

CHAPTER ONE

INTRODUCTION

1.1 LIBRARY SYSTEM

A library can be defined as a room or building where books are kept and referenced. It is an area of multifarious activity on book management. A library as a repository of knowledge, houses collections of books, both reference and general, technical reports, periodicals, journals, conference proceedings and the likes. Consequently, truth and knowledge can be found and acquired from the library through the aforementioned sources. The information contents of any of the collections can be recorded on microfilms, audiotapes, microchips and other materials traditionally kept in the library, which is charged with the responsibility of acquiring, organizing, maintaining, and judicial circulation of the books and other library materials through the various sections of the library, for efficient use of the library by the users.

The acquisition, cataloguing, bindery and circulation sections of the library undertake the acquiring, organizing, maintaining and circulation of the books/library materials respectively. When the library through the acquisition section of the library acquires a book, its record is taken and accession number is given to the book after which the book will be sent to

cataloguing section of the library. Under this section, the book will be carefully studied and given catalogue number before it will be sent to circulation section of the library as the case may be. The circulation section is responsible for circulation or distribution of books.

This section also arranges the consulted books in the shelves.

There are other sections like reference section, which provides reference questions and bibliographic service, and serial section where periodical, journals and related materials are kept. The library also houses special collections and also operates circulation control in which books are lent to users. In fact it is indeed a place of multifarious activities on book management.

1.2 STATEMENT OF PROBLEM

In human endeavors, there are a lot of developments, researches, and discoveries, which result in multifarious production of publications and library materials. These have brought increase in complexity of library system and its operations.

Based on these, a number of problems are facing the library systems, which include:

- (i) Unnecessary delay in library processes.
- (ii) High cost of staff recruitment and maintenance.

- (iii) Error prone operations/processes.
- (iv) Inefficiency in library operation.
- (v) Too many paper work and replication of data on multiple pieces of paper.
- (vi) Unreliable card catalogue system.
- (vii) Mutilation of books by students i.e. students tear/hide books.

1.3 OBJECTIVE OF THE STUDY

There is hardly any aspect of human endeavor that is today not being assisted by computerization. The objective of this project: Design and Implementation of Oline Library Services System with a reference to Caritas University Library. The application program developed in this research essentially monitors and keep records of the individual book movement together with the operations going on in various sections of the library particularly concerned with book control. These operations include book lending, returning of the borrowed books, reservation of books, acquisition processes, registration of users and other related activities in Library management system.

In this study therefore, the researchers hope to accomplish the following objectives:

- To design a better way of avoiding loss of books in the library.
- To solve the problem of delay in locating books.
- Assist the Liberian to carry out library operations more effectively.
- Eliminate manual operations in the library.
- To achieve high efficiency in the library services.

1.4 SCOPE OF THE STUDY

This project looks into the processes involved in keeping tracks of the books in the library system. The researchers concentrated on the operations going on in the Acquisition, cataloging and most especially, circulation sections in the library.

1.5 SIGNIFICANCE OF THE STUDY

The study gave birth to a new system (Online Library Services System) designed to bring efficiency in the library system operations. It will eliminate some of the problems associated with the old (manual) system of library management, which include cost of equipment and staff maintenance and also allow institutions to manage the affairs of libraries easily.

1.6 LIMITATION OF THE STUDY

This study will not look in detail into other sections of the library except the only three sections aforementioned. The intuitive works like reading of a

book before classification and technical work like ownership stamping conveyance of books etc, this section is not part of this study.

1.7 DEFINITION OF TERMS

DESIGN: It is a detail plan or arrangement to achieve a particular purpose.

A SYSTEM: It is an assemblage of interrelated elements, which we find interesting to study. It could be a process, a machine or a program.

A PROGRAM: It is a set of instructions and procedures that tells the computer what to do.

AN APPLICATION: A program designed to perform particular tasks.

THE RESEARCHERS: This refers to the developers of the system in study (i.e. Richard).

THE USER: The user here refers to the library staff or the people who make use of the library. It also refers to the person who uses the program (e.g. library staff).

AUTOMATION/COMPUTERIZATION: It is a process of making a system to carry out its processes on its own. That without much helps from man.

MODULE: An independent unit that is part of a larger development. It is the same thing as sub-tasks.

VISUAL LIBRARY SYSTEM: It is an application or program designed by researchers to manage library operations. It is a program designed with a visual programming language in which the user will make use of a mouse in operating. It is event driven and objects appear in their visual forms to the user.

CHAPTER TWO

2.1 REVIEW OF RELATED LITERATURE

Libraries originated with writing about 6000 years ago and that was when writing was being done using materials like bones, clay, wax, papyrus, metals, silk, leather, parchment, paper, and other available materials. Later, these materials were assembled together to form libraries.

Among the earliest libraries were ANCIENT LIBRARIES OF CLAY, which emerged in Iraq and other Mesopotamian region like Syria and Turkey. In these libraries, records were kept on clay tablets. Within that period were also ANCIENT LIBRARIES OF ANIMAL SKIN and ANCIENT LIBRARIES OF PAPYRUS of which Alexandria libraries in Egypt were the examples. These libraries invariably were connected with temples, for these institutions were the centers of the whole life of the whole communities.

Moreover, it is widely believed that the private and institutional libraries are traceable to Egypt and Greece respectively, and the emergence of public libraries started in Rome. Libraries studies was given a boost by Julius Caesar during the first century of the Roman especially with his conferment of the Franchise privilege on all foreign

teachers of liberal education residing in Rome. However, it was Augustus, who succeeded Caesar that gave a greater impact to scholarship development. He founded the first public libraries in Rome (69 – 70 AD). He established a library in the temple of peace, which formed the nucleus of a school of higher learning at a later time.

The history of library development in Nigeria is of recent vintage. In fact, the earliest library in Nigeria was Tom Jones Library, which was established in 1910. That was the first public subscription library in Nigeria. The beginning of academic library was marked in Nigeria with the founding of Yaba Higher College in 1948. Later on the British council took over the library sense with the foundation of the first municipal council library in Lagos, and established British council libraries in various parts of the country.

Unfortunately, these became a great loss of library stock after the Nigerian Civil War, and the federal government then took it as part of its rehabilitation effort in promulgating the National Library's decree of 1970, which provided for the branches to be set up in every state of the federation. Hence repealing the former National Library Act 1964. Within the first decade of its existence, the National Library has succeeded in stock over 75000 volumes, 2000 period leads, 150

Newspapers and became a depository for the United Nations Organization (UNO) and its agencies.

With the increase in establishment of universities all over the country, the government of Nigeria also sees the essence of providing library in every institution of learning. Now, Nigeria can boast of libraries in all the higher institutions of learning, almost all the academic establishments and even private and public establishments. There are also National and state libraries throughout the states of federation. But all these libraries have one problem in common; the backwardness in the automated library world.

In Nigeria, this type of research is not new. Literature review of a research topic is an exercise in which the researcher tries to identify, locate, read and evaluate the previous studies, observations, opinions, comments related to what he or she intends to research on. Such a review is intended to provide the researcher with a good knowledge of up to date information on what he/she is working on.

In this study, we go ahead to review the comments from some researchers and writers alike.

Akinyotu (1977), states that library automation has reached various levels of development in many developed and developing countries in the world.

Reynolds (1985), stated that libraries have been in the information business several years before any known modern institution, they ought to have been the "earliest beneficiaries" of the application of computer technology to their operation and services.

John W. (1956) stated that librarians ought to be computer literate.

Shera Josse H. (1991), made mention that library computerization is a term often used in discussing the use of computers and related equipments to help libraries handle and manage the physical materials that comprises library collections.

Velma Veneziano stated that "computer-based library circulation system has resulted in dramatic changes in practice and procedures in the circulation section".

Kingery and Tauber (1963) stated that nearly all collections are concerned with computer-produced book cataloguing.

Marlene Clay and Chris Batt (1992) stated that today it is increasingly difficult to find libraries which do not use computers in some shape or

form. Better questions are “what benefits should one expect to gain and where should it stop”.

Lorraine M. (1973) says that to cope with the new computer-based systems, today’s librarian must learn the language and technique of automated catalogue.

Robert Wedgeworth (1973) noted that computer based acquisition procedures which have been developed at the library provide more effective control over fund accounting and maintenance of an outstanding order file. The system illustrates an economical, yet flexible approach to automated acquisitions procedures in an academic library.

Richard De Genaro (1992) however noted that in the development of an automated program in a research library, three approaches will be considered. The library may decide simply to wait for developments; it may attempt to develop an integrated system from start and will also deal with important elements in any program regardless of the approach. These include building a capability to do automation work, staffing, equipment, organizational structure and costs.

Lawrence Auld’s (1995) made mention that automated systems of a book order and circulation control using an IBM 1620 computer was

developed at Oakland University and it recorded relative degree of success and failure.

Kilgour R. A. (1986) made mention of BELLREL online circulation control system.

Lancaster(1974), defined library automation as “the most effective model covering library processing and query operations seems to be one where every operations has immediate access to up-to-date information”.

In the light of the above, updating has become automatic part of the most processes, and an update in one operation is as update for everyone, and to a very large extent, the need for replicating data on multiple pieces of paper is eliminated. Hence, automation helps the library system to operate efficiently.

However, early part of 1970's experienced series of oppositions to library automation. But whatever else Ellsworth Manson's (1971) attack on library automation may have accomplished, it certainly succeeded in starrng debate regarding the validity of use computers in libraries. In another attack, as sharply worded as his first, Mason (1971) described modern society as having retreated from reality, “resulting in an unwillingness to think problems through their conclusions”; as being concerned imitating industry; and as being unable to question “market

place ideas.” “These factors “ he said, ”have resulted in a state of brainlessness that has allowed automation to be launched in libraries for personal and institutional ego reasons; with little critical evaluation and no cost justification.” In his second article, as in his first, Mason challenged the advocates of library automation to respond to his charges.

Fortunately, so many people reacted against Mason’s challenges to highlight the need for library automation. In response to Mason’s charges. Avran (1972) defended automation in an article published with Mason’s entitled “library automation; A balanced view” she conceded certain short comings in the field where she admitted that without doubts, hardware had been oversold and many library automation projects were directed by librarians with a good ideal, but less experience in computer technology than it takes. But she pointed out that the great increase in the amount of materials handled in libraries coupled with rising cost, had made it necessary to find a means using professional cataloging skills at only one point in the system.

Avran concentrated on the future, noticing that although there are successful systems in operation now, we are still in a period where there are issues in need of decisions, problems requiring solutions and concepts calling for further development. She questioned the validity of judging

library automation solely on the basis of cost justification, suggesting that libraries today provide services or handle larger volumes of traffic where computers are used.

Kilgore (1972) stated that computer possesses the potentials for enabling big libraries to recapture human qualities of which classical Librarian ship has deprived them since heir days as one-Librian libraries.” With a series of specific illustrations, Kilgour described how libraries would use computers to improve those present service that are seriously breaking down, to provide personalized bibliographies, and event to lower costs, an event he said that would occur when entire procedures are automated.

Kilgore’s arguments, like Avran’s, contain few hard facts about present operations and thus seem unlikely to sway Mason, whose faith in the future seems quite limited and whose demands for cost justification cannot be met by most the current automated applications.

Finally, the scientific age has created special problems for libraries because of enormous increase in populations, in the number of young people going to school, in the number of adults going back to school and in amount of leisure time. These increases in demand upon library services must be met in the face of a formidable list of obstacles,

foremost among is the explosive growth in the amount of recorded knowledge which has to be acquired, processed, housed and made available. The cost of books is going up every year, the cost of processing them likewise. Budgets generally do not permit expanding the services needed to meet the demands, much less adding new services. Also staff and space shortages plague many libraries. Even when there are staffs, there is maintenance problem. In fact, library automation is the only way to wiggle out of these multifarious problems, which are attacking library systems' development.

2.2 TYPES OF LIBRARY

- **NATIONAL LIBRARY:** The history of the national library would be dated back to 1795 when the French national convention declared the library belonging to the king's national property and granted it the right to obtain deposit copies of all printed publications of the country. In the 19th century, following this, national libraries were established in more than 20 countries. During the 20th century, 30 more were founded.

The national library in Nigeria opened its door to the public November in 1964 through the appointment of Dr. Carl White as the library adviser in March 1962.

A library is called a national one when it is the official depository of printed works, a general access library, an information bibliographical centre, and a centre of co-ordination, planning and stimulation of the entire library system of the nation.

- **PUBLIC/STATE LIBRARY:** The term public has many different definitions. It could be said to be a library which is not private. It could be said to be a library which is available generally to the public. It could also be said to be a library which is supported substantially by public funds.

The purpose of the public library is to make it possible for every member of the community according to their needs and circumstances, to enjoy whatever benefits, full access to books and related forms of record may bring them. The public library is concerned with all materials of value to the individual and community and it is their duties not only to meet existing demands, people also encourage and facilitate wider demands from more people. Also, the public library must be comprehensive, general

service library for the use of all sections of the community. This is being the case; it then follows that it should be established by the community as a whole, at the common expense of the community.

- **ACADEMIC LIBRARY:** Academic library or libraries in institutions of higher learning, are as varied and as distinctive as the institutions which they serve. It is a fact that whatever level of quantity an institution of higher learning processes or aspires to, will be determined by the character of its library. The academic library is the means whereby the individual in an institution of higher learning can escape from the limited frame of reference which the class room represents. It is also a place where an individual can seek a sense of intellectual integrity and self-understanding which is the ultimate goal of education.

The basic function of an academic library according to gates (1968) is to aid the institution in carrying out its programme. The nature of the institution determines its objectives by acquiring and making available books, materials and services needed in the institutional programme.

- **SPECIAL LIBRARIES:** The term 'special' as applied to libraries, has different meanings. It could be used as a term to

apply to all libraries that are not national, public or academic. It may be used to cover certain privately endowed specialized collections. It can also be used to apply to subject branches or departments of public or university library, such as Africana collection, law collection of a university.

CHAPTER THREE

METHODOLOGY AND ANALYSIS OF THE EXISTING SYSTEM

3.1 SOURCE OF DATA

In the course of writing this project, we visited our case study Caritas University Library. The library is the major source that provided us other necessary information through its staff. Other sources are literature, computer textbooks and on-line sources.

3.2 METHOD OF DATA COLLECTION

Since we decided to take a case study of Caritas University Library, which is a subject of the general problem in library system management, the study was narrowed down and as such we had to make use of only three methods of data collections, which are:

- (a) **Interview Method**
- (b) **Observation Method**
- (c) **Record Consultation**

3.2.1 Interview Method

This is a method of data collection in which questions are asked directly to the person(s) you want to extract information from.

During the interview, which was carried out by the researcher at the various sections of the library, the following questions were drawn.

- (i) Could you give us the functions of this section? (General question)
- (ii) How do you keep records of your activities?
- (iii) How do you get books? (Acquisition section)
- (iv) What criteria do you base your choice of books to be ordered? (Acquisition section)
- (v) How does your section relate with other sections or in other word, what is the relationship between your section and others?
- (vi) What is the staff strength of this section like?
- (vii) How do you classify books? (Cataloguing)
- (viii) How do you relate with the library users? (Circulation section)
- (ix) How do you take statistics of books and when? (Circulation section)
- (x) Do you think there is need for automation of this section of the library?

3.2.2 OBSERVATION METHOD

Observation involves taking a close look on the activities going on in a system. During our observation, we found out that Caritas Library adopts two methods of book control, which are:

- (i) Formal book movement control**
- (ii) Informal book movement control**

Formal system of book control as the name implies involves the use of formal document like **registration** cards, borrower's card, date due card, author's card, order form, over-due note etc. to carry out functions that will lead to a successful book control.

The **informal system** of book control is adopted by Caritas University Library to the formal system of book control as the latter could be not guarantee 100% efficiency under this system, the following methods were observed by the researcher:

- (i) Counting Method:**

This is applied when some documents are counted to take the statistics of each day's activities. For instance, the author's card and date due cards are counted to take record of the books borrowed or returned that day.

- (ii) Slight – Contact Method:**

This is a situation whereby some materials are checked thorough look on them. For instance, it helps to know books which are torn or in bad shapes, for them to be sent to the bindery for repair.

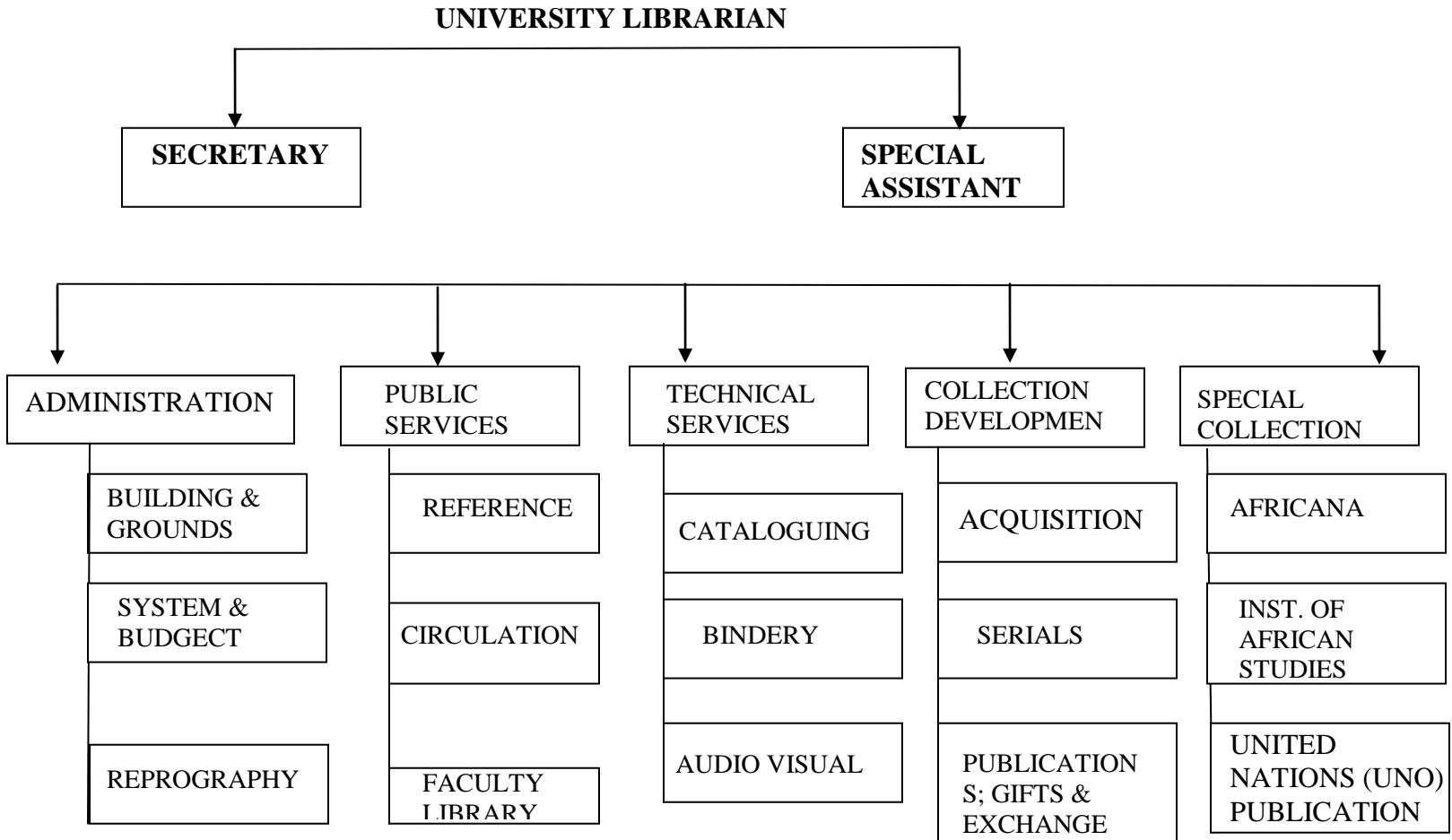
(iii) Security - check Method:

This involves the inspection of the library users to ensure that they do not go with books unauthorized. This is normally done at the entrance where the users are checked before they leave the library.

3.1.3 RECORD CONSULTATION

The researcher also gets a lot of consultations to the records in the library that shed more light on the library system operations. These records are library file report, library corporate policy and procedure documents, organizational chart and on line/records.

3.3 Organizational Structure



3.4 SYSTEM ANALYSIS

The configuration of library systems varies from one library to another, and depends on the type and complexity of the library system. The analysis of the system is divided into two areas: Analysis of the current system and the problem inherent in the existing system.

3.5 ANALYSIS OF THE EXISTING SYSTEM

The library contains approximately 10,000 volumes of books which is open to all registered members of the university community. The staff working in the library includes:

- **PROFESSIONAL:** With professional qualification on library system, function and usage.
- **PARA-PROFESSIONAL:** With lesser qualification but equipped with basic knowledge of library system, function and usage.
- **NON-PROFESSIONAL:** these are mainly staff without enough qualification whose job is menial i.e. shelving and stamping, drivers, cleaners, security e.g.

The operational hours of the library are as follows:

PERIOD	DAYS	TIME
DURING SECTION	MONDAY - FRIDAY	8AM-12PM

	SATURDAY	CLOSED
	SUNDAY	CLOSED
DURIND VACATION	CLOSED	CLOSED

Table 3.1 library time table

The organizational structure of Caritas University Library, which is our case study, has five standard divisions, which are:

- (i) Administration division**
- (ii) Collection and development division**
- (iii) Technical division**
- (iv) Public Services division**
- (v) Special collection division**

The deputy Librarian oversees the individual the individual division respectively and he is accountable to the university Librarian. In the sections below, brief explanation will be given about each division of the library.

(a) Administration division

This is one of the major divisions of the library and it is so organized that it has span of control and reporting superior. It coordinates and controls all administrative works of the library maintenance. It has three sections:

- (i) **Building and Grounds section**
- (ii) **System budget**
- (iii) **Reprography**

(b) Collection and Development Division

This division is responsible for selection tool routine. It is charged with the responsibility of determining the types of books and library materials needed. Amongst the criteria by which this is performed is the ordering of extra copies of books that are in high section to update the library stock. Also books and other materials could be received as gifts from some organizations like World Bank, through division of this library. For any book or library material to be used in the library, it must pass through this division for appropriate documentation, which involves issuance of accession number and ownership stamps. This division comprises three sections, which are:

- (i) **Acquisition section**
 - (ii) **Serial section**
 - (iii) **Publication, gift and exchange section**
- (c) Technical Services Division**

This division has three sections, which are charged with the technical or physical works of the library. They are:

- (i) **Cataloguing section**
- (ii) **Binding section**
- (iii) **Audio visual section**

The cataloguing section is responsible for reading, classification and cataloguing of all the books that would be used in the library. In fact, it is the most vital sections of the library

(d) SPECIAL ASSISTANT:

The special assistant can also act as the secretary to the librarian and other library committees as the university librarian may from time to time direct. Assist the librarian on professional matters, preparation of annual reports. Any other function as assigned by the university librarian.

- **SYSTEMS:** Acts under the general direction of the university librarian, to initiate and develop systems (manual or automated) for the improvement of processes and services in the libraries. To keep an eye on new trends in the profession.

3.6 PROBLEMS OF THE EXISTING SYSTEM

The problems facing the existing systems are as follows.

- **LACK OF ACCURACY:** Considering the fact that human factor can set at anytime, there are likely tendencies of mistake, especially taking statistics on library matters.

- **POOR RECORD:** Considering the large volume of data involved, the existing system has poor approach to large database design. The manual system makes use of a register where all registered library users have their data entered.
- **LARGE MANPOWER REQUIREMENT:** Because of the manual operation, a lot of manpower resources is required.
- **INABILITY TO TRACK MATERIALS EASILY:** Because of its manual operation the tracking of books is sometimes delayed. The new system is designed in such a way that any point in time, it can tell where a particular book is without having to check it out physically. In the manual system under study, books sent to the bindery or reservation are often lost track of.
- **End-User STATISTICS:** in the existing system, statistics must be taken at the end of the day's work and that is tedious and time consuming. But the proposed system updates the statistics file after each transaction.
- **NOT-LEND TO INFORMATION:** Unlike the existing system, the proposed systems can operate in library system network and places orders or shares library materials with other systems in the network.

CHAPTER FOUR

SYSTEM DESIGN AND IMPLEMENTATION

4.1 ANALYSIS OF THE PROPOSED SYSTEM

The proposed system, ONLINE LIBRARY SERVICES SYSTEM is considered an improvement of the existing system. This is because the tested system takes care of the main problems associated with the current manual method of library operation in Caritas University.

In other words, the problems of delay, inefficiency and tedium in the current system have been completely taken care of, by the proposed system. Therefore, it can be concluded that the proposed system provided more efficient method of library services operation.

4.2 FILE DESIGN SPECIFICATION

The structure of the files defines, itemizes and describes the type of variable names, data types, width and decimal in terms of numeric variable index field. These variables only the ones used in the input and output files.

S/NO	FIELD NAME	TYPE	WIDTH	DEC	INDEX
1	TITLE	VARCHAR	50	-	Y
2	AUTHOR	VARCHAR	50	-	Y
3	DATE OF PUBLICATION	DATE	50	-	N
4	PUBLISHER	VARCHAR	50	-	N
5	ISBN	VARCHAR	50	-	N
6	PAGINATION	VARCHAR	50	-	N
7	SHELF	VARCHAR	50	-	N

Table 4.1 File Design

4.3 OUTPUT DESIGN

Since the programming language used is event driven and object oriented, the output appears on the screen using Microsoft windows format as designed by the researcher.

FIELD NAME	WIDTH	DATA-TYPE
Lib Number	10	String
Name	20	String
Department	10	String
Cataloguing	10	String

Address	20	String
Date	8	Date

Table 4.2 Registration Table

(ii) **Borrow.tbl:** This file holds information about any borrowing transactions, which have not been renewed. The fields are as follows:

FIELD NAME	WIDTH	DATA-TYPE
LIB NUMBER	10	STRING
BKCALL NUMBER	10	STRING
DATE	8	DATE

Table 4.3 Borrower's Table

4.4 INPUT DDESIGN:

There are two input on this system, the add book input design, and the search catalogue input design. The format applies to all the categories of book addition in the library.

Title

Author

Date of Publication

Publisher

ISBN

Shelf

Pagination

VALIDATE

CLEAR

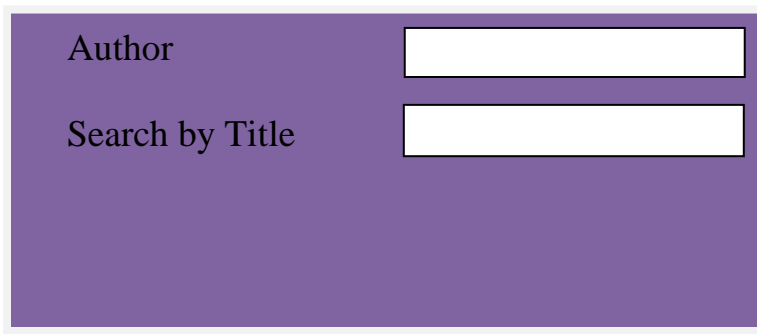
CANCEL

Fig. 4.1 Add Book To Library Form

4.5 THE SEARCH CATALOGUE DESIGN

The search is of two types; search by Author and Search by the Title of the book.

Search by Author



The search form is a purple rectangular box with a white border. It contains two text input fields. The first field is labeled 'Author' and the second field is labeled 'Search by Title'. Both fields are empty and have a white background with a black border.

Fig. 4.2 Search Form

4.5 JUSTIFICATION

Visual Basic 6.0 is chosen as the choice of programming language because of its flexibility and ease in developing the user's interface. It is object

oriented, event-driven and has the ability to access database from applications like Ms-Access, Ms-Excel, Dbase III and IV, FoxPro.

Therefore, it is suitable for the researcher's work

4.6 MENUS AND SUBMENUS

This software consists of three categories of menus: Main submenus and sub-menus, which in turn comprise many sub modules and functions that perform the required operations.

4.7 THE MAIN MENU

The main menu consists of five (5) submenus, which are respectively below.

- 
- A rectangular box containing a numbered list of four menu items.
- 1. FILE**
 - 2. VIEW**
 - 3. LIBRARY OPERATIONS**
 - 4. EXIT**

Fig 4.3 Main Menu

4.7.1 THE SUBMENU

The first four submenus have their respective submenus, which are shown below.

- 
- A rectangular box containing a numbered list of three menu items.
- 1. REGISTER MEMBERS**
 - 2. ENTER RECORD OF BOOKS**
 - 3. EXIT**

Fig. 4.4 File Service

- 
- A rectangular box containing a numbered list of one menu item.
- 1. VIEW REGISTERED MEMBERS**

Fig 4.5 View Service

1. BORROWING SECTION
2. AVAILABLE BOOKS

Fig 4.6 Library Operations

1. SEARCH FOR BOOKS

Fig 4.7 Sort Service

4.8 SYSTEM IMPLIMENTATION

In this section, we shall present the main program itself (i.e Digital Library Services System), giving source listing of the program, which shows various modules, subroutines, functions, menus, submenus and controls that perform library operations as required.

4.9 CHANGE-OVER PROCEDURE

To change over from the current system to the proposed system, a number of procedures may be employed. These include:

(i) DIRECT CHANGE-OVER PROCEDURE

This involves shutting down the old system completely, and switch over to the new system. It is however not advisable because if there is a problem, we cannot fall back on any system since the old system has been completely shut down.

(ii) PHASE CHANGE-OVER PROCEDURE

Here, we might implement registration of users with the new system while all the other operations will be normally carried out until we are

sure that it functions very well before we integrate another operation.

This is done in phases, but is safer.

4.10 SYSTEM SPECIFICATION

The system specification is treated under two sub-headings: hardware and software specifications.

(i) HARDWARE SPECIFICATION

The software package requires any IBM/IBM compatible compute with at least hard-disc capacity of 540MB to be able to run windows operating systems. Also require a minimum of 650k f free memory, floppy disc drive, CD-ROM drive, SVGA monitor for elegant display and mouse for selection of options.

(ii) SOFTWARE SPECIFICATION

The software requires Windows 95 or higher versions of windows operating systems. It also requires Visual Basic Compiler and Microsoft Access for database manipulation. Vb 6.0 is the choice of programming language because of its flexibility and ease in developing the user's interface. It is object oriented, event driven and has the ability to access database from applications like MS-Aces, MS- Exel, Dbase III and IV, Fox pro.

CHAPTER FIVE

SUMMARY AND RECOMMENDATION

5.0 SUMMARY

This study shows that efficiency could be achieved in the library operations. The product of the study, **ONLINE LIBRARY SERVICES SYSTEM**, has successfully brought ease and efficiency to existing system, which is characterized by manual, time consuming and rigorous processes. It is very student-friendly. The researcher also incorporated graphic user interfaces (GUI) to enable the users appreciate the software package.

However, full implementation of this system by any library will reduce the operational hardship encountered during the use of the manual mode of operation. The system will;

- i. An efficient book management which will also provide security of the library books.
- ii. Reduction of workload of the library attendant.
- iii. Minimal usage of time locating books in the library.

The Online Library Services System is an easy to use school library automation software program. This library program is also a favorite for church library applications. It incorporates cataloguing, circulation and inventory, all in one package. Library automation has never been easier.

In fact, this project work can be considered a work well done.

5.1 RECOMMENDATION

Having clearly tested and observed that the package provides a great improvement on the existing library system. I therefore, confidently recommend it to any academic institutions, organizations or establishments that need effective and efficient academic library system. Due to lack of time, I was unable to use pictures of different textbooks in this design and also content registration of books in the library. But this will be properly implemented if attention is given to the following areas:

a) Staff training

b) Conversion to the new system

This has three phases:

(i) Equipment Conversion:

This involves installation of computer system and its accessories.

(ii) File Conversion:

This involves transferring of the existing manual file into computer readable files.

(iii) System Conversion:

This involves the actual change over from the old to the four (4) changeover procedures.

c) Evaluation:

This enable one to know how the system is working and how well it is meeting the original budget, goals, specification, schedule and so on. From such evaluation comes adjustment that will prove the system.

d) Maintenance:

The system should always be maintained.

5.2 SYSTEM MAINTENANCE

With time and usage, the requirement of the organization may change, therefore, equipment installation and implementation of a working system is not the end of the system analysis and design, there is need for maintenance to ensure that the system continually meets the objectives or achieved its specific goals.

In order to achieve this maintenance goal, the system monitoring methods should be employed. These involves the monitoring of the system during/ or after implementation by observing and measuring the efficiency of the procedures.

In each run, for the procedure of monitoring, it is important to determine the following:

- i. The number of record input and /or output.
- ii. The activity of files.
- iii. The time taken (measured by real time check).

In some cases the correction might include the introduction of a new module to substantiate the existing ones.

5.3 SUGGESTED AREAS FOR FURTHER STUDIES

We shall suggest that future studies on this topic should do a feasibility study to ensure that this software package is implemented on a wider scale so as to give room for exchange of information and library materials between this system and other library systems within and outside the vicinity, irrespective of the distance.

Also effort could be made to improve on the new system so as to confirm with the every day development in the information world.

5.4 USER'S MANUAL

ONLINE LIBRARY SERVICES SYSTEM software is designed to perform library operations automatically and effectively. It is designed to be

interactive with graphical users interface (GUI). It does not acquire rigorous protocols, to be utilized. Below is a guideline on how to use the software:

- a) Turn on the computer system and allow booting process to be completed by the computer.

After the booting, you will see on the screen, a window's environment with many icons and start button. Among the icons is Digital Library Services System icon.

- b) Move your mouse pointer to the library icon (or through the program menu) double click on it. This will usher you into Digital library environment with inscription "WELCOME TO ONLINE LIBRARY SERVICES SYSTEM".

- c) Type in the correct password and the system takes you to the main window with four (4) menus. Click on any of the menus and there will appear dropdown menus (submenus).

- d) Select and click on any of the dropdown menus according to the operation you want to perform.

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APPENDIX A

PROGRAM SOURCE CODES

Frmviewmenber

```
Dim ado As New ADODB.Connection
```

```
Dim rs As New ADODB.Recordset
```

```
Dim st As New ADODB.Recordset
```

```
Private Sub cmdsch_Click()
```

```
rs.MoveFirst
```

```
x = 0
```

```
While Not rs.EOF
```

```
x = x + 1
```

```
If rs(3) = UCase(txtsch.Text) Then
```

```
txtres.Text = x
```

```
Exit Sub
```

```
End If
```

```
rs.MoveNext
```

```
Wend
```

```
MsgBox "libraryNo not found", , "sorry"
```

End Sub

Private Sub cmdsearch_Click()

st.MoveFirst

x = 0

While Not st.EOF

x = x + 1

If st(3) = UCase(txtsearch.Text) Then

txtresult.Text = x

Exit Sub

End If

st.MoveNext

Wend

MsgBox "libraryNo not found", , "sorry"

End Sub

Private Sub Form_Load()

ado.Open "Provider=Microsoft.Jet.OLEDB.4.0;Data Source=" & App.Path

& "\libsys.mdb"

rs.Open "select * from studreg ", ado, adOpenDynamic, adLockOptimistic

```
st.Open "select * from staffreg ", ado, adOpenDynamic, adLockOptimistic
```

```
'code for 1st tab
```

```
grid.ColWidth(0) = 500
```

```
grid.ColWidth(1) = 1500
```

```
grid.ColWidth(2) = 1500
```

```
grid.ColWidth(3) = 1500
```

```
grid.ColWidth(4) = 1000
```

```
grid.ColWidth(5) = 1500
```

```
grid.ColWidth(6) = 1400
```

```
grid.ColWidth(7) = 700
```

```
grid.ColWidth(8) = 700
```

```
grid.ColWidth(9) = 1500
```

```
grid.ColWidth(10) = 2000
```

```
grid.ColWidth(11) = 2200
```

```
grid.TextMatrix(0, 0) = "s/no"
```

```
grid.TextMatrix(0, 1) = "firstname"
```

```
grid.TextMatrix(0, 2) = "Lastname"
```

```
grid.TextMatrix(0, 3) = "department"
```

grid.TextMatrix(0, 4) = "libraryNO"

grid.TextMatrix(0, 5) = "regNo"

grid.TextMatrix(0, 6) = "faculty"

grid.TextMatrix(0, 7) = "level"

grid.TextMatrix(0, 8) = "programme"

grid.TextMatrix(0, 9) = "phoneNo"

grid.TextMatrix(0, 10) = "Address"

grid.TextMatrix(0, 11) = "Picture"

i = 0

While Not rs.EOF

i = i + 1

grid.TextMatrix(i, 0) = i

grid.TextMatrix(i, 1) = rs(0)

grid.TextMatrix(i, 2) = rs(1)

grid.TextMatrix(i, 3) = rs(2)

grid.TextMatrix(i, 4) = rs(3)

grid.TextMatrix(i, 5) = rs(4)

grid.TextMatrix(i, 6) = rs(5)

grid.TextMatrix(i, 7) = rs(6)

```
grid.TextMatrix(i, 8) = rs(7)
grid.TextMatrix(i, 9) = rs(8)
grid.TextMatrix(i, 10) = rs(9)
grid.TextMatrix(i, 11) = rs(10)
rs.MoveNext
Wend
```

'code for 2nd tab

```
xgrid.ColWidth(0) = 500
xgrid.ColWidth(1) = 1500
xgrid.ColWidth(2) = 1500
xgrid.ColWidth(3) = 1800
xgrid.ColWidth(4) = 1300
xgrid.ColWidth(5) = 2500
xgrid.ColWidth(6) = 1400
xgrid.ColWidth(7) = 1400
xgrid.ColWidth(8) = 2400

xgrid.TextMatrix(0, 0) = "s/no"
xgrid.TextMatrix(0, 1) = "Firstname"
```



```
xgrid.TextMatrix(0, 2) = "Lastname"  
xgrid.TextMatrix(0, 3) = "department"  
xgrid.TextMatrix(0, 4) = "LibraryNo"  
xgrid.TextMatrix(0, 5) = "Address"  
xgrid.TextMatrix(0, 6) = "Faculty"  
xgrid.TextMatrix(0, 7) = "phoneNO"  
xgrid.TextMatrix(0, 8) = "Picture"
```

```
i = 0
```

```
While Not st.EOF
```

```
i = i + 1
```

```
xgrid.TextMatrix(i, 0) = i
```

```
xgrid.TextMatrix(i, 1) = st(0)
```

```
xgrid.TextMatrix(i, 2) = st(1)
```

```
xgrid.TextMatrix(i, 3) = st(2)
```

```
xgrid.TextMatrix(i, 4) = st(3)
```

```
xgrid.TextMatrix(i, 5) = st(4)
```

```
xgrid.TextMatrix(i, 6) = st(5)
```

```
xgrid.TextMatrix(i, 7) = st(6)
```

```
xgrid.TextMatrix(i, 8) = st(7)
```

st.MoveNext

Wend

End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)

ado.Close

frmmain.Enabled = True

End Sub

Frmsearch

Dim ado As New ADODB.Connection

Dim rs As New ADODB.Recordset

Dim st As New ADODB.Recordset

Private Sub cmdsch_Click()

rs.MoveFirst

x = 0

While Not rs.EOF

x = x + 1

```
If rs(3) = UCase(txtsch.Text) Then  
  
    txtres.Text = x  
  
Exit Sub  
  
End If  
  
rs.MoveNext  
  
Wend  
  
MsgBox "libraryNo not found", , "sorry"  
  
End Sub
```

```
Private Sub cmdsearch_Click()  
  
    st.MoveFirst  
  
    x = 0  
  
    While Not st.EOF  
  
        x = x + 1  
  
        If st(3) = UCase(txtsearch.Text) Then  
  
            txtresult.Text = x  
  
        Exit Sub  
  
    End If  
  
    st.MoveNext
```

Wend

MsgBox "libraryNo not found", , "sorry"

End Sub

Private Sub Form_Load()

ado.Open "Provider=Microsoft.Jet.OLEDB.4.0;Data Source=" & App.Path
& "\libsyst.mdb"

rs.Open "select * from studreg ", ado, adOpenDynamic, adLockOptimistic

st.Open "select * from staffreg ", ado, adOpenDynamic, adLockOptimistic

'code for 1st tab

grid.ColWidth(0) = 500

grid.ColWidth(1) = 1500

grid.ColWidth(2) = 1500

grid.ColWidth(3) = 1500

grid.ColWidth(4) = 1000

grid.ColWidth(5) = 1500

grid.ColWidth(6) = 1400

grid.ColWidth(7) = 700

grid.ColWidth(8) = 700

grid.ColWidth(9) = 1500

grid.ColWidth(10) = 2000

grid.ColWidth(11) = 2200

grid.TextMatrix(0, 0) = "s/no"

grid.TextMatrix(0, 1) = "firstname"

grid.TextMatrix(0, 2) = "Lastname"

grid.TextMatrix(0, 3) = "department"

grid.TextMatrix(0, 4) = "libraryNO"

grid.TextMatrix(0, 5) = "regNo"

grid.TextMatrix(0, 6) = "faculty"

grid.TextMatrix(0, 7) = "level"

grid.TextMatrix(0, 8) = "programme"

grid.TextMatrix(0, 9) = "phoneNo"

grid.TextMatrix(0, 10) = "Address"

grid.TextMatrix(0, 11) = "Picture"

i = 0

While Not rs.EOF

i = i + 1

```
grid.TextMatrix(i, 0) = i
grid.TextMatrix(i, 1) = rs(0)
grid.TextMatrix(i, 2) = rs(1)
grid.TextMatrix(i, 3) = rs(2)
grid.TextMatrix(i, 4) = rs(3)
grid.TextMatrix(i, 5) = rs(4)
grid.TextMatrix(i, 6) = rs(5)
grid.TextMatrix(i, 7) = rs(6)
grid.TextMatrix(i, 8) = rs(7)
grid.TextMatrix(i, 9) = rs(8)
grid.TextMatrix(i, 10) = rs(9)
grid.TextMatrix(i, 11) = rs(10)

rs.MoveNext

Wend
```

'code for 2nd tab

```
xgrid.ColWidth(0) = 500
xgrid.ColWidth(1) = 1500
xgrid.ColWidth(2) = 1500
xgrid.ColWidth(3) = 1800
```

xgrid.ColWidth(4) = 1300

xgrid.ColWidth(5) = 2500

xgrid.ColWidth(6) = 1400

xgrid.ColWidth(7) = 1400

xgrid.ColWidth(8) = 2400

xgrid.TextMatrix(0, 0) = "s/no"

xgrid.TextMatrix(0, 1) = "Firstname"

xgrid.TextMatrix(0, 2) = "Lastname"

xgrid.TextMatrix(0, 3) = "department"

xgrid.TextMatrix(0, 4) = "LibraryNo"

xgrid.TextMatrix(0, 5) = "Address"

xgrid.TextMatrix(0, 6) = "Faculty"

xgrid.TextMatrix(0, 7) = "phoneNO"

xgrid.TextMatrix(0, 8) = "Picture"

i = 0

While Not st.EOF

i = i + 1

xgrid.TextMatrix(i, 0) = i

xgrid.TextMatrix(i, 1) = st(0)

xgrid.TextMatrix(i, 2) = st(1)

xgrid.TextMatrix(i, 3) = st(2)

xgrid.TextMatrix(i, 4) = st(3)

xgrid.TextMatrix(i, 5) = st(4)

xgrid.TextMatrix(i, 6) = st(5)

xgrid.TextMatrix(i, 7) = st(6)

xgrid.TextMatrix(i, 8) = st(7)

st.MoveNext

Wend

End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As

Integer)

ado.Close

frmmain.Enabled = True

End Sub

Frmsplsh

Dim i As Integer


```
Private Sub Form_Load()
```

```
    i = 0
```

```
End Sub
```

```
Private Sub Timer1_Timer()
```

```
    i = i + 20
```

```
    pg.Value = i
```

```
    Label2.Caption = i & "%" & " complete"
```

```
    If i = 100 Then
```

```
        frmsplsh.Hide
```

```
        frmpass.Show
```

```
        Timer1.Enabled = False
```

```
    Exit Sub
```

```
End If
```

```
End Sub
```

```
Frmadd
```

```
Dim ado As New ADODB.Connection
```

```
Dim rst As New ADODB.Recordset
```

```
Dim rs As New ADODB.Recordset
```

```
Private Sub Command1_Click()
```

```
rs.AddNew
```

```
rs(0) = Text1.Text
```

```
rs(1) = Text2.Text
```

```
rs(2) = Text3.Text
```

```
rs(3) = Text4.Text
```

```
rs(4) = Text5.Text
```

```
rs(5) = Text6.Text
```

```
rs(6) = Text7.Text
```

```
rs(7) = Text8.Text
```

```
rs(8) = Text9.Text
```

```
rs(10) = Text10.Text
```

```
rs(11) = "nobody"
```

```
rs(12) = Text11.Text
```

```
rs(9) = Text12.Text
```

```
rs.Update
```

rs.Requery

MsgBox (" Registration Successfully:")

Text1.Text = ""

Text2.Text = ""

Text3.Text = ""

Text4.Text = ""

Text5.Text = ""

Text6.Text = ""

Text7.Text = ""

Text8.Text = ""

Text9.Text = ""

Text10.Text = ""

Text11.Text = ""

Text12.Text = ""

End Sub

Private Sub Command2_Click()

Unload Me

End Sub

Private Sub Form_Load()

ado.Open "Provider=Microsoft.Jet.OLEDB.4.0;Data Source=" & App.Path
& "\libsyst.mdb"

rs.Open "select * from items", ado, adOpenDynamic, adLockOptimistic

End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As
Integer)

ado.Close

frmmain.Enabled = True

End Sub

Frmborrower

Dim ado As New ADODB.Connection

Dim rst As New ADODB.Recordset

Dim rs As New ADODB.Recordset

```
Private Sub cmdad_Click()
```

```
rs.AddNew
```

```
rs(0) = txtfname.Text
```

```
rs(1) = txtlib.Text
```

```
rs(2) = txtbk.Text
```

```
rs(3) = txtcp.Text
```

```
rs.Update
```

```
rs.Requery
```

```
grid.Clear
```

```
grd.TextMatrix(0, 0) = "firstname"
```

```
grd.TextMatrix(0, 1) = "librarynumber"
```

```
grd.TextMatrix(0, 2) = "bookttitle"
```

```
grd.TextMatrix(0, 3) = "copynumber"
```

```
txtfname.Text = rs(0)
```

```
txtlib.Text = rs(1)
```

```
txtbk.Text = rs(2)
```

```
txtcp.Text = rs(3)
```

```
i = 0
```

```
While Not rs.EOF
```

```
i = i + 1
```

```
grd.TextMatrix(i, 0) = rs(0)
```

```
grd.TextMatrix(i, 1) = rs(1)
```

```
grd.TextMatrix(i, 2) = rs(2)
```

```
grd.TextMatrix(i, 3) = rs(3)
```

```
rs.MoveNext
```

```
Wend
```

```
End Sub
```

```
Private Sub cmdadd_Click()
```

```
rst.AddNew
```

```
rst(0) = txtname.Text
```

```
rst(1) = txtlname.Text
```

```
rst(2) = txtlibno.Text
```

rst(3) = txtmem.Text

rst(4) = txtbook.Text

rst(5) = txtcopy.Text

rst.Update

rst.Requery

grid.Clear

grid.TextMatrix(0, 0) = "firstname"

grid.TextMatrix(0, 1) = "lastname"

grid.TextMatrix(0, 2) = "librarynumber"

grid.TextMatrix(0, 3) = "membertype"

grid.TextMatrix(0, 4) = "bookttitle"

grid.TextMatrix(0, 5) = "copynumber"

txtname.Text = rst(0)

txtlname.Text = rst(1)

txtlibno.Text = rst(2)

txtmem.Text = rst(3)

txtbook.Text = rst(4)

txtcopy.Text = rst(5)

i = 0

While Not rst.EOF

i = i + 1

grid.TextMatrix(i, 0) = rst(0)

grid.TextMatrix(i, 1) = rst(1)

grid.TextMatrix(i, 2) = rst(2)

grid.TextMatrix(i, 3) = rst(3)

grid.TextMatrix(i, 4) = rst(4)

grid.TextMatrix(i, 5) = rst(5)

rst.MoveNext

Wend

End Sub


```
Private Sub cmdcl_Click()
```

```
txtfname.Text = ""
```

```
txtlib.Text = ""
```

```
txtbk.Text = ""
```

```
txtcp.Text = ""
```

```
cmdad.Enabled = True
```

```
End Sub
```

```
Private Sub cmdclear_Click()
```

```
txtname.Text = ""
```

```
txtlname.Text = ""
```

```
txtlibno.Text = ""
```

```
txtmem.Text = ""
```

```
txtbook.Text = ""
```

```
txtcopy.Text = ""
```

```
cmdadd.Enabled = True
```

```
End Sub
```

```
Private Sub cmdDel_Click()

If rst.EOF Then

rst.MovePrevious

End If

    rst.Delete adAffectCurrent

    rst.Update

    rst.Requery

grid.Clear

grid.TextMatrix(0, 0) = "firstname"

grid.TextMatrix(0, 1) = "lastname"

grid.TextMatrix(0, 2) = "librarynumber"

grid.TextMatrix(0, 3) = "membertype"

grid.TextMatrix(0, 4) = "booktitle"

grid.TextMatrix(0, 5) = "copynumber"

txtname.Text = rst(0)

txtlname.Text = rst(1)

txtlibno.Text = rst(2)
```

txtmem.Text = rst(3)

txtbook.Text = rst(4)

txtcopy.Text = rst(5)

i = 0

While Not rst.EOF

i = i + 1

grid.TextMatrix(i, 0) = rst(0)

grid.TextMatrix(i, 1) = rst(1)

grid.TextMatrix(i, 2) = rst(2)

grid.TextMatrix(i, 3) = rst(3)

grid.TextMatrix(i, 4) = rst(4)

grid.TextMatrix(i, 5) = rst(5)

rst.MoveNext

Wend

End Sub

End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As
Integer)

ado. Close

frmmain.Enabled = True

End Sub

APPENDIX B

SAMPLE INPUT FORM

Online Library System

CARITAS UNIVERSITY

LIBRARY MANAGEMENT SYSTEM

Registration Add Books Search

Registration

Name

Library Number

Main No

Faculty

Level

Course

Phone No

Upload Picture

SAVE CLOSE

CARITAS UNIVERSITY

LIBRARY MANAGEMENT SYSTEM

Registration

Add Books

Search

Add Books

Title:

Author:

Date of publication:

publisher:

ISBN:

Shelf:

pagination:

VALIDATE

CLEAR

CANCEL

CARITAS UNIVERSITY

LIBRARY MANAGEMENT SYSTEM

Registration

Add Books

Search

Search Form

Author

Search by Title

Search