

# DOM in JavaScript II: Advanced Techniques

Course code: JS\_DOM2

Only the javascript APIs built into modern browsers are what turn a web page into a full-fledged web application, whether it's graphics, interactivity, data handling, or reading inputs from the real world. The possibilities are limited only by security and privacy or hardware performance.

## What we will teach you

- Working with files accessed by the user
- Storing data in the browser
- Improved form validation in HTML5
- Webcam and microphone input
- Javascript and CSS animations
- Work with graphics (canvas, video)
- Browser history handling for SPA
- Working with data from other domains (CORS)
- Running more complex calculations in separate threads (Worker)
- Service worker (resource caching, offline applications)
- Fetch API basics (modern successor of AJAX)
- Uploading files to the server
- Response to page scrolling, lazy-loading

## Required entry skills

- Knowledge of JavaScript at the JS\_PROG2 course level and DOM at the JS\_DOM1 course level.

## Course outline

Working with files accessed by the user

- <input type="file">, native drag&drop in HTML5
- FileList, File, FileReader and URL API
- Image preview before uploading
- FormData API (send data to server)

Session History Management ("History API")

- how to maintain user experience when changing page content
- Back button treatment in AJAX applications
- history.pushState, history.replaceState
- popstate event on window object

Storing data in the browser

- treatment of page refresh button (F5)
- WebStorage (localStorage)
- IndexedDB

Working with animations

- API for working with CSS3 animations
- requestAnimationFrame

Working with graphics

- <canvas> in 2d context - programmable image

Loading input from webcam and microphone

- getUserMedia and downstream APIs

Improved form validation in HTML5

- new form element types and attributes
- Constraint and Validation API

### GOPAS Praha

Kodáňská 1441/46  
101 00 Praha 10  
Tel.: +420 234 064 900-3  
[info@gopas.cz](mailto:info@gopas.cz)

### GOPAS Brno

Nové sady 996/25  
602 00 Brno  
Tel.: +420 542 422 111  
[info@gopas.cz](mailto:info@gopas.cz)

### GOPAS Bratislava

Dr. Vladimíra Clementisa 10  
Bratislava, 821 02  
Tel.: +421 248 282 701-2  
[info@gopas.sk](mailto:info@gopas.sk)



Copyright © 2020 GOPAS, a.s.,  
All rights reserved

# DOM in JavaScript II: Advanced Techniques

Working with data from other domains (CORS)

- Cross-Origin Resource Sharing
- use for AJAX, canvas and external files

Fetch API basics (modern successor to AJAX)

JavaScript in separate threads (Worker)

Service worker (resource caching, offline applications)

Reacting to page scrolling, lazy-loading

- InterSection Observer

**GOPAS Praha**

Kodaňská 1441/46  
101 00 Praha 10  
Tel.: +420 234 064 900-3  
[info@gopas.cz](mailto:info@gopas.cz)

**GOPAS Brno**

Nové sady 996/25  
602 00 Brno  
Tel.: +420 542 422 111  
[info@gopas.cz](mailto:info@gopas.cz)

**GOPAS Bratislava**

Dr. Vladimíra Clementisa 10  
Bratislava, 821 02  
Tel.: +421 248 282 701-2  
[info@gopas.sk](mailto:info@gopas.sk)



Copyright © 2020 GOPAS, a.s.,  
All rights reserved