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# JavaScript Training

3 days (21 hours)

## Overview

With our “JavaScript Fundamentals” training, dive into developers’ favorite language through clear, structured, and hands-on instruction. 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 building a real-world project through an interactive CRUD application. Quickly master the solid fundamentals: modern variables, loops, advanced functions, data structures (arrays, objects, JSON), and object-oriented programming. Structure your code efficiently using recognized professional practices (modules, classes, error handling). Make your pages truly dynamic with advanced DOM manipulation. Learn to create, modify, and delete HTML elements on the fly to provide your users with smooth, interactive experiences. Finally, boost interactivity by finely managing user events: clicks, forms, and mobile interactions. Also develop your application using Responsive Design to ensure perfect adaptability across all screens.

Like all our courses, this one will introduce you to **the latest stable version** of the technology and its new features.

## Objectives

- Understand JavaScript in the development of websites and web applications
- Master essential features
- Manipulate pages and make them dynamic
- Manage/respond to events and increase interactivity
- Develop responsive designs

## Target Audience

- Front-end developers
- Technical architects
- UI designers
- Project managers
- Design engineers
- Webmasters

## Requirements

- Knowledge of HTML and CSS

## Our JavaScript Training Program: Fundamentals

### Day 1: Fundamentals and Data Creation

#### Introduction to JavaScript

- What is JavaScript?
- ES Evolution and Standardization (ES6+)
- Adding JavaScript code to a web page (script, module, async, defer)
- Working with JS files and modules
- Detecting and fixing errors (console, debugger)
- Modern development tools (DevTools, ESLint, Prettier)
- Hands-on workshop: Setting up the CRUD project (HTML interface + console output).

#### Variables, controls, loops, and element creation

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

#### Functions and project structure

- Declared functions, expressions, arrow functions
- Default parameters, rest & spread, destructuring
- Closures and IIFE
- Arguments, return values, and scope
- Code modularity (reusable functions)
- Effective debugging (logs)
- Hands-on workshop: Writing functions to manage the structured addition of tasks.

## Day 2: Read, Update, Delete Data (CRUD)

### Advanced array manipulation

- Key methods (map, filter, reduce, find, some, every)
- Tuples (introduction via immutable arrays), Set & Map
- State management using arrays
- Dynamic DOM manipulation
- Complex data structures
- Hands-on workshop: Clearly display tasks with statuses in a dynamic list.

### Objects and structured data management

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

### Object-Oriented JavaScript and dynamic modification

- ES6 Classes (constructors/methods)
- State management via classes
- Simple inheritance
- Prototypes
- Hands-on workshop: Transforming tasks into class-oriented objects with modification methods.

### Interactive DOM manipulation

- Selecting and modifying the DOM (querySelector, innerHTML, textContent)
- Creating and modifying HTML elements
- Dynamic styles via JS
- Reactive DOM management
- Dynamic creation of elements (createElement, appendChild, insertBefore)
- Dynamic modification of HTML attributes (setAttribute, classList)
- Dynamic removal or relocation of elements (removeChild, remove)
- Hands-on workshop: Dynamically build the interactive display of CRUD tasks in the application (add, edit, and immediate visual deletion).

## Day 3: Advanced interactivity and data persistence

### User event handling

- Event listening (click, submit)
- Client-side validation

- Preventing event propagation (preventDefault)
- Interactive user interface
- User interface responsiveness
- Hands-on workshop: Implementing comprehensive event handling for CRUD (add/edit/delete buttons).

## Responsive Design with JavaScript

- Dynamic screen size detection (window.innerWidth, resize)
- Adaptive event handling (resize, mobile orientation)
- Dynamic CSS classes (element.classList, style adaptation)
- Mobile display optimization (JS/CSS)
- Interactive mobile menus and interfaces (dynamic opening/closing)
- Hands-on workshop: Dynamically adapt the CRUD application for optimal navigation on mobile devices, tablets, and wide screens (dynamic addition of CSS classes based on screen size).

## Target Audience

This training is intended for both individuals and companies, large or small, wishing to train their teams in new advanced IT technologies or to acquire specific professional knowledge or modern methods.

## Placement upon enrollment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

## Teaching Methods

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

## Organization

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

## Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

## Certification

A certificate will be issued to each trainee who has completed the entire training program.

