OPSC6312 Part 3 — Final POE Submission

Smart Budget App (Final Version)

Student: Msseni Thabethe
Module: Open Source Coding (Intermediate)
Module Code: OPSC6312

1. Purpose of the App

Smart Budget is a personal finance management mobile application designed to help users track income, expenses, and savings goals effectively. It simplifies budgeting through an intuitive interface, real-time notifications, and intelligent insights into spending patterns. The final version builds on the prototype by adding real-time notifications, offline sync (RoomDB), SSO login with Google, and multi-language support (English and isiZulu).

2. Design Considerations

Smart Budget uses a minimal, light-themed interface optimized for clarity. Main tabs include Dashboard, Add Expense/Income, Analytics, Settings, and Notifications. Color scheme: Green and white. Typography: Roboto. App icon: Wallet with a checkmark representing smart money management.

3. Technical Implementation

Authentication: Firebase Authentication and Google Sign-In SDK. Database: Firestore (online) and RoomDB (offline). API: RESTful Firebase Cloud Functions for CRUD operations. Notifications: Firebase Cloud Messaging for budget alerts. Security: Encrypted passwords and restricted Firestore rules. Multi-Language: English and isiZulu via strings.xml localization.

4. Technologies Used

Technology	Purpose
Kotlin	Main programming language
Firebase Authentication	User login & encryption
Firestore	Online NoSQL storage
RoomDB	Offline local storage
Firebase Cloud Messaging	Push notifications
GitHub Actions	Automated builds & testing
Google Sign-In SDK	SSO authentication
XML	UI design

5. Release Notes

Version: 1.0 (Final POE) Date: November 2025 Changes from Prototype: • Offline Sync (RoomDB) – local tracking with auto-sync. • Firebase Cloud Messaging – real-time alerts. • SSO with Google – simplified login. • isiZulu Language Support – added localization. • UI Enhancements – improved contrast and animations. • Bug Fixes and Performance Optimizations.

6. GitHub and Video Demonstration

GitHub Repository includes README, license, and release notes. Demo Video (2–3 mins) shows login, expense tracking, offline sync, notifications, and language switching. Suggested narration script is included in project notes.

7. Conclusion

Smart Budget demonstrates secure authentication, real-time updates, offline capabilities, and bilingual support. It integrates Firebase, RoomDB, and GitHub Actions for a modern, continuous integration workflow. This final version is fully ready for Play Store deployment and meets all OPSC6312 requirements.