Ionic training with Capacitor and React

3 days (21 hours)

Ionic with Capacitor and React

Our training course introduces you to Ionic, a modern framework for creating hybrid mobile applications based on web technologies. Combined with Capacitor, it offers fluid access to native smartphone functionalities, while retaining the simplicity of React development.

Thanks to its cross-platform approach, a single code base can target iOS, Android and the web.

The Ionic with Capacitor and React training course will enable you to master the complete ecosystem: creating high-performance mobile interfaces, integrating native plugins, managing data and deploying on official stores.

You'll learn how to connect your applications to APIs, manage security and optimize performance to deliver a fluid, modern user experience.

At the end of this course, you'll be able to design and publish a complete hybrid mobile application, integrating advanced functionalities such as geolocation, authentication and push notifications.

Like all our training courses, this one is based on the latest stable versions of Ionic Framework, Capacitor and React.

Objectives

- Understand the Ionic, Capacitor and React ecosystems
- Create modern, high-performance mobile interfaces
- Integrate native APIs and Capacitor plugins
- Manage local storage and API synchronization
- Prepare and publish an app on iOS and Android
- Automate testing and deployment

Target audience

- Front-end developers
- Mobile developers
- Application architects

Prerequisites

- Basic knowledge of JavaScript / React
- General knowledge of mobile development

Ionic with Capacitor and React training program

[Day 1 - Morning]

Discover Ionic and its ecosystem

- Understanding Ionic's role in hybrid mobile development
- Introduction to Capacitor and the differences with Cordova
- Introduction to React for Ionic applications
- Installing and configuring the development environment
- Structure of an Ionic + Capacitor project
- Practical workshop: Creating and launching a first Ionic application with React.

[Day 1 - Afternoon] Components

and navigation

- Using Ionic UI components (lists, modals, tabs...)
- Managing navigation and routes with React Router
- Integrating side menus and tabs
- Use React hooks with Ionic
- Customizing the UI with CSS and Ionic themes
- Practical workshop: Building a multi-page app with custom navigation and themes.

Capacitor and native access

- Discover the Capacitor APIs (Camera, Filesystem, Geolocation)
- Adding and configuring native plugins
- Connecting web code and native APIs
- Permission management
- Third-party API integration (Google Maps, Firebase...)

- Practical workshop: Camera and geolocation functionality.

Data management and storage

- State management with React
- Local storage: Storage API and SQLite
- Synchronization with REST APIs
- Offline mode management and persistence
- Best practices in data structuring
- Practical workshop: To-Do List with local persistence and API synchronization.

Performance

and optimization

- Lazy loading strategies and optimization
- Bundle reduction (tree-shaking)
- Improving startup time and rendering
- Debugging and profiling tools
- Android and iOS-specific optimization
- Practical workshop: Optimizing an Ionic application for better performance.

Deployment and publication

- Creating Android and iOS builds with Capacitor
- Integration with Xcode and Android Studio
- Certificate and signature management
- App Store and Google Play publishing
- Updates via Appflow
- Practical workshop: Preparing and generating a store-ready version.

Software testing and quality

- Unit testing with Jest
- End-to-end testing with Cypress or Playwright
- Testing strategies for hybrid apps
- CI/CD automation
- Quality monitoring: linting and formatting
- Practical workshop: Writing unit and e2e tests for an Ionic app.

Advanced features

- Integrating Push Notifications
- Authentication (OAuth2, Firebase Auth, JWT)
- Payment management / Third-party APIs
- Firebase integration
- Creating custom Capacitor plugins
- Practical workshop: Setting up a complete authentication system.

Industrialization and best practices

- Structuring a project for teamwork
- Setting up a mobile CI/CD
- Versioning and environment management (DEV/TEST/PROD)
- Securing code and secrets
- Maintainability and scalability
- Practical workshop: Continuous deployment to Firebase Hosting + stores.

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 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 training: 60% hands-on, 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 is used to verify the correct acquisition

skills.

Certification

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