What is CSS?

* **CSS** stands for **C**ascading **S**tyle **S**heets
* 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.

## CSS Syntax

A CSS rule-set consists of a selector and a declaration block:



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.

A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

In the following example all <p> elements will be center-aligned, with a red text color:

p {  
 color: red;  
  text-align: center;  
}

## CSS Selectors

CSS selectors are used to "find" (or select) HTML elements based on their element name, id, class, attribute, and more.

## The element Selector

The element selector selects elements based on the element name.

You can select all <p> elements on a page like this (in this case, all <p> elements will be center-aligned, with a red text color):

### Example

p {  
 color: red;  
  text-align: center;  
}

## The id Selector

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

The id of an element should be 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.

The style rule below will be applied to the HTML element with id="para1":

#para1 {  
   text-align: center;  
   color: red;  
}

## The class Selector

The class selector selects elements with a specific class attribute.

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

In the example below, all HTML elements with class="center" will be red and center-aligned:

### Example

.center{  
text-align:center;  
color:red;  
}

You can also specify that only specific HTML elements should be affected by a class.

In the example below, only <p> elements with class="center" will be center-aligned:

### Example

p.center{

text-align:center;  
color:red;  
}

HTML elements can also refer to more than one class.

In the example below, the <p> element will be styled according to class="center" and to class="large":

### Example

<p class="center large">This paragraph refers to two classes.</p>

Grouping Selectors

If you have elements with the same style definitions, like this:

h1{  
 text-align:center;  
 color:red;  
}  
  
h2{  
 text-align:center;  
 color:red;  
}  
  
p{  
 text-align:center;  
 color:red;  
}

It will be better to group the selectors, to minimize the code.

To group selectors, separate each selector with a comma.

In the example below we have grouped the selectors from the code above:

### Example

h1,h2,p{  
text-align:center;  
color:red;  
}

## 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 starts with /\* and ends with \*/. Comments can also span multiple lines:

### Example

p{

color:red;  
/\*This is a single-line comment \*/  
text-align: center;  
}  
  
/\*Thisis amulti-line  
comment

\*/

# CSS How To...

When a browser reads a style sheet, it will format the HTML document according to the information in the style sheet.

Three Ways to Insert CSS

There are three ways of inserting a style sheet:

* **External style sheet**
* **Internal style sheet**
* **Inline style**

External Style Sheet

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

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

### Example

<head>  
<link rel="stylesheet" type="text/css" href="mystyle.css">  
</head>

An external style sheet can be written in any text editor. The file should not contain any html tags. The style sheet file must be saved with a .css extension.

Here is how the "mystyle.css" looks:

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

**Note:** Do not add a space between the property value and the unit (such as margin-left: 20 px;). The correct way is: margin-left: 20px;

## Internal Style Sheet

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

Internal styles are defined within the <style> element, inside the <head> section of an HTML page:

### Example

<head>  
<style>  
body{  
background-color:linen;  
}  
  
h1{  
color:maroon;  
margin-left:40px;  
}  
</style>  
</head>

<!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 Styles

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.

The example below shows how to change the color and the left margin of a <h1> element:

### Example

<h1 style="color:blue;margin-left:30px;">This is a heading</h1>

<!DOCTYPE html>

<html>

<body>

<h1 style="color:blue;margin-left:30px;">This is a heading</h1>

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

</body>

</html>

# CSS Colors

Colors in CSS are most often specified by:

* a valid color name - like "red"
* an RGB value - like "rgb(255, 0, 0)"
* a HEX value - like "#ff0000"

## Color Names

Colors set by using color names:

### Example

|  |  |
| --- | --- |
| **Color** | **Name** |
|  | Red |
|  | Green |
|  | Blue |
|  | Orange |
|  | Yellow |
|  | Cyan |
|  | Black |

<!DOCTYPE html>

<html>

<body>

<h2>Color Names Examples</h2>

<p>Note: You will learn more about the background-color and the color property later in our tutorial.</p>

<h2 style="background-color:red">

Red background-color

</h2>

<h2 style="background-color:green">

Green background-color

</h2>

<h2 style="background-color:blue;color:white">

Blue background-color and white text color

</h2>

<h2 style="background-color:orange">

Orange background-color

</h2>

<h2 style="background-color:yellow">

Yellow background-color

</h2>

<h2 style="background-color:cyan">

Cyan background-color

</h2>

<h2 style="background-color:black;color:white">

Black background-color and white text color

</h2>

</body>

</html>

**Note:** Color names are not case-sensitive: "Red" is the same as "red" or "RED".

RGB (Red, Green, Blue)

RGB color values can be specified using this formula: rgb(red, green, blue).

Each parameter (red, green, blue) defines the intensity of the color between 0 and 255.

### For example, rgb(255,0,0) is displayed as red, because red is set to its highest value (255) and the others are set to 0. Example

|  |  |
| --- | --- |
| **Color** | **RGB** |
|  | rgb(255,0,0) |
|  | rgb(0,255,0) |
|  | rgb(0,0,255) |
|  | rgb(255,165,0) |
|  | rgb(255,255,0) |
|  | rgb(0,255,255) |

<!DOCTYPE html>

<html>

<body>

<h2>RGB Color Examples</h2>

<h2 style="background-color:rgb(255, 0, 0)">

Background-color set by using rgb(255, 0, 0)

</h2>

<h2 style="background-color:rgb(0, 255, 0)">

Background-color set by using rgb(0, 255, 0)

</h2>

<h2 style="background-color:rgb(0, 0, 255)">

Background-color set by using rgb(0, 0, 255)

</h2>

<h2 style="background-color:rgb(255, 165, 0)">

Background-color set by using rgb(255, 165, 0)

</h2>

<h2 style="background-color:rgb(255, 255, 0)">

Background-color set by using rgb(255, 255, 0)

</h2>

<h2 style="background-color:rgb(0, 255, 255)">

Background-color set by using rgb(0, 255, 255)

</h2>

</body>

</html>

## Hexadecimal Colors

RGB values can also be specified using **hexadecimal** color values in the form: #RRGGBB, where RR (red), GG (green) and BB (blue) are hexadecimal values between 00 and FF (same as decimal 0-255).

For example, #FF0000 is displayed as red, because red is set to its highest value (FF) and the others are set to the lowest value (00). **Note:** HEX values are case-insensitive: "#ff0000" is the same as "FF0000".

### Example

|  |  |
| --- | --- |
| **Color** | **HEX** |
|  | #FF0000 |
|  | #00FF00 |
|  | #0000FF |
|  | #FFA500 |
|  | #FFFF00 |
|  | #00FFFF |

<!DOCTYPE html>

<html>

<body>

<h2>HEX Color Examples</h2>

<h2 style="background-color:#FF0000">

Background-color set by using #FF0000

</h2>

<h2 style="background-color:#00FF00">

Background-color set by using #00FF00

</h2>

<h2 style="background-color:#0000FF">

Background-color set by using #0000FF

</h2>

<h2 style="background-color:#FFA500">

Background-color set by using #FFA500

</h2>

<h2 style="background-color:#FFFF00">

Background-color set by using #FFFF00

</h2>

<h2 style="background-color:#00FFFF">

Background-color set by using #00FFFF

</h2>

</body>

</html>

# CSS Backgrounds

he CSS background properties are used to define the background effects for elements.

CSS background properties:

* background-color
* background-image
* background-repeat
* background-attachment
* background-position

## Background Color

The background-color property specifies the background color of an element.

The background color of a page is set like this:

### Example

body {  
   background-color: lightblue;  
}

With CSS, a color is most often specified by:

* a valid color name - like "red"
* a HEX value - like "#ff0000"
* an RGB value - like "rgb(255,0,0)"

Look at [CSS Color Values](https://www.w3schools.com/cssref/css_colors_legal.asp) for a complete list of possible color values.

In the example below, the <h1>, <p>, and <div> elements have different background colors:

### Example

h1 {  
   background-color: green;  
}  
  
div {  
   background-color: lightblue;  
}  
  
p {  
   background-color: yellow;  
}

## Background Image

The background-image property specifies an image to use as the background of an element.

By default, the image is repeated so it covers the entire element.

The background image for a page can be set like this:

### Example

body {  
   background-image: url("paper.gif");  
}

## Background Image - Repeat Horizontally or Vertically

By default, the background-image property repeats an image both horizontally and vertically.

Some images should be repeated only horizontally or vertically, or they will look strange, like this:

### Example

body {  
   background-image: url("gradient\_bg.png");  
}

If the image above is repeated only horizontally (background-repeat: repeat-x;), the background will look better:

### Example

body {  
   background-image: url("gradient\_bg.png");  
   background-repeat: repeat-y;  
}

## Background Image - Set position and no-repeat

Showing the background image only once is also specified by the background-repeat property:

### Example

body {  
   background-image: url("img\_tree.png");  
   background-repeat: no-repeat;  
}

## Background Image - Fixed position

To specify that the background image should be fixed (will not scroll with the rest of the page), use the background-attachment property:

### Example

body {  
   background-image: url("img\_tree.png");  
   background-repeat: no-repeat;  
   background-position: right top;  
   background-attachment: fixed;  
}

## Background - Shorthand property

To shorten the code, it is also possible to specify all the background properties in one single property. This is called a shorthand property.

The shorthand property for background is background:

### Example

body {  
   background: #ffffff url("img\_tree.png") no-repeat right top;  
}

When using the shorthand property the order of the property values is:

* background-color
* background-image
* background-repeat
* background-attachment
* background-position

It does not matter if one of the property values is missing, as long as the other ones are in this order.

## CSS Border Properties

The CSS border properties allow you to specify the style, width, and color of an element's border.

I have borders on all sides.

I have a red bottom border

I have rounded borders.

I have a blue left border.

## 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).

### Example

p.dotted {border-style: dotted;}  
p.dashed {border-style: dashed;}  
p.solid {border-style: solid;}  
p.double {border-style: double;}  
p.groove {border-style: groove;}  
p.ridge {border-style: ridge;}  
p.inset {border-style: inset;}  
p.outset {border-style: outset;}  
p.none {border-style: none;}  
p.hidden {border-style: hidden;}  
p.mix {border-style: dotted dashed solid double;}

Result:

A dotted border.

A dashed border.

A solid border.

A double border.

A groove border. The effect depends on the border-color value.

A ridge border. The effect depends on the border-color value.

An inset border. The effect depends on the border-color value.

An outset border. The effect depends on the border-color value.

No border.

A hidden border.

A mixed border.

## 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.

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

5px border-width

### Example

p.one {  
   border-style: solid;  
   border-width: 5px;  
}  
  
p.two {  
   border-style: solid;  
   border-width: medium;  
}  
  
p.three {  
   border-style: solid;  
   border-width: 2px 10px 4px 20px;  
}

## 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)"
* transparent

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

If border-color is not set, it inherits the color of the element.

Red border

### Example

p.one {  
   border-style: solid;  
   border-color: red;  
}  
  
p.two {  
   border-style: solid;  
   border-color: green;  
}  
  
p.three {  
   border-style: solid;  
   border-color: red green blue yellow;  
}

<!DOCTYPE html>

<html>

<head>

<style>

p.one {

border-style: solid;

border-color: red;

}

p.two {

border-style: solid;

border-color: green;

}

p.three {

border-style: solid;

border-color: red green blue yellow;

}

</style>

</head>

<body>

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

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

<p class="one">A solid red border</p>

<p class="two">A solid green border</p>

<p class="three">A solid multicolor border</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>

## Border - Individual Sides

From the examples above you have seen that it is possible to specify a different border for each side.

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

Different Border Styles

### Example

p {  
   border-top-style: dotted;  
   border-right-style: solid;  
  border-bottom-style: dotted;  
  border-left-style: solid;  
}

So, here is how it works:

If the border-style property has four values:

* **border-style: dotted solid double dashed;**
  + top border is dotted
  + right border is solid
  + bottom border is double
  + left border is dashed

If the border-style property has three values:

* **border-style: dotted solid double;**
  + top border is dotted
  + right and left borders are solid
  + bottom border is double

If the border-style property has two values:

* **border-style: dotted solid;**
  + top and bottom borders are dotted
  + right and left borders are solid

If the border-style property has one value:

* **border-style: dotted;**
  + all four borders are dotted

The border-style property is used in the example above. However, it also works with border-width and border-color.

## Border - Shorthand Property

As you can see from the examples above, there are many properties to consider when dealing with borders.

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

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

* border-width
* border-style (required)
* border-color

### Example

p {  
   border: 5px solid red;  
}

Result:

Some text