Development of a Kakeibo-Based Financial Recording Application Using the Mobile-D Method

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Abstrak: Good financial management is an important key in maintaining individual economic stability, especially for Generation Z who often face challenges in financial literacy. This research aims to build an Android-based financial recording application by applying the Kakeibo method, a traditional technique from Japan that helps users manage budgets through four main categories: survival, optional, culture, and extra. The system is developed using the Mobile-D method which consists of five main phases: explore, initialize, productionize, stabilize, and system test and fix. The test results show that the application is able to function according to user needs, providing convenience in recording transactions, making reports, and managing budgets efficiently. This research successfully produced an application that can improve users' financial literacy, help them manage their finances in a more structured manner, and provide practical and modern digital solutions for the younger generation.

Keywords: Android, Flutter, Mobile-D, Kakeibo, Financial Recording.

1. Introduction

Money, as a widely accepted medium of exchange, plays a vital role in modern society [1]. Financial activities, including income and expenditure, occur continuously on a daily basis, making effective financial management essential for maintaining individual economic stability [2]. Generation Z, born between 1997 and 2012, represents a demographic group that is beginning to exert a significant impact on the economy. As digital natives, they tend to rely heavily on technology in various aspects of life, including financial management. However, impulsive consumption patterns and low levels of financial literacy make them particularly vulnerable to uncontrolled spending [3].

Traditional methods such as Kakeibo, which originated in Japan, offer a simple yet effective approach to household budgeting. Kakeibo classifies expenses into four core categories: Survival (basic needs), Optional (wants), Culture (self-development), and Extra (unexpected expenses) [4]. Nevertheless, the manual application of Kakeibo is less compatible with the digital lifestyle of Generation Z. Therefore, adapting Kakeibo into a mobile application represents a strategic solution. This study develops an Android-based application that integrates Kakeibo principles with the Mobile-D approach, a software development methodology that emphasizes efficiency through iterative cycles, intensive collaboration, and continuous testing [5]. The application is designed to assist Generation Z in recording financial transactions, managing monthly budgets, and understanding spending patterns through visual and interactive representations. The research problem addressed in this study is as follows: How can the Kakeibo method be adapted into an

Android-based application to help Generation Z effectively record income, expenditures, and manage their budgets?

The scope of this research is limited to the development of an Android application featuring Kakeibo-based functionalities (Survival, Optional, Culture, and Extra) using the Mobile-D approach, with testing conducted on a sample of Generation Z participants in the Bengkalis region [9], [10]. From a theoretical perspective, this study contributes to the literature by extending the application of the Kakeibo method into a digital context and validating the effectiveness of the Mobile-D methodology in financial application development [8]. From a practical perspective, the proposed application provides an easy-to-use digital tool for Generation Z to enhance financial literacy, while also serving as a reference for future financial application developers [6], [7].

2. Research Methods

This study follows the Mobile-D methodology, can show figure 1. which consists of five main phases: Explore, Initialize, Productionize, Stabilize, and System Test and Fix. Each phase is designed to ensure the quality, reliability, and alignment of the final product with user requirements.
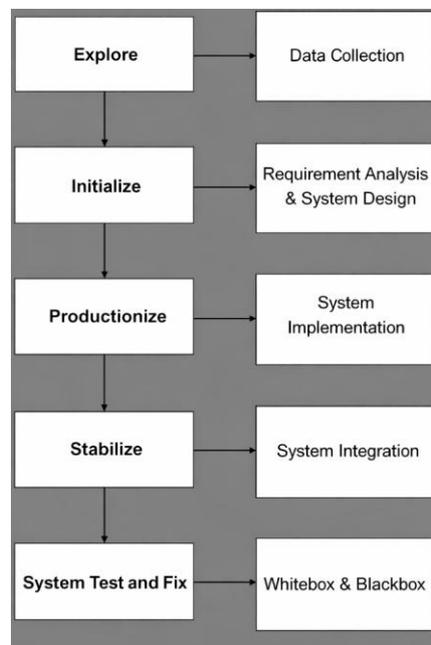

Figure 1. Research Flow

Kakeibo, which literally means *"household account book,"* is a conventional financial management method originating from Japan and traditionally used to manage household expenses [1]. This method records all income and expenditure transactions and manages spending budgets and savings manually using written records [11]. The process begins by subtracting fixed expenses and savings from the monthly income. The remaining funds are then allocated into four main categories:

1. Survival (Basic Needs): Covers essential expenses such as food, transportation, and medical costs.

2. Optional (Recreation): Allocated for discretionary spending and leisure activities, such as dining out or non-essential shopping.

3. Culture (Self-Development): Intended for educational and personal development expenses, including the purchase of books or enrollment in courses [12].

4. Extra (Additional): Reserved for unexpected or incidental expenses, such as gifts or repairs.

The calculation formulas for each category are defined as follows:

$$Survival = Remaining\ Income \times Survival\ Percentage$$

$$Optional = Remaining\ Income \times Optional\ Percentage$$

$$Culture = Remaining\ Income \times Culture\ Percentage$$

$$Extra = Remaining\ Income \times Extra\ Percentage$$

In a financial recording application, the percentage allocation for each category can be customized for example, 40%, 30%, 20%, and 10%, respectively allowing users to manage their finances in a structured and effective manner [6].
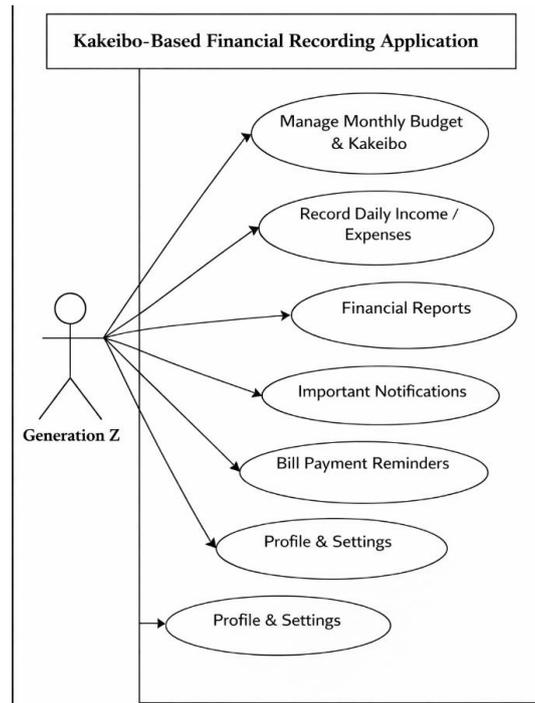

Figure 2. Use Case

3. Results and Discussion

This section presents the results of the implemented system in the form of a Kakeibo-based financial recording application. The system outputs are described as follows.

1. Splash Screen
This page displays the application launch screen containing the application logo, as shown below can be seen in the figure 3.

Figure 3. Splash Screen

2. Financial Setup Page

This page presents a form that allows users to configure their monthly financial settings so that the configuration can be applied within the application can be seen in the figure 4.

Figure 4. Financial Setup

3. Kakeibo Financial Setup Page

This page displays a form for configuring expense allocations according to the Kakeibo method. After completing the input, the user is redirected to the Kakeibo calculation results page can be seen in the figure 5.

Figure 5. Kakeibo Financial Setup

4. Kakeibo Calculation Results Page

This page presents the results of the Kakeibo calculation. After viewing the results, the user is redirected to the main page can be seen in the figure 6.

Figure 6. Kakeibo Calculation Results

5. Main Page

This page displays a summary of the financial records that have been previously created and edited by the user can be seen in the figure 7.

Figure 7. Main Page

6. Income and Expense Records Page

This page provides a form for creating financial records, including both income and expense entries can be seen in the figure 8.
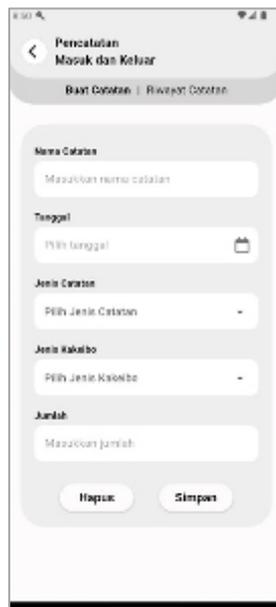

Figure 8. Income and Expense Records

7. Savings Records Page

This page displays a form for creating savings records. The submitted data will be added to the user's savings records can be seen in the figure 9.
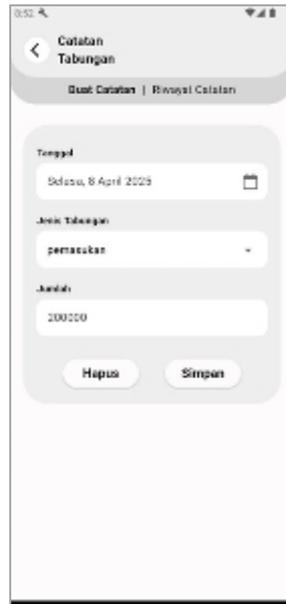
Figure 9. Savings Records

8. Debt Records Page

This page provides a form for adding debt records, including both incoming and outgoing debt entries can be seen in the figure 10,

Figure 10. Debt Records

9. Financial Report Chart Page

This page displays financial report visualizations based on a monthly period, presented in the form of a pie chart can be seen in the figure 11.

Figure 11. Financial Report Chart

10. Budget Adjustment Page

This page presents a form that allows users to modify or reset the budget configuration that was previously set during the application initialization stage can be seen in the figure 12.

Figure 12. Budget Adjustment

11. Advanced Settings Page

This page provides advanced settings that allow users to update personal information, ranging from profile pictures to personal data can be seen in the figure 13.
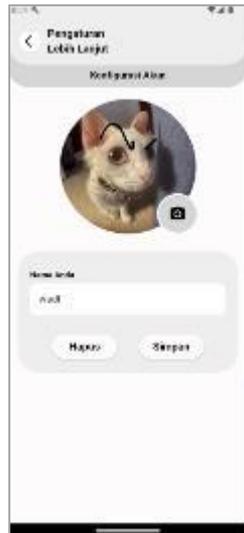
Figure 13. Profile Settings

4. Conclusions

Based on the research results covering the analysis, design, and implementation of the Kakeibo-based financial recording application developed using the Mobile-D approach, it can be concluded that:

(1) The application of the Mobile-D method ensures a smooth development process due to its systematic workflow;

(2) The Kakeibo method effectively improves users' financial management by standardizing fund allocation into survival, optional, culture, and extra categories, thereby enabling more directed and controlled spending;

(3) The use of the Flutter framework demonstrates good performance in terms of functionality and resource efficiency; and

(4) Black-box testing results confirm that all application functions operate in accordance with user requirements.

Recommendations for future development include:

(1) Enhancing the UI/UX design to improve usability, particularly for non-technical users; and

(2) Further optimizing the mobile application by adopting frameworks and features that enhance effectiveness, including cloud backup integration and monthly comparison features.

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