

{ POWER.CODERS }

Powercoders Workshop

Introduction into Programming

WHAT WILL WE DO TODAY?

- We will install a text editor.
- Learn something about Web Development.
- Create our first Website.
- Change an existing Website.

TEXT EDITOR

A text editor is a program that has additional features that allow for nicer programming. This includes syntax highlighting, syntax check, text completion and so on. There are a lot of text editors. We will use VSCode. You can find it here: bit.ly/32M4xLK

(Or google vscode)•

WEB DEVELOPMENT



Web Development has two parts:

- **Frontend:** How the Website looks and behaves.
- **Backend:** How to save, process and deliver data.

We will not do any Backend today.

FRONTEND

In Frontend Development there are three parts you need to master.

- HTML: Defines the content
- CSS: Styles the content
- Javascript: Interactivity of the content

You can think of it like a body; HTML is the skeleton; CSS the skin and hair; JS are the muscles.

HTML



HTML is not a programming language but a **Markup** Language. In a Markup Language you can define the different elements with tags. This way our browser can differentiate between text and other elements.

HTML

```
<h2>HTML</h2>
```

As you can see you need an opening tag then you define the content and then the closing tag.

```
<a href="www.duck.com">DuckDuckGo</a>
```

We can define additional information in the opening tag. In this case we defined where a hyperlink should point to.

CSS



CSS is short for Cascading Style Sheet. With CSS you can style every element as you wish. Most essential you can change size, color and position of elements.

CSS

Here you see a css example:

```
p {  
  font-size: 1.9 rem;  
  color: red;  
}
```

There are two parts to this. Before the brackets we declare which elements should be themed. In this case all p elements are themed. In side the brackets we specify the theming.

CREATE YOUR WEBSITE

A short, thick red horizontal line positioned under the first few letters of the main heading.

Open the text editor.

BIGGER PROJECTS



You created your first website, **Congratulations!**

We prepared a website for you to experiment with. You find it here: bit.ly/2N9P55q

On there you also find this presentation.

STRUCTURE

As you can see we have our html file and then we have additional folders. It is recommended to separate the three parts of your code to keep the overview.

With these lines in the HTML file we link them all together.

```
<link rel="stylesheet" href="css/powercoders.css">  
...  
<script src="js/scripts.js"></script>
```

HTML STRUCTURE



The HTML file also has a structure. First you find the header. In the header you find information about the website, you also find stylesheets. After the header there is the body, there we define the elements.

JAVASCRIPT



Javascript is a high-level programming language. You can do anything with Javascript. Javascript is built to interact with the HTML elements. Most importantly you can change style and content of elements. This makes it possible to add interactivity to a website.

PROGRAMMING



- Programming is the art of breaking a problem down into smaller problems.
- Finding the solutions to these smaller problems.
- Putting these pieces back together.

BUILDING BLOCKS OF PROGRAMMING:

- > Variables
- > Conditions
- > Loops
- > Functions

VARIABLES

Variables are the way we store and access data in programming. We can store simple things like numbers, strings (text) but also more complex like objects and arrays.

```
let Programming = 'nice';  
let numberOfHouses = 542;  
let numberOfPersonsLivingInHouses = 2.5 * numberOfHouses;
```

CONDITIONS

Conditions are the way we steer the program.

A condition is for example if the weather is nice then go outside else stay inside.

```
if(weather == 'nice'){  
    goOutside();  
} else {  
    stayInside();  
}
```

LOOPS

With Loops our programmes get really powerful, It is a way to run lines of code as often as you want. An example would be: As long as the music is playing draw circles. We have a condition There are a few loop options available. We will have a look at the most used one the for loop.

FOR-LOOP

The For-Loop has three part, the initialization which is only done one time at the beginning, then the condition which determines when to stop and then there is a command that gets executed every loop we make.

```
for(let index = 0; index < 100; index = index + 1){  
    drawCircle();  
}
```

FUNCTIONS

Functions are a block of code to perform a particular task. Once you defined a function you can call them to perform this task. They can accept value and can return one value.

```
function sumTwoNumbers(a, b) {  
    return a+b;  
}
```

EXAMPLES

This was only the beginning. Here are some examples that use the web to deliver a beautiful experience.

- [Histography](#) is a website which shows major events in earth history.
- [Legworkstudio](#) An agency showing of.
- [The boat](#) A visual novel in your browser.

TIPS AND HOW TO CONTINUE

We all agree that the best way to learn programming is to do it. Here are some links that guide you with tutorials.

> [w3schools](#)

Extensive website with a lot of tutorials and examples.

> [freecodecamp](#)

A website which has a really nice introduction to Web Development.

> [Khan academy](#) Another free course with a focus in visual representations.

> [edabit](#) Still another course, there are tons of them in the

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Powercoders mission is to integrate refugees with work permits into the IT job market. At the moment we are open for applications for the next round in 2020. We are always searching for new talent, volunteers and companies willing to partner with us. So please share a word over us.