

## SCO 306 : PROGRAMMING LANGUAGES

### Project 2

Create a personal finance management app built with Kotlin, Jetpack Compose, Room, and Firebase, allowing users to track expenses, incomes, budgets, debts, and goals — with analytics, reports, and cloud sync.

#### Main Features

Feature	Description
User Authentication	Login/Register with Email, Google, or Biometric unlock (Fingerprint/Face ID) using Firebase Authentication
Add Transactions	Add income or expense with: category, amount, date, notes, payment method, and tags
Categories Management	Default categories (Food, Rent, Transport, etc.) + user-defined categories with icons/colors
Budget Planning	Set monthly budgets per category and receive alerts when nearing limits
Recurring Transactions	Automatically repeat transactions (e.g., rent, salary) monthly or weekly
Transaction Filters & Search	Filter transactions by date, category, amount range, or payment method
Local Storage	Offline data persistence using Room Database
Cloud Sync	Sync data with Firebase Firestore for multi-device access

#### Analytics & Reports

Type	Description
Spending Breakdown	Pie chart showing percentage spent per category
Income vs Expense Chart	Bar or Line chart comparing total income and expenses per month
Trends	Visualize spending trends across months
Budget Utilization	Show how much of each budget is used, with progress bars

Type	Description
Export Data	Export transactions to CSV, Excel, or PDF for offline review or sharing

### Financial Tools (Optional Add-ons)

Tool	Description
Debt Tracker	Manage debts/loans — who you owe or who owes you, due dates, reminders
Savings Goals	Create goals (e.g., “Buy a Laptop”) with target amount and track progress
Currency Converter	Real-time currency conversion using an API (e.g., ExchangeRate API)
Bill Reminders	Notifications for upcoming bills, subscriptions, or repayments
Smart Suggestions	ML-based insights (e.g., “Your transport costs are 20% higher this month”)

### UI/UX Design (Jetpack Compose + Material 3)

- Dark/Light mode support
- Dynamic color themes (Material You)
- Bottom navigation bar for Home, Reports, Budgets, Settings
- Floating Action Button (FAB) for quick “Add Transaction”
- Onboarding screens for first-time users
- Animations and transitions using `androidx.compose.animation`
- Accessibility support (large fonts, talkback)

### Cloud & Backup

Component	Description
Firebase Firestore	Sync data across devices
Firebase Storage	Store exported files or receipts (photo upload)
Google Drive Integration	Optional backup/export to Drive

Component	Description
Push Notifications	Send alerts using Firebase Cloud Messaging (FCM)

### **Security**

Feature	Description
Biometric Lock	Optional app lock using fingerprint or face
Encrypted Database	Use SQLCipher for Room for sensitive data
Backup Encryption	Encrypt exported data (CSV/PDF) before saving/sharing