I'm Shubham Panchal, a passionate software developer based in India. Graduating in 2025 with an undergraduate degree in computer science, I'm working as a SWE at Mastercard Inc. Starting with Android development in 2018, I've been building native Android apps and integrating ML-based features in them. Some of my noteworthy projects are On-Device RAG, SmolChat and On-Device Face Recognition, spanning a total of 1.8+ stars on GitHub.

Alongside Android and ML, I am interested in low-level programming, that motivated me to learn Rust and develop projects, a popular one being Sentence-Embeddings-Android. With Rust and ML, I wanted to expand my skills further from Android and go cross-platform.

I switched to Kotlin for Android development in 2020, and since then I've been tracking developments in KMM, now KMP and Compose Multiplatform. With my interests in ML and low-level programming, I wanted to create a KMP app that integrates with native (C/C++/Rust) code to deliver a useful feature.

My project, Constellation, is an app that helps users journal their thoughts and revisit similar thoughts made by them in the past. It utilizes a sentence embedding model to convert the text of the thought to a vector, which is used to compare other thoughts for semantic similarity. The app uses the following technologies:

- Compose Multiplatform as a cross-platform UI framework
- Kotlin/Native for interoperability with the native code (.so libraries compiled from Rust code) in iOS version of the app
- Rust libraries `tokenizers` and `safetensors` to produce sentence embeddings
- AndroidX Room (SQLite) for persistence of thoughts and their embeddings
- AndroidX ViewModel and Navigation 2.0 libraries for managing screen states and navigation across screens
- Koin for dependency injection

I would be glad if the project can be used as an example to showcase the capabilities of KMP, especially when building apps with native code.