a matching class attribute will be selected.

CSS SELECTOR - CLASS

```
.timer {
  position: absolute;
  top: 0px;
  left: -100px;
}
```

CSS SELECTOR - ID

Elements can also be selected based on HTML attribute ID. In this case only one element would be selected, as HTML IDs are intended to be unique.

CSS SELECTOR - ID

```
#fluffy {
  position: absolute;
  top: 0px;
  left: -100px;
}
```

CSS SELECTOR - DESCENDENT SELECTORS

Selectors can be combined to become more specific. This example selects searches for any paragraph tag that is nested inside a div tag.

```
div p {
  position: absolute;
  top: 0px;
  left: -100px;
}
```

CSS SELECTOR - MULTIPLE

In addition a set of declarations can be applied to more than one selector by listing a number of comma-separated selectors.

```
.timer, img, div p, #kitty {
  position: absolute;
  top: 0px;
  left: -100px;
}
```

POP QUIZ HOT SHOT

Look at the following examples and tell me which Elements (if any) would be returned by the following selectors.

POP QUIZ

```
) {
  /* blah blah */
```

POP QUIZ

```
ızzy {
'* blah blah */
```

POP QUIZ

```
: {
 blah blah */
```

POP QUIZ

```
#fuzzy {
.ah blah */
```

POP QUIZ

```
ı blah */
```

QUESTIONS?

CSS PROPERTIES

CSS PROPERTIES

There are literally hundreds of css properties that are available for use. We don't have time to go over more than just a few. We will go over a few of the most common. However, the best strategy is to google for styling options as you're working.

COMMON CSS PROPERTIES

Property	Description
`background-color`	background color for an element
`color`	color of the *text* in an element
`font-family`	typeface for text
`font-size`	size for text (px, %, em, pt)
`font-weight`	used to bold text (if possible)
`text-decoration`	used for underline (mostly)
`height`	specifies the height of an element
`width`	specifies the width of an element

COLOR IN CSS

Method	Syntax	Description
color name	`white`	a list of 140 predefined colors
hexidecimal	`#FF0000`	RGB values in hex 00 - FF (0 - 255)
RGB	`rgb(255, 0, 187)`	RGB values in decimal numbers (0 - 255)
RGBA	`rgba(255, 0, 187, 0.5)`	RGB values with an added alpha (opacity) value

CSS UNITS

Method	Syntax	Description
em	`1em`	Scalable unit based on font size
pixels	`16px`	Fixed number of pixels
percent	`120%`	Percent value based on font size

FOLDER STRUCTURE

- Still not exciting
- Still important

PROJECT SETUP

Wherever you are going to keep your project work:

- Create a new folder called CSS-Exercise
- Inside that folder create two files called `index.html` & `main.css`

SET UP

LINKING HTML AND CSS FILES

Add this element to your HTML page's head

```
: href="main.css" rel="stylesheet">
```

CODE ALONG

STYLING AN HTML PAGE

SET UP

1. Make a new folder
2. Create new files `index.html` and `styles.css`
3. Set up a basic HTML page (doctype, html, head, body)
4. `link` the css file to the html page
5. Test the linkage
6. Add some HMTL content (tags, classes, and ids)

SIMPLE CSS STYLES

Include at least one of each:

- class selector
- id selector
- child selector
- multiple selectors

SIMPLE CSS STYLES

Apply the following CSS properties:

- background-color
- color
- font-family
- font-size
- one or more additional properties of your choice

CSS POSITIONING

BLOCK VS. INLINE ELEMENTS

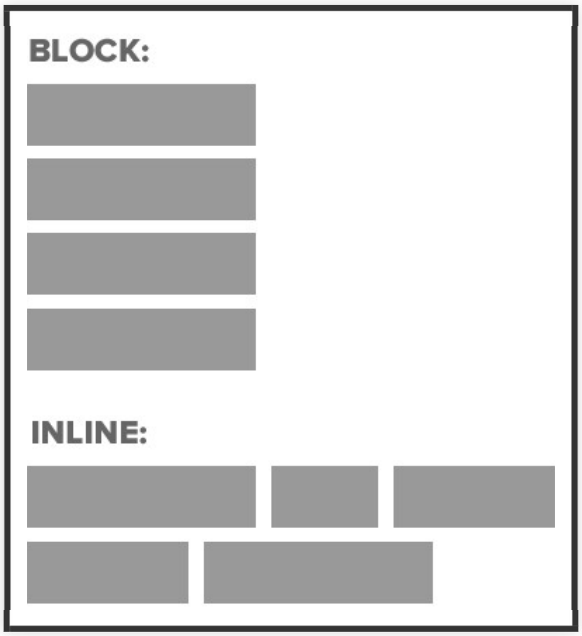
BLOCK ELEMENTS

Block elements each appear on a new line of a web page, like paragraphs. Spatially, what is happening is that the block element takes up all of the horizontal space it can. It stretches to fill all the space to the left and right of the element within its parent container.

INLINE ELEMENTS

Inline elements are rendered without starting a new line. They appear side by side until reaching the edge of its parent container. Then it will start a new line.

BLOCK VS. INLINE ELEMENTS



BLOCK VS. INLINE ELEMENTS

- *Inline element*: `<a> <img>`
- *Block element*: `<div> <p> <ul> <li> <table>`

  ...and just about everything else.

RIDDLE ME THIS

How could you make a list of anchor tags (inline element), display on a page as a verticle list?

JAVASCRIPT

GOALS FOR TODAY

1. JavaScript

WHAT IS JAVASCRIPT

JavaScript is a light-weight and object-oriented scripting language.

JS is a dynamic, cross-platform language originally used for creating interactive websites.

JS is now popular server-side and client side-side.

JavaScript runs in all browsers and most modern browsers have a JavaScript console that can be used for writing, running, and debugging code.

JavaScript is a loosely typed or dynamic language, so you don't have to declare a variable type ahead of time.

CLIENT-SIDE JAVASCRIPT

Client-side JavaScript extends the core language by supplying objects to control a browser and its Document Object Model (DOM).

SERVER-SIDE JAVASCRIPT

Server-side JavaScript extends the core language by supplying objects relevant to running JavaScript on a server.

JAVASCRIPT COMPARED TO JAVA

JavaScript	Java
Object-oriented. No distinction between types of objects. Inheritance is through the prototype mechanism, and properties and methods can be added to any object dynamically.	Class-based. Objects are divided into classes and instances with all inheritance through the class hierarchy. Classes and instances cannot have properties or methods added dynamically.
Variable data types are not declared (dynamic typing).	Variable data types must be declared (static typing).
Cannot automatically write to hard disk.	Can automatically write to hard disk.

CONSOLE OUTPUT

PRINTING TO THE CONSOLE

When programming in JavaScript, much of the output is tracked via the console.

```
("The statement you want to output.");
```

VARIABLES

VARIABLES

You must first declare a variable then initialize the variable. These can be done in one line or separate statements. The equals sign is used to assign a value.

LOOSE TYPE

Because JavaScript is loosely typed, there are two ways of declaring a variable. You can use the keyword var or you can simply assign a value to a variable name.

VARIABLE NAMING

Must begin with a letter, _, or $.

Must contain letters, numbers, _, or $.

As with Java and other languages, camel-casing and similar conventions are good practice.

DECLARE A VARIABLE

```
ıble;
 = [value];
```

INITIALIZE A VARIABLE

```
 = [value];
```

DATA TYPES

DATA TYPES

JavaScript has three primitive data types: strings, numbers, and booleans. The value of a variable differentiates its type.

```
ıble = 25;              // number
ıble = "word";      // string
ıble = "25";         // string
ılbe = true;        // boolean
```

KEYWORDS

break	continue	debugger
do...while	for	function
if...else	return	switch
try...catch	var	

OPERATORS

ARITHMETIC

Addition	+
Subtraction	-
Multiplication	*
Division	/
Modulus	%
Increment	++
Decrement	--

ASSIGNMENT

standard assignment	=
plus equals	+=
minus equals	-=
assignment by multiplication	*=
assignment by division	/=

COMPARISON

Equality	===
Inequality	!==
Greater than	>
Greater than or equal to	>=
Less than	<
Less than or equal to	<=

DOUBLE EQUALS

- 'Shallow' equals ==
- 'Shallow' inequals !=

Performs a type coercion before checking equality.

TYPE COERCION

```
true == "true"  // > false
true === "true" // > false
"1" == 1        // > true
"1" === 1       // > false
"1" != 1        // > false
```

Don't use double equals.

The equivalent to Java's == is ===.

IF/ELSE

```
)n) {
 something;

 something else;
```

```
)n) {
ıtement 1;

ıtement 2;

ıtement 3;

ıtement 4;
```

FUNCTIONS

FUNCTION DECLARATION

In JavaScript, a function can be written for reusable blocks of code. You must declare a function, give the function some instructions, and call the function.

FUNCTION DECLARATION

```
'Function( ) {
 something;

 );


'Function(parameters) {
 something;

parameters);
```

FUNCTION DECLARATION

```
'Function(x,y) {
:urn x*y;

(3,4);                          // returns 12
```

PART TWO: DOM

GOALS FOR TODAY

1. Objects in JavaScript
2. The Document Object Model (DOM)

INTERACTIVITY

PROMPT()

prompt() is a DOM method that allows a program to (you guessed it) prompt a user for input.

If the method is just called by itself, it simply returns the user's input in the form of a string. But the return from the method can also be stored to a variable and used. i.e.

```
prompt('Please enter your name');
```

CODE CHALLENGE

SETUP

Go to jsbin.com

STEP 1

Work in Pairs

1. Write a simple program that accepts user input from a prompt. In the prompt, say “Please enter your name”.
2. Store the result in a variable.
3. Use an alert() function to print “Hello ” where is the input entered by the user.

Step 2 – Simple Error Checking What happens if the user types some kind of unusable input (i.e. only one letter for their name). No one has a name that short! (For this example, assume this is true)

- Add some logic to your function that checks the length of the input (ex. shorter than 2 characters) and alerts an error if their name is too short. Bonus: If the user input is not accepted, have the program ask again until the input is acceptable.

```
 "";
 false;
sk() { return prompt("Please enter your name");}
elloName() {
)ne) {
ıt = ask();
)oShort(userinput)) {
:("Your name is short. Too short.\n Do it again!");
 {
:("Hello " + userinput);
 = true;
```

Sample solution

```
sTooShort(inputName){
iputName.length < 2;

iame);
```

Sample solution continued

DOM

Document Object Model

The document object model (DOM) is an interface which allows programs and scripts to dynamically access and update the content, style and structure of a document

The DOM is a W3C (World Wide Web Consortium) standard and includes the Core DOM, XML DOM, and HTML DOM

The HTML DOM is a standard model for HTML documents and defines how to get, change, add, or delete HTML elements

In order to integrate services like Twitter, Facebook, etc. into our own applications, we have to use their APIs (application programming interfaces). The HTML DOM is an API for manipulating HTML documents.

```
 = document.body; //
le = document.body.parentNode; //
des = document.body.childNodes[]; // all elements insid
```

The DOM has a tree structure and identifies objects using nodes

Watch what happens when you put this command in your js file.

```
ite("JavaScript all the things!");
```

For extra fun, try that in the console on any website. In the DOM, your HTML page is known as the 'document'

It's possible to find elements on the HTML page by parent, sibling, or child node, but that's time-consuming and will make you crazy.

```
'food">Pizza</li>
'food">Sushi</li>
'food">Hummus</li>
```

```
ems = document.getElementByTagName('li');

ndex = 0; index < listItems.length; index++) {
tem = listItems[index];
ff with listItem
```

HTML elements can be located by tag

```
y">A happy paragraph!</p>
```

```
ph = document.getElementById('happy');
```

... or by id or class

```
locument.getElementById('myImage');
:ibute('src');
:ibute('src', './images/newImage');
```

The attributes of HTML elements can also be accessed and modified through the DOM

DOM nodes have a property called innerHTML which lets you access and modify the contents of the node

```
tml>


JavaScript Demo</title>
 src="sample.js"></script>


happy">A happy paragraph!</p>
```

Set up a simple HTML file

```
dy.innerHtml = '<p>I changed the whole page!</p>'
```

Set up sample.js like this. What happens when you load the page?

Now change sample.js to this (remove all previous statements)

What happens? To make sure you notice, add border to all

tags via CSS

```
ıph = document.createElement('p');
.nnerText = "I made a new tag!";
)dy.appendChild(paragraph);
```

QUESTIONS

JQUERY

GOALS FOR TODAY

1. Introduction to jQuery
2. jQuery 101

INTRODUCTION TO JQUERY

WHAT IS A LIBRARY?

A software library is a collection of functions. When you include a library in your code, you have access to all the functions contained in the library. jQuery is a big honkin' library packed full with functions intended to help you 'write less, do more' when working with the DOM

WHAT DOES JQUERY HELP WITH?

jQuery simplifies DOM scripting and other common JavaScript tasks including: HTML element selection and manipulation, CSS manipulation, and JavaScript events and animations

FACTS ABOUT JQUERY

- The most popular JavaScript library
- Extensive Docs
- Numerous tutorials online
- Used by 20 million websites

1 FACT

jQuery is still just JavaScript. If you understand JavaScript, you can understand jQuery.

I'M SOLD! HOW DO I GET ME SOME JQUERY?

Two ways:

1. Download the library and store it locally in your project folder.
2. Link to a live version of the library via CDN. Bonus: Display each object with a statement using concatenation. Ex: Sparky the dog. Coco the cat.

WHICH WAY IS BEST?

Each has pros and cons. Live code can change but jQuery is popular enough that there are stable versions of each major release of jQuery out there. Keeping it local is stable but bloats the overall size of your site.

WHICH WAY IS BEST? (CONT'D)

For this class, download it. The network might flake and then your site will not work. Plus a call will be made to get the whole library every time you refresh (which will be a lot).

WHICH WAY IS BEST? (CONT'D)

For active development it's fine to link. For production sites, I tend to lean toward sourcing it locally with your project.

HOW TO DOWNLOAD JQUERY FOR THIS CLASS

1. Go to jquery.com/download
2. Click the link Download the uncompressed, development jQuery 1.11.1. This takes you to a raw text file.
3. Select All > copy > paste into empty file > save As 'jquery-1.11.1.js'
4. Place the saved file into a 'lib' folder in your site project

Or just link to a hosted CDN in a script tag on your page. Both script tags link to a working jQuery file.

```
src="lib/jquery-1.11.1.js"></script>
src="http://code.jquery.com/jquery-1.11.0.min.js"></scri
```

JQUERY SELECTORS

Does that selector syntax look familiar?

```
 $("div");
; on the page
ıing = $("#happy");
 with id "happy"
 = $(".roundedCorner");
; with class "roundedCorner"
```

jQuery has hundreds of action that can be performed on any element

All actions are functions (or methods).

```
.action();
```

jQuery makes it simple to accomplish a huge number of common tasks such as updating element's attributes or CSS (and pretty much anything else)

```
('#myPicture');
src');
src', 'http://www.myPictureLivesHere.com');

dth');
dth', 200px);
```

QUESTIONS

JQUERY 101

JQUERY

If you haven't done so yet, please download the example project named 'jquery-demo.zip' and 'jquery101-exercises.zip' from Slack.

jQuery interacts with the DOM to access and modify HTML elements.

$() is a jQuery function which turns whatever is inside the parentheses into a jQuery object.

.ready() is a jQuery function which tells a script to wait to execute until an HTML document has loaded.

```
.ready();
```

The argument for the .ready() function is an anonymous function which will be executed as soon as the HTML document loads.

We can put other jQuery functions inside this outer function to make sure our code waits for the whole document to load before executing.

```
 .ready(function() {
:").slideDown('slow')
```

```
ıdeTo("slow", 0.5);
 $("img");
›("slow", 0.5);
```

In addition to elements, jQuery can use class and id selectors.

Any element that can be targeted with CSS can also be selected and modified using jQuery.

jQuery can also be used to modify an element's CSS styles.

THE .CSS() METHOD

The .css() method is used to dynamically modify CSS styles.

```
.click(function() {
:").css({
:ound-color': 'blue'
```

.css()

JQUERY

EFFECTS

In jQuery, functions like fadeTo() and slideDown() that add animations to a web page are called effects.

In jQuery, functions like click() and hover() that refer to user interactions with the browser are called events.

QUESTIONS

EXERCISE

IN YOUR PROJECT:

- Find the img tag in the page.
- In your JavaScript file add the following code (some of it is already there).

```
.ready(function() {
mouseenter(function() {
').fadeTo("fast", 0.5);
```

IN YOUR PROJECT (CONT'D):

- Save and reload the page. Mouseover the image, what happens?
- Can you figure out how to make the img return to full opacity when your mouse is no longer inside the element?

```
.ready(function() {
mouseenter(function() {
').fadeTo("fast", 0.5);

mouseLeave(function() {
').fadeTo("fast", 1.0);
```

JQUERY

.CLICK()

.click() is one of the most frequently-used event handlers in jQuery.

.click() captures a click on the selected element.

```
.ick(function() {
ıff when I click a div!

.ick(function() {
ıff when I click an img!
```

this is a keyword which tells jQuery, “I only want to do stuff to the specific element with which I’m interacting”.

```
.ready(function() {
click(function() {
.fadeOut("slow");
```

this

JQUERY EFFECTS

.HIDE()

.hide() hides a visible element

```
ıre").hide();
```

.SHOW()

.show() hides a visible element

```
ıre").show();
```

.TOGGLE()

.toggle() hides or shows an element depending on its current state (hides a visible element and shows a hidden element).

.FADEIN()

.fadeIn() displays an element by fading it to full opacity.

.FADEOUT()

.fadeOut() hides an element by fading it to full transparency.

.FADETO()

.fadeTo() adjusts the opacity of an element according to the opacity specified in the arguments.

```
.click(function(){
fadeTo(0.25);
```

.FADETOGGLE()

.fadeToggle() hides or shows an element depending on its current state by animating its opacity.

.SLIDEUP()

.slideUp() hides an element with an upward sliding motion.

.SLIDEDOWN()

.slideDown() displays an element with a downward sliding motion.

.SLIDETOGGLE()

.slideToggle() hides or shows an element with a sliding motion depending on its current state.

.DELAY()

.delay() specifies the time between each event queued on an element.

```
.click(function() {
.rst").slideUp(300).delay(800).fadeIn(400);
.rst").slideUp(300).delay(800).fadeIn(400);
```

QUESTIONS

JQUERY EVENTS

JQUERY EVENTS

An event refers to any kind of action a web page can recognize, including mouse clicks, hovering, scrolling, page loading, and resizing windows.

jQuery uses event handlers to define specific behavior which should occur in the web page when certain events are triggered.

What are some real-world examples of events and the types of responses they trigger?

.CLICK()

.click() captures a click on the selected element.

```
.ick(function() {
f when I click a
```

```
.ick(function() {
f when I click an <img>!
```

.DBLCLICK()

.dblclick() captures a double-click on the selected element.

.MOUSEENTER()

.mouseenter() is triggered when the mouse is moved over a selected element.

.MOUSELEAVE()

.mouseleave() is triggered when the mouse is moved out of the area of a selected element.

.MOUSEDOWN()

.mousedown() is triggered when the mouse is moved over a selected element and the mouse button is pressed.

.MOUSEUP()

.mouseup() is triggered when the mouse is moved over the selected element and the mouse button is released.

.MOUSEMOVE()

.mousemove() is triggered when the mouse is moved within the area of a selected element.

.LOAD()

The .load() event is triggered on an element when the element and all its sub-elements have loaded.

```
load(function() {
ff!
```

.UNLOAD()

The .unload() event is triggered when a user navigates away from the page (don't do that).

```
ınload(function() {
ıanks for visiting");
```

.ERROR()

The .error() event is triggered when an element is not loaded correctly (for example, an image isn't found).

```
:ror(function() {
ıide();
:c","missing.png");
```

.RESIZE()

The .resize() event is is sent to the window when the size of the browser window changes.

```
esize(function() {
.og("You resized the browser window");
```

.SCROLL()

The .scroll() event is is sent to an element when the user scrolls to a different place in the element.

```
scroll(function() {
reDiv").fadeOut("slow");
```

QUESTIONS

LAB

ROCKIN' WITH JQUERY

Create a website that lists and demonstrates the jQuery topics we've covered so far. Include:

- Selectors
- Effects
  - Slide actions
  - Fade actions
  - Show / hide
- Events
  - click
  - hover
  - dblClick