# Mobile Application Final Documentation

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1. Introduction

This document covers the final phase of my mobile application project for the PROG7313 module. The app is a personal budget tracker built using Kotlin and Android Studio. It’s designed to help people manage their income, track expenses, and work towards their financial goals in a more engaging way. I’ve focused on creating something practical, user-friendly, and helpful — something I would actually want to use myself.

2. Problem Statement

Many people want to take control of their spending but find budgeting apps too complicated or impersonal. Spreadsheets are boring, and most apps don’t feel like they were built for everyday users. I wanted to change that by building an app that’s easy to use, looks clean, and helps people stick to their goals with visual progress and small rewards.

3. System Objectives

* Make budgeting easier and less intimidating.
* Allow users to log income and expenses quickly.
* Show spending patterns through charts.
* Help users stay within their budgets.
* Make the app secure and responsive across devices.

4. Key Features

* Sign-up and login using Firebase authentication.
* Add and manage expense categories (like Groceries, Travel, etc.).
* Record income or expenses with details like amount, date, notes, and photo receipts.
* Set monthly spending limits and goals.
* View expense history for any time period.
* See visual breakdowns of where money is going.
* Track budget progress with a dashboard.
* Unlock badges or achievements for consistent tracking.

5. System Architecture

The app is built using the Android development stack:

* \*\*Frontend:\*\* Developed in Kotlin using Android Studio.
* \*\*Local Storage:\*\* RoomDB to save user data offline.
* \*\*Cloud Database:\*\* Firebase Firestore for syncing data across devices.
* \*\*Authentication:\*\* Firebase Auth for secure logins.
* \*\*CI/CD:\*\* GitHub Actions to automate testing and ensure stability on every push.

6. User Interface Overview

* \*\*Login/Register Screen:\*\* Users create or access their accounts.
* \*\*Home Screen:\*\* Quick overview of spending and remaining budget.
* \*\*Add Entry Screen:\*\* Form to add expenses or income with category and receipt photo.
* \*\*Statistics Screen:\*\* Charts to visualise spending by category or over time.
* \*\*Profile/Settings:\*\* Change account details or budget preferences.

Navigation is kept simple so users don’t get overwhelmed.

7. Technologies and Tools Used

* Kotlin (main programming language)
* Android Studio (main IDE)
* Firebase Authentication & Firestore
* RoomDB for local data
* GitHub & GitHub Actions for version control and automation
* OBS Studio for video voiceover

8. Testing and Evaluation

I tested the app on different physical Android devices and emulators to make sure everything worked well. This included testing the login, data saving and loading, UI responsiveness on different screen sizes, and making sure that even if you entered the wrong data, the app didn’t crash.

9. Final Features and Enhancements

* Graph showing spending per category over a chosen period.
* Dashboard that shows how close the user is to their monthly budget goals.
* Gamification: Badges unlocked after hitting milestones (like logging daily for a week).
* Online sync: Firebase stores data so it’s accessible across devices.
* Final icons and app branding added.
* Extra logging and comments in code to explain how things work.

10. Conclusion

This project taught me how to build a complete mobile app using Kotlin and modern Android tools. More importantly, it showed me how to think about real people using the app — not just how it looks, but how it feels to use. There’s still a lot I’d like to add, like connecting to a real bank or adding voice input, but I’m pleased at how far the app has come and what it can do now.