

Android-Based Money Tracker Application Information System Using Flutter

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ABSTRACT

Objective: This study aims to design and develop a personal finance recording application for Android using the Flutter framework to enhance user convenience in managing daily financial transactions. **Method:** The research employed a system development methodology comprising requirement analysis, interface design, implementation using Flutter, and integration of a local SQLite database through the Drift package. **Results:** The resulting application, Money Tracker, enables users to record financial activities in real time, generate visual reports through pie chart representations, and utilize a chatbot feature for interactive assistance. The application demonstrates efficiency, user-friendliness, and functional reliability in supporting personal financial management. **Novelty:** This study contributes an innovative integration of Flutter and Drift-based local database technology with interactive visualization and chatbot support, offering a comprehensive and accessible solution for managing personal finances on mobile platforms.

INTRODUCTION

In this rapidly evolving world, managing personal finances plays a crucial role in everyone's life. The increasing demands and volume of daily transactions require a system that can record daily income and expenses. However, manual financial management, often done on paper or in a notebook, can be difficult and cumbersome for most people, especially when it involves numerous transactions, both income and expenses. There are a variety of financial management apps on the market today, but not all are easy to use, responsive, and able to meet user needs with features accessible across multiple devices. The Money Tracker app is designed to help people manage their personal finances while improving their understanding of financial literacy [1].

The Android-based Money Tracker app is designed to provide efficient and easy financial management. Using a smartphone as an indispensable tool in everyday life, users can easily record income, expenses, and monthly balances without the need for writing in a notebook or paper. This financial recording app can also assist with budget planning, provide simple analytical summaries, and manage both income and expenses in a very practical way.

In software development, particularly for mobile platforms, Flutter is a popular framework choice among programmers, particularly mobile programmers, due to its cross-platform support, allowing them to create programs for different platforms using a single codebase. This allows applications to run on various platforms, including

Android, iOS, web, and desktop, enabling developers to deliver more concise, optimal, and adaptive solutions [2].

Based on this, this research focuses on the design and development of an Android-based Money Tracker application using the Flutter framework. With features such as recording income and expenses, grouping transactions by category, and preparing financial reports in the form of pie charts, this application is intended to help users manage their finances more effectively. Therefore, the development of this application is expected to provide users with a practical and effective solution for monitoring their daily income and expenses. This is an example of the advantage of mobile applications, namely their ease of access, enabling use anytime and anywhere [2].

RESEARCH METHOD

The Agile Kanban method was applied in the development of the Money Tracker system. This work management approach emphasizes visualizing processes, managing tasks efficiently, and encouraging continuous improvement. With Kanban, software development can proceed more flexibly, enabling teams to respond quickly to changing user needs. Its key principles include visualizing all task stages to easily understand status and progress for team members, limiting Work In Progress (WIP) to maintain focus on completion, and measuring lead time to improve process efficiency. This method is a practical application of a lean scheduling system that focuses on efficiency and smooth workflow [3].

The research process applied in the development of the Money Tracker system utilized the Agile Kanban method. The steps taken in this method include Testing, Done, and Reporting, which consists of Requirements Gathering, Backlog, User Story, and Development.

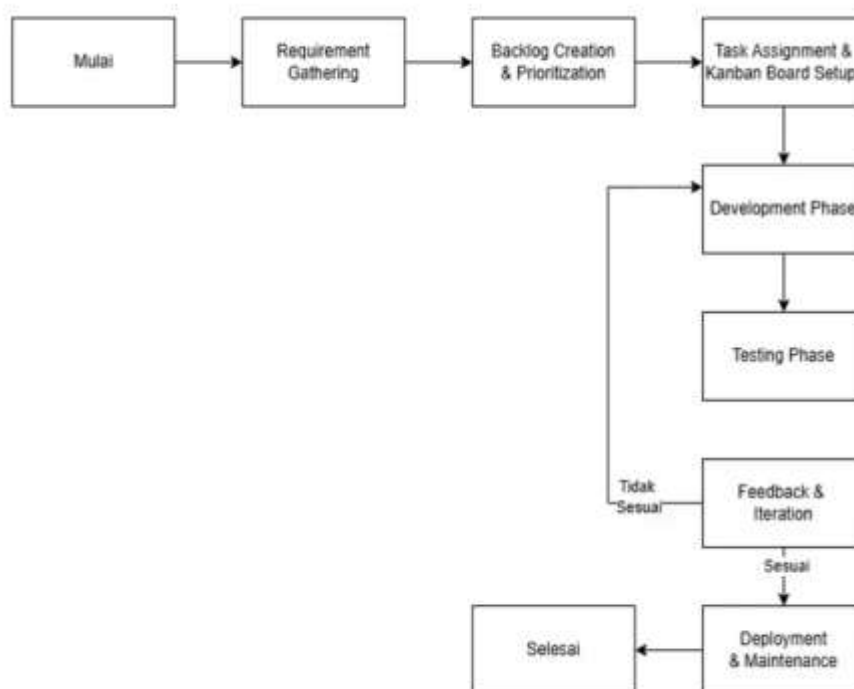


Figure 1. Steps in the Agile Kanban Method

Requirement Gathering

This stage involves requirement gathering, which is the process of collecting data related to application system management, such as Transactions, Security, User Interface, and System Users [4]. The following is a list of components that will be processed into the application:

Table 1. Requirement Gathering

No.	Category	Need	Description
1	Transaction Management	CRUD Transactions	Users can create, edit, delete, and view financial transactions.
2		Transaction Categories	Each transaction can be categorized, such as Food, Transportation, Entertainment, etc.
3		Amount & Date Management	Users can set the nominal amount and date for each transaction.
4	Security	User Authentication	The system uses email/password-based authentication to maintain user data security.
5	User Interface (UI)	Authorization	Users only have access to their own data and transactions.
6		Encryption	Sensitive information is encrypted to protect user data.
7	User Interface (UI)	Responsive Design	The system supports mobile devices with a display that adapts to Android screens.
8		Simple Interface	The UI is simple and easy to use for all users, without requiring a technical background.
9	Transaction Management	Application Users	Application users can manage income, expenses, and view transaction reports.

User Stories and Backlog

The user experience allows users to view financial reports or record transactions, which are essential parts of a money management application system [5]. To identify the backlog—a list of tasks to be completed during the development phase—tasks can be divided into user stories [6].

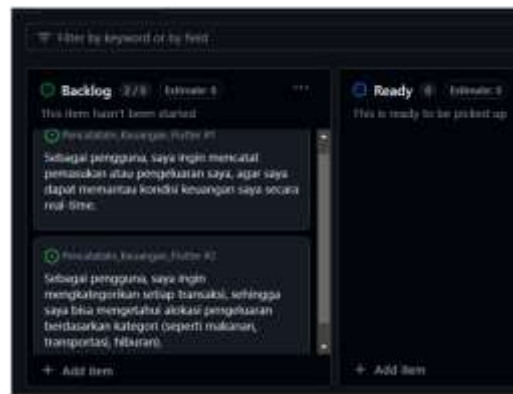


Figure 2. User Story

RESULTS AND DISCUSSION

A. Development

1. Flowchart

When the Money Tracker application is launched, users will be prompted to log in or register. After successfully logging in, the system will display the main page with two main menus: Add Transaction and View Report. In the Add Transaction menu, users can enter details such as the amount, category, date, and description of the transaction, which are then stored in a SQLite database for real-time access [7]. Meanwhile, in the View Report menu, users can view a monthly financial summary to monitor income and expenses and visually analyze their financial condition. Once completed, users can log out to secure their data [8]. This flow is designed to make the financial recording process easier, faster, and more efficient.

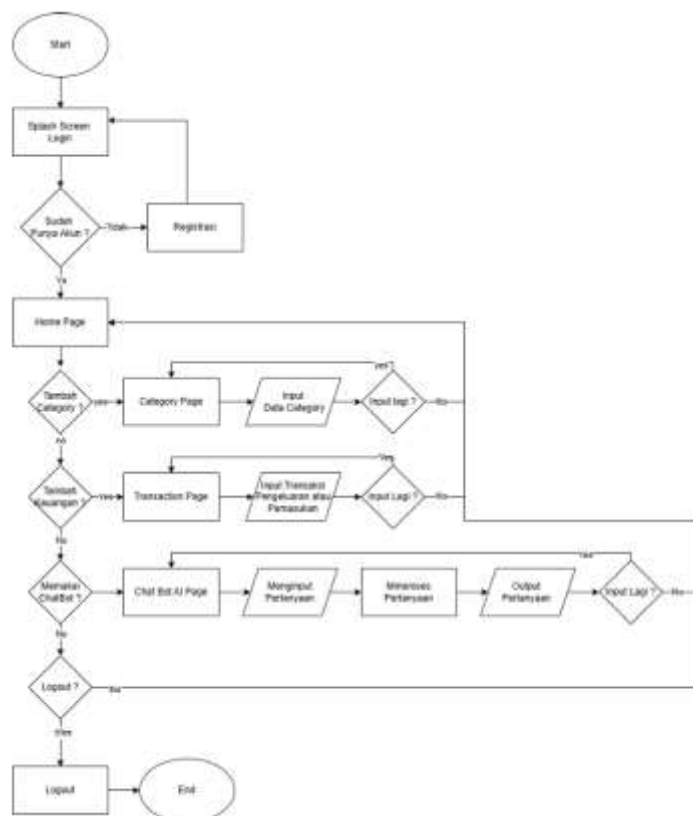


Figure 3. Flowchart

2. Use Case Diagram

A Use Case Diagram shows the relationships between systems, actors, and functions; it shows how actors interact with system features [9]. This diagram shows how the user, as the primary actor, uses various system functions in the Money Tracker application.

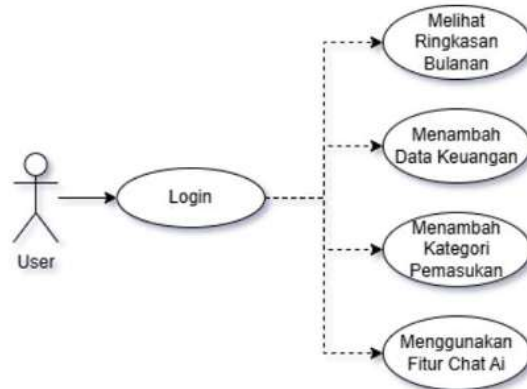


Figure 4. Use Case Diagram

3. Sequence Diagram

Sequence diagrams are used to visualize interactions between actors and systems according to the chronological order of events [10]. In the context of the Money Tracker application, a sequence diagram visualizes how users interact with the application to record financial transactions, manage categories, and view transaction history.

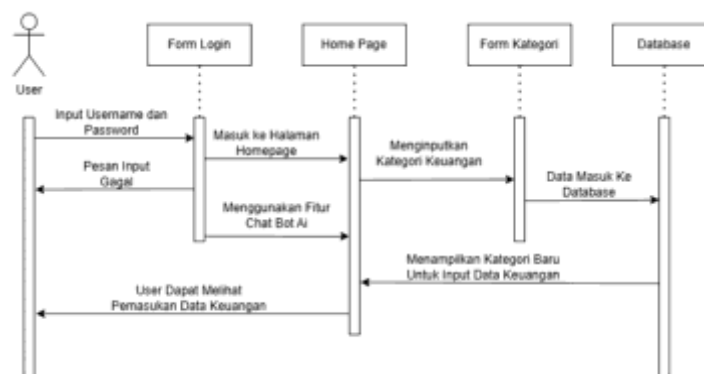


Figure 5. Input Sequence Diagram

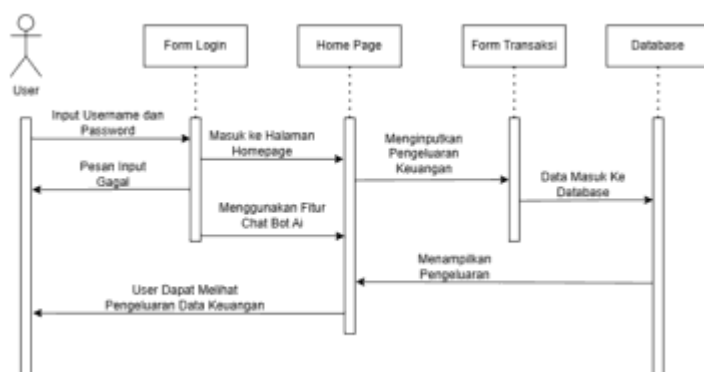


Figure 6. Input-Output Sequence Diagram

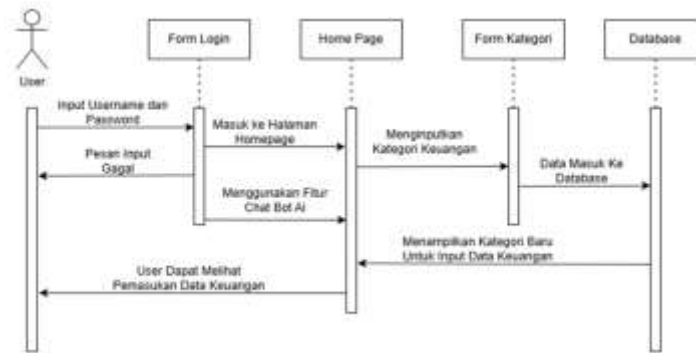


Figure 7. Sequence Diagram of Input Categories

4. Database Relations

Database relations describe the system structure and define the tables that will be created when building the system [11]. Data relations play a crucial role in efficient database design, allowing for the connection of information and the creation of more complex queries. The following illustrates the Class Diagram of the Money Tracker Application System [12].

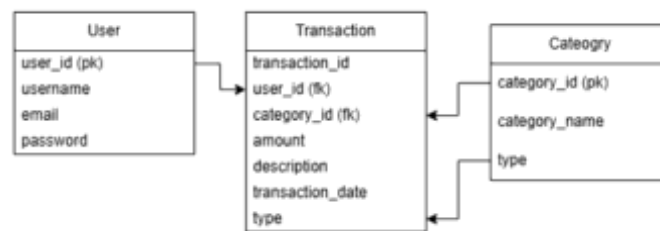


Figure 8. Database Relations

B. Implementation

At this stage, the design developed in the previous phase is implemented into program modules. Each module is then systematically tested to ensure that the system meets quality standards and is ready for use.

1. Splash Screen

The splash screen serves as the initial display, displaying the logo and name of the application to introduce the system's identity and provide initialization time before the user enters the main menu. The splash screen design consists of two parts: a screen with the application logo and an illustration screen that displays an overview of the main features [13].



Figure 9. Splash Screen

2. Login and Registration Page

The login and registration features provide a layer of security to the system, allowing each user to have a personal account. Through this mechanism, stored financial data can only be accessed by the account owner, thus maintaining the confidentiality and integrity of the information [14]. User data is stored in a local database with email and password validation.



Figure 10. Login and Registration Page

3. Home Page

The main page (Home Page) is designed to display a concise overview of the user's financial situation. The information displayed includes total daily income and expenses, visualized both in text and pie charts for easier understanding. Additionally, this page features a navigation menu for adding new transactions, as well as a calendar feature that allows users to select a specific date to review transaction details for that specific period.

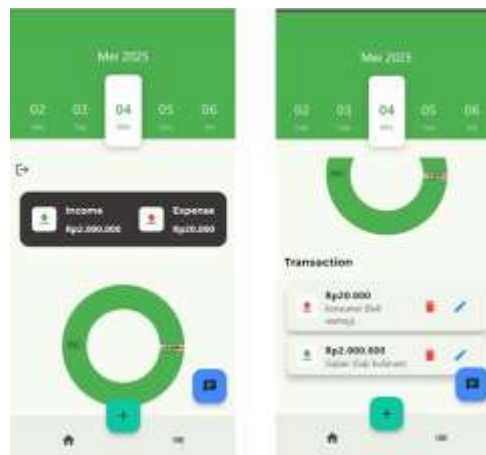


Figure 11. Home Page

4. Category Page

The Category page serves as a module for managing transaction categories within the application. This section gives users the flexibility to add new categories, make changes to existing categories, or delete unnecessary categories. Furthermore, category type settings are provided using a toggle switch that differentiates between income and expense transactions, allowing for a more systematic financial recording process.

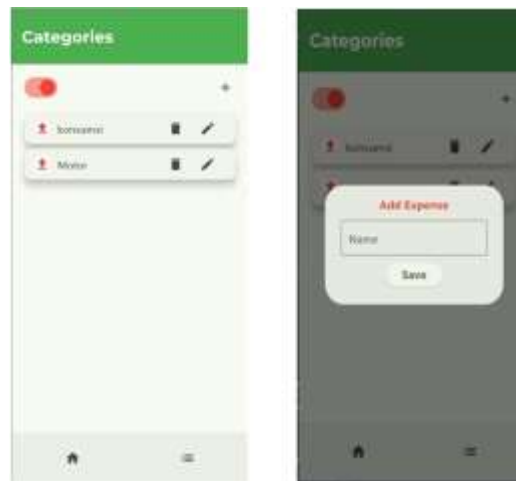


Figure 12. Category Page

5. Transaction Page

The Transaction page serves as a place to record new transactions made by the user. On this page, the system provides several primary inputs, including the amount, transaction date, category, and additional description. Category selection is done through a drop-down menu that is directly connected to the local database, so the displayed data is always consistent with previously managed categories. This feature supports more structured recording and minimizes input errors.

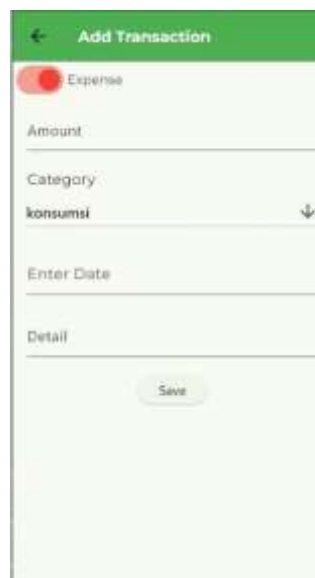


Figure 13. Transaction Page

6. Chatbot Page

The Chatbot page features a virtual assistant feature designed to help users interact with the system more intuitively. Through this chatbot, users can ask questions related to transactions and financial reports, for example, asking for total expenses for a specific period or the latest balance. The system will then respond automatically based on data stored in the database, making the user experience more interactive and informative. [15] Users can type commands such as "Total expenses this month," and the system will respond based on the available data.

CONCLUSION

Fundamental Finding : The results of the study show that the development of a Flutter-based financial recording application is able to help users record and manage personal finances, both expenses and income, more easily, quickly, and in a structured manner. The implementation of the Flutter framework accelerates the development process while producing an efficient and responsive application. **Implication :** This application has the potential to be a practical solution for the community in improving personal financial literacy and discipline, especially with additional features such as add category for transaction classification and AI chatbot that provides interactive financial information support. **Limitation :** However, this study is still limited to the functional aspects of the application and has not tested user satisfaction, data security, and system performance in long-term use. **Future Research :** Future studies are recommended to conduct comprehensive testing of the user experience, expand integration features such as connections to bank accounts or digital payment systems, and develop artificial intelligence-based financial analytics to increase the usability and accuracy of the application.

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