

**A SECURE RECORDS MANAGEMENT SYSTEM;
THE CASE OF M/S SSEWANKAMBO, MUBIRU&CO.ADVOCATES**

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**A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF APPLIED
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DECLARATION

I KAMPIIRE SAUDA declare that this report is sincerely as a result of my original work, and has not been submitted anywhere else for academic award in any University or Institution.

Signature.....

Date.....

KAMPIIRE SAUDA

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APPROVAL

This report has been under my supervision and with my approval; it is now ready for submission to the academic board of Kampala International University for the award of a Bachelor degree in Information Technology.

SUPERVISOR : MR. OCEN MOSES

Signature... 

Date... 07/06/2013

DEDICATION

I truly and affectionately dedicate this work to my Mother for her support, patience and understanding during my period of study not forgetting my Father, brothers and sisters who constantly wished me success plus providing both moral and financial support may the almighty ALLAH reward them.

ACKNOWLEDGEMENT

This research has successfully been completed with the help of people in contribution without them would not have been possible. I would like to express my utmost appreciation to all lecturers of college of applied sciences and technology with special thanks to my supervisor Mr. Ocen Moses, Mr. Korir Amos for their sacrifice in terms of time and unselfish guidance to the success of my research for you are worthy friends indeed. I wish to thank all my family members especially Mummy for their endurance efforts to see me through school. despite of all the hard circumstances and for all the financial support and generally endurance through all the life huddles. I know it was not easy at all, but I believe that there are so many rewards that are awaiting you along the way.

From the bottom of my heart, I humbly thank my dear friends Mwangi Jemima, Miwai Batrus, sisters and relatives for their support and words of encouragement. For that, you will always be my heroes. **MAY ALLAH BLESS YOU ALL ABUNDANTLY**

TABLE OF CONTENTS

DECLARATION.....	I
APPROVAL	II
DEDICATION.....	III
ACKNOWLEDGEMENT.....	IV
LIST OF ACRONYMS/ABBREVIATIONS.....	VIII
ABSTRACT	IX
CHAPTER ONE	1
INTRODUCTION.....	1
1.0 General Introduction.....	1
1.1 BACKGROUND	1
1.2 Statement of the Problem.....	2
1.3 Objectives of the Study.....	2
1.3.1 Major Objective	2
1.3.2 Specific Objectives.....	2
1.4 Research Questions.....	2
1.5 Scope of the Study	3
GEOGRAPHICAL SCOPE.....	3
1.4.2 Content Scope.....	3
1.4.3 Time Scope.....	3
1.6 Significance of the Study.....	4
1.7 Purpose of the Study.....	4
CHAPTER TWO	5
LITERATURE REVIEW.....	5
2.0 INTRODUCTION.....	5
2.1 Records Management Overview.....	5
2.1.2managing Physical Records	6
2.2 Document Management	7
2.2.1 Document Management Features:	8
2.2 Values Of Records And Records Management	9

2.3 Problems Facing Records Management.....	10
2.4 Strategies To Improve Records Management Systems.....	11
2.5 Information Systems	12
2.6 Roles Of Information Systems.....	12
CHAPTER THREE.....	13
METHODOLOGY.....	13
3.0 Introduction.....	13
3.1 Data Collection Methods	13
3.1.1 Interviewing	13
3.1.2 Secondary Reading.....	13
3.1.3 Observation	14
3.2 Questionnaires.....	14
CHAPTER FOUR.....	16
SYSTEM ANALYSIS DESIGN AND IMPLEMENTATION.....	16
4.0 Introduction to the Study.....	16
4.1 The System Study.....	16
4.1.1 Weakness Observed in the Current System.....	16
4.2 System Analysis.....	16
4.2.1 User Requirements of the System.....	16
4.2.2 Functional Requirements.....	17
4.2.3 Non-Functional Requirements.....	17
4.2.4 System Requirements.....	18
4.2.5 Requirement Specification	18
4.3 Systems Design	19
4.3.1 Overview.....	19
4.3.2 Architectural Design	20
4.3.3 Data Requirements.	21
4.4 Database (Physical Design).....	21
4.4.1 Physical Database Design.....	21
4.4.2 Cases Table	22
4.4.3Data Relationships	22
4.4.4 Data Flow Diagram and Context Diagram	24
4.4.4 Database Design	27
4.4.4.1 Conceptual Schema.....	27
4.4.4.2 Logical Schema.....	27
4.5 System Implementation	28
4. 6 System Testing.....	28
4.7 validations.....	28

CHAPTER FIVE.....	30
DISCUSSION, RECCOMENDATION AND CONCLUSION	30
5.0 DISCUSSION	30
5.1 RECOMMENDATION	31
5.2 CONCLUSION.....	31
REFERENCES.....	34
APPENDIX A:	36
APPENDIX B.....	37
APPENDIX C.....	41
SCREEN SHOTS	41

LIST OF ACRONYMS/ABBREVIATIONS

DFD	Data Flow Diagrams
ERD	Entity Relations Diagrams
GB	Gigabyte
IT	Information Technology
HCL	Hardware Compatibility List
MIS	Management Information System

ABSTRACT

The purpose of this project was to design a secure automated records management system that will make tasks such as retrieving, updating as well as generating timely reports easier. M/s Ssewankambo, Mubiru & Co. Advocates uses a manual filing system which is slow, human error prone and tedious for instance when retrieving a particular report from a pile of files.

An automated based system was developed to facilitate easy capturing of the clients and the Legal firm details. During system analysis and design, process modeling, data modeling and formation of data dictionary or tables were important tools that helped in the analysis stage of the system. The architectural design, program specification, input design and output design helped in the design of the system.

Designing of the system was basically done using Visual basic to develop forms and user interfaces. Mysql database was used to define the layout of the Visual basic documents. The project was designed so as to make the records management tasks simpler such as easy retrieval of information, update of records and timely generation of a report at a click.

CHAPTER ONE

INTRODUCTION

1.0 General Introduction

This chapter consists of the background, what prompted the researcher to carry out the research, the problem statement, objectives of the study and the purpose of the study as narrated below;

1.1 Background

M/S Ssewankambo, Mubiru & Co. Advocates is one of the leading law firms in Kampala, Uganda. Law firm is the Business made up of lawyers that work together under a specific firm name. A firm may only focus on certain kinds of law (i.e. business law) or they may work with a variety of general kinds of law.

Therefore it has quite a number of important documents like client files, and other firm's records. The researcher found out that it's very hard to keep accurate track of the firm's records and also the process involved to access the records is very hectic and slow because it's a manual system thus the researcher saw the need to develop a computerized secure record management system.

The secure record management system will basically be developed for large companies such as my case study and other organizations which have quite a number of important records to be kept or managed. The purpose is to make sure that the records are secure and can easily be managed or accessed. With this system, the authorized users may save their time to keep track of the records. This system will provide easy access, use and reliable record management, tracking and reporting system.

Besides, the company under study (M/S Ssewankambo, Mubiru & Co. Advocates) still uses the manual system to keep or manage the firm's records therefore as a solution, the computerized system will be developed to overcome these problems and provide an effective way to access the firm's records. It will provide a user-friendly interface to make the system easy to use.

1.2 Statement of the Problem

Legal firm officers manage the activities manually and as a result there is poor record keeping and management, which leads to lose of vital information. Therefore, studies on the management of records through the designing of a management system appropriate enough to a property management business.

1.3 Objectives of the Study

1.3.1 Major Objective

The major objective is to build a complete records management system which can be used to collect and store data regarding operations at M/s Ssewankambo, Mubiru & Co. Advocates for easy manipulation by the management.

1.3.2 Specific Objectives

- i. To examine the existing records management system.
- ii. To identify the problems facing the records management system.
- iii. To suggest the strategies for improving records management systems.
- iv. Develop a user friendly interface, through which the users of the system will interact with the system.
- v. To design a database and a graphical user interface that will help in storing and managing the company's records.
- vi. To design a system that will be secure, less tiresome and save time.
- vii. To design a computerized system for the company so as to make the company look more current

1.4 Research Questions

1. What type of record management system is used?
2. What are some of the strategies that can be adopted to improve on the system?
3. Is it possible to design and develop a secure record management system that is efficient, time saving, more reliant, current, and computerized which can easily enable the users to

trace their details/ records?

4. Is it possible to design a database and a graphical user interface that will help in storing and managing the company's records?
5. Is it possible to develop a user friendly interface, through which the users of the system will interact with the system?
6. Is it possible to develop a computerized system for the company so as to make the company looks more current?

1.5 Scope of the Study

The legal firm officer of M/s Ssewankambo, Mubiru & Co. Advocates will use the system to monitor/manage the records on clients, services, and other activities carried out in the legal firm.

Geographical Scope

This research primarily focused on designing a Secure Record Management System for M/S Ssewankambo, Mubiru & Co. Advocates Kampala, Uganda. The solution is to design a fully working system which will enable secure recording and managing of company's information.

1.4.2 Content Scope

The study addresses what involved in a Secure Record Management System process of M/S Ssewankambo, Mubiru & Co. Advocates and the impact it has on users.

1.4.3 Time Scope

The study will be carried out in M/S Ssewankambo, Mubiru & Co. Advocates and the system applicability relying on systems record keeping and management will be installed.

It will take seven months of which the first three months will be mainly about research and preparing as well as observing how the current system runs and note major changes to be implemented. The fourth month will be about organizing and compiling the researched data for errors. It's in the last three months that I will document my study in form of project

1.6 Significance of the Study

- i. By automating the system, the study attempts to track clients, staff and other services of the law Firm. This system shall provide a means of easy recording, storing and retrieval of timely information whenever required.
- ii. Upon completion of the proposed system, the following shall be achieved.
- iii. It would lead to faster service delivery with faster record insertion and retrieval thus reducing the time spent by staff filling out forms. This would minimize on the time consumed in the input and retrieval of records.
- iv. It would also reclaim office space used for inefficient storage. A lot of space is taken up in storing the paper-based records and this space was saved up by the implementation of the computer-based records management system.
- v. It would also secure the vital case records and information in case of any disruption or disaster. This is because the system was able to be backed easily and efficiently thus ensuring a longer records life.
- vi. It would also improve the response time to the demands of clients because it would automate the process of collecting, collaborating and retrieving client information.
- vii. The services the system would offer would also; Save the law firm a lot of space by reducing storage needs for records; Save hundreds of staff-time hours by providing quick and easy access to important information; Save the law firm resources used in the destruction of unnecessary records

1.7 Purpose of the Study

The purpose of the study was to analyze the effectiveness of the records management system applied in M/S Ssewankambo, Mubiru & Co.Advocates and to develop an automated records management system.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This reveals what other scholars have done before related to An Automated Records Management System, the strengths in their systems and the weaknesses, which are to be solved by the current system. This chapter will describe on research and case study regarding the Record Management systems in law firms. Literature review is the process of reviewing the current state of knowledge about the topic under discussion. The main purposes of literature review is to let the developer perform some study and analysis on the similar previous or current existing system, get a better understanding about the features offered in these system and thus let the developer to gather valuable information and ideas from the existing system. There are some research studies and other types of literature that used to collect the related information for the project. The raw of material and resources are based on reviews, theoretical articles, case studies, journal articles, books, Internet (electronics journal), interview and document sampling. The sources such as reviews, theoretical articles, case studies and journal articles can offer a relatively concise, up-to-date format for information about the Secure Record Management system, and because all reputable journals are referred.

2.1 Records Management Overview

In the day-to-day management of organizations there has been a discrepancy of what records are and what these records should really engorges but however. According to Penn (1965) *Record management handbook*, defines records as anything captured in a reproducible form that is required for conducting business. A record should be an account of facts and events that have been recorded in an organization as evidence of transaction taking place. Thus for anything to be called a record, it has to be signed or slanted by the generating parties, dated and held confidential and vital to either party who participated in its formulation.

Traditionally records referred to proper records like correspondents, forms, reports, maps and pictures among others but in the present day, they include new media like motion pictures, video tapes, microfiches and other magnetic formats and micrographic donatives and many

types of records can be create in any organization and Wallace Etel (1987) *Records management integrated information*, has classified records into the following categories. Financial: created for accounting and fiscal use, Legal: created for evidence of business transactions or legal decisions i.e. contracts, Administrative: created for documentary policy, procedure and guidelines. Include manuals and reports, Research: created to determine trends, recent developments or new information related to an organization, product or service, Historical: created to provide a record of organizations' past and current activities is also referred to as archival records, they include articles of incorporation and deeds.

2.1.2Managing Physical Records

Records must be identified and authenticated.

This is usually a matter of filing and retrieval; in some circumstances. more careful handling is required which include; (Internet).

- i. **Identifying records**, if an item is presented as a legal record, it needs to be authenticated. Forensic experts may need to examine a document or to determine that it is not a forgery, and that any damage, alteration, or missing content is documented. In extreme cases, items may be subjected to a microscope radiocarbon dating or chemical analysis. This level of authentication is rare, but requires that special care be taken in the creation and retention of the records of an organization.
- ii. **Storing records**, Records must be stored in such a way that they are accessible and safeguarded against environmental damage. A typical paper document may be stored in a filing cabinet in an office. However, some organizations employ file rooms with specialized environmental controls including temperature and humidity. Vital records may need to be stored in a disaster-resistant safe or vault to protect against fire, flood, earthquakes and conflict.
- iii. **Circulating records**; Tracking the record while it is away from the normal storage area is referred to as circulation. Often this is handled by simple written recording procedures. However, many modern records environments use a computerized system

involving bar code scanners, or radio-frequency identification technology (RFID) to track movement of the records. These can also be used for periodic auditing to identify unauthorized movement of the record.

- iv. **Disposal of Records**, Disposal of records does not always mean destruction. It can also include transfer to a historical archive, museum, or private individual. Destruction of records ought to be authorized by law, statute, regulation, or operating procedure, and the records should be disposed of with care to avoid inadvertent disclosure of information. The process needs to be well-documented, starting with a records retention schedule and policies and procedures that have been approved at the highest level. An inventory of the records disposed of should be maintained, including certification that they have been destroyed. Records should never simply be discarded as refuse. Most organizations use processes including pulverization, paper shredding or incineration

2.2 Document Management

By Cindy Chung, ehow contributor: Law firms necessarily go through stacks of paper every day documents are the building blocks of the legal profession. With legal technology now widely available, attorneys can utilize document management software programs to transition from traditional filing cabinets to digital systems.

Streamline your firm's document management system and reduce the time and effort needed to locate necessary documents. ProLaw Document Management lets all users find and access critical information quickly and conveniently with a centralized document management solution.

Enhance productivity with faster document retrieval from any workstation

Improve the consistency and organization of your firm's vital records

Secure content to protect confidential information and prevent unauthorized access

2.2.1 Document Management Features:

- i. Create, store and retrieve electronic documents, videos, pictures, audio files and more by client, matter, event or other key information
- ii. Simplify file search efforts with advanced searching, including full text and metadata tools
- iii. Easily file emails and their attachments via the Pro Filing feature – with one click from Outlook
- iv. Easily Pro File documents from within Microsoft Word, Excel or Adobe applications
- v. Minimize the risk of network failures with the automatic saving of files to a local hard drive
- vi. Improve version control and history tracking
- vii. Centralized and matter-centric document management
- viii. Easily find documents that have familiar, industry-standard icons for Word, Excel, email, images and PDFs
- ix. Multiple file-type management (e.g. word processing docs, e-mail, spreadsheets, video, audio, charts, pictures)

Function; Document management software allows law firms to store, organize, index and retrieve documents for every case or project. Attorneys can use these programs to efficiently search their systems using key words and find relevant documents. Law firms can also track the most recent edits to a document and identify the individual who made those changes.

Benefits; Document management software provides law firms with better security. For example, some programs can limit confidential information to an as-needed basis or determine whether to store or discard a document in compliance with the firm's retention policies.

Selection Criteria; Law firms can choose from a variety of legal technology software options. An article on document management in "Los Angeles Lawyer Magazine" suggests that attorneys and law firm managers should consider the firm's size, number of documents generated regularly, operating system requirements, compatibility with other software used by

the firm, search function options, ability to access documents and work remotely, archive functions and the option to customize the program.

2.2 Values of Records and Records Management

According to Benedon (1978) *Records management encyclopedia of library and information science*, records are very vital and essential tools for administration and they are means by which operational process and functions are performed. For example Penn (1994) *Record management handbook*, classified records in a number of different types which include; Source records, used to reconstruct information, Costly records are of secondary importance would collapse and would be necessary to replace them would constitute disaster, Legal records are necessary for the organization to operate legally to protect itself or the individual. Emergency records, those that are not vital except in the case of an emergency.

However Wallace (1987) *Records management integrated information*, categorized records basically in two forms, which include paper document, business forms and letter head stationery. Digital based records, information recorded in a digital form such as a computer floppy, Cd, etc.

According to Arora (1980) *Office organization and management*, the values of records are; keeping an orderly account of the progress by writing and preserving various papers, documents and memorandums of different types of transactions financial as well as non-financial records. This progress of an organization is recorded and can be described as historical type or historical functions of records. These are: Prepare statement of true conditions of business can be known through updates, Make comparison between one period time and another, Detect errors and wastes. They can be known only with the help of proper records management.

But according to Wallace (1987) *Records management integrated information*, records management is to provide the right information at the right time, in the right order to the person at the lowest cost. Such requirements demand a total organization approach towards records management. Provision of needed documentation in the event of litigation, Serve as the memory bank, Retain records as required by the federal state, Presence vital records.

Kallaus (1992) *Records management*, further went to write that the value of records is fiscal value; that is records can be document operating funds or serve tax audit purpose.

Wallace (1987) *Records management integrated information*, further states that the most important function in an office is the management of records. A business office would be greatly disorganized if it had to rely on memory of preserving every transaction. There would be no letter heads, cards, memos, invoices and computer tapes to the support office functions. Recorded information is vital to the survival of the office.

Jovana (1994) *Record management handbook*, urges that every organization creates different types of records in the process of carrying out its responsibilities and such records have different values to the organization and such values will in most cases determine the life span of the records and this is usually determined during the time of appraisal.

2.3 Problems Facing Records Management

Records management has become a problem that has affected the running of many organizations, business and government institutions and at so many instances the organization have failed to prove and defend themselves due to poor records build up and has become a constant time wasting in decision making.

According to Kent (1998) *Specialized information centre*, Most records centre are facing the challenge of change in the format that have proven adoptability to technological advances which affect the volume of records and justifies the use of computer for records center management due to the fact that they handle many of the consuming functions involved in the control and analysis of records centre activities. He further notes that online system give the advantage of space control and assignments, correspondences, destruction lists, reference analysis, scheduling audits and computer outputs microfilm.

Kallaus (1992) *Records management*, sights the different problems encountered by the records centers and records managers as; Inefficient filing procedures i.e. overloaded and poorly labeled drawers and folders, Human problems, where he noted lack of concern about the importance of records, Management problems like no overall plan for management of

records, plan for destruction of records and standards of evaluating workers, Poor use of equipments, wrong types of cabinets for records being used.

Kent (1998) *Specialized information centre*, notes that the most obstacles to the overall improvement of information services in Africa has been the inadequacy of financial and material resource made available to libraries, documentation centers and other information dissemination mechanism. The cause of those inadequacies being none other than the legal priority government attach to the fields of endeavor in the total contradiction to their development of aspiration.

Wasike (2001) *Chopper file goes missing New vision*, further noted that poor records management systems may lead to loss of huge sums of money to the government or any other organization. He further noted that the disappearance of files may cripple all kinds of investigations of events for instance a disappearance of a file led to a loss of 6.5 million to the government in 1997 and the inquiries of the event collapsed due to the absence of the file.

2.4 Strategies to Improve Records Management Systems

Kallaus *Records management* suggests that for effective strategies and improvement of records, the following elements should be considered, A strategy to integrate management of documents, files and records of the organization with the management of computer and management information, A strategy to address the flow of information in the organization such that productivity gain may be realized through efforts to streamline the transaction of the documents and data.

Wallace (1987) *Records management integrated information*, states that records management is a systematic control placed over the lifecycle of recorded information from the creation to the ultimate disposition and useless management is affected at every stage in a records management program aiming to provide needed documentation in the event of litigation to serve as memory bank of information organization. To retain records as required by the federal state and other regulatory agencies to preserve records that are vital, those needed for continued operation of the organization.

Further still Wallace (1985) *Records management integrated information*, wrote about the useful stage in the records life cycle. Records creation; at this stage, the organization should have a program to manage the records, Distribution stage; it must take place as rapid as possible, Records utilization; where after distribution they are received and once received, they are usually filed or stored for future references, Records transfer; they are transferred from active to inactive storage, Records retention schedule; it indicates how long a record should be kept in both active and inactive storage at whatever point.

2.5 Information Systems

According to Whitely (2004) *Introduction to information systems*, an information system can be designed as a set of integrated components working together to collect, retrieve, process, store and disseminate for the purpose of facilitating, planning, control, coordination and decision making in business and other organizations. The integration of health centre information within an information system will not only lead to information traffic but also coverage of a global market. The ease with which potential clients will be provided with the available information at their finger tips will lead to a broader market and Magamaga military health center III will always be at fore front to customers who may need to avail themselves with the services offered by the health center.

2.6 Roles of Information Systems

According to Raglan (2002) *Access 2002 bible*, an information system is a combination of human, hardware, storage and network resources that are used to collect, manage, control and disseminate quality information that support decision making in an organization.

As per accessibility of contents in a database, Raglan states that questions about data must be answered quickly, changes made the data by different users must be applied consistently and access to the data must be restricted.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter reviews the methods, techniques and the tools that will be used to accomplish the development of the Secure Records Management system. It also provides an oversight of the methods for collecting and analyzing the data that will be used to determine the users and their requirements of the system.

3.1 Data Collection Methods

In order to establish the present set of user and system requirements, various techniques of data collection were used such as:- interviews, secondary reading, and observation.

3.1.1 Interviewing

Interviews both formal and informal were used to collect views concerning the current system from the Legal officers of Ssewankambo, Mubiru & Co. Advocates. Data sought was with regard to the weaknesses with the current paper-based system in use. It involved finding out how the current system works, regards to the strength, weakness and medical officer's views on what should be done to improve it. Several follow-backs to the interviews were made so as to refine the system specification during the design and implementation of the proposed system. It is attached as Appendix B.

3.1.2 Secondary Reading

Secondary reading about An Automated Records Management System and other related fields such as textbooks and journals were reviewed. In addition, the existing records in M/s Ssewankambo, Mubiru & Co. Advocates were obtained and reviewed. The use of secondary reading was aimed at providing a detailed and clear understanding of the existing paper-based records system and how the system could be transformed to an automated one that is proposed, it also helped in creating an understanding of how to move from paper-based to electronic system.

3.1.3 Observation

This involved observing most of the staff especially those in the records department.

This method complemented the above data collection methods through enhancing the understanding of the problem domain and hence enabling the design of an appropriate records management information system for the station.

Observation was used because:

- ❖ Observation can be focused on issues specific to each instructor's goals and concerns
- ❖ By use of observation verbal and non-verbal behaviors can be observed.
- ❖ Observation provides the opportunity for mutual learning by both observer and observed.
- ❖ Although often costly and time consuming, observation methods help to avoid the problem of relying solely on self-report measures.
- ❖ Because actual job behavior is directly observed, the validity of observations is especially strong.

3.2 Questionnaires

Questionnaires were designed and used to collect more detailed information especially in times where interviews could not be conducted. The technique used in answering the questionnaires was self-administered with alternative to tick where appropriate. A copy of the questionnaire is attached in Appendix C .

3.3 3.4 System Design

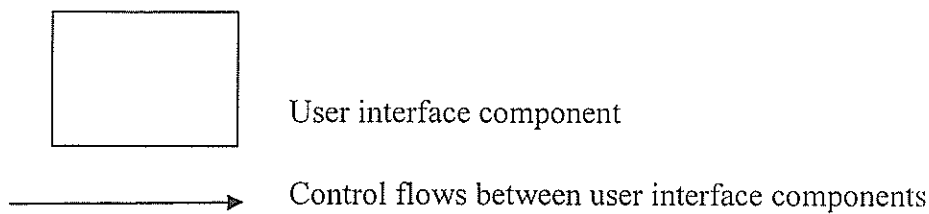
Under this method design tools were used to implement the structural design, function design and database design of the system as discussed below;

3.4.1 Data flow Diagram.

This involved the flow of data and control through the system entities, context diagram were used to view the records management system for the law firm. The input and output are shown to the external entries respectively.

3.4.2 Organizational Charts

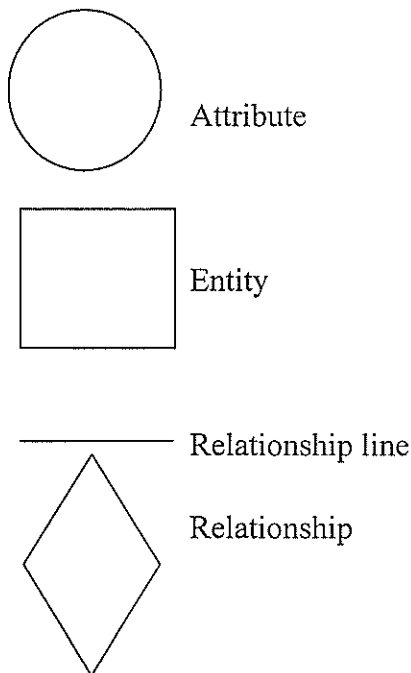
These were used to develop and implement the user interface of the system showing how each components interact and interlink with each other to accomplish system symbols used includes the following;



3.4.3 Entity Relationship Diagrams

These were used to design the schema Logical and conceptual design. The schema contained data type, field name, attributes, relationships and logical schema. This involved unique words like foreign keys and primary keys.

Symbols Used includes;



CHAPTER FOUR

SYSTEM ANALYSIS DESIGN AND IMPLEMENTATION

4.0 Introduction to the Study

The study was carried out in Kampala District. The interviews were conducted with the administrators of M/s Ssewankambo, Mubiru & Co. Advocates.

4.1 The System Study

The purpose of this section was to study the existing system, determine the nature of recording all the information concerning the daily legal activities of M/s Ssewankambo, Mubiru & Co. Advocates.. In addition the details of the activities in the Legal Firm are recorded in books; these books are then kept safely in cabinets according to the months and years of recording.

4.1.1 Weakness Observed in the Current System

❖ **Lack of centralized storage.**

It is difficult to track records of clients, over a given period of time due to lack of a record management system.

❖ **Poor security**

The system is not authenticated leading to poor security of records as anyone can easily access them.

❖ **Time consuming**

There is poor records management as files are stocked with no proper filing mechanism which makes it difficult to retrieve information instantly.

❖ **Tedious**

The process of the regimental legal officer moving in different departments and stores looking for stock available is often tedious as it involves writing and cross checking.

4.2 System Analysis

4.2.1 User Requirements of the System

The system should address the following requirements to enable easy interaction with users.

- ❖ The system should be able to generate reports.
- ❖ The system should enable easy entry of data through the graphical user interface.
- ❖ The system should be able to return error messages when wrong data is entered and also allows users to recover from the errors
- ❖ The system should provide high levels of consistency so that users can easily access data without difficulties.
- ❖ The system should be user friendly and easily allows users to store records.
- ❖ The end users for the service need to be able to submit search expressions of varying complexity.
- ❖ The system must allow end-users to select the format of the returned results from a short list of available options, which will be determined and configured by the Project Team.

4.2.2 Functional Requirements

Functional requirements are the services the system provides that is to say, how it reacts to particular inputs. The system will have to meet the following functional requirements:

- ❖ The system should accept data from the users through the user interface and interactive forms while capturing inmate's details.
- ❖ The system should notify users of any invalid inputs and then prompt for entry of valid inputs.
- ❖ The system should maintain data integrity.
- ❖ The system should be easy to maintain and modify in case of future system expansion.
- ❖ The system should be able to provide security and limitation of unauthorized access.

4.2.3 Non-Functional Requirements

- ❖ The system should be easy to maintain
- ❖ Performance Requirement (Speed) – how fast the system must execute.
- ❖ Processor Memory Requirement – how much memory it requires.
- ❖ Reliability – the failure rate must be low.
- ❖ Robustness – time taken by the system to restart after failure. This must be less.
- ❖ Usability Requirement – efforts required by the user to learn, operate, prepare input & output Hence the System must be user friendly.

4.2.4 System Requirements

These are the minimum requirements needed for the effective implementation of the new system. They include the hardware and software requirements.

Minimum Hardware Requirements

- a. Processor, Pentium III, Pentium IV
- b. RAM 64 Mb
- c. Disk Space 20 Gb
- d. LaserJet printer to printout reports.

Minimum Software Requirements.

The software provided the facilities for manipulating data through an interface between the use of the system and the hardware. The system was designed using mysql database Management System; this shall control the use of an access to the underlying database and Visual basic which will provide the forms.

Operating System: Win-XP, Windows Vista.

Database: Apache 2.0 as web server

MySQL version 5.0.1 or higher as database

4.2.5 Requirement Specification

The database will provide the following functionalities:

- It will store details of cases.
- It will be able retrieve events on a time basis.

The Graphical User Interface (GUI)

- The GUI will provide a view of stored information depending on a user's access rights.

Authentication

- The Automated Records Management System shall require the user to provide a valid set of user name and passwords in order to have access rights granted to them

4.3 Systems Design

4.3.1 Overview

This involved putting in place a computerized system to reduce problems that were being faced in the process of records keeping at the Legal firm.

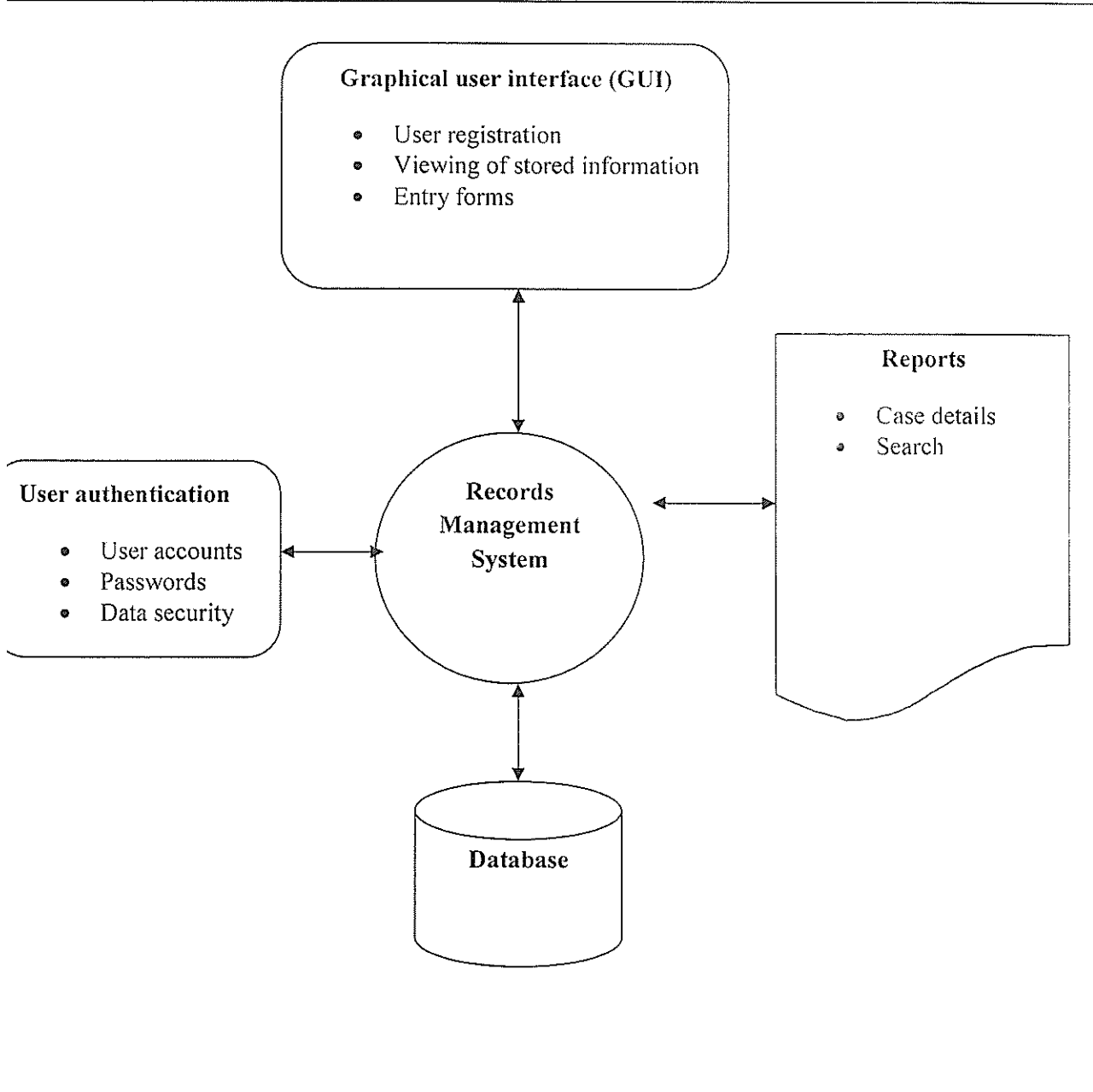
The system had to offer the following services:

- Authenticate to restrict unauthorized users.
- To provide timely information when needed.
- Generates reports at levels within the system.

4.3.2 Architectural Design

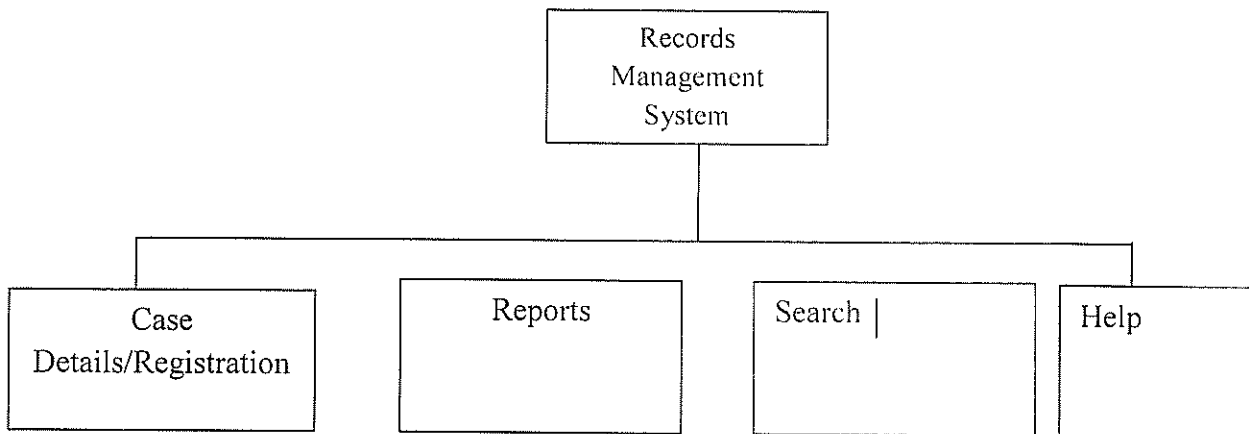
This gives a high level view of the system with the main components and the services they provide and how they communicate. It consists of the general graphical user interface facilities such as forms and authentication. The system was designed in the following manner. The Records Management system has a backend engine that consists of a MYSQL database, as Visual basic (Vb.net) programming language. The system architecture is illustrated below.

Fig 1: Architectural Design



The details of the user interfaces are displayed in the high level architectural diagram in Figure 2 below. After the user login, the appropriate access rights, the user may access the system.

Figure 2: High level Architectural Diagram of Main Components



4.3.3 Data Requirements.

Data is very important to any new system implementation testing. For this project, imaginary data was used in the testing and demonstration purposes. The sample data was used as a reflection of the actual scenario of real life situation in the law firm.

4.4 Database (Physical Design)

4.4.1 Physical Database Design

As one of the core elements of a records management system, the database had to be designed in a meticulous systematic manner. This process started at the analysis phase of the project. From the analysis, the researcher was able to identify the necessary tables required for the database and the associated field names, format and length of each table. After careful analysis of the user requirements, it was identified that the RMS needed two main tables i.e. cases details, and the login table as shown below;

Table 1: Login Table

Field	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/> <u>id</u>	int(11)			No		auto_increment	
<input type="checkbox"/> username	text	latin1_swedish_ci		No			
<input type="checkbox"/> password	text	latin1_swedish_ci		No			

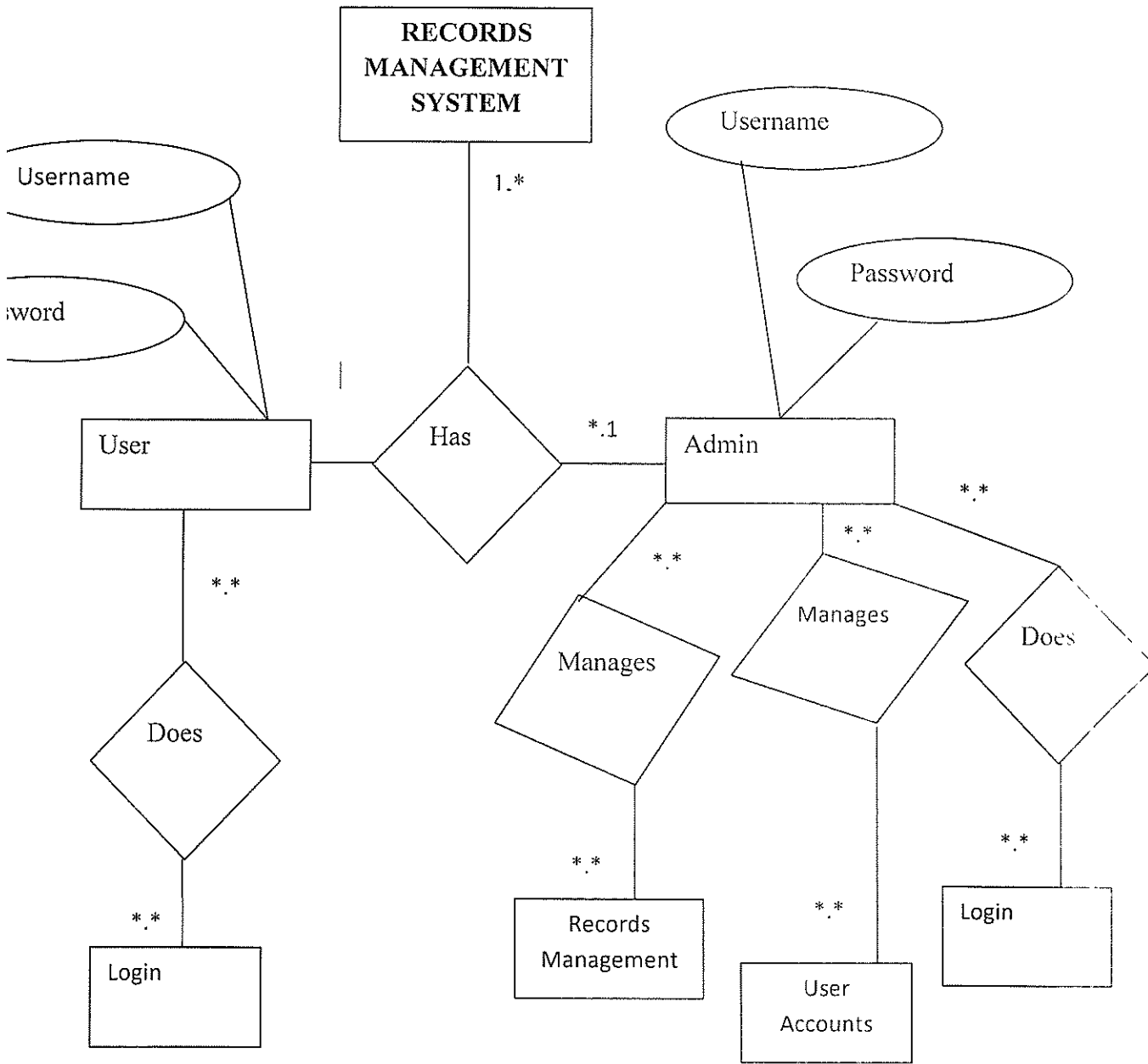
4.4.2 Cases Table

Field	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/> <u>id</u>	int(11)			No		auto_increment	
<input type="checkbox"/> rid	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> cname	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> cdesc	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> cclient	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> cclientdetails	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> cstatus	text	latin1_swedish_ci		Yes	NULL		
<input checked="" type="checkbox"/> lawyer	text	latin1_swedish_ci		Yes	NULL		
<input type="checkbox"/> datein	text	latin1_swedish_ci		Yes	NULL		

4.4.3 Data Relationships

Data relationships show how the information or records are related between each other. For the tables to work together, relationships have to be established. In the design of Records Management system, the data relationships were established during the process of the logical data design. There are mainly four kinds of relationships: One to One, One to Many, Many to Many, and Many to One.

Fig.3 Entity Relationship Diagram (ERD).



4.4.4 Data Flow Diagram and Context Diagram

Data flow diagram is a network model of an information processing system. This models information about the processing in the current system. Data flow diagrams helped to show how data moved and changed through an information system in a graphical format.

They helped to give a graphical representation of a system's components, processes and the interface between them. Data flow diagram showed where the documents came from, its destination and what it was called for. A data flow is a movement of information from one point within the system to another. A data store is where data is kept temporarily or permanently. A process is a transformation that inputs one type of data and out puts a different type. It is a changing of data from one form to another and an entity is an object outside the system under study that receives systems output. A context diagram is a data flow diagram showing data flows between a generalized application within the domain, the other entities and abstractions with which it communicates.

Fig 4:Context Flow Diagram

Centre

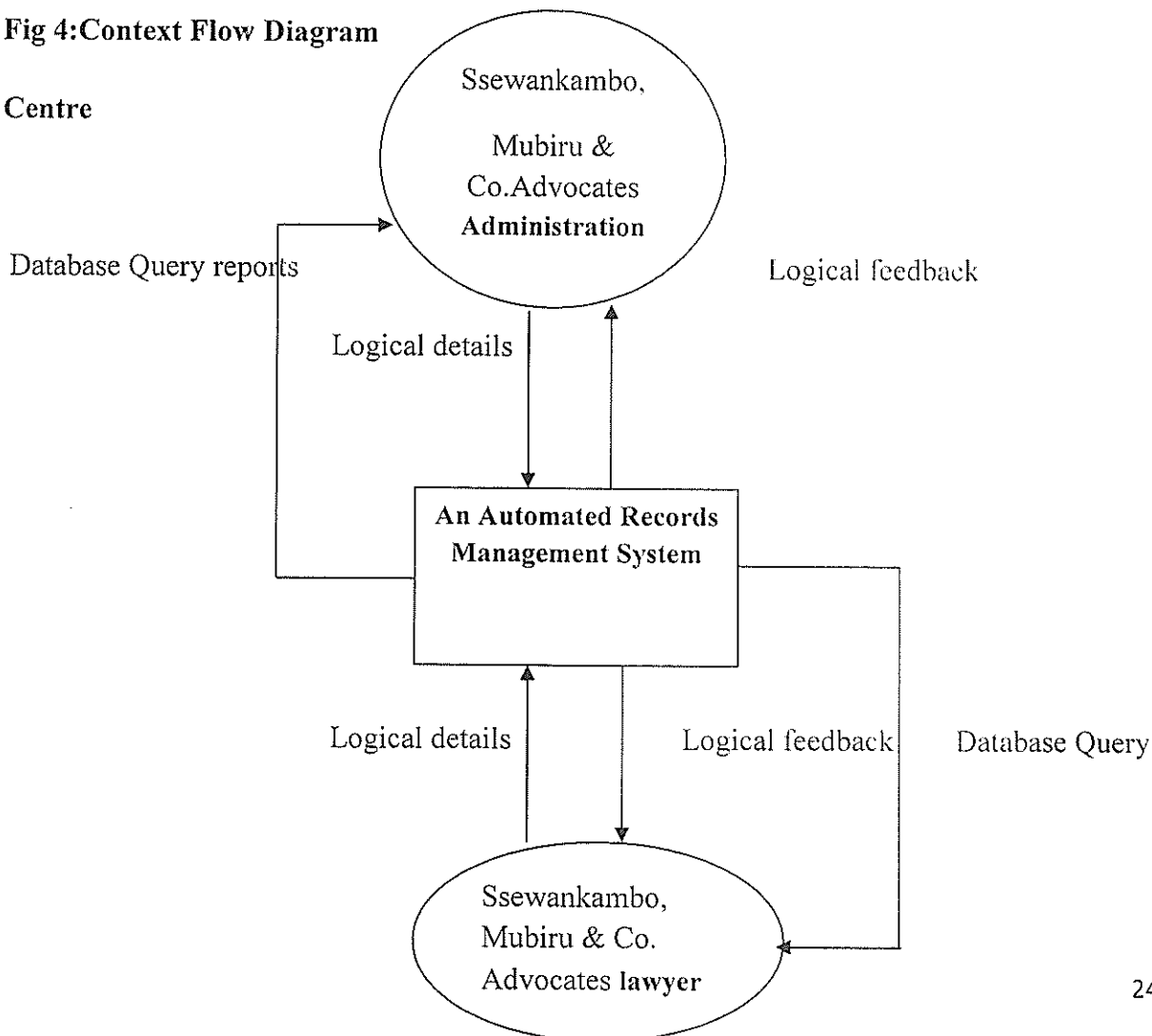
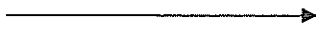
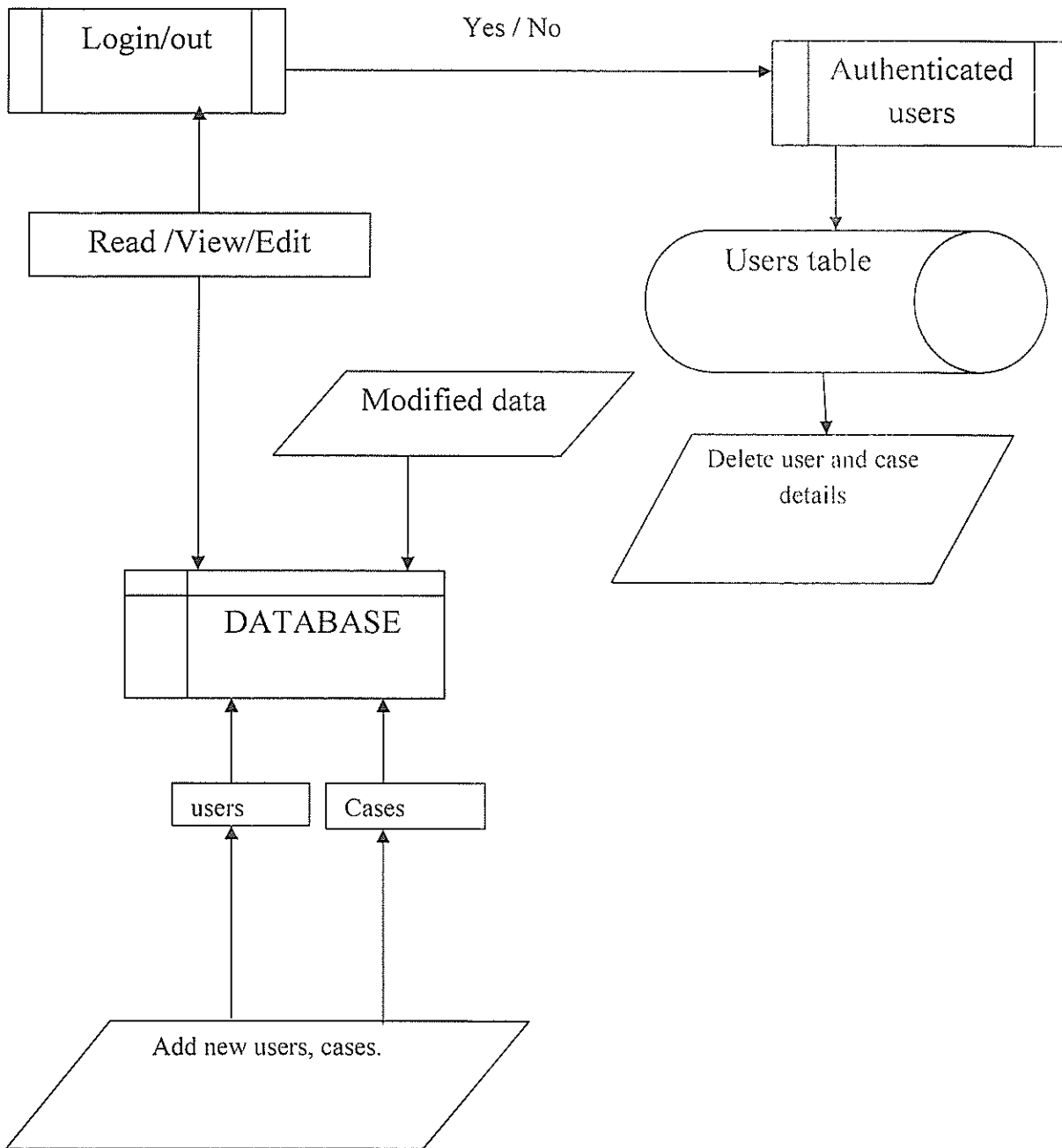


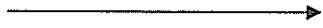
Figure 4.4.3.1 System/Data Flow Diagram



Data Flow Diagram



Key to Data Flow Diagram



Data flow



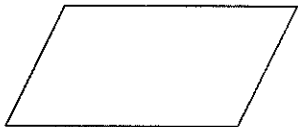
Predefined process



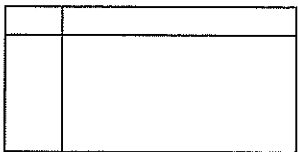
Process



Direct data



Data



Internal storage

4.4.4 Database Design

The system is relation database that analyses facts about the real world using Entity-Relation Modeling design.

4.4.4.1 Conceptual Schema

In the development of a conceptual schema an electronic management information system, entities, relationships and attributes were determined through system analysis by identifying nouns and noun-phrases and objectives that had an existence in their own right. Considering verbs and verb-expressions in the system analysis explicitly identified relationships. Most of the relationships were binary with only a few that were recursive. Furthermore, the multiplicity of each of the relationships was determined. Identified attributes were assigned meaningful names in addition to ascertaining whether they were either candidate key or primary key. An automated records management system database designed keeps track of entities such as cases and their corresponding relationships, cardinalities, candidate and primary key attributes.

4.4.4.2 Logical Schema

Removing features that could not be represented directly in the relational database developed the logical data model. This involved mapping these features on to a set of relations. The relational schema was validated using the rules of Normalization to ensure it was structurally correct. In addition, the logical date model was validated to ensure that it supported the transactions in the system requirement specification. The developed logical data model includes all the required entities, attributes, and relationships that represent system information and define system rules.

The system rules were mainly the integrity constraints imposed to protect the database from becoming inconsistent. Four types of integrity constraints were considered: required data (some attributes must always contain availed value that is not null), attribute domain constraints (every attribute have a domain that is set of values that are legal), entity integrity (primary key of an entity can no hold nulls), and referential integrity (a foreign key links each child relation on the parent relation containing the marching candidate key value).

4.5 System Implementation

This involves procedures used to implement the user interface and the database. The database design was converted into the actual database using Mysql database management system application and Visual basic 2005 was used to implement the user interface and connect to the database, and a running code was developed to evaluate the tenant's records management information system.

The application was tested in the sample field to eliminate any bugs that may not have been identified at the time of development.

4.6 System Testing

Testing of An Automated Records Management System was done to identify errors. The first step is to detect errors and obtain clean compilation. The next step is to eliminate logical errors; System testing was also done to make sure that the results of the system meet the system requirements specifications. Testing involved subjecting the system to all the functional specification followed by observation of the system behaviors. This was done to avoid the system run with bugs or errors that would be dangerous to Inland Service Station information system.

4.7 validations

Validation rules were set, which limited access and ensured that the values entries allowed in the field were correct thus established a measure on data integrity.

- **Input and Data Validation**

For each data element, a proper domain was defined and the constraints were implemented to ensure validity and consistency of data. Validation rules were implemented to enforce proper entry in addition to the well-defined data types and sizes.

- **Entity Integrity and Referential Integrity**

Items related to particular entities were identified using primary keys that are unique. Null values were accepted by the system.

- **Security Requirements**

Security was ensured in the system by authenticating the user, to avoid unauthorized access, Usernames and passwords were given to the different users.

CHAPTER FIVE

DISCUSSION, RECCOMENDATION AND CONCLUSION

5.0 Discussion

The discussion of the project involves what was achieved as a result of implementing the research project. Therefore, the system developed has achieved the following;

- The law firm lawyer is able to capture data on cases for the Law Firm and their details in an electronic form which was previously not in place.
- The system is able to organize, integrate and retrieve key information from many sources in support of management operations, control and strategic planning.
- The system minimized the drawback of data redundancy, thus improved flexibility of Records Management System for the law firm.

However, the system developed had limitations and these are;

- The time used in the development of the system was limited, which hindered the implementation of all desirable aspects in the project.
- Some of the documents needed for analysis were official and did not require being taken out rather studied and analyzed in the respective offices.
- With regard to its use, the system only caters for English speakers. The GUI and associated documentation is in English. This may present a problem for non- English speaking users
- The system has only two user levels which only cater for the administrator and data entrant. However, there is no facility for a guest. Such a facility would be useful if the clients themselves needed to access their electronic records via the system.

Static FAQ File The system currently has a static FAQ file. This is a limitation in the sense that the system does not generate the dynamically file based on the frequently asked questions.

5.1 Recommendation

There is need for use of software backup and data dumping backup for the computer stored records security and obtaining snapshots of data in case of hardware and system malfunction. Before the application is put into full use, it should be tested in the sample field to eliminate any bugs that may not have been identified at the time of development.

If opportunity allows, the features that have not been implemented but were originally desired can be implemented in order to improve the reliability, efficiency and user friendliness of the system.

5.2 Conclusion

Through this study, records management system for M/s Ssewankambo, Mubiru & Co. Advocates has been developed.

Upon testing, it is shown that it is able to meet the set of system specifications.

The project is “Records Management System” which was designed and implemented with the ability to do the following;

- Gives details on cases.
- Allows administrative, officers to update, add and delete records in the database.

Further researchers can expand this study and add new technology design features for the system to other companies.

5.6 Problems Encountered

In attempting to design the system, the following problems were encountered.

Accessing Research Material

Accessing associated research material was quite a challenge. This was particularly the case because of the limited variety of books and journals in relation to the research topic in the local library. To further escalate the challenge, online resources were close to impossible to access due to the use of Internet Cafes which were costly and their slow internet speeds that made it hard to download books and journals.

Wide Project Scope

Defining the project scope was quite a challenge. This is because the system was meant to be designed for the entire law firm including all its departments, however with a view to the limited amount of time available for the project, the scope had to be narrowed down to one section of the law firm.

Understanding Key Concepts

Limitations as far as understanding the key concepts also posed a major challenge. Considering the fact that most of the concepts were new, the researcher had to spend a considerable amount of time learning the concepts. This took away a lot of valuable time that would otherwise be fully dedicated to the design of the system.

Programming Skills

Learning VB.net and MySQL requires considerable practice for one to gain the programming skills. With limited knowledge and ability, the programming progress was rather slow and this limited the number of functionalities that the researcher could implement into the system.

Unanticipated Expenditure

Also the researcher was met with a few financial constraints as a result of unanticipated expenditure. In order to cater for the slow internet speeds in the Cafes, the researcher had to subscribe for a dial-up internet connection in order to proceed with the project unhindered. This expenditure was however unforeseen and therefore posed a challenge for the researcher.

5.7 Recommendations/Future Research

As well as addressing the limitations presented above, there is scope for work to further the functionality and usefulness of this project. The researcher therefore made the following recommendations for future enhancements to the system.

Widening the Scope

Given the limited amount of time given to the developer, the project's scope was rather limited to only one department in the law firm. The scope can further be widened to include all the other departments to make a more integrated comprehensive system

Including Additional Components and Functionalities

A few other components can be included in the system in future. This may include the ability to compute calculations especially when determining a client's next payment. this will make

the system more efficient and drastically minimize the amount of errors. The ability to include an upload functionality for clients images could greatly enhance the usefulness of the system.

5.8 Conclusion

In Conclusion, from a proper analysis and assessment of the designed system, it can be safely concluded that the system is an efficient, usable and reliable records management system. It is working properly and adequately meets the minimum expectations that were set for it initially. The new system is expected to give benefits to the law firm in terms of increased overall productivity, performance and efficient records management of SSewankambo Mubiru & CO.Advocates

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APPENDIX A:

Interview Guide

1. Do you have any computers in this Legal firm?
2. Do you have any computer literate user /administrator?
3. Which kind of receipts does the firm issue to clients?
5. How are requirements specified and which criteria are followed?
6. How are records recorded and saved in this legal firm?
7. How often are clients records updated by the administrator and staffs?
8. Do you have any sample documents or clearances offered to clients?
9. How do lawyers attend to clients?
10. How do management monitor the transaction process?
11. How do you comment to the introduction of an automated records management system in this legal firm?

APPENDIX B
KAMPALA INTERNATIONAL UNIVERSITY
COLLEGE OF APPLIED SCIENCES AND TECHNOLOGY

Questionnaire

Topic: DESIGNING A RECORDS MANAGEMENT SYSTEM

A Case Study: M/S SSEWANKAMBO, MUBIRU & CO.ADVOCATES

Dear respondent,

This questionnaire is only intended for research only, so kindly I request you to fill in the space provided to the best of your knowledge for a successful research.

Answers will be treated with utmost confidentiality and in no instance will your name appear as an individual. It's hoped that the findings of this research will be of the interest to the organization and the researcher.

May I kindly request you please to complete the questionnaire preferably in a week?

KAMPIRE SAUDA

STUDENT KIU.

1. Under which department do you work in this legal firm?

.....

2. How many departments do you have in Ssewankambo, Mubiru and co advocates?

.....
.....

3. Is record one of the departments in this legal firm?

Yes

No

4. If no under what department is the records management program?

.....
.....

5. In case record is an independent department, how many staffs are in this department?

.....
.....

6. What duties are performed in this department?

.....
.....

7. What kind of records are kept in your department?

.....
.....

8. How are those records created?

.....

9. For how long are they kept?

.....

10. In what form are these records generated and kept?

- a) Paper based.
- b) Images or photographs
- c) Digital forms
- d) Other (please) specify.....

11. Do you have storage facilities for safety of these records?

Yes No

12. If yes, what storage facilities are in place for the preservation of these records generated?

.....
.....

13. Do you think the storage facilities do ease accessibility to these records?

Yes No

14. If yes, how?

.....
.....

15. Who are entitled to access records in the center?

.....

16. What systems do you use to track records or files that have been borrowed by authorized persons?

.....

17. What security measures do you have in place for the protection of the records generated?

.....

18. Are records of any importance in the functioning of this legal firm?

Yes

No

19. If yes, what role do these records play in the functioning of the organization? (Tick where appropriate).

- Budgeting/accountability
 - Research
 - Administration/decision making
 - Planning
 - Other
- specify).....

(please

20. Are there any problems faced in the management of records in this legal firm?

Yes

No

21. If yes, what are the problems faced in the management of records in this legal firm?

.....
.....

22. What do you think would be the possible solution to the above mentioned problem?

.....
.....

23. Do you regularly retrieve your records for reference, as the situation may require?

Yes

No

24. If yes, what means do you use in order to help you quickly retrieve a required file at a time?

.....

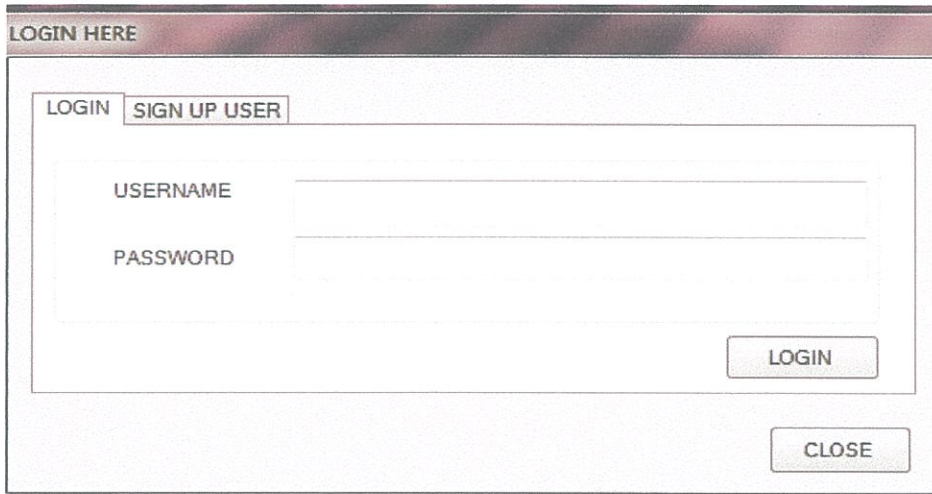
Thank you so much and may God reward you for this information.

APPENDIX C

Screen shots

Login Form

The login form below is the first page a person accessing the system sees. It is used to gain access to the system resources and determines, based on the user type, only authorized users are allowed to access the system.



The screenshot shows a window titled "LOGIN HERE". At the top, there are two tabs: "LOGIN" (selected) and "SIGN UP USER". Below the tabs is a form with two input fields: "USERNAME" and "PASSWORD". To the right of the "PASSWORD" field is a "LOGIN" button. Below the form area is a "CLOSE" button.

An error message which is displayed when an unauthorized user tries to access the system.



The screenshot shows the same "LOGIN HERE" window as above, but with an error message dialog box overlaid. The dialog box is titled "RECORDS MGT SYSTEM - By Sauda" and contains an information icon and the text "Either username or password is incorrect". There is an "OK" button at the bottom of the dialog box. The "LOGIN" and "CLOSE" buttons from the background form are partially visible behind the dialog.

Data Entry/Manipulation Form. Data entry and manipulation forms in this system include the data add, view, update and edit functions. The add and edit functions are accessible to both the administrator and normal user who is expected to be the main data entrant.

RECORDS MANAGEMENT SYSTEM FOR A LAW FIRM

File View Tools Windows Help

CASES MANAGER - add, edit, delete case records

CASE RECORDS MANAGER

Add new records View / Edit Records

Case name

Case Number

Client name

Client Other info

Lawyer Info

Case Description

Case status

Dates Thursday, April 11, 2013

Save

Close

Data Outputs: After the data is entered into the system, it is stored and can be retrieved at any time using the search functionality.

SEARCH FOR A CASE RECORD

Search **Preview Records**

ENTER CASE NUMBER

SEARCH AREA - case number

id

Search

Case name

Case Number

Client name

Client Other info

Lawyer Info

Case Description

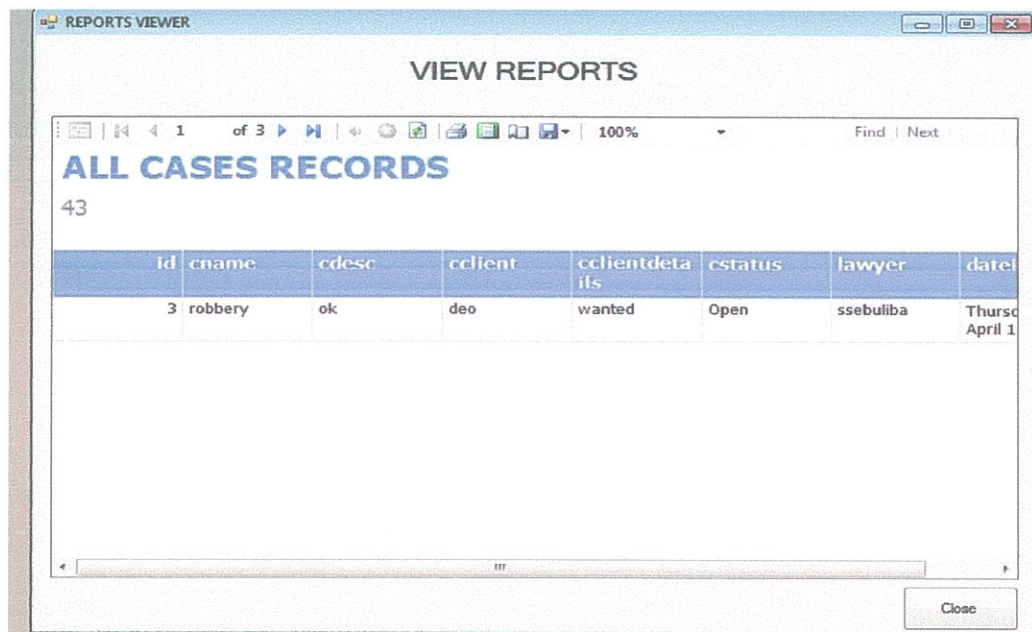
Case status

Dates

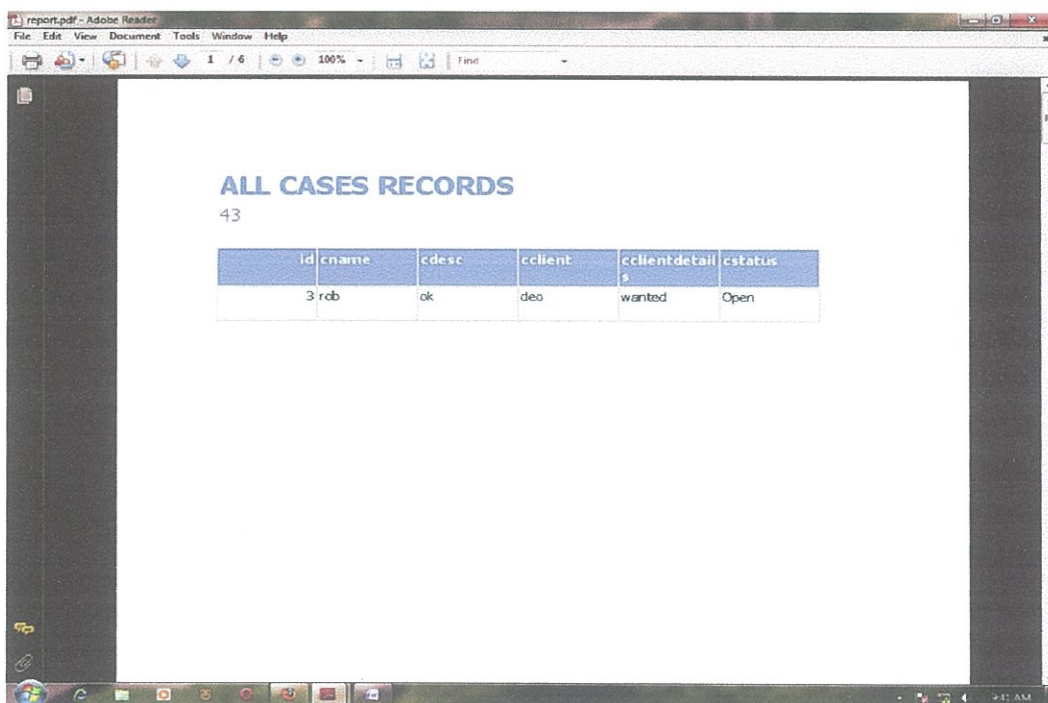
Close

Data Reports

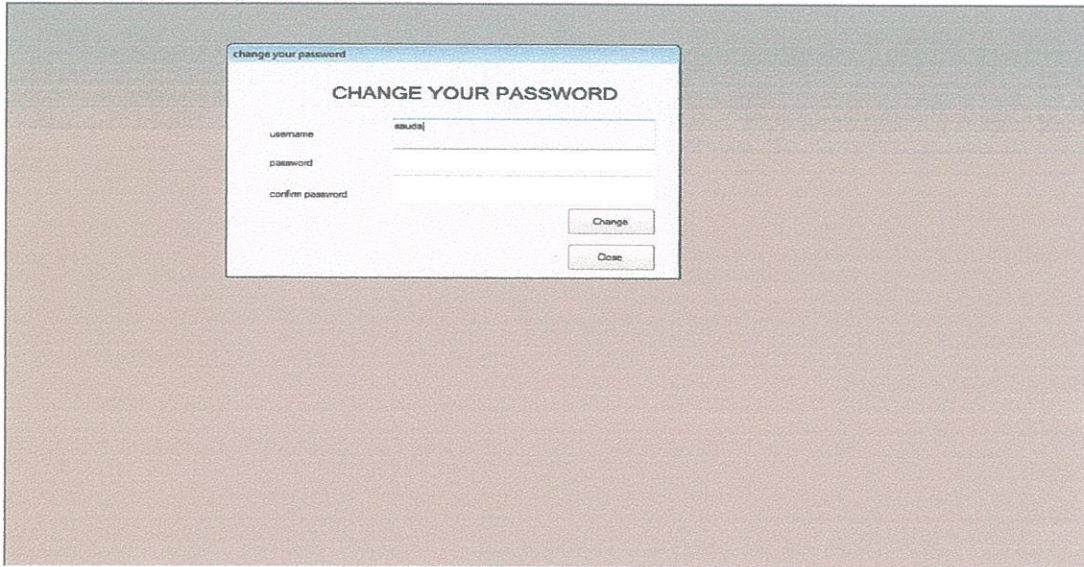
The system was designed with a system of generating reports for the records. This functionality was integrated in order to facilitate printing of the records in the system. Below is a snapshot of one of the reports which can also be exported to pdf.



Report when exported to Pdf



The user can change his/her password when logged into the system



Help function which was integrated into the system to enable those who get difficulties while using the system.

