**CSS INTRODUCTION:**

## What is CSS?

* CSS stands for Cascading Style Sheets
* CSS describes how HTML elements are to be displayed on screen, paper, or in other media
* CSS saves a lot of work. It can control the layout of multiple web pages all at once
* External stylesheets are stored in CSS files.

## Why Use CSS?

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

## CSS Solved a Big Problem

HTML was NEVER intended to contain tags for formatting a web page!

HTML was created to describe the content of a web page, like:

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

When tags like <font>, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large websites, where fonts and color information were added to every single page, became a long and expensive process.

<!DOCTYPE html>

<html>

<head>

<style>

body {

background-color: lightblue;

}

h1 {

color: white;

text-align: center;

}p{

font-family: verdana;

font-size: 20px;

}</style>

</head>

<body>

<h1>My First CSS Example</h1>

<p>This is a paragraph.</p>

</body>

</html>

## CSS Syntax



The selector points to the HTML element you want to style.

The declaration block contains one or more declarations separated by semicolons.

Each declaration includes a CSS property name and a value, separated by a colon.

Multiple CSS declarations are separated with semicolons, and declaration blocks are surrounded by curly braces.

## CSS Selectors

CSS selectors are used to "find" (or select) the HTML elements you want to style.

We can divide CSS selectors into five categories:

* Simple selectors (select elements based on name, id, class)
* [Combinator selectors](https://www.w3schools.com/css/css_combinators.asp) (select elements based on a specific relationship between them)
* [Pseudo-class selectors](https://www.w3schools.com/css/css_pseudo_classes.asp) (select elements based on a certain state)
* [Pseudo-elements selectors](https://www.w3schools.com/css/css_pseudo_elements.asp) (select and style a part of an element)
* [Attribute selectors](https://www.w3schools.com/css/css_attribute_selectors.asp) (select elements based on an attribute or attribute value)

This page will explain the most basic CSS selectors.

## The CSS element Selector

The element selector selects HTML elements based on the element name

<!DOCTYPE html>

<html>

<head>

<style>

p {

text-align: center;

color: red;

}

</style>

</head>

<body>

<p>Every paragraph will be affected by the style.</p>

<p id="para1">Me too!</p>

<p>And me!</p>

</body>

</html>

## The CSS id Selector

The id selector uses the id attribute of an HTML element to select a specific element.

The id of an element is unique within a page, so the id selector is used to select one unique element!

To select an element with a specific id, write a hash (#) character, followed by the id of the element.

<!DOCTYPE html>

<html>

<head>

<style>

#para1 {

text-align: center;

color: red;

}

</style>

</head>

<body>

<p id="para1">Hello World!</p>

<p>This paragraph is not affected by the style.</p>

</body>

</html>

## The CSS class Selector

The class selector selects HTML elements with a specific class attribute.

To select elements with a specific class, write a period (.) character, followed by the class name.

<!DOCTYPE html>

<html>

<head>

<style>

.center {

text-align: center;

color: red;

}

</style>

</head>

<body>

<h1 class="center">Red and center-aligned heading</h1>

<p class="center">Red and center-aligned paragraph.</p>

</body>

</html>

EXAMPLE:

<!DOCTYPE html>

<html>

<head>

<style>

p.center {

text-align: center;

color: red;

}

p.large {

font-size: 300%;

}

</style>

</head>

<body>

<h1 class="center">This heading will not be affected</h1>

<p class="center">This paragraph will be red and center-aligned.</p>

<p class="center large">This paragraph will be red, center-aligned, and in a large font-size.</p>

</body>

</html>

## The CSS Universal Selector

The universal selector (\*) selects all HTML elements on the page.

<!DOCTYPE html>

<html>

<head>

<style>

\* {

text-align: center;

color: blue;

}

</style>

</head>

<body>

<h1>Hello world!</h1>

<p>Every element on the page will be affected by the style.</p>

<p id="para1">Me too!</p>

<p>And me!</p>

</body>

</html>

## The CSS Grouping Selector

The grouping selector selects all the HTML elements with the same style definitions.

Look at the following CSS code (the h1, h2, and p elements have the same style definitions):

<!DOCTYPE html>

<html>

<head>

<style>

h1, h2, p {

text-align: center;

color: red;

}

</style>

</head>

<body>

<h1>Hello World!</h1>

<h2>Smaller heading!</h2>

<p>This is a paragraph.</p>

</body>

</html>

# How To Add CSS

## Three Ways to Insert CSS

There are three ways of inserting a style sheet:

* External CSS
* Internal CSS
* Inline CSS

## External CSS

With an external style sheet, you can change the look of an entire website by changing just one file!

Each HTML page must include a reference to the external style sheet file inside the <link> element, inside the head section.

<!DOCTYPE html>

<html>

<head>

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

</head>

<body>

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

</body>

</html>

### "mystyle.css"

body {  
  background-color: lightblue;  
}  
h1 {  
  color: navy;  
  margin-left: 20px;  
}

## Internal CSS

An internal style sheet may be used if one single HTML page has a unique style.

The internal style is defined inside the <style> element, inside the head section.

<!DOCTYPE html>

<html>

<head>

<style>

body {

background-color: linen;

}

h1 {

color: maroon;

margin-left: 40px;

}

</style>

</head>

<body>

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

</body>

</html>

## Inline CSS

An inline style may be used to apply a unique style for a single element.

To use inline styles, add the style attribute to the relevant element. The style attribute can contain any CSS property.

<!DOCTYPE html>  
<html>  
<body>  
  
<h1 style="color:blue;text-align:center;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>  
  
</body>  
</html>

## CSS Comments

Comments are used to explain the code, and may help when you edit the source code at a later date.

Comments are ignored by browsers.

A CSS comment is placed inside the <style> element, and starts with /\* and ends with \*/:

<!DOCTYPE html>

<html>

<head>

<style>

/\* This is a single-line comment \*/

p {

color: red;

}

</style>

</head>

<body>

<p>Hello World!</p>

<p>This paragraph is styled with CSS.</p>

<p>CSS comments are not shown in the output.</p>

</body>

</html>

## CSS Color Names

<!DOCTYPE html>

<html>

<body>

<h1 style="background-color:Tomato;">Tomato</h1>

<h1 style="background-color:Orange;">Orange</h1>

<h1 style="background-color:DodgerBlue;">DodgerBlue</h1>

<h1 style="background-color:MediumSeaGreen;">MediumSeaGreen</h1>

<h1 style="background-color:Gray;">Gray</h1>

<h1 style="background-color:SlateBlue;">SlateBlue</h1>

<h1 style="background-color:Violet;">Violet</h1>

<h1 style="background-color:LightGray;">LightGray</h1>

</body>

</html>

## CSS Border Style

The border-style property specifies what kind of border to display.

The following values are allowed:

* dotted - Defines a dotted border
* dashed - Defines a dashed border
* solid - Defines a solid border
* double - Defines a double border
* groove - Defines a 3D grooved border. The effect depends on the border-color value
* ridge - Defines a 3D ridged border. The effect depends on the border-color value
* inset - Defines a 3D inset border. The effect depends on the border-color value
* outset - Defines a 3D outset border. The effect depends on the border-color value
* none - Defines no border
* hidden - Defines a hidden border

The border-style property can have from one to four values (for the top border, right border, bottom border, and the left border).

<!DOCTYPE html>

<html>

<head>

<style>

p.dotted {border-style: dotted;}

p.mix {border-style: dotted dashed solid double;}

</style>

</head>

<body>

<h2>The border-style Property</h2>

<p>This property specifies what kind of border to display:</p>

<p class="dotted">A dotted border.</p>

<p class="mix">A mixed border.</p>

</body>

</html>

## CSS Border Width

The border-width property specifies the width of the four borders.

The width can be set as a specific size (in px, pt, cm, em, etc) or by using one of the three pre-defined values: thin, medium, or thick:

<!DOCTYPE html>

<html>

<head>

<style>

p.one {

border-style: solid;

border-width: 5px;

}

p.two {

border-style: solid;

border-width: medium;

}

p.three {

border-style: dotted;

border-width: 2px;

}

p.four {

border-style: dotted;

border-width: thick;

}

p.five {

border-style: double;

border-width: 15px;

}

p.six {

border-style: double;

border-width: thick;

}

</style>

</head>

<body>

<h2>The border-width Property</h2>

<p>This property specifies the width of the four borders:</p>

<p class="one">Some text.</p>

<p class="two">Some text.</p>

<p class="three">Some text.</p>

<p class="four">Some text.</p>

<p class="five">Some text.</p>

<p class="six">Some text.</p>

<p><b>Note:</b> The "border-width" property does not work if it is used alone.

Always specify the "border-style" property to set the borders first.</p>

</body>

</html>

## CSS Border Color

The border-color property is used to set the color of the four borders.

The color can be set by:

* name - specify a color name, like "red"
* HEX - specify a HEX value, like "#ff0000"
* RGB - specify a RGB value, like "rgb(255,0,0)"
* HSL - specify a HSL value, like "hsl(0, 100%, 50%)"
* Transparent

<!DOCTYPE html>

<html>

<head>

<style>

</style>

</head>

<body>

<h2>The border-color Property</h2>

<p>This property specifies the color of the four borders:</p>

<p><b>Note:</b> The "border-color" property does not work if it is used alone. Use the "border-style" property to set the borders first.</p>

</body>

</html>

## CSS Border - Individual Sides

From the examples on the previous pages, you have seen that it is possible to specify a different border for each side.

In CSS, there are also properties for specifying each of the borders (top, right, bottom, and left):

<!DOCTYPE html>

<html>

<head>

<style>

p {

border-top-style: dotted;

border-right-style: solid;

border-bottom-style: dotted;

border-left-style: solid;

}

</style>

</head>

<body>

<p>2 different border styles.</p>

</body>

</html>

## CSS Margins

The CSS margin properties are used to create space around elements, outside of any defined borders.

With CSS, you have full control over the margins. There are properties for setting the margin for each side of an element (top, right, bottom, and left).

## Margin - Individual Sides

CSS has properties for specifying the margin for each side of an element:

* margin-top
* margin-right
* margin-bottom
* margin-left

All the margin properties can have the following values:

* auto - the browser calculates the margin
* length - specifies a margin in px, pt, cm, etc.
* % - specifies a margin in % of the width of the containing element
* inherit - specifies that the margin should be inherited from the parent element

<!DOCTYPE html>

<html>

<head>

<style>

div {

border: 1px solid black;

margin-top: 100px;

margin-bottom: 100px;

margin-right: 150px;

margin-left: 80px;

background-color: lightblue;

}

</style>

</head>

<body>

<h2>Using individual margin properties</h2>

<div>This div element has a top margin of 100px, a right margin of 150px, a bottom margin of 100px, and a left margin of 80px.</div>

</body></html>

## Margin - Shorthand Property

To shorten the code, it is possible to specify all the margin properties in one property.

The margin property is a shorthand property for the following individual margin properties:

* margin-top
* margin-right
* margin-bottom
* margin-left

So, here is how it works:

If the margin property has four values:

* **margin: 25px 50px 75px 100px;**
  + top margin is 25px
  + right margin is 50px
  + bottom margin is 75px
  + left margin is 100px

Use the margin shorthand property with four values:

p {  
  margin: 25px 50px 75px 100px;  
}

If the margin property has three values:

* **margin: 25px 50px 75px;**
  + top margin is 25px
  + right and left margins are 50px
  + bottom margin is 75px

If the margin property has two values:

* **margin: 25px 50px;**
  + top and bottom margins are 25px
  + right and left margins are 50px

If the margin property has one value:

* **margin: 25px;**
  + all four margins are 25px

## The auto Value

You can set the margin property to auto to horizontally center the element within its container.The element will then take up the specified width, and the remaining space will be split equally between the left and right margins.

<!DOCTYPE html>

<html>

<head>

<style>

div {

width: 300px;

margin: auto;

border: 1px solid red;

}

</style>

</head>

<body>

<h2>Use of margin: auto</h2>

<div>

This div will be horizontally centered because it has margin: auto;

</div>

</body>

</html>

## CSS Padding

The CSS padding properties are used to generate space around an element's content, inside of any defined borders.

With CSS, you have full control over the padding. There are properties for setting the padding for each side of an element (top, right, bottom, and left).

## Padding - Individual Sides

CSS has properties for specifying the padding for each side of an element:

* padding-top
* padding-right
* padding-bottom
* padding-left

All the padding properties can have the following values:

* length - specifies a padding in px, pt, cm, etc.
* % - specifies a padding in % of the width of the containing element
* inherit - specifies that the padding should be inherited from the parent element

<!DOCTYPE html>

<html>

<head>

<style>

div {

border: 1px solid black;

background-color: lightblue;

padding-top: 50px;

padding-right: 30px;

padding-bottom: 50px;

padding-left: 80px;

}

</style>

</head>

<body>

<h2>Using individual padding properties</h2>

<div>This div element has a top padding of 50px, a right padding of 30px, a bottom padding of 50px, and a left padding of 80px.</div>

</body>

</html>

## CSS Padding

The CSS padding properties are used to generate space around an element's content, inside of any defined borders.

With CSS, you have full control over the padding. There are properties for setting the padding for each side of an element (top, right, bottom, and left).

## Padding - Individual Sides

CSS has properties for specifying the padding for each side of an element:

* padding-top
* padding-right
* padding-bottom
* padding-left

All the padding properties can have the following values:

* length - specifies a padding in px, pt, cm, etc.
* % - specifies a padding in % of the width of the containing element
* inherit - specifies that the padding should be inherited from the parent element

<!DOCTYPE html>

<html>

<head>

<style>

div {

border: 1px solid black;

background-color: lightblue;

padding-top: 50px;

padding-right: 30px;

padding-bottom: 50px;

padding-left: 80px;

}

</style>

</head>

<body>

<h2>Using individual padding properties</h2>

<div>This div element has a top padding of 50px, a right padding of 30px, a bottom padding of 50px, and a left padding of 80px.</div>

</body>

</html>

## Padding - Shorthand Property

To shorten the code, it is possible to specify all the padding properties in one property.

The padding property is a shorthand property for the following individual padding properties:

* padding-top
* padding-right
* padding-bottom
* padding-left

So, here is how it works:

If the padding property has four values:

* **padding: 25px 50px 75px 100px;**
  + top padding is 25px
  + right padding is 50px
  + bottom padding is 75px
  + left padding is 100px

If the padding property has three values:

* **padding: 25px 50px 75px;**
  + top padding is 25px
  + right and left paddings are 50px
  + bottom padding is 75px

If the padding property has two values:

* **padding: 25px 50px;**
  + top and bottom paddings are 25px
  + right and left paddings are 50px

If the padding property has one value:

* **padding: 25px;**
  + all four paddings are 25px

## CSS Setting height and width

The height and width properties are used to set the height and width of an element.

The height and width properties do not include padding, borders, or margins. It sets the height/width of the area inside the padding, border, and margin of the element.

## CSS height and width Values

The height and width properties may have the following values:

* auto - This is default. The browser calculates the height and width
* length - Defines the height/width in px, cm, etc.
* % - Defines the height/width in percent of the containing block
* initial - Sets the height/width to its default value
* inherit - The height/width will be inherited from its parent value

## CSS height and width Examples

This element has a height of 200 pixels and a width of 50%

div {  
  height: 200px;  
  width: 50%;  
  background-color: powderblue;  
}

## The CSS Box Model

In CSS, the term "box model" is used when talking about design and layout.

The CSS box model is essentially a box that wraps around every HTML element. It consists of: content, padding, borders and margins. The image below illustrates the box model:

Explanation of the different parts:

* **Content** - The content of the box, where text and images appear
* **Padding** - Clears an area around the content. The padding is transparent
* **Border** - A border that goes around the padding and content
* **Margin** - Clears an area outside the border. The margin is transparent

The box model allows us to add a border around elements, and to define space between elements.

<!DOCTYPE html>

<html>

<head>

<style>

div {

background-color: lightgrey;

width: 300px;

border: 15px solid green;

padding: 50px;

margin: 20px;

}

</style>

</head>

<body>

<h2>Demonstrating the Box Model</h2>

<p>The CSS box model is essentially a box that wraps around every HTML element. It consists of: borders, padding, margins, and the actual content.</p>

## CSS Outline

An outline is a line that is drawn around elements, OUTSIDE the borders, to make the element "stand out".

CSS has the following outline properties:

* outline-style
* outline-color
* outline-width
* outline-offset
* outline

## CSS Outline Style

The outline-style property specifies the style of the outline, and can have one of the following values:

* dotted - Defines a dotted outline
* dashed - Defines a dashed outline
* solid - Defines a solid outline
* double - Defines a double outline
* groove - Defines a 3D grooved outline
* ridge - Defines a 3D ridged outline
* inset - Defines a 3D inset outline
* outset - Defines a 3D outset outline
* none - Defines no outline
* hidden - Defines a hidden outline

The following example shows the different outline-style values:

p.dotted {outline-style: dotted;}  
p.dashed {outline-style: dashed;}  
p.solid {outline-style: solid;}  
p.double {outline-style: double;}  
p.groove {outline-style: groove;}  
p.ridge {outline-style: ridge;}  
p.inset {outline-style: inset;}  
p.outset {outline-style: outset;}