

Android Studio Intermediete

Duration : 2 Days

Course Content

In this training material we will understand the basics of Android with Compose on how to create Android applications using the latest best practices. This course covers the basics of creating applications with Jetpack Compose, the recommended tool for creating user interfaces on Android.

Prerequisites

We recommend that attendees of this course have:

- Basic computer skills
- Basic math skills
- A computer that can run Android Studio
- (Optional) Android device
- Having knowledge of Java Kotlin language is an added value

Who Should Attend

This course is intended for:

This course is designed for software developers interested in designing, creating, deploying, and testing applications for the Android™ mobile phone platform

Course objectives

In this course, you will learn to:

- Understand the fundamentals of Kotlin and Jetpack Compose
- Build a series of basic Android apps

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- Use Android app architecture, Jetpack libraries and work with data according to Modern Android Development practices
- develop android application with java kotlin language

Course Outline

Module 1: Your first android app.

- Write simple Kotlin programs that display text output.
- Download and install Android Studio.
- Build an Android app with a simple user interface that displays text and images.
- Run the app on a device or emulator.

Module 2: Building UI

- Use conditionals, function types, classes, and lambda expressions in Kotlin.
- Understand how composition and recomposition works.
- Add a button to an app UI and respond to user taps.
- Create an app that works with data entered by the user.
- Learn how to use state to display data and reflect the changes automatically when the data gets updated.
- Write unit tests to test isolated functions.

Module 3: Display List and Use Material Design

- Use data classes, functions, and collections in Kotlin.
- Create a scrollable list in an app that displays both text and images.
- Add click listeners to interact with list items.
- Add an app bar to the app and modify the app theme.

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- Use Material Design to build modern and intuitive user interfaces, using colors, shapes and typography.

Module 4: Navigation and App Architecture

- Explain activities and their lifecycles.
- Understand Modern Android architecture.
- Use StateFlow and UDF pattern to work with state and events.
- Add a ViewModel to save data and state.
- Set up and use the Navigation component with Compose.
- Understand what responsive UI is.
- Use window class sizes to build for different screen sizes.
- Add a navigation drawer to an app.

Module 5: Connect to the internet

- Describe the basics of concurrency and how to use coroutines in an Android app.
- Define and understand the data layer in Modern Android app architecture.
- Implement a repository to centralize data access.
- Use Retrofit to retrieve data from a remote server.
- Load and display images using the Coil library.
- Implement dependency injection to decouple the classes, making it easier to test, maintain, and scale the app.

Module 6: Data Persistence

- Learn the basics of SQL to insert, update, and delete data from a SQLite database.
- Use the Room library to add a database to an Android app.

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- Use Database Inspector to test and debug database issues.
- Use Preference DataStore to store user preferences.

Module 7: Work Manager

- Define long running tasks that need to run in background work.
- Add WorkManager to an Android app.
- Create a Worker object and enqueue work.
- Create constraints on WorkRequests.
- Use the Background Task Inspector to inspect and debug WorkManager.

Module 8: Views and Compose

- Understand the View-based UI toolkit and build app UI using XML.
- Add a composable in an app built with Views.
- Add Navigation component to the app and use it to navigate between fragments.
- Use AndroidView to display views.
- Add existing View-based UI components in a Compose app.

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