Main features of CSS

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Content:

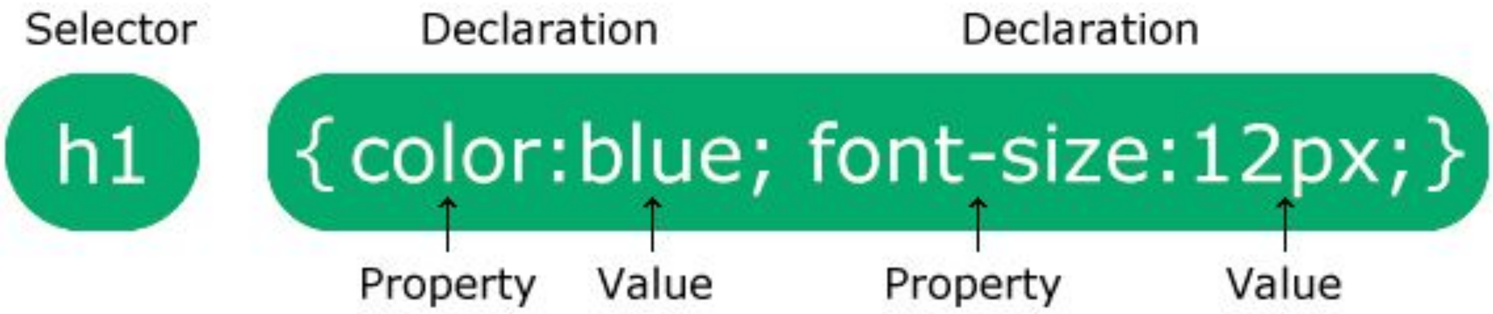
- Introduction to CSS
- Selectors
- The Difference Between div and span Elements
- Advanced CSS/CSS3 Modules
- Responsive Web Design

Introduction to 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

CSS Syntax

A CSS rule consists of a selector and a declaration block.



Selector

Declaration

Declaration

h1

{color:blue; font-size:12px;}

Property

Value

Property

Value

Example:

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

Three Ways to Insert CSS

There are three ways of inserting a style sheet:

- External CSS
- Internal CSS
- Inline CSS

Introduction to CSS

- One way you can add styling to a web page is by inserting the required statements into the head of the page, between the <head> and </head> tags. So, to change the style of the <h1> tag, you might use the following code:

```
<style>
     h1 { color:red; font-size:3em; font-family:Arial; }
</style>
```

Importing a Stylesheet

- To import stylesheets from files:

@import directive:

```
<style>
    @import url('styles.css');
</style>
```

Importing CSS from Within HTML

To include a stylesheet with the HTML:

```
<link rel='stylesheet' href='styles.css'>
```

Embedded Style Settings

Setting individual styles for the current page on a case-by-case basis by inserting style declarations directly within HTML, like this:

```
<div style='font-style:italic; color:blue;'>Hello there</div>
```

But this should be reserved only for the most exceptional circumstances, as it breaks the separation of content and presentation.

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 (select elements based on a specific relationship between them)
- Pseudo-class selectors (select elements based on a certain state)
- Pseudo-elements selectors (select and style a part of an element)
- Attribute selectors (select elements based on an attribute or attribute value)

Simple selectors

- Element Selector - the element selector selects HTML elements based on the element name
- id Selector - the id selector uses the id attribute of an HTML element to select a specific element (#)
- class Selector - The class selector selects HTML elements with a specific class attribute (.)
- Universal Selector - The universal selector (*) selects all HTML elements on the page
- Grouping Selector - The grouping selector selects all the HTML elements with the same style definitions.

Using IDs

A better solution for setting the style of an element is to assign an ID to it in the HTML, like this:

```
<div id='welcome'>Hello there</div>
```

```
#welcome { font-style:italic; color:blue; }
```

Note the use of the # symbol, which specifies that only the ID with the name welcome should be styled with this statement.

Using Classes

The value of an id element must be unique within the web page, because that’s what lets it serve as an identifier. If you would like to apply the same style to many elements, you do not have to give each one a different ID because you can specify a class to manage them all, like this:

```
<div class='welcome'>Hello</div>
```

This states that the contents of this element (and any others that use the class) should have applied to them the style defined in the welcome class. Once a class is applied, you can use the following rule, either in the page header or within an external stylesheet, for setting the styles for the class:

```
.welcome { font-style:italic; color:blue; }
```

CSS Combinators

A combinator is something that explains the relationship between the selectors

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.

- descendant selector (space)
- child selector (>)
- adjacent sibling selector (+)
- general sibling selector (~)

Descendant Selector

The descendant selector matches all elements that are descendants of a specified element.

The following example selects all <p> elements inside <div> elements:

```
div p {
  background-color: yellow;
}
```

Child Selector (>)

The child selector selects all elements that are the children of a specified element.

The following example selects all <p> elements that are children of a <div> element:

```
div > p {
  background-color: yellow;
}
```

Adjacent Sibling Selector (+)

The adjacent sibling selector is used to select an element that is directly after another specific element.

Sibling elements must have the same parent element, and "adjacent" means "immediately following".

The following example selects the first <p> element that are placed immediately after <div> elements:

```
div + p {
  background-color: yellow;
}
```

General Sibling Selector (~)

The general sibling selector selects all elements that are next siblings of a specified element.

The following example selects all <p> elements that are next siblings of <div> elements:

```
div ~ p {
  background-color: yellow;
}
```

CSS Pseudo-classes

A pseudo-class is used to define a special state of an element.

For example, it can be used to:

Style an element when a user mouses over it

Style visited and unvisited links differently

Style an element when it gets focus

The syntax of pseudo-classes:

```
selector:pseudo-class {
  property: value;
}
```

Anchor Pseudo-classes

Links can be displayed in different ways:

```
/* unvisited link */
a:link {
  color: #FF0000;
}

/* visited link */
a:visited {
  color: #00FF00;
}

/* mouse over link */
a:hover {
  color: #FF00FF;
}

/* selected link */
a:active {
  color: #0000FF;
}
```

Pseudo-classes and CSS Classes

Pseudo-classes can be combined with CSS classes:

When you hover over the link in the example, it will change color:

```
a.highlight:hover {
  color: #ff0000;
}
```

CSS Pseudo-elements

A CSS pseudo-element is used to style specified parts of an element.

For example, it can be used to:

- Style the first letter, or line, of an element
- Insert content before, or after, the content of an element

```
selector::pseudo-element {
  property: value;
}
```

- The ::first-line Pseudo-element
- The ::first-letter Pseudo-element

Pseudo-elements and CSS Classes

Pseudo-elements can be combined with CSS classes:

Example:

```
p.intro::first-letter {
  color: #ff0000;
  font-size: 200%;
}
```

The example will display the first letter of paragraphs with class="intro", in red and in a larger size.

Pseudo-elements

The ::before Pseudo-element -

the `::before` pseudo-element can be used to insert some content before the content of an element.

The ::after Pseudo-element -

The `::after` pseudo-element can be used to insert some content after the content of an element.

The ::marker Pseudo-element -

The `::marker` pseudo-element selects the markers of list items.

The ::selection Pseudo-element

The ::selection pseudo-element matches the portion of an element that is selected by a user.

The following CSS properties can be applied to ::selection: color, background, cursor, and outline.

The following example makes the selected text red on a yellow background:

```
::selection {
  color: red;
  background: yellow;
}
```

CSS Attribute Selectors

The [attribute] selector is used to select elements with a specified attribute.

The following example selects all <a> elements with a target attribute:

```
a[target] {
  background-color: yellow;
}
```

All CSS Attribute Selectors

Selector	Example	Example description
[attribute]	[target]	Selects all elements with a target attribute
[attribute=value]	[target=_blank]	Selects all elements with target="_blank"
[attribute~=value]	[title~=flower]	Selects all elements with a title attribute containing the word "flower"
[attribute|=value]	[lang|=en]	Selects all elements with a lang attribute value starting with "en"
[attribute^=value]	a[href^="https"]	Selects every <a> element whose href attribute value begins with "https"
[attribute$=value]	a[href$=".pdf"]	Selects every <a> element whose href attribute value ends with ".pdf"
[attribute*=value]	a[href*="w3schools"]	Selects every <a> element whose href attribute value contains the substring "w3schools"

Selectors

- CSS selectors cheatsheet / https://appletree.or.kr/quick_reference_cards/CSS/CSS%20selectors%20cheatsheet.pdf / access date 06.02.2021
- https://www.mysterycodesociety.com/assets/images/pdf/CSS_reference.pdf / access date 06.02.2021
- CSS Selector Reference- https://www.w3schools.com/cssref/css_selectors.asp / access date 06.02.2021

The Difference Between div and span Elements

Both <div> and <span> elements are types of containers, but with some different qualities. By default, a <div> element has infinite width (at least to the browser edge), which you can see by applying a border to one, like this:

```
<div style="border:1px solid green;">Hello</div>
```

A <span> element, however, is only as wide as the text it contains. Therefore, the following line of HTML creates a border only around the word Hello, which does not extend to the righthand edge of the browser:

```
<span style="border:1px solid green;">Hello</span>
```

Also, <span> elements follow text or other objects as they wrap around them, and can therefore have complicated borders. For example, I used CSS to make the background of all <div> elements yellow, to make all <span> elements cyan, and to add a border to both, before then creating a few example <span> and <div> sections.

CSS Backgrounds

The CSS background properties are used to add background effects for elements.

In these chapters, you will learn about the following CSS background properties:

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

```
• body {
    background-color: lightblue;
  }

• h1 {
    background-color: green;
  }

  div {
    background-color: lightblue;
  }

  p {
    background-color: yellow;
  }
```

Opacity / Transparency

The opacity property specifies the opacity/transparency of an element. It can take a value from 0.0 - 1.0. The lower value, the more transparent:

```
div {
  background-color: green;
  opacity: 0.3;
}
```

CSS 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.

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

CSS 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.

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

The background image can also be set for specific elements, like the <p> element:

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

CSS Background Repeat

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

If the image is repeated only horizontally (background-repeat: repeat-x;), we need write next code:

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

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

```
background-repeat: no-repeat;
```

CSS background-position

The background-position property is used to specify the position of the background image.

```
body {
  background-image: url(“img_flower.gif");
  background-repeat: no-repeat;
  background-position: right top;
}
```

CSS Background Attachment

The background-attachment property specifies whether the background image should scroll or be fixed (will not scroll with the rest of the page):

```
body {
  background-image: url("img_flower.gif");
  background-repeat: no-repeat;
  background-position: right top;
  margin-right: 200px;
  background-attachment: fixed;
}
```

CSS Borders

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

```
p {
        border: 2px;
        border: medium dashed green;
}
```

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

CSS Margins

Margins are used to create space around elements, outside of any defined borders.

margin: 20px;

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

```
p {
  margin-top: 100px;
  margin-bottom: 100px;
  margin-right: 150px;
  margin-left: 80px;
}
```

Margin - Shorthand Property:

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

CSS Padding

Padding is used to create space around an element's content, inside of any defined borders.

```
div {
  padding: 70px;
  border: 1px solid #4CAF50;
}
```

Individual Sides:

```
div {
  padding-top: 50px;
  padding-right: 30px;
  padding-bottom: 50px;
  padding-left: 80px;
}
```

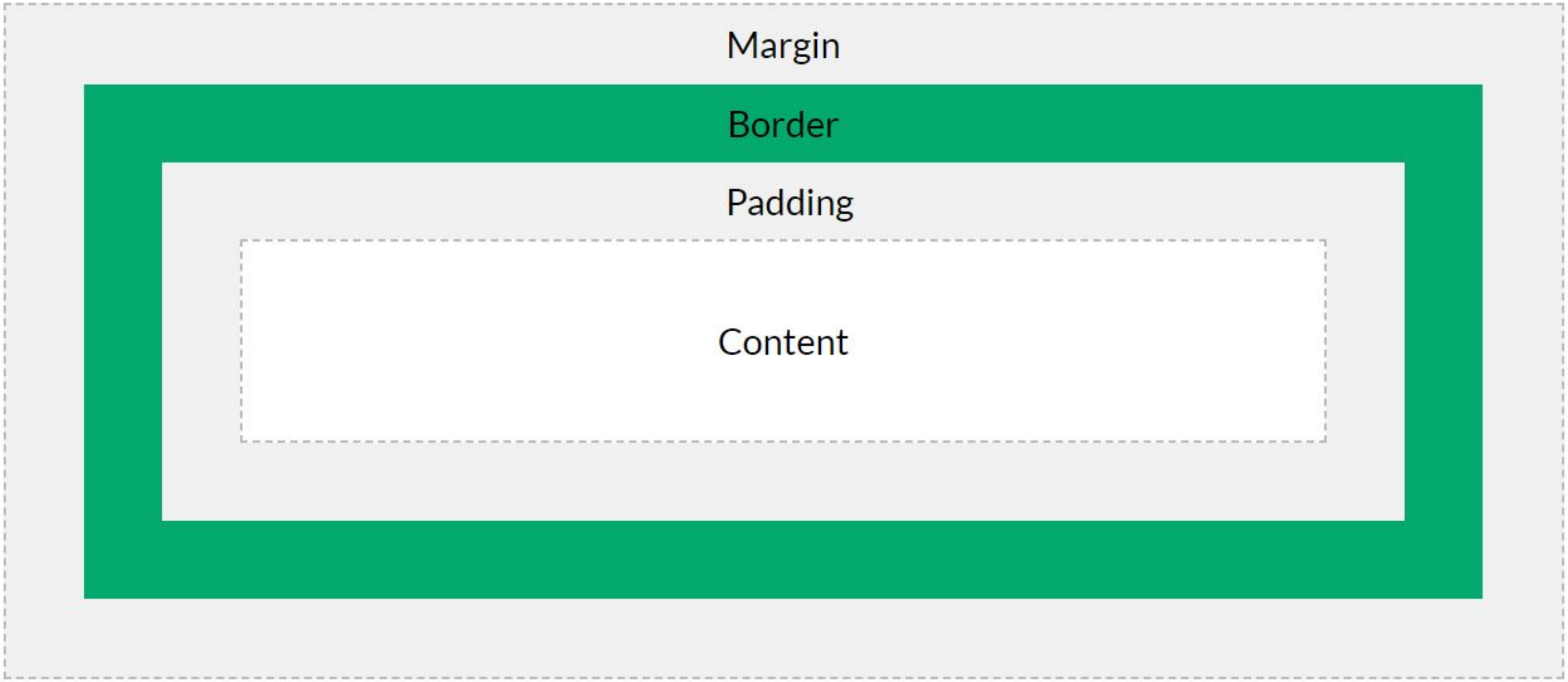
Shorthand Property

```
div {
  padding: 25px 50px 75px 100px;
}
```

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: margins, borders, padding, and the actual content. The image below illustrates the box model:



The display Property

The display property specifies if/how an element is displayed.

Every HTML element has a default display value depending on what type of element it is. The default display value for most elements is block or inline.

Block-level Elements

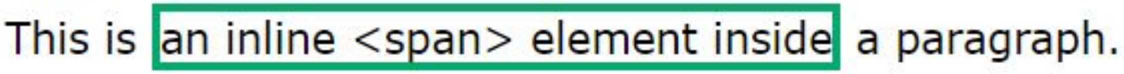
A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).

Examples of block-level elements:

- <div>
- <h1> - <h6>
- <p>
- <form>
- <header>
- <footer>
- <section>

Inline Elements

An inline element does not start on a new line and only takes up as much width as necessary.



This is an inline <span> element inside a paragraph.

Examples of inline elements:

<span>

<a>

<img>

Display: none;

display: none; is commonly used with JavaScript to hide and show elements without deleting and recreating them. Take a look at our last example on this page if you want to know how this can be achieved.

The <script> element uses display: none; as default.

Override The Default Display Value

As mentioned, every element has a default display value. However, you can override this.

Changing an inline element to a block element, or vice versa, can be useful for making the page look a specific way, and still follow the web standards.

A common example is making inline <li> elements for horizontal menus:

```css
li {
  display: inline;
}
```

The following example displays <span> elements as block elements:

```css
span {
  display: block;
}
```

The following example displays <a> elements as block elements:

```css
a {
  display: block;
}
```

Hide an Element - display:none or visibility:hidden?

Hiding an element can be done by setting the display property to none. The element will be hidden, and the page will be displayed as if the element is not there

```css
h1.hidden {
  display: none;
}
```

visibility:hidden; also hides an element.

However, the element will still take up the same space as before. The element will be hidden, but still affect the layout:

```css
h1.hidden {
  visibility: hidden;
}
```

CSS Layout - The float Property

The CSS float property specifies how an element should float.

The float property is used for positioning and formatting content e.g. let an image float left to the text in a container.

The float property can have one of the following values:

- left - The element floats to the left of its container
- right - The element floats to the right of its container
- none - The element does not float (will be displayed just where it occurs in the text). This is default
- inherit - The element inherits the float value of its parent

Thank you for your attention!

References

- Learning PHP, MySQL & JavaScript with jQuery, CSS & HTML5 / Robin Nixon, Published by O’Reilly Media, 2018

- CSS tutorial - https://www.w3schools.com/css/default.asp / access date 06.02.2021

- CSS tutorial - https://www.tutorialspoint.com/css/index.htm / access date 06.02.2021