Cascading Style Sheets (CSS)

CSS, or Cascading Style Sheets, is a style sheet language used for describing the presentation of a document written in HTML or XML. It enables web developers to control the layout, appearance, and style of multiple web pages all at once.

Basic Format of CSS:

The basic structure of a CSS rule consists of a selector and a declaration block

- Selector: Specifies the HTML element to be styled.
- Property: Describes the aspect of the selected element to be styled.
- Value: Specifies the value for the property.

Methods of Applying CSS:

1. Inline Style:

```
<h1 style="color: blue;">My HTML Project</h1>
```

2. Using Style Tag:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <style>
```

```
    p {
        color: red;
    }
  </style>
  <title>HTML Project</title>
</head>
```

3. External Stylesheet:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="style.css">
  <title>HTML Project</title>
</head>
```

Common CSS Properties:

- Color:

  color: #FF0000; /* Hexadecimal color code */

- Background-color:

  background-color: #FFFF00;

- Text Properties:

  text-align: center;

  font-size: 16px;

  font-family: Arial, sans-serif;

- Text Decoration:

  text-decoration: underline;

- Line Height:

  line-height: 1.5;

- Letter Spacing:

  letter-spacing: 2px;

CSS Selectors:

- Universal Selector:

```
* {

margin: 0;

padding: 0;

}
```

- Element Selector:

```
h1 {

    font-size: 24px;

}
```

- ID Selector:

```
#header {

    background-color: #333;

}
```

- Class Selector:

```
.highlight {
```

```
    color: yellow;

}
```

- Descendant Selector:

```
    article p {

font-style: italic;

}
```

- Adjacent Sibling Combinator:

```
    h2 + p {

font-weight: bold;

}
```

- Child Combinator:

```
section > div {

    border: 1px solid #999;

}
```

- Attribute Selector:

  input[type="text"] {

    width: 200px;

  }

- Pseudo-class:

  a:hover {

    color: #00F;

  }

- Pseudo-element:

  p::first-line {

    font-weight: bold;

  }

Selector Specificity:

Selector specificity determines which styles are applied to an element when conflicting rules exist. It is calculated based on the type of selectors used. In increasing order of specificity:

Universal selectors and combinators
Type selectors and pseudo-elements
Class selectors, attributes selectors, and pseudo-classes
ID selectors

For example, an ID selector (`#header`) has higher specificity than a class selector (`.highlight`), and therefore its styles will take precedence.