CSS Basics

Learning Objectives

- having a general understanding about the purpose of CSS
- knowing the meaning behind the name CSS (`Cascading Style Sheets`)
- understanding the fundamentals of CSS: `CSS syntax`, `selectors`, `box model`, `inline & block elements`
- using stylings for fonts
- linking stylesheets to the HTML document

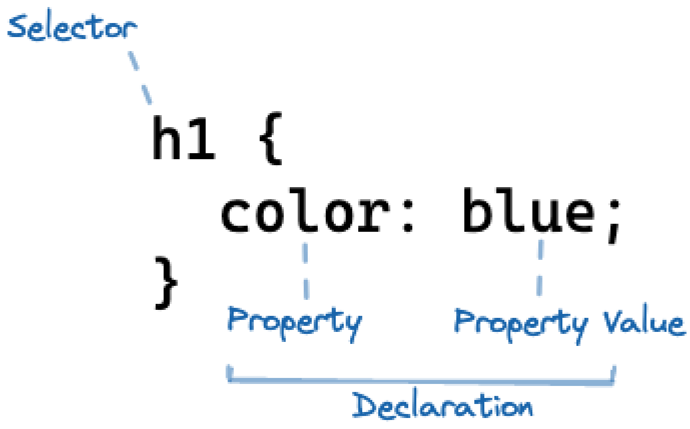
What is CSS?

With CSS you can add styling to your HTML elements.

Comparison of HTML, CSS and JavaScript

CSS syntax

The structure of how to write CSS is also called **ruleset**. It consists of four parts:



```
h1 {
  color: blue;
}
```

Part	Description
Selector	Addresses the element(s) to style
Declaration	Defines what to change and contains pairs of `property` and `property value`
Property	The name of the property to change
Property Value	The value assigned to the property, e.g for the property `color` we use the property value `blue`

A ruleset can have `multiple declarations`:

```
h1 {
  color: blue;
  font-size: 3rem;
  text-align: center;
}
```

You could also select multiple elements and style them with the same ruleset:

```
h1,
h2,
h3 {
  color: red;
}
```

Basic Selectors

There are different CSS selectors you can use to style elements. The most common ones are:

- **Universal selector** `*` selects all elements.
- **Element or Type selector**, like `article`, selects all elements of a specific type.

  ```
  article {
    color: red;
  }
  ```

- **Class selector**, like `.class-name`, selects all elements with the specified class.

  ```
  .my-cool-class {
    color: hotpink;
  }
  ```

  ```
  <aside class="my-cool-class">...</aside>
  ```

> ❗ In theory you could also use element IDs as selectors, but this is bad practice and must be avoided.

CSS Properties

There are a lot of CSS properties and you will discover new ones every day. Therefore the following list shows only a few examples:

Property	**Effect**
`color`	Color of an element´s text
`font-size`	Defines the size of a font
`text-align`	Defines the alignment of text
`background-color`	Background color of an element
`border`	Defines the border of an element.
`padding`	Defines the padding of an element.
`margin`	Defines the margin of an element.
`width`	This property defines the width of an element.

> 💡 You can find more properties in the CSS Properties Reference on MDN.

Box Model

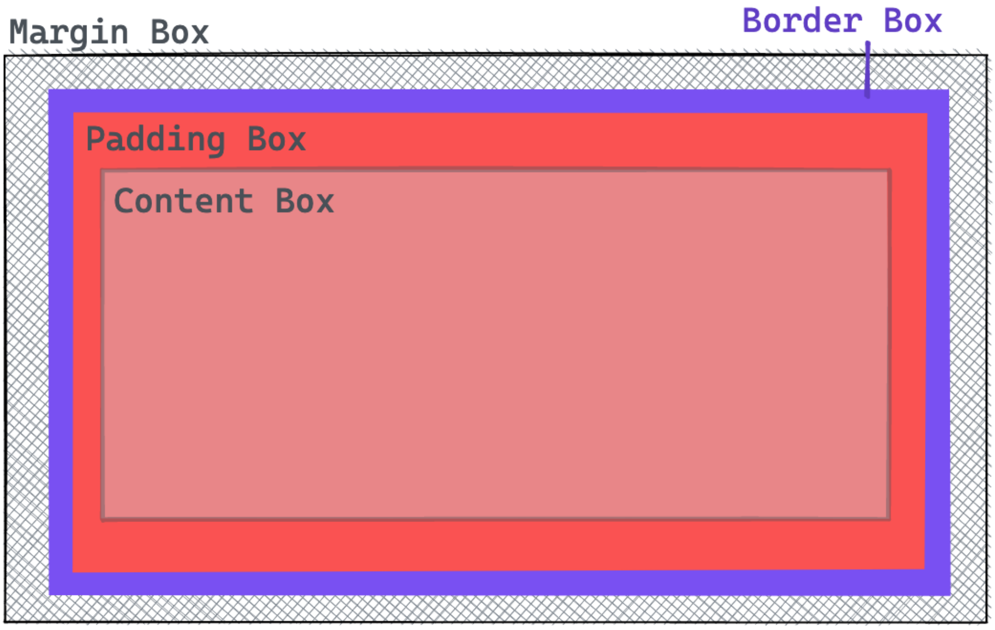
All elements of a website are wrapped in a **box model**. It's a way to define the size and position of an element. There are four different parts: `content`, `padding`, `border` and `margin`.

box model part	**Function**
`content`	The actual content of the element.
`padding`	Space between the content and the border of the element.
`border`	The border of the element.
`margin`	The space around the border and other elements.

The property `box-sizing` changes the way how the `width` and `height` of an element is calculated. The default value is `content-box`. The values of `width` and `height` set the size of the "content box". With the value `border-box`, the size of the "border box" is set instead.

```css
* {
  box-sizing: border-box;
}
```

Now, the `width` property defines the size of the border box, padding and border width are subtracted to calculate the available space for the content.



Inline and block elements

There are basically two types of elements: inline-level and block-level elements.

- **Inline elements** occupy the space as required by the element itself and are placed inside the text lines.
- **Block elements** occupy the full horizontal space of the parent element and begin a new line.

Example:

```html
<!-- "h2" is a block-level element -->
<h2>Coding Bootcamp</h2>
<!-- "p" is a block-level element. The "a" inside is an inline-level
element -->
<p>
  If you want to participate in a bootcamp, visit
  <a href="https://www.neuefische.de">neuefische.de</a>
</p>
```

You can change this behavior by using the CSS `display` property.

Styling fonts

With CSS you can style the fonts of your website in many ways. Here are just some examples:

- `font-family`: Defines the font family of an element
- `font-size`: Size of a font
- `font-weight`: This property defines the weight of a font

You can include custom fonts in different ways:

- download any font and include it as a `font-family`

  ```
  @font-face {
    font-family: "Name of the font";
    src: url("path/to-the/font.woff");
  }
  ```

  You can use the google webfonts helper which will provide you with the fonts file and create the necessary css rules for you.

- the `@import` snippet (see legal notice below)

- the HTML `link` element (see legal notice below)

> ❗ For legal reasons you should choose the option to download the font and include it as a font-family.

Legal Issues using Google Fonts with `@import` and `<link>`

Google Fonts is an open source project where you can find a font. The website provides you with two easy ways to host fonts in your project:

- the `@import` snippet
- the HTML `link` element

If you use one of these two ways, your website requests the font from the Google Server as soon as the website loads. To do so, the Google server needs to know the user's IP address.

The IP address, however, is considered personally identifiable data and in January 2022, a German court has declared that Google Fonts is not GDPR-compliant (DSGVO).

And that's the point: the website has communicated with an (external) Google server without asking the user's permission (i.e. before the user agreed that the website uses cookies).

This is why using Google Fonts with `@import` or the HTML `link` element, every user can sue you for violating their personal data.

> 💡 In the future (towards your capstone project) we're going to use a web framework called Next.js. It provides an easy way to integrate downloaded Google Fonts automatically without getting into legal trouble. Please wait a few more weeks as we can't use that right now. We'll get there though. 🤞

Linking Stylesheets

To separate your HTML and CSS code, you can create a new file, like **styles.css** and link it to your HTML file by placing a `<link>` tag in the `<head>` of your HTML document.

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

Resources

- Common CSS Properties
- MDN: CSS - First Steps
- Styling text
- CSS Tricks: Box-sizing
- Josh Comeau: Surprising truth about pixels and accessibility
- rem/px calculator
- Legal Issues using Google Fonts