Objectives

- Learn about fundamentals of web development
- Learn the advantages of modular software development
- Build a personal website

Parts of front-end web development

- Structure (HTML)
- Presentation (CSS)
- Behavior (Javascript)

Workflow Edit - Save - Refresh

Unlike Microsoft Word, InDesign, Google Docs and other document editors. HTML, CSS and Javascript are edited in different programs than they are written in.

1 Make a change in the editor
2 Save the document
3 Refresh in the viewer
4 Repeat

HTML - the basic structure

```
<!DOCTYPE html>
<html>
    <head>
        Non-visible information about a webpage.
    </head>

    <body>
        Visible elements of a webpage.
    </body>
</html>
```

Title

The `<title>` tag changes the browser toolbar, favorites, history, search engine results.

```
...
<head>
  <title>Title</title>
</head>
```

Description

The `<meta>` tag stores various types of information about a website that isn't visible.

```
...
<head>
  <meta name="description" content="My personal website">
</head>
...
```

Header

The `<header>` tag is a container for a header.

```
...
<body>
  <header>
    Your name
  </header>
</body>
...
```

h1

The `<h1>` tag makes large header text.

```
...
  <header>
    <h1>Your name</h1>
  </header>
...
```

h2 ... h6

The `<h2>` ... `<h6>` tag make headers of decreasing size (`<h1>` is the biggest, `<h6>` is the smallest)

```
...
    <h1>Your name</h1>
    <h2>What you do</h2>
...
```

Sections

The `<section>` tag is a container for any type of content. *It will not be visible in the browser (yet)*

```
<section>
  Some text inside the next section.
</section>
```

Paragraphs

The `<p>` tag is used to designate text as being a paragraph.

```
<p>Some text inside the next section.<p>
<p>This text will appear below the above text</p>
```

Footer

The `<footer>` tag is a container for trailing information.

```
<footer>
    All rights reserved ... etc.
</footer>
```

Line Breaks

The `<br>` tag is useful for adding new lines to things that aren't paragraphs (e.g. addresses, poems, etc)

```
<p>
184 5th Ave<br>
New York, NY 10016<br>
USA </p>
```

Emphasizing text

The `<em>` and `<strong>` tags are used to add emphasis to text.
`<em>` will usually appear *italic*. `<strong>` will usually appear **bold**

This is not a rule however, and can be defined in other ways *(e.g. color, size)*

`<em>Italic text</em>` creates
Italic text

`<strong>Bold text</strong>` creates
Bold text

Bullet Lists

Creating bullet lists involves two tags.
`<ul>` defines an unordered list `<li>` defines an element of a list

```
<ul>
  <li>Apples</li>
  <li>Bananas</li>
  <li>Pears</li>
</ul>
```

creates:

- Apples
- Bananas
- Pears

Ordered Lists

Ordered lists use the `<ol>` tag.

```
<ol>
  <li>Apples</li>
  <li>Bananas</li>
  <li>Pears</li>
</ol>
```

creates:

1 Apples
2 Bananas
3 Pears

Hyperlinks

Links are one of the most important parts of HTML, they allow the connection of one document to others.

Links are created with the `<a>` tag.

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

creates:

Google

Other types of links

HTML supports other types of links (e.g. email, phone, facetime)

Email: `<a href="mailto:ckent@thedailyplanet.com">`
Telephone: `<a href="tel:180078737626">`
Facetime: `<a href="facetime: phone or email">` *Only works on Macs or iPhones*
There are many other types (e.g. links to iTunes, Play Store)

Images

Images are adding using the `<img>` tag which has a reference to a file. The file can either be a URL to a location on the website, or a path that is related to the HTML file.

```
<img src="images/superman.png>" alt="The Man of Steel">
```

Embedding other things

The `<iframe>` allows embedding of other websites, widgets, content... in a website using an *invisible frame*

The general tag is `<iframe src="">`

However you should get the code from the site whose content you want to embed.
Sites that offer embed code:

- YouTube
- SoundCloud
- Google Forms
- Prezi
- Scribd
- Flickr
- Vimeo
- Disqus

CSS

CSS stands for Cascading Style Sheet.
A style sheet language is a computer language that expresses the presentation of structured documents.

Ways to add CSS to an HTML document

There are multiple ways to add CSS to an HTML file.

1. Inline `<h1 style="color:blue;margin-left:30px;">` **BAD**
2. In a `<style>` tag **Slightly less BAD**
3. In a separate file, added with a `<link>` tag **EXCELLENT**

Adding a stylesheet an HTML document

In *index.html* place the following tag in the `<head>` tag.

```
...
<head>
    <link rel="stylesheet" type="text/css" href="css/style.css">
</head>
...
```

Selector-property-value model

CSS has a very simple structure

```
selector { property: value; }
```

Finding an element by its HTML tag

To select an HTML element by its HTML tag, you use the html tag without the < and >

```
h1 {
  color : red;
}
```

Changes the color of the largest header text.

Finding an element by its HTML tag

If you want to have many elements to have the same property, you can select multiple by using commas between the elements.

```
h1, h2, h3, h4, h5, h6 {
  color : red;
}
```

Modifying text color

Changing the color of text is done by using the `color:` property. You can either use CSS's 140 named colors or use 6-digit hexidecimal code (more precise, thousands of colors)

CSS named color

```
p {
  color: Navy;
}
```

RGB Hex color code

```
p {
  color: #000080;
}
```

Modifying text size

Font size can be set in pixels (e.g. 14px)

```
p {
  font-size: 24px;
}
```

Modifying text weight

Font weight controls how thick letters appear.

```
font-weight
```

The options for this property are:
bold, normal, lighter, bolder, and the numbers 100-900 (for precise control)

Modifying the text font

To change the font of text you can use: `font-family`

Some options:

- Georgia, serif
- "Times New Roman", Times, serif
- Arial, Helvetica, sans-serif
- "Comic Sans MS", cursive, sans-serif

Backgrounds

CSS provides a simple way to set backgrounds of HTML elements to different colors and/or images.

The simplest way to change the background is using the `background-color` property.

```
body {
  background-color: yellow;
}
```

Background images

Background images can be added using the `background-image` property

```
body {
  background-image: url("images/crazy-snake.jpg");
  background-color: white; /* if the browser can't find the image */
}
```

Background repeat

You can define how a background image repeats.

```
body {
  background-image: url("images/crazy-snake.jpg");
  background-repeat: none; /* will not repeat */
}
```

***Other options:* * repeat *(default)*, repeat-x, repeat-y**

Changing the size of containers

The size of elements can be changed using either fixed sizes (pixels and ems) or using percentages.

```
header {
  width: 75%
}
```

Changing the size of images

Changing the height of containers often doesn't make sense, however this can be useful with images.

```
img {
  height: 100px
  width: 100px
}
```

Margins and padding

Margins represent the space between an element and other elements near it.
Padding is space within an element between its border and its content.

Padding in sections

Having text near the edge of your containers sometimes makes it difficult to read. Lets add padding to our containers.

```
header, section, footer {
  padding:10px;
}
```

Padding by side

Padding can also be set by each different edge of a container. Using `padding-top`, `padding-bottom`, `padding-left`, `padding-right`.

```
header, section, footer {
  padding-top:20px;
}
```

Margins

Margins represent the space between different elements. If we want to add space between our header, sections, and footer, we could add margins around them.

```
header, section, footer {
  margin:10px;
}
```

Margins can also be controlled based on a specific edge.

Margins: auto

Setting margins to auto, is one way to center containers.

```
header {
  width: 75%;
  margins: auto;
}
```

Classes and ids

If you want to apply a style to only one (or some) elements you can use `class` and `id` in HTML.

Classes

Classes apply to multiple elements.

```
<p class="big_text">
```

and can be modified in CSS using:

```
.big_text {
  font-size:36px;
}
```

IDs

IDs are intended to apply to a single element.

```
<p id="title_text">
```

and can be modified in CSS using:

```
#title-text {
  font-size:36px;
}
```

Javascript

Variables

A variable is a container for storing and referencing data. This data can be numbers, letters, and collections.

```
var x = 10;
var y = "Hello"
var z = [1,2,3,4]
```

Conditionals

Conditionals are a way to make decision based on expressions.

```
if (windchill < 55) {
  console.log(“Put on a jacket”);
} else {
  console.log(“Go to the beach”);
}
```

More operator examples:

```
==   (equal)
===  (same type and equal)
>=   (greater than or equal)
!=   (not equal)
&    (and)
|    (or)
```

Loops

Loops do a certain activity while a specific condition is true.

```
i=0;
```

```
while(i<100){
  console.log(i)
  i = i+1
}
```

Functions

Functions encapsulate specific logic (code) for reuse.

```
function addNumbers(num1,num2){
  var s = num1 + num2;
  return s;
}
```

This code can be used over and over by calling `addNumbers(num1,num2)`