<HTML and CSS – The Basics/>

GAD405/DAT405 – Creative Coding

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- **What Is CSS?**

- **How does CSS work with HTML?**

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What is CSS?

Earlier in this module, we found out some basics about HTML and where it comes from.

It seems crazy to think that the thing that started it all, is still so important to what the web is today. Especially when you consider everything that else close to it that has come and gone.

Although. Fundamentality HTML hasn't really changed, it is still a HyperText Mark-up Language, that uses tag to mark up our documents, but it has evolved, and so has how we use it.

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What is CSS?

One of the driving forces behind how HTML has changed, is CSS.

CSS stands for Cascading Style Sheet and according to those wonderful people over at the w3c, it is "the language for describing the presentation of a webpage/site.

Much in the same way as HTML standards have version, and much in the same way as HTML5 is the current version for HTML, CSS3 is where we are with CSS.

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What is CSS?

This is Håkon Wium Lie, and he is the founder of the CSS language, and he first propsed it in 1994, while he was working with TBL at CERN.

A number of other "stylesheet type" languages were also proposed around the same time, but in 1996, the standards that Håkon had been working on were accepted by the w3c, and CSS1 was born

Håkon has also held a lot of prestigious positions in the tech world, including being the CTO for Opera Software, who are responsible for the Opera Browser

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What is CSS?

Although CSS is separate language to HTML, with its own syntax and layout, it isn't much good to us without it.

As we have seen before, we can happily load a HTML page, with out CSS, but as CSS doesn't technically have any content, and is just a set of rules, the browser interprets in differently, and if were to open a .css file in a browser, it would just display in its code form.

Here is a link to a stylesheet used on the iDat website

http://i-dat.org/wp-content/themes/toolbox-i-dat/css/dat.css

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What is CSS?

So, before get into it, we are going to need a HTML file to work with.

Start a new folder on your desktop, and in side that folder, create an index.html file. Then open the folder in Atom, us the file>Open folder method

For those of you who don't want to type out the HTML, type html and hit enter, for those of you who do, I have included what we need on the next slide

We will need to have a Heading 1 tag in our body, with something similar to "This is a Heading" written inside it

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What is CSS?

```
1    <!DOCTYPE html>
2    <html>
3      <head>
4        <meta charset="utf-8">
5        <title>HTML and CSS</title>
6      </head>
7    <body>
8        <h1>This is a Heading</h1>
9    </body>
10   </html>
```

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What is CSS?

It was never the intention for html to be be able to create physical layouts of the page.

The tags were always intended to be used in more of a descriptive layout, example would be the h1 tag should be used to tag its content as the highest priority heading on the page, and not used to just make the text bigger.

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What is CSS?

In earlier versions of html, color and font tags were introduced to start allowing developers and designers to incorporate nicer looking layouts to their pages.

This became very difficult to handle on large scale website, as the tags needed to be added in, for every instance of that colour of font, to every page, individually, which takes ups valuable time.

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What is CSS?

CSS Syntax is very different to HTML. The code we have below is a known as a rule-set.

```
1    h1{
2        color: #ccc;
3    }
```

A rule-set consists of a selector, which relates to the HTML element that we want to style, and the declaration block, which is held between a set of { }

Inside the declaration block, are declarations. There is no limit on how many declarations can be held within a single block. Each Declaration must end with a semi-colon.

A declaration consists of 2 items, the property name, and the property value. Most properties only take 1 data entry to determine what needs to change, but there are some, such as padding or border, which have a set of entries that need to passed in.

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How does CSS work with HTML?

There are number of different ways to utilise CSS within HTML, you can use the inline method, which attaches styles directly to an html tag, as an attribute

```
7    <body>
8      <h1 style="color: #ccc; font-size: 24px;">This is a Heading</h1>
9    </body>
```

This however doesn't really solve the issue of productivity as you would still need to add this to each element individually.

Notice, that this also does not follow the same set of syntax rules as the CSS we looked at in the last slide, that is because there is no need for a selector, and to keep the HTML tidy, we keep it one line.

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How does CSS work with HTML?

Check your HTML file in your browser, and you should see that the heading you have created, has been styled

Once you are happy that it is styled, delete this inline styles before we move on

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How does CSS work with HTML?

You could also utilise the style tag, within your head tag, and declare of the styles on the page like this:

```
 5        <title>HTML and CSS</title>
 6        <style>
 7          h1{
 8              color: #ccc;
 9              font-size: 24px;
10          }
11        </style>
12    </head>
```

This again is only specific to the page you have created it on, and can make your code look very untidy and difficult to manage.

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How does CSS work with HTML?

Check your HTML file in your browser, and you should see that the heading you have created, has been styled in the same way as before, with the inline styles

Once you are happy that it is styled, delete this style element from our head section before we move on

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How does CSS work with HTML?

The most efficient way to add styling to our HTML file, is to use what is a style sheet, that sits in its own file, otherwise known as an external file.

Before we look at what code we need to write to link the two together, lets create the file.

If you right click in the left hand pane of ATOM, under the index.html file, choose new file and create one called styles.css

The name for our style sheet doesn't have the same importance as calling our homepage index.html, but there are industry standards that we follow.

I use styles.css, some people use style.css and in cases where there is more than one style sheet, some people will call their main stylesheet main.css

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How does CSS work with HTML?

Once you have created the file, open it, and lets add some CSS

```
1 ∨  h1{
2        color: #ccc;
3     }
```

Make sure that you save this, and then move back to the index.html file, so that we can link the two files together.

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How does CSS work with HTML?

So, we have our external stylesheet, and this contains some styles that we want to apply to our HTML, we use this link tag, as below, we don't need to worry to much about type and rel at this stage, but the href is an important attribute for us to be aware of, this is were we add the file path to our CSS document

```
5        <title>HTML and CSS</title>
6        <link type="text/css" rel="stylesheet" href="styles.css"/>
7    </head>
```

This option is the preferred method in industry, as now, when we have multiple pages in a site, we just need to link the file, as above, instead of rewriting all of the CSS for each element or page, which we would need to do with the other options.

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How does CSS work with HTML?

At the moment, we are selecting the h1 element in our CSS, but can you think why this might not be the best solution, when working with something like a text element, that we may use elsewhere in our document?

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How does CSS work with HTML?

When selecting an element, that means that every instance of that element, will be styled in the same way. This is useful in some cases, for example with the header or footer tags, as really, these elements should only appear once

This is where using classes and id's as our selectors comes into play

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How does CSS work with HTML?

In your HTML document, create 2 more h1 elements, under the current one we have been working with, and alter the text slightly so that a difference can be seen.

```
 9        <h1>This is a Heading</h1>
10        <h1>This is also a Heading</h1>
11        <h1>And this one as well</h1>
```

If you save this, and check in your browser, you should see that all of them a styled in the same way.

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How does CSS work with HTML?

The way in which we choose a class name as our selector, is to use a . before the class name

```css
5   .newHeadings{
6       text-decoration: underline;
7       font-family: sans-serif;
8   }
```

Let's add some styles here, that will underline the text, and select the computers default sans-serif font to the render the text

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How does CSS work with HTML?

So if you check the browser, you should now see that all of the headings are the same color, but the that we have applied a class to, are now underlined, and using a sans-serif font.

This is also a good example of where the Cascading part of CSS comes into play, but more on that in a later module

Lets move on, and look at how we use an id as a selector

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How does CSS work with HTML?

Add an Id, with the name of lastHeading, to the last heading we have in our document, don't need to delete the class attribute, as both work together nicely

```
 9        <h1>This is a Heading</h1>
10        <h1 class="newHeadings">This is also a Heading</h1>
11        <h1 class="newHeadings" id="lastHeading">And this one as well</h1>
```

Save the HTML file, and lets go back to the stylesheet

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How does CSS work with HTML?

The way in which we choose an id name as our selector, is to use a # before the id name

```
10 ∨   #lastHeading{
11         font-family: monospace;
12         color: red;
13     }
```

Let's add some styles here, that will change the font used, and change the color of the text to red.

The color rule, can take a range of different data types, from hex codes, rgb, rgba and for some colours, just simply their name

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How does CSS work with HTML?

We have spent some time in this session, focusing on styling a text element, but what about some of the other types of element, like the ones used to define layout

Either side of the headings we have created in our HTML, create a header and a footer element

```
 9      <header></header>
10        <h1>This is a Heading</h1>
11        <h1 class="newHeadings">This is also a Heading</h1>
12        <h1 class="newHeadings" id="lastHeading">And this one as well</h1>
13      <footer></footer>
```

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How does CSS work with HTML?

In our style sheet, lets add some styles, here that will ad a background-color to the header and footer elements, and define the height and width of each.

```
20    header{
21      background-color: red;
22      width: 100%;
23      height: 100px;
24    }
25
26    footer{
27      background-color: blue;
28      width: 100%;
29      height: 200px;
30    }
```

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How does CSS work with HTML?

You should notice that for height and width, we are using some different units of measure. On the width, we are going to use 100%, so that the width of the element will be, you guessed it, 100% of the screen, which is a good start to using responsive design ideas in our HTML, but we don't need to know too much about that now

We have used pixels to define the height, so these will always remain the same, no matter the screen size

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How does CSS work with HTML?

You will probably also notice that the elements to do not go right to the edge of your browser, this is because the browser has some "pre defined" styles attached to some key HTML elements, such as the body tag

If we were creating a full website, we would use what is known as a reset stylesheet, which "resets" all of the browsers predefined styles, but for what we need, to can add some simple styles to change these for us

As a rule, we should create this style rule-set, at the top of our style sheet, see next slide for how it should look

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How does CSS work with HTML?

Basically, we just want to reset the padding, and the margin, to 0

```
1    body{
2        padding: 0;
3        margin: 0;
4    }
```

But what are padding and margin?

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How does CSS work with HTML?

Padding and Margin are used to create spacing and white-spacing either between or within our elements

```
6    h1{
7       color: #ccc;
8       padding: 20px;
9    }
```

If we add this padding rule above to our h1 elements, you should see that in the browser, there is now more space on all four sides of the elements, in fact 20px more space.

We can also define which side we want to apply padding to.

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How does CSS work with HTML?

Margin also works in a similar way to padding, the way in which the space is applied, is where the main difference lies.

Padding applies spacing, inside the element, so this makes it useful for text containers, for which you do not what the text to touch the edges of the element.

Margin applies the spacing outside of the element, so this is useful when you have elements next to each other, and you wish to create some space between to the two

There is a third property that is often coupled with padding and margin, which is border.

Border works on the boundary line of the element, and manipulates it

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How does CSS work with HTML?

Lets add a border, to our .newHeadings rule-set, the property data that border will take is the width of the line (or stroke) the style of the line, in this case it will be solid, and finally the desired color

```
11    .newHeadings{
12        text-decoration: underline;
13        font-family: sans-serif;
14        border: 5px solid #000;
15    }
```

If you save this, then view the html file in the browser, you should see a black border around the elements we have selected. You should also notice that the border goes almost the full width. The reason for this, is that a h1 elements is a "block" element, so is designed to ensure the next element, always starts on a new line

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How does CSS work with HTML?

The text is a little close to the border here. However, we can add some padding to rectify this for us

```
11    .newHeadings{
12      text-decoration: underline;
13      font-family: sans-serif;
14      border: 5px solid #000;
15      padding: 5px;
16    }
```

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Where can I Find out more?

Books

HTML & CSS – Jon Duckett

http://www.htmlandcssbook.com/

Online Resources

W3C Schools – Learn CSS

https://www.w3schools.com/css/default.asp

Code Academy

https://www.codecademy.com/courses/web-beginner-en-HZA3b/0/1

Mobile Resources

SoloLearn - https://www.sololearn.com/

Available from Google Play and Apple App Store

Let's Chat!

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