# COMP4021
Internet Computing

CSS

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Structure and Appearance

- CSS (**C**ascading **S**tyle **S**heets) is a language for controlling the *style* of HTML elements

- In other words, it controls what things look like

- The idea is that the *content* of the things in the web page is separate from the *appearance* of the things

- CSS is also important for controlling things in the web page, we will look at that in other presentations

Simple Way to Think of CSS

CSS
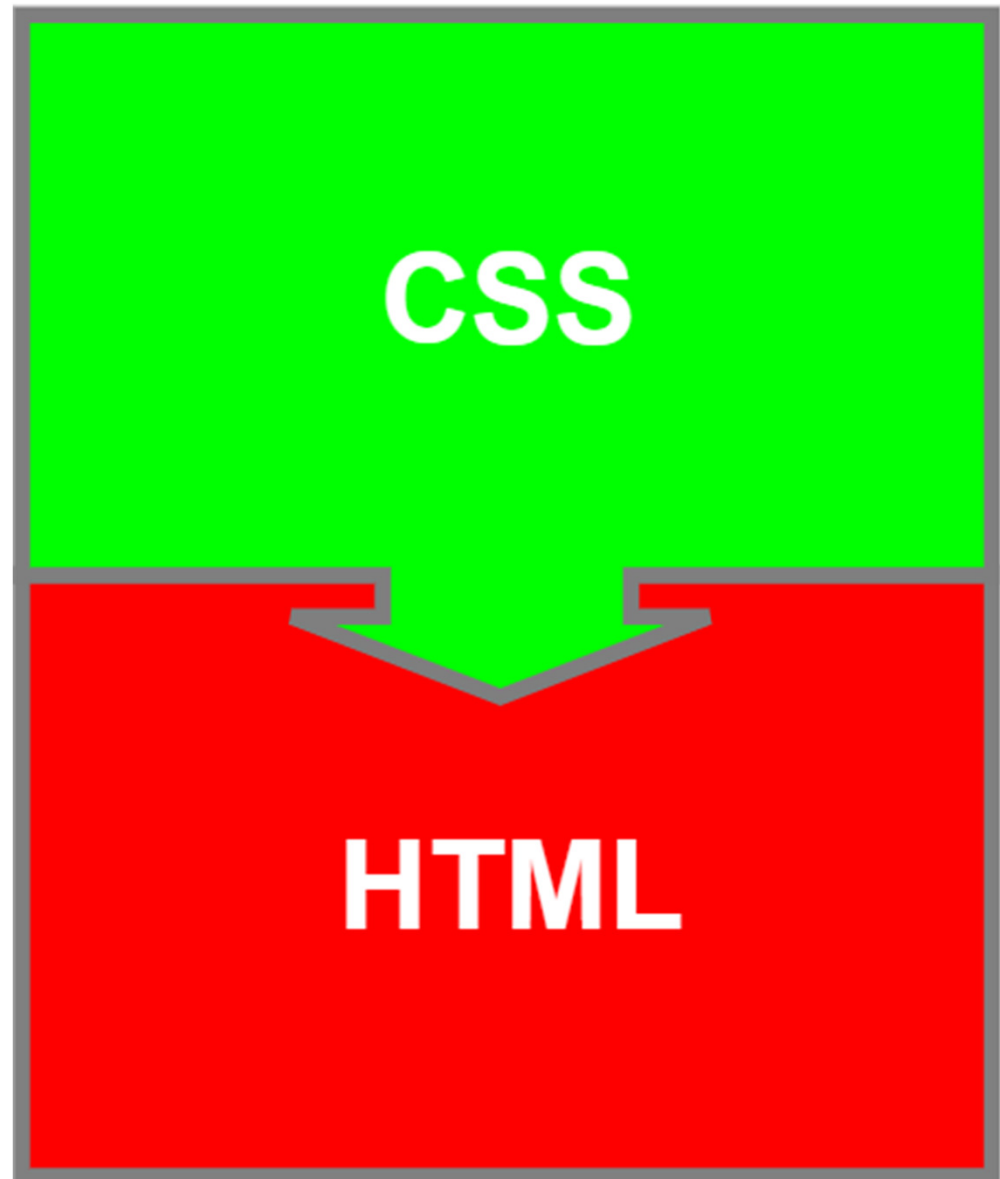
HTML

In this way the *content* is separate from the rules which control its *appearance*

HTML Content

```
<h1>Beautiful</h1>
<p>
I look <b>absolutely
great</b>!
</p>
```

CSS Rules

```
body { font-family: Arial;
       background: deeppink; }
h1   { color: darkred; }
p    { color: white; }
```

CSS Rules

```
body { font-family: Broadway;
       background: blue; }
h1   { color: white; }
p    { color: black; }
```

What the web page looks like

Beautiful

I look **absolutely great!**

What the web page looks like

Beautiful

I look **absolutely great!**

The Complete HTML File

• This is the compete code for the example on the left of the last slide


```html
<!DOCTYPE html>
<html>
<head>
    <title>Beautiful</title>
    <style>
    body { font-family: Arial;
           background: deeppink; }
    h1   { color: darkred; }
    p    { color: white; }
    </style>
</head>

<body>
    <h1>Beautiful</h1>
    <p>
    I look
    <b>absolutely great</b>!
    </p>
</body>
</html>
```

Style Rules

- A style rule has a selector and a collection of properties enclosed by a pair of braces

```
h1 { color: darkblue; }
```

Selector   *One or more CSS properties*

- The selector is a way to tell the HTML document which elements that the rule applies to
- In the example, the rule is applied to *every* <h1> element inside the document

```
<html>
<head>
  <title>Using Style Sheet</title>
  <style>
  h1 { color: darkblue; }
  </style>
</head>
<body>
  <h1>Name</h1>
  <p>...</p>
  <h1>Job</h1>
  <p>...</p>
  <h1>Hobbies</h1>
  <p>...</p>
</body>
</html>
```

Style sheet which changes all <h1> text to darkblue

A Style Sheet Example

Name

...

Job

...

Hobbies

...

Linking to an External Style Sheet

- If you want to, you can put the style sheet in a separate file and then link to it using the `<link>` tag, like this:

`<a href="..."`

`<link href="...`

CSS   used in header, link an external resource as document meta information

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

*This file contains the style sheet
(in the same folder as the HTML file)*

A link tag can only be used in the document HEADER, and is used to "link in" other resources to the document. Fetching stylesheets is the most common case. Link tag is NEVER used in the body.

mywebpage.html

```
<html>
<head>
  <title>Using Style Sheet</title>
  <link href="mystyle.css" rel="stylesheet">
</head>
<body>
  <h1>Name</h1>
  <p>...</p>
  <h1>Job</h1>
  <p>...</p>
  <h1>Hobbies</h1>
  <p>...</p>
</body>
</html>
```

mystyle.css

```
h1 { color: darkblue; }
```

Name

...

Job

...

Hobbies

...

The visual result is exactly the same

Spaces Between the Content Are Not Important

- `h1{color:darkblue;}`
- `h1 { color: darkblue; }`
- `h1   { color :darkblue;}`
- `h1 {    color:   darkblue;    }`

  - These are all OK

- `h1 { color:dark blue; }`

  - Not OK! You can't have a space in the middle

  space in the middle of a word in not OK!

The Semicolon is For Separating

- Previously we saw this: Semicolon is only needed between two rules. Semicolon at the end is optional.

```
body { font-family: Arial;
            background: deeppink; }
```

- The semicolon ; is only needed for separation

- So you could do this:
  - No need for a semicolon at the end

```
body { font-family: Arial;
            background: deeppink }
```

Inline Style

- One way to apply style to one single thing is this:

```
<h1 style="color:red">Beautiful</h1>
```

- This means the text of that <h1> becomes red
- Everything else in the web page is unaffected
- This way of applying style is called *inline style*

There are Many CSS Properties

- There are hundreds of CSS properties
- You can find a list on the web:

`https://www.w3.org/Style/CSS/all-properties.en.html`

- There are many CSS properties that you will probably never use!
- In this presentation we look at some of the more common CSS properties

Examples of Some Common Font Properties
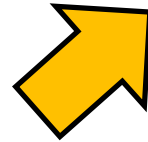
Big Big Text

normal text

```
<p style="font-family: Helvetica;
          font-size: 18px;
          font-weight: bold">
   Big Big Text</p>
<p>normal text</p>
```

Common Font Properties

- `font-family: Helvetica`
  - Other examples: `"Times New Roman"`, `Arial`, `Georgia`, etc
- `font-size: 18px`
  - Other examples: `8px`, `40px`, `90px`, etc
  - There are lots of different ways to express font size
  - In this example we used pixels (px), but you can also use points (pt), relative size to the element (em), relative size to the document (rem), and so on – we probably won't explore all these
- `font-weight: bold`
  - Other examples: `normal, bolder, lighter,` a number from `100` (very thin) to `700` (very thick)

Colour Properties

- `background-color` (or just `background`)
  - E.g. `background-color:` `lightgray`

    `or` `background:` `lightgray`

- `color` text color
  - E.g. `color: darkgray`

- There are different ways to specify colours, for example, using colour names, RGB colours or HSL colours

- We will further explain how to specify colours later in the course

The HTML Span Tag

- Let's look at an HTML tag we haven't discussed yet

- `<span>…</span>` is useful because <mark>it doesn't have any default visual style</mark>

- E.g. `<p>In a paragraph <span>In a span</span></p>` looks like this:

In a paragraph In a span

No extra style has been used by the <span>

- So we can apply styles to `<span>…</span>` without worrying whether it already has a style which might mess up the result in some way

Examples of Controlling Colour

R A I N B O W

```
<body style="background-color:skyblue">
  <p>
    <span style="color: red">R</span>
    <span style="color: orange">A</span>
    <span style="color: yellow">I</span>
    <span style="color: green">N</span>
    <span style="color: #00F">B</span>
    <span style="color: #400080">O</span>
    <span style="color: rgb(255, 0, 255)">W</span>
  </p>
</body>
```

- This is the 3 character hexadecimal representation of RGB, less typing!
- See next slide

- Decimal RGB representation

- 6 character hexadecimal RGB representation
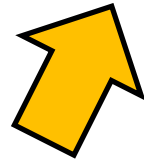
Using 3 Hexadecimal Characters

- On the previous slide we saw this:

- `<span style="color: #00F">B</span>`

- When all these are true:
  the 2 hexadecimal characters for Red are the same
  the 2 hexadecimal characters for Green are the same
  the 2 hexadecimal characters for Blue are the same
  then you can show each character once

- E.g. you can write #ABC instead of #AABBCC
  and you can write #E29 instead of #EE2299
  and you can write #00F instead of #0000FF

Paragraph Properties

Good day! This text has a nice gap between the lines. That makes it easier to read. But you won't see it unless there lots of text, or if the browser is not very wide.

- This **controls the vertical gap between the lines**

- This controls whether the text goes on the `left` or the `right` or in the `center`

```
<p style="text-align: center;
          line-height: 1.6">
    Good day!
    This text has a nice gap between the lines.
    That makes it easier to read.
    But you won't see it unless there lots of text,
    or if the browser is not very wide.
</p>
```

Inline and Block Elements

- There are generally two types of layout:

    1. Elements that 'flow' with the page are called *inline elements*, such as `<b>` and `<span>`

    2. Elements that occupy a rectangular area on its own line are called *block elements*, such as `<h1>` and `<div>` - these start on a new line
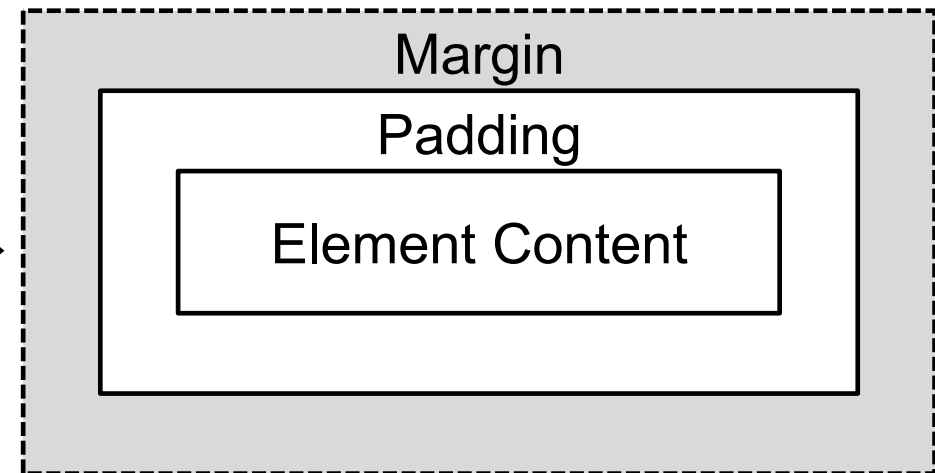
Examples of Box Properties

In a Big Box

```
<h1 style="background: yellow;
           margin: 20px;
           padding: 20px;
           width:200px;height:40px">
   In a Big Box
</h1>
```
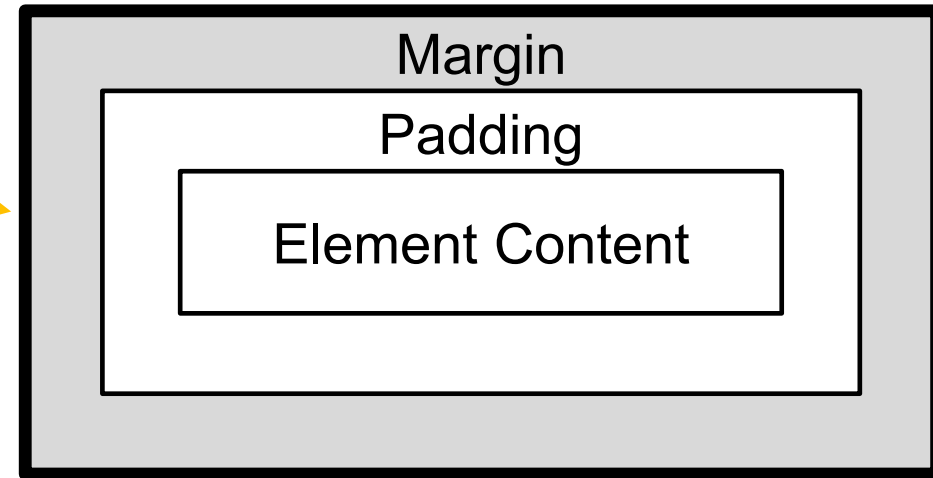
- You can do this with many HTML elements

Margin		
	Padding	
		Element Content

padding will inherit background color, but will not contain any contents

Border Properties

The border

Margin
Padding
Element Content

The colour of the border line

- `border: 2px solid black`

Thickness
of the border line

The border line is solid
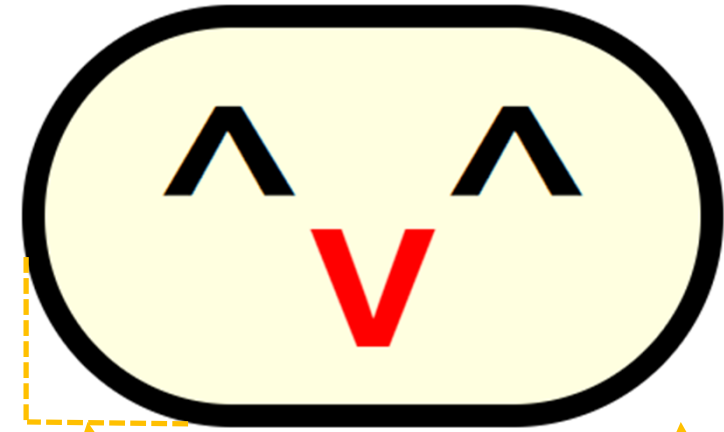– *alternatives include* dotted, dashed, double, *etc*

- `border-radius`
  – E.g. `border-radius: 20px` *This makes the corners of the thing which has the border use a curve – see next slide*

Examples of Border Properties

- monospace means all letters have the same width

```
<h1 style="font-family: monospace;
           background: lightyellow;
           width: 60px;
           text-align: center;
           border: 2px solid black;
           border-radius: 20px">
^<sub style="color: red">v</sub>^
</h1>
```

- The border will be curved at the corners

- The actual web page text is just 3 characters

- Remember _… means 'move text down'

Most HTML Elements have a Default Style

- HTML elements already have some default style, e.g.
  `<b>` gives you bold text
  `<h1>` gives you big size text

- `<span>` (for small amounts of text) and
  `<div>` (for larger amounts of text)
  are often used for projects because they don't have a default style

Beautiful

I look **absolutely great!**

```
<h1>Beautiful</h1>
<p>
I look <b>absolutely
great</b>!
</p>
```
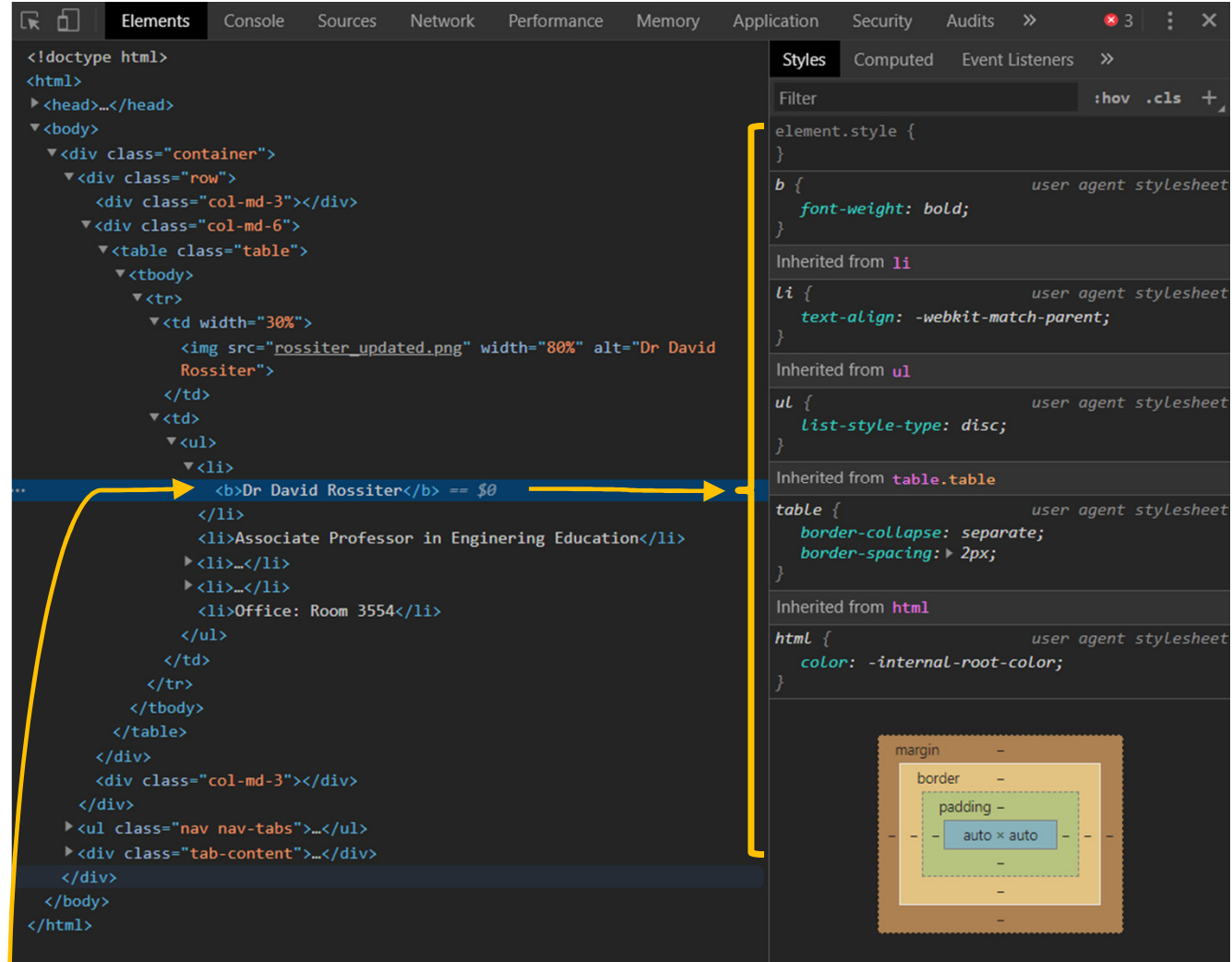
Examining CSS

- It is useful to look at websites (your web site or another) and study their style using Chrome DevTools

Move mouse over something >

Right click > Inspect

Ctrl-Shift-I / Cmd-Shift-C

The id Attribute

- You can give a 'name' to any HTML using `id`

- For example:

```
<p>
    <span id="first-name">Dave</span>
    <span id="last-name">Rossiter</span>
</p>
```

- Then you can make a style rule which applies to the thing which has that `id` – see next slide

- Giving things an `id` is also very useful for programming

Using the id

- This is how you make a rule which applies to the thing or things which have that `id`

The CSS applies to something which has this `id`

```
#last-name {

    text-transform: uppercase;

    font-weight: bold;

}
```

Dave **ROSSITER**

Change the text to upper case

```
<style>
. important {
 color: red;
 font-weight: bold;
}
</style>

...

<h3 class="important" >Important!</h3>
<p>
<span class="important" >Don't</span>
run out of money!
</p>
```

Important!

Don't run out of money!

The CSS applies to something which has this class

Using Class

- Using class is another way to select some HTML

class   id

Quick Summary of Using CSS

Example HTML

CSS Rule

tag

<p>My text</p>

p { background-color: blue }

<p id="mytext">My text</p>

#mytext { background-color: blue }

<p class="fun">My text</p>

.fun { background-color: blue }