Session 2: Introduction to CSS

CSS (Cascading Style Sheets)

Introduction to CSS

What is CSS?

- **CSS** (Cascading Style Sheets) is used to define the visual appearance of a webpage.
- CSS allows you to change the layout, colors, fonts, spacing, and many other visual aspects of HTML elements.

Why Use CSS?

- **Separation of Content and Style**: HTML is used to structure the content, while CSS controls the look of the page.
- **Consistent Styling**: CSS ensures that multiple pages of a website can share a common design.
- **Responsive Design**: CSS makes it easier to design layouts that work across different screen sizes (mobile, tablet, desktop).

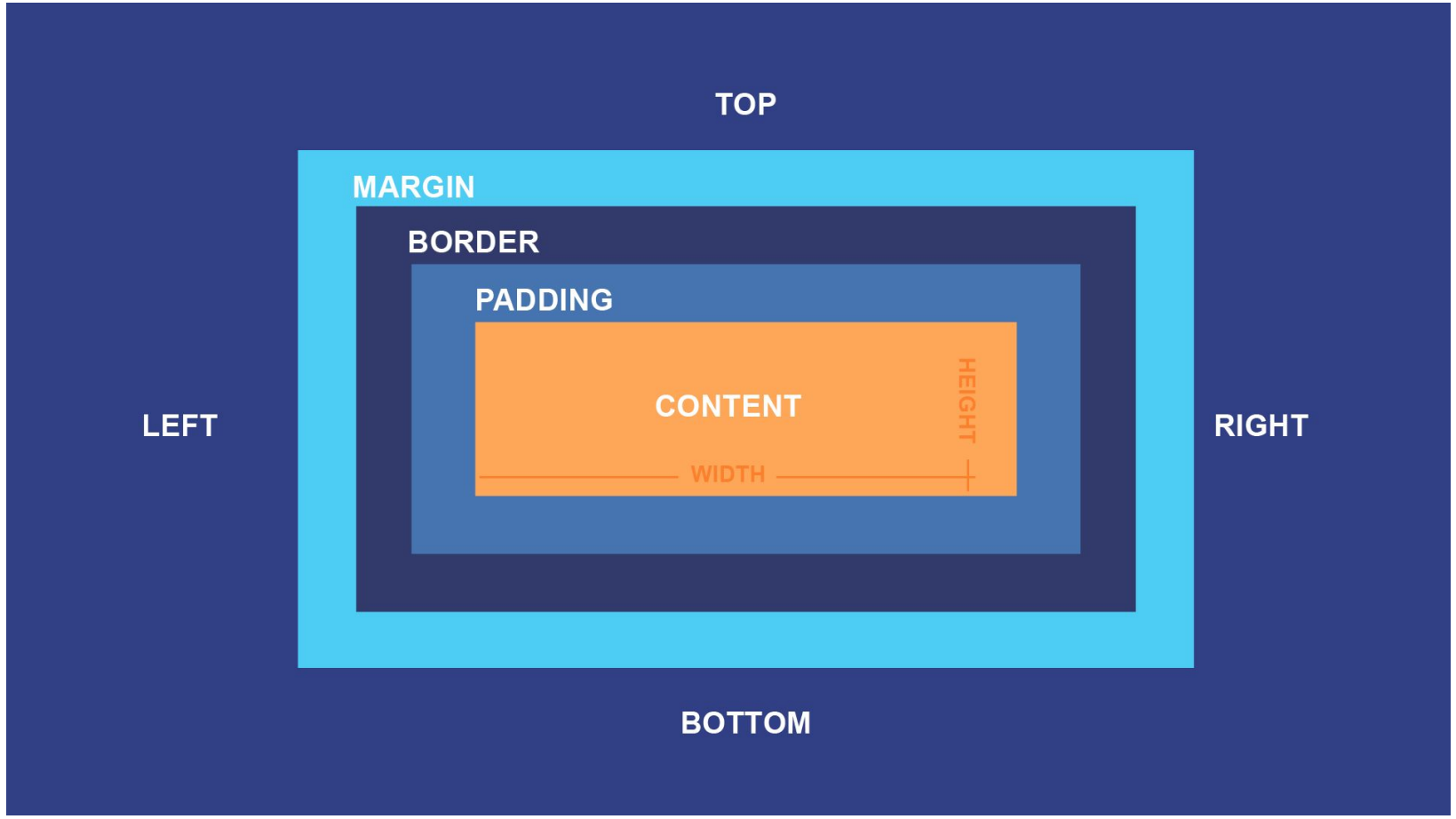
CSS Box Model

Box Model Components:

- Every HTML element is a box with content, padding, border, and margin.
- **Content**: The actual content of the element (e.g., text or image).
- **Padding**: Space between content and border.
- **Border**: A border around the element.
- **Margin**: Space between the element's border and surrounding elements.

```
div {
    width: 300px;
    padding: 10px;
    border: 2px solid black;
    margin: 20px;
}
```

CSS Box Model



How CSS Works:

- CSS works by selecting HTML elements and applying rules (properties and values) to them.

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

CSS Syntax

CSS Syntax:

- **Selector**: The HTML element you want to style.
- **Property**: The aspect of the element you want to change.
- **Value**: The value you want to apply to the property.

```
h1 {
  color: green;
  font-size: 30px;
}
```

CSS Selectors

What are CSS Selectors?

- Selectors are patterns used to select and style HTML elements.

Types of CSS Selectors:

- **Element Selector**: Selects all elements of a specific type

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

CSS Selectors

What is a Class Selector?

- The **Class Selector** targets all elements with a specific **class** attribute.
- Class selectors are reusable, meaning you can apply the same style to multiple elements

```html
<p class="highlight">This paragraph will have a yellow background.</p>
<h1 class="highlight">This heading will also have the same styling.</h1>
```

```css
.highlight {
  background-color: yellow;
  font-weight: bold;
}
```

CSS Selectors

What is an ID Selector?

- The **ID Selector** targets a unique element with a specific **ID**.
- Each ID should be unique within a page.

```html
<div id="header">This is the header section.</div>
<p id="main-paragraph">This paragraph has its unique style.</p>
```

```css
#header {
    background-color: lightblue;
    padding: 20px;
  }

  #main-paragraph {
    color: green;
    font-size: 20px;
  }
```

Selecting Multiple Elements

What is Selecting Multiple Elements?

- You can target multiple elements in a single CSS rule by separating the selectors with a comma. This way, multiple elements can share the same style.

```
h1, .highlight {
  font-family: 'Arial', sans-serif;
  color: purple;
}
```

Example 1: Full Example of Element, Class, and ID Selectors

```html
<h1 id="main-title">Welcome to My Website</h1>
<p class="intro-text">This is an introductory paragraph.</p>
<p class="intro-text">This paragraph has the same class as the one above.</p>
<div id="footer">This is the footer section.</div>
```

```css
/* Element Selector */
p {
    color: black; /
  }
  /* Class Selector */
  .intro-text {
    font-style: italic;
  }
  /* ID Selector */
  #main-title {
    text-align: center;
    font-size: 36px;
  }
    #footer {
    background-color: #f1f1f1;
    padding: 10px;
  }
```

Summary of Selectors

Element Selector:

- Targets HTML elements directly, like <p>, <h1>.
- Class Selector: Targets elements with the same class (class="someClass"), and can apply styles to multiple elements.
- ID Selector: Targets a single element with a unique ID (id="someID"), often for one-time use on a page.
- Multiple Selectors: Combine multiple selectors (comma-separated) to apply the same style to multiple elements.

Internal CSS vs External CSS

What is Internal CSS?

- Internal CSS is written within the <style> tag inside the <head> section of the HTML document.
- It is used to style the elements of that specific HTML document.

```html
<head>
    <style>
      body {
        background-color: lightblue;
        font-family: Arial, sans-serif;
      }
      h1 {
        color: darkblue;
      }
    </style>
  </head>
  <body>
    <h1>Welcome to My Webpage</h1>
  </body>
```

Internal CSS

Pros:	Quick to Implement: Ideal for styling small websites or individual pages.
	No External File Needed: All styles are contained within the same HTML file.
Cons:	Limited Reusability: The styles are applied only to the page where they are defined.Increased
	File Size: If you have multiple pages, each HTML file will contain its own styles, increasing the overall file size.
	Difficult to Maintain: For larger websites, internal CSS can become hard to manage, especially if styles are repeated across multiple pages.

External CSS

What is External CSS?

- External CSS is written in a separate .css file and linked to the HTML document using the <link> tag in the <head> section.
- The external CSS file can be used across multiple HTML documents.

External CSS

```html
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <h1>Welcome to My Webpage</h1>
</body>
</html>
```

```css
body {
    background-color: lightblue;
    font-family: Arial, sans-serif;
  }
  h1 {
    color: darkblue;
  }
```

External CSS

Pros:	Smaller HTML Files: The HTML files remain small since they don't contain the styling directly.
	Maintainability: It’s easier to update and maintain styles because you only need to make changes in one CSS file instead of each HTML document.
	Smaller HTML Files: The HTML files remain small since they don't contain the styling directly.
Cons:	Additional HTTP Request: Every time the HTML file is loaded, an additional HTTP request is made to fetch the CSS file, which may slightly impact loading times (though caching reduces this issue).
	Requires Link to External File: The CSS file must be linked correctly for it to work. If the link is broken or incorrect, the styles won’t be applied.

When to Use Internal CSS vs External CSS

Internal CSS:	Use when you have a **single-page website** or when the styles are very specific to that page. Ideal for **quick prototyping** or when working on a small website with minimal styling.
External CSS:	Best for **multi-page websites** or when you want to **reuse** the same styles across different pages. Ideal for large websites or projects where **maintaining consistency** and **ease of updates** is important.

CSS Colors

Coloring Elements in CSS:

- Colors can be defined using:
  - Names (e.g., red, blue).
  - Hex values (e.g., #ff0000 for red).
  - RGB values (e.g., rgb(255, 0, 0) for red).

```
p {
  color: #3498db; /* Hex color */
}
h1 {
  color: rgb(0, 255, 0); /* RGB color */
}

h2 {
  color: aqua; /* name color */
}
```

CSS Backgrounds

Adding Backgrounds:

- You can add background colors, images, or gradients to elements.

- **Background Color**:

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

CSS Backgrounds

- **Background Image**:

```
div {
    background-image: url('background.jpg');
    background-size: cover;
  }
```

CSS Backgrounds

- **Gradient Background**:

```
div {
    background: linear-gradient(to right, red, yellow);
  }
```

CSS Borders

Setting Borders:

- You can add borders to elements using the border property.

Border Properties:

- border-width: Sets the border thickness.
- border-color: Sets the border color.
- border-style: Defines the border style (e.g., solid, dotted, dashed).

```
p {
  border-style: solid;
  border-width: 10px;
  border-color: red;
}
```

CSS Height, Width, and Max-width

Setting Height and Width:

- Use height and width to define the size of an element.

Max-width:

- Use max-width to limit the width of an element, regardless of screen size.

```
div {
  width: 300px;
  height: 200px;
}
img {
  max-width: 100%;
  height: auto;
}
```

CSS Text

Text Properties:

- Text Color: color: red;
- Text Alignment: text-align: center;
- Text Decoration: text-decoration: underline;

```
p {
    color: darkblue;
    text-align: center;
    text-decoration: underline;
}
```

CSS Fonts

Font Properties:

You can change fonts using

- font-family
- font-size
- font-weight.

```
h1 {
    font-family: Arial, sans-serif;
    font-size: 32px;
    font-weight: bold;
  }
```

CSS Links

Styling Links:

- Links can be styled using
  - Color
  - text-decoration
  - hover states.

```
a {
    color: blue;
    text-decoration: none;
}

a:hover {
    color: green;
}
```

CSS Lists

Styling Lists: You can customize the appearance of lists (unordered or ordered) using CSS.

```
ul {
    list-style-type: square;
    padding-left: 20px;
  }

  ol {
    list-style-type: decimal;
  }
```

CSS Tables

Styling Tables: You can style tables with borders, padding, and alternate row colors.

```
table {
    width: 100%;
    border-collapse: collapse;
  }

  th, td {
    padding: 10px;
    border: 1px solid black;
  }

  tr:nth-child(even) {
    background-color: #f2f2f2;
  }
```

CSS Margins

What are Margins?

- Margins are the space outside an element's border, pushing other elements away.

```
div {
    margin: 20px;
  }

  div {
    margin-top: 10px;
    margin-right: 20px;
    margin-bottom: 30px;
    margin-left: 40px;
  }
```

CSS Padding

What is Padding?

- Padding is the space between an element's content and its border.

```
div {
    padding: 10px;
}

div {
    padding-top: 10px;
    padding-right: 20px;
    padding-bottom: 30px;
    padding-left: 40px;
}
```

Lab Activity: Creative Webpage Design Using HTML & External CSS

Lab Activity: Creative Webpage Design Using HTML & External CSS

Objective:

- Students will create a **fully functional and visually appealing webpage** by applying the **HTML** and **External CSS** concepts learned in **Day 2**. This will test their creativity, attention to detail, and ability to organize a webpage using **HTML structure** and **CSS styling**.
- Refer to the document in google classroom.