

JavaScript Introduction + Coding Style + JSDoc + ESLint

First, manners, this is our team



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What we will Cover

- JavaScript Introduction
- Google Style guide and best practices
- JSDoc
- ESLint



What we will **MISS**

- Basic coding structures (while, if, switch...)
- Details about software installation
- OOP
- Most content already available in the virtual classroom presentations.



JavaScript Introduction

Operators + Behaviours + Functions +
Jutge tips

JS - Stack functionality

- Should be trivial...

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```
function greet(who) {  
    console.log("Hi " + who);  
}  
greet("Mawi");  
console.log("Bye");
```

JS - Stack functionality

- Should be trivial...

```
function saludar(quien) {  
    console.log("Hola " + quien);  
}  
saludar("Harry");  
console.log("Adiós");
```

Stack.js



JS - Paradox...?

- What came first?

JS - Paradox...?

- What came first?
- The chicken or the egg?

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- What came first?
- The chicken or the egg?

Let's check



JS - Declarative Functions

- Doesn't matter where its defined.

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```
console.log("Future says:", future());  
  
function future() {  
    return "You will pass PAI";  
}
```



JS - Declarative Functions

- Doesn't matter where its defined.

```
console.log("Future says:", future());  
  
function future() {  
    return "You will pass PAI";  
}
```

Go ahead and execute it



JS - No return?

- What does a “returnless” function return?

JS - No return?

- What does a “returnless” function return?

```
function noReturn () {  
  let elcheTeam = 'I am not doing anything';  
}
```



JS - No return?

- And an empty return?

JS - No return?

- And an empty return?

```
function emptyReturn () {  
  let oviedoTeam = 'Me neither';  
  return  
}
```

JS - No return?

- And an empty return?

```
function emptyReturn () {  
  let oviedoTeam = 'Me neither';  
  return  
}
```

Did you hit or miss?



JS - Arrow Functions

- An elegant alternative

JS - Arrow Functions

- An elegant alternative
- Flexible syntax

JS - Arrow Functions

- An elegant alternative
- Flexible syntax

```
const isEven = n => {
  if (n % 2 === 0) return true;
  return false;
};
```

JS - Arrow Functions

- An elegant alternative
- Flexible syntax

```
const isEven = n => {
  if (n % 2 === 0) return true;
  return false;
};
```

[More syntax examples](#)



JS - Arrow Functions

- Looks familiar...?

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```
let doubled = input.map(x => x * 2);
```



JS - Arrow Functions

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```
let doubled = input.map(x => x * 2);
```

.map() & .forEach()



JS - Closure

- Function that remembers the scope

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```
function multiplier(factor) {  
    return number => number * factor;  
}
```

JS - Closure

- Function that remembers the scope

```
function multiplier(factor) {  
    return number => number * factor;  
}
```

Let's check how it works



JS - VAR

- ONLY DIDACTIC PURPOSES

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- **ONLY DIDACTIC PURPOSES**
- Special scope behaviour

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- Global or function scope

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- Special scope behaviour
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```
const GLOBALNUM = 10;      // global

if (true) {
    let localNum = 20; // local
    var globalVar = 30; // global
}
```



JS - VAR

```
function dummy () {  
    var invisible = 40; // only in function  
    console.log(invisible);  
}  
  
console.log(invisible); // not visible
```

JS - VAR

```
function dummy () {  
    var invisible = 40; // only in function  
    console.log(invisible);  
}  
  
console.log(invisible); // not visible
```

Var file



JS - File System

- Standard module of Node.js

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- Focus on Judge

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- Standard module of [Node.js](#)
- Focus on Judge
- For more information check:

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[File System](#)



JS - File System

- Useful functions of the File System:

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- .trim()

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- `.trim()`
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JS - File System

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- `.trim()`
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- `.map()`

Check the examples: [The value of .trim\(\)](#)



JS - Spread Operator “...”

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const a = [1, 2, 3];
const b = [...a, 4, 5];

console.log(b);
```

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const a = [1, 2, 3];
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console.log(b); // [1, 2, 3, 4, 5]
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JS - Spread Operator “...”

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```
const a = [1, 2, 3];
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console.log(b); // [1, 2, 3, 4, 5]
```

Check an interesting use



JS - Arguments

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- Just: `process.argv`

Experiment with this example

JS - Distinct “for” usage

- Which gets the value?

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- Which gets the value?

```
for (let member in list) {  
    console.log(member);  
}
```

```
for (let member of list) {  
    console.log(member);  
}
```

JS - Distinct “for” usage

- Which gets the value?

```
for (let member in list) {  
    console.log(member);  
}
```

```
for (let member of list) {  
    console.log(member);  
}
```

Here is the answer



JS - operator ??

```
console.log( 0 || 100 );  
// → 100
```

JS - operator ??

```
console.log( 0 || 100 );
// → 100
console.log( 0 ?? 100 );
// → 0
```

JS - operator ??

```
console.log( 0 || 100 );
// → 100
console.log( 0 ?? 100 );
// → 0
console.log( null ?? 100 );
// → 100
```

JS - operator ??

```
console.log( 0 || 100 );
// → 100
console.log( 0 ?? 100 );
// → 0
console.log( null ?? 100 );
// → 100
console.log( undefined ?? 100 );
// → 100
```

JS - operator ??

```
console.log( 0 || 100 );
// → 100
console.log( 0 ?? 100 );
// → 0
console.log( null ?? 100 );
// → 100
console.log( undefined ?? 100 );
// → 100
```

[operator_interrogation.js](#)



Google Style Guide

Best Practices

Style guide: index

- Statements
- Braces
- Indentation
- White spaces



Statements

- Only one statement per line.

Statements

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```
let numero = '5';  
let otroNumero = 11;
```



Statements

- Only **one statement** per line.

```
let numero = '5';  
let otroNumero = 11;
```



```
let numero = '5', let otroNumero = 11;
```



Statements: semicolons ;

- They are **MANDATORY**

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- Relying on *Automatic Semicolon Insertion* is **FORBIDDEN**

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- Relying on *Automatic Semicolon Insertion* is **FORBIDDEN**

Semicolons-example.js

Statements - Column limit

- JavaScript has a column limit of 80 characters

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- If this is exceeded, **line wrapping** must be performed

Statements - Column limit

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- Same code, multiple valid ways to style it.

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- No single formula or rule exists.
- Same code, multiple valid ways to style it.

Check some examples!

Braces

- Braces { } are **MANDATORY**

Braces

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- Applies to if, else, do, while, for, ...

Braces

- Braces {} are **MANDATORY**
- Applies to if, else, do, while, for, ...
- **Sole Exception:** Single-line if (no else) for readability.

Braces - bad examples

```
if (someVeryLongCondition())  
    doSomething();
```



```
for (let i = 0; i < 10; i++) bar(foo[i]);
```

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```
if (someVeryLongCondition())  
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for (let i = 0; i < 10; i++) bar(foo[i]);
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- **Exception:**

```
if (shortCondition()) foo();
```



Braces - bad examples

```
if (someVeryLongCondition())  
    doSomething();
```



```
for (let i = 0; i < 10; i++) bar(foo[i]);
```

- **Exception:**

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if (shortCondition()) foo();
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The value of braces.js



Braces - K&R style

- Kernighan and Ritchie style for nonempty blocks and block-like constructs

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- Kernighan and Ritchie style for nonempty blocks and block-like constructs

[Check here the rules ;\)](#)

Indentation

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 - The function call (visual alignment).
 - [function_indentation.js](#)



Indentation - arrays

- Which of these is correct?

Indentation - arrays

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```
const a = [  
  0,  
  1,  
  2,  
];
```

Indentation - arrays

- Which of these is correct?

```
const a = [  
  0,  
  1,  
  2,  
];
```

```
const b =  
  [0, 1, 2];
```

Indentation - arrays

- Which of these is correct?

```
const a = [  
  0,  
  1,  
  2,  
];
```

```
const b =  
  [0, 1, 2];
```

```
const c = [0, 1, 2];
```



White Spaces - vertical

- **MANDATORY:** Between class methods.
- **Optional:** In object literals (to group fields).

White Spaces - vertical

- **MANDATORY:** Between class methods.
- **Optional:** In object literals (to group fields).
- **Inside methods:** Use to separate logical steps.
- **FORBIDDEN:** At start or end of function body.

White Spaces - vertical

- **MANDATORY:** Between class methods.
- **Optional:** In object literals (to group fields).
- **Inside methods:** Use to separate logical steps.
- **FORBIDDEN:** At start or end of function body.

hey you, click me!



White Spaces - horizontal

- **Leading:** Start of line (Indentation).

White Spaces - horizontal

- **Leading:** Start of line (Indentation).
- **Internal:** Inside lines (Formatting).

White Spaces - horizontal

- **Leading:** Start of line (Indentation).
- **Internal:** Inside lines (Formatting).
- **Trailing:** End of line. **STRICTLY FORBIDDEN.**

White Spaces - horizontal MUST do

- Space after if, else, catch before (.

White Spaces - horizontal MUST do

- **Space after if, else, catch before (.**
- **Exception:** No space for function or super.

White Spaces - horizontal MUST do

- **Space after if, else, catch before (.**
- **Exception:** No space for function or super.
- **Space before { (except objects as arguments).**

White Spaces - horizontal MUST do

- Space after commas, semicolons, and colons.

White Spaces - horizontal MUST do

- Space after commas, semicolons, and colons.
- NEVER before punctuation.

White Spaces - horizontal MUST do

- Space after commas, semicolons, and colons.
- NEVER before punctuation.
- Surround ternary operators.

Final boss guide style

- Let's analyze this code:
 - [incorrect-guide-style.js](#)

Final boss guide style

- Let's analyze this code:
 - [incorrect-guide-style.js](#)
- Here is the correct version:
 - [correct-guide-style.js](#)

JSDoc

comments + tags

JSDoc

- API documentation generator for JavaScript



JSDoc

- API documentation generator for JavaScript
- Similar to Doxygen



JSDoc

- API documentation generator for JavaScript
- Similar to Doxygen
- `//, /** */`



JSDoc

- @desc
- @author
- @param
- @return
- @link



JSDoc

- `@desc`
- `@author`
- `@param`
- `@return`
- `@link`

[JSDoc](#)



JSDoc

```
/**  
 * @desc This function prints  
 * 'Hello, World'  
 * @return 'Hello, World'  
 *  
 */  
function foo() {  
    return 'Hello, World!';  
}
```



JSDoc

```
/**  
 * @desc This function prints  
 * 'Hello, World'  
 * @return 'Hello, World'  
 *  
 */  
function foo() {  
    return 'Hello, World!';  
}
```

JSDoc-style.js



ESLint

Linter + AutoFix + ESLint for TS

Linter

- Improve source code

Linter

- Improve source code
- Origin in C

Linter

- Improve source code
- Origin in C
- “Remove the lint”

ESLint

- JavaScript Linter

ESLint

- JavaScript Linter
- Display errors

ESLint

- JavaScript Linter
- Display errors
- 3 parts

ESLint

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 - Praser

ESLint

- JavaScript Linter
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- 3 parts
 - Praser
 - Rules

ESLint

- JavaScript Linter
- Display errors
- 3 parts
 - Praser
 - Rules
 - Result



ESLint

- Install
 - \$ npm install -D eslint

ESLint

```
import globals from "globals";
import pluginJs from "@eslint/js";

export default [
  { languageOptions: { globals: globals.node } },
  pluginJs.configs.recommended,
];
```



ESLint

- Interesting URL:
 - [ESLint_rules](#)

ESLint

- Interesting rules

ESLint

- Interesting rules
 - no-soft-compare

ESLint

- Interesting rules
 - no-soft-compare
 - no-unreachable

ESLint - Google Style Guide

- Dependencies
 - \$ npm install -D eslint eslint-config-google
@eslint/eslintrc globals

ESLint - Google Style Guide

- Dependencies
 - \$ npm install -D eslint eslint-config-google
@eslint/eslintrc globals

Google Style Guide config



ESLint - AutoFix

- AutoFix:
 - `$ npx eslint --fix`

ESLint

- Example:
 - [ESLint_example.js](#)

ESLint for TypeScript

- Install

ESLint for TypeScript

- Install
 - \$ npm install --save-dev eslint
@typescript-eslint/parser

ESLint for TypeScript

- Install
 - \$ npm install --save-dev eslint
@typescript-eslint/parser
 - \$ touch .eslintrc

ESLint for TypeScript

```
{  
  "root": true,  
  "parser": "@typescript-eslint/parser",  
  "plugins": [ "@typescript-eslint" ],  
  "extends": [  
    "eslint:recommended",  
    "plugin:@typescript-eslint/eslint-recommended",  
    "plugin:@typescript-eslint/recommended"  
  ]  
}
```

ESLint for TypeScript

- touch `.eslintignore`

ESLint for TypeScript

- touch `.eslintignore`
 - `/build`
 - `/students`

ESLint for TypeScript

- touch `.eslintignore`
 - `/build`
 - `/students`
- `npm run lint`

ESLint for TypeScript

- Rules for TypeScript:
 - [Overview | typescript-eslint](#)



Thanks for the attention
Doubts, questions?



References

- [Coding Style](#)
- [Google JavaScript Style Guide](#)
- [JSDoc](#)
- [ESLint: Linter Javascript - Javascript en español](#)
- [Pasos para instalar y configurar ESLint en nuestro proyecto con Typescript](#)

References

- [Eloquent JavaScript](#) (chapter 1 - 4)
- [The Modern JavaScript Tutorial](#)
- [Presentations-Tips.ppt](#)
- [Oral-Presentations-Tips](#)