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Money Management Application

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Abstract
Effective money management is essential for individuals across all age groups. Despite many existing money management applications, many suffer from complex interfaces, lack of budget features and insufficient visualization. This project addressed these gaps by developing a mobile application that provided features to track transactions, set budget, financial report visualization and AI chatbot. The methodology used in this project is Agile method, which involved five phases: planning, designing, developing, testing and deploying. The application was developed using Flutter for frontend and integrated with Firebase serve as backend. Usability and user acceptance testing found that the application significantly improved user's financial literacy and habits by integrating an AI chatbot to enhance user engagement by providing financial assistant. This project contributes a user-friendly solution with identified future enhancements included bank account integration, generate PDF report with encryption for financial data and advanced AI analytic.

Keywords: *Money management, mobile application, transaction, budget, AI chatbot.*

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I. INTRODUCTION

In today's fast-paced financial landscape, effective money management has become an essential skill for individuals across all age groups. Money management was the process of tracking daily and long-term expenses, saving money and planning for financial future use or budget. According to Bank Negara Malaysia (2022), the World Bank's Global Findex Survey revealed that 74% of Malaysian adults use digital online banking as their primary payment method. The rise of technology has transformed the way that people manage their personal finances due to the convenient for recording the expenses after a transaction. As a result, there are many mobile applications available in the market for the money management such as Smoney, Money+, Money Manager Expense and many other applications can be found.

According to a statistic on Backlinko (2024), reported that approximately 4.88 billion individuals have their own mobile phone, with an average of daily mobile phone usage of nearly 3 hours and 50 minutes. This data clearly states that there is a trend of growing reliance on mobile applications. Therefore, developing a mobile application for money management was beneficial for most of the people to manage their personal finances in the long term.

There are a lot of money management application faced the significant issue that impact the user satisfaction and engagement, which is the complexity of user interfaces. The user interface without clear label for function making the user overwhelming and confusing, especially those who are less experienced with the financial application. Besides, the existing application often focused on recording the expenses and income without budget function and alert message to notify users. Without these functions, the users may unaware of their spending in the specific categories and lose tracking of their financial situation. Additionally, the absence of database for the application can lead to several issues with data management and user accessibility. Therefore, this study aimed to develop a mobile application that focused on creating a user-friendly interface while providing a complete money management functions supported by a database. The application helped to enhance the user's awareness of their money management and assist them in developing a healthier financial habit.

Money Management Application is a mobile application that enabled users to track their daily expenses and manage their personal financial efficiently. The mobile application was to provide users with a user-friendly platform to gain better control over their finances. At the end of the study, the platform proved useful in helping people develop a deeper understanding of personal finance, make informed financial decisions and plan with their financial objectives. Therefore, this mobile application allowed users to add, update, delete expenses or income, set budget and dashboard that visualizing expenses and income through a various of charts. According to Singh (2022), money management app allowed users to view their detailed money spending on a weekly or monthly basis helped to save money and achieve financial objectives. Additionally, the users received a warning message if their spending exceeded their set budget. It is helpful to manage their finances proactively.

Moreover, AI-powered chatbots have become important tools for improving the user engagement. According to Anaya et al. (2024), implement AI-based chatbot served as a critical non-face-to-face service with facilitate communication between users and AI through text interactions. These chatbot also helped users navigate system or application effectively by responding to the queries immediately. Therefore, this mobile application implemented a chatbot feature designed to provide financial assistance and help users navigate the application effectively. The chatbot responded to the money management related topic which ensured a user-friendly experience, particularly for those unfamiliar with money management application.

II. LITERATURE REVIEW

According to Tay (2024), the authors has done an application name Cash Track. The study aims to enhance user's ability to take control of their finances through a mobile platform for expense tracking and financial analysis. The project utilized the Agile Scrum methodology, which allows for iterative progress through the short development cycles. The application was developed using Flutter framework and Firebase as its database to store and protect the user's personal data. Cash Track included several features to simplify money management, which is offering the various category of expenses, edit or delete the expenses. One of the unique features of this app is its allow user to input their bank account balances, e-wallet or credit cards. According to the finding of the project, many of the money management application suffer from a complex interface and lack of detailed financial analysis and reporting capabilities. In response, the application offering a user-friendly design that streamlined the user interface, incorporating recognizable icon for the categories and various of graph for financial analysis. Additionally, the cloud-based architecture enhances the users experience by accessing their financial data from any devices. However, the weakness of the application is the absence of budget setting function and overspending warning. Without budget function, users unable to manage their money effective such as overspending on the specific category while the lack of warning will lead to insufficient use of the money management application. The absence of functions may lead to less commitment to financial management.

According to Ngoh & Darman (2022), the application MyMoney help users to track their income or expenses more easily. The primary aims to assist the public in managing their money effectively through a simple and user-friendly interface without any complex icons or patterns. The application is using an iterative development methodology that emphasize continuous improvement through the testing phase and evaluation phase. In this project, the mobile application utilizes the Android Studio as the framework and Firebase serve as its database for the data storage. The MyMoney application allow users to log in with email address, receive email verification, record income and expenses, create a shopping lists and financial plan for the future. It also included cashflow analysis interface using graphical charts that enable users to view their total of income and expenses for each month. According to the finding that presented in the study, the author concludes that most of the money management application only provide basic function for recording the expenses in date and amount. In contrast, MyMoney enhances the user experience by allowing users to input the specific details such as location, name of the expenses and image for each record. This feature enhances the tracking process and easier for users to recall or check the previous expenses. However, the application has some weaknesses, which is insufficient of search filter and complexity of user interface. The users can filter by date, but there is no option for other specific queries like location or the name of expenses. Additionally, the user interface without labeling may lead to confuse for the users to identify the function in home page. This could affect the user's satisfaction to utilized the application.

According to Makalew (2022), the author has published the title "android based personal finance management application". All features of the money management application support three time period, which is ability to view past expenses, record the current transactions and plan for their future to achieve their financial goals effectively. The research used Use Case Diagram and Class Diagram to model the application functionality. The application is built using Android development tools without a backend database. The key features included a tutorial on using the application, create a financial goal, register the budget and categorizes expenses into three different types. Result of the research concludes that the money management significantly help users to remember their expenses using the system, encouraging users to save money and make the payment aligned with financial capabilities. The application boasts a very straightforward interface with the clearly defined functions displayed on the home page. It will help users to quickly access the tools and view their financial status. However, the application does not have the search functionality, which could make it challenging for users to view the specific expenses.

III. METHODOLOGY

Agile methodology was used to guide the mobile application development process. According to Laoyan (2024), Agile methodology is a project framework that break the project into several phases which commonly known as sprints. After every sprint, the work process will be evaluated to ensure there are no redundant for each step and make improvement for each of the redundant. The iterative nature which emphasizes continuous

improvement and feedback makes it as a suitable method for the mobile applications development. In this methodology, there are five phases which are planning, designing, developing, testing and deploying phases. This way was chosen because it can be changed more easily and emphasized the user experience. The agile methodology allowed adjustments to accommodate the changing requirements which that user allowed to request additional features for the suggested system. During the early stages of developing the system prototype, the user was given the opportunity to evaluate the system and give feedback on the prototype to ensure the application aligned with their needs.

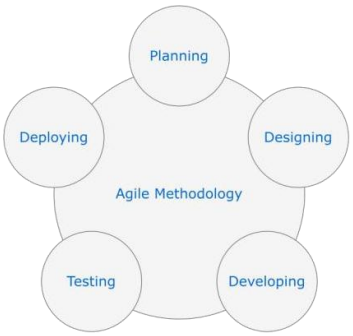

Figure 1: Phases involving in developing Money Management Application

3.1 Planning Phase

During the first step, which called "planning phase", the project topic was selected which is "Money Management Application". After the topic has been chosen, the problem statement, objectives and project scope were clearly defined and the detailed project schedule was created for each development stage. The schedule was formed using a Gantt Chart and it will be planned starting from the beginning of the task which is October 2024 until the project is finished which is July 2025.

3.2 Designing Phase

In this phase, the features of the system and user interface that attractive to the users were designed. The project requirement, included key functionalities such as expense or income recording, budget tracking and financial data visualization were illustrate using use case diagram, sequence diagram and class diagram to defined the application's structural relationship. In this stage, the prototype contains both low- fidelity and high-fidelity prototype were designed to ensure the comprehensive design evaluation. The low-fidelity prototype focused on layout and navigation while the high-fidelity prototype focused on critical features like budget alerts, financial charts and financial chatbot.

3.3 Developing Phase

In developing phases, it was the important phase in the process of developing a mobile application. This phase focused on converting the design into a functional application. For front-end development, the Flutter framework was implemented alongside the Dart programming language to build a responsive and visually consistent user interface. Therefore, Visual Studio Code served as the primary code editor to write the code and debugging the application's logic. For back-end development, integrated Firebase serve as real-time database with the tools such as authentication and cloud firestore. Additionally, Android Studio was used to simulate the application performance across various virtual devices and verified application functionality to ensure the smooth operation.

3.4 Testing Phase

The testing phase played important role in verifying that the application meet all the requirement and fulfill the intended function. This process ensured the application achieved quality standards and performed the result that meet the expectation. The testing phase was encompassed unit testing, integration testing, usability testing and acceptance testing. Unit testing was the initial step that involved testing all of a system's components separately to verify that each of the function operates correctly. First the unit test code was written and run every time when made any changes in the software code. This helped identify bugs and errors and fixed the defect immediately. This ensured that each component performed as expected before integrated into the larger application. After the unit testing was successful, integration testing was conducted to evaluate how the different components worked together. This phase of testing focused on the interaction between front-end and back-end system to ensure the data flow was smooth. If the interaction performed properly, it could be concluded that the

entire software functioned successfully. Moreover, usability testing conducted as essential part of quality assurance process. This testing evaluated how easily users could navigate the interface and complete the tasks. The finding from this testing helped to refine the user interface and user experience. Through usability testing can ensured that the application was reliable, functional and user-friendly. Acceptance testing also conducted to validate that the system meets the target user's requirement. A group of students and adults tested the application in real-world environment while I observed their interactions. After testing, the user's feedback collected through Google Form which provided valuable insights into user satisfaction and identified areas of improvement before proceed to launch the system.

3.5 Deploying Phase

This phase launched the system once the all the development and the majority of testing had been completed to ensure smooth functionality and final approved by the supervisor. During this phase, the mobile application was officially released in real-world environment and allowing the users to access the application. After successfully launched, regular version update was implemented to maintain system functionality and fixed the bugs or errors that were detected.

IV. ANALYSIS AND RESULTS

The Money Management mobile application has been successfully developed using Flutter for front-end and Firebase for backend services, including authentication and cloud firestore for real-time database. The system was designed with a modular architecture to ensure robust functionality and user-friendly design. Below are suggestions for the main programming languages used in these applications.

4.1 Implementation

The frontend implementation utilized Flutter framework and Dart languages to create responsive user interface. According to Bhagat et al. (2022), flutter's architecture included a layered design with a proprietary graphics engine, which allowing developers to create a highly customizable user interface and maintain excellent performance across various platforms. Therefore, the state management was architected using Provider package to share the data across application efficiently. This helped to maintain consistency between screens while minimized unnecessary widget rebuilds. Additionally, the data visualization was used syncfusion flutter charts library to generates professional financial charts. The implementation included pie charts that break down the expenses by category and bar chart that reveal sending trends.

The integration of Firebase with Flutter streamlined development by offering seamless real-time synchronization, authentication and cloud storage that allowed the application to dynamically reflect the changes across all devices. (Ozkurt, 2024). For the backend implementation relied on Firebase services to deliver secure and real-time database. Firebase Authentication used to handle secured user registration and login, including reset password template for the forgot password features. Cloud Firestore used to store all financial records ensured each user have their own isolated transactions data. Therefore, the budget tracking system utilized Firebase data with expenses and budget record to implement algorithm that continuously monitored spending against budget limits. When expenses reached 90% of budget capacity the system triggered a visual indicator.

Additionally, the mobile application integrated an AI financial assistant powered by google generative AI package which offered personalized recommendations to users. This feature analyzed the historical data to deliver an actionable advice such as suggesting budget adjustment or cost-saving tips. To optimize performance, the system cached frequent queries to improve response times.

Therefore, this mobile application has been fully developed with all essential features and runs without errors or bugs. Below is the user interface.

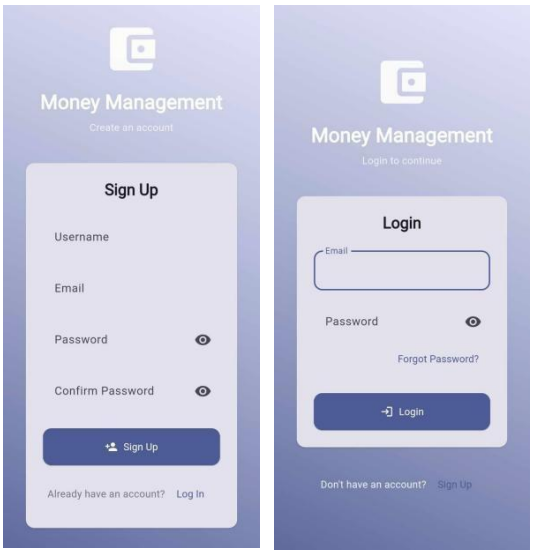

Figure 2: Interface of Sign in and Login

Figure 2 shows the sign up and login features of the mobile application. For the new users required to register an account by providing a username, email and password. After registered an account, users can login using their username and password.

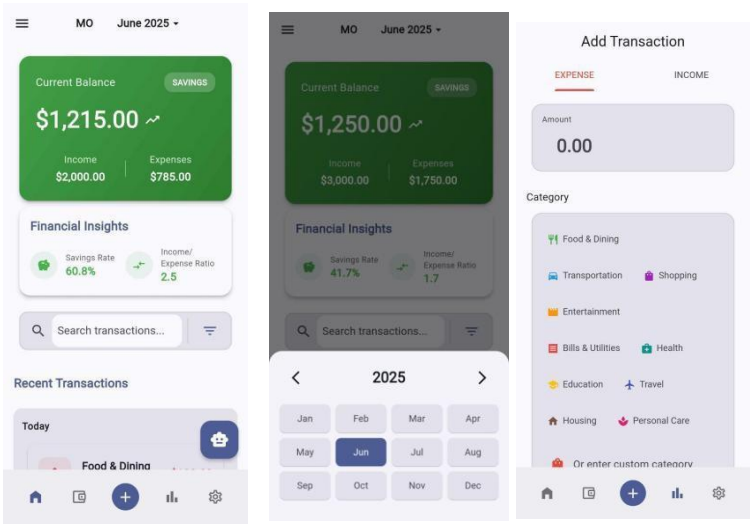

Figure 3: Interface of Home Page and Add Transactions Page

Figure 3 shows the home page of application. After successfully login, users directed to the main dashboard where they can access the key features. Users can click the date selector to choose different months or year to view their financial data for that period. Therefore, users can click the plus button to navigate the add transaction features for seamless expense or income records. In add transaction page, users can input amount, select category, add description and set date. After successful transaction submission, users will be redirected to dashboard where they can edit or delete the specific transactions.

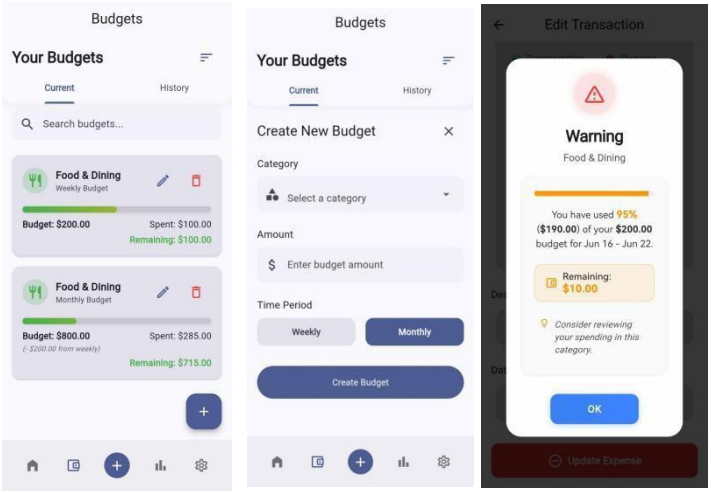

Figure 4: Interface of Budget Page

Figure 4 shows the budget page of application. On this page, users can view both current budgets and historical budgets with detailed breakdowns and remaining balances. The interface also allows users to edit or delete the budget. Users can click the plus button to navigate the add budget features to select category, time period and input budget amount. Additionally, the system includes a warning notification that will alerts users when their expenses approach the predefined budget limit.

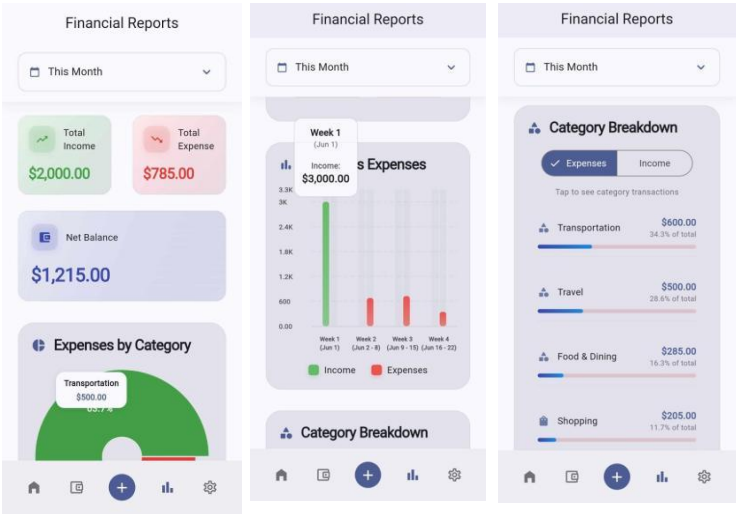

Figure 5: Interface of Financial Report Page

Figure 5 shows the financial report page of application. The interface displays the comprehensive financial summaries based on the user selected time period, the summaries including total expense, total income and net balance. Users can view the detailed expenses by category through an intuitive pie chart visualization, which clearly highlighted the spending percentage across different categories. Moreover, the category breakdown section displays exact expenditure amounts for each expenses category with a progress bar that highlighted the spending patterns. Additionally, the income versus expense displays bar charts with a clean and informative visualization that made the financial data easily to understand.

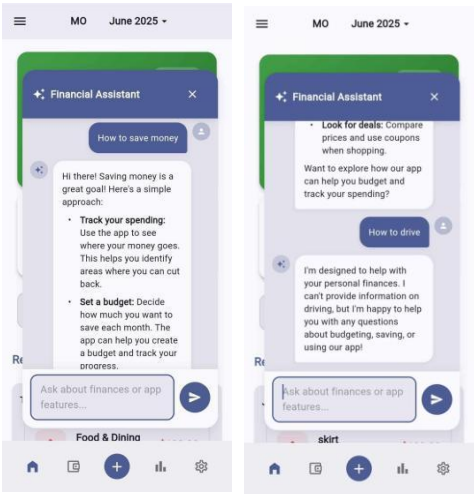

Figure 6: Interface of Financial Chatbot

Figure 6 shows the financial chatbot of mobile application. The chatbot designed as a financial assistant to provide personalized advice on saving strategies and app-related guidance. The chatbot specializes in addressing financial related inquiries, otherwise the chatbot will politely redirects the non-financial questions. Moreover, users can easily initiate the queries using prompts like "Ask about finance or app features" for quick navigation.

4.2 Evaluation

A usability evaluation was conducted to ensure the Money Management Application meets the user requirement and functionality requirement. The evaluation comprised two distinct types of testing which is usability testing and user acceptance testing. The testing involved a total of 30 respondents were recruited to take part in both usability testing and user acceptance testing. The testing process began by preparing the APK file on an Android device and uploaded to Google Form for remote access. A Google Form questionnaire was designed to collect the feedback on usability, functionality and areas of improvement.

During the testing, there are two ways that conducted with in-person session and remote testing. For the local participants interacted directly with the mobile application on Android device. The participants required to navigate the interface and core features while being observed their ability to complete the task in real time. This helped to identify the pain points of the application immediately. While for non-local participants received a Google Form link via WhatsApp to download the APK file. They are required to explore the application independently by following the instructions embedded in the survey.

After completing the tasks, participants proceeded to complete the survey with demographic and evaluated usability testing across five key dimensions. The participants also evaluated user acceptance testing to validate the core functionalities. Additionally, participants have opportunity to provide suggestions for improvement and bug report in open-ended feedback. Each section's data was analyzed and put into a graph, which was collected based on the chart.

4.2 Usability Testing

This section evaluates the memorability, efficiency, errors and satisfaction.

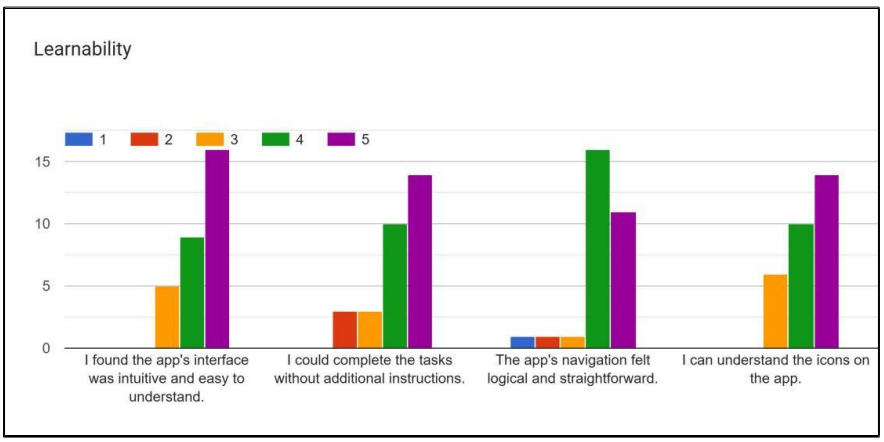

Figure 7: Learnability

According to the questionnaire result shown in Figure 7, majority respondents which is 16 respondents (53.3%) strongly agree while 9 respondents (30%) were stated agree that the app's interface was intuitive and easy to understand. Meanwhile, minority respondents which is 5 respondents (16.7%) neutral and no respondents who strongly disagree and disagree that the app's interface is easy to understand. The mean for this statement is 4.37. This mean represents a value on the 5-Likert scale is agree.

Next, the result shown in Figure 7 indicate that 14 respondents (46.7%) strongly agree while 10 respondents (33.3%) agree that they can complete tasks without additional instructions. Therefore, there are each 3 respondents (10%) were neutral and disagree with the statement. This indicated that majority respondents feel confident to complete the tasks without additional instructions. The mean for this statement is 4.16. This mean represents a value on the 5-Likert scale is agree.

Another question "The app's navigation felt logical and straightforward." result that majority respondents provided positive feedback. There are 16 respondents (53.3%) agree while 11 respondents (36.7%) strongly agree. Meanwhile, there are each of 1 respondent (3.3%) stated neutral, disagree and strongly disagree. The result show that majority respondents agree that the app's navigation is logic and straightforward. The mean for this statement is 4.17. This mean represents a value on the 5-Likert scale is agree.

According to Figure 7, 14 respondents (46.7%) feel strongly agree that they can understand the icons on the app. Moreover, 10 respondents (33.3%) agree that icons is easily to understand. On the other hand, 6 respondents (20%) feel neutral about the statement while no respondents who feel disagree and strongly disagree that they can understand the icons. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

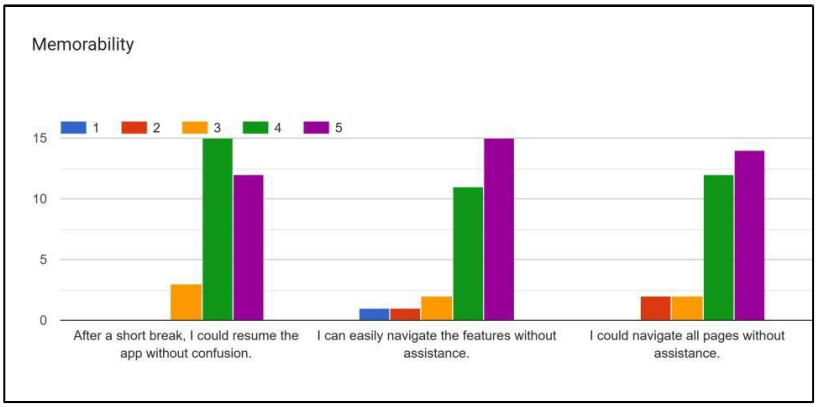

Figure 8: *Memorability*

According to the result shown in Figure 8, 12 respondents (40%) strongly agree that they can resume the app without confusion after a short break. Moreover, half of the respondents which is 15 respondents (50%) expressed agree with the statement while only 3 respondents (10%) expressed neutral regarding their confidence

in resuming the app without confusion after a short break. There are no respondents expressed disagree and strongly disagree. The mean for this statement is 4.30. This mean represents a value on the 5-Likert scale is agree.

Besides that, half of the respondents which is 15 respondents (50%) expressed strongly agree that they can easily navigate the features without assistance. Meanwhile, 11 respondents (36.7%) expressed agree and 2 respondents (6.7%) expressed neutral about they can easily navigate the features without helps. In contrast, there are 1 respondent (3.3%) disagree and 1 respondent (3.3%) strongly disagree which means they felt difficulties while navigating with the features. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

According to Figure 8, 14 respondents (46.7%) voted strongly agree and 12 respondents (40%) voted agree that they could navigate all pages without assistance. But there are 2 respondents (6.7%) voted neutral and 2 respondents (6.7%) voted disagree which means they might face issues to navigate all the pages. The results indicate that a substantial majority of respondents, comprising 86.7%, expressed a favorable sentiment while navigating all the pages. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

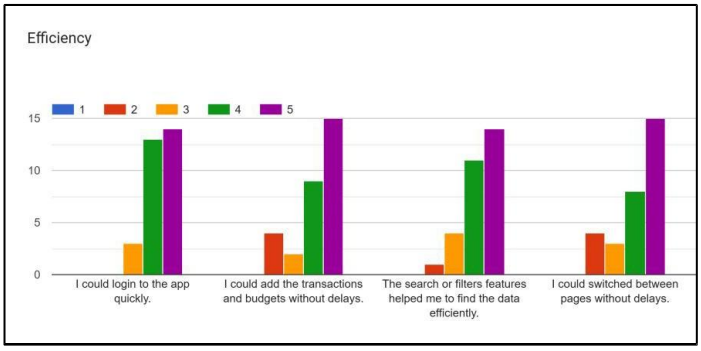

Figure 9: Efficiency

As shown in Figure 9, majority of the respondents which is 14 respondents (46.7%) strongly agree and 13 respondents (43.4%) agree about they could login to the app quickly. In addition, there are only 3 respondents (10%) rated neutral and none of the respondent disagree and strongly disagree with the statement. These results indicate that 90% of the respondents perceived the login process as efficient. The mean for this statement is 4.37. This mean represents a value on the 5-Likert scale is agree.

Next, Figure 9 result shows that 15 respondents (50%) which is half of the respondents voted strongly agree while 9 respondents (30%) voted agree about they can add the transaction and budgets without delays. Meanwhile, 2 respondents (6.7%) voted neutral and 4 respondents (13.3%) voted disagree which some of the respondent faced difficulties in adding the transactions and budgets. At last, the results show positive finding that 80% of the respondents perceived the transaction and budget features as efficient. The mean for this statement is 4.17. This mean represents a value on the 5-Likert scale is agree.

In addition, based on Figure 9 the result indicate that 14 respondents (46.7%) voted strongly agree while 11 respondents (36.7%) voted agree that search or filter features helps to find data effectively. This highlighted that 83.4% of the respondents demonstrated that majority of the respondents found that search or filter features effectively streamlined data retrieval. On the other hand, there are 4 respondents (13.3%) voted neutral, 1 respondent (3.3%) voted disagree and no respondent strongly disagree. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

Last, half of the respondents which is 15 respondents (50%) selected strongly agree while 8 respondents (26.7%) selected agree. There are 76.7% of the respondents provided positive response rate that majority of respondents experienced seamless navigation of the pages. However, 3 respondents (10%) selected neutral, 4 respondents (13.3%) selected disagree and no respondent strongly disagree about they could switched between pages without delays. The mean for this statement is 4.13. This mean represents a value on the 5-Likert scale is agree.

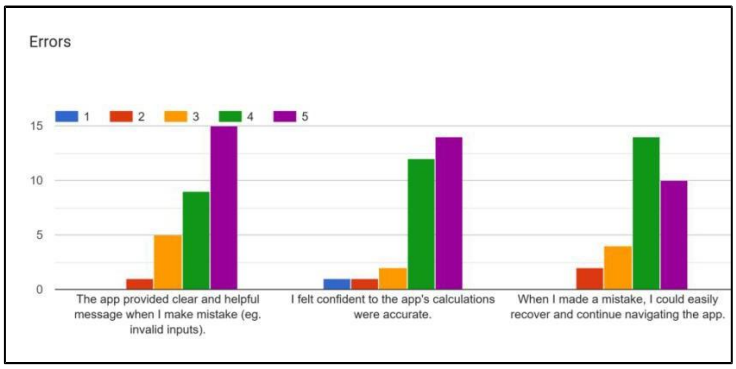

Figure 10: Errors

According to Figure 10, majority respondents which is 15 respondents (50%) voted strongly agree and 9 respondents (30%) voted agree. This combined 80% of positive response rate demonstrated that the app provided clear and helpful message when users making mistake. The app successfully delivers an intuitive error guidance to the users. However, there are 5 respondents (16.7%) voted neutral, 1 respondent (3.3%) voted disagree and no respondent strongly disagree. This means that some of the respondents might experience lack of sufficient errors messages or the guidance not adequately enough. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

Next, the Figure 10 result show that 14 respondents (46.7%) selected strongly agree and 12 respondents (40%) selected agree. This result concludes that most of the respondents which is 86.7% provided positive approval rate that the app's calculation was accurate and dependable. Meanwhile, there are 2 respondents (6.7%) selected neutral, 1 respondent (3.3%) selected disagree and 1 respondent (3.3%) selected strongly disagree about the app's calculation were accurate. The mean for this statement is 4.23. This mean represents a value on the 5-Likert scale is agree.

Moreover, 10 respondents (33.3%) strongly agree while most of the respondents which is 14 respondents (46.7%) agree that they could easily recover and continue navigating the app when they made a mistake. This combined 80% positive response rate demonstrated the application successfully enable users quickly corrected the errors without frustration and the app maintain workflow continuity after a mistake. However, the remaining which is 4 respondents (13.3%) who were neutral, 2 respondents (6.7%) disagree and no respondent strongly disagree. The mean for this statement is 4.07. This mean represents a value on the 5-Likert scale is agree.

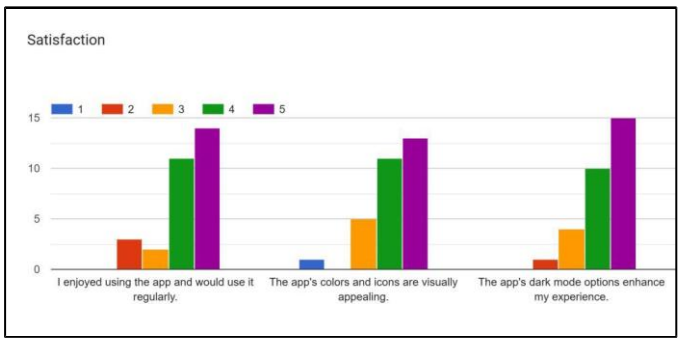

Figure 11: Satisfaction

Based on Figure 11, 14 respondents (46.7%) strongly agree and 11 respondents (36.7%) agree about they would use the app regularly. This combined 83.4% approval rate highlighted that the application delivers an enjoyable user experience and the functionality successfully encouraged regular use. The remaining 4 respondents (13.3%) were neutral and 1 respondent (3.3%) were disagreed. The mean for this statement is 4.27. This mean represents a value on the 5-Likert scale is agree.

Next, there are 13 respondents (43.3%) strongly agree and 11 respondents (36.7%) chosen agree about the app's color and icons are visually appealing. This combined 80% of the respondents provided positive feedback indicates that the color scheme effectively support readability while the icons was clearly and attractively. However, there are 5 respondents (16.7%) were neutral and 1 respondent (3.3%) strongly disagree. There is no respondent disagree with the statement. The mean for this statement is 4.17. This mean represents a value on the 5-Likert scale is agree.

Last, Figure 11 result shown that half of the respondent which is 15 respondents (50%) strongly agree while 10 respondents (33.3%) agree about the dark mode options enhance user experience. There are 83.3% approval rate demonstrated majority respondents satisfied with the dark mode features, which it effectively reduces eye strain while using the application. But, remaining 16.7% which is 4 respondents (13.3%) were neutral and 1 respondent (3.3%) were disagree. There is no respondent strongly disagree. The mean for this statement is 4.30. This mean represents a value on the 5-Likert scale is agree.

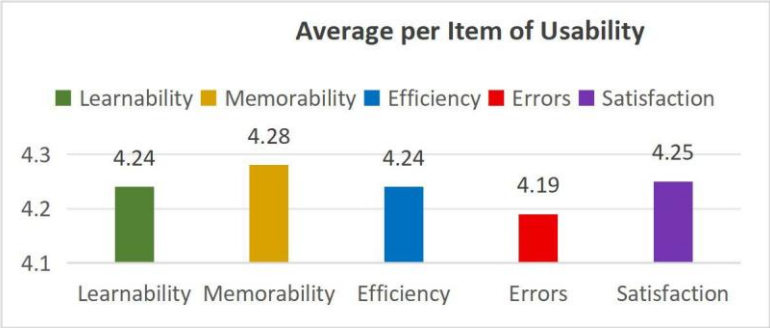

Figure 12: Average per Item of Usability

According to Figure 12, the mean of average per item of usability testing component is 4.24. For each of the usability component, the learnability component has a average score of 4.24, memorability component scored 4.28, efficiency component scored 4.24, error component scored 4.19 while satisfaction component scored 4.25. The result indicated that the money management application provides a user-friendly platform for the users to access.

4.3 Feedback and Suggestions

This is the open-ended section. Respondents are required to write any suggestion or improvement about the application. Table 2 shows the feedback and suggestions by respondents.

Table 2: *Suggestion to improvise the app*

Suggestion to improvise the app Improve UI
Better UI interface design
The setting display in the app can be optimized Improve dark mode interface
Make it can compare with other period Improve UI page
I don't know the graph can click Enhance sign-out button Improve the UI for setting page
Automatically calculate my income and expenses if link to my financial accounts

Based on the feedback collected revealed several valuable suggestions to improvise the Money Management application. The most common requests focused on enhancing the user interface design, particularly for the setting page and dark mode interface. This indicated that some of the users may felt confusion or difficulty while navigating with the elements. Additionally, users suggested to add functionality by comparing expenses or income with other period and improved the visibility of sign out button. There is one respondent's feedback that the interactive elements like clickable graphs were not obvious to users. This suggests that I could adding a hint for user to discover these interactive functionalities. Users also expressed advanced features like bank account integration for automatically transaction calculations which could help the users to track their financial in real-time.

V. CONCLUSION

The Money Management Application, a mobile application represented a significant personal finance tools by providing an intuitive and user-friendly for users to track their expenses or income, set budget and visualized their financial data efficiently. The application also provided essential functions such as budget alerts, AI-powered financial assistance and interactive elements that effectively supports users in maintaining healthy financial habits.

Based on the analyzed of testing results, the usability testing results shows that Money Management Application has successfully met its primary objectives. The application demonstrated high score across key usability metrics, including learnability, memorability and satisfaction. Moreover, the user acceptance testing outcomes indicated that core features including transaction tracking, budget management, and financial visualization were consistently rated as effective and valuable. These testing outcomes highlighted that the application being accessible to users and offering advanced functionality which aligned to the user needs.However, the user feedback highlighted several areas of improvement. Key suggestion included enhancing the user interface especially the setting page and dark mode interface, adding functionality like compare the expenses or incomes with other period and improve the visibility of sign-out button. These insights offered a valuable direction for future improvement.

In conclusion, the Money Management Application delivered a robust solution for personal finance management with the essential features and intuitive user interface. Through its comprehensive features, the application successfully met the user requirement and launched for all users to manage their daily financial effectively. As the application continues to evolve based on user feedback and technological advancements, it has potential to become a market leading of financial management tools.

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