

Front-End Development

Lab 2 – CSS Introduction

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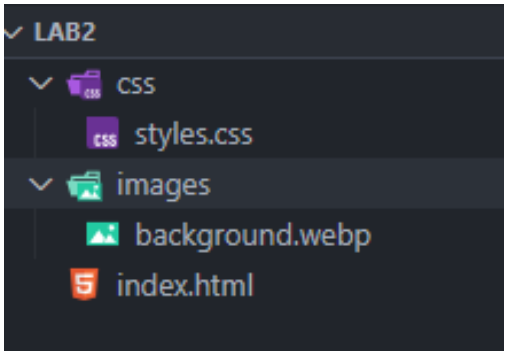
2 introduction

Documentation	Learning materials on Toledo: slides and code examples
Purpose	In this lab, we take the first steps into the world of CSS (Cascading Style Sheets). We learn how to change the visual presentation of an HTML document. We start with a "bare" HTML document and give it our own look and feel step by step.
Learning Goals	At the end of this lab you will be able to: • Explain the role of CSS. • Attach CSS to an HTML document in three different ways (inline, embedded, external). • Use basic selectors to select specific HTML elements (type, class, ID, descendent). • Explaining the concept of "cascade". • Set colors for text and backgrounds via HEX and RGB. • Set a background image. • Apply the basics of text formatting (font, size, shadow)

3 Setting up structure

1. Create a project folder for this lab, for example `labo2/`.
2. Download and unzip the startcode from Toledo in this folder.
3. Open `labo2/` in vscode

Your folder structure looks like this:



Use the Live Server extension in VS Code, which you already installed in lab 1, to open `index.html` in your browser. You will see a very simple, unstyled web page. With every change to your CSS file, the page will automatically refresh.

4 Linking CSS to HTML

There are three ways to apply CSS rules to an HTML document. We go over them from the least to the most recommended method.

4.1 Inline CSS

Inline CSS is applied directly to an HTML element via the `style` attribute, which can be useful for a quick test.

Open `index.html` and give the <h1> tag named "John Doe" a red text color using inline CSS.

```
<h1 style="color: red;">John Doe</h1>
```

View the page in the browser. You'll notice that the title is now red.



Why isn't it a good idea to do all your styling this way, especially in a big project?

Now, remove the inline style you just added before continuing.

4.2 Embedded CSS

Embedded (or internal) CSS is placed in a `<style>` tag within the `<head>` of your HTML document. These styles then apply to this entire page.

Add a `<style>` block in the `<head>` of `index.html` and make the `<h2>` headings blue.

```
<head>
  ...
  <style>
    h2 {
      color: blue;
    }
   </style>
</head>
```

View the page in the browser. All `<h2>` heads are now blue. This is already better because you separate the formatting from the structure, but the CSS is still limited to this one HTML file. Remove the entire `<style>` block before moving on to the next step.

4.3 External CSS

The most used and best method is to use an external stylesheet. This is a separate `.css` file that you can link to multiple HTML pages. This will keep your code organized and easy to maintain.

Link your `styles.css` file to index.html by adding the following `<link>` tag in the `<head>`.

```
<head>
  ...
  <title>CV of John Doe</title>
  <link rel="stylesheet" href="css/styles.css">
</head>
```



What exactly is the href attribute doing here? Why is the css/styles.css path correct?

To test if the link works, add the following line to your (currently empty) styles.css file:

```
body {
  background-color: #f0f0f0;
}
```



The value of background-color in this example is a hexadecimal value. We will come back to this later.

If the background of your page is now light gray, you have linked your css to html successfully!



Why do you think using external stylesheets is the best method to add CSS to HTML?

5 Basic Selectors and Cascade

Now that your CSS file is linked, we can start selecting and styling elements.

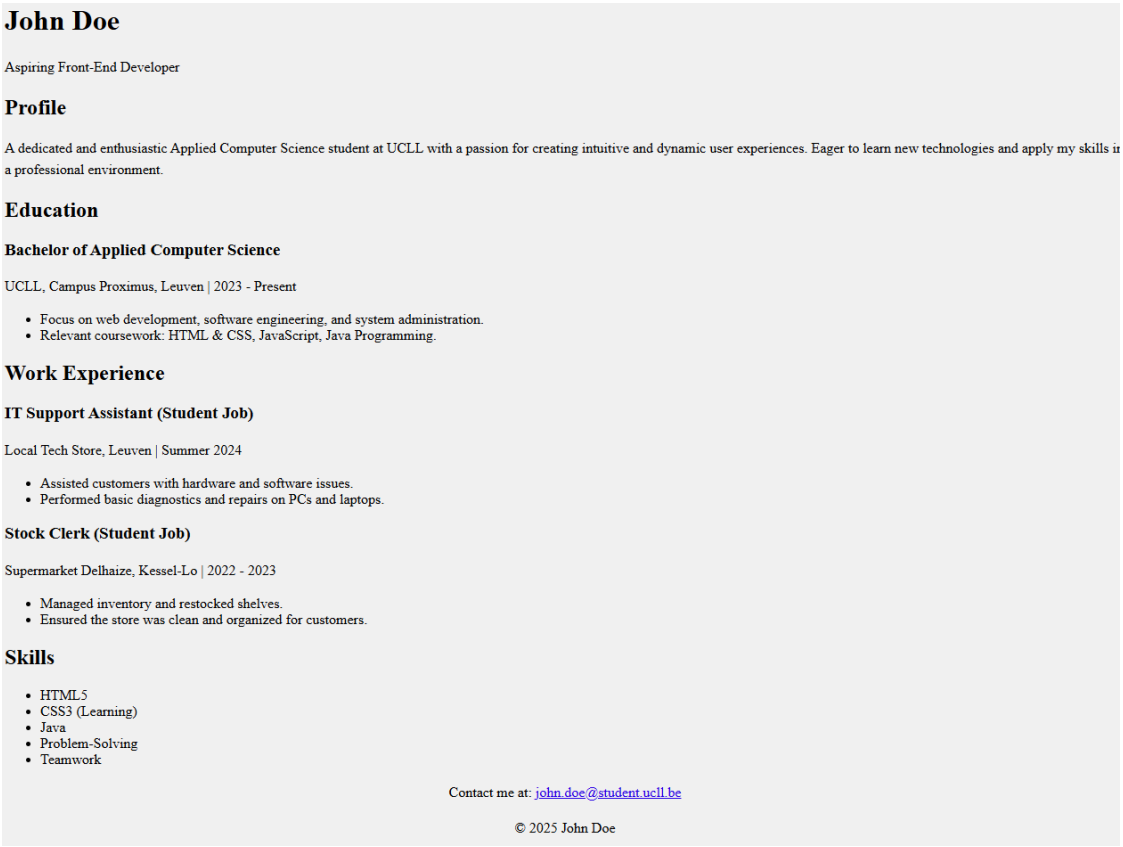
5.1 Type selectors

A type selector selects all HTML elements of a given type (e.g. all `<p>`, all `<h1>`, etc.).

Use type selectors to apply the following styles:

- Increase the spacing between the lines of text in paragraphs (`<p>`) to make text more readable. 1.5 is a good value.
- Make sure the `<footer>` is centered.
- Use the documentation on (https://developer.mozilla.org/en-US/docs/Web/CSS/line-height and https://developer.mozilla.org/en-US/docs/Web/CSS/text-align)

Your result should now look like the screenshot below:



John Doe

Aspiring Front-End Developer

Profile

A dedicated and enthusiastic Applied Computer Science student at UCLL with a passion for creating intuitive and dynamic user experiences. Eager to learn new technologies and apply my skills in a professional environment.

Education

Bachelor of Applied Computer Science

UCLL, Campus Proximus, Leuven | 2023 - Present

- Focus on web development, software engineering, and system administration.
- Relevant coursework: HTML & CSS, JavaScript, Java Programming.

Work Experience

IT Support Assistant (Student Job)

Local Tech Store, Leuven | Summer 2024

- Assisted customers with hardware and software issues.
- Performed basic diagnostics and repairs on PCs and laptops.

Stock Clerk (Student Job)

Supermarket Delhaize, Kessel-Lo | 2022 - 2023

- Managed inventory and restocked shelves.
- Ensured the store was clean and organized for customers.

Skills

- HTML5
- CSS3 (Learning)
- Java
- Problem-Solving
- Teamwork

Contact me at: john.doe@student.ucll.be

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5.2 Class selectors

A class selector selects all elements with a specific `class` attribute. Classes are reusable and an element can have multiple classes. The selector starts with a dot (.)

In the `index.html` you can see that the job titles have the class `job-title` . Make the job titles italic.

```
.job-title {
  font-style: italic;
}
```



It is best to make sure not to use class selectors too much. Why do you think?



In what situation could you use a class selector in relation to a type of selector?

5.3 ID selectors

An ID selector selects one unique element with a specific `ID` attribute. An ID must be unique on the page. The selector starts with a pound sign (`#`).

In `index.html`, add an `ID` to a `<h2>` tag, for example, `skills-title`.

```
<h2 id="skills-title">Skills</h2>
```

In `styles.css, use` the ID selector to change the `color of the <h2>`.

```
#skills-title {
  Color: #1c2c63;
}
```

Note that now only the skills title has changed.



IDs are often used for important, unique "landmarks" on a page, but for styling, for the sake of reusability and maintainability, we prefer type selectors and classes. So use IDs sparingly.

5.4 Cascade

The "C" in CSS stands for "Cascading". This means that styles from different sources "flow down". A child element inherits the styles from its parent, as it were, if there are no specific rules on the child element for a certain style.

In `styles.css`, select the profile class and add the following line:

```
.profile {
  color: #324174;
}
```



What color are the child elements (`<h1>` and `<p>`) of the section with class profile now?

If we now want to give only the paragraph (`<p>`) within a `.profile` section a larger font, we can use the "descendent selector". Add the CSS below, which only selects the `<p>` who is a child of a `section` with class `profile`:

```
.profile p {
  font-size: 18px;
}
```



The "cascade" effect in stylesheet can sometimes cause conflicts: multiple candidates under the style rules that can be applied to the same element. The browser then decides which rule to apply. We will come back to this in a subsequent lab when it comes to "specificity".

6 Colors & backgrounds

Colors in CSS can be defined in several ways:

- Keywords: red, blue.
- HEX: #RRGGBB, e.g. #FF0000 is red. #333 is a shortened notation for #333333.
- RGB: rgb(R, G, B), e.g. RGB(255, 0, 0) is red.



Do you remember why assigning colors based on keywords is best avoided?

6.1 Foreground and background color

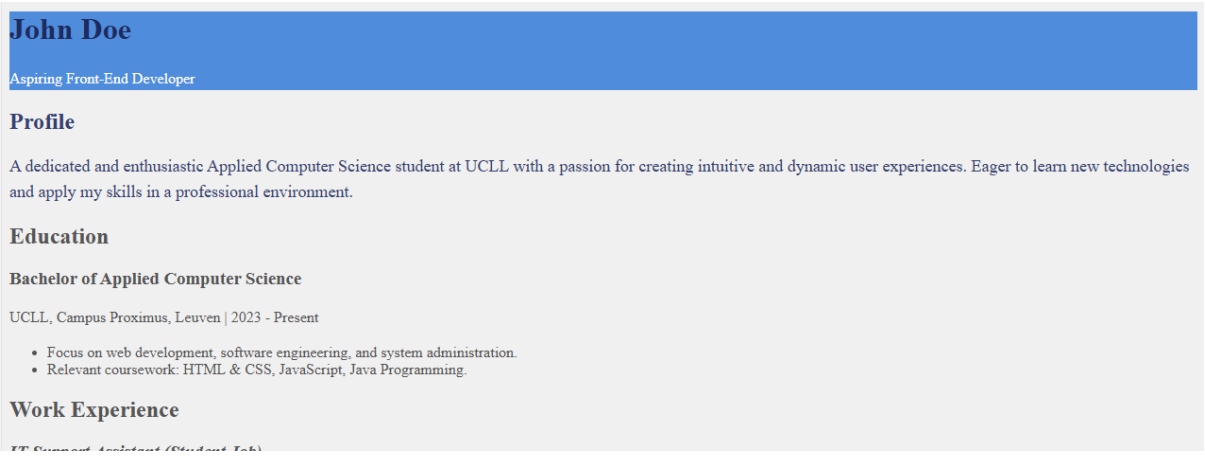
The `color` property sets the text color, and `background-color` sets the background color.

Give all text on the page a softer shade of gray as the color. The most efficient way to do this is to define this on `<body>` (cf. Cascade effect).

```
body {
  …
  color: #555;
}
```

Note the text color that we defined earlier on the text within the profile section will be preserved.

Assignment: now give the `<header>` a blue background color (`#4A90E2`). To keep the text readable, it is best to change the text color in header to white (`#fff`). Your result should look like this:



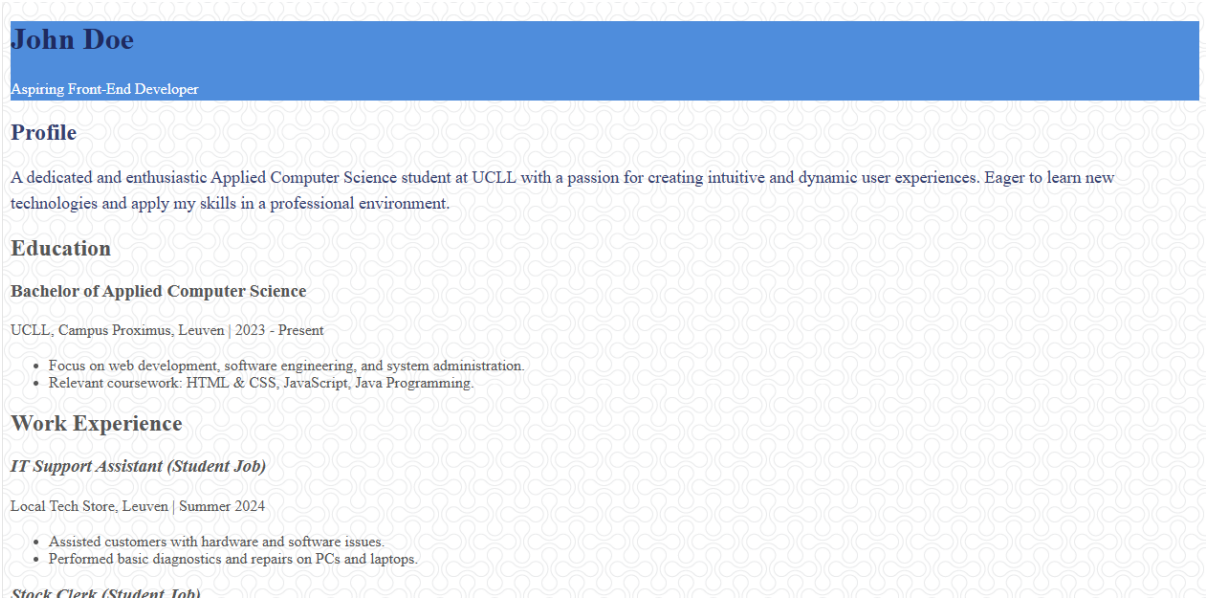
6.2 Background images

In addition to color, you can also set an image as a background with `background-image`. Using this property, you can repeat a certain image in the background so that all available space is filled. This allows you to set a subtle pattern in the background.

We have already provided a background image for you in the images folder. Add `a background image to body again :`

```
body {
…
background-image: url('.. /images/background.webp');
}
```

You now get this subtle effect in the background:



This is just the tip of the iceberg of possibilities with background images. Be sure to take a look at:

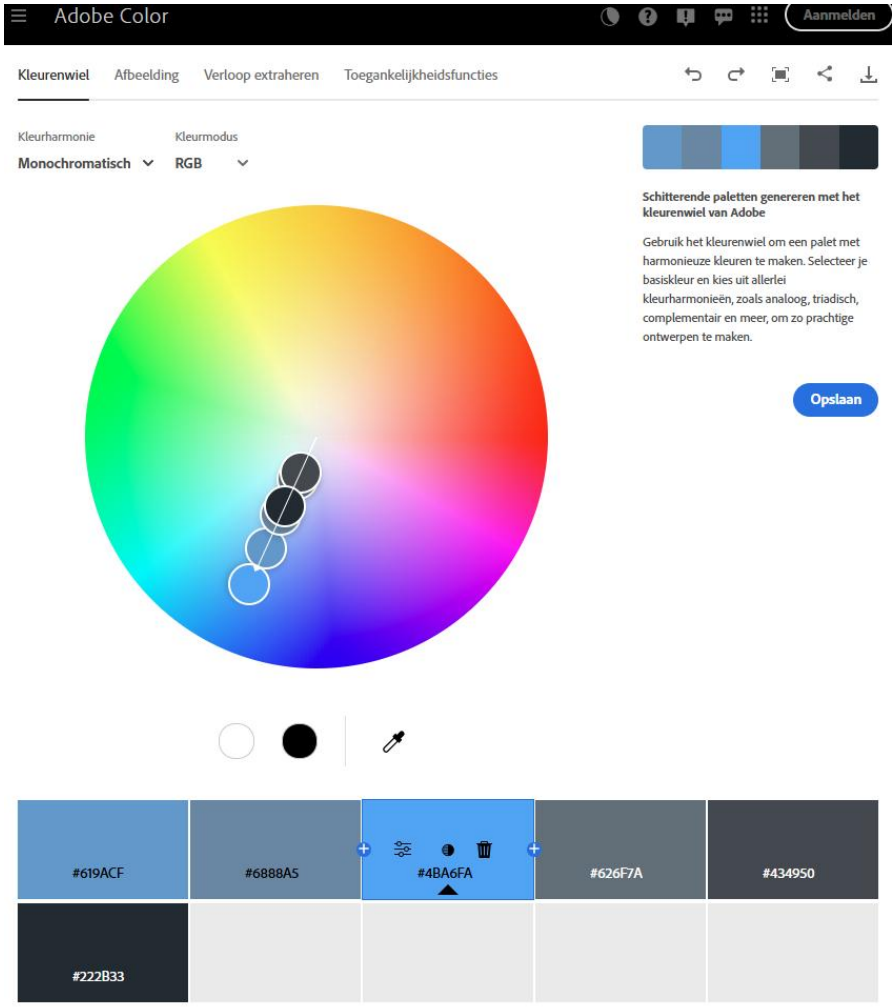
- https://developer.mozilla.org/en-US/docs/Web/CSS/background
- https://developer.mozilla.org/en-US/docs/Web/CSS/background-image

Experiment a bit!

6.3 Choosing a color palette

A good website uses a consistent color palette, but it's not easy for everyone to make good choices. Tools like Adobe Color can help you choose colors that go well together.

Assignment: Choose a color palette on Adobe Color and apply the different colors to the different elements of your website. Try to achieve a consistent whole.



7 Formatting text

With `font-family`, you choose a font. `font-size` determines the size and `font-weight` the thickness (e.g. `bold`).

Let's give the `<h1>`, `<h2>` and `<h3>` headings a different, more decorative font. Add `font-family: 'Georgia', serif;` to these elements. You can group them with a comma.

```
h1, h2, h3 {
  font-family: 'Georgia', serif;
}
```



Why do we define a "family" of fonts (`font-family`) and not just 1 `font`?

Increase the `<h1>` to `2.5em` and the `<h2>` to `1.8em`.

```
h1 {
  font-size: 2.5em;
}
h2 {
  font-size: 1.8em;
}
```



`EM` is a relative unit. `2.5em` means "2.5 times the current font size of the parent element".

7.1 Text shadow

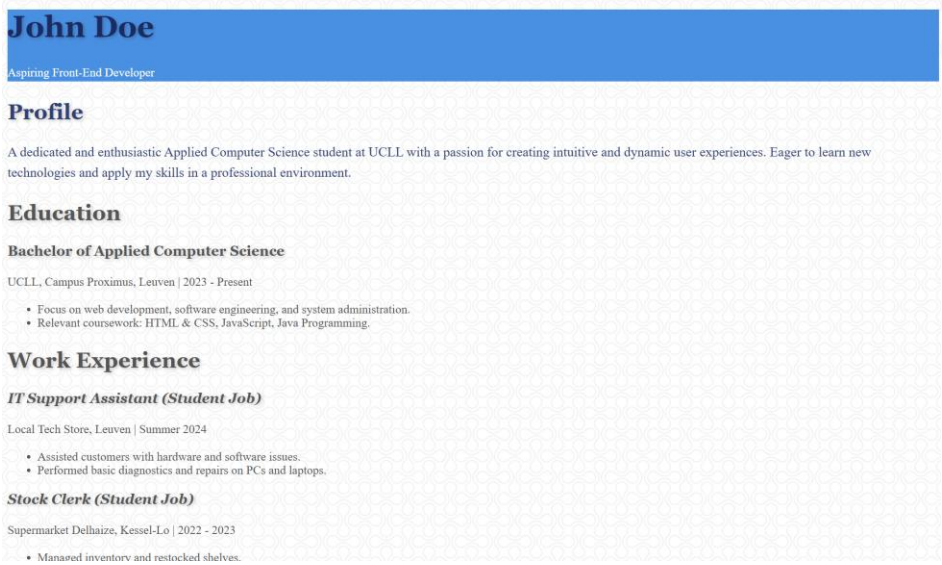
With `text-shadow` you can add a shadow to text, which can give a depth effect. The syntax is: text-shadow: [x-offset] [y-offset] [blur-radius] [color];

```
h1, h2, h3 {
  text-shadow: 2px 2px 4px rgba(0, 0, 0, 0.2);
}
```

This creates a shadow that is shifted 2px to the right and 2px to the bottom, with a 4px blur and a black color that is 20% opaque.

8 Next steps

Meanwhile, your end result should look something like this:



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Stock Clerk (Student Job)

Supermarket Delhaize, Kessel-Lo | 2022 - 2023

- Managed inventory and restocked shelves.

Continue experimenting with the properties you've learned.

- Try the `border` property on the `<section>` elements.
- Give the `<ul>` in the skills section a different `list-style-type`.
- …

9 Submitting the ZIP-file

- Rename the main directory "lab2" as "lastname_firstname_lab2"e.g. "Doe_John_lab2"
- Via windows explorer (or finder on mac) compress the folder to a zip file.
- No .gzip, .7zip or .rar!
- You should now have a zip file name_firstname_lab2.zip
- You upload this file to the Toledo assignment

10 Reflection

What did you find most difficult in this lab? Which concepts are not yet entirely clear?

Now that you know the basics of CSS, what parts of a website would you like to tackle first to improve the look and feel?