RJ MICROFINANCE LENDING MANAGEMENT SYSTEM

A Thesis

Presented to the Faculty of

BOHOL ISLAND STATE UNIVERSITY - Calape Campus

Department of Computer Science (DCS)

In Partial Fulfillment

Of the Requirements for the Degree

In Bachelor of Science in Computer Science

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April 2025

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ACKNOWLEDGEMENT

First and foremost, the researchers sincerely thank God, the supreme source of wisdom and guidance for His blessings and direction to make this study possible.

The researchers sincerely appreciate the individuals listed below, whose support was crucial to the completion of this study. Their contributions were vital to the project's success.

We sincerely thank Mr. Gardson Binasbas, our technical adviser, for his insightful guidance, outstanding problem-solving skills, and meticulous attention to detail that were crucial in improving the quality of this study and ensuring the successful development of the RJ Microfinance Lending Management System.

We would also like to express our gratitude to our thesis adviser, Mr. Jireh Faith N. Ronquillo, for his profound knowledge, critical thinking, and valuable feedback throughout the research process. His unwavering support, enthusiasm, and dedication were essential in refining our research methods and enhancing the study.

We would like to thank Mr. Alain Cubio, our skilled statistician, for his excellent work in analyzing data and interpreting statistics. His careful approach and expertise made our findings more reliable and improved the quality of our study.

We would also like to recognize Mr. Roniel G. Guitguiten for his invaluable assistance in editing and proofreading. His thorough review and suggestions

significantly enhanced the clarity, coherence, and presentation of our manuscript.

The researchers also extend their sincere appreciation to the distinguished panelists who generously dedicated their time, shared their expertise, and provided valuable feedback during our defense. Their constructive criticism and encouragement were instrumental in refining this work.

Finally, we express our heartfelt thanks to our families and loved ones for their unwavering love, support, and encouragement. Their emotional and financial belief in us gave us the strength to complete this research.

To all the respondents and everyone who contributed to the success of this project, we express our deepest gratitude. Your invaluable support and efforts have been crucial to its accomplishment, and we sincerely appreciate your dedication and involvement.

- The Researchers

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ABSTRACT

RJ MICROFINANCE LENDING MANAGEMENT SYSTEM

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Keywords: Microfinance, Lending Management System, GCash Integration, Argon2 Algorithm, Multi-Factor Authentication, Gmail Notification

The RJ Microfinance Lending Management System is a secure, web-based application designed to simplify the loan application, payment, and monitoring processes within microfinance institutions. Addressing the limitations of traditional manual systems, this study applied a developmental research methodology combined with mixed-methods research to identify, design, and implement features aligned with real-world microfinance practices. The system enhances operational efficiency and transparency through digital loan applications, GCash payment integration, and Gmail-based loan status notifications. Key innovations include using Argon2 for secured password hashing, Quick Sort for optimized data retrieval, and multi-factor authentication for admin account protection. Borrowers benefit from real-time updates, QR code-enabled access, and a user-friendly dashboard for tracking payments and schedules. Administrative functions support effective loan record management, investor tracking, and transaction analytics via a dynamic interface. Usability evaluation using the USE Questionnaire demonstrated high satisfaction, usefulness, and accessibility, confirming the system's potential to improve financial service delivery in community-based lending environments. This research highlights the significance of technological transformation in promoting inclusive, secure, and efficient microfinance services.

Chapter I

INTRODUCTION

Background of the Study

In the Philippines, microfinance and lending are becoming increasingly popular. More and more people, whether working regular jobs or owning small enterprises, are turning to these services for financial assistance. The need for microfinance and loans is increasing, whether to cover unexpected personal expenses or to launch a new company venture. Traditional lending systems usually have chaotic application verification, processing, and monitoring processes. Without an effective verification system, these processes remain slow. Not addressing this problem makes the loan application process challenging and stressful for both the lender and the applicant.

QR codes on receipts give customers an easy way to access the website and view important details about their transactions and services. By scanning the code, customers can quickly find the information they need, saving time and enhancing their overall experience. This efficient and straightforward approach allows businesses to share details effectively, ensuring clear and seamless communication with their customers (Spindogs, 2021).

Microfinance institutions use loan management software (LMS), an advanced technological solution that quickens the loan origination and lifecycle process, boosts accuracy, and adds flexibility. With technology continuing to evolve, the significance of loan management software in microfinance increases (Valdmann, 2024). This system allows the company to update loan request

statuses via email, notifying borrowers if their loan has been approved, if they are eligible to reapply for another loan, or if additional requirements are needed for processing. This enhances transparency and simplifies communication.

With the aforementioned scenarios, this research aims to modernize the microfinance lending by streamlining loan application verification, processing, and monitoring, benefiting lenders and borrowers. Integrating GCash payments enhances transaction speed and accessibility. Additionally, it is a valuable resource for making lending services more user-friendly and ensuring borrowers understand their loan details, supporting transparency and informed decision-making.

Objectives of the Study

Using modern technology, RJ's Microfinance Lending Management System intends to improve and simplify microfinance lending. To enhance efficiency, transparency, and accessibility, this study attempts to achieve the following objectives:

1. To digitize and automate workflows to speed up and enhance accuracy in the loan application and approval process;
2. To design and implement a system, "RJ's Microfinance Lending Management System" that can input and store important information;
3. To assess the effectiveness of RJ's Microfinance Lending Management System; and

4. To evaluate user satisfaction and acceptance level of the system in terms of ease of use and satisfaction, usefulness, and information organization and accessibility.

Significance of the Study

The implementation of RJ's Microfinance Lending System lies in its ability to address the various challenges traditionally faced by lenders and borrowers. This study modernizes loan application processes to improve efficiency, accuracy, reliability, and transparency, reducing challenges for lenders and borrowers.

For borrowers, integrating payment options such as GCash addresses the growing demand for fast and convenient transactions, enhancing accessibility to financial services. Additionally, implementing a Gmail-based notification system informs borrowers about their loan status, including approvals, reapplication eligibility, and required documents. This feature promotes transparency and strengthens communication between the microfinance institution and its clients.

This study underscores the potential for the lending institution to redefine the microfinance landscape, making services more efficient and transparent. The email notifications ensure that clients receive timely updates regarding loan approvals, outstanding requirements, payment reminders, and options for reloaning. The system employs the Argon2 algorithm to securely store account information, further enhancing security, significantly reducing the risk of unauthorized access, and ensuring that attackers do not readily penetrate accounts.

This study allows the researcher to explore technology's role in microfinance, deepening their understanding of innovative lending solutions. It also offers practical experience in applying technological advancements to financial services, equipping them with valuable skills for future projects.

Furthermore, this research's findings serve as a valuable resource for academics, practitioners, and future researchers interested in developing and enhancing microfinance systems. By contributing to the body of knowledge in this area, the researcher can inspire others to explore similar innovations in the financial landscape, ultimately driving progress and positive change within the industry.

Scope and Limitations of the Study

This system aimed to simplify loan application procedures, increase transparency, and improve the accessibility of loans and borrowers. By digitalizing the process, borrowers can easily submit loan applications and make payments, reducing paperwork and administrative overhead.

Despite its benefits, the system has certain limitations. One notable constraint is its reliance on internet connectivity, which can hinder functionality in areas with poor or no online access. The system is also designed for specific workflows, potentially requiring significant customization to suit other organizations or financial institutions with different operational need

Chapter II

REVIEW OF RELATED LITERATURE

This chapter includes ideas, a finished thesis, generalizations or conclusions, methodologies, and others. It helps familiarize readers with relevant information similar to the present study.

Related Literatures

Lending is the process by which a financial institution provides funds to a borrower. Often called a lender, the institution typically receives interest in return for the loan. This makes it possible for businesses to borrow so they can expand their operations without having increased overheads from issuing new shares, thereby diluting equity positions held by earlier investors or taking on expensive debt burdens that could push them into bankruptcy if there is even a modest downturn in economic conditions as we have experienced in recent years.

Moreover, bank lending is essential for economic growth, investment, innovation, and job creation. By providing accessible credit with competitive interest rates, banks stimulate spending and investment by both businesses and consumers. This fosters economic stability by ensuring continued access to funding even during tough times, preventing severe contractions, and preserving overall economic health (CrifDigital, 2022).

Microfinance lending is crucial in promoting inclusive growth and sustainable development in the Philippines by unlocking the entrepreneurial potential of marginalized individuals and communities, thereby contributing to poverty reduction, job creation, and economic empowerment. Microfinance fosters

financial inclusion and stability among marginalized Asian and Pacific communities. It addresses the challenges rural women, low-income households, and small businesses face by providing access to much-needed financial services. Through initiatives such as the Microfinance Risk Participation and Guarantee Program, the Asian Development Bank (ADB) collaborates with local and international financial institutions to support microfinance institutions, empowering them to reach millions of borrowers. Moreover, ADB's efforts extend to empowering women entrepreneurs, providing access to education alongside finance, rebuilding post-conflict communities, supporting businesses outside capital cities, and nurturing small businesses to diversify economies. These strategic interventions aim to stabilize income flows, promote prosperity during good times, and offer crucial support during times of crisis, ultimately fostering resilience and sustainable development in the region (Bank, 2022).

Also, microfinance provides financial services such as loans, savings, and insurance to low-income individuals and small businesses excluded from traditional banking, aiming to improve their standard of living and promote self-sufficiency. By offering access to credit and essential financial tools, microfinance empowers them to start or expand businesses, invest in education, and purchase necessary goods and services (Tutor2u, 2023).

A loan management system offers significant advantages to businesses by simplifying the entire loan process, from origination to collection. Automation streamlines interest rate calculation, repayment schedules, and default account monitoring, reducing errors and operational costs. By storing critical information in

one place, decision-making becomes faster, while advanced reporting features provide valuable insights into portfolio performance. This software enhances efficiency for lenders and gives borrowers better control over their loans, ultimately saving time and money while ensuring security and accuracy in loan management (Limited, 2023).

Current lending businesses often face challenges due to manual processes, inefficient risk management, limited scalability, regulatory compliance issues, poor customer experience, and data management difficulties. In contrast, businesses with a lending system benefit from streamlined processes, automated risk assessment, scalability, regulatory compliance features, enhanced customer experience, and efficient data management. Businesses prefer digital lending over mainstream banks for several reasons (Roy & Roy, 2023).

Online loan applications are more accessible and save time compared to in-person visits. Digital lending involves less paperwork and faster processing and considers more than just credit scores. It offers flexibility in loan amounts and repayment plans, allows easy comparison of offers, and utilizes technology for a smoother process. It is particularly convenient for small businesses and start-ups. A lending system typically involves borrowing and lending money or assets between parties.

Integrating QR codes into a lending system enhances the user experience by providing seamless access to important information. When borrowers scan the QR code on their receipt, they are redirected to the lending system's website, where they can view different loan plans and terms suited to their needs. This

feature simplifies exploring and selecting loan options, making the system more efficient and user-friendly (Garg & Garg, 2025).

By using the power of AI, digital analytics, and artificial intelligence, microfinance institutions can unravel new opportunities for small enterprises and promote equitable economic growth. MFIs, proponents of social impact and financial inclusion, possess a unique opportunity to leverage the revolutionary potential of LMS to empower marginalized communities and create a prosperous future for everyone (Dissusa, 2024).

The Visa Consumer Payment Attitudes study conducted in the Philippines revealed a significant increase in cashless payments, with 60% of Filipinos carrying less cash and 84% having tried cashless transactions in 2021. Safety concerns, convenience, and easier financial tracking drive the transition to cashless methods. Key spending categories leading this shift include bill payments, supermarket purchases, and retail shopping. The COVID-19 pandemic accelerated this transition by an estimated three years, with seven out of 10 consumers anticipating an entirely cashless society within the next 7 to 10 years. Mobile wallets are the preferred cashless payment method for 64% of Filipinos, followed by online card payments (52%), card payments at physical merchants (44%), and QR payments (31%). Contactless payments are also gaining traction, with 83% awareness and 69% adoption in 2021, signaling a growing interest in emerging payment methods. The pandemic fueled online shopping growth, mainly through e-commerce apps, and increased in-home spending on essentials and subscription services (SEADS, 2022).

According to Bangko Sentral ng Pilipinas (2020), as cited in Agcaoili (2020), more agencies and local government units (LGUs) are now allowing individuals and businesses to pay taxes, permits, and other obligations to the government digitally. With the help of LGUs and other government agencies, the public is now utilizing the current e-payment platforms in the country. Diokno (2021), as cited in Manila Standard (2021), stated, “We expect a coinless society by 2025; the BSP expects the transition to gather pace amid the rise in electronic payments during the pandemic; given this, the BSP will continue to engage the public to ensure that Filipinos will adjust well to this transformation”. Adopting digital payment rather than pursuing cash settlement of obligations is more practical and cost-effective. Maintaining a lot of cash also corresponds to higher business and bank costs. Moreover, there are enormous benefits for the private and public sectors if they cooperate to adopt the latest technology and gain the full potential of a cashless society (Agcaoili, 2020).

According to Wang (2020), the cost associated with handling and transporting cash is gone by eliminating cash payment, and given the fixed cost associated with accepting cash, it is more cost-effective for some businesses not to accept cash at all. Furthermore, a cashless transaction does not require physical contact by the parties involved and FIAT Currency, making it more convenient for the payor and the payee (Formosa Publisher, 2022).

Sy (2020), as cited in Endo (2020), stated that “In a world where digital is the new normal, financial technology should be considered the bedrock of digital services”; “Aside from the convenience, it is also less risky than cash handling,

more efficient than physical payments, and very transparent" (Writer, 2020). This underscores the transformative potential of financial technology in reshaping traditional financial practices. Furthermore, integrating digital payment systems contributes to greater financial inclusion, enabling underserved populations to access essential financial services.

There are theories associated with the study, such as the Theory of Planned Behavior (TPB), which analyzes the willingness to take loans. According to the TPB, borrowing intention is influenced by attitudes, subjective norms, perceived behavior control, self-identity, situational temptation, and past behavior (Theory of Planned Behavior, 2022).

Database theory also encompasses the fundamental principles and concepts that underpin the design, organization, querying, and management of data in electronic databases. It delves into various models such as relational, hierarchical, network, and, more recently, NoSQL and MySQL, examining their structures, dependencies, and operations. Key topics include data integrity, normalization, indexing, transaction management, concurrency control, and query optimization. Database theory is the foundation for developing efficient, scalable, and reliable database systems, essential for storing, accessing, and manipulating vast amounts of structured and unstructured data in modern applications and enterprises (Jdawson, 2024).

This study is bounded by law, Republic Act 10844, also known as the "Department of Information and Communications Technology Act of 2015," which established the Department of Information and Communications Technology

(DICT) in the Philippines. It aims to streamline government efforts in ICT development, promote growth in the ICT sector, ensure universal access to quality ICT services, enhance cybersecurity, and foster digital literacy and inclusion (Department of Information and Communications Technology, 2022).

Conceptual Framework

This study employs a conceptual framework to develop the RJ Microfinance Lending Management System, addressing challenges and opportunities through a mixed-methods research approach. By integrating automation, digital payments, and multi-factor authentication, the system aims to modernize processes, reduce errors, and enhance transparency. Continuous feedback ensures adaptability, delivering an efficient and user-friendly loan management solution for borrowers and lenders.

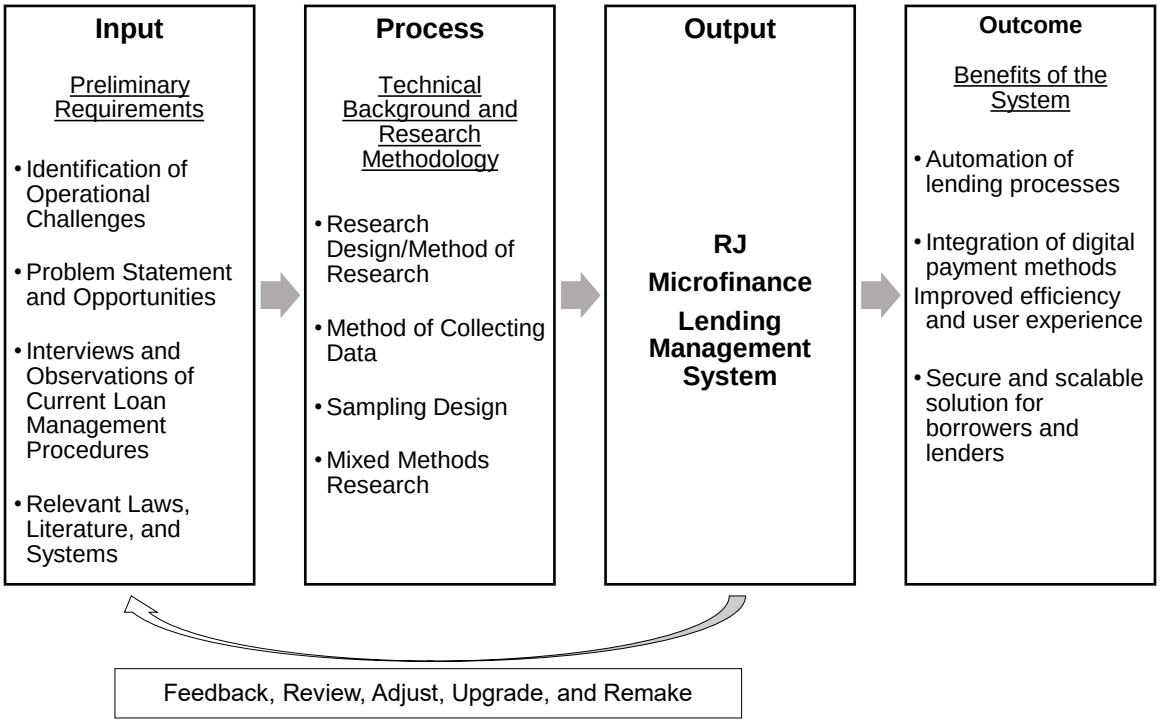


Figure 1.0 Conceptual Framework

Figure 1.0 shows the conceptual framework, illustrating how theories, legislative acts, and technological tools are interconnected to analyze and improve the present lending system. It outlines the step-by-step approach from system analysis and design to achieving enhanced automation, efficiency, and digital payment integration.

Related Studies

In the study by Ngabonzima and Ndayiragije (2024), “Effect of Digital Marketing on the Financial Performance of Microfinance Institutions in Rwanda,” it is explained that digital marketing tools like social media, mobile apps, and influencer promotions help microfinance institutions connect better with their users. These tools make it easier for borrowers to get the information they need and for lenders to understand what their users are looking for. By improving communication and simplifying things, digital marketing helps lenders provide better services, while borrowers can see how loans work and how they can benefit from them.

The study of the Multi-Purpose Cooperative Loan Management System emphasized enhancing the efficiency and effectiveness of loan management through a transition from a manual to a digital process. This shift highlighted the critical importance of accurate record-keeping and timely loan processing. The study aimed to reduce the workload for bookkeepers by eliminating manual filing and calculations, allowing for easy access to borrower details and reports (Capstone Guide, 2020).

The Online Loan Management System described by Devarapu and Reddy (2020) emphasized the convenience of allowing borrowers to manage their loans online, eliminating the need for multiple visits to the bank for applications, verifications, and monthly payments.

The study of the Loan Management System, developed by the Bachelor of Computer Application (BCA) students at Utkal University, focused on creating a simple and efficient way to manage loans. It allowed users to easily add, update, view customer details, and handle new loans smoothly. This system replaced the old manual methods that often cause errors, delays, and security issues. This modern approach made managing loans faster, more accurate, and easier for staff and customers (Studocu, 2022).

The Lending Management System, as described by iNetTutor.com (2024), was developed to make lending easier and more convenient for lenders and borrowers. It helped lenders process loan proposals, upload documents, and manage user accounts more efficiently, all while keeping documents and accounts secure. The system was designed to be simple and easy to use, saving time and effort by replacing manual processes with digital ones. Borrowers no longer need to visit offices in person, as the system allows them to handle transactions online, making the whole process faster, safer, and stress-free.

Similarly, the RJ Microfinance Lending Management System shares this goal by enabling borrowers to check their loan status and details through an online platform. Moreover, it enhances convenience by offering a seamless payment option through GCash. This ensures borrowers can manage their financial

obligations efficiently, improving the overall borrower experience for individuals and financial institutions.

In relation to the studies above, the web-based system has facilitated more efficient and faster transactions for borrowers and lenders. This aligns with the researcher's study, which focuses on enhancing microfinance by integrating QR code technology, GCash, and Gmail—benefits that positively impact lenders and borrowers. Additionally, the system ensures security for both parties by integrating Argon2 for password hashing and MFA sent to Gmail accounts for Admin authentication. It also utilizes Gmail notifications to update borrowers on their loan status and related updates.

CHAPTER III

METHODOLOGY

This part provides information on the research design and methodology used in the study. It examines the techniques employed to collect, assess, and interpret data to tackle the research queries. The chapter describes the research design, sampling methods, data collection tools, and analysis procedures implemented to maintain the credibility and accuracy of the results.

Research Design

RJ Microfinance Lending Management System was designed to simplify the entire microfinance lending process, from loan application to approval and monitoring, thereby enhancing operational efficiency and user satisfaction. This system aimed to simplify loan application procedures, improve transparency in the lending process, and increase accessibility for lenders and borrowers by integrating innovative technologies and cashless payment options.

In the initial phase, mixed methods research was employed to establish a foundational understanding of prevailing practices regarding RJ Microfinance. This approach combined quantitative and qualitative data collection methods to gain a comprehensive view of the experiences and needs of the stakeholders involved—owners, lenders, and borrowers. A survey was administered to capture essential demographic information, payment method, lending practices, loan types, preferences, and challenges related to lending. The quantitative component of this survey supplied numerical data that could be statistically evaluated to detect trends and patterns. In parallel, qualitative feedback was gathered using open-ended

questions to produce deeper insights into users' experiences and suggestions for improvement. This dual approach ensured a thorough understanding of the system's context and paved the way for future enhancements.

Following the survey phase, the study implemented Multi-Factor Authentication (MFA) for security, along with a Rule-Based Logic (Penalty Calculation Algorithm) that sends reminders to registered users' Gmail accounts about payment deadlines or late payments, encouraging them to pay on or before the due date. Additionally, data analysis techniques update borrowers via email regarding the status of their loan requests, whether approved, pending requirements, or for reloaning. These algorithms and techniques significantly helped the borrowers and RJ Microfinance, reducing the workload and the need for manual reminders to ensure that borrowers settle their payments on time.

Moreover, the system integrated a "Contact Us" feature that allows lenders and non-lenders to submit recommendations and inquiries about improvements.

Essential for maintaining productivity and ensuring effective day-to-day management, the RJ Microfinance system allows for easy transaction monitoring through a user-friendly interface. This system enhances operational efficiency with features commonly found in web-based applications, such as alerts, real-time data updates, and reporting.

The admin can manage loan types, update payments, monitor transactions, and check submitted requirements for approvals. Borrowers can pay through

GCash. They can also view their payment history, check their payment schedule, and explore the loan types offered by RJ Microfinance.

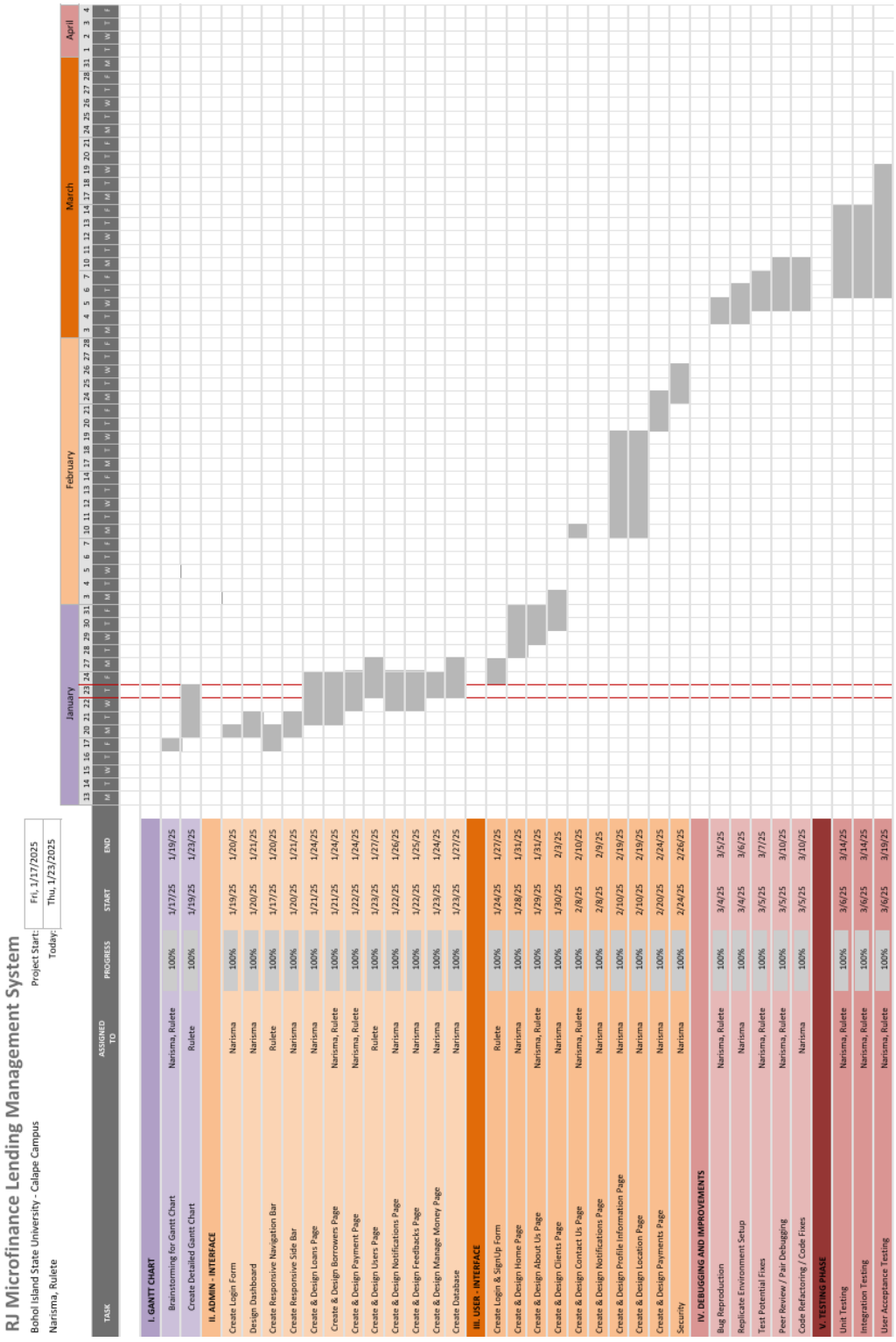
Project Development

The development of the RJ Microfinance Lending Management System employed a developmental research design to ensure the systematic design, development, and evaluation of a robust management system tailored for microfinance operations. This approach guarantees internal consistency, effectiveness, and adaptability to the unique needs of the microfinance sector. The study emphasized enhancing financial and social performance evaluation by providing a framework for identifying suitable methods to assess various dimensions of microfinance. This systematic approach aids stakeholders, including policymakers, donors, and practitioners, select appropriate evaluation techniques and effectively communicate performance metrics to the market (Sierra et al., 2024).

The system is a structured platform for managing data, specifically designed for RJ Microfinance Lending Management. It focuses on efficiently organizing and accessing loan records and borrower information. To achieve this, the system utilized quick sort for fast data sorting and Argon2 for securing sensitive information, ensuring speed and strong data protection as the system grows.

This section outlines the project timeline through a Gantt Chart. It presents the project evaluation, detailing the assessment methods used to measure the system's functionality, usability, and overall impact on emergency response management.

a. Gantt Chart



TASK	ASSIGNED TO	PROGRESS	START	END
I. GANTT CHART				
Brainstorming for Gantt Chart	Narisma, Rulete	100%	1/17/25	1/19/25
Create Detailed Gantt Chart	Rulete	100%	1/19/25	1/23/25
II. ADMIN - INTERFACE				
Create Login Form	Narisma	100%	1/19/25	1/20/25
Design Dashboard	Narisma	100%	1/20/25	1/21/25
Create Responsive Navigation Bar	Rulete	100%	1/17/25	1/20/25
Create Responsive Side Bar	Narisma	100%	1/20/25	1/21/25
Create & Design Loans Page	Narisma	100%	1/21/25	1/24/25
Create & Design Borrowers Page	Narisma, Rulete	100%	1/21/25	1/24/25
Create & Design Payment Page	Narisma, Rulete	100%	1/22/25	1/24/25
Create & Design Users Page	Rulete	100%	1/23/25	1/27/25
Create & Design Notifications Page	Narisma	100%	1/22/25	1/26/25
Create & Design Feedbacks Page	Narisma	100%	1/22/25	1/25/25
Create & Design Manage Money Page	Narisma	100%	1/23/25	1/24/25
Create Database	Narisma	100%	1/23/25	1/27/25
III. USER - INTERFACE				
Create Login & SignUp Form	Rulete	100%	1/24/25	1/27/25
Create & Design Home Page	Narisma	100%	1/28/25	1/31/25
Create & Design About Us Page	Narisma, Rulete	100%	1/29/25	1/31/25
Create & Design Clients Page	Narisma	100%	1/30/25	2/3/25
Create & Design Contact Us Page	Narisma, Rulete	100%	2/8/25	2/10/25
Create & Design Notifications Page	Narisma	100%	2/8/25	2/9/25
Create & Design Profile Information Page	Narisma	100%	2/10/25	2/19/25
Create & Design Location Page	Narisma	100%	2/10/25	2/19/25
Create & Design Payments Page	Narisma	100%	2/20/25	2/24/25
Security	Narisma	100%	2/24/25	2/26/25
IV. DEBUGGING AND IMPROVEMENTS				
Bug Reproduction	Narisma, Rulete	100%	3/4/25	3/5/25
Replicate Environment Setup	Narisma	100%	3/4/25	3/6/25
Test Potential Fixes	Narisma, Rulete	100%	3/5/25	3/7/25
Peer Review / Pair Debugging	Narisma, Rulete	100%	3/5/25	3/10/25
Code Refactoring / Code Fixes	Narisma	100%	3/5/25	3/10/25
V. TESTING PHASE				
Unit Testing	Narisma, Rulete	100%	3/6/25	3/14/25
Integration Testing	Narisma, Rulete	100%	3/6/25	3/14/25
User Acceptance Testing	Narisma, Rulete	100%	3/6/25	3/19/25

Table 1.0 Gantt Chart for Software Development

RJ Microfinance Lending Management System

Bohol Island State University - Calape Campus

Narisma, Rulete

Project Start: Sat, 3/1/2025

Today: Thu, 4/3/2025

TASK	ASSIGNED TO	PROGRESS	START	END
I. Methodology				
Use Case Diagram	Rulete	100%	3/1/25	3/5/25
Activity Diagram	Rulete	100%	3/1/25	3/5/25
Sequence Diagram	Rulete	100%	3/1/25	3/5/25
Requirement Analysis	Rulete	100%	3/5/25	3/10/25
System Architecture	Narisma	100%	3/10/25	3/15/25
Project Evaluation	Rulete	100%	3/13/25	3/18/25
Data Gathering Instrument	Rulete	100%	3/19/25	3/23/25
Data Analysis Procedure and Statistical Treatment	Narisma, Rulete	100%	3/23/25	3/28/25
II. Results and Discussion				
Result of the Evaluation of the Software Quality Standards Based on ISO 25010	Narisma, Rulete	100%	3/23/25	3/28/25
III. Summary, Conclusions, and Recommendations				
Summary	Rulete	100%	3/23/25	3/28/25
Conclusions	Rulete	100%	3/23/25	3/29/25
Recommendations	Narisma, Rulete	100%	3/25/25	3/29/25
IV. Book References				
References	Rulete	100%	3/25/25	3/29/25
Appendices	Rulete	100%	3/25/25	3/29/25
V. Revisions				
Thesis Adviser Consultations	Narisma, Rulete	100%	4/10/25	4/20/25
Revisions	Narisma, Rulete	100%	4/10/25	4/20/25
English Critique Consultations	Narisma, Rulete	100%	4/10/25	4/20/25

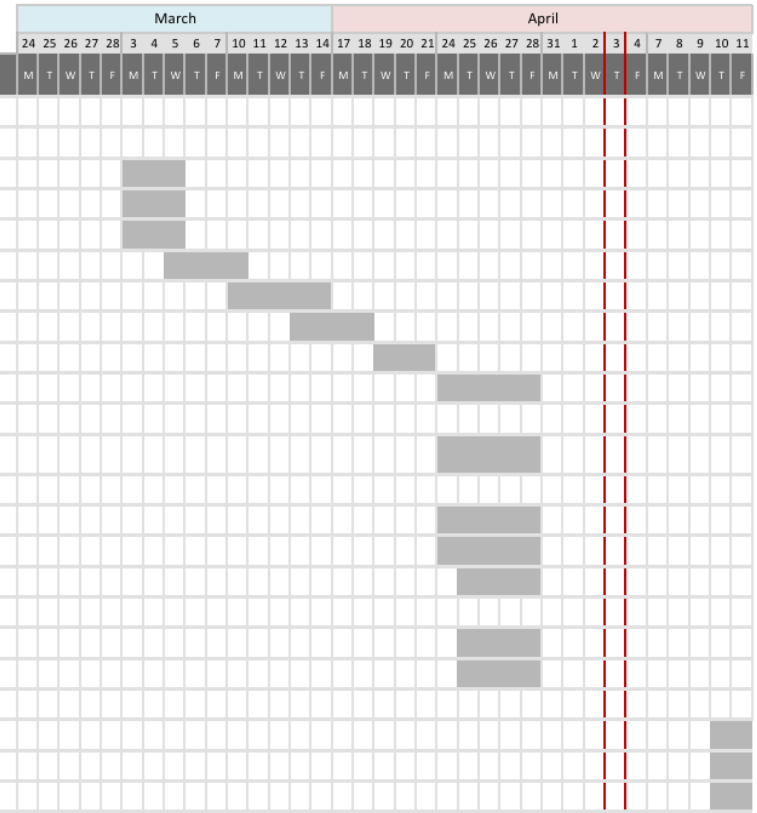


Table 2.0 Gantt Chart for Documentation

b. Project Evaluation

This study focused on creating the RJ Microfinance Lending Management System to improve how RJ's Microfinance handles loans and serves its clients. The system was developed to solve loan application and payment management issues by offering a digital solution that made these processes faster and easier. Before this system, loan transactions were done manually, which took time and often led to mistakes. This made it harder for both borrowers and administrators to work efficiently. These problems inspired the development of the system's main features.

The first step in developing the RJ Microfinance Lending Management System was to create a user interface for borrowers. This interface allowed borrowers to view different loan plans and types and access details about the microfinance institution, including its address, contact number, and history. It was designed to be user-friendly and easy to navigate.

The second step was integrating a payment option for borrowers, enabling them to apply for loans through the system. The loan application process included admin review, verification of account registration requirements, and approval to activate the borrower's account for usage. This ensured that only valid accounts could proceed.

Next, security features were implemented, including Argon2 for secure password hashing and a Gmail function for sending updates about loan information, details, statuses, and payments. These features ensured safety and transparency for all users.

The final step involved creating the admin interface, secured with Argon2 and multi-factor authentication (MFA). This interface included a messaging feature for seamless communication between lenders and borrowers and an address tracking feature to locate borrowers accurately. Admins could manage loans more efficiently with these tools.

By integrating these features, the system streamlined loan applications, making the process simple, secure, and hassle-free for borrowers and lenders.

Requirement Analysis

The development of the RJ Microfinance Lending Management System was driven by the need to enhance the efficiency and effectiveness of loan and payment management. Previously, the process heavily relied on manual tracking and paperwork, which posed challenges in monitoring loan statuses, ensuring timely payments, and maintaining organized records over time.

To overcome these issues, the system was designed to simplify processes, improve operational efficiency, and make management more accessible by integrating digital solutions.

The system is designed to cater to administrators and borrowers, ensuring seamless interaction and efficient management. Administrators oversee system operations, including creating accounts, reviewing submitted requirements, and approving or rejecting borrower registrations. Borrowers can also create accounts, but the final approval is contingent upon the administrator verifying the requirements.

In addition to account management, borrowers can apply for loans, track their payment schedules, and receive updates about their accounts. Administrators review loan applications based on the provided information to approve or deny them. Borrowers can process payments through the system, while administrators can manually input payment details for accuracy and convenience.

Loan management is another essential component. Administrators can easily create and update loan records, classify loans by type or term, and track repayment progress. Borrowers' payment statuses are recorded, allowing administrators to send reminders for upcoming due dates or flag missed payments.

To improve payment tracking and organization, the system includes a calendar feature that allows administrators to monitor payment schedules and details. Administrators can view the dates when borrowers made payments and the corresponding amounts paid, ensuring accurate and efficient record-keeping.

Lastly, the system features a reporting and dashboard module to assist administrators in making informed decisions. The dashboard provides real-time insights, including the total funding amount, available funds, borrower statistics, pending loans, collected payments, new user registrations, transaction history, and upcoming payments.

By introducing these features, the RJ Microfinance Lending Management System transforms loan management into a simpler, more efficient, and stress-free process for borrowers and administrators.

System Architecture

The RJ Microfinance Lending Management System was designed to ensure efficient loan management and smooth operations. Both the frontend and backend were developed using PHP, allowing for the creation of dynamic, interactive, and user-friendly web applications.

The frontend offered a simple and intuitive interface for administrators and borrowers. It handled essential tasks such as loan applications, payment tracking, and account management, ensuring a seamless user experience. The backend processed user requests, applied business rules, and managed secure data transactions.

The system used MySQL for data storage, efficiently organizing borrower records, loan details, payment schedules, and transaction logs.

To ensure security, Argon2 hashing was used to protect passwords, safeguarding user credentials from unauthorized access. Gmail integration allowed the system to send email notifications, giving users real-time updates on loan approvals, payment reminders, and account activities. This feature also supported multi-factor authentication (MFA) to enhance security further.

The website was hosted on Hostinger, providing a robust and reliable platform for seamless system performance. Its scalable infrastructure and 24/7 uptime support ensured the system remained accessible to users anytime, anywhere.

Utilizing these technologies, the RJ Microfinance Lending Management System provided a secure, efficient, and user-friendly solution that simplified loan management for administrators and borrowers.

Design Specification

The development of the study needed specific materials and resources for both the system and its documentation. Furthermore, project management tools, testing equipment, and other resources were employed to guarantee the successful completion of the project. To maintain timely progress, the researchers meticulously chose the appropriate materials and resources, emphasizing cost, availability, and quality.

Database Management System (XAMPP v3.3.0) played a crucial role by providing a robust platform for storing and managing data related to microfinance operations. With XAMPP, the system efficiently organized essential records, including borrower details, loan applications, payment schedules, and transactions. This streamlined access to crucial information for administrators and borrowers enhances the efficiency and effectiveness of loan and payment management. Additionally, XAMPP's security features ensured the confidentiality and integrity of sensitive financial data, safeguarding information and promoting trust in the system.

Integrated Development Environment (VS Code) provided a comprehensive platform for software development, offering features such as code editing, debugging, and version control integration. It served as a vital tool for the development team. Its intuitive interface and extensive plugin ecosystem

streamlined the coding process, enabling developers to write, test, and debug code for the system's modules efficiently. With built-in Git support, collaborative development and version control were facilitated, ensuring code integrity and seamless team collaboration. Additionally, VS Code's customizable nature allowed developers to tailor the environment to suit the specific requirements of the project, enhancing productivity and code quality.

Bootstrap 5 is a powerful front-end framework that simplifies responsive web development, enabling developers to create modern, mobile-first applications quickly and efficiently. With its grid system and pre-built components, Bootstrap 5 facilitates the design of visually appealing layouts and ensures consistent styling across devices. The framework's utility classes allow for rapid styling directly in HTML, while its responsive design capabilities guarantee optimal viewing on all screen sizes.

Google Chrome is one of the most widely used web browsers. Its robust features facilitate seamless access to the system's web-based interface, ensuring administrators and borrowers can easily navigate and interact with the RJ Microfinance Lending Management System. With Chrome's speed, security, and compatibility across devices, users can efficiently manage loan applications, monitor payments, and receive timely updates on account activities and payment reminders.

Google Maps API integrated geographical data and visualization capabilities, enhancing the system’s functionality by allowing users to view and analyze spatial information within the context of their data. This integration opened

up possibilities for location-based analysis, such as mapping customer demographics, visualizing distribution networks, or optimizing route planning, thereby augmenting the system's utility and providing valuable insights for decision-making processes.

CSS (Cascading Style Sheet) and integrating CSS (Cascading Style Sheets) served as a crucial component for defining the visual presentation and layout of the RJ Microfinance Lending Management System. CSS enabled the separation of content from design, allowing for consistent styling across different pages and elements of the system. By incorporating CSS, developers could customize the appearance of user interfaces, including fonts, colors, spacing, and overall aesthetic, ensuring a cohesive and user-friendly experience for system users. Additionally, CSS facilitated responsiveness, enabling the system to adapt and display optimally across various devices and screen sizes, enhancing accessibility and usability. The integration of CSS enhanced the visual appeal, usability, and functionality of the RJ Microfinance Lending Management System, contributing to a seamless and engaging user experience.

PHP in the system involved incorporating it as the primary programming language for backend development, server-side scripting, and database connectivity. PHP's versatility and widespread use in web development make it suitable for seamlessly integrating various RJ Microfinance Lending Management functions.

Database Schema

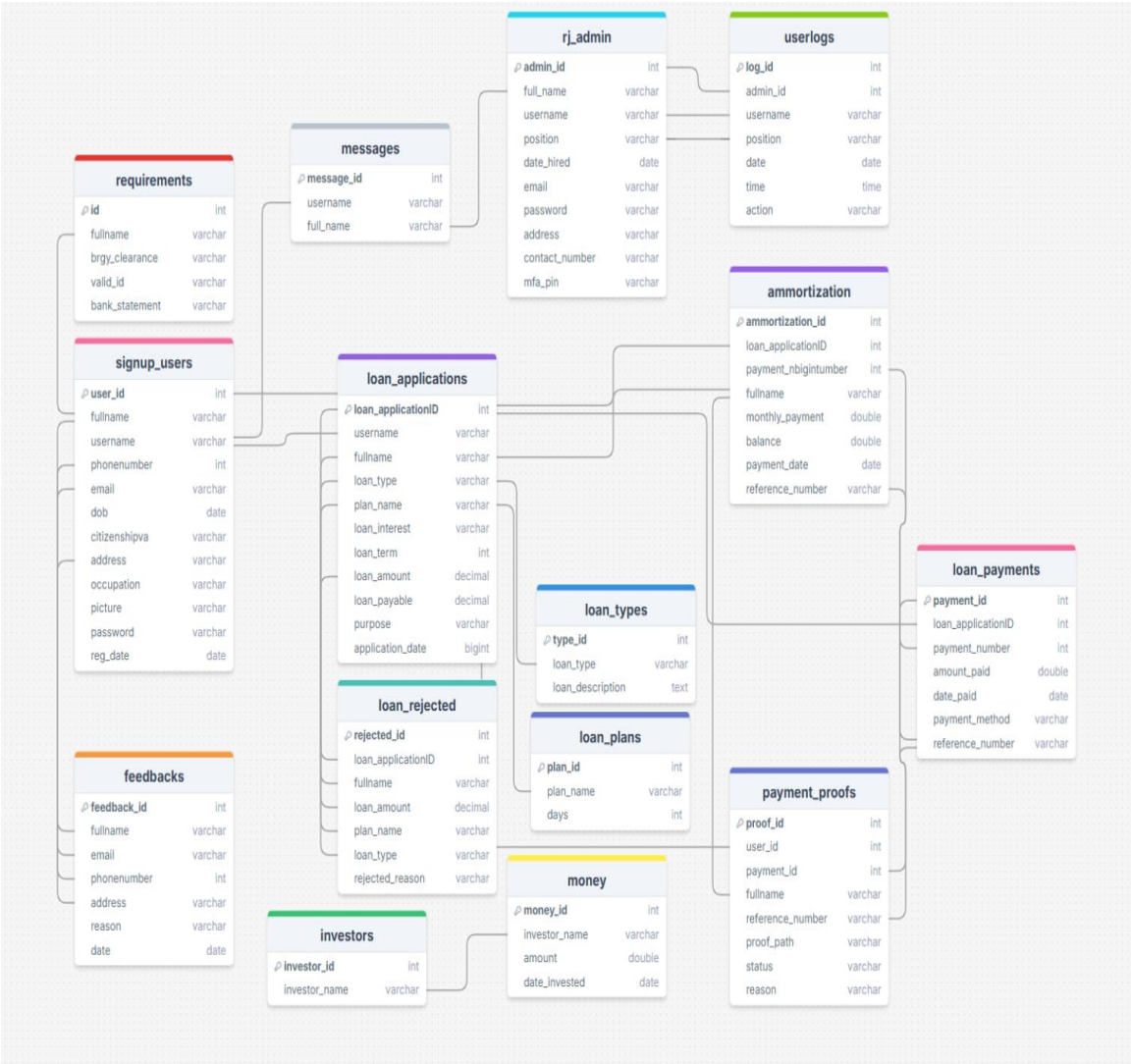


Figure 2.0 Database Schema

The database schema for the RJ Microfinance Lending Management System is designed to simplify data management and decision-making. Built on MySQL, it connects key tables to handle borrowers, loans, payments, and administrative tasks. The signup_users table stores borrower details, linked to loan_applications for loan requests. Approved loans connect to amortization for

repayment schedules and loan payments for transaction tracking, while rejected loans are stored in loan_rejected. The loan_types and loan_plans tables define loan categories and terms. Investments are managed through investors and money, while admins use rj_admin and userlogs for secure operations and activity tracking. Notifications and feedback are handled via messages. The interconnected structure ensures smooth operations, accurate tracking, and effective decision-making.

Use Case Diagram

The system is designed for RJ Microfinance Lending Management, allowing the admin and users to easily manage borrower records and loan transactions. It shows how each role uses the system for tasks like processing loan applications, keeping track of payments, and managing other administrative activities.

USE CASE DIAGRAM INVOLVING ADMIN LOGGING IN

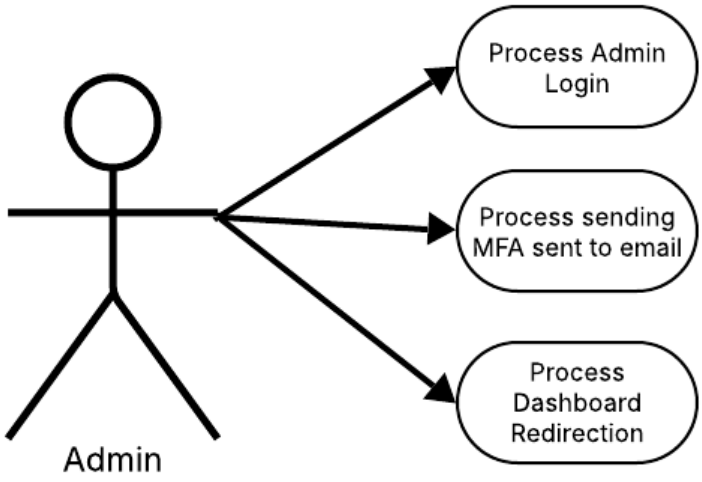


Figure 3 Use Diagram for Admin Log in

USE CASE DIAGRAM INVOLVING ADMIN EDITING PROFILE

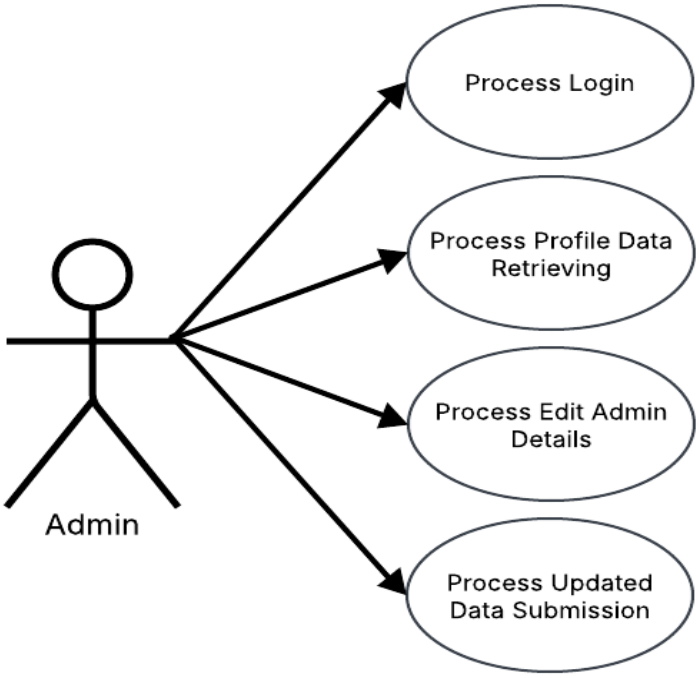


Figure 4 Use Case Diagram for Admin Editing Profile

USE CASE DIAGRAM INVOLVING ADMIN FORGOT PASSWORD

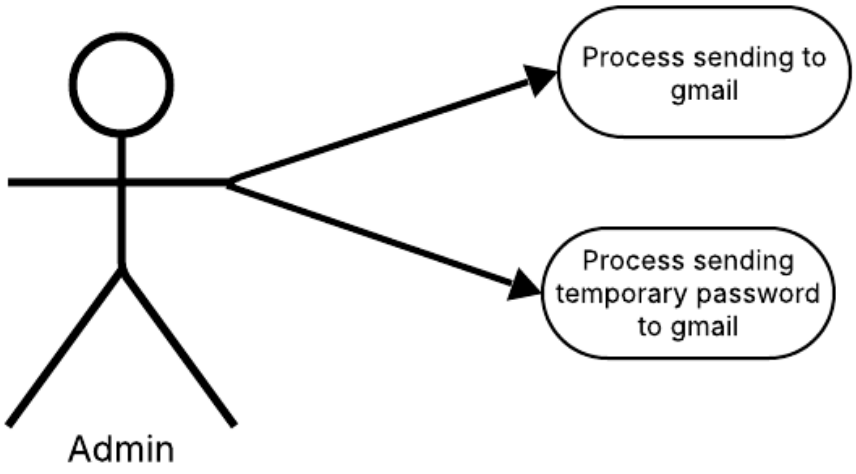


Figure 5 Use Case Diagram for Admin Forgot Password

USE CASE DIAGRAM INVOLVING APPROVING LOAN APPLICATIONS

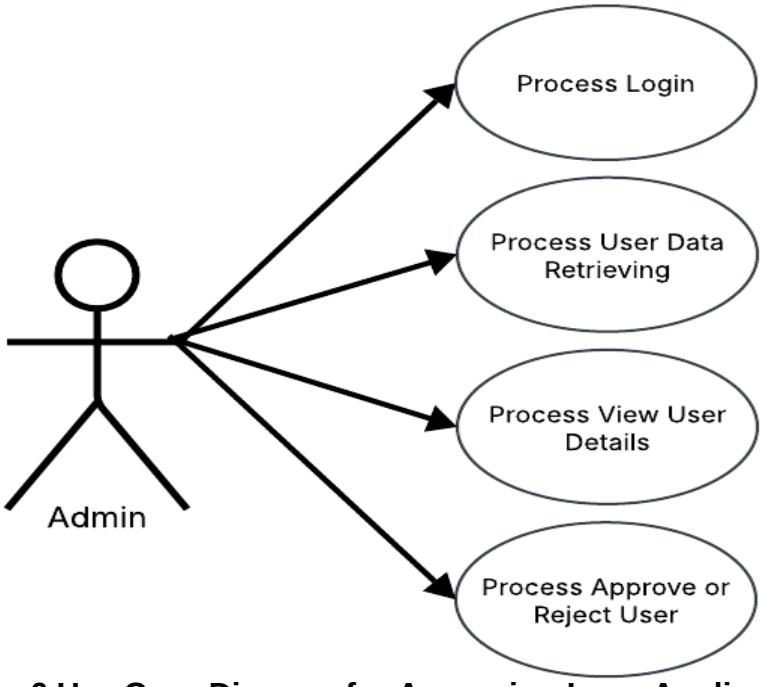


Figure 6 Use Case Diagram for Approving Loan Applications

USE CASE DIAGRAM INVOLVING VIEWING LOAN REJECTED

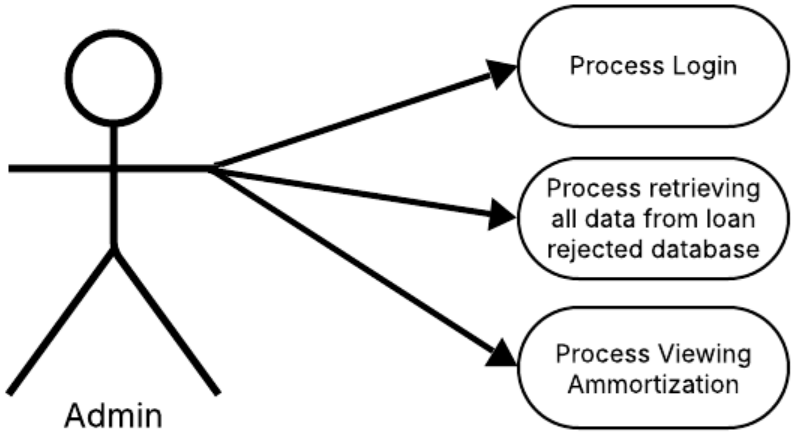


Figure 7 Use Case Diagram for Viewing Loan Rejected

USE CASE DIAGRAM INVOLVING ADDING MONEY

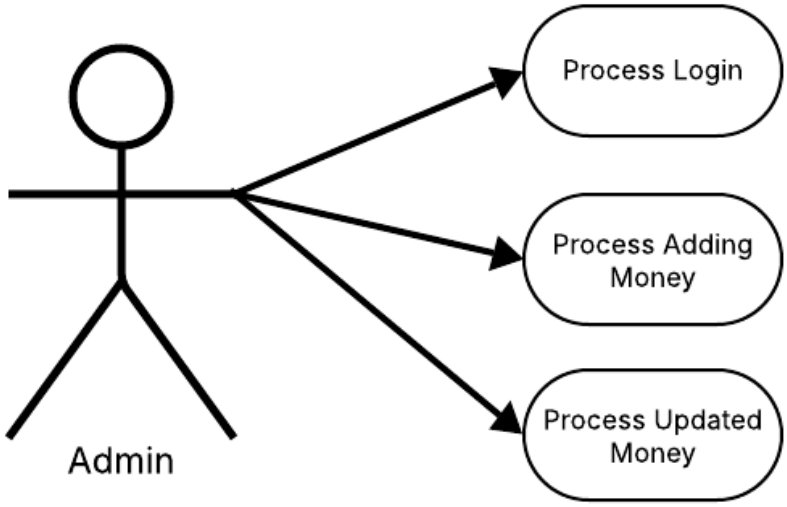


Figure 8 Use Case Diagram for Adding Money

USE CASE DIAGRAM INVOLVONG VIEWING AMORTIZATION TABLE

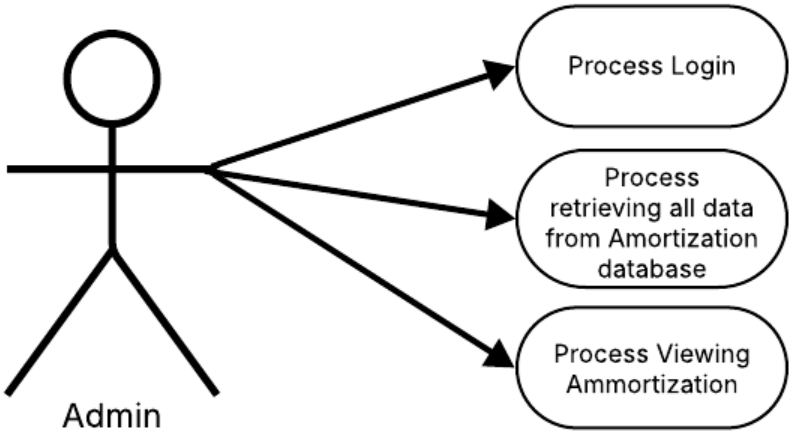


Figure 9 Use Case Diagram for Viewing Amortization Table

USE CASE DIAGRAM INVOLVING ADDING OF INVESTORS

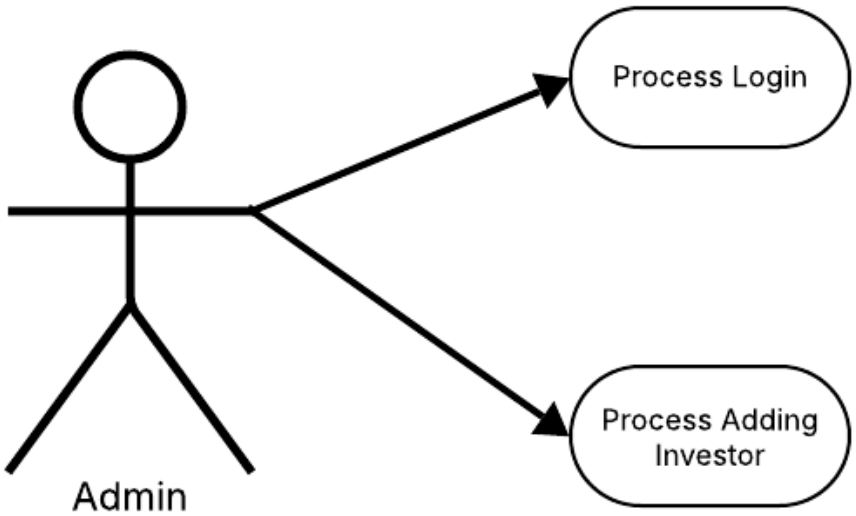


Figure 10 Use Case Diagram for Adding of Investors

USE CASE DIAGRAM INVOLVING EDITING STATUS OF THE INVESTORS

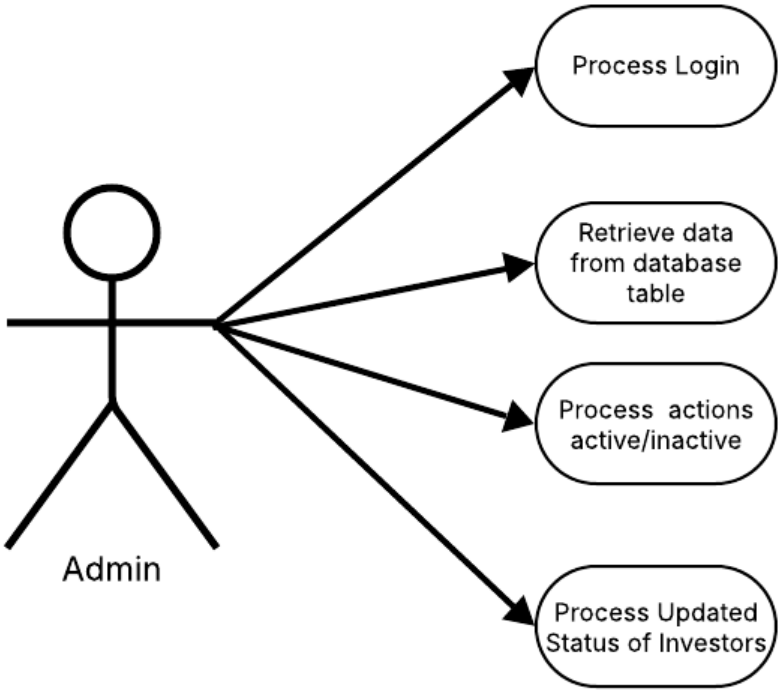


Figure 11 Use Case Diagram for Editing Status of the Investors

USE CASE DIAGRAM INVOLVING ADDING LOAN TYPES

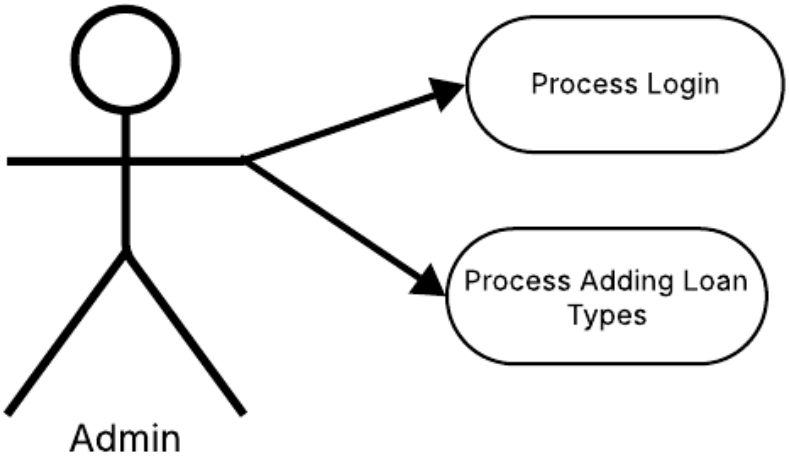


Figure 12 Use Case Diagram for Adding Loan Types

USE CASE DIAGRAM INVOLVING EDITING STATUS OF LOAN TYPES

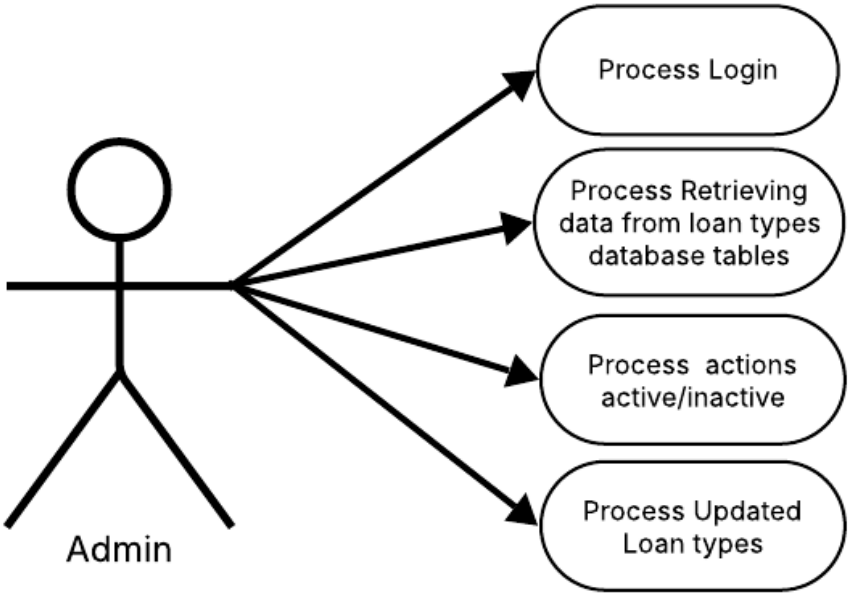


Figure 13 Use Case Diagram for Editing Status of Loan Types

USE CASE DIAGRAM INVOLVING ADDING LOAN PLANS

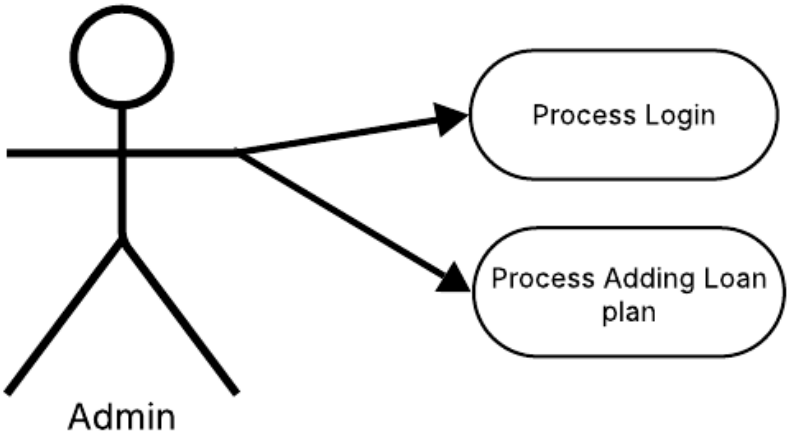


Figure 14 Use Case Diagram for Adding Loan Plans

USE CASE DIAGRAM INVOLVING EDITING STATUS OF LOAN PLANS

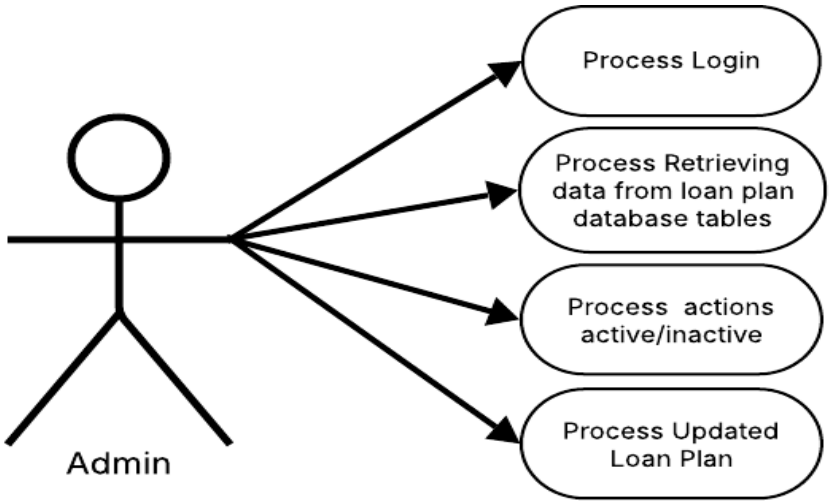


Figure 15 Use Case Diagram for Editing Status of Loan Plans

USE CASE DIAGRAM INVOLVING ADDING BORROWERS

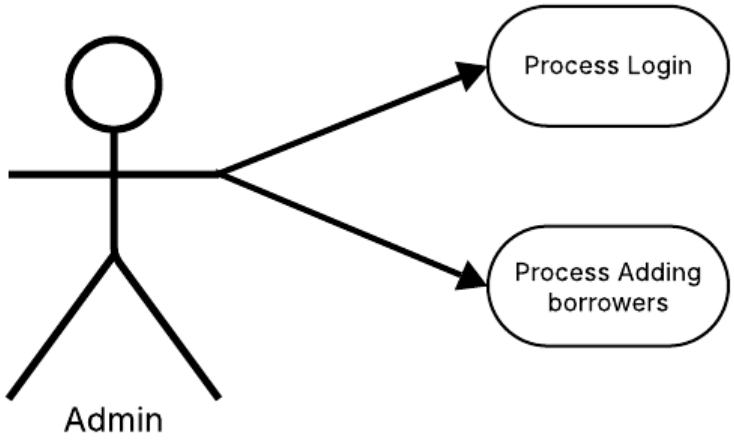


Figure 16 Use Case Diagram for Adding Borrowers

USE CASE DIAGRAM INVOLVING EDITING BORREWRS DETAILS

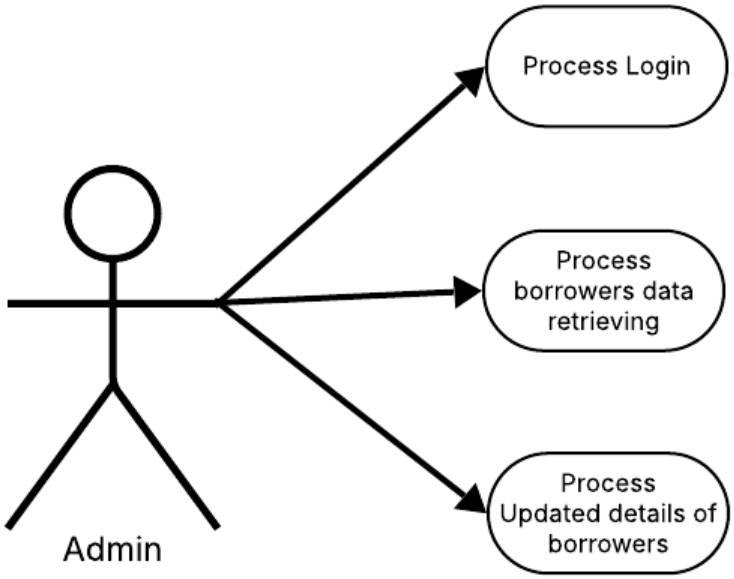


Figure 17 Use Case Diagram for Editing Borrowers Details

USE CASE DIAGRAM INVOLVING ADDING ADMINISTRATOR

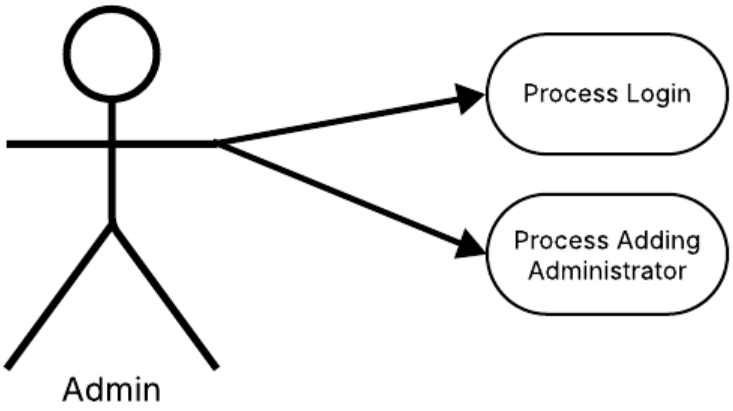


Figure 18 Use Case Diagram for Adding Administrator

USE CASE DIAGRAM INVOLVING EDITING ADMIN DETAILS

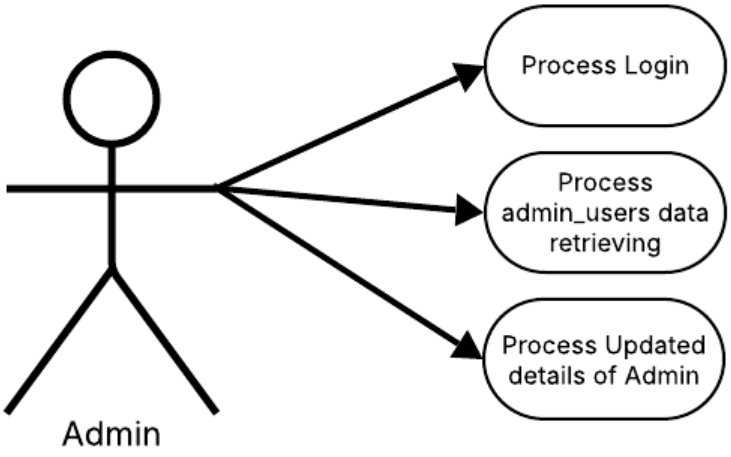


Figure 19 Use Case Diagram for Editing Admin Details

USE CASE DIAGRAM INVOLVING MESSAGING

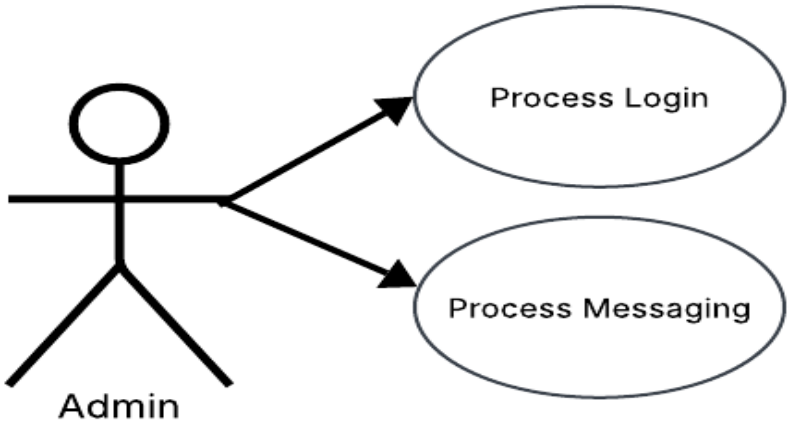


Figure 20 Use Case Diagram for Messaging

USE CASE DIAGRAM INVOLVING NOTIFICATION

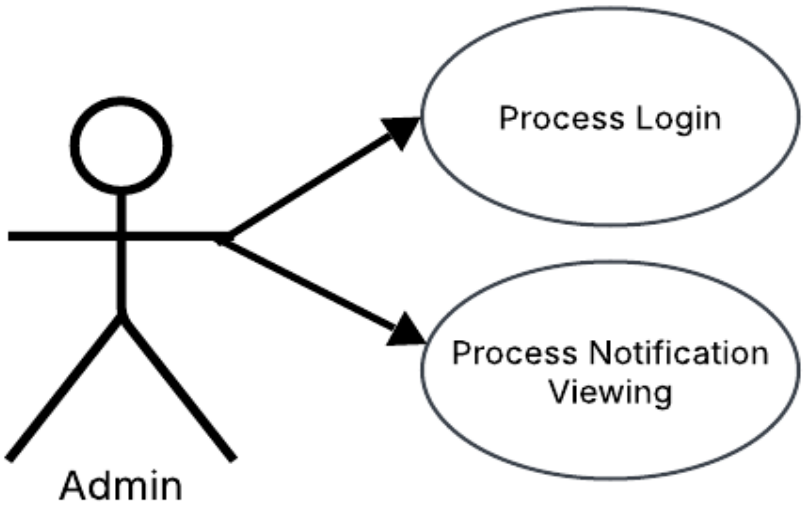


Figure 21 Use Case Diagram for Notification

USE DIAGRAM INVOLVING VIEWING FEEDBACKS

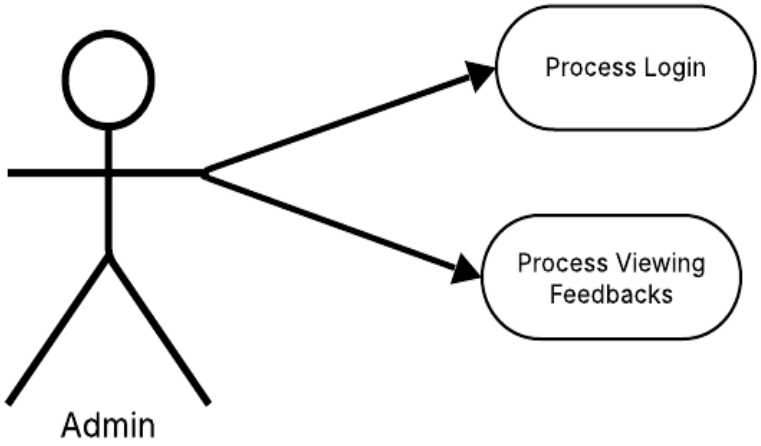


Figure 22 Use Case Diagram for Viewing Feedbacks

USE CASE DIAGRAM INVOLVING VIEWING USER LOGS

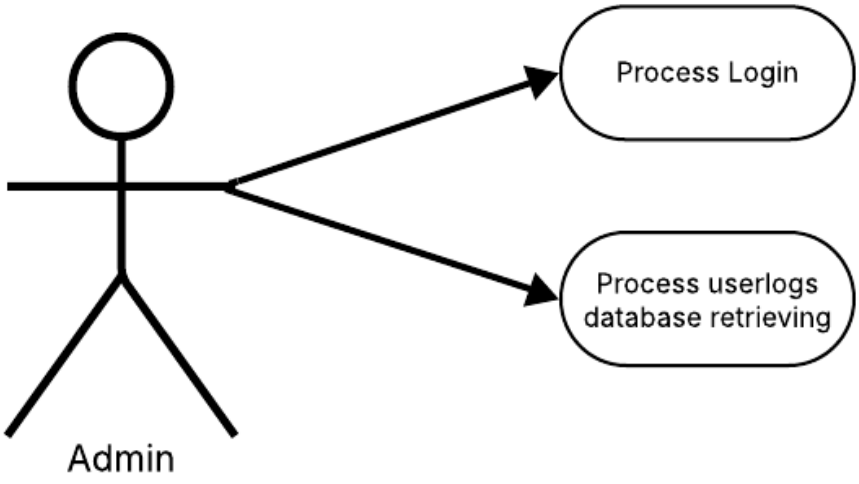


Figure 23 Use Case Diagram for Viewing User logs

USE CASE DIAGRAM INVOLVING BORROWERS CREATING ACCOUNT

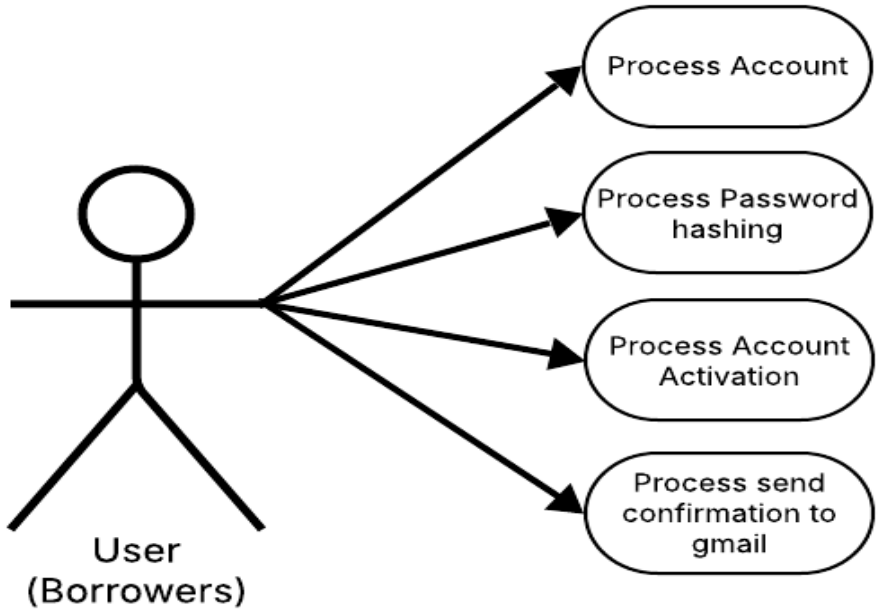


Figure 24 Use Case Diagram for Borrowers Creating an Account

USE CASE DIAGRAM INVOLVING BORROWERS LOGGING IN

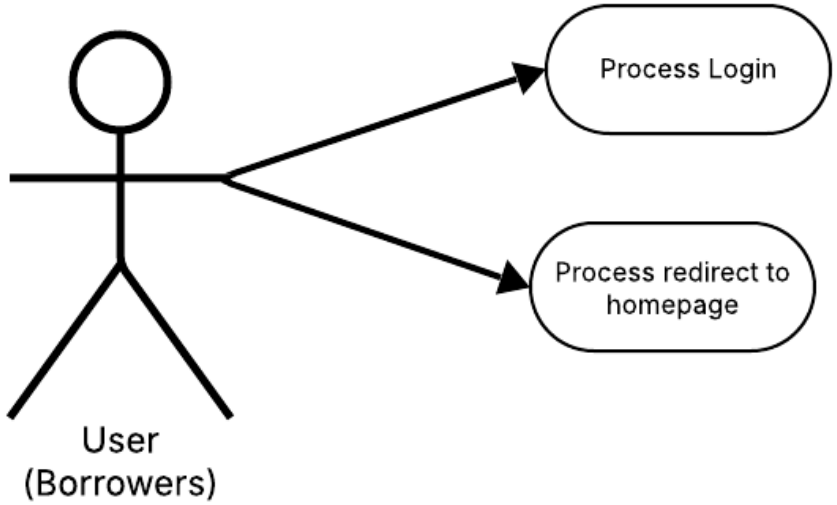


Figure 25 Use Case Diagram for Borrowers Logging In

USE CASE DIAGRAM INVOLVING BORROWERS FORGOT PASSWORD

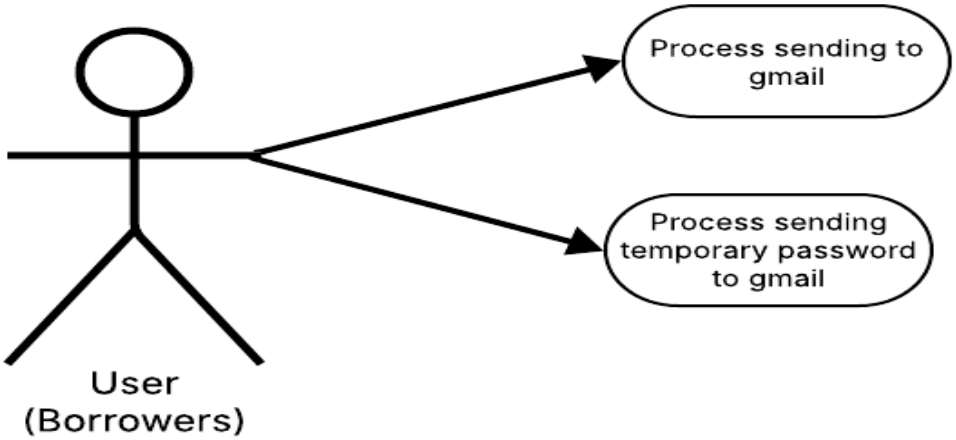


Figure 26 Use Case Diagram for Borrowers Forgot Password

USE CASE DIAGRAM INVOLVING BORROWERS EDITING PROFILE

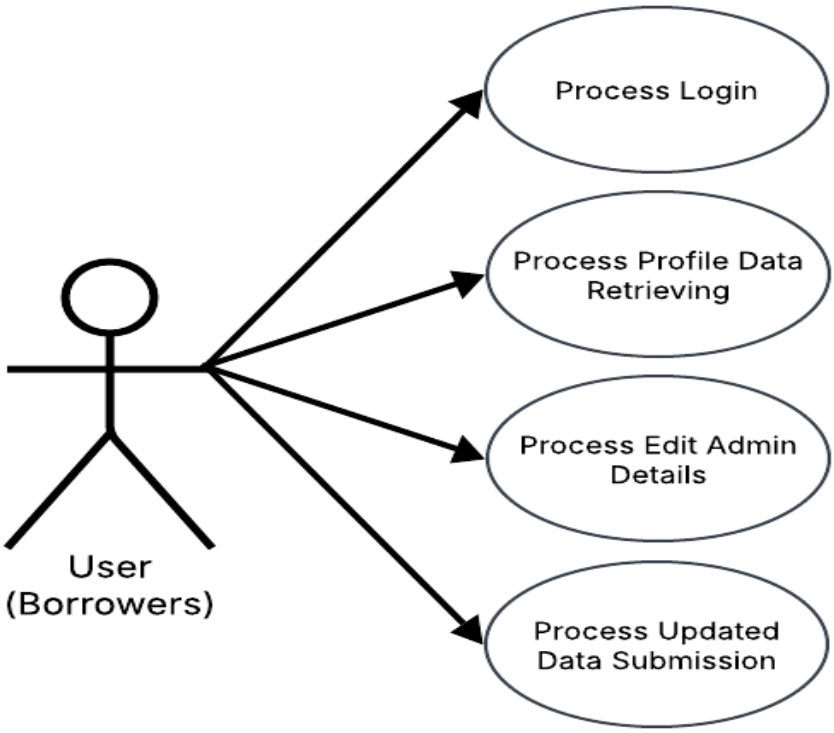


Figure 27 Use Case Diagram for Borrowers Editing Profile

USE CASE DIAGRAM INVOLVING BORROWERS LOAN APPLICATION

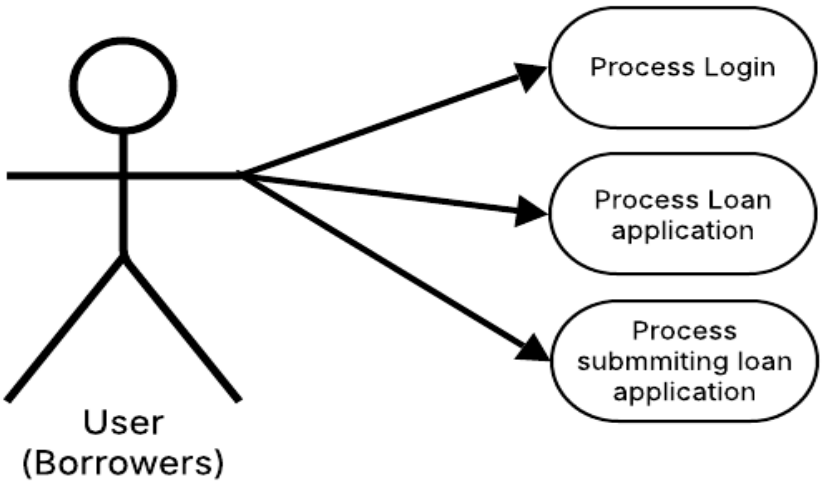


Figure 28 Use Case Diagram for Borrowers Loan Application

USE CASE DIAGRAM INVOLVING PAYMENTS

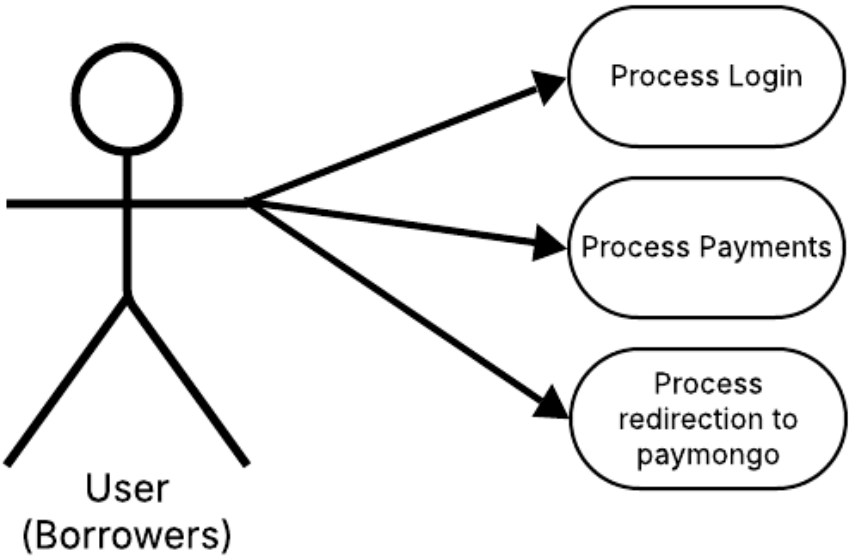


Figure 29 Use Case Diagram for Payments

USE CASE DIAGRAM INVOLVING VIEWING SUBMITTED REQUIREMENTS

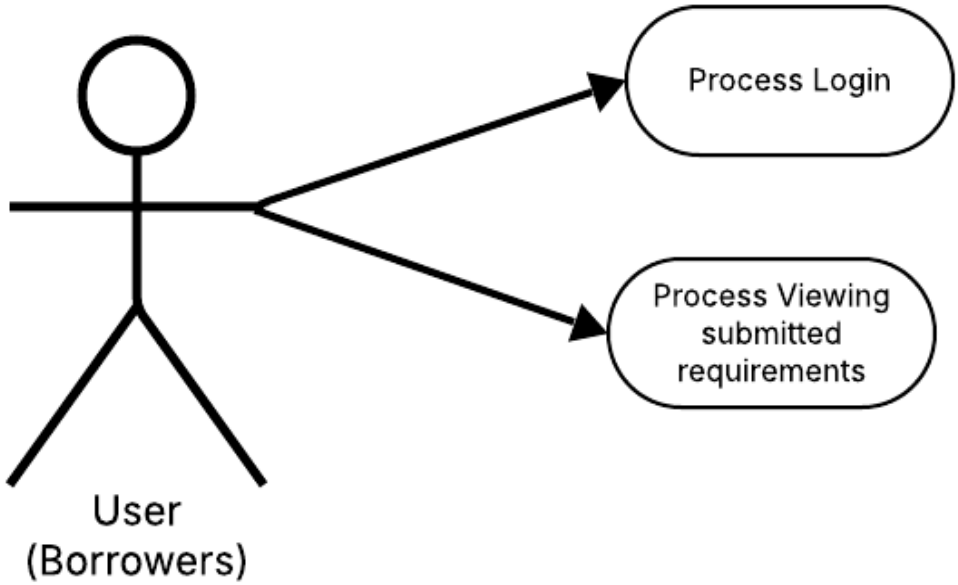


Figure 30 Use Case Diagram for Viewing Submitted Requirements

Activity Diagram

The system offers a user-friendly workflow, making it easy for users to navigate. Flowcharts show the logical steps and processes the system follows.

ACTIVITY DIAGRAM INVOLVING ADMIN LOGGING IN

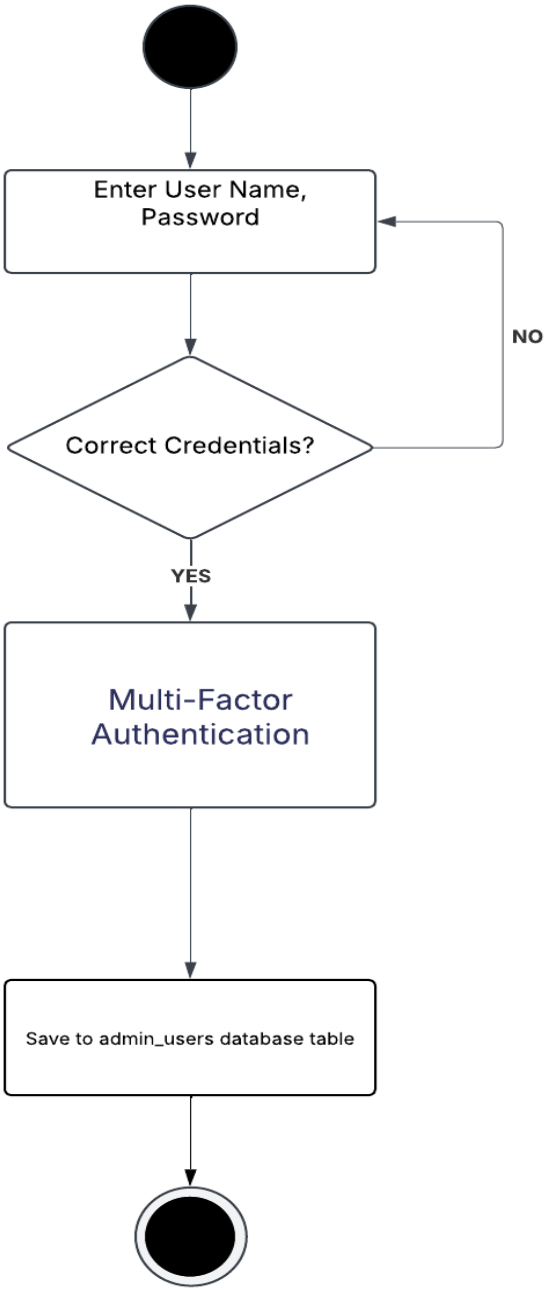


Figure 31 Activity Diagram for Admin Logging in

ACTIVITY DIAGRAM INVOLVING ADMIN EDITING PROFILE

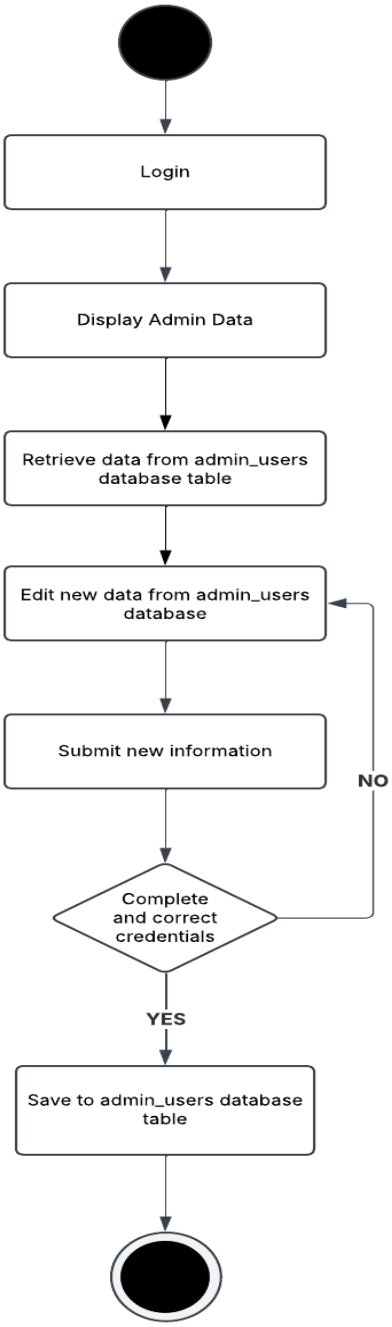


Figure 32 Activity Diagram for Admin Editing Profile

ACTIVITY DIAGRAM INVOLVING ADMIN FORGOT PASSWORD

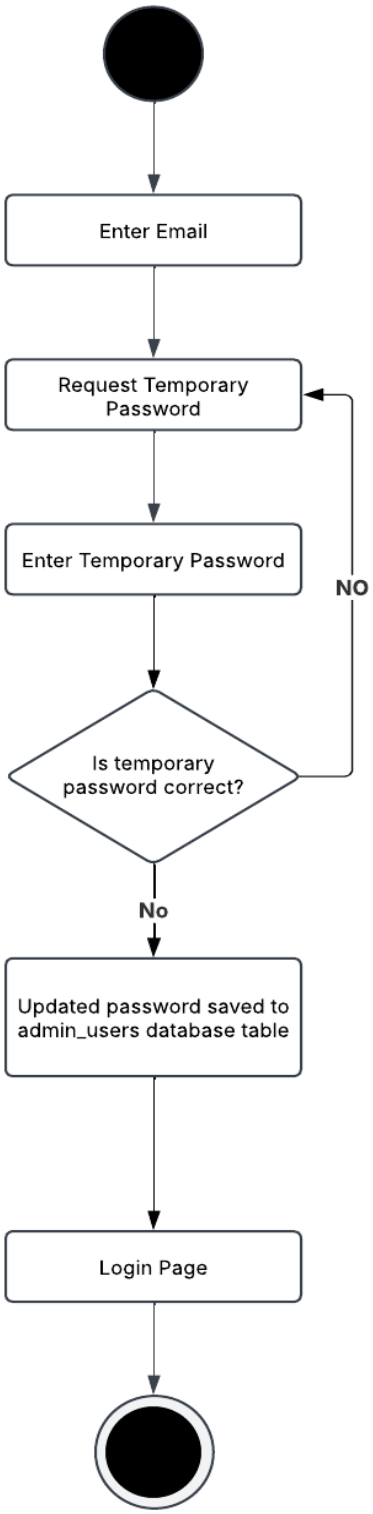


Figure 33 Activity Diagram for Admin Forgot Password

ACTIVITY DIAGRAM INVOLVING MESSAGING

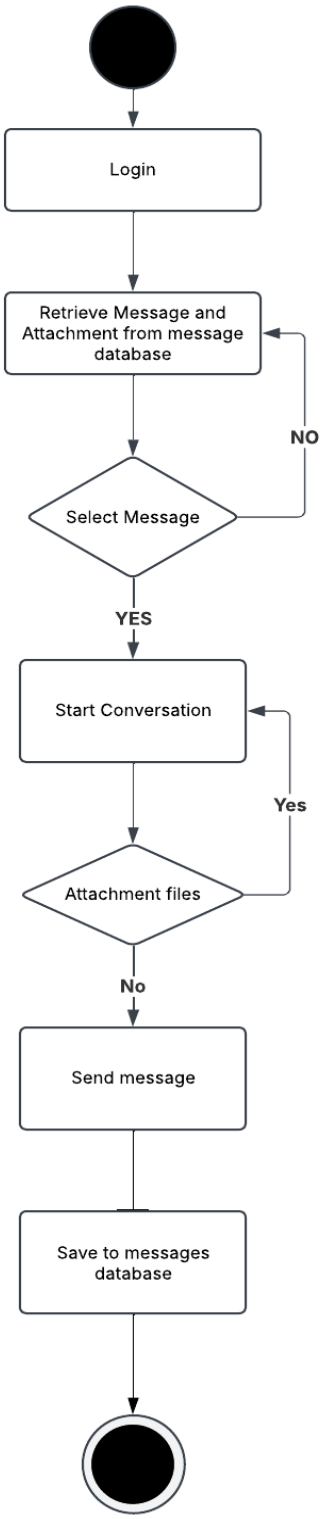


Figure 34 Activity Diagram for Messaging

ACTIVITY DIAGRAM INVOLVING NOTIFICATION

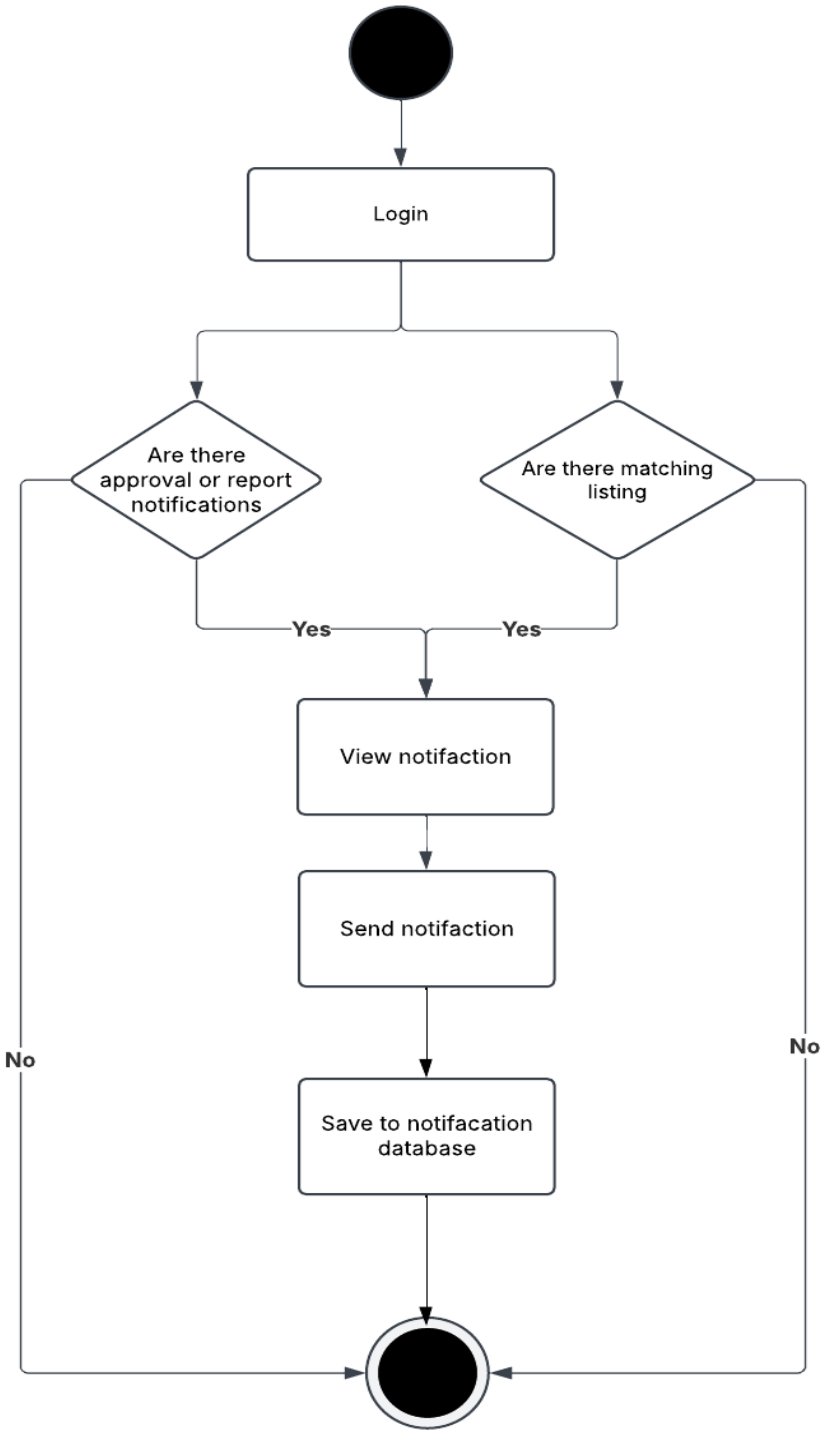


Figure 35 Activity Diagram for Notification

ACTIVITY DIAGRAM INVOLVING ADDING MONEY

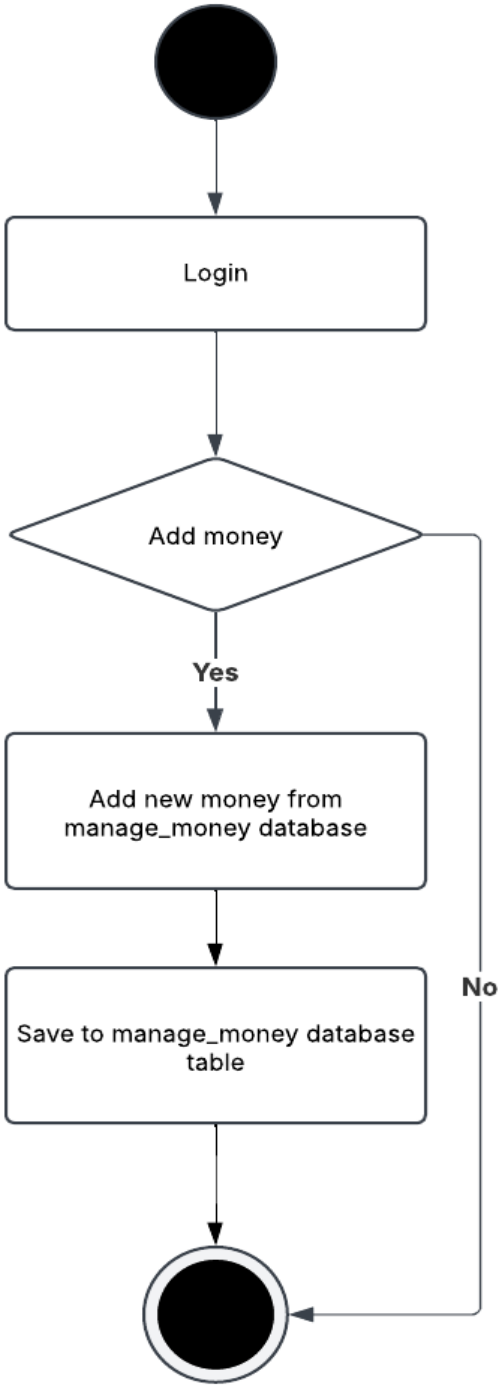


Figure 36 Activity Diagram for Adding Money

ACTIVITY DIAGRAM INVOLVING ADDING OF INVESTORS

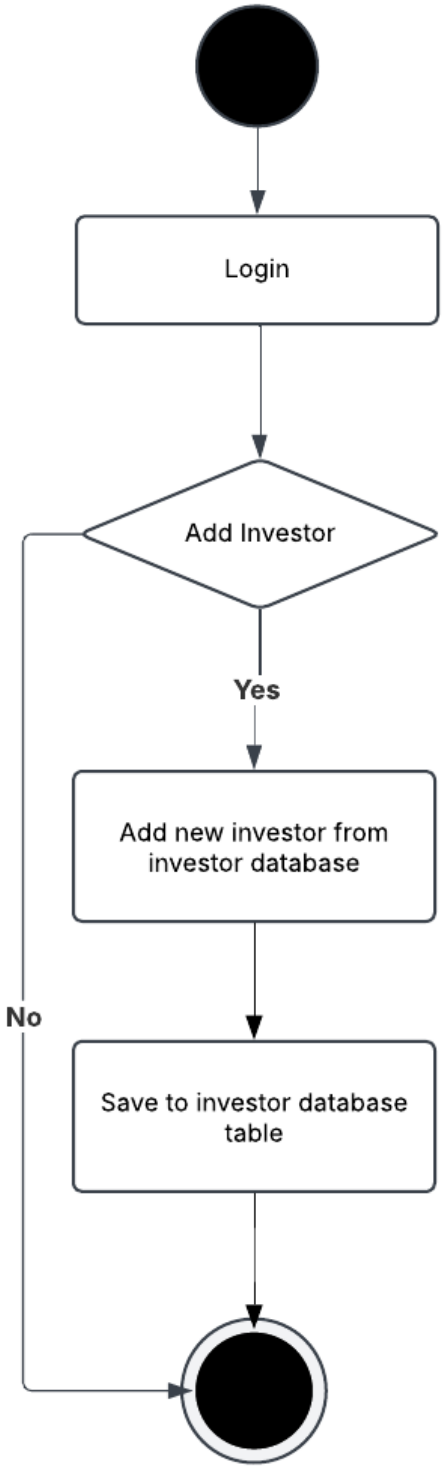


Figure 37 Activity Diagram for Adding of Investor

ACTIVITY DIAGRAM INVOLVING EDITING STATUS OF INVESTORS

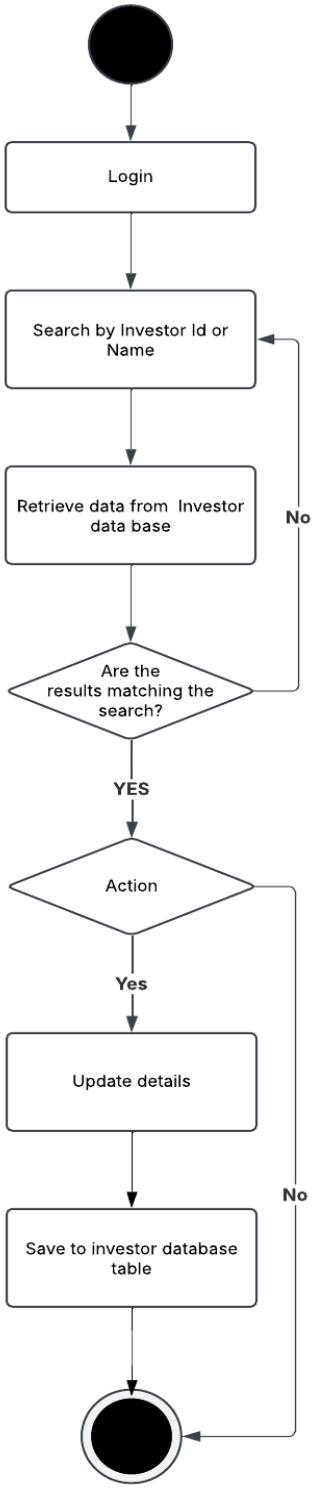


Figure 38 Activity Diagram for Editing Status of Investors

ACTIVITY DIAGRAM INVOLVING APPROVING LOAN APPLICATION

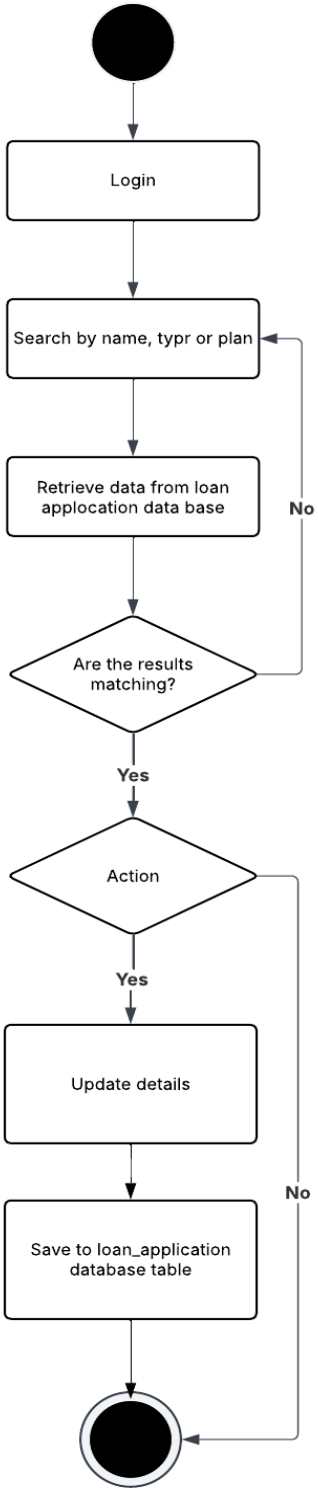


Figure 39 Activity Diagram for Approving Loan Application

ACTIVITY DIAGRAM INVOLVING VIEWING AMORTIZATION TABLE

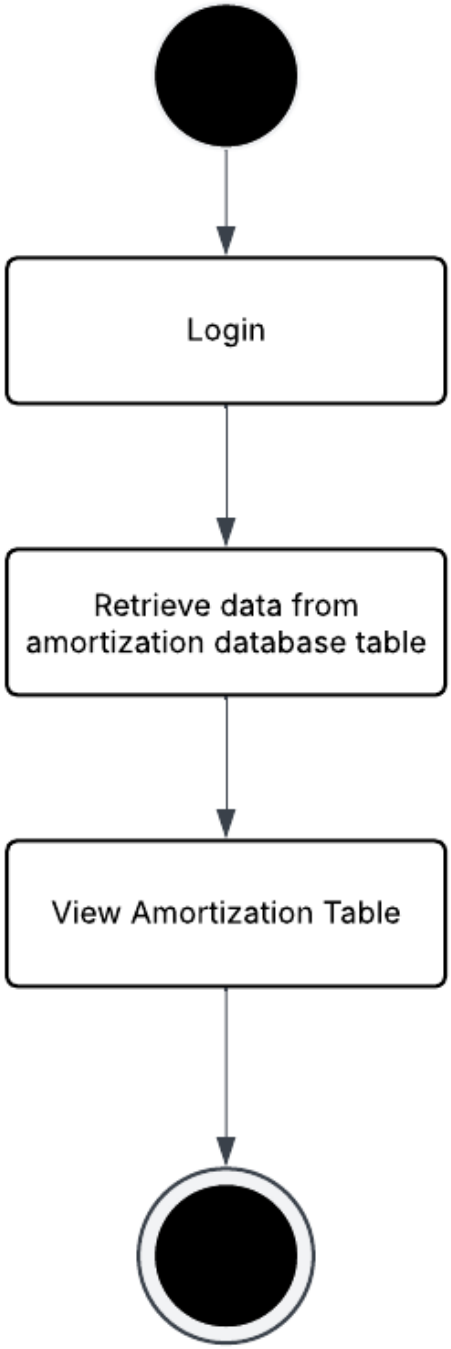


Figure 40 Activity Diagram for Viewing Amortization Table

ACTIVITY DIAGRAM INVOLVING VIEWING LOAN REJECTION

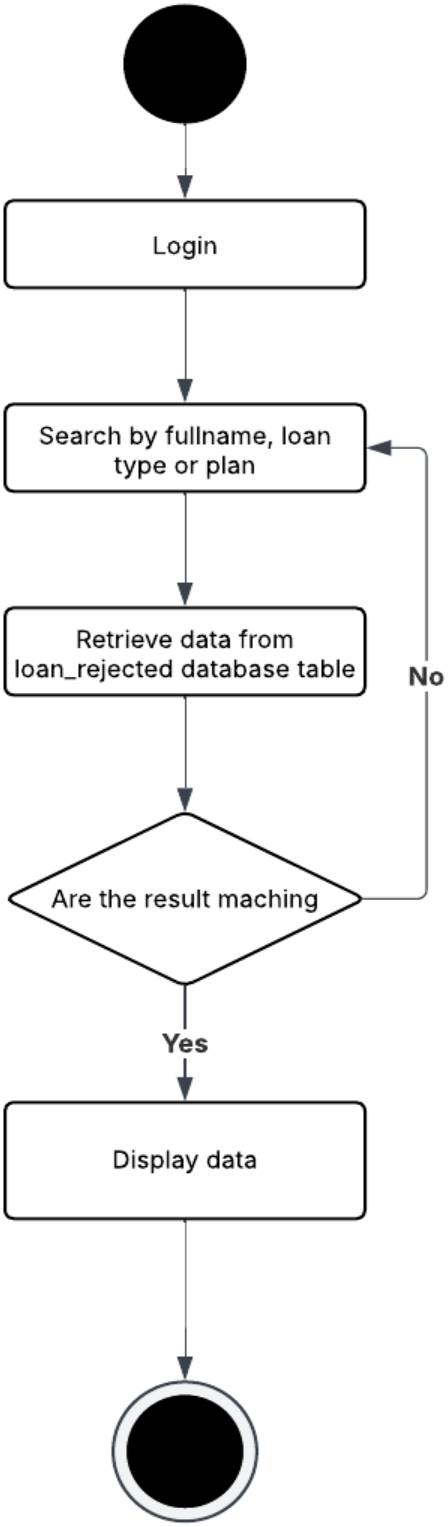


Figure 41 Activity Diagram for Viewing Loan Rejected

ACTIVITY DIAGRAM INVOLVING ADDING LOAN TYPES

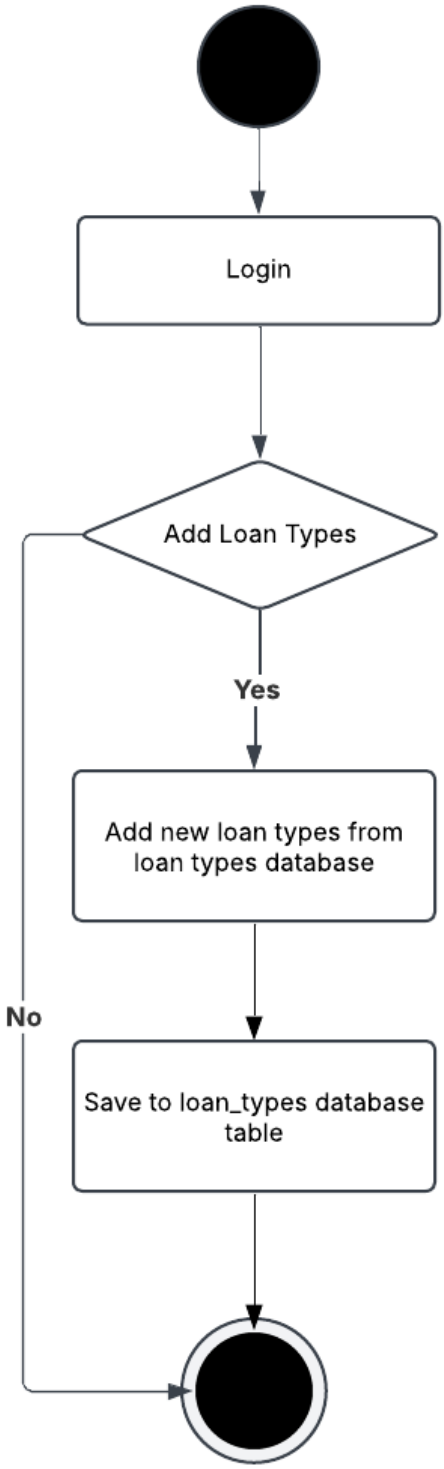


Figure 42 Activity Diagram for Adding Loan Types

ACTIVITY DIAGRAM INVOLVING EDITING STATUS OF LOAN TYPES

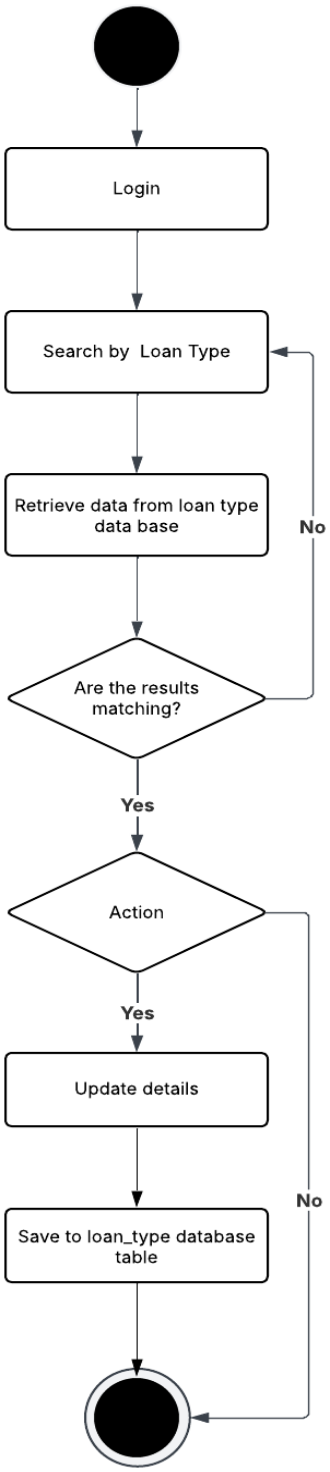


Figure 43 Activity Diagram for Editing Status of Loan Types

ACTIVITY DIAGRAM INVOLVING ADDING LOAN PLANS

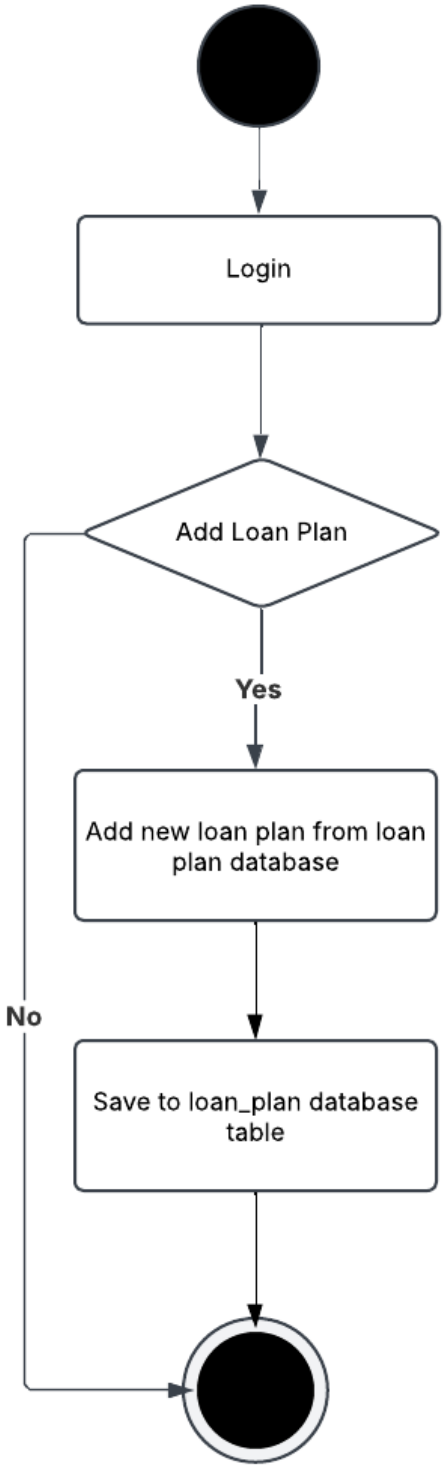


Figure 44 Activity Diagram for Adding Loan Plan

ACTIVITY DIAGRAM INVOLVING EDITING STATUS OF LOAN PLANS

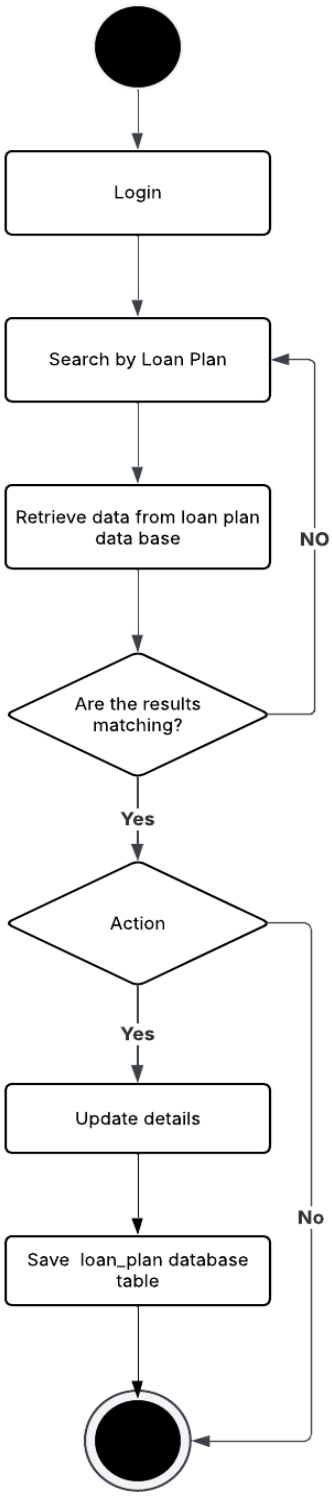


Figure 45 Activity Diagram for Editing Status of Loan Plans

ACTIVITY DIAGRAM INVOLVING ADDING BORROWERS

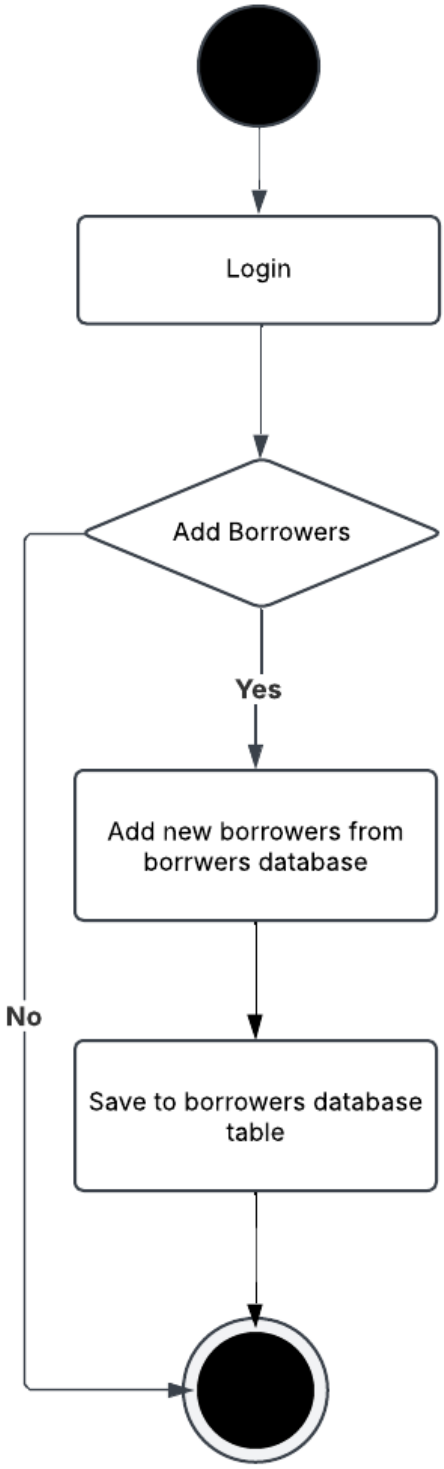


Figure 46 Activity Diagram for Adding Borrowers

ACTIVITY DIAGRAM INVOLVING EDITING STATUS OF BORROWERS

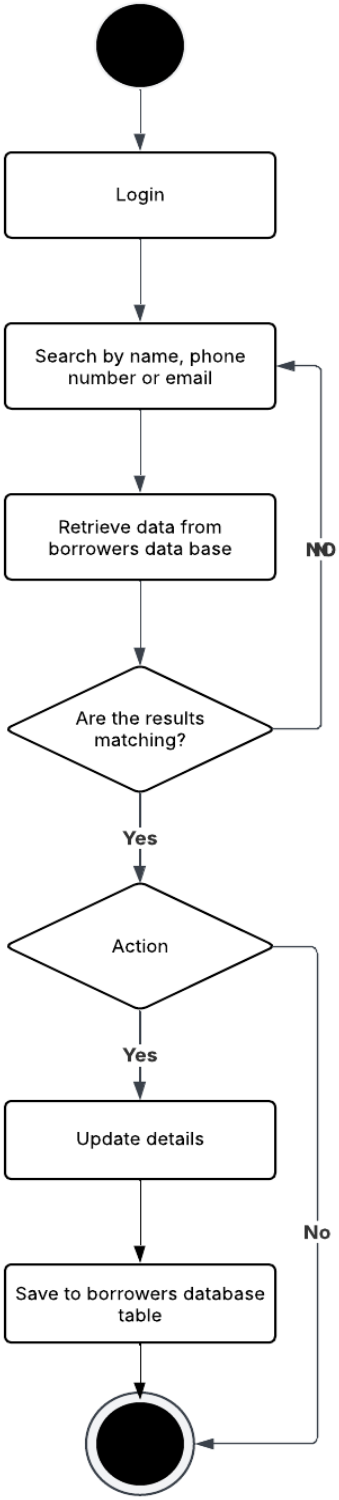


Figure 47 Activity Diagram for Editing Status of Borrowers

ACTIVITY DIAGRAM INVOLVING EDITING ADMIN DETAILS

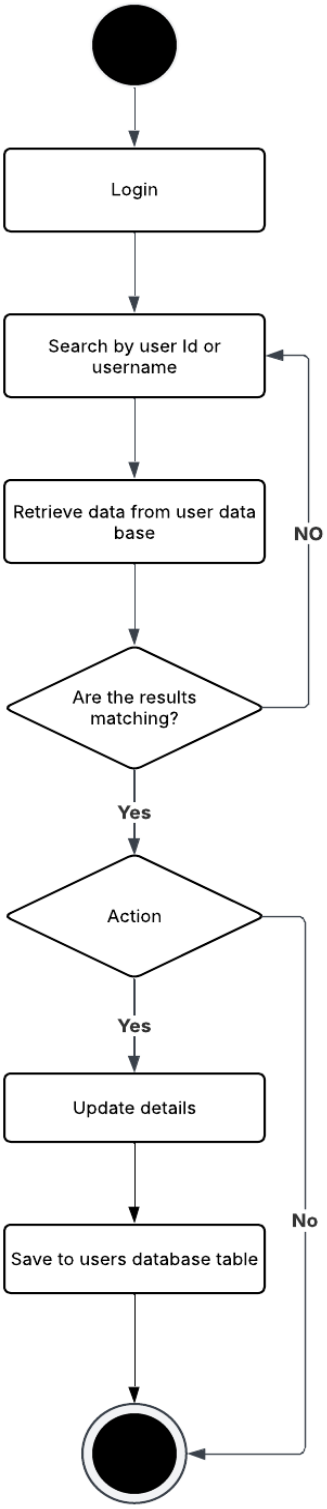


Figure 48 Activity Diagram for Editing Admin Details

ACTIVITY DIAGRAM INVOLVING VIEWING USER LOGS

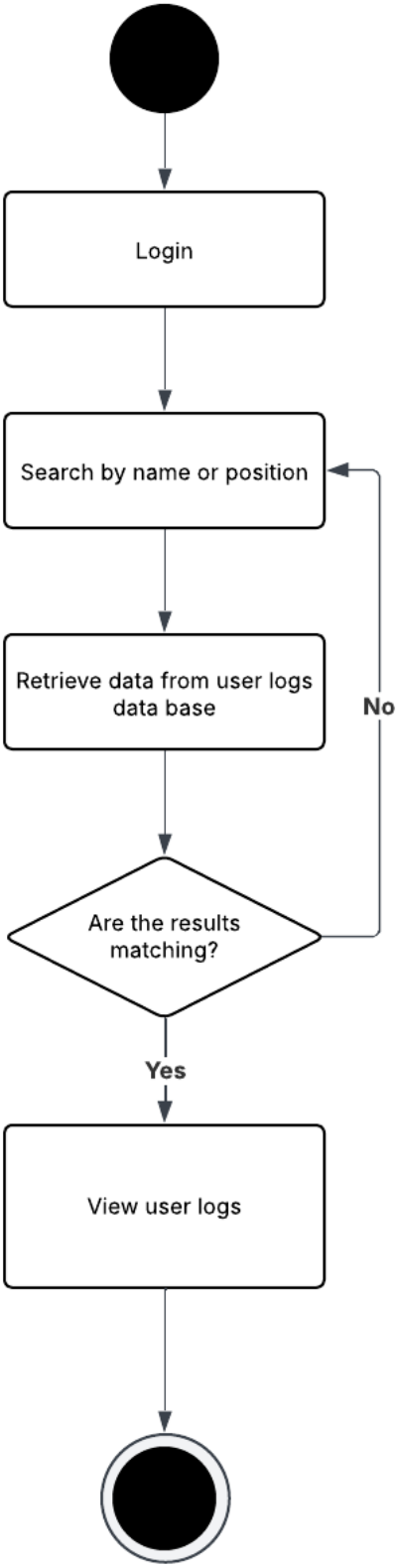


Figure 49 Activity Diagram for Viewing User Logs

ACTIVITY DIAGRAM INVOLVING VIEWING FEEDBACKSV

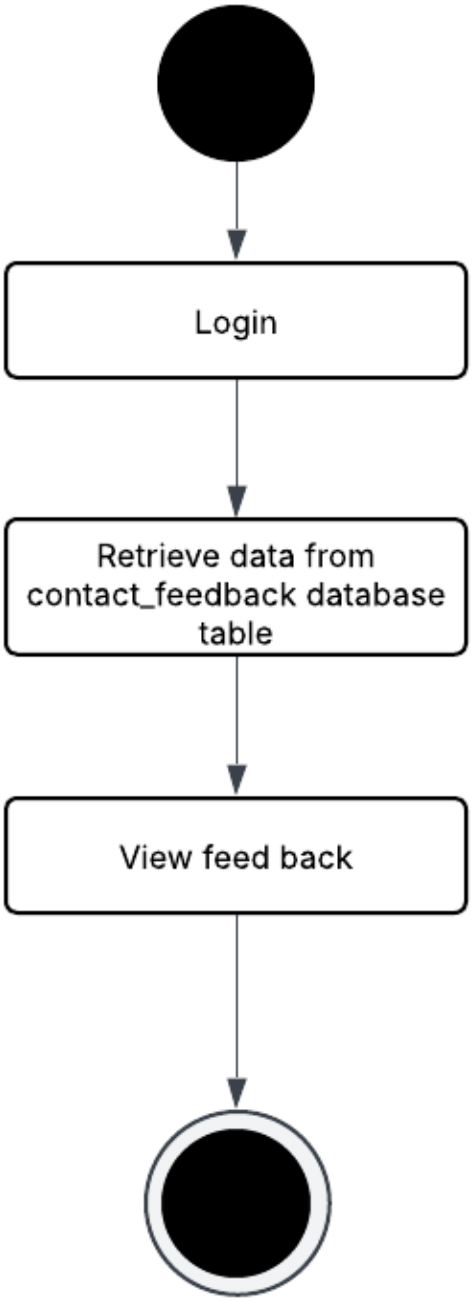


Figure 50 Activity Diagram for Viewing Feedbacks

ACTIVITY DIAGRAM INVOLVING ADMIN LOG OUT

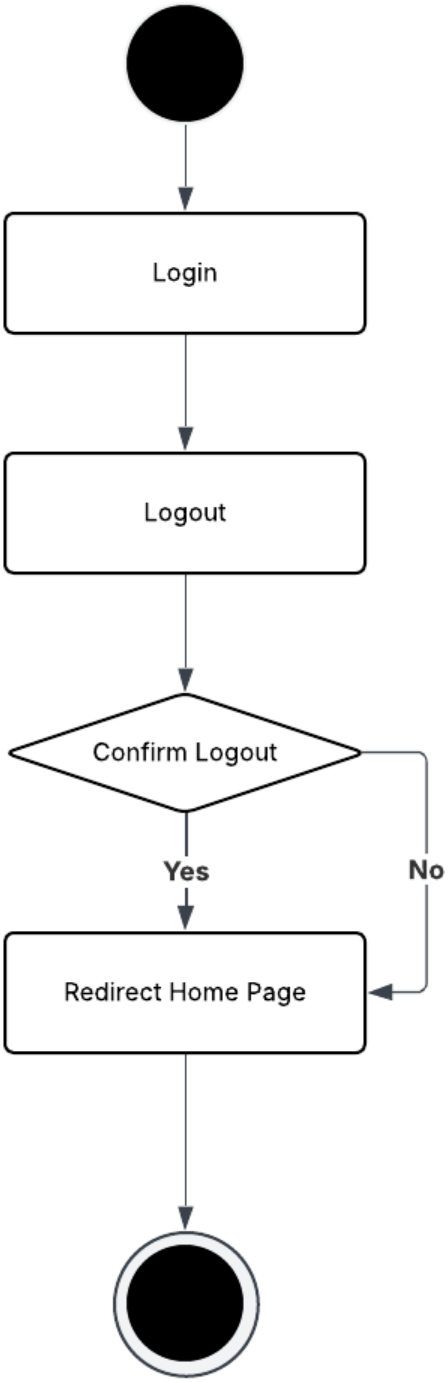


Figure 51 Activity Diagram for Admin Logging Out

ACTIVITY DIAGRAM INVOLVING BORROWERS CREATING AN ACCOUNT

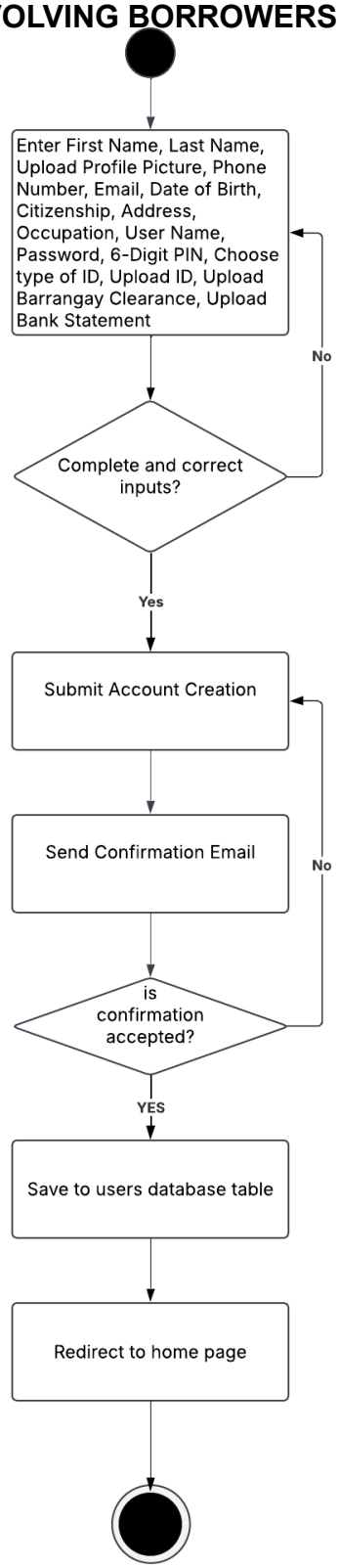


Figure 52 Activity Diagram for Borrowers Creating an Account

ACTIVITY DIAGRAM INVOLVING BORROWERS LOGGING IN

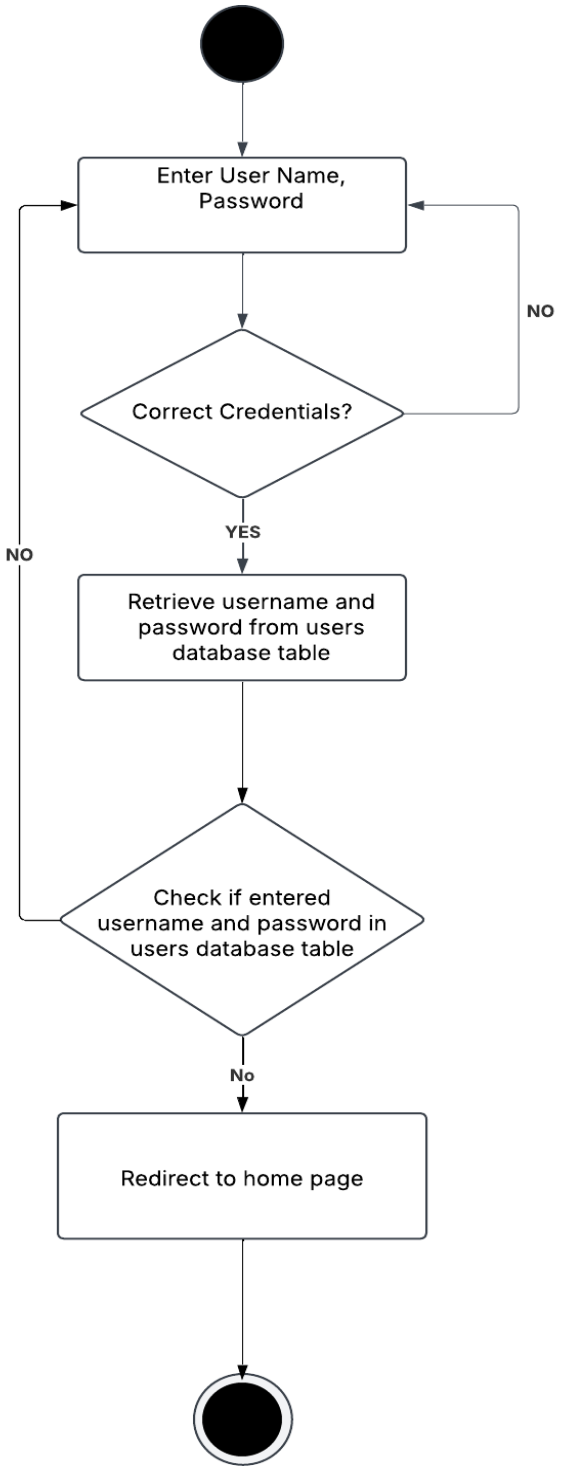


Figure 53 Activity Diagram for Borrowers Logging In

ACTIVITY DIAGRAM INVOLVING BORROWER FORGOT PASSWORD

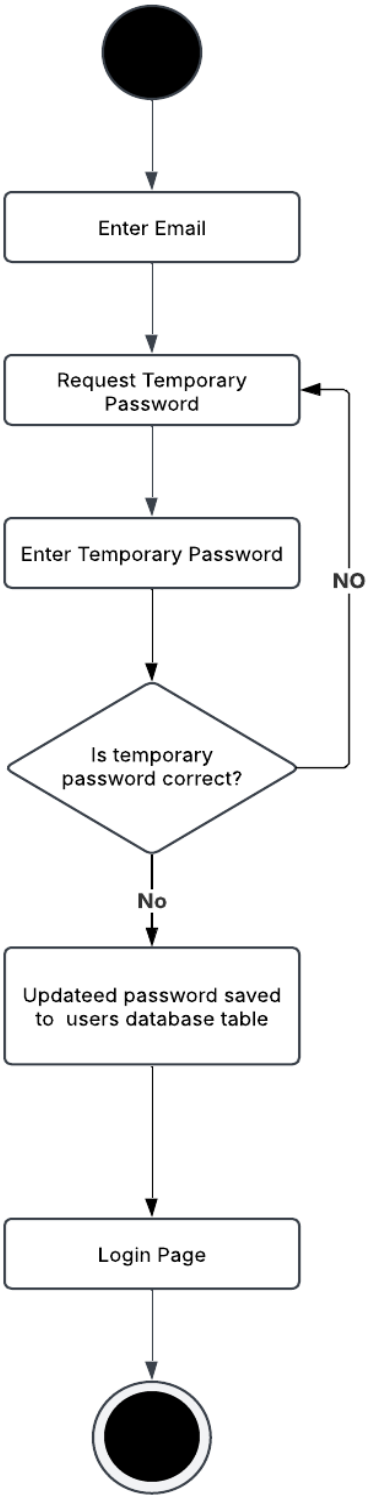


Figure 54 Activity Diagram for Borrowers Forgot Password

ACTIVITY DIAGRAM INVOLVING BORROWERS EDITING PROFILE

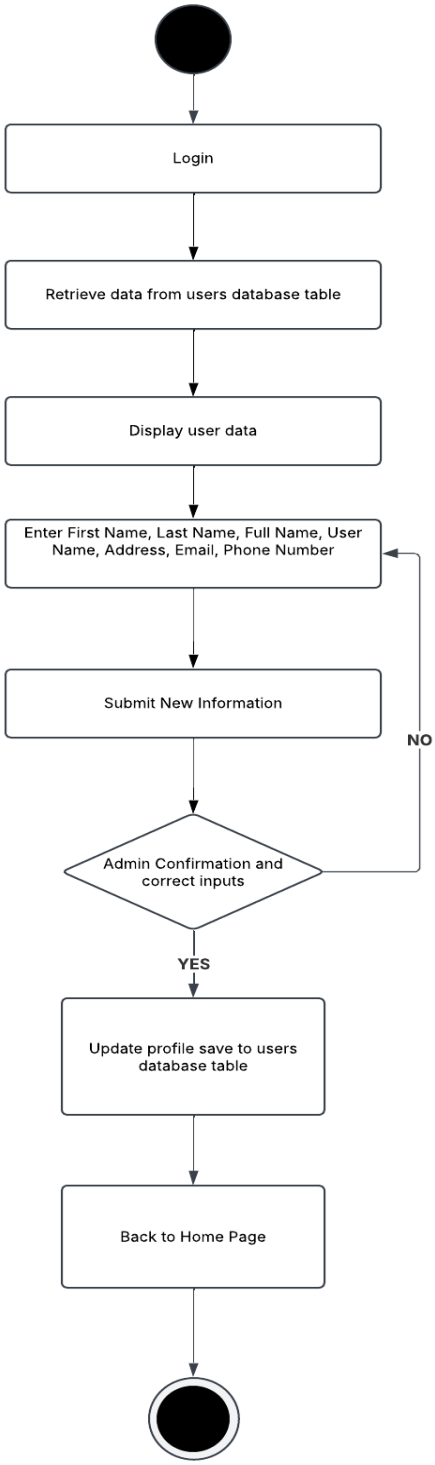


Figure 55 Activity Diagram for Borrowers Editing Profile

ACTIVITY DIAGRAM INVOLVING BORROWERS LOAN APPLICATION

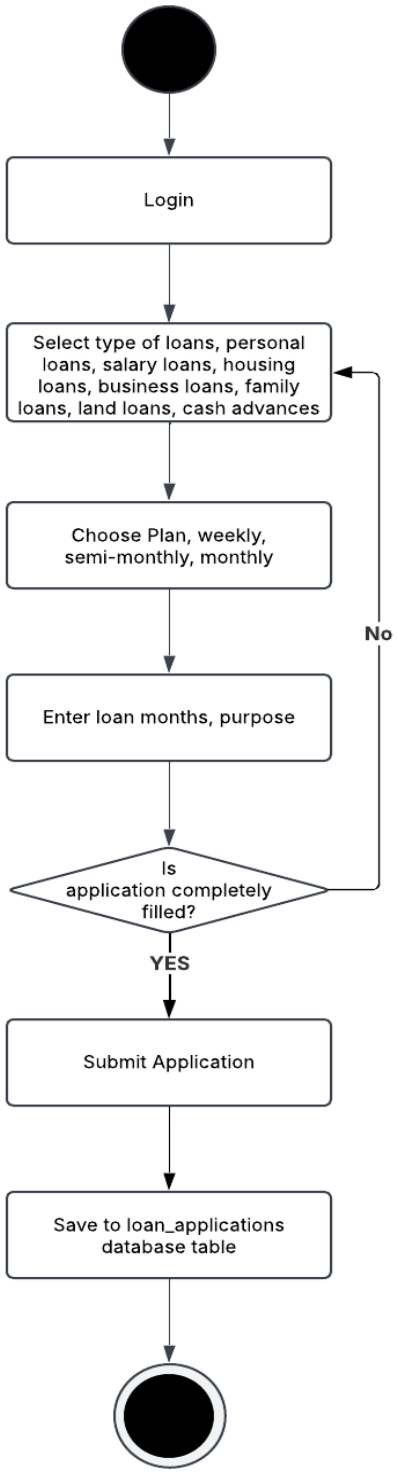


Figure 56 Activity Diagram for Borrowers Loan Application

ACTIVITY DIAGRAM INVOLVING VIEWING SUBMITTED REQUIREMENTS

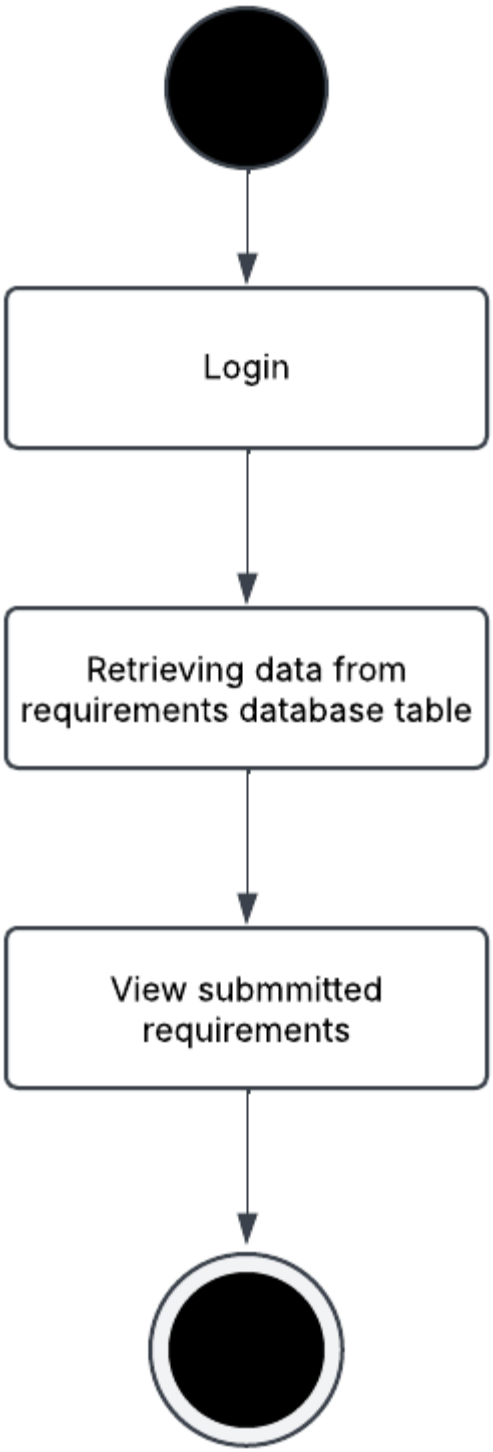


Figure 57 Activity Diagram for Viewing Submitted Requirements

Sequence Diagram

The efficient management of borrower records, loan details, and payment information is achieved through smooth communication between the users and the database. The diagrams show how user actions interact with the system's database for authentication, storing, and retrieving data.

SEQUENCE DIAGRAM INVOLVING ADMIN LOGGING IN

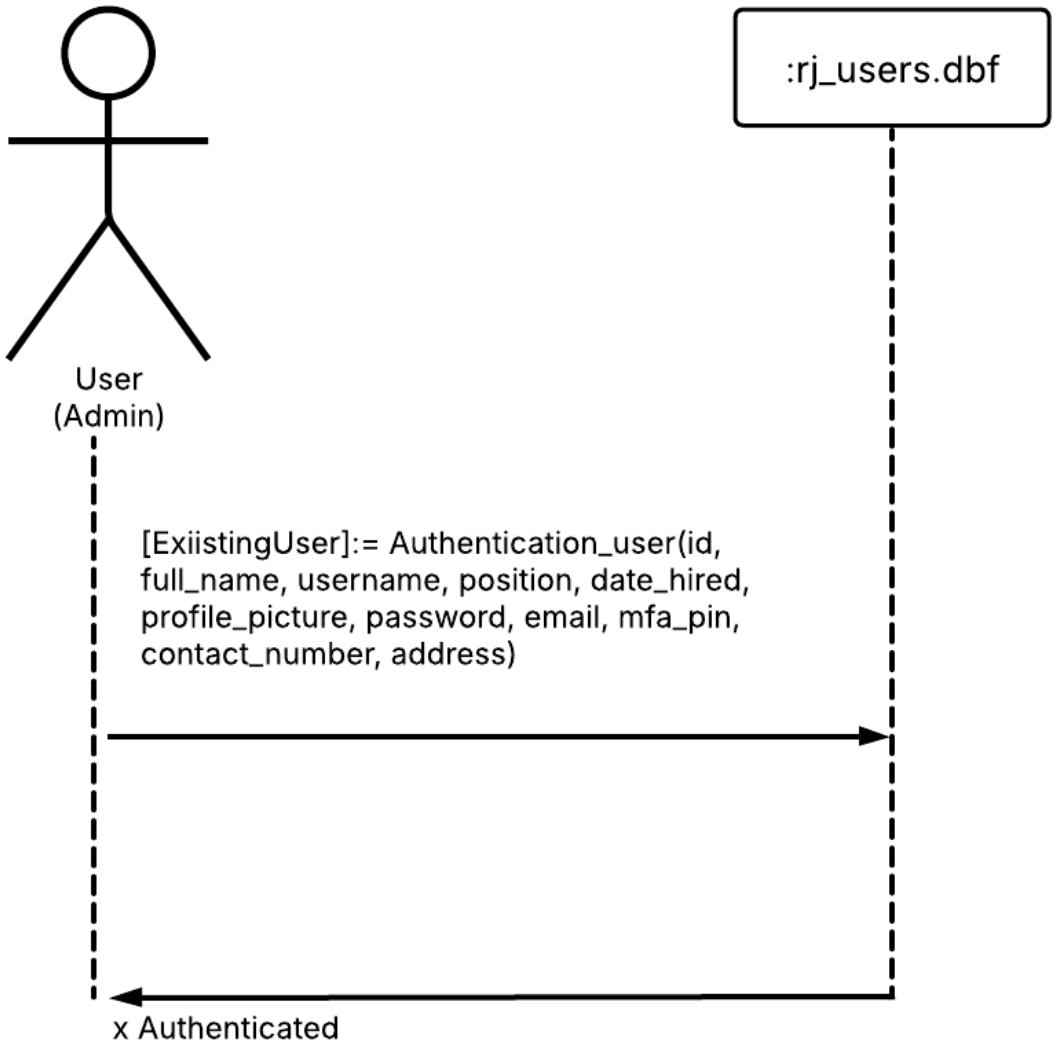


Figure 58 Sequence Diagram for Admin Logging In

SEQUENCE DIAGRAM INVOLVING ADMIN LOGGING OUT

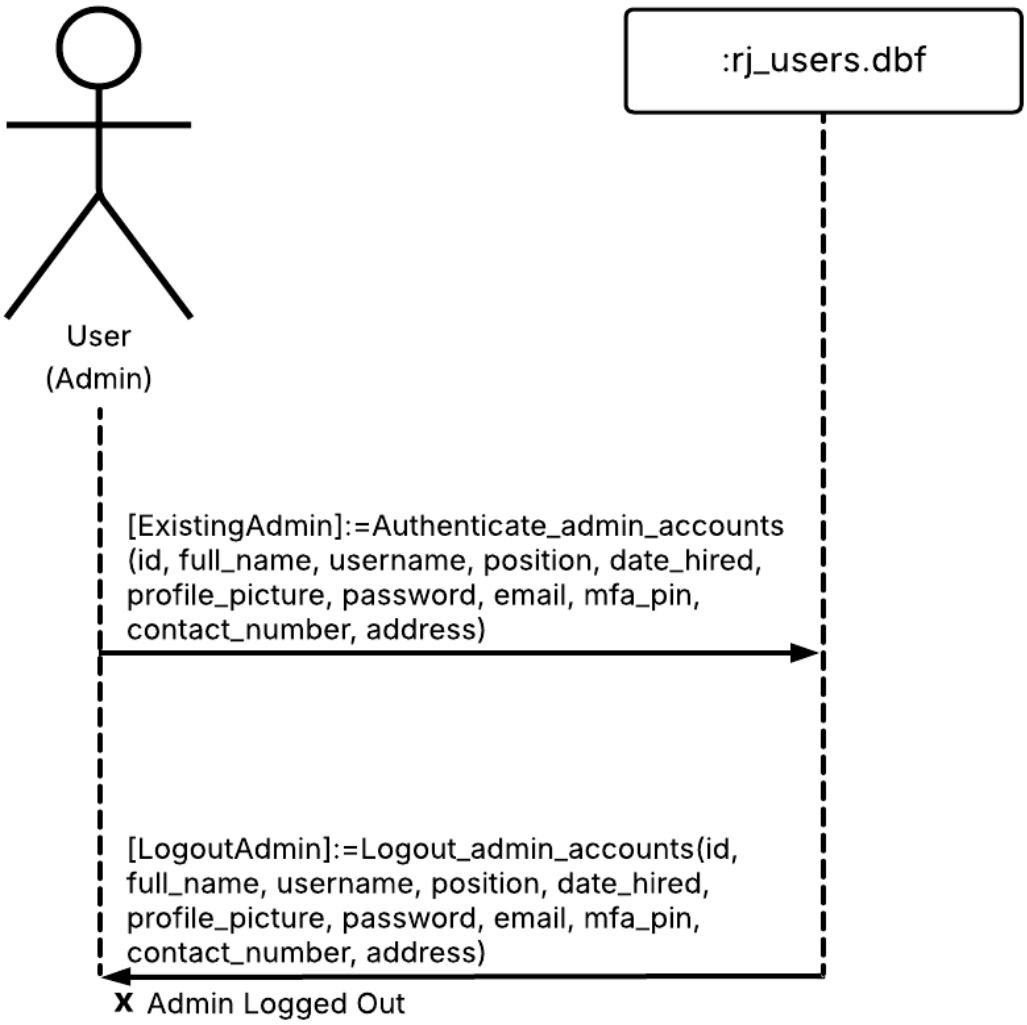


Figure 59 Sequence Diagram for Admin Logging Out

SEQUENCE DIAGRAM INVOLVING ADMIN FORGOT PASSWORD

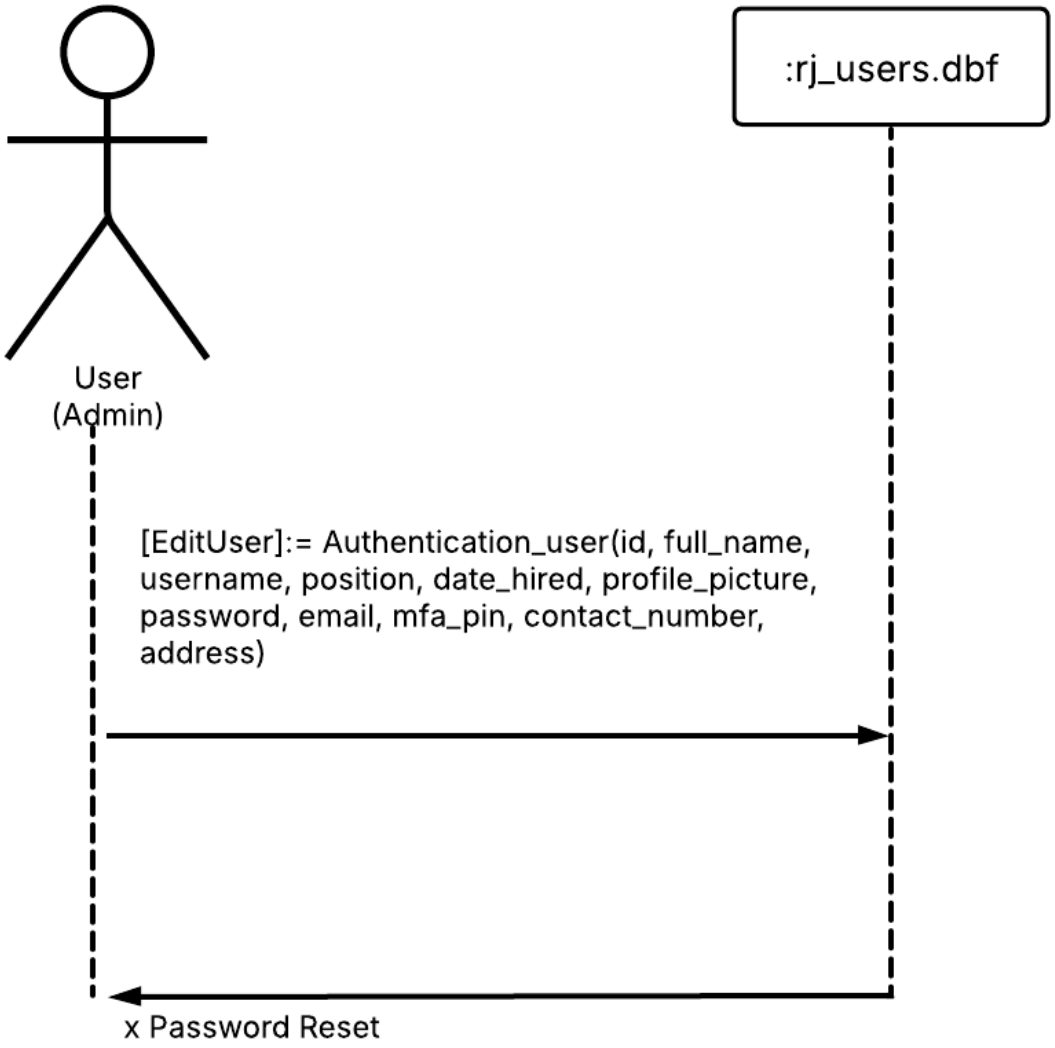


Figure 60 Sequence Diagram for Admin Forgot Password

SEQUENCE DIAGRAM INVOLVING ADMIN EDITING PROFILE

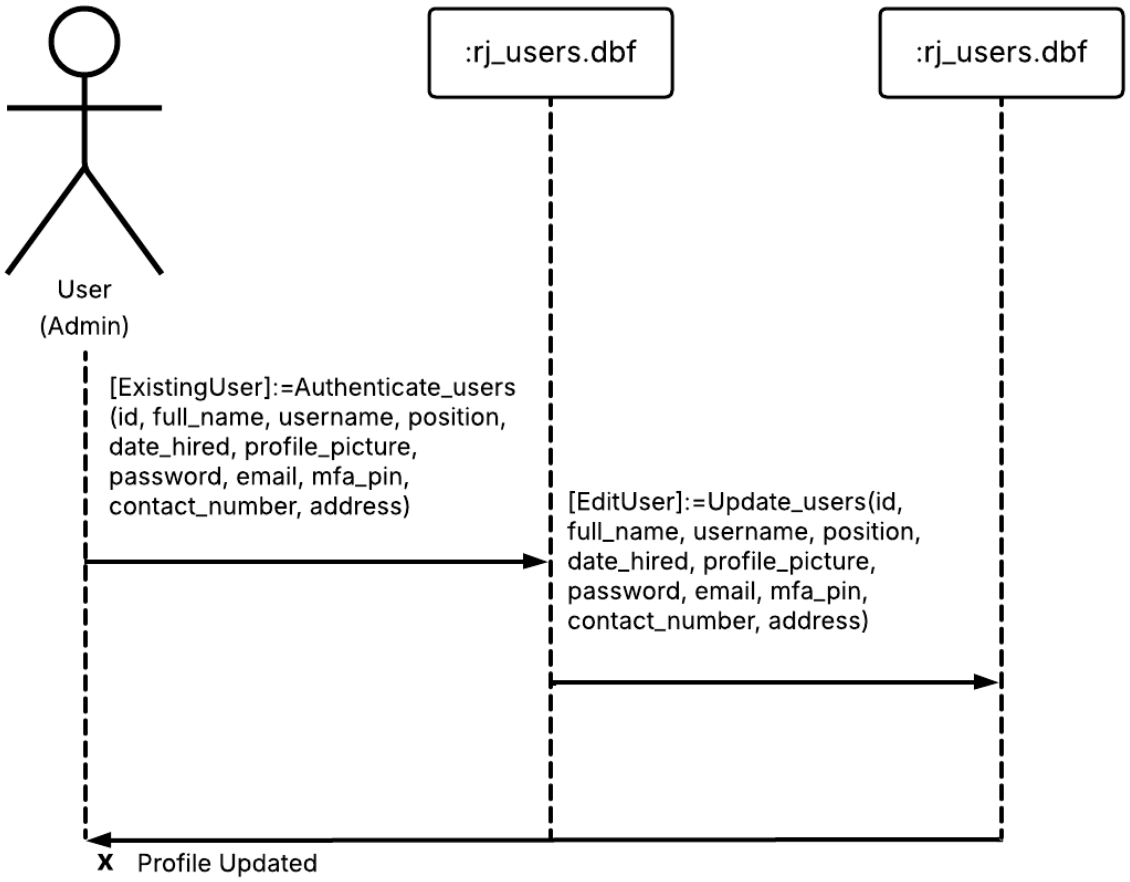


Figure 61 Sequence Diagram for Admin Editing Profile

SEQUENCE DIAGRAM INVOLVING ADDING MONEY

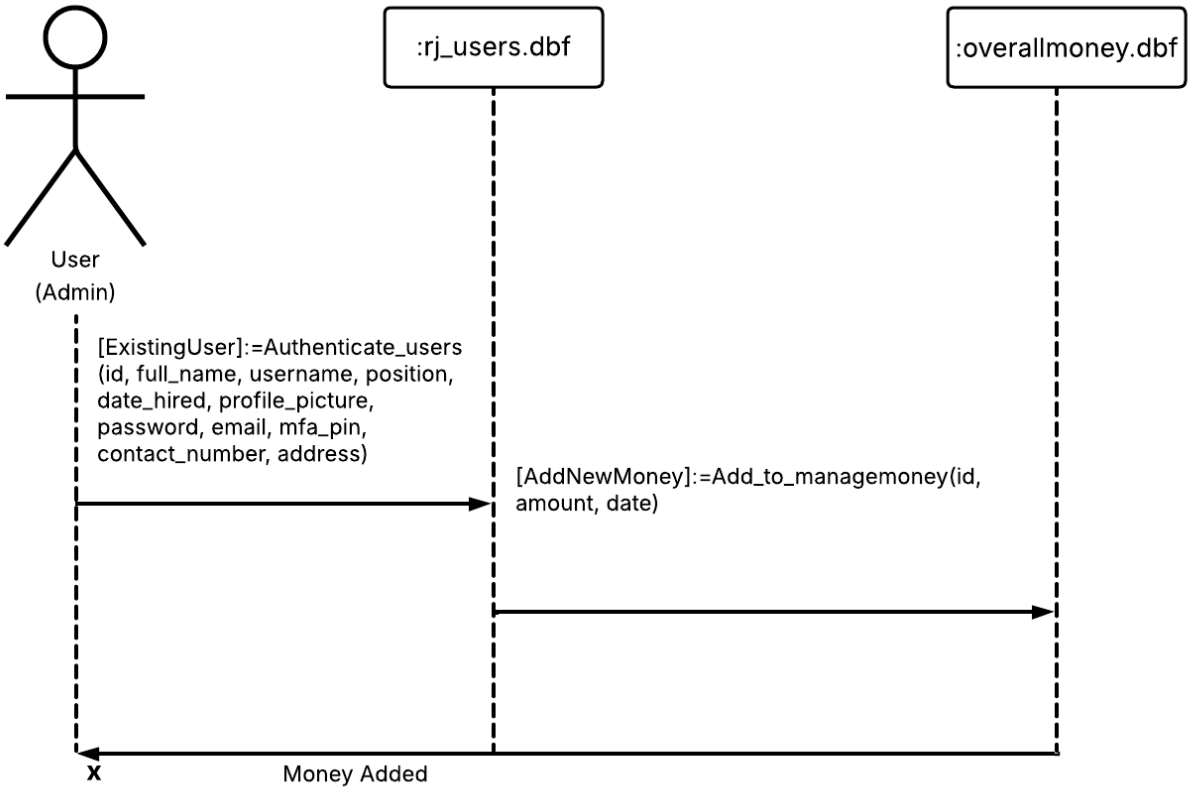


Figure 62 Sequence Diagram for Adding Money

SEQUENCE DIAGRAM INVOLVING ADDING INVESTORS

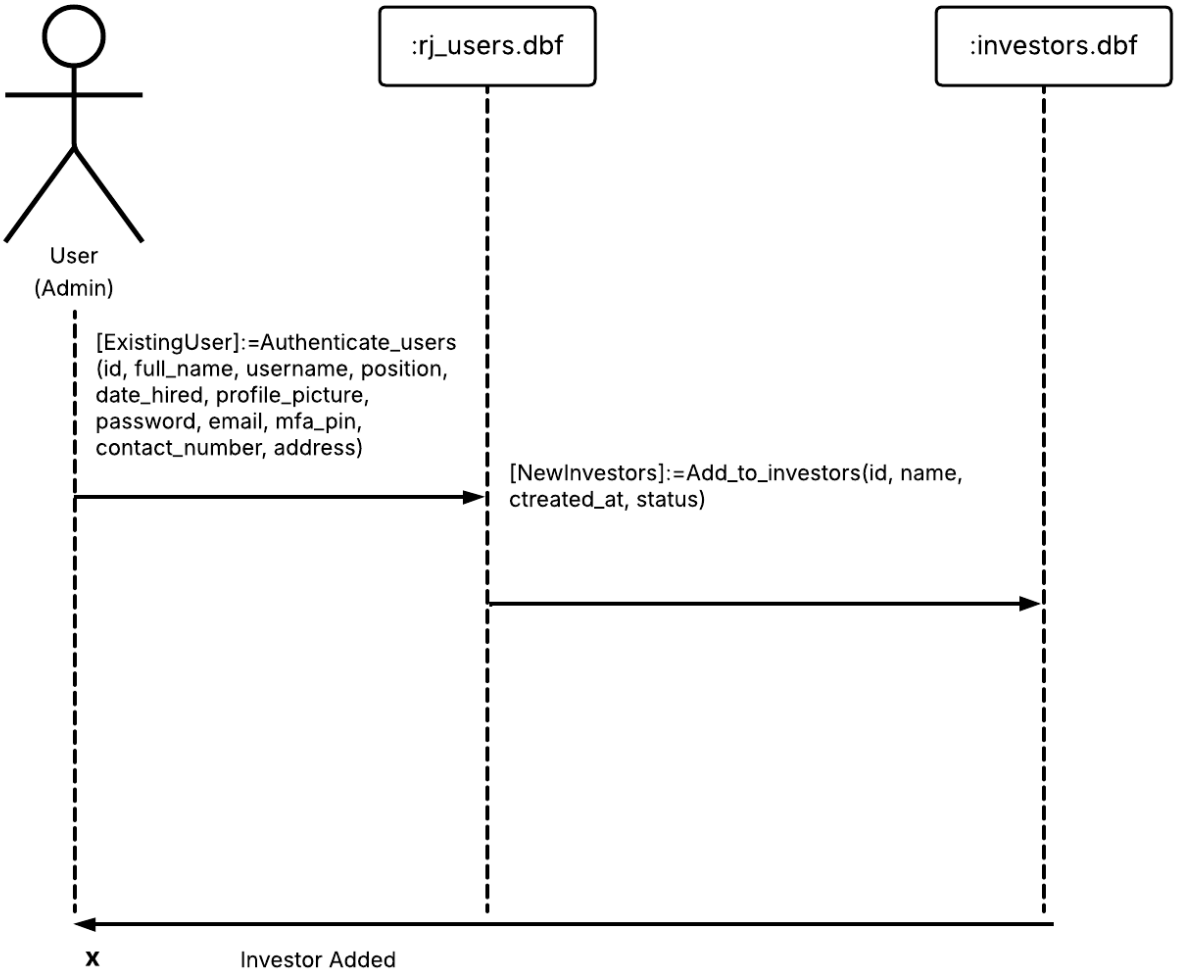


Figure 63 Sequence Diagram for Adding Investors

SEQUENCE DIAGRAM INVOLVING EDITING STATUS OF INVESTORS

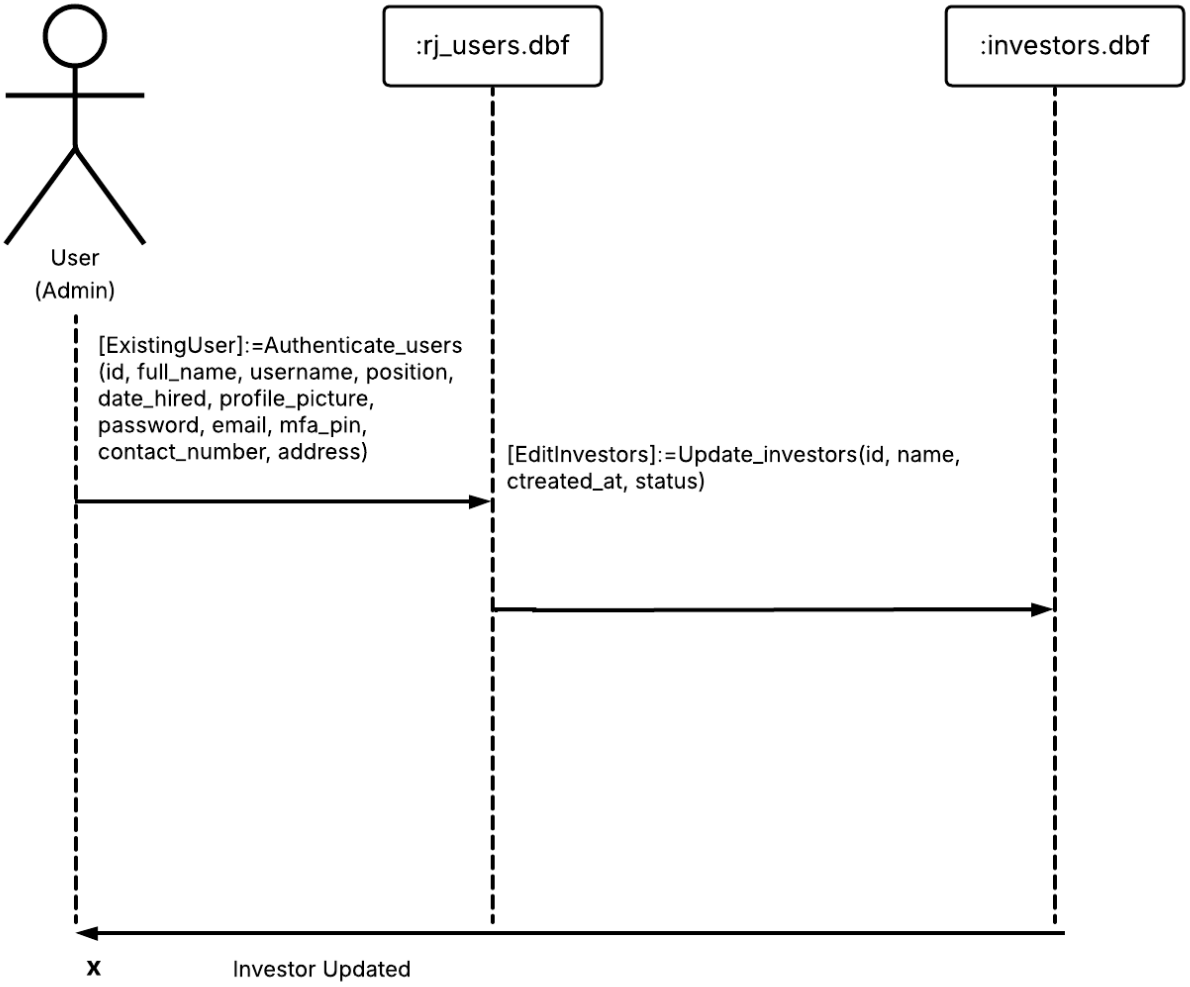


Figure 64 Sequence Diagram for Editing Status of Investors

SEQUENCE DIAGRAM INVOLVING APPROVING LOAN APPLICATION

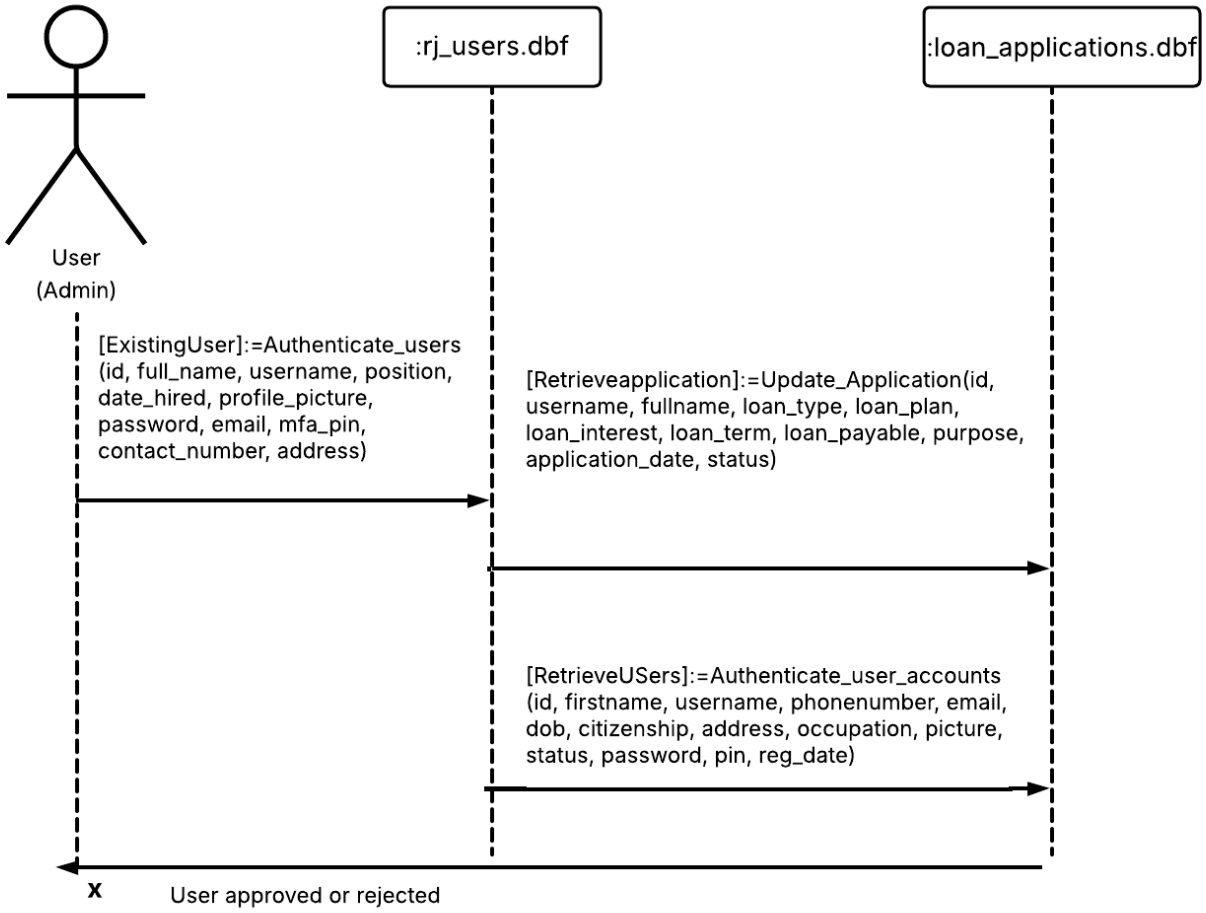


Figure 65 Sequence Diagram for Approving Loan Application

SEQUENCE DIAGRAM INVOLVING VIEWING LOAN REJECTED

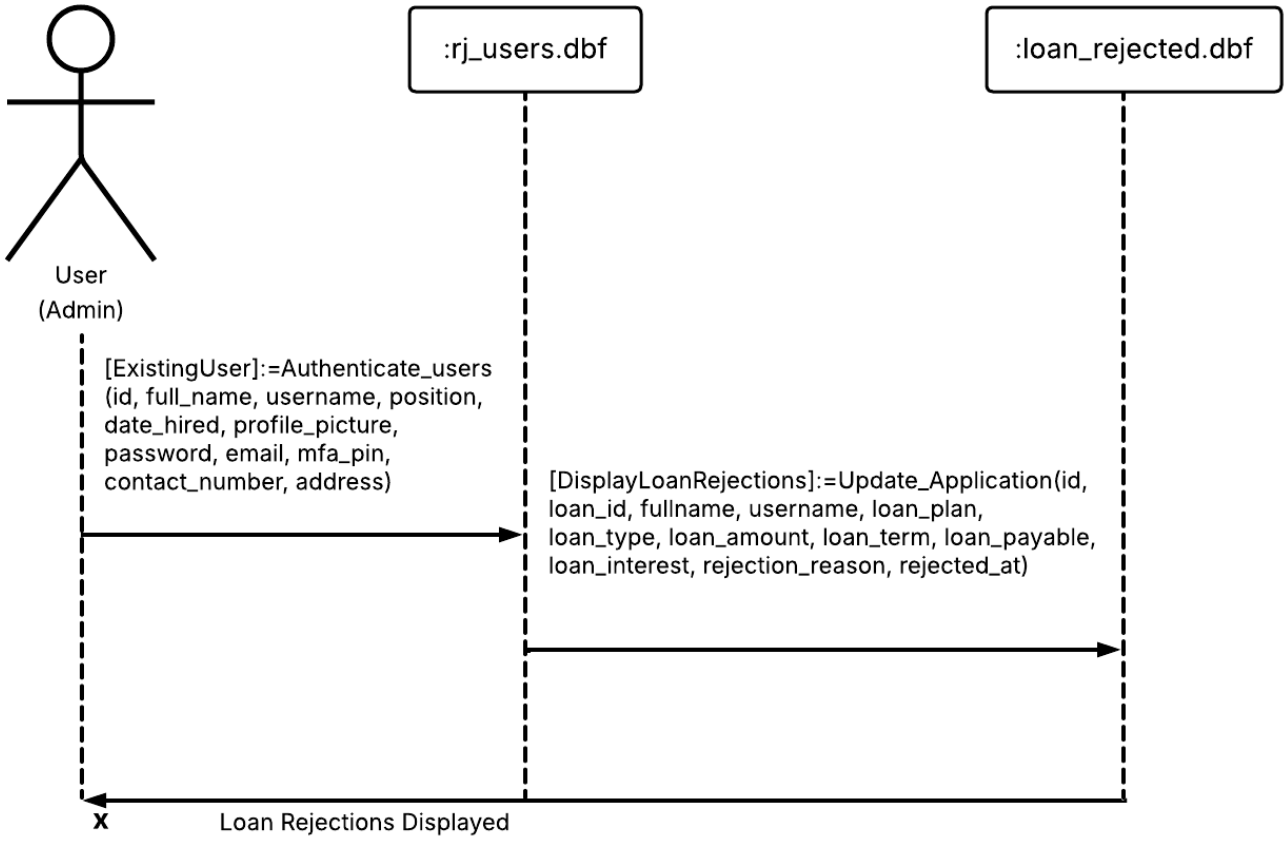


Figure 66 Sequence Diagram for Viewing Loan Rejected

SEQUENCE DIAGRAM INVOLVING VIEWING AMORTIZATION TABLE

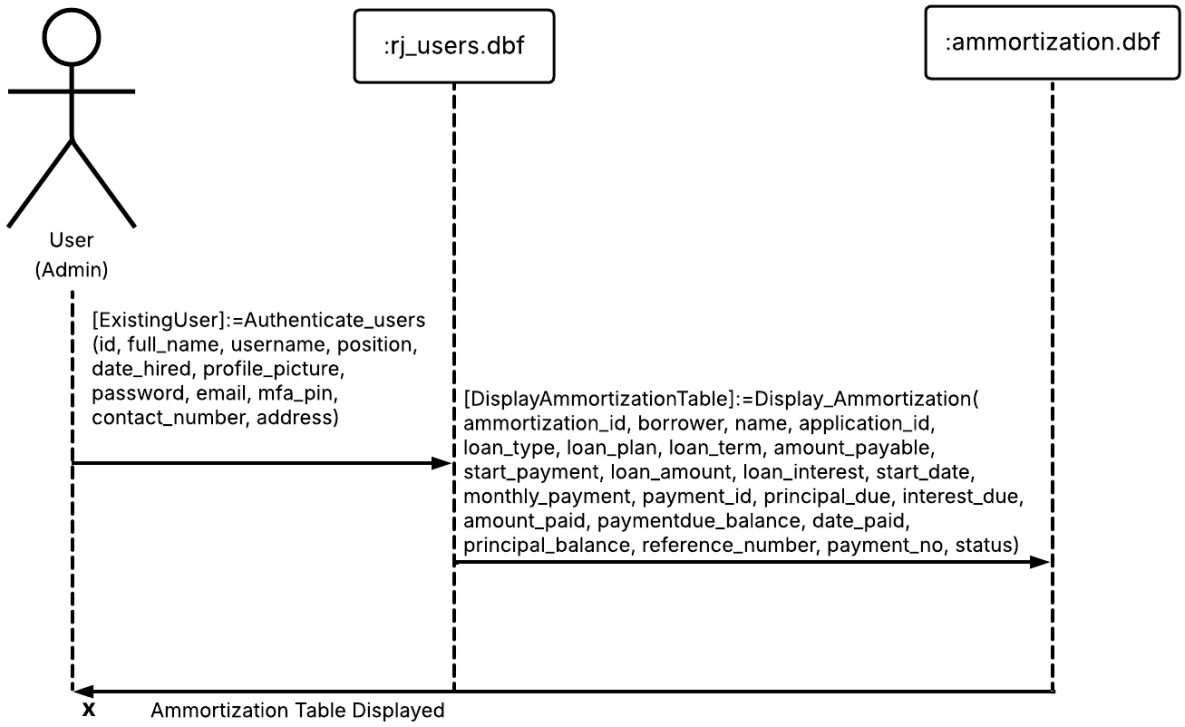


Figure 67 Sequence Diagram for Viewing Amortization Table

SEQUENCE DIAGRAM INVOLVING ADDING LOAN TYPES

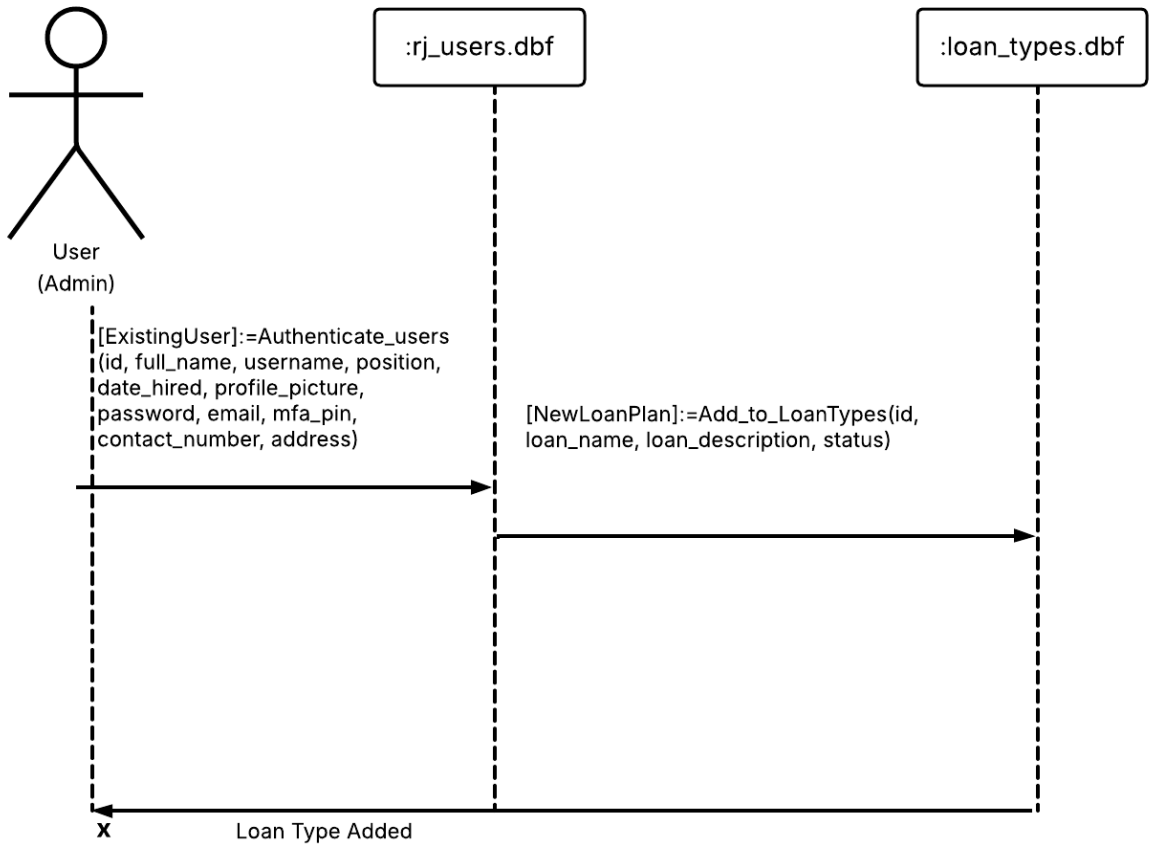


Figure 68 Sequence Diagram for Adding Loan Types

SEQUENCE DIAGRAM INVOLVING EDITING STATUS OF LOAN TYPES

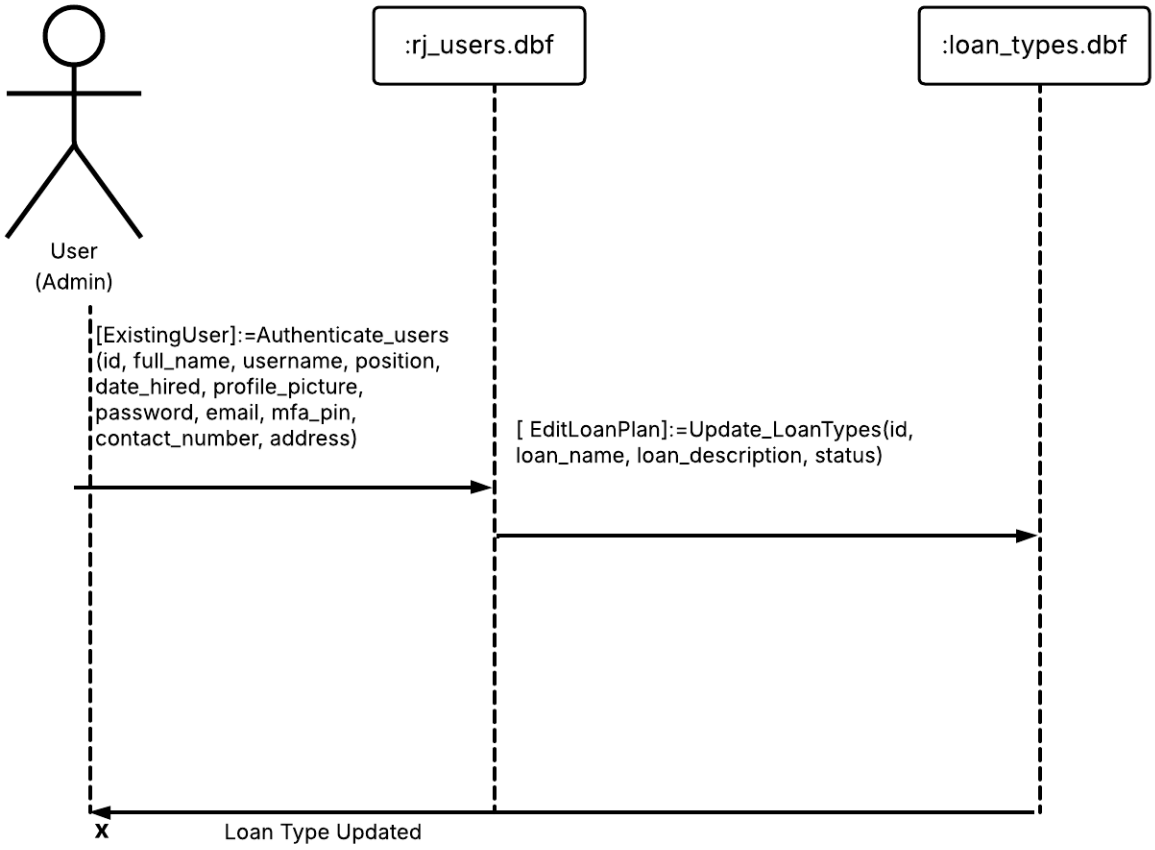


Figure 69 Sequence Diagram for Editing Status Loan Types

SEQUENCE DIAGRAM INVOLVING ADDING LOAN PLANS

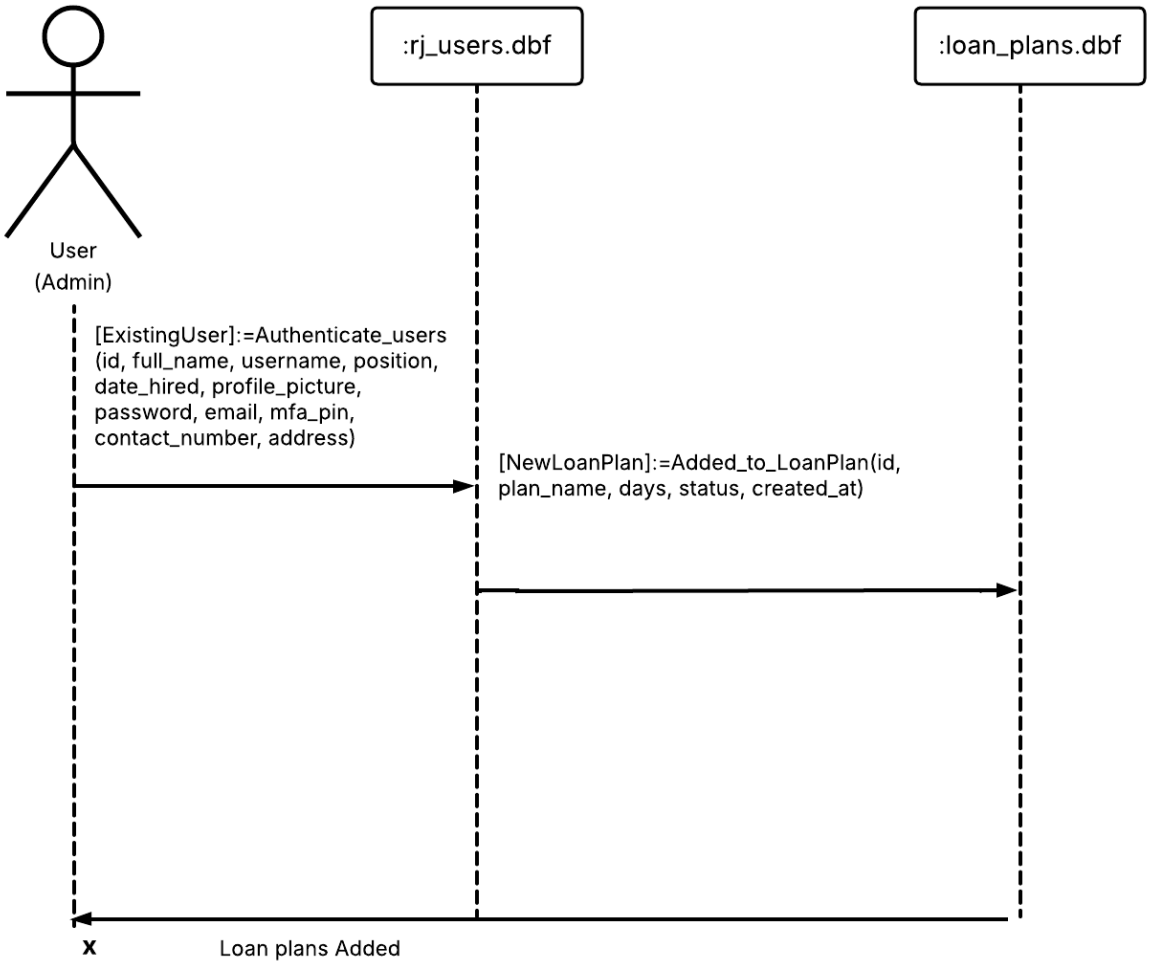


Figure 70 Sequence Diagram for Adding Loan Plans

SEQUENCE DIAGRAM INVOLVING EDITING STATUS OF LOAN PLANS

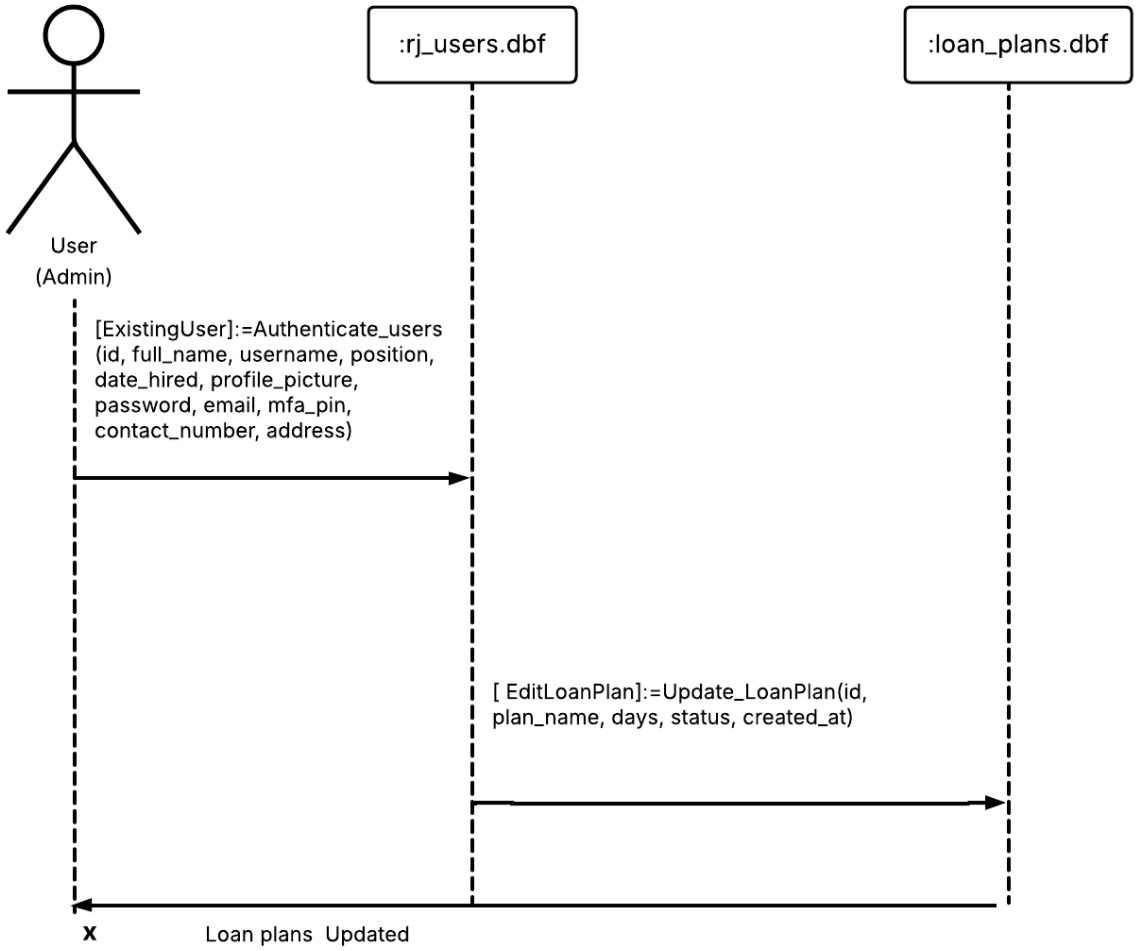


Figure 71 Sequence Diagram for Editing Status of Loan Plans

SEQUENCE DIAGRAM INVOLVING ADDING BORROWERS

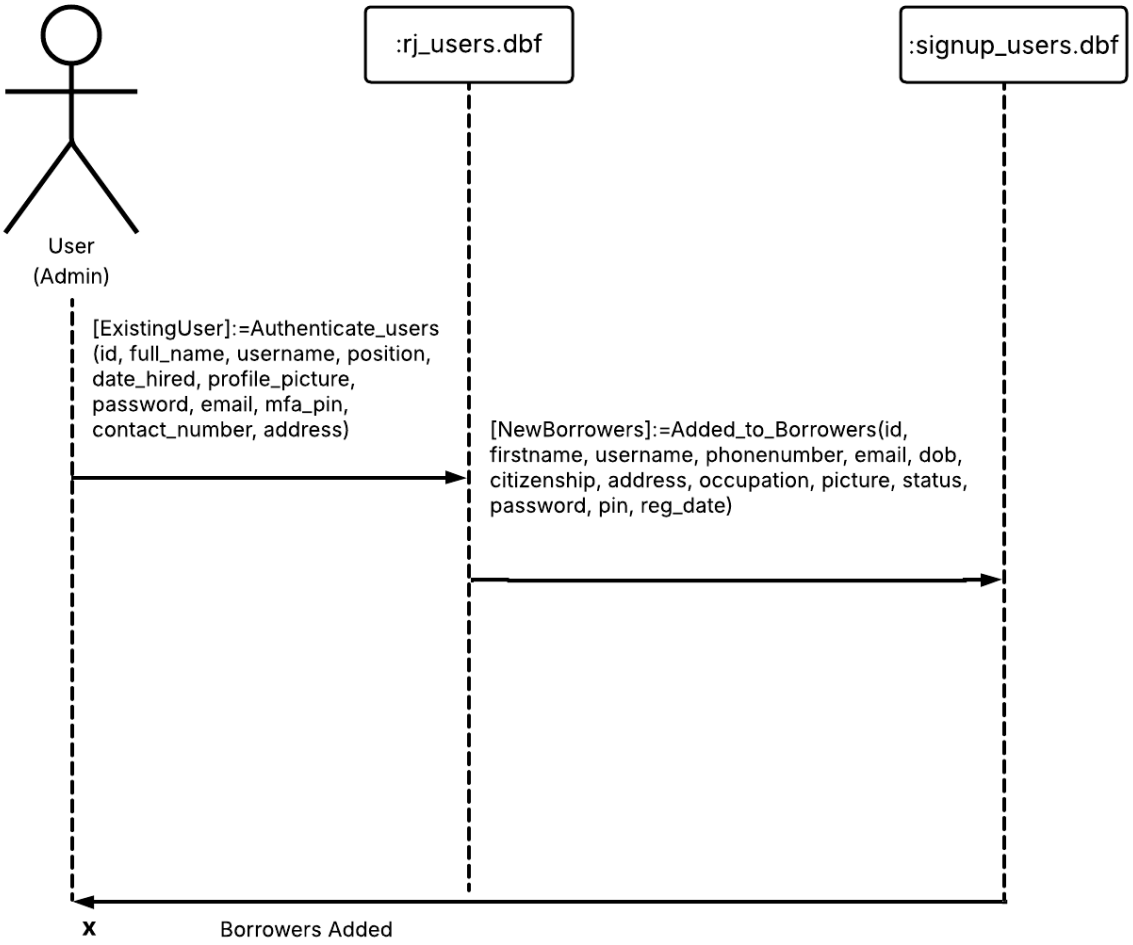


Figure 72 Sequence Diagram for Adding Borrowers

SEQUENCE DIAGRAM INVOLVING EDITING STATUS OF BORROWERS

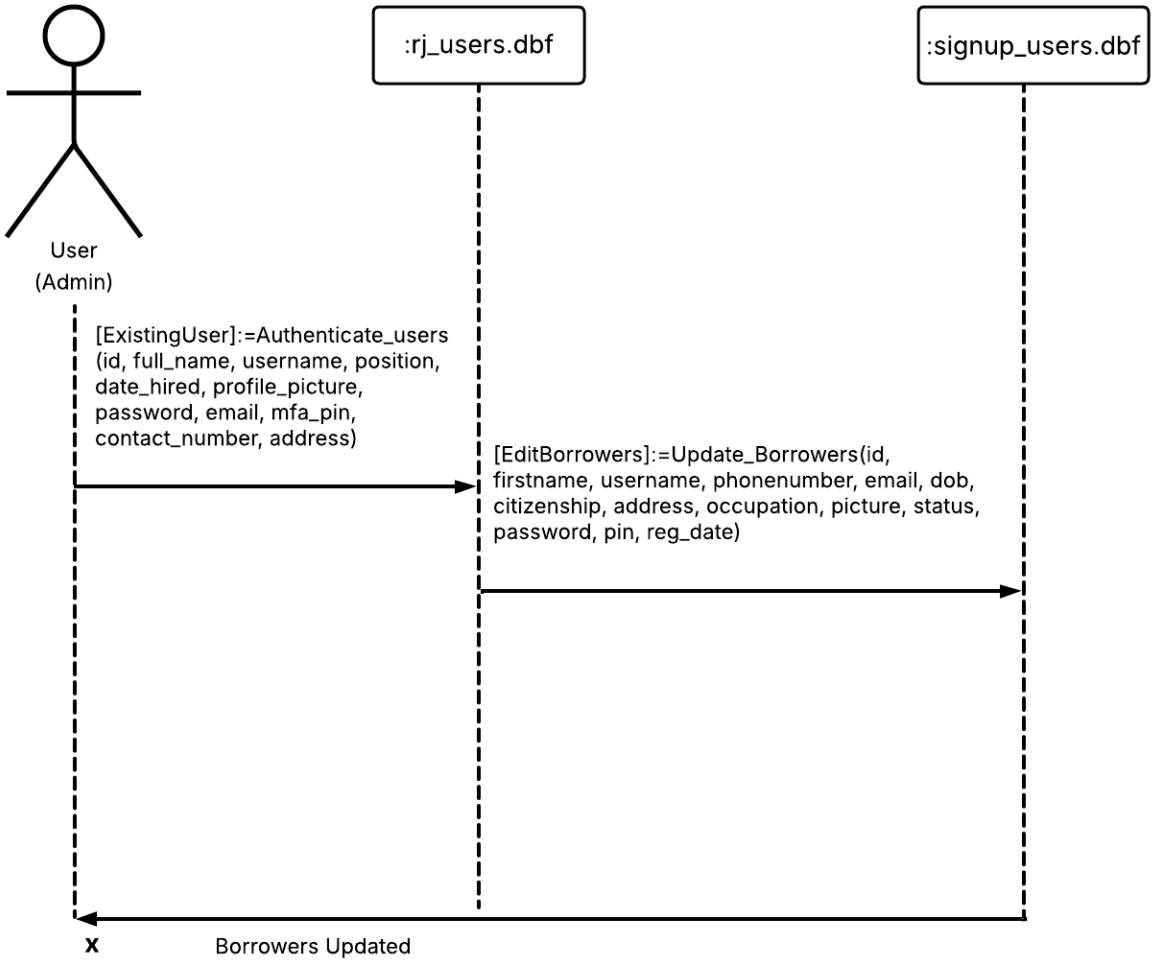


Figure 73 Sequence Diagram for Editing Status of Borrowers

SEQUENCE DIAGRAM INVOLVING FEEDBACKS

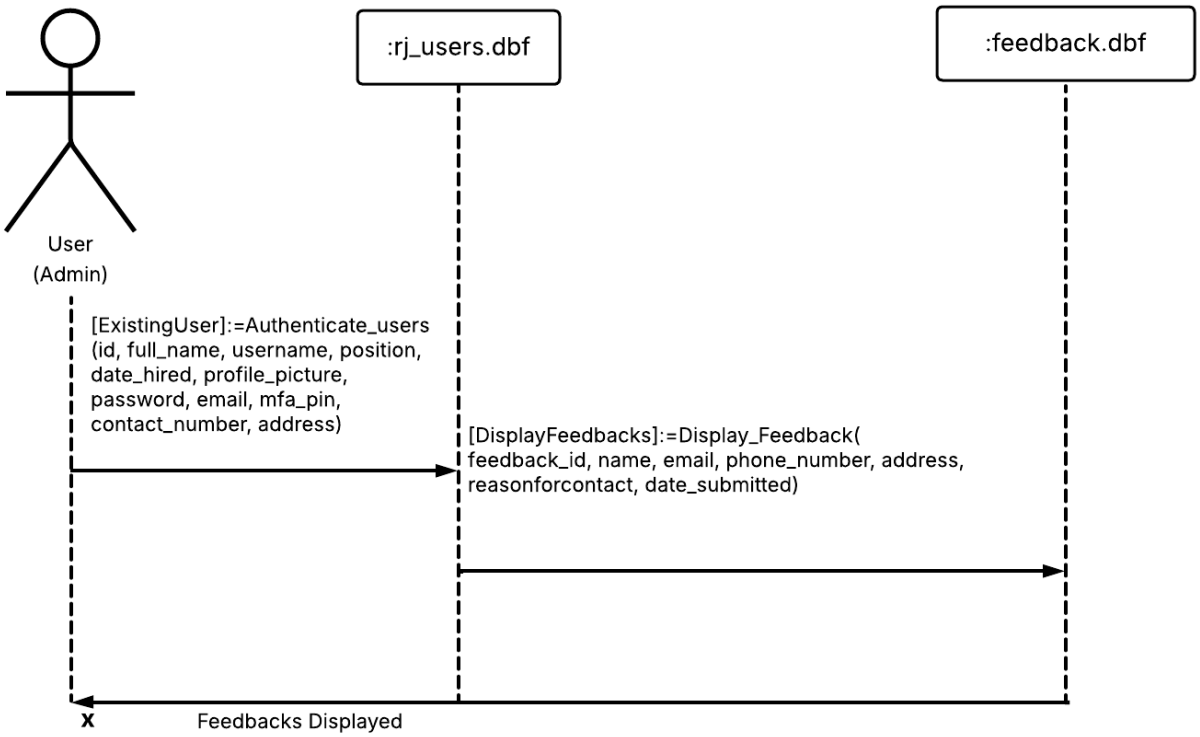


Figure 74 Sequence Diagram for Feedbacks

SEQUENCE DIAGRAM INVOLVING NOTIFICATION

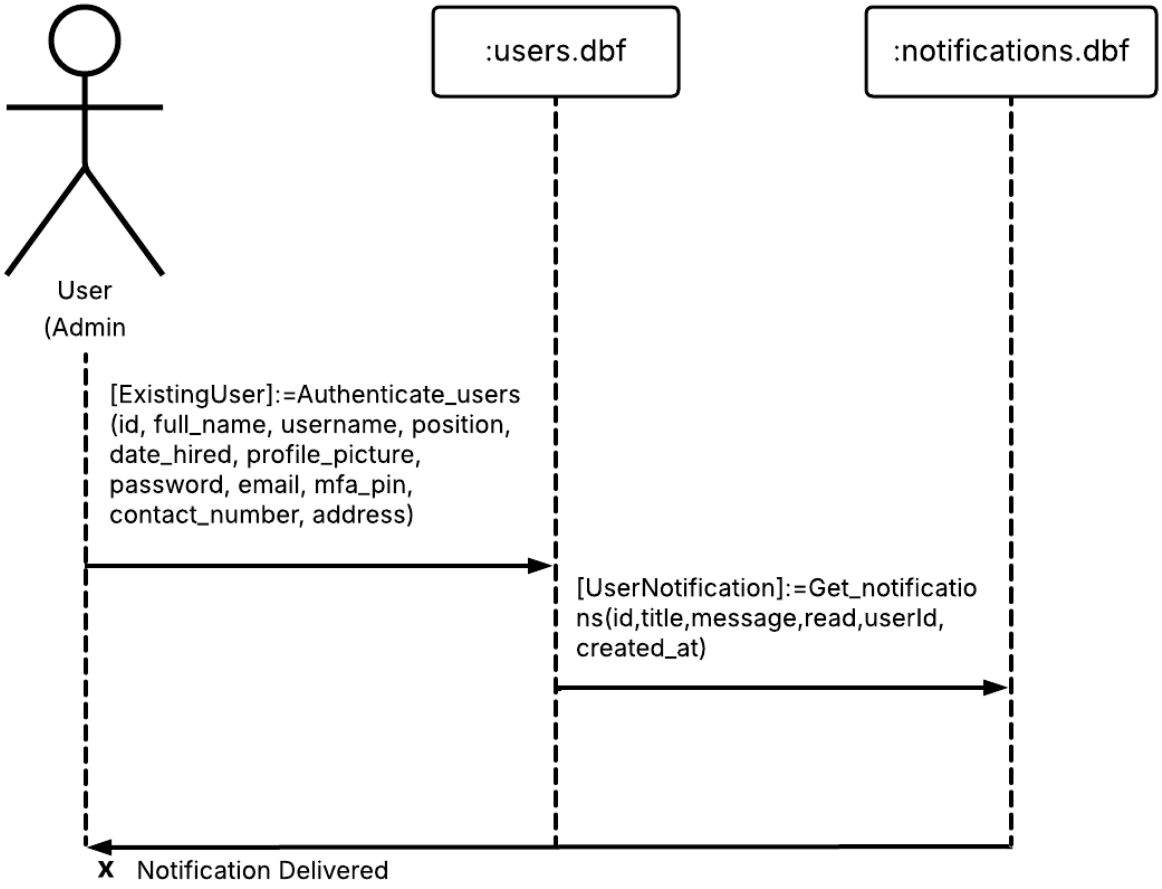


Figure 75 Sequence Diagram for Notification

SEQUENCE DIAGRAM INVOLVING PAYMENTS

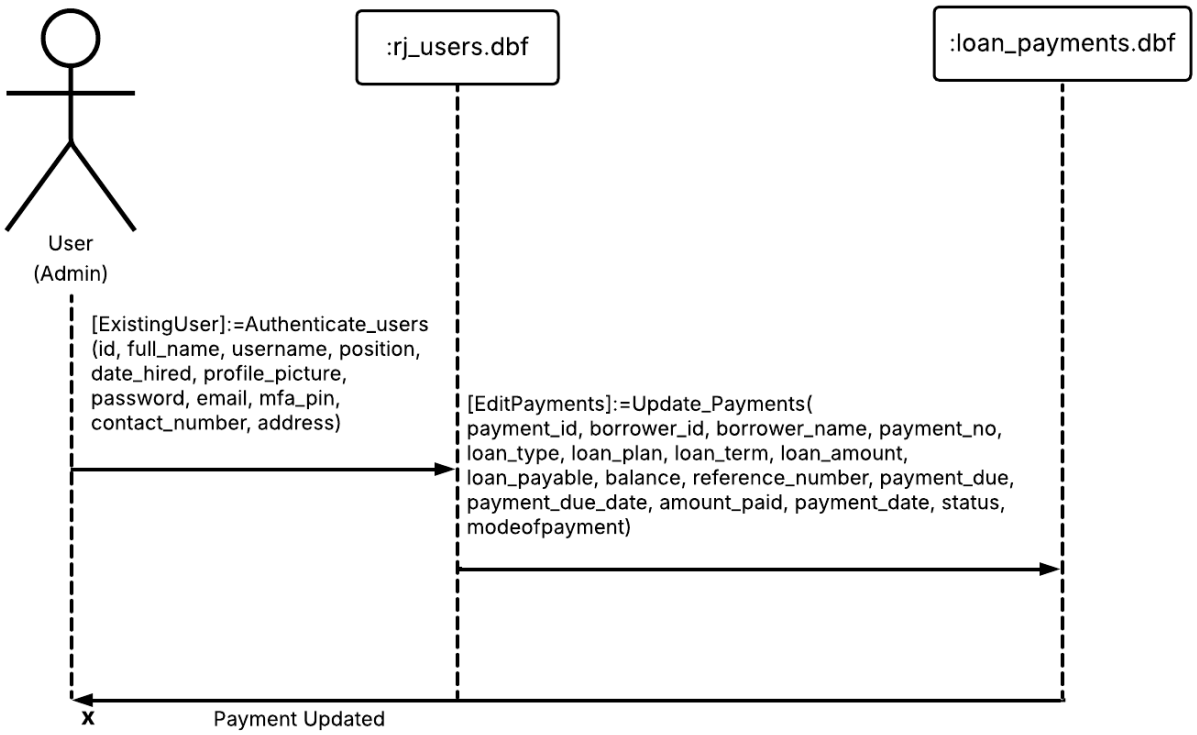


Figure 76 Sequence Diagram for Payments

SEQUENCE DIAGRAM INVOLVING VIEWING USER LOGS

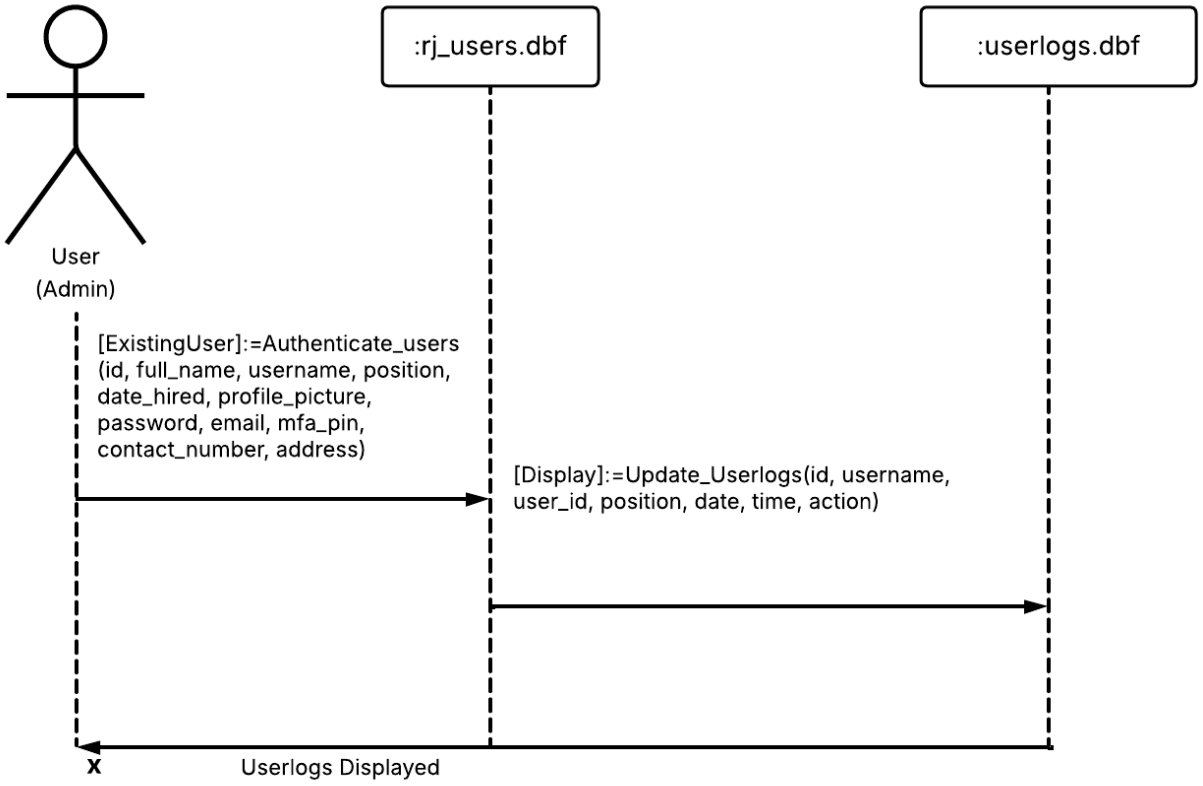


Figure 77 Sequence Diagram for Viewing User Logs

SEQUENCE DIAGRAM INVOLVING MESSAGING

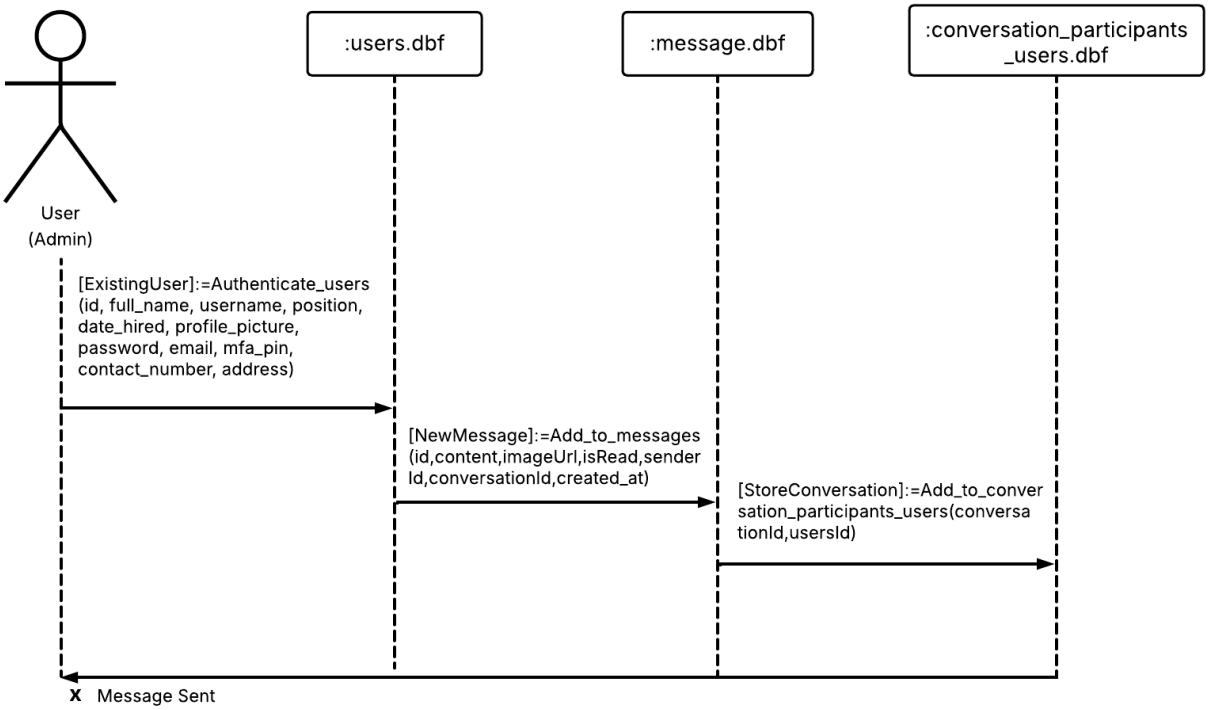


Figure 78 Sequence Diagram for Messaging

SEQUENCE DIAGRAM INVOLVING BORROWERS CREATING AN ACCOUNT

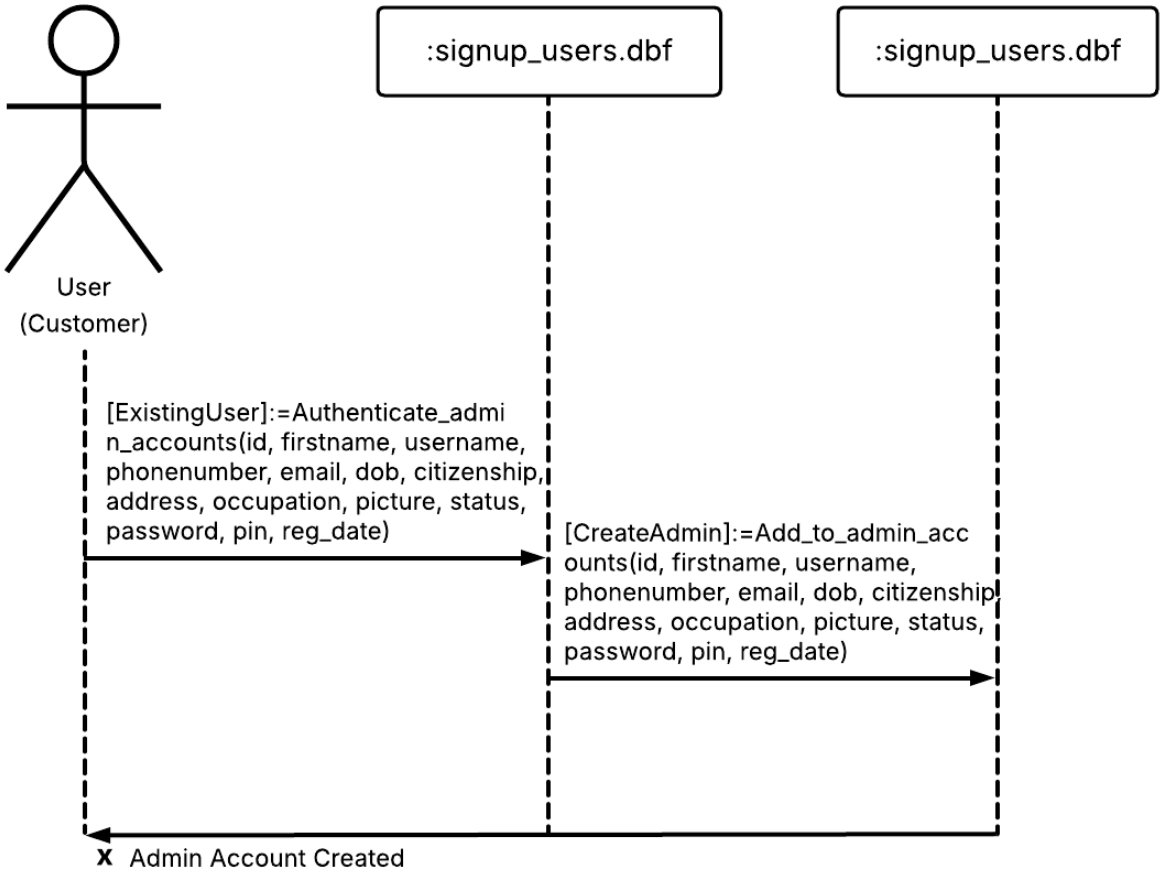


Figure 79 Sequence Diagram for Borrowers Creating an Account

SEQUENCE DIAGRAM INVOLVNG BORROWERS LOGGING IN

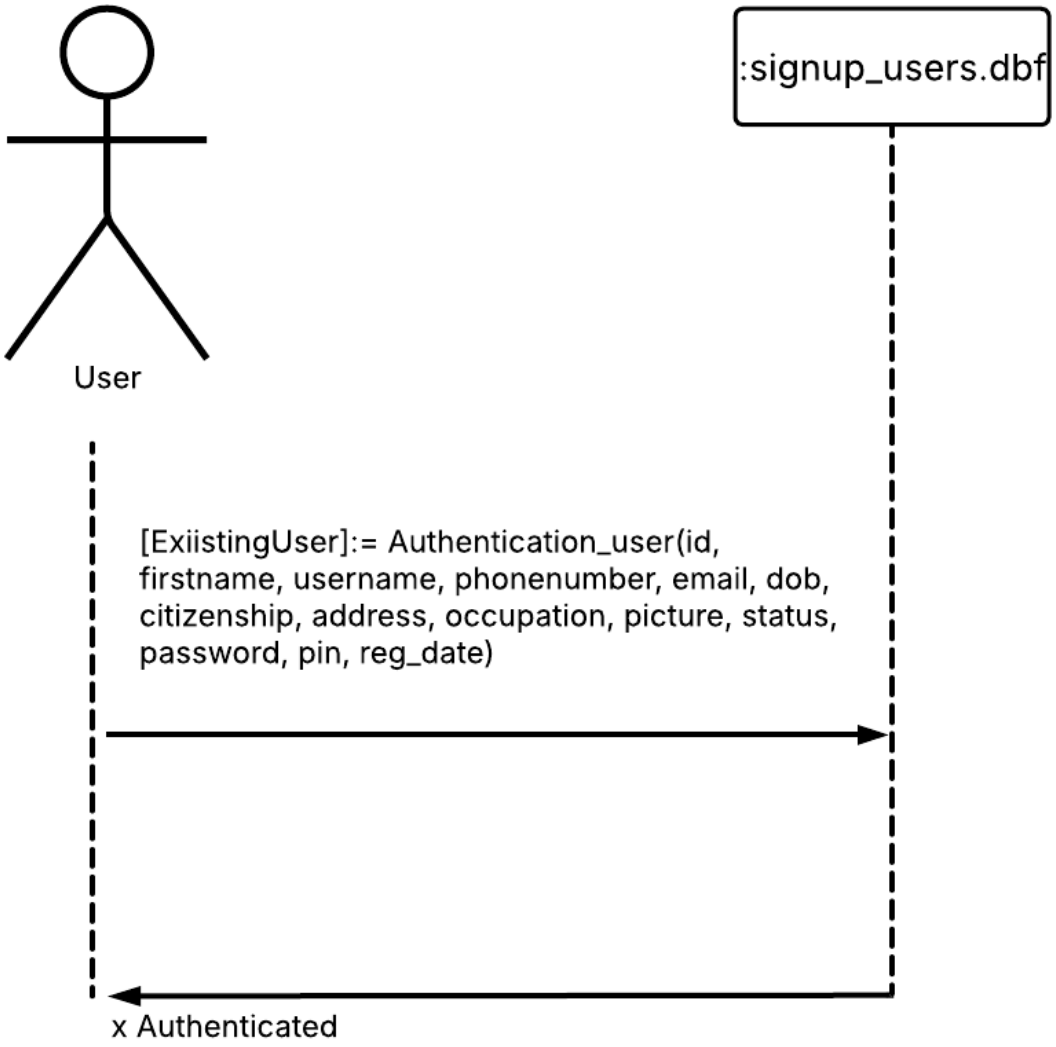


Figure 80 Sequence Diagram for Borrowers Logging In

SEQUENCE DIAGRAM INVOLVING BORROWERS LOGGING OUT

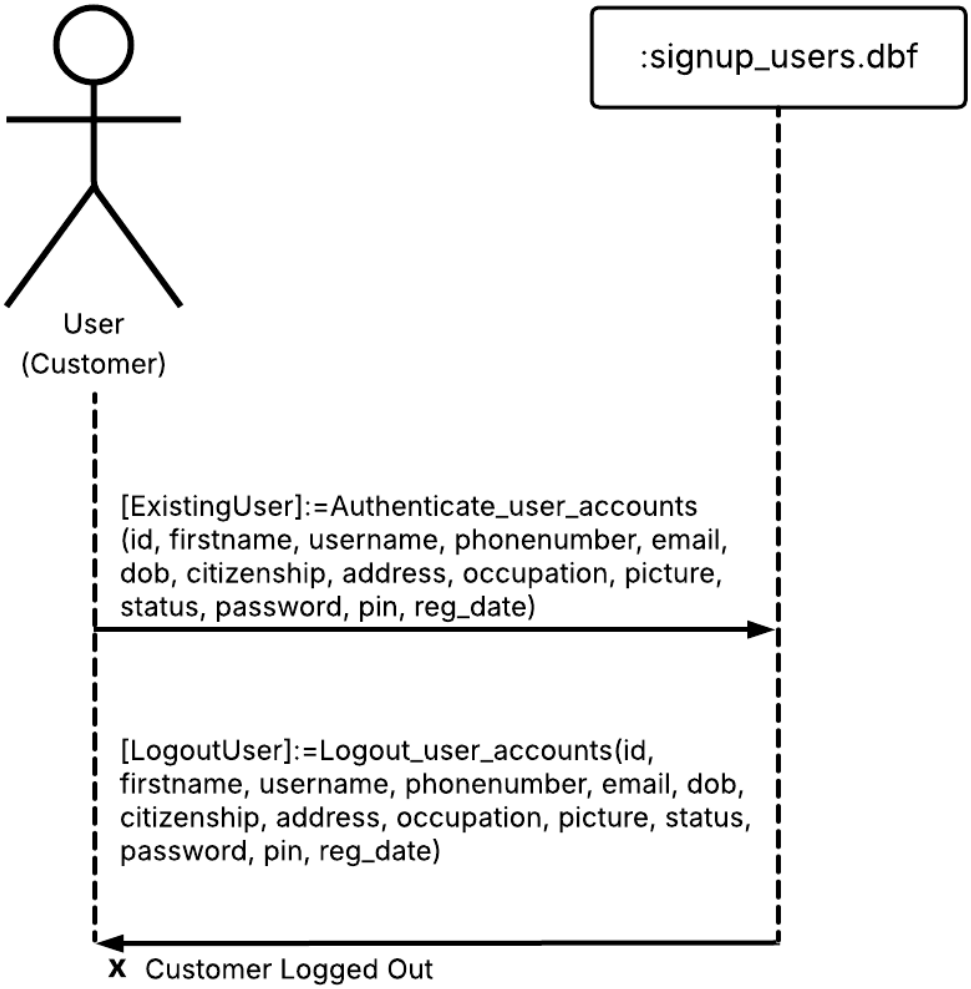


Figure 81 Sequence Diagram for Borrowers Logging Out

SQUENCE DIAGRAM INVOLVING BORROWERS EDITING PROFILE

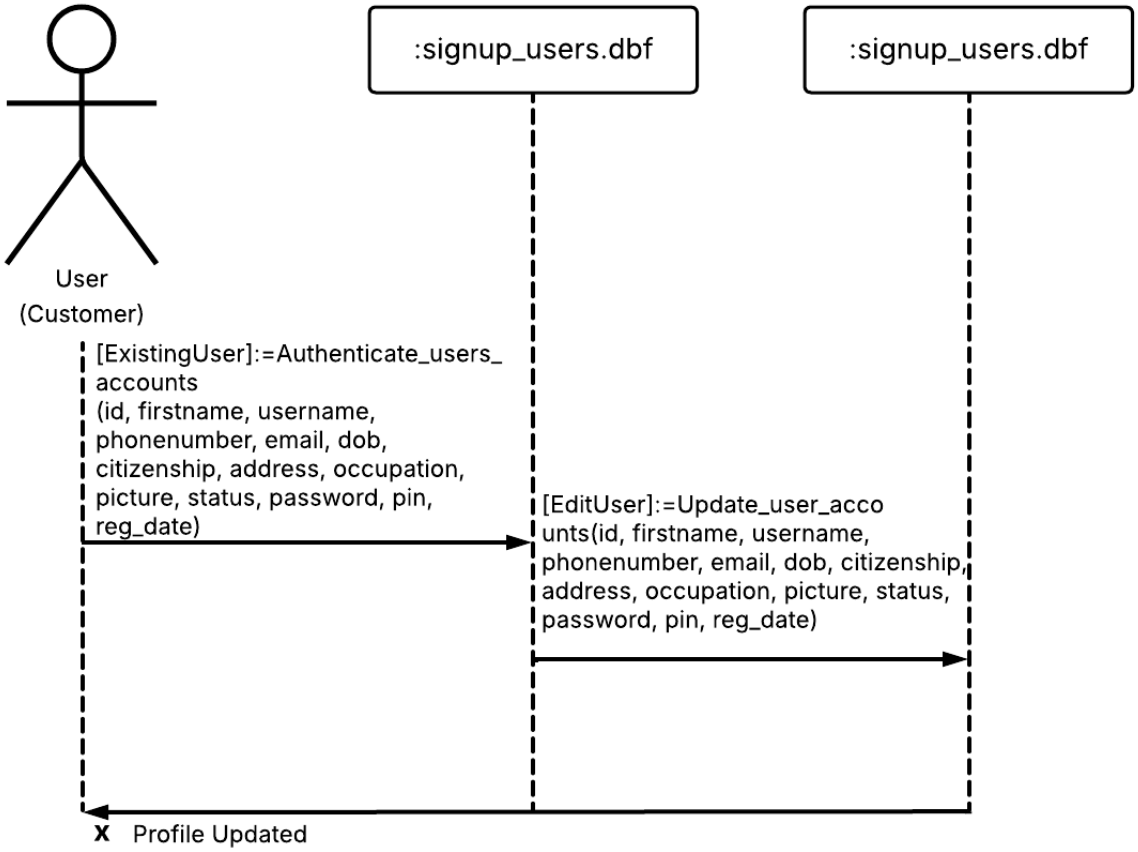


Figure 82 Sequence Diagram for Borrowers Editing Profile

SEQUENCE DIAGRAM INVOLVING LOAN APPLICATION

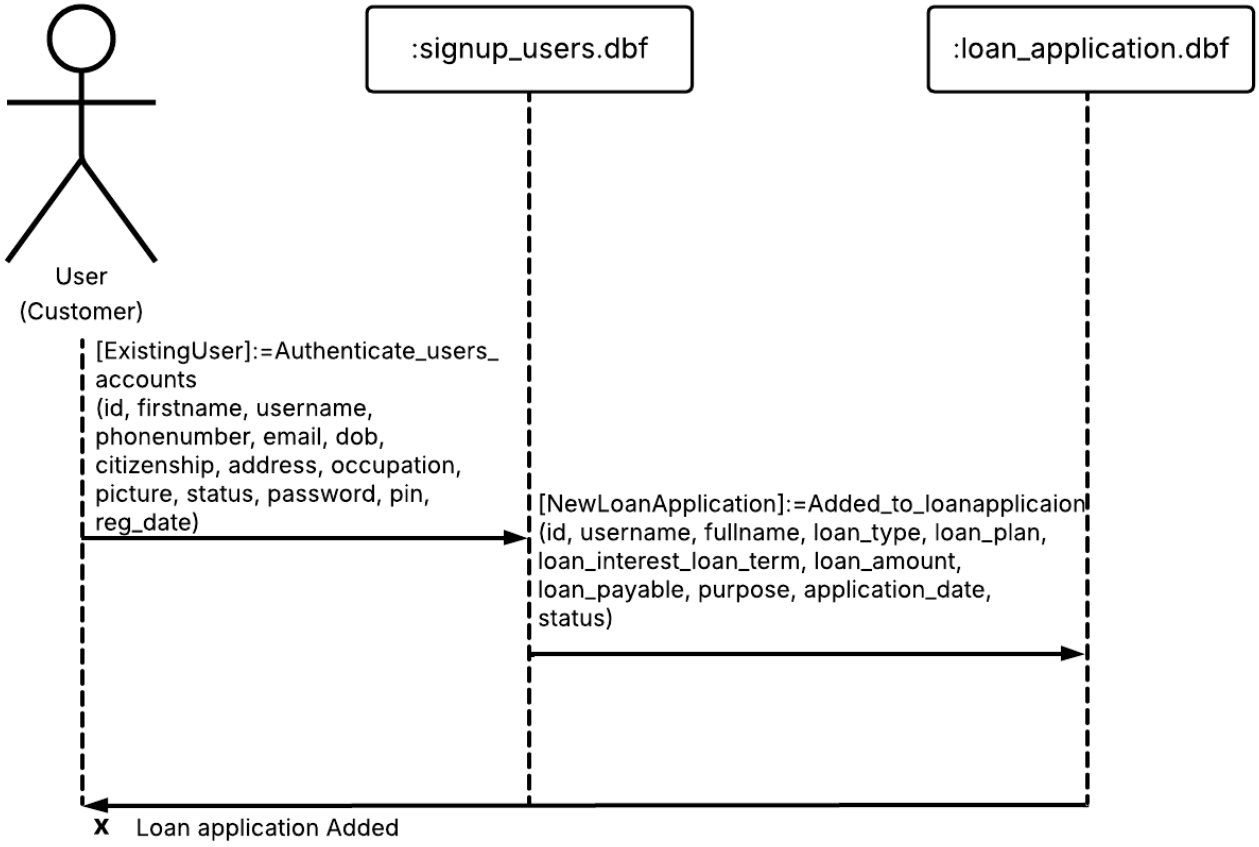
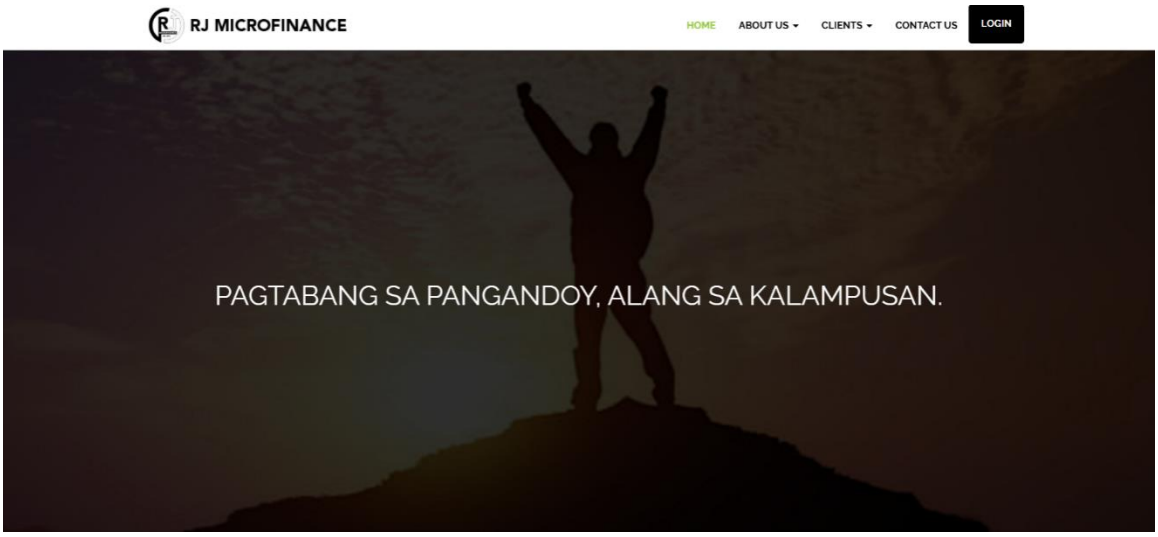


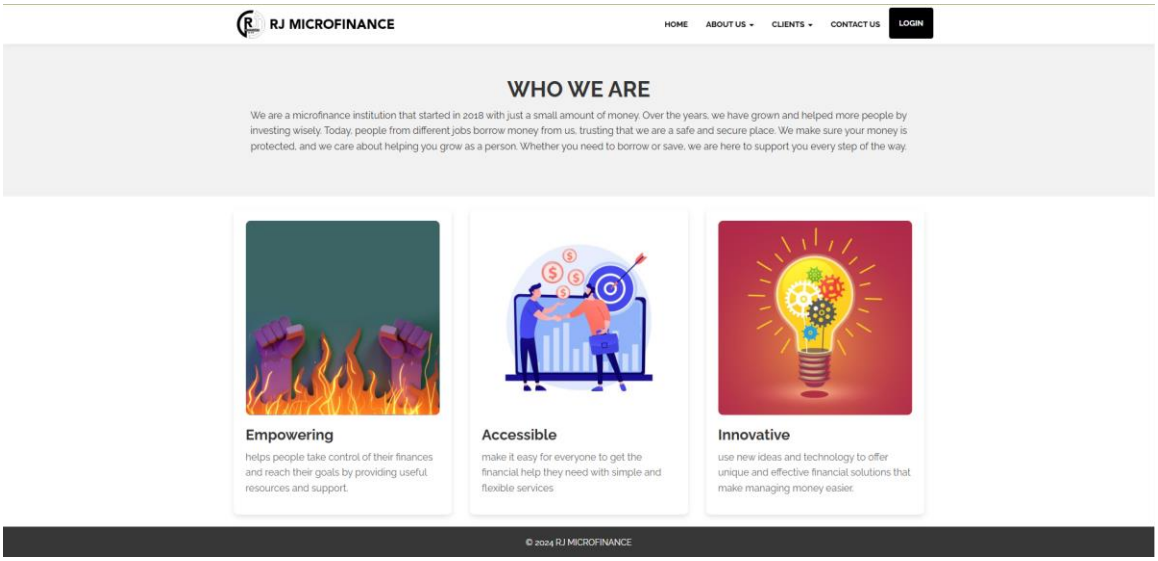
Figure 83 Sequence Diagram for Borrowers Loan Application

System Previews

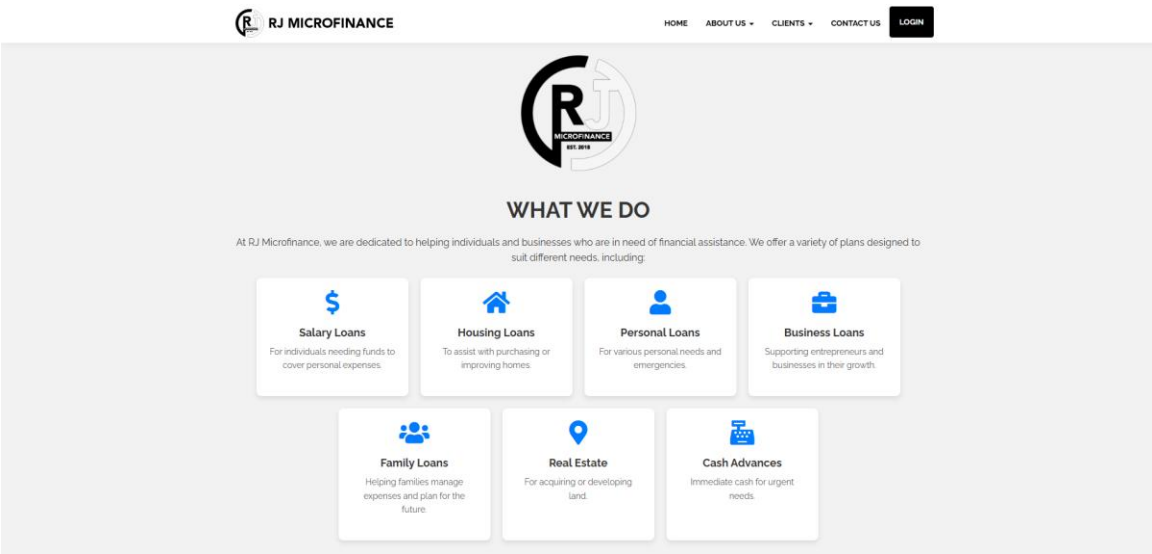
This section shows screenshots of the RJ Microfinance Lending Management System and its admin interface. These images highlight the main features and design, giving a clear idea of how borrowers and admins use the system for managing loans, payments, and other tasks.



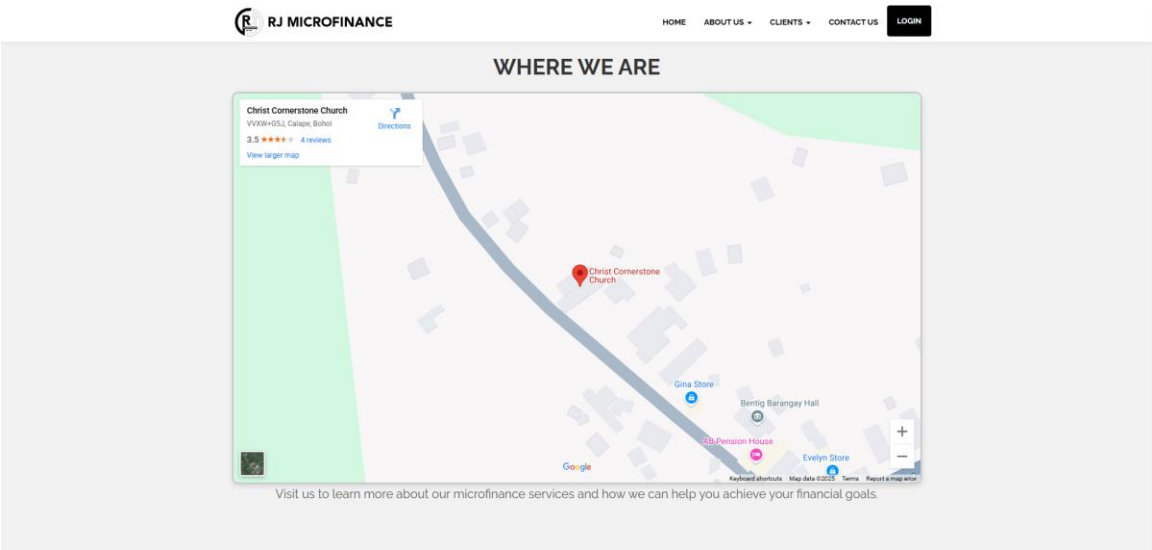
Preview 1 Landing Page (Home)



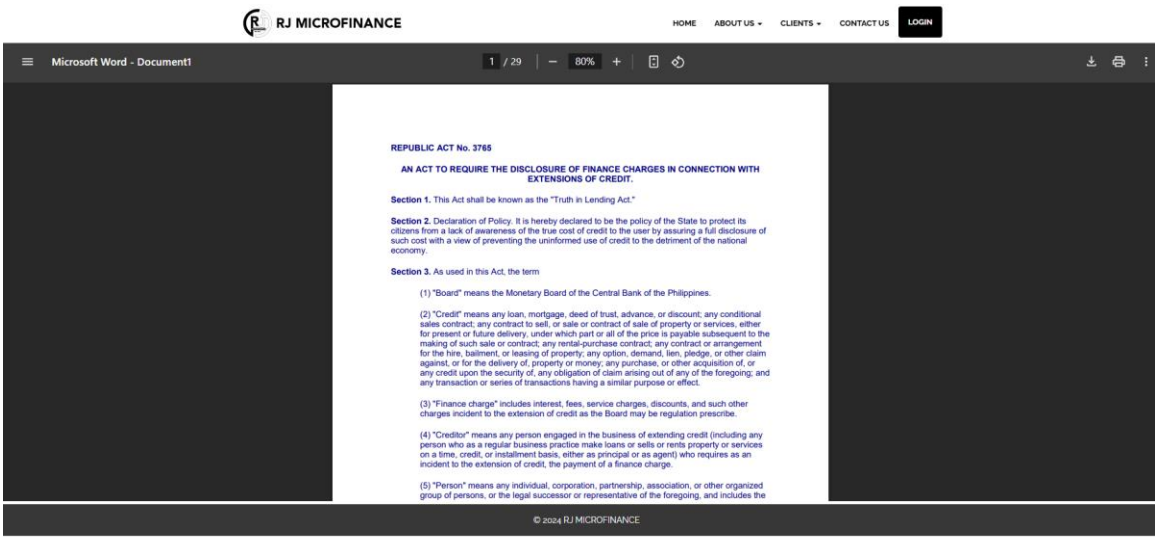
Preview 2 Landing Page (About Us)



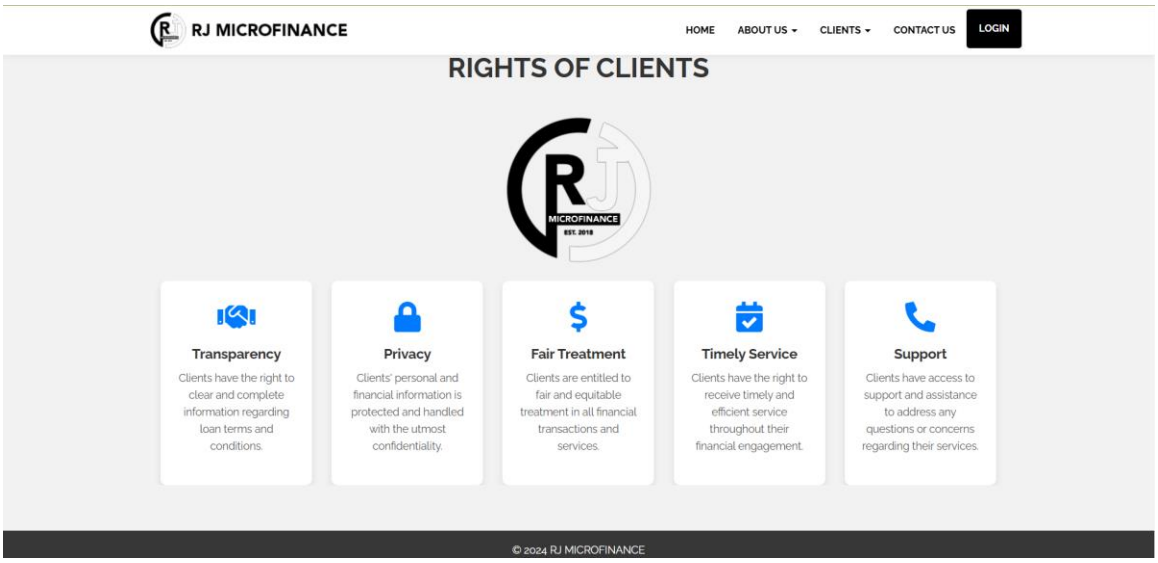
Preview 3 Landing Page (Our Services)



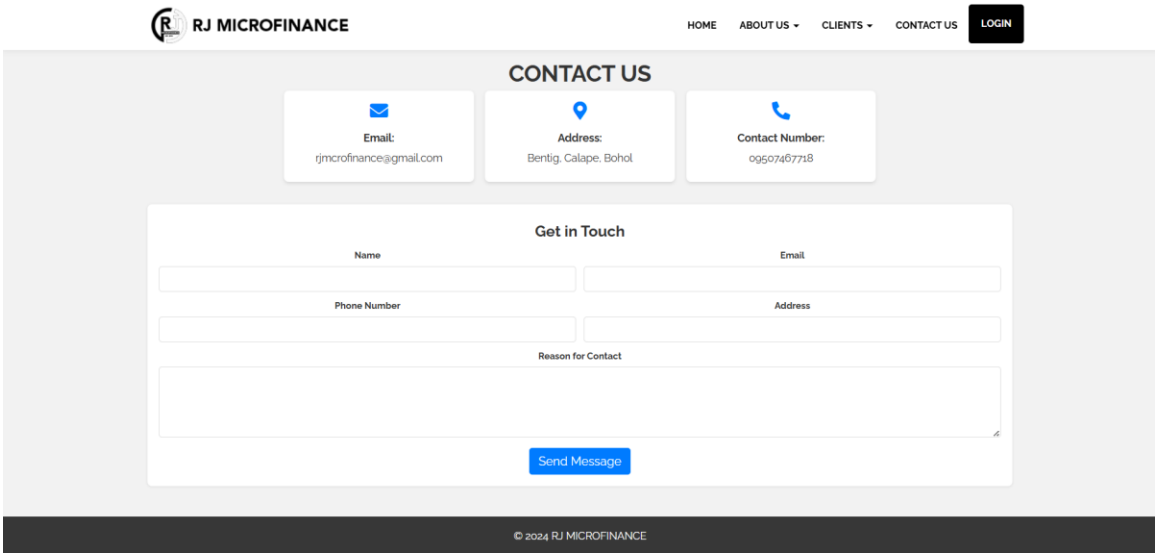
Preview 4 Landing Page (Our Location)



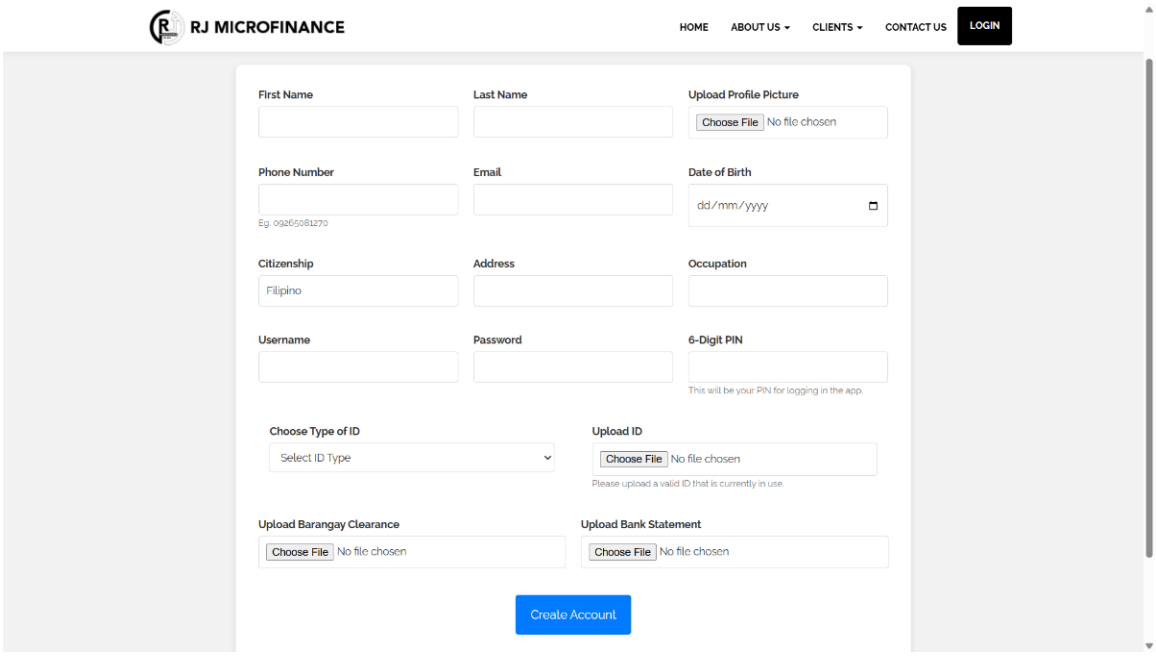
Preview 5 Landing Page (Truth in Lending Act)



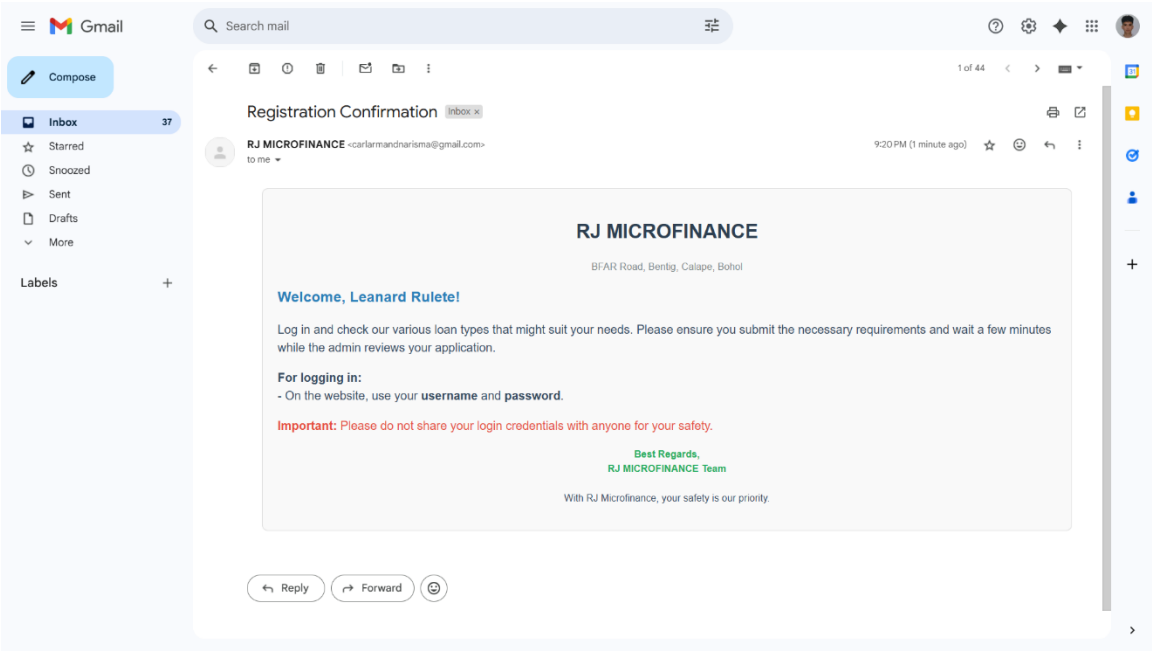
Preview 6 Landing Page (Rights of Clients)



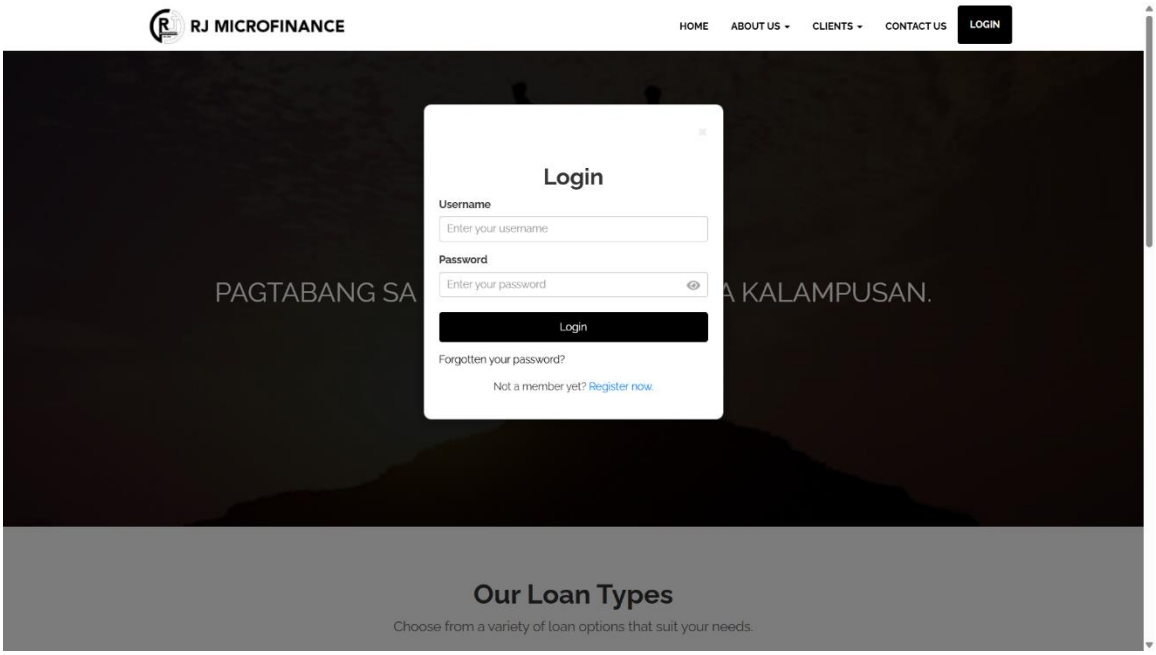
Preview 7 Landing Page (Contact Us)



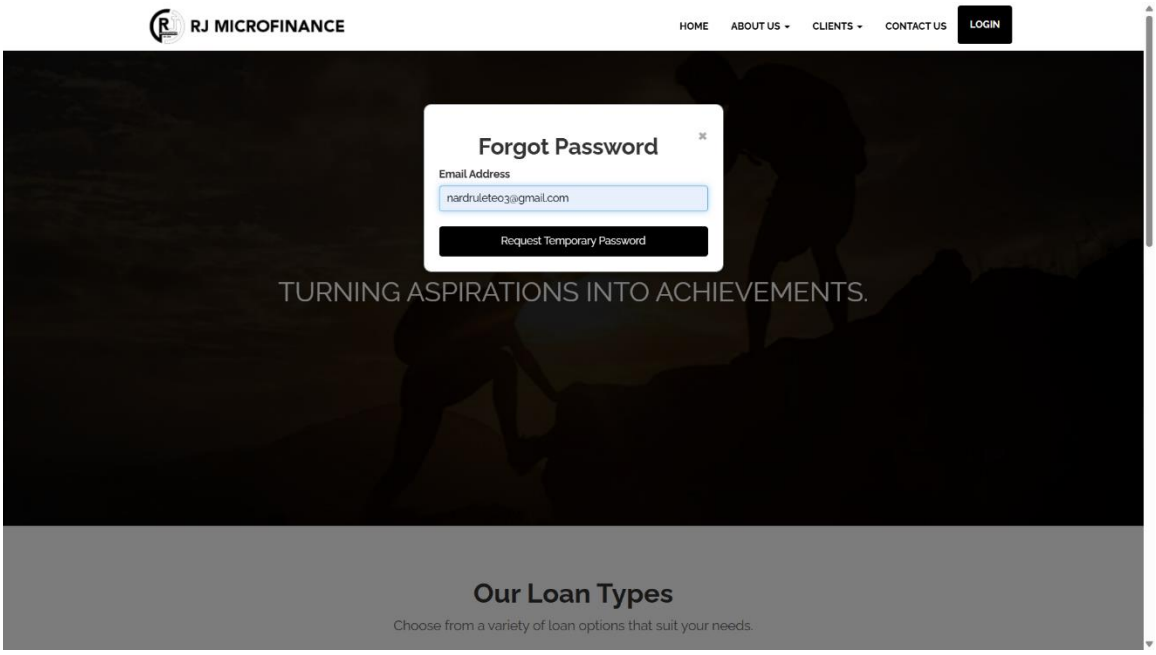
Preview 8 Borrowers Registration or Creating Account



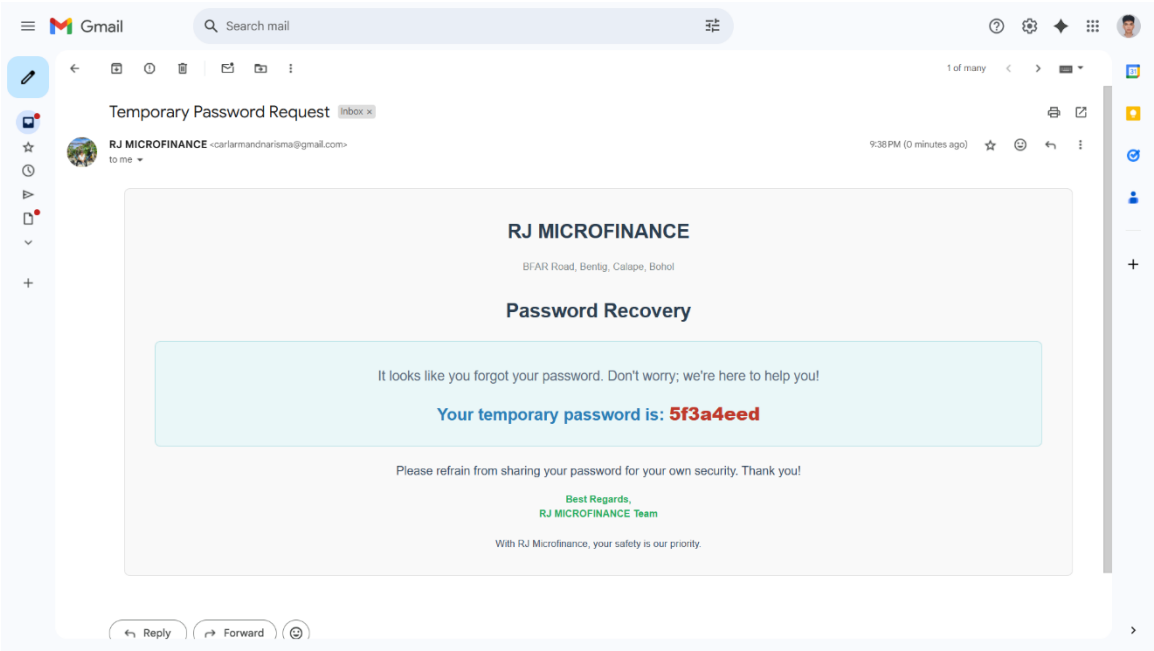
Preview 9 Registration Confirmation Email



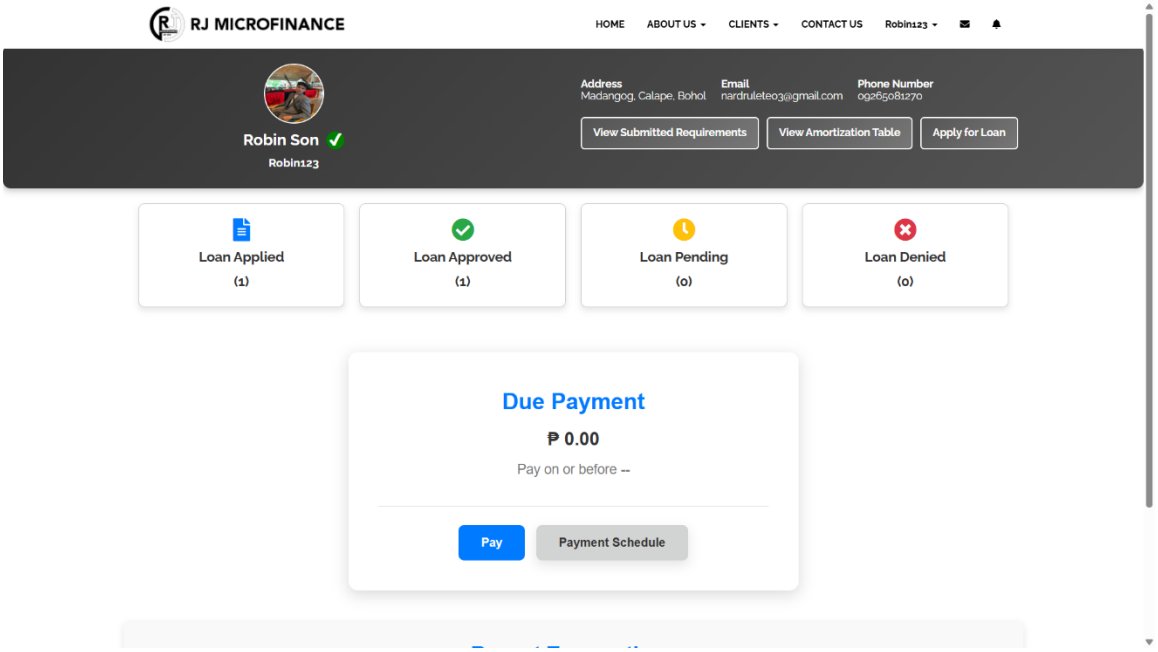
Preview 10 Borrowers Login Screen



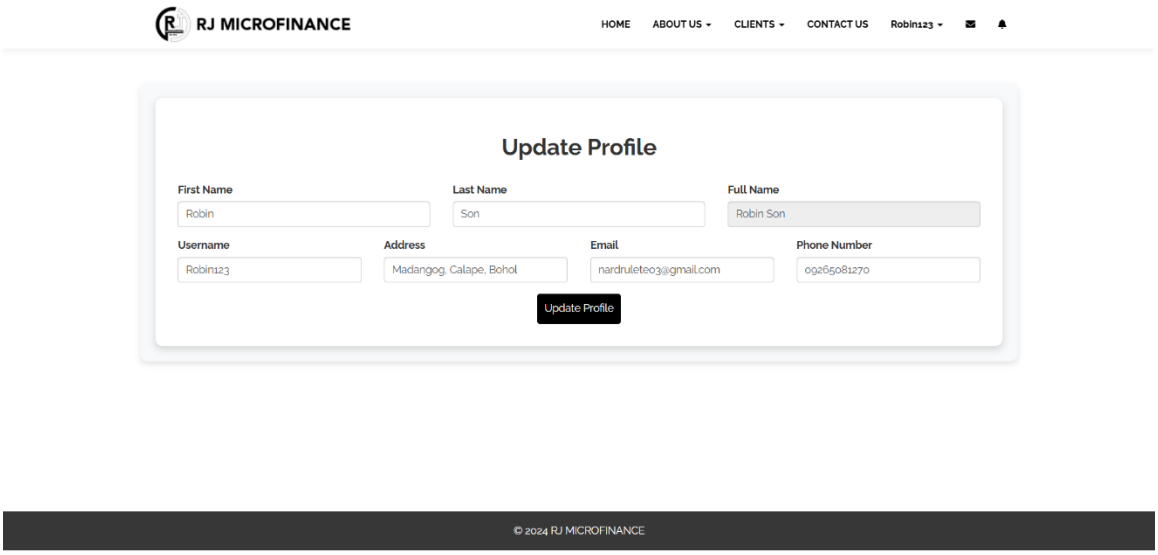
Preview 11.0 Borrowers Forgot Password (Enter Valid Email) Screen



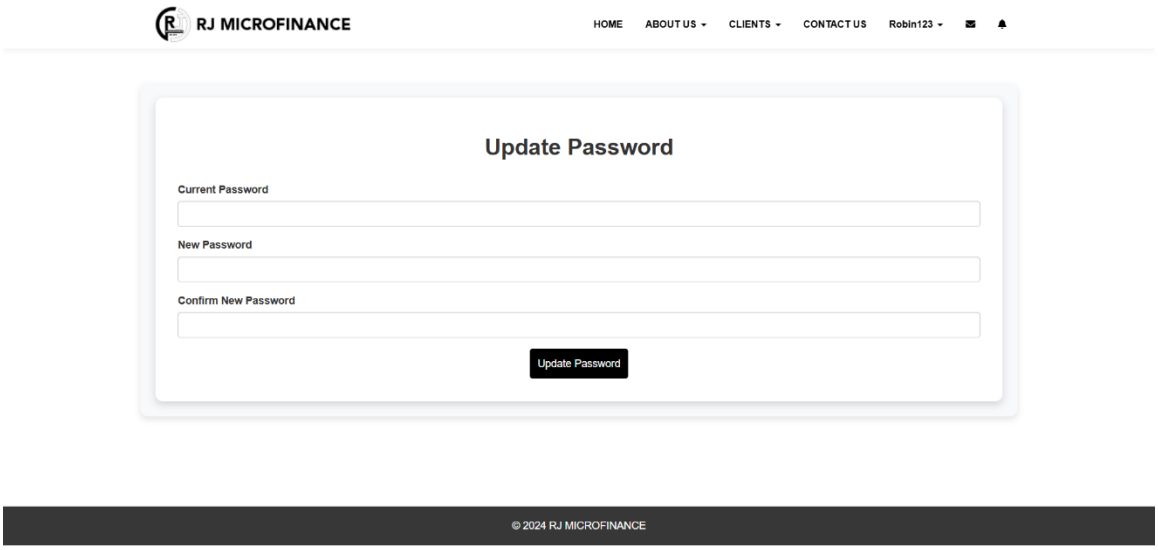
Preview 11.1 Temporary Password Request Email



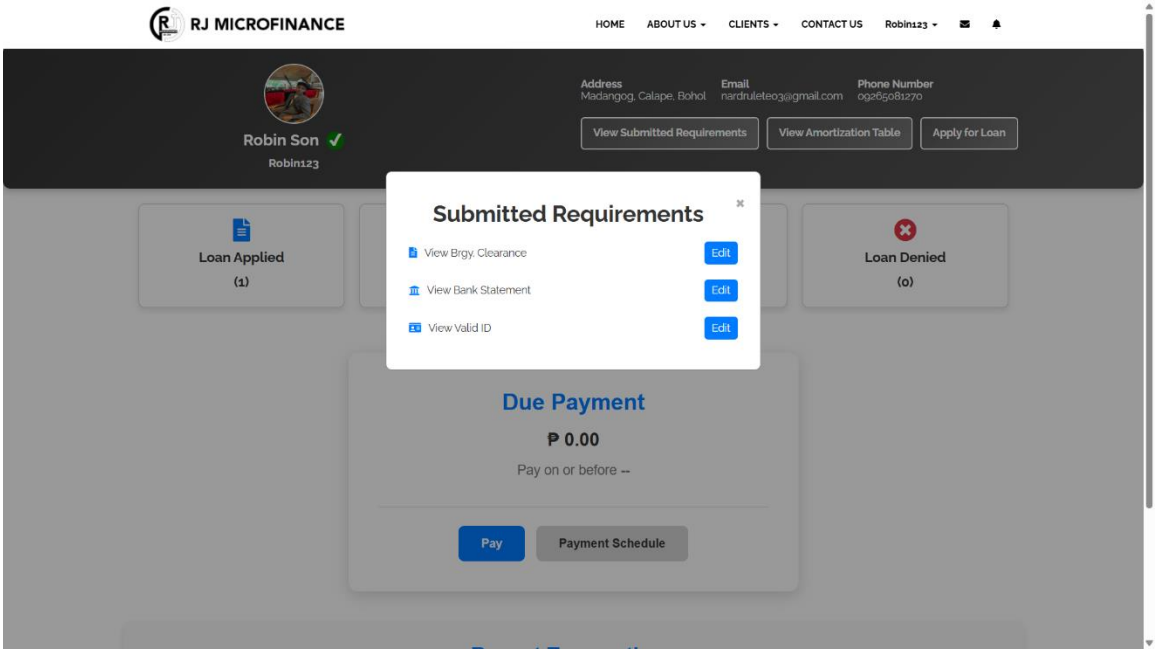
Preview 12 Borrowers Dashboard Screen



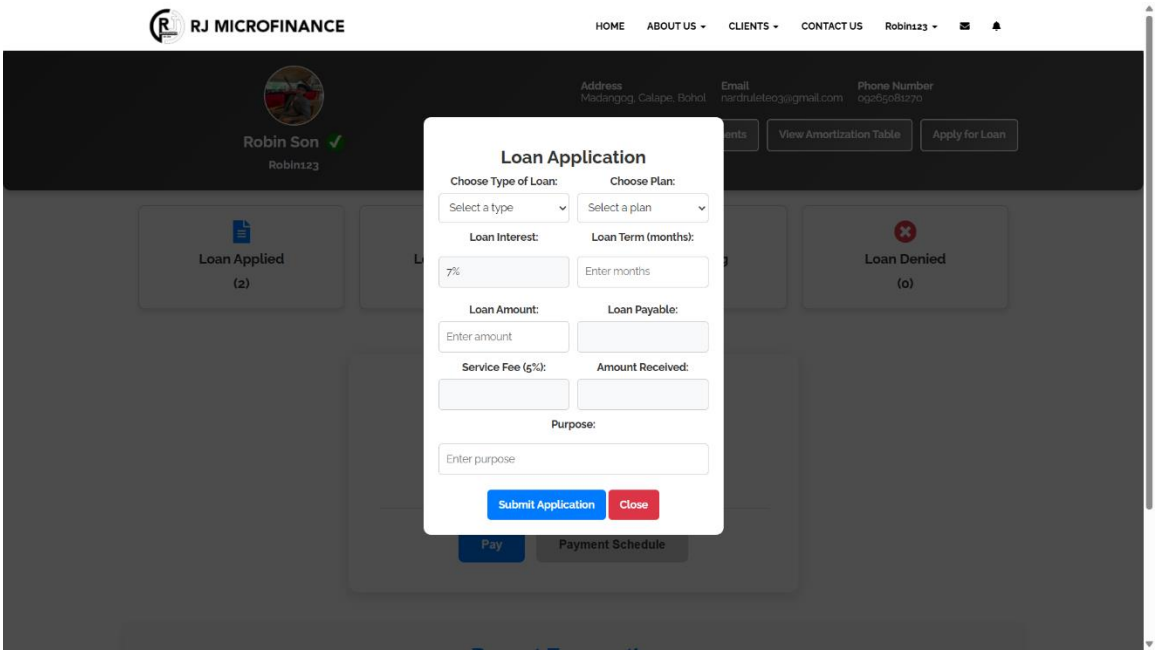
Preview 13 Borrowers Update Profile Screen



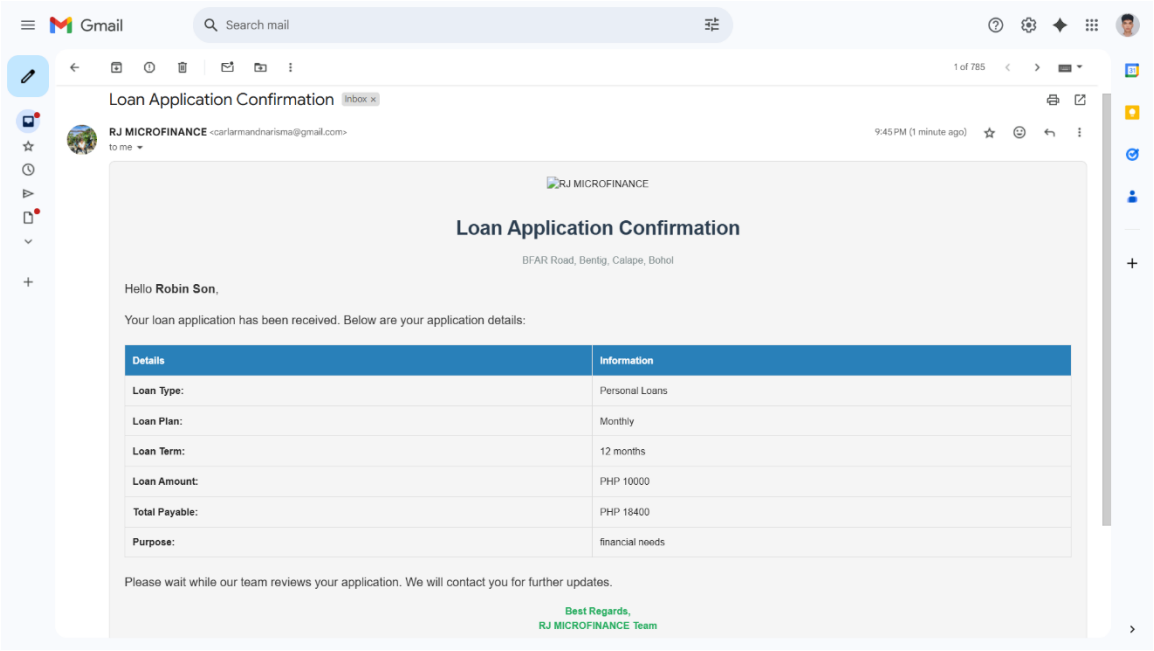
Preview 14 Borrowers Update Password



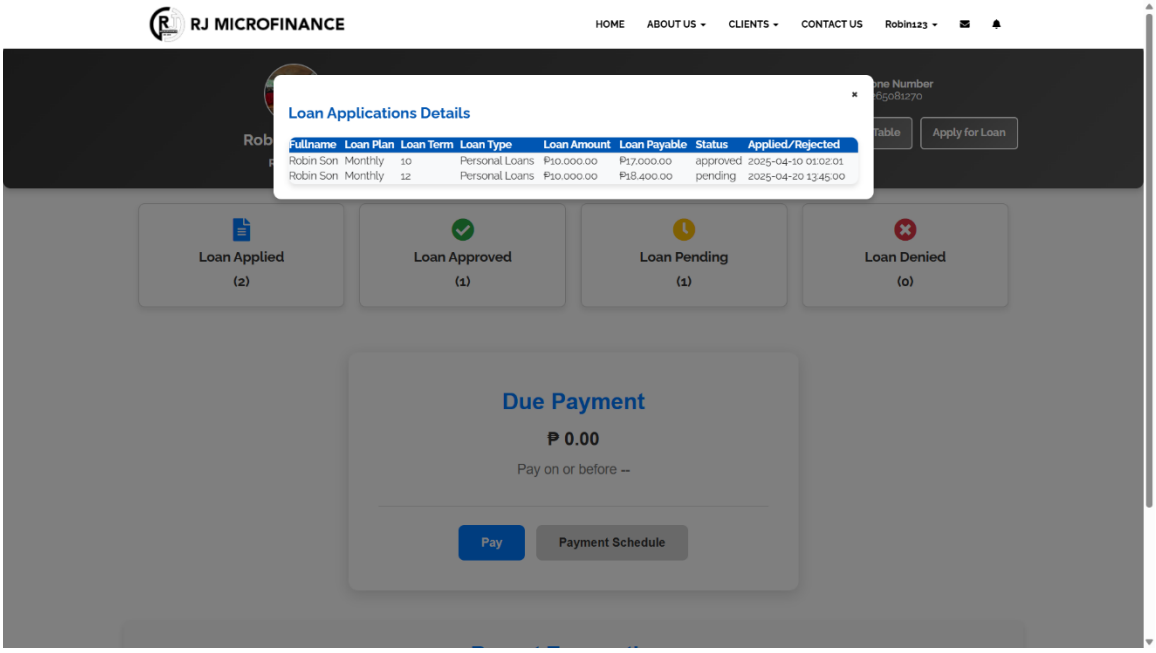
Preview 15 View Submitted Requirements Screen



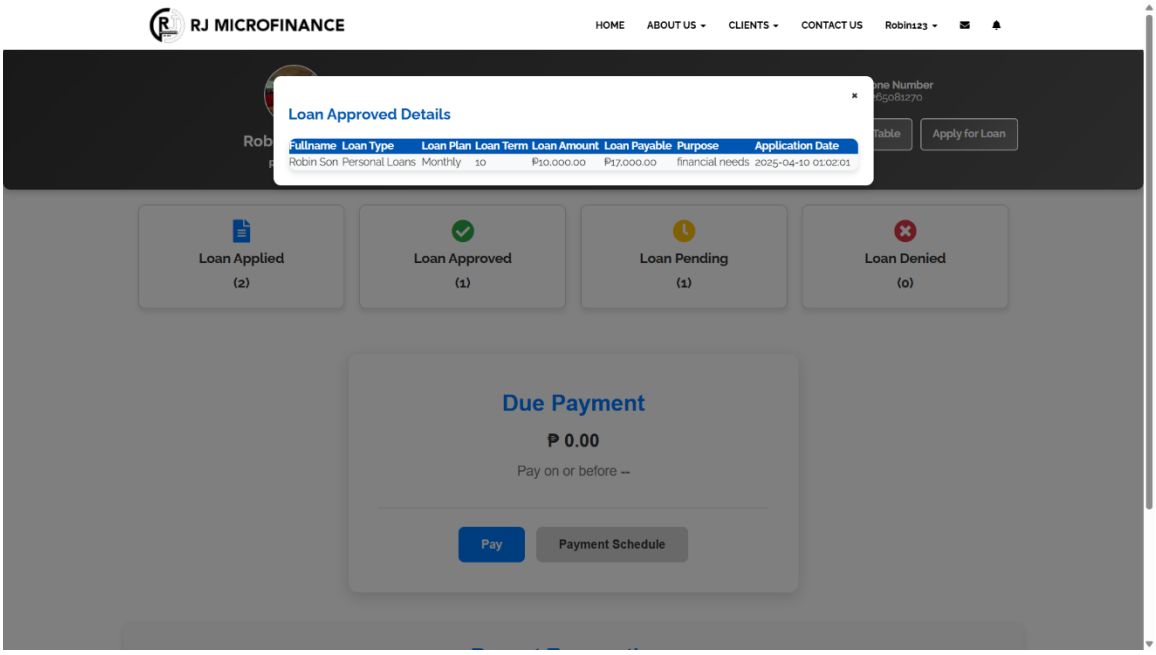
Preview 16 Loan Application Screen



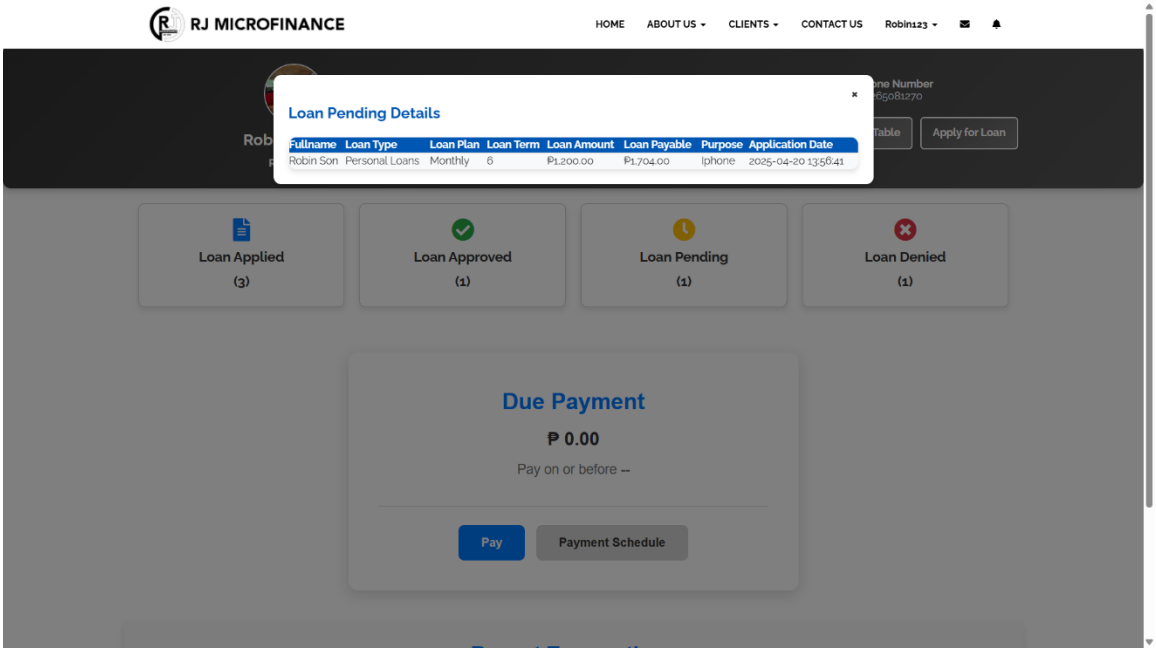
Preview 17 Loan Application Confirmation Email



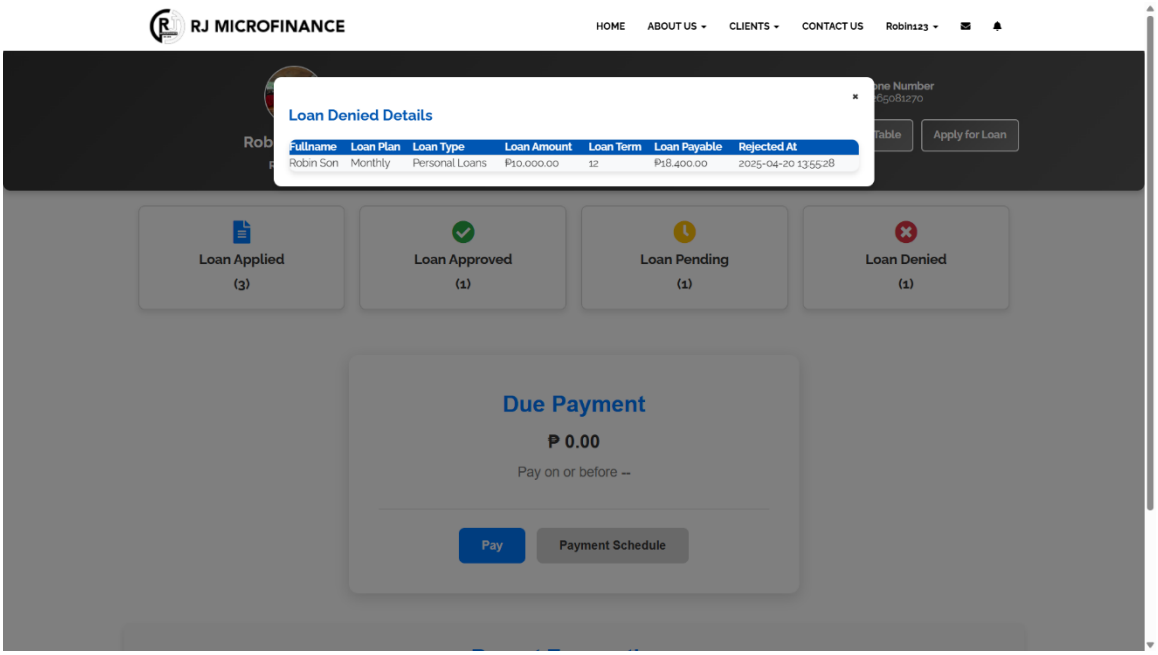
Preview 18 Loan Application Details Screen



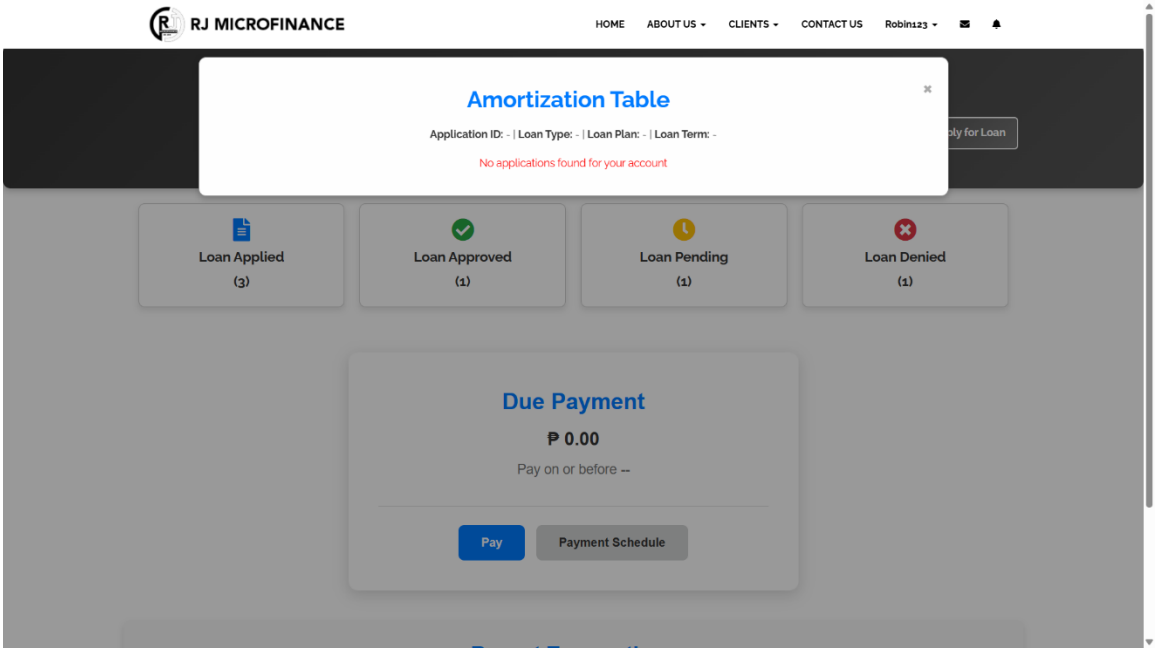
Preview 19 Loan Approved Details Screen



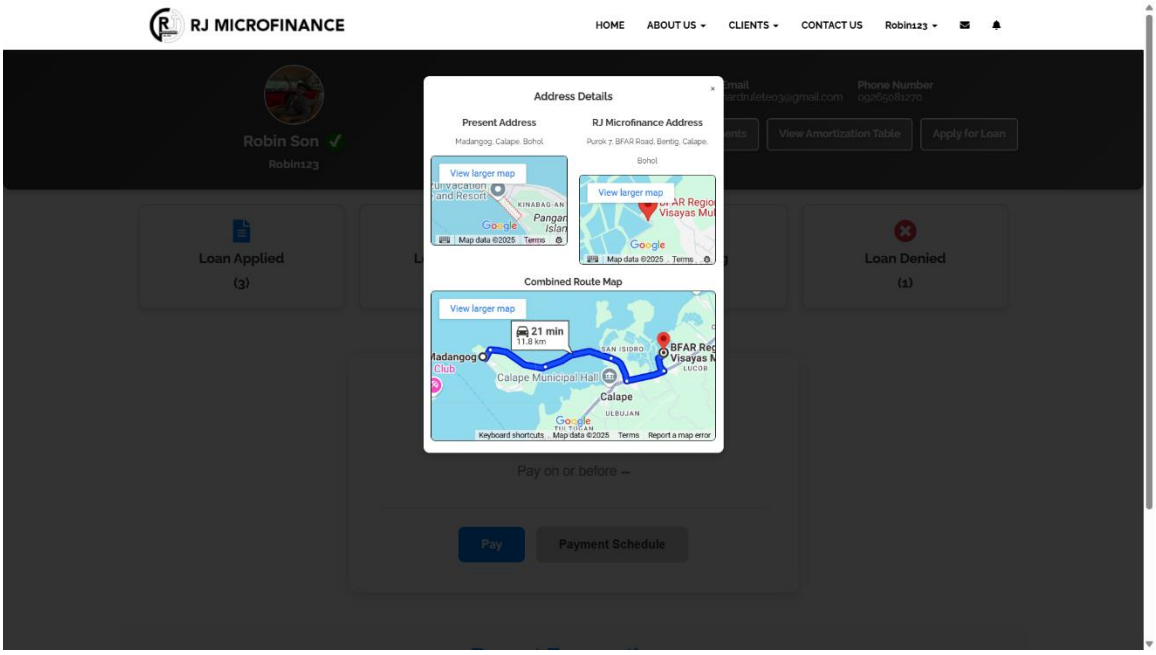
Preview 20 Loan Pending Details Screen



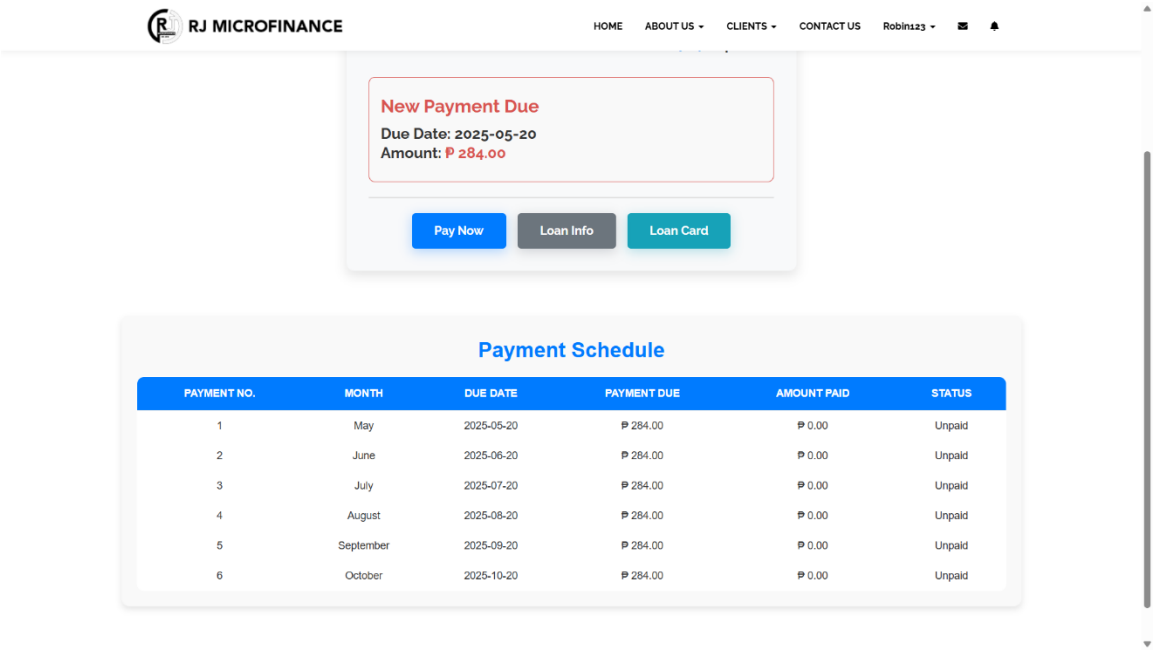
Preview 21 Loan Denied Details Screen



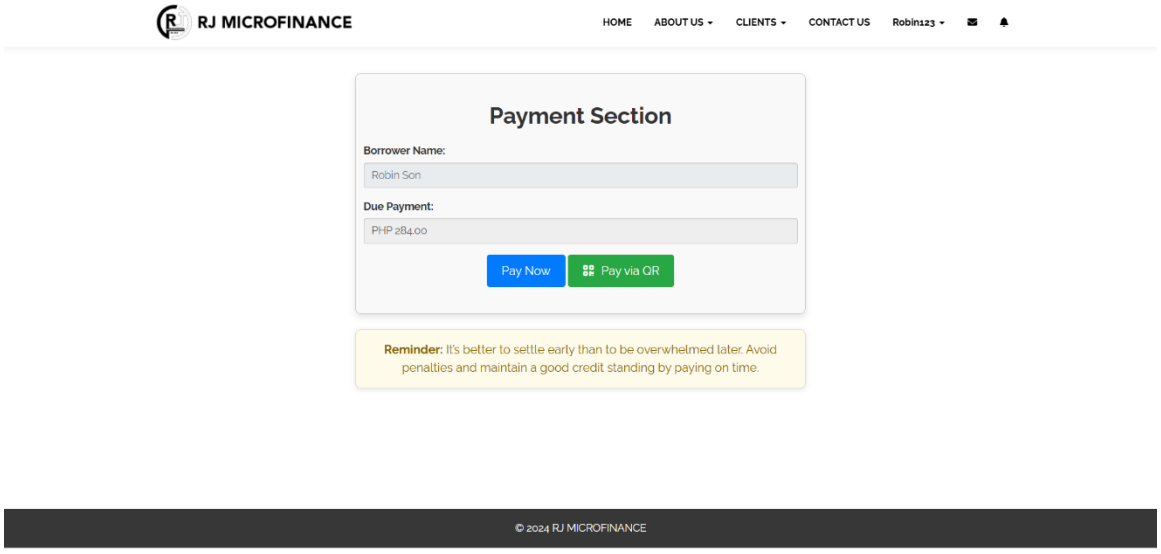
Preview 22 Borrowers Amortization Table Screen



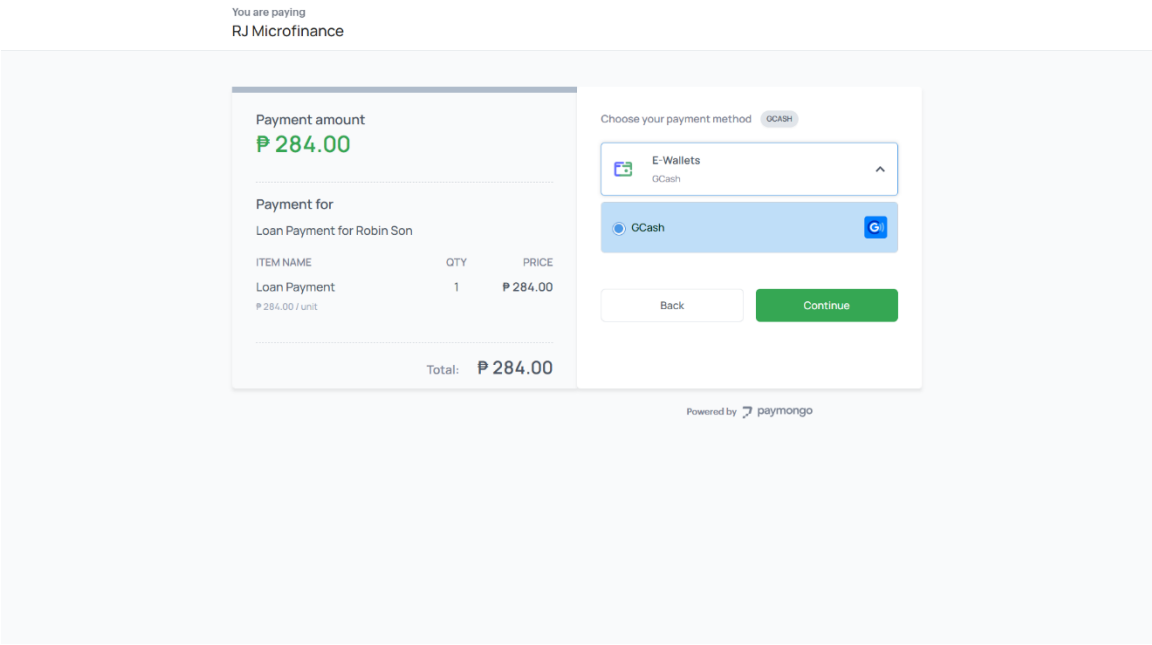
Preview 23 Address Details Screen



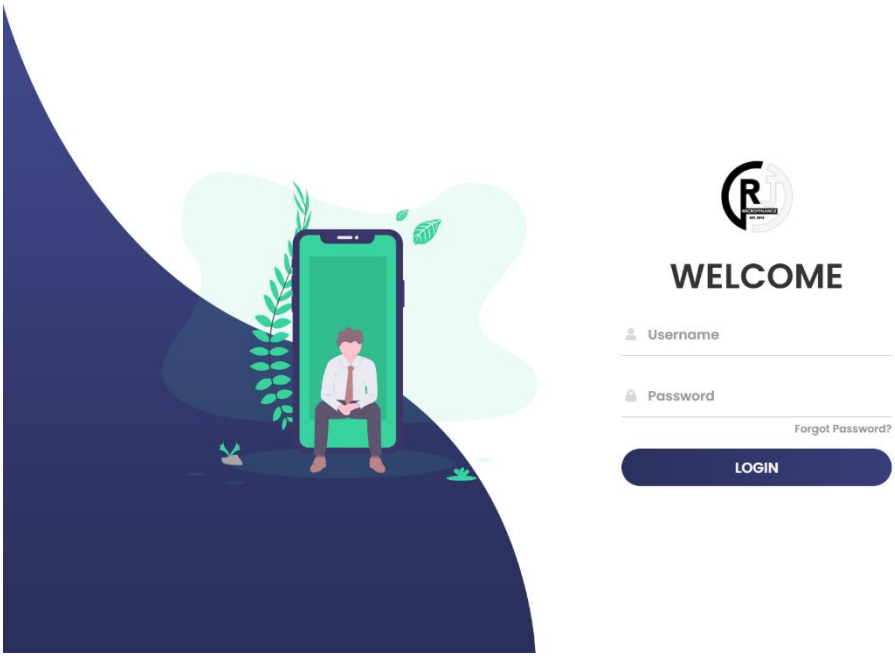
Preview 24 Borrowers Payment Schedule Screen



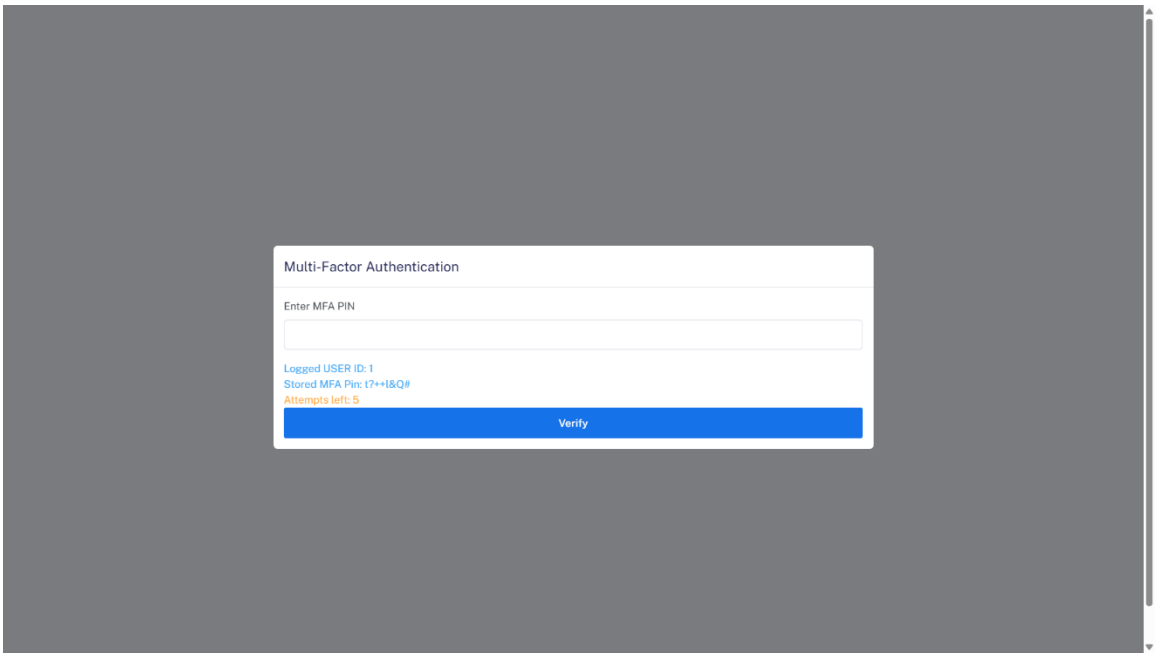
Preview 25.0 Payment Section Screen



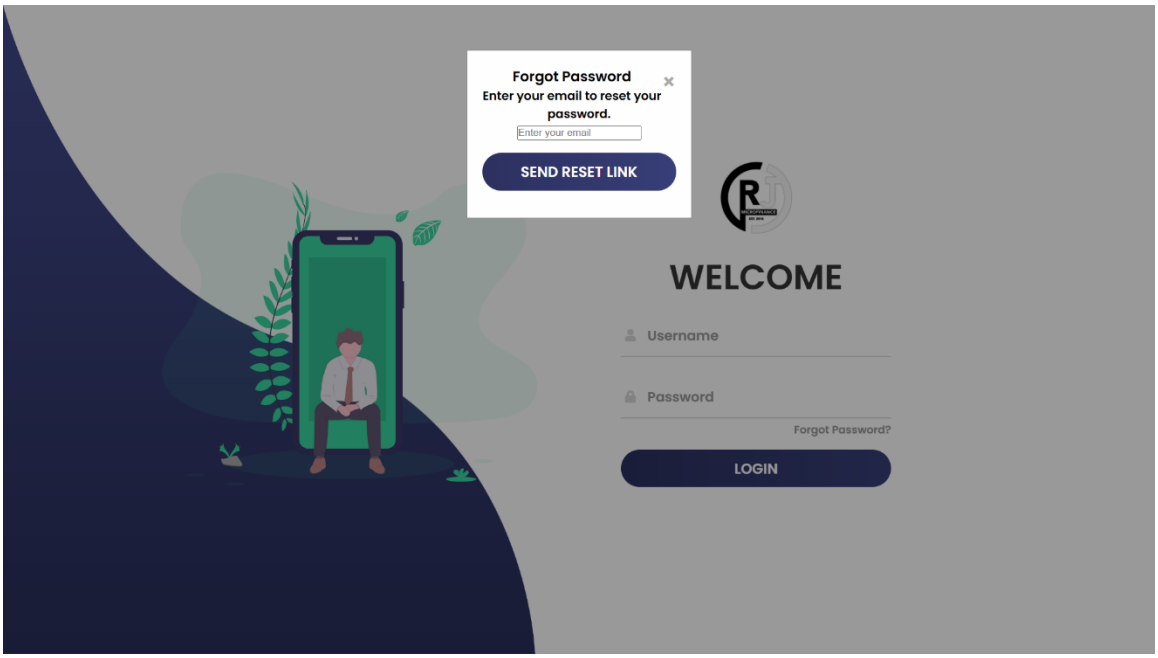
Preview 25.1 Paymongo Payment Screen



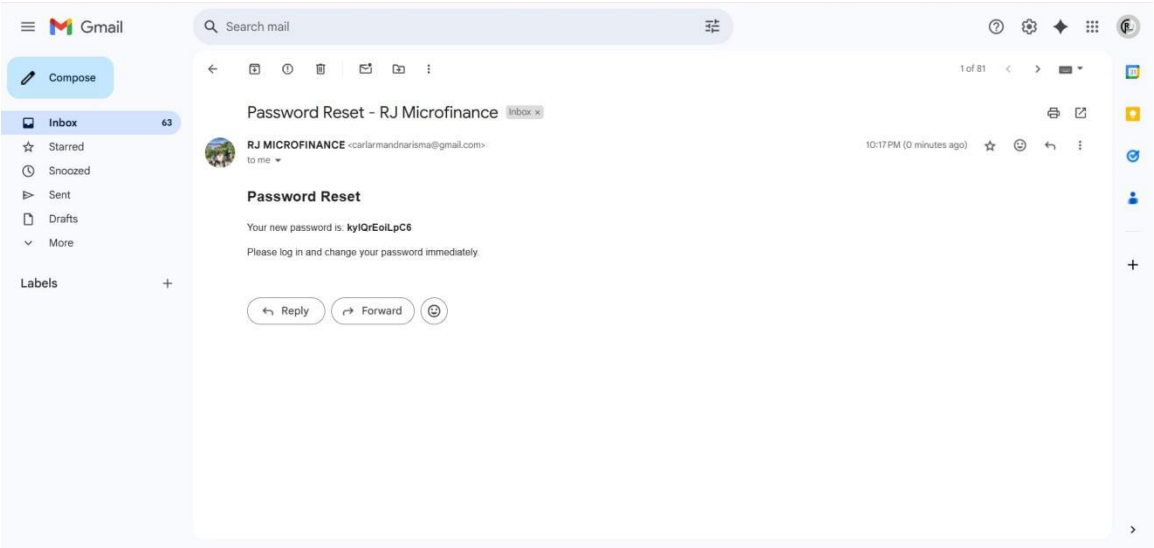
Preview 26 Admin- Log in Screen



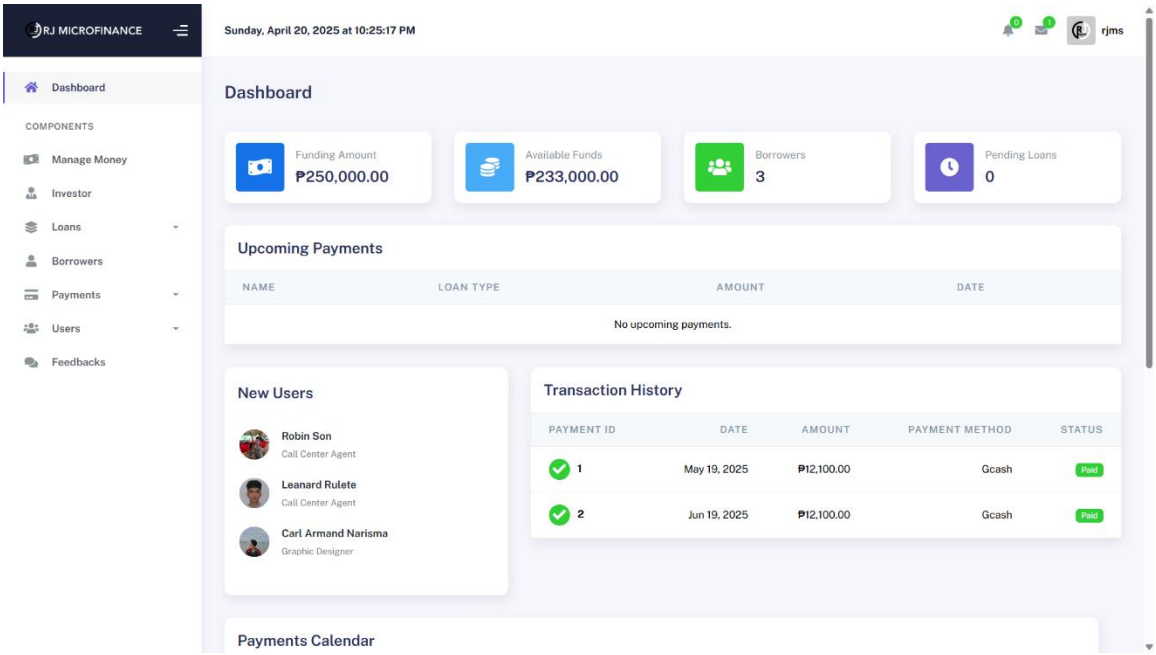
Preview 27 Multi-Factor Authentication



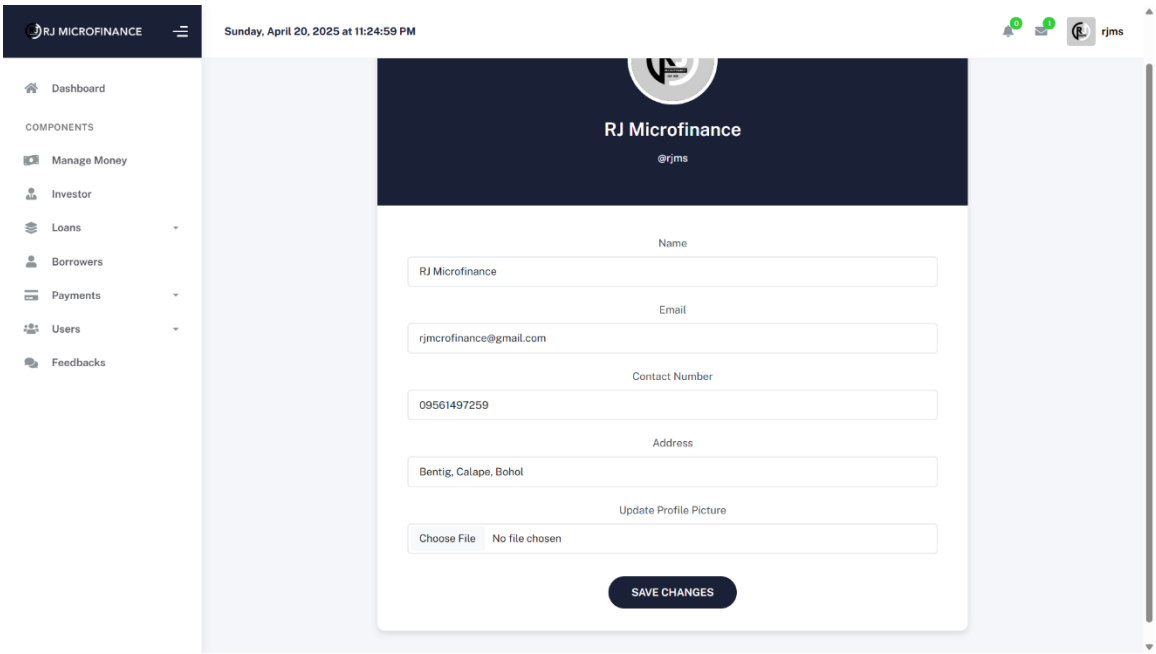
Preview 28.0 Admin- Forgot Password (Enter Valid Email) Screen



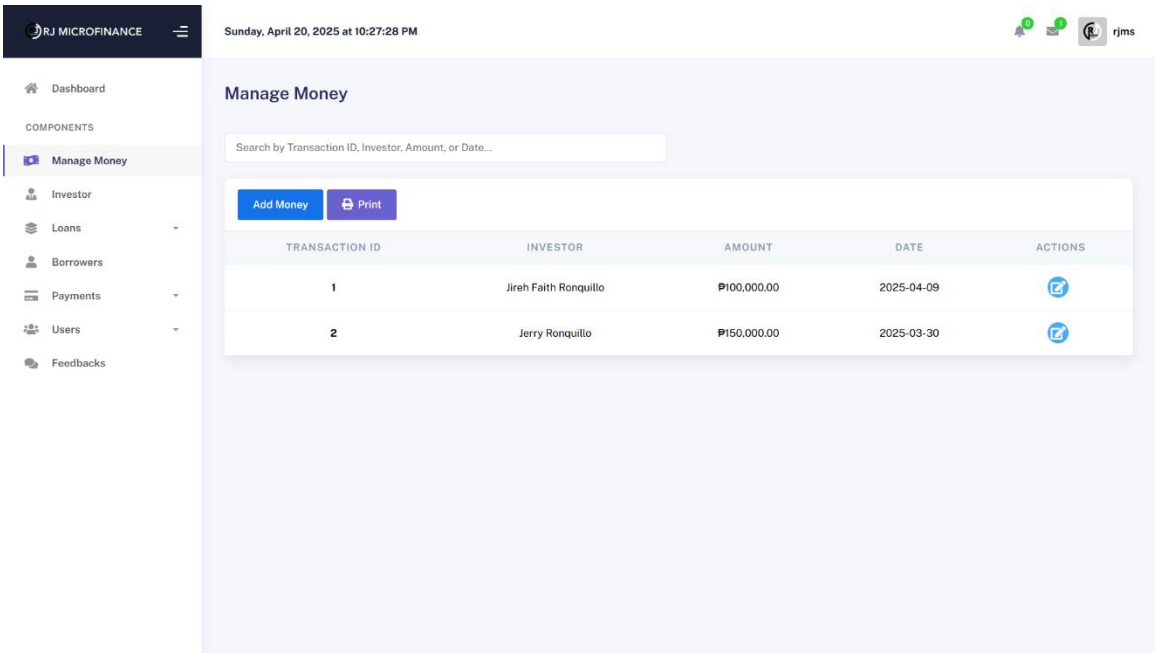
Preview 28.1 Admin- Password Reset Email



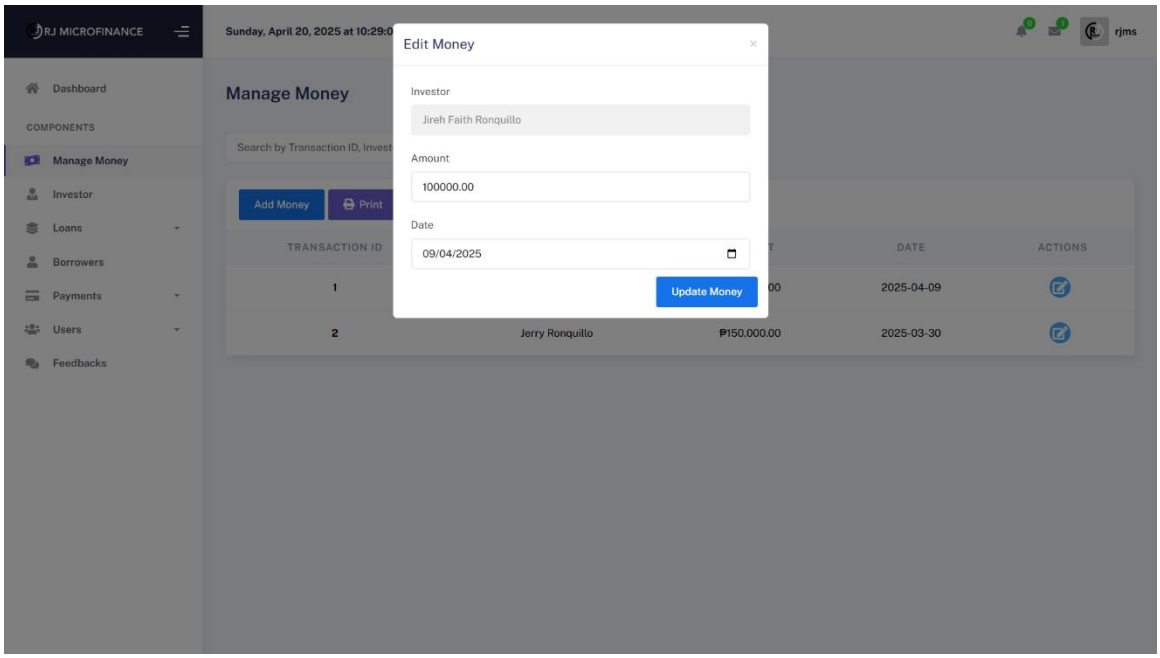
Preview 29 Admin- Dashboard Screen



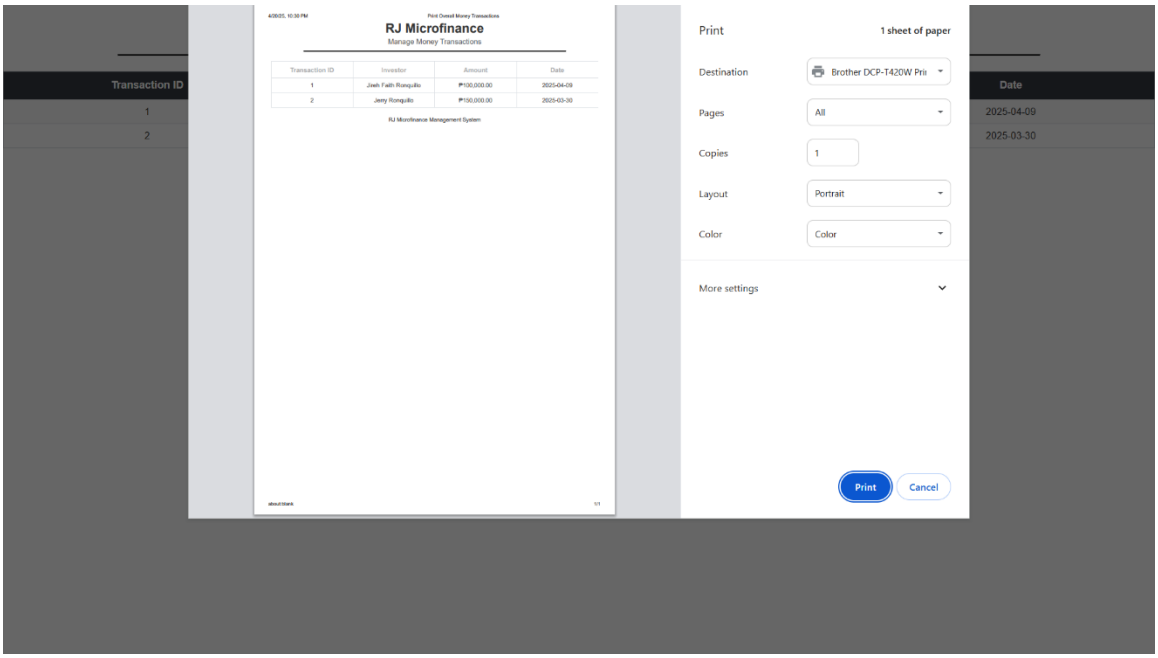
Preview 30 Admin- Update Profile



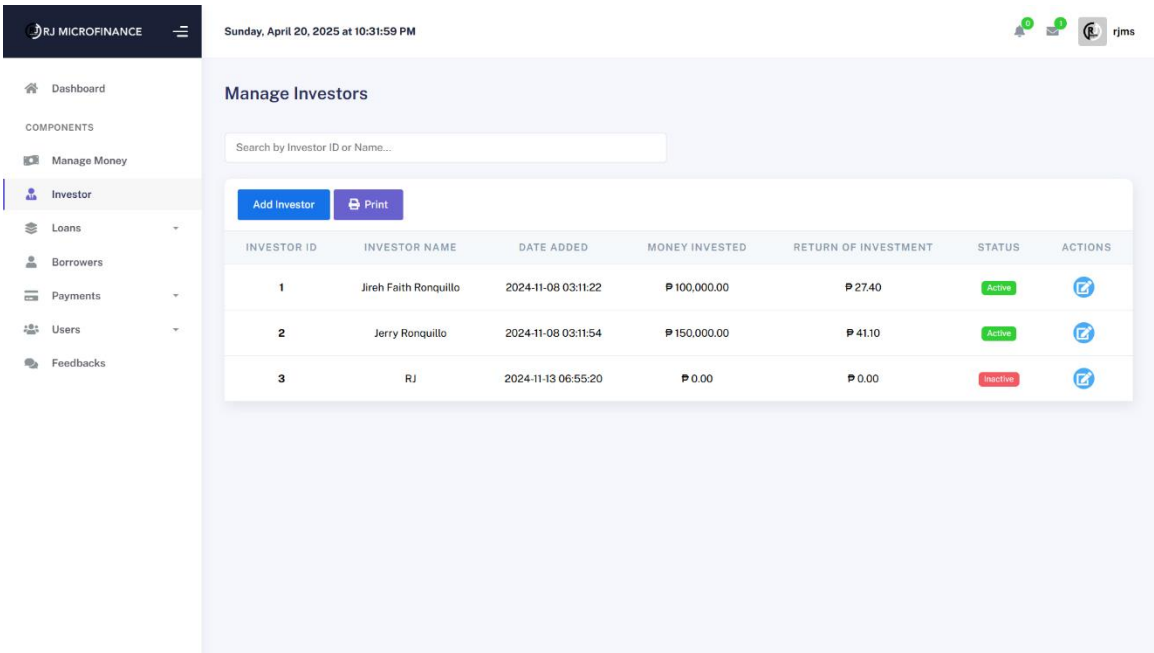
Preview 31.0 Admin- Manage Money Screen



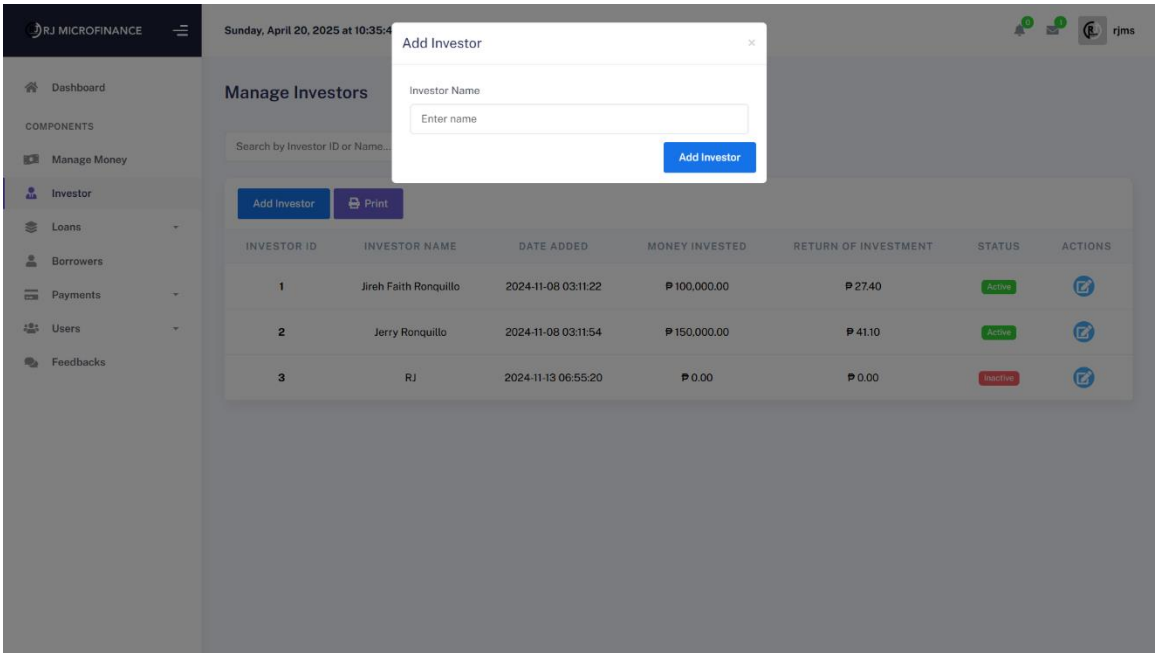
Preview 31.1 Admin- Update Money Screen



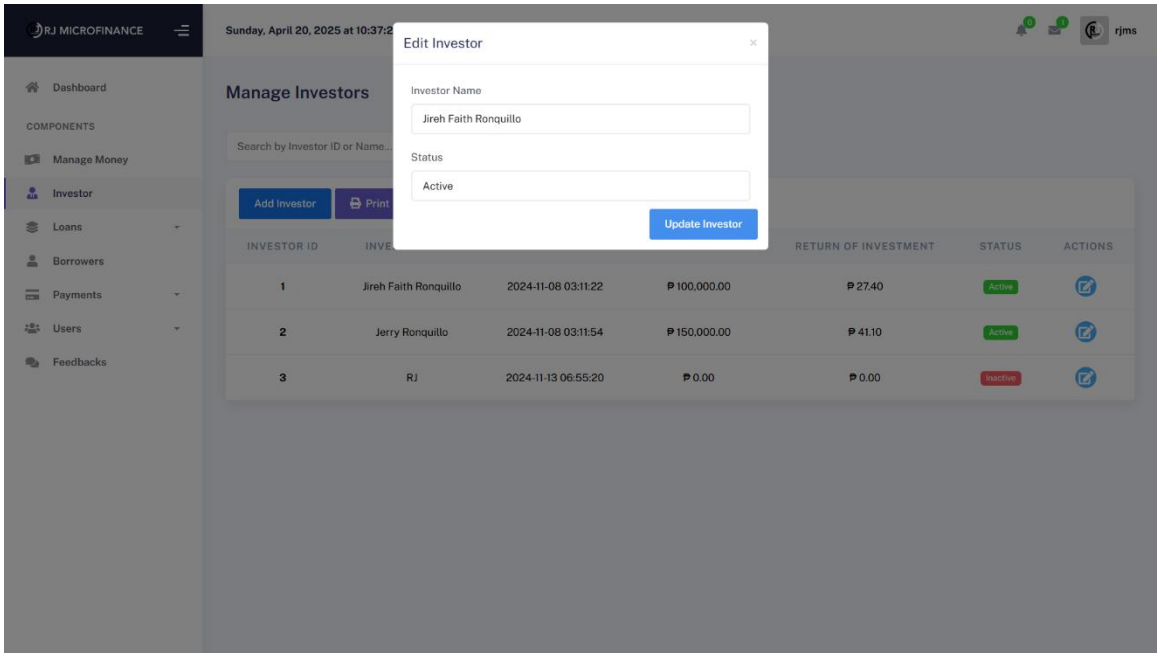
Preview 31.2 Admin- Print Manage Money Transactions Screen



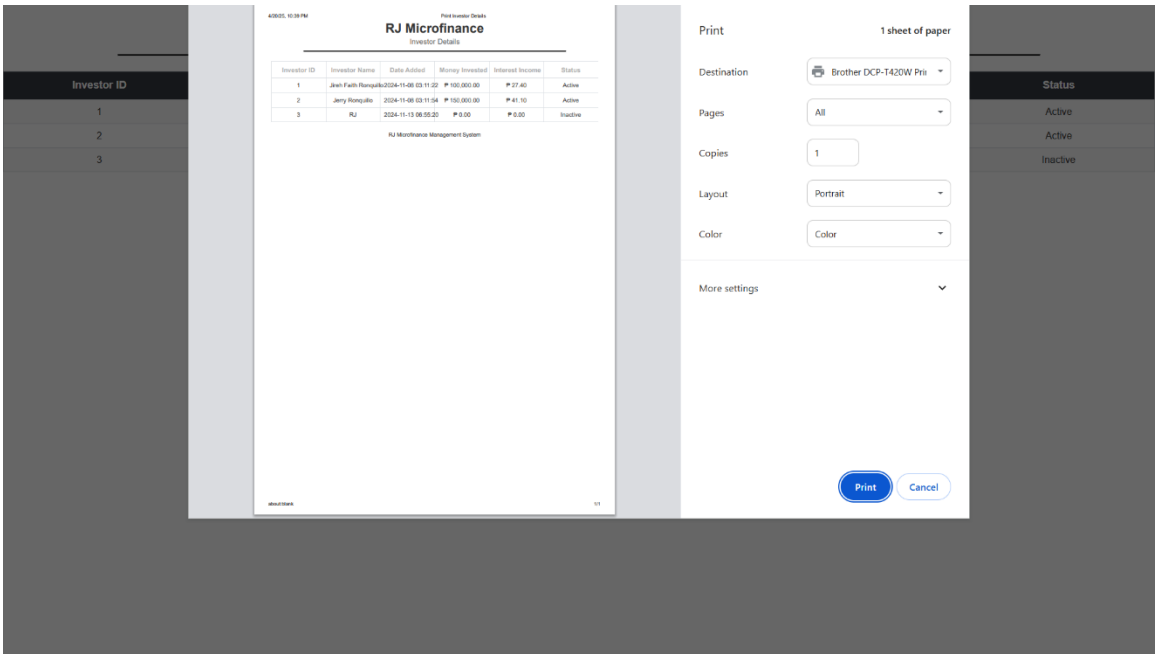
Preview 32.0 Admin- Manage Investors Screen



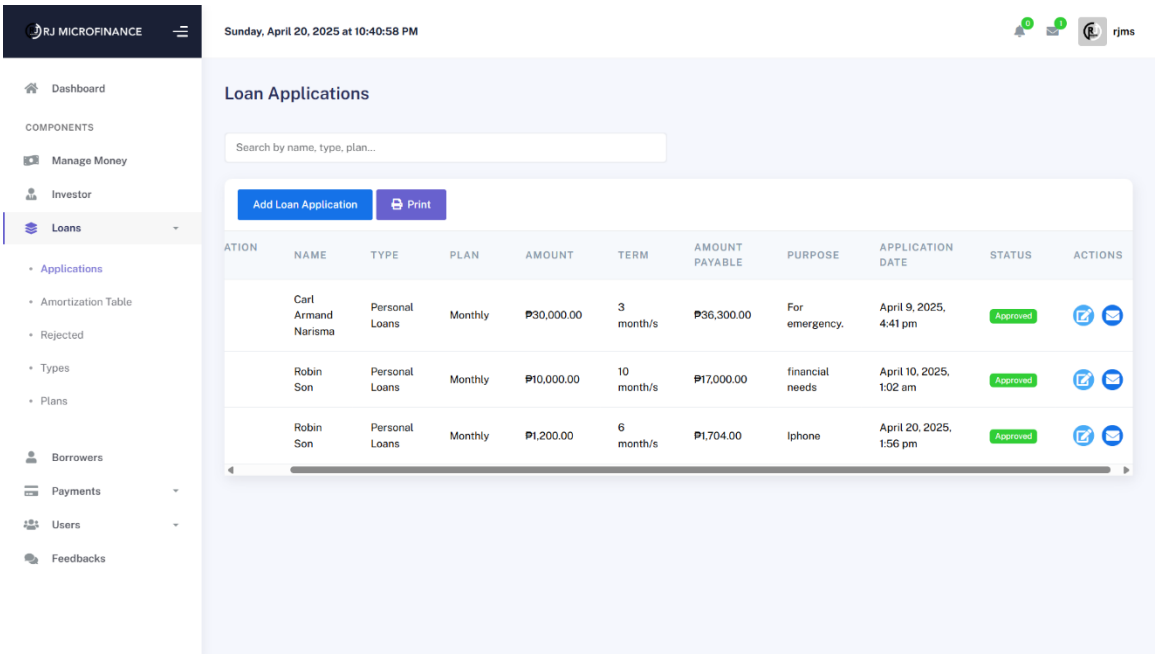
Preview 32.1 Admin- Add Investors Screen



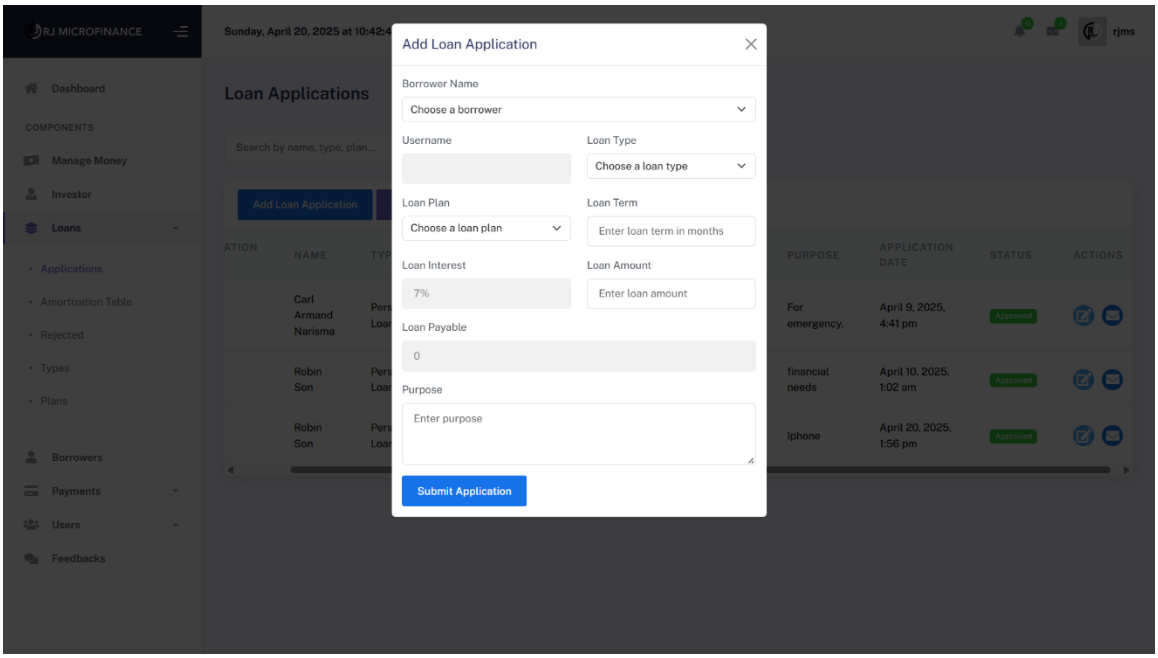
Preview 32.2 Admin- Update Investors (Active/Inactive) Screen



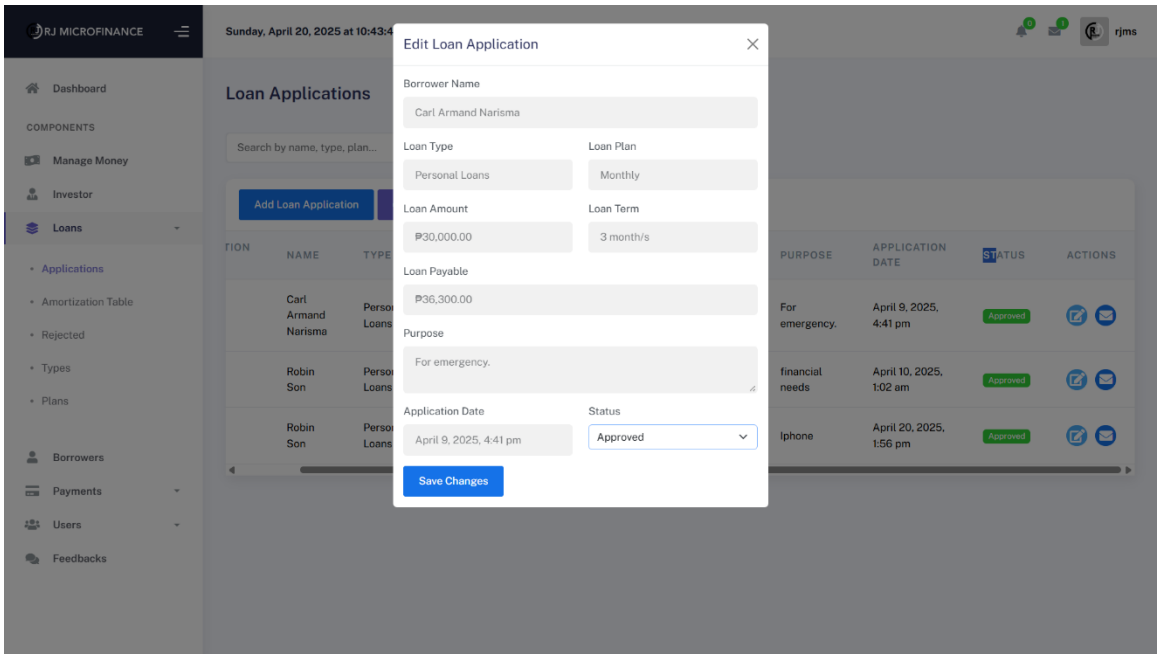
Preview 32.3 Admin- Print Investors Details Screen



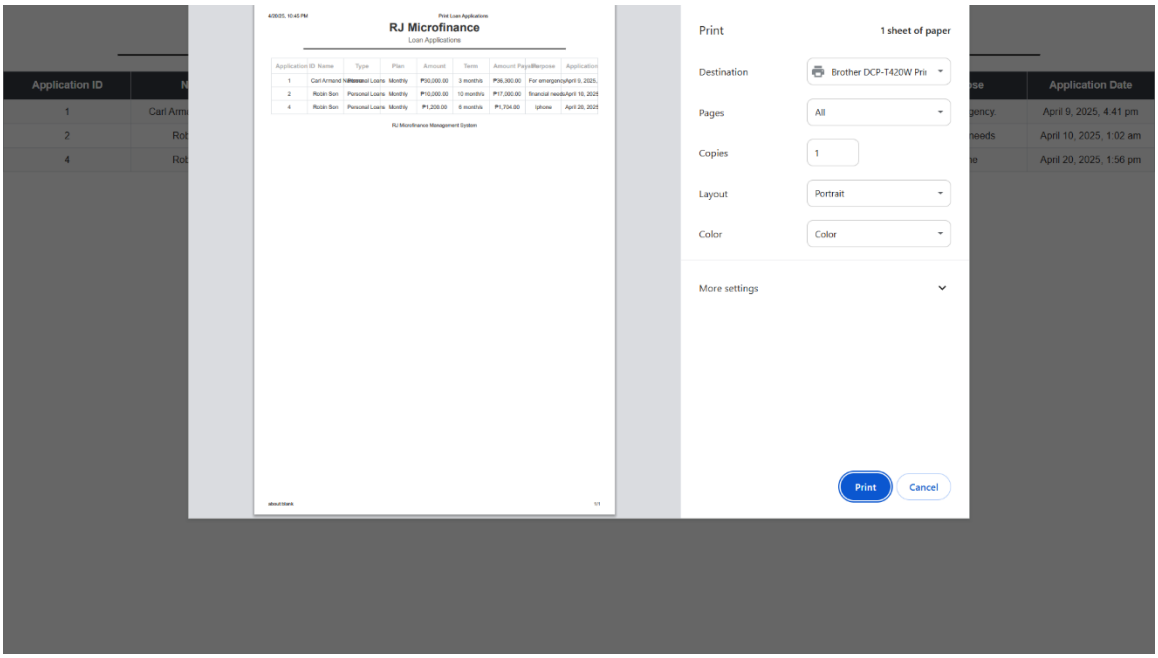
Preview 33.0 Admin- Loan Applications Screen



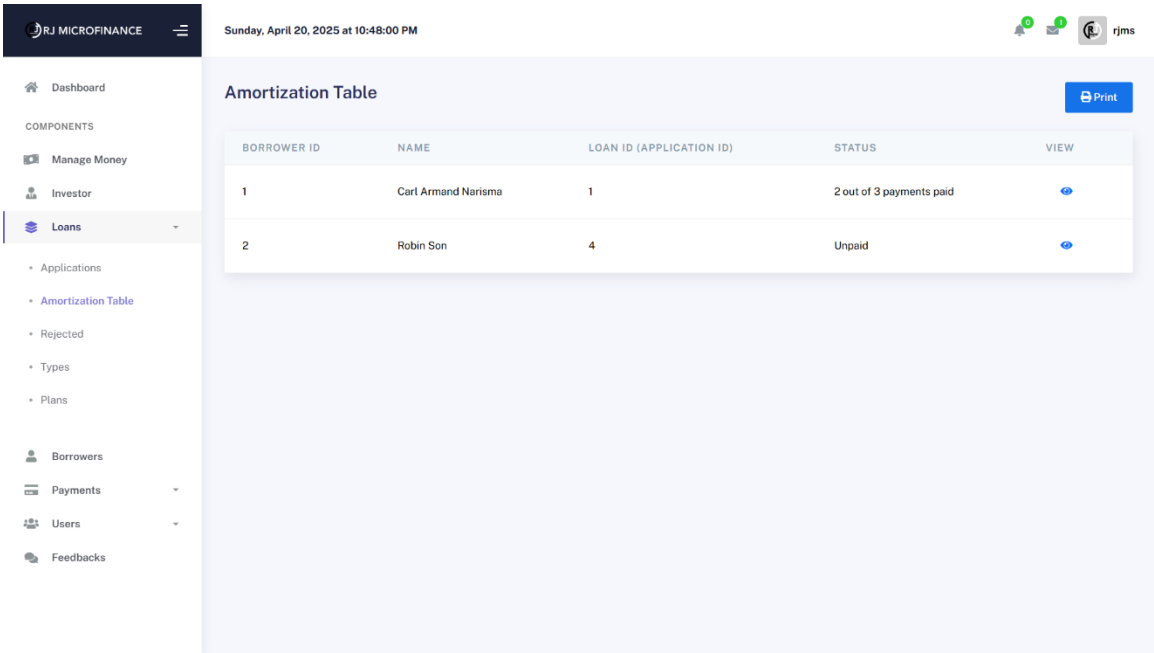
Preview 33.1 Admin- Add Loan Applications



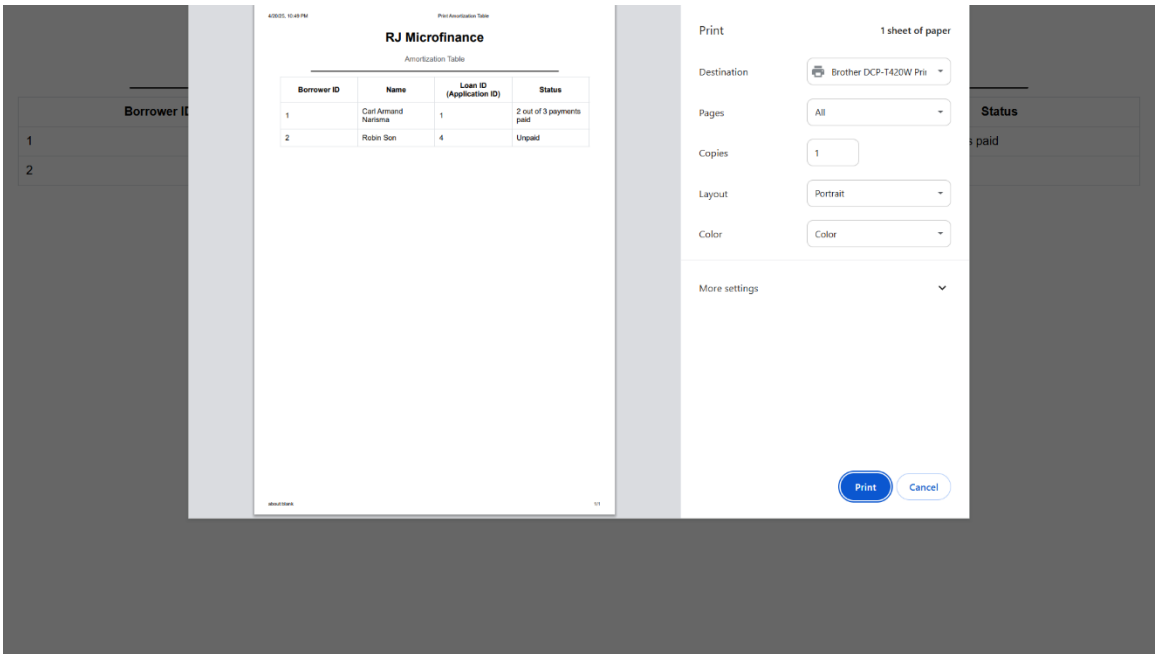
Preview 33.2 Admin- Update Loan Applications (Approved, Pending, Denied) Screen



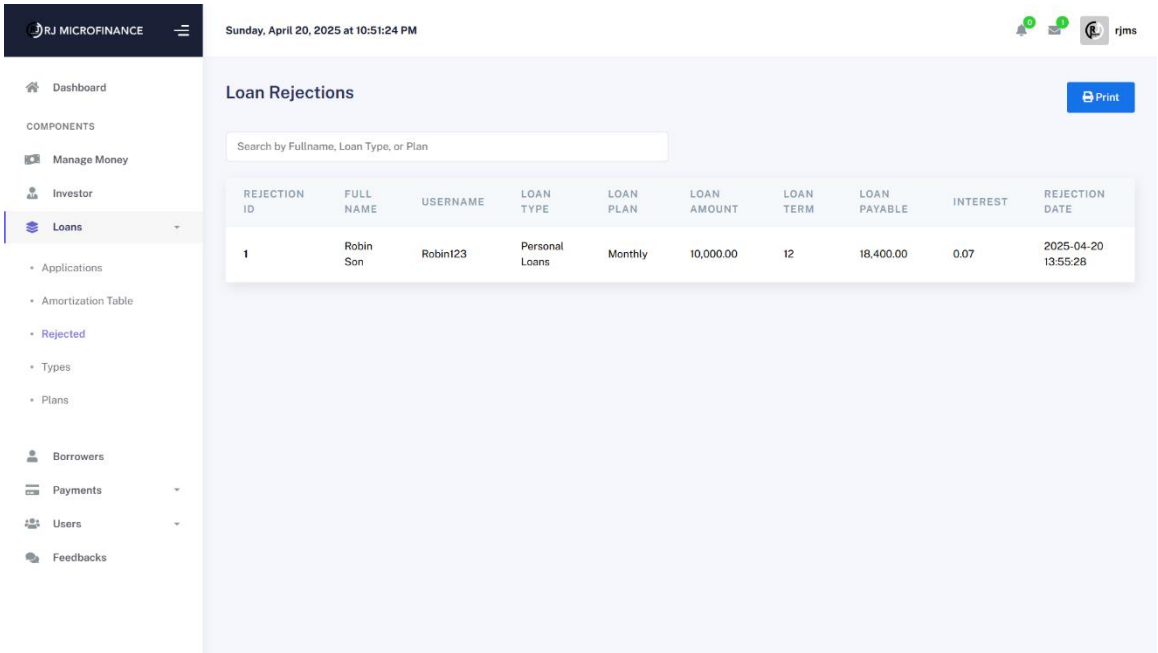
Preview 33.3 Admin- Print Loan Applications Details Screen



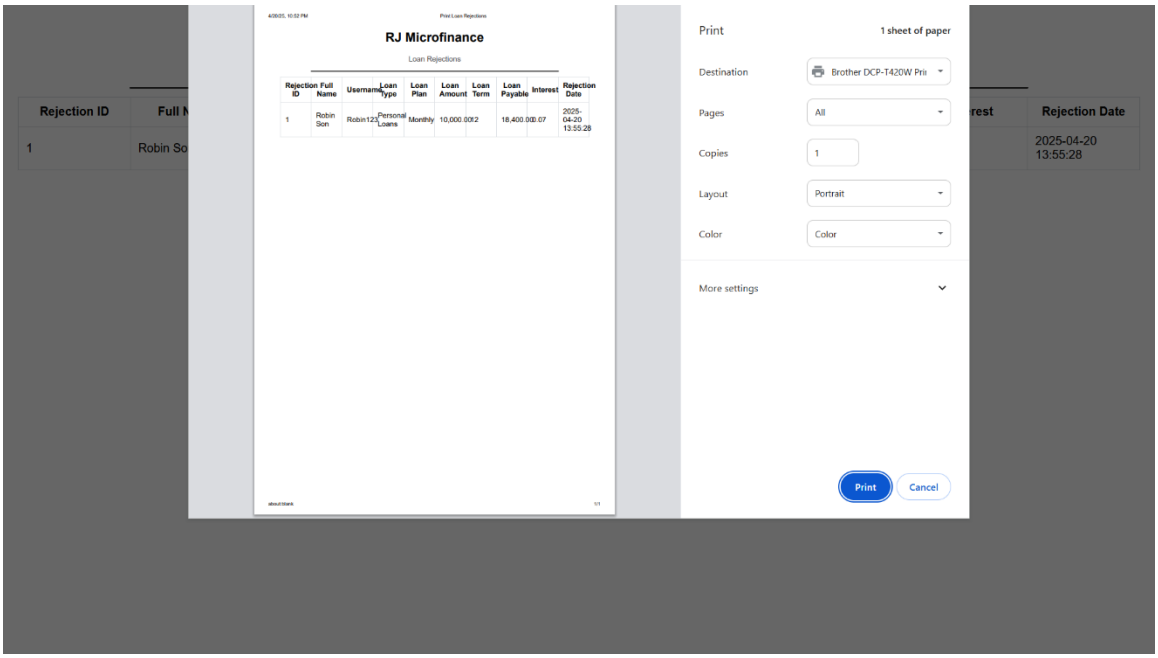
Preview 34.0 Admin- Amortization Table Screen



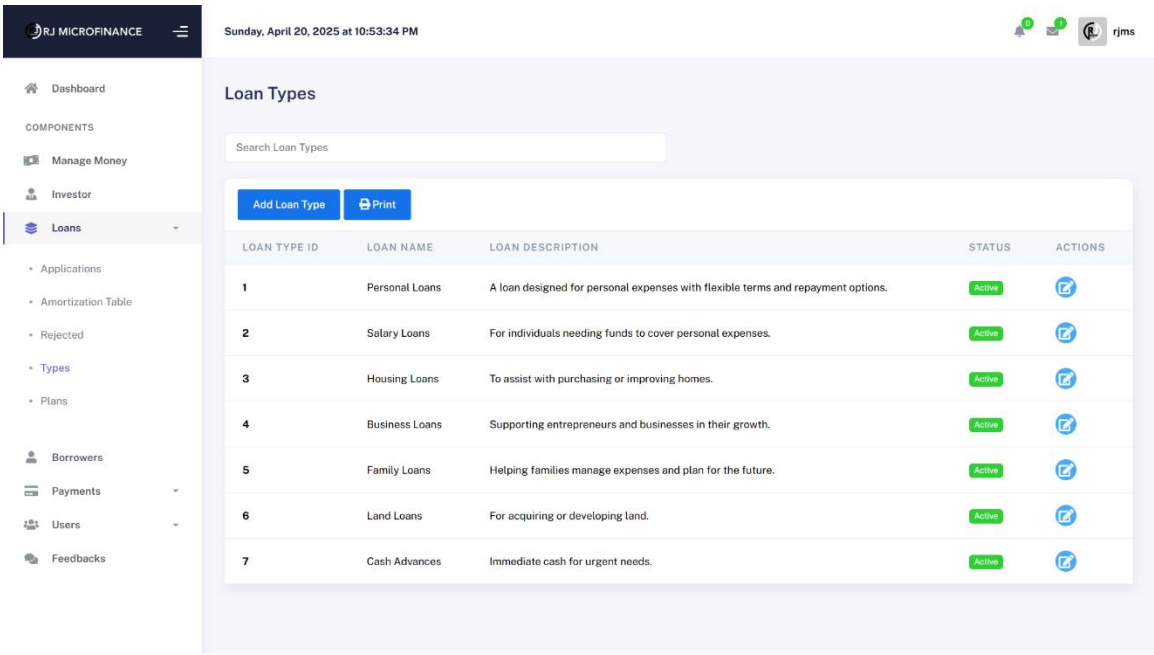
Preview 34.1 Admin- Print Amortization Table Screen



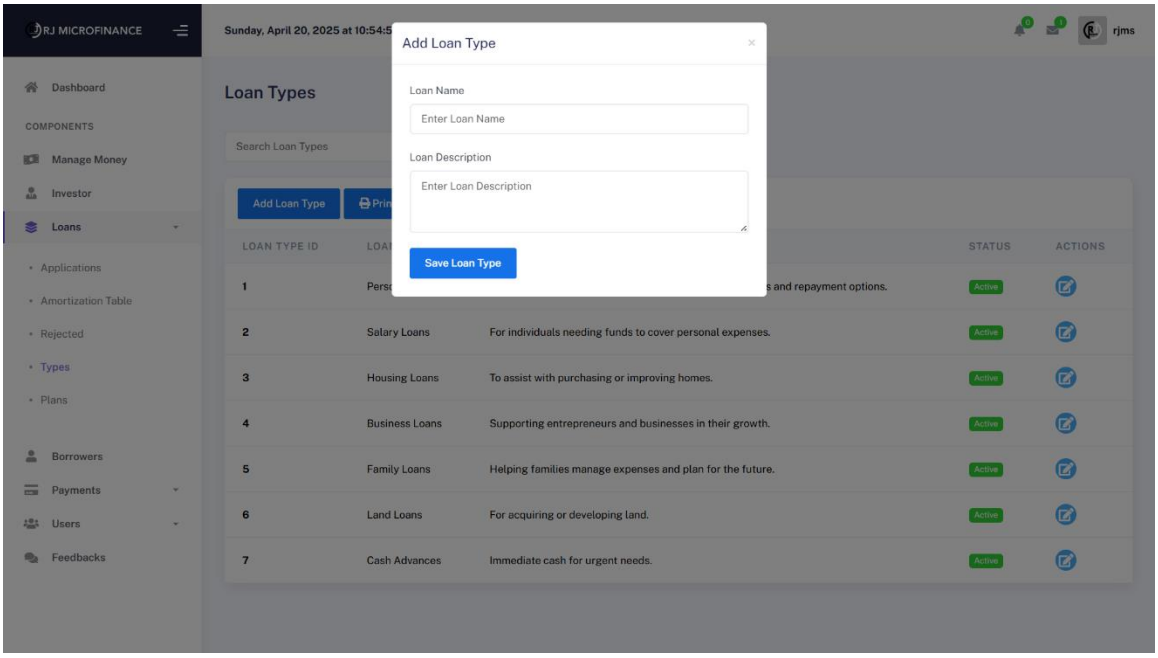
Preview 35.0 Admin- Loan Rejections Screen



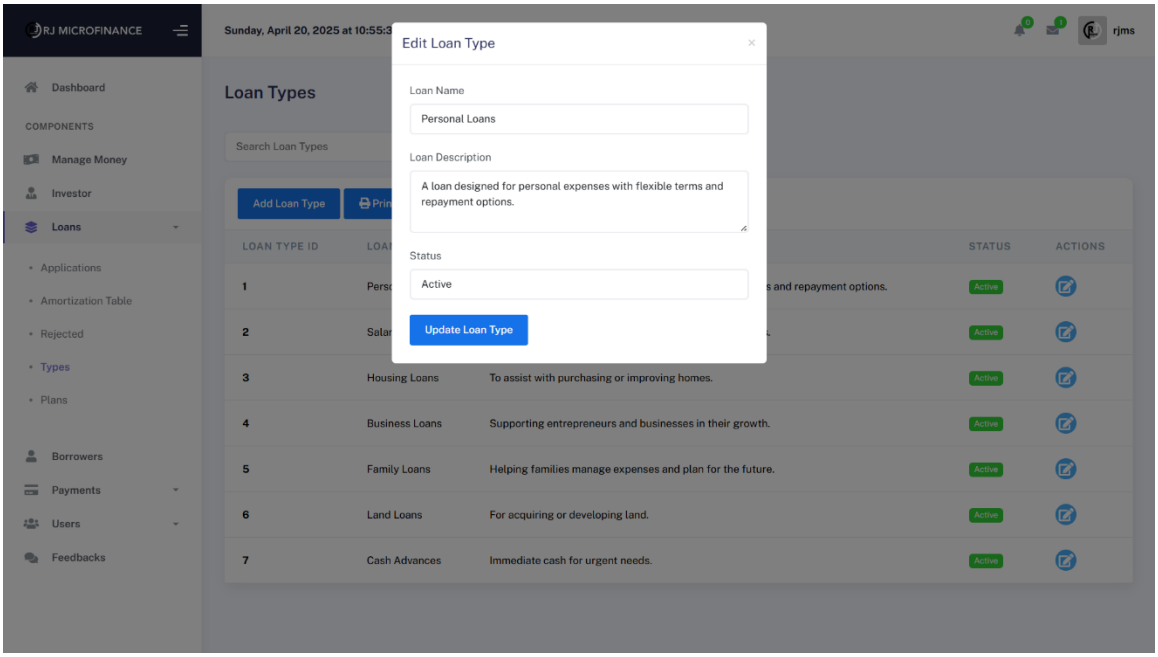
Preview 35.1 Admin- Print Loan Rejections Screen



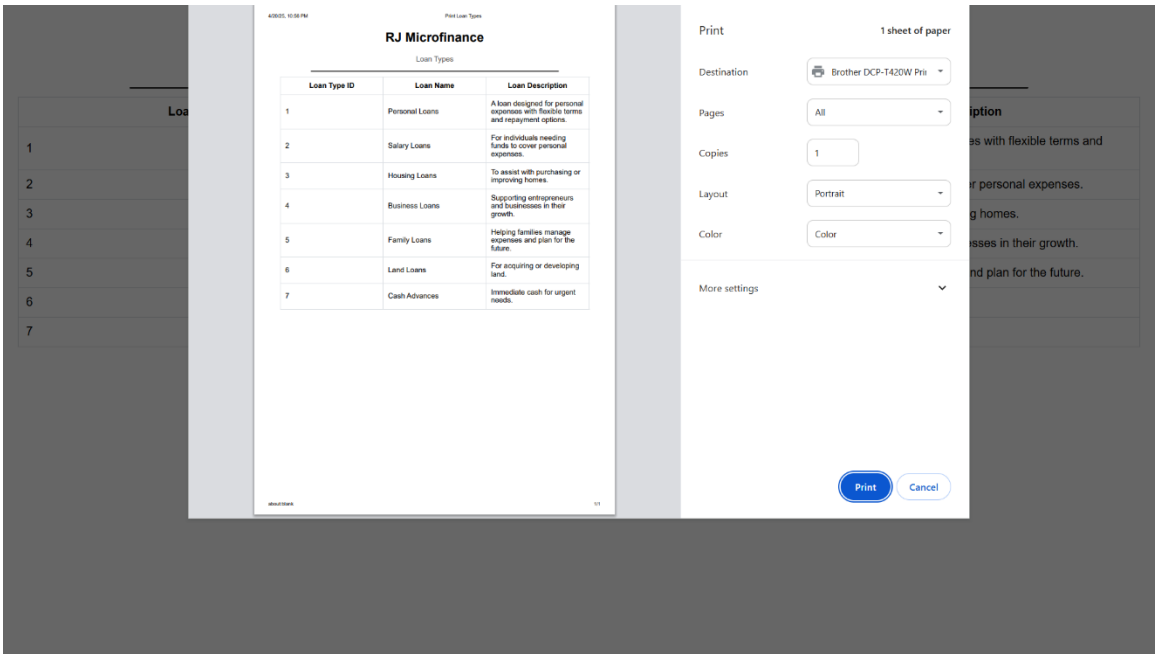
Preview 36.0 Admin- Loan Types Screen



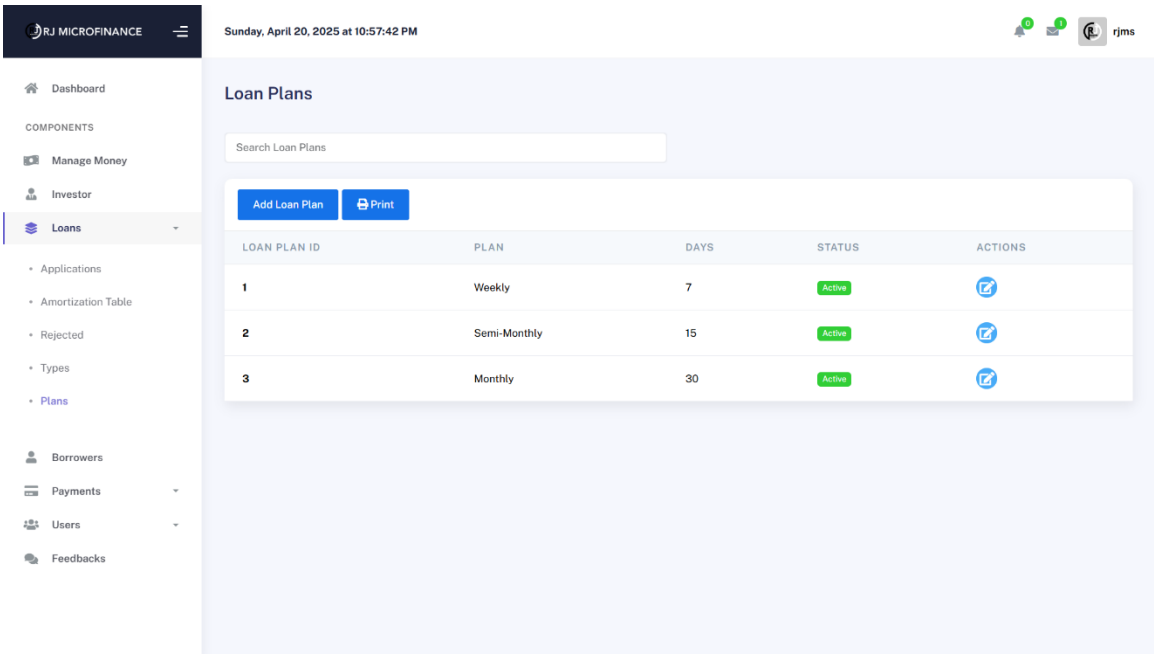
Preview 36.1 Admin- Add Loan Types Screen



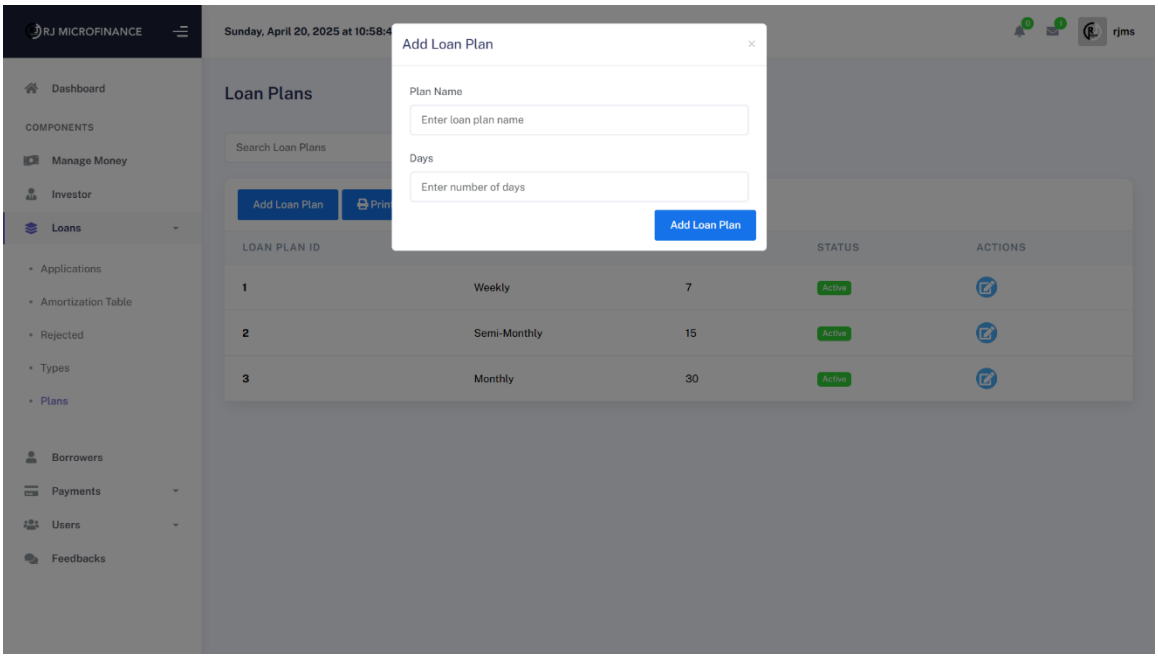
Preview 36.2 Admin- Update Loan Types Screen



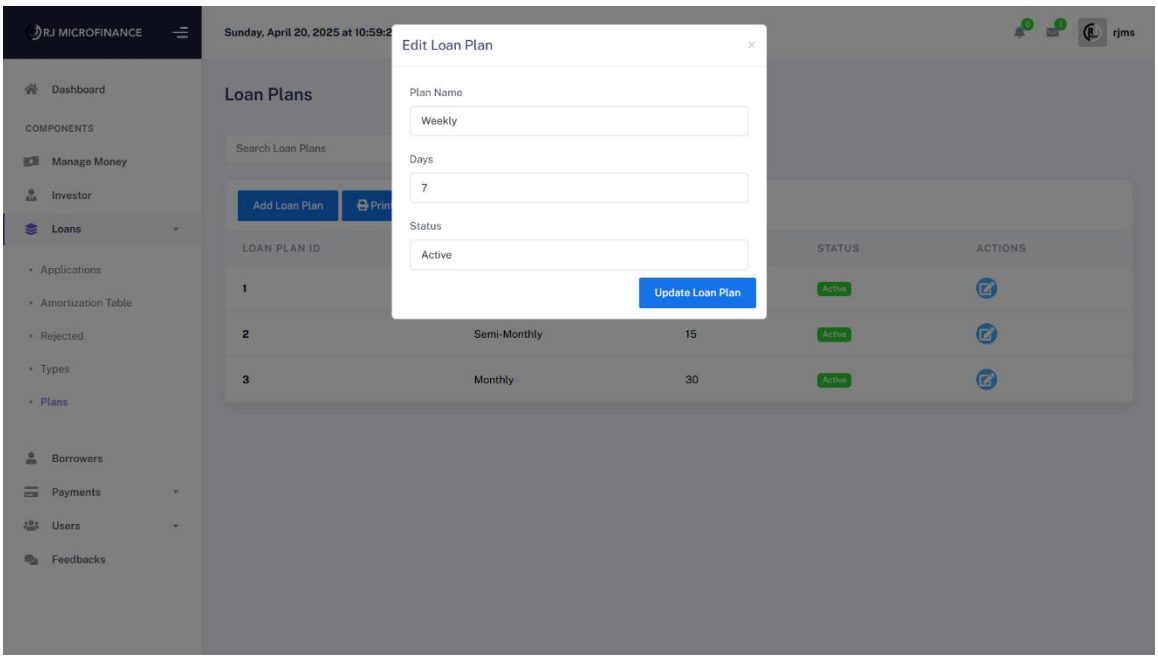
Preview 36.3 Admin- Print Loan Types Screen



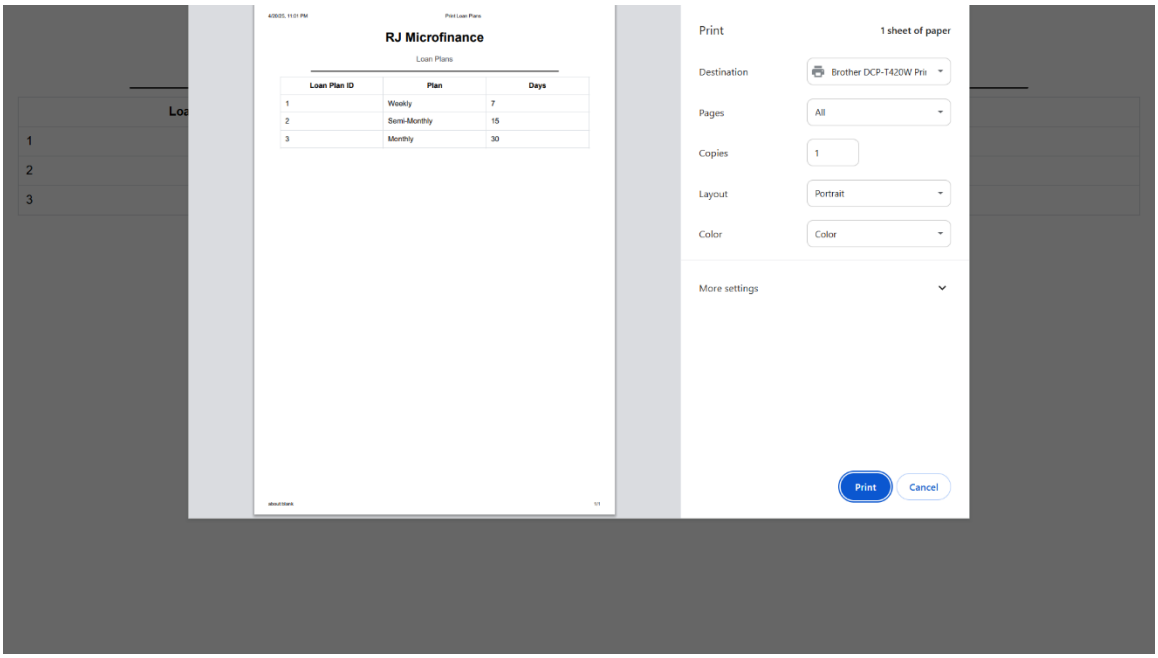
Preview 37.0 Admin- Loan Plans Screen



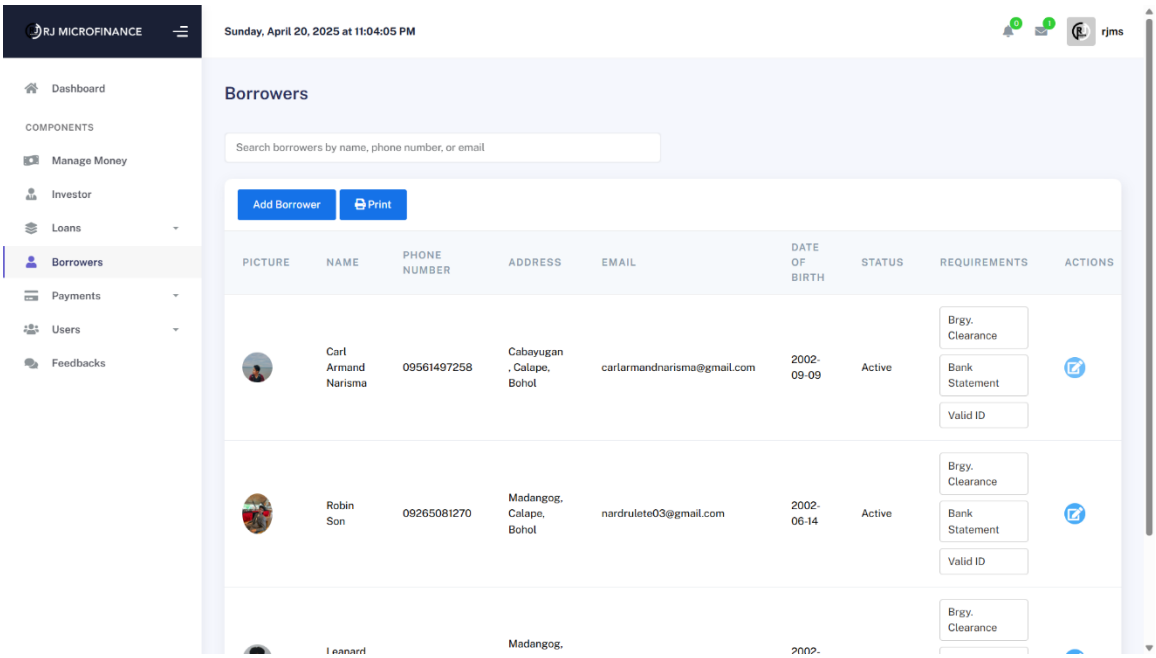
Preview 37.1 Admin- Add Loan Plan Screen



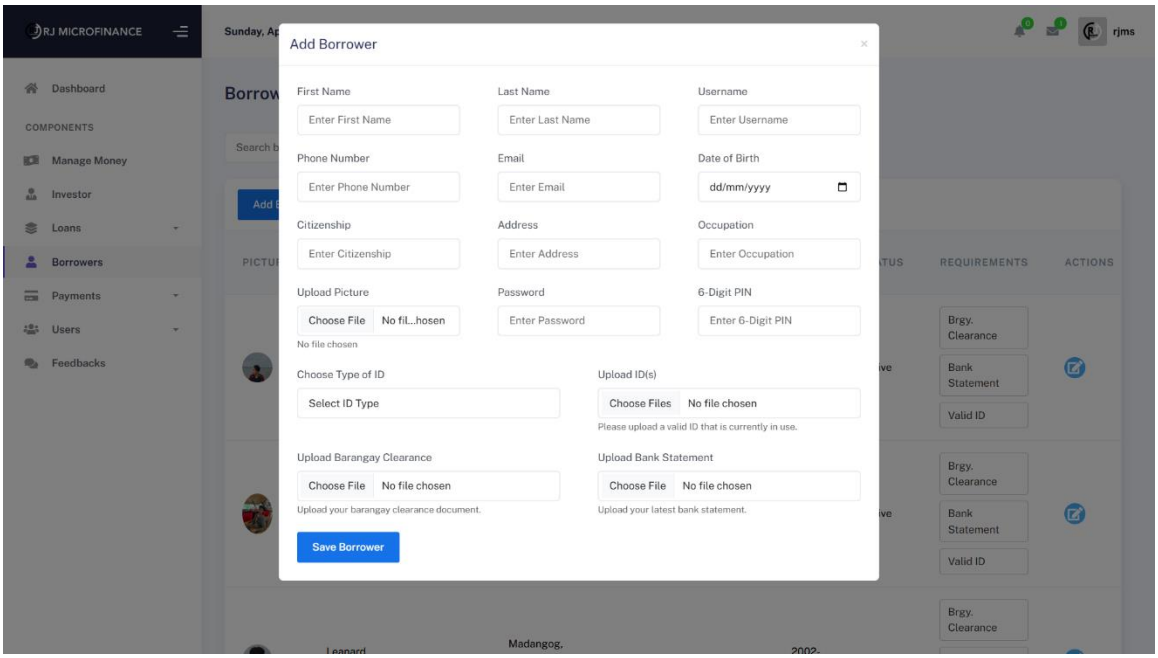
Preview 37.2 Admin- Update Loan Plan (Active/Inactive) Screen



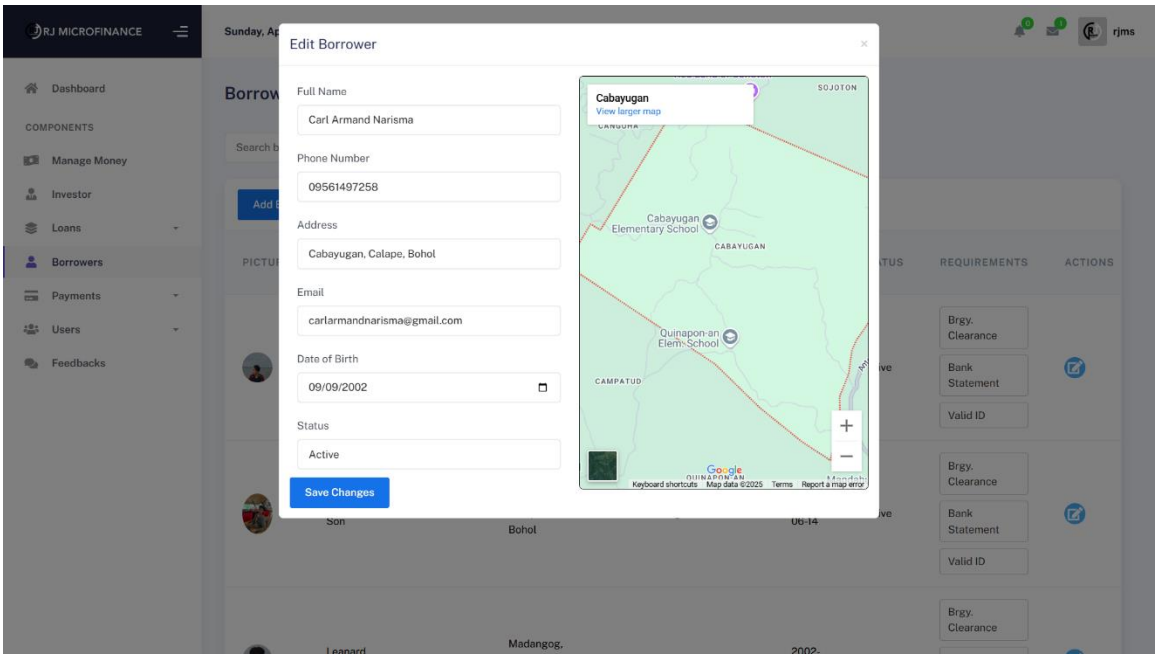
Preview 37.3 Admin- Print Loan Plans Screen



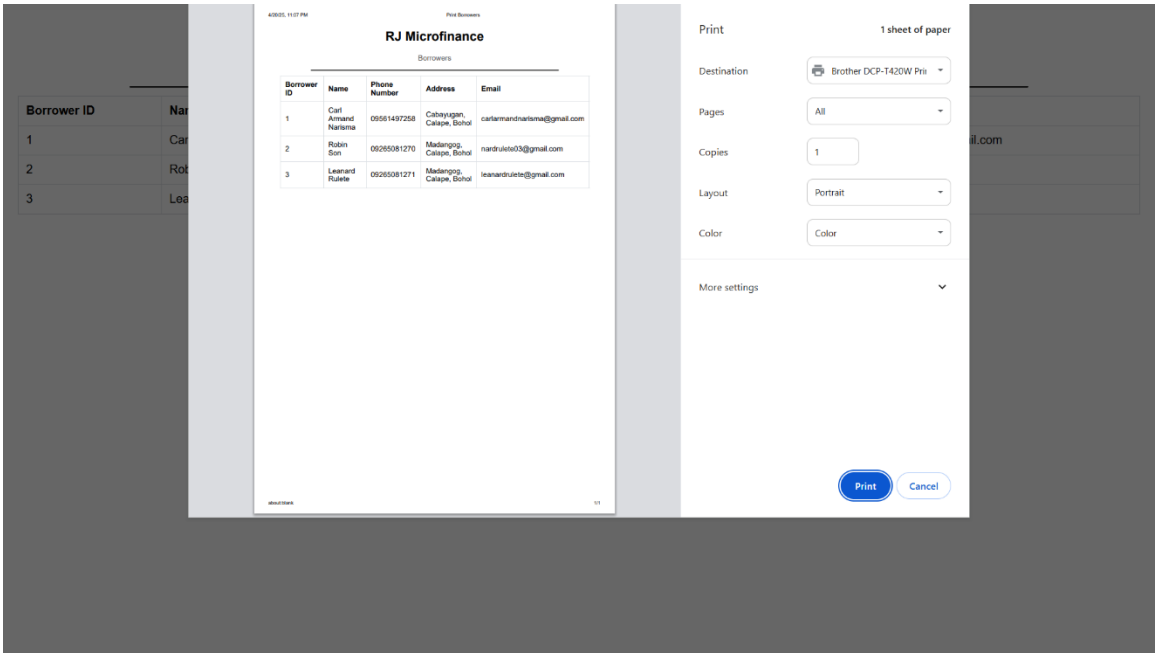
Preview 38.0 Admin- Borrowers Screen



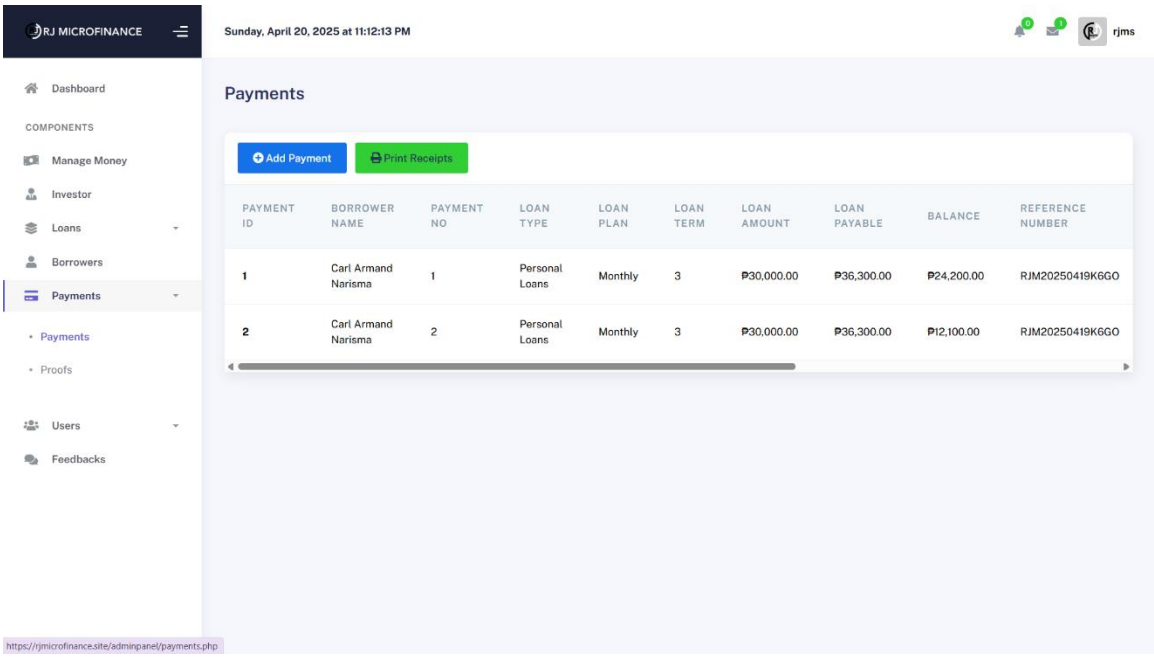
Preview 38.1 Admin- Add Borrowers Screen



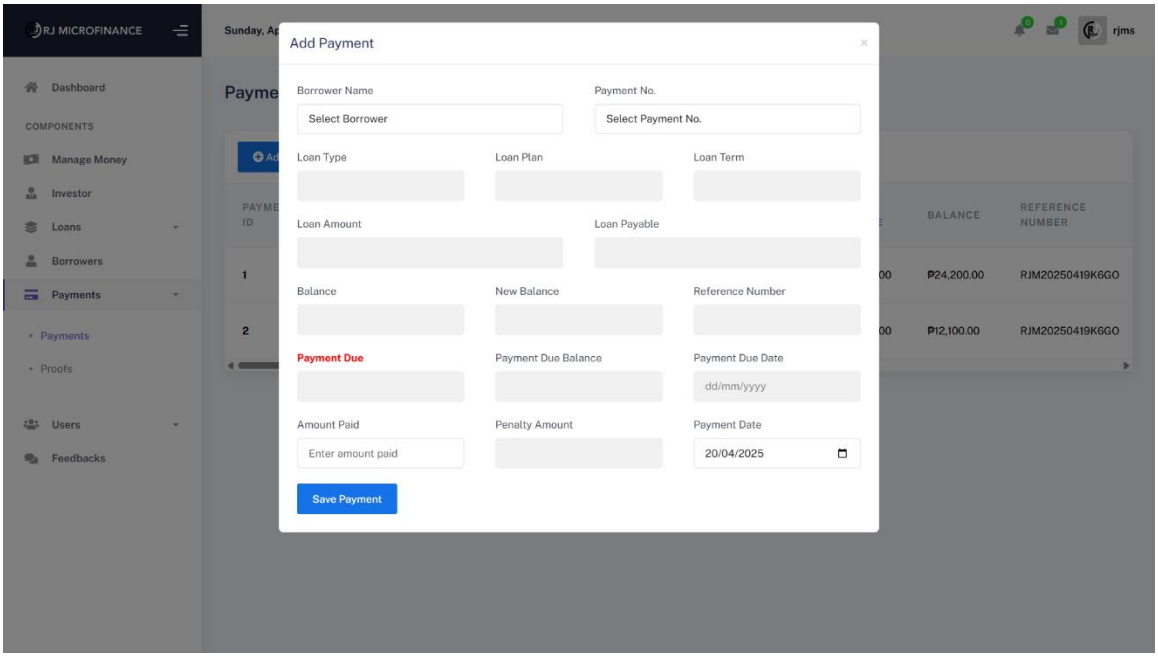
Preview 38.2 Admin- Update Borrowers (Active/Inactive) Screen



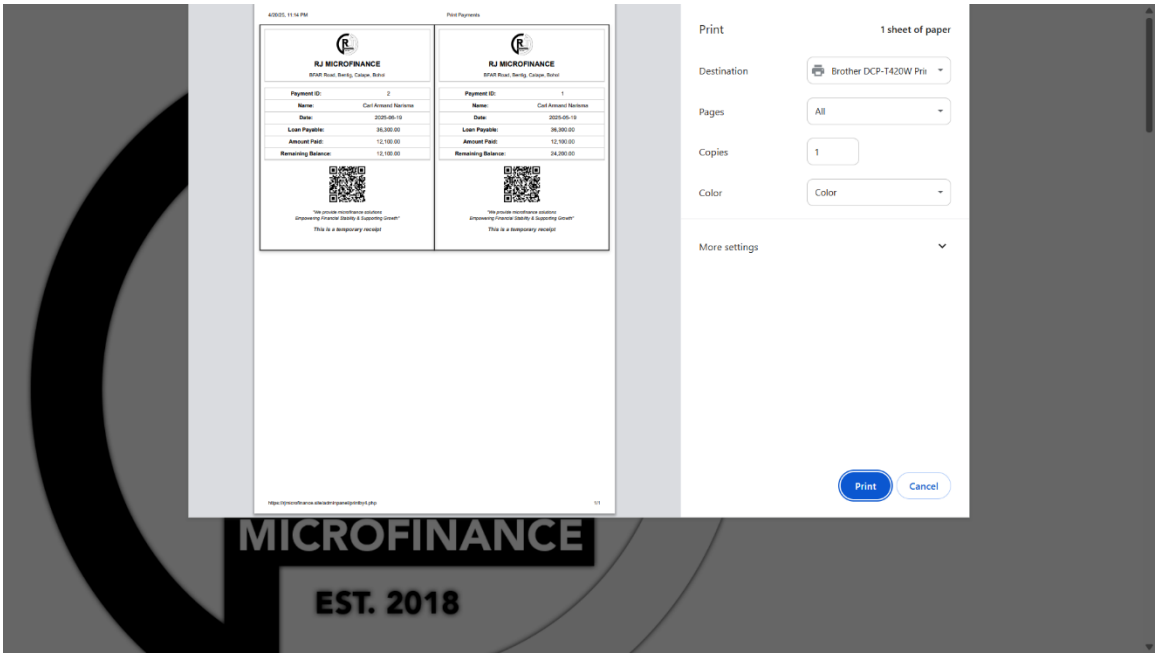
Preview 38.3 Admin- Print Borrowers Screen



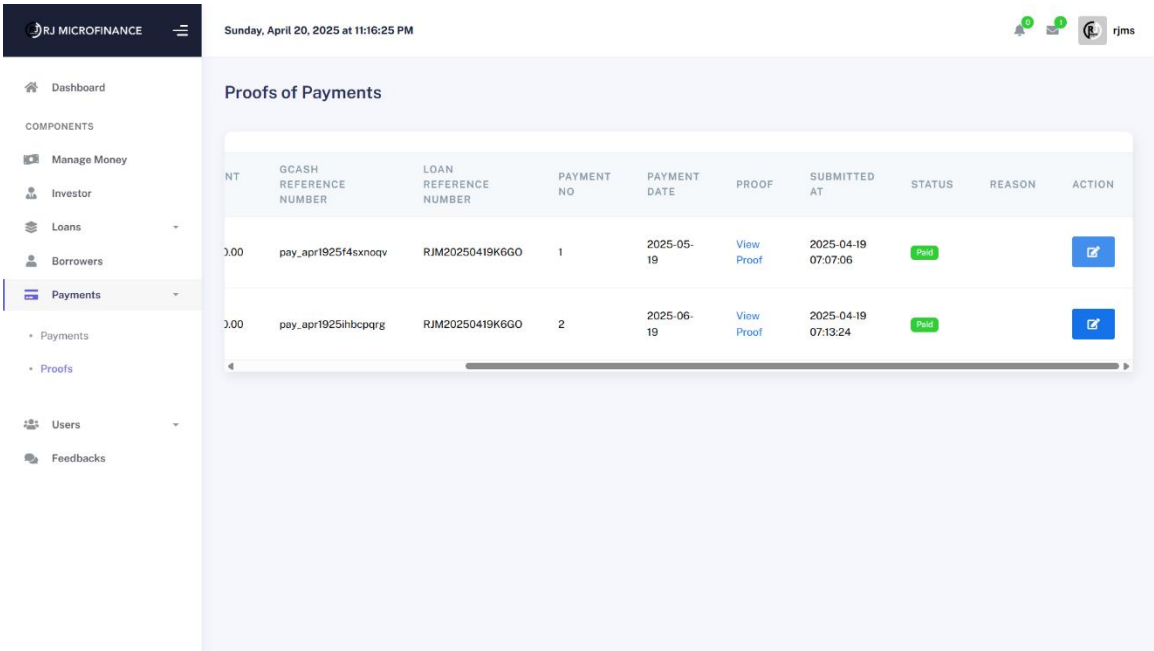
Preview 39.0 Admin- Payments Screen



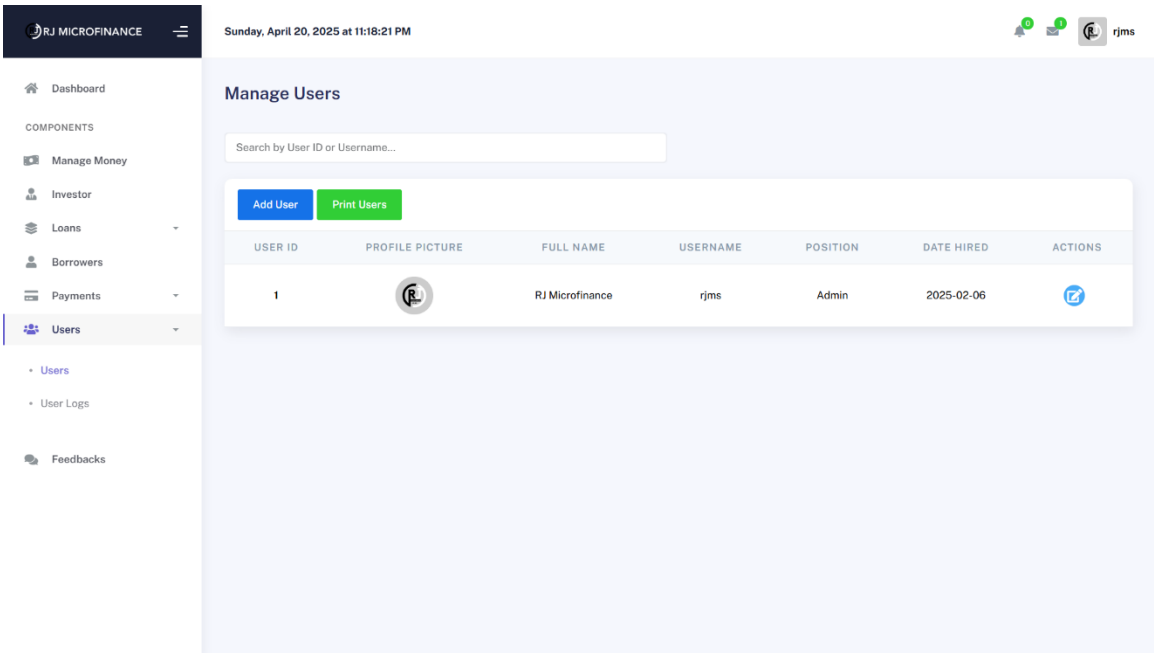
Preview 39.1 Admin- Add Payment Screen



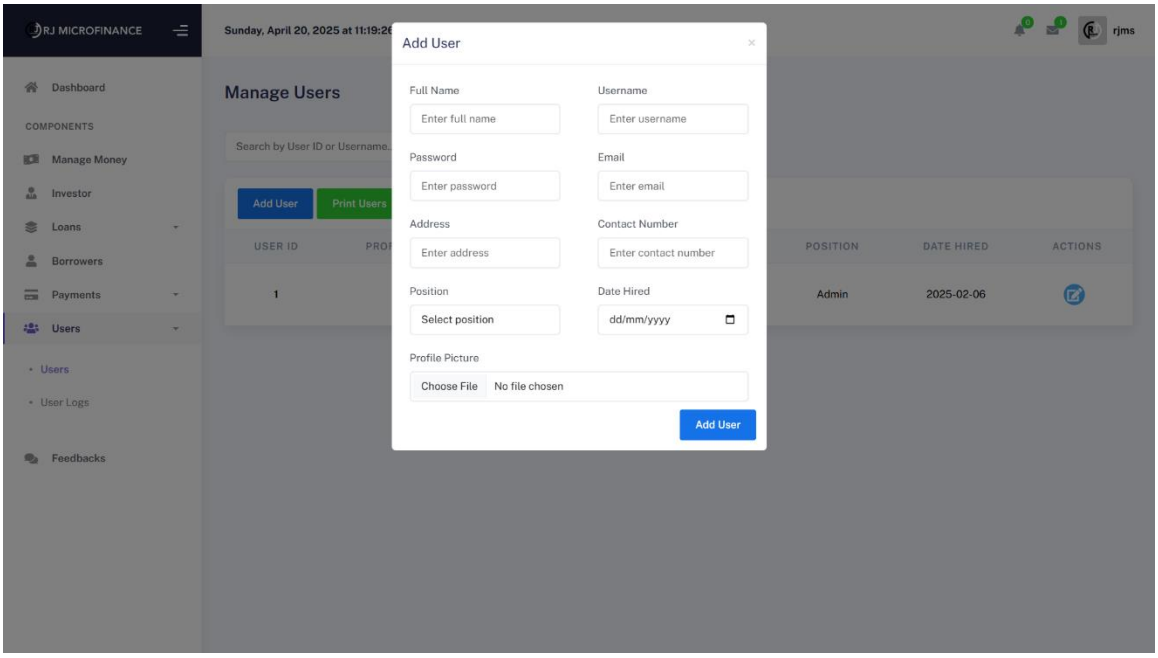
Preview 39.2 Admin- Print Payment Receipts



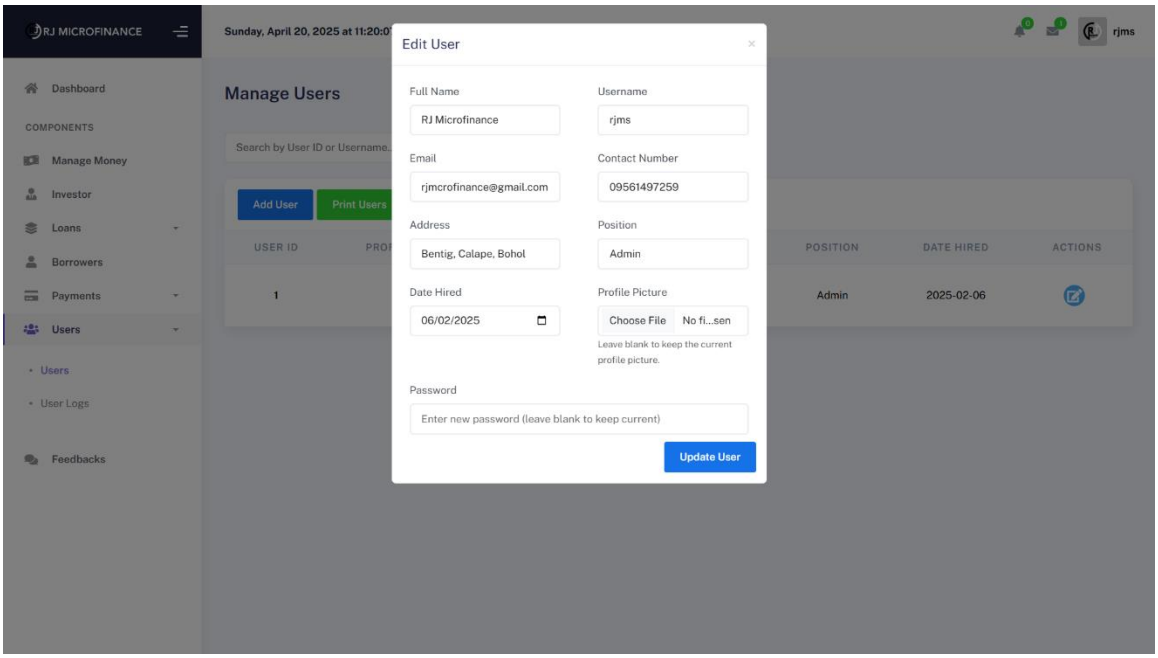
Preview 40 Admin- Proof of Payments (Paid, Pending, Deny) Screen



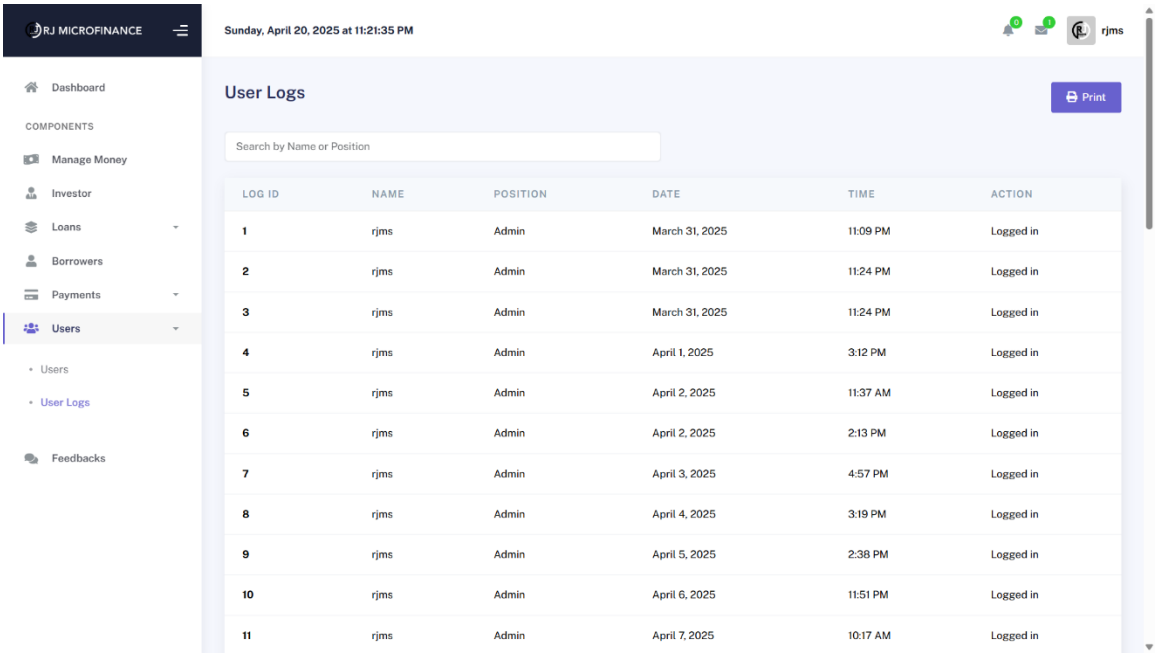
Preview 41.0 Admin- Manage Users Screen



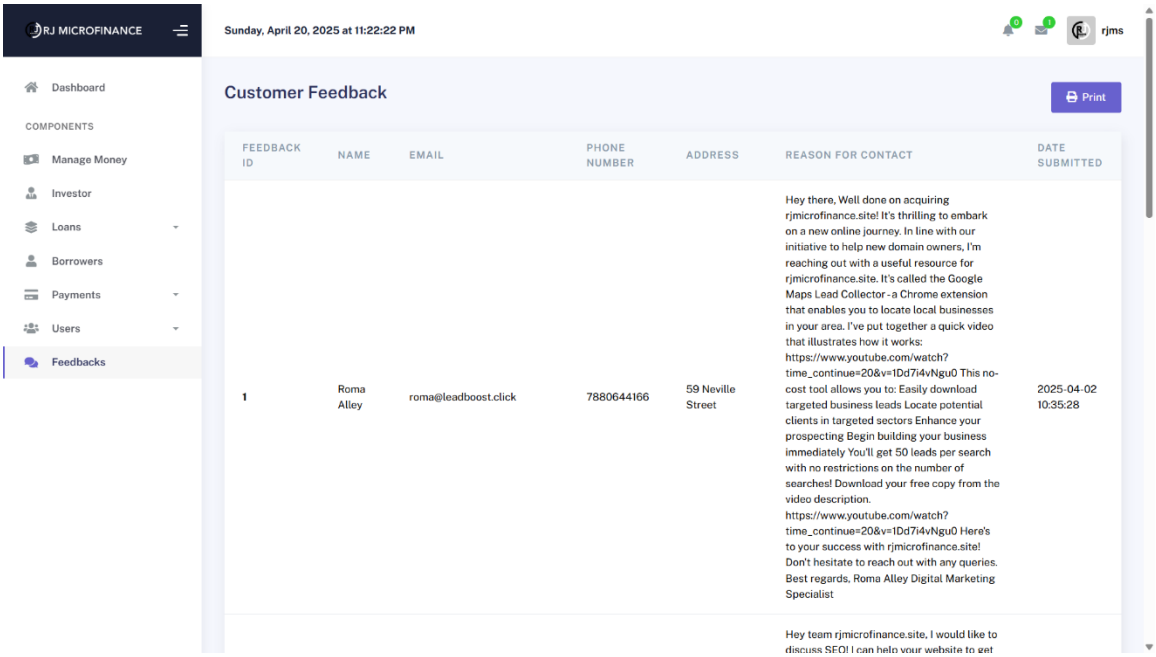
Preview 41.1 Admin- Add User Screen



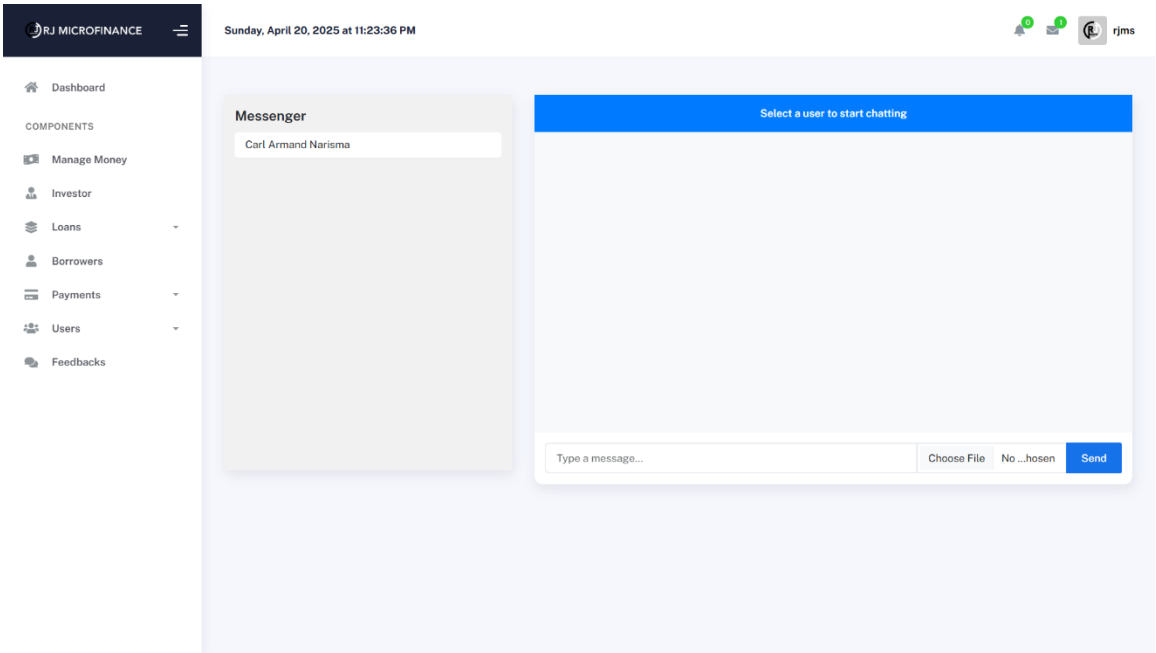
Preview 41.2 Admin- Update Users Screen



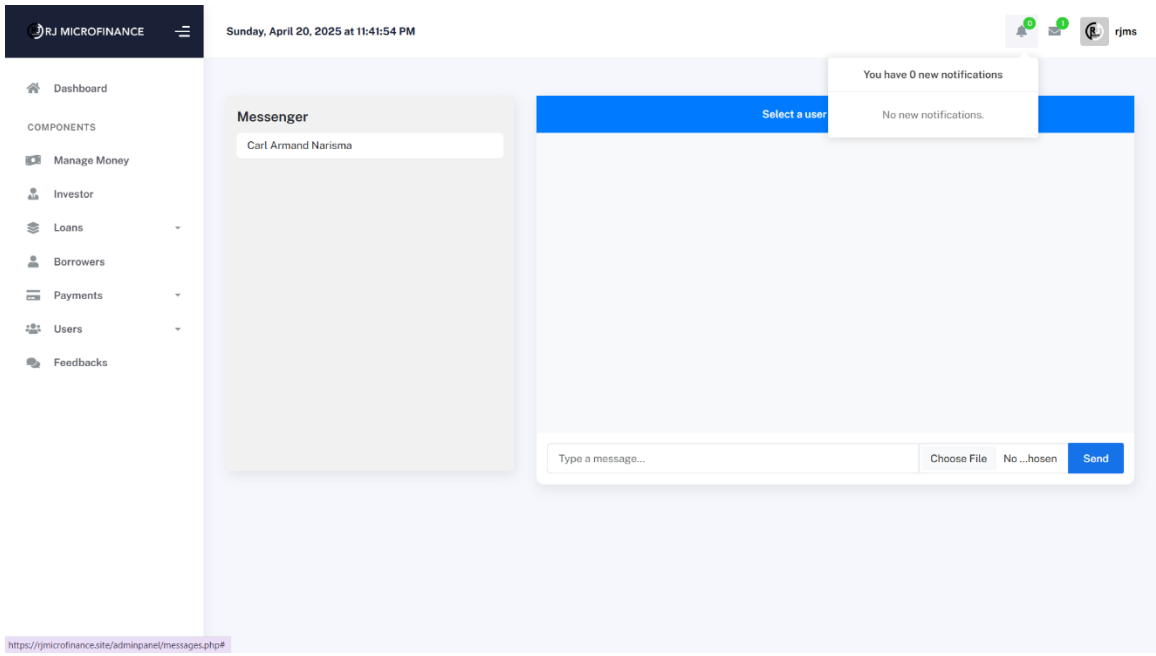
Preview 42 Admin- User Logs Screen



Preview 43 Admin- Customer Feedbacks Screen



Preview 44 Admin- Messages Screen



Preview 45 Admin- Notification Screen

Research Instrument

To evaluate the usability and acceptability of the RJ Microfinance Lending Management System, the researchers adapted Lund's (2001) Usefulness, Satisfaction, and Ease of Use Questionnaire. The 20-item questionnaire utilized a 6-point Likert scale to assess aspects such as Ease of Use, Usefulness, and Information Organization. The questions were tailored to reflect the specific roles of users—admins focused on loan management tasks, while non-admin users addressed loan applications and payment tracking. Feedback from respondents in Bentig, Calape, Bohol, guided improvements to enhance the system's functionality and user experience.

Research Environment and Respondents

The study was conducted within the borrowers and admin of RJ Microfinance, located in Bentig, Calape, Bohol. These individuals played a vital

role in the study, as they were directly involved in the lending process and financial management, making them ideal participants for assessing the usability and effectiveness of the system developed.

The primary respondents of this study were the borrowers and administrative staff of RJ Microfinance, consisting of 34 individuals: 32 borrowers and 2 administrative staff members. Their feedback was crucial in evaluating the system's usability and its potential impact on streamlining loan applications, enhancing management processes, and reducing stress for both borrowers and the organization.

For respondent selection, purposive sampling was used for the administrative staff (owner/admin), ensuring that individuals with relevant experience in the lending and management processes were included. On the other hand, borrowers were selected through convenience sampling, focusing on those available and willing to participate. This approach allowed for a comprehensive evaluation of the system's functionality, usability, and overall impact on improving loan management practices within RJ Microfinance.

Data Gathering Procedure

The data for this study were gathered through a structured questionnaire adapted from the Usefulness, Satisfaction, and Ease of Use (USE) Questionnaire by Lund (2001). This instrument was designed to evaluate the usability of the RJ Microfinance Lending Management System based on four key dimensions: Usefulness, Ease of Use, Ease of Learning, and Satisfaction.

The researchers personally distributed the questionnaires to the borrowers and administrative staff of RJ Microfinance in Bentig, Calape, Bohol. The respondents were briefed about the purpose of the study, emphasizing that their participation was entirely voluntary and that their responses would remain confidential.

The data collection process was conducted over a specified period, allowing all respondents sufficient time to complete the questionnaire. The researchers were available to provide assistance and address any questions or concerns regarding the survey items. Once the questionnaires were completed, the responses were collected, reviewed for completeness, and encoded for statistical analysis.

Statistical Treatment

The data were analyzed using descriptive statistics to evaluate the RJ Microfinance Lending Management System's usability and acceptability. Jamovi software ensured accurate computations and clear visualizations, with mean scores interpreted using predefined guidelines.

Scale	Range	Description	Interpretation
6	5.16 – 6.00	Excellent	The respondent strongly believed in the usability of the system.
5	4.33 – 5.15	Very Good	The respondent believed in the usability of the system.
4	3.50 – 4.32	Good	The respondent tends to believe in the usability of the system.
3	2.67 – 3.49	Fair	The respondent tends not to believe that the system is usable.
2	1.84 – 2.66	Poor	The respondent believes that the system is not usable.
1	1.00 – 1.83	Very Poor	The respondent strongly believed that the system is not usable.

Table 3.0 Interpretative Guide for Mean Scores

The mean range represents the numerical scale of user responses, which quantifies the level of agreement or disagreement with the statements in the questionnaire. It provides a clear basis for categorizing responses into specific levels, ensuring consistency and reliability in interpretation. By aligning these ranges with qualitative descriptions, the analysis bridges numerical data with meaningful insights into user perceptions of the system's usability. This structured approach highlights areas of excellence and identifies potential opportunities for enhancement based on respondent feedback.

Definition of Terms

Different terms are defined herein to facilitate understanding of the study.

Admin - The system administrator manages loan applications and user accounts and oversees operations.

Amount - The sum of money borrowed, lent, or repaid in a financial transaction.

Borrower - An individual or entity that applies for and receives a loan from the microfinance institution.

Cash - Physical currency used for transactions, which may be used for payments towards loans or other financial obligations.

Credit - The provision of funds by a lender to a borrower with the expectation of repayment, typically involving interest.

Customer - An individual or entity that utilizes the services of a financial institution, including borrowing and repayment.

Debt - The amount of money that is owed by the borrower to the lender, usually resulting from borrowed funds.

Installment - A fixed amount paid periodically as part of a loan repayment plan, which includes principal and interest.

Interest - The cost of borrowing money, usually expressed as a percentage of the principal amount, paid to the lender over the loan term.

Lenders - Individuals, institutions, or organizations that provide loans or credit to borrowers, typically with the expectation of receiving repayment along with interest.

Lending - The act of providing funds or resources to a borrower with the expectation of repayment, typically with interest, over an agreed-upon period.

Loan Management System (LMS) - A software that automates the processes of loan origination, approval, payment, and monitoring.

Microfinance - A financial service offering small loans and other financial products to individuals or businesses in low-income or underserved communities, promoting financial inclusion and poverty reduction.

Official Receipt - A document issued by a lender confirming the payment made by a borrower and serving as proof of the transaction.

Payment - Transferring money to settle a debt or loan obligation, partially or in full.

Penalty Calculation Algorithm - A system calculates late fees and sends reminders for overdue payments.

User - A person who interacts with the system, including borrowers and administrators.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the data gathered from the usability testing of the RJ Microfinance Lending Management System. A total of 34 participants, comprising 2 administrators and 32 borrowers, evaluated the system's functionality by interacting with its key features, such as loan applications, payment tracking, real-time transaction monitoring, and reporting. The system’s structured database facilitated efficient data management, enhancing the overall user experience. These features were developed to simplify loan processes and improve financial transactions, contributing to the system's goal of addressing common microfinance challenges.

Usability testing is an essential step in product development as it provides valuable insights into the system’s performance and user interaction. The usability survey conducted during this study assessed how well the system enables users to complete tasks, meets their functional needs, and ensures an intuitive interface. While the survey did not diagnose specific technical issues, it highlighted potential areas of improvement based on user feedback. This feedback is critical for aligning the system with user expectations, helping the development team identify aspects of the system that may require refinement to enhance its functionality.

By addressing user feedback, the development team refined the system to improve efficiency and usability. This ensures a user-friendly experience for both administrators and borrowers, aligning with the system’s goal of simplifying loan management and enhancing user satisfaction.

Table 4.0 System Usability Results for Ease of Use and Satisfaction as Perceived by Borrowers

N=32

Indicators	Weighted Mean	Interpretation
1. It is easy and simple to use.	5.47	Excellent
2. I feel comfortable using this system.	5.44	Excellent
3. It is easy for me to learn to use this system.	5.63	Excellent
4. The system is consistent as I use it.	5.56	Excellent
5. I can recover from mistakes quickly and easily.	5.53	Excellent
6. The interface design is visually appealing.	5.72	Excellent
7. Overall, I am satisfied with this system.	5.69	Excellent
Composite Mean	**5.58**	**Excellent**

Legend:
5.16 – 6.00 Excellent
4.33 – 5.15 Very Good
3.50 – 4.32 Good
2.67 – 3.49 Fair
1.84 – 2.66 Poor
1.00 – 1.83 Very Poor

The table highlights the borrowers' perception of the RJ Microfinance Lending Management System as highly effective and user-friendly, with a composite mean of 5.58 interpreted as "Excellent." Borrowers found the system simple to use, easy to learn, and consistent in performance, which contributed to their confidence and reduced errors during transactions. Additionally, the visually appealing interface and quick recovery from mistakes enhanced their overall experience. These results underscore the system's ability to meet user expectations, ensuring both functional efficiency and satisfaction while serving as a valuable tool for improving microfinance processes.

Table 5.0 System Usability Results for Usefulness as Perceived by Borrowers

N=32

Indicators	Weighted Mean	Interpretation
1. It helps me manage my loans effectively.	5.72	Excellent
2. It makes applying for loans and tracking payments easier.	5.63	Excellent
3. It helps me stay informed and proactive about my loan status.	5.84	Excellent
4. It saves me time by providing quick access to loan management services.	5.66	Excellent
5. It fulfills my needs for managing and monitoring my loans.	5.75	Excellent
6. It provides all the necessary features for my loans.	5.63	Excellent
7. It improves how I handle loan applications and payments.	5.75	Excellent
Composite Mean	**5.71**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

The System Usability evaluation for Non-Admin Users (Borrowers) shows that the RJ Microfinance Lending Management System is very helpful, with an average score of 5.71. The system makes it easy for borrowers to manage their loans, stay organized, and save time by providing quick access to important loan details. It also helps borrowers track loan applications, make payments, and stay informed about their loan status smoothly.

Table 6.0 System Usability Results for Information Organization and Accessibility as Perceived by Borrowers

N=32

Indicators	Weighted Mean	Interpretation
1. It is easy to find the information I need.	5.75	Excellent
2. There is a clear organization of information on the system interface.	5.78	Excellent
3. The information provided in the system is easy to understand.	5.69	Excellent
4. The system gives error messages that clearly tell me how to fix the problems.	5.78	Excellent
5. The system provides clear information about loan statuses and payment schedules.	5.78	Excellent
6. The system allows me to use all the functions (such as applying for loans, making payments, and viewing loan history).	5.75	Excellent
Composite Mean	**5.76**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

The System Usability evaluation for Non-Admin Users (Borrowers) in Information Organization and Accessibility shows excellent results, with an average score of 5.76. Borrowers found the system easy to use, with well-organized and clear information. It provides important loan details that help borrowers make informed decisions. The system also includes clear error messages and ensures easy access to all necessary functions.

Table 7.0 Summary of System Usability Results for Borrowers

N=32

Indicators	Weighted Mean	Interpretation
Ease of Use and Satisfaction	5.58	Excellent
Usefulness	5.71	Excellent
Information Organization and Accessibility	5.76	Excellent
Aggregate Mean	**5.68**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

Based on Table 7.0, the overall usability of the RJ Microfinance Lending Management System is highly positive, with excellent ratings across all categories. The Ease of Use and Satisfaction category scored 5.58, indicating that the system is easy to navigate and provides a satisfying experience for borrowers. This suggests that the system is intuitive, and borrowers face no significant difficulties while using it. In the Usefulness category, the system scored 5.71, reflecting its strong performance in helping borrowers manage their loans effectively, stay organized, and track payments without hassle. The Information Organization and Accessibility category received a score of 5.76, highlighting the system's ability to present clear, well-organized information, which allows borrowers to easily access important details. With an overall score of 5.68, the system proves to be not only user-friendly but also highly effective in meeting the needs of borrowers, ensuring a smooth and efficient loan management experience.

Table 8.0 System Usability Results for Ease of Use and Satisfaction as Perceived by Admin

N=2

Indicators	Weighted Mean	Interpretation
1. It is easy and simple to use.	5.00	Very Good
2. I feel comfortable using this system.	5.00	Very Good
3. It is easy for me to learn to use this system.	5.50	Excellent
4. The system is consistent as I use it.	5.00	Very Good
5. I can recover from mistakes quickly and easily.	4.50	Very Good
6. The interface design is visually appealing.	5.50	Excellent
7. Overall, I am satisfied with this system.	6.00	Excellent
Composite Mean	**5.21**	**Excellent**

Legend:
5.16 – 6.00 Excellent
4.33 – 5.15 Very Good
3.50 – 4.32 Good
2.67 – 3.49 Fair
1.84 – 2.66 Poor
1.00 – 1.83 Very Poor

The usability evaluation results for the RJ Microfinance Lending Management System, as perceived by Admin Users, show a high level of satisfaction. With a Composite Mean of 5.21, all indicators received excellent ratings. Admin users found the system easy to use, comfortable, and simple to learn, highlighting its user-friendly design. The system's consistency and ability to recover from errors were also well-received. Additionally, the interface design and overall satisfaction contributed to the system's high ratings, demonstrating its effectiveness and efficiency for Admin Users.

Table 9.0 System Usability Results for Usefulness as Perceived by Admin

N=2

Indicators	Weighted Mean	Interpretation
1. It helps me manage and track borrower accounts effectively.	5.50	Excellent
2. It makes loan approval and payment coordination easier.	5.00	Very Good
3. It helps me stay informed and proactive about loan statuses.	5.50	Excellent
4. It saves me time by providing quick access to borrower data and payment records.	5.50	Excellent
5. It fulfills my needs for managing loans and monitoring payments.	5.50	Excellent
6. It provides all the necessary features for loan management and reporting.	5.50	Excellent
7. It improves how I oversee loan processing and borrower interactions.	6.00	Excellent
Composite Mean	**5.50**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

The evaluation of the RJ Microfinance Lending Management System for Admin users shows strong results, with a Composite Mean of 5.50. The system helps Admins manage loan applications efficiently, stay organized with borrower information and requests, and save time by providing easy access to important details like loan amounts and payment schedules. Overall, it meets Admin users' needs for managing loans and is rated excellent across all indicators.

Table 10.0 System Usability Results for Information Organization and Accessibility as Perceived by Admin

N=2

Indicators	Weighted Mean	Interpretation
1. It is easy to find the information I need.	5.00	Very Good
2. There is a clear organization of information on the system interface.	5.50	Excellent
3. The information provided in the system is easy to understand.	5.50	Excellent
4. The system gives error messages that clearly tell me how to fix the problems.	5.50	Excellent
5. The system provides clear information about borrower records and payment statuses.	5.50	Excellent
6. The system allows me to use all the functions (such as approving loans, updating payments, etc.).	5.00	Very Good
Composite Mean	**5.33**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

The evaluation of the RJ Microfinance Lending Management System for Admin users in terms of Information Organization and Accessibility shows strong usability, with a Composite Mean of 5.33. Admins found it easy to access and understand important information, with clear organization on the system interface. The system provides helpful details about loan applications, such as amounts and payment schedules, enabling informed decisions. Error messages were also praised for being clear and useful, ensuring a smooth experience.

Table 11.0 Summary of System Usability Results for Admin

N=2

Indicators	Weighted Mean	Interpretation
Ease of Use and Satisfaction	5.21	Excellent
Usefulness	5.50	Excellent
Information Organization and Accessibility	5.33	Excellent
Aggregate Mean	**5.35**	**Excellent**

Legend: 5.16 – 6.00 Excellent; 4.33 – 5.15 Very Good; 3.50 – 4.32 Good; 2.67 – 3.49 Fair; 1.84 – 2.66 Poor; 1.00 – 1.83 Very Poor

Based on the results in Table 11.0, the system shows strong usability for Admin users, with excellent ratings across all categories. The Ease of Use and Satisfaction category scored 5.21, meaning the system is easy to use and provides a satisfying experience. It helps Admins manage tasks like loan applications and transactions more efficiently.

In Usefulness, the system scored 5.50, showing it effectively supports Admins in managing loans and borrower information. The system's clear layout helps Admins work efficiently.

For Information Organization and Accessibility, it scored 5.33, indicating it provides clear, well-organized information. Admins can easily access loan details, making informed decisions. The system also offers helpful error messages and guidance. Overall, the score of 5.35 shows the system's strong performance and ease of use for Admin users.

The study's findings show that the RJ Microfinance Lending Management System received "Excellent" ratings in three categories: Ease of Use and

Satisfaction, Usefulness, and Accessibility. Both borrowers and admins found the system easy to use. Borrowers appreciated the clear instructions, simple design, and straightforward navigation, which made it easy for them to apply for loans and track payments. Admins also rated the system highly for its user-friendly interface, which streamlined their tasks and enhanced their productivity. In terms of Usefulness, the system was highly effective in managing loan applications, payments, and communication for both borrowers and admins. Borrowers were able to efficiently manage their loan information, while admins found the system a helpful tool for monitoring loan statuses, payment histories, and borrower details. For Accessibility, both borrowers and admins found the web-based system easy to access, allowing them to manage loans and payments without difficulty, regardless of location.

Chapter V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Findings

This study aimed to develop and evaluate the RJ Microfinance Lending Management System, designed to simplify and improve the loan application and payment processes for borrowers. The system offers features like digital loan applications, payment options through GCash, and automated Gmail notifications to keep borrowers updated on loan status, payment reminders, and required documents. By providing easy payment methods and transparent communication, the system enhances efficiency and accessibility, making it easier for borrowers to manage their loans.

The usability of the system was evaluated through surveys involving 34 respondents (32 borrowers and 2 admins). The results showed that both groups found the system highly functional and effective in managing loan processes. Usability ratings in categories such as Ease of Use, Satisfaction, Usefulness, Information Organization, and Accessibility all received Excellent ratings. These results suggest that the system effectively meets the needs of borrowers and admins by simplifying loan management and providing an accessible platform for users with varying technical skills.

Conclusions

The findings of the study indicate that the RJ Microfinance Lending Management System successfully met its objectives of improving loan management for borrowers and admins by providing a reliable, user-friendly platform. The system's ability to simplify loan applications, streamline payments,

and enhance communication between borrowers and admins contributed to its success. Usability tests revealed that both borrowers and admins found the system highly functional, efficient, and easy to navigate, validating the design and development process.

The RJ Microfinance system has shown its potential to transform the microfinance sector, particularly for borrowers who previously faced challenges in accessing financial services. The system's success, as reflected in its excellent usability scores, highlights its effectiveness in simplifying the loan process and ensuring better access to loans and financial information.

Recommendations

The RJ Microfinance Lending Management System has been very helpful and effective, but there are a few areas where improvements and additions could be made in the future:

1. The system is currently designed specifically for RJ Microfinance, located in Bentig, Calape, Bohol. However, the app has the potential to expand to other areas. A scalable and modular design would allow the system to adapt to new regions, supporting a wider user base across the country.
2. To further enhance the RJ Microfinance Lending Management System, additional features could be integrated, such as more payment options and improved financial tools, making it easier for borrowers to manage their loans. Connecting the system with more financial services could also simplify transactions, providing a smoother and more efficient experience for both borrowers and the microfinance institution.

3. To continually meet user needs, regular feedback and usability testing are essential for the RJ Microfinance Lending Management System. Future updates must incorporate improvements driven by user input, ensuring the system evolves to better cater to borrowers and stays aligned with emerging technological advancements.

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APPENDICES

Appendix A

March 25, 2025

Dear Respondent,

Greetings!

You are invited to participate in our research study titled "RJ Microfinance Lending Management System" which is part of the final requirements for our Bachelor's degree program in Computer Science at Bohol Island State University - Calape Campus.

By participating in the research study for the "RJ Microfinance Lending Management System", you contribute to the development and improvement of a system designed to enhance loan management, streamline processes, and provide better financial services for borrowers and administrators. Your input will help refine features such as cashless payments, automated notifications, and real-time transaction monitoring, ensuring the system addresses user needs effectively and supports financial accessibility.

For inquiries, contact us at carlarmand.narisma@bisu.edu.ph or leanard.rulete@bisu.edu.ph

Thank you for your cooperation!

Carl Armand D. Narisma

Leanard G. Rulete

The Researchers

Pledge of Data Privacy

The data gathered from this study is protected under Republic No. 10173 of the Republic of the Philippines, also known as the Data Privacy Act. With this, the researchers do hereby solemnly pledge to use any data for research purposes only and utmost censorship will be observed.

Authorization to the Researcher

☐ I, the respondent, hereby authorize the above-mentioned researchers to use the data that I supply herein.

Name (Optional): _____ Position: _____

SYSTEM USABILITY QUESTIONNAIRE
For Admin Users

General Instruction: Below is a questionnaire on system usability. After exploring the system developed by the researchers, evaluate the usability of the application by putting tick (/) in the column that corresponds to your answer based on the given scale.

Scale	Descriptive Rating	Scale	Descriptive Rating
6	Strongly Agree	3	Tend to Disagree
5	Agree	2	Disagree
4	Tend to Agree	1	Strongly Disagree

Ease of Use and Satisfaction, Usefulness, and Information Organization and Accessibility

Indicators	6	5	4	3	2	1
Ease of Use and Satisfaction						
1. It is easy and simple to use.						
2. I feel comfortable using this system.						
3. It is easy for me to learn to use this system.						
4. The system is consistent as I use it.						
5. I can recover from mistakes quickly and easily.						
6. The interface design is visually appealing.						
7. Overall, I am satisfied with this system.						
Usefulness						
8. It helps me manage and track borrower accounts effectively.						
9. It makes loan approval and payment coordination easier.						
10. It helps me stay informed and proactive about loan statuses.						
11. It saves me time by providing quick access to borrower data and payment records.						

12. It fulfills my needs for managing loans and monitoring payments.						
13. It provides all the necessary features for loan management and reporting.						
14. It improves how I oversee loan processing and borrower interactions.						
Information Organization and Accessibility						
15. It is easy to find the information I need.						
16. There is a clear organization of information on the system interface.						
17. The information provided in the system is easy to understand.						
18. The system gives error messages that clearly tell me how to fix the problems.						
19. The system provides clear information about borrower records and payment statuses.						
20. The system allows me to use all the functions (such as approving loans, updating payments, etc.).						

Respondent's Signature: _____

March 25, 2025

Dear Respondent,

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Carl Armand D. Narisma

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Authorization to the Researcher

☐ I, the respondent, hereby authorize the above-mentioned researchers to use the data that I supply herein.

Name (Optional): _____ Position: _____

SYSTEM USABILITY QUESTIONNAIRE
For Non-Admin Users

General Instruction: Below is a questionnaire on system usability. After exploring the system developed by the researchers, evaluate the usability of the application by putting tick (/) in the column that corresponds to your answer based on the given scale.

Scale	Descriptive Rating	Scale	Descriptive Rating
6	Strongly Agree	3	Tend to Disagree
5	Agree	2	Disagree
4	Tend to Agree	1	Strongly Disagree

Ease of Use and Satisfaction, Usefulness, and Information Organization and Accessibility

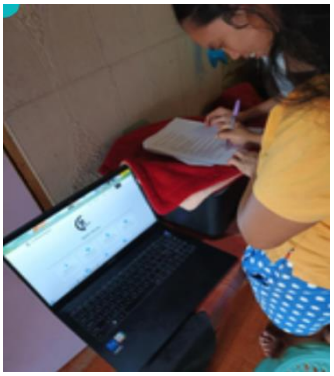
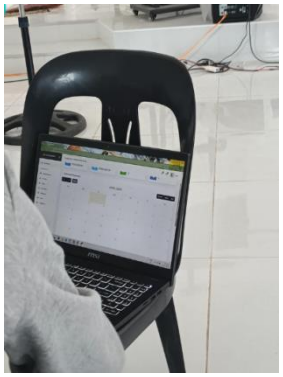
Indicators	6	5	4	3	2	1
Ease of Use and Satisfaction						
1. It is easy and simple to use.						
2. I feel comfortable using this system.						
3. It is easy for me to learn to use this system.						
4. The system is consistent as I use it.						
5. I can recover from mistakes quickly and easily.						
6. The interface design is visually appealing.						
7. Overall, I am satisfied with this system.						
Usefulness						
8. It helps me manage my loans effectively.						
9. It makes applying for loans and tracking payments easier.						
10. It helps me stay informed and proactive about my loan status.						
11. It saves me time by providing quick access to loan management services.						
12. It fulfills my needs for managing and monitoring loans.						
13. It provides all the necessary features for my loans.						

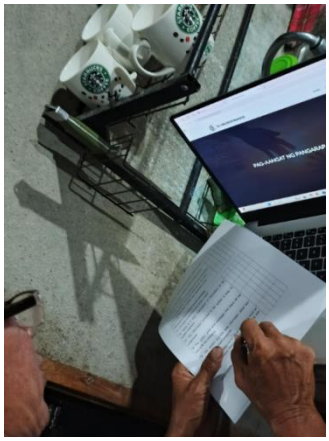
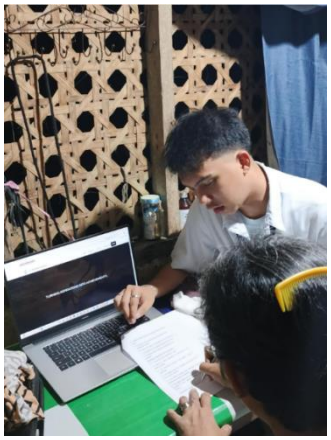
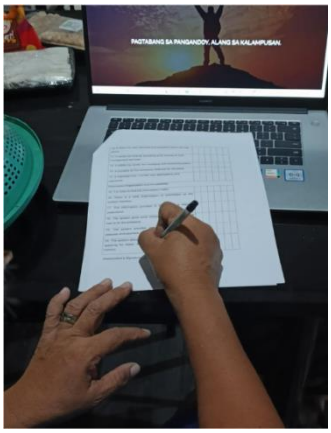
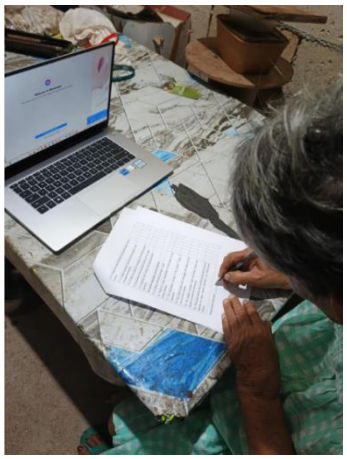
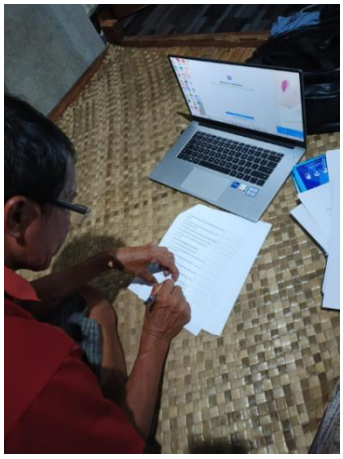
14. It improves how I handle loan applications and payments.						
Information Organization and Accessibility						
15. It is easy to find the information I need.						
16. There is a clear organization of information on the system interface.						
17. The information provided in the system is easy to understand.						
18. The system gives error messages that clearly tell me how to fix the problems.						
19. The system provides clear information about loan statuses and payment schedules.						
20. The system allows me to use all the functions (such as applying for loans, making payments, and viewing loan history).						

Respondent's Signature: _____

Appendix B

Documentation During the Conduct of Survey

Appendix C

Tallies

RESPONDENTS ID	GROUP	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	ADMIN	5	5	5	5	5	6	6	6	5	6	5	6	5	6	5	5	5	5	5	5
2	ADMIN	5	5	6	5	4	5	6	5	5	5	6	5	6	6	6	5	6	6	6	5
		5	5	5.5	5	4.5	5.5	6	5.5	5	5.5	5.5	5.5	5.5	6	5.5	5	5.5	5.5	5.5	5
								5.21							5.5						5.33
	AGGEGATE MEAN	5.35																			

RESPONDENTS ID	GROUP	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	BORROWERS	5	5	5	5	5	6	6	5	6	5	6	5	5	5	5	5	5	5	5	5
4	BORROWERS	5	5	5	5	5	5	5	6	6	6	5	6	5	6	5	5	6	5	5	5
5	BORROWERS	5	5	6	6	5	5	5	6	5	6	5	6	5	6	5	6	5	6	6	5
6	BORROWERS	5	5	5	5	5	5	5	5	5	6	5	6	5	6	5	6	5	6	5	5
7	BORROWERS	5	5	5	5	5	6	5	6	6	6	6	5	6	5	6	5	6	5	5	5
8	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
9	BORROWERS	6	6	5	5	5	6	6	6	6	6	6	6	6	6	6	5	5	6	6	6
10	BORROWERS	5	5	5	5	6	6	6	5	5	5	5	5	5	5	6	6	6	5	6	6
11	BORROWERS	5	5	5	6	6	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6
12	BORROWERS	5	5	6	6	5	6	5	6	5	6	5	6	5	6	6	6	6	5	5	5
13	BORROWERS	5	5	6	6	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6
14	BORROWERS	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
15	BORROWERS	5	5	5	5	5	5	5	5	5	6	6	5	6	5	6	6	6	6	6	6
16	BORROWERS	5	5	6	6	6	6	6	6	6	6	5	6	5	6	6	6	5	5	6	6
17	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
18	BORROWERS	6	5	5	5	6	6	5	6	6	5	6	6	5	5	6	6	5	6	6	6
19	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
20	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
21	BORROWERS	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	5	6	6	6
22	BORROWERS	6	6	6	6	6	6	6	6	6	6	5	5	6	6	6	6	6	6	5	6
23	BORROWERS	6	6	6	6	6	6	6	6	5	6	6	5	5	5	5	6	6	6	6	6
24	BORROWERS	6	5	6	6	5	5	6	6	5	6	5	6	6	5	5	6	5	6	6	6
25	BORROWERS	6	5	6	5	6	6	5	6	5	6	6	6	5	6	6	6	6	6	6	6
26	BORROWERS	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
27	BORROWERS	5	6	6	5	6	5	6	5	6	6	5	6	6	6	6	6	6	6	6	6
28	BORROWERS	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
29	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
30	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
31	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
32	BORROWERS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
		5.5	5.47	5.63	5.6	5.6	5.73	5.67	5.73	5.67	5.87	5.67	5.77	5.63	5.73	5.77	5.83	5.7	5.8	5.8	5.8
								5.8							5.71						5.76
	AGGEGATE MEAN	5.68																			

Appendix D

System Setup

Setting up the RJ Microfinance Lending Management System involves a series of steps to ensure proper configuration and smooth deployment of the system across different devices, including computers and smartphones. This section outlines the tools, technologies, and procedures required for the successful transfer and setup of the system.

Requirements

- Download and install any local web server such as XAMPP. XAMPP
- Download and install a code editor or compiler such as Sublime Text or Visual Studio Code.
- Transfer the source code files to the target machine.

System Installation/Setup

Step 1: Start the Local Web Server

1. Open your XAMPP Control Panel.
2. Start the Apache and MySQL services.

Step 2: Extract the Source Code

1. Locate the compressed source code file on your system.
2. Extract the file to a preferred location.

Step 3: Transfer Source Code to the Web Server Directory

1. Copy the extracted source code folder.
2. Paste it into XAMPP's htdocs directory.

Step 4: Set Up the Database

1. Open a web browser and navigate to http://localhost/phpmyadmin.

2. Create a new database named rjmicrofinance.
3. Import the provided SQL file (rjmicrofinance.sql) located inside the MySQL folder.

Step 5: Access the System in a Browser

1. For the Admin Panel, browse to http://localhost/adminpanel.
2. For the Borrower Module, browse to http://localhost/rjmicrofinance.

These steps ensure that the RJ Microfinance Lending Management System is properly set up and ready for use.

Appendix E

Brochure

Appendix F

User Manual

CURRICULUM VITAE

PERSONAL DATA

Name	:	Carl Armand D. Narisma
Date of Birth	:	September 9, 2002
Place of Birth	:	Tagbilaran City, Bohol
Address	:	Cabayugan, Calape, Bohol
Age	:	22
Sex	:	Male
Religion	:	Christian
Civil Status	:	Single
Citizenship	:	Filipino
Height	:	164 cm.
Weight	:	54 kg.
Language Spoken	:	Cebuano, Filipino, English

EDUCATIONAL ATTAINMENT

Tertiary : **Bachelor of Science in Computer Science**
Bohol Island State University Calape Campus
San Isidro, Calape, Bohol
2021 – 2025

Secondary : **Fermin Tayabas National High School**
Cabayugan, Calape, Bohol
2019–2021
Marigondon National High School
Marigondon, Lapu-Lapu City, Cebu
2015–2019

Primary : **Marigondon Elementary School**
Marigondon, Lapu-Lapu City, Cebu
2014–2015
Camp Lapu-Lapu Elementary School
Apas, Cebu City, Cebu
2011–2013

North City Elementary School

Dumaguete, Negros Oriental

2009–2011

Manuel L. Quezon Elementary School

Commonwealth, Quezon City, Metro Manila

2008–2009

CURRICULUM VITAE

PERSONAL DATA

Name	:	Leanard G. Rulete
Date of Birth	:	June 14, 2002
Place of Birth	:	Madangog,Calape, Bohol
Address	:	Madangog, Calape, Bohol
Age	:	22
Sex	:	Male
Religion	:	Roman Catholic
Civil Status	:	Single
Citizenship	:	Filipino
Height	:	17 cm.
Weight	:	55 kg.
Language Spoken	:	Cebuano, Filipino, English

EDUCATIONAL ATTAINMENT

Tertiary : **Bachelor of Science in Computer Science**
Bohol Island State University Calape Campus
San Isidro, Calape, Bohol
2021 – 2025

Secondary : **Pangangan National High School**
Talisay, Calape, Bohol
2015 – 2021

Primary : **Kinabag-an Elementary School**
Magtongtong, Calape, Bohol
2014 – 2015