MERN – ES6 + React
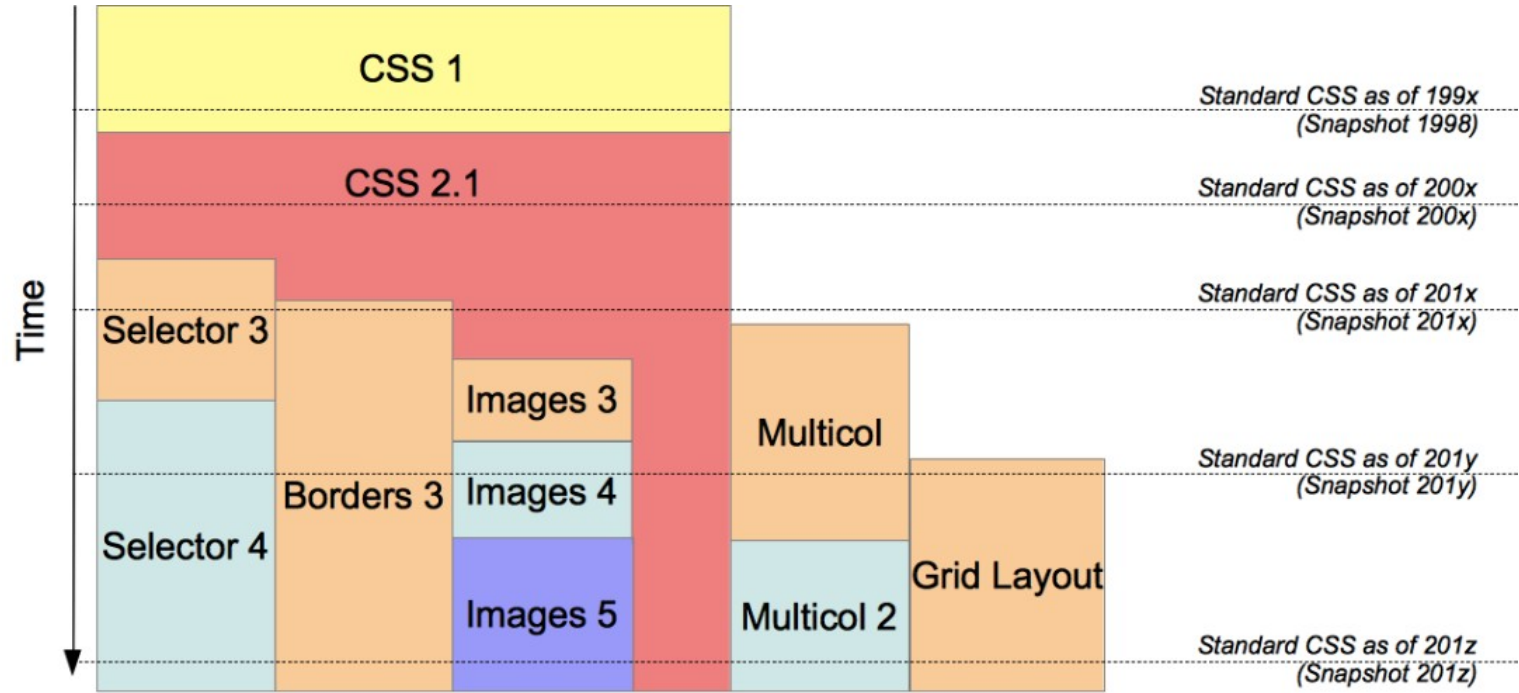
Module 03: CSS Basics

Outline

Module 03

▶ CSS Basics

▶ use "ids" to target single elements

▶ use "classes" to target groups of elements

▶ use combinations of selector tags to target certain combinations of elements

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What is CSS?

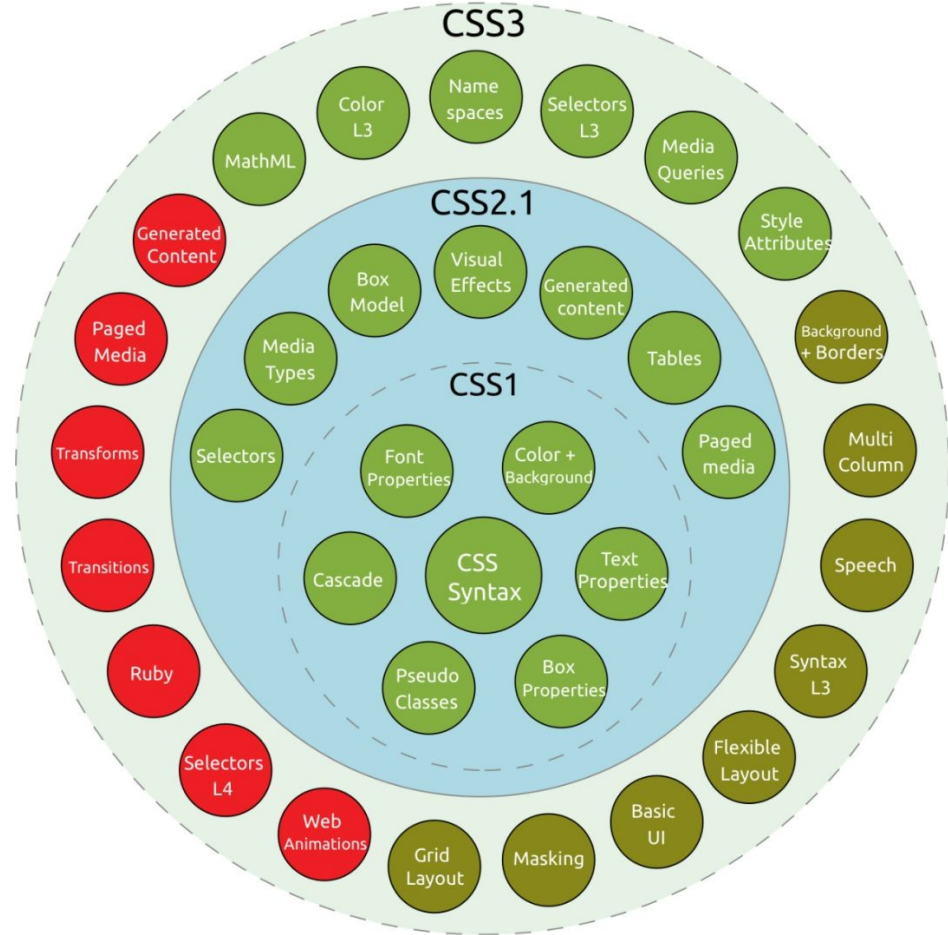*CSS Introduction*

▶ CSS stands for **Cascading Style Sheets**

▶ **CSS is not a programming language. It's not a markup language either.**

▶ CSS is a **style sheet language**

▶ CSS describes **how HTML elements are to be displayed** on screen, paper, or in other media

▶ CSS saves a lot of work. It can control the **layout of multiple web pages** all at once

Evolution of CSS 3.0

Evolution of CSS 3.0

Panel 1 (top-left):

Welcome to My Homepage

Use the menu to select different Stylesheets

- Stylesheet 1
- Stylesheet 2
- Stylesheet 3
- Stylesheet 4
- No Stylesheet

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:
Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:
No Stylesheet.

Side-Bar

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Panel 2 (top-right):

Welcome to My Homepage

Use the menu to select different Stylesheets

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Same Page Different Stylesheets

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No Stylesheet.

| Stylesheet 1 |
| Stylesheet 2 |
| Stylesheet 3 |
| Stylesheet 4 |
| No Stylesheet |

Side-Bar

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Panel 3 (bottom-left):

Welcome to My Homepage
Use the menu to select different Stylesheets

| Stylesheet 1 |
| Stylesheet 2 |
| Stylesheet 3 |
| Stylesheet 4 |
| No Stylesheet |

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:
Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:
No Stylesheet.

Side-Bar

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Panel 4 (bottom-right):

Welcome to My Homepage

Use the menu to select different Stylesheets

| Stylesheet 1 | Stylesheet 2 | Stylesheet 3 | Stylesheet 4 | No Stylesheet |

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:
Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:
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Side-Bar

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CSS Syntax

CSS Basics

▶ A CSS **rule** consists of a selector and a declaration block.
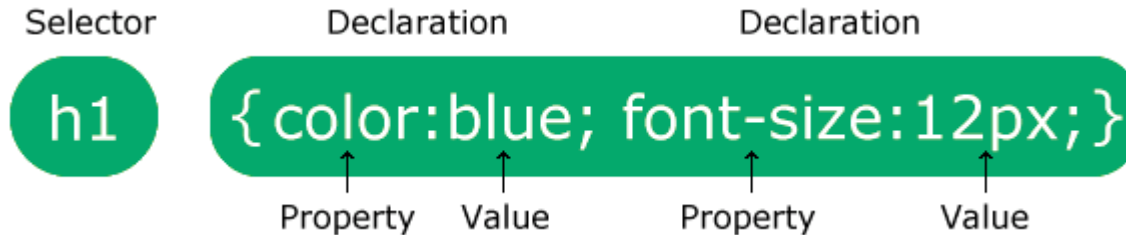
▶ The **selector** points to the **HTML element** you want to style.

▶ The **declaration block** contains one or more **style declarations** separated by semicolons.

▶ Each declaration includes a **CSS property** name and a value, separated by a colon.

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

▶ CSS selectors are used to "find" (or select) the HTML elements you want to style.

▶ We can divide CSS selectors into **five categories**:

1. Simple selectors (select elements based on name, id, class)
2. Combinator selectors (select elements based on a specific relationship between them)
3. Pseudo-class selectors (select elements based on a certain state)
4. Pseudo-elements selectors (select and style a part of an element)
5. Attribute selectors (select elements based on an attribute or attribute value)

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

▶ **The CSS element Selector**

- The element selector selects HTML elements based on the **element name**.

Example

Here, all <p> elements on the page will be center-aligned, with a red text color:

```
p {
    text-align: center;
    color: red;
}
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

▶ The CSS id Selector
- The id selector uses the id attribute of an HTML element to select a **specific element**.
- To select an element with a specific id, write a hash (#) character, followed by the id of the element.

Example

The CSS rule below will be applied to the HTML element with id="para1":

```
#para1 {
    text-align: center;
    color: red;
}
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

► The CSS class Selector
  - The class selector selects HTML elements with a specific **class attribute**.
  - To select elements with a specific class, write a period (.) character, followed by the class name.

Example

In this example all HTML elements with class="center" will be red and center-aligned:

```
.center {
  text-align: center;
  color: red;
}
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

► The CSS class Selector
  - The class selector selects HTML elements with a specific **class attribute**.
  - To select elements with a specific class, write a period (.) character, followed by the class name.
  - You can also specify that only **specific HTML elements** should be affected by a class.

Example

In this example only `<p>` elements with class="center" will be red and center-aligned:

```
p.center {
    text-align: center;
    color: red;
}
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

▶ The CSS class Selector

- The class selector selects HTML elements with a specific **class attribute**.
- To select elements with a specific class, write a period (.) character, followed by the class name.
- You can also specify that only **specific HTML elements** should be affected by a class.
- HTML elements can also refer to **more than one class**.

Example

In this example the <p> element will be styled according to class="center" and to class="large":

```
<p class="center large">This paragraph refers to two classes.</p>
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

► The CSS Universal Selector
  - The universal selector (*) selects **all HTML elements** on the page.

Example

The CSS rule below will affect every HTML element on the page:

```
* {
  text-align: center;
  color: blue;
}
```

CSS Selectors

A CSS selector selects the HTML element(s) you want to style.

▶ The CSS Grouping Selector
  - The grouping selector selects all the HTML elements with the **same style definitions**.
  - To group selectors, separate each selector with a **comma**.

Example

In this example we have grouped the selectors from the code above:

```css
h1, h2, p {
    text-align: center;
    color: red;
}
```

How To Add CSS

Three Ways to Insert CSS

1. External CSS
2. Internal CSS
3. Inline CSS

External CSS

With an external style sheet, you can change the look of an entire website by changing <u>just one file</u>!

▶ Each HTML page must include a reference to the external style sheet file inside the <link> element, inside the head section.

Example

External styles are defined within the <link> element, inside the <head> section of an HTML page:

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="mystyle.css">
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

"mystyle.css"

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

h1 {
    color: navy;
    margin-left: 20px;
}
```

Internal CSS

An internal style sheet may be used if <u>one single</u> HTML page has a unique style.

Example

Internal styles are defined within the <style> element, inside the <head> section of an HTML page:

```html
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-color: linen;
}

h1 {
  color: maroon;
  margin-left: 40px;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

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Inline CSS

An inline style may be used to apply a unique style for a single element.

▶ To use inline styles, add the style attribute to the relevant element. The style attribute can contain any CSS property.

Example

Inline styles are defined within the "style" attribute of the relevant element:

```html
<!DOCTYPE html>
<html>
<body>

<h1 style="color:blue;text-align:center;">This is a heading</h1>
<p style="color:red;">This is a paragraph.</p>

</body>
</html>
```

Cascading Order

What style will be used when there is more than one style specified for an HTML element?

▶ All the styles in a page will "cascade" into a new "virtual" style sheet by the following rules, where number one has the highest priority:

1. Inline style (inside an HTML element)

2. External and internal style sheets (in the head section)

3. Browser default

▶ So, an inline style has the highest priority, and will override external and internal styles and browser defaults.

CSS The !important Rule

The !important rule in CSS is used to add more importance to a property/value than normal.

▶ In fact, if you use the !important rule, it will override ALL previous styling rules for that specific property on that element!

```html
<!DOCTYPE html>
<html>
<head>
<style>
#myid {
  background-color: blue;
}

.myclass {
  background-color: gray;
}

p {
  background-color: red !important;
}
</style>
</head>
<body>

<p>This is some text in a paragraph.</p>

<p class="myclass">This is some text in a paragraph.</p>

<p id="myid">This is some text in a paragraph.</p>

</body>
</html>
```

This is some text in a paragraph.

This is some text in a paragraph.

This is some text in a paragraph.

CSS Comments

CSS comments are not displayed in the browser, but they can help <u>document your source code</u>.

▶ Comments are used to explain the code and may help when you edit the source code at a later date.

▶ Comments are ignored by browsers.

▶ A CSS comment is placed **inside** the <style> element, and starts with /* and ends with */:

Example
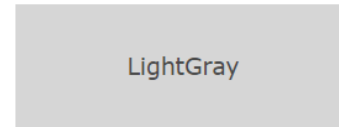
```css
/* This is a single-line comment */
p {
  color: red;
}
```
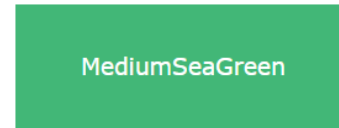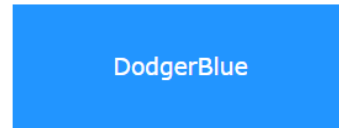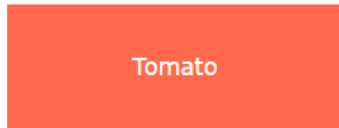
▶ We can add comments to your HTML source by using the <!--...--> syntax.

CSS Colors

Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

▶ CSS Color Names
- In CSS, a color can be specified by using a predefined color name:

Tomato	Orange	DodgerBlue	MediumSeaGreen
Gray	SlateBlue	Violet	LightGray

CSS Colors

Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

▶ CSS Background Color
   - You can set the background color for HTML elements:

Example

```
<h1 style="background-color:DodgerBlue;">Hello World</h1>
<p style="background-color:Tomato;">Lorem ipsum...</p>
```

Hello World

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

CSS Colors

Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

► CSS Text Color
  - You can set the color of text:

Example

```
<h1 style="color:Tomato;">Hello World</h1>
<p style="color:DodgerBlue;">Lorem ipsum...</p>
<p style="color:MediumSeaGreen;">Ut wisi enim...</p>
```

Hello World

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

CSS Colors

Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

► CSS Border Color
  - You can set the color of borders:

Example

```
<h1 style="border:2px solid Tomato;">Hello World</h1>
<h1 style="border:2px solid DodgerBlue;">Hello World</h1>
<h1 style="border:2px solid Violet;">Hello World</h1>
```

Hello World

Hello World

Hello World

CSS Colors

Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

▶ CSS Color Values

- In CSS, colors can also be specified using RGB values, HEX values, HSL values, RGBA values, and HSLA values:

- Same as color name "Tomato":

rgb(255, 99, 71)

#ff6347

hsl(9, 100%, 64%)

Same as color name "Tomato", but 50% transparent:

rgba(255, 99, 71, 0.5)

hsla(9, 100%, 64%, 0.5)

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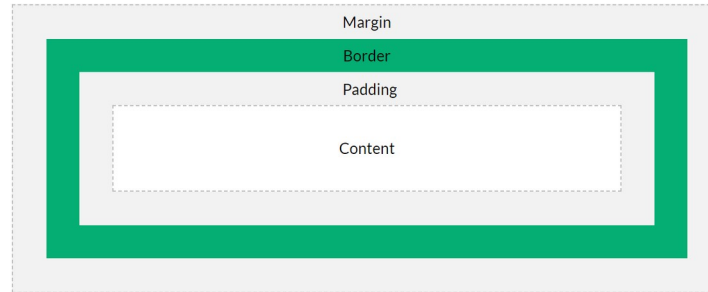# CSS Box Model

All HTML elements can be considered as boxes.

▶ In CSS, the term "box model" is used when talking about **design and layout**.

▶ The CSS box model is essentially a box that wraps around every HTML element.
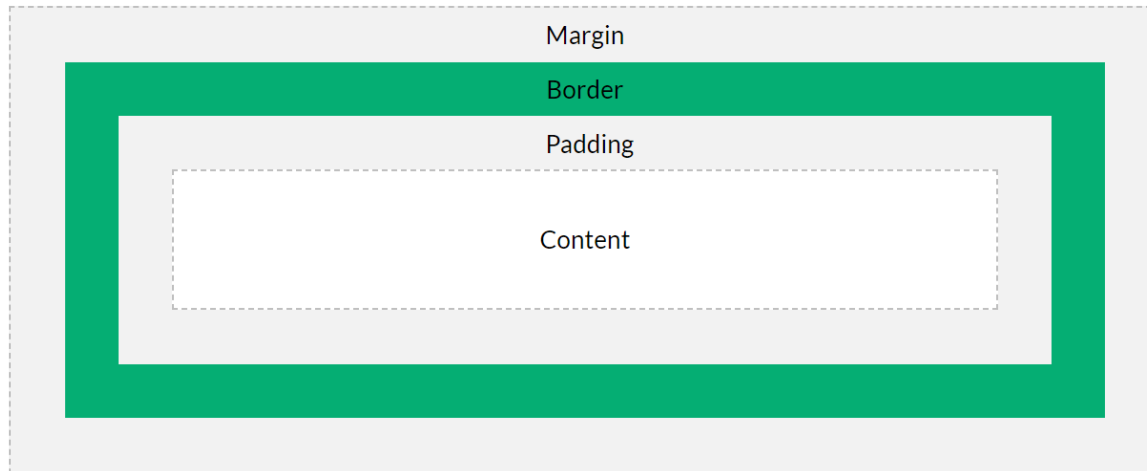
CSS Box Model

All HTML elements can be considered as boxes.

▶ The box model allows us to add a border around elements, and to define space between elements.

▶ **Content** - The content of the box, where text and images appear

▶ **Padding** - Clears an area around the content. The padding is transparent

▶ **Border** - A border that goes around the padding and content

▶ **Margin** - Clears an area outside the border. The margin is transparent

CSS Box Model

All HTML elements can be considered as boxes.

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  background-color: lightgrey;
  width: 300px;
  border: 15px solid green;
  padding: 50px;
  margin: 20px;
}
</style>
</head>
<body>

<h2>Demonstrating the Box Model</h2>

<p>The CSS box model is essentially a box that wraps around every HTML element. It
consists of: borders, padding, margins, and the actual content.</p>

<div>This text is the content of the box. We have added a 50px padding, 20px margin
and a 15px green border. Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.
Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt
mollit anim id est laborum.</div>

</body>
</html>
```

Demonstrating the Box Model

The CSS box model is essentially a box that wraps around every HTML element. It consists of: borders, padding, margins, and the actual content.

This text is the content of the box. We have added a 50px padding, 20px margin and a 15px green border. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
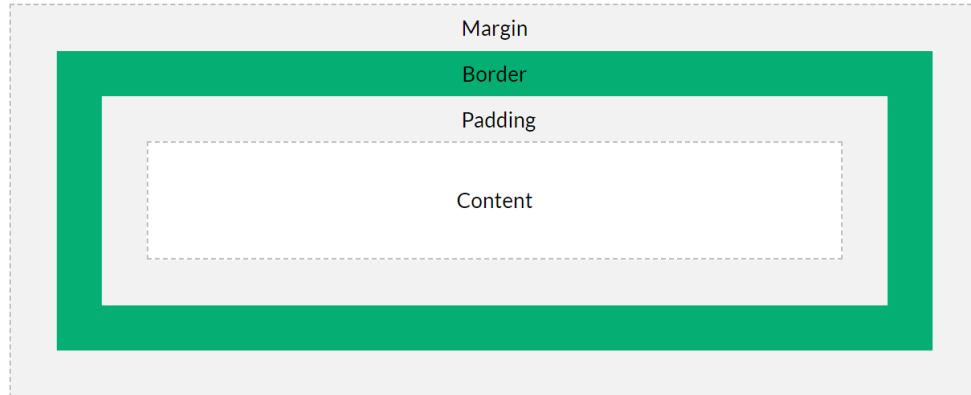
HAZZA INSTITUTE OF TECHNOLOGY
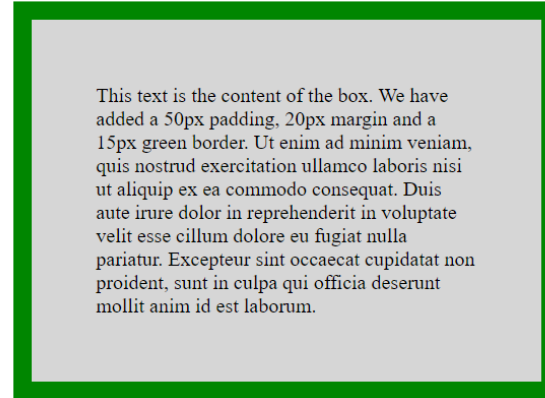
CSS Box Model

All HTML elements can be considered as boxes.

▶ **Width and Height of an Element**

▶ **Total width** = width + left padding + right padding + left border + right border + left margin + right margin

▶ **Total height** = height + top padding + bottom padding + top border + bottom border + top margin + bottom margin

Margin - Shorthand Property

To shorten the code, it is possible to specify all the margin properties in one property.

If the `margin` property has four values:

- **margin: 25px 50px 75px 100px;**
  - top margin is 25px
  - right margin is 50px
  - bottom margin is 75px
  - left margin is 100px

If the `margin` property has three values:

- **margin: 25px 50px 75px;**
  - top margin is 25px
  - right and left margins are 50px
  - bottom margin is 75px

If the `margin` property has two values:

- **margin: 25px 50px;**
  - top and bottom margins are 25px
  - right and left margins are 50px

If the `margin` property has one value:

- **margin: 25px;**
  - all four margins are 25px

CSS Units

CSS has several different units for expressing a length.

▶ Many CSS properties take "length" values, such as width, margin, padding, font-size, etc.

▶ There are two types of length units: absolute and relative.

▶ **Absolute Lengths**

Unit	Description
cm	centimeters
mm	millimeters
in	inches (1in = 96px = 2.54cm)
px *	pixels (1px = 1/96th of 1in)
pt	points (1pt = 1/72 of 1in)
pc	picas (1pc = 12 pt)

CSS Units

CSS has several different units for expressing a length.

▶ Many CSS properties take "length" values, such as width, margin, padding, font-size, etc.

▶ There are two types of length units: absolute and relative.

▶ Absolute Lengths

▶ **Relative Lengths**

Unit	Description
em	Relative to the font-size of the element (2em means 2 times the size of the current font)
ex	Relative to the x-height of the current font (rarely used)
ch	Relative to width of the "0" (zero)
rem	Relative to font-size of the root element
vw	Relative to 1% of the width of the viewport*
vh	Relative to 1% of the height of the viewport*
vmin	Relative to 1% of viewport's* smaller dimension
vmax	Relative to 1% of viewport's* larger dimension
%	Relative to the parent element

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Summary

Module 03

▶ CSS Basics

▶ use "ids" to target single elements

▶ use "classes" to target groups of elements

▶ use combinations of selector tags to target certain combinations of elements