CENTRALISED LIBRARY MANAGEMENT SYSTEM

CASE STUDY: MANAGEMENT TRAINING AND ADVISORY

CENTRE (MTAC), NAKAWA

BY

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DECLARATION

We NIWAKORA AFRICANO and NAHABWE STEPHEN do hereby declare that this report project is entirely our original work and has never been presented before to any university or institute of higher learning for the award of degree, diploma or certificate.

NIWAKORA AFRICANO

SIGNATURE   DATE

16th JULY, 2011

NAHABWE STEPHEN

SIGNATURE   DATE
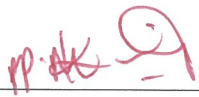
16/07/2011

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SUPERVISOR APPROVAL

The research project was submitted for examination with my approval as a university supervisor.

Ms. ONKANGI CAROLYN

SIGNATURE   DATE

_____   ____20/07/2011____

DEDICATION

This research work is dedicated to our beloved families and our children who gave us humble time and co-operation during this period it would have been difficult to reach this far.

ACRONYMS

DBMS   Database Management System

DFDs   Dataflow Diagrams

FK   Foreign Key

GB   Gigabyte

GHZ   Gigahertz

ID   Identity Card

ILO............International Labour Organization

LMS   Library Management System

Ms.Acess   Microsoft Access

MTAC .... Management Training and Advisory Centre

MTTI ....Ministry of Tourism, Trade and Industry

PK   Primary Key

SAD   System Analysis and Design

UNDP......... United Nations Development Programme

UPS   Uninterrupted Power Supply

ACKNOWLEDGEMENT

We wish to extend our special thanks to our supervisor Ms. Onkangi Carolyn, our fellow students who assisted us and gave in a helping hand in the successful completion of this report.

We also acknowledge the Management Training and Advisory Centre (MTAC) for kindly allowing us to conduct project research from their Advisory center as our case study and equipping us with relevant information that helped us compile this report successfully.

Thanks so much.

May the Almighty God reward you abundantly.

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ABSTRACT

This project is entitled the Library Database System covering library computerization of Management Training and Advisory Centre (MTAC) School main library. The project seeks to cater for two library sections with the highest number of users (the general circulation and research section).

The researcher collected data using questionnaires, interviews and observation. The collected data was analyzed using SPSS to verify the data into simple percentage which was presented in the form of tables and charts. Ms Access and Visual Basic 6.0 were used to develop the software.
A database is designed to store library information for easy access, retrieval and use of library information in serving library users. The user interface is designed in Visual Basic to allow easy search and retrieval of library data and the system is able to produce reports for management planning. Data in the database can easily be updated using the forms.

The researcher tested using parallel method where the new system was installed as the old system was still in place. The researcher recommended that the new system be maintained every 3 months.
The researcher recommends training of the users, periodic back up of data and physical Security

CHAPTER ONE

INTRODUCTION

1.0 General Introduction

This project was sought to design a relational database system for MTAC to improve on the current file system in terms of entry, storage, recording and updating of library records. MTAC's library database system manages the information records of students and other people who borrow library books and other reading materials in terms of recording, updating retrieving and ensuring security of the records. The study looked at entirely on how recording, searching and updating of the library records is done was also ensuring security for the library records by implementing a relational database system.

1.1 Background of the Study

The main library of Management Training and Advisory Centre (MTAC) is located within Nakawa. Management Training and Advisory Centre (MTAC) is a body corporate under the Ministry of Tourism, Trade and Industry (MTTI) established initially as an ILO/UNDP Project in 1965 and later by an Act of Parliament in 1969. MTAC is 5% government funded while 95% of its budget is financed from its training, research and consultancy activities.

The vision of MTAC is "A world of job creators underpinned by professionalism and diminishing poverty levels". The mission of MTAC is "To promote Entrepreneurship and improve Management performance for sustainable development".

MTAC has well stocked library near the administration building with a specific facility for the undergraduate students and the graduate research center for their use. The structure of an organization is one of the many ways in which the organization divides its labor into distinct tasks in order to achieve its objectives. This describes how the library has arranged its lines of authority and communication and allocated duties and tasks.

The library exists to safeguard and provide access to the information materials that support the calculus and research needs of the students and staff of MTAC in making available published, unpublished and electronic documents that comprise of current and retrospective knowledge.

The library currently uses a manual file system involving cataloging of books to their respective shelves and documenting the information about the books borrowed. Being a manual system, the book borrowing process is delayed, slow, liable to duplication of records and hectic with much paper work.

1.2   Statement of the Problem

MTAC is facing a problem of lack of computerized database system that they can use in storing, organizing, accessing and updating their information concerning the records of library users. The library currently uses a manual file system this leads to mismanagement of library information and other problems such as; slow searching, processing and retrieval of library user's requests, much paper work done thus tiresome during recording and monthly report writing, library cards sometimes get old and tears hence losing the relevant information, duplication of data since at times it is recorded more than once in the files and lack of data security since it can easily be accessed by unauthorized people in the library. Therefore, the researcher designed a Centralized Library Management System that input student borrowing details, staff details during and after borrowing of library books.

1.3   Project Objectives

1.3.1   Main Objective

To design and develop a library database system for MTAC library resources that input student borrowing details, staff details during and after borrowing of library books.

1.3.2   Specific Objectives

1. To investigate on the current system in order to identify the requirements for the new library system.

2. To design and develop a computerized system that has a user friendly form interface.

3. To validate and test the developed system and implement the system for use.

1.4 Research Questions

1. What are the problems that arise from current system?

2. What are the designs that can be used on the Centralized Library Management System?

3. What implementation strategies can be used to test the designed system?

4. What is the design of the new system?

5. What strategies are to be used to implement the new system?

1.5 Scope of the Study

The project focused mainly at designing Centralized Library Management System for Management Training and Advisory Centre (MTAC), Nakawa, an interface for easy recording of the borrower's details and the library resources, storage of their data, data processing, and retrieval of data and reports for the administration. The study was conducted in four months.

1.6 Purpose of the Study

The purpose of this project was to design an interface to the library database system to help store library information with user friendly form interfaces which in turn help user's record, access and retrieve the necessary information needed from the library database.

1.7 Justification of the Study

Due to the problems with the current file system, there was need for a more effective library system to improve the performance of work in the library; the new system has the following benefits:-

The new system will assist the library staff in searching and retrieval of library information using a computerized catalogue. The new system is more effective in recording book details using a relational database and external backups.

A computerized system was to help increase accessibility of users to library resources whereby many students will be trained on how to use computers in order to retrieve the information they need.

The new system is able to produce efficient, timely and professional reports to the management for easy planning. Also, there will be improved decision making within the administration due to availability of timely information from the system.

Researchers will be educated on the validity of computerizing library projects through these achievements, limitations and recommendations in their future research projects.

1.8 Conceptual Framework

This is the theoretical part of the design. It shows the layout consisting of the major variables of research and how they assist each other to work. In this case, the student/staff member request for a book, the librarian check request from the database and provides the request if available after verifying records.

Conceptual Framework

registration   processes   Receives

Student	processing	Staff	Account
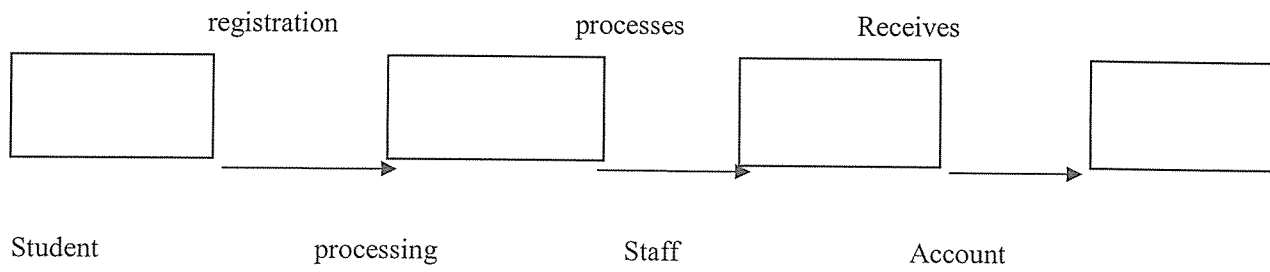
Figure 1.1 Conceptual model for the new system

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter, the researcher looked at the available literature of different scholars that is related to the library database system. The review was used to analyze the current system functions and its loop holes and how the proposed system addresses these loop holes to make it a better system to use to minimize the problems at hand. The literature was collected from text book, internet, journal, magazines and dissertations.

2.1 Current System

The current system is manually operated with much paper work and personal searching of files and requested books from the book shelves which is tiresome and consumes much time and resources. The new related database management system will therefore be able to allow easy processing and retrieval of library resources with little energy and minimum time wasted.

2.2 Manual Systems

Manual systems refer to the old methods of storing information. These methods include the storage of data in file based systems and paper cabins. This method of data storage has got a number of advantages and disadvantages.

2.2.1 Advantages of Manual System

The system is relatively cheaper than the computerized system. The system does not require much prior training for the staff to use it.

2.2.2 Disadvantages of Manual System

The disadvantages of a manual system are as follows:

1. A manual system leads to collection of bulky files and it consumes a lot of storage space.

2. Processing files is sequentially done thus making it difficult in inserting and deleting of records

3. Searching for information and updating records in the manual system is very difficult to manage.

4. It consumes a lot of time in searching the information required from the system.

2.3   *Database Management System*

Rash Johannes hill book, Microsoft Access (MSA).com 4th edition, described a database management system as a computer-based system responsible for recording and maintaining information. The information can be anything inside and outside the organization. Microsoft Access is the most commonly used relational DBMS for Microsoft. A database engine is the core process that a DBMS uses to store and maintain data.

2.3.1   Microsoft Office Access 2003

Microsoft Access provides a typical PC-based DBMS capable of storing and retrieving data for a variety of applications. It provides a graphical user interface to create tables, queries, forms, reports and tools to develop a customized database application.

It provides programs called Wizards to simplify many of the processes of building a database application.

It provides builders to help the user build syntactically correct expressions like those statements and macros.

Deleting and adding records in Microsoft Access is easy, simple and user-friendly.

2.3.2 Advantages of Microsoft Access

The advantages of Microsoft Access are stated as below:

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It controls data redundancy. Storage of more than one file is eliminated by integrating the files so that multiple copies are stored in the same file.

Any data item which is stored once in the system is updated and its value is stored thus improving data consistency.

Other information can also be accessed and retrieved from the same source of data.

It allows users to insert, update, and delete data from the database using data manipulation language.

2.3.3 Disadvantages of Microsoft Access

The system has got the following disadvantages:

The system may require additional hardware and storage space.

Provision of the functionality we expect of a good database management system makes it a very complex piece of software. Failure to understand the requirements of the users may lead to bad design of the system.

The system is expensive to install on top of requiring recurrent maintenance which is costly.

2.4   *Information System*

Trainasf (2002), defined an information system as a set of people, procedures and resources that collect, transform and disseminate information in an organization. It is a system that accepts data resources as inputs, processing them into information products as outputs. It uses hardware, software and people to perform input, processing, output, storage and control activities that transform data resources into information products.

From http://library.leeds.ac.uk, described an integrated library system as a library database system with an enterprise resource system for a library used to track items owned, orders made, and bills

paid who have paid. Acquisition, catalogue, and lending materials to patrons and receiving them back can be possible using large integrated library systems.

Library-Wikipedia the encyclopedia, defines a library as a collection of sources, resources and services and the structure in which it is housed, organized, maintained for use by the public/ it further defines a library in a traditional sense as a collection of books. It means the collection, the building or room that houses such a collection or both. Or a library is a collection of useful materials for common use thus used in fields such as computer science, mathematics, statistics, electronics and biology. Public and institutional collections and services may be intended for use by people who choose not to or cannot afford to purchase an expensive collection themselves, who need materials and individual requiring professional assistance with their research.

From http://www.wallacefoundation.org, the Wallace foundations explains the valuable insights into engaging teenagers at public libraries and learn how libraries aid teens and help them develop, how employing teens can benefit libraries and communities and how libraries can make youth programs work. It also includes a report on Wallace supported program to improve school-based libraries in order to boost student achievements.

From http://www.wallacefoundation.org, further describes modern libraries as places to get unrestricted access to information in many formats and from many sources including materials accessible by electronic means and providing assistance of library and navigating and analyzing tremendous amounts of knowledge with a variety of digital tools. It further describes the basic tasks in the library management such as planning of acquisitions (materials the library can acquire by purchase of other wards), library classification of acquired materials, and preservation of materials, deaccessioning of materials, patron borrowing of materials, developing and administering library computer systems.

From http://en.wikipedia.org/wiki/file: one claim as to why there is a decease in the usage of libraries stems from the observation of the research habits of undergraduate students enrolled in colleges and universities. There have been claims that college undergraduates have become more used to retrieving information from the internet than a traditional library. As each generation becomes more in tune with the internet, their desire to retrieve information as quickly and easily as

possible has increased. There is no doubt that finding information by simply searching the internet is much easier and faster than reading an entire book. The information that they are finding might be easy to retrieve and more readily available, but may not be as in depth as information from other resources such as the books available at a physical library.

Kenneth & Laudon P..Laudon (2002) shows how individuals interact changes in that way that information system is defined accessed with and used to manage the organizational resources. This is possible with the proposed library system.

2.4.1   Types of Information System

2.4.1.1 Decision-Support Systems

Decision-support systems ("DSS") are specifically designed to help management make decisions in situations where there is uncertainty about the possible outcomes of those decisions. DSS comprise tools and techniques to help gather relevant information and analyze the options and alternatives. DSS often involves use of complex spreadsheet and databases to create "what-if" models.

2.4.1.2 Knowledge Management Systems

Knowledge Management Systems ("KMS") exist to help businesses create and share information. These are typically used in a business where employees create new knowledge and expertise - which can then be shared by other people in the organization to create further commercial opportunities. Good examples include firms of lawyers, accountants and management consultants.

KMS are built around systems which allow efficient categorization and distribution of knowledge. For example, the knowledge itself might be contained in word processing documents, spreadsheets, PowerPoint presentations, Internet pages or whatever. To share the knowledge, a KMS would use group collaboration systems such as an intranet.

2.4.1.3 Transaction Processing Systems

Transaction Processing Systems ("TPS") are designed to process routine transactions efficiently and accurately. A business will have several (sometimes many) TPS; for example: Billing systems to send invoices to customers, Systems to calculate the weekly and monthly payroll and tax payments, Production and purchasing systems to calculate raw material requirements and Stock control systems to process all movements into, within and out of the business.

2.4.1.4   Office Automation Systems

Office Automation Systems are systems that try to improve the productivity of employees who need to process data and information. Perhaps the best example is the wide range of software systems that exist to improve the productivity of employees working in an office (e.g. Microsoft Office XP) or systems that allow employees to work from home or whilst on the move.

2.5 *System Analysis and Design*

System analysis and design as a method used by different organizations to create and maintain systems that perform basic functions.

2.5.1 System Concept

A system is an interrelated set of components with identifiable boundary collaborating or working together to achieve some purpose independent of but influenced by its environment.

2.5.2 Advantages of system Analysis and Design

The advantages of system analysis and design are as follows, according to Kendall and Kendall (2002), outlined some of the advantages of SAD as:-

Security by protecting the system from undesirable elements that may want to infiltrate it. Coding and decoding incoming and outgoing messages. Summarizing raw data and transforming it into information in a format for an input interface or environment. Filtering unwanted data both for elements entering and leaving the system.

2.6 *Benefits of a Well-designed Automated System*

http://en.wikipedia.org/wiki, describes some of the benefits of a well-designed computerized system as outlined below:

1. Cost saving and cost avoidance

2. Quick response

3. Accuracy

4. Getting the needed timely information

5. Moving data to the management staff

CHAPTER THREE

RESEARCH *METHODOLOGY*

3.0 Introduction

This chapter describes the methods we used in collecting data and the advantages of each method including how each method was used to collect the data needed which then we will use to analyze the current system and got requirements for the new system.

3.1 Area of Study

The study was conducted at the Library of Management Training Centre (MTAC) Nakawa in Uganda. Its deals with issuing and rending of of books to students most important of all are record keeping, books receiving, and issuing of books. MTAC has a relatively large number of students and student' data.

3.2 Target Population

The researcher collected data from chief librarian, Librarians, students and book bankers. The respondents were interviewed and also the questionnaires were distributed to them.

3.3 Research Design

Samples of 30 Students, 4 librarians, 2 Staff and 2 IT specialists making a total sample size of 38 respondents from the entire organization were picked using random technique because it gave more detailed information and high degree of accuracy. They were interviewed and questionnaires distributed to them.

3.4   Research Techniques

In this study, the researcher used both qualitative and quantitative research methods in order to get accurate and reliable information from relevant respondents. Thus senior managers of the financial organization gave information about the strategic and organizational structure of the organization and other relevant information to the research. The customers gave problems they anticipate while applying for loans and bank

overdrafts. Qualitative research method was used to collect data because it revealed the real knowledge necessary in providing a more profound understanding and analysis of operations of the current system.

The qualitative method included questionnaires and in depth interviews. A key informant interview was conducted for the records managers, marketing managers and IT specialists.

3.4 Sample and Sampling Techniques

Random sampling was used to select the respondents in the study; this technique enabled the researcher to have equal selection of respondents.

3.5 Data collection Methods

The researcher collected both primary and secondary data. The primary data include; direct observation, interview and questionnaires. The secondary data was from the document review and internet search.

3.5.1 Direct Observation

This technique involved watching operations with naked eyes for a period of time to see how the system runs. Using direct observation, the researcher observed the current system which is being operated manually where the assistant librarian searches for the requested document from the hip of shelf documents to issue out the request for the borrower. The researcher used this method, because it helped in tracing bottlenecks and check facts that were noted.

3.5.2 Interview

This was a two way communication which the researcher used with interpersonal skills to interview the chief librarian, students and book bankers by asking questions and get the answers. This method was useful since the researcher got direct information from the system users that enabled to identify the requirements for a new library system.

3.5.3 Questionnaires

The researcher distributed open ended questionnaires to Librarians, students and book bankers which were collected after a period of two weeks. The researcher used this technique because it gave humble time the respondents to answer the questions. Wide distribution ensured that some things remained anonymous leading to more honest answers. The use of standard question format yielded more reliable data than any other technique. This was a good method of crosschecking information that was gathered by other methods.

3.5.4 Document Review

This method of data collection was also used, the researcher consulted several library documents like the library membership card that contained information like, the name of the Institution, serial number, student name, other name, registration number, programme, date of issue, renewed date and year or semester. The other documents like the borrowing form that contained information like the title of the book, author, book number, account number, date of issue, registration number, name of borrower, course and signature and return date. However this method was useful in a combination of other methods.

3.6 *Data Collection Procedures*

Before initializing the research, introduction letters from the institution were presented to respective authorities. After receiving the letters data was collected, cross checked and categorized according to the themes ready for analysis.

Prior to starting data collection the researcher reviewed and studied the MTAC current system and compared it with other Institutions systems. The researcher observed the Staff customer care interaction with its Students with the intention of confirming whether the data collected using questionnaires and interviews were reliable.

3.7   *Data Collection Instruments*

The researcher collected both primary and secondary data by use of different data collection instruments; interview, observation, discussion and questionnaire.

3.7   *Data Analysis*

The researcher analyzed data collected using SPSS program to verify the data into simple percentage which was presented inform of tables and charts. The researcher analyzed the drawbacks of the current system and organization needed to determine how data, people and processes communications and information technology can best accomplish the improvements for the Institution. The researcher had to analyze the data collected using questionnaires and interviews for accuracy and consistency in order to solve the problems of the existing system and meet the Institution needs.

CHAPTER FOUR

SYSTEM ANALYSIS AND DESIGN

4.0   Introduction

The chapter presents the requirements of the new system. The researcher evaluated the feasibility of the new system and looked at the real design and usage of the new system, the tools used to develop the system, processing and output in the Library managing system.

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4.2   Analysis of the Current System

The current system is manual, slow and inefficient in its operations. The system of MTAC main library is operated manually. The library users (students and staff) request for books (library resources) from the librarian in the main library. The librarian checks the students borrowing memberships form to confirm membership validity. The librarian then processes the book requested. The requested books are checked from the different files and catalogues on shelves before issuing the requested books to the borrower. The borrower then records the book details in the counter book and the student borrowing card is stored by the librarian until the book is returned.

4.11   Weaknesses of the Current System

The current system is associated with the following weaknesses; Slow and tedious, too much paper work, limited space, subjected to human errors, work delays thus time consuming, dissatisfaction of borrowers, unnecessary movements within the library, a difficulty in searching since it's done manually, loss of library card thus misplaced information and poor data management and storage thus misplacement of relevant data.

4.3 Description of the Proposed System

The new system is able to minimize the weaknesses in the current system by computerizing the library and store the required data in the database.

This includes the student's details, book details, library staff and other staff details since they are the sole users of the main library of MTAC.

4.4 Benefits of the Proposed System

The new system will improve productivity by doing things in less time through automating and performing the tasks simultaneously. This also improves throughput in order to increase the amount of work done with available resources.

It promises to provide significant cost savings and productivity improvements. A by-product of adoption of this new technology is that the library transactions and decisions will be made electronically; records will be created, disseminated, and stored in electronic format.

4.5 Feasibility of Proposed System

Technical Feasibility

In technical feasibility the following issues were taken into consideration: whether the required technology was available or not and whether the required resources were available -manpower-programmers, testers & debuggers and software and hardware.

Once the technical feasibility was established, it was important to consider the monetary factors also. Since it could have happened that developing the online system could be technically possible but it could require huge investments and benefits could be less. For evaluating this, economic feasibility of the proposed system was carried out.

4.5.1 Operational Feasibility

The application work flow consists of phases. These phases are supported by six main disciplines that is; the business modeling, requirements, analysis and design, implementation, testing, and deployment.

4.5.2 Economical Feasibility

Number	Activity	Cost (UG SHS)
1	Internet services	50,000
2	Transport	10,000
3	Stationary & Secretarial services	50,000
4	Backup storage (CDs)	20,000
5	Airtime	60,000
6	Lunch & Breakfast	50,000
7	Miscellaneous	150,000
	TOTAL	390,000

Table1: Economical Feasibility

4.6 System Design

In designing the system, the researcher had to meet the business system requirements and constraints by translating them into a technical solution.

This involved the design of network architecture within departments, database to store information, and user interfaces in order to meet the user's requirements. The researcher considered the conceptual design and physical design.

4.6.1 Conceptual Design

This is concerned with the conversion of logical records structures of a data model supported by a database management system, identifying entities and their matching attributes and the relationship types determining the attributes domain.

4.6.1.1 ER diagram for the new system

Figure 4.2 ER diagram for the new system
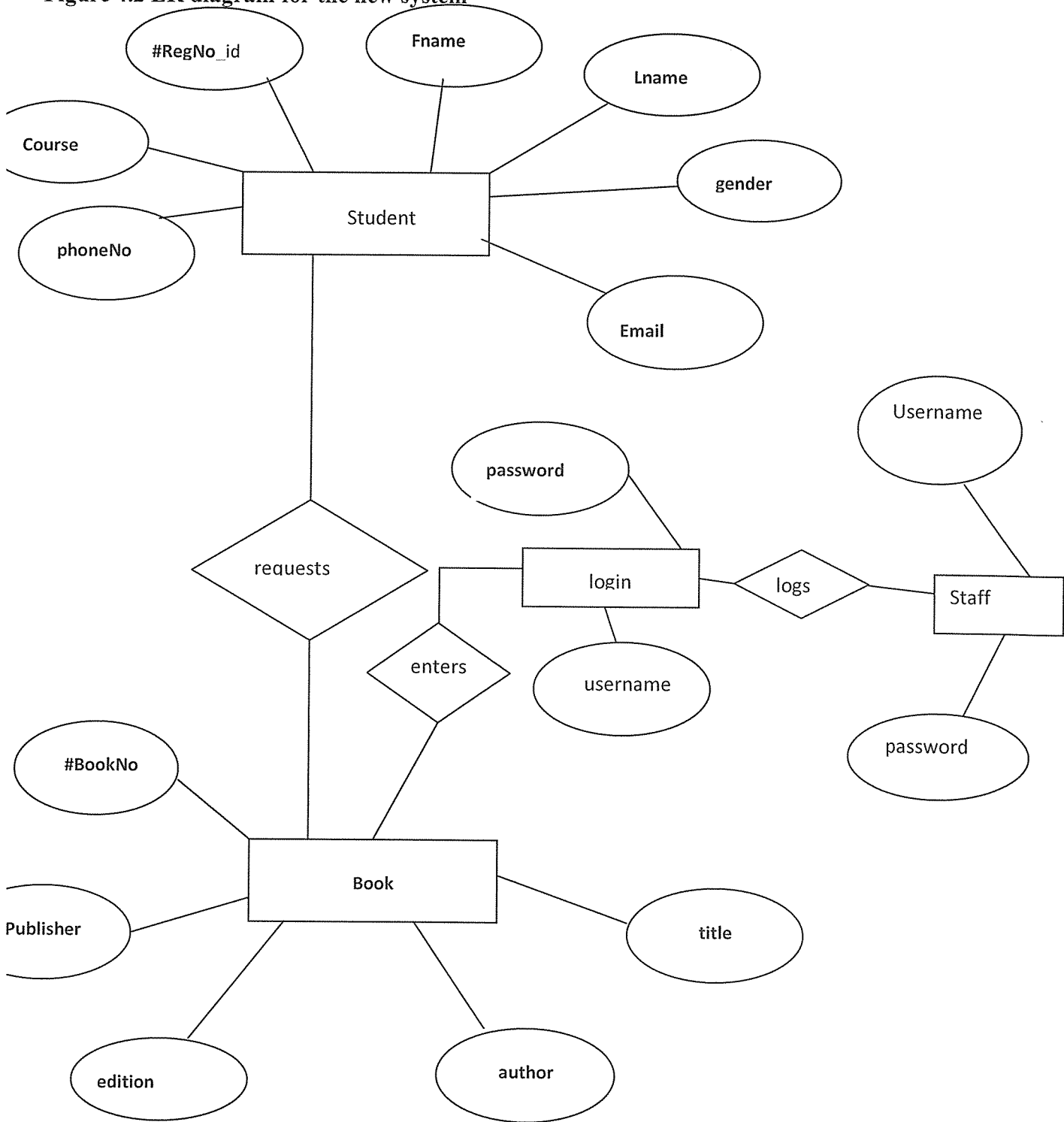
4.6.2   Physical Design

4.6.2.1 Tables

4.7.1   Borrower's Table

Attributes	Data type	Size	Description
Name of borrower	Text	20	Name of the borrower
Registration number	Text	15	Registration number of the borrower (pk)
Course department	Text	20	The course of the borrower
Book title	Text	50	The title of the book
Author	Text	15	The author of the book
Book number	Number	15	The number of the book
Date of issue	Date/time	15	The issue date of the book
Return date	Date/time	15	The return date of the book

Table 2: Borrower's Table

4.7.2 Book Table

Attributes	Data type	Size	Description
Book title	Text	50	Title of the book
Author	Text	20	The author's name
Book number	Number	15	Uniquely identifies the book (Primary Key)
Publisher	Text	20	The name of the publisher of the book
Edition	Text	10	The edition of the book

Table 3: Book table

4.7.3 Returns Table

Attributes	Data type	Size	Description
Name of the borrower	Text	20	Name of the borrower
Registration number	Text	15	Registration number of the borrower (PK)
Course department	Text	20	The course of the borrower
Book title	Text	50	The title of the book
Author	Text	15	The author of the book
Book number	Number	15	The number of the book (FK)
Date of issue	Date/time	15	The issue date of the book
Date of return	Date/time	15	The return date of the book

Table 4: Returns table

4.7.4 Staff Table

Attributes	Data type	Field Size	Description
Staff id	Text	10	Primary Key
First name	Text	15	First name
Last name	Text	30	Last name
Faculty	Text	20	Faculty name
Faculty id	Text	10	Identifies faculty
Sex	Text	6	Gender description
Session	Text	10	Period of operation
Telephone no	Number	10	Telephone number
Program	Text	10	Course
Place of residence	Text	20	Area of location

Table 5: Staff table

4.7.5 Registration Table

Attributes	Data type	Field Size	Description
Staff id	Text	15	Identity if staff members (PK)
Name	Text	20	Name of staff member
Gender	Text	6	Female or male
Section	Text	10	The different library sections
Session	Text	5	Day or evening

Table 6: Registration table

A student is registered creating a new account which is stored in the database, the newly created account allows for approval of borrowing a book. Enquiries are done about the availability of the book from the database which provides the details student to enable an update of the account to be done.

4.5.2.3 Context Diagram

Figure 4.4: Context Diagram for the new system
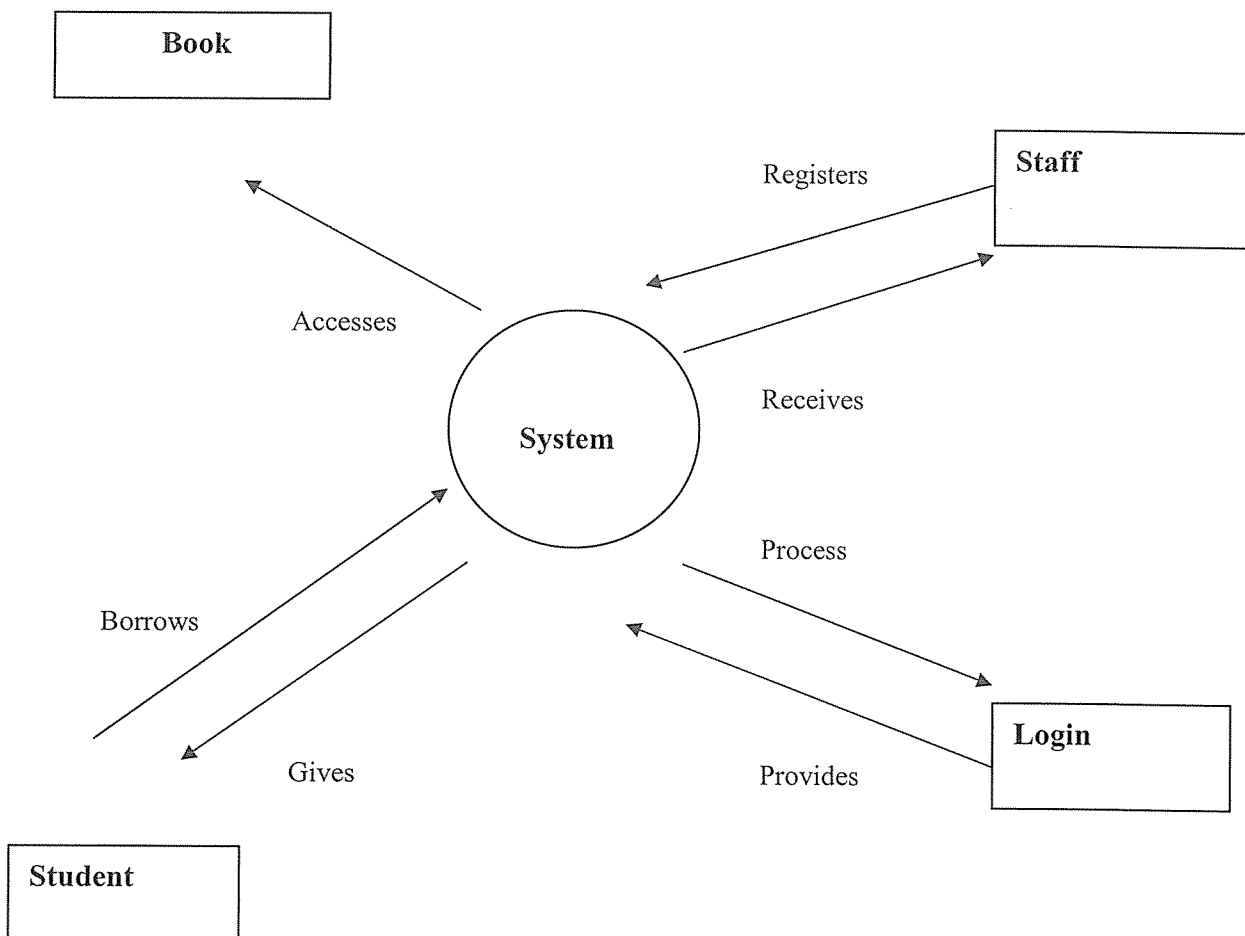
Staff registers a student by opening an account through capturing the details in the system and the processed information provides account's status which allows the student to borrow books. The Staff receives a detailed report of the entire transaction.

4.6.3 Forms

User Interface

The interface is a form where data is entered and saved in the system database. The students, lecturers and librarian staff are the users of the system.

4.6.3.1 Welcome Page Form

This is the welcome page to the system. This form welcomes the system users to the library system of MTAC and when the user clicks on the enter system button, a login window appearances. It also has quit button which closes the system.

Figure 4: showing Welcome Form

4.7 Login Form

The login form is used to allow the users enter into the system of MTAC library where all the operations are made from. This form requests for a username and password when the user clicks on either the student login or staff login button to enter into the system.
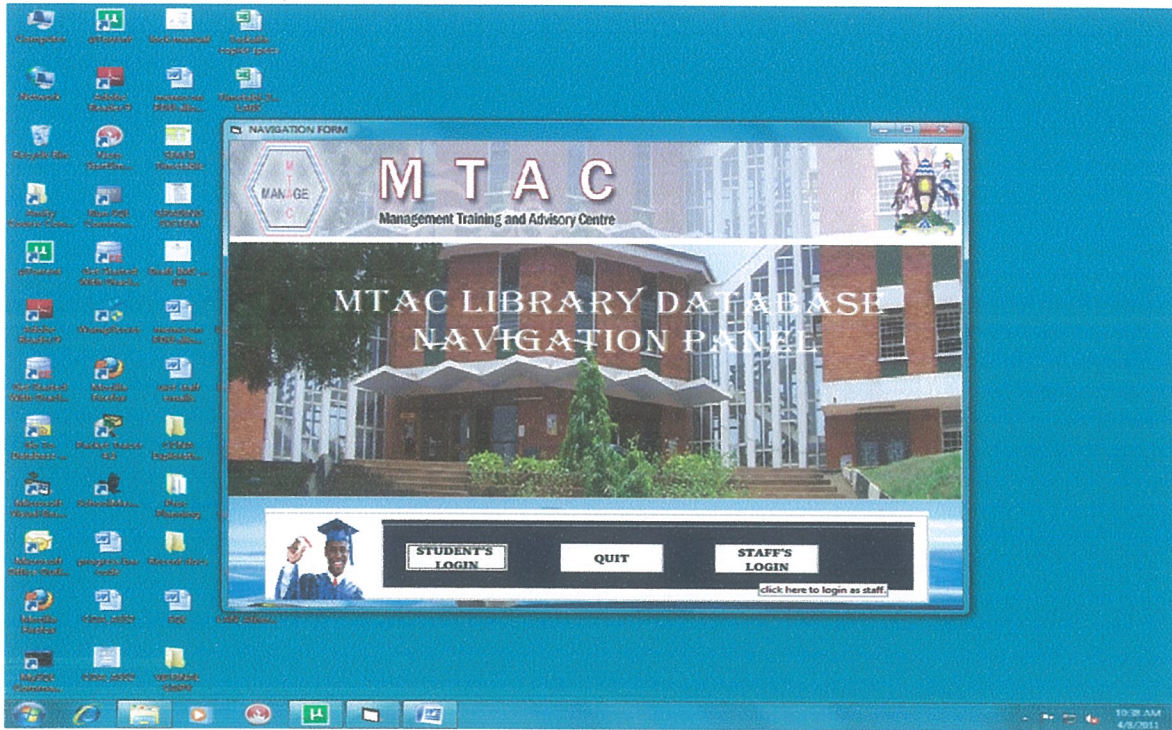
Figure 5: login form

4.7.2 Book Search Form

This form is used by the borrower of the book by entering the book descriptions and search for the book required from the system. The pop up box prompts the user to specify the exact book to be searched.
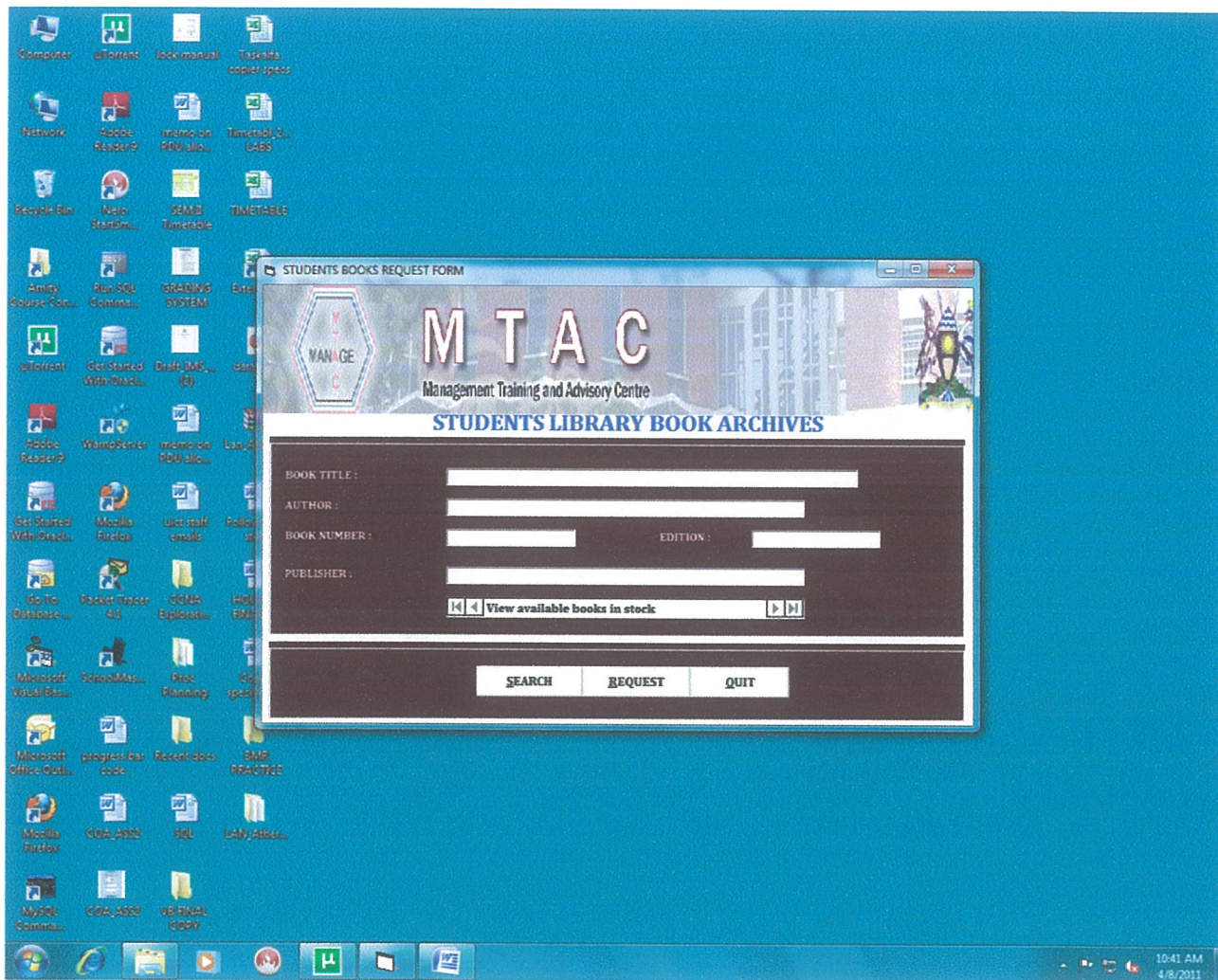
Figure 6: Book search

4.7.3 Search Successful form

This pop up box appears if the requested book is searched and is found in the system.
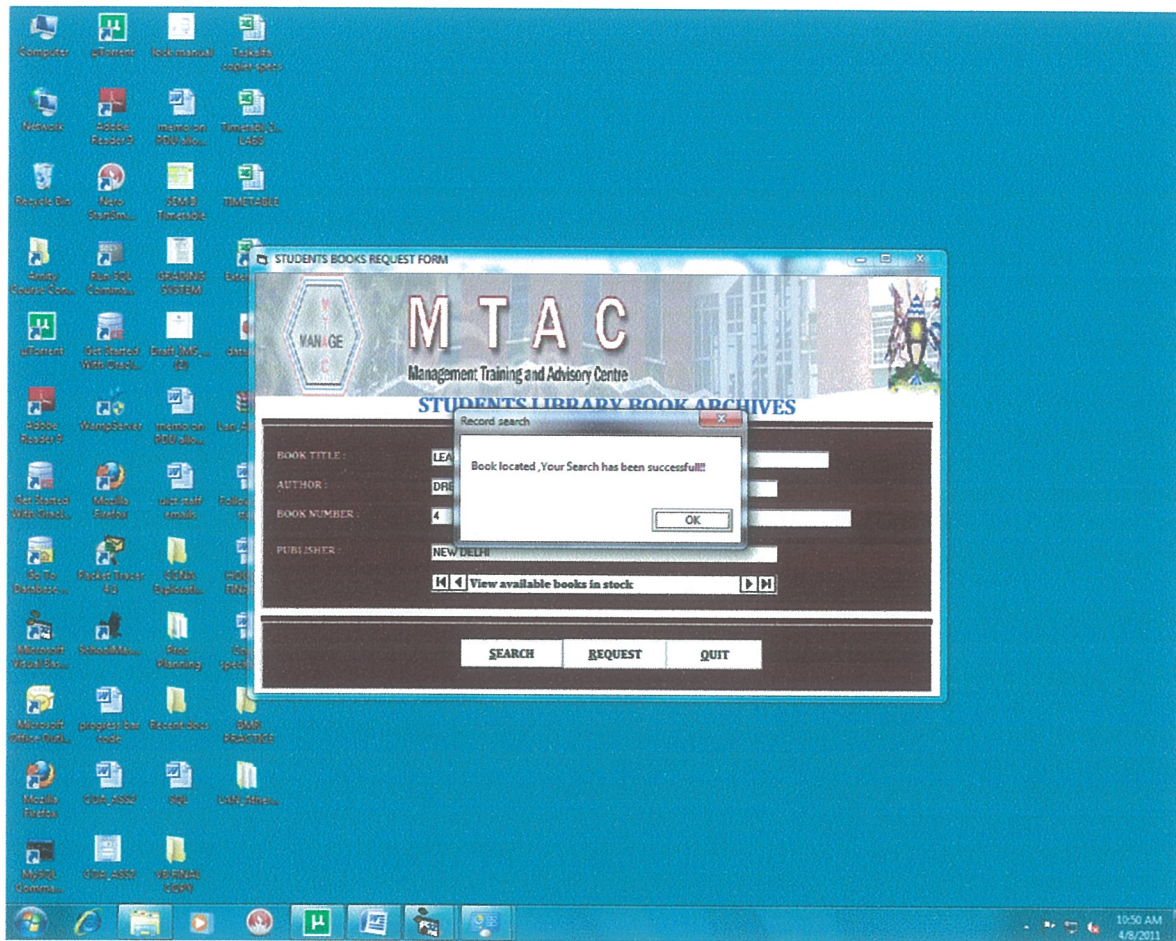
Figure 7: Search Successful form

4.7.4 Book Details Form

This entry form shows the book form where the details of available books in the library archives are stored in order to allow the library staff either search, delete, save and access the books needed. It provides alternative buttons for the librarian to view reports, enter returned books and even register new librarian.
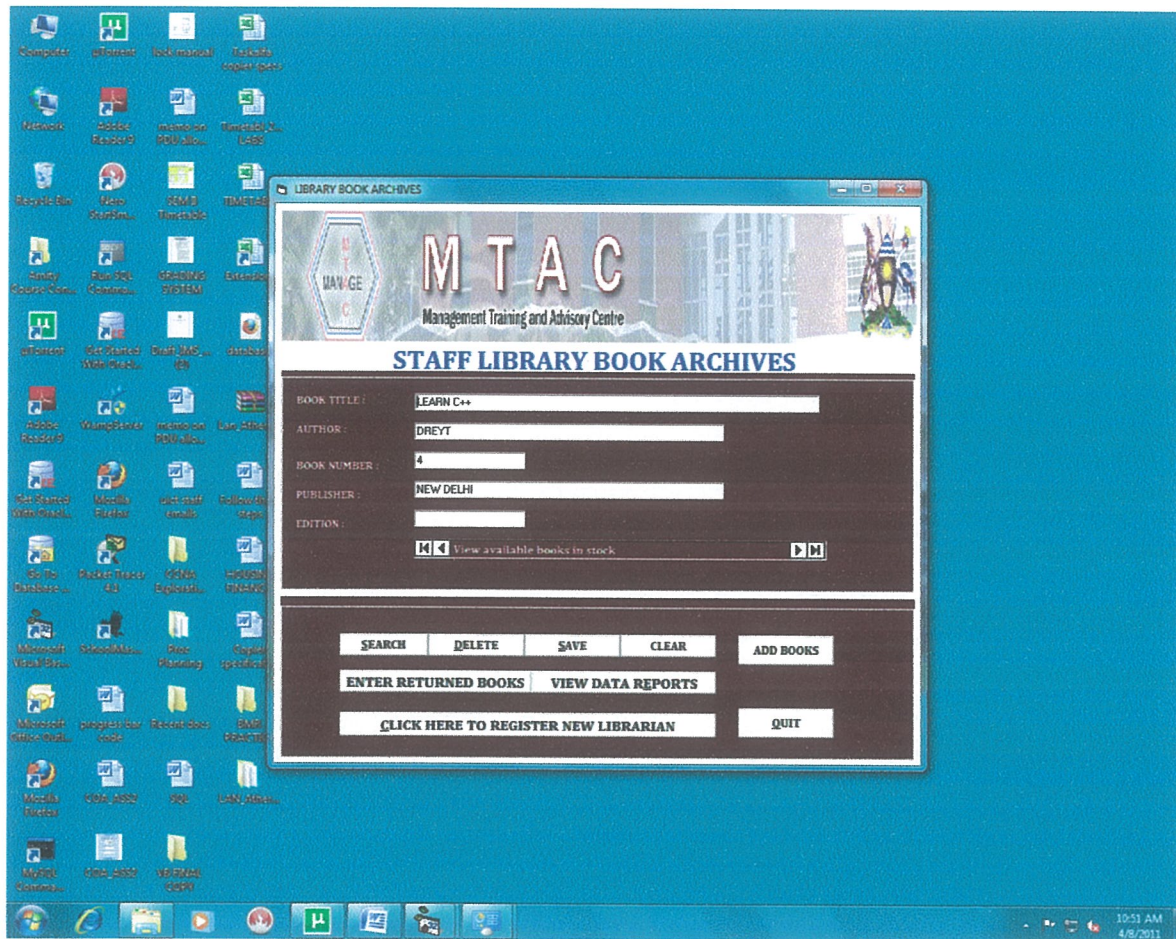
Figure 8: Book Details Form

4.7.5 Library Borrowing Form

This form allows the librarian to enter the borrower's details including the book details and due dates before a book is issued out. It also enables the librarian to save the changes made; clear the records of books taken out and quit the form.
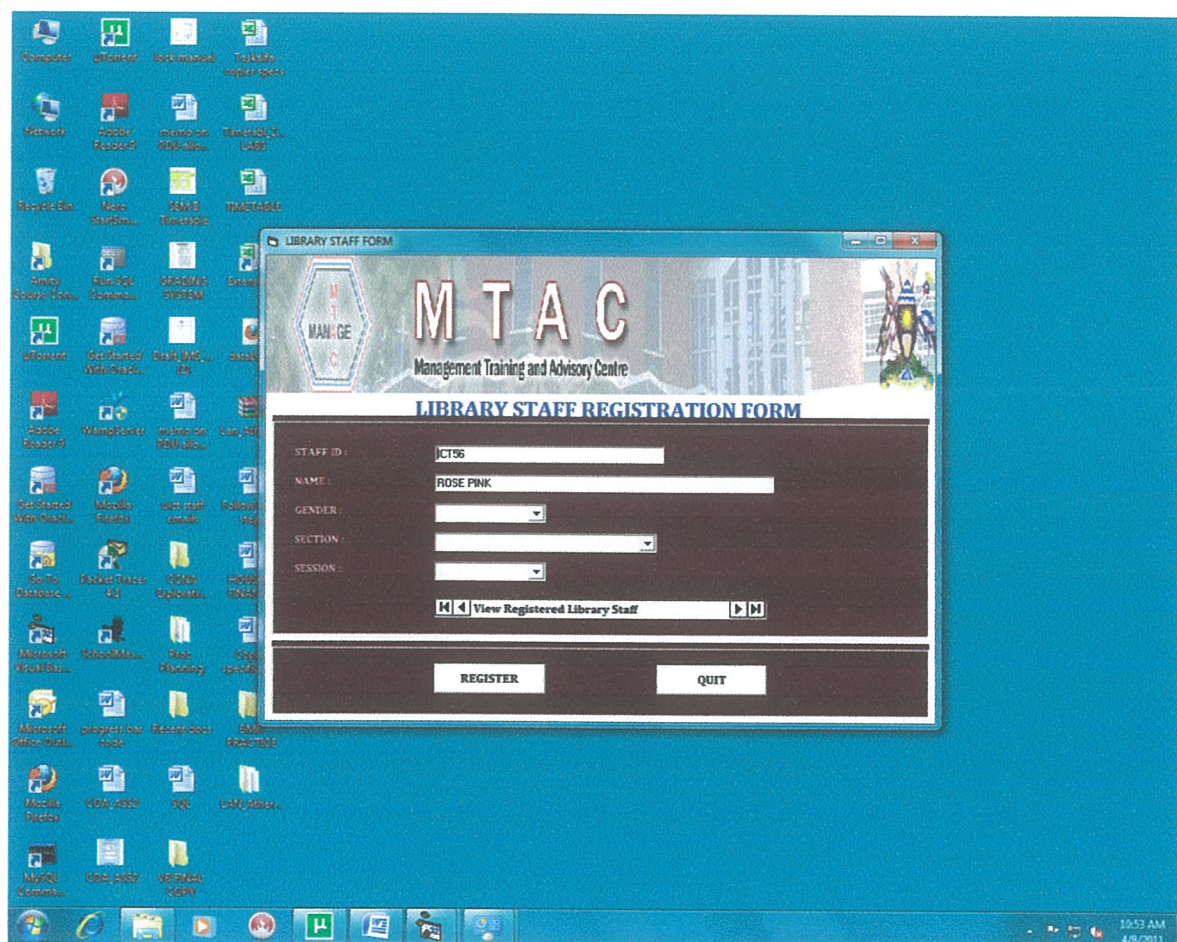
Figure 9: Library Borrowing Form

4.7.6 Librarian Staff Registration Form

This form is used to register a new librarian in the system by entering the person's details and click the register button to enter a new staff.

Figure 10: Librarian Staff Registration Form

4.8 Reports

4.8.1 Books in stock Report

Figure 11: Books in stock Report

4.8.2 Borrowed Books Report

Figure 12: Borrowed Books Report

4.8.3 Returned Books Report

MANAGEMENT TRAINING AND ADVISORY CENTRE REPORT

RETURNED BOOKS' REPORT

BORROWER:	REG NO:	BOOK TITLE:	AUTHOR:	BOOK NO:	ISSUE:	RETURN
ROBBIE ROLLZ		SATELITE	FREEMAN	2	2/4/2010	6/4/2010
KUT KIM		SATELITE	FREEMAN	3	2/3/2010	6/3/2010

4.9   Requirements Specification

4.9.1   System Requirements

4.9.1.1 Hardware Requirements

These are the physical components that were used on the system:

1   PC- a Personal Computer is the workstation where the user logs in to access all the system's hidden pages.

2   Web Server- This where the system is being hosted and is located using a domain name.

3   Database Server- This component hosts the database which stores all the information in the system.

4   Disks- These provide areas for creating back up for the information contained in the system.

4.9.1.2 Software Requirements

The system programs for the new system included:

Ms Acess which is used to host the database, Visual basic for creating interfaces, and operating system Ms XP as platform

4.9.2   System Testing

4.9.2.1 Unit Testing

Import the database to VB 6.0 for testing and debug using the system tools which will help in testing errors in VB codes.

4.9.2.2 System Integration

Server was required for hosting the database and VB 6.0 was used to run the application.

4.9.2.3 System Implementation

4.9.3 Installation

Ms. XP was required to upload the system into the Database server. Server was required to locate where the database is stored, it will host the database which stores all the information stored by the system.

4.9.4 System Conversion

The manual system runs as the new system is installed. This involves parallel installation which enables the organization to retain its records as the new system is installed and allows the staff to familiarize with the new system.

4.9.5 User Training

Home page contains login form where the user needs to enter the username and password to access all the system hidden pages like Customer Registration, Loan Access and Withdrawal.

Customer registration registers a client for account number. Access loan page gives out a loan to a registered client in the finance trust and can also enable the client view payments. Payment page enables a client to pay back loan and Withdrawal enables a client to withdraw money from finance trust.

4.9.6 Design Tools

The researcher followed the fundamental phases of the system development life cycle (SDLC): planning, analysis, design and implementation.

In the planning phase, the researcher identified the scope of the problem and plans the development strategy and goals and the system's benefit to the organization.

In the analysis phase the researcher studied and analyzed the problems, causes and effects of the current system then identified and analyzed the requirements that must be fulfilled by any successful solution.

In the design phase the researcher designed the solution and developed a physical design, architectural design, interface design, database and file specifications.

Finally, in the implementation phase the researcher implemented and documented the solution whereby the system was constructed and tested to ensure that it performs as per expected. The researcher analyzed the implemented solution to refine the design and implemented the solution.

CHAPTER FIVE

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.0 Introduction

This chapter presents the conclusion and recommendations that the researcher made to Management Training and Advisory Centre about the new designed Library Management system.

5.1 Discussion

MTAC is an institution which deals with students borrowing books and most important of all are record keeping, book borrowing , book deposits, and issuing of accounts. It has a relatively large number of student and student's data. This fact makes the process of book borrowing and management difficult and very slow. The staff is expected to keep records of all the books in a very small period of time manually hence accumulating a lot of errors and delays which results to big losses to the Institution

MTAC considered adopting the new technology that promises to provide significant cost savings and productivity improvements. A by-product of adoption of this new technology is that the Library transactions and decisions will be made electronically; records will be created, disseminated and stored in electronic format.

5.2 Conclusion

This library database management system has been designed, developed and tested to provide easy research and retrieval of library resources in MTAC main library especially in the general circulation and research sections. However, other libraries can also copy this system in their libraries to simplify their work other than using the manual system which is slow at times, tiresome, time consuming and involving unnecessary movements.

5.3 Recommendations

This library database management system should be deployed by other small and big libraries in both universities and institutions of higher learning like MTAC in future for easy search and

retrieval of requested resources in their libraries in order to simplify time, minimize human effort and reduce on the hip of paper usage in and out of the library. Institution (MTAC) should be educated on how safe it is to organize and store their data in a database and then trained on how to use and operate records in a database management system to simplify work, minimize costs and save time to produce efficient and effective work.

5.4 Area of future Study

5.5 Limitation of the Study

The major problem encountered during the project work was inadequate experience in SPSS software whereby research, reading and understanding SPSS was done first before the researcher embarked on the actual system development.

Inadequate funds to run the project, limited time to develop the system and inadequate information in data collection since some information was kept confidential.

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Appendix 1: SYSTEM CODE

CODES FOR SEARCH COMMAND

```
Private Sub SEARCH_Click()
Dim sn As Integer
Dim sea As String
Adodc1.Recordset.MoveFirst
retry:
sea = InputBox("Enter Book Title to search", App.EXEName, "Type here")
Adodc1.Recordset.MoveFirst
While Not Adodc1.Recordset.EOF
If Text1.Text = sea Then
GoTo msg
End If
Adodc1.Recordset.MoveNext
Wend
sn = MsgBox("Book is out of stock. Try again later.", vbInformation + vbRetryCancel,
App.EXEName + " -Sorry")
If sn = vbRetry Then
GoTo retry
Else

End If
Exit Sub
msg:
MsgBox "Book located ,Your Search has been successfull!!", vbOKOnly, "Record search"
End Sub
```

CODES FOR DELETE

```
Private Sub cmdDELETE_Click()
Dim DELETE As Integer
Dim z As Integer

DELETE = MsgBox("Do you really want to give out the Book?", vbYesNo, "MUBS
DATABASE: Confirm")
If DELETE = vbYes Then
Adodc1.Recordset.DELETE
Adodc1.Recordset.MoveNext
Else
MsgBox "BOOK NOT GIVEN OUT", vbOKOnly, "MTAC DATABASE: Confirm"
End If
Exit Sub

msg:
MsgBox "Your se has been successful!!!", vbOKOnly, "MTAC DATABASE:Delete"
End Sub
```

CODES FOR SAVE COMMAND

```
If Text1.Text = "" Or Text2.Text = "" Or Text3.Text = "" Or Text4.Text = "" Or Text5.Text = ""
Then
MsgBox ("You must enter a value for each field")
ElseIf Text3.Text = "" Then
MsgBox ("You must enter the Book No.")
Text3.SetFocus
Else
On Error GoTo ErrRtn
Adodc1.Recordset.Update
MsgBox ("Changes saved")
```

Exit Sub

ErrRtn:

MsgBox ("BookNo. already exists! Please try another one.")

Text3.SetFocus

End If

End Sub

CODES FOR ADD COMMAND

```
Adodc1.Recordset.Addnew
```


CODE FOR DEACTIVATING THE CLOSE BUTTON

```
Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
If UnloadMode = vbFormCode Then
MsgBox "Thank you for using MTAC DATABASE"
Exit Sub
Else
MsgBox "Administrator asks that you close the program via QUIT"
Cancel = True
End If
End Sub
```


CODES FOR FIRST RECORD

```
Adodc1.Recordset.MoveFirst
```


CODES FOR LAST RECORD

```
Adodc1.Recordset.MoveLast
```


CODE FOR CLEAR COMMAND

```
Private Sub Command7_Click()
Text1.Text = ""
```

```
Text2.Text = ""

Text3.Text = ""

Text4.Text = ""

Text5.Text = ""


End Sub
```

....

....

....

Do you support the development of Library management system? (tick one)

Yes   No

Any reasons for your support?

....

....

....

Questionnaire for selected community members

Complete this section by ticking (√) what is relevant to you.

Category

Head of institution   Member of community

Do you like the current system used by the Library?

Yes   No   Not sure

Do you support the need to develop an Library management system for the organization?

Yes   No

If your choice is NO tick (√) any one of the following points which best describes your reason.

I do not think that the system to be developed will bring significant changes to the organization's operations.

I don't know much about Library management system.

If your choice is YES tick (√) any one of the following points which best describes your reason.

The current system used does not provide adequate accountability on the part of the Library.

Using the current manual system, it takes long for one to be served by the Library.

Most of the records get lost in the library

If a system is developed for the organization, how do you expect it to solve the problems being faced? (To be answered by those who answered question 5)

....
....
....

What were your expectations of the library's performance? (Relate your answer to the current paper-based system being used by the library)

....
....
....