Tishreen University
Faculty of Informatics Engineering
Fifth Year

Internet applications

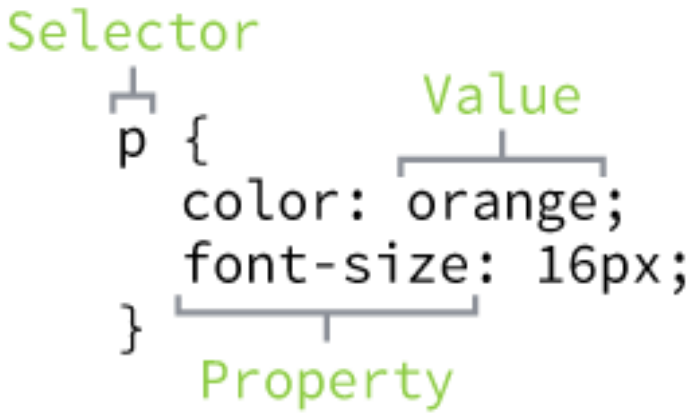
Session 2

CSS (Cascading Styles Sheets)

- **Cascading Styles Sheets** is a way to style and present HTML.
- Whereas the HTML is the **meaning** or **content**, the style sheet is the **presentation** of that **document.**
- It allows us to add layout and design to our pages, and share those styles from element to element and page to page.

CSS Syntax

- A CSS rule-set consists of a selector which is immediately followed by curly brackets Within these curly brackets are declarations consisting of property and value pairs.
- Each declaration begins with a property, which is followed by a colon, the property value, and finally a semicolon.



- So we have To understand those terms: Selectors, Properties, and Values.

CSS Syntax

- **Selectors :**

The selector points to the HTML element (or elements) you want to style using CSS.

- **Properties :**

Once an element is selected, a property determines the styles that will be applied to that element.

There are numerous properties we can use, such as background, color, font-size, height, and width.

- **Values :**

So far we've selected an element with a selector and determined what style we'd like to apply with a property. Now we can determine the behavior of that property with a value.

CSS Syntax

- Example:

```
p {
  color: orange;
  font-size: 16px;
}
```

Here we are selecting all <p> elements and setting the value of the color property to be orange and the value of the font-size property to be 16 pixels.

Working with Selectors

- we need to take a closer look at how selectors work within CSS.
- We Will talk about the different types of selectors.
- Let’s start with the most common selectors: type, class, and ID selectors.

Working with Selectors

The CSS element Selector(Type Selectors)

- **The element selector selects HTML elements based on the element name (tag name).**
- **Example 1:**

to target all div elements and style it we use the following syntax:

HTML

```
1    <div>...</div>
2    <div>...</div>
```

CSS

```
1    div { ... }
```

Working with Selectors

Class Selectors

- Class selectors allow us to select an element based on the element's class attribute value.
- they are a little more specific than type selectors, as they select a particular group of elements rather than all elements of one type.
- Class selectors allow us to apply **the same styles** to **different elements** at once by using the same class attribute value across multiple elements.

Working with Selectors

Class Selectors

- To select elements with a specific class, write a period (.) character, followed by the class name.

- Note: A class name cannot start with a number!

- Example 2:

HTML

```
<div class="awesome">...</div>
<p class="awesome">...</p>
```

CSS

```
.awesome { ... }
```

Working with Selectors

ID Selectors

- ID selectors are even more precise than class selectors, as they target only one unique element at a time. They use an element's id attribute value as a selector.
- Regardless of which type of element they appear on, id attribute values can only be used once per page.
- To select an element with a specific id, write a hash (#) character, followed by the id of the element.
- Example 3:

HTML

```
1    <div id="example3">...</div>
```

CSS

```
1    #example3 { ... }
```

Working with Selectors

The Universal Selector

- The universal selector (*) selects all HTML elements on the page .

- **Example 4:**

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

```
* {
  color: orange;
  font-size: 16px;
}
```

Working with Selectors

- Selectors are extremely powerful, and those are the most common selectors we'll come across.

- Many more advanced selectors exist such as(Descendant selectors , Child selectors ,Adjacent sibling selectors, Attribute selectors…..) we will talk about later.

Linking Html and CSS

There are three methods of including CSS in an HTML document:

Inline styles

Using the style attribute in the HTML start tag.

Example

```
1  <h1 style="color:red; font-size:30px;">This is a heading</h1>
2  <p style="color:green; font-size:22px;">This is a paragraph.</p>
3  <div style="color:blue; font-size:14px;">This is some text content.</div>
```

Linking Html and CSS

Embedded styles

- Using the <style> element in the head section of a document.
- They only affect the document they are embedded in.

Example

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>My HTML Document</title>
5      <style>
6          body { background-color: YellowGreen; }
7          p { color: #fff; }
8      </style>
9  </head>
10 <body>
11     <h1>This is a heading</h1>
12     <p>This is a paragraph of text.</p>
13 </body>
14 </html>
```

Linking Html and CSS

External style sheets

- Using the <link> element, pointing to an external CSS file.

Example

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>My HTML Document</title>
    <link rel="stylesheet" href="css/style.css">
</head>
<body>
    <h1>This is a heading</h1>
    <p>This is a paragraph of text.</p>
</body>
</html>
```

style.css

```css
body {
    background: lightyellow;
    font: 18px Arial, sans-serif;
}
h1 {
    color: orange;
}
```

Linking Html and CSS

External style sheets

- **Using external CSS files are highly recommended because:**
  1. It simplifies Html Document.
  2. It Improves page load speed as the CSS file is cached.

Getting to Know CSS

- It’s crucial to know exactly how styles are rendered. Specifically, we’ll need to know how different types of selectors work and how the order of those selectors can affect how our styles are rendered.

- So we will explain some important Concepts:
  1. **The Cascade.**
  2. **CSS Specificity.**
  3. **Combining Selectors.**

Getting to Know CSS

The Cascade

- Within CSS, all styles cascade from the top of a style sheet to the bottom, allowing different styles to be added or overwritten as the style sheet progresses.

- Example:

Because the paragraph selector that sets the background color to green comes after the paragraph selector that sets the background color to orange, All of the paragraphs will appear with a green background.
The font size will remain 24 pixels because the second paragraph selector didn't identify a new font size.

```
p {
  background: orange;
  font-size: 24px;
}
p {
  background: green;
}
```

Getting to Know CSS

CSS Specificity

- Specificity is a common reason why your CSS-rules don't apply to some elements, although you think they should.
- When does it happened?

  If multiple CSS selectors are targeting the same HTML element (conflicting CSS rules).

  so the browser follows some rules to determine which Selector is most specific and the selector with the highest specificity value will “win” and take effect.

- for example The universal selector (*) has low specificity, while ID selectors are highly specific!

Getting to Know CSS

CSS Specificity

- **Specificity Hierarchy:**

Every selector has its place in the specificity hierarchy. There are four categories which define the specificity level of a selector:

1. **Inline styles** - An inline style is attached directly to the element to be styled. Example: <h1 style="color: #ffffff;">.
2. **IDs** - An ID is a unique identifier for the page elements, such as #navbar.
3. **Classes, attributes and pseudo-classes** - This category includes .classes, [attributes] and pseudo-classes such as :hover, :focus etc.
4. **Elements and pseudo-elements** - This category includes element names and pseudo-elements, such as h1, div, :before and :after.

Getting to Know CSS

CSS Specificity

- if there are two CSS selectors with Equal specificity then the latest rule counts and applies.
- There are Rules to Calculate CSS Specificity (read about it if you are interested)
- Example:

Here we have a paragraph element with an id attribute value of 'paragraph'.
Within our CSS, that paragraph is being selected by two different kinds of selectors: one type selector and one ID selector.
Although the type selector comes after the ID selector in the cascade, the ID selector takes wins over the type selector because it is more specific and the paragraph will appear with a green background.

HTML

```
1    <p id="paragraph">...</p>
```

CSS

```
1    #paragraph {
2      background: green;
3    }
4    p {
5      background: orange;
6    }
```

Combining Selectors

- So far we've looked at how to use different types of selectors individually, but we also need to know how to use these selectors together.
- By combining selectors we can be more specific about which element or group of elements we'd like to select.

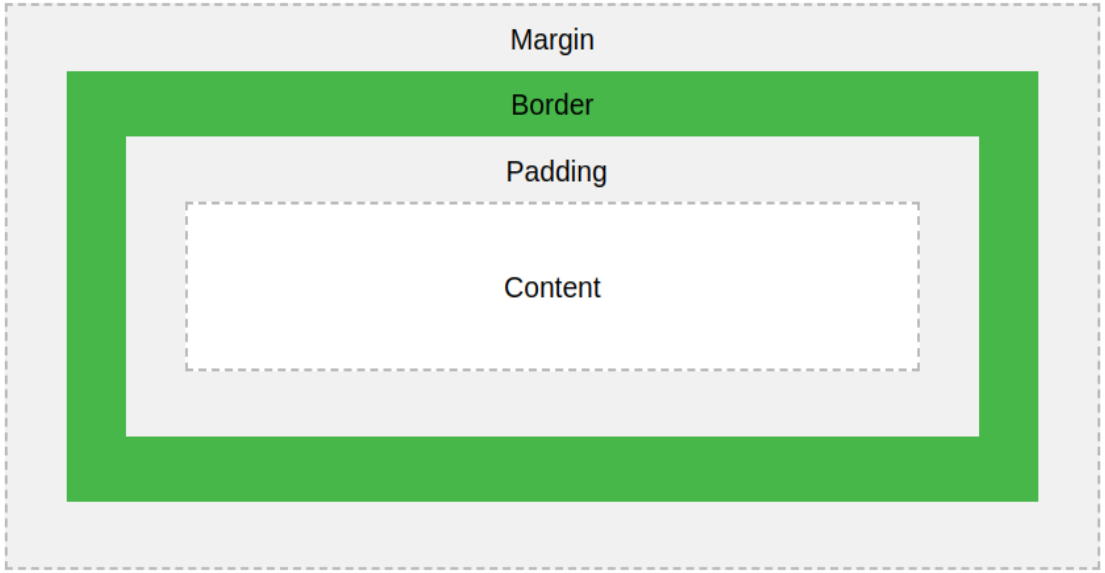
Selector	Example	Example description
element element	div p	Selects all <p> elements inside elements
element>element	div > p	Selects all <p> elements where the parent is a element
element+element	div + p	Selects all <p> elements that are placed immediately after elements
element1~element2	p ~ ul	Selects every element that are preceded by a <p> element

- There are many more selectors and combinations that you will get to know when you start working.
- If you are interested here you are a simplified reference for CSS selectors:

  CSS Selectors Reference

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.it allows us to add a border around elements, and to define space between elements.
- The CSS box model is essentially a box that wraps around every HTML element.
- It consists of: margins, borders, padding, and the actual content. The image below illustrates the box model:



CSS Box Model

Explanation of the different parts:

- Content :

  The content of the box, where text and images appear.

- Padding :

  The space around an element's content, inside of any defined borders.

- Border :

  Element Border is the border that goes around the padding and content.

- Margin :

  The space around elements, outside of any defined borders.

CSS Common Properties

Property	Description
display	Specifies how a certain HTML element should be displayed
margin	Sets all the margin properties in one declaration (margin-top ,margin-right , margin-bottom , margin-left)
padding	A shorthand property for all the padding-* properties (padding-top ,padding-right , padding-bottom , padding-left)
width	Sets the width of an element
height	Sets the height of an element
color	Sets the color of text
text-align	Specifies the horizontal alignment of text
line-height	Sets the line height

CSS Common Properties

Property	Description
font-size	Specifies the font size of text
font-family	Specifies the font family for text
font-weight	Specifies the weight of a font
background	A shorthand property for all the background-* properties
background-image	Specifies one or more background images for an element
background-color	Specifies the background color of an element
background-position	Specifies the position of a background image

CSS Common Properties

Property	Description
border	A shorthand property for border-width, border-style and border-color
border-color	Sets the color of the four borders (top, right, bottom, left)
border-width	Sets the width of the four borders
border-style	Sets the style of the four borders

Any Questions ?