

**INFORMATION MANAGEMENT SYSTEMS FOR A
MICROFINANCE**

CASE STUDY: DTS MICROFINANCE

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DECLARATION

We IBRAHIM AHMED ADAM and TOO JOSEPH K, do hereby declare to the best of our knowledge that this graduation project is our original work and has never been submitted to any University or any other institution for any award.

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APPROVAL

This Graduation project has been submitted with the approval of the following supervisor.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Computers play a major role in the current world ,almost every business depend entirely on computer systems without which all their activities would come to stand still, companies which have acknowledged information technology have vast access of information, better communication and reliable management and thus quick decision making on various key issues affecting the company .

This project has mainly be involved in the design and implementation of a system for managing microfinance organization. The system contains a database which contains all details of the employee right from executive level to the operational workers for human resource management work to be efficient.

This is because the primary task of the human resource department is to ensure that the organizations human resources are utilized and managed as effectively as possible (Carrel 1992). The database also contain details of donors and the clients of the organization. The system also deals with the day to day business activities of the organization which includes granting loans, calculation of interest and servicing of loans by small scale business people.

For better results and development of fully functional system all the business processes of the microfinance organization should be looked into. Basically, the success of a microfinance organization in their offering services to small scale businessman is critically dependent on proper system caters for its operation.

1.2 Statement of the problem

Microfinance organizations have problems with their day to day operations in their quest to satisfy their clients. This is because of using manual systems to manage their activities which in most cases lead to loss of crucial data which results to inefficiency and total failure in delivering their services, it also slows down the processes and most times leads to huge losses of finances and data. This is caused by increased number of clients in these organizations due to their affordable services.

1.3 Scope

The project specifically dealt with automating a microfinance organization which grants soft loans to small scale and medium size business men. It analyzed the management of human resource and business transactions with the sole aim of improving the efficiency of the organization.

The development of the system up to the implementation of this project was based on the system development life cycle that is planning, analysis, design and implementation of a microfinance management system. The database contains all the organization's data with different forms as interfaces for different aspects of the business. However, a prototype of the system was produced with an implementation plan. Other details like user training, migration of data changeover changes of policies and management structure and system support was not be catered for in this project, since it is a graduation project. The following are areas in which data was collected from;

- business process in the organization
- Customers
- Current system if any
- Capability of the organization's technology infrastructure.
- The management of the organization

The project did not cover development costs, running costs and benefits of the new system was quantified then in passing.

1.4 Objectives of the project

There are two kind of objectives we are going to look at main and specific.

1.4.1 Main objectives

The main objective of the study was to develop a management information system for a microfinance company that would assist the organization to run its activities efficiently.

This is by design a user friendly and interactive system with high reliability and good security which can compile a report that help improve the general management of a microfinance company and handle business transactions efficiently.

1.4.2 Specific objectives

The specific objectives of the study were to:

- i. Prepare and document the different phases, these are planning, analysis, design and implementing of the project system development life cycle to map out the techniques and tools that is prototyping and UML (Unified Modeling Language) to be used.
- ii. Carefully develop the key business and user requirements for a microfinance company so as to identify the real problem.
- iii. Design a user friendly interface which can be used easily by the user to interact with system.
- iv. Create a database using MYSQL that will contain all the data which are; customer information, employee information and all the company transactions.
- v. Test and debug the system's functionality so as to ensure it meets the user requirements and produces the right output.
- vi. Produce documentation for the system for easy use and understanding by the user

1.5 Research Questions

1. Is it possible to build an information management system that can handle the managerial and operational activities of a microfinance company.
2. Is it possible to come up with a system that can provide a report to the management to make decisions in the business
3. Is it possible to create a user friendly interface and a secure database for the microfinance company

1.6 Conceptual frame work.

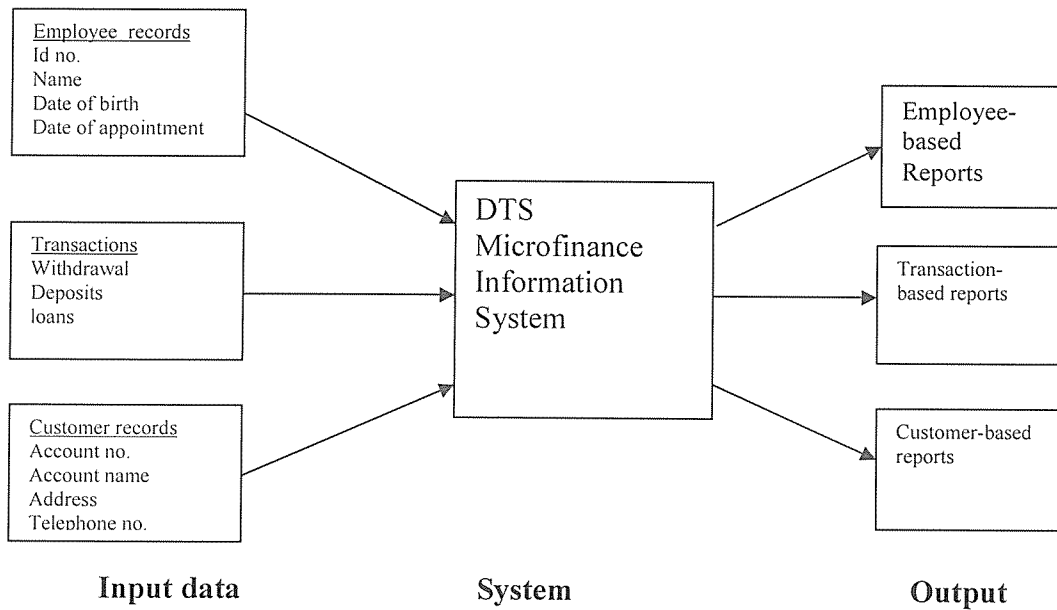
The Idea behind this study was to create an application to be used in a microfinance organization. The system is able to help in the running of the entire organization that is in general management.

In order to accomplish this kind of a system, the following functionality has be designed and implemented using visual basic and MYSQL server.

- A database that contains all the details about employees, customers, donors and transactions.
- An administrative interface which has different forms for accessing information about employees, customers as stated above.

The system will be able to be installed in a networked environment where a central server will hold the database.

Fig1. The conceptual design of the microfinance information management system



User interfaces were created which are for all users with a login account.

This leads to other forms and access depends on the position of the user because different users have been granted different privileges. This has been accomplished by use of visual basic. The system provides forms for entering data and queries for retrieving information from the data.

The database contains different tables for the different forms and this has been accomplished by MYSQL.

1.7 Significance Of The Study

Currently most people in Uganda are going for microfinance services. This is because they can easily access its services rather than Banking facilities whose charges are very high. For microfinance organizations to efficiently manage their operations they must have a computerized system in place. The system should be able to handle its data and process all the transactions as required by the organization.

The study looked into the different managerial aspects and the transactions carefully in order to build the system which caters for all the business needs of a microfinance organization. This will enable the organization to run smoothly and deliver to the society. The clients' data will be safe and will not risk losing their money and will boost the clients' confidence in the company and the company will grow.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter looks at what other people have written about management information system and the tools used. In this chapter the following will be covered; information system, components of the information system, importance of information system in business, management information system, and database systems, application's interface and tools.

2.1 Information system

An information system is composed of several integrated components that work together to process data and produce information. O'Brien (2002) defines an information system as, can be any organized combination of people, hardware, software, communication networks and data resource that collects, transforms, and disseminates information in an organization. Therefore from the definition above we find that an information system is composed of people who mainly are the users of the system and interact with it directly to produce the expected results. While hardware are the tangible parts of the system like the computer and its accessories for example printers. In that case hardware will work together with the software. Software includes programs like operating system and other applications like the system to be developed under this study. Networks interconnect computers for sharing resources like data.

This therefore means that for an organization to run its activities smoothly then it should have an information system. Too much information keeps piling in organization because of the many operations taking place. All these information cannot be handled manually but calls for use of an information system.

2.2.1 Components of an information system

An information system consists of various parts which are related and work together to achieve a given objective. The following are the components;

Data is defined as streams of raw facts representing events occurring in organizations or the physical environments before they have been organized and arranged into a form that

people can understand and use (Laudon K.C and Laudon J.P (2001)).Therefore we can say data is the input the system takes to output information.

Hardware consists of computer equipment used to perform input, processing, and output activities (Stair and Reynold (2001)). Hardware is in other words the computer and its peripheral equipment.

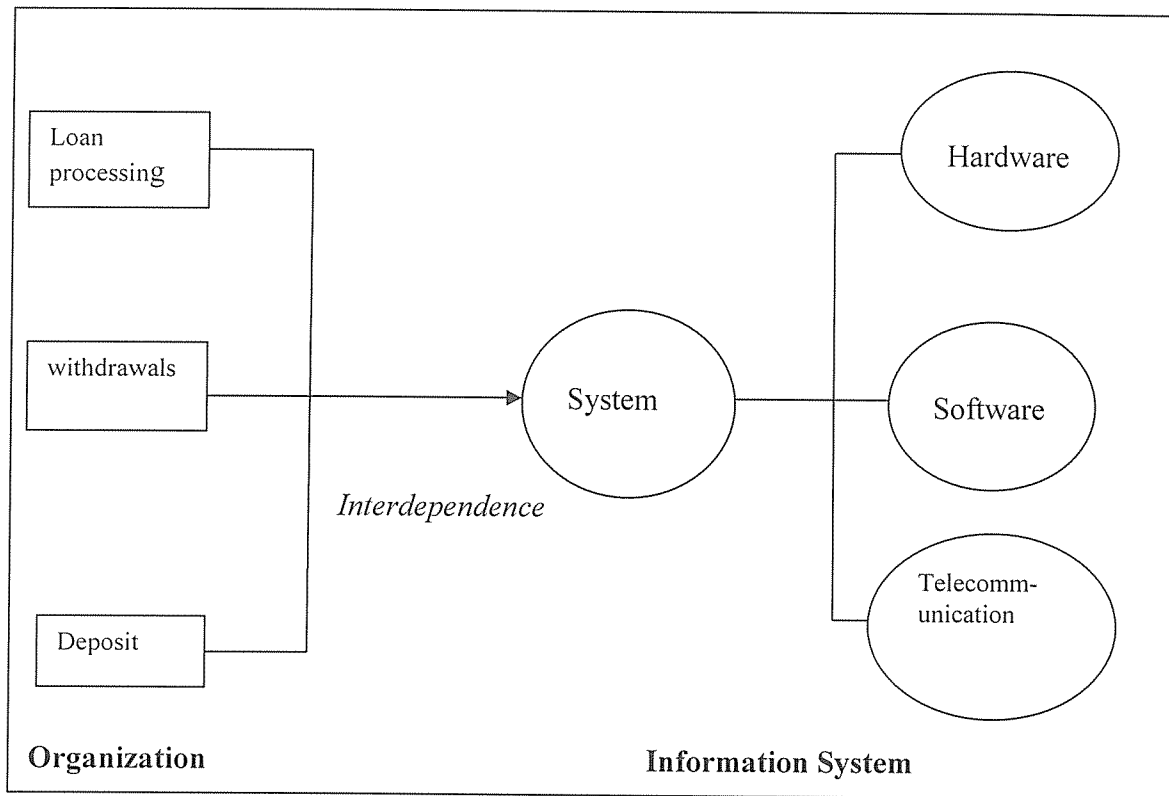
Software is a computer program that governs the operation of the computer (Stair and Reynolds (2001)).It is also defined as a set of instruction that tell the computer what to do with the data.

Telecommunication is the electronic transmission of signals for communications and enables organizations to carry out their processes and tasks through effective computer network (Stair and Reynolds (2001)). In other words we can say that is hardware and software that facilitate transmission of data in form of electronic data.

People are the most important element in most computer-base information system. These are the people who construct and interact with the system.

Procedures include the strategies, policies, methods, and rules for computer-based information systems (Stair and Reynolds (2001)). This is to say that they are rules in getting maximum and secure operations in data processing

Fig 2. The interdependence between organization and information system



2.3 Management Information system

A Management Information System is that which enables collection, processing, storage and distribution of information to help in decision making for the managerial functions of planning, organizing, directing and controlling business organization. Effy Oz (2002) defines MIS in his book as, any information system that helps managers and other professionals plan, control, and make decision comes under umbrella of management information system. Post and David (2002) say an Information system as any information system that helps managers and other professionals plan control and make decisions comes under the umbrella of management information system. Proper management of the organization and all the transaction should be well catered for in the system. However it is argued that transaction processing systems on their own do not help managers in their work despite it being an Information System, it has to be integrated in the overall management information system. Stair and Reynolds (2001) state that management

information system typically provides the standard reports generated with data and information from the transaction processing system. These reports will help the managers in decision making on various issues and planning long and short term policies in the organization.

2.4 Database system

For secure and reliable storage of the microfinance's information about their customers, employees, savings accounts and any other information, one way to keep information on a computer is to store it in operating system files. A database will be required in the system under study for user's safe keeping of data. Date (2000) defines a database as a collection of persistent data that is used by the application systems of some given enterprise.

Date (2000) further describes a database system as a computerized system whose overall purpose is to store information and to allow users to retrieve and update that information on demand. This therefore calls for the need to have an application with a database system.

2.5 Application's Interface

For any system to interact with the user, it has to have a link which connects the user with the hardware. Sawyer (1999) describes Interfaces as the parts of a machine that people actually manipulate. This could refer to knobs and switches in some machines but in computers it is an application which enables the user to interact with the system.

2.6 Information system plan

This part seeks to outline the theoretical frame work of an Information system developed for a microfinance company.

The information system plan consists of five components namely; systems request, feasibility analysis, project plan, schedule and risk assessment.

2.6.1 Systems Request

The reason why DTS Microfinance Company needs this system is to run its operations smoothly and for the management to monitor the progress of the company in order to know exactly the company's progress.

2.6.2 Project Name

The name of the project which is also the name of the system is Microfinance Information Management System.

2.6.3 Name of organization and address

The name of the organization is DTS Microfinance Company. It is located in Bombo Road in Carol house second floor, Kampala Uganda.

2.6.4 Business Needs of DTS Microfinance

DTS microfinance is a company which offers soft loan services and saving money for small scale business people.

For DTS to run its operations efficiently and compete with other microfinance organizations favorably the following were considered;

Effective and efficient tracking of customers' servicing of loans, secure and reliable storage of data, provide fast and reliable service to its customers, minimize costs while increasing company income, expand customer base, managing the employee details and their work schedules and manage customer details.

2.6.5 Functionality of the Information management system

The Information Management system has the following functionality;

Store and manage customer data, ability to retrieve and modify customer data, managing work schedules for employees, provide financial reports for the management, calculate interest and profits and input all the information of the company

2.6.6 Value of the Information system

The following is the value of the system; Secure and reliable storage of the company's data in a data, provide periodical reports for decision making in the company and proper handling clients' needs, provide information for general management of the company like paying employees and calculate the company's turnover and help the management to plan the way forward.

2.6.7 Feasibility Analysis

This was carried out to determine whether the new system to be built would be feasible in terms of technicality and economically with the available resource.

2.6.7.1 Technical Feasibility

The following technical feasibility issues were taken into consideration, project size and structure, researchers' technical knowledge with the application area, researchers knowledge with the development tools and availability of hardware and software components for the project.

2.6.7.2 Economic Feasibility

While assessing economic feasibility, the following issues were considered.

One of them is benefits of building the system where we looked at the tangible and intangible benefits of the system to the organization. The tangible benefits are,

A database containing all the organization's data in a central location, generation of periodical reports for decision making in organization, being able to calculate the clients balances and interests to be paid by the clients and ability to make backups on data which can be stored away from the system incase of system break-down.

The intangible benefits are large storage and improved security measures for the organization's data. In addition to that is quick processing of data.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.0 Introduction

This chapter covers methods used in analyzing, designing and implementation of the system, phases of systems development life cycle, and testing

3.1 Phases of System Development Life Cycle

System life cycle is an organizational process of developing and maintaining systems. It helps in establishing a system project plan, because it gives overall list of processes and sub-processes required developing a system.

System development life cycle means combination of various activities. In other words we can say that various activities put together are referred as system development life cycle.

Following are the different activities that the researchers undertook to develop the new system:

- Feasibility study
- System analysis
- System design
- Coding
- Testing
- Implementation

The researchers covered feasibility study, system analysis, system design, coding, testing and implementation. Let us now describe the different phases and the related activities of system development life cycle in detail.

3.2 System Study

System study is the first stage of system development life cycle. This gives a clear picture of what actually the physical system is. In practice, the system study is done in two phases. In the first phase, the preliminary survey of the system is done which helps the researcher in identifying the scope of system. After study of the existing system, some problems were identified with help of the management, staff, and the clients. It was necessary to interview those people who will be affected by the new system. It was found out that the existing system had no proper mechanism that is designed for processing the daily transaction of the business. There was some sort of an application that slowly processed the daily transactions but it lacked some features necessary for transaction processing system such reliability, quick response and controllability. Therefore, to speed the process of processing the daily transactions of the business, it was necessary to develop a new system.

3.3 Feasibility Study

On the basis of results of the initial study, feasibility study was under taken. The feasibility study is basically the test of the system in the light of its workability, meeting user's requirements, effective use of resources and of course, the cost effectiveness. The main goal of feasibility study was not to solve the problem but to achieve the scope.

3.4 System Analysis

The DTS Microfinance Limited has been processing most of its records manually, using the physical files and records, which were also manually created. Therefore there was a great deal of clerical effort required to prepare the reports required by management. With the new idea to computerize the entire management system, it means that there would be need for efficient system to monitor and control how clerks process the transaction of the business and general running of the company.

3.5 Data Requirements

This includes variables that would be translated into important output analyzing the performance of the system. The data required by the new system is determined by the variables used to make analyzes of management decisions within a period of time. The data was extracted from the existing system and other source identified as necessary for the development of the system such as interviewing the employees of the organization.

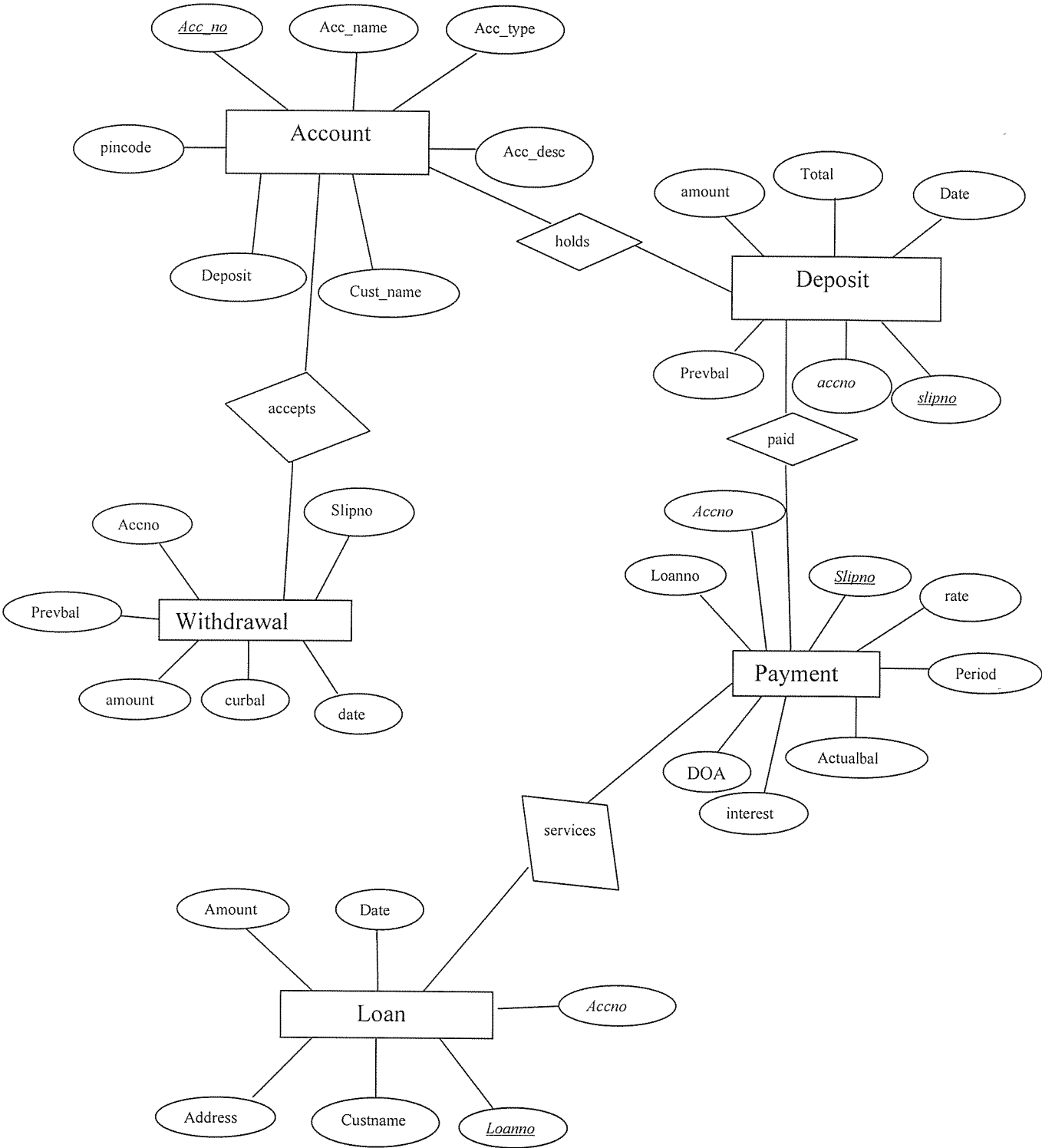
3.6 Logical design

This is the relationship between the different entities are shown, clearly showing how the entities are presented and the flow of data in the system. It is shown below by use of entity relationship diagram.

3.6.1 ER Modeling

The ER diagram shows the entities and the attributes in each while indicating how one entity is related to the other. Presence of another entity's primary key as a foreign key in other table gives the two tables an association meaning they are related. Data in a database have some kind of a relationship once analyzed well which is why ER diagrams shown below was used. It is after this where redundancy of the data can be controlled.

Fig 3 ER Diagram of the DTS Microfinance database



3.7 Physical Design

This is the physical representation of the data in the system, it shows the kind of data used with their data types and this helped the developers estimate the size of the memory the whole database would occupy. Below are the physical design for the system developed by use MYSQL for the organization.

Account Information

FIELD NAME	DATA TYPE	FIELD_SIZE	CONSTRAINTS	DESCRIPTION
Accno	Varchar	20	Required	Account number
Custname	Varchar	20	Required	Customer Name
Custaddress	Varchar	20	Required	Customer Address
City	Varchar	10	Required	Customer City
Country	Varchar	18	Required	Customer Country
Pincode	Int	15	Required	Pin Code
Telno	Int	12	Required	Customer Tell Number
Email	Varchar	20	Required	Email address
Date	Date		Required	Date
Accname	Varchar	20	Required	Account name
Acctype	Varchar	20	Required	Account type
Accdesc	Varchar	20	Required	Account description
Deposit	Int	10	Required	Deposit
Name1	Varchar	20	Required	Name one
Name 2	Varchar	20	Required	Name two
Name 3	Varchar	20	Required	Name three

Deposit

FIELD NAME	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Slipnumber	Varchar	10	Required	Slip number
Accno	Varchar	20	Required	account number
Prevbal	Int	20	Required	Previous balance
Amount	Int	20	Required	Amount deposited
Total	Int	20	Required	Total amount
Date	Date	10	Required	Date of deposit

Fixed Deposit

FIED NAME	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Fdeposite_no	Varchar	15	Required	Fixed deposit number
Payable_to	Varchar	20	Required	Person payable to
Amount	Int	10	Required	Amount
Maturity_date	Date		Required	Maturity date
Maturity_value	Int	10	Required	Maturity value
Name 1	Varchar	20	Required	Name 1
Name 2	Varchar	20	Required	Name two
Name 3	Varchar	20	Required	Name three

Loan Information

FIELD NAME	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Loan_no	Varchar	10	Required	Loan number
Custname	Varchar	20	Required	Customer name
Address	Varchar	13	Required	Address
Phone	Int	13	Required	Phone number
Actual_amount	Int	13	Required	Actual amount
Date_of_return	Date		Required	Date
Name 1	Varchar	20	Required	Varchar
Name 2	Varchar	20	Required	varchar
Name 3	Varchar	20	Required	Varchar

Payment table

FIELD NAME	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Slipnumber	Varchar	20	Required	Slip number
Loan_no	Varchar	20	Required	Loan number
Custname	Varchar	20	Required	Customer name
Date_of_appln	Date	10	Required	Date of application
Actual_bal	Int	10	Required	Actual balance
Period		10	Required	Period
Rate	Int	10	Required	Rate
Interest	Int	10	Required	Interest

Employee table

FIELD	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Emp_id	Varchar	10	Required	Employee identification
Emp_name	Varchar	20	Required	Employee name
Emp_address	Varchar	20	Required	Employee address
City	Varchar	10	Required	City
Country	Varchar	15	Required	Country
Pincode	Varchar	15	Required	Pincode
Telno	Int	15	Required	Telephone number
Phone	Int	10	Required	
Fax	Int	10	Required	Fax
Email	Varchar	20	Required	Email
Position	Varchar	20	Required	Position

Withdrawal table

FIELD	DATA TYPE	FIELD SIZE	CONSTRAINTS	DESCRIPTION
Slipnumber	Varchar	10	Required	Slip number
Accno	Varchar	10	Required	Account name
Prevbal	Int	20	Required	Previous balance
Amount	Int	20	Required	Amount
Currentbal	Int	20	Required	Current balance
Date	Date	15	Required	Date

3.8 Coding

In this stage, the whole system is converted into computer understanding language. Coding the new system into computer programming language is an important stage where the defined procedures are transformed into control specifications by the help of a computer language. This is also called programming phase in which the programmer converts the program specifications into computer instructions, which we refer to as programs. The programs coordinate data movements and the entire process in a system. It is generally felt that the programs must be modular in nature. This helps in fast development, maintenance and future change, if required.

This system has been developed using the visual basic 6.0 and MYSQL database management software.

Database (MYSQL) allows accessibility of data and retrieval of data easily. It allows elimination of duplicated of data and also security of the database is possible. We hereby present algorithms which are a precursor of real coding of the system where each algorithm can easily transformed to code in visual basic language and MYSQL database programming.

3.8.1 Algorithms log in

Algorithm Log In

Start

Prompt user name

Prompt password

Capture user name

Capture user password

 If (user name and password correct)

 Open MDI

 Else Deny access

End

3.8.2 Algorithm withdrawal

Algorithm withdrawal

Start

Capture account details

Capture withdrawal

Check previous balance

If (amount $\geq$ withdrawal)

Amount = previous balance – withdrawal

Update account

Else deny

end

3.8.3 Algorithm deposit

Algorithm deposit

Start

Capture account details

Capture deposit

Amount = deposit + previous balance

Update account

End

3.8.4 Algorithm loan

Algorithm loan

Start

Capture customer details

Capture account details

If (customer registered)

Give loan

End

3.8.5 Algorithm payment

Algorithm payment

Start

Capture customer details

Capture account details

Capture loan

Amount = principle * interest/100* period

Update account

End

3.9 Testinng

This is checking whether the system is doing what is expected. It was done by use of mock/test data collected from the Microfinance company. It also involves putting the system into operations, a test run of the system is done removing all the bugs, if any. . After the designing the whole the system, a test plan should be developed and run on a given set of test data. The output of the test run should match the expected results.

3.9.1 Unit Testing

This is the first stage of testing; this is done by using written test planning and prepared test data. The path consists of a number of test runs such as valid paths through the codes. For each test run, there is a list of condition tested, the test data used and expected results. All the forms that are on the system are tested against the test plan and conditions.

3.9.2 Integration testing

This is the integrating of the components of the entire system so that all can work together produce required results. Each modules is linked to other therefore allowing them to interact. The whole process must be in a specific sequence and within specified response time. The integration between the component and sub-components created in visual basic 6.0 and the database created in MYSQL is fully tested to ensure that they are effectively linked.

3.9.3 System Testing and Implementation

This tests the whole system after linking together all the subsystems. Bugs are identified and categorized in order of priority and are fixed as those with less priority can be addressed in the follow-ups releases in the process of evolution. The following activities are also carried out.

Performance testing validates the response times or transaction periods specified in the functional specifications. It involves timing how long the system takes to respond to a user's request, timing normal operations and also exception cases.

Regression test ensures that the correction during the system test have not introduced new bugs and tests the key functions.

Acceptance testing is a prove by the client, that the system, meets the business requirement agreed upon, in the functional specification. The tested data is replaced with live data provided by the client. The client records all errors and other aspects. They are discussed with the developer, whereby, the errors are corrected by the developer, and the changes are implemented at the expenses of the client.

Data take-on and conversion, the data from the current system is transferred safely to the new system. This is done by:

User enter data; one has to ensure that data entry errors are controlled.

3.10 SYSTEM IMPLEMENTATION

This is very crucial stage of the software development process. It involves turning the requirements into technological terms. Implementation includes coding individual components of the system and finally integrating them together in order for the system to perform the expected task. The interfaces were developed by the use of Visual Basic 6.0 while the database was realized by the use of MYSQL wamp server 5.0.51b. In order to perfect the functionality of the system, the designers ensured every department and the process flow of business has its own entity and a corresponding a user-friendly interfaces.

CHAPTER FOUR

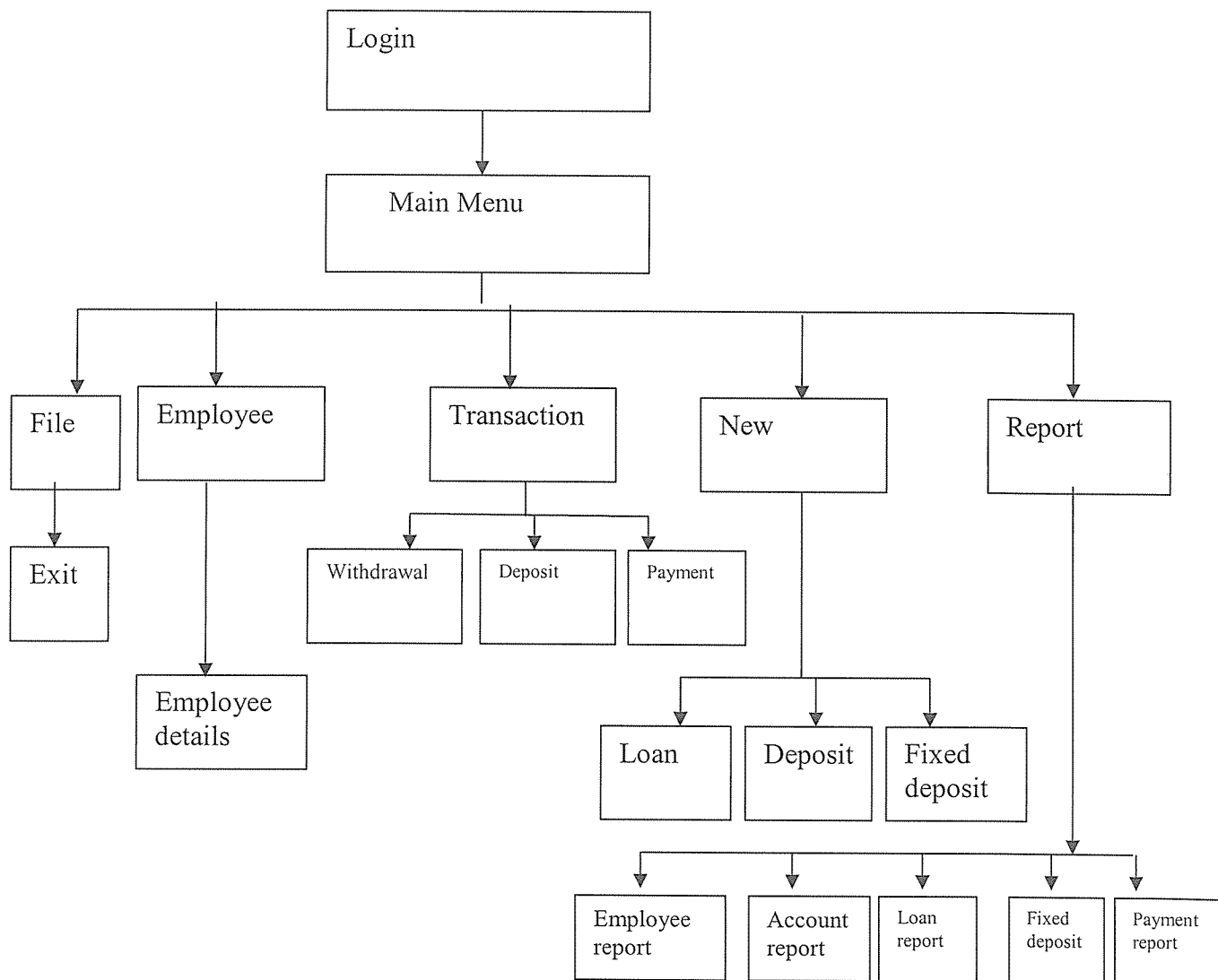
PRESENTATION OF THE NEW SYSTEM

4.0 INTRODUCTION

In this chapter, we are going to present the new system showing the HIPO diagram, system installation and requirements. This chapter introduces to you the interfaces, sample data input and the output as well.

4.1 HIPO DIAGRAM

The diagram below presents a high-level view of the functions performed by the system, as well as the decomposition of functions into sub functions.



4.2 System installation and requirements

The system like any other will have to be installed and therefore has its own requirements. This includes both hardware and software requirements. Without proper requirements the system will not be able to run properly. The system can be installed on a networked environment or in a stand alone machine; this will depend on the user preference. The installation will be done by use of a CD either on a central server or on a stand alone machine.

4.2.1 Hardware requirements

The system will run on a Pentium IV, 1.2 GHZ processor, 256MB RAM and 20 GB hard drive. There should be a 52 speed CD drive for installation and for creating backup copies of the company's data. Any kind of a printer compatible with the organization's system can be used. A stabilizer or uninterruptible power supply of 220 – 240 volts and 4A for power stability and storage to keep PC working will be required, so that power losses do not lead to data loss.

4.2.2 Software requirements

The system will run on a windows platform 9x, 2000 or XP without hanging or breaking down easily. In order for the database to run, MYSQL wamp server should be installed in the system.

4.3 USER INTERFACE

Graphical user interface is the portion of program that the user interacts with. Graphical user interface includes the following. A pointing device, typically a mouse, on screen pull-down menus that can appear or disappear under the control of the pointing device, window that graphically display what the computer is doing, icons, which are graphical images that represent certain items such as files and directories.

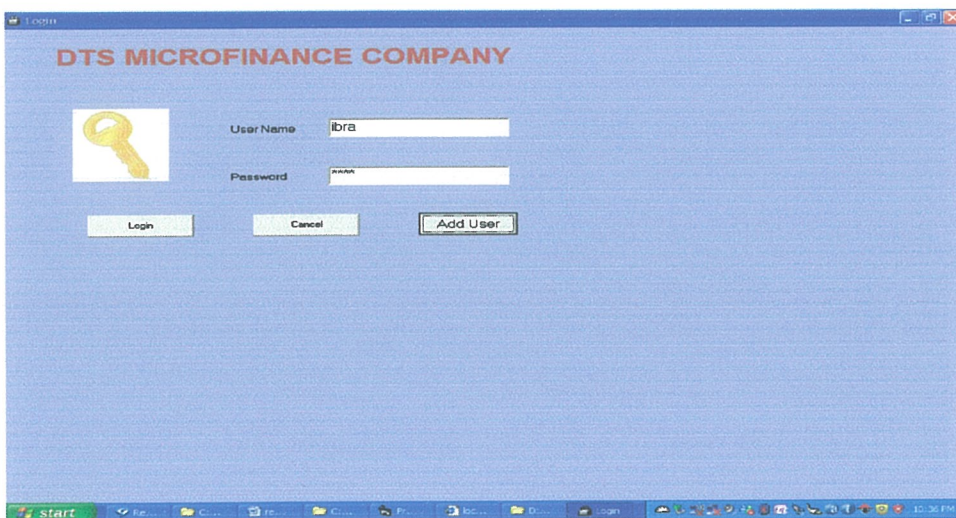
LOGIN FORM

The system puts much on security to guard the system against unauthorized access and data theft.

When the application loads, the login form appears where the user is prompted to enter username and password.

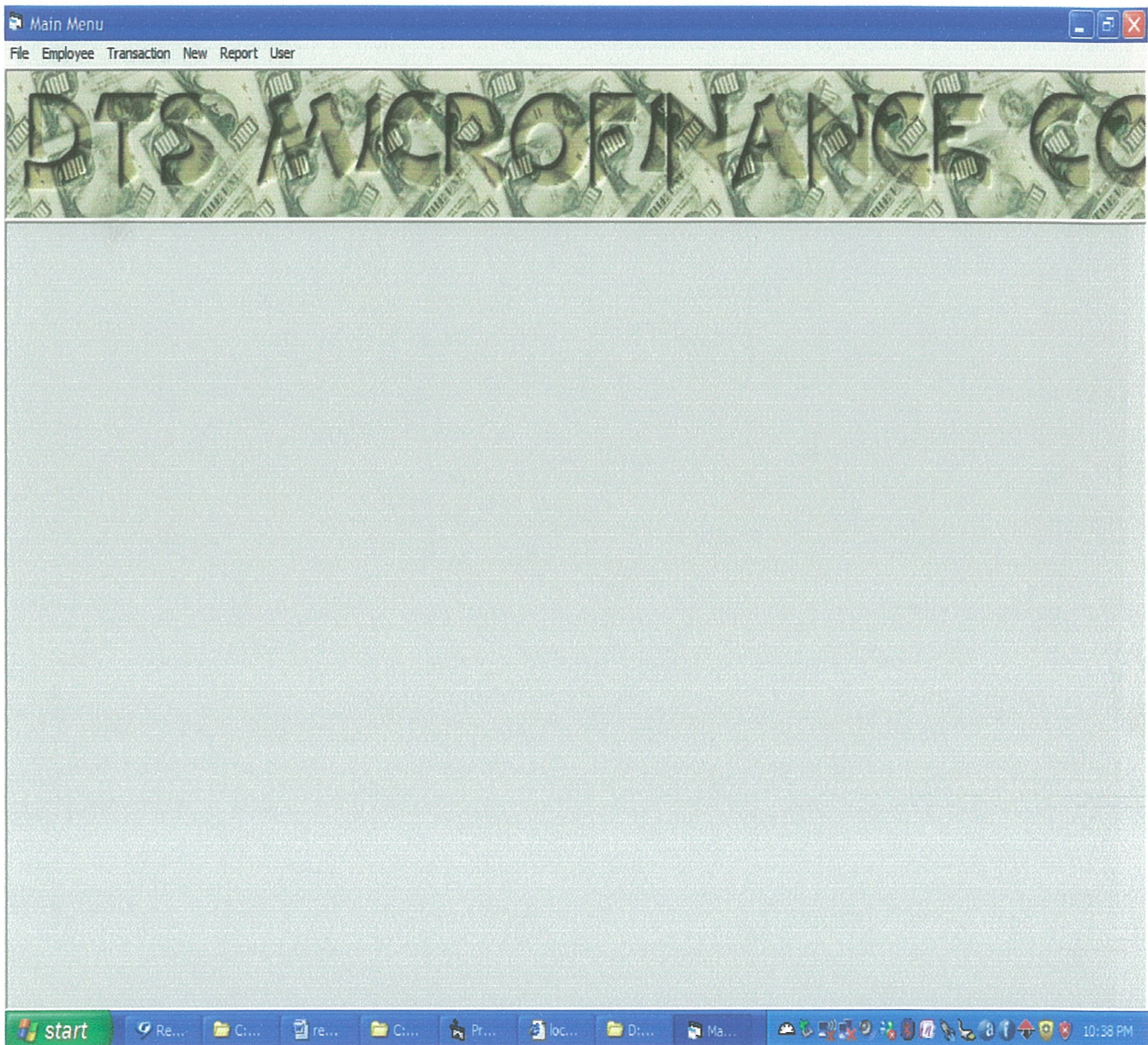
The system checks in the database and looks for the username and password provided by the user, if they do not match with what is in the database, it will deny access. Below is the login form.

User rights have been assigned to every user who logs into the system. To guarantee this a button for add user has been included which will allow the application to authenticate the user.

The image shows a screenshot of a Windows XP desktop with a blue background. A window titled "Login" is open, displaying the "DTS MICROFINANCE COMPANY" login form. The form has a yellow key icon on the left. It contains two input fields: "User Name" with the text "ibra" and "Password" with the text "aaaa". Below the fields are three buttons: "Login", "Cancel", and "Add User". The Windows taskbar at the bottom shows the Start button, several open folders (Desktop, Documents, My Recent Places, My Computer, Network Places, Recycle Bin, Run...), and a system tray with various icons and a clock showing 12:36 PM.

MDI FORM

This is the main menu and provides links to other forms immediately an authorized user logs in. It contains menus which helps the user easily navigate the system. All the other forms are linked to the MDI or the main menu and the user accesses them by use of menus which are located at the top of the interface.



Employee Information

This interface contains employee details which are employee ID, name, address, gross pay and net pay. It generally captures all the employee details to be stored in the database.

The screenshot displays a Windows application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", and "Report". The background of the application window features a pattern of US dollar bills. Overlaid on this is a smaller window titled "Employee Detail".

The "Employee Detail" window contains the following fields and controls:

- Employee ID
- Employee Name
- Employee Address
- City
- Country
- Phone
- Mobile
- Fax
- Email
- Post

At the bottom of the "Employee Detail" window, there are five buttons: ADD, SAVE, EDIT, DELETE, and EXIT.

The Windows taskbar at the bottom shows the "start" button, several open applications (binding..., edited f..., C:\Docu..., Project1..., Main Menu, Employee...), and the system clock indicating 7:15 AM.

Payment form

This form is for tracking the payment of loans. This is a very important aspect of the organization's business whose objective is to grant loans to small scale businessmen. The interface captures applicants detail, date borrowed, rate, interest and calculates what the loan applicant has paid and tracks the payment till the end.

Payment

PAYMENT

Payment
Slip Number
Loan Number
Customer Name
Date of Application
Actual Balance
Period of loan
Rate in Percentage
Interest

start R... C... F... C... P... I... D... M... P... 10:41 PM

Account Information

This is the interface which is considered very crucial in the system as it contains most of the business transaction. It has the customers account number and other details like the account type and the description. Name one to three in the interface are used in case of a joint account.

The screenshot shows a web application window titled "Main Menu [Account Information]". The window has a menu bar with "File", "Employee", "Transaction", "New", "Report", and "User". The header features the "DTS MICROFINANCE CO" logo. The main content area is divided into two sections: "Account CUSTOMER INFORMATION" and "ACCOUNT INFORMATION".

Account CUSTOMER INFORMATION

Customer Name
Customer Address
City
Country
Pincode
Mobile Number
Email

ACCOUNT INFORMATION

DATE
Account Type
Account Name
Account Description
Deposit
Joint Account Names
Name1
Name2
Name3

ACCOUNT NUMBER

The Windows taskbar at the bottom shows the "start" button, several open applications (e.g., "Re...", "Cl...", "D...", "C...", "P...", "D...", "Q...", "M..."), and the system clock displaying "10:44 PM".

Withdrawal

In order for the system to be of use to the organization we felt that the system should capture withdrawals accurately and effectively. The withdrawal form captures the customer's account number, the amount withdrawn, previous balance and the current balance after the transaction.

The screenshot shows a Windows application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", and "Report". The background of the application is a collage of US dollar bills. Overlaid on this is a "Withdrawal" form window. The form has a title bar "Withdrawal" and a main title "WITHDRAWAL". It contains several input fields: "Slip number", "Account Number" (with a dropdown arrow), "Previous Balance", "Amount", "Current Balance", and "Date". At the bottom of the form are four buttons: "Add New", "Save", "Exit", and "Compute". The Windows taskbar at the bottom shows the "start" button, several open applications, and the system clock displaying "7:19 AM".

WITHDRAWAL	
Withdrawal	
Slip number	
Account Number	
Previous Balance	
Amount	
Current Balance	
Date	
Add New Save Exit Compute	

Deposit

The deposit interface capture all the deposits information by the customer, including the account number, date, amount deposited and the balance.

Main Menu
File Employee Transaction New Report

DTS MICROFINANCE CO.

Deposit

DEPOSIT

Deposit

Slip Number

Account Number

Date

Previous balance

Amount deposited

Total

ADD Save Exit Compute

start binding ... edited 5 C:\Docu... Project1 Main Menu Deposit 7:20 AM

Loan information

This interface mainly capture loan application details accurately for proper tracking of all loan applicants. However this form does not track the payment of loans because this is done in the payment form.

The screenshot displays a Windows-style application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", and "Report". The background features a collage of US dollar bills with the text "DTS MICROFINANCE" overlaid. A "Loan Information" dialog box is open, containing two sections: "Loan Information" and "Account Description".

Loan Information

Loan Number	
Customer Name	
Address	
Phone Number	
Actual Amount	
Date Of Return	

Account Description

Joint

Name 1	
Name2	
Name3	

At the bottom of the dialog box are three buttons: "SAVE", "EXIT", and "ADD". The Windows taskbar at the bottom shows the "start" button, several open applications (binding, edited #, C:\Docu, Project1, Main Menu, Loan Inf...), and the system clock indicating 7:25 AM.

4.4 Sample data input

The system will handle data from the organization as it is expected to generally run the organization's business. This includes data from employees, customer and transactions records. Employee's records include employee ID, first name, last name, date of birth, date of appointment while customer records will include customer ID, first name, last name, account number, address, telephone number, amount deposited.

Employee detail

Emp_id	ED112
Emp_name	Maak
Emp_address	Kasnanga
City	Kampala
Country	Uganda
PinCode	Abc123
Tel No	0774185709
Fax	+256771111
Email	<u>Maak@hotmail.com</u>
Position	Manager

Loan information

Loan_no	LN 110
Customer_name	Make
Phone	077299229
Actual amount	70,0000
Date of return	10/12/2009
Name 1	Jose
Name 2	Adam
Name 3	-----

Payment information

Slip_no	Slp 122
Loan_no	LN 122
Cutomer name	Ibrahim
Date of application	12/11/08
Actual balance	1,000,000.0
Period	3
Rate	0.5
Interst	0.3

Employee detail

This captures data from an input source like keyboard and the sent to the database. Employee details form captures employee ID, name and other details for effective running of the organization.

The screenshot shows a Windows application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", "Report", and "User". The background of the application features a repeating pattern of Ugandan 2000 Shilling banknotes. Overlaid on this is a smaller window titled "Employee Detail".

The "Employee Detail" window contains a form with the following fields and values:

Employee Detail	
Employee ID	
Employee Name	Martin Ssempe
Employee Address	Po Box 5400
City	Bushenyi
Country	Uganda
p0100	p0100
Phone	42234444
Mobile	72259900
Fax	4444
Email	ssempa@hotmail.com
Post	Director

To the right of the form fields is a large empty rectangular box and a "Browse" button. At the bottom of the form are five buttons: "ADD", "SAVE", "EDIT", "DELETE", and "EXIT". The "ADD" button is highlighted with a red border.

The Windows taskbar at the bottom shows the "start" button, several open application icons, and a system clock displaying "9:24 AM".

Loan input

This interface mainly capture loan application details accurately for proper tracking of all loan applicants. However this form does not track the payment of loans because this is done in the payment form

The screenshot shows a Windows-style application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", "Report", and "User". The background of the window features a collage of US dollar bills. Overlaid on this is a "Loan Information" form. The form is divided into several sections: "Loan Information" with fields for Loan Number (ln52001), Customer Name (Julius Cherogony), Address (PoBox 123), Phone Number (715222088), Actual Amount (540000), and Date Of Return (9/6/2004); "Commercial Segment" with radio buttons for Term Loans, Cash Credit, and four amount ranges (Upto 1000000, Upto 5000000, Upto 50000000, Above 50000000); "Personal Segment" with radio buttons for Personal Loans, Commercial Loans, and four amount ranges (Personal upto 25000, Personal upto 500000, Housing upto 10000000, Housing upto 30000000); "Time Period" with radio buttons for 90 days, 6 months, 1 year, and 2 years; and "Account Description" with a "Joint" label and three name fields (Name 1, Name 2, Name 3). At the bottom of the form are buttons for "SAVE", "EXIT", and "ADD", along with a navigation bar containing "loaninfor". The Windows taskbar at the bottom shows the start button, several open application icons, and the system clock displaying "9:25 AM".

Main Menu
File Employee Transaction New Report User

DTS MICROFINANCE CO

Loan Information

Loan Information

Loan Number: ln52001
Customer Name: Julius Cherogony
Address: PoBox 123
Phone Number: 715222088
Actual Amount: 540000
Date Of Return: 9/6/2004

Commercial Segment

☐ Term Loans
☐ Cash Credit

☐ Upto 1000000
☐ Upto 5000000
☐ Upto 50000000
☐ Above 50000000

Personal Segment

☐ Personal Loans
☐ Commercial Loans

Time Period

☐ 90 days
☐ 6 months
☐ 1 year
☐ 2 years

Account Description

Joint

Name 1:
Name 2:
Name 3:

SAVE EXIT ADD

loaninfor

start C... r... e... C... P... E... R... M... L... 9:25 AM

Withdrawal

Withdrawal interface captures the details of the customer transaction with the organization. This is mainly deals with withdrawal where a customer reduces the amount he has in the account. To monitor withdrawals this form captures the customer details and the figures accurately.

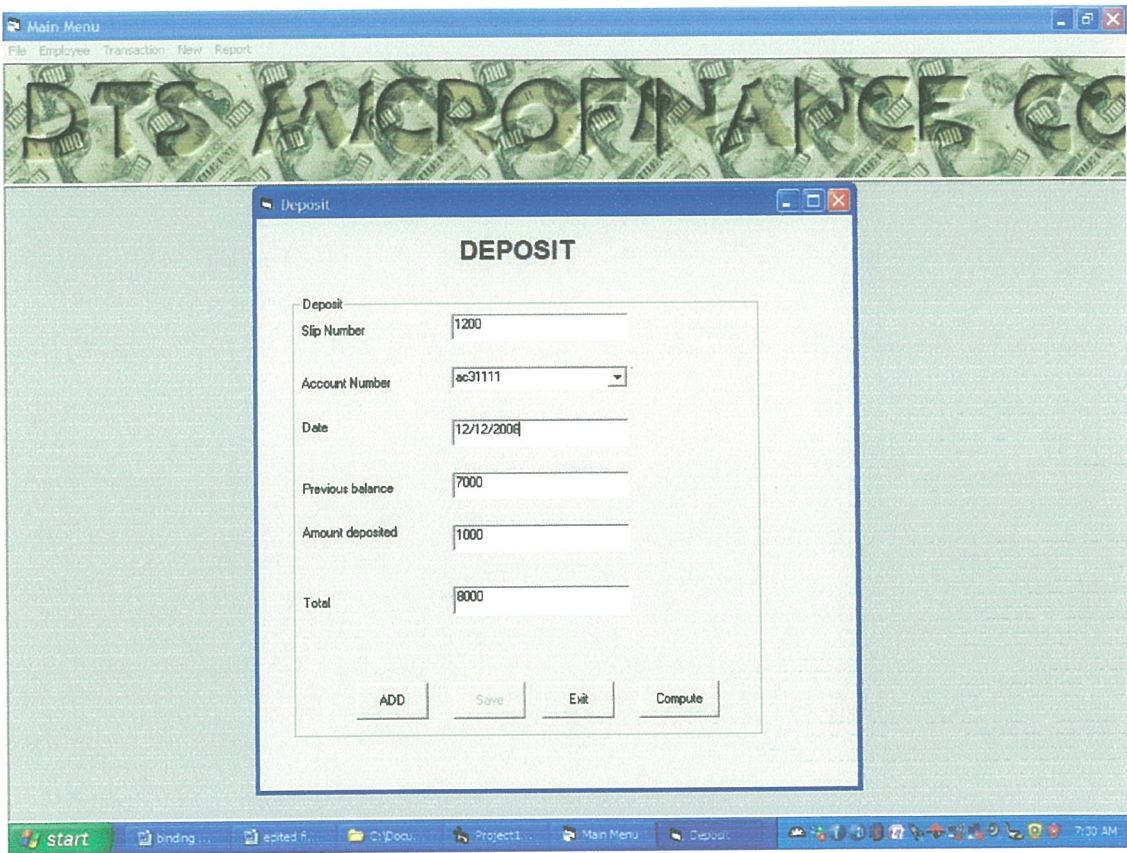
The screenshot shows a software application window titled "Main Menu" with a menu bar containing "File", "Employee", "Transaction", "New", and "Report". The background of the application window features a repeating pattern of the text "DTS MICROFINANCE" over a green banknote texture. A smaller window titled "Withdrawal" is open in the center, displaying a form with the following fields and values:

WITHDRAWAL	
Slip number	sn0012
Account Number	ac31111
Previous Balance	4000
Amount	1000
Current Balance	3000
Date	3/4/2012

At the bottom of the form are four buttons: "Add New", "Save", "Exit", and "Compute". The Windows taskbar at the bottom shows the start button, several open applications, and the system clock displaying 7:28 AM.

Deposit

This deals with the money being deposited by the client. The system captures all the details required for a deposit transaction like account number, amount being deposited and accurately calculates and displays the new balance.

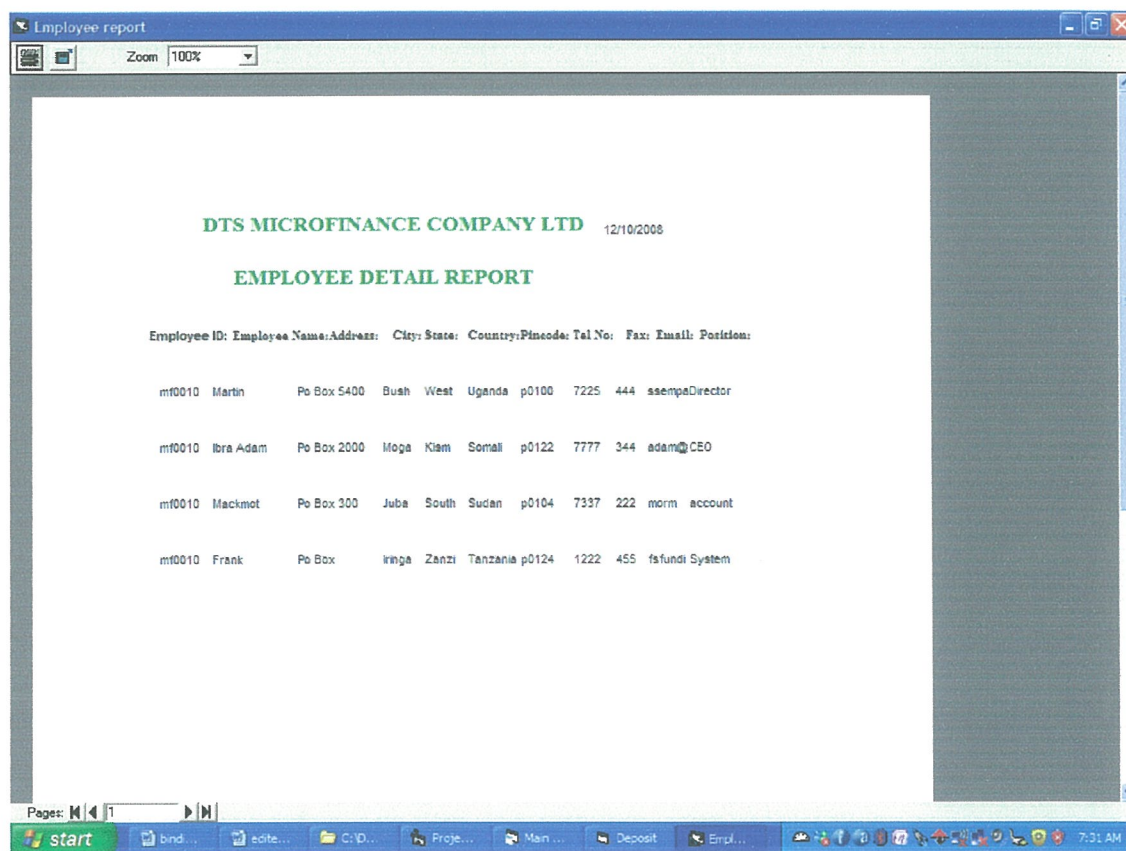


4.5 Sample Data Output

The output expected from the system depends entirely on the kind of input keyed in. This also is determined by the declaration done for each variable used in the system, that the input should correspond with data type declared.

4.5.1 Employee details output

This displays a report on employee details recorded. This output helps the management keep records of all employee including their IDs, names, contact and their nationality .



Employee report

Zoom 100%

DTS MICROFINANCE COMPANY LTD 12/10/2008

EMPLOYEE DETAIL REPORT

Employee ID:	Employee Name:	Address:	City:	State:	Country:	Pincode:	Tel No:	Fax:	Email:	Position:
mf0010	Martin	Po Box 5400	Bush	West	Uganda	p0100	7225	444	ssempaDirector	
mf0010	Ibra Adam	Po Box 2000	Moga	Kiam	Somali	p0122	7777	344	adam@CEO	
mf0010	Mackmot	Po Box 300	Juba	South	Sudan	p0104	7337	222	morm	account
mf0010	Frank	Po Box	iringa	Zanzi	Tanzania	p0124	1222	455	fsfundi System	

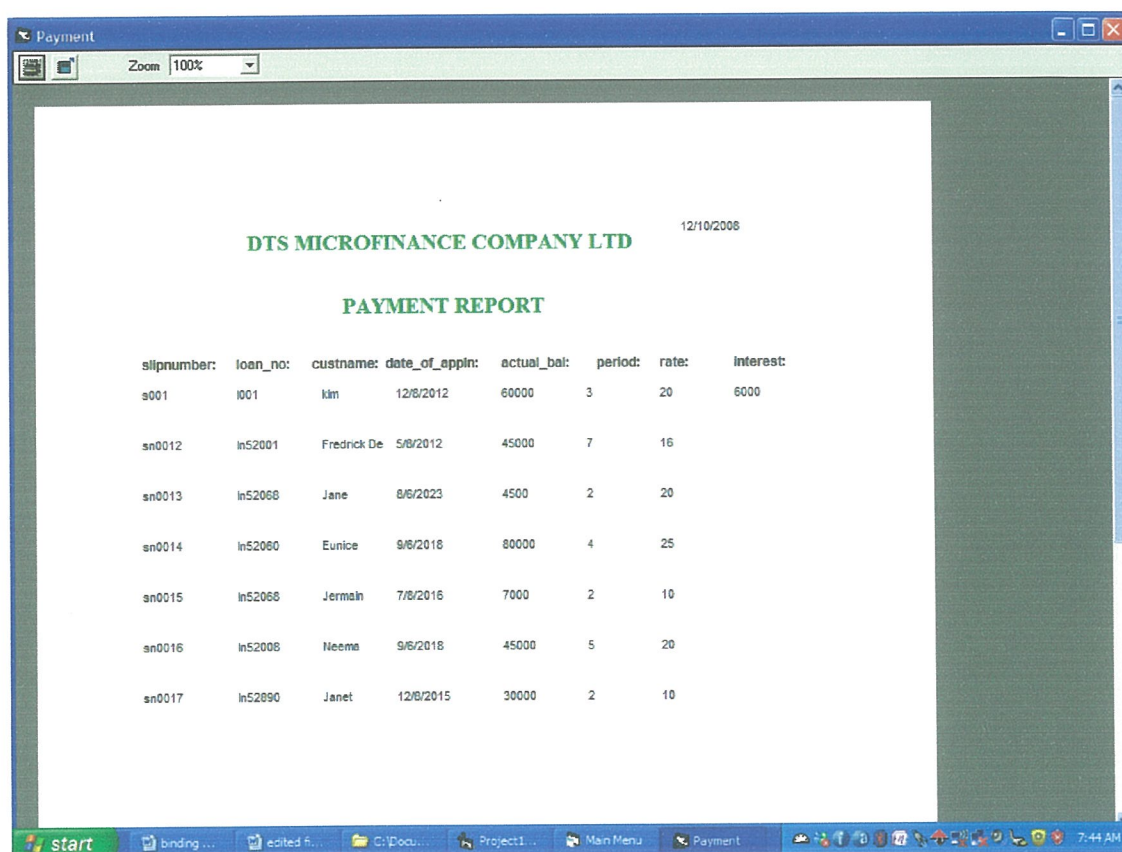
Pages: 1

start bind... edit... C:\D... Proje... Man ... Deposit Empl...

7:31 AM

4.5.2 Payment output

This output is used to track all the payments to the organization clearly indicating the client's details, the amount paid, the previous balance and the current balance. This report helps the organization track the servicing of loans by the clients.



12/10/2008

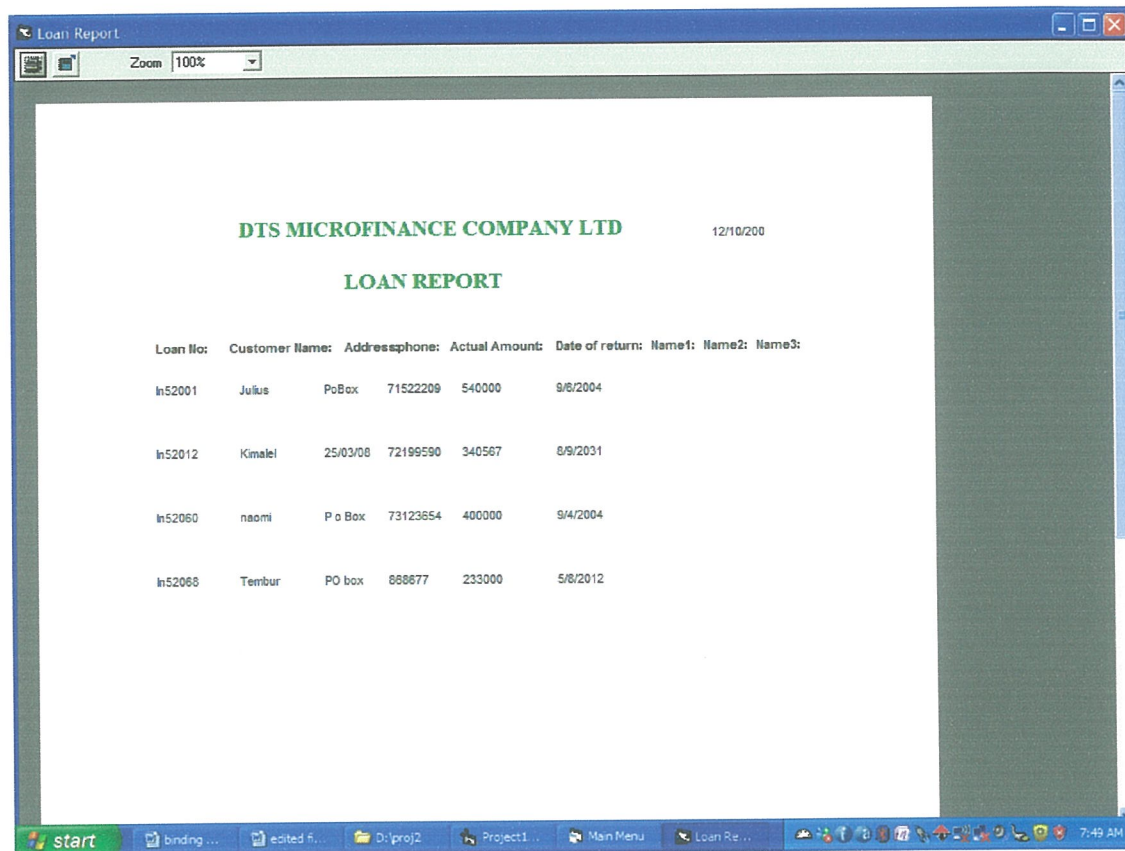
DTS MICROFINANCE COMPANY LTD

PAYMENT REPORT

slipnumber:	loan_no:	custname:	date_of_appln:	actual_bal:	period:	rate:	interest:
sn001	1001	kim	12/8/2012	60000	3	20	6000
sn0012	ln52001	Fredrick De	5/8/2012	45000	7	16	
sn0013	ln52068	Jane	8/6/2023	4500	2	20	
sn0014	ln52060	Eunice	9/8/2018	80000	4	25	
sn0015	ln52068	Jermah	7/8/2016	7000	2	10	
sn0016	ln52006	Neema	9/6/2018	45000	5	20	
sn0017	ln52890	Janet	12/8/2015	30000	2	10	

Loan Report Output

This is to show the full report about all the loans which have been applied. This will help the management to monitor the payment of loans.



DTS MICROFINANCE COMPANY LTD 12/10/200

LOAN REPORT

Loan No:	Customer Name:	Address:	phone:	Actual Amount:	Date of return:	Name1:	Name2:	Name3:
ln52001	Julius	PoBox	71522209	540000	9/6/2004			
ln52012	Kimalel	25/03/08	72199590	340567	8/9/2031			
ln52060	naomi	P o Box	73123654	400000	9/4/2004			
ln52068	Tembur	PO box	888677	233000	5/6/2012			

CHAPTER FIVE

RECOMMENDATIONS, DISCUSSION AND CONCLUSION

5.0 INTRODUCTION

This chapter has recommendations which the developers strongly feel should be put in place for effective use of the system and general running of the organization. It also talks about the general benefits or the strengths of the system once installed in the organization. Finally it has the conclusion of the entire project

5.1 RECOMMENDATION

DTS Microfinance Company should adopt this system for efficient running of their operations. This is especially in the current age of technology where every activity in any organization should use computers. At the moment the company has no computerized system because it is a small upcoming microfinance.

For it improve on its services and attract more clients, the following areas should be automated; loan application, withdrawal, deposit and general management of the organization.

The new system is able to do this and also provide periodic reports for management and decision making.

For security purposes, modules of editing and deleting should be secured by use of passwords, this has been realized by use of granting most user less privileges which involves changing data in anyway and instead administrator privileges given to the right person. This in other words means access to the database should be in such a way that each person should be availed only the section that he/she is concerned with, not the entire database. This can be achieved by the use of several password protected forms covering the various sections instead of a general password. These passwords should be set to expire after a given duration for them to be renewed, this will help enforce security.

Another way by physically locking the computer room and ensuring only authorized personnel enter the room where the system is. This by use of burglar proof doors and hiring someone to watch the system or the room in which the system is kept. In case of networking the computers in near future, use of firewalls should be implemented.

Data in the system is very vulnerable and can be lost any time, this can happen intentionally or unintentionally and therefore we strongly recommend backing up of the data regularly, this means having a duplicate copy of entire database in a different location. Use of data recovery software is also highly recommended.

5.2 DISCUSSION

For proper functioning of the system, repair and maintenance of the system should be observed. This will be done after critical evaluation of the system. In addition user training is essential for proper use of the system. The system developed handles almost all data belonging to the organization since it deals information management.

The strength of the functionality of the system is mainly on its individual components which handle the various units of the organization. The major components of the system have records on employees, customers, all the business transactions which are loan processing, withdrawals and deposits.

Each of the components captures the required data for the organization, processes it and produces clear output. The system captures all the details of the employees, calculates the wages and salaries and helps the organization manage its employee's records accurately.

The system also captures customer details and their different needs or the business transactions which include deposit, withdrawal and loan application with the payment. All these transactions are accurately captured bearing in mind that this part is the core of the microfinance business. This therefore calls for accurate tracking of each customer's transactions to avoid loss to the company and ensure reliable services to the customers.

The system produces periodicals reports for each event taking place in the organization for assessment by the management. The following are the benefits of the new system.

Fast transaction processing: This is the main benefits that the organization will gain from the new system. This will improve the client confidence on the organization and thus attract more since clients are impressed by the efficiency of the services .

Central location of data: With the all the data kept in a central place the new system will provide easy management of the data. This will also include easy retrieval data when required.

Quick response: Fast processing speed of the system will speed up transactions processing and improve the respond time to the users' requests.

Managing the staff: To ensure the efficiency of the staff, the system developed should monitor the remuneration of the staff and manage their records for effective running of the organization. The new system provides functionality that is responsible for the maintenance of the business records and general operations of the organization.

5.3 CONCLUSION

The research has been successfully completed, with support being provided by all the concerned people. The system developed if implemented will help the organization improve its services. This is because the system will make DTS reliable in terms of efficiency and also management given that the system produces reports when required for decision making and easy running of the company.

The organization though had no computerized system, tried as much as possible to provide information to the researchers which helped in coming up with the system which meets the specific needs of the organization. After collecting the requirements the researchers worked hand in hand with the organization so the validation from the user could help come with the right system specifications. Then the system development Lifecycle was followed step by step in realizing the system.

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APPENDICES

Appendix A: Time Frame

The following table shows the different events in the different period of time.

Task	Event	Period
Planning	- System Request - Feasibility analysis - Project plan - Schedule - Risk assessment	1 1/2 week
Analysis	- current system analysis - system requirements - surveys	2 weeks
Design	- Conceptual design - Logical design - Physical design - Documentation	2 1/2weeks
Development	- Creation of data structures - coding - Testing	2 1/2weeks
Implementation	- Data conversion - Systems conversion - Documentation	2 weeks

Appendix B: MYSQL Database codes

```
-- phpMyAdmin SQL Dump
-- version 2.11.6
-- http://www.phpmyadmin.net
--
-- Host: localhost
-- Generation Time: Oct 20, 2008 at 05:18 AM
-- Server version: 5.0.51
-- PHP Version: 5.2.6
```

```
SET SQL_MODE="NO_AUTO_VALUE_ON_ZERO";
```

Table structure for table `accinfo`

```
CREATE TABLE `accinfo` (
  `accno` varchar(10) NOT NULL,
  `custname` varchar(30) default NULL,
  `custaddress` varchar(20) default NULL,
  `city` varchar(15) default NULL,
  `country` varchar(15) default NULL,
  `pincode` int(10) default NULL,
  `telno` int(10) default NULL,
  `email` varchar(15) default NULL,
  `date` date default NULL,
  `accname` varchar(20) default NULL,
  `acctype` varchar(20) default NULL,
  `accdesc` varchar(20) default NULL,
  `deposit` int(30) default NULL,
  `name1` varchar(20) default NULL,
  `name2` varchar(20) default NULL,
  `name3` varchar(20) default NULL,
  PRIMARY KEY (`accno`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
INSERT INTO `accinfo` (`accno`, `custname`, `custaddress`, `city`, `country`, `pincode`,
`telno`, `email`, `date`, `accname`, `acctype`, `accdesc`, `deposit`, `name1`, `name2`,
`name3`) VALUES
('1234', 'ddd', 'wwwee', NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL, NULL);
```

Table structure for table `deposit`

```

CREATE TABLE `deposit` (
  `slipnumber` int(15) NOT NULL,
  `accno` varchar(15) default NULL,
  `prevbal` int(20) default NULL,
  `amount` int(20) default NULL,
  `total` int(20) default NULL,
  `date` date default NULL,
  PRIMARY KEY (`slipnumber`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

Table structure for table `employeedetail`

```

CREATE TABLE `employeedetail` (
  `emp_id` varchar(15) NOT NULL,
  `emp_name` varchar(20) default NULL,
  `emp_address` varchar(15) default NULL,
  `city` varchar(10) default NULL,
  `state` varchar(10) default NULL,
  `country` varchar(10) default NULL,
  `pincode` varchar(15) default NULL,
  `telno` int(15) default NULL,
  `phone` int(15) default NULL,
  `fax` int(15) default NULL,
  `email` varchar(20) default NULL,
  `position` varchar(20) default NULL,
  PRIMARY KEY (`emp_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

Table structure for table `loan\_information`

```

CREATE TABLE `loan_information` (
  `loan_no` varchar(10) NOT NULL,
  `custname` varchar(20) default NULL,
  `address` varchar(20) default NULL,
  `phone` int(15) default NULL,
  `actual_amount` int(15) default NULL,
  `date_of_return` date default NULL,
  `name1` varchar(20) default NULL,
  `name2` varchar(20) default NULL,
  `name3` varchar(20) default NULL,
  PRIMARY KEY (`loan_no`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

```

CREATE TABLE `login` (
  `username` varchar(20) NOT NULL,
  `password` varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

```
INSERT INTO `login` (`username`, `password`) VALUES
('jose', 'too'),
('ibra', 'woria');
```

```
CREATE TABLE `payment` (
  `slipnumber` varchar(10) NOT NULL,
  `loan_no` varchar(15) default NULL,
  `custname` varchar(20) default NULL,
  `date_of_appln` date default NULL,
  `actual_bal` int(20) default NULL,
  `period` int(5) default NULL,
  `rate` int(10) default NULL,
  `interest` int(20) default NULL,
  PRIMARY KEY (`slipnumber`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
INSERT INTO `payment` (`slipnumber`, `loan_no`, `custname`, `date_of_appln`,
`actual_bal`, `period`, `rate`, `interest`) VALUES
('s001', 'l001', 'kim', '2012-12-08', 60000, 3, 20, 6000);
```

Table structure for table `users`

```
CREATE TABLE `users` (
  `user_id` varchar(20) NOT NULL,
  `username` varchar(20) NOT NULL,
  `password` varchar(10) NOT NULL,
  `retype_password` varchar(10) NOT NULL,
  `accesstype` varchar(20) NOT NULL,
  PRIMARY KEY (`user_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

Table structure for table `withdrawal`

```
CREATE TABLE `withdrawal` (
  `slipnumber` varchar(15) default NULL,
  `accno` varchar(15) default NULL,
  `prevbal` int(20) default NULL,
  `amount` int(20) default NULL,
  `currentbal` int(20) default NULL,
  `date` date default NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

APPENDIX C: INTERVIEW QUESTIONS

1. What is the name of the organization?
2. When was it started?
3. What kind of business does the organization
4. Give the breakdown of the kind of business your organization does.
5. How many departments do you have
6. What kind of records do you keep in the organization
7. How do you store your records, by use of computers or other means
8. Who are your clients
9. What exactly are the services offered here
10. What are your future plans