Module 16) CSS in Full Stack Course

CSS Selectors & Styling

Theory Assignment

Question 1: What is a CSS selector? Provide examples of element, class, and ID selectors.

A **CSS selector** is a pattern used to select (choose) HTML elements so that we can apply styles to them.
In simple words, selectors tell the browser **"Which HTML part to style."**

There are different types of selectors, like element, class, and ID.

1. **Element Selector:**
    a. It selects HTML tags directly.
    b. Example:

```
p {
  color: blue;
}
```

This makes all <p> (paragraphs) text blue.

2. **Class Selector:**
    a. It selects elements with a specific class (using a dot . before the name).
    b. Example:

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

This applies yellow background to all elements having class="highlight".

3. **ID Selector:**
    a. It selects an element with a unique ID (using a hash # before the name).
    b. Example:

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

This makes the element with id="title" have bigger text.

Conclusion:
CSS selectors are very important because they decide *which part of the webpage will get styled*.

Question 2: Explain the concept of CSS specificity. How do conflicts between multiple styles

get resolved?

CSS specificity means **which style is stronger** when two or more CSS rules try to style the same element.

The browser follows this order:

1. **Inline style** → strongest
2. **ID selector (#id)** → strong
3. **Class selector (.class)** → medium
4. **Element selector (p, h1, div)** → weakest

If two rules have the same power, the **last written rule** will win.

Example:

```
p { color: blue; }
#title { color: red; }

<p id="title">Hello</p>
```

Here text will be **red** because ID is stronger than element selector.

Question 3: What is the difference between internal, external, and inline CSS? Discuss the

advantages and disadvantages of each approach.

- **Inline CSS**
- Written directly inside an HTML tag using the style attribute.
- Example:

```
<p style="color:red;">Hello</p>
```

- **Advantages:**
  - Quick and easy for single changes.
  - Useful for testing.
- **Disadvantages:**
  - Not good for large websites.
  - Hard to manage because style is mixed with HTML.
- **Internal CSS**
- Written inside the <style> tag in the <head> section of the HTML file.
- Example:

```
<style>
  p { color: blue; }
```

</style>

- **Advantages:**
  - Easy to apply styles to one full page.
  - CSS and HTML in the same file, so no extra file needed.
- **Disadvantages:**
  - Only works for that one page.
  - Not reusable for multiple pages.
- **External CSS**
- Written in a separate .css file and linked to the HTML file using <link>.
- Example:

<link rel="stylesheet" href="style.css">

- **Advantages:**
  - Best for big websites.
  - One CSS file can style many pages.
  - Easy to maintain and update.
- **Disadvantages:**
  - Requires an extra file.
  - Page may load slower if CSS file is large.

5. CSS Box Model

Theory Assignment

Question 1: Explain the CSS box model and its components (content, padding, border, margin). How does each affect the size of an element?

The **CSS box model** is the way CSS calculates the size and spacing of every element on a webpage. It treats each element as a rectangular box made up of four parts: **content, padding, border, and margin**.

1. **Content:**
    a. The actual text, image, or other data inside the box.
    b. Example: The words inside a <p> tag.
    c. It is the innermost part of the box.
2. **Padding:**
    a. Space between the content and the border.
    b. It increases the space **inside** the box but does not affect other elements.
3. **Border:**
    a. A line that wraps around the content and padding.
    b. It adds thickness to the element and increases the total size.
4. **Margin:**
    a. Space **outside** the border.
    b. It creates distance between this element and other elements on the page.

Effect on Size:

- Total element size = **Content + Padding + Border + Margin**.
- Increasing any of these will increase the space the element takes on the page.

Example (Box Model Structure):

```
| Margin (outer space)  |
| ----------------------|
| Border                |
|   Padding             |
|     Content (text)    |
```

Conclusion:
The CSS box model is very important because it helps us understand how elements take up space and how to control layout on a webpage.

Do you also want me to make a **small diagram (using text boxes or simple ASCII art)** so it looks more clear for your assignment?

Question 2: What is the difference between border-box and content-box box-sizing in

CSS? Which is the default?

In CSS, the **box-sizing** property tells the browser how to calculate the width and height of an element. There are two main values: **content-box** and **border-box**.

1. **content-box (default):**
    a. The width/height only includes the **content**.
    b. Padding and border are added **outside** of the given width/height.
    c. Example:

```
div {
  width: 200px;   /* only content is 200px */
  box-sizing: content-box;
}
```

If we add 10px padding and 2px border, the total size will be **224px**.

2. **border-box:**
    a. The width/height includes **content + padding + border**.
    b. The total size will not increase when padding/border are added.
    c. Example:

```
div {
  width: 200px;   /* content + padding + border = 200px */
  box-sizing: border-box;
}
```

If we add 10px padding and 2px border, the total still remains **200px**.