Node.JS for the Web training

4 days (28 hours)

Presentation

Nodejs is a free, event-driven software platform, based on Google Chrome's V8 engine, which enables the development of modern, secure applications and guarantees excellent performance. Node.JS is used by many organizations, including Netflix, PayPal and NASA.

Our Node.JS for the Web training course will teach you the concepts that have made Node.JS an indispensable ally for web developers, such as environment variables and arguments, event loops and asynchronous code, and streams.

Our program also covers advanced tool concepts such as Typescripts and toolchains. At the end of the course, you'll be able to generate an application build in production.

As with all our programs, our training covers the latest stable release of this platform, as well as the new features of Node.js version 23.

Objectives

- Master the latest version of EcmaScript.
- Master the Node.JS ecosystem for the WEB
- Know the best tools and best practices for WEB fullstack JS
- Designing a WEB application from A to Z: from the first line of code to the production build

Target audience

- Backend developers
- Frontend developers

Prerequisites

- HTML/CSS skills
- React knowledge
- Knowledge of JavaScript
- Test My Knowledge

Technical requirements

- An IDE
- Node.js installed
- A MongoDB database
- Administrator access to avoid permission restrictions

Node.JS for the web training program

Day 1: Fundamentals

JAVASCRIPT UPGRADE (ECMASCRIPT 2022)

- Variables (types, declaration, range...)
- Functions (lambda...)
- Objects and classes
- Native Array and Object functions (reduce, filter...)
- Promises INTRODUCTION

TO NODE.JS

- Differences with client-side JS
- CommonJS VS ES modules
- NPM (package installation, basic commands, etc.)
- Environment variables and arguments
- Event loops and asynchronous code
- Streams
- Built-in modules (path, fs...)

DAY 2: WEB SERVER AND REST API

INTRODUCTION TO EXPRESS

- Creating a minimalist WEB server
- Request / Response object
- HTTP protocol (status, error code...)
- Using middleware
- Express application structure and best practices

SENDING CLIENT-SIDE REQUESTS

- React forms upgrade (react-hook-form, zod...)
- The fetch method
- The FormData interface
- JSON exchange format
- CORS issues

SERVER-SIDE REQUEST MANAGEMENT

- Routing Express
- Managing route parameters
- The body-parser package
- Handling HTTP GET requests
- Handling HTTP POST requests
- File upload management with multer package REAL-TIME

DATA MANAGEMENT

- Set up a polling system
- Using SSEs (Server Sent Events)
- Using websockets with socket.io
- Using a Service Worker and the benefits of a PWA (progressive webapp)
- Push notification with web-push package

DAY 3: Database and authentication system

MONGODB AND MONGOOSE

- Setting up a MongoDB database
- Connecting to a MongoDB database
- SQL VS No-SQL comparison
- Inserting data into a MongoDB collection
- Mongoose schema and model creation
- CRUD operations on a MongoDB database
- Push notification with web-push package

IDENTIFICATION AND AUTHORIZATION

- Using Express sessions
- JWT-based authentication system
- Logging in / identifying a user on the front
- SSO authentication with passport

DAY 4: Production and quality of a Node.JS application

TYPESCRIPT

- Benefits and implementation
- The tsconfig.json file
- Define custom types
- Enums
- Generic types
- Utilities (Record, Partial, Omit...)

TESTING

- Test pyramid
- Installing and configuring Jest
- Testing an API endpoint
- Unit testing a function
- Assertions, tests...

SWAGGER

- The Open API specification
- Documenting a REST API
- Swagger documentation server under Express

TOOLCHAIN AND PRODUCTION START-UP

- Production environment
- Semantic versioning
- Git flow and hooks with husky
- Conventional commit specification
- Generate an application build

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 enabling 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 with regard to 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.