



ANDROID DEVELOPMENT



e-Learning Course

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ZETLAN TECHNOLOGIES

COURSE MODULES

Module 1: Introduction to Android Development

- Overview of Android OS & Ecosystem
- Android Architecture Components
- Setting up Android Studio & SDK
- Creating Your First Android App
- Understanding Project Structure
- Running Apps on Emulator & Physical Device

Module 2: Kotlin Programng Basics (If Using Kotlin)

- Kotlin vs Java for Android Development
- Variables, Data Types, and Operators
- Control Flow (if, when, loops)
- Functions & Lambda Expressions
- Object-Oriented Programming in Kotlin
- Collections, Lists, and Maps

Module 3: Android UI & Layouts

- XML Layouts & Views
- ViewGroups: LinearLayout, RelativeLayout, ConstraintLayout
- RecyclerView & Adapter Pattern
- Working with Material Design Components
- Customizing UI: Themes & Styles
- Handling User Input (EditText, Button, Toast, Snackbar)

Module 4: Activities & Navigation

- Activity Lifecycle & Intents
- Explicit & Implicit Intents
- Passing Data Between Activities
- Fragments & Fragment Lifecycle
- Navigation Component (Jetpack)
- Bottom Navigation & Drawer Layout

Module 5: Working with Data & Storage

- Shared Preferences
- SQLite Database & Room Database
- LiveData & ViewModel (MVVM Architecture)
- Repository Pattern for Data Handling
- Working with Content Providers

Module 6: Networking & APIs

- Introduction to RESTful APIs
- Using Retrofit for API Calls
- Handling JSON Data with Gson
- Working with OkHttp & Interceptors
- Using Coroutines for Network Calls
- Glide/Picasso for Image Loading

Module 7: Background Processing

- AsyncTask & Handlers (Deprecated)
- WorkManager for Background Tasks
- Services & Foreground Services Broadcast Receivers

Module 8: Jetpack Components & Architecture

- MVVM & Clean Architecture
- LiveData & ViewModel
- Navigation Component
- Paging Library
- WorkManager for Background Tasks

Module 9: Firebase & Cloud Integration

- Firebase Authentication
- Firestore Database
- Firebase Cloud Messaging (FCM)
- Firebase Analytics & Crashlytics

Module 10: Advanced Topics

- Dependency Injection with Dagger/Hilt
- Custom Views & Canvas API
- Jetpack Compose for Modern UI
- Performance Optimization & Profiling
- App Security Best Practices
- Publishing Apps on Google Play Store