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SACCO MANAGEMENT SYSTEM
(CASE STUDY: WOMAN OF PURPOSE SACCO PALLISA)

BY

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A PROJECT REPORT SUBMITTED TO THE FACULTY OF SCIENCE AND EDUCATION

FOR THE STUDY LEADING TO A PROJECT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE AND EDUCATION

BUSITEMA UNIVERSITY

SUPERVISOR

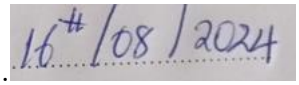
DR. LUKYAMUZI ANDREW

DEPARTMENT OF COMPUTER STUDIES

JULY 2024

DECLARATION

I OSELE JAMES JACOB declare that this project report titled SACCO management system is mine.

Signature……  ……Date… 

OSELE JAMES JACOB

TEL 0776730969

APPROVAL

This project report was done under my supervision.

Signed.....Date.....16/05/24.....

DR. ANDREW LUKYAMUZI

Department of computer studies

Busitema University

DEDICATION

I thank GOD who successfully enabled me to complete the entire course and the project. I dedicate this project to my beloved parents Mr. OBWIN TOBIOUS and Mrs. AJAAT JESCA even my lovely brothers and sisters. special thanks to my supervisor Dr. Lukyamuzi Andrew for his tireless effort towards achieving my degree and through the entire course. I thank everyone who has put effort through my education to this level including my dear colleagues and friends may God bless you and fulfil the desires of your hearts and supply your needs according to his riches in glory.

ACKNOWLEDGEMENT

I thank my lecturers for the knowledge rendered to me in different fields Dr Angole Richard who taught me Database management systems, Mr. Mutungi Fredick took me through system analysis and design, Mr. Oboth Andrew who taught me programming and web technologies that enabled me to develop a web-based SACCO management system for my final year project and other lecturers that taught me in different course units. I would like to appreciate my lovely Parents for all their support and encouragement rendered unto me in different times. I also thank all my friends who guided me when developing my project system. I really thank God for his protection, spiritual guidance and provisions throughout my course until the completion of SACCO management system.

Table of Contents

LIST OF ABBREVIATIONS AND ACRONYMS

SACCO. savings and credit cooperative organisation

HTML. Hypertext markup Language

CSS. Cascading Style Sheets

PHP. Hypertext Preprocessor

SMEs. Small and medium enterprises

OS. Operating system

SSADM. structured system analysis and design methodology

ABSTRACT

Here in this report, the development of a web-based SACCO management system sought to provide solution for dealing with operational challenges that are faced by SACCO's. These SACCO's are vital for financial inclusion and local economic development - especially in regions that have limited access to formal sector banking. Potentially led by manual processes, resource scarcity and ineffective supervisory mechanisms in place that have the tendency of resulting to inefficacy, enhanced operational overheads and sluggish service delivery.

The system under consideration aims to automate SACCO operations as well improve member participation and accessibility of financial services in real time.

Features include online saving and loan applications, real-time transaction monitoring, member management etc. Using cutting-edge web development technologies of PHP, HTML5, CSS3 and JavaScript the system will help to cut your operational costs allowing you to deliver services better with record member satisfaction.

The main aim of the study is to come up with a web-based system that will automate SACCO's operations and, in the process, increase their operational efficiency. While related aims are to study the literature for system requirements, design a suitable SACCO's need based model-system and develop an easy-to-use web-based solution that would help them in efficient savers' savings mobilization/borrower's loans serve preparation with members managements respectively.

This study was done at the Woman of Purpose SACCO found on Pallisa Agule Road over a course period of two and half months in demonstrating how web-based system implementation has objectives that if achieved could empower SACCO's, enhance their operational efficiency for sustainable economic development through financial inclusion. The report assesses how well the system has been doing based on case studies and user feedback, areas for improvement are identified using this data as-well-as some challenges with adoption by users and scaling up of systems. SSADM (structured system analysis and design methodology) was used - with a high-level model of the intended systems documented, which is then broken down to its smaller components that would be further tested for consistency in implementation.

CHAPTER ONE

INTRODUCTION

Background of the study

Saving and credit cooperative organizations (SACCOs) are important in providing financial services and promoting economic development, particularly in communities where traditional banking services are limited or inaccessible. SACCOs are driven by members of the financial institutions operating on exchange of assistance, cooperative values, and member participation. These organizations are built to mobilize their members' savings and provide them access to credit facilities, promoting financial involvement and community development.

Limited access to banking services, particularly in underserved and rural areas, defines the financial system of many developing countries. Traditional financial institutions ignore these regions due to perceived high risks and low profitability. As a result, many individuals and small businesses struggle to obtain the financial support they need for growth and development, SACCO bridges this gap by providing accessible and affordable financial services specific to the needs of their members.

The primary function of a SACCO is to encourage regular savings among its members. By gathering together these savings, SACCOs create a common fund that can be used to provide loans and other financial services. These loans are usually offered at lower interest rates than traditional banks, making them more affordable for members. SACCO also offer other financial products, including savings accounts, Fixed deposits, and insurance services.

SACCOs are important to community development by financing local projects and supporting small and medium-sized enterprises (SMEs). They play a crucial role in empowering individuals economically and improving their quality of life. Additionally, SACCOs provide financial education and training to their members, helping them manage their finances better and make informed decisions about savings and investments.

Despite their significant contributions, SACCOs face several challenges that hinder their effectiveness. These challenges include limited access to technology, inadequate management systems, and regulatory constraints. To address these issues and enhance the efficiency of SACCOS operations, there is a need for innovative technological solutions.

This research focuses on the development of a strong and user-friendly system for SACCOs using modern web development technologies. The proposed system will simplify SACCO operations, improve service delivery, and enhance member experience. By utilizing technology, the system will provide features such as online savings and loan applications, real-time transaction monitoring through use of systems logs, member management, and financial reporting.

In conclusion, SACCOs are essential financial institutions that contribute to economic development and financial involvement. However, to maximize their potential, there is a need for innovative solutions that address their operational challenges. The development of a web-based system for SAACOs will not only improve their efficiency but also empower them to serve their members better, ultimately fostering sustainable community development.

PROBLEM STATEMENT

SACCOs are important for promoting community development and financial involvement, especially in areas that traditional financial institutions underserve. However, many SACCOs face significant operational challenges that hinder their efficiency and effectiveness. These challenges include reliance on manual processes, limited access to technology, and inadequate management systems as a result, members often experience delays provision of services, and real-time access to their financial information and difficulties in loans processing and savings mobilization.

The manual processes currently employed by many SACCOs lead to inefficiencies and increased operation costs. These processes are prone to errors, require extensive paperwork, and are time-consuming, which can delay decision-making and service provision. Additionally, the lack of modern technological infrastructure limits the ability of SACCOs to offer convenient and timely services to their members, who may be spread across vast geographical areas.

In response to these challenges, the proposed web-based system aims to streamline SACCO operations by automating processes, enhancing member engagement, and providing real-time access to financial services. The system will facilitate online savings and loan applications, real-time transaction monitoring, and efficient member management. By implementing this technological solution, SACCOs can reduce operational costs, improve service delivery, and enhance overall member satisfaction. This system will empower SAACOs to better serve their communities, ultimately contributing to sustainable economic development and financial involvement.

OBJECTIVES OF THE STUDY

MAIN OBJECTIVE

To develop a web-based system to streamline and enhance the operational efficiency of SACCOs.

SPECIFIC OBJECTIVES

To review the literature and determine the requirements for developing a web-based system for SACCOs.

To design a web-based system tailored to the needs of SACCOs, focusing on Saving mobilization, loan processing, and member management.

To implement the designed web-based system for SACCOs, ensuring ease of use.

To test and validate the system.

SCOPE OF THE STUDY

Content scope:

The research focuses on the design and implementation of a web-based system for SACCOs using modern web development technologies such as PHP, HTML, CSS, and JavaScript. The proposed system is designed to efficiently manage the core operation of SACCOs, including savings mobilization, loan processing, and member management. It aims to address the challenges faced by SACCOs in terms of manual processes, operational inefficiencies, and limited access to real-time financial information. The purpose of the system is to streamline SACCO operations, enhance member engagement, and promote financial involvement. Its objectives include recording savings and loan processes, improving data accuracy, providing real-time transaction monitoring, and offering comprehensive reporting tools for informed decision-making.

GEOGRAPHICAL SCOPE

The study was conducted at Woman of Purpose a SACCO located on Pallisa Agule Road.

Time scope

The study covered TWO AND a half months

SIGNIFICANCE OF THE STUDY

OPTIMIZATION OF RESOURCES; implementing a web-based system for SACCOs helps to optimize the use of resources including administrative staff, financial management, and member services. By reducing manual interventions, the system can minimize errors, save time, and reduce operational costs for SACCOs. The efficient use of resources ensures that SACCOs can focus more on their core mission of promoting financial involvement and community development.

Improved financial management: proper financial tracking for essential for maintaining the financial health of SACCOs. A Well-managed web-based system ensures that transactions are recorded promptly, discrepancies are minimized, and financial records are maintained accurately. The system facilitates efficient financial reporting and budgeting, enhancing the overall financial management of SACCOs. This ensures transparency and accountability, which are crucial for building member trust.

WHAT HAS NOT BEEN DONE: SACCOs have not fully leveraged modern web technologies to create integrated systems that automate all aspects of their operations, from member management to financial reporting. There is a need for systems that provide real-time access to financial data, facilitate online transactions, and enhance communication between members and staff.

APPLICATIONS IN OTHER FILEDS: the principles and technologies used in the SACCOs system can be applied to other fields that require efficient management of resources, financial transactions, and member services for example: microfinance institutions: similar to SACCOs, these can benefit from web-based systems to manage loans, Savings and member services.

Credit unions: credit unions, which operate on cooperative principles, can implement such systems to enhance their operations and better serve their members.

Small and medium enterprises (SMEs): SMEs can use these systems to manage financial transactions, customer relationships, and resource allocation efficiently.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviews existing literature on SACCO management systems, their functionalities, and the technologies used to implement them. The aim is to Identify gaps and opportunities for developing a comprehensive web-based system to address the challenges faced by SACCOs in providing efficient financial services to their members.

2.1 CREDIT MANAGEMENT SYSTEMS AND FINANCIAL PERFORMANCE OF SAVINGS AND CREDIT COOPERATIVES (SACCOs) IN MID-WESTERN UGANDA

A study was conducted to ascertain the relationship between credit management systems and the financial performance of SACCOs in mid-western Uganda. This research employed a cross-sectional design and positive paradigm to collect data from 93 SACCOs in Mid-western Uganda using a closed-ended questionnaire. Standards linear regression analysis was carried out to analyze the data.

The findings of the study reveal a moderate, positive, and significant relationship between the credit management systems and the financial performance of SACCOs in mid-western Uganda. SACCOs that implemented effective credit management systems exhibited better financial performance. Key components of these systems include favorable loan terms and conditions and comprehensive client appraisal processes(Baguma, Kamukama et al. 2020).

The study offers several important recommendations.

2.1.1 FOR SACCO MANAGEMENT:

Implementing effective credit management systems can significantly enhance financial performance.

Ensuring favorable loan terms and conditions is crucial

A strong client appraisal process is essential to mitigate risks and improve loan repayment rates

2.2 TECHNOLOGICAL INNOVATIONS AND PERFORMANCE IN SACCOs

The programmed co-operatives enterprise innovation initiatives in Kenya have fallen short of customer expectations. Despite a majority (60%) of customers being satisfied with the banking and related financial services offered by co-operatives enterprises in Kenya, this satisfaction level is below what customs perceive and expect at the point of service delivery. This study sought to provide insights into the relationship between technological innovation promoters and performance by empirically testing the direct effect of technological innovation promoters on performance and the modern effects of service quality practices(Otii, Wanjau, et al. 2020).

The study found that technological innovation promoters have a positive influence on the performance of SAACOs in Kenya moreover, service quality practices moderated this relationship, with an R2 change of 0.153. this indicates that the moderating effect of service quality practice accounted for a 15.3% variance in SACCO performance beyond the variance explained by technological innovation promoters alone.

This showed that there is a need to implement technological innovation promoters that can significantly enhance SACCO's performance.

2.3 CHALLENGES AND OPPORTUNITIES FACING SACCOs IN THE CURRENT DEVOLVED SYSTEM OF GOVERNMENT IN KENYA

SACCOs are critical for the economic development of Kenya, contributing over 45% of the country's GDP. With 10,800 registered co-operatives societies and a membership of approximately 6 million, SACCOs form a vital part of the Kenyan economy. The Majority of these are agricultural (46%) and financial-based (38%) SACCOs, with 63% of the Kenyan population relying on co-operatives-related activities for their livelihood. Over 250,000 individuals benefit through direct employment in SACCOs, and it is estimated that at least one out of every two Kenyans derives their livelihood from these cooperatives. (Mumanyi 2014)

The study identified several challenges facing SACCOs in Mombasa County, including: Lack of finance, multiple duties. These challenges show there is a need for a web-based system to solve

problems of multiple duties as well when a system is put in place after a long run it will reduce costs whereby there won't be a need to buy books for record keeping.

Despite these challenges, the study also identified opportunities for SACCOs, which significantly contribute to economic development. Capital accumulation, and agency business arising from access to government funds for onward transmission to youth and women groups.

2.4 ROLES AND RESPONSIBILITIES IN SACCOs

2.4.1 MEMBERS

members are the backbone of SACCO. They join voluntarily, pooling their resources to achieve mutual financial goals. Members benefit from services like savings, loans, and dividends, and they have voting rights in the SACCO's decision-making processes (Anania and Gikuri 2015)

Active participation of members is crucial for the SACCO's success. They attend annual general meetings (AGMs), vote on important issues, and can be elected to various committees(RWANDA 2013)

2.4.2 BOARD OF DIRECTORS

The board of directors (BOD) is responsible for the overall governance and strategic direction of SACCO. They are elected by the members during AGMs and serve specific terms(Ronnie 2010).

Roles

Chairperson: leads the BOD, ensures effective governance, and represents the SACCO in public forums.

Vice-Chairperson: Assists the Chairperson and steps in their absence.

Treasurer: Oversees financial management and reporting.

Secretary: manages documentation, minutes, and correspondence

2.4.3 SUPERVISORY COMMITTEE

Oversight and Compliance: the supervisory committee is responsible for internal control and compliance. They ensure that the SACCO operates within the legal and regulatory framework and that internal policies are followed (RWANDA 2013)

2.4.4 CREDIT COMMITTEE

Loan management: the credit committee is responsible for evaluating and approving loan applications. They ensure that the SACCO's lending policies are adhered to and that loans are given based on members' creditworthiness.

2.4.5 STAFF

Operational support: SACCO staff provide essential services to members and supports the management team in implementing daily operations

ROLES

Loan officers: process loan applications and manage loan portfolios

Accountants: handle financial transactions and record-keeping.

Tellers: handle cash transactions and member deposits.

CHAPTER THREE:

METHODOLOGY

3.0: Introduction

This chapter presents the system design, data collection methods, sampling strategies, data analysis, and ethical considerations that were used in the study

3.1: Area of study

The study was conducted in women of purpose SACCO along AGULE-Pallisa Road Pallisa District in eastern Uganda the company began in 2018.

3.2: population and sampling.

This study involved two respondents from whom data was collected including the SACCOS secretary and SACCO staff.

3.3: Data collection methods

3.3.1 interview.

I used this method to collect data through interaction with the SACCO secretary and staff who gave me information about the SACCO and its activities on how roles are given according to their specific type.

3.3.2 questionnaire.

I gave some questions to the SACCO secretary and staff to answer and they gave me clear information about Women of Purpose SACCO how they carry out their activities and the prospects that they are working on to achieve for example they are looking forward to using a sustainable system that can help them reduce on their workload and manage member accounts

3.3.3 focus group discussion

It involved selecting a specified group of people to discuss more about how can loans and Savings be managed and we formed a group of friends.

3.4 Data presentation and analysis

This case study used qualitative research strategies to help the researcher get more information about loan and savings management.

Data from the field was obtained by use of different data collection instruments and there are only two types of data primary data and secondary data.

3.4.1 primary data

Primary data is the data that was collected by the researcher directly from the field and this information has never been acquired from the field for example interviews from candidates such as SACCO secretary, SACCO staff

3.4.2 secondary data

Secondary data is the data that has already been collected through primary sources and made readily available for researchers to use for their research. When using secondary data, the researcher looked for different sources to see where he may get data to obtain clear information about the research. To achieve the study, secondary data was gathered using a documentary tool from the internet, search engines, and websites

3.5 system development

The development approach for this project was the structured system analysis and design methodology

System analysis and design methodology involved users in the requirement analysis and users were involved in every stage until requirements were met. Users were provided with clear understandable documentation which consisted of diagrammatic representations of the system. System development divides development projects into stages, modules, steps, and tasks. The data model was the first model and part of requirements gathering that consisted of stages, steps, and products. Techniques used in system development were logical data modeling, data flow modeling, and entity modeling.

Rapid application development (RAD) methodology was used to develop the system based on prototyping and iterative development. It involved user requirement gathering through groups and focus groups, testing of the prototype by the user, and the use of existing prototypes. In RAD modules are developed as prototypes and integrated to make a complete product for delivery. A prototype was a functionally working model of a product. For this model to be successful, the prototypes were reusable.

3.6 system Analysis and Design

The research design refers to the strategy used to carry out research that defines a logical plan to establish research questions through the interpretation and analysis of data. Several tools were used to represent information from the collected data and they included the following data flow diagram, context diagram, and use case diagrams.

3.6.2 Context Flow Diagram

A context flow diagram is a visual representation that illustrates the interactions between a system being developed and external entities such as users, other systems, or organizations. It made it easy to understand and analyze the system.

3.6.1 Data Flow Diagram

A data flow diagram is a graphical representation of the flow of data through an information system and was used for the visualization of data processing. DFDs were particularly useful for understanding system processes, identifying data sources and destinations, and defining data transformations.

3.6.3 Use Case Diagram

A use case diagram is a type of behavioral diagram in Unified Modeling Language (UML) that represents the functionality of a system from the users' perspective. It illustrated the interactions between users (referred to as actors) and the system to accomplish specific tasks or goals.

3.7 system implementation

The following tools were used in the implementation of the SACCO management system.

Visual Studio code was the text editor used to write dynamic codes that generated pages quickly and easily.

HTML is a markup language used to create the user interface with cascading style sheets (CSS).

Windows 10 pro–operating system and MySQL database server were used to build the system.

MySQL was used to develop the database of the SACCO management system.

A database is an organized collection of structured information, or data, typically stored electronically in a computer system. The database was used to make data access easy, quick, and flexible for the user.

PHP (Hypertext preprocessor) was used to build the front end of the system. PHP is a server-side scripting language in HTML that is used to manage dynamic content and databases. PHP enables developers to create dynamic and interactive websites and web applications by processing data and generating customized output on the server side before sending it to the client's browser for display.

Xampp server acted as a server-side database tool for the implementation of the database of the system.

3.8 Testing and Validation

Both unit testing and integration testing were used in the SACCO management system to clarify the specifications of the system to show faults and establish confidence in the system.

Unit testing focused on one function as a function was designed. It was tested before proceeding to design another function.

After all the modules had been assembled to form a full system, integration testing was done to ensure all system components worked together and combined to make a fully functional system.

User testing was performed at the end. users of the system tested the system if it meets their requirements.

The researcher performed software validation to determine whether the software product satisfies the intended use and user requirements.

3.9 Ethical considerations

The ethical issues that were considered during data collection and analysis include the following.

Respect for intellectual property:

I never copied or plagiarized other people`s work during my research instead I considered text citation and referencing to acknowledge the source of information.

Integrity:

I had to be consistent in my actions and words during the research process and kept my promises and agreements with all the users of the SACCO management system

Honesty:

I honestly presented data results, procedures, publications, and reasons for collecting data for the SACCO management system.

Confidentiality:

I protected the sensitive information that was provided to me by the respondents to prevent unauthorized access.

Objectivity:

I had no bias in all aspects especially natural bias in reporting data and ensured proper sampling of the respondents during data collection

CHAPTER FOUR

FIELD STUDY AND SYSTEM DESIGN

4.1: INTRODUCTION

This chapter describes the study of the current system, strength of the current and weaknesses of the current system, system requirements (functional and non-functional requirements) and system design (system architecture, context diagram, data flow diagram, ERD, use case diagram)

4.2: Background information of the existing system

The current SACCO system is manual and involves the following processes:

Contribution and loan management: Members' contributions and loan details are managed manually, often recorded in ledgers or basic computer applications.

Data Storage: the company uses a desktop computer to store member information, but this is likely done using simple tools such as spreadsheets or basic database software.

Financial Transactions: Transactions such as deposits, withdraws, and loan repayments are recorded manually, which can lead to errors and inefficiencies.

Reporting: Generating reports for financial records, member contributions and loan statuses is a manual process, which can be time-consuming and prone to inaccuracies

4.3: Strength of the current system

Despite the manual nature, the current SACCO system has several strengths that contribute to its continued operation:

Simple and low-cost implementation: the current system's simplicity means it has minimal technology requirements and low implementation costs. This is particularly advantageous for smaller SACCOs with limited financial resources.

Local knowledge and expertise: the manual system relies heavily on the knowledge and expertise of the staff who are familiar with the members and their needs. This local expertise can lead to tailored solutions and a deep understanding of the member base.

Flexibility: Manual processes allow for flexibility in handling exceptions and unique situations that might not be easily managed by a rigid automated system. Staff can adapt quickly to changes or special requests from members.

Direct control over processes: the manual nature of the system gives staff direct control over all process, which can lead to immediate troubleshooting and hands-on problem solving without needing to rely on technical support or system maintenance.

4.4: Weakness of the current system

There are a number of inherent weaknesses in the manual SACCO system that make it inefficient and in effective.

1. Slow and Labor-Intensive: Manual entry is a time-consuming process that requires significant staff effort for record keeping. This consequently results in delayed processing of transactions, getting records up to date and generating reports.
2. Increased Risk of Error in the System: It is more likely for human error when handling data manually as regards recording Contributions, Loans and Transactions. These mistakes can result in inconsistencies between the books and records as well as miscommunication with members.
3. Data kept in a single desktop computer: Single data accessibilities are not possible when storing this sort of information. But because only one user can view the data at any given time, it is more difficult for multiple staff members to collaborate on real-time information.
4. Security and Accuracy of Data: Paper documents can be lost or damaged, while digital methods that are too simple (they merely involve changing from papers to spreadsheets) do not greatly reduce vulnerability in two ways. Your data is more secure, which means less chance of hardware failure or your storage device being stolen and also if the worst happens you have no backup from natural sources.
5. Unexplained Reporting: Extracting the Reports manually is a lot of time-consuming, and results in delaying to take decisions; non-transparency act. Incorrect or missing reports can skew financial planning and member communication.

4.5 SYSTEM REQUIREMENTS

4.5.1 Functional requirements.

Functional requirements define what the system is supposed to do. Functional requirements can be data manipulation and processing and other specific functionality that define what the system is supposed to accomplish. SACCO management system should be able to display all requirements of the form to be filled by clients.

To maintain, store and retrieve SACCO management information from the database and ensure security of information from unauthorized access by putting secure login and setting strong passwords.

1. **User requirements:**

   These requirements capture the needs and expectations of system`s end users. They define the functionalities that users require to accomplish their tasks effectively and efficiently. User requirements are expressed in use cases which describe interactions between users and the system.

2. **System requirements:**

   System requirements specify the overall behavior and functionality of the system. They define how different components and modules of the system should interact with each other to achieve the goal of the system and the security of the system.

4.5.2 Nonfunctional requirements

Non-functional requirements specify criteria used in the operation of the system. These requirements specify how the system is supposed to be described below.

CATEGORY	REQUIRED	DESCRIPTION
OS	Windows 10 pro	Web browser host OS
Web browser	Google chrome, Microsoft edge, Firefox.	Displaying web pages
Processor	2.0GHZ processor speed	microprocessor
Hard disk	32gb	Store data

4.5.3 Database management system

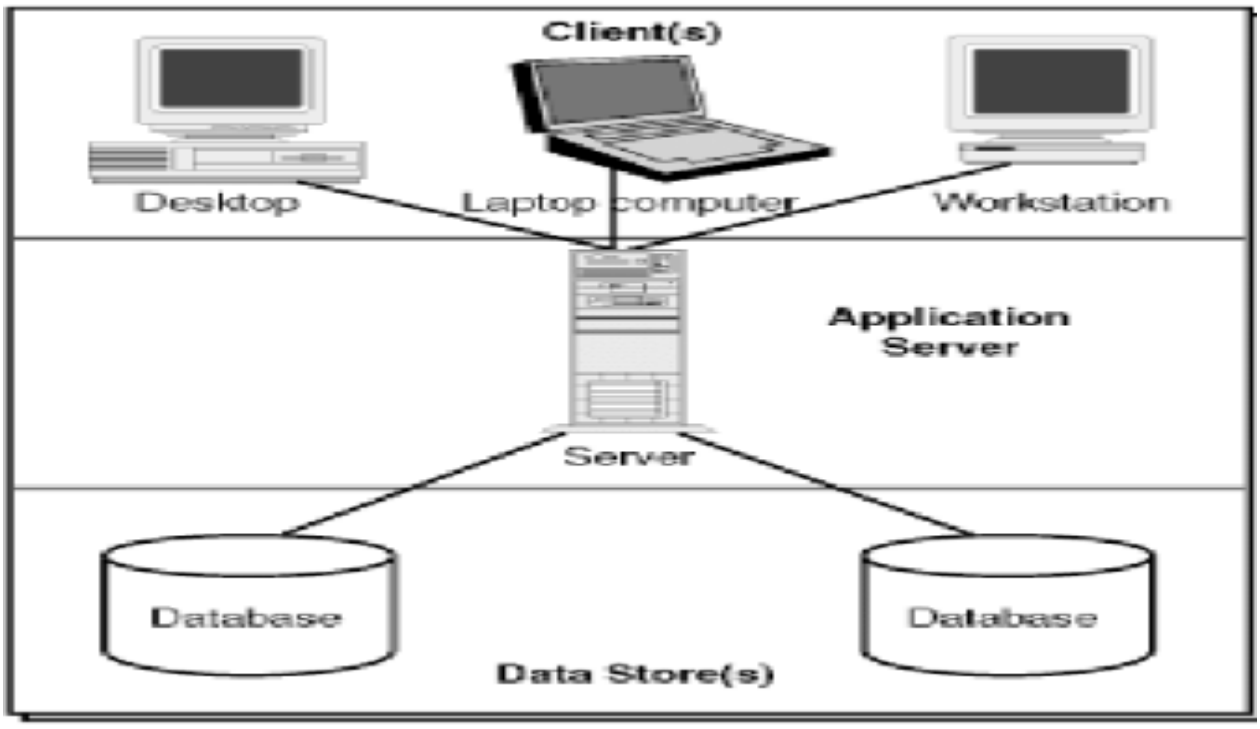
A database management system is a software for creating and managing databases. A DBMS makes it possible for end users to create, protect, read, update and delete data in a database. The most prevalent type of data management platform, the DBMS serves as an interface between databases and users or application programs ensuring that data is consistently organized and remains easily accessible (Mullins 2002).

4.6: System Design

The requirements determined were used to design the system. The design development methods in the study are rapid application development (RAD). Design stages include; system architecture, context diagram, data flow diagram, system modelling using UML (use case) and entity relationship diagram (ERD)

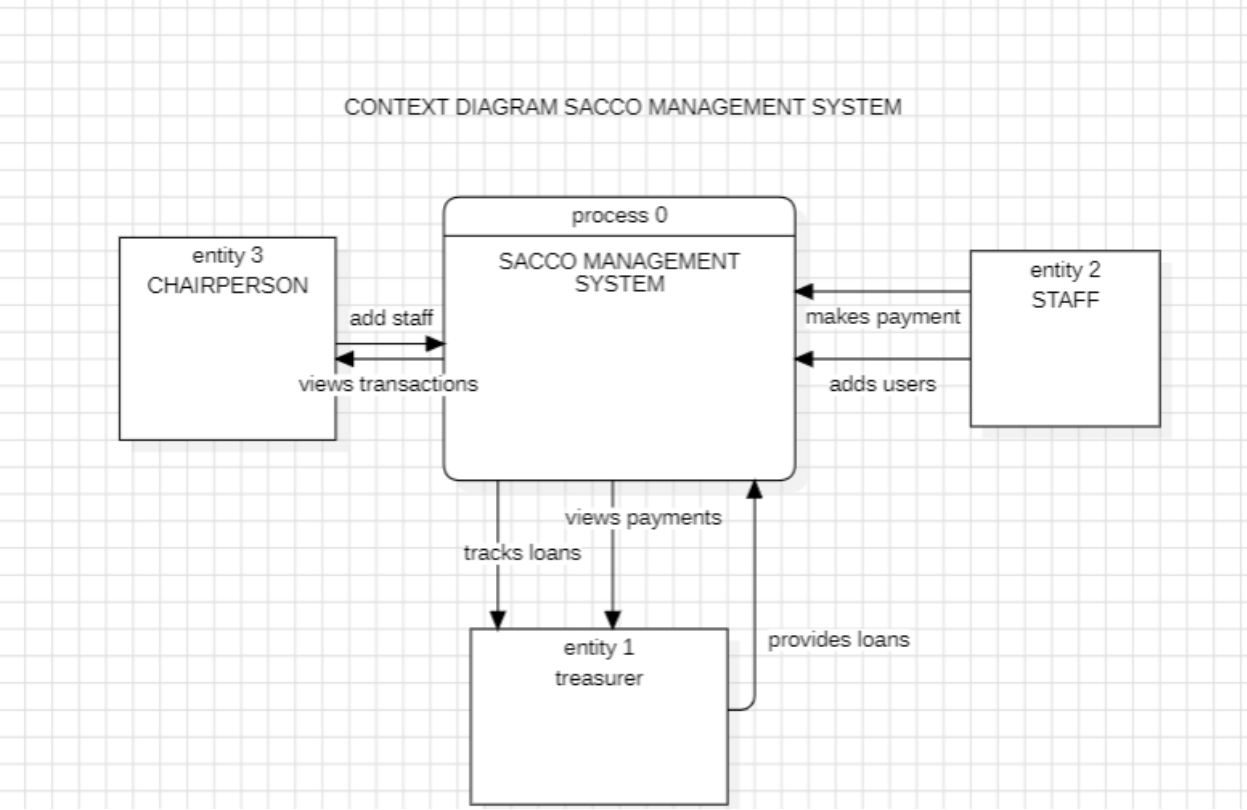
4.6.1: Architecture

Web based system has the architecture that contains internet, web browser and database shown below. The information flows from the internet to the server by use of wireless and non-wireless. web browser sends requests to the server and server provides feedback through the web browser. The server retrieves information from the database where its stored and provides to the server back when needed and client gets information from the server as illustrated below.



4.6.2: Context flow diagram

Context flow diagram is a visual representation that illustrates the interactions between a system being developed and external entities such as users, other systems, or organizations. It makes it easy to understand and analyze the system.



4.6.3: Data flow diagram

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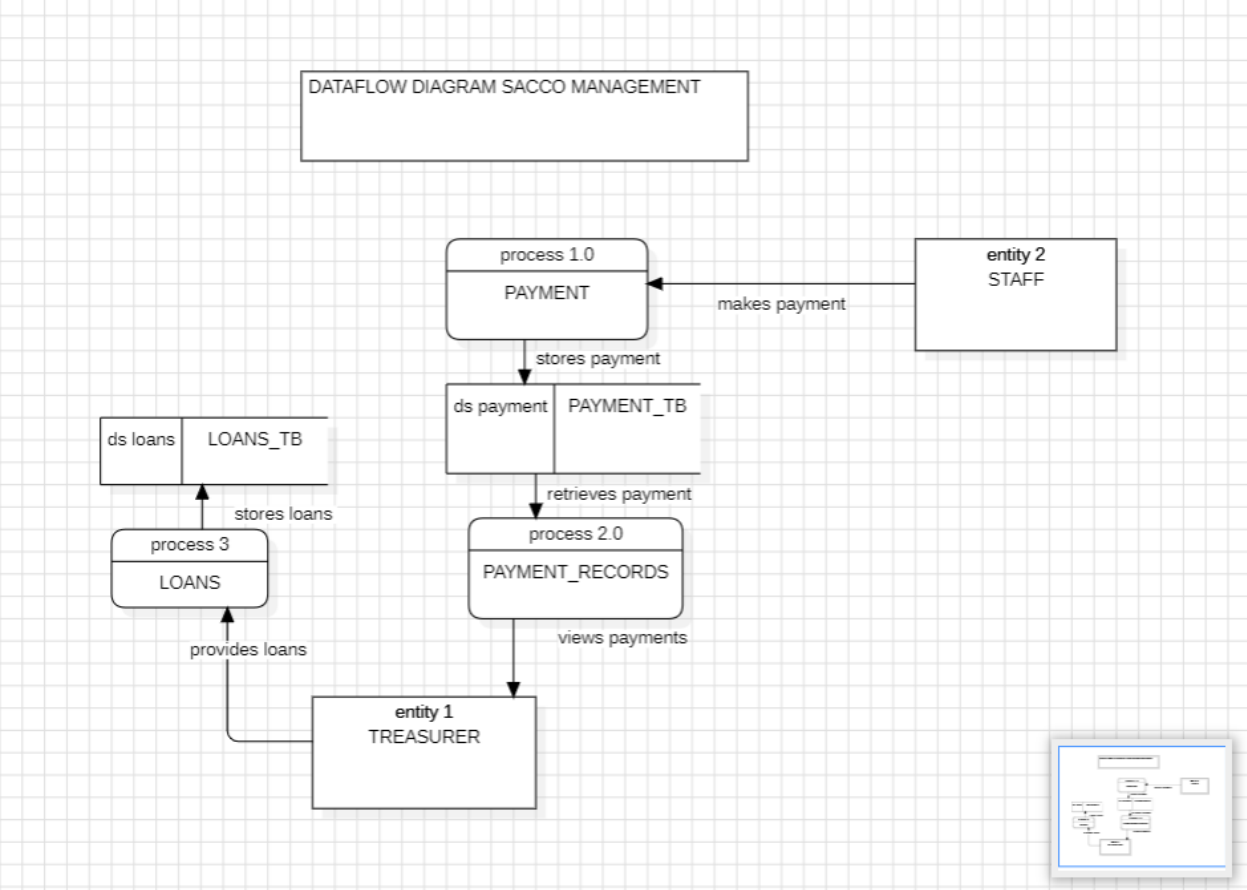

4.6.4: Use case diagram

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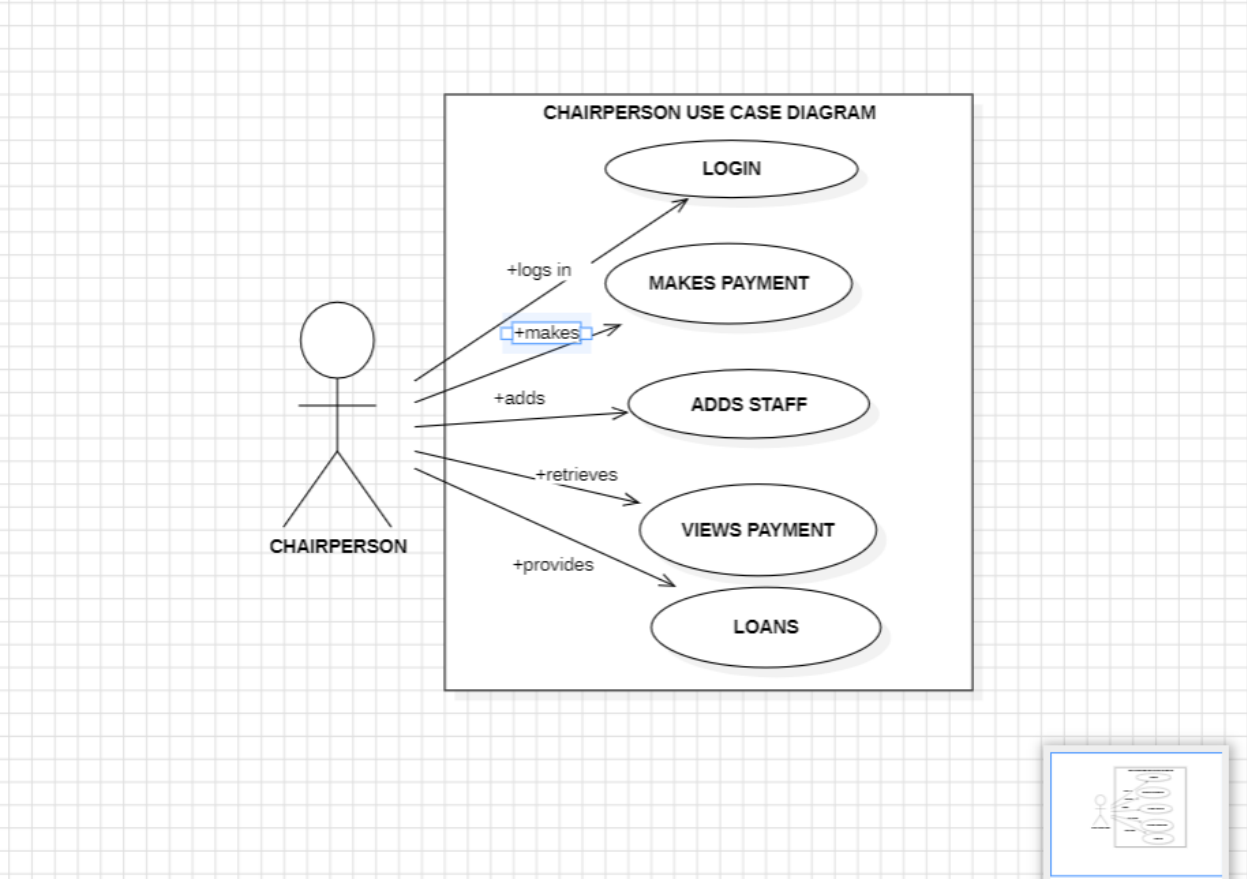
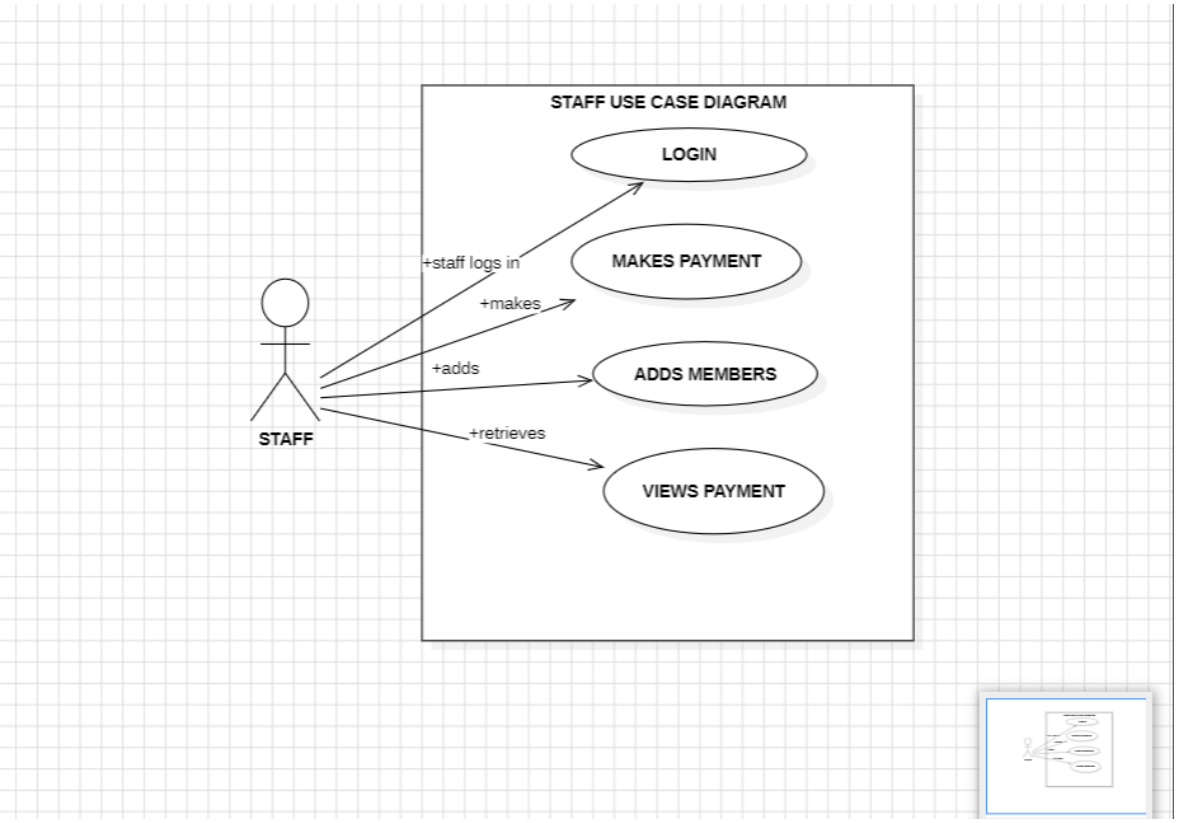
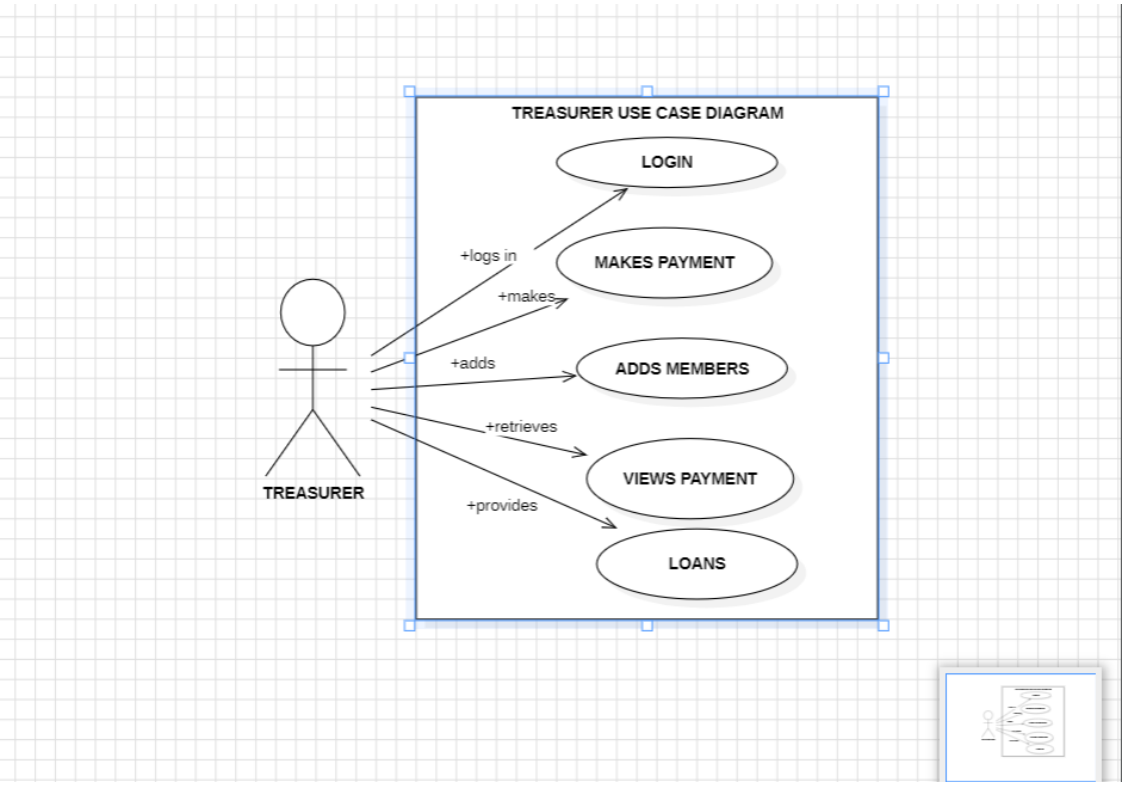



STAFF USE CASE DIAGRAM
LOGIN
MAKES PAYMENT
ADDS MEMBERS
VIEWS PAYMENT
+staff logs in
+makes
+adds
+retrieves
STAFF


TREASURER USE CASE DIAGRAM
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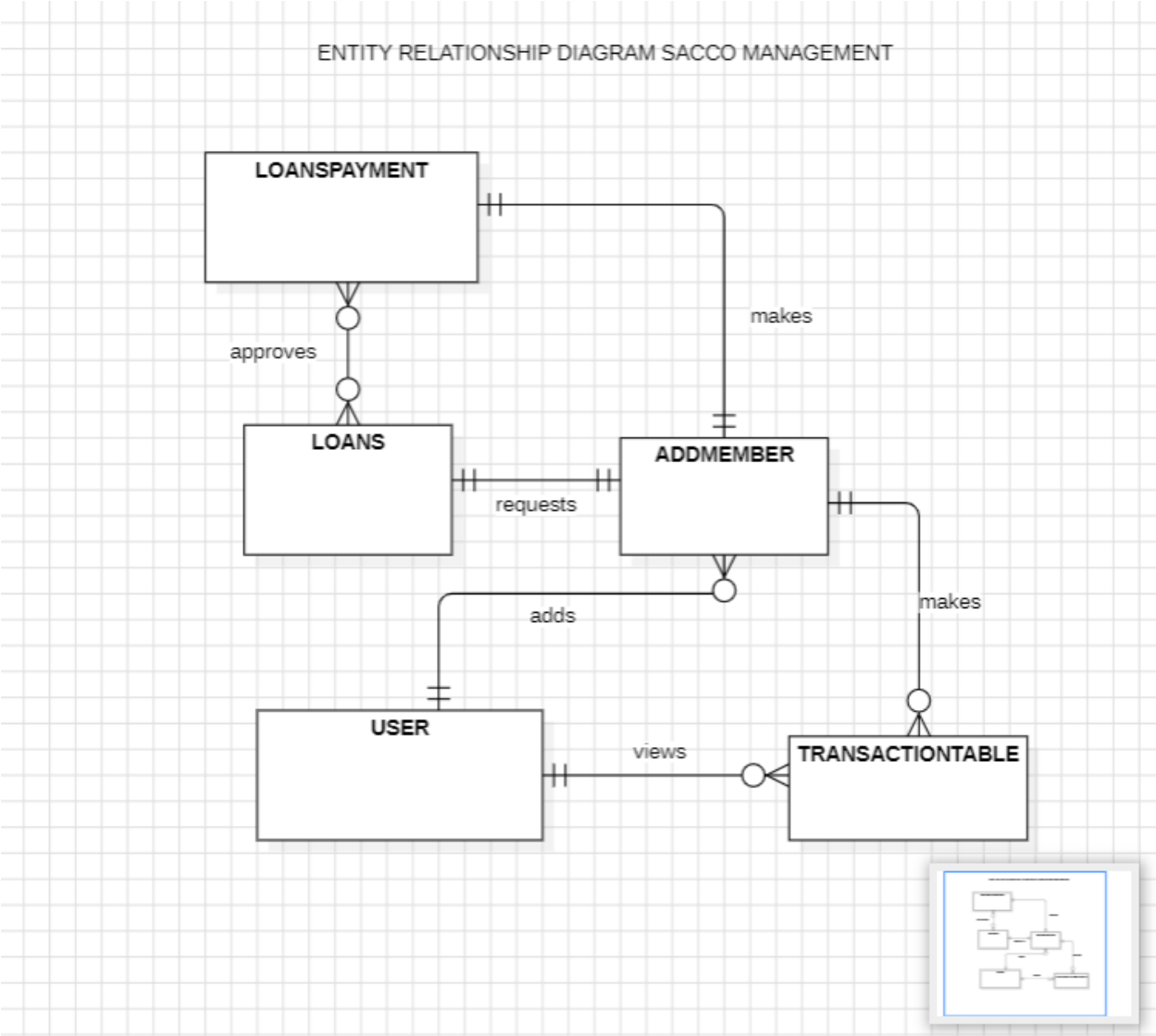
+logs in
+makes
+adds
+retrieves
+provides
TREASURER

4.6.5 Entity relationship diagram

An entity relationship diagram (ERD) is a type of flowchart that illustrates how entities such as people, objects or concepts relate to each other within a system.



CHAPTER FIVE

IMPLEMENTATION AND TESTING

5.0 introduction

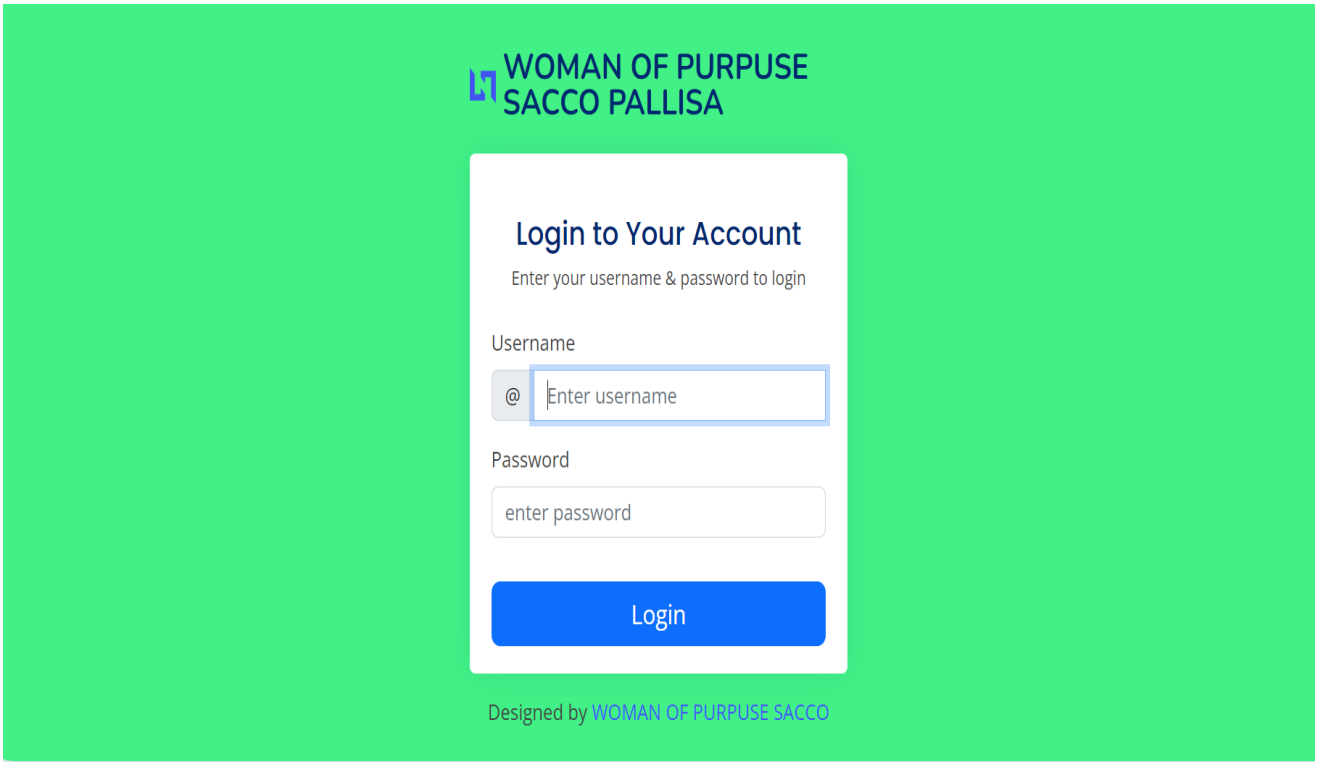
This chapter was about the presentation and analysis of the data related to the current SACCO management system. SACCO management system focused on the security risks faced by the current SACCO management system, lack of communication.

5.1 System implementation

The system was created using windows environment, Microsoft visual studio code was used to create the user interfaces (front end) and MySQL was used to create a database for storing data after which a logical connection was built.

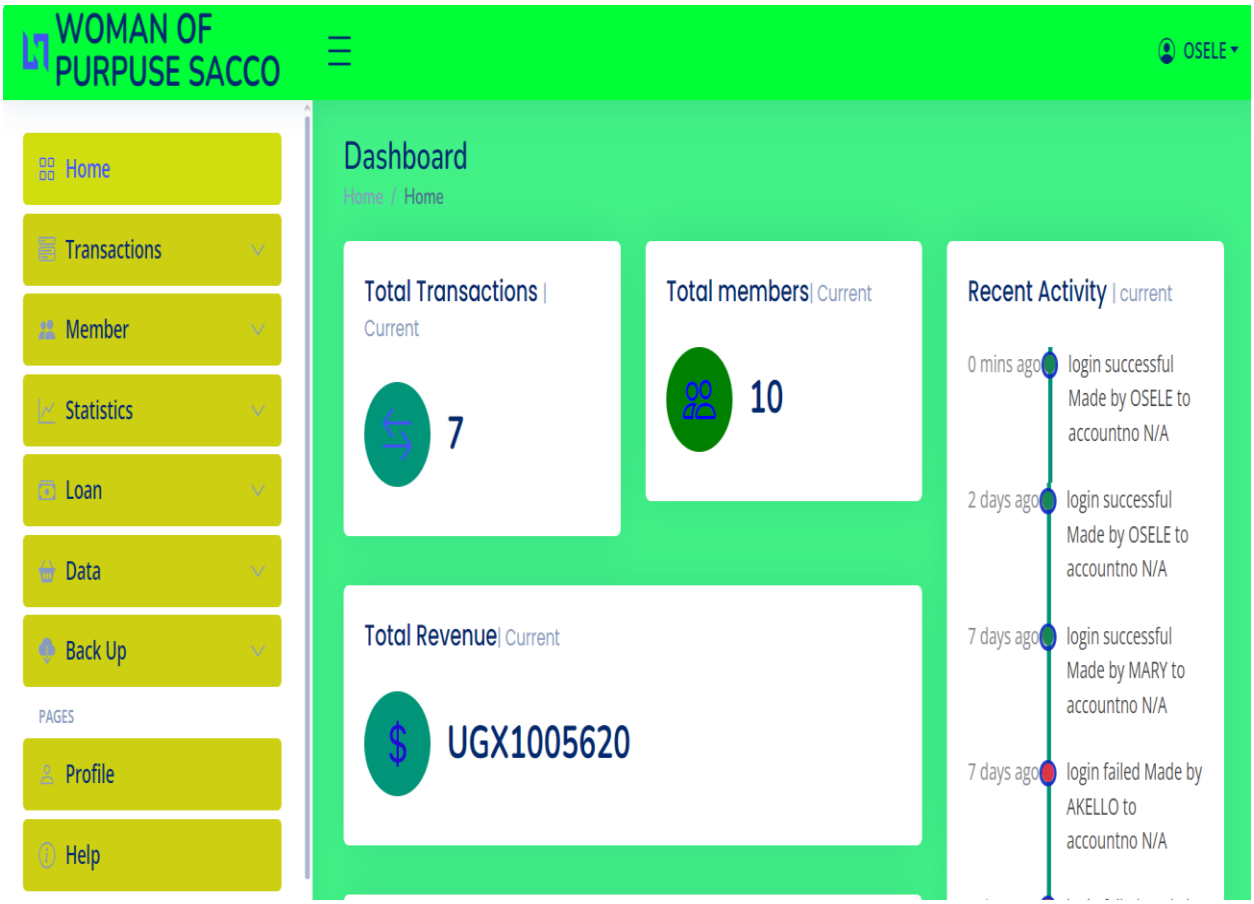
5.2 Login page

This is the first form that comes first when the program is launched. It's meant for security and authentication purposes. When loading the system, one should go to the web browser and type http://localhost/SMS to open the login page as illustrated below



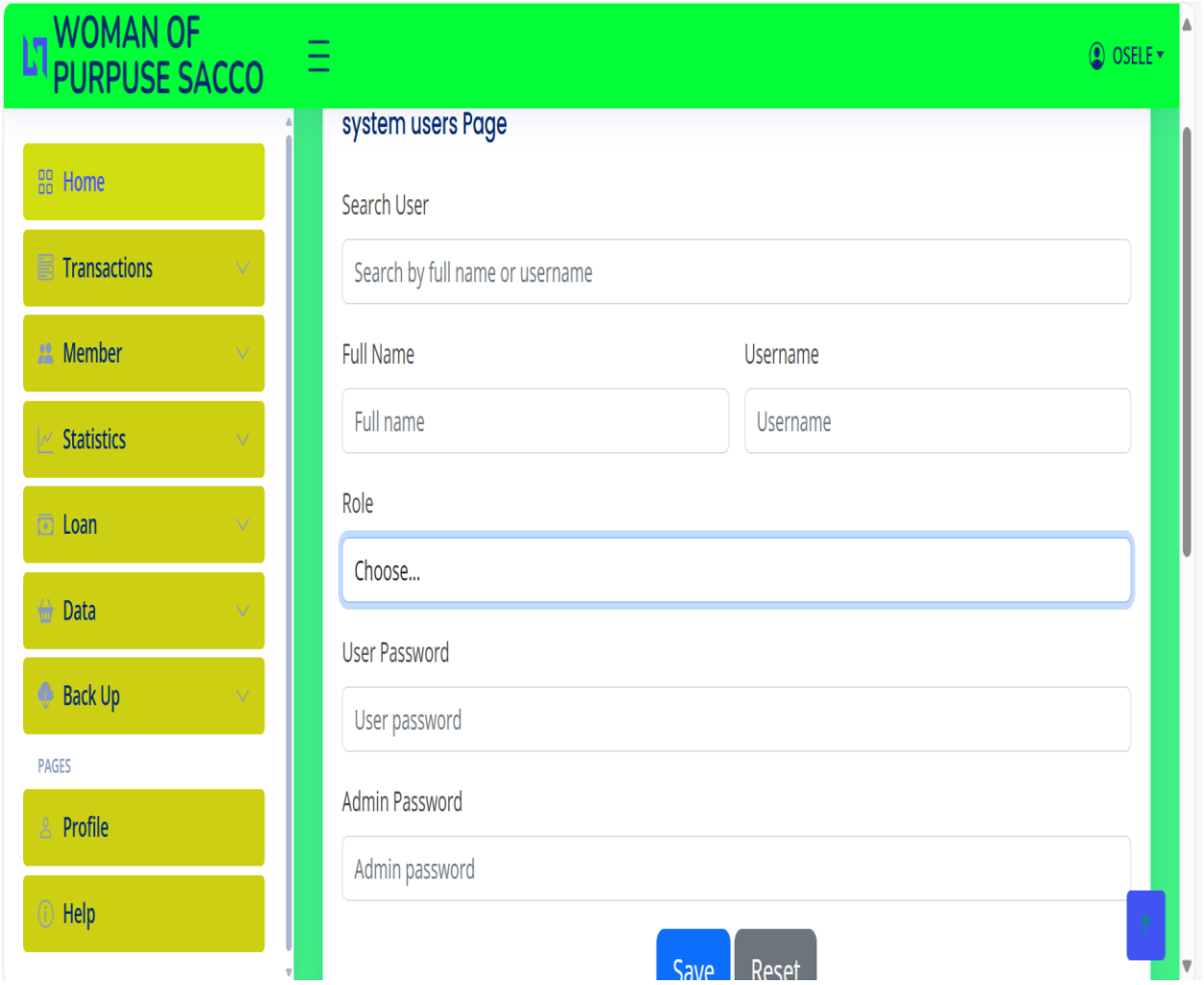
5.3: Dashboard

Dashboard of SACCO management system appear as follows the chairperson who views information like total loans, payment requests, and number of members in the SACCO.



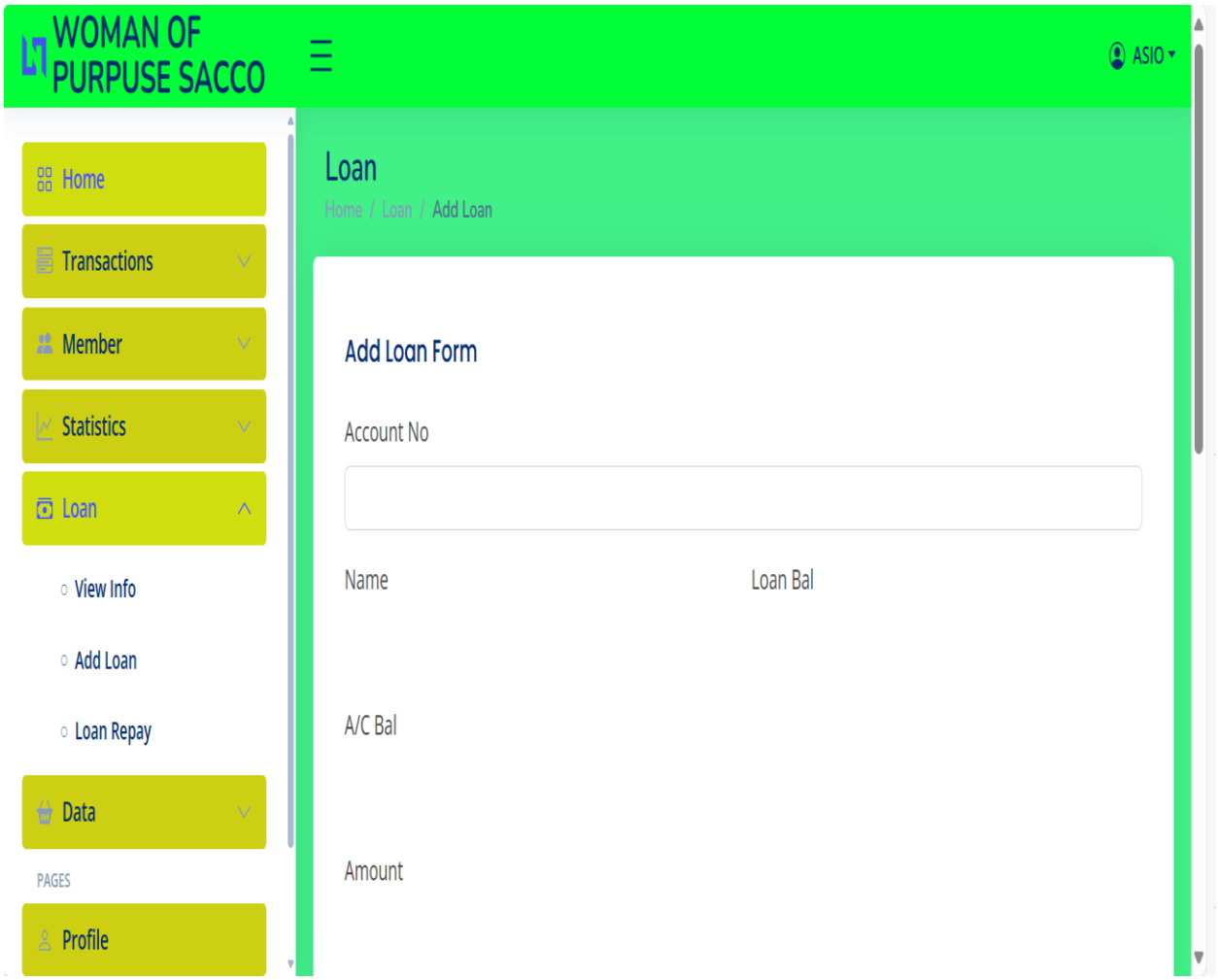
5.4 Adding and managing customers

The chairperson is able to add members, staff and capture their details managing their accounts, setting and encrypt their passwords as illustrated below.



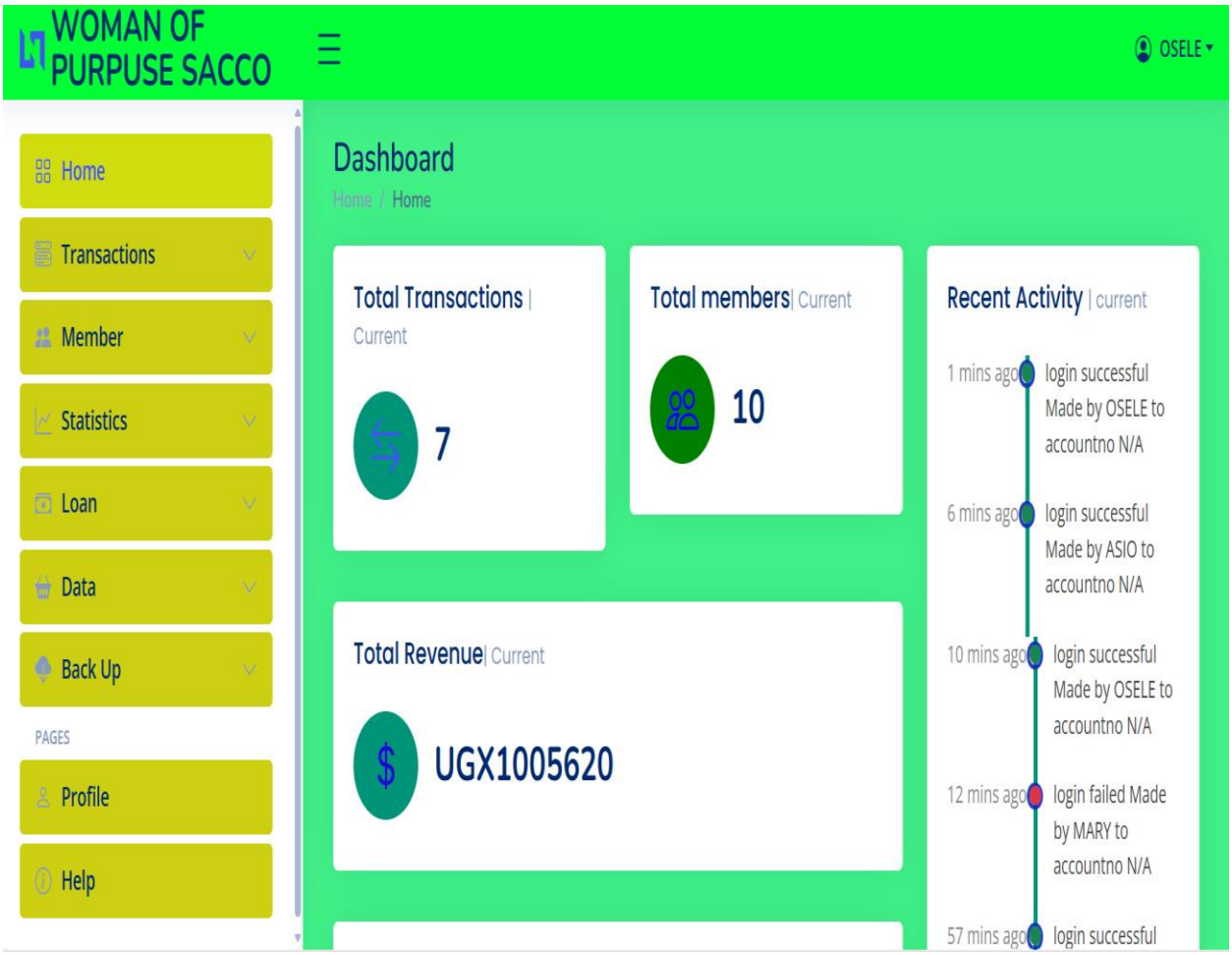
5.5 loan allocation

This is where treasurer gives out loans to the members who have been added to the system.



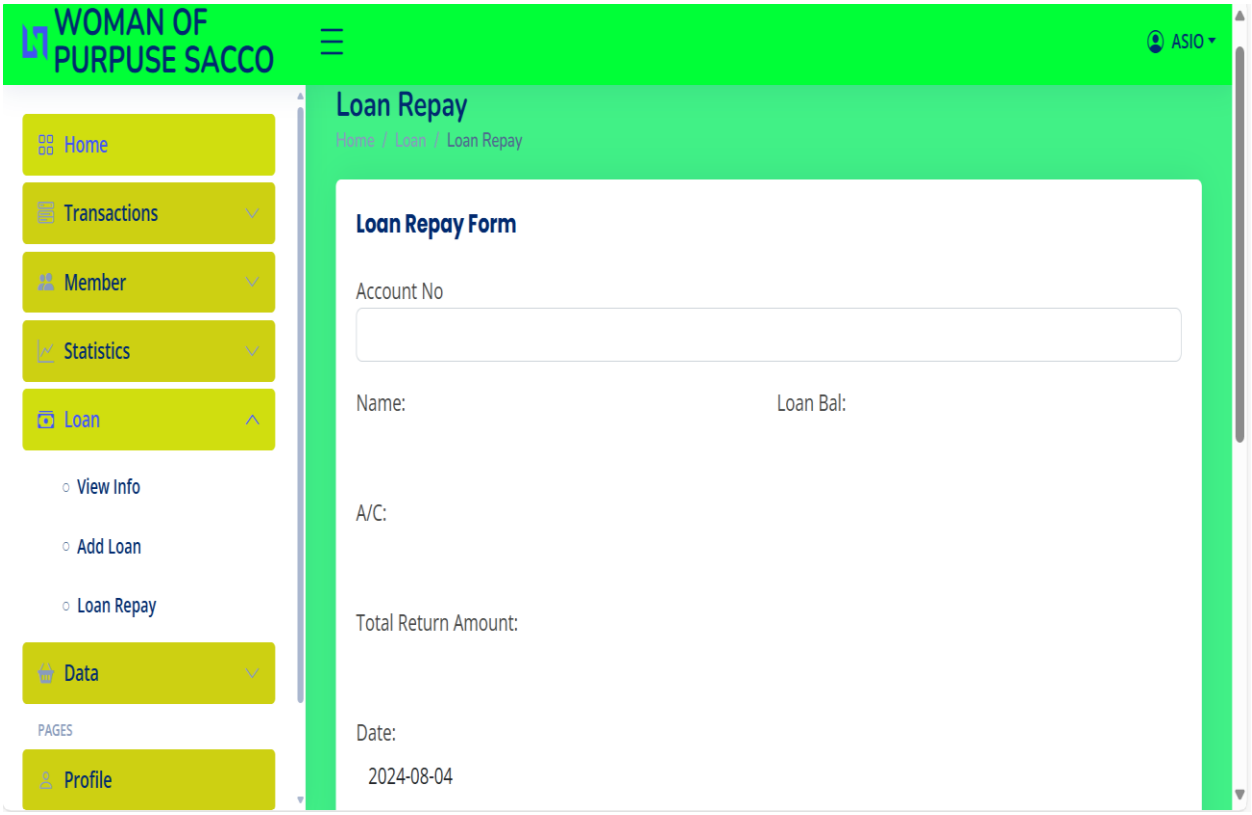
5.6: Staff dashboard

This is where staff views members' information



5.7: Loan Payment

This is where treasurer manages payment of different members, in order to clear their loan balances.



CHAPTER SIX

DISCUSSION, CONCLUSION, RECOMMENDATIONS AND FUTURE WORK

6.1 Introduction

This chapter presents the discussion, recommendation and conclusion with the research objectives of the study

6.2 Discussion of the results

The discussion of the findings was presented with the research objectives of the study

Objective (1) to review the literature and determine the requirements for developing SACCO management system

The requirement determination, data collection was got through library research and field study, carry on interviews and data got from previous work enabled me to align my project work. Library research generates more information and requirements that were being used in the system design of the DFD database design and few others that led to the fulfilment of functional and non-functional requirements, field work research enabled me to get to know how the manual system works.

Objective (2) To design web-based SACCO management system

The system was designed depending on the requirements by RAD from the SSADM software which included the following procedures to be followed architecture, context diagram, entity relationship diagram and database design which enabled the flow of data and evaluation of the SACCO management system.

Objective (3) To implement web-based SACCO management system

The implementation of the system was carried out using the following implementation tools such as visual studio code editor, google chrome, MySQL, HTML, Xampp server for local host and laptop with windows 10 pro to succeed the implementation of the system

Objective (4) To test and validate web-based SACCO management system

The system was tested during and after its implementation. Each component of the system was tested.

Unit testing was used to test individual parts of the code every part of the interface was tested to detect if the system functions well. It involved identification of errors in specific units of the code making error detection easy

Integration testing was done after whole parts of the system had been put together to make the system complete.

6.3 conclusion

The study of existing system was done and the new system designed. The need for computerized SACCO management system was highly emphasized as computer could store, update and retrieve information. computers could always process data and produce accurate reliable correct data the use of computers in SACCO operations solved problems encountered in the manual system. Sacco management system should be used by WOMAN OF PURPOSE SACCO and other SACCO companies since it eases work and communication between the company management and clients and the increase in processing speed, improved storage facilities and easy retrieval.

6.4 Recommendations

SACCO management system requires skilled personnel to use therefore users should be trained on how to use the computerized system to create awareness of its existence and importance, sending and receiving notifications, and expanding the organization’s capabilities. This will improve the system's functionality.

6.5 Limitations

The researcher encountered number of constraints which hindered the success of the study success.

6.5.2 Time constraint

The time that was allocated for the study was not enough because of course works, tests, exams and research.

6.6 FUTURE WORKS

1. **Mobile Application Development:** Developing a mobile application companion to the web-based system can improve accessibility and convenience for both Sacco management authorities and clients. The app could allow clients to access services, receive notifications, and track their requests in real-time.
2. **Scalability and Adaptability:** Ensuring the system is scalable and adaptable to accommodate future growth and evolving Sacco management needs is crucial. Future work involves refining the system architecture, improving scalability, and developing tools for easy customization.

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