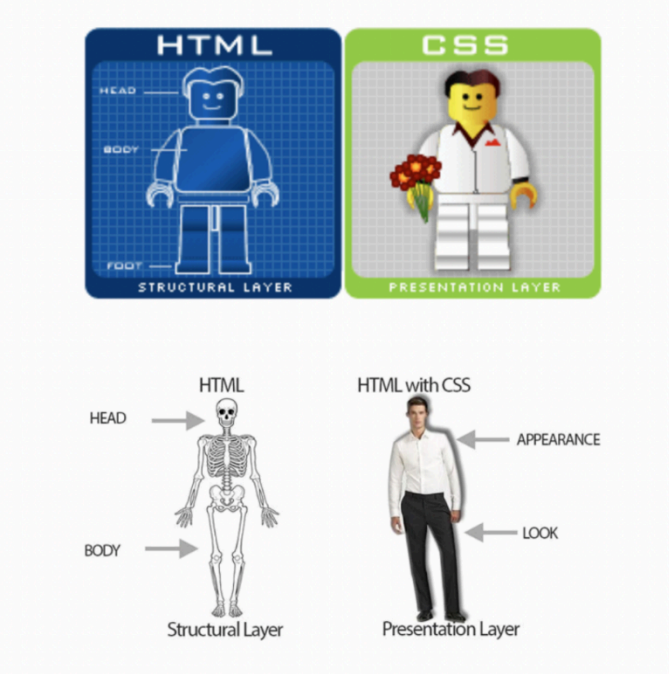
Introduction to CSS

Cascading Style Sheet: The CSS concept is used to apply styles for the HTML elements.

If we want to customize the default appearance of the HTML elements. by using CSS, we can apply the required changes to any HTML elements, like colors, size, border, positions, alignment, etc.



Initial release	1996
Author	Håkon Wium Lie, Bert Bors [W3C]
File extension	.css
MIME Type	text/css
Latest version	CSS3 (June 2012)

The CSS specifications specify rules that describe how the content of elements within our HTML document should appear.

Syntax:

td {width: 36px;}

In this example, there are two parts

1. Selector: **td**

2. declaration: **{width: 36px;}**

Selector: which indicates which element or elements (if multiple elements, they must be separated by a comma (,)) the declaration applies to.

Declaration: It sets how the selector should be styled.

The declaration is also split into two parts, separated by a colon.

1. **Property**
2. **Value**

Example:

```
h1, h2, p {
            font-weight: bold;
            font-family: arial;
            color: red;
            background-color: pink;
        }
```

Implementation of CSS:

We can implement CSS concept in three ways in our HTML document:

1. Inline CSS (tag level)
2. Page-level CSS/internal CSS (inside the HTML document)
3. External CSS (separate .css file)

Inline CSS:

- For inline CSS implementation, we should use the "style" attribute inside any HTML element.

Example:

```
<h1 style="color: green; font-size: 50px">Welcome</h1>
```

Page-level CSS/Internal CSS:

- If we want to apply the same style for the multiple tags on the page, we can use page-level styles.
- Page-level styles are implemented using **<style>** tag.
- **<style>** tag should be defined inside the **<head>** tag.

Example:

```
<head>

    <style>
        h1 {
            text-align: center;
            color: green;
            background-color: pink;
        }
    </style>

</head>

<body>

    <h1>Welcome to My class</h1>

    <h1>Welcome to Chitkara</h1>


</body>
```

External CSS file:

- If we want to apply the same style for multiple pages in the website and make the HTML document neat and clear, so we should use an external css file.
- External CSS style is implemented by using a separate file (with .css extension)
- To refer to the .css file from HTML pages, we should use the **<link>** tag inside the **<head>** tag

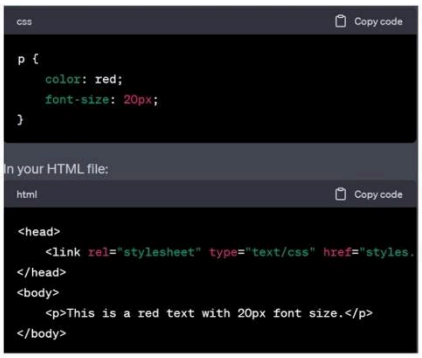
Example:

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

Inline Styles

Internal Styles:

External Styles:



The major advantages of using external CSS are:

1. **Modularity and Reusability:** External CSS files can be reused across multiple web pages, promoting consistency in design and layout throughout a website. This modularity also simplifies maintenance as changes made to the external CSS file are automatically applied to all linked pages.
2. **Caching:** Once the browser downloads an external CSS file, it can cache it, which means subsequent page loads will be faster as the browser doesn't need to re-download the CSS file.
3. **Reduced Code Redundancy:** By separating CSS from HTML, you can avoid duplicating style definitions across multiple HTML files, leading to cleaner and more maintainable code.
4. **Ease of Maintenance:** External CSS files centralize styling rules, making it easier to manage and update styles across an entire website. This can save time and effort in the long run, especially for larger projects.

Disadvantages:

1. **HTTP Requests:** Each external CSS file requires a separate HTTP request, which can slightly slow down the initial loading time of a webpage, especially if there are multiple CSS files to download.
2. **Dependency:** External CSS files are dependent on network connectivity. If the CSS file fails to load due to network issues or if the file is moved or deleted, it can affect the appearance and functionality of the website.
3. **Potential FOUC (Flash of Unstyled Content):** If the external CSS file takes time to load, users might briefly see unstyled content before the styles are applied, leading to a poor user experience.
4. **Increased Complexity:** Having separate CSS files may increase the complexity of managing a website, especially for smaller projects where inline or internal CSS may be more straightforward.

Overall, while external CSS files offer numerous benefits in terms of modularity, reusability, and ease of maintenance, they also come with some drawbacks related to performance and dependency on network connectivity. It's essential to consider these factors when deciding whether to use external CSS files in web development projects.

CSS Selectors:

- CSS offers several types of selectors, each serving a unique purpose and allowing developers to target specific elements on a web page.
- Here are some of the basic types of CSS selectors:

1. **Universal Selector:** It matches any element in the document. It is a wildcard selector that selects all elements, regardless of their type, class, ID, or other attributes.

   Example:

```
* {
      color: red;
  }
```

   This rule renders the content of every element in our document in red.

2. **Element Selector:** Selects HTML elements based on their element type. For example, p selects all <p> elements.

   Example:

   index.html: It will select all the <p> elements of this document.

```
<!DOCTYPE html>
<html lang="en">

      <head>

          <style>
              p {
                  background-color: green;
              }
          </style>

      </head>
```

```
        <body>


            <p>This is the paragraph 1</p>
            <p>This is the paragraph 2</p>
            <p>This is the paragraph 3</p>
            <p>This is the paragraph 4</p>
            <p>This is the paragraph 5</p>
            <p>This is the paragraph 6</p>



        </body>

</html>
```

3. **ID Selector:** Selects an element based on its unique **id** attribute. It is denoted by a hash (#) followed by the id value. For example, **#x1** selects the element with **id="x1"**.

   Example:
   Index.html: It will select only that <p> element whose id is x1.

```
<!DOCTYPE html>
<html lang="en">

        <head>

            <style>
                #x1 {
                    background-color: green;
                }
            </style>

        </head>

        <body>


            <p>This is the paragraph 1</p>
            <p>This is the paragraph 2</p>
            <p>This is the paragraph 3</p>
            <p id="x1">This is the paragraph 4</p>
            <p>This is the paragraph 5</p>
            <p>This is the paragraph 6</p>



        </body>
```

```
</html>
```

Note: The Id attribute should be unique for any element.

4. **Class Selector:** Selects elements based on their class attribute. It is denoted by a period (.) followed by the class name. For example, **.btn** selects all elements with **class="btn"**.

   - If we want to group some HTML elements logically, we can apply the **class** attribute for those elements.
   - Using the same **class** name for different HTML elements we can group multiple elements logically.

   Example:

   index.html: If we want to select 1st , 4th, and 6th <p> tag, we need to group these <p> tag with the same class name.

```
<!DOCTYPE html>
<html lang="en">

      <head>
          <meta charset="UTF-8">
          <meta name="viewport" content="width=device-width,
      initial-scale=1.0">
          <title>Document</title>

          <style>
              .c1 {
                  background-color: green;
              }
          </style>

      </head>

      <body>


          <p class="c1">This is the paragraph 1</p>
          <p>This is the paragraph 2</p>
          <p>This is the paragraph 3</p>
          <p class="c1">This is the paragraph 4</p>
```

```
            <p>This is the paragraph 5</p>
            <p class="c1">This is the paragraph 6</p>



        </body>

    </html>
```

Note: We can apply an id attribute and class attribute to an element same time. And if multiple classes are there then they will be separated with a space.

Example:

```
<p id="x1" class="c1 c2">This is a Paragraph</p>
```