Module 1: Getting Started with Web Development
Mini-Lesson 1.2: Introduction to CSS

CSS uses selectors to target HTML elements and apply styling rules to them. Two commonly used selectors are classes and IDs.

Classes

A class in CSS is an attribute used to apply unique styling and formatting to a group of HTML elements. It helps you style or apply similar characteristics to different parts of a web page.

Defining a Class Name:

A class is named using a period (.) followed by the class name. For example, `.my-class` is a class named "my-class."

Applying a Class to an HTML Element:

- To use a class on an HTML element, add the class attribute to the element.
- Set the value of the class attribute to the name of the class you want to apply.

Classes in HTML:

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" href="styles.css">
  </head>
  <body>
    <h1 class="heading">Welcome to My Website</h1>
    <p class="highlight">This is some highlighted text.</p>
    <div class="box">A colored box with some content.</div>
  </body>
</html>
```

- `<link rel="stylesheet" href="style.css">`: This links an external CSS file named "styles.css" to the HTML file. This CSS file contains the styles for the classes used in the HTML document.

- `<h1 class="heading">Welcome to My Website</h1>`: The `<h1>` heading element is styled using the heading class. This class determines the font size, color, and font family for this heading.
- `<p class="highlight">This is some highlighted text.</p>`: The `<p>` paragraph element is styled using the highlight class, giving it a yellow background color.
- `<div class="box">A colored box with some content.</div>`: The `<div>` element is styled using the box class, defining its width, height, and a light gray background color.

Classes in CSS:

```css
/* styles.css */
.heading {
  font-size: 28px;
  color: #333;
  font-family: Arial, sans-serif;
}
.highlight {
  background-color: yellow;
}
.box {
  width: 200px;
  height: 100px;
  background-color: #f0f0f0;
}
```

- `.heading class`: It sets the font size to 28 pixels, color to a dark gray (#333), and specifies the font family as Arial or sans-serif.
- `.highlight class`: It specifies a yellow background color for any element with this class.
- `.box class`: It determines a specific width, height, and light gray background color for elements with this class.

Summary

- You can define a class in CSS to style HTML elements in a similar way.
- In CSS, a class is defined using a period (.) followed by a name (`.my-class`).
- To use a class, you add the class attribute to an HTML element and set its value to the class name (`class="my-class"`).

This allows you to apply the same styling or settings to different parts of your web page by using the same class name.

IDs

An ID in HTML is like a special name for one specific element on a web page. An ID is an attribute used to style or lay out a single HTML element.

Naming an ID:

An ID is named using a hash (#) followed by the ID name. For example, `#my-id` is an ID named "my-id."

Assigning an ID to an HTML Element:

- To use an ID for an HTML element, add the id attribute to the element.
- Set the value of the ID attribute to the name of the ID you want to assign.

IDs in HTML:

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" href="styles.css">
  </head>
  <body>
    <h1 id="main-heading">Welcome to My Website</h1>
    <p>This is some highlighted text.</p>
    <div id="info-box">An important piece of information here.</div>
  </body>
</html>
```

In this code, the `<h1>` heading and `<div>` elements have their ID attribute set to main-heading and info-box, respectively.

- `<h1 id="main-heading">Welcome to My Website</h1>`: The `< h1>` heading element has a unique identifier, an ID named `main-heading`. This ID is used to apply specific styles to this specific heading.
- `<div id="info-box">An important piece of information here.</div>`: The `<div>` element has an ID named `info-box`, making it different from other elements on the page. It's used to apply special styling to this specific element.

IDs in CSS:

```
/* styles.css */
#main-heading {
  font-size: 32px;
  color: #007bff;
  font-family: 'Helvetica Neue', sans-serif;
}
#info-box {
  border: 1px solid #ccc;
  padding: 10px;
  background-color: #f9f9f9;
}
```

- **`#main-heading ID`:** It styles the h1 element with an ID of main-heading, setting a larger font size, blue color, and a specific font family.
- **`#info-box ID`:** It styles the div element with an ID of info-box, adding a border, padding, and a light grayish background color.

Summary
- An ID is a special name for a specific HTML element on a page.
- In CSS, you define an ID by using a hash (#) followed by a name (#my-id).
- To assign an ID to an HTML element, you use the id attribute (id="my-id").

This allows you to uniquely target one specific element on your web page.

CSS Properties and Values

CSS consists of various properties that control the appearance of HTML elements. Each property has a corresponding value that determines how the property should be applied. In the previous examples, you used properties such as font size, color, background color, width, height, border, and padding.

How CSS is Applied

CSS can be applied in three ways:

1. **Inline Styles:** You can apply CSS directly to an HTML element using the style attribute. While this method is quick, it is not recommended for large-scale styling, as it mixes content with presentation.
   `<h2 style="color: #ff0000;">This heading has an inline style.</h2>`

2. **Internal Stylesheet:** You can include CSS rules within the <style> element in the <head> section of an HTML document. This approach is suitable for smaller projects with a limited number of styles.

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      h2 {
        color: #ff0000;
      }
      p {
        font-size: 16px;
      }
    </style>
  </head>
  <body>
    <h2>This heading has an internal stylesheet.</h2>
    <p>This paragraph has a font size of 16 pixels.</p>
  </body>
</html>
```

3. **External Stylesheet:** For larger projects or when you want to maintain a separation between HTML and CSS, you can create an external CSS file and link it to your HTML pages using the <link> element in the <head> section.

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" href="styles.css">
  </head>
  <body>
    <!-- HTML content here -->
  </body>
</html>
```