

# Introduction to CSS & CSS3

## What is CSS?

CSS (Cascading Style Sheets) is a stylesheet language used to control the appearance of web pages. It allows developers to apply styles like colors, fonts, spacing, and layouts to HTML elements.

## Basic CSS Concepts

### 1. CSS Syntax

A CSS rule consists of a **selector**, **property**, and **value**.

Example:

```
selector {  
  property: value;  
}
```

Example using `p` (paragraph) selector:

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

### 2. Ways to Apply CSS

- **Inline CSS** (inside HTML elements)

```
<p style="color: red;">This is red text.</p>
```

- **Internal CSS** (inside `<style>` tag in `<head>`)

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

- **External CSS** (in a separate file, e.g., `styles.css`)

```
p { color: purple; }
```

Linked in HTML:

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

### 3. CSS Selectors

- **Element Selector:** Targets HTML elements

```
h1 { color: blue; }
```

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

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

- **ID Selector (#):** Targets a specific element by its ID

```
#main-title { font-size: 24px; }
```

- **Group Selector (A, B):** Targets multiple elements

```
h1, h2, p { font-family: Arial; }
```

- **Child Selector (>):** Targets direct child elements

```
div > p { color: red; }
```

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## CSS3 Concepts & Features

CSS3 introduces **new properties** and **enhancements** to make web styling more powerful.

### 1. Colors & Transparency

- **RGBA & HSLA** for transparency

```
p { color: rgba(255, 0, 0, 0.5); } /* Red with 50% opacity */
```

### 2. Borders & Shadows

- **Rounded Corners**

```
div { border-radius: 10px; }
```

- **Box Shadow**

```
box-shadow: 5px 5px 10px gray;
```

### 3. Background Enhancements

- **Multiple Backgrounds**

```
background: url('image1.jpg'), url('image2.jpg');
```

- **Background Gradient**

```
background: linear-gradient(to right, blue, pink);
```

### 4. Text & Font Enhancements

- **Web Fonts using @font-face**

```
@font-face {  
  font-family: 'MyFont';  
  src: url('myfont.woff2') format('woff2');  
}  
p { font-family: 'MyFont'; }
```

- **Text Shadow**

```
text-shadow: 2px 2px 5px gray;
```

### 5. Transforms & Animations

- **2D Transforms**

```
div { transform: rotate(45deg); }
```

- **Transitions** (smooth effect on properties)

```
button {
  background-color: blue;
  transition: background-color 0.5s ease-in-out;
}
button:hover {
  background-color: green;
}
```

- **Animations**

```
@keyframes bounce {
  0% { transform: translateY(0); }
  50% { transform: translateY(-10px); }
  100% { transform: translateY(0); }
}
div { animation: bounce 1s infinite; }
```

## 6. Flexbox & Grid Layout

- **Flexbox (Flexible Box Model)**

```
.container {
  display: flex;
  justify-content: center;
  align-items: center;
}
```

- **CSS Grid**

```
.grid {
  display: grid;
  grid-template-columns: repeat(3, 1fr);
  gap: 10px;
}
```

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## Conclusion

CSS and CSS3 allow developers to **design modern, responsive, and visually appealing websites**. By using **selectors, properties, animations, and layouts**, you can create dynamic web experiences.