JavaScript Tutorial

This tutorial is divided into 2 parts - **prerequisites** and **tasks**. The prerequisites represent knowledge that might be helpful for finishing the tasks but you shouldn't rely on them completely. The tasks are javascript files that you have to connect to the index.html file by inserting the preferred filename into the script tag. The tag is in the head tag and you copy the filename into the "src" attribute like ..

src="tasks/filename.js"

Through that action you can see on the html canvas what you are coding. Instead of using the command "console.log" you can just use the "print" method that has been defined. And don't forget to turn on the Live Server extension on your VSCode editor.

The print function is used like ..

print("hello world")

print("hello " + "world")

print("hello" + `${4}`)

The Task files are supposed to be worked through in this order:

1. iteration.js
2. arrayFunction1.js
3. arrayFunction2.js
4. loremIpsumGenerator.js (if it is to hard here is a video with an implementation)
5. aWordGenerator.js

Additional sources:

A great source of information: https://developer.mozilla.org/de/docs/Web/JavaScrip

Arrays in JS: https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array\

Prerequisites:

```
/* Data Types

- Javascript has dynamic type checking, so instead of specifying the type of
a variable, its is assumed by the language at runtime
- the primitve types that we look at (except object) are immutable
*/

// typeof: operator that tells the respective datatype
let aNumber = 3;
const numberType = typeof(aNumber); // "number", respresented as a string
```

```
const stringType = typeof(numberType); // "string", respresented as a string
again

// most important types (for us): number, boolean, string

// number: it can be an integer but also a decimal number
let x = 3;
x = -4;
x = 9.5;

// boolean
let boolTrue = true;
let boolFalse = false;

// string
let s = "hello world";
let letter = s[4]; // "o"

// special type: object --> it can have properties (which can be any data
type) and methods (functions that belong to an object)
const person = new Object();
const product =  {name: "Laptop", price: 499, color: "white"}; // dot
notation

/* variable types: const, var, let
- const: not re-assignable
- var: re-assignable, function-scoped or globally-scoped variables
- let:re-assignable, block-scoped local
*/

/* null, undefined

null:
- has exactly one value (null)
- represents the absence of any object
- variable points to no object
undefined:
- has exactly one valie (undefined)
- represents the absence of a value
- is a global identifier
*/
let nullValue = null;
let undefinedValue = undefined;
```

```
// Operators
/*
basic operators: +, -, *, /, % (modulo)
increment/decrement: ++, --
```

```
spread operator: ...
compare: == (equal value), === (equal value/type), !=(not equal value), !==
(not equal value/type), <, >, <=, >=
boolean operators: ! (NOT), || (OR), && (AND), ?? (Nullish Coalescing)
*/
```

```
// Control Structures
// for
const n = 10;
for(let i=0; i < n; i++) {
    console.log(i);
}

// while
var i = 0;
while(i < n) {
    i++;
}

// if
let ifMsg = ""
if(3 == 3) {
    ifMsg = "good if job";
}

// if else
if(3 != 3) {
    ifMsg = "good if job";
} else {
    ifMsg = "good else job";
}

// if elif else
if(3 != 3) {
    ifMsg = "good if job";
} else if (33 > 3) {
    ifMsg = "good else if job"
} else {
```

```
    ifMsg = "good else job";
}
```