JavaScript
For Beginners
Part 1

jan.schulz@devugees.org

Agenda

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2. Variables & Data-Types
3. If / Else Statements
4. Boolean Logic
5. Switch Statement
6. First Coding Challenge
7. Functions
8. Arrays
9. Objects
10. Loops
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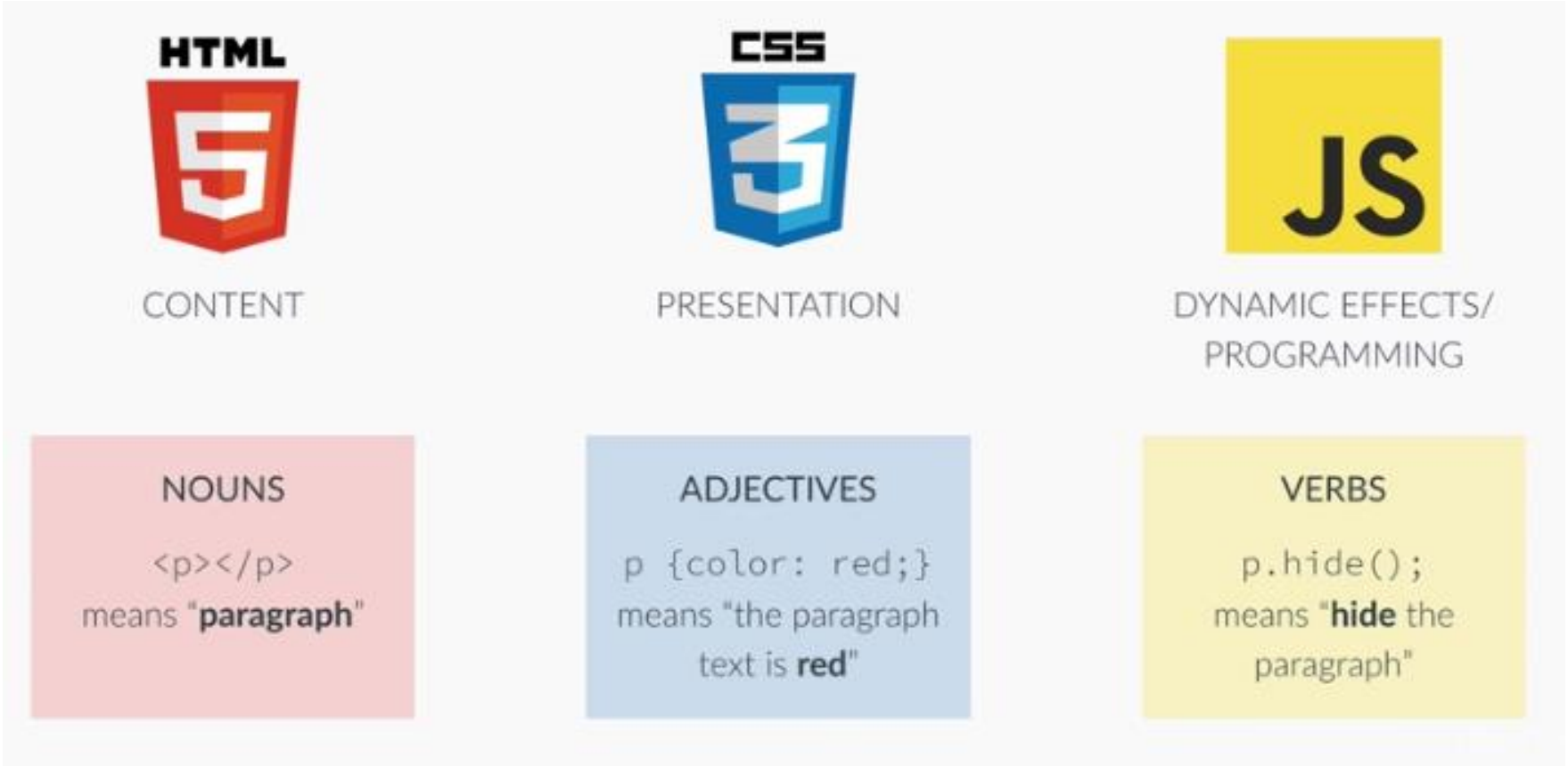
1. Introduction to JavaScript

- JavaScript is a lightweight, cross-platform, object-oriented computer programming language
- JavaScript is one of the tree core technologies of web development
- JavaScript is most commonly used as a part of **webpages**
- **Today, JavaScript can be used in different places:**
  - **Client-side: JavaScript was traditionally only used in the browser**
  - **Server-side: Thanks to node.js, we can use JavaScript on the server as well**
- **JavaScript is what made modern web-development possible:**
  - **Dynamic effects and interactivity**
  - **Modern web applications that we can interact with**

1. Introduction to JavaScript



2. Variables & Data-Types

- Variable: A container in which we can store a value in order to use it later again in our code

- 1) Create a folder
- 2) Create a index.html
- 3) Create a main.js

2. Variables & Data-Types

- **Number:** Floating point numbers, for decimals and integers.
- **String**: Sequence of characters, used for text.
- **Boolean:** Logical data type that can only be `true` or `false`.
- **Undefined:** Data type of a variable which does not have a value yet.
- **Null:** Also means 'non-existent'.

2. Variables & Data-Types

- Operator Precedence

- https://developer.mozilla.org/de/docs/Web/JavaScript/Reference/Operators/Operator_Precedence

3. If / Else Statements

```
if ( conditional statement ) {
    do something;
} else {
    do something else;
}
```

4. Boolean Logic

var A

var B	AND	TRUE	FALSE
	TRUE	TRUE	FALSE
	FALSE	FALSE	FALSE

var A

var B	OR	TRUE	FALSE
	TRUE	TRUE	TRUE
	FALSE	TRUE	FALSE

- AND (&&) => `true` if **ALL** are `true`
- OR (||) => `true` if **ONE** is `true`
- NOT (!) => inverts `true`/`false` value

4. Boolean Logic

var A

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- AND (&&) => `true` if **ALL** are `true`
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- NOT (!) => inverts `true`/`false` value

```
var age = 16;

age >= 20;     // => false
age < 30;      // => true
!(age < 30);   // => false

age >= 20 && age < 30; // =>
age >= 20 || age < 30; // =>
```

5. Switch Statements

```
switch( conditional statement ) {
    case expression:
        do something;
        break;
    case another expression:
        do something else;
        break;
    default:
        do something different else;
        break;
}
```

6. Coding Challenge

John and a friend invented a simple game where the player with the highest value of his height (in centimeters) plus five times his age wins (what a silly game :)

1. Create variables for the heights and ages of two friends and assign them some values

2. Calculate their scores

3. Decide who wins and print the winner to the console. Include the score in the string that you output to the console. Don't forget that there can be a draw (both players with the same score).

4. EXTRA: Add a third player and now decide who wins. Hint: you will need the && operator to take the decision. If you can't solve this one, just watch the solution, it's no problem :)

7. Functions

- Re-Usable piece of code
- Containers that hold lines of code
- Functions CAN return results
- DRY principle: Don’t repeat yourself

```
function doubleMe( x ) {
        return 2 * x;
}
```

8. Arrays

- A list of things, e.g. values
- var names = [‘John’, ‘Jane’, ‘Mark’];

9. Objects

- A set of key-value pairs
- Do not have particular order like in Arrays

```
var obj = {
    name: ‘John’,
    lastName: ‘Smith’,
    age: 26
}
```

10. Loops

- Repeat tasks
- Using loops:

```
while( statement ) {
    do something;
}
```

Or

```
for(expression; statement; expression) {
    do something;
}
```

11. Second Coding Challenge

1. Create an array with some years where persons were born

2. Create an empty array (just [])

3. Use a loop to fill the array with the ages of the persons

4. Use another loop to log into the console whether each person is of full age (18 or older), as well as their age

5. Finally, create a function called printFullAge which receives the array of years as an argument, executes the steps 2., 3. and 4. and returns an array of true/false boolean values: true if the person is of full age (>= 18 years) and false if not (< 18 years)

6. Call the function with two different arrays and store the results in two variables: full_1 and full_2

Example input: [1965, 2008, 1992]

Example output: [true, false, true]

Hint: you can use a loop not only to read from an array, like y[i], but also to set values in an array, like y[i] = ... You can also use the specific array methods.