CSS Fundamentals

By Naimul Islam Mehedi

Selectors

Selectors tell CSS **which HTML elements** to style.
Types:

- **Type** → `p`, `h1`
- **Class** → `.button`
- **ID** → `#header`
- **Group** → `h1, h2, h3`
- **Descendant** → `div p` (nested elements)
- **Child** → `ul > li` (direct children)
- **Pseudo-class** → `a:hover`, `:first-child`
- **Pseudo-element** → `p::first-line`, `::before`

```html
<p class="text">Hello World</p>
<p id="special">Important</p>
```

```css
/* Type selector */
p { color: blue; }

/* Class selector */
.text { font-size: 18px; }

/* ID selector */
#special { font-weight: bold; }
```

Properties & Values

Property → What to change (color, padding, font-size).

Value → How you change it (`red`, `10px`, `center`).

Categories:

1. Text: `color`, `font-size`, `text-align`
2. Box: `width`, `height`, `margin`, `padding`, `border`
3. Background: `background-color`, `background-image`
4. Flexbox: `display`, `justify-content`, `align-items`
5. Positioning: `position`, `top`, `left`, `z-index`

```css
.container {
    display: flex;
    justify-content: center;
    align-items: center;
    width: 40vw;
    height: 50vh;
    background-color: #006747;
}

.box {
    width: 200px;
    height: 200px;
    border-radius: 50%;
    padding: 10px;
    margin: 20px;
    background-color: #DA291C;
    text-align: center;
}
```

Properties & Values

Property → What to change (color, padding, font-size).

Value → How you change it (`red`, `10px`, `center`).

Categories:

1. Text: `color`, `font-size`, `text-align`
2. Box: `width`, `height`, `margin`, `padding`, `border`
3. Background: `background-color`, `background-image`
4. Flexbox: `display`, `justify-content`, `align-items`
5. Positioning: `position`, `top`, `left`, `z-index`

```css
.container {
    display: flex;
    justify-content: center;
    align-items: center;
    width: 40vw;
    height: 50vh;
    background-color: #006747;
}

.box {
    width: 200px;
    height: 200px;
    border-radius: 50%;
    padding: 10px;
    margin: 20px;
    background-color: #DA291C;
    text-align: center;
}
```

The Cascade & Specificity

CSS decides which style to apply using:

1. **Cascade** → Later rules override earlier ones if specificity is same.
2. **Specificity hierarchy:**
   - Inline `style=""` → highest
   - ID selector `#id`
   - Class, pseudo-class, attribute `.class`, `[type="text"]`
   - Type selector `div`, `p`
   - Universal `*` → lowest
3. `!important` overrides normal rules but should be used sparingly.

```css
p {
    color: red;
}

.text {
    color: green;
}

#special {
    color: blue;
}

p {
    color: yellow !important;
}
```

Quick Mini-Project (Combine All)

```html
<body>
  <div class="container">
    <p class="text" id="special">Hello CSS!</p>
    <button class="button">Click Me</button>
  </div>
</body>
```

```css
.button {
    background-color: ■#3498db;
    color: ■white;
    padding: 10px 20px;
    border: none;
    border-radius: 5px;
    cursor: pointer;
    transition: 0.3s;
}

.button:hover {
    background-color: ■#2980b9;
}
```

```css
.container {
    display: flex;
    flex-direction: column;
    justify-content: center;
    align-items: center;
    height: 100vh;
    background-color: ■#f0f0f0;
}

p {
    font-size: 18px;
}
```

```css
.text {
    color: ■green;
}

#special {
    font-weight: bold;
}
```