Biplab Dutta

Project: Migrate Mifos X Field Officer app to Kotlin Multiplatform

Mentor(s): Rajan Maurya

Location: New Delhi, India

University, Year in School, Major: IIT Kanpur, 2012, Physics

Why Mifos: To build inclusive financial services that directly impact millions.

Long-term Career Objective: Becoming an engineering leader in the software industry

Personal Goal: Keep learning, mentoring, and building tech that makes a real-world impact.

Fun Fact: I still have my first computer — it runs, barely, and I keep it as a reminder.

Migrating Mifos X Field Officer App to Kotlin Multiplatform

*Includes preview of MifosPay's Generic Modules
& Auto-Pay Support*

C4GT 2025 | Biplab Dutta

What is the Mifos Initiative?

Open Source for Financial Inclusion

Mifos stands for **Microfinance Open Source** — an open-source initiative started to support microfinance institutions.

Today, Mifos powers inclusive digital financial services across **40+ countries**.

It supports **microfinance institutions, fintechs, digital banks**, and cooperatives.

Backed by a global community of **developers, implementers, and financial inclusion advocates**.

Mission

"To create a world of 3 billion Maries — where everyone has access to the financial tools they need to create a better life."

https://mifos.org/

The Mifos Tech Stack
(and Apache Fineract)

Core Components & Key Applications

Core Components

Apache Fineract – Core banking engine (donated to Apache).

Mifos X – Modular platform built on top of Fineract.

Key Applications

Field Officer App – For field staff; now being migrated to **Kotlin Multiplatform**.

MifosPay – Reference wallet & merchant payments.

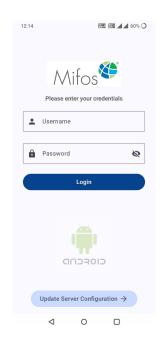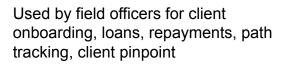**Mobile Banking App** – For customers to access account, loans, and services.

https://mifos.org/

Migrating Mifos X Field Officer App to Kotlin Multiplatform
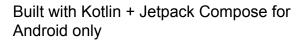
Helping Field Officers On the Go

Used by field officers for client onboarding, loans, repayments, path tracking, client pinpoint

Built with Kotlin + Jetpack Compose for Android only

Existing: Android-only (development branch)
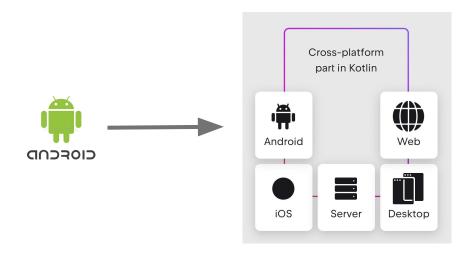
One Codebase → Many Platforms?

Cross-platform part in Kotlin

Android
Web
iOS
Server
Desktop

Goal: reuse core business logic and UI everywhere with Kotlin Multiplatform + Compose Multiplatform

Modules Migrated So Far

Client Module

Client List

Client Details

Identifiers

Create Identifiers

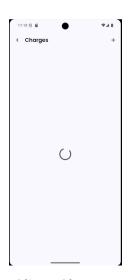PinPoint

Modules Migrated So Far

Client Module

Client Surveys

Client Charges

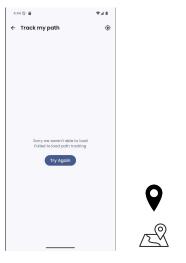
Signature

Client Form

Client Form Camera/ Gallery Picker
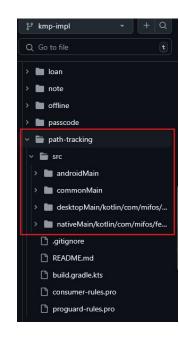
Modules Migrated So Far
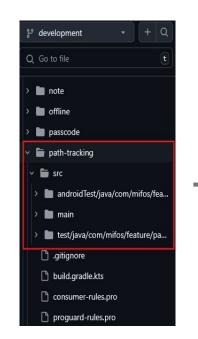
Path Tracking Module

Directory Structure

Path Tracking

Modules Migrated So Far
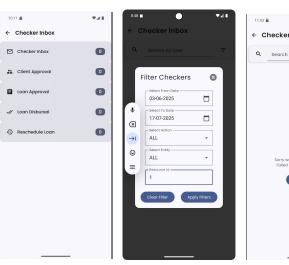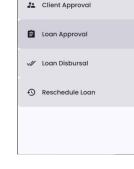
Checker Inbox Task Module

Checker Inbox

Checker Inbox Dialog

Checker Inbox Search

Desktop App

Modules Migrated So Far
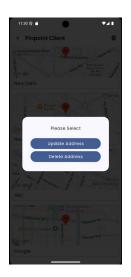
Client Pinpoint Sub-Module

Client Pinpoint

Address Update/Delete Dialog

Pinpoint Map Dialog

Client Pinpoint

Overview of Planned Work in MifosPay

Tentative Roadmap – MifosPay Enhancements (KMP)

1. Generic KMP Module for Merchant Payments
Plug-and-play SDK integration for any merchant payment provider.

2. KMP Sandbox for Generic Loan Applications
Reusable base for integrating loan workflows from various lenders.

3. Country-specific Payment Provider Integration
Dynamic gateway selection based on user location.

4. Auto-Pay Bills Module
Configurable recurring bill payment with scheduling and provider choice.

Focus Areas (Tentative Plan)

Likely Initial Focus

Merchant Payments Module
Already scoped out as a **generic Kotlin Multiplatform layer** to make integrating different merchant SDKs easy. Designed to reduce time-to-market across deployments.

Auto-Pay Bills Module
Early research done on supporting **flexible scheduling, provider selection**, and secure execution of recurring payments.

(Next Steps)

Final scope and priorities will be shaped based on discussions with mentors and the broader team during the coming weeks.

Thank You

🔧 Migrated the **Mifos X Field Officer App** to Kotlin Multiplatform

💡 Exploring **Generic KMP Modules** for **MifosPay** (Payments, Loans, Auto-pay)

🔗 **Project Summary:** bit.ly/mifos-c4gt-report

Let's connect!

https://github.com/biplab1   www.linkedin.com/in/biplab26/