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# JavaScript training

3 days (21 hours)

## Presentation

With our "JavaScript, the fundamentals" training course, immerse yourself in the language preferred by developers, thanks to clear, structured, hands-on teaching. Discover the full power of this modern language, at the heart of today's websites, and master the advanced mechanisms that will make your projects more dynamic and interactive.

Design interactive, high-performance and responsive web applications using the essential features of modern JavaScript with ES6+, while realizing a concrete project through an interactive CRUD application. Quickly master the solid basics: modern variables, loops, advanced functions, data structures (arrays, objects, JSON) and object-oriented programming. Efficiently structure your code using recognized professional practices (modules, classes, error handling). Make your pages truly dynamic with advanced DOM manipulation. Learn how to create, modify and delete HTML elements on the fly, to offer your users fluid, interactive experiences. Finally, boost interactivity by finely managing user events: clicks, forms, mobile interactions. Develop your application in Responsive Design to guarantee perfect adaptability on all screens.

As always, we'll be presenting the latest version of the language: [JavaScript 15 \(ES2024\)](#).

## Objectives

- Understanding Javascript for building websites and applications
- Master essential functions
- Manipulate pages and make them dynamic
- Manage/react to events and increase interactivity
- Developing in responsive design

## Target audience

- Front-end developers

- Technical architects
- UI designers
- Project managers
- Design engineers
- Webmasters

## Prerequisites

- Knowledge of HTML and CSS

## Program of our JavaScript : Fundamentals

### Day 1: Fundamentals and data creation **Introduction to JavaScript**

- What is JavaScript?
- ES evolution and standardization (ES6+)
- Add JavaScript code to a web page (script, module, async, defer)
- Handling JS files and modules
- Detect and correct errors (console, debugger)
- Modern development tools (DevTools, ESLint, Prettier)
- Practical workshop: Initializing the CRUD project (HTML interface + console display).

### Variables, controls, loops and element creation

- Modern variables (let, const)
- Primitive types and type conversions
- Operators (arithmetic, logical, comparative)
- Loops (for, while, forEach),
- Conditions: if/else, switch, ternary operator
- Character strings: template literals, essential methods
- Exception handling (try/catch/finally, throw)
- Practical workshop: Dynamically add simple tasks to the HTML list.

### Project functions and structure

- Declared functions, expressions, arrows
- Default settings, rest & spread, destructuring
- Closures and IIFE
- Arguments, return and scope
- Code modularity (reusable functions)
- Efficient debugging (logs)
- Practical workshop: Writing functions to manage the structured addition of tasks.

### Day 2: Reading, modifying and deleting data (CRUD) **Advanced table handling**

- Key methods (map, filter, reduce, find, some, every)

- Tuples (introduction via immutable arrays), Set & Map
- Report management via tables
- Dynamic DOM manipulation
- Complex data structures
- Practical workshop: Clearly display tasks with status in a dynamic list.

## Objects and structured data management

- Literal objects (JSON-like)
- Object methods and properties
- Destructuring/spreading
- Local storage (localStorage)
- Practical workshop: Storing and retrieving tasks in localStorage.

## Object-oriented JavaScript and dynamic modification

- ES6 classes (manufacturer/methods)
- Status management via classes
- Simple inheritance
- Prototypes
- Practical workshop: Transforming tasks into class-oriented objects with modification methods.

## Interactive DOM manipulation

- DOM selection and modification (querySelector, innerHTML, textContent)
- Creating and modifying HTML elements
- Dynamic styles via JS
- Reactive DOM management
- Dynamic element creation (createElement, appendChild, insertBefore)
- Modify HTML attributes dynamically (setAttribute, classList)
- Dynamic removal or relocation of elements (removeChild, remove)
- Practical workshop: Dynamically build an interactive display of CRUD tasks in the application (add, modify, delete immediately).

Day 3: Advanced interactivity and data persistence

## User event management

- Event listening (click, submit)
- Customer validation
- Prevent propagation (preventDefault)
- Interactive user interface
- Responsive user interfaces
- Practical workshop: Implementing full event management for CRUD (add/modify/delete buttons).

## Responsive Design with JavaScript

- Dynamic screen size detection (window.innerWidth, resize)
- Adaptive event management (resize, mobile orientation)
- Dynamic CSS classes (element.classList, adaptation styles)
- Mobile display optimization (JS/CSS)
- Interactive menus and mobile interfaces (dynamic open/close)
- Practical workshop: Dynamically adapt the CRUD application for optimal navigation on mobiles, tablets and wide screens (dynamic addition of CSS classes according to screen size).

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.