

# Web Technologies

Lab session 3



# JavaScript

- JavaScript is the programming language of HTML and the Web
- Languages of the Web
  - HTML defines content
  - CSS defines layout
  - JavaScript defines **behavior**
- <https://www.w3schools.com/js>

# JavaScript: Overview

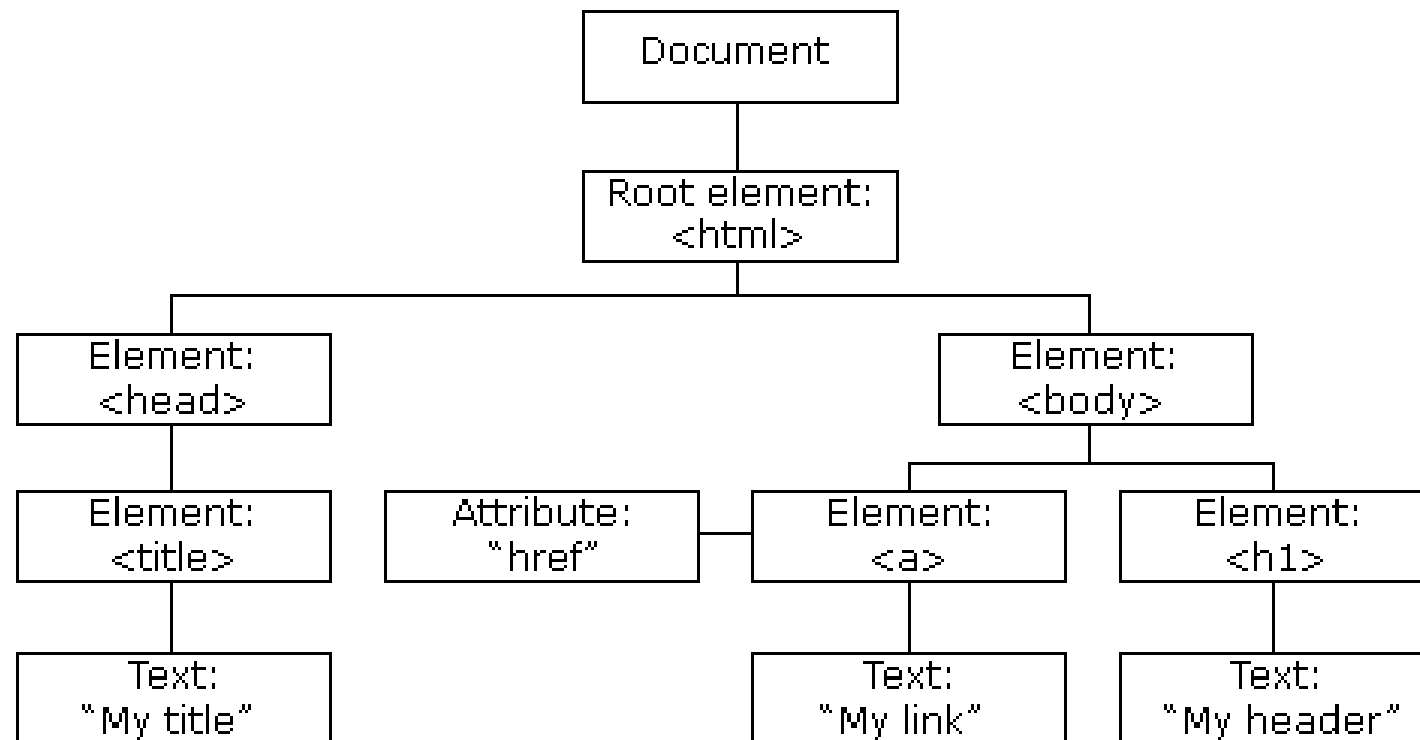
- *General purpose* programming language
  - **Runs in browser**
  - Runs in dedicated runtime environments (NodeJS, Deno)
- Manipulate HTML and CSS
  - Content
  - Attributes
  - Add/remove DOM nodes

# JavaScript: Overview

- JS can be put anywhere in the HTML page
  - HTML element `<script>`
  - Recommended to place it at the end of `<body>`
    - improves page loading speed
  - Recommended to place it in external `*.js` files and include it in HTML
- JS sometime behaves differently as you expect
  - Running in strict mode reduces the probability of such quirks: `"use strict"`; Strict mode allows you to write better code: commands provided in bad syntax become errors
  - [https://www.w3schools.com/js/js\\_strict.asp](https://www.w3schools.com/js/js_strict.asp)

# JavaScript: DOM

- When a web page is loaded, the browser creates a Document Object Model (DOM)



# JavaScript: DOM and BOM

- DOM is a standard for how to **get, change, add, or delete** HTML elements
  - Global variable `document` represents the web page
- **BOM**: Browser Object Model
  - Means to access some browser functions from JS
  - Not standardized, but *all* browsers support it
  - Global variable `window`

# JavaScript versions: ECMAScript

- JavaScript is evolving: ECMAScript standard
  - Now new version every year
  - Most recent version: ES13 (ECMAScript 2022)
  - [https://www.w3schools.com/js/js\\_versions.asp](https://www.w3schools.com/js/js_versions.asp)
- Some newer features and language improvements
  - Variables: stop using `var`, use `let` and `const` instead of `var`
  - Arrow functions: `[1, 2, 3].map(x => x*x)`
  - String interpolation `console.log(` ${1+1} `)`
  - Class support, default function parameters, and more
- Features overview
  - <http://es6-features.org>
  - <https://www.freecodecamp.org/news/es5-to-esnext-heres-every-feature-added-to-javascript-since-2015-d0c255e13c6e>
  - [https://www.w3schools.com/js/js\\_es6.asp](https://www.w3schools.com/js/js_es6.asp)

# JavaScript: jQuery

- jQuery is a JS library that simplifies DOM interactions
- jQuery uses **selectors like CSS** to select elements and **perform actions** on them
- Resources
  - <https://www.w3schools.com/jquery>
  - <https://jquery.com>, <http://try.jquery.com/>



# JavaScript: jQuery

- Including jQuery (<https://code.jquery.com>)

```
<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"
  integrity="sha256-pasqAKBDmFT4eHoN2ndd6lN370kFiGUfYTiUHWhU7k8="
  crossorigin="anonymous"></script>
```

- Using jQuery

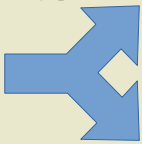
```
$("#p").hide()
$(".myclass").hide()
$("#first").val("New value")
$("#button").click(() => console.log("You clicked."))
```

# Assignment 1: Complete JS App

- When the user provides the first name, the last name and the role, the participant should be added to the list (table) of participants
- When the user double-clicks on a participant (row), the participant should be removed from the list
  - The user should be prompted to confirm the removal: use `confirm` to prompt the user

# Web technologies

Added  
participants



The list of class participants.

First name	Last name	Role
Aleš	Smrdel	Lecturer
David	Jelenc	Teaching assistant
Marija	Novak	Student

Add a new participant

First name:   
Last name:   
Role: Student ▼

Add participant

An example footer text. Web technologies @ UL-FRI

From this page

Are you sure you want to delete David?

Cancel

OK

2

Display dialog to confirm removal

The list of class participants.

First name	Last name	Role
Aleš	Smrdel	Lecturer
David	Jelenc	Teaching assistant
Marija	Novak	Student

1

Double click on a participant

Add a new participant

First name:

Last name:

Role:

Add participant

An example footer text. Web technologies @ UL-FRI

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Remove participant if confirmed

# Assignment 2: Persistence

- Problem: When the page is refreshed, data is lost
- Solution: use HTML5 `localStorage` to save the contents
  - [https://www.w3schools.com/html/html5\\_webstorage.asp](https://www.w3schools.com/html/html5_webstorage.asp)
- Some hints
  - Represent each participant as an object with four properties: `id`, `first`, `last`, `role`
    - The `id` should be an integer that increases with each participant
  - Add participants to an array, and save the array to `localStorage`
  - Since `localStorage` cannot save arrays, encode the array as JSON and save the JSON to `localStorage`:
    - `JSON.stringify([1, 2, 3])`
    - `JSON.parse(stringToBeParsed)`