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Smart Daily Expense Tracker Application Using Kotlin

Ayesha Yasin Attar[1], Rehan Sameer Mulla[2], Shravani Shivaji Bangar[3], Shital S. Salokhe[4]
[1, 2, 3, 4]*Student, Dr. D. Y. Patil Polytechnic, Computer Science and Engineering, Dr. D. Y. Patil Polytechnic, Kolhapur, Kasaba Bawada, Kolhapur, India.*

Abstract: ***Personal finance management plays a vital role in maintaining financial stability, yet many individuals fail to track their income and expenses regularly. Existing expense tracking methods such as manual records and spreadsheets are inefficient and error-prone. This paper presents the design and development of a mobile-based Expense Tracker Application using Kotlin for Android devices. The proposed system allows users to add income and expenses, categorize transactions, view transaction history, and calculate real-time balance using a local database. The application focuses on simplicity, offline functionality, and efficient data storage. Testing results indicate that the system performs accurately and provides a smooth user experience. The application aims to enhance financial awareness and assist users in effective budgeting and expense control.***
Keywords: Expense Tracker, Kotlin, Android Application, Personal Finance, Mobile Computing.

I. INTRODUCTION

In today's digital world, managing personal finances has become increasingly important due to frequent daily transactions. Individuals spend money on various needs such as food, transportation, shopping, and entertainment. Without proper tracking, it becomes difficult to control expenses and maintain savings, leading to poor financial decisions.

Traditional expense tracking methods like notebooks and spreadsheets require manual effort and are susceptible to errors. With the rapid growth of smartphone usage, mobile applications offer a convenient and efficient solution for financial management. Android applications provide portability, real-time access, and ease of use.

This paper proposes a mobile-based Expense Tracker Application developed using Kotlin. The application helps users record income and expenses, categorize transactions, and view detailed financial summaries. The system uses a local database to support offline usage, making it reliable and accessible. The main goal of the application is to provide a simple, user-friendly, and effective solution for daily expense management.

II. OBJECTIVES OF THE PROJECT

The main objectives of the proposed system are:

1) To provide an easy and efficient way to record daily income and expenses
2) To calculate and display total income, total expenses, and remaining balance
3) To allow categorization of transactions for better organization
4) To maintain a complete transaction history for future reference
5) To provide a clean and user-friendly interface
6) To reduce errors associated with manual expense tracking

III. PROBLEM STATEMENT

Many individuals do not maintain a proper record of their financial transactions, which leads to overspending, poor budgeting, and lack of financial awareness. Existing solutions are often complex, require internet connectivity, or involve paid subscriptions. Therefore, there is a need for a simple, offline, and user-friendly mobile application that helps users manage their income and expenses efficiently.

IV. LITERATURE REVIEW

Several expense management systems and applications have been developed to assist users in tracking financial activities. Traditional methods such as spreadsheets and manual bookkeeping are widely used but require continuous effort and are prone to human error. Existing mobile applications provide expense tracking features but often include complex interfaces, unnecessary functionalities, and subscription-based access.

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Previous studies emphasize the importance of simplicity, offline accessibility, and ease of use in personal finance applications. Many systems focus on advanced analytics but neglect daily usability. The proposed Expense Tracker Application addresses these issues by offering essential features, offline support, and a lightweight design suitable for everyday use.

Table 1: Comparison with Existing Systems

Feature	Existing Systems	Proposed System
Offline Access	Limited	Available
Subscription Required	Yes	No
User Interface	Complex	Simple
Local Storage	Partial	Full
Lightweight Application	No	Yes

V. SYSTEM REQUIREMENTS

A. Hardware Requirements

1) Android Smartphone
2) Minimum 2GB RAM
3) 200MB free storage
4) Internet connection (optional, if cloud storage is used)

B. Software Requirements

1) Android Studio IDE
2) Kotlin Programming Language
3) XML for UI Design
4) SQLite / Room Database
5) Android SDK

VI. METHODOLOGY

The application is designed using the following development methodology:

1) Requirement Analysis: The requirements of the system include adding income and expenses, displaying balance summaries, viewing transaction history, and managing transaction records.
2) System Design: The system is divided into different modules such as dashboard, transaction management, income and expense handling, and data storage.
3) Implementation: The application is implemented using Kotlin for business logic, XML for user interface design, and Room/SQLite database for storing transaction data locally.
4) Testing: The application is tested for accuracy, performance, database operations, and crash-free execution.

VII. SYSTEM ARCHITECTURE

The system architecture consists of three main layers:

1) User Interface Layer

Includes dashboard screen, add transaction screen, transaction list, and detail screen.

2) Business Logic Layer

Handles calculations, validations, and category management using Kotlin.

3) Database Layer

Uses Room/SQLite database to store transaction details.

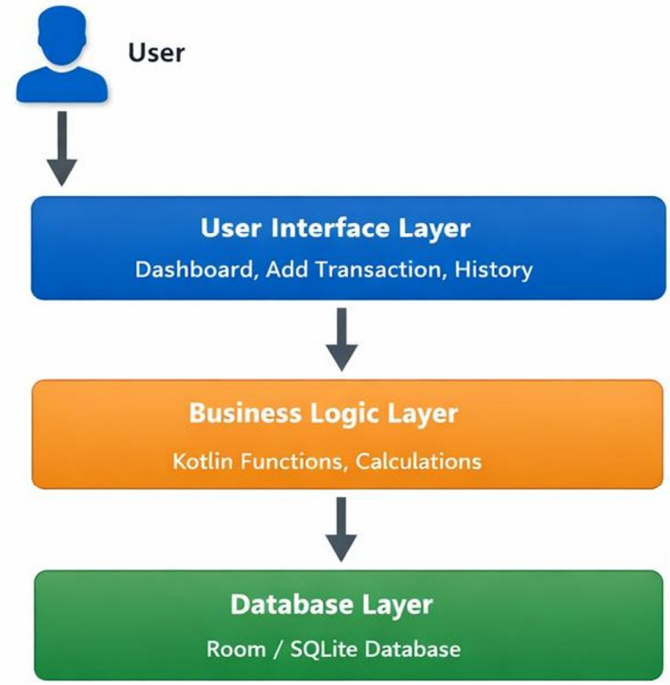


Fig 1: System Architecture of Expense Tracker Application

VIII. FEATURES OF THE APPLICATION

The Expense Tracker App includes the following features:

1) Dashboard

- Displays total balance
- Shows total income and total expenses
- Displays recent transactions

2) Add Transaction

- Allows user to add income or expense
- Supports category selection
- Allows date, time, and notes entry

3) Transaction History

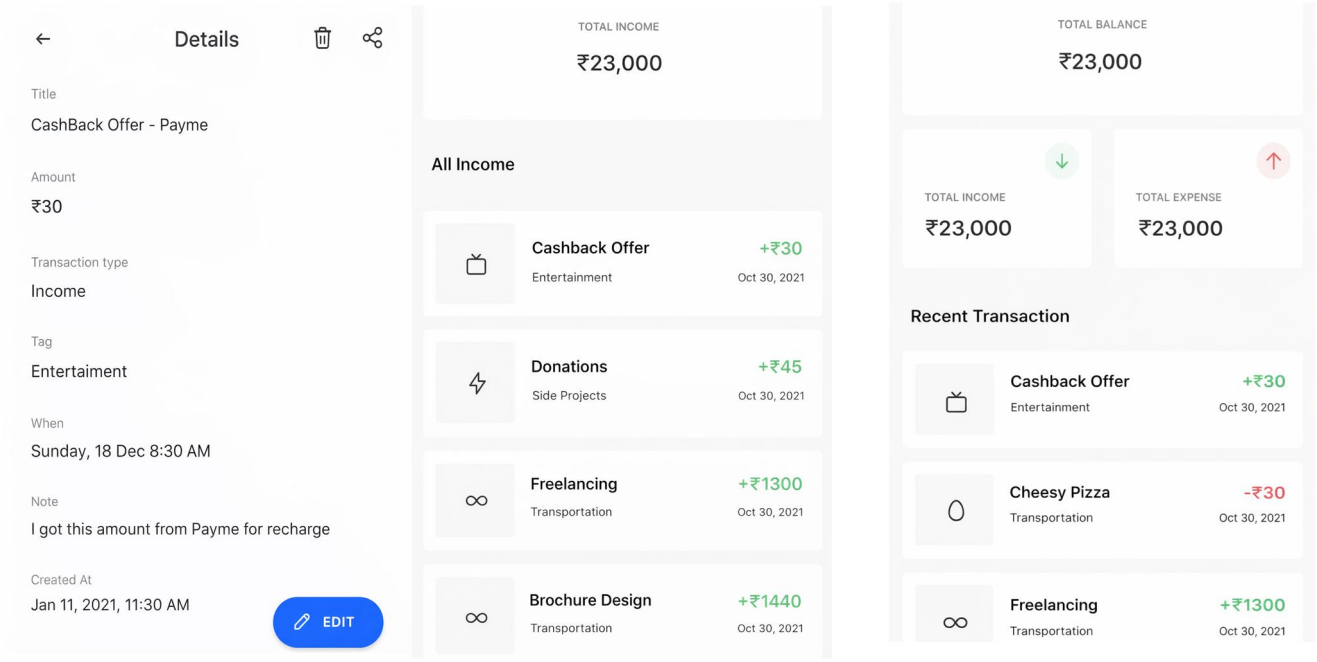
- Displays list of all transactions
- Uses color indicators for income and expense

4) Transaction Details

- Shows complete transaction information
- Allows editing and deletion of records

5) Currency Support

- Supports Indian Rupee (₹) symbol



IX. IMPLEMENTATION DETAILS

A. *Kotlin Usage*

Kotlin is used due to its concise syntax, null safety, improved performance, and strong support for Android development.

B. *Database Design*

The database table structure:

Field Name	Data Type	Description
id	Integer	Unique transaction ID
title	String	Transaction title
amount	Double	Transaction amount
type	String	Income / Expense
category	String	Transaction category
dateTime	String	Date and time
note	String	Optional note

X. RESULTS AND DISCUSSION

The developed application was tested on Android devices and produced accurate results. Income and expense records were stored correctly, and balance calculations were updated in real time. The application performed smoothly without crashes and provided a responsive user interface. The results demonstrate that the proposed system is effective for daily expense management.

XI. ADVANTAGES

1) Simple and user-friendly design
2) Fast transaction processing
3) Works offline using local database
4) Helps users manage budgets efficiently
5) Reduces manual calculation errors

XII. LIMITATIONS

1) No graph or chart analysis
2) No automatic bank synchronization
3) Single-user support only

XIII. FUTURE SCOPE

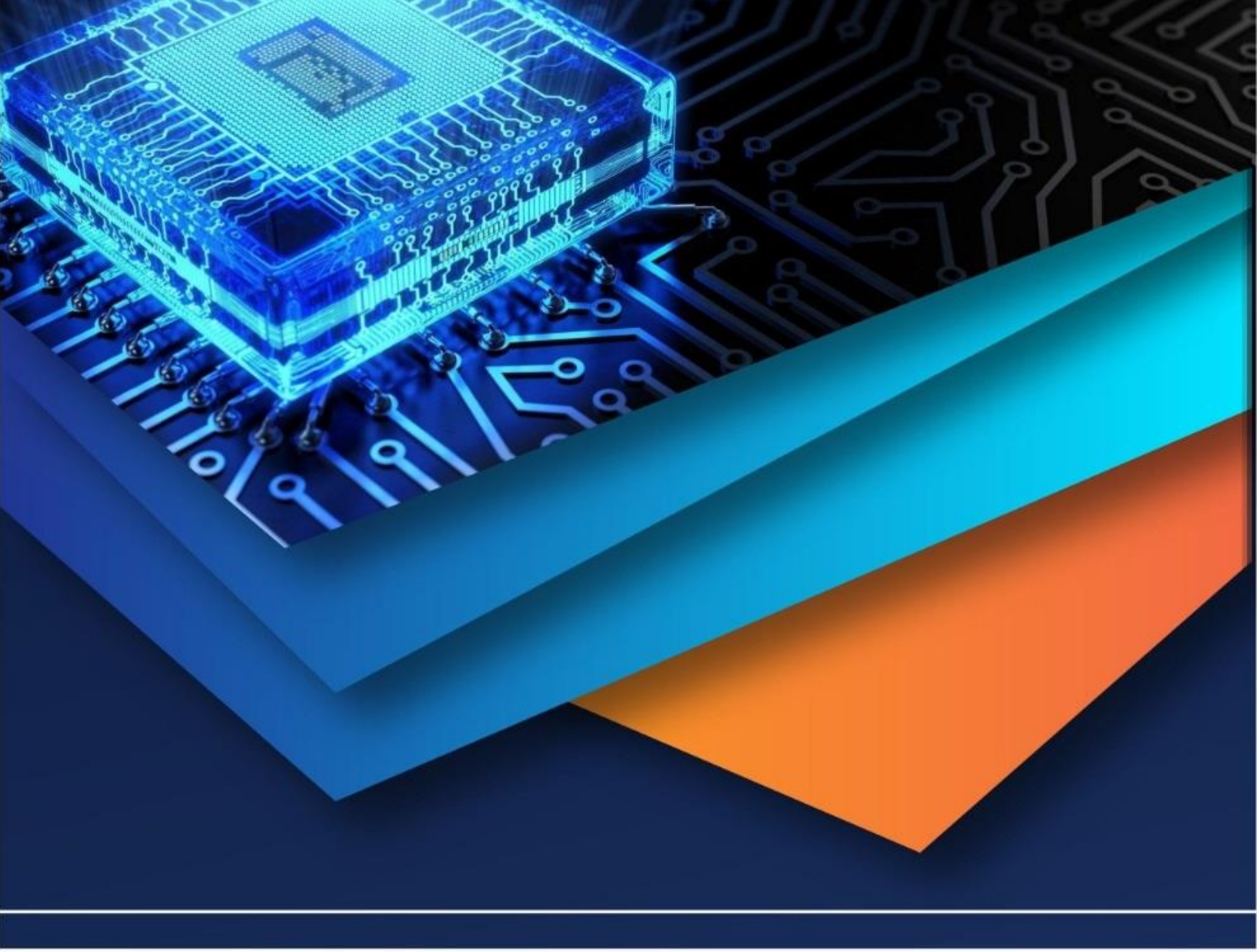
The application can be enhanced by:
Adding graphical analysis of expenses
Exporting data to PDF or Excel
Cloud backup using Firebase
Multi-user login system
Budget alerts and notifications

XIV. CONCLUSION

The Expense Tracker Application developed using Kotlin provides an effective solution for managing personal finances. The application allows users to track income and expenses easily, analyze spending patterns, and improve budgeting habits. The system is simple, efficient, and suitable for everyday financial management. The project successfully meets its objectives and demonstrates the usefulness of mobile applications in personal finance tracking.

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