**Introduction to CSS**

CSS (Cascading Style Sheets) is a language used to style HTML elements. It controls the layout, design, and presentation of web pages by applying rules to HTML tags. It separates content (HTML) from design (CSS), enhancing flexibility and control.

**CSS Syntax**

css

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selector {

property: value;

}

* **Selector**: Targets the HTML element(s).
* **Property**: Aspect to be styled (e.g., color).
* **Value**: Specific setting for the property.

**Colors**

CSS allows the use of color names, HEX, RGB, RGBA, HSL, HSLA values.

css

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color: #ff0000; /\* Red \*/

background-color: rgba(255, 0, 0, 0.5); /\* Red with transparency \*/

**Backgrounds**

Define the background of elements.

css

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background-color: blue;

background-image: url('image.jpg');

background-size: cover;

background-repeat: no-repeat;

**Borders**

Controls the border around elements.

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border: 2px solid black; /\* Width, style, color \*/

border-radius: 10px; /\* Rounded corners \*/

**Margins**

Space outside the element’s border.

css

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margin: 10px; /\* All sides \*/

margin-top: 20px; /\* Individual sides \*/

**Padding**

Space inside the element’s border.

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padding: 15px;

padding-left: 10px;

**Height/Width**

Set element dimensions.

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height: 200px;

width: 100%;

**Box Model**

Each element is a box consisting of content, padding, border, and margin.

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box-sizing: border-box; /\* Includes padding and border in width/height \*/

**Outline**

Creates an external border that doesn’t affect layout.

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outline: 3px dashed red;

**Text**

Controls text appearance.

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text-align: center;

text-transform: uppercase;

letter-spacing: 2px;

line-height: 1.5;

**Fonts**

Define font type and style.

css

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font-family: 'Arial', sans-serif;

font-size: 16px;

font-weight: bold;

**Icons**

Use icon libraries like Font Awesome.

html

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<i class="fa fa-home"></i> <!-- Font Awesome Home Icon -->

**Links**

Style hyperlinks.

css

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a {

color: blue;

text-decoration: none;

}

a:hover {

color: red;

}

**Lists**

Control list styles.

css

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ul {

list-style-type: square;

}

**Tables**

Style tables.

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table {

border-collapse: collapse;

}

td, th {

border: 1px solid black;

padding: 10px;

}

**Display**

Defines how elements are displayed.

css

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display: block; /\* Takes full width \*/

display: inline-block; /\* Takes content width \*/

display: none; /\* Hides element \*/

**Max Width**

Limits element width.

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max-width: 1000px;

**Position**

Sets the position of elements.

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position: absolute; /\* Relative to nearest positioned ancestor \*/

position: fixed; /\* Stays in view on scroll \*/

position: relative; /\* Relative to its normal position \*/

**Overflow**

Handles content overflow.

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overflow: hidden; /\* Clips overflowed content \*/

**Float**

Floats elements left or right.

css

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float: left;

**Inline/Block**

* **Inline elements**: Don’t start a new line (e.g., <span>, <a>).
* **Block elements**: Start a new line (e.g., <div>, <p>).

**Text Align**

Aligns text within an element.

css

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text-align: right;

**Combinators**

Select elements based on their relationship.

css

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div > p { /\* Child combinator \*/ }

div p { /\* Descendant combinator \*/ }

**Pseudo-Class**

Applies styles to elements in specific states.

css

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a:hover { color: green; }

**Pseudo-Elements**

Select and style parts of elements.

css

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p::first-line { font-weight: bold; }

**Opacity**

Sets transparency.

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opacity: 0.5; /\* 50% opacity \*/

**Navigation Bar**

Create horizontal/vertical navigation menus.

css

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nav ul {

list-style-type: none;

}

nav ul li {

display: inline;

margin-right: 20px;

}

**Dropdowns**

Create dropdown menus using hover.

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.dropdown:hover .dropdown-content {

display: block;

}

**Image Gallery**

Create responsive image galleries.

css

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.gallery img {

width: 100%;

padding: 5px;

}

**Image Sprites**

Combine images into one file, reducing HTTP requests.

css

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.sprite {

background: url('sprite.png') no-repeat;

}

**Attribute Selectors**

Select elements based on attributes.

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a[target="\_blank"] { color: red; }

**Forms**

Style form elements.

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input[type="text"] {

border: 1px solid #ccc;

padding: 10px;

}

**Counters**

CSS counters create custom numbering for elements.

css

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counter-reset: section;

section::before {

counter-increment: section;

content: "Section " counter(section) ": ";

}

**Website Layout**

Use Flexbox or Grid to create layouts.

css

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.container {

display: flex; /\* Flexbox layout \*/

justify-content: space-between;

}

**Units**

CSS supports various units: **px**, **em**, **rem**, **vw**, **vh**.

css

Copy code

width: 100vw; /\* Full viewport width \*/

**Specificity**

Determines which CSS rule is applied. Inline styles > IDs > Classes > Elements.

css

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/\* ID selector has higher specificity \*/

#header { color: red; }

These are essential concepts that form the foundation of CSS for modern web design.