

WEB BASED LIBRARY INFORMATION SYSTEM FOR A SECONDARY SCHOOL

CASE STUDY: LUBIRI HIGH SCHOOL

BY

OCEN RITA

BCE/13683/61/DU

SUPERVISOR: MR. KAMPORORO

**A GRADUATION REPORT SUBMITTED TO THE SCHOOL OF COMPUTER
STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF BACHELORS OF COMPUTER SCIENCE
WITH EDUCATION OF KAMPALA INTERNATIONAL UNIVERSITY**

AUGUST 2009

DECLARATION

I OCEN RITA of Registration Number BCE/13683/61/DU declare that this piece of work has been as a result of my own efforts and it has not appeared in any other reports or dissertations of any institutions of learning.

Signed:



OCEN RITA


BCE/13683/61/DU

STUDENT

APPROVAL

I certify that the work submitted by this candidate was under my supervision. Her work is ready for submission to be evaluated for the award of a bachelor's degree in computer science with education of Kampala International University

APPROVED BY:


.....

MR. KAMPORORO EZRA MUHANGI

SUPERVISOR

DEDICATION

I dedicate this book to my Beloved Mother Mrs. Angela Owori and my Dad Mr. Ochen Dilson, for all love and support towards the completion of this book. I also dedicate this book to my brothers, Jimmy, Tonny, Anthony and Mark and to my dear sisters, Anne, Donna, Monica, Milly for their support and love may God bless you all.

ACKNOWLEDGEMENT

I acknowledge the almighty God for the gift to study. I also acknowledge Mr. Kampororo Ezra for the guidance and support throughout the project, may the almighty God bless him abundantly.

Special thanks go to Prof. Olweny Charles, Dr. Otanga Rusoke, Louis Jadwong, and Akampurira Ivan for being there for me when I needed them.

I would like to acknowledge staff and students of Lubiri High School for the support they gave me during this research.

Lastly my sincere thanks goes to all friends who helped me to achieve this goal.

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CHAPTER ONE

1.0 Introduction

An information system is a collection of people, procedures, software and, data and hardware which all interact together to provide information essential for running a given organization. The emergency of web based information system has brought what is perhaps the most important in the application of various information system that is to say making websites dynamic and hence allowing faster sharing of data and other resources. Since its introduction, organization and schools inclusive have enjoyed benefits like data sharing, resources sharing, improved data accessibility, reduced redundancy and many others..

Information systems are being applied in very many areas such as in research and development, production, sales and marketing, accounting and finance, human and resources departments among other areas .When used appropriately, an Information System can effectively help in planning, staffing, supervising and controlling an organization's activities.

1.1 Background of the Study

Lubiri high school is a private school owned by the Buganda government and was started in 1999 by the Buganda ministry of education. The school is found in the Kabaka's palace commonly known as Olubiiri which is found in Rubaga division along ring road Kampala district.

It started as an ordinary level institution with classes senior one to four. Currently, it is both an ordinary and advanced level institution with both boys and girls. It has both day and boarding facilities. Its day to day library activities are executed in such a way that, every student is issued with a library card which bears a unique code. When a student wants to borrow a book from the book bank, he or she presents his or her library card as he borrows the book. When he is through with reading, he returns the book and his card is given back to him or her.

Procedure for borrowing a book from the library.

A student goes to the book bank and presents his/her card and requests for a book of his/her interest. When the book is available, the librarian gets the book and gives it to the student and retains the card. After the student has finished reading, he returns the book and takes his/her card. Normally there are many cards piled up on the table and this means the librarian is put to task to search for a card from a pile of them and this wastes time for both the librarian and the student. In addition, the current system does not allow students to get access to the book bank thus some times they are not aware of the books available hence wasting library resources.

Therefore, the purpose of this study was to design a system that has solved the above problem.

1.2 Statement of the problem

In most institutions and organizations Lubiri high school inclusive, there were reports of poor data handling and storage and this led to inefficiencies in data accessibility. Specifically focusing on Lubiri high school, data storage had become a mayhem as the library attendant had to scatter all borrowers' library cards to make it possible for borrowers to easily identify their cards when books are returned. This in turn wasted a lot of space and time as borrowers scanned through the hundreds of cards as they tried locating their cards. In addition to that, overcrowding around the book bank was yet another problem.

Therefore, the purpose of this project was to design a system that would permit a more organized way of tracking borrowers' records hence providing a more reliable storage system with fast backup ability, increased accessibility to library information, eliminate congestion at the library book bank and save time that used to be wasted by users while searching for books and their library cards.

1.3 Objectives of the study

1.3.1 Main objective

The main objective of the project was to design a web based library system that provides efficient data storage and accessibility

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1.3.2 Specific objectives of the study.

The specific objectives of the project were;

1. To study the current system and make recommendations for improvement.
2. To design a system with improved data accessibility.
3. To develop a system that provides security to the library information.
4. To test the system.

1.4 Research questions

The research questions that were used in the study are;

1. Whether the design and implementation of a web based library system would improve on data storage efficiency?
2. Can online library information system improve on data accessibility?
3. What is the role of a web based library systems in the day to day operations of institutional libraries?
4. How web based systems can be applied in the education sector?

1.5 Scope of the Study

The study was mainly concerned with Lubiri high school library. It involved studying how activities were being carried out. It further involved identification of problems that they were facing and how they can be solved those problems. It also covered various tools and methodologies that were required to design a web based library information system.

1.6 Significance of the Study

The project was important because it has led to improved data storage of the library data, has provided and a controlled access to the database by users and hence acting as an aid in decision making process of the school. Given the above, the project has created appositve change on the day to day activities of Lubiri high school's library department through improved data efficiency.

1.7 Justification of the Study.

The study is justifiable from three different perspectives; that is the school, the library users and the researcher.

To the school, there is improved data storage in the library department and there is improved data security by use of usernames and passwords this has ensured controlled accessibility to the database.

To the library users, the users are served more effectively. That is to say; with minimum congestion, easy accessibility various library resources by use of the search method among others.

Finally to the researcher, skills in proposal and dissertation writing have been acquired.

1.8 Conceptual Frame Work

The system I conceptually appears like the figure below. The system is designed run on a network background. The database is installed on a server and all librarians that lend out books sit on a client connected to the server. The librarians are responsible for entering borrower's data into the system.

The system uses ten computers connected to the server. Its on these computers that librarians access the database. And borrowers access the book catalogue or the titles of books of their interest via computers connected to the LAN.

How data is sent to and retrieved from the database.

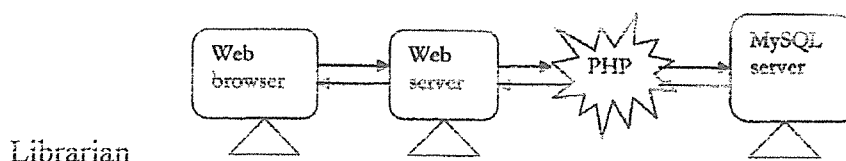


Fig 1.1 conceptual frame work of the system

A user's web browser issues an HTTP request for any of the following; log on form, data entry form, or even request for data from the database.

The server (in this case local host) receives the request, retrieves its file and passes it to the PHP Engine for processing.

The PHP Engine begins parsing the script whereby, it contains a command to connect to the database and execute a query. PHP opens a connection to the SQL server and sends on the appropriate query.

The SQL server receives the query and processes it, and sends the feedback to the PHP Engine.

The PHP Engine finishes running the script which usually involves formatting the query results in HTML to the web server.

The web server passes the HTML back to the browser, where the application form requested for is displayed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review describes what has already been done in the area of study and demonstrates the researcher understands of the problem area. It answers questions such as who is engaged in similar work. What has been successful and what has so far failed? It creates more understanding of problem area by digesting what has already been written the area under the study.

In this chapter, the researcher show how web based database systems has been used in different day to day activities of man. It high lights advantages and disadvantages of using database systems. In general, gives knowledge on how database systems can be designed and used.

According to Thomas Connolly, Carolyn begg and Anne Strachan (1997) in their book database systems. A practical Approach to design, implementation and management, the database is now such an integral part of our day to day life that often we are using one either knowingly or un knowingly. I can point out that today every ministry, organization, school or even house hold make use of a database regardless of whether it is manual, file based, or computer based. For example keeping truck of how many children and wives one has is an implementation of a simple database system though unknowingly.

2.2 Scope of the Literature Review

This literature covers how database system can be designed giving factors to consider when choosing the type of database one should use. The major study has been taken from the knowledge that the researcher acquire during the three year i have taken during my course. It further goes on to dig out how a database can be made sharable by group of members that is by putting it online. Most of the data about database was extracted from

Connolly T. Begg C. (2002). Database systems, A practical Approach to Design, Implementation and Management .Edinburgh Gate. Pearson education Inc. and timothy J.O'leary and Linda I. O'Leary (2004). Computing essentials. Introductory edition. Among others.

2.3 Recent Developments

Of late, organizations have matured from the Stone Age paper work to computerized database systems. A database is a collection of logically related data to permit effective sharing, reduced data redundancy, improves on data security among others. The database is now an integral part of our day to day life that often we are not aware we are using one. Connolly et al (1997), considers the database to be a collection of related data and database management system DBMS to be the software that manages and controls access to the database. For example when you purchase goods from your local super market, it is likely that a database will be accessed. The checkout assistant will run a bar code reader for each of the purchase. This will be linked to a database application program which uses the bar code to find out the price of the item from a product database.

Other operation that involves accessing the database are; when you purchase goods using accredit card they have got to verify from the bank's database whether you have enough credit on your card; when you make enquiries about a holiday travel, when you visit your local library there is probably a database containing details of books in the library, details of users and so on all these employ different database technologies. And this makes databases a very important tool in the life span of an organization. Even I have to give a live example; the kiu departments of account, admission among others also make use of databases hence justifying the implementation of a database for Lubiri high school. Imagine if kiu was to use paper work for keeping track of student wouldn't lecture rooms be turned into stores for files?.

2.4 Problem Area

There are several areas that are faced when a proper database is not used. These may range from; data redundancy, lack of data integrity, reduced data accessibility, lack of data security, inability of share data among others. These are faced almost in all sectors that don't use good databases at the moment. Let's try to understand this by using two examples. Suppose the bank was not using a good database wouldn't customers claim to be having more money than they do? But because of proper database applications, the bank management is capable of keeping track of all the transactions that have been carried out by the customer on his/her account.

Looking at another example of UNEB where people even after twenty years go to cross check for their results due to different circumstances how hard it would be to locate a record of an individual that sat for exams some twenty years ago. The above examples and those not mentioned, clearly show that the use of databases is an integral part of the day to day operations of our lives.

2.5 Application Area

Connolly et al (1997) identifies the following areas; super markets, hotels, schools, banks among others. Databases are used in schools for example Kampala international university operates one, air ports also make use of databases for example they in position of keeping track of all bookings that have been made on a particular plane specifically keeping track of the day, time and hour all this is made possible by the use of a database.

Specifically when we say that a database is web based, we simply mean the normal database but with the ability to be shared on a network by use of browser and a server. Therefore, web based library information system can also be applied in libraries where there is need for sharing a common database by different people who may no necessarily be in the same place

2.6 The Evolution of Databases

Originally, people stored data on scrolls, inscribed on stones, trees and later on papers. At that time, this must have been a very secure way of keeping track of events. But with the increasing complexity in the type of data, need for sharing and transfer of data, led to the first attempt to computerize databases to what they termed file based approach.

2.6.1 The File Based Approach

O’Leary and O’Leary (2004) and Connolly et al (1997) agree that; file based approach to data storage is a collection of programs that perform services for the end user such as the production of reports and that each program defines and manages its own data. It was an attempt to computerize the manual filing system that we are all familiar with, for example in an organization, a manual file is set up to hold all external correspondence relating to a project, product, task, client or employee. Such files are normally labeled to ease identification and are stored in file cabinets. When a file is needed, one has to move and turn the files left and right until the file needed is found.

This approach works well when the number of items to be stored is small. It even works quite adequately when there are a large number of items and we have only to store and retrieve them. However, the manual filing system breaks down when we have to cross reference or process the information in the file. For example, a typical estate agent office might have a separate file for each property for sale or rent, each potential buyer and renter and each member of staff. Consider the effort that would be required to answer a question like; “what three-bed roomed properties do you have for sale with a garden and garage?” of course a lot of effort. This makes us answer a question below.

Why do we need a database system?

Increasingly nowadays, clients, senior managers and staff want more and more information and in some areas, there’s a legal requirement to produce detailed monthly, quarterly, and annual reports.

Clearly, the manual system is totally inadequate for this type of work. The file based system was developed in response to the needs of industries for more efficient data access. However, rather than establish a centralized store for the organization's operational data, a decentralized approach was taken where each department with the assistance of data processing (DP) staff stored and controlled its own data.

2.6.2 Database Approach

All the above limitations of the file based approach can be attributed to two factors;

- 1) The definition of the data is embedded in the application programs rather than being stored separately and independently.
- 2) There is no control over the access and manipulation of data beyond that imposed by the application program.

The database systems present were designed to overcome the above two major problems. I therefore conclude this subsection by stating Connolly et al (1997)'s definition of what a database is as "A database is a shared collection of logically related data (and description of this data), designed to meet the information needs of an organization.

2.7 Components of a DBMS Environment

Connolly et al (1997) identifies five major components of a DBMS environment as; hardware, software, data, procedures and people.

Hardware

The DBMS and the applications require hardware to run. The hardware can range from a single personal computer to a single main frame to a network of computers. The particular hardware depends on the organization's requirements and the DBMS used. Some DBMSs run only on particular hardware while others run on a variety of hardware and operating system. A DBMS requires minimum amount of main memory and disk space to run, but this minimum configuration may not guarantee acceptable performance.

For example, installation of Oracle 10g requires a minimum of 256MB of RAM (O'Leary & O'Leary, 2004).

Software

The software components comprise the DBMS software itself together with the operating system, including the network software if the DBMS is being used over a network, and the application programs. Application programs include those written in third generation languages such as c,cobol Ada or fourth generation languages such as SQL, embedded in a third generation language.

The target DBMS may have its own fourth generation tools that allow rapid development of applications through the provision of non-procedural query languages, generators, reports generators and application generators.

Data

Perhaps the most important component of the DBMS environment certain from the users point of view is the data. It acts as a bridge between the machine components and the human component. Normally this data is stored in what is called tables or relations.

Procedures

These refer to the instructions and rules that govern the design and use the database. The users of the system and the staff that manage the database require documented procedure on how to use or run the system. These may include;

How to log on to the RDBMS

How to use a database facility

How to make backup

How to handle hardware or software failures among others.

People

The final component is the people that interact with system.

2.8 Web Pages as the Front End of an Online/web Based Information System

Often times, web based databases make use of a web page as the primary interface with the database and there are two main types of websites that is; static and dynamic website,

2.8.1 Static Web Site Definition

A static web page is that always comprises the same information in response to *all* download requests from *all* users. Contrast with Dynamic web page.

It displays the same information for all users, from all contexts, providing the classical hypertext, where navigation is performed through "static" documents.

Advantages

Quick and easy to put together, even by someone who doesn't have much experience.

Ideal for demonstrating how a site will look.

Cache friendly, one copy can be shown to many people.

Disadvantages

Difficult to maintain when a site gets large.

Difficult to keep consistent and up to date.

Offers little visitor personalization (all would have to be client side).

2.8.2 Dynamic Website Definition

Edward Yourdon (1972), state that, the word 'dynamic' in this context means 'characterized by continuous change, activity, or progress'. In the case of a website, to be

dynamic means that content of the page has the potential to change every time the page is loaded.

For instance, a very simple dynamic site might show the time and date in the corner. This date stamp will automatically be updated every time a user loads the page so that it shows the correct date and time.

A website that is not 'dynamic' is considered 'static': every time it is loaded it will be the same.

One of the greatest advantages to a dynamic website is that it can be linked to a database. Each time a page is loaded it gets some or all of its content from this database. This means that if the database changes the website that displays the information will immediately show the new information. This is very useful for sites that show a shop inventory with prices etc.

2.8.3 How it Works

Dynamic sites use special scripts to get the information that they are to show. Two of the most common scripting languages for the web are php and asp.

A web programmer can use these scripting languages to perform simple programming tasks, information requests, database interactions or a host of other functions. The script then transforms the information it receives into html (the normal language of web pages) and passes that to the user's browser.

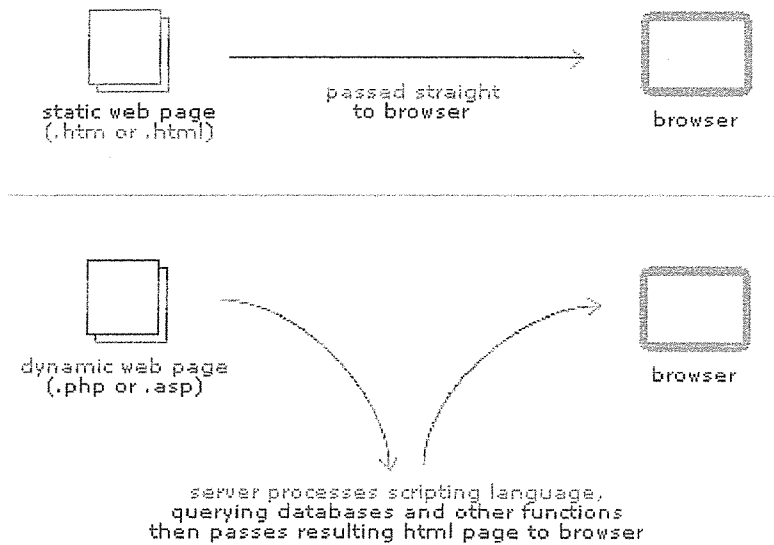


Figure 2.1 How the server and client communicate

2.8.4 How to Make a Decision on whether a Web Page should be Dynamic or Static

There is no clear formula when making that decision. You should consider it if you want something that will change content or if you want to be able to update the site yourself.

For example: using scripting technology the content of the pages can be drawn from a database. So if you are planning to regularly update a page or two on your site - maybe a news page or photo gallery - we can make those pages draw their content from a database. Then we create an 'admin' page where that database can be edited by you, the site owner. Presto: With no website editing skills whatsoever you can take control of the content of your site.

This is the same technology that a blogger uses to update their personal blog page, and indeed a customized installation of a blogging application like Word Press is often an easy way to set up a dynamic site.

In a dynamic site, pages are assembled "on the fly" as and when they are requested. Most server side languages as PHP, JSP and ASP powered sites do this technology by actively encourages dynamic content creation. Generating pages dynamically allows for all sorts

of clever applications, from e-commerce, random quote generators to full on web applications such as Hotmail.

Warning: the following may be an advertisement as it is identical to the copy on Search 3W's website (http://www.search3w.com/product_be_visible.html):

In a static publishing system, HTML pages are pre-generated by the publishing software and stored as flat files on the web server, ready to be served. This approach is less flexible than dynamic generation in many ways and is often ignored as an option as a result, but in fact the vast majority of content sites consists of primarily static pages and could be powered by static content generation without any loss of functionality to the end user.

The most widespread example of a static publishing system is D2S, which rebuilds static files for a site each time a page is added or modified - although it can be configured to serve content dynamically instead.

2.8.5 The Reliability Advantage

A big part is that it takes the pressure off of going live. You can be sure before going live that the published website is correct. The actual CMS may explode in flames, but the site will be fine. Going live with a web application is always a stressful process, and anything that reduces the stress of that is a great benefit. As time goes on, static publishing is also a big stress reduction for the system administrator, since a simple Apache configuration is a lot more reliable under different loads and configurations than any dynamic site will be.

The University of Pennsylvania - San Francisco has used an Executive online application to offer this Web-based application to make their application process as easy and convenient as possible for their applicant. All applications are submitted electronically using this system. There is no fee required to open an application account with them.

<https://app.applyyourself.com/?id=upenn-emba> University of Pennsylvania Viewed: Feb 14, 2008

Web services systems, <http://www.dury.edu/multitim>. (Las Vegas-(Business wire), july.13.1998)) argues that, The hospital of Nevada las Vegas(UNU) implemented an

online patient registration system using enterprise links smart Tran-TM web-to host software (DRC,2004).the hospital has encouraged those who are interested to find more information from <http://www.oas.rockefeller.edu>.

2.8.6 Performance Evaluation

Static site will increase the performance of any website or online application. Static pages will have a ‘circular’ effect on speed: static pages will take up less load time; less load time will allow for better performance under stress, and better performance will reduce the server stress and give the user faster downloads. Note, though, that accessibility should always have a higher priority than performance.

Static over dynamic - Conclusion

Not everything needs to be dynamically created. If there are pieces of information that have quite a long dynamic cycle, embed them statically, but perhaps allow for new items to be re-embedded easily, through a pseudo-dynamic process.

2.9 Data Collection Techniques

Under this part of the review, we shall consider three major data collection techniques; that interview, questionnaire, and observation. These have been explained below.

2.9.1 Interview

Williams Sawyer Hutchinson (2002) argues that interview is a data collection technique where the researcher interacts with the interviewee face to face with the respondent asking questions that matter to the case being examined. They are supposed to be planned for by both the interviewer and interviewee.

Whitten, Bentley and Dittman (2001) add that it is a good method because information of more quality can be obtained, and it further gives room to the interviewer to make clarifications on issues that may seem not clear and further makes follow up easier. However, it can be costly as it requires skilled labor which can be expensive, it requires a lot of time and responses are some time influenced by the presence of the interviewer.

2.9.2 Questionnaire

Whitten, Bentley and Dittman (2001) define a questionnaire as a set of questions that are sent out to target respondents who are allowed to answer them at their own with in a given time frame. They can be in a free-format where the respondents is expected to give his own opinion or affixed –format where the respondent is given answers to choose from.

It is a good technique when the size of respondents is large and geographically dispersed and probably the time allowed is limited. However, this method can be misleading due to; less response, poor questionnaire design and can be costly in terms of printing.

2.9.3 Observation

According to Whitten, Bentley and Dittman (2001) in the book, Systems analysis and design, Observation is a fact finding technique where the analyst either participates in or watches a person perform activities as he/she learns about the system

It is often used for validation of data collected through other techniques. It can be good if it's carried out by experienced personnel. In contrast it can be cost a lot of time and some people tend to behave differently when they know that they are being observed.

2.10 Development Methodology

There are a multiplicity of methods that can be used to develop systems .In this literature, we shall examine the three commonly used methods that is; SDLC, RAD and JAD.

2.10.1 The System Development Life Cycle

Whitten, Bentley and Dittman(2001) defines SDLC as a set of activities, methods, best practices, deliverables, and automated tools that stake holders use to develop and maintain information systems as well as software. It is a very formal and precise system, of government process that is defined as cmm as a set of activities.

The number of phases may vary from one company to another, and even the name of the process may differ (application development cycle, structured development life cycle, for instance).The six phases of systems analysis and design may be said to be as follows:

Preliminary Investigation: Conduct preliminary analysis, propose alternative solutions, and describe the costs and benefits of each solution. Submit a preliminary plan with recommendations. If you are doing a systems analysis, and design, its safe, even preferable to assume that you know nothing about the problem at hand. In the first phase, it's your job to mainly ask questions, do research and try to come up with a preliminary plan.

Systems Analysis: gather data; analyze the data using tolls of written documents, interviews, questionnaire, observations, and sampling. Analyze the data using CASE tools, data flow diagrams, systems flow charts, connectivity diagrams, grid charts, and decision tables and write a report.

Systems design: make a preliminary design and then a detailed design. Using CASE tools, prototyping tools and project management software among others. Do a detailed design, defining requirements for output, input, storage, and processing and system controls and backup finally write a report?

Systems Development: Acquire the hardware and software and test the system. In the make or buy decision, you decide whether you have to create a program or have it custom written or buy it meaning simply purchase a system software package. if you decide to create anew program, then the question is whether to use the organization's own staff programmers or higher outside contract programmers(Outsource it). Which ever way you go, the task could take many months. Having made a decision, the hardware to run it must be acquired or upgraded or buy new hardware.

Systems implementation: convert the hardware, software, and files to the new system and train the users. Convert using any of the following conversions; parallel, phased or pilot. Compile final documentation and train the users.

Systems Maintenance: audit he system, request feedback from its users, and evaluate it periodically.

2.10.2 Rapid Application Development

This calls for the interactive use of structured techniques and prototyping to define the user requirements. And design the final system using structured techniques. Developers build preliminary data and process it to get the business requirements. Prototypes help the analyst and users to verify requirements to formally refine the data and process models.

This technique is good for small applications whose underlying technology is dearly understood. But for large and complicated systems, it can result in unusable software as stated by (Whitten, Bentley, and Dittman, 2000).

2.10.3 Joint Application Development (JAD)

According to Whitten, Bentley and Dittman (2000), JAD is a technique that complements other development techniques by emphasizing participation among system owners, users, designers, programmers among others.

These come together in well planned workshops intended to address different issues pertaining to the system. Each of the above characters may take on a different role.

It can be expensive to use and going by brooks law," Nine women can not bear a child in amount as written by

2.11 Development Tools

According to Flynn and Ann (2001), Windows xp this is one of the easiest operating systems to use. Version 2 release 8 has enhanced e-commerce capability with improved security. It has enhanced security and is compatible with higher security level software's. In contrast, Linux is more reliable in terms of security but it is a bit more complicated to use.

2.11.1 Programming Languages

Wikipedia the free Pokemon encyclopedia (24th march, 2008) states that a programming language is an artificial language that can be used to control the behavior of a machine. Computer programming languages like natural languages are defined by syntactic and semantic rules which describe their structure and meaning respectively. Many languages have some form of written specification of their syntax and semantics and others are only defined by official implementation.

Wamp server is an open source software package that comes with components like PHP, SQL among others that are going to be used in the study.

2.11.2 Hyper Text Preprocessor

PHP is a programming language with the capability of storing and retrieving data into and from the database. It has an advantage that it makes a website interactive; it has the ability of enabling the database to be shared via a network by use of server and by browsing it from a remote computer.

2.11.3 Structured Query Language

SQL is a particular language that has emerged over the years from the development of the relational model in the structured query language. SQL can be used in two ways; the first way is to use SQL interactively by entering the statements at a terminal. And secondly is to embed the SQL statements in a procedural language.

Objectives of SQL

Ideally, a database language should allow a user to create the database and relation structures; it should allow a user to perform basic data management tasks such as insertion, modification and deletion of data from the relations; and it should allow the user to perform both simple and complex queries to transform the raw data into information. The above functionality should be performed but with minimum user effort and its command structure and syntax must be relatively easy to learn. Finally there is need for portability and SQL is an example of a transform oriented language designed to use relations to transform inputs into outputs. It makes use of commands like; create, select, delete, update, alter among others.

MySQL is composed of two main components; the data definition language, and the data manipulation language. Where the latter is used to manipulate the database that is to query the database, insert data, update the records among others. Commands like

SELECT, INSERT, UPDATE are used. Where as the former is used to describe the structure of the database. Commands like CREATE, ALTER, DROP are used.

2.11.4 Web Browser

Browsers are programs that provide access to web resources. This software connects you to web resource. This software connects you to remote computers, opens files and transfer files, display text and images, and provides in one tool an uncomplicated interface to the internet and web documents. Two well known browsers are; Netscape navigator and Microsoft internet explore, though of late fire fox mozilla has become widely used.

The above literature, made the researcher ready for the actual execution of the project. In the next chapter, the researcher presents the methodology that was used to design and implement the system.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the methods, tools and techniques that were used to carry out the study that finally led to the design and implementation of web based library information system for Lubiri high school. Major areas that were studied are; the organizational units that were studied, target population, how sampling was done, data collection techniques that were used, how system analysis was done, design, coding, testing among others.

3.1 Study Population

This part of the chapter shows the population that was considered in the study. These were; the head teacher Lubiri high school, the deputy head teacher, the librarian Lubiri high school and five students were also sampled and considered in the study. A database expert and a php programmer were also included in the study.

3.2 Sample Size that was used in the Study

Ten people were taken into consideration. Three of them were senior staff members of Lubiri high school, five were students of Lubiri high school and one database designer and php programmer were also included in the study.

The senior staff member provided information regarding whether the school had the potential to run the system was collected.

From the students, information regarding what they wanted the new system be like was collected.

From the database designer and programmer, information that was collected was concerned with the choice of the DBMS to use and how php scripts can well be used in this project.

3.3 Research Procedure that was used

Before the commencement of the study, permission was sought from the head teacher Lubiri high school. A day convenient was agreed upon by the researcher and the school's management for the interview. The researcher then went to the school and carried out the interviews and distributed questionnaires to students which they completed.

3.4 Data Collection Instruments that were used in the Study

Three techniques were used to collect data from respondents. Interviews were used to collected data from the head teacher, deputy head teacher, librarian and the database expert. Questionnaires were used to collect data from students. And observation used for all respondents.

3.5 How Analysis was Done

The respondents' responses were presented visually in a use case diagram. This was used to understand the processes that the different library users participate in. In particular uml soft ware was used to design the use case model.

From the use case diagram, the various processes that users participate in were listed and written as systems user requirements. This was accompanied by a sequence diagram to show how processes that had previously been identified from the use case diagram follow one another.

3.6 System design

The design of the system followed the steps listed below;

- i) Design of the database and
- ii) Design of the web pages.

Database design was done in three various phases.

At the conceptual level, database entities were identified to be the following;

- 1. Books
- 2. Borrowers and
- 3. User accounts (library staff)

The second level (conceptual design) involved identification of relationships between the entities and it was done by use of an entity relation diagram.

The third level (physical design) involved determination of data structure, primary key and foreign keys in addition to making a decision about the DBMS to that was used. The outcomes of this phase were presented in form of tables and a relational schema diagram was drawn to help the designer keep grip on his design.

At the end of this phase, the researcher was now set to begin implementation.

The designer went ahead and planned the interfaces by choosing colors to use, and tools. Colors of; blue, green and white were chosen by the designer. The structure of the pages was also decided during this phase and the researcher proceeded to the next phase of implementation.

3.7 Implementation phase

This phase started with installation of software. The following software packages were installed; Wamp server 5.01, my SQL connector and dream weaver. This was followed by creation of the actual database on the computer using the design structure from the

design phase. System interfaces were also created and linked with the database. After the completion of this phase, the researcher proceeded to system testing.

3.8 How system testing was done

Testing was done to ensure that the system did what it was intended to do. The major objectives for this testing were; to remove errors and to ensure that the software satisfies the user requirements. Testing was done at three different levels that s unit testing; i.e.

1. Unit testing,
2. System testing and
3. Acceptance testing.

Unit testing; each table in the database was individually tested to ensure that it worked particularly tables were tested to see if the constraints set had been met.

The interfaces were tested by sampling three users of the system to see what views they had on the interfaces in terms of usability adjustments were made as suggested by users and this led the researcher to the second testing phase called system testing.

System testing; during this phase, the interfaces and the database were tested to see if the connections worked as a whole system. A few changes were made and the system was presented to the library staff of Lubiri high school for the last and most important phase of acceptance testing. During this phase only changes in color were made and the system was declared complete.

At this stage, the researcher ranked the project as 80% done and I therefore move on to show how the analysis, design and implementation of the system in the next chapter.

CHAPTER FOUR

SYSTEM ANALYSIS AND DESIGN

4.0 Introduction

This is a phase that demonstrates how the end users and the system input/output process....do what?

Having clearly understood the problem, collected and analyzed data and hence identified the system requirements, the next important phase is system design. In this phase, all the key issues identified previously are carefully considered. This is very important because most of the errors originate from this area. More than 60% of the total time is spent at this stage. Tools used in this phase include:

Use case diagrams

Sequence diagram

Entity relation diagram and

A relational schema

4.1 System analysis

From the system requirements that were collected, they can be illustrated in the use case diagram below;

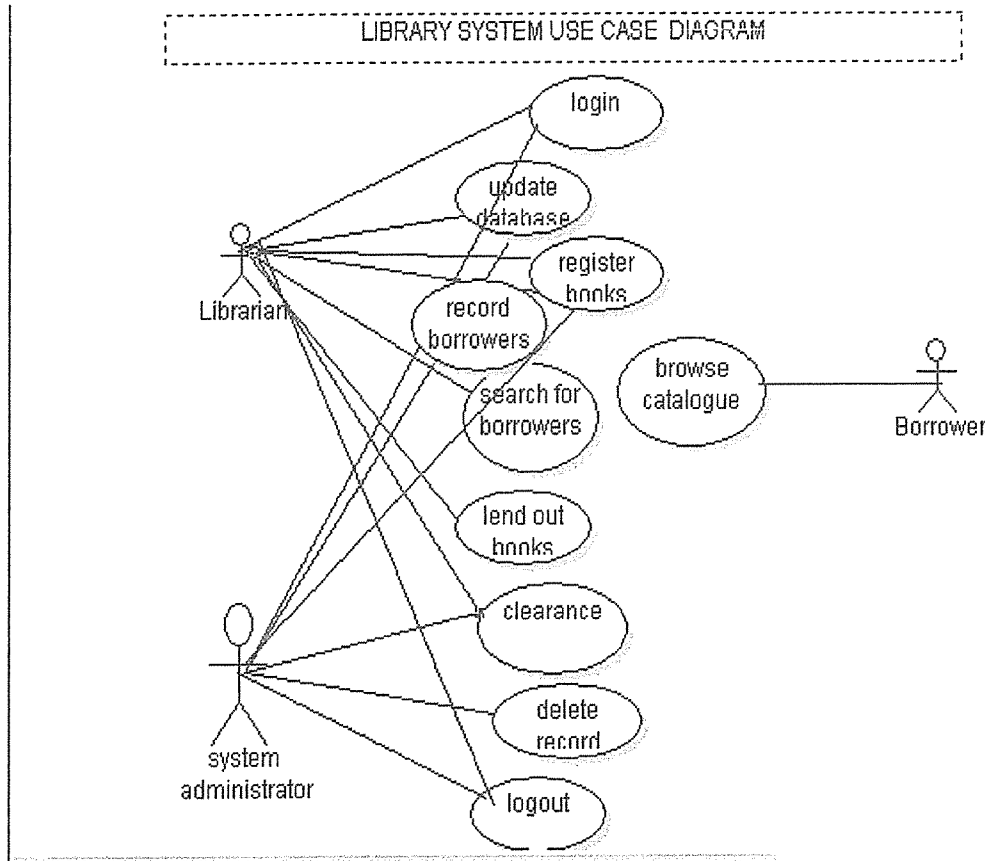


Figure 4.1 the systems use case diagram

4.2 System requirements description as per system user category.

The system should allow the librarian to do the following;

1. Login with username and password
2. Update the database
3. Register books
4. Record borrowers
5. Search for books
6. Clear borrowers when the return books
7. And finally to logout

The Administrator should be able to do the following;

1. Login with username and password
2. Update the database
3. Register books
4. Record borrowers
5. Search for books
6. Clear borrowers when the return books
7. delete records from the database
8. And finally to logout

The borrower should be able to;

1. Browse the catalogue and
2. search for a particular book to see if it is available

4.3 The Entity Relational for the Library Information System

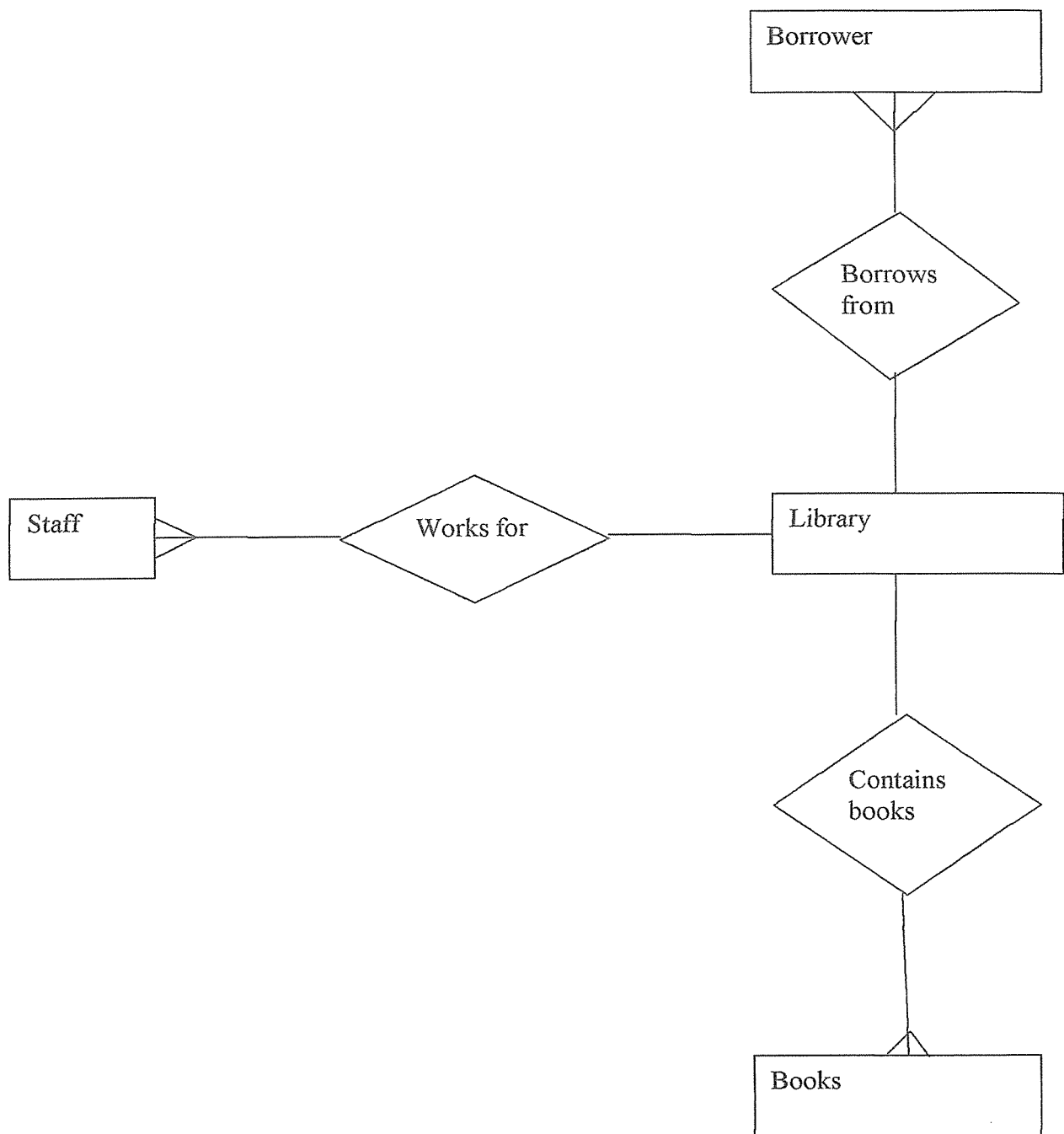


Figure 4.2 *entity relation diagrams*

Description of the above figure

One or more staff members can work for the library

A borrower can borrow one book at a time.

But many borrowers can borrow books from the library.

A library can contain one or more book.

4.4 The Systems Sequence Diagram

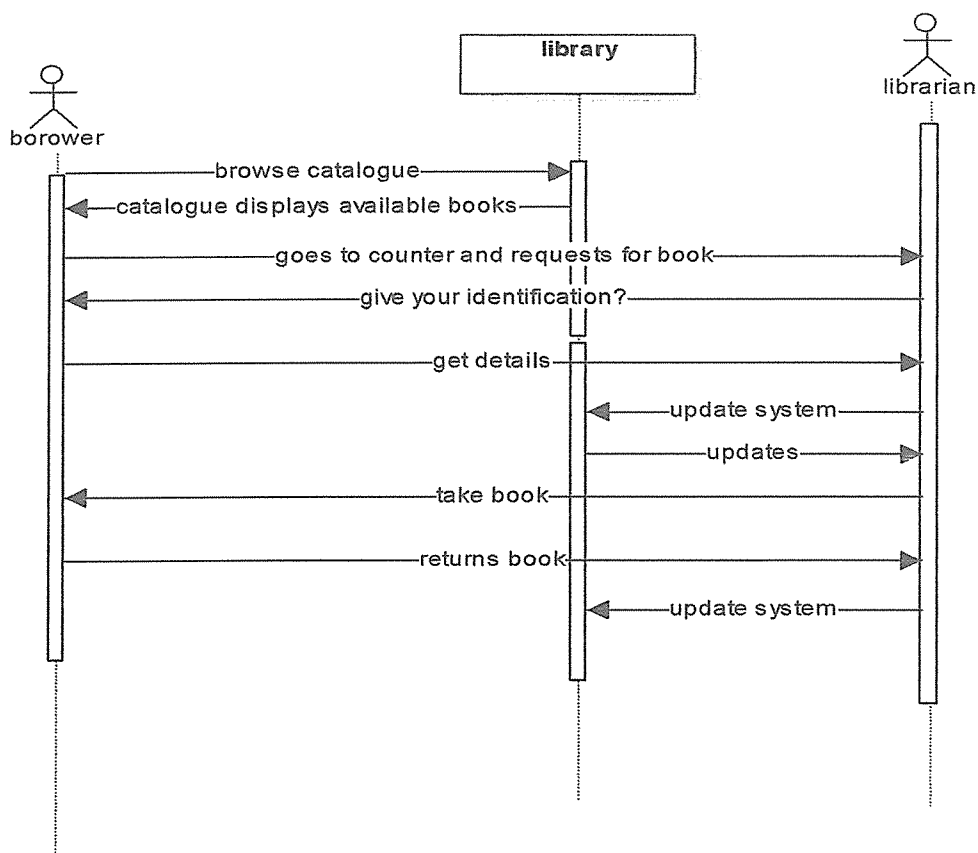


Figure 4.3 the system sequence diagram

4.5 Data flow diagram

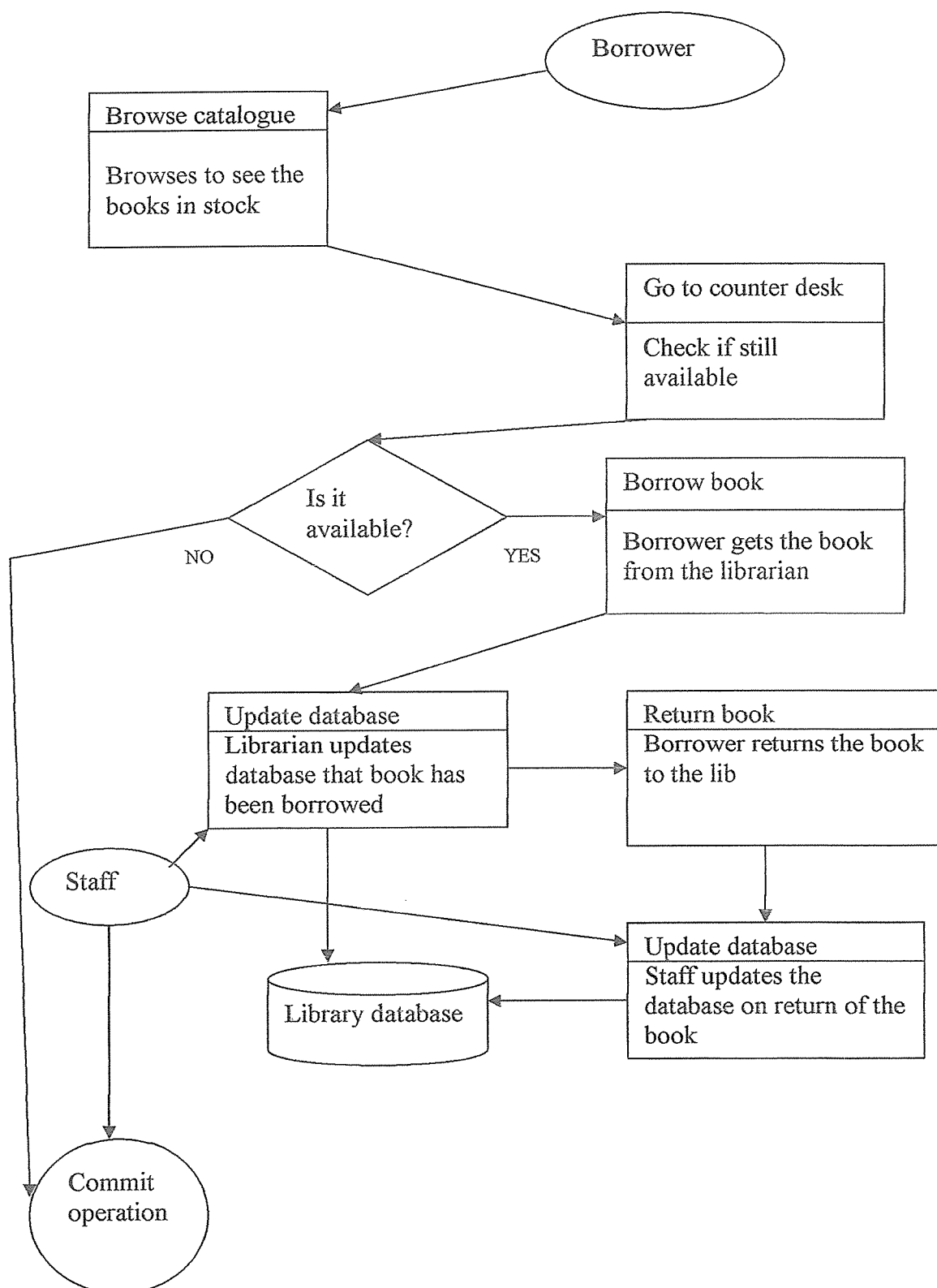


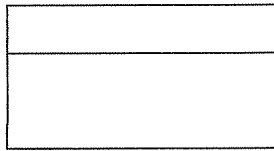
Figure4.4 the data flow diagram for the system

Key

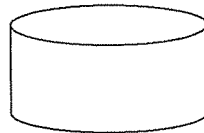
DATAFLOW



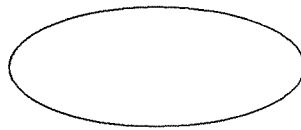
PROCESS



DATABASE



ENTITY



An entity can be defined as the source or destination of data, which is considered external to the system being studied

Process: This is an activity that transforms data in logical data flow diagram, the activities of the manual, mechanized, automated or computerized are not differentiated. a data process will use or alter the data in some-way ,the processing identification number uniquely identifies each process and indicates its order in sequence of process represented

A database ;is a collection of logically related data of a give organization to allow data sharing, reduce data redundancy, improved data integrity among others.

4.6 Database design

Data management of the proposed system will implement database as its core driving force. All files will be managed in a single database. This will eliminate inconsistency as well as redundancy control. Tables will form the basic database structure.

The tables in the database are;

1. Books
2. Borrowers and
3. User accounts (library staff)

Books tables' structure

FIELD NAME	DATA TYPE	DATA SIZE	Primary key	Null
title	varchar	30	yes	No
author	varchar	25		No
book no	varchar	6		No
department	varchar	28		No
dor	varchar	10		No
Book id	varchar	6		No

Table 4.1 books table structure

Borrower's table structure

FIELD NAME	DATA TYPE	DATA SIZE	Primary key	Null
Fname	varchar	20		no
Lname	varchar	20		no
Book title	varchar	30		no
book no	varchar	12		no
Date of return	date	10		no
class	varchar	8		no
Date of borrowing	date	10		no
Borrowers' id	varchar	6	yes	no
clearanceapplierd for	varchar	8		yes

*Table 4.2 borrowers table structure***User accounts table**

FIELD NAME	DATA TYPE	DATA SIZE	Primary key	Null
Member id	integer	11	yes	No
Fname	varchar	20		Null
Lname	varchar	20		null
username	Varchar	45	unique	no
User role	Varchar	15		No
Password	Varchar	45		No
Security question	Varchar	45		No

Table 4.3 user accounts (staff) table structure.

Relational schema

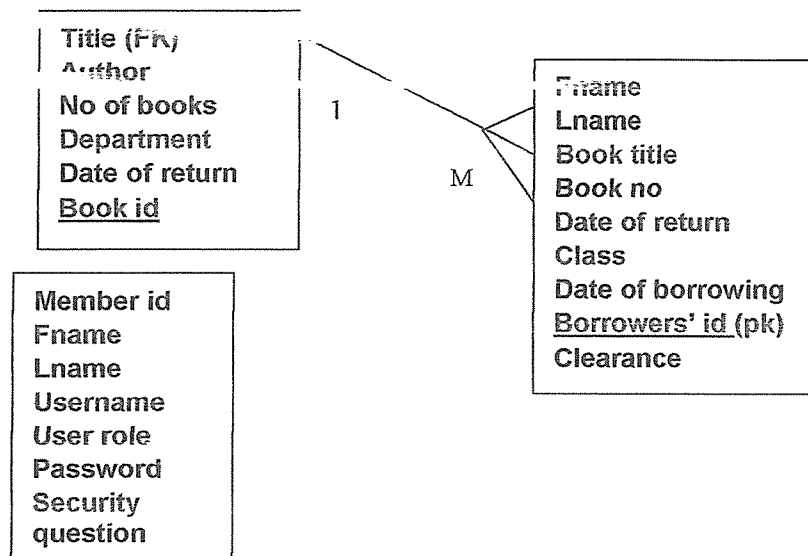


Fig 4.5 relational schema

4.8 Conclusion

System design and development were very interesting phases. Design included identifying entities, attributes and their relationships. This included liaising with the direct users of the system. This was intended to reduce potential problems in future as possible.

Once the design phase was complete, a further confirmation from direct and indirect users of the system was done until they were satisfied that all the intended purpose was to considered. This phase was complete by converting the design into a working application

CHAPTER FIVE

SYSTEM IMPLEMENTATION

5.1 Introduction

Having completed development of the new system, it is now ready for implementation. It show how the system was tested, a description of how system change over will be done.

Once the design was complete, the development entailed two broad phase-Back-end and User Interface. The back-end comprised database application whereas the user interface comprised the application /interfaces that the users would use to interact with the database.

For the database, MySQL DBMS was used while dream weaver was used to develop the user interfaces.

5.2 System Implementation

System implementation entails the construction of the new system and delivery of that system into production (day to day production). Prior to the system implementation, its necessary to carryout training since it enables users to gain maximum benefits from the new system. Managers should learn what the system is capable of doing to the benefit of the organization. Operators need training in data entry and how to retrieve data stored in files.

5.3 Database Codes

System implementation

Database codes

php Myadmin SQL Dump

-- version 2.7.0-pl1

-- <http://www.phpmyadmin.net>

--

-- Host: local host

-- Generation Time: Nov 20, 2005 at 08:22 AM

-- Server version: 5.0.17

-- PHP Version: 5.1.1

--

-- Database: `library`

--

--

-- Table structure for table `books`

--

```
CREATE TABLE `books` (  
  `title` varchar(30) NOT NULL,  
  `author` varchar(25) NOT NULL,  
  `bookno` varchar(6) NOT NULL,  
  `department` varchar(28) NOT NULL,  
  `dor` varchar(10) NOT NULL,  
  `bookid` varchar(6) NOT NULL,  
  PRIMARY KEY (`title`)  
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

--

-- Dumping data for table `books`

--

```
INSERT INTO `books` VALUES ('hjhj', 'bbn', 'bnbn', 'bnbn', '2009-06-10', '');  
INSERT INTO `books` VALUES ('Basic of Networking', 'By JS Osman', 'ISB333',  
'Networking', '2009-06-25', 'B-N01');  
INSERT INTO `books` VALUES ('biology', 'ritar', 'b123', 'science', '7/8/2009', 'b123');
```



```
INSERT INTO `books` VALUES ('chemistry', 'Lunaluna', 'Ocen', 'chemistry', '2009-07-03', 'isbn00');
```

```
-- -----
```

```
--
```

```
-- Table structure for table `borrowers`
```

```
--
```

```
CREATE TABLE `borrowers` (  
  `fname` varchar(20) NOT NULL,  
  `lname` varchar(20) NOT NULL,  
  `booktitle` varchar(30) NOT NULL,  
  `bookno` varchar(12) NOT NULL,  
  `dor` varchar(10) NOT NULL,  
  `class` varchar(8) NOT NULL,  
  `dob` varchar(10) NOT NULL,  
  `borrowers_id` varchar(6) NOT NULL,  
  `Clearance` varchar(8) NOT NULL,  
  PRIMARY KEY (`borrowers_id`)  
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

```
--
```

```
-- Dumping data for table `borrowers`
```

```
--
```

```
INSERT INTO `borrowers` VALUES ('Adum', 'Joseph', 'Basic of Networking', 'ISB128',  
'2009-07-24', 'staff', '200', 'L-002', 'Cleared');  
INSERT INTO `borrowers` VALUES ('Asaabahebwa', 'Jackline', 'Graphical interface',  
'ISB590', '2009-07-23', 'staff', '200', 'L-001', 'returned');
```

```

INSERT INTO `borrowers` VALUES ('Alikira', 'Richard', 'Java Programming', 'TSB-
JP08', '2005-12-15', 'students', '    200', 'L-003', '');
INSERT INTO `borrowers` VALUES ('alikir', 'lunah', 'chemistry', 'isbn001', '2009-07-
02', 'students', '    200', 'b001', 'yes');

```

```

-----

```

```

--
-- Table structure for table `useraccounts`
--

```

```

CREATE TABLE `useraccounts` (
  `member_id` int(11) unsigned NOT NULL auto_increment,
  `first_name` varchar(20) default NULL,
  `last_name` varchar(20) default NULL,
  `username` varchar(45) NOT NULL default "",
  `user_role` varchar(15) NOT NULL default "",
  `password` varchar(45) NOT NULL default "",
  `security_qn` varchar(45) NOT NULL default "",
  `security_ans` varchar(45) NOT NULL default "",
  `DateTime` timestamp NOT NULL default CURRENT_TIMESTAMP on update
CURRENT_TIMESTAMP,
  PRIMARY KEY (`member_id`),
  UNIQUE KEY `username` (`username`)
) ENGINE=MyISAM DEFAULT CHARSET=latin1 AUTO_INCREMENT=4 ;

```

```

--
-- Dumping data for table `useraccounts`
--

```

```
INSERT INTO `useraccounts` VALUES (2, 'W_LIS Member', 'info system', 'staff', 'Staff',  
'lib_staff', 'will it work?', 'why not!', '2009-06-22 22:52:59');
```

5.6 System Interfaces

This system has three types of users namely; the borrowers, librarian (system user) and the administrator (super user) the system starts by opening a general index form below.

User guide will help the user in the implementation process. Following is the chronological sequence which the system follows:-

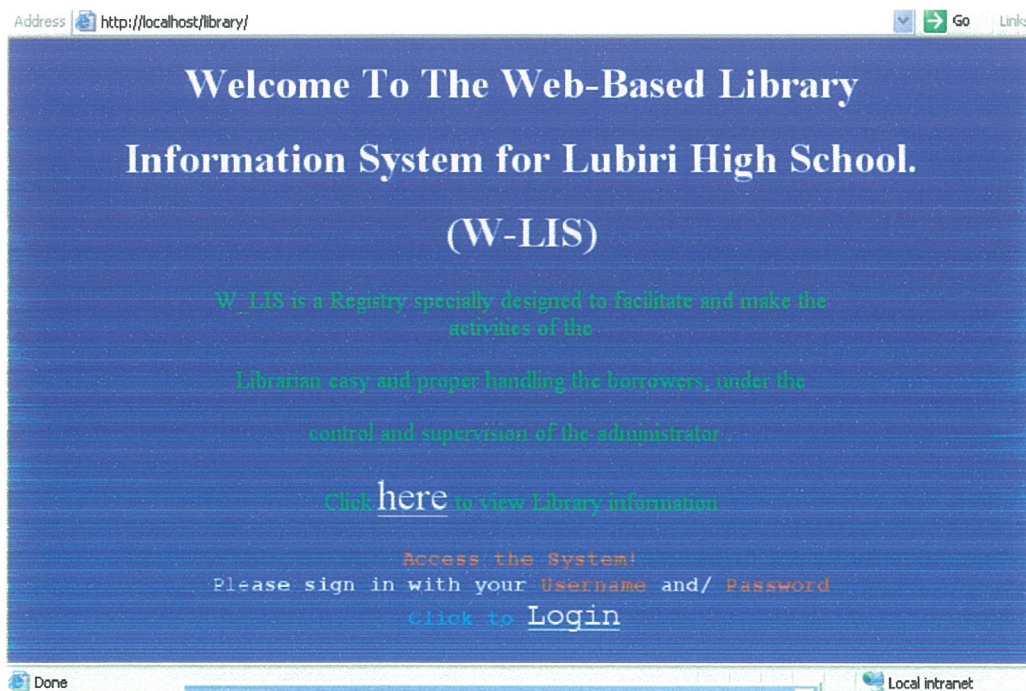


Figure 5.1 the system welcome page

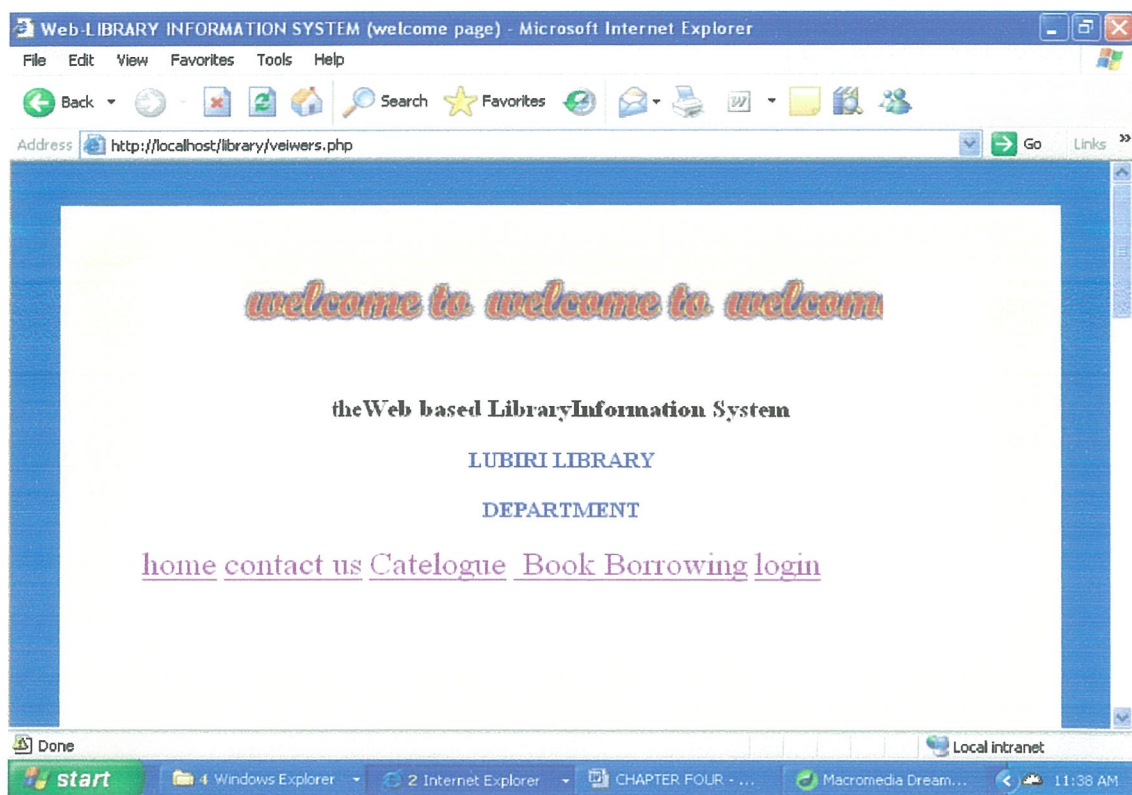


Figure 5.2 the menu page

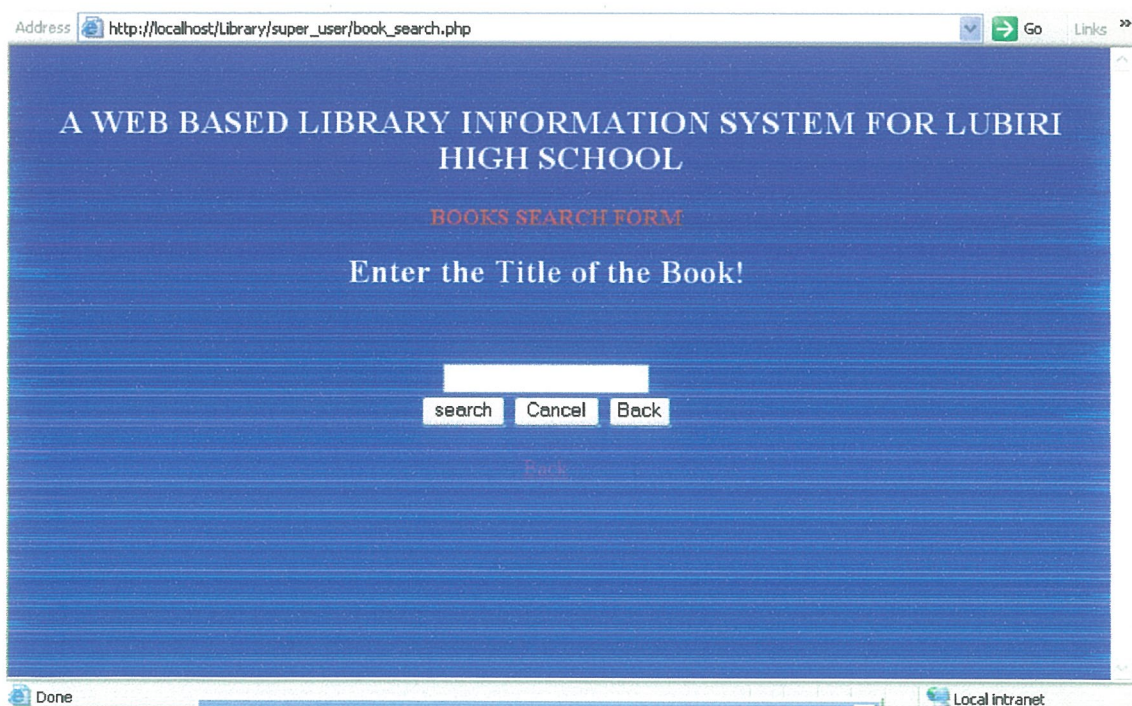


Figure 5.3 the search page

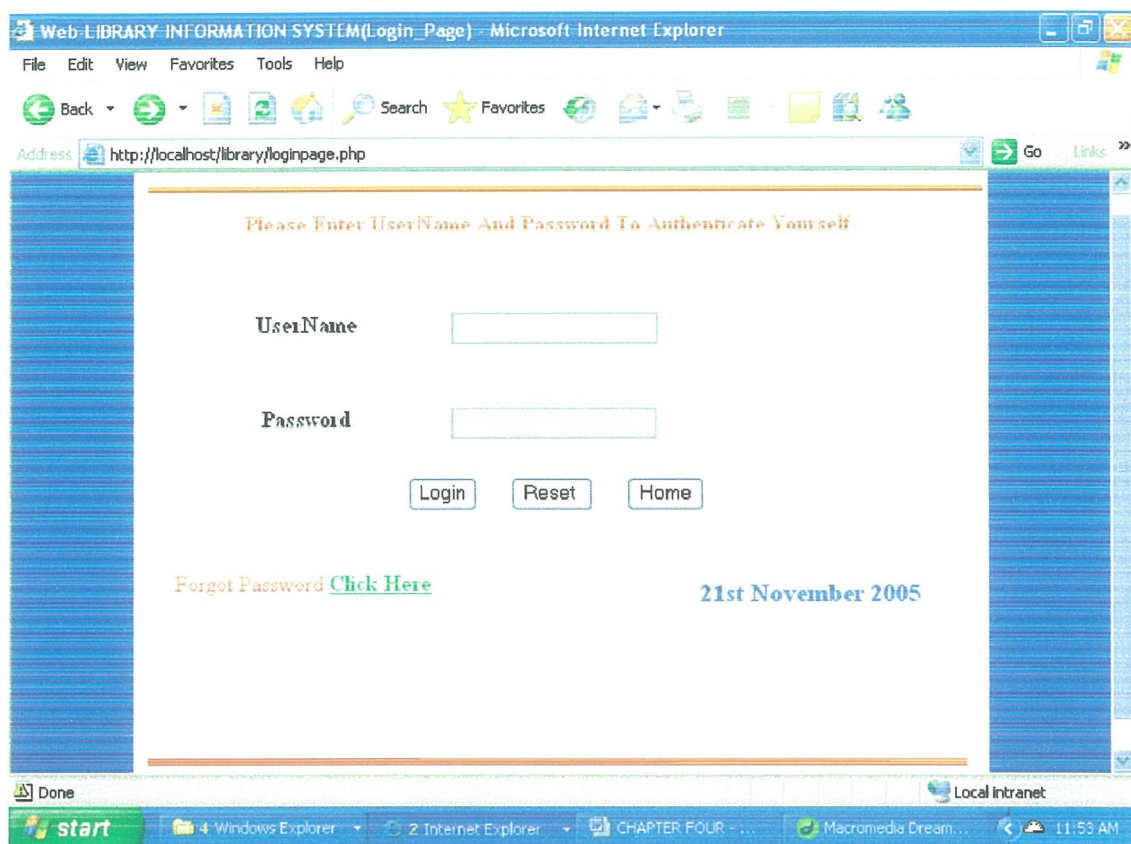


Figure 5.4 the system search page

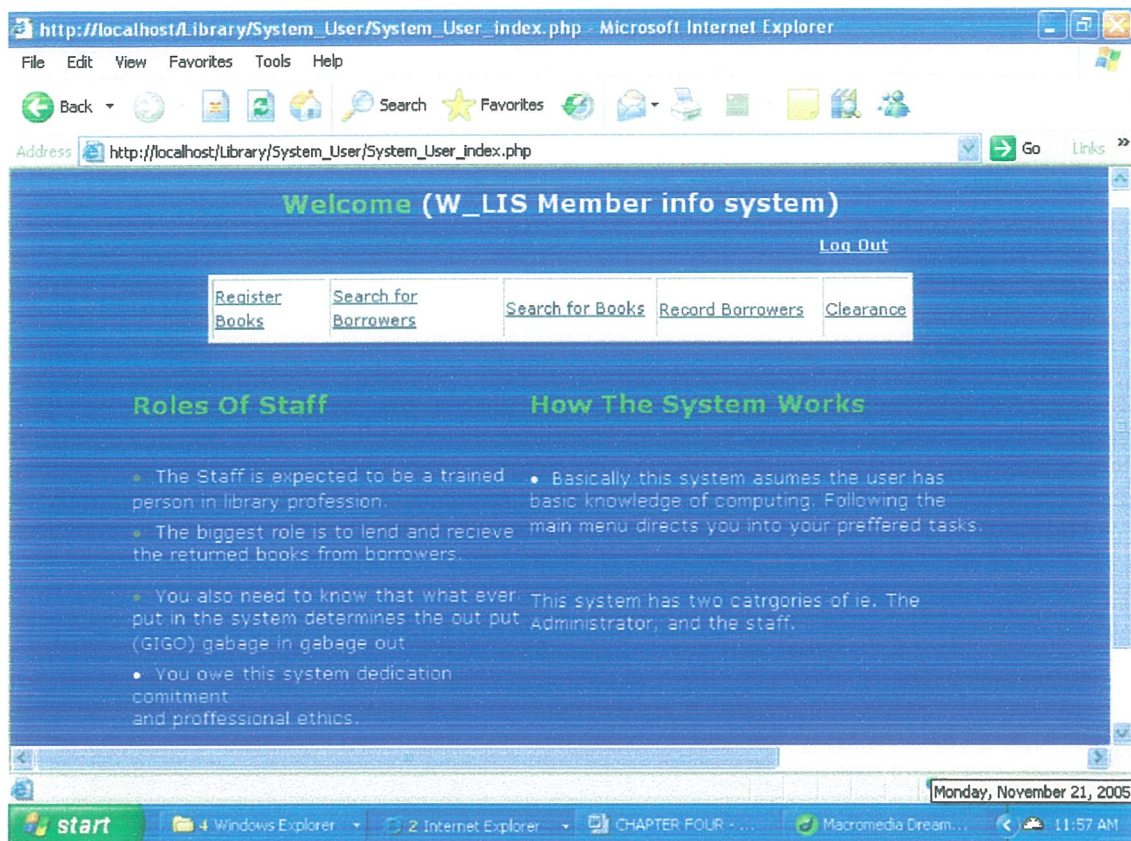


Figure 5.5 the librarian's page

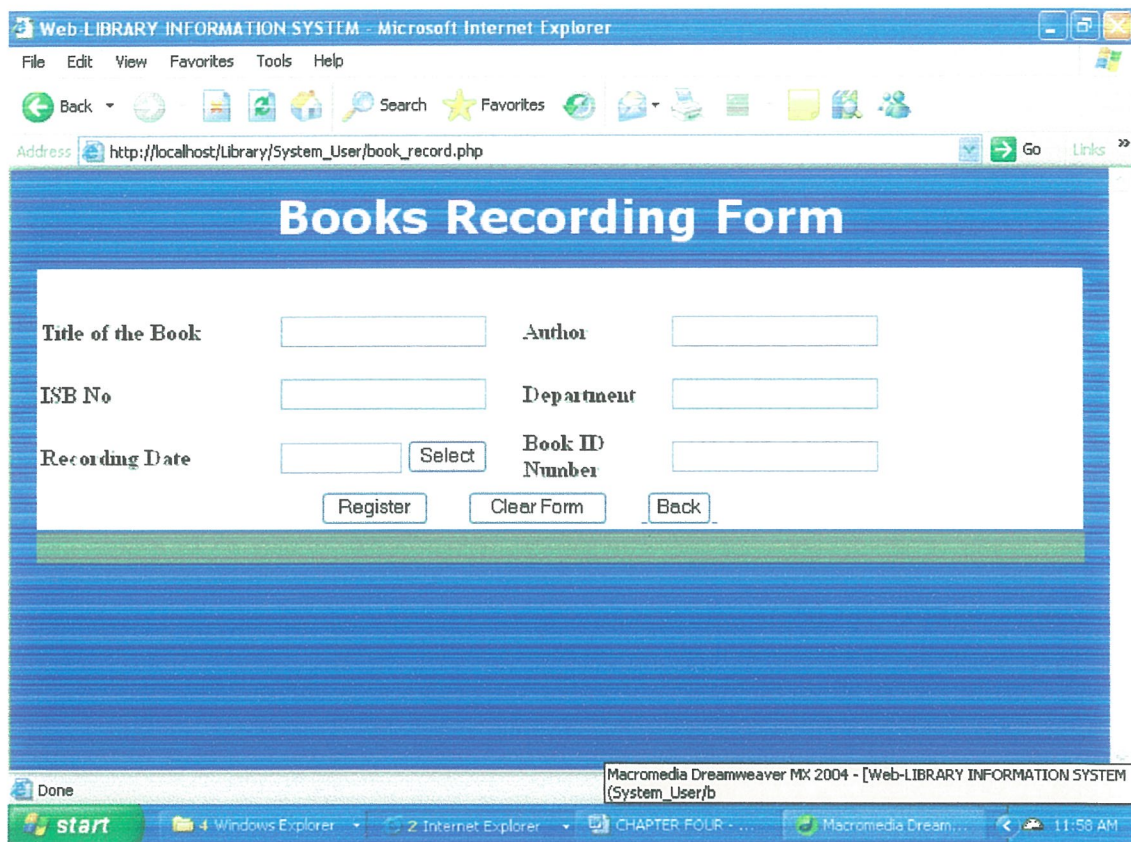


Figure 5.6 book recording page

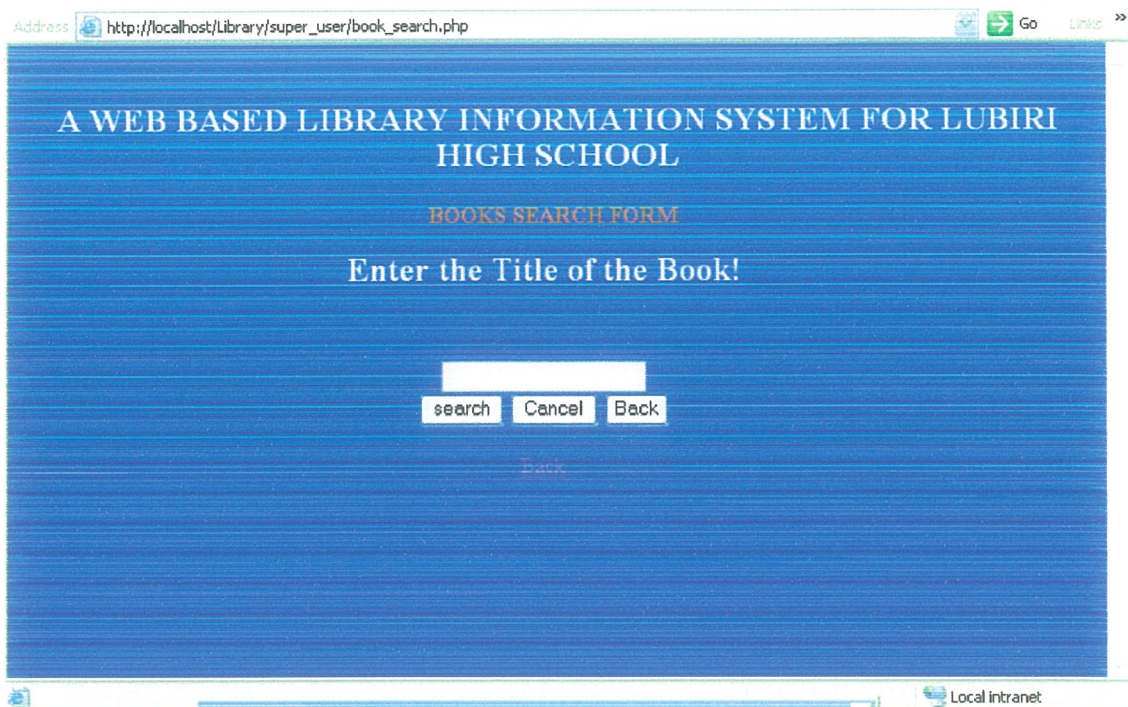


Figure 5.7 the librarian search page

Web-LIBRARY INFORMATION SYSTEM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Print Mail

Address http://localhost/Library/System_User/Borrowing.php Go Links

Borrowers Recording Form

First Name	<input type="text"/>	Last Name	<input type="text"/>
Book Title	<input type="text"/>	Book ISB No	<input type="text"/>
Date of Return	<input type="text"/> <input type="button" value="Select"/>	Class	<input type="text"/>
Date of Borrowing	<input type="text" value="2005-11-21"/>	Borrowers ID	<input type="text"/>

Done Local intranet

start 4 Windows Explorer 2 Internet Explorer CHAPTER FOUR Macromedia Dreamweaver 12:01 PM

Figure 5.8 the borrowers page

Address http://localhost/Library/System_User/clearance.php Go Links

WEB BASED LIBRARY INFORMATION SYSTEM

(W-LIS)

CLEARANCE FORM

Enter Borrowers ID

Cleared

Done Local intranet

Figure 5.9 the clearance page

The super user (system administrator, he has all the privileges of the staff (system) in addition to having the ability to make reports.

See the home page and reports page for the administrator below. The rest that is to say; search for books, search for borrowers, record books, clear borrowers are similar to those given to system users (librarians) above.

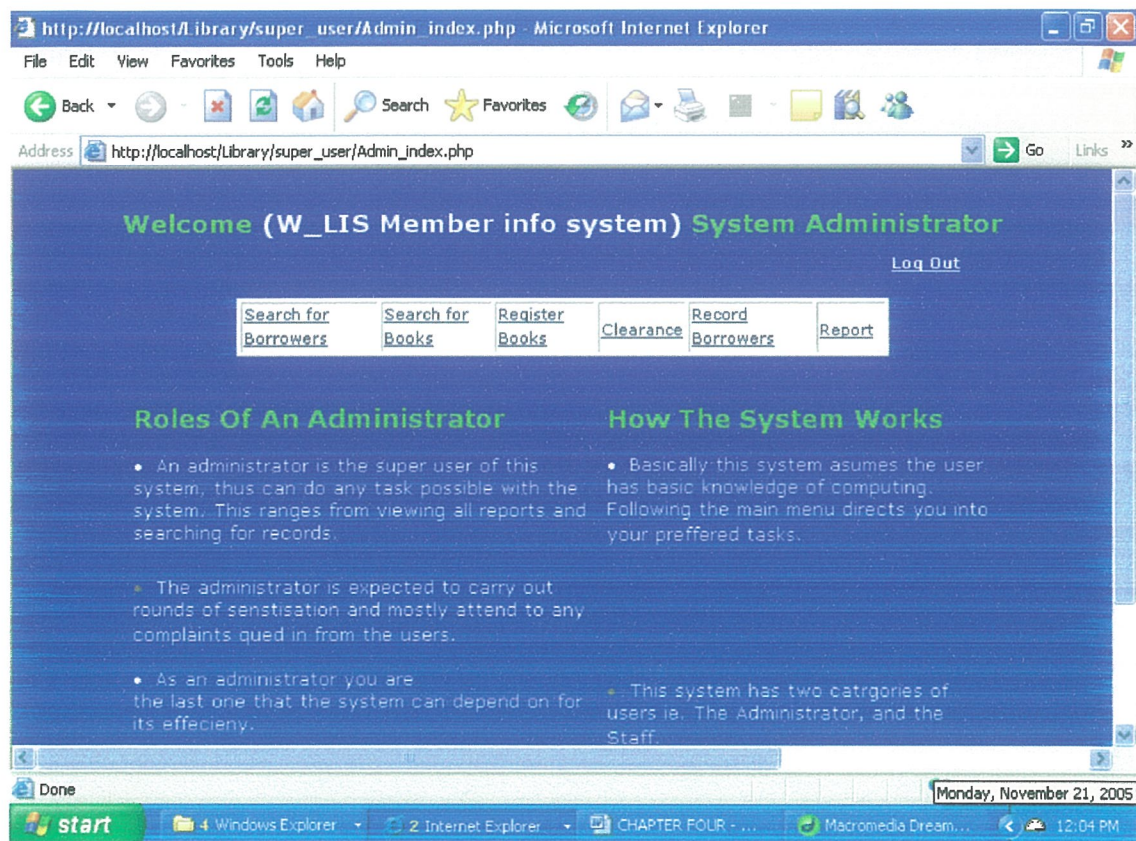


Figure 5.10 administrator's work page

BORROWERS RECORD

First Name	Last Name	Title of the Book	Book Number	Date of Return	Class	Date of Borrowing	Borrowers ID	Clearance
Adum	Joseph	Basic of Networking	ISB128	2009-07-24	200		L-002	Cleared
Asaabahebwa	Jackline	Graphical interface	ISB590	2009-07-23	200		L-001	returned
Alikira	Richard	Java Programming	ISB-JP08	2005-12-15	200		L-003	
alikira	lunah	chemistry	isbn001	2009-07-02	200		b001	yes
titty	ytytyty	titty	ytt	2005-11-17	200		tyh	
ghh	gh	hhg	gh	2005-11-02	200		ghgh	
trtr	trtr	trtrtr	trtrtr	2005-11-11	200		trtrtr	

Figure 5.11 report page

5.4 Program Testing

Unit testing - this is the process of testing each system components separately to check whether it meets its requirements. The application interfaces were tested to check whether navigation was possible and the database validation rules were tested to affirm their effectiveness. All this was done using sample data.

System testing- this is testing the functioning of information system as a whole to determine if the discrete modules will function together as planned.

This testing should pass through the following phases:-

Single run – testing the system over a single pass of data.

Cyclic tests – testing the system over several cycles to ensure correctly deals with end of period routines.

Clerical tests – Tests all aspects of the interface between the end user and the system.

Modular testing: - this is testing of programs individually and can be done by either desk checking or dry running.

User acceptance testing – this is testing of the system by the user department after the system has passed the systems test.

This test seeks to find out the following:

What is the exact user demand of the system?

Whether any major changes of the system will be necessary.

How the system responds to large volumes of data and at the same time use the test as an opportunity to train staff in the new system.

Optimization –element of testing where we modify e.g. areas that are most critical or which will deliver most of the benefits. Optimization of the system can include:

Improve the hardware in order to improve performance.

Consider the use of third generation languages.

Consider use of low level languages.

Improve inputs/outputs methods.

5.5 Training

Involves recruitment of new personnel and retraining of the current staff. The latter involves user involvement, advertising salary advice and interviewing.

Training must be clear, effective so as to achieve what it requires. Training ways includes use of tutorials, seminars, case studies, practice, complete based training (C.B.T) etc.

CHAPTER SIX

RECOMMENDATIONS AND CONCLUSIONS

6.1 Introduction

This includes the general conclusion of the project and the problems encountered.

The project took one and half a months to complete and it was carried out using the following software;

1. SQL
2. - Php
3. Dream weaver
4. Mysql connector and windows XP.

6.2 Recommendation

The researcher recommends that the Lubiri high school library department take full advantage of this information system to computerize all other Libraries around the country as well as use it as an example to computerize other departments. When this is done then they could advance to networking their various facilities which will make communication significantly faster and operations more efficient.

6.3 Conclusion

The researcher concludes therefore that the manual system in place is not adequate and the use of this computerized Library system is more efficient and satisfactory. It improves almost on all the transactions that currently take place as well as providing an easier access to all available materials.

Books and borrower's records can easily be managed, since the information system provides quick alternative way of data and records access. It also provides easy means of manipulating records as compared to traditional paper work approach.

Though the library system will not provide 100% satisfaction, however much it may be customized; it guarantees significant user satisfaction and boost up efficiency.

Storage Space; a lot of space is saved as a single computer can not even cover half a meter.

Convenience – this information system will organize library resource collections in ways that provide users with convenient and logical access to materials such as locating a bibliographic item.

Security – Through user password securities implemented in the library information system, the problem of data security and vulnerability will be prevailed.

Reduced Paperwork; A successful implementation of the system will lower paperwork that is currently a problem when the current system is used

Increased efficiency; The developed Database Management System will improve on manipulation and retrieval of records.

Centralizing administration and Inventory Management; The library systems aims at controlling the library resources from a single point, i.e., through the Database interface.

Quick Indexing; The library system will provide quick retrieval of records thus improve user satisfaction.

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<http://www.oas.rockefeller.edu>

APPENDIX A

INTERVIEW SCHEDULE

Preamble

To the stake holders Lubiri high school. It is perquisite that every student chooses a field of his interest and work on a real life project to demonstrate skills he/she has attained in a specific field in the three years. Am Rita a student of computer science with education at Kampala international university humbly request you to complete or attend to this interview session to enable me carry out this research in a professional way. All information will be kept with the highest degree of confidentiality.

A web based system is a system that supports sharing of data in the database via a network.

What is your name?

.....

How old are you? Tick where applicable.

In the range 12-18..., 19-25....., 26-30....., 30-above.....

For how long have you been in this school?

.....

Do you like the books given out to readers in the library? Tick where applicable.

Yes....., No.....

Support your answer.....

.....

.....

What problems do you normally face when using the library?

.....

.....

What changes do you think should be made to make the current system more efficient

NB. By system, I mean the way of doing things in the library.

.....
.....
If the system defined above requires an initial cost of 1.5 million Ugandan shillings to make library usage more efficient, do you think the school support implementing such a project? Tick where applicable.

Yes....., No.....

Support your answer above.

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

Thanks

Sincerely yours

Rita

APPENDIX B

SYSTEM SAMPLE CODE

```
<?php
$fname=$POST["fname"];
$lname=$POST["lname"];
$book=$POST["booktitle"];
$bookno=$POST["bookno"];
$dor=$POST["dor"];
$class=$POST["class"];
$dob=$POST["dob"];
$borrowerid=r$POST["borrowersid"];
$servername='localhost';
$user="root";
```

```

$database='Library'; -
$conn=mysql_connect($servername,$user,$pass);
mysql_select_db($database,$conn) or die('Could not select the database');
$query="INSERT INTO borrowers
(fname,lname,booktitle,bookno,dor,class,dob,borrowersid)
VALUES(
'$thanie','$lname','$book','$bookno','$dor','$class','$dob','$borrowerid')";
mysql_query($query) or die(mysql_error);
header( location: success.php");
<?php
if (!isset($_REQUEST['search']))
{
/You must enter your search string
exit;
}
$search = $_REQUEST['search'];
$conn=mysql_connect("localhost", "root"); //opens connection
mysql_select_db($database,$conn); //select the database
$db_found = mysql_select_db($database, $conn);
$query = "select * from books where title like '%$search%'";
$result=mysql_query($query, $conn);
if(trim($search) == "")
{
echo '<h4 align="center">';
echo $msg'<h3 align="center"><font color="red">Please Enter Book ID
!</font></h3><BR>';
}
else
{
if(mysql_num_rows($result) == 1){

```

```

echo '<p align=cente?><b>Results Found for Book with ID<font color=red> $search
<Jfont>is shown below</b>:</p>'; -
echo '<p>';
}
else
{
echo "<p align=center><strong>No results Found For a Books with ID</strong> <font
color=red><b>Ssearch</font> or it has been deleted !</b><Jp>";
echo '<p align="center"><a href=j avascript:history.go(- 1 )">Back</a></p>';
exit;
}
echo '<p align=center><font color=blue><strong>BOOKS
RECORD<strong></p></font>'; echo '<table border1 cellspacing=3 cellpadding=3
align=center style=bordercollapse :collapse>'
echo '<p>'; echo '<tr bgcolor#CCCCCC><th>Title<!th><th>Author</th>';
echo '<th>ISB Number<Jth><th>Department</th>';
echo '<th>Date of Recording</th><th>Book ID</th>'; echo '<tr>';
echo '</p>';
While (Stour = mysql _fetch _ assoc($result)){
echo '<tr><td>';
echo $tour['title'];
echo '</td><td>';
echo $tour['author'];
echo '<Jtd><td bgcolor#CCCCCC>';
echo $tour['bookno'];
echo '</td><td>';
echo $tour['department'];
echo '</td><td>';
echo $tour['dor'];

echo '<ftd><td>';

```

```

cho $tour['bookid'];
echo '</td><tr>'
}
}
echo '</table>';
echo <p align="center"><a href="j avascript:history.go(- 1 )" ">Back</a></p>;
?>
<?php
$dbh=mysqlcoimectQlocalhost",
'root);
Mysql _select _db ("Library",$dbh);
$titlers_POST["borrowers _id"];
$clear$POST["Clearance"]
if(empty($title) &&empty($clear)){
print"<center align><font
color= red>Nothing Entered!!!</font><br><font
color = red><strong>Please Enter a value in order to update the
record.</strong></font><br><a href=j avascript:history. go(- 1 )" ">Back</a>";
exit();
}
$query l = "SELECT Clearance FROM borrowers
WHERE Clearance=" AND borrowers _id='$title';
if(($clearance= "") && ($title = "$title")){
print"";
}
else{
print"<p align=center><font color=red><strong> Wrong update!! !</font><br>
<a href ='updatepayment.php'>Please Check and Correct it</strong></a></p>";
Exit();
}

```

```

$query=mysql_query("update borrowers SET
Clearance='$clear' where Clearance =' AND)borrowers _id =' $title'") or
die(mysql_error());
if($query I) {
print"<font color=red>Cleared Successfully!! >/font>
<p align=center'><a href ='javascript:history.go(- 1 )'>Back</a>";
";
}
elseif($query == 0) {
print "<center align><font
color=red>You are trying to update a updated record!!!</strong></font><br><a
href =' javascript:history.go(- 1 )'>Correct it</a>";
}
?
<?php
$fnam=$_POST["title"];
$lname=$_POST["author"];
$book=$_POST["bookno"];
$bookno=$_POST["department"];
$dor=$_POST["dor"];
$bookid=$_POST["bookid"];
$servername="localhost";
$username="root";
$password="";
$database="Library";
$conn=mysql_connect($servername,$username,$password);
mysql_select_db($database,$conn) or die("Could not select the database");
$query="INSERT INTO books (title,author,bookno,department,dor,bookid) VALUES(
'$fnam','$lname','$book','$bookno','$dor','$bookid')";
mysql_query($query) or die(mysql_error());
header('location: success 1 .php')

```

```

?
<?php
if (!isset($_REQUEST['search']))
{
//You must enter your search string
exit;
}
$search = $_REQUEST['search']
$connaMysql_coanectQ'localhost", "root"); //opens connection
Mysql_select_db('Library", $conn); //select the database
$db_found = mysql_select_db($database, $conn);
$query = "select * from borrowers where borrowers_id like '%$search%";
$result=mysql_query($query, $conn);
if(trim($search) == "")
{
echo '<h4 align="center">';
echo $msg='<h3 align="center"><font color="red">Please Enter Borrowers ID
!</font></h3><BR>';
}
else
{
if(mysql_num_rows($result) == 1){
echo "<p align='center'><b>Results Found for Borrower with ID<font color='red'>
$search </font>is shown below</b>:</p>";
echo '<p>';
}
else
{
echo "<p align='center'><strong>No results Found For a Borrower with ID</strong>
<font color='red'><b>$search</font> or it has been deleted!!!</b></p>";
echo '<p align="center"><a href =javascript:history.go(- 1)'>Back</a></p>';
}
}
}

```

```

exit;
}
echo      '<p align=center<font      colorblue><strong>BORROWERS
RECORD<strong></p></font>';
echo '<table   border=1 cellspacing=3 cellpadding=3 align=center style=border-
collapse:collapse>';      //echo mysql_num_rows($results); //echo 'Soldier Found in
the database';

    echo '<p>';
        echo '<tr bgcolor#CCCCCC><th>First Name</th><th>Last Name</th>';
        echo '<th>Book Title</th><th>JSB Number</th>';
        echo '<th>Date of Return</th><th>Class</th>';
        echo '<th>Borrowing Date</th><th>Clearance</th>';
        echo '</tr>';
    echo '</p>';
While (Stour =mysql_fetch_assoc($result)){
echo '<tr><td>';
echo $tour['fname'];
echo '</td><td>';
echo $tour['lname'];
echo '</td><td bgcolor#CCCCCC>';
echo $tour['booktitle'];
echo '>/td>td>'; echo $tour['bookno'];
echo '</td><td>';
echo $tour['dor'];
echo '</td><td>';
echo $tour['class'];
echo '</td><td>';

echo $tour['dob'];

```



```

echo '4td><td>';
echo $tour['clearance'];
echo '</td></tr>';
}
}
echo'</table>';
echo '<p align="center"><a href="javascript:history.go(- 1) '>>Back</a></p>';
?
<?php
If (!isset($_REQUEST['search']))
{
//You must never your search string
exit;
}
$search = $_REQUEST['search'];
$conn=mysql_connect("localhost" ,"root"); //opens connection
mysql_select_db("library" ,$conn); //select the database
$db_found mysql_select_db($database, $conn);
$query = "select * from borrowers where search like '%$search%'";
$result=mysql_query($query, $conn);
if(trim($search)= "")
{
echo '<h4 align="center">';
echo $msg='<h3 align="center"><font color="red">Please enter Tourist ID
!</font></h3><BR>';
}
else
{
if(mysql_num_rows($result)= 1) {

```

```

echo "<p align='center'><b>Results Found for Tourist with ID<font color='red'>$search
</font> is shown below</b>:</p>";
echo '<p>';
}
else
{
    echo "<p align='center'><strong>No results Found For a Tourist with
TouristID</strong> <font color='red'><b>$search</font> or it has been
deleted!!!</b></p>";
echo '<p align="center"><a href=javascript:history.go(- 1)>Back</a></p>';
exit;
}
echo "<p align='center'><font        colour=blue><strong>TOURIST
REGISTRATION RECORD</strong></p>'</font>";
echo '<table border=  cellpadding=3  align=center style=border
collapse :collapse>';
echo '<p>';
    echo '<tr bgcolor=#CCCCCC><th>First Name</th><th>Last Name</th>';
    echo '<th>Book Title</th><th>ISB Number</th>';
    echo '<th>Returning Date</th><th>Class</th>';
    echo '<th>Date of Borrowing</th><th>Clearance</th>';
    echo '</tr>';
    echo '</p>';
While ($tourist = mysql_fetch_assoc($result)) {
echo '<tr><td>';
echo $tourist['fname'];
echo '</td><td>';
echo $tourist['lname'];
echo '</td><td bgcolor=#CCCCCC>';
echo $tourist['booktitle'];
echo '</td><td>';

```

```

echo $tourist['bookno'];
echo '</td><td>';
echo $tourist['dor'];
echo '</td><td>';
echo $tourist['class'];
echo '<!td><td>';
echo $tourist['dob'];
echo '</td><td>';
echo $tourist['Clearance'];
echo '</td></tr>';
}
}
echo '</table>';
echo '<p align='center"><a href="javascript:history.go(-1)">Back</a></p>';
?
<?php
Session_start()
; require_once( ./login/auth.php');
?>
<?php
session_start();
require_once( ./login/auth.php) ?>
?
<html><head>
<script language="JavaScript1.2" type="text/javascript"
src=" ./JavaScript/mm_css_menu.js "></script>
<style type="text/css" media="screen">
@import url("../css/Registration.css");
@import url( ./css/system_operations.css");
@import url("../css/l{Routineimrnuniza.css");
import url("../css/system_reports.css");

```

```

import url(../css/General search.css);
import url(../css/General help.css.css");
import url(../css/immunizationreport.css');

</style>
<link href='../css/loginmodule.css'" rel="stylesheet" type="text/css" />
<head>
<body bgcolor="blue">
<div align="center">
</div>
<div align="center">
<p><strong><font size="+1"Welcome <font color="#FFFFFF">(<?php echo
$_SESSION ['SESS FIRST_ NAME'];
?>

```