**HTML and CSS**

An HTML element usually consists of a start tag and end tag, with the content inserted in between:

<tagname>Content goes here...</tagname>

The HTML element is everything from the start tag to the end tag:

<p>My first paragraph.</p>

|  |  |  |
| --- | --- | --- |
| Start tag | Element content | End tag |
| <h1> | My First Heading | </h1> |
| <p> | My first paragraph. | </p> |
| <br> |  |  |

## Nested HTML Elements

HTML elements can be nested (elements can contain elements).

All HTML documents consist of nested HTML elements.

## Do Not Forget the End Tag

Some HTML elements will display correctly, even if you forget the end tag:

## Empty HTML Elements

HTML elements with no content are called empty elements.

<br> is an empty element without a closing tag (the <br> tag defines a line break).

Empty elements can be "closed" in the opening tag like this: <br />.

## Use Lowercase Tags

HTML tags are not case sensitive: <P> means the same as <p>.

The HTML5 standard does not require lowercase tags, but it is desirable

**Example program HTMLbasics.html**

<html>

<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

<h1>This is heading 1</h1>

<h2>This is heading 2</h2>

<h3>This is heading 3</h3>

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

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

<h1> This is the link to hello.html</h1>

<a href="hello.html">This is a link</a>

<h1> This is a picture </h1>

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

<button>Click me</button>

<h2>An Unordered HTML List</h2>

<ul>

<li>Coffee</li>

<li>Tea</li>

<li>Milk</li>

</ul>

<h2>An Ordered HTML List</h2>

<ol>

<li>Coffee</li>

<li>Tea</li>

<li>Milk</li>

</ol>

</body>

</html>

# HTML Attributes

Attributes provide additional information about HTML elements.

All HTML elements can have **attributes**

* Attributes provide **additional information** about an element
* Attributes are always specified in **the start tag**
* Attributes usually come in name/value pairs like: **name="value"**

## The href Attribute

HTML links are defined with the <a> tag. The link address is specified in the href attribute:

### Example

<a href="https://www.w3schools.com">This is a link</a>

## The src Attribute

HTML images are defined with the <img> tag.

The filename of the image source is specified in the src attribute:

### Example

<img src="img\_girl.jpg">

## The width and height Attributes

Images in HTML have a set of size attributes, which specifies the width and height of the image:

### Example

<img src="img\_girl.jpg" width="500" height="600">

## **The alt Attribute**

The alt attribute specifies an alternative text to be used, when an image cannot be displayed.

The value of the attribute can be read by screen readers. This way, someone "listening" to the webpage, e.g. a blind person, can "hear" the element.

### **Example**

<img src="img\_girl.jpg" alt="Girl with a jacket">

## **The title Attribute**

Here, a title attribute is added to the <p> element. The value of the title attribute will be displayed as a tooltip when you mouse over the paragraph:

### Example

<p title="I'm a tooltip">  
This is a paragraph.  
</p>

## HTML Attributes

Below is an alphabetical list of some attributes often used in HTML:

|  |  |
| --- | --- |
| Attribute | Description |
| alt | Specifies an alternative text for an image, when the image cannot be displayed |
| disabled | Specifies that an input element should be disabled |
| href | Specifies the URL (web address) for a link |
| id | Specifies a unique id for an element |
| src | Specifies the URL (web address) for an image |
| style | Specifies an inline CSS style for an element |
| title | Specifies extra information about an element (displayed as a tool tip) |

## **The HTML Style Attribute**

Setting the style of an HTML element, can be done with the style attribute.

The HTML style attribute has the following syntax:

<tagname style="property:value;">

The property is a CSS property. The value is a CSS value.

## **HTML Background Color**

The background-color property defines the background color for an HTML element.

This example sets the background color for a page to powderblue:

### Example

<body style="background-color:powderblue;">  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
</body>

## **HTML Text Color**

The color property defines the text color for an HTML element:

### Example

<h1 style="color:blue;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>

## **HTML Formatting Elements**

In the previous chapter, you learned about the HTML style attribute.

HTML also defines special elements for defining text with a special meaning.

HTML uses elements like <b> and <i> for formatting output, like **bold** or *italic* text.

Formatting elements were designed to display special types of text:

* <b> - Bold text
* <strong> - Important text
* <i> - Italic text
* <em> - Emphasized text
* <mark> - Marked text
* <small> - Small text
* <del> - Deleted text
* <ins> - Inserted text
* <sub> - Subscript text
* <sup> - Superscript text

<b>This text is bold</b>

<strong>This text is strong</strong>

<i>This text is italic</i>

<em>This text is emphasized</em>

## HTML <small> Element

The HTML <small> element defines smaller text:

<h2>HTML <small>Small</small> Formatting</h2>

## HTML <mark> Element

The HTML <mark> element defines or text:

### Example

<h2>HTML <mark>Marked</mark> Formatting</h2>

## HTML <del> Element

The HTML <del> element defines deleted (removed) text.

### Example

<p>My favorite color is <del>blue</del> red.</p>

## HTML <sup> Element

The HTML <sup> element defines superscripted text.

### Example

<p>This is <sup>superscripted</sup> text.</p>

## HTML Comment Tags

You can add comments to your HTML source by using the following syntax:

<!-- Write your comments here -->

Notice that there is an exclamation point (!) in the opening tag, but not in the closing tag.

Note: Comments are not displayed by the browser, but they can help document your HTML source code.

With comments you can place notifications and reminders in your HTML:

### Example

**<!-- This is a comment -->**

**Background Color**

<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>

## Border Color

You can set the color of borders:

## Hello World

## Hello World

## Hello World

### Example

<h1 style="border:2px solid Tomato;">Hello World</h1>  
<h1 style="border:2px solid DodgerBlue;">Hello World</h1>  
<h1 style="border:2px solid Violet;">Hello World</h1>

**HTML table**

</style>

</head>

<body>

<table border=1px>

<tr>

<th>Month</th>

<th>Savings</th>

</tr>

<tr>

<td>January</td>

<td>$100</td>

</tr>

<tr>

<td>February</td>

<td>$80</td>

</tr>

</table>

</body>

</html>

# HTML Styles - CSS

## Styling HTML with 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.

CSS can be added to HTML elements in 3 ways:

* Inline - by using the style attribute in HTML elements
* Internal - by using a <style> element in the <head> section
* External - by using an external CSS file

The most common way to add CSS, is to keep the styles in separate CSS files. However, here we will use inline and internal styling, because this is easier to demonstrate, and easier for you to try it yourself.

## Inline CSS

An inline CSS is used to apply a unique style to a single HTML element.

An inline CSS uses the style attribute of an HTML element.

This example sets the text color of the <h1> element to blue:

### Example 1

<html>

<body>

<h1 style="color:blue;">This is a Blue Heading</h1>

</body>

### Example 2

<html>  
<head>  
<style>  
body {background-color: powderblue;}  
h1 {color: blue;}  
p {color: red;}  
</style>  
</head>  
<body>  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

## 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.

To solve this problem, the World Wide Web Consortium (W3C) created CSS.

CSS removed the style formatting from the HTML page!

## 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:

## CSS Selectors

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

### 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":

### Example

#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;  
}

**program**

<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>

## CSS Comments

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

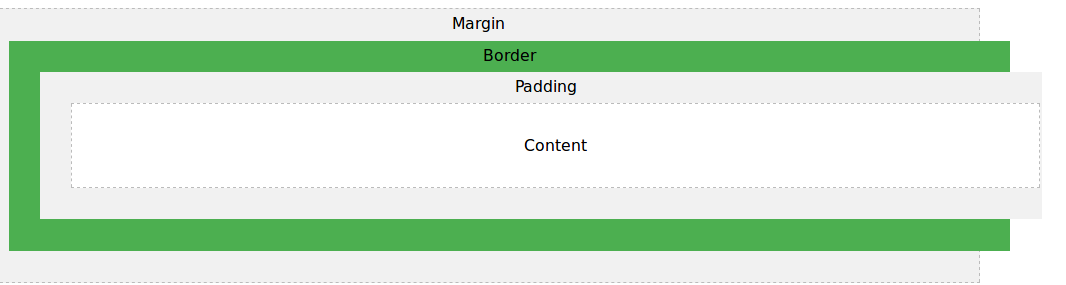
Comments are ignored by browsers.

A CSS comment starts with /\* and ends with \*/. Comments can also span multiple lines:

# CSS Box Model

All HTML elements can be considered as boxes. 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: margins, borders, padding, and the actual content. 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.

### Example

div {  
 width: 300px;  
 border: 25px solid green;  
 padding: 25px;  
 margin: 25px;  
}

<style>

body {background-color: powderblue;}

h1 {color: blue;}

p {color: red;}

#p01 {

color: magenta;

font-family: timesnewroman;

font-size: 300%;

}

#p02 {

color: cyan;

font-family: timesnewroman;

font-size: 200%;

}

</style>