

Updated on 01/23/2024

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Android Training

5 days (35 hours)

Presentation

[Android](#) is an open-source operating system based on Linux. This environment is currently one of the most widely used in the mobile world.

According to estimates, Android is installed on 2.5 billion active devices worldwide, with over three billion users, or around 39% of the world's population.

Designed for modern developers, our training course covers Kotlin, the revolutionary programming language, and Jetpack Compose, the innovative framework for responsive, elegant user interfaces.

Learn how to create high-performance, maintainable and aesthetically pleasing Android applications.

With a combination of solid theory and intensive practice, you'll quickly master best practices and advanced techniques to become an expert in Android development.

Our Android training will be based on the latest version of Android, [Android 12](#).

Objectives

- Creating robust mobile applications
- Launch your application on an emulator and on a physical phone or tablet.
- Android system architecture
- Manage user interactions

Target audience

- Java developers
- Architects
- Technical project managers

Prerequisites

- Basic programming skills

Technical requirements

- Android Studio latest version installed and, if possible, an emulator
- 16g Ram and a good processor

Working tools

- Android Studio latest version
- Latest Android SDK (Non Beta).
- Gradle

Android training program

Android Studio

- Discovering the working environment (Android Studio, Gradle)
- Optimization and tuning for greater programming comfort
- Architecture of an Android Compose project
- Read a StackTrace, use the debugger, the profiler...
- Launch your application on an emulator and on a physical phone or tablet.
- Using Gradle and adding libraries
- Generate an executable and upload it to the PlayStore

Kotlin

- Language syntax (Variable, Function, Object...)
- Master the lambdas expressions needed for composing
- Advantages of a modern language over Java
- Using an API Rest
- Asynchronous tasks using coroutines

Graphical user interface with Android Compose

- Create reusable components to design the various screens

- Using Previews
- Understand how recomposition, states and observable data work.
- Using shared variables
- Use of Material3 for modern application design
- Taking into account the light and dark theme and internationalization

Navigation with Android Compose

- Navigate from screen to screen using components
- Set up a navigation bar (with back arrow)
- Icon and menu
- Tabbar and Floating button

Architecture

- Setting up a ViewModel
- MVVM architecture
- Screen rotation
- Using coroutines to fetch our data
- Error and waiting management

Permission and location

- How dynamic permissions work
- Recover location in energy-saving mode

Persistence

- SharedPreferences fast backup
- Setting up a local database with Room

History

- How the old GUI system works with XML
- Data binding
- Handling XML components
- Activity life cycle

Depending on your wishes and the time available, other modules are also possible

- Fragment navigation
- Firebase integration with login with google and real-time database.
- Create a service that starts when the phone is booted (Service + Broadcast)
- Google Maps

- Push notification

Companies concerned

This training 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.