# Lab Session 3: Initiation to ****CSS Stylesheets****

## ****I. General Principles****

### ****1. Understanding CSS Rules****

* A **CSS rule** consists of a **selector** and a **declaration**. Example: This rule sets all <h4> elements to display in blue: **h4 { color: blue; }**
* **Structure of a CSS rule:**
  + **Selector** → Targets the HTML element (h4).
  + **Declaration** → Defines the styling (color: blue).
  + A declaration consists of:
    - **Property** (color).
    - **Value** (blue).
* **Multiple Declarations:** Use semicolons (;) to separate them:

**p { margin-left: 1cm; font-style: italic; }**

* **Grouping Selectors:** If the same style applies to multiple elements, they can be grouped:

**h1, p { color: red; },** In this case, all <h1> headers and <p> paragraphs will be red.

### ****2. Adding a Stylesheet to an HTML Page****

There are **three** ways to apply CSS:

#### ****1. Inline CSS (Directly in an Element) – Quick but Not Recommended****

<p style="color: blue; font-size: 14px;">This is a test.</p>

* **Pros:** Fast and easy for small tweaks.
* **Cons:** Difficult to manage for large projects.

#### ****2. Internal CSS (Within the**** <head> ****of the Document)****

<head>

<style>

h1, p { color: red; }

p { margin-left: 1cm; font-style: italic; }

</style>

</head>

* **Pros:** Keeps styles separate from content.
* **Cons:** Still embedded in the document, making it harder to reuse styles across multiple pages.

#### ****3. External CSS (Recommended for Large Projects)****

**body**

{ background-color: #f0f0f0;

font-family: Arial, sans-serif;

margin: 20px; padding: 20px; }

**h1** { color: blue; text-align: center; }

**p** { color: darkgray; font-size: 16px; }

* Create a file named styles.css and link it in the <head>:
* <link rel="stylesheet" href="styles.css">

**Pros:** Best for maintainability, One CSS file can style multiple pages.

## ****II. CSS Classes****

### ****1. Classes allow you to define reusable styles****

* **Defining a Class:** Use a dot (.) before the class name in CSS.

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

* **Applying a Class to an HTML Element:** <p class="highlight">This text is highlighted.</p>

### ****2. Applying Multiple Classes to an Element****

Separate class names with a space:

<p class="highlight large-text">This is styled with multiple classes.</p>

**Corresponding CSS:**

.highlight {color: yellow;}

.large-text {font-size: 20px;}

## ****III. CSS Specificity & Priority****

### ****1. The Importance of CSS Order****

* If multiple styles are applied to the same element, the **most specific** or **latest** definition wins.

#### ****Example of Overriding Styles****

p { color: brown;}

.special { color: green; font-weight: bold;

}

<p class="special">This text will be green and bold.</p>

* Since the .special class is **more specific** than the p selector, it **overrides** the color: brown; rule.

### ****2. Handling Conflicts in CSS****

When multiple conflicting rules exist, CSS follows these principles:

1. **Inline styles** (style="...") override everything.
2. **ID selectors (#id)** are stronger than **classes (.class)**.
3. **Classes (.class)** are stronger than **element selectors (p, h1, div, etc.)**.
4. **Later rules in the CSS file** take precedence over earlier ones.

#### ****Example: Specificity Levels****

p { color: red; } /\* Low specificity \*/

.special { color: blue; } /\* Higher specificity \*/

#important { color: green; } /\* Highest specificity \*/

<p id="important" class="special">This text will be green.</p>

* The **ID selector** #important has the highest priority, so the text is **green**.

## ****IV. Nested Elements & Inheritance****

### ****1. How Styles Are Passed to Child Elements****

Some styles **inherit** (e.g., color, font-family), while others **do not** (e.g., margin, border). Example

body {

color: blue;

}

<body>

<p>This text will be blue.</p> <!-- Inherited from <body> -->

</body>

### ****2. Nesting Example****

div { color: red;}

p { color: green;}

<div>

<p>This text will be green, not red.</p>

</div>

Even though <div> is red, <p> explicitly sets **green**, so it **overrides** the inherited color.

## ****V. The "Cascade" Concept in CSS****

### ****1. What Is the CSS Cascade?****

* The cascade determines **which styles take effect** when multiple rules apply.
* The order of styles matters—**later styles override earlier ones**.

### ****2. Using Multiple Stylesheets****

You can **combine multiple stylesheets**, but **the last one loaded takes precedence**.

#### ****Example: Combining External Stylesheets****

<head>

<link rel="stylesheet" href="style1.css">

<link rel="stylesheet" href="style2.css">

<style>

h1 { color: fuchsia; }

h2 { font-size: 16pt; }

h3 { font-size: 14pt; }

</style>

</head>

* If **style2.css** has rules conflicting with **style1.css**, the **second file's rules take precedence**.
* The **<style> block in the <head>** takes precedence over both external stylesheets.

## ****VI. Best Practices for Writing Clean & Maintainable CSS****

✔ **Use External Stylesheets:** Keeps your HTML clean and easy to maintain.  
✔ **Use Classes & IDs Properly:** Classes for reusable styles, IDs for unique elements.  
✔ **Avoid Inline Styles:** They make code harder to read and maintain.  
✔ **Keep Specificity Low:** Use classes over IDs to keep styles flexible.  
✔ **Organize Your Stylesheets:** Group similar properties together and use comments.  
✔ **Test on Different Browsers:** CSS may render differently in Chrome, Firefox, Edge, etc.