CHAPTER 1. INTRODUCTION

1.1. Research Background

MSMEs are the backbone of the national economy in Indonesia. [1] reveals that the Indonesian country is home to over 62 million MSMEs, equating to one enterprise for every five citizens. Remarkably, micro-enterprises represent 98.75% of this figure, or 61.5 million businesses, and they significantly contribute to Indonesia's GDP, accounting for just over 61%. Additionally, in 2021, these enterprises were responsible for employing approximately 97% of the domestic workforce.

However, despite their undeniable contribution, Indonesian micro-enterprises confront significant vulnerabilities in the area of financial management [2]. This vulnerability stems from a confluence of factors. For example, Indonesian micro-enterprises typically possess assets under Rp 50 million and annual sales below Rp 300 million, with a workforce ranging from one to ten employees [3]. These financial constraints are barely enough to sustain the business, provide adequate salaries to their workers, and support the owners' families, especially in big cities.

These limited resources often constrain these businesses from implementing robust financial systems. Manual tracking of expenses, revenue, and transactions becomes a laborious and error-prone process, diverting valuable time and energy from core business activities. Further compounding the challenge is the limited access to financial literacy resources [4], particularly for those with lower educational backgrounds [5]. This knowledge gap hinders their ability to make informed financial decisions and develop strategic growth plans.

Given the complexity described, it is crucial to design an effective application that addresses these considerations. This will simplify the money management process for employees. Various methods and algorithms are commonly used to solve financial management challenges. It is essential to explore these methods and tailor them to the unique needs of Indonesian MSMEs, thereby enhancing their financial management capabilities and fostering sustainable growth.

In light of these challenges, the solution proposed in this thesis comes in the form of an Android application designed to address these financial management issues. This application is not only designed for local use but also has international compatibility, making it a versatile tool for micro-enterprises engaged in international trade. One of its key features is a built-in currency converter, which uses the latest currency rates from a reliable API. This feature simplifies the process of recording international transactions, eliminating the need for manual currency conversion and reducing the risk of errors.

Another significant feature of the application is its ability to import and export data in CSV format. This allows businesses to easily transfer their financial data between different devices or accounts, ensuring that their records are always accessible and up-to-date. The CSV files can also be opened in Excel or other spreadsheet applications, providing businesses with the flexibility to process their data using the tools they are most comfortable with.

By automating these aspects of financial management, the application frees up valuable time and resources that micro-enterprises can then invest in their core business activities. It also reduces the risk of errors in their financial records, which can have serious implications for their business decisions and strategic planning.

1.2. Problem Identification

Upon the initiation of this research, the author has identified five critical areas that warrant thorough investigation to enhance the effectiveness and utility of a money management application tailored for diverse users and small businesses.

Firstly, it is essential to explore the design principles that can be employed to ensure the application is accessible and user-friendly for individuals with varying educational backgrounds and levels of technological proficiency [3]. This consideration arises from the need to accommodate users who may possess different levels of familiarity with financial tools and digital interfaces. Ensuring that the application is intuitive for all users, regardless of their prior experience, is crucial for widespread adoption and usability.

Secondly, the proliferation of digital money platforms can potentially confuse users, especially those unfamiliar with handling multiple financial accounts [6]. To address this, the application should include a function that allows users to save and manage multiple wallets

seamlessly. This feature will help users organize their finances across different platforms and simplify the management of their digital assets.

Thirdly, there is a need to identify which specific features can be integrated to enhance the intuitiveness and user-friendliness of the application. The goal here is to simplify navigation and operation, minimizing the learning curve and making the application approachable and efficient for everyday use. By pinpointing these features, the research aims to create a seamless user experience that encourages regular and effective use of the application.

Fourthly, the application must serve as a reliable tool for small businesses in various locations, including rural areas with inconsistent internet connectivity. This consideration is critical because small businesses in remote areas often face unique challenges, such as limited access to reliable internet services. Developing strategies to ensure the application remains functional under such conditions will enhance its utility and reliability for all users, regardless of their geographical location.

Furthermore, it is important to determine the types of functions that can support small businesses in their growth trajectory. Small businesses often require tools that not only manage their current financial activities but also assist in planning for future expansion. Integrating functions that provide insights, analytics, and growth support can significantly contribute to their development and sustainability.

Lastly, facilitating businesses in scaling up and potentially expanding their operations to an international level is a vital area of exploration. The application should offer features that help businesses navigate the complexities of international trade and expansion. This includes providing tools for managing international transactions. Addressing these aspects will ensure that the application can become an indispensable tool for businesses aiming for global growth.

1.3. Research Objectives

The primary objective of this research is to develop a money management application that ensures high availability and is tailored to meet the diverse needs of MSMEs. A key focus is to enhance the user interface to be intuitive and user-friendly, even for individuals with limited technological proficiency, ensuring broad accessibility. To facilitate efficient money

management, the application will incorporate essential functions such as a currency converter to assist businesses dealing with multiple currencies, particularly those engaging in international transactions.

Additionally, the system will enable data export and import in CSV format, allowing for seamless data transfer and compatibility with other devices or systems. Overall, the aim is to make financial management more efficient and less time-consuming for MSMEs, thereby supporting their growth and development.

1.3.1. Research Scope

The scope of this study is carefully defined to focus on the critical aspects of developing the money management application. Primarily, the emphasis is on back-end development and the implementation of functions essential for managing finances effectively. This involves conducting a system analysis based on a comparative study of similar applications and a thorough review of relevant literature to ensure the incorporation of best practices and innovative solutions.

The research is specifically concentrated on the money management side of the application, deliberately excluding features related to employee management and storage management to maintain a focused approach. This targeted scope allows for a deeper investigation and more refined development of the financial management functionalities. While the study does not cover all potential functions necessary for comprehensive money management in Indonesia, it aims to address the most critical and impactful features that can benefit MSMEs.

Additionally, the research is confined to the development of the Android version of the application. This decision is based on the strategic choice to prioritize the platform most commonly used by the target demographic. Future expansions to desktop and iOS versions are outside the current scope but remain potential areas for subsequent development.

1.3.2. Research Benefit

The importance of this thesis lies in its potential to revolutionize financial management for MSMEs, particularly micro-enterprises in their early stages. These businesses often

operate in environments with limited resources and infrastructure. To address this, the proposed money management system is designed to be highly accessible, even with inconsistent internet connections, and versatile, allowing the use of different wallets with various currencies. This adaptability is crucial as MSMEs expand and engage in international trade.

As enterprises grow internationally, the system's scalability simplifies the process of recording transactions in multiple currencies, particularly beneficial for MSMEs involved in importing goods. This reduces the complexity and time involved in managing multi-currency transactions. Additionally, the integration of artificial intelligence enhances the system's efficiency by automating the recording of expenses and income, minimizing errors, and freeing up valuable time for businesses to focus on core operations. Users can easily scan notes or receipts, and the system will automatically record the details, eliminating the need for manual data entry.

The application also includes features such as image scanning, a currency converter, the ability to display records in any currency through automatic conversion, and online access from different devices via user accounts. These features make financial management more efficient and less time-consuming for MSMEs. The capability to export records as CSV files for use on other devices or systems, and to import data from CSV files, adds another layer of flexibility and convenience for users. Through these combined features, the system aims to support the growth and development of MSMEs by making financial management more accessible, efficient, and scalable.

1.4. Methodology

Software development methodology models, such as Waterfall, Agile SCRUM, and Spiral, are currently utilized by developers globally. For this thesis, the author selected the Waterfall model as the software development methodology. This choice was made due to the relative stability of all functional requirements of the money management application. The Waterfall model conveniently divides the entire development process into several distinct phases (Analysis, Design, Development, and Testing) that are executed sequentially.

The Waterfall Model is a classical paradigm in the realm of Software Development, characterized by its linear and sequential progression. This model compartmentalizes the

development process into distinct, non-overlapping stages, each of which must be concluded before the subsequent stage commences [7].

The first stage is Requirement Analysis, a foundational stage that involves the comprehensive collection and documentation of the software system's requirements. It necessitates an understanding of the end-users and stakeholders' needs to delineate the software's intended functionality.

Upon the completion of requirement gathering, the System Design stage ensues. This stage entails the creation of a high-level design of the software system, including the definition of the system's architecture, components, interfaces, and data.

Following the design stage is the Implementation stage, which involves the actual realization of the software, predicated on the designs formulated in the preceding stages. Developers author code in accordance with the specifications delineated in the design documents.

Subsequent to the development of the code, it undergoes the Testing stage. This stage encompasses rigorous testing to ascertain its adherence to the requirements and its correct functionality. Testing includes unit testing (evaluation of individual components), integration testing (evaluation of the interoperation of components), and system testing (evaluation of the entire system).

Finally, upon the successful testing and deployment of the software, it transitions into the Operation and Maintenance stage. This stage involves the ongoing maintenance of the software, rectification of any emergent bugs or issues, and the implementation of updates or enhancements as necessitated. This is how the Waterfall Model operates in a sequential and linear manner.

A salient characteristic of the Waterfall Model is its rigidity concerning the revisitation of completed stages. This implies that each stage must be thoroughly completed prior to the commencement of the next, and alterations to requirements or designs can pose significant challenges once the development has advanced. In alignment with the Waterfall model, the

author partitioned the entire research and development process into four sequentially executed phases. These phases are:

1. System Analysis - In this phase, the author conducted requirement analysis and business domain analysis based on previous literature and existing systems. The results of the requirement analysis and business domain analysis served as a guide for the author to implement certain features and design the microservice architecture for the system.
2. System Design - In this phase, the author designed the architecture and software component of the money management application by combining and modifying designs from similar applications.
3. Implementation - In this phase, the author wrote code for each function and ran it with Android Studio.
4. Testing - In this phase, the author utilized various software testing techniques to verify whether the system could fulfill all the previously defined requirements.