

**WEBSITE DESIGN AND IMPLEMENTATION FOR KAMPALA
INTERNATIONAL UNIVERSITY MUSLIM STUDENTS'
ASSOCIATION USING MACROMEDIA
DREAMWEAVER, PHP & MYSQL**

A CASE STUDY: KAMPALA INTERNATIONAL UNIVERSITY

BY:

**AKLAN M. MAJALIWA
BCS/9946/52/DF**

**MURAD SWALEH
BCE/7209/52/DF**

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DECLARATION

We **Aklan M. Majaliwa** and **Murad Swaleh** declare that the contents of this project submitted to the School of Computer Studies, Kampala International University for the reward of bachelor's degree of Computer Science is our own original work and have never been presented to any other institution of learning for any academic award.

Signed 

Aklan M. Majaliwa

Date 

Signed 

Murad Swaleh


Date 

APPROVAL

I certify that this project report is the original work of **Akian M. Majaliwa and Murad Swaleh** for the partial fulfillment of bachelor's degree of Computer Science.

Supervisor:

Mr. Kimani Njoroge

Signature: 

Date: 13/08/09

School of Computer Studies
Kampala international University
P.O. Box 20000
Kampala.

DEDICATION

We dedicate this project to our lovely parents for their support and encouragement through out the entire period we have been in university.

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ACRONYMS

FTP – File Transfer Protocol

HTML – Hyper Text Markup Language

HTTP – Hypertext Transfer Protocol

KIUMSA – Kampala International University Muslim Students Association

PHP – Personal Home Pages

RDBMS – Relational Database Management System)

SDLC – System Development Life cycle

WWW – World Wide Web (commonly shortened to the Web)

ABSTRACT

Kampala International University Muslim Students Association (KIUMSA) was initiated in 2001 almost immediately once Kampala International University was established. The major aim was to form an umbrella organization that would provide a forum for expressing interests of the Muslims studying in Kampala International University and hence enhancing unity and upholding Islamic teaching among the students.

This research sought out to design a system for KIUMSA to computerize the manual based system currently in place. The system will be able to register members online and provide information to members about what is currently happening in the association. This system will also include Islamic articles and multimedia that members can download.

The research used System development Life Cycle to conduct the research. Data collection was done through interview and questionnaire, the data was analyzed to come up with the required information to develop the system. The research used PHP and Macromedia Dreamweaver 8 to design the interface and MySQL to design the database.

The research came up with a web site which has been implemented online for KIUMSA.

CHAPTER ONE

INTRODUCTION

1.0 General Introduction

Today, the Internet has revolutionised the conventional way of doing business. A while ago, business was done in boardrooms, conference rooms and huge mailbags. If you entered most offices, you would find very many box files and cabinets occupying about half the office.

But today, the situation has changed. The world has reduced to a global village, a lot of paper work reduced by the invention of computers and a huge amount of traveling for conferences reduced by the introduction of teleconferencing. Thanks to technology and the introduction of the internet age.

A distinct feature of the internet age is the invention of the World Wide Web. Barbara et al, 2001 defines the World Wide Web (WWW) as a set of protocols and software that allows the global computer network called the Internet to display multimedia documents. The WWW better known as the web provides a platform on which Web Sites are hosted. A Web Site is a collection of files of information located on a server connected to the World Wide Web (WWW). Web sites may include text, photographs, illustrations, video, music, or computer programs. They also often include links to other sites in the form of hypertext, highlighted or colored text that the user can click on with their mouse, instructing their computer to jump to the new site. This is according to Robert Cailliau (2007).

Businesses, organizations, academic and social institutions and almost all other walks of life have invested in the immense advantage the internet provides through developing websites that provide avenue where they can display what they do and their location as well as all other information the owner of the website may wish to display.

This research is based on developing a website for Kampala International Muslim Students Association (KIUMSA) to illustrate the power of internet in communication.

1.1 Background

Kampala International University Muslim Students Association (KIUMSA) was initiated in 2001 almost immediately once Kampala International University was established. The major aim was to form an umbrella organization that would provide a forum for expressing interests of the Muslims studying in Kampala International University and hence enhancing unity and upholding Islamic teaching among the students.

The Muslim community of Kampala International University hails from Kenya, Somalia, Tanzania, Ethiopia, Rwanda, Burundi, Eritrea, Democratic Republic of Congo, Nigeria, Sudan and Uganda. This amounts to about 1,500 Muslims though only about 860 are registered with KIUMSA. Some of the students live on-campus while others live off-campus. In all, 65 per cent of Muslim students are male and 35 per cent are female. These are facts gathered from registration forms given to Muslims in the campus.

1.2 Problem of the study:

KIUMSA encounter many problems in their daily activities which all require special mechanism to overcome. For example, currently;

- Muslims at the campus have different halls of residence where it becomes challenging to mobilize them to carry out Islamic activities as well as inform them about what takes place in the association.
- There is a huge Lack of Islamic knowledge to members who came from different societies
- The system currently being used is not able to allow members to register online hence made few members to register with the association manually which had low response towards returning of the registration form.

1.3 Objectives of the study:

1.3.1 General Objective

The main objective of the study was to build a database-driven website which will educate members on Islamic issues (activities) and link them with other Muslim Students Associations.

1.3.2 Specific Objectives

The following were specific objectives of the proposed system

- To inform members on the programs and activities conducted by the association at any particular time.
- To make Islamic religion clear to non Muslims and other faiths.
- To register members online.

1.4 Significance of the study

The following were the importance of building this Web Driven Database system

- It would help members to access resources available in the website such as articles and other related Islamic materials which were not in the old system.
- It would help to unite the members by providing a platform along which they can interact.
- It would make it easy for members to register online with the association at any time which was not there in the old system.

1.5 Scope of the study

The scope of the research was mainly within the boundaries of KIUMSA. That involved the student community, the leadership of the association, and the university administration.

1.6 Limitations of the study

The following were limitations that occurred in the research project:

- Lack of enough funds to build the proposed system (web-driven database).
- Poor response on questionnaires from the identified respondents.
- Unclear requirements from the user of the proposed system.

1.7 Conclusion

In this chapter, background, problems, objectives, scope and significance of the study were stated so as to have a good background of the study carried out. The next chapter concerns literature review of the design tools and other relevant information used in the design of the new system.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is based on the literature review concerning the designing of web sites, the tools that developers use to design web sites and how we are going to use different tools to build the web site which the user proposed for the association.

2.1 Internet

The word Internet is a combination of the prefix Inter, meaning “between or among each other”, and the suffix Net, short for “network”, defined as an interconnecting pattern or system. An internet work, or internet (small i), can refer to any “network of computers” (Boncheck et al (1997), “Yahoo Dictionary Online,” 1997). However the Internet (capital I) is the specific name of the communication network that is composed of hundreds of thousands of interconnected computers that freely exchange information with one another world wide (Grooves, 1997;Pitter Aamata, Callahan, Kerr & Tilton, 1995).

Contrary to the belief that the Internet is a 1990s phenomenon this electronically networked system was actually envisioned in the early 1960s. In 1964 Baran approached the U.S government with a formal proposal outlining the need for a decentralized communication network in event of a nuclear attack by 1970s, the Advanced Research Projects agency (Arpanet) had been created to advance computer interconnections

The network established by Arpanet soon caught the attention of other U.S agencies that saw the promise of an electronic network as a means of sharing information among research facilities and schools. In the mid 1980s, the National Science Foundation took on task of designing an expanding network that became the basis of the Internet as it is known today.

At the same time, Tim Berners-Lee and a group of scientists in the European Laboratory of Particle Physics (CERN) were developing a system for world wide interconnectivity that was later dubbed the World Wide Web (Barbara et al, 2001).

2.2 Web Server

According to the definition provided by shop script as far as web jargon script are concerned, they defined web browser as, a computer that include software package that provides a specific kind of service to client software running on other computers. More specifically, a server is a computer that manages and shares web based applications accessible anytime from any computer connected to the Internet. However from Wikipedia point of view, web server programs differ in detail, they all share some basic common features such as HTTP where as every web server program operates by accepting HTTP requests from the client, and providing an HTTP response to the client. Secondly Logging usually web servers have also the capability of logging some detailed information, about client requests and server responses,

2.3 Web Site

A Web site is a collection of information about a particular topic or subject. Designing a website is defined as the arrangement and creation of Web pages that in turn make up a website. A Web page consists of information for which the Web site is developed. A website might be compared to a book, where each page of the book is a web page (Berners-Lee, BBC News).

There are many aspects (design concerns) in this process, and due to the rapid development of the Internet, new aspects may emerge. For non-commercial websites, the goals may vary depending on the desired exposure and response.

A Web site typically consists of text and images-multimedia information. The first page of a website is known as the Home page or Index. Once a Web site is completed, it must

be published or uploaded in order to be viewable by the public over the internet. This may be done using various means for example, an FTP (File Transfer Protocol) client. Once published, the Web master may use a variety of techniques to increase the traffic, or hits, that the website receives. This may include submitting the Web site to a search engine such as Google or Yahoo, exchanging links with other Web sites, creating affiliations with similar Web sites, etc.

2.4 World Wide Web (WWW)

The **World Wide Web** (commonly shortened to **the Web**) is a system of interlinked hypertext documents accessed via the Internet. With a Web browser, one can view Web pages that may contain text, images, videos, and other multimedia and navigate between them using hyperlinks. Using concepts from earlier hypertext systems, the World Wide Web was begun in 1989 by English scientist Tim Berners-Lee, working at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland. In 1990, he proposed building a "web of nodes" storing "hypertext pages" viewed by "browsers" on a network, and released that web in 1992. Connected by the existing Internet, other websites were created, around the world, adding international standards for domain names & the HTML language. Since then, Berners-Lee has played an active role in guiding the development of Web standards (such as the markup languages in which Web pages are composed), and in recent years has advocated his vision of a Semantic Web. (Tim Berners-Lee, Robert Cailliau, 1990)

2.5 Web Browser (web clients)

A web browser is a software application which enables a user to display and interact with text, images, videos, music, games and other information typically located on a Web page at a website on the World Wide Web or a local area network (Stewart, William 2008). Text and images on a Web page can contain hyperlinks to other Web pages at the same or different website. Web browsers allow a user to quickly and easily access information provided on many Web pages at many websites by traversing these links. Web browsers

format HTML information for display, so the appearance of a Web page may differ between browsers.

Some of the Web browsers currently available for personal computers include Internet Explorer, Mozilla Firefox, Safari, Opera (Browser Market Share for Q1 2008), Avant Browser, Konqueror, Lynx, Google Chrome, Flock, Arachne, Epiphany, K-Meleon and AOL Explorer. Web browsers are the most commonly used type of HTTP user agent. Although browsers are typically used to access the World Wide Web, they can also be used to access information provided by Web servers in private networks or content in file systems.

2.6 Design Tools

To carry out this study various modern design tools were used.. These include: Macromedia Dreamweaver 8 for designing templates of the web pages, Fireworks for image design, MySQL, PHP and Apache to support the dynamism of the website.

2.6.1 Macromedia Dreamweaver

Dreamweaver with ease enables users to create web pages and sites. It also has some site management tools, such as the ability to find and replace lines of text or code by whatever parameters specified across the entire site, and a templatization feature for creating multiple pages with similar structures. The behaviors panel also enables use of basic JavaScript without any coding knowledge.

Like other HTML editors, Dreamweaver edits files locally, then uploads all edited files to the remote web server using FTP, SFTP, or WebDAV.

2.6.2 PHP

PHP is a scripting language originally designed for producing dynamic web pages. It has evolved to include a command line interface capability and can be used in standalone graphical applications. PHP stands for: Hypertext Preprocessor PHP, known originally as Personal Home Pages, was first conceived in the autumn of 1994 by Rasmus Lerdorf. PHP is a tool for creating dynamic web pages. Its presence is completely transparent to the end user. PHP is easy to learn, and most importantly, it's easy to implement. So, PHP creates dynamic web pages.

In application development, PHP is used to write the code that transfer information from front end of computer user to the back end- the Web Server. It is also used to develop code that form the security backbone for the whole site in addition to the database application preset security features.

In prose, PHP has the following features

- PHP is a server-side scripting language, like ASP.
- PHP scripts are executed on the server.
- PHP supports many databases (MySQL, Informix, Oracle, Sybase, Solid, PostgreSQL, Generic ODBC, etc.)

2.7 Database (MySQL)

MySql is a Relational Database Management System (RDBMS) which has more than 11 million installations. The program runs as a server providing multi-user access to a number of databases (Robin Schumacher, 2007). A database defines a structure for storing information. In a database, there are tables. Just like HTML tables, database tables contain rows, columns, and cells. Databases are useful when storing information categorically. A company may have a database with the following tables: "Employees", "Products", "Customers" and "Orders". MySQL is popular for web applications and acts

as the database component of the LAMP, MAMP, and WAMP platforms (Linux/Mac/Windows-Apache-MySQL-PHP/Perl/Python), and for open-source bug tracking tools like Bugzilla. MySQL was first released internally on 23 May 1995. Its popularity for use with web applications is closely tied to the popularity of PHP and Ruby on Rails, which are often combined with MySQL. (Charles Babcock, 2008). PHP and MySQL are essential components for running popular content management systems such as Joomla, which is written in PHP and uses a MySQL database

MySQL has the following features:

- MySQL is a database server
- MySQL is ideal for both small and large applications
- MySQL supports standard SQL
- MySQL compiles on a number of platforms
- MySQL is free to download and use

2.8 System Development Life cycle (SDLC)

The research was mainly based on SDLC to complete the whole system (web driven database) within the time. The System Development Life Cycle (SDLC) process applies to information system development projects ensuring that all functional and user requirements and agency strategic goals and objectives are met. The SDLC provides a structured and standardized process for all phases of any system development effort. These phases track the development of a system through several development stages from feasibility analysis, system planning and concept development; to acquisition and requirements definition; design; development; integration and testing; deployment and acceptance; though deployment and production; and finally to system retirement.

SDLC included the following major phases:

- Planning
- Analysis

- Design
- Implementation

2.8.1 Planning Phase

During the planning phase, scheduling of time slice was designed to guide the researcher on what to be done at each phase at a given particular time. Also economic assessment was done at this level to see the cost that was involved during the research.

2.8.2 Analysis Phase

At this phase, the following was involved: studying of the existed website of KIUMSA, determine requirements, production of the conceptual design model. In the analysis (Study) phase the analyst extracts, analyzes and documents the user requirements

2.8.3 Design Phase

At this phase, comp (logical design of the web pages on the piece of paper) and entities (tables) were designed to be used during the actual design of the system using the design tools specified earlier.

In the design phase the analyst develops the design specifications to satisfy the user requirements as identified in the analysis phase. The design specifications included the design of the system functionality, the hierarchy of functions, detailed design of each of the input/output screens and reports and the refinement and normalization of the database design.

2.8.4 Implementation

In this phase the actual implementation of comp and entities were coded to have the actual web pages and database entities in place. There after the web browser and Xampp (designing tool) were used to test the pages connected to the database and necessary maintenance was done here and there.

In the last phase, the Implementation, Operation and maintenance, the system was installed; the end users were trained and begun using the system. System performance was monitored to check its efficiency and behavior.

Summary:

The four steps explained above can be briefly elaborated by using the diagram below.

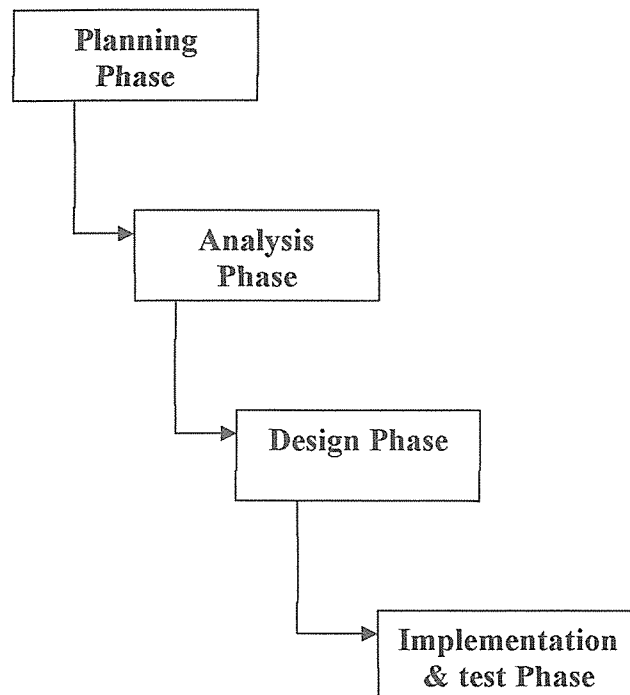


Figure 2.0 System Development Life Cycle steps

2.9 Conclusion

The major aim of this chapter was to provide the highlight on the background of the study towards the design tools used in the building of the system. The next chapter is based on system analysis of the study, which focuses on the procedure of the study, targeted population, data collection methods, analysis of the current system and system specifications.

CHAPTER THREE

SYSTEM ANALYSIS

3.0 Introduction

This chapter considers the following areas of interest; data collection, analysis of the current system, sample population, system procedure of the study, and specifications of the new system proposed by the user.

At the end of the System Analysis phase, the system analyst will be able to determine the following:

- The strengths and weaknesses of the current system
- Suggested solutions for the observed weaknesses

3.1 Procedure of the Study

The procedure began by seeking permission from the leadership of KIUMSA to study the current status of the website and develop a better one. Being members of KIUMSA association, it was easier to get necessary information from the leadership of the association, the members and the previous developers of the current site.

To do the job, it involved developing questionnaires targeting different groups of people and distributing the said to the targeted population.

Interview as a method of data collection was also used. Key individuals were interviewed all with an intention of correlating the information they provided with that collected from analyzed questionnaires.

3.2 Population under Study

Being a website belonging and targeting the student community of Kampala International University, the population under study comprised mainly the student of the university with a bias to the Muslim community, the leadership of the Muslim association

(KIUMSA) and the administration of the university. The latter was involved since some colors and features of the website are those of the university.

3.3 Data collection Methods

Two main methods were used to collect data: Questionnaires and Interviews. There were two types of questionnaires. One targeting the leaders of the association and the other targeting the rest of the students. Interviews were done to a selected few with an aim of confirming what was said in the questionnaires.

3.3.1 Questionnaire

Questionnaires were distributed to collect data from the targeted population through simple random sampling techniques was used so as to get the reliable information from the sample.

- a. Questionnaires are very cost effective when compared to face-to-face interviews. This is especially true for studies involving large sample sizes and large geographic areas. Written questionnaires become even more cost effective as the number of research questions increases.
- b. Questionnaires are easy to analyze. Data entry and tabulation for nearly all surveys can be easily done with many computer software packages.
- c. Questionnaires are familiar to most people. Nearly everyone has had some experience completing questionnaires and they generally do not make people apprehensive.
- d. Questionnaires reduce bias. There is uniform question presentation and no middle-man bias. The researcher's own opinions will not influence the respondent to answer questions in a certain manner. There are no verbal or visual clues to influence the respondent.

e. Questionnaires are less intrusive than telephone or face-to-face surveys. When a respondent receives a questionnaire in the mail, he is free to complete the questionnaire on his own time-table. Unlike other research methods, the respondent is not interrupted by the research instrument.

3.3.2 Interview

Interview was carried out based on the questionnaires distributed to the targeted population. Interview had a useful significance whereby reliable information was collected from the targeted population so as to compare the data gathered from the distributed questionnaires and those captured from interview.

Interview was used because of the following reasons

- a. The interviewer obtains supplementary information.
- b. It allowed the interviewer to ask questions that may reveal additional information useful for making a selection decision
- c. With this approach, the interview could be modified as needed to gather important information.
- d. Enable the interviewer to rephrase question to each individual who will be interviewed
- e. It allowed observation of non-verbal communication and study attitudes.

3.4 Analysis of the current system

Currently, KIUMSA has a static website that was hosted by zoomshare.com where it is located in United State of America. The latter is an organization that provides free hostage of websites. Due to the high demand, zoomshare only offers very few pages to any interested person(s). The website has been running for about a year under the address www.kiumsa.zoomshare.com. It is updated 2 to 3 times monthly as information changes in the organization. This work was done by the webmaster who was selected by the executives to do so with the help of the manual left behind after the design.

The structure of the current website looks as follows:

The website had 5 web pages where the home page talked about the historical background linked to various pages, aims and objectives of the association.

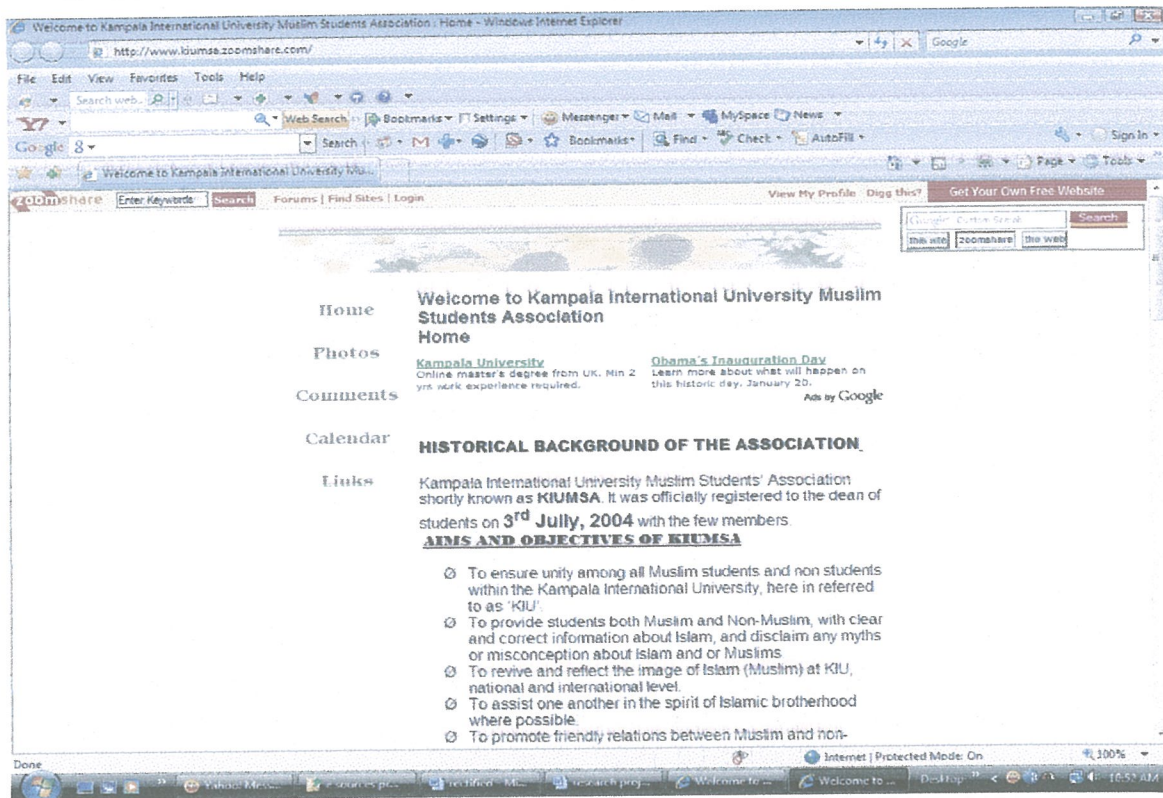


Figure 3: Home page of the previous KIUMSA

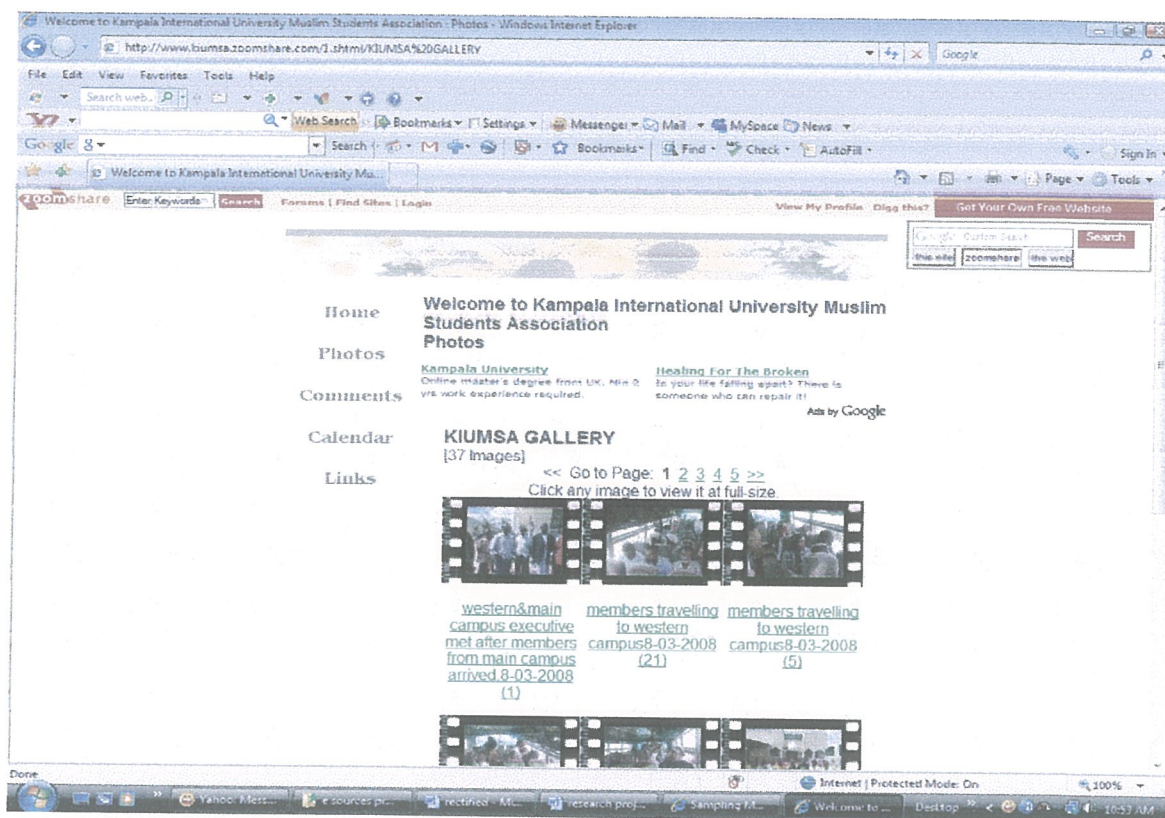


Figure 4: Photo Gallery

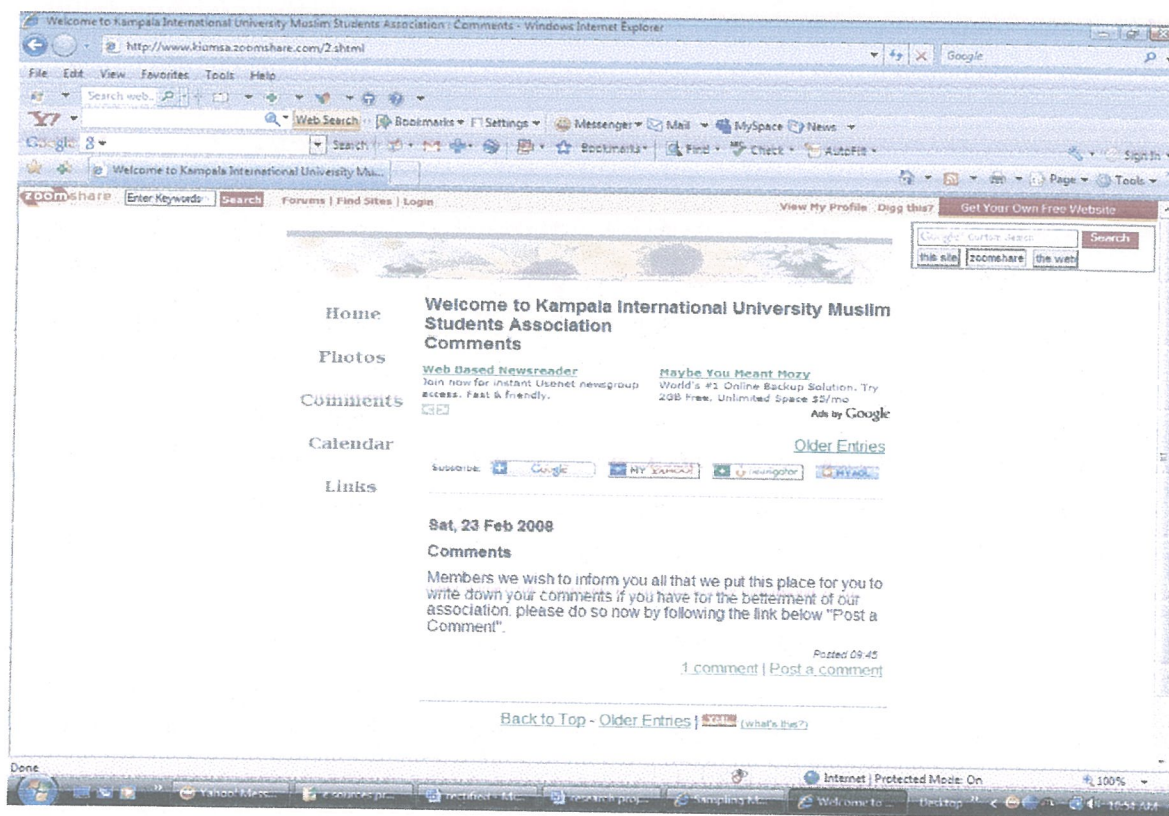


Figure 5: Members' Comments

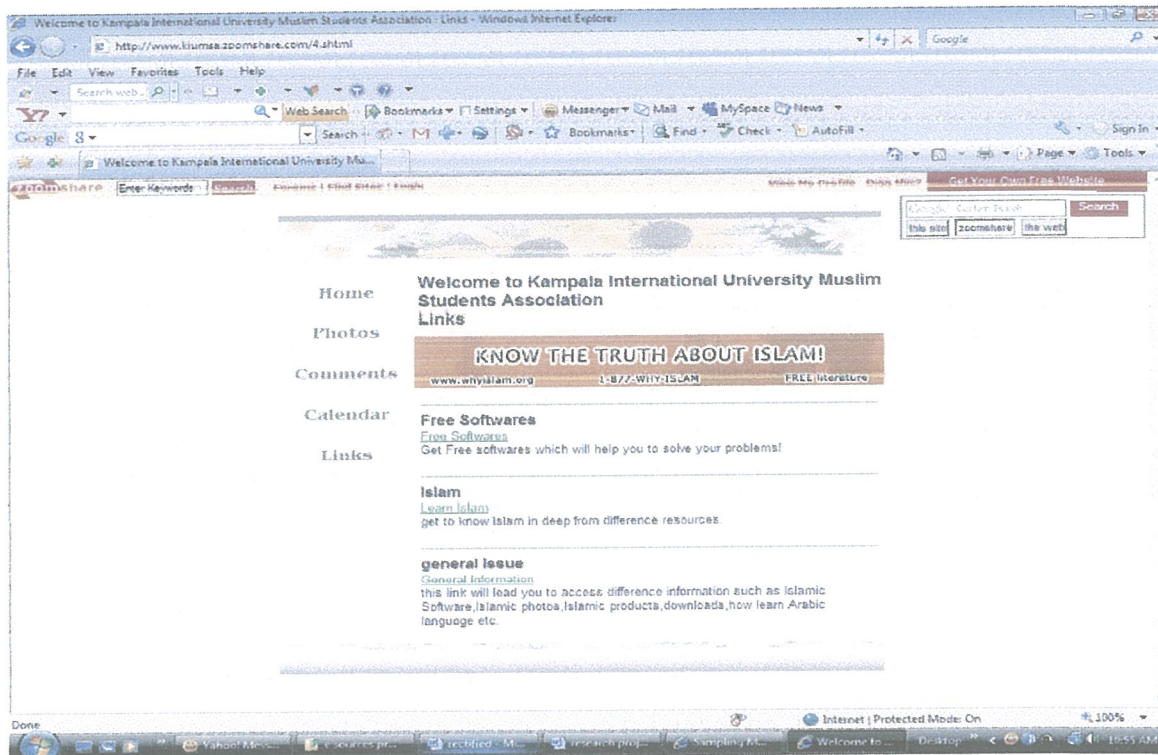


Figure 6: External Links

Apart from these web pages, KIUMSA also owned an e-mail from the same company of Zoomshare which was kiumsaa@zoomshare.com which enabled them to communicate with others.

3.4.1 Strength of the current system

The system owned by KIUMSA had the following strength

- Free hostage of the website and e-mail services which was easy to communicate between the association and the outside world.
- Hostage memory of up to 1 GB.
- 24 hours availability of the website throughout the year.
- Free search engine for the website.

3.4.2 Weakness of the Current system

Apart from the strengths stated above, the website had the following weaknesses:

- Long URL, since the domain name must be attached to zoomshares' domain name which made it hard for members to recall it (www.kiumsa.zoomshare.com).
- No database system was allowed for the website owners to use.
- *Limited templates of the pages from what they have designed themselves.*
- No contract between zoomshare.com and the client, which means when the company declines its services, that will be the end of your services.
- No additional features in the website since the services were limited to what they have already designed.

Some solutions to the problems faced KIUMSA were as follows

- Obtaining another hosting company which will let us choose our domain name.
- Designing a web-driven website which will have its own database.
- Hosting a website within Uganda so as to establish terms and regulations to avoid an illegal agreement between both sides so as to ensure full accessibility of the services throughout the term of the contract.

3.5 System Specification

Once the analysis was completed and a method of solution development selected, the next phase involved gathering resources needed for successful implementation of the solution. This led to identification of the system requirements.

3.5.1 System Requirements

The normal requirements for the system to operate were as classified below, but for client machine to access the website online what is needed is internet connection and a web browser to access the information from the internet.

a) Hardware requirement:

The following hardware was identified as the initial hardware needed to be able to access the website.

A personal computer with the following specification

- Processor speed of at least 400Mhz
- RAM 128Mb
- At least 20 GB hard disk drive.

b) Software requirement:

The software requirement used to develop the system (website and database) were as follows

- Window XP Operating System
- Mozilla Firefox web browser
- Macromedia Dreamweaver
- Xampp (My SQL)
- Macromedia Fireworks (Image editor)

3.5.2 User requirements of the new system

The following were some of the requirements suggested by the user to be in the new system:

- The design should be in a manner that navigation through the website should be easy. Access to required information should be easy to find.

- It should be dynamic such that users can upload their information from wherever and the latter is stored correctly in the database.
- System that will print out specific information stored in the database when needed
- Interfaces which are easy to be used by user.
- Quick response time when opening a web page.

3.5.3 Security requirements of the new system

Users (those who will be responsible for accessing the database and other related information) suggested some of the security measures on the system to be designed so as to secure the information from unauthorized users, one of the major security measure which the user wanted was, the use of Username and Password since that was the best mechanism to use during logging in the database, this helped to secure the data in the database.

3.5.4 Non-Functional Requirements

Some of the non-functional requirements are:

- The system should be easy to use.
- The system should provide quick response time to any requested activity.

3.5.5 Functional Requirements

Some of the functional requirements of the new system are:

- Input requirements- the system allowed users to input information on clients side as they register online with the association or upon suggesting a certain issue, Also the system was able to maintain, validate, insert, delete and modify records stored within

the database to those whom they had been given the privileges of doing so by the Database Administrator.

- Output requirements- the system was able to access and produce requested information required upon a certain specific query designed to accept it that will be known to people concerned only.

3.6 Conclusion

The whole chapter was about how the system was analyzed and the methods used to collect data. System specification (Functional and Non-Functional requirements) were also discussed. In the next chapter, a framework of how the system will be designed to avoid the problems that existed in the current system.

CHAPTER FOUR

SYSTEM DESIGN

4.0 Introduction

This chapter will primarily deal with the design of the new system where the researchers focused on the preliminary and the detailed design. On the preliminary design, the researchers used Macromedia Dreamweaver as the case tool. The detailed design included the conceptual, logical and physical design of the database.

4.1 Context Model Diagram

It defines the scope and boundary for the project. Because the scope of any project is always subject to change, the context diagram is also subject to constant change.

The context model diagram shows interaction between the system and other components of the system (this diagram reflects the transaction carried out by the people concerned in the side of the database and not the context model for website).

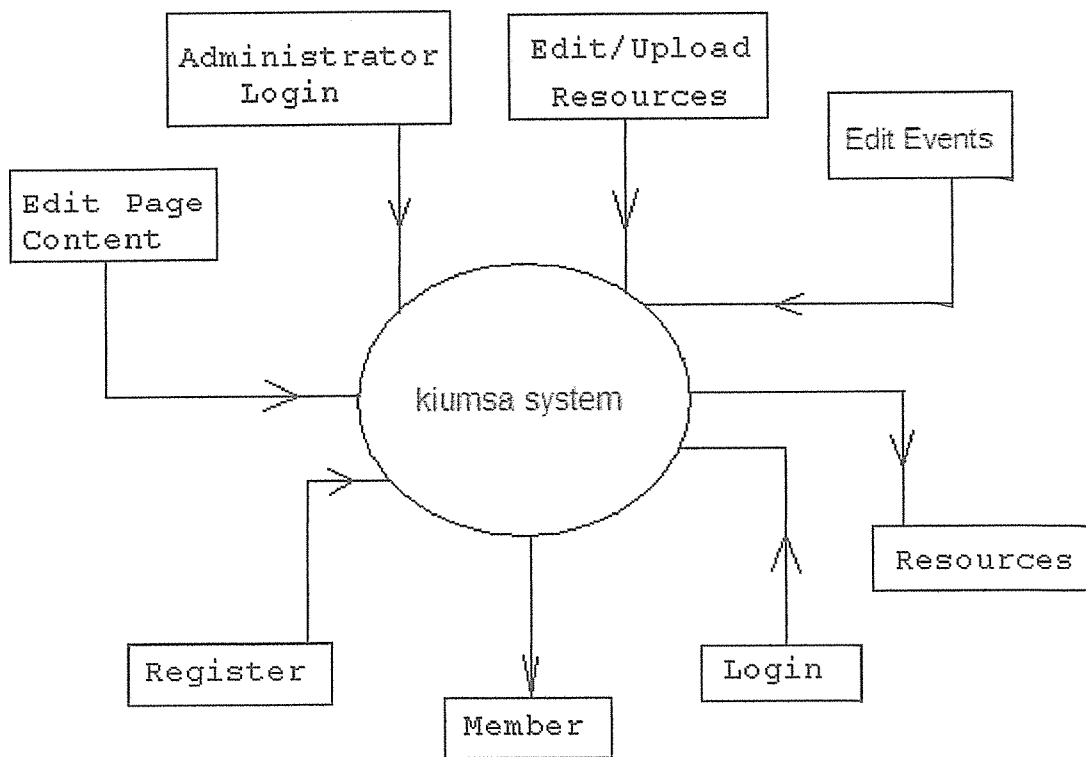


Figure 7: Context model diagram

4.2 Logical Database Design

In this phase of database design, all the entities and relationships were identified. The attributes for each entity were specified and the primary and the foreign keys were identified. Normalization was done for all the entities to make sure that there was no redundancy.

The following are the entities and their corresponding attributes:

- 1) Member – this entity gets members information and stores it in the database
 - a) Reg_no (primary key)
 - b) First_Name
 - c) Other_Names
 - d) Course

- e) Faculty
 - f) Year
 - g) Semester
 - h) Date_of_birth
 - i) Email
 - j) Mobile
- 2) Guest book – this entity captures a guest who has visited the website and it has a relation to member's entity.
- a) Guest_ID (primary key)
 - b) Physical_location
 - c) Reg_no (foreign key)
- 3) Comments- this entity allows members and guests to give a comment or suggestions on anything that they feel important for the benefit of the association.
- a) Item_number (primary key)
 - b) Comments
 - c) Reg_no (foreign key)
- 4) Executives- this entity stores the executive members of the association and it has a relation to the member entity
- a) Id (primary key)
 - b) Reg_no (foreign key)
 - c) Post
- 5) Assets – this entity captures the assets owned by the association and an executive member is appointed to store this information which makes it in a relation to the member entity.
- a) Item_no (primary key)
 - b) Item_name
 - c) Type

- d) Quantity
- e) Date_bought
- f) Reg_no (foreign key)

6) Accounts – this entity stores the accounts information of the association and it has a relation to the member entity.

- a) Int (primary key)
- b) Reg_no (foreign key)
- c) Income
- d) Expenditure

4.3 Conceptual Database Design

In this stage, important entities and the relationships among the entities were identified according to the requirements of the user. Generally, only the useful and important tables were identified to fulfill the needs of the association. We have shown this in the Entity Relationship diagram.

4.3.1 Entity Relationship Diagram

According to the Wikipedia free encyclopedia, the entity relationship (ER) model is based on a perception of a real world that consists of a collection of basic objects, called entities, and of relationships among these objects.

An entity is a “thing” or “objects” in the real world that is distinguishable from other objects. Entities are described in a database by a set of attributes. The attribute is used uniquely to identify a member in the member entity. A unique member identifier must be assigned to each member, since members can have similar names. A unique identifier in the attribute is called a primary key.

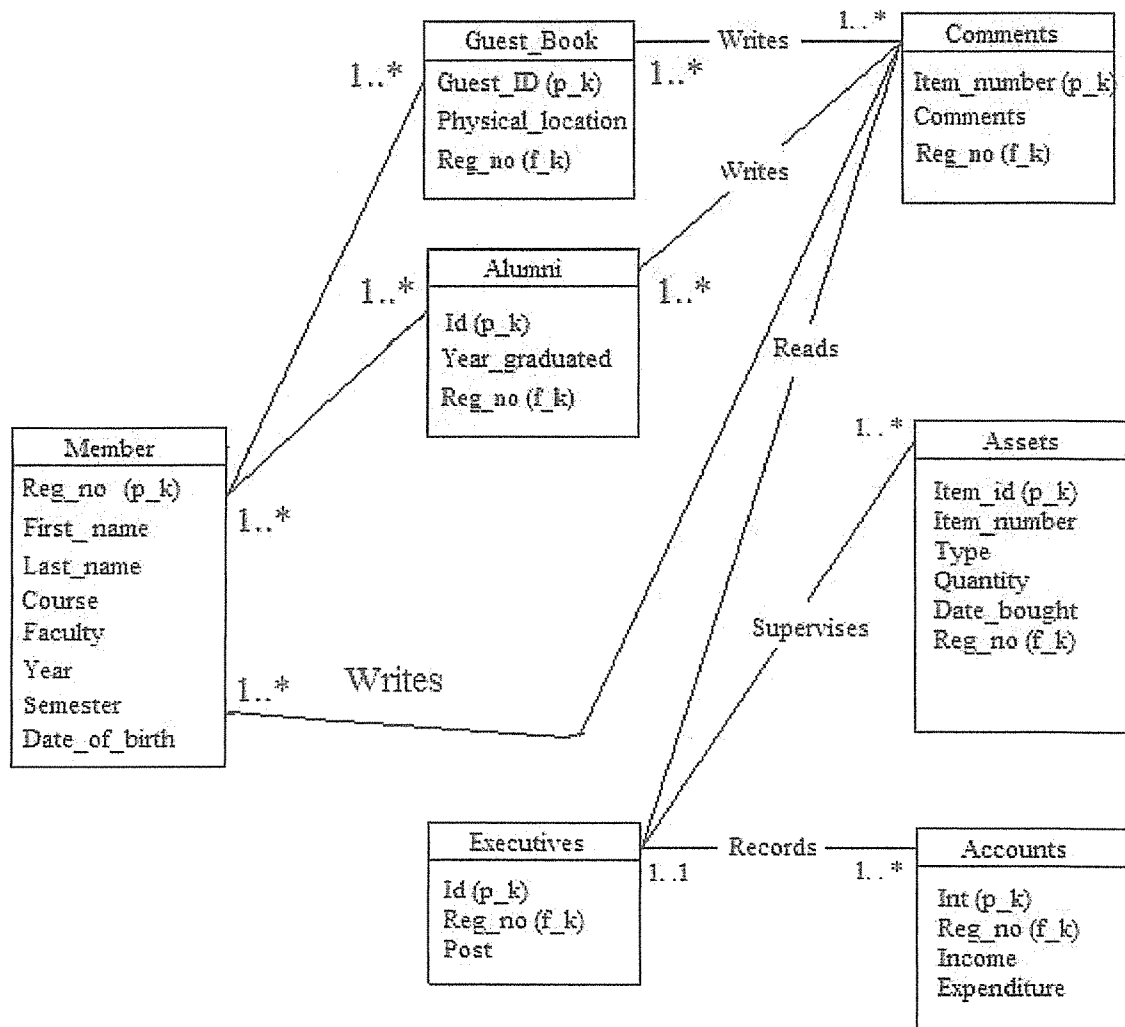


Figure 8: E-R Diagram

4.4 Data flow diagram

This is the flow diagram which shows the flow of information into the database where by some of the functionalities of the database has been connected with the website so as to give online access of the database.

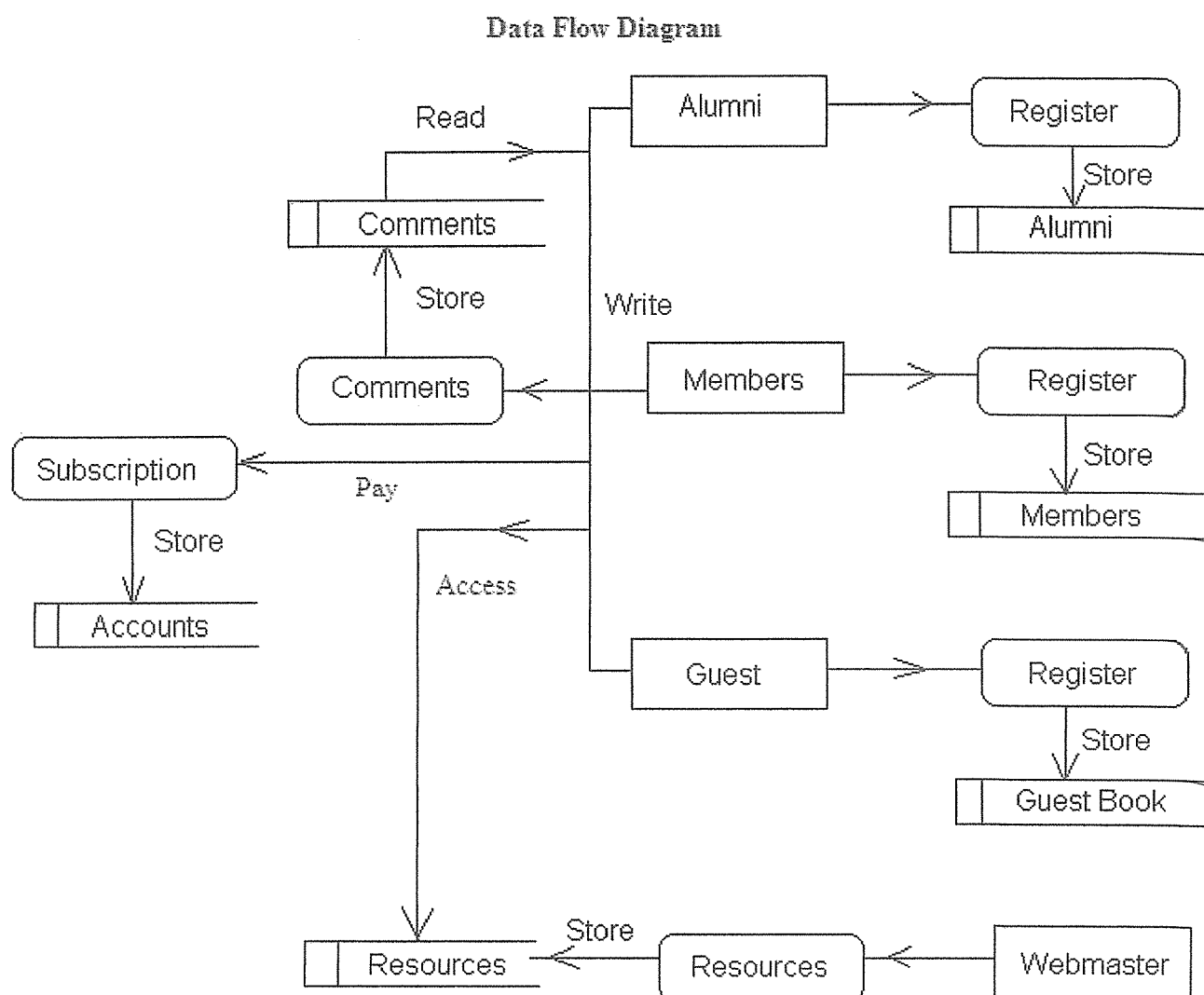


Figure 9: Data flow diagram

4.5 Physical Design

This phase of database design, the researchers converted the entities into physical tables, by producing description of the implementation of the database on the secondary storage.

The following is the list of tables, attributes together with their data types and the size for each column.

1. Member Registration Table

Field	Type	Null
Reg_no (p_k)	varchar(10)	No
First_name	varchar(10)	No
Last_name	varchar(10)	No
Course	varchar(10)	No
Faculty	varchar(10)	No
Year	int(4)	No
Semester	int (2)	No
Date_of_birth	date	No

This is a table design which stores member information.

The table structure of 'member':

```
CREATE TABLE `current` (  
  `Reg_No` varchar(10) NOT NULL,  
  `First_Name` varchar(15) NOT NULL,  
  `Other_Names` varchar(25) NOT NULL,  
  `Course` varchar(25) NOT NULL,  
  `Faculty/School` varchar(25) NOT NULL,  
  `Year` varchar(4) NOT NULL,  
  `Semester` int(2) NOT NULL,  
  `Date_of_Birth` year(4) NOT NULL,  
  `Mobile_Number` int(10) NOT NULL,  
  `E_Mail` varchar(25) NOT NULL,  
  PRIMARY KEY (`Reg_No`)  
)
```

1. Guest

Field	Type	Null
id (p_k)	smallint (4) auto_increment	No
Reg_no (f_k)	varchar (10)	No
Physical_location	varchar (25)	No

This is a table design which stores information of the guests who visit the website.

Table structure for table `guest`

```
CREATE TABLE `guest` (  
  `id` smallint (4) NOT NULL auto_increment,  
  `Reg_no` varchar(10) NOT NULL,  
  `Physical_Location` varchar(25) NOT NULL,  
  PRIMARY KEY (`id`),  
  FOREIGN KEY (`Reg_no`)  
)
```

2. Comments

Field	Type	Null
Item_number(p_k)	int auto_increment	No
Reg_no (f_k)	varchar (10)	No
Comments	text (200)	No

This table structure stores the comments made by members and guests who visits the website.

Table structure for table `comments`

```
CREATE TABLE `comments` (  
  `First_Name` varchar(15) NOT NULL,  
  `Other_Names` varchar(25) NOT NULL,  
  `Comments` text NOT NULL  
)
```

3. Executives

Field	Type	Null
Id (p_k)	smallint auto_increment	No
Reg_no (f_k)	varchar (10)	No
Post	varchar (10)	No
Year	date	No

This table structure stores the information of the executive members of the association.

Table structure for table `executive`

```
CREATE TABLE `executive` (  
  `Id` smallint (10) auto_increment NOT NULL,
```

```

`Reg_no` varchar(10) NOT NULL,
`Post` varchar (10) NOT NULL,
`Year` date NOT NULL,
UNIQUE KEY `Reg_No` (`Full_Names`)
)

```

4. Assets

Field	Type	Null
Item_id (p_k)	auto_increment	No
Item_Name	varchar(20)	No
Type	varchar (10)	No
Quantity	number(4)	No
Date_bought	date	No
Reg_no (f_k)	varchar (10)	No

This tables structure stores the assets owned by the association.

Table structure for table `assets`

```

CREATE TABLE `assets` (
  `Item_id` varchar(10) NOT NULL,
  `Item_Name` varchar(20) NOT NULL,
  `Type` varchar(15) NOT NULL,
  `Quantity` int(4) NOT NULL,
  `Date_bought` date NOT NULL,
  `Reg_no (f_k)` varchar(10) NOT NULL,
  PRIMARY KEY (`Item_No`)
)

```

5. Accounts

Field	Type	Null
Acc_No (p_k)	Int(4) auto_increment	No
Reg_no (f_k)	varchar (10)	No
Income	currency (10)	No
Expenditure	currency (10)	No

This table stores the account transactions made by the Table structure for table `accounts`

```
CREATE TABLE `accounts` (  
  `Acc_No` int(4) NOT NULL,  
  `Income` currency NOT NULL,  
  `Expenditure` currency NOT NULL,  
  PRIMARY KEY (`Acc_No`),  
  FOREIGN KEY (`Reg_no`)  
)
```

4.6 Conclusion

This chapter discussed how the system is designed and focused on the data models to describe how the users of the system will interact with the system. It also showed the relationships between different entities of the system using the entity-relationship diagram and how the data will be flowing from the users of the system to be processed and producing results to the user by using the data flow diagram. The design of the database was also shown by using the three stages of the database design; the conceptual, logical and physical design. The next chapter considers how the design of the system was implemented.

CHAPTER FIVE

SYSTEM IMPLEMENTATION

5.0 Introduction

This chapter explains the implementation details of the proposed system. The following are some of the activities involved in the implementation phase.

5.1 System Testing

The system was tested in a web server to ensure that it was running properly and that the functional and non functional requirements of the user were satisfied. People involved in the testing were; the analyst, the users, the executive members and the designers.

Testing was done thoroughly using a web server to make sure that the expected users can browse through the website and access the desired information. The following were tested:

- System performance

The throughput and the response time for loading a web page in a web browser were tested using Mozilla Fire Fox. It was found that the images and the web pages loaded fast.

- Usability

This is where we tested the system if it was usable. The user interface was seen as appropriate to the users as it was simple and easy to navigate from web page to web page.

This test comprised ensuring whether the user could easily locate information in the various web pages, the colors used were the desired, the fonts used were the desired, the placement of pictures, size and choice was the desired, etc.

- Database connectivity

Data entry, retrieval and update features were tested and found out to be successful. The speed at which the activities took place was tested too and found to be satisfactory depending on the internet connectivity speed.

5.2 Project Implementation

The project lasted more than 3 months up to its final stage of completion. This was to give chance the developers to come up with a good and reliable system which the user wanted. After the system testing, it was followed by training of the users

5.2.1 Training

Training involved showing respective persons how to navigate through the website. It was found difficult by the researcher to show every Muslim student how to navigate through the site but on assumption that the community comprises of well informed persons, then, it would not be difficult to understand how to.

Key persons involved in the training were key leaders of the association and the persons that were responsible for regular updating of the site.

5.2.2 Web Hostage

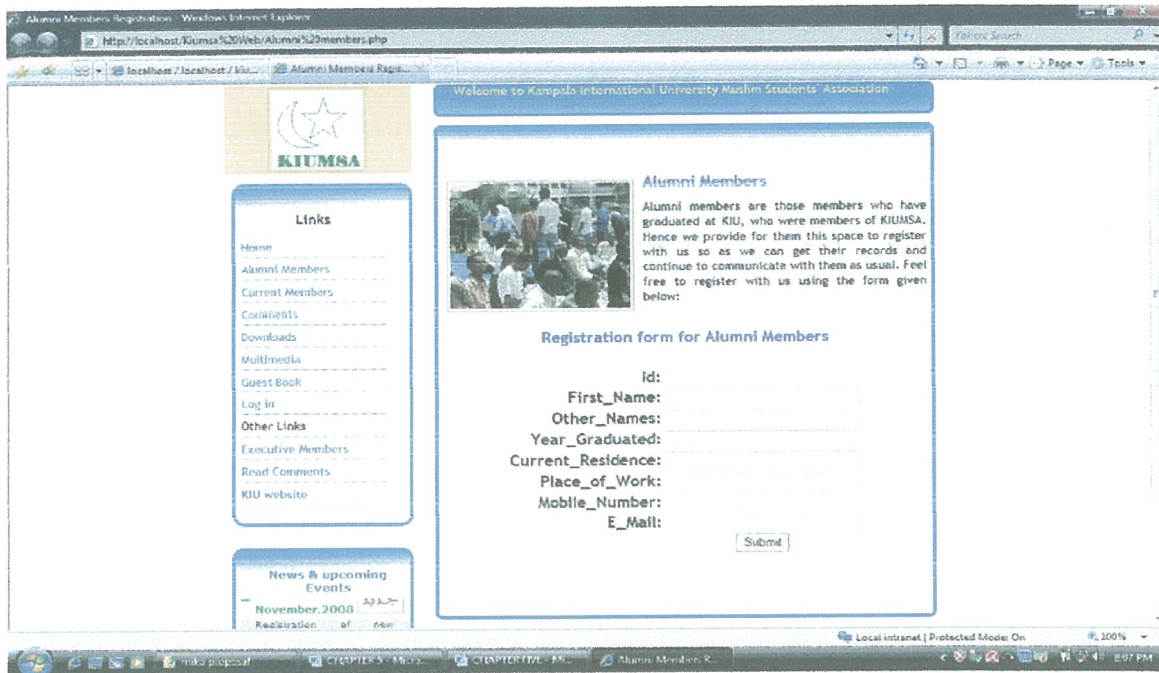
There are a number of web hosting companies available which are offering web hosting services at a fee. The fee varies depending on the services offered and the amount of space on offer.. The table given in the Appendix I shows a list of various web hosting companies

5.3 User Interface

A number of interfaces were designed through the use of PHP so as to give chance the user to input data, manipulate it, and output the data from the database. These included the following interfaces.

1. Alumni Registration Form.

This interface is in a form type which gives chance the former members of the association to register with the association online anywhere they will be.



The screenshot shows a web browser window displaying the 'Alumni Members Registration' page. The page has a header with the KIUMSA logo and a welcome message. A left sidebar contains a 'Links' menu with options like Home, Alumni Members, Current Members, Comments, Downloads, Multimedia, Guest Book, Log in, Other Links, Executive Members, Read Comments, and KIU website. Below the menu is a 'News & upcoming Events' section for November 2008. The main content area is titled 'Alumni Members' and includes a description of alumni members and a 'Registration form for Alumni Members'. The form fields are: Id, First_Name, Other_Names, Year_Graduated, Current_Residence, Place_of_Work, Mobile_Number, and E_Mail. A 'Submit' button is located at the bottom right of the form.

Figure 4: Alumni registration form

2. Members Registration Form

This interface gives an access to the current members who are currently pursuing various courses at KIU to register with the association online without having to line-up at the KIUMSA's office seeking for registration form.

Current Members Registration - Windows Internet Explorer

http://localhost/KIUMSA%20Web/current%20members.php

Welcome to Kampala International University Muslim Students Association

Links

- Home
- Alumni Members
- Current Members
- Comments
- Downloads
- Multimedia
- Guest Book
- Log in
- Other Links
- Executive Members
- Read Comments
- KIU website

Current Members

These are the members who are currently pursuing various courses here at the university. These are the one who make the association alive. Currently the association still accommodate members from different countries, some other new members come from Guinea, Rwanda, Burundi, hence make the total number of members to be more than 350 members. Please feel free to register with us so as to have reliable information about our members:

Registration form for Current Members

Reg_No: _____

First_Name: _____

Other_Names: _____

Course: _____

Faculty/School: _____

Year: _____

Semester: _____

Date_of_Birth: _____

Mobile_Number: _____

E_Mail: _____

Submit

Figure 5: member registration form

3. Comments Form

This form enables any one who will be online to forward various comments, suggestions towards the association concerning any thing that will be beneficial towards the association and strength up the Islamic brotherhood among members.

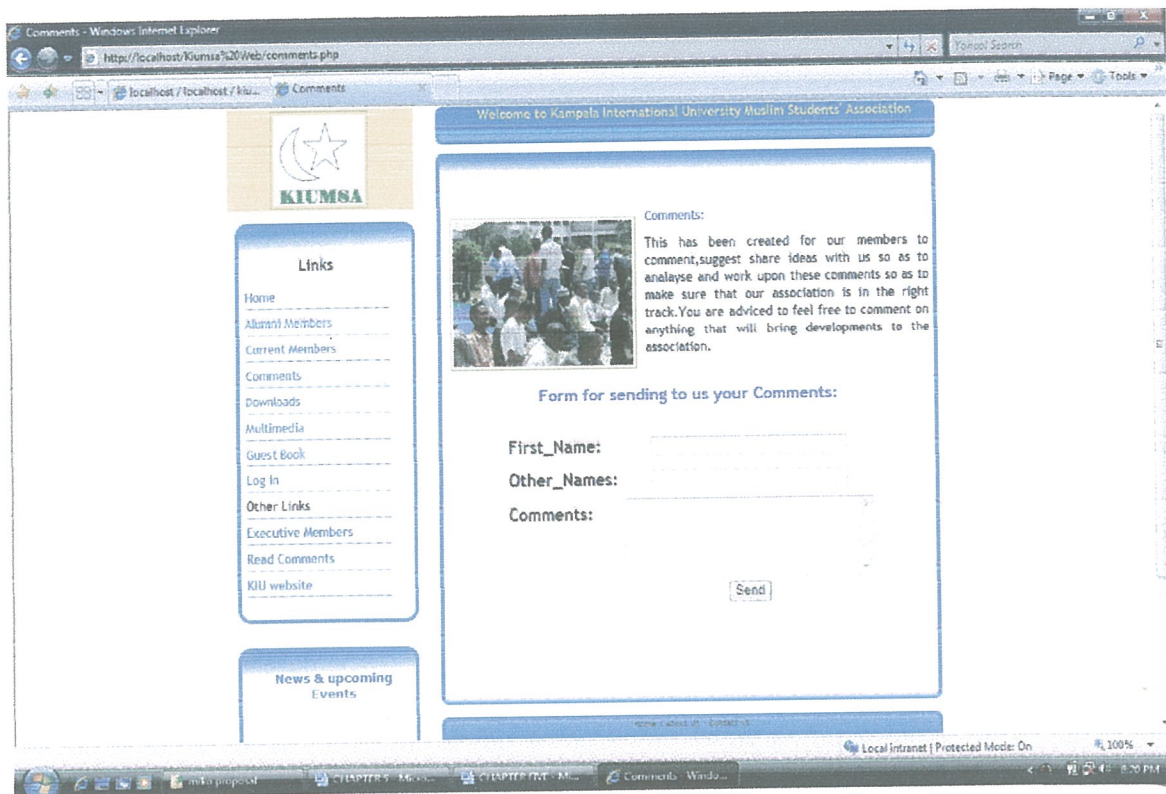
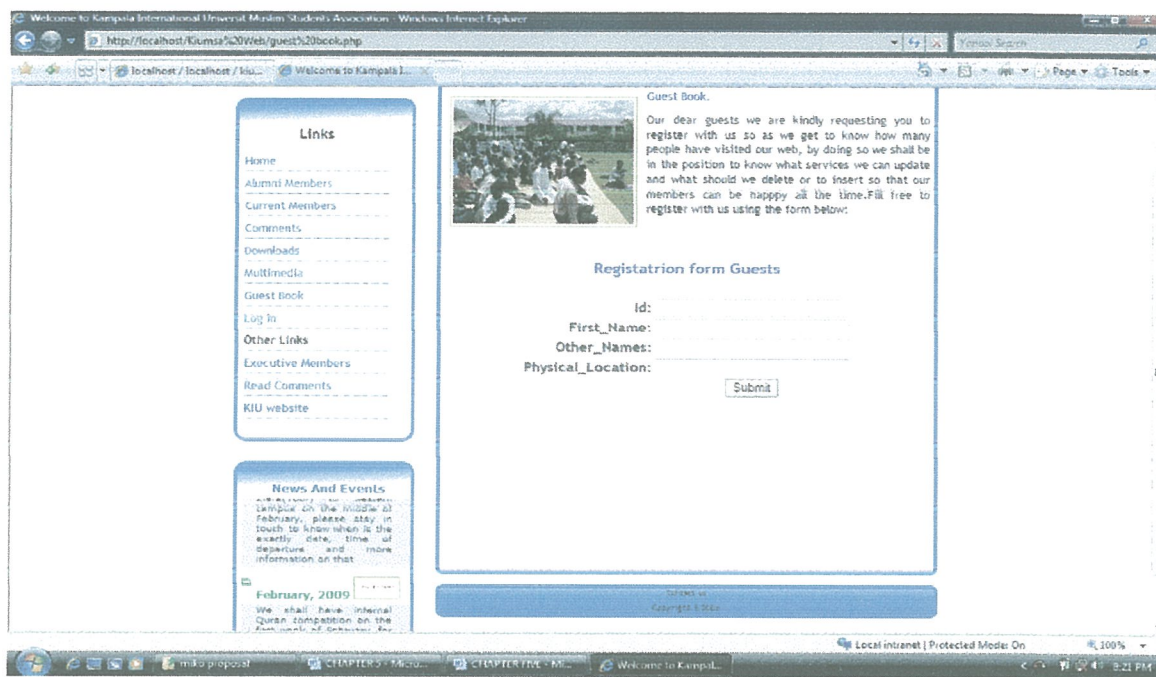


Figure 6: Comments form

4. Guest Book

This form captures the registration details of the guest who have visited the web and decided to register with KIUMSA as shown in the figure below. This people might be other people apart from the members of the association who wished to visit the site.



The screenshot shows a web browser window with the address bar displaying 'http://localhost/Kiumsa%20Web/guest%20book.php'. The page title is 'Welcome to Kampala International University Muslim Students Association'. The page layout includes a left sidebar with a 'Links' section containing: Home, Alumni Members, Current Members, Comments, Downloads, Multimedia, Guest Book, Log In, Other Links, Executive Members, Read Comments, and KIU website. Below the links is a 'News And Events' section with a date of 'February, 2009' and a brief announcement about an internal Quran competition. The main content area features a 'Guest Book' section with a photo of a group of people and a text box asking guests to register. Below this is a 'Registration form Guests' with fields for 'Id:', 'First_Name:', 'Other_Names:', and 'Physical_Location:', followed by a 'Submit' button. The browser's status bar at the bottom shows 'Local intranet | Protected Mode: On' and a 100% zoom level.

Figure 7: Guest book

2. Login Page

This form contains a text field that enables users to log in and access the database contents as per the user department. Access of the database information is given by the supervisor that will be appointed by the association to handle this issue by assigning the user account to the user concerned.

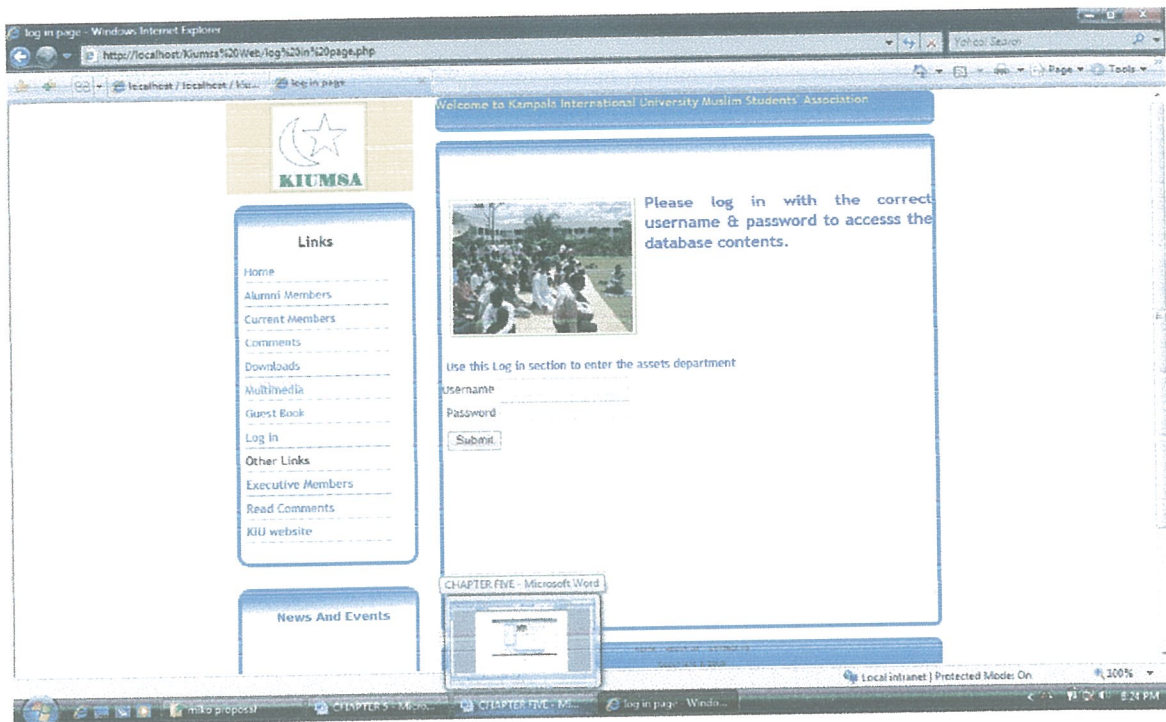


Figure 8: Login page

3. Assets form

This form enables the user to register the assets belonging to the association for record purposes. This will be concerned with only movable assets so as to know things owned by the association, where by treasurer of the association will be in charge of this.

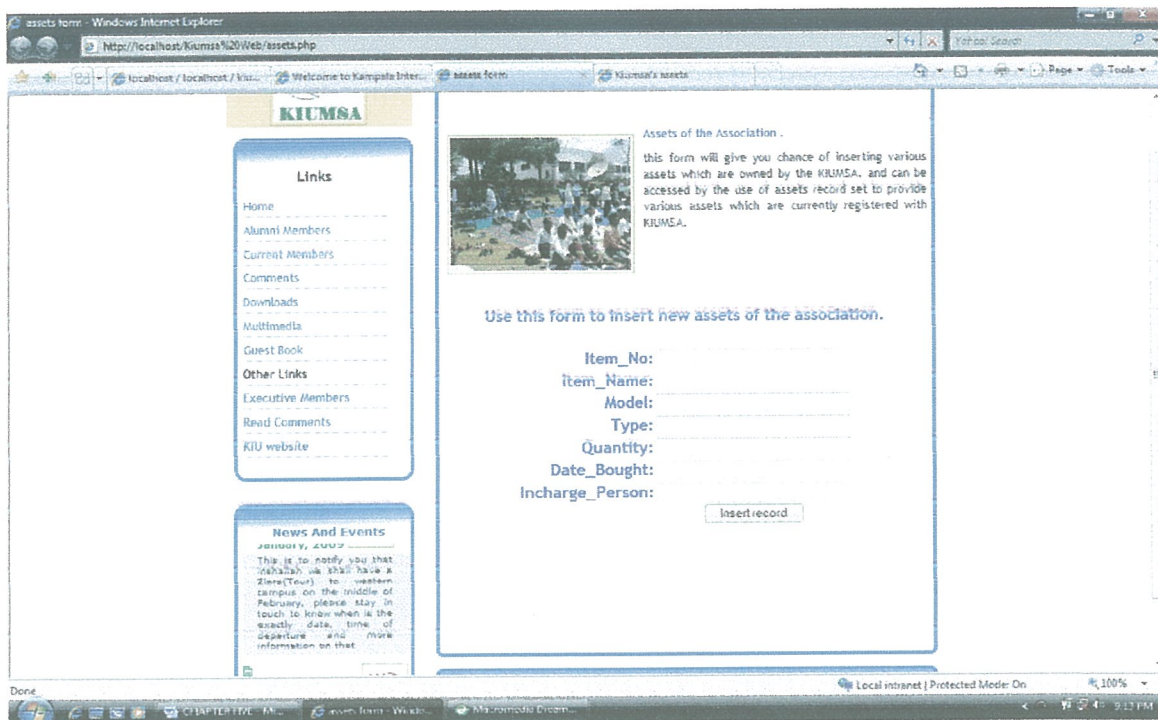


Figure 9: Assets form

4. Assets Update form

This is the interface which provides the interaction between users and the database, and hence gives chance the user to modify data in the database from wherever the part of the world s/he may be.

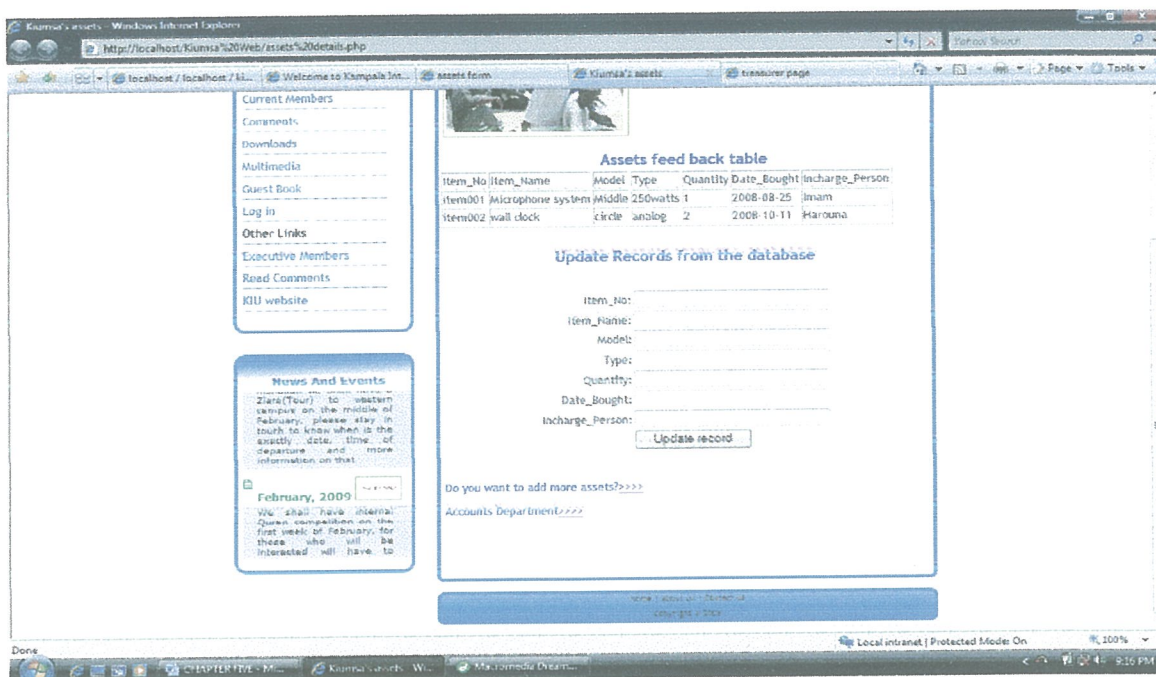


Figure 10: Assets update form

Figure 11

5.4 System Conversion

Since the current website is up and running, the leadership in consultation with the developers decided to have the newly built site and the current one run in parallel as evaluation and further tests of the new system is being carried out. Once the owners of the site are satisfied, then the old site will be considered redundant and hence shut down.

5.5 Conclusion

This chapter was about the implementation of the proposed system which was a bit challenging, especially in the side of interface designing, since it has a lot of things to do, for example ensuring that data inserted are directed towards the respective table. The next chapter will cater for conclusions and recommendations about the entire project.

CHAPTER SIX

RECOMMENDATIONS AND CONCLUSIONS

6.0 Introduction

This is the last chapter detailing the final bit of the project. After a grueling task of having to battle with time limits, the following are the recommendations and conclusions from the researchers.

6.1 Recommendation

This project can be maintained by the person trained from the association who will be given the mandate to control and maintain it. In case of any failure or technical problems direct consultation can be initiated between the two. It can also be patched up with various patches which they can work together to accomplish the goals of the association as the need arise in the future.

Also it was recommended that Webnet East Africa Limited from Kampala Uganda can be identified as the webhost due to its features such as high bandwidth, disk space and more features like SQL, PHP, CGI, FrontPage, Perl, email accounts, fast, reliable hosting lastly also due to its cheap price but with a good services being offered

6.2 Conclusion

The design and implementation of the system was a very interesting thing which could have been more of a success if the researcher had enough resources of which it was impossible. The system has been implemented in its best and it is dynamic as users can communicate with it and get a feedback. Authorized users can connect to the database and access the resource which was the main objective of the development of the system.

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APPENDICES

APPENDIX I

QUESTIONNAIRE TO EXECUTIVE MEMBER

Dear Sir/Madam,

You are kindly requested to fill the questions below by filling in the correct information to help Mr. Aklan M. Majaliwa and Murad Swaleh who are carrying out their research project on "DESIGN AND IMPLEMENTATION OF WEB-BASED DATABASE". A case study of Kampala International University Muslim Student Association (KIUMSA). This research is a partial fulfillment for the award of Bachelor degree of Computer Science at Kampala International University. Your opinion will be treated confidentially and restricted for this purpose only. Thanks for your cooperation in advance.

Below are the questions to be filled by you:

1. Full names: _____

Course _____

Year: _____

Semester: _____

2. Position you hold in KIUMSA: _____

3. Does the association have a website? YES ☐ NO ☐ YES ☐

4. what is the URL address of that
website _____, how
does it look like ☐ GOOD ☐ BETTER ☐ BEST ☐
d) POOR ☐

5. How many web pages are there in the website? a) 1-5 pages ☐ b) 6-10
pages c) 11-15 pages ☐ d) 16-20 pages ☐ e) I don't know ☐

6. How does a member register to the association? a) Using registration form ☐
b) writing names on the paper ☐ c) I don't know ☐

7. Where are those records / registered information kept after being captured from members? a) into the computer data ☐ b) ☐s C) I don't ☐ know

8. Should the current website be a) Modified ☐ b) Remain as it is ☐
c) New website should be designed ☐

9. If it should be modified what features should be added _____

10. If the new system should be designed; how many web pages should be there? _____ pages

11. What features should be retained in the new website to be designed from the existing website?

- _____
- _____
- _____
- _____

12. Should the new website include database to store captured data?

YES ☐ , NO ☐

13. If YES how many tables should be included in the database _____ tables?

14. Name the kinds of tables to be included in the database:

a. _____

b. _____

c. _____

d. _____

e. _____

END

Thank you very much for the good cooperation you have shown.

APPENDIX II

FEATURES AND SERVICES OFFERED BY THE COMPANY IDENTIFIED TO HOST THE WEB SITE

Webnet East Africa Limited
Plot 110 Bukoto Street, Kamwokya
P.O.Box 34112, Kampala Uganda

Personal Plan	Shs. 144,000/yr
Disk Space	3,500MB
Your Domain Name	.com – shs.50,000 .co.ug – shs.118,000
E-Mail Accounts	1,000
Control Panel	H-Sphere
Web-Traffic Transfer	150,000MB
Money-Back Guarantee	7 Days
Setup Fee	Free*
Number of Domain Alias	3
Software Support	
CGI-BIN and Library	YES
PHP	YES
Perl Scripts	YES
MySQL Databases	5
SSL Secure Server	YES
Joomla	YES
Site Studio enabled	YES
SSI Management	YES
FrontPage 2000 / 2002 / 2003 Extensions	YES
Choice of Shopping Carts	YES
Multimedia	
Real Audio & Video	YES
Macromedia Shockwave	YES
MIDI File Support	YES
MIME Types	YES
Web-site Management	
Fully Integrated Google Webmaster Tools	YES
FileManager	YES
FTP Manager	YES
Password Protection	YES
Backup Program	YES
Web-site Builders	
WebSite Creator by Site Studio	YES
100s of Professional Web Templates	YES
Create and Change Designs Anytime	YES
E-mail	
POP3 Mailboxes	1000
Forwarding E-mails	1000
Autoresponders	1000
Anti Virus	YES
SPAM Filtering	YES
WebMail	YES

Pre-configured Scripts	
Form Mail	YES
Guest Book: Gbook	YES
Bulletin Board: phpBB	YES
Content Management: PHP Nuke , Mambo	YES
Chat: X7 Chat	YES
Blogs	YES
Groupware: WebCalendar	YES
RSS Feed: Gregarius	YES
Image Galleries: Coppermine, Gallery2	YES