Introduction to CSS (Cascading Style Sheets)

CSS (Cascading Style Sheets) is a style sheet language used to describe the presentation of a document written in HTML or XML. It controls the layout, design, and appearance of web pages, separating the content (HTML) from its visual styling. Here's an overview of the key concepts:

1. What is CSS?

- CSS stands for Cascading Style Sheets.
- It is used to style HTML elements, including their layout, colors, fonts, and spacing.
- It allows developers to create visually appealing and responsive designs.

2. Benefits of CSS

- **Separation of Content and Style**: Keeps HTML content clean by separating the structure from styling.
- **Reusability**: Styles can be reused across multiple pages.
- **Consistency**: Ensures uniform appearance across a website.
- **Flexibility**: Makes it easier to implement responsive designs for different devices.

3. Types of CSS

1. **Inline CSS**:
   - Added directly within an HTML element using the `style` attribute.
   - Example: `<p style="color: red;">Hello World!</p>`
2. **Internal CSS**:
   - Defined within a `<style>` tag in the `<head>` section of an HTML document.

```
<style>
  p {
    color: blue;
  }
</style>
```

3. **External CSS**:
    ○ Written in a separate `.css` file and linked to the HTML document.

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

4. Syntax of CSS

CSS consists of **selectors** and **declaration blocks**.

- **Selector**: Specifies the HTML element to style.
- **Declaration Block**: Contains one or more declarations in `{}`.
- **Declaration**: Includes a property and a value, separated by `:` and ending with a `;`.

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

---

5. CSS Selectors

Selectors define which elements to style:

Universal Selector (*): Targets all elements.

```
* {
  margin: 0;
}
```

Element Selector: Targets specific HTML elements.

```
p {
  color: green;
}
```

Class Selector (`.`): Targets elements with a specific class.

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

ID Selector (#): Targets an element with a specific ID.

```css
#header {
  font-size: 24px;
}
```

Group Selector (`selector1, selector2`): Styles multiple elements.

```css
h1, h2 {
  color: blue;
}
```

Key Differences Between `id` and `class`

Feature	id	class
Uniqueness	Must be unique for each element.	Can be reused across multiple elements.
CSS Selector	Targeted with #.	Targeted with ..
Usage	Used for a single, specific element.	Used for groups of elements sharing styles.
JavaScript Access	Accessed with getElementById().	Accessed with getElementsByClassName()

HTML `id` Attribute

The `id` attribute is used to uniquely identify a single element in an HTML document.

Features of `id`:

- **Unique**: Each `id` value must be unique within a page.
- **Single Element Target**: Used to target a specific element for styling or scripting.
- **Syntax**:

```
<tag id="unique-id">Content</tag>
```

HTML `class` Attribute

The `class` attribute is used to define a group of elements that share the same styles or behavior.

Features of `class`:

- **Reusable**: A single class can be applied to multiple elements.
- **Multiple Classes**: An element can have more than one class, separated by spaces.
- **Syntax**:

```
<tag class="classname">Content</tag>
```