Task 13-Variables (ChatGPT)

**CSS Variables (Custom Properties)**

CSS variables, also known as **custom properties**, are entities defined by CSS authors that contain specific values to be reused throughout a stylesheet. They enable developers to store values (like colors, sizes, or fonts) in a single place, promoting consistency and making it easier to manage styles.

**How CSS Variables Work**

* **Definition**: CSS variables are defined using the -- prefix. They can be declared within a selector (e.g., :root) to make them global.
* **Usage**: To use a CSS variable, the var() function is used. This function takes the variable name as an argument and retrieves its value.

**Example: Defining and Using CSS Variables**

Here's an example that demonstrates how to define and use CSS variables in a stylesheet

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>CSS Variables Example</title>

    <style>

        /\* Define CSS variables in the :root for global access \*/

        :root {

            --primary-color: #3498db;

            --secondary-color: #2ecc71;

            --font-size: 16px;

            --padding: 10px;

        }

        body {

            font-family: Arial, sans-serif;

            font-size: var(--font-size);

            margin: 0;

            padding: var(--padding);

            background-color: #f4f4f4;

        }

        h1 {

            color: var(--primary-color);

            padding: var(--padding);

        }

        p {

            color: var(--secondary-color);

            padding: var(--padding);

        }

        .box {

            border: 2px solid var(--primary-color);

            background-color: white;

            padding: var(--padding);

            margin: var(--padding);

        }

    </style>

</head>

<body>

    <h1>Hello, CSS Variables!</h1>

    <p>This paragraph uses CSS variables for styling.</p>

    <div class="box">

        This is a box with a border defined by a CSS variable.

    </div>

</body>

</html>

**Explanation of the Example**

1. **Defining CSS Variables**:
   * CSS variables are defined in the :root selector, which means they can be accessed globally across the entire stylesheet.
   * Variables include:
     + --primary-color: A shade of blue.
     + --secondary-color: A shade of green.
     + --font-size: Base font size.
     + --padding: Base padding value.
2. **Using CSS Variables**:
   * The variables are referenced using the var() function throughout the CSS.
   * For example, the <h1> element uses var(--primary-color) to set its text color, ensuring that any changes to this variable will automatically update the <h1> styling.

**Changing the Values of CSS Variables**

You can change the values of CSS variables dynamically using JavaScript or by redefining them in specific selectors. Here’s an example of changing the values in a media query to adjust styles for smaller screens:

 @media (max-width: 600px) {

            :root {

                --font-size: 14px; /\* Decrease font size \*/

                --padding: 5px;    /\* Decrease padding \*/

            }

        }

**Effect of Changing Variable Values**

When the values of CSS variables are changed:

* **Consistency**: All styles that reference the variable are automatically updated, maintaining consistency across the layout.
* **Responsiveness**: By adjusting variable values in media queries, you can easily create responsive designs that adapt to different screen sizes without manually changing every style.

**Conclusion**

CSS variables (custom properties) provide a powerful way to create flexible and maintainable stylesheets. They promote consistency in design and simplify the process of updating styles, making them an essential tool for modern web development.