Aim: What is CSS and How Can We Use It to Style Our Web Pages?

Do Now: Think about some of the websites you've visited or seen in the past. What websites do you like the design of, and why? Or what website designs do you dislike, and why?

What is CSS?

- CSS stands for Cascading Style Sheets
- CSS is used to style web pages such as by adding or altering the color, font, layout, size, or more
- A way to think about CSS in relation to HTML is that if web pages are houses, HTML would be the building itself or the structural parts of the house while CSS would be how the house is decorated

A Brief History of CSS

- CSS was published as a W3C Standard in 1996
- Internet Explorer was actually the first commercial browser to support CSS
- Before CSS was published browsers had their own stylesheets, meaning how web pages looked was browser dependant, much more so than today
- This also meant that web developers had less control over what their web pages looked like

How CSS works

- Like HTML, CSS is not a programming language like C++, Java, or Python
- However, CSS is also not a Markup Language like HTML either
- CSS essentially works by describing a series of rules for the browser to follow when displaying a web page
- As such, CSS actually has it’s own syntax, rules, and structure distinct from HTML
- CSS code generally follows this structure

```
selector {

    property:value;

    property:value;

}
```

CSS Properties

- CSS properties control various aspects of a web page and the elements within that web page
- If we want to add or change a property of an HTML element, we have to specify what property we want to change and what value that property should be set to
- Notice that we need to but a colon between the property and its value, and a semicolon after its value
- There are many, many CSS properties, some of which we will learn later, but the first CSS properties we will learn about are color and background-color
- The color property changes the text color of an HTML element
- The background-color property changed the background color of an HTML element

Using colors in CSS

- Both the color and background-color properties take colors as values
- Names of colors can be used as the values for these properties, but CSS doesn't recognize every color name
- The colors that CSS does recognize can be found here: https://www.w3schools.com/tags/ref_colornames.asp
- A wider variety of colors (over 16 million) can be used as values for these properties if using hex codes instead
- Hex codes describe how intense the red, green, and blue values of a color are, but in hexadecimal instead of decimal
- Hex codes are described in more detail here and can also be used to help generate hex codes
- https://www.w3schools.com/colors/colors_hexadecimal.asp

Tools to pick colors

- While you can free to use any combination of colors you want while designing your websites, some combinations of colors work better than others
- If you want some assistance picking colors for a website, the links below may be helpful
- https://www.w3.org/WAI/WCAG21/Understanding/contrast-minimum.html
- https://www.learnui.design/tools/accessible-color-generator.html
- http://colorsafe.co/
- In addition to generating good looking color schemes, both links are designed to generate color palettes and combinations that meet the guides for accessibility on the web
- Using color palettes and combinations with a sufficient amount of contrast make it easier for those with impaired vision to access those websites

Selectors in CSS

- While CSS properties describe what style changes are to be made on a web page, the selector is what determines what HTML element(s) those changes are applied to
- There are a variety of ways to use selectors with CSS, but we'll cover only 3 in today's lesson
- Tag name selectors, also called type selectors, apply CSS to all HTML elements that use that tag name
- To specify what CSS rules we want to apply to what selectors, we enclose the CSS property and values we want to change for that element in curly brackets after the selector
- An example of using the tagname selector is shown in the next slide.

Tagname Selector Example

CSS

```
p {
    color:red;
}
```

HTML

```
<p>Sentence 1</p>
<p>Sentence 2</p>
<p>Sentence 3</p>
<p>Sentence 4</p>
<h3>Sentence 5</h3>
```

Output

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

Ids in HTML and CSS

- The example in the previous slide shows how we can style all <p> tags to be red (while the h3 tag is unchanged)
- However, what if we only wanted to change one of the <p> elements but not all of them?
- An Id is an attribute we can add to an HTML element. It doesn't do anything on its own, but it allows us to specifically target that element with our CSS
- Unlike the src attribute for <img> or href attribute for <a>, the id attribute is not specific to any particular tag.
- In fact, almost any tag can have an id attribute, this is known as a global attribute
- The value for the id can be almost anything, but it can't have spaces or start with a number
- Styling something by Id in CSS is very similar to styling by tag name, except the tag name is replaced with the of what you want to style, preceded by a hashtag (#)

```
#id {

    property:value;

}
```

Id Selector Example

CSS

```
#unlucky {
    color:red;
}
```

HTML

```
<p>Sentence 1</p>
<p>Sentence 2</p>
<p>Sentence 3</p>
<p id=”unlucky”>Sentence 4</p>
<h3>Sentence 5</h3>
```

Output

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

Classes in HTML and CSS

- The example in the previous slide shows how we can style a specific <p> element
- However, what if we wanted to style more than one <p> element, but not all of them?
- We could create multiple ids for each thing we want to style, but if we want them to have the same style there's a better way
- A Class is another attribute we can add to an HTML element.
- It functions very similarly to Ids, but where Ids are meant to be unique, multiple elements can have the same class
- Styling something by Class in CSS is similar to styling by id as well, except the id is replaced with the class name of what you want to style and the hashtag is replaced with a period (.)

```
.classname {

    property:value;

}
```

Class Selector Example

CSS

```
.odd {
    color:red;
}
```

HTML

```
<p class="odd">Sentence 1</p>
<p>Sentence 2</p>
<p class="odd">Sentence 3</p>
<p id="unlucky">Sentence 4</p>
<h3 class="odd">Sentence 5</h3>
```

Output

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

Where to write CSS

- The question remains of where do we actually write the CSS code?
- We'll discuss two ways to write and apply CSS code to our web pages
- One way is to use the <style> tag in the <head> portion of our HTML document
- The <style> tag is unique because although it is an HTML tag, it's designed for CSS code to be written inside
- The CSS code written inside the style tag will apply to the HTML document its in

Style Tag Example

```
<html>
      <head>
            <title>CSS Example</title>
            <style>
            .odd {
                  color:red;
                  }
            </style>
      </head>
      <body>
<p class=”odd”>Sentence 1</p>
<p>Sentence 2</p>
<p class=”odd”>Sentence 3</p>
      </body>
</head>
```

Output

Sentence 1

Sentence 2

Sentence 3

CSS Files and <link> tag

- CSS can also be written in a separate file. Just as we have .html files, we also have .css files
- If CSS is written in a different file, the HTML document needs to be able access that file somehow
- The <link> tag can do a few things, but the most important is its ability to link CSS files to our HTML documents
- The <link> tag goes in the <head> portion of the HTML document, and might look like this

```
<link href="style.css" rel="stylesheet">
```

- Like the <a> tag, the href attribute here determines the file that is being referenced
- We also need to include rel="stylesheet" to make it clear that the file being linked is a CSS file

When working on a website with multiple similar pages, would it be better to use the <style> tag or to create a CSS file and use the <link> tag to implement CSS?