

Android Developer Roadmap 2024

Beginner to Advanced

SWIPE



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Getting Started

- Install Android Studio and SDKs.
- Ensure compatibility with the latest version.
- Configure virtual devices (Emulator) for testing.



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Pick a language

- There are two primary programming languages for native Android development: Kotlin and Java.
- I recommend opting for Kotlin in 2024.
- Master the fundamentals of Kotlin programming, Android's backbone.
- Learn about Variables, loops, functions
- Learn about Object-oriented programming.
- Become a Kotlin ninja!



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Android Studio

- Familiarize yourself with android studio and its file structure.
- Explore the following files:
AndroidManifest.xml, Kotlin file,
Drawable file, Layout file, Mipmap file,
colors.xml file, strings.xml file, styles.xml
file, and build.gradle file.



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Foundation : Basic Android

- Explore various layout types, including Frame, Linear, Relative, and Constraint layouts.
- Dive deeper into **Constraint layouts**.
- Explore different View elements, such as TextView, EditText, Buttons, and ImageView, etc.
- Explore Intents, Implicit and Explicit.
- Learn about Android components such as Activities, Services, Content Providers, and Broadcast Receivers.



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Build Your Base: UI Design

- Once you have a command on layouts and elements, delve into the following Android features:
 - RecyclerView
 - Fragments
 - Dialogs
 - Toast
 - Bottom Sheets
 - Navigation Drawer
 - Tabs
 - Material Design
- Make simple to complex UI designs by cloning popular app interfaces to enhance skills.



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Master Data: Storage & Networking

- Explore SharedPreferences and SQLite for local data management
- Learn the Room Database (**Recommended**). CRUD with Room
- Learn Retrofit (**Recommended**) and Volley libraries for seamless connectivity to APIs and cloud services.
- Explore advanced Retrofit features.



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Mastering Android Jetpack

- Android Jetpack is a set of libraries, tools, and architectural guidance to help make it quick and easy to build great Android apps.
- Focus on **exploring only the essential** for your project, as delving into all aspects may be overwhelming due to its vast scope.



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Architect for Scalability

- The three prominent architecture in the Android :
 - MVVM (Model–View–ViewModel)
 - MVI (Model-View-Intent)
 - MVP (Model View Presenter)
- Choose the architecture that suits your project, but I recommend learning **MVVM**.



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Level Up: Testing And Debugging

- Explore Unit Testing and JUnit, Espresso, Mockito for code quality and stability
- Debugging Tools: Identify and fix issues confidently with Android Studio's debugger and logs.

Dependency Injection

- Dive into Dagger, Koin Or Hilt for dependency injection
- (**Hilt Recommended**)



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Explore Essential Topics

- leveraging third-party libraries to enhance the robustness of your application while minimizing development efforts.
- Firebase (Database, Storage, Auth, Analytics, FCM etc..)
- Security & Permissions
- Memory Leaks
- Threading
- Continuous Integration and Deployment (CI/CD) in Android
- Clean Architecture
- Google Map SDK



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Advanced Android Concepts

- Custom Views and ViewGroups
- Data Binding
- LiveData
- ViewModel
- Flow
- WorkManager for background tasks
- Coroutines for asynchronous programming
- Wear OS, AR, VR, and Machine Learning on Android
- Material design 3
- App optimization and performance tuning
- Advanced animation



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Must in 2024 (Advanced)

- Jetpack Compose: Jetpack Compose is a modern toolkit for building native Android UI.
- Kotlin Multiplatform: Kotlin Multiplatform is a technology that allows you to share code between different platforms (such as Android, iOS, and the web) using Kotlin.
- Android Instant Apps: Android Instant Apps allow users to run your app without installing it.
- Connection And communication with IOT device



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Build & Publish

- Show your app to the world by publishing it on the Google Play Store.

Staying Updated

- Explore sources for updates like official Android site, conferences, and community forums.
- Embrace the ever-evolving Android landscape with a growth mindset!



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Connect with fellow developers, **share your projects**, and **keep learning**.

Remember, the journey to Android mastery is continuous, so **keep exploring, building, and growing!**



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That concludes our Android journey!

I hope these insights help kick off your exciting Android adventure in 2024.

Share your plans, achievements, or questions in the comments.

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