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Exercise 4 - CSS, part I

Intro

In next few exercises we will learn all the beauty of CSS and how we can make our pages awesome and hot with a few simple lines of CSS code.
In this exercise, along with CSS basics, we will learn to stylize texts.

CSS

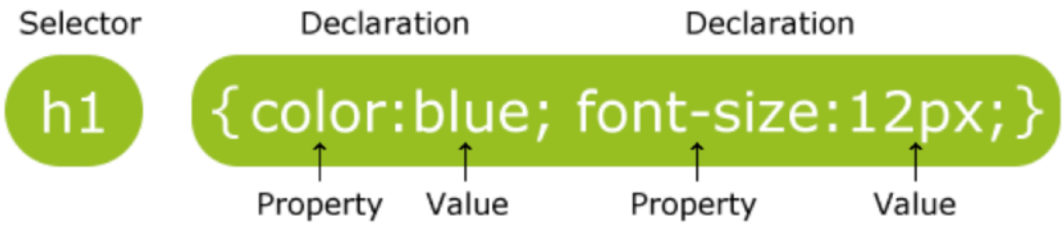
CSS (Cascading Style Sheets) is a style sheet language used for describing the presentation of a document written in a markup language. Current CSS version is 3.0.

We talked all about how we have 3 important parts of every web page:

- Structure and content of the document — inside HTML files
- Page design — styles and layout of the page elements in CSS files
- Site behavior — scripts inside Javascript files

And now it is time to get familiar with CSS language! (Ta-dah!)

A **CSS rule-set** consists of a **selector and a declaration block**, like this:



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**.

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Selectors

CSS file consists of one or many element **selectors.** By definition, **selectors** are patterns used to select the element(s) you want to style. Simply said, selectors are a way to "tell" the browser what part of the page we are stylizing.

There are many types of selectors, which can be very complex, but we will start with these 3 basic selector types:

- Type or element selector
- ID selector
- Class selector

Even though we won't learn any advanced selectors in this class, don't be mistaken — every existing page can be done using these basic types of selectors.

Type or element selector

Type or element selector is used when we wish to apply a style to all HTML elements of same name on the page.

To select all elements of same type, write an **element name,** followed by a pair of **curly braces {}.**

This is how we can change text color for all paragraph (<p>) elements black:

```
p {
     color: #000;
}
```

```
<p>I am a text, paint me black</p>
<p>Hey, I wanna be black too!</p>
```

ID selector

The **id selector** uses the id global 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**.

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Here is an example of ID selector in action:

```
#redify {
     color: red;
}
```

```
<p id="redify">Me me mememe,
just meeee! RED!</p>
```

Class selector

The **class selector** selects elements with a specific class attribute. Class is another global attribute we can define on every HTML element.

To select elements with a specific class, write a **period (.) character,** followed by the **name of the class**.

More that one element can contain same class, and every element can contain more than one class (we separate them with space inside class attribute).

Here is an example:

```
.blackify {
     color: #000;
}
.centrify {
     text-align: center;
}
```

```
<p class="blackify">I am a
text, paint me black</p>

<p class="blackify centrify">
Hey, I wanna be black too!
And centered!</p>
```

Where can I write CSS code?

Maybe you are thinking now, "*ok this is all cool, but where can I write this css code??*"

Here is where! (Ta-dah!)

There are three ways of inserting a style sheet:

- Inline style
- Internal style sheet
- External style sheet

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Inline Styles

An inline style may be used to apply a unique style for a single element.

To use inline styles, **add the style attribute to the relevant element** inside HTML document. The style attribute can contain any CSS property.

```
<p style="color: #000;">I am black and I know it!</p>
```

Notice that this way of writing CSS does not require writing CSS selectors, as styles are defined on the exact element we wish to stylize.

An inline style loses many of the advantages of a style sheet (by mixing content with presentation). **Try to avoid using this method completely!**

Internal Style Sheet

An internal style sheet may be used if one single page has a unique style.

Internal styles are defined within the **<style> element, inside the <head> section of an HTML page**:

```
<head>
     <style>
          .blackify {
               color: #000;
          }
     </style>
</head>
```

This approach is not as bad as inline styles when we talk about separation of concerns (SoC), but also try avoiding this approach as styles are defined inside same document as page structure.

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External style sheet

CSS, similar to HTML files, is a normal text document, but will extension **.css**. Also, like HTML files, we can create and edit it with any text editor on our device (for example, we will use Notepad++ in lab, as it will color the code syntax and make learning the language easier).

With an external style sheet, you can change the look of an entire website by changing just one file!

Each HTML page must include a reference to the external style sheet file inside the <link> element. The **<link> element goes inside the <head> section**:

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

Notice that href attribute contains a **file path** to a CSS file!

CSS text

Now to the fun part! Let's learn what we can do with texts with CSS.

Text color

The **color** property is used to set the color of the text.

The color is specified in one of these ways:

- a color name — like "red"
- a HEX value — like "#ff0000"
- an RGB value — like "rgb(255,0,0)"

Any of these declarations change text color of all paragraph elements to red:

```
p {
     color: red;
     color: #ff0000;
     color: rgb(255,0,0);
}
```

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When setting same CSS property multiple times on one element, only last one will be used!

Text **horizontal alignment**

The **text-align** property is used to set the horizontal alignment of a text.

A text can be left or **right aligned, centered,** or **justified.**

```
p {
     text-align: left;
     text-align: right;
     text-align: center;
     text-align: justify;
}
```

When the text-align property is set to "justify", each line is stretched so that every line has equal width, and the left and right margins are straight (like in magazines and newspapers).

Text **decoration**

The **text-decoration** property is used to set or remove decorations from text.

```
p {
     text-decoration: underline;
     text-decoration: line-through;
     text-decoration: overline;
     text-decoration: none;
}
```

The value **text-decoration: none;** is often used to remove underlines from links.

Text **transformation**

The **text-transform** property is used to specify uppercase and lowercase letters in a text. It can be used to turn everything into uppercase or lowercase letters, or capitalize the first letter of each word:

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```
p {
     text-transform: uppercase;
     text-transform: lowercase;
     text-transform: capitalize;
     text-transform: none;
}
```

Font **family**

The font family of a text is set with the **font-family** property.

If the name of a font family is more than one word, it must be in quotation marks, like: "Times New Roman".

```
p {
     font-family: Helvetica, Arial, san-serif;
     font-family: "Times New Roman", Times, serif;
}
```

There is a list of web safe fonts you are guaranteed to work on every device and browser: https://www.w3schools.com/cssref/css_websafe_fonts.asp

Another great source of less common fonts are Google Fonts: https://fonts.google.com/

Font **size**

The **font-style** sets the size of the text. There is a few measuring unit we can use to specify font-size value, but we will use pixels (px).

```
p {
     font-size: 20px;
}
```

Notice how there is **no space** between number and px when writing a value in pixels.

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Font **style**

The **font-style** property is used to specify italic text.

```
p {
      font-style: italic;
      font-style: normal;
}
```

Font **weight**

The **font-weight** property is used to specify bold text.

```
p {
      font-weight: bold;
      font-weight: normal;
}
```

Ta-dah! Now we know everything about how to stylize texts in CSS!

But before going to the exercise, we need to learn about box model.

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.

Element's box consists of:

- **Content** - The content of the box, where text and images appear
- **Padding** - Area around the content, between content and border.
- **Border** - A border that goes around the padding and content.
- **Margin** - Area outside the border, between border and other elements.

The image below illustrates the box model:

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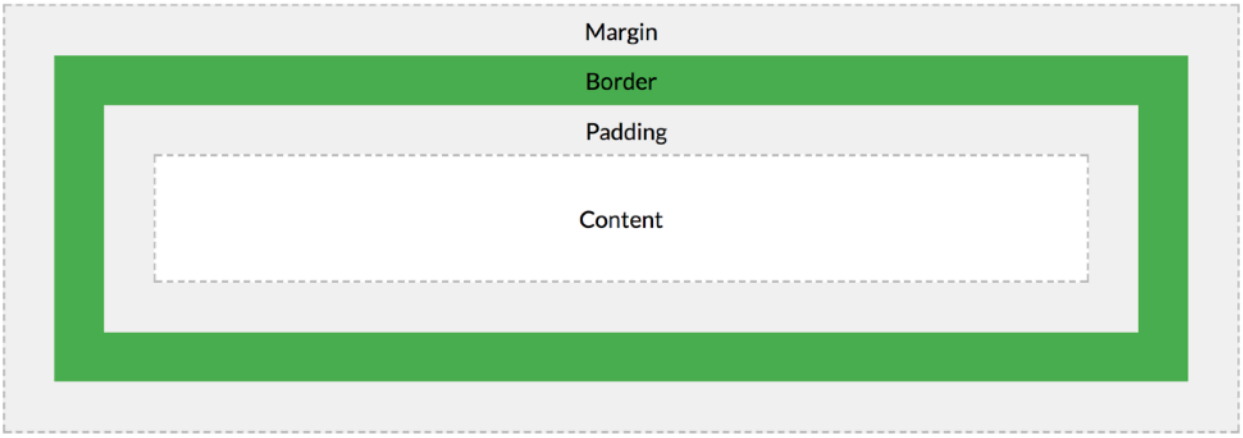

With CSS properties we can control padding, margins and borders.
To change **padding** values, we can set CSS property for each side of the box, like so:

```
.box {
    padding-top: 5px;
    padding-right: 15px;
    padding-bottom: 25px;
    padding-left: 35px;
}
```

Or, we can also write a short-hand property, which combines all these 4 properties in one:

```
.box {
    padding: 5px 15px 25px 35px;
}
```

If all four padding values are the same, we can also use this format:

```
.box {
    padding: 25px;
}
```

The same way, we can define box **margins.**

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```
.box {
    /* defines margin for each box side */
    margin-top: 5px;
    margin-right: 15px;
    margin-bottom: 25px;
    margin-left: 35px;

    /* defines all four margins in one declaration */
    margin: 5px 15px 25px 35px;

    /* in case all margins are the same value */
    margin: 25px;
}
```

Exercise

(1) Let's start by creating a blank HTML document. Create a folder name **Exercise4.** You can create it on desktop, or your personal network folder.

(2) Inside Exercise4 folder create a new text file **index.html**
If using Windows, make sure file extensions are not hidden and that document contains proper extension.
If extension is correct, when the file is double-clicked it will be opened in a web browser.

(3) Open index.html file with a **text editor** (for example: Choose to edit in Notepad++)
Basic editors can be used also, like Notepad, but more advance editors provide syntax auto-complete and coloring which makes writing HTML documents easier and more user-friendly.

(4) When inside text editor, copy **basic HTML document skeleton** into index.html file:

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```
<!DOCTYPE html>
<html>
      <head>
            <meta charset="utf-8">
            <title>Exercise IV</title>
      </head>
      <body>

      </body>
</html>
```

After each step, preview the changes by opening index.html file in web browser (or refresh the browser window with opened index.html).

(6) Inside Exercise4 folder create a new text file **styles.css**
If using Windows, make sure file extensions are not hidden and that document contains proper extension.

(5) Open styles.css file with a **text editor** (for example: Choose to edit in Notepad++).

(6) Too learn about css selectors first we need to add some elements to our page. Inside **index.html** add following code to the <body> element:

```
<h1>I want to be pink!</h1>
<h1>Me too!</h1>
<h2>Me three!</h2>
```

Text's wish is our command, let's make it **pink**!

(7) But first, we will learn about how to add CSS style inline on the element itself.
As we know by now, this is not a good way to use CSS because of SoC (Separation of Concerns), so beside from unlucky step number 7, we won't use this way of writing CSS properties anywhere else in the exercise.
To add declaration to the element itself, CSS declaration must be defined inside style attribute on the element. Style is another global attribute that can be defined on every HTML element.
Copy following code inside <body> element inside index.html file:

```
<div style="color: pink">I am a bad bad baby pink!</div>
```

(8) Now that we got this out of a way, let's learn a better way to apply CSS properties.
Inside i**ndex.html** add <style> element to the <head> element. Inside <style> element we can add CSS code - CSS selectors with CSS declaration blocks.

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Let's make an element selector that will paint all <h1> headers pink.

```
<style>
     h1 {
          color: #dc0eef;
     }
</style>
```

Notice how for element or type selector we write element name, followed by curly brackets which contains one of more CSS declarations (which represent style changes).

(9) For the purpose of making last title pink, we can make a class selector. And to make it more interesting let's place it inside external CSS file. We will use different shade of pink to make it visible.
First, we need to define a class attribute on the element we wish to stylize. Define class attribute on the <h2> element, and let's name the class pink.

```
<h2 class="pink">Me three!</h2>
```

(10) Then add following code to **style.css** file.

```
.pink {
     color: #d575dd;
}
```

Notice how we create class selector by writing a dot, followed by class name, and a set of curly brackets which contains CSS declarations.

(11) Oh no, CSS, why though not working??
Everything is under control, we just did not include our CSS file to the HTML document. Without it, the web page is not aware of the existence of our CSS file.
Add following line inside <head> element in index.html file:

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

Notice that href attribute contains a relative path and name of our CSS file — as index.html and styles.css and in the same folder, we just need to write file name.

Amazing, everything is working now!

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(12) Last css selector we will learn is the ID selector. To create an ID selector, first we need an element with id attribute defined.
Let's create a hyperlink, add an id attrbiute to it, and paint it green (you thought I would say pink, didn't you). Inside **index.html** add following code:

```
<a href="https://google.com" id="green-link">Google</a>
```

Inside **style.css** paint it green using ID selector.

```
#green-link {
    color: green;
}
```

Enough with all the colors, I think we all know how to color text by now.

(13) To change horizontal alignment of text inside element's box, we need to use **text-align** CSS property.
Let's make first title aligned left, second center and third right. By default, text alignment is set to left, so we only need to set other two. Add following classes to **styles.css** file:

```
.center {
    text-align: center;
}

.right {
    text-align: right;
}
```

(14) Now let's apply corresponding classed to the two headers we want to align:

```
<h1 class="center">Me too!</h1>
<h2 class="pink right">Me three!</h2>
```

Notice that we can apply more than one class to same element. We separate classed with space symbol.

(15) Time to manipulate with fonts. Add a few <p> elements to the page:

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```
    <p>
        Pink it's my new obsession<br>
        Pink it's not even a question<br>
        Pink on the lips of your lover, <br>
        'Cause pink is the love you discover
    </p>
    <p>
        Pink it was love at first sight, <br>
        Yeah, pink when I turn out the light, <br>
        And pink gets me high as a kite<br>
        And I think everything is going to be all right<br>
        No matter what we do tonight
    </p>
```

And you saw this coming. :)

(16) Next we will change font and size of the paragraphs with lyrics, because bigger is always better. As we need to change these values for all paragraph elements on the page, we will use element selector.
Add following code to **styles.css** file:

```
p {
    font-family: Helvetica, Arial, san-serif;
    font-size: 25px;
}
```

(17) Now let's make first paragraph bold, and second italic. We will add two classes to the css file, one for each change:

```
.bold {
    font-weight: bold;
}
.italic {
    font-style: italic;
}
```

(18) Now we need to define class attributes on each paragraph to pick up correct styles. Change the <p> elements, so that first one had bold class, and second italic class.

(19) Now let's make all of lyrics be in uppercase to emphasize even more our love for pink! Add this property to existing element selector for all <p> elements:

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```
text-transform: uppercase;
```

(20) Not enough love, we must show more love (and learn about paddings and margins along the way)! Let's color all lyrics elements' background to pink!

```
background-color: #dc0eef;
```

Out element selector for <p> elements should look like this now:

```
p {
    font-family: Helvetica, Arial, san-serif;
    font-size: 25px;
    text-transform: uppercase;
    background-color: #dc0eef;
}
```

Notice how pink background stretches from edge of browser to other edge of browser — everything that is pink is the element's box, and it finishes with the border. <p> element is a block element, which means it will always force itself into newline and occupy full width of the parent container (in our case that is <body>, which means full web browser window).

(21) Now let's see how **padding** works. **Padding** changes the space between content and element's border. Inside same selector define padding like this:

```
padding: 25px;
```

Notice how pink space is larger now, by same amount on each side of the content.

(22) If we change last row to this one, you will notice that pink space is bigger only on top:

```
padding-top: 25px;
```

We can define a value for each side of the box — **padding-left, padding-right, padding-top** and **padding-bottom**. We can combine all four of those properties in one property **padding**.

(23) Now let's see how **margin** work. **Margin** changes the space between border of the element and other elements. Define margin inside p selector:

```
margin: 35px;
```

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Notice that white space is now bigger between two paragraphs, but also between edge of browser (its parent element in our case) and pink space (the element).
Margins work the same way as paddings, we can define a value for each side of the box — **margin-left, margin-right, margin-top** and **margin-bottom**. We can combine all four of those properties in one property **margin**.