

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

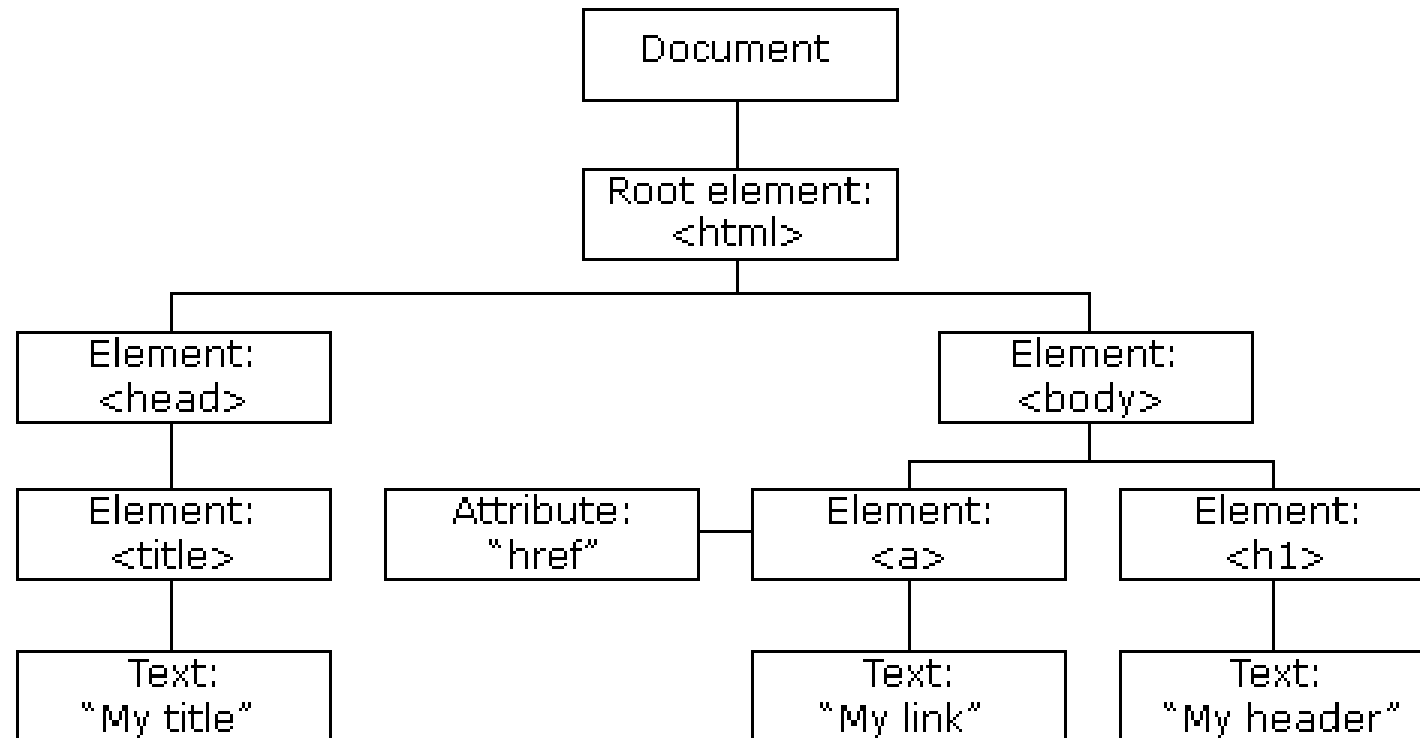
- *General purpose* programming language
 - **Runs in browser**
 - Runs in dedicated runtime environments (NodeJS)
- Manipulate HTML and CSS
 - Content
 - Attributes
 - Add/remove DOM nodes

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

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: ES12
 - 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

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

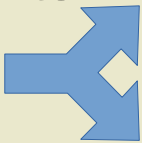
```
$("#p").hide()
$(".myclass").hide()
$("#first").val("New value")
$("#button").click(() => console.log("You clicked."))
```

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

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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: Student ▼

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
- 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)`