

Updated 06/06/2025

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# Cross-platform Mobile Applications Training

4 days (28 hours)

## Presentation

Our "Creating cross-platform mobile applications" training course will enable you to master the fundamentals of designing mobile applications with high multi-material compatibility. You'll learn how to create modern, responsive and interactive interfaces, while discovering the most widely used mobile development frameworks.

Our program covers all the essentials of cross-platform development, from UX/UI design to advanced practices in external API integration and data management. You'll be able to build effective applications and test them on different types of mobile devices (Android, iPhone), manage their complete development cycle and easily deploy them on the main mobile platforms.

At the end of this training course, you'll know exactly how to identify the best cross-platform framework for your project, structure your mobile applications efficiently and master their deployment.

Like all our training courses, this one includes numerous practical exercises, and will introduce you to the very latest versions of the frameworks studied.

## Objectives

- Understand the principles of cross-platform mobile development
- Discover the most popular mobile development frameworks
- Designing a mobile application
- Developing a responsive and interactive user interface
- Testing the application on different devices

## Target audience

- Developers
- Project managers

## Prerequisites

- Knowledge of the Web, HTML, CSS, JavaScript and XML.

## Cross-platform Mobile Applications training program

### Introduction to cross-platform mobile development

- The difference between native, hybrid and cross-platform applications
- Cross-platform advantages and limitations
- Native, hybrid or multiplatform
- Understanding iOS and Android environments
- Key concepts
  - UI/UX
  - Performance
  - Deployment
- Practical workshop: Interactive comparative analysis of two cross-platform vs. native applications

### Main multiplatform frameworks on the market

- Popular cross-platform frameworks
- Focus on React Native
- Flutter
- Ionic / Capacitor
- MAUI/Xamarin .NET development for mobiles
- Criteria for selecting the right framework
- Practical workshop: objectively choosing the right framework for a specific case

### Beyond mobile: Cross-platform

- Flutter Web/Desktop
- Kotlin Multiplatform
- PWAs (Web Apps)
- Deadline for future trends

### Cross-platform mobile application

- Fundamentals of mobile design
- Storyboard and wireframes
- Mobile ergonomics UX/UI best practices
- Prepare the appropriate graphic resources
- Rapid prototyping tools
- Hands-on workshop: Create a complete interactive prototype from an original application idea.

## Development with React Native

- Introduction to the React Native framework
- Tool installation and familiarization
  - Expo
  - CLI
- Native components, View, Text, StyleSheet
- Screen navigation
- Status management
- React Native component lifecycle
- Hands-on workshop: "Interactive weather": create a simple app displaying the weather in real time using an external API.

## Development with Flutter

- Discover the Dart and Flutter languages
- Installing and configuring Flutter SDK
- Simple and advanced status management
- StatelessWidget, StatefulWidget
- Routing and navigation between pages
- Advanced styles and fluid animations
- Efficiently structuring your Flutter code
- Practical workshop: Developing a Flutter app to track personal habits on a daily basis.

## User interface

- Responsive design concepts applied to cell phones
- Flexbox and grids for mobile applications
- Manage different screen resolutions and orientations
- Animation, interactive transitions
- UI optimization for fluidity and responsiveness
- Practical workshop: Creation of an interactive interface for an intelligent diary application adapted to all screen types.

## Responsive design: Adapting the UI

- Manage a variety of screens (Tablet, Phone, Phablet)
- Landscape/portrait orientation
- Themes (light/dark)

- Material vs Cupertino
- Practical workshop: Adapting the interface to mobile/tablet screens.

## Responsive design: Adapting the UI

- Interaction : Energizing the app
- User events
- Quick forms
- Simple status management
- Provider (notions)
- Workshop: Adding an interactive form to your app.

## Data management and APIs

- Interaction with REST APIs
- JSON, XML
- Local data storage
- Asynchronous processing
- Mobile data authentication and security
- Error handling and network failures
- Hands-on workshop: Creating a news application using a public API.

## Efficiently test a multiplatform mobile application

- The importance of mobile testing
- Testing on emulators and simulators
- Testing on real physical devices
- Unit and integration testing
- Advanced debugging, integrated tools, DevTools
- Strategies for identifying performance problems
- Practical workshop: "Bug hunter" workshop: identify and correct bugs in a deliberately unstable application provided by the trainer.

## Mobile application deployment

- Cross-platform deployment
- Published on the Android Play Store
- Published on the iOS App Store
- Application version management and updates
- Automated deployment
- Optimization, reducing application size
- Performance monitoring and tracking
- Practical workshop: Simulating the complete publication of an application on internal test platforms.

## Further information

## 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.