

# 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 user accessed files
- Storing data in the browser
- Improved form validation in HTML5
- Webcam and microphone input
- Javascript and CSS animations
- Working with graphics (canvas, video)
- Manipulating browser history 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 to AJAX)
- Uploading files to server
- Responding to page scrolling, lazy-loading

## Required entry-level skills

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

## Course Outline

### Modules

- Module Types
- Lazy loading

### Cookies and Web Storage Basics

- Cookies
- Creating and Reading Cookies
- Cookie Options and Limitations
- Security Considerations and Limitations
- Local Storage
- Data Storage
- Data Loading
- Data Deletion
- Limitations and Security Considerations
- Session Storage
- Differences between Local Storage and Session Storage
- Usage Examples

### Working with User Accessed Files

- <input type="file">, Native drag&drop in HTML5
- FileList, File, FileReader and URL API
- Previewing an image before uploading
- FormData API (uploading data to the server)

### Session History Management ("History API")

- How to preserve user experience when changing page content
- Back button treatment in AJAX applications

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# DOM in JavaScript II: Advanced Techniques

- History. pushState, history. replaceState
- popstate event on window object

Storing data in 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

Retrieving input from webcam and microphone

- getUserMedia and related APIs

Improved form validation in HTML5

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

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)

Response to page scrolling, lazy-loading

- Intersection Observer

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