

Kotlin Multiplatform (KMP)

CS 346 Application Development

<https://student.cs.uwaterloo.ca/~cs346>

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Introduction

What is Kotlin Multiplatform?

[Kotlin Multiplatform \(KMP\)](#) is an open-source technology from JetBrains that enables sharing code across Android, iOS, desktop, web, and server while retaining the advantages of native development.

[Compose Multiplatform](#) allows you to also share UI code across platforms.[1]

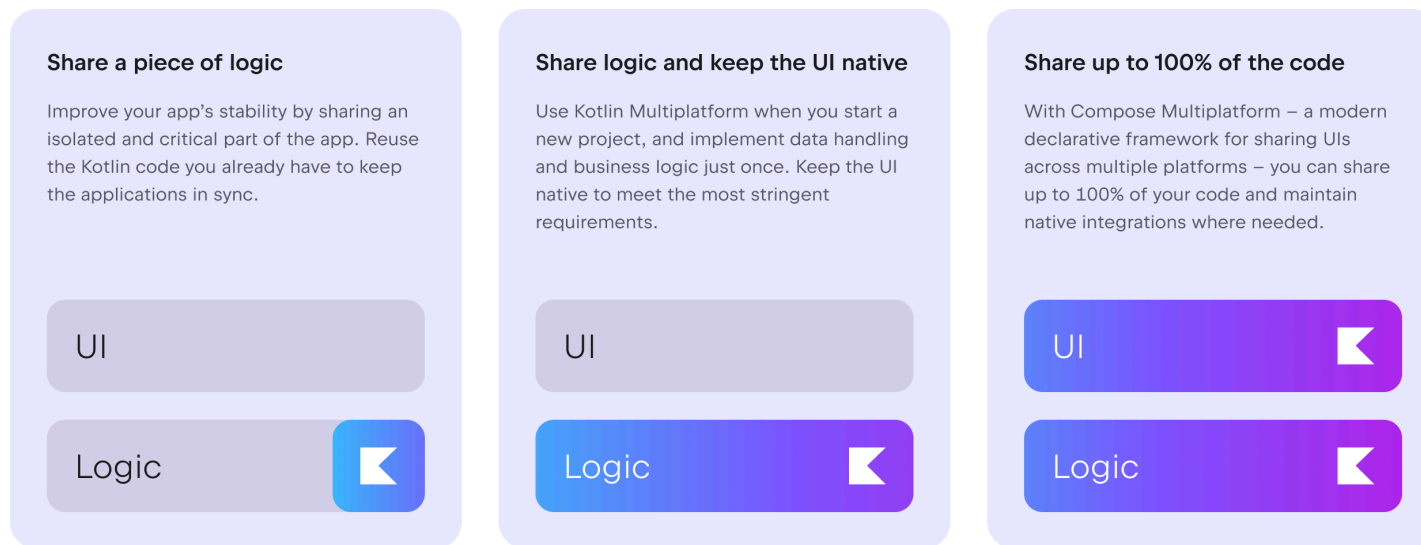


Figure 1: Kotlin Multiplatform lets you decide how much you wish to share across platforms. You can share minimal amounts (through a library) or the entire application with shared UI.

Supported platforms

Platform	KMP Stability	Compose Stability
Android	Stable	Stable
iOS	Stable	Stable
Desktop (JVM)	Stable	Stable
Server (JVM)	Stable	n/a
Web Kotlin/WASM	Beta	Beta
Web Kotlin/JS	Stable	Beta

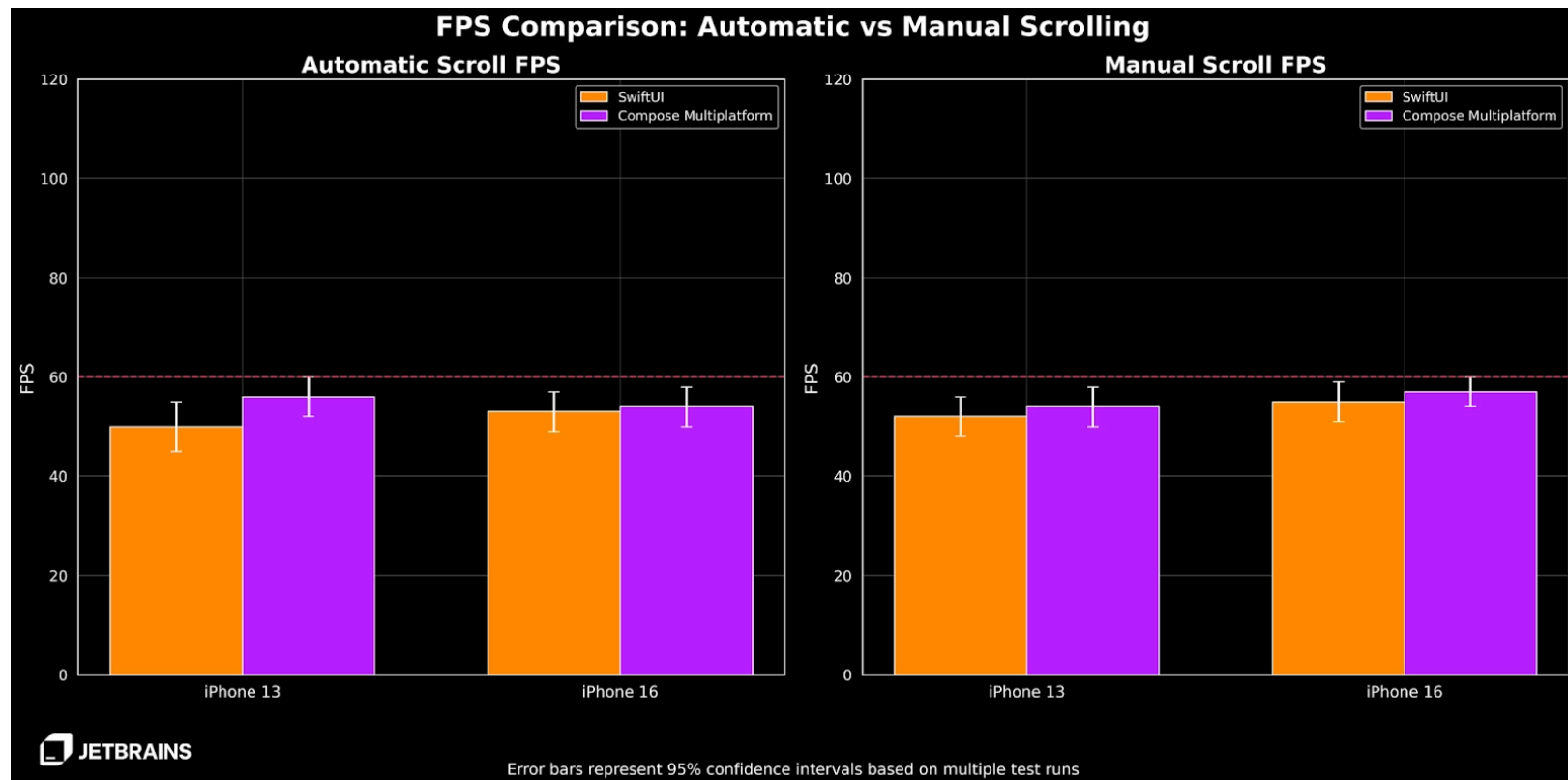
Legend

- Beta: “It’s almost done, user feedback is especially important now.”
- Stable: “It’s done. We will be evolving it.”

Android, iOS and Desktop are stable and usable targets for your project.

Supported platforms

Kotlin Multiplatform uses the Kotlin/Native compiler to produce native binaries and access platform APIs directly where virtual machines are undesirable or impossible e.g., Android and iOS. This helps achieve near-native performance on all platforms, and a native look-and-feel with supported UI toolkits. [1]



Supported platforms

You have a choice of UI frameworks. You can build your UI entirely using native frameworks e.g., SwiftUI for iOS and Compose for Android, or use Compose Multiplatform to have a uniform UI that can be reused on every platform. You can even mix and match native and shared UI code if you wish. [2]

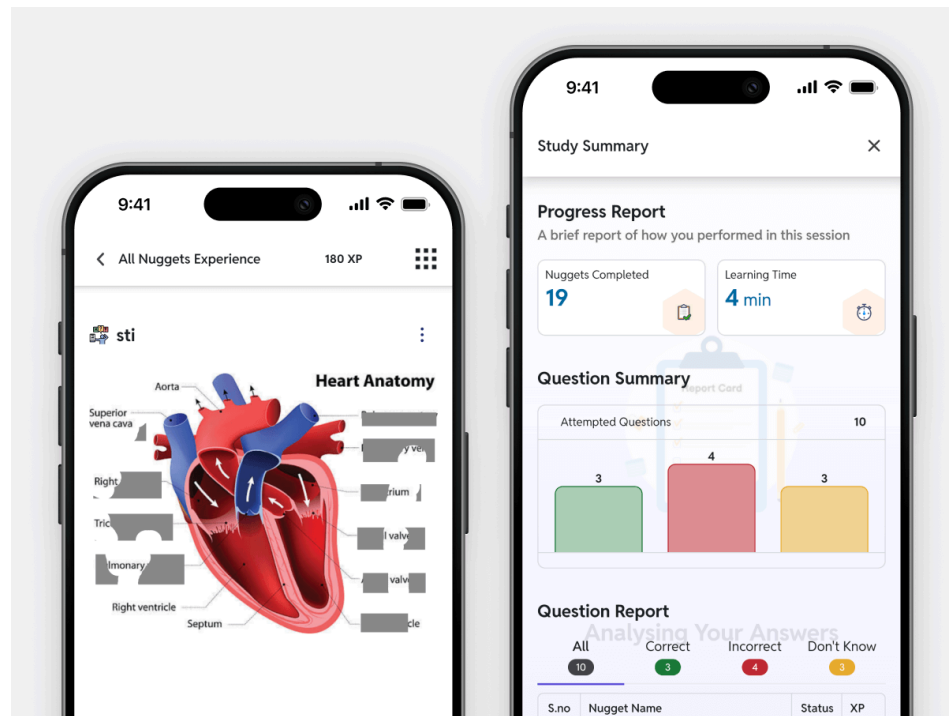


Figure 3: Physics Wallah (10M+ downloads) shares logic and UI code across iOS and Android, and exhibits near-native performance on both platforms.

Project setup

Setting up KMP builds

KMP folder structure

See [3]

Bibliography

- [1] JetBrains Inc., “Getting Started with Kotlin Multiplatform.” [Online]. Available: <https://kotlinlang.org/docs/multiplatform/get-started.html>
- [2] JetBrains Inc., “Compose Multiplatform Case Studies.” [Online]. Available: <https://kotlinlang.org/case-studies/?type=multiplatform&compose=true>
- [3] JetBrains Inc., “A New Default Project Structure for Kotlin Multiplatform.” [Online]. Available: <https://www.youtube.com/watch?v=AtvI0l7fm1Y>