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Sign up

RESTful API training

3 days (21 hours)

Presentation

The RESTful API training course teaches you how to design, document and secure robust, high-performance web APIs based on HTTP and OpenAPI standards and industry best practices.

You'll move from resource modeling to writing an API contract, from security to caching (ETag, Cache-Control), to observability and governance (versioning, DX). Each module includes a workshop to consolidate what you've learned.

At the end of the course, you'll have a clear, documented and tested API, ready for production and integration via an API Management portal.

As with all our training courses, this one works with the latest REST architectural style rules.

Objectives

- Design coherent, scalable REST APIs
- Specifying with OpenAPI and JSON Schema
- Security via OAuth /OIDC, JWT, CORS
- Optimize performance and caching (HTTP/2-3)
- Industrialize testing, CI/CD and governance

Target audience

- Back-end and full-stack developers
- API engineers
- Tech lead

Prerequisites

- Familiarity with HTTP and JSON
- Notions of web security and testing

Our RESTful API training program

REST & HTTP fundamentals

- Fundamentals of REST and RMM
- Modeling resources, URI, JSON
- HTTP verbs: GET, POST, PUT, PATCH, DELETE
- Semantics: safe, idempotent, cacheable
- 2xx/4xx/5xx codes and consistent responses
- Workshop: mapping domain resources & endpoints

Negotiation, formats & contracts

- Content negotiation: Accept / Content-Type
- JSON Schema and validation
- RFC 7807-type errors (Problem Details)
- Versioning: URI, header, media type
- Clear documentation and examples
- Workshop: defining a schema + error format

Advanced modeling & querying

- Filtering, sorting, pagination, searching
- Sparse fieldsets & projection
- Relationships: sub-resources, links (HATEOAS optional)
- Naming conventions and business statuses
- Idempotency & conflicts (ETag / If-Match)
- Workshop: designing API query params

Specifying with OpenAPI

- OpenAPI structure: paths, components, schemas
- JSON Schema 2020-12
- Parameters, requestBody, responses, examples
- Reuse, $ref, polymorphism
- Client and server generators
- Workshop: writing a first OAS 3.1 contract

Security & access control

- OAuth 2.1, OIDC, API keys, JWT

- CORS, rate limiting, throttling
- Validation I/O, OWASP API Top 10
- mTLS, secrets, key rotation
- Security logs & traceability
- Workshop: protecting an API with OAuth/JWT

Errors, versioning & evolution

- RFC 7807 and precise error codes
- Versioning strategies & depreciation
- Upward compatibility & stable contracts
- Managing breaking changes
- Communication & changelog
- Workshop: defining evolution policy

Performance & HTTP cache

- Cache-Control, ETag, Vary headers
- Compression, HTTP/2 and HTTP/3
- Pagination vs streaming, batch endpoints
- Avoid N+1, optimize payload
- Measurements: latency, p50/p95, SLIs/SLOs
- Workshop: cache strategy & conditional validation

Implementation & testing

- Hexagonal architecture, API / domain separation
- DTO vs. resources, mapping
- Contract testing, integration testing
- Test doubles: mock, stub, sandbox
- CI/CD: Spectral, Newman, quality
- Workshop: test pipeline & contract validation

Operation & governance

- API Management: gateway, quotas, analytics
- Observability: logs, traces, metrics
- DX: portals, try-it, guides, SDKs
- Naming policies, reviews, governance board
- SLA/SLO, support & decommissioning
- Workshop: governance checklist & publication

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced IT 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 forthcoming training course, 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.

Certification

A certificate will be awarded to each trainee who has completed the entire course.