JAVASCRIPT SYNTAX COURSE

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There are 3 things we need to know about JavaScript:

- JavaScript is the world's most popular programming language.
- JavaScript is the programming language of the Web.
- JavaScript is easy to learn.

The JavaScript syntax is the set of rules that defines how JavaScript programs are constructed:

```
// How to create variables:

var x;

let y;

const z;
```

```
// How to use variables:


x = 5;

y = 6;

let z = x + y;
```

JavaScript Values

The JavaScript syntax defines two types of values:

- Fixed values
- Variable valus

Fixed values are called Literals.
Variable values are called Variables.

JavaScript Literals

The two most important syntax rules for fixed values are:

- Numbers may be written with or without decimals:
  - 10.50
  - 1001
- Strings are text, written within double or single quotes:
  - "John Doe"
  - 'John Doe'

JavaScript Variables

In programming languages, variables are used to store data values.
JavaScript uses the following keywords to declare variables:

- var
- let
- const

An equal sign is used to assign values to variables.
In the following example, x is defined as a variable. Then, x is assigned (given) the value 6:

```
let x;

x = 6;
```

JavaScript Operators

JavaScript uses arithmetic operators (+ - * /) to compute values:

```
const x = (5 + 6) * 10
```

JavaScript uses an assignment operator (=) to assign values to variables:

```
let x, y;

x = 5;

y = 6;
```

JavaScript console

We can log requested variables on our console in order to see the result.
Look at the operator's section and console log "x":

```
console.log(x)
```

We can now see the result of "x" in the console.

JavaScript Expressions

An expression is a combination of values, variables, and operators, which computes a value.
The computation is called an evaluation.
For example, 5 * 10 evaluates to 50:

```
console.log(5 * 10)
```

Expressions can also contain variable values:

```
const x = 5

console.log(x * 10)
```

The values can be of various types, such as numbers and strings.

Example:
"Yonatan" + " " + "Benezra", evaluates to "Yonatan Benezra":
"Yonatan" + " " + "Benezra"

JavaScript Comments

Not all JavaScript statements are "executed".
Code that appears after double slashes // or between /* and */ is treated as a comment.
Comments are ignored, and will not be executed, as shown below:

```
let x = 5;   // I will be executed
```

```
// x = 6;   I will NOT be executed
```

Comments are most often used in development projects to remind our future self what is going on.
They can also be used to save code that is not supposed to appear at this point but will be needed at a later stage.

It is not professional to publish a completed code with comments in it, as a complete code should be understandable without the comments.

JavaScript Identifiers / Names

Identifiers are JavaScript names.
Identifiers are used to name variables, keywords, and functions.
The rules that define a valid name are the same in most programming languages.

A JavaScript name must begin with:

- A letter (A-Z or a-z)
- A dollar sign ($)
- Or an underscore (_)

Subsequent characters may be letters, digits, underscores, or dollar signs.

***Note:**
The first character of a name cannot be a number.
This way JavaScript can easily distinguish identifiers from numbers.

JavaScript is Case Sensitive

All JavaScript identifiers are case sensitive.
The variables “lastName” and “lastname” are two different variables:

```
let lastname, lastName;

lastName = "Doe";

lastname = "Peterson";
```

JavaScript does not interpret LET or Let as the keyword let.

JavaScript and Camel Case

Historically, programmers have used different methods of joining multiple words into one variable name.

Hyphens:
first-name, last-name, master-card, inter-city.
This is used for naming CSS files.

Underscore:
first_name, last_name, master_card, inter_city.

Upper Camel Case (Pascal Case):

FirstName, LastName, MasterCard, InterCity.

Lower Camel Case:

JavaScript programmers tend to use camel case that starts with a lowercase letter: firstName, lastName, masterCard, interCity.

JavaScript Character Set

JavaScript uses the Unicode character set.

Unicode covers (almost) all the characters, punctuations, and symbols in the world.