Theory of CSS (Cascading Style Sheets)

1. What is CSS?

- **CSS (Cascading Style Sheets)** is a style sheet language used to describe the presentation of HTML documents.
- It controls the **look and feel** of a website: colors, fonts, layouts, spacing, animations, etc.
- CSS separates **content** (HTML) from **presentation** (design).

👉 Example:

This is styled with CSS.

2. Why Use CSS?

- **Consistency:** Apply the same style across multiple pages.
- **Separation of Concerns:** HTML = structure, CSS = style.
- **Efficiency:** Change one CSS file → update thousands of pages.
- **Accessibility & Responsiveness:** Control how websites look on different devices.

3. How CSS Works

- CSS applies rules to HTML elements.
- Each rule has **selectors** (which elements to style) and **declarations** (what style to apply).
- A declaration has a **property** and a **value**.

👉 Syntax:

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

👉 Example:

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

4. Ways to Apply CSS

1. **Inline CSS** – written inside HTML elements (style attribute).
2. **Internal CSS** – inside <style> tags in the <head>.
3. **External CSS** – in a separate .css file linked with <link>.

5. CSS Selectors

Selectors target HTML elements.

- **Element Selector** → p { color: red; }
- **Class Selector** → .highlight { color: green; }

- **ID Selector** → #main { color: blue; }
- **Group Selector** → h1, h2 { color: purple; }
- **Descendant Selector** → div p { color: brown; }

6. CSS Properties

Common categories of properties:

- **Text & Font:** color, font-family, font-size, text-align
- **Box Model:** margin, padding, border, width, height
- **Backgrounds:** background-color, background-image
- **Layout:** display, position, float, flex, grid

7. The CSS Box Model

Every element in CSS is a box made of:

- **Content** – text or images.
- **Padding** – space between content and border.
- **Border** – wraps the content + padding.
- **Margin** – space outside the border (between elements).

8. Cascading & Specificity

- **Cascading** → If multiple rules apply, the *last one* wins.
- **Specificity** → More specific selectors override less specific ones.
    - Inline > ID > Class > Element.

👉 Example:

```
<p id="special" class="highlight">Hello CSS</p>

p { color: black; }        /* weakest */
.highlight { color: blue; } /* medium */
#special { color: red; }   /* strongest */
```

✅ Text will be **red**.

9. Responsive CSS

- CSS adapts pages to different devices (desktop, tablet, phone).
- Done with **media queries**.

👉 Example:

```
@media (max-width: 600px) {
  body {
    background-color: lightblue;
  }
}
```

10. Evolution of CSS

- **CSS1 (1996):** basic formatting.
- **CSS2 (1998):** positioning, z-index, media types.
- **CSS3 (2000s-present):** modular, includes flexbox, grid, animations, transitions.

💡 **Summary:**
CSS is the language of style. It makes web pages beautiful, responsive, and consistent across devices. Without CSS, the web would still look like plain black-and-white documents.