

AUTOMATION OF MICROFINANCE USING WEB APPLICATION**Jeevan JS^{*1}, Akash GR^{*2}, Mrs. Indumathi SK^{*3}**

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ABSTRACT

In most computing fields, the idea of a web application has been used in various ways. This entails using a worldwide network (the internet) or computational tools to carry out tasks that are now being performed by individuals. Financial transactions carried out manually are prone to mistakes and unforeseen complexity, making it challenging to keep all user account entries, look up activity logs, correct loan deduction mistakes, and prepare reports. Computers with automated systems are designed to eliminate the threat, making an underlying operations effective and offering the quick response required. Automatic loan management systems are a new innovation that, by encouraging efficiency and productivity, are sure to quickly alter the traditional borrowing procedures of microfinance institutions. A practical system combines a number of capable skills to get rid of data redundancy and inconsistency as well as to guarantee integrity of data, with a rapid retrieval response time assurance.

Keywords: Microfinance, Automation, Web Application, Integrity Of Data, Redundancy.

I. INTRODUCTION

People pooling their resources to address their immediate or future needs is where Microfinance organisations got their start. The history of Microfinance institutions demonstrates their prolonged existence and long years institutions' practise of it in the spirit of friendship and trust within a community.

The development of computer technology has saved humanity from the dark ages brought on by a lack of technological knowledge and necessary abilities for task completion. Almost every aspect of human activity can now use technological dynamics to overcome complexity with relative ease and reach maximal production even faster. A programmed system is one that is created to receive input and process it according to a predetermined format to produce the desired outcome. A computerised loan management system is being developed to streamline the loan distribution process for members of finance or co- operative societies that offer a variety of loan products, as well as simpler ways to save money and access to the information about the savings at any time and place.

The new system will put a strong emphasis on these elements and the necessary flexibility to guarantee that data credibility and integrity are strongly maintained, transactions are managed more successfully, and information recorded is easily searched for and located.

- The registration of every member with a different profile raises problematic difficulties.
- The mistakes that occasionally result from handwritten calculations.
- Poor record keeping due to the human nature.
- The inability to create reports on individuals and groups for clear employee accountability.

Traditionally, the interchange of information written down on paper has encouraged these processes. This study work allows information to be shared, computed, and archived as work is moved from desk to desk until the process is finished.

A. This Application will allow for the registration of each individual member of the Finance organization or cooperative society.

B. If any members are interested, this system will show updates on the cooperative society's operations.

C. For simple accountability, the system will be designed to produce reports for each member.

D. The technology will allow users to upload photos of themselves for quick identification.

E. Members will have immediate access to information which including new rules and regulations as well as notices of meetings thanks to effective and rapid accessibility.

In the meantime, the significance of the suggested system will allow for a highly accurate financial management system for cooperative funds, as well as a rapid, effective, and trustworthy information processing system such as;

- a. The handling of loans and the distribution of money.
- b. Develops Automated loan application software that can only collect the necessary loan data elements once and keep them private throughout the loan application process.
- c. Information management in the organisation that is efficient and accurate.
- d. Therefore, it is believed that this work would serve as the foundation for future investigation on a related topic. Create a less strenuous automated form to replace the old manual loan application and approval process.

II. METHODOLOGY

In this automation of microfinances using web application we have analysed the existing system and their flaws in the following way:

Analysis of existing system

Any financial organisation would ideally derive the majority of its revenue from membership registration fees and regular monthly savings contributions made by members. Project and general savings are made up of these savings. The project savings are based on the various business capabilities of members and can be re-embossed as conditions apply. However, the ordinary savings, which are a fixed sum, are required for every member and are non refundable. To increase the financial income of the community, these payments are however exchanged for loans and stocking, from which they determine each individual's benefit based on the amount contributed on a monthly or annual basis.

Limitation of the existing system

The purpose of starting this project is to address the following issues with the outdated system of managing savings schemes:

- Data redundancy: Currently, the old method has a significant mistake probability while recording the data including every transaction done by Finance or cooperative society members.
- Data insecurity: In the old system, because data is manually stored on files, security of these crucial files is not guaranteed because an office break-in can easily take place where the files are kept.
- Incorrect records: In the old system's manual operation of the current saving scheme makes it difficult to preserve the records, which can result in inaccurate record keeping.
- Complexity in data retrieval and alteration: The old manual system's voluminous files made it difficult to retrieve information about a specific member's transaction, especially if there wasn't much time available to create a report from these records

Analysis of the proposed system

Each piece of information that must be entered into this system, including text and photos, must be properly structured. In this context, the terms "system analysis" and "data preparation" refer to the transformation of system information and data into a suitable format for additional analysis and processing. It is a process that requires a variety of jobs and cannot be entirely automated. Many of the basic and time-consuming system analysis operations are tedious.

A successful proposed system design requires system analysis. Poor data quality frequently yields imprecise data mining results. The data for this project has been prepared in order to make it simpler and easier to analyze the system from many angles and summarise it into usable information. Every piece of information used in this project relates to quality control techniques. In the meanwhile, it's crucial to educate users on the types of data required when utilising the new system. They will be instructed on where to enter numeric values, alphanumeric values, and so forth.

Advantages of proposed system

The issues with the old system should be resolved by the new one. The benefits of this new system include:

- To cut down on redundant data collected from members for the debt management plan.
- To relieve members' worries about privacy.
- To encourage members to communicate more.
- To generate reports more quickly and easily, especially when time is of the essence.

III. MODELING AND ANALYSIS

The class diagram of microfinance web application for the management side is given below:

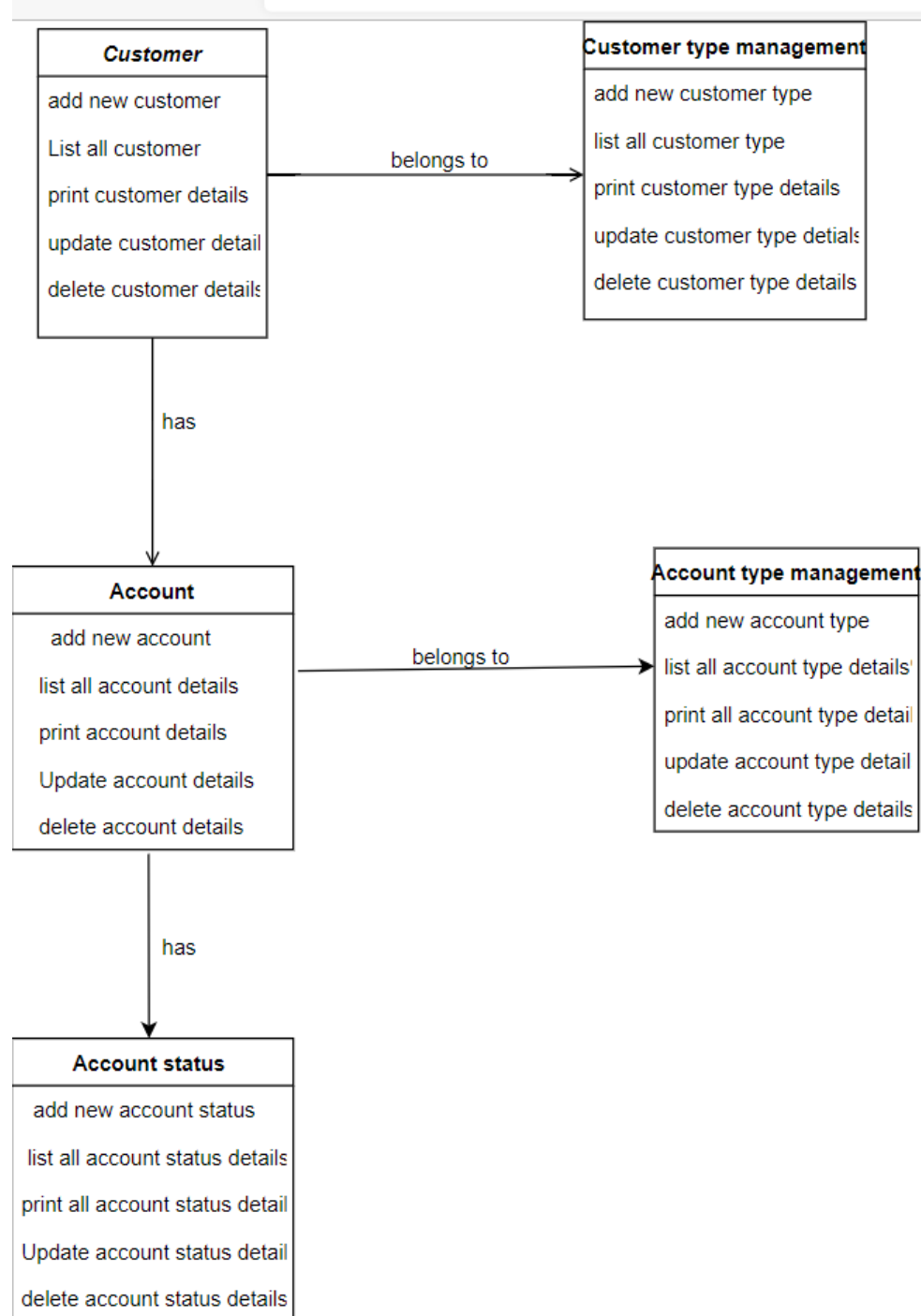


Figure 1: the class diagram of Microfinance web app.

Additionally, the entity relationship diagram also helps us to understand this web application's logical structure design of relational databases in better way.

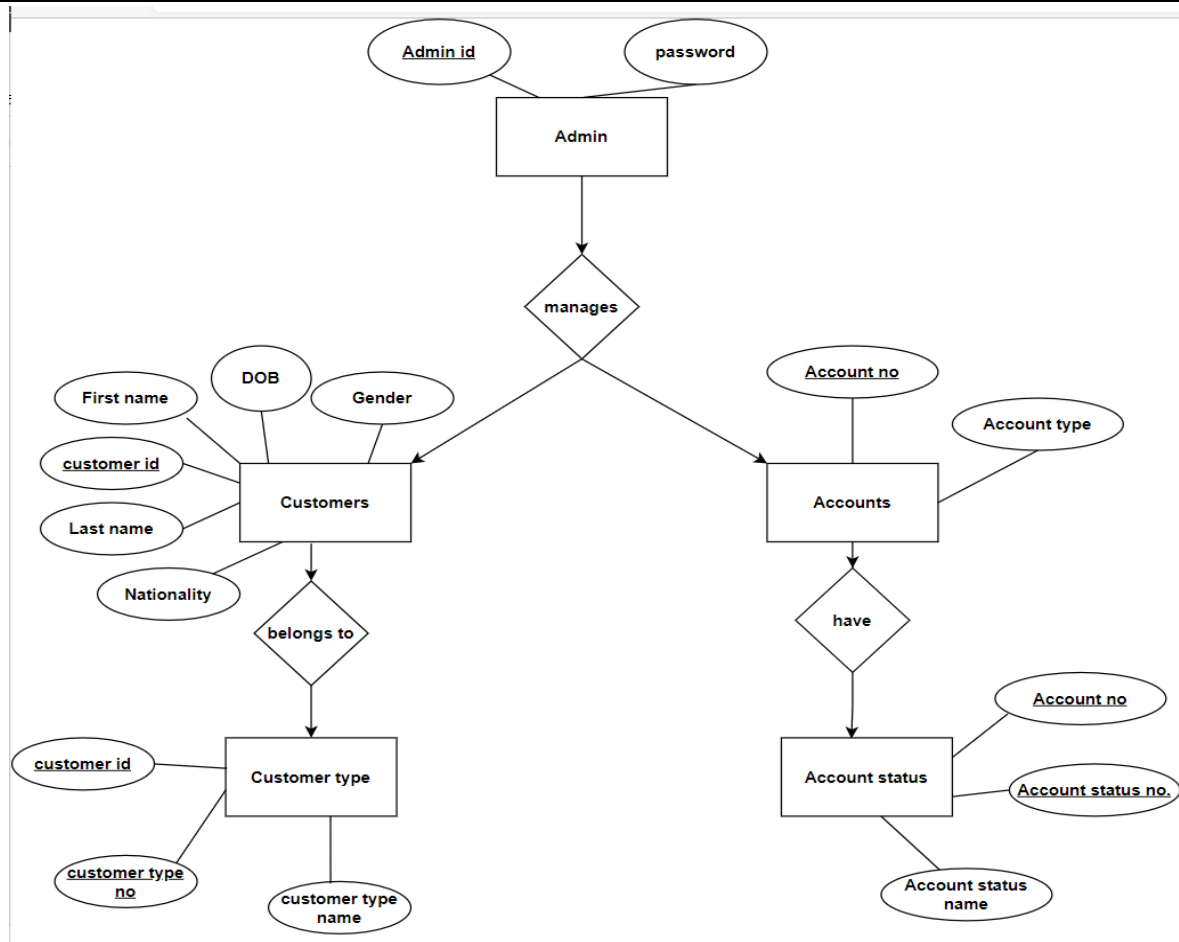


Figure 2: E-R diagram of Microfinance web app.

IV. RESULTS AND DISCUSSION

This section contains a thorough explanation of the system's step-by-step development. It specifies the interfaces and characteristics of the complete system and provides explicit illustrations of the implementation process. Along with the system integration, it also covers the modules and unit testing. Software component testing entails merging the features or functions of one or more system components, then testing the resulting integrated system. The operation of the software used for loan automation is also addressed. Both validation and verification are part of component testing. In order to make sure that the finished product meets the needs of the clients, the validation test phase asks the question, "Did we construct the proper system?".

The verification phase addresses the issue of "did we construct the application right? " by using the application to performance monitoring during its life cycle to ensure that interim requirements are fulfilled their input description. By checking login information among other things, the system has been confirmed to satisfy input requirements from users. Multiple parts of the software were incorporated and put to functional test. The "home tab", "News option", "Service option," "aboutUs tab," "ContactUs tab", "MakeLoan option", "payloan section" "Checkaccount section" "Changepassword link", "Inbox tab", and "for Admin ,data Management System section" are a few of them. The entire system was tested following the implementation of the codes to satisfy the specification need. The database, process, interface, and system server were all tested as part of the system. The database was tested to make sure that it records the requested fields in accordance with their corresponding properties and that the storage and retrieval functionalities worked as expected. The system administrator has easy access to every table including bug reports and projects. During process testing, the system was activated and checked to see if it operated as expected, with all necessary links functioning and leading to the desired places. Other functions, such comments sent from users to administrators and vice versa, were examined to make sure that the messages had significance. During interface testing, it was made sure the presence of a user-friendly link who wasn't sure how to use the system and that all links led to the right pages

and enhanced the user experience. Most of the functions of the applications run on the XAMP sever, which is responsible for communicating with Web Browser. The information or data needed by the programme is stored on a MySQL Relational database server, and PHP has been used as middleware.

Below figures represents the sequence diagrams of customers and admin.

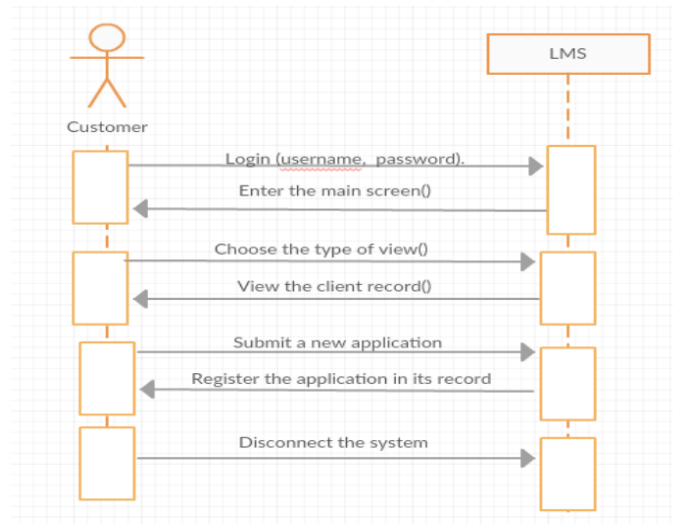


Figure 3: Sequence diagram(customer)

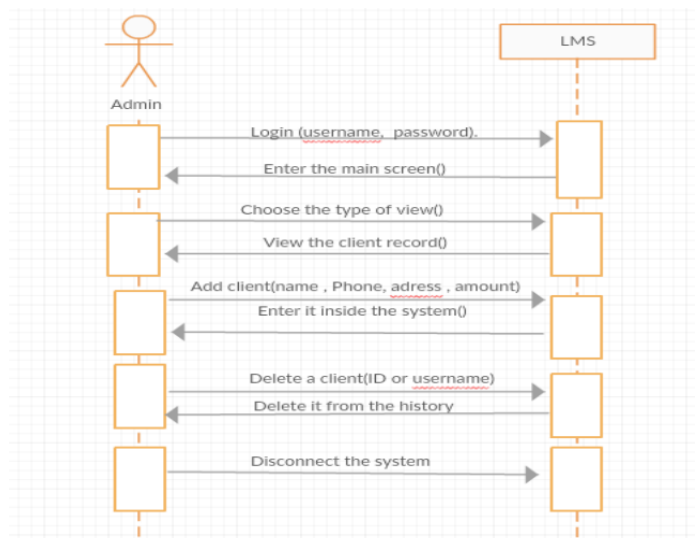


Figure 4: Sequence diagram(admin)

V. CONCLUSION

Due to the rising utility prices, For better energy management, digital technology has been developed. These systems are made to consume less space especially when occupied. A significant portion of technological advancement is occurring in the system for managing loans and processing them, where efficient computers and the less cost of the required hardware are presenting opportunities that were not before available.

Through more thorough connection with other loan processing and management systems, we may anticipate that this system will advance steadily over the coming years. Finance management is unquestionably the cornerstone of all banking operations, and its accomplishment or failure guarantees the financial performance of the bank, stability, and deposit security to satisfy customer needs. while embracing the critical role that loans play as a major source of financial management. To attain the best results, efficiently utilize the computer application sector.

Application areas

- Monitoring customer data and loans at the bank
- Customer registration and creating an account
- Documenting customer transaction data
- Monitoring a customer's history of payments.

VI. REFERENCES

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