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Sign up

Angular Advanced Training

2 days (14 hours)

Presentation

Discover our "Angular - Advanced Development" course, specially designed to fully master the architecture and advanced features of Angular, and become an expert in developing dynamic, high-performance web applications.

You'll start by assimilating modern architectures with Nx and optimized application structuring with core, feature and shared modules. You'll quickly integrate the major new features of Angular 18 to 20, including Fast Refresh and advanced directives.

This course focuses on reactive programming with RxJS, enabling you to efficiently manage complex asynchronous flows and solve orchestration problems. Advanced state management with NgRx will guarantee robust, maintainable and reactive applications.

You'll learn how to optimize the performance of your applications through best practices such as Lazy Loading, advanced conditional rendering and fine-tuned management of the change detection cycle.

Finally, you'll master in-depth unit testing using the Karma, Jasmine and Jest tools, to ensure the quality and reliability of your Angular applications in all circumstances.

Like all our training courses, this one will introduce you to the latest stable version and its new features: Angular 20 and Redux 5.

Objectives

- Understand the key concepts of ReactJS and its specific features
- Create functional components

- Mastering JSX syntax
- Using Flux and managing bugs
- Test your development
- Boost application performance

Target audience

Angular Web Developer, Lead developer

Prerequisites

- Fundamental knowledge of Angular, or have completed our Angular training course
- Test My Knowledge

Technical requirements

- Have Node.js installed
- An IDE, preferably Visual Studio Code
- Github Desktop or similar software

Angular Advanced training program

Introduction to Nx & Monorepos

- Definition of a monorepo
- Introduction CLI Nx
- Creating an Nx workspace
- Optimized application architecture
- Practical workshop: Creating an Nx workspace to structure your project management application.

Advanced Architecture

- Core/feature/shared modules
- Standalone components
- Hierarchical dependency injection
- Customized InjectionTokens
- Practical workshop: Initializing the modular architecture of a project management application.

What's new in Angular 18, 19 and 20

- New Fast Refresh mechanisms
- Zone.js performance improvement

- Conditional rendering evolution with advanced directives
- Simplified dependency management and new APIs
- Practical workshop: Integrate Fast Refresh and optimize conditional rendering using the new Angular directives.

Advanced Components & Guidelines

- Content projection (ng-content)
- Dynamic views (NgComponentOutlet)
- Advanced structural guidelines
- Child queries (@ViewChild/@ContentChild)
- Practical workshop: Creating a reusable project list component with content projection.

Reactive Programming with Angular

- Advanced observables
- Subjects, BehaviorSubject, ReplaySubject
- Complex RxJS operators
- Asynchronous flow management
- Practical workshop: Building an advanced reactive service for dynamic project management.

State management (NgRx)

- Global store
- Actions, Reducers, Effects
- Advanced selectors
- Full NgRx integration
- Practical workshop: Setting up global project status management with NgRx.

Advanced Routing & Lazy Loading

- Modular routing
- Lazy loading
- Module preloading
- Dynamic routing
- Practical workshop: implementing advanced routing with lazy loading in the project management application.

Route Guards & Resolve

- Secure routes (CanActivate)
- Child access control (CanActivateChild)
- Navigation confirmation (CanDeactivate)
- Data preloading (Resolve)
- Practical workshop: Securing routes and preloading data for components.

Performance Optimization

- Change Detection & OnPush
- Advanced ChangeDetectorRef
- DOM optimization (*ngFor, trackBy)
- Techniques lazy loading components
- Practical workshop: Optimizing rendering and overall application performance.

Advanced Reactive Forms

- Dynamic Reactive Forms
- Customized validators
- FormControl/FormGroup/FormArray
- ControlValueAccessor (CVA)
- Practical workshop: Create a dynamic form with advanced validations to manage projects.

Angular Material & Advanced CDK

- Essential Angular Material components
- Advanced customization of Material themes
- Interactive CDK components (Drag & Drop, Overlay, Scroll)
- Creating custom components with Angular CDK
- Practical workshop: Designing a custom library of UI components with Angular CDK and Material.

Unit Testing & Best Practices

- Karma/Jasmine/Jest
- Component/service testing
- Advanced asynchronous testing
- Observable testing (Marble testing)
- Practical workshop: Perform advanced unit tests on application components and services.

Internationalization (i18n)

- Integrated multilingual support
- Angular i18n
- Dynamic translations
- Multilingual SEO best practices
- Practical workshop: Integrating internationalization to support multiple languages in the application.

Server-side Rendering & SEO (Angular Universal)

- SSR Angular Universal
- Hydration

- Advanced SEO, meta-tags
- Static preview
- Practical workshop: Implementing server-side rendering (SSR) to optimize your application's SEO.

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.