

# Cascading Style Sheets (CSS)

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## WHAT'S COVERED

In this lesson, you will be introduced to the Cascading Style Sheets (CSS) coding language. You will learn about the three locations where CSS code can be placed. You will also learn about CSS property shorthands that can save developers time and avoid human errors.

Specifically, this lesson will cover the following:

### 1. Introduction to CSS

#### 1a. External Stylesheets

#### 1b. Internal Stylesheets

#### 1c. Inline Styles

### 2. Rule Structure

### 3. Shorthand Properties

## 1. Introduction to CSS

Cascading Style Sheet (CSS) is the language of rules and style properties that control the outward appearance of webpage content. CSS is used to create blocks of **style properties** that control the different visual aspects of content that are applied to content based on the given **CSS selector**. This is called a **style rule** and together they make up a **stylesheet**.

Style rules can be created in three possible locations—external stylesheets, internal stylesheets, and inline (which means as an HTML attribute of the opening tag). Each location's style rules are observed in a specific order of precedence by web browsers.



## TERMS TO KNOW

### Style Properties

In CSS, a visual characteristic of an HTML element.

## CSS Selector

The first part of a CSS rule, which is a pattern of element identifiers and other terms that tells the browser which HTML elements should be selected to have the styles applied.

## Stylesheets

A document that defines the CSS style rules for an HTML webpage.

## Style Rule

A complete CSS statement that includes a selector and set of style properties.

## 1a. External Stylesheets

**External stylesheets** are a separate .CSS text document, called a stylesheet, that is linked to a webpage using a <link> HTML tag in the <head> of a webpage.

⇒ **EXAMPLE** The following code snippet demonstrates how the link to the external stylesheet is formatted:

```
<html>
<head>
<link rel="stylesheet" href="styles.css">
</head>
...
```

When a webpage links to a stylesheet, the style rules are applied to the elements in the page according to the rules' CSS selectors. External stylesheet rules have the lowest precedence. Any conflicts with internal and inline styles will be overruled causing them not to be displayed.



### TERM TO KNOW

## External Stylesheet

A text-based document with the .css extension that contains the CSS style rules for an HTML document.

## 1b. Internal Stylesheets

**Internal stylesheets**, also referred to as embedded stylesheets, are CSS style rules that are placed within the <style> element in the <head> of a webpage. The internal stylesheet only applies to the page that it is written in and overrides any conflicts with the external stylesheet.

⇒ **EXAMPLE** The following code snippet demonstrates how internal stylesheets are formatted:

```
<html>
<head>
  <title>My Website</title>
  <style>
    p {
      color: #ff0000;
    }
  </style>
</head>
<body>
  <p>Hello World</p>
</body>
</html>
```

```
font-weight: normal;
}
</style>
</head>

<body>
<p>This paragraph is automatically styled by the internal stylesheet</p>
...
```



#### TERM TO KNOW

### Internal Stylesheet

CSS style rules written directly into the <head> section of an HTML file between a set of <style> tags that only affect the content of the HTML document. Also called, *embedded stylesheet*.

## 1c. Inline Styles

**Inline styles** are written directly in the opening tag of an HTML element using the “style” attribute. The value given to the style attribute is a list of CSS styles that will be applied directly to the element itself. Inline styles have the highest precedence and will override conflicts with internal and external styles.

🔗 **EXAMPLE** The following code snippet demonstrates how inline styles are formatted:

```
<p style="color: #ff0000; font-weight: normal">This is my paragraph with inline styles. You can think of it as the closer element because it overrides any and all other styles.</p>
```



#### BIG IDEA

The closer the CSS is located to the HTML element it affects, the higher the precedence. With this concept in mind, external stylesheets are used to stylize an entire website. Since the webpages each link to the same CSS file, any change to the external stylesheet affects the entire site. Developers should put as much of the CSS styles into the external stylesheet so as to make managing the site’s style and formatting more convenient. Internal stylesheets should only be used when a particular page needs to have some kind of style deviation from the rest of the site. Inline styles are used when a single element needs to be stylized differently from the rest of the site. Inline styles should be avoided when possible as they can make managing styles more difficult by resulting in style rules being scattered throughout the code.

CSS can also be used to provide behaviors, animations, transitions, and modifications to various elements.



#### THINK ABOUT IT

Have you ever noticed how buttons on a webpage often change color or brightness when your mouse cursor hovers over them? This is done using CSS. Even dropdown navigation menus that display additional navigation hyperlinks are created using CSS.



## TERM TO KNOW

### Inline Style

CSS style rules written as a value to the STYLE attribute in the starting tag of an HTML element; it only affects that one element.

## 2. Rule Structure

CSS rules follow a simple structure that starts with a selector followed by a semicolon-separated list of style property and value pairs. The property is separated from the value with a regular colon (:).

⇒ EXAMPLE The list of style properties and values for each rule are surrounded in curly brackets ({}).

```
SELECTOR { PROPERTY: VALUE; PROPERTY: VALUE; }
```

In the following example, the selector is the <p> tag which will affect any and all <p> tags in the page.

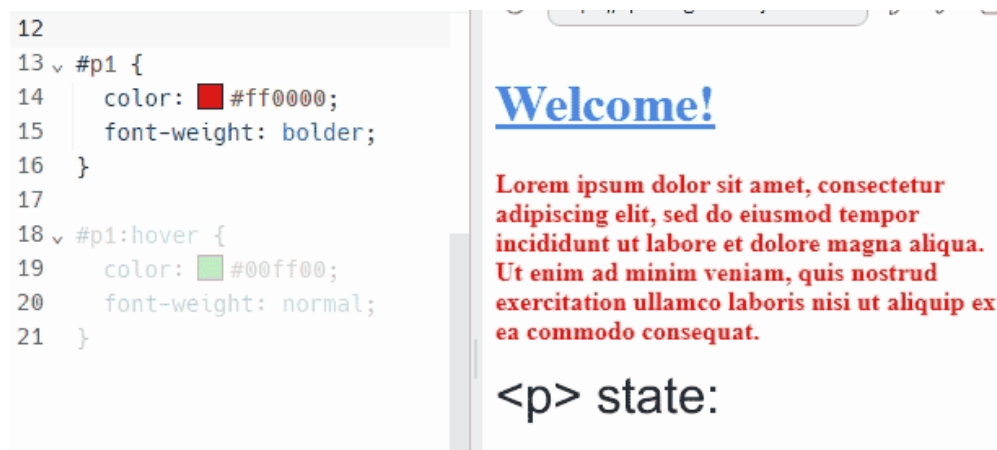
⇒ EXAMPLE The style properties will set the color of the text to red and will bold the text.

```
P {color: #ff0000; font-weight: bold; }
```

In this next example, the selector is the <p> tag again, this time with a **pseudo-class** :hover. The pseudo-class is an **event listener** that waits for an element to be in a particular **state** of existence. When a user's mouse enters the screen space of the paragraph, the paragraph's state changes to "hover." Once this happens, the style properties are applied, which changes the paragraph's text color to green and makes the font light.

⇒ EXAMPLE Note that only the paragraph that the user's mouse is hovering over received the style change.

```
P:hover {color: #00ff00; font-weight: normal; }
```



## KEY CONCEPT

Styles rules can contain as many property value pairs as needed.



## TERMS TO KNOW

### Pseudo-Class

A keyword added to a selector that specifies a special state of the selected element.

### Event Listener

A mechanism in programming that waits for the user or the system to interact with an element such as a click, keypress, or when something finishes loading, which triggers some code to take action.

### State

An element's contents and programming properties at any given point in time.

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## 3. Shorthand Properties

**CSS Shorthand properties** are style properties that combine multiple CSS style properties into one for the convenience of the developer. Not only does it save time but can also help reduce human errors by reducing the amount of typing. Most properties that pertain to different visual aspects of the same element type accept shorthand styles.

In the following example, there are three border properties written individually and then combined using the shorthand.

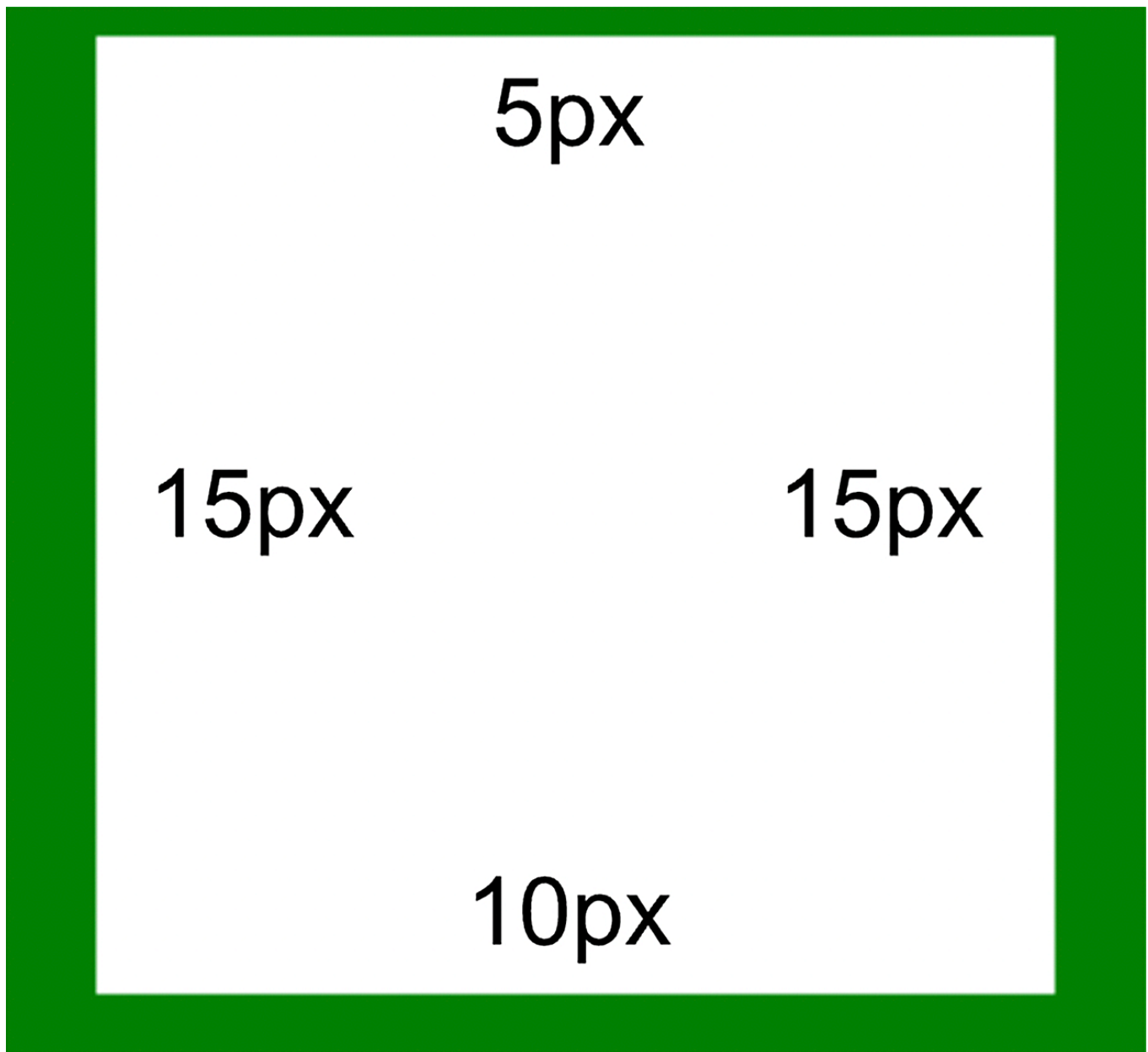
🔗 **EXAMPLE** The values for shorthand properties do not have to be in any specific order and are separated with a space.

```
border-style: solid;
border-color: #ff0000;
border-width: 5px;
```

```
border: 5px solid #ff0000;
```

Another shorthand type is the ability to specify thicknesses or “width” of borders, padding, and margin on the top, right, bottom, and left separately.

The following element has a top border width of 5px, a right border width of 15px, a bottom border width of 10px, and a left border width of 15px.



How can we build this element?

⇒ **EXAMPLE** In the following example code you can see that we have the top, right, bottom, and left widths of this element set individually. Below that, you will see three different shorthands.

```
border-width-top: 5px;  
border-width-right: 15px;  
border-width-bottom: 10px;  
border-width-left: 15px;
```

```
border-width: 5px 15px 10px 15px;
```

```
border-width: 5px 15px 10px;
```

```
border-width: 5px 15px;
```

⇒ **EXAMPLE** The first shorthand uses four values to specify the thickness of all four sides. These values start with the top and then move clockwise, making the top 5px, the right 15px, the bottom 10px, and the left 15px.

```
border-width: 5px 15px 10px 15px;
```

⇒ **EXAMPLE** The next shorthand uses three values, the first value for the top, the second for both the left and right, and the third sets the bottom.

```
border-width: 5px 15px 10px;
```

⇒ **EXAMPLE** The last example uses just two values, the first for the top and bottom thicknesses and the second for the left and right thicknesses. Note that this shorthand version does not include the ability to specify 10px for the bottom since the top and bottom take the same 5px value.

```
border-width: 5px 15px;
```

Some of the other CSS properties that also have shorthand versions include margin, padding, border, background, animation, transition, and flex, all of which have shorthand properties.



In this video, you will learn how to properly markup your text content with HTML code, and then you will review how to use CSS to style your content.



Shorthand CSS properties add convenience for developers and attribute selectors add additional flexibility with regards to your CSS styling. Keep these, and the previous concepts in mind as you continue to learn and practice your coding skills. You may not always be able to take advantage of shorthand properties, but they are helpful when you can.



### CSS Shorthand Properties

Special CSS properties that combine the effects of multiple similar related common properties.



In this lesson, you were **introduced to the CSS** styling language, including its syntax, **rule structure**, and the different **types of selectors** that you can use to control what received the style properties. You also

learned about the convenience of **shorthand CSS properties** and how to use them.

Source: This Tutorial has been adapted from "The Missing Link: An Introduction to Web Development and Programming " by Michael Mendez. Access for free at <https://open.umn.edu/opentextbooks/textbooks/the-missing-link-an-introduction-to-web-development-and-programming>. License: [Creative Commons attribution: CC BY-NC-SA](#).



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