

**A WEB BASED DATABASE SYSTEM
FOR THE SCHOOL OF COMPUTER
STUDIES IN
KAMPALA INTERNATIONAL UNIVERSITY**

A Thesis Presented to the
School of postgraduate studies and research
Kampala International University
Kampala, Uganda

In partial fulfillment of the requirements for
the award of a masters Degree in Information
Systems

BY
KABYESIZA CLEAVE WATSON

SEPTEMBER, 2011

Declaration A

I Cleave Watson K do hereby declare to the best of my knowledge that this research Project is my original work and it has never been submitted to any university or any other institutions.

KABYERIZA CLEAVE K/ATSON

Name and signature of the Candidate

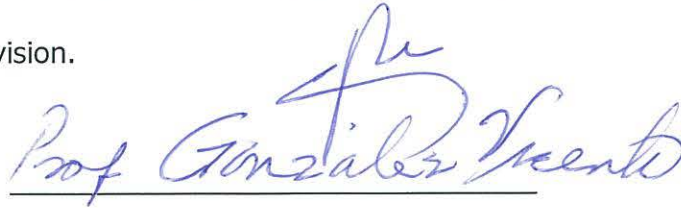
KCwats -

30/09/2011

Date

Declaration B

The Thesis entitled "A Web based Database System, Case study School of Computer Studies-Kampala International University Main Campus was carried out by the candidate under my supervision.

A handwritten signature in blue ink, reading "Prof. Gonzalez Vento", written over a horizontal line.

Name and signature of the Supervisor

A handwritten date "30/09/2011" in blue ink, written over a horizontal line.

Date

Approval Sheet

The following research project by Cleave Watson K has been carried out under my supervision and is now ready for submission to the school of computer studies at Kampala International University.

Bada Joseph Kizito

_____ D. Maedee

Name and Sign of Chairman

30/9/2011

Prof Vincent Gonzalez

Name and Sign of Supervisor

Ephraim Bwalesa KC

Name and Sign of Panelist

Name and Sign of Panelist

Name and Sign of Panelist

Date of Comprehensive Examination: _____

Grade: _____

Name and Sign of Director, SPGSR

Name and Sign of DVC, SPGSR

Dedication

I dedicate the thesis or graduation project to the Almighty God, who helped me through the study, God you're a provider of every thing to our lives. God, you live and reign forever.

I give high thanks to my sponsor Hajji Hassan Basajjabalaba who supported me in terms of finance and made me to attain advanced level of education. May God bless you abundantly.

Thanks go to my brother, Mr. Mwesigye Jimmy who struggled for my well being in all possible means and his words of encouragement and advise helped me so much otherwise I could have not be what I want to be.

I thank my parents, and my supportive brothers, Jimmy, Tinka, Maxima and close friends especially, Bamwine Nelson, Mugisha Brian, Taremwa Dan, Abubakar Yussuf, Obed Mageni, Benson, Ruth Oginga, Aulah Ezkaih, Anita Kukunda, sisters, classmates, Lecturers and most importantly to my supervisor who spared valuable time to make me come to this point of handing in this thesis, In this regard special thanks goes to my beloved supervisor Professor Vicente Gonzalez for his guidance.

Acknowledgements

I wish to show my sincere gratitude to Almighty God who supported me through the thesis; I thank every one more especially Dean School of computer studies Eng. Jacton Opiyo who has been my superior and his staff at faculty level Kampala International University for their support, cooperation and guidance to me.

Special regards go to my supervisor Professor Vicente Gonzalez Associate Dean postgraduate computer studies-Kampala International University for his support and guidance during the research and May God bless him.

I am thankful to my friends and Brother Mwesigye Jimmy who committed a lot of his time and resources in supporting me through this expensive project.

Special Appreciation goes to my Dear Parents, my brothers and my sisters and in a special way for supporting me towards my success in the studies. My gratitude goes to my friends; Mugisha Brian, Bamwine Nelson, Tukundane Benson and Ruth Oginga for their optimistic support, encouragement, spiritual and ethical support thanks a lot.

My heart appreciation goes to my sponsor Hajji Hassan Basajjabalaba who facilitated all expenses of my tuition and may God reward him, otherwise I will never forget him.

Lastly am thankful to every one in Kampala International University for making my stay there worthwhile.

List of Acronyms

Admin	Administrator
IS	Information systems
IT	Information Technology
CS	Computer Science
CI	Computer Engineering
KIU	Kampala International University
SCS	School of Computer Studies
HOD	Head of Department
OS	Operating System
DB	Database
DBMS	Database Management System
WDBS	Web based Database System
KIUSCS	Kampala International University School of Computer Studies
CMS	Content Management System
HTML	Hypertext Markup Language
SQL	Structured Query Language
CSS	Cascade Style Sheets
URL	Universal Resource Locator
XML	Extensible Markup Language
W3C	World Wide Web Consortium
HTDOCS	Hypertext Documents
SPSS	Statistical Package for Social Scientists

Table of Contents

Declaration A	ii
Declaration B	iii
Approval Sheet.....	iv
Dedication	v
Acknowledgements.....	vi
List of Acronyms.....	vii
Abstract.....	xiv
CHAPTER ONE.....	1
INTRODUCTION	1
1.1 Background of the study.....	2
1.2 Problem statement.....	2
1.3 Objectives	3
1.3.1 General objective	3
1.3.2 Specific objectives	3
1.4 Research Questions.....	3
1.5 Scope	3
1.5.1 Time Scope	3
1.5.2 Geographical Scope.....	4
1.5.3 Content Scope	4
1.6 Significance	4
CHAPTER TWO.....	5
LITERATURE REVIEW	5
2.1 Introduction	5
2.2 Database.....	6
2.3 Record Management	6
2.4 Dynamic Web Pages.....	7

2.5 Database driven pages	8
2.5.1 Application of Faculty Website in Minnesota State University	8
2.5.2 Categories of Faculty Websites.	10
2.6 A case study of Database driven Website in Spanish Universities.....	10
2.7 Goals of the Faculty Website	14
2.8 Benefits of database driven website.....	15
CHAPTER THREE	17
RESEARCH METHODOLOGY	17
3.1 Introduction	17
3.2 Research Design	17
3.3 Area of Study	17
3.4 Research Population.....	17
3.5 Sample Size and Sampling Procedure.....	18
3.6 Research Instruments	18
3.6.1 Observation	18
3.6.2 Questionnaire	19
3.6.3 Historical documentation.....	19
3.7 Data analysis	19
3.8 Requirement Specification and establishment	20
3.9 Design	20
3.10 Development and Implementation analysis.....	21
3.10.1 Implementation tools.....	21
3.10.2 SQL server.....	21
3.10.3 MYSQL	21
3.10.4 JavaScript.....	22
3.10.5 CSS Language.....	22
3.10.6 HTML	22
3.11 Testing and validation	23

3.12 Maintenance and updating	24
CHAPTER FOUR.....	25
4.1 Introduction	25
4.2 Analysis of Data Collection	25
4.3 Opinions of Targeted Users on the Introduction of A Web Database System for School of Computer Studies-KIU Main Campus.	25
CHAPTER FIVE.....	46
SYSTEM ANALYSIS, MODELING AND DESIGN	46
5.1 Introduction	46
5.2 System Analysis	46
5.3 Requirement Analysis	46
5.3.1 User Requirements.....	46
5.3.2 System Requirements.....	47
5.3.2.1 Functional requirements.....	47
5.3.2.3 Non Functional Requirements	48
5.3.3 Advantages of the new system	48
5.3.4 Hardware requirements.	49
5.3.5 Software requirements	50
5.3.6 Developing Software	50
5.3.7 Security requirements.....	50
5.4 The New system.	51
5.5 System Design.....	52
5.6 Data base design	52
5.6.1 Conceptual database design.....	53
5.6.1.1 Database Schemas	53
5.6.1.2 Mapping of relationships between entities	53
5.6.1.3 Entity Relationship Diagrams	56
5.7.2 Physical database design	57

5.8 Design Implementation	59
5.8.1 System structure	59
5.8.2 Pseudo code	60
5.9 Testing	62
5.9.1 Unit Testing	62
5.9.2 Integration Testing.....	62
5.9.3 System Testing	62
5.10 User Interfaces	63
CHAPTER SIX.....	67
SUMMARIES, CONCLUSION, RECOMMENDATIONS, AND FUTURE WORK.....	67
6.1 Conclusion.....	67
6.2 Recommendations.....	67
6.3 Future Work	68
6.4 Limitations encountered during the research	69
Reference:	70
APPENDICES.....	73
Appendix I: Sample Questionnaire	73
Appendix II: Clearance for Ethics Committee	78
Appendix III: Informed Consent	79
Appendix IV: RESEARCHER'S CURRICULUM VITAE	80
Appendix V: Codes	86

LIST OF TABLES

Table 3. 5.1: Distribution of the Respondents.....	18
Table 4.3.1.1: Respondent by gender.....	27
Table 4.3.2.1: Respondent by level of education.....	28
Table 4.3.3.1: Respondent by Language.....	29
Table 4.3.4.1: How does the faculty communicates with the staff and students?.....	30
Table 4.3.5.1: Does the faculty support online communication (e-mailing system)?.....	32
Table 4.3.6.1: How does the faculty register students?.....	33
Table 4.3.7.1: Does the current process of student registration work effectively?.....	34
Table 4.3.8.1: Does the faculty need an online student registration?.....	36
Table 4.3.9.1: Will the old system work with an online registration system.....	37
Table 4.3.10.1: How does the faculty carry out teaching.....	38
Table 4.3.11.1: How have been students accessing course works and course notes from lecturers?.....	40
Table 4.3.12.1: How do the students access the teaching time table and end of semester exam time table?.....	41
Table 4.3.13.1: Is the current system of accessing time tables effective?.....	43
Table 4.3.14.1: How do the lecturers access the teaching time table at the faculty?.....	44
Table 4.3.15.1: Is the current system convenient for lecturers as in accessing the time tables as well in making changes?.....	45
Table 4.3.16.1: How does the faculty stores its data?.....	46
Table 5.3.1.1: User Requirement.....	48
Table 5.7.2.1: Student.....	59
Table 5.7.2.2: Staff.....	60
Table 5.7.2.3: Department.....	60
Table 5.7.2.4: Program.....	60
Table 5.7.2.5: Time Schedule.....	61
Table 5.7.2.6: Subject.....	61

Abstract

The main objective of this project was to design a web based database system that is able to keep track of all students and staff records to ensure proper management and ensure accuracy and efficiency in the school of computer studies Kampala International University. Currently manual-based system of recording data and registering students are used at KIUSCS. This is associated with such problems as loss of valuable data, record mixing and insecurity to student's and staff records. The target of this new system is to improve the existing system so that student's and staff records can be kept and processed in an efficient manner.

Discussed in chapter one is the introduction and background of the school of computer studies. Furthermore is the significance and scope of the study are covered.

Chapter two presents the review of the literature relating to web based data base systems relating to various academic environments and institutions.

Chapter three of this project report. It discusses all the methods and techniques used to generate the system

Chapter four introduces the reader to the concept of data presentation, analysis and interpretation.

Chapter five discusses system analysis, modeling, design, testing and implementation

The chapter also includes a study and preview of the existing system and diagrammatic presentation of the new system. This includes the context diagram and entity relationship diagram. It also includes system inputs and system outputs.

Chapter six marks the conclusion of this report and involves the recommendations and future work on this project report.

CHAPTER ONE

INTRODUCTION

A web-based Database system is an online application that holds students and staff information that can enable sharing, keeping track and easy access of data where by unrestricted users can securely login using their identification codes or access numbers and are able to access the system accordingly.

In a database system there is raw data storage and electronic transfer of files. These are the basics of creating a central repository of information.

Web based database systems have helped many institutions to keep and make sure that all the necessary records are kept and tracked in a proper good standard and organized way.

Computer based database systems are the reliable sources of storage due to being appropriate and accurate in using them. This is because they encompass the users and the system to allow file records to be easily retrieved during their useful time in an institution. After the records have been created and used, there is need to store them efficiently such that they can be easily retrieved when they are needed. All this will be accomplished with a web based database system.

Web based database systems for institutions have got an integrated central repository, for the satisfactory support of the information processing requirements of modern institutions. A well designed and implemented procedure for the development of a relational data base system is vital for a web based database system.

1.1 Background of the study

Kampala International University (KIU) is aiming at equipping students with the knowledge to become future leaders in different professional fields. KIU was established in 2001 and located in Kansanga suburb of Kampala Makindye division and it is about 1.5 km from Kampala city centre along Ggaba road. The University offers both undergraduate and post graduate programs on full time as well as part time basis. It has schools and faculties, of which School of Computer Studies (SCS) is among them. SCS has four departments which include: Information Technology, Computer Science, Computer Engineering, and Information Systems.

The manual style of registering students, record keeping, sharing information and backing up of information at the University is responsible for all information related transactions at the university.

Prior to that records made are put in different files where there are only identified by faculty, course and nationality. Sometimes these files get misplaced due to careless handling. In this way there is time wastage. In case of an emergency a student/staff is made to wait until his/her file is found. This is a serious problem because the whole process is time consuming.

Therefore there is a need for a web based database system that keeps up to date all the information for students and staff which can be easily accessed .this will save time and keep all the information up to date.

1.2 Problem statement

The style of data entry, storage, retrieval, security and access to information at the School of computer studies is based on paper work and notice boards. The existence of various notice boards at the department that portray all the required information is a testimony that there is no any web based database system at the university. This has resulted in inefficiency and ineffectiveness in service delivery, with unnecessary delays in finding students/staff records immediately. Such system is expensive in terms of buying stationery and other needed materials, besides its also insecure in terms of confidentiality and authentication .this has made it hard for the staff and students to carry out management and control in its general activities.

Therefore a web based database is very essential to this department since it avails all the necessary required information and retrieval records hence leading to accurate delivery of the required services between the students and staff. It would also increase on the level of decision making.

1.3 Objectives

1.3.1 General objective

The main objective of the study is to develop a web based database system that can keep track of student's records, enable easy access of data by staff for School of Computer studies-Kampala International University, (KIUSCS).

1.3.2 Specific objectives

1. To analyze and investigate the problems of the current system.
2. To design a web based database system that that will manage and keep track of all the records at the department.
3. To implement a frame work for testing the system designed.
4. To validate the system developed such that it meets user and system requirements.

1.4 Research Questions

1. What are the problems of the current system?
2. Which kind of information is needed in developing the new system?
3. What are the requirements of establishing an online database driven system?
4. How do we implement the developed system?

1.5 Scope

1.5.1 Time Scope

The study covered eight months which started from January and ended in September 2011; the researcher has accomplished and submitted the project as

required by school of postgraduate computer studies-Kampala International University.

1.5.2 Geographical Scope

The research was limited to the School of Computer Studies-Kampala International University main campus in Kansanga-Makindye Division of Kampala District in Uganda. It has covered the faculty records and management.

1.5.3 Content Scope

The research was limited to current system and its environment which includes teaching materials and approach, reading references, website applications, student and staff details, at the faculty website has been tested on the existing system performance.

1.6 Significance

This study was done to identify the problems faced by the School of Computer Studies and evolve solutions to such problems. This has helped the department to improve its performance. It will also guide the faculty administration in the introduction and operation of a web based database system. The study will also act as a source of reference for all those concerned.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher reviewed the literature which was written on a web based database system by other researchers and their strengths and weaknesses. It shows researchers' views about the system (website), their application in both developing and developed countries in various universities or other higher institutions of learning.

Iyerere (1968) asserted that Universities must also make their contributions to the world of knowledge. He says, "We must not establish in our new young countries, institutions of higher learning which simply receive, they must give as well." He hastens to add, "In all things there are priorities and we have to look at immediate future, immediate present and decide what it is that universities in our kind of societies can at present most usefully give to the world of which we are part."

It must be noted that this development doesn't come easy as Mwiria (1992) states that African Universities have experienced serious decline in the last decade. The symptoms of this decline include among others reduced vigor in recruitment and promotion and complaints by the employer regarding inability of undergraduates to perform."

1.2 Database

Gerald (2002) suggests that Database is a collection of data stored in a standard format, designed to be shared by multiple users. A database management system (DBMS) is software that defines database, stores the data, supports a query language, produces reports, and create data entry screens.

According to the researcher, Database is a structure of storing information and data logically related with one another. Data or Information is stored in the database structure (tables); Tables are used as database structure that comprises of a number of fields that can accommodate the necessary information to be stored in the database and fields are called columns and rows as records.

From above information, the database implemented stores information about students, Lecturers/staff, programmes/activities, timetables that are linked for easy accessibility, it is from these stored information that are used to make reports, queries and support information to the faculty.

1.3 Record Management

According to Therese and Beth (1997) a record management system is a computer based tool designed to store, collect and present the results of processing to appropriate personnel in an organization. They further analyzed two types of record management systems, The Intelligent Character Recognition (ICR) and Optical Mark Recognition (OMR). Both can be incorporated into admissions application format. For instance where data is recorded from the application and automatically inserted into student information system database. Alternatively Bar codes can be used to avoid data entry that requires the university to send all applicants a set of bar code labels that must be attached to all documents supporting the application process. When these documents are scanned, they are automatically attached to the student's already created index. Each student is assigned a bar code and sent a page with bar code labels. This system improves on the speed of record entry and retrieval.

1.4 Dynamic Web Pages

Navigation using web pages began about ten years ago in scientific and academic circles. This technology later became available to the rest of the society in general and to the commercial world in particular, but the pioneers of the web were researchers and university teachers. Today, however, commercial websites offer a great variety of services, while the majority of university websites only offer conventional information in many cases incomplete and frequently incorrect, Berner (1996).

Thomas and Beg (2005), suggested that, to understand dynamic web pages you have to understand normal or other static web pages.

Typical non dynamic web pages do not change every time the page is loaded by the browser nor do they change if the user clicks on the button. The only change that you will see in static web pages is to see them load and unload, like what happens when you click on hyper link.

Static web pages (normal pages you build) always look the same and the content never changes unless you load a new page or you change the page to yourself and upload the new version of the page to the web server.

Dynamic pages can change every time they are loaded without you having to make those changes and the content is based on what the user do like clicking on same text or an image. Beg (2005),

According to Gesker (2001), He defines Static Web pages as data stored in .html files and cannot change until someone changes their source codes. While Dynamic Web pages are the Web pages that respond to users' requests and gather information from them. Oftentimes, they have built-in links to a database, from which they extract data based on input from the users hence they are created in real time.

2.5 Database driven pages

According to Kevin (2005) Building your own database driven website using PHP and MYSQL part 1, one of the most common types of dynamic web pages is database driven type.

This means that you have a web page that grabs information from the database (the web page is connected to the data base by programming) and insert that information into the webpage by the time it is loaded.

If the information stored in the database changes, the webpage connected to the database will also change accordingly and automatically without human intervention.

2.5.1 Application of Faculty Website in Minnesota State University

Recent school-wide web redesign efforts were led to the researcher examining education faculty websites. Although most of the twelve School of Education faculty have a website of sorts posted, three do not, and three are badly (as much as ten years) outdated. One of the basic information that has not been updated in three years, consists of a great deal of personal and professional information, but also has not been updated in several years, one is elaborating and detailed and has been updated recently, and three are current but contain minimal information Stern (2000).

When the subject of faculty websites was introduced, all the faculties agreed on an up-to-date website, something they wanted. But point to factors such as the lack of appropriate web editing software, and training to create or update their site. Indeed, support for faculty web pages is sparse. There are only two people in a Web Services department to support the entire campus, and a variety of webpage editing software is in use, including Netscape, FrontPage and Dreamweaver, with few organized classes or training for any of these programs Stern (2000).

With regard to research indicates 10-12% of faculty have professional web sites accessible from the department site (Bee, 2000; Lennex, 2007). One study reports that over half of students say faculty rarely or never have their own web sites, and only 17% of faculty often or very often have a web site (Wang, 2007).

These information requirements, both those imposed by law and those derived from an increase in demand by stakeholders, justify the need to examine the disclosure of information by Spanish universities, considering digital information. In this vein, the providing of electronic information implies the use of information technologies to simplify the interactions between universities and those demanding information.

With regard to the information that universities should provide, several studies (Gordon *et al.*, 1997; Nelson *et al.*, 1997; Angstrom and Fountain, 1989; Fisher and Gordon, 1991; Cave *et al.*, 1997; Coy and Goh, 1995; Coy *et al.*, 2001) identify disclosures about teaching, research, service efforts and accomplishments, and resource and overhead allocations; this information would advance colleges' and universities' annual reporting towards a public accountability perspective. Also, this information can be provided in different ways: formal and informal, routine and ad hoc, written, spoken, electronic, and other media.

Currently, the importance of internationality within universities has been particularly stressed. According to Sporn (1999), the recent global, competitive environmental forces have created unprecedented challenges for universities, so that the borders of universities have opened in new ways for their services and products. Cross border 164
The International Journal of Digital Accounting Research Vol. 9 education (that is, internationalization), with the consequent requirements for structural and cultural adaption's, is pervasive and an inescapable reality on a worldwide basis.

Both in America and in Europe, there is a clear call for internationalization. For instance, the American Council on Education's Commission on International Education (1995) states those higher education institutions must become -in a genuine sense institutions without boundaries if the nations and their people are to prosper in the environment of the new century.

In Europe, the need to internationalize has led to the implementation of the ERASMUS, CAMETT and TEMPUS programs, for example, and high priority has been given to academic international mobility of students and faculty, Sporn (1999).

In this context, a higher level of information should be disclosed by universities in order to recruit more foreign students, for whom universities' websites will be the main source of knowledge about the universities' activities and services, and financial condition. Therefore, websites will become a relevant tool for disclosing activities and for promoting the university internationally.

Crue (2008) suggests that given the increasing demand for technical degrees on behalf of students the universities with a strong presence of this kind of degree could use their websites as an adequate mechanism for promoting them and facilitating greater knowledge in the national and international spheres.

Universities play an essential role in society as producers and transmitters of knowledge. In recent years, the discussion about whether universities can encompass a third mission of economic development, in addition to research and teaching, has received growing attention (Mansfield, 1995; Leydesdorff and Meyer, 2003). Industry Gallego, García & Rodríguez Universities' Websites: Disclosure Practices, 165 research collaborations are extremely important mechanisms for generating technological spillovers and currently there is an increased level of academic commercial activities, such as patenting and licensing, and generation of spin-out companies (Shane, 2004; Friedman and Silberman, 2003).

In this context, websites are a key mechanism for disclosing the activities undertaken in research and development, technology and transference of their results, as well as their goals and successes (patents, R&D projects subsidized by public funds, etc.), in order to promote the university, reinforce the score obtained in different lists and obtain a higher volume of funds.

The complexity of a university, referring to the number of faculties the university comprises, can affect the design and navigability of its website, in order to facilitate the search for information and to move users to their faculties through links, maps, and so on. Also the larger the university (with many faculties), the larger the amount of potential contents which can be revealed on the Internet.

On the contrary, it is also likely that the main website may lose its importance in complex universities, in favour of their faculties' own websites.

A growth or a decrease in the number of students in a university may influence their needs of disclosure, for instance, by using the Internet. In the case of a significant reduction in the number of students, websites can be used as a platform to recruit new students intensely. Also, this objective involves the creation of a policy framework that encourages universities to meet community and students needs by diversifying their course offerings and providing enhanced levels of information on the nature and quality of these courses for prospective students (Sporn, 1999).

2.7 Goals of the Faculty Website

Users identify elements they believe should be present on all faculty web sites.

Lennex (2007) states that the goals of the web site should be to offer "access to course and program information, links to university resources, and contact information for the user" and administered a survey to students to determine those elements which are linked to "best practice and usability". The elements identified include hyperlinks to and from the department site, faculty email address, syllabi, subject area resources, current office hours, and an anonymous sender form for feedback. Other researchers suggest faculty web sites include name, contact information, links to departmental and institutional web sites, and a brief description of research interests, Curriculum Vitae (CV), publications, a link to scholarly organizations, syllabi and course materials (Heiberger & Vick, 2002) identified the elements both faculty and students believe should be present on a faculty website as an email address, office hours, telephone number, course syllabi, courses offered, research interests, educational background,

inks both within and outside the institution, professional experience, publications, academic advising information, professional memberships, and a picture of the faculty member. (Palmiter. et al., 2003).

2.8 Benefits of database driven website

Hood, Tammy, Escheder (1999) states that dynamic websites or database driven website can enable website owners to quickly and efficiently update website contents using an admin panel. The website owner can login to the admin panel and add content. Products or services and their details, edit and update the existing website contents or delete than from the website.

This is commonly, seen on online banking sites where you name and password and check out your bank account balance. Your bank account information is stored in database and has been connected to the webpage with programming thus enabling you to see your banking information. Imagine if the web page holding your banking information had to be built traditionally (that is by hand) every time your bank balance changed even a thousand monkeys working 24/7 drinking 5cups coffee a day, would not be able to keep up.

According to Toby, J (1998), the central database of concept is that of a collection of recording process pieces of knowledge. Typically, for a given database there is a structured description of the type of facts held in that databases this description is known as a scheme.

The scheme describes the object that is represented in the database and the relationships among them. There are a number of different ways of organizing a scheme which is modeling the database structure, these are known as database driven website enables many (potentially non-technical) users to provide content for the website. Users can publish articles on the website without the need to FTP them to a web server and also helps in updating the site information on line without the need to upload web pages.

t provides advanced search capabilities/functional that enables users to filter the results based on a given field. They can then sort the results by a field say "price" or Date".

2.8.1 Future Expandability

A web based solution enables clients to post content, make changes (update records) to the layout display and even the functionality if their website is more easily

2.8.2 Easy content management

A well structured, Database driven websites enable clients to update website with either or no training that without the need to know the HTML or need are web developer.

2.8.3 High efficiency

Web based infrastructures improve the reliability and stability of your website. The system keeps track of the templates and the changes to layout navigation or site structure would only need to be programmed once the site itself propagates the change to the appropriate pages and areas.

2.8.4 Minimizing the Errors.

The error trapping mechanisms of website ensure that required information is filled out correctly and that content is entered and displayed in its correct format hence ensuring efficient data sorting and retrieval.

Data base driven website stores and present vast amount of information to meet the needs of the individual user. The database manager the bits of information enabling clients to choose, compare, compile and relate them to each other.

Database driven website enhance web interactivity, this is the interactions for both users and website hence enabling many users to provide content, columns for the website.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section describes the methods and techniques that were used for data collection and analysis during the study. The study was based on the issues of database and online services in managing, storing, retrieving, securing data to the better performance of system.

3.2 Research Design

During the study, the design used for the survey and the methods of data collection was questionnaire, observation, Library and Internet search in order to gather both quantitative and qualitative data.

The quantitative research design was used in gathering data on cases of efficiency in accessing, retrieving, securing, storing, registering and disseminating information the departments.

Furthermore, these research collection techniques were used because they are all flexible and reliable methods of data collection.

3.3 Area of Study

According to Gupta (2003), suggested that a sample represents a population in every aspect. Thus the research was based on the school of computer studies-Kampala International University main Campus Kansanga with Students and Staff.

3.4 Research Population

A population is asset of persons or objects that posses at least one common characteristic. In this study the research was carried out based on the students and staff of School of Computer Studies.

3.4 Research Population

A population is asset of persons or objects that posses at least one common characteristic. In this study the research was carried out based on the students and staff of School of Computer Studies.

3.5 Sample Size and Sampling Procedure

According to Bell (1999) suggests that some predetermined size from population of interest is a sample. Three hundred and sixty respondents formed the sample size where by three hundred and eighteen were students and forty two were the Staff members of school of computer studies-KIU; this was made by contacting the available students and the staff that were interested in the study.

According to Saunders et al (2003) suggested that purposive sampling or judgmental sampling enables the research to select cases that will enable him to answer research questions to meet his research objectives. In order to determine the sample, a purposive sampling technique was employed to select the respondents from different categories of students and staff members of school of computer studies-KIU. The advantage of this sampling technique was that the researcher could use his research skills and prior knowledge to choose respondents and analyze their responses.

Table 3. 5.1: Distribution of the Respondents

Population Category	Population Sample	Response of Respondents	Percentage of Respondents
Staff	50	42	84
Student	340	318	93.5
Total	390	360	92.3

3.6 Research Instruments

The research involved the use of Data-collection methods to collect and gather information. This involved the use of data collection methods in collecting information

about the objects of study. The Data gathering was carried out by data collection methods in identifying and investigating of the problem of the study.

3.6.1 Observation

This was the main method of data collection that was used and most of the information gathered by the researcher was through observing day-to-day tasks and operations, observing work as it happens and gaining insights into stakeholders' tasks. An observation of the way how the faculty uses its current system as in handling, keeping and securing of records.

The observation method was used because it is highly reliable and validates data obtained directly from individuals and via other methods of data collection.

Observation techniques helped the researcher to see the onsite processes involved in the real processes. The researcher used this method because it is good for understanding the nature and context of the tasks.

3.6.2 Questionnaire

The researcher used questionnaires in collecting data from staff and students of the school of computer studies-Kampala International University Main Campus-Kampala Uganda. The questions were both open-ended and Closed-ended questions where respondents were able to give their opinions and ideas about the current system and the proposed system and target number was 50 people and were provided with questionnaires.

3.6.3 Historical documentation

This was done by reviewing the documentation about the faculty records and documents from the existing system by checking for redundant data and find out how the information was captured, managed, stored and secured with in the current system. Through use of written materials in form of literature books, internet materials and journals were to be reviewed so as to be able gather information on concepts,

strengths and challenges of the current system. Reports from manual system were to be examined to identify the inputs, processes and outputs of the system.

3.7 Data analysis

Data analysis is the process of looking at and summarizing data with the intent to extract useful information and develop conclusions. This was done soon after data gathering and was done with the aide of software such as SPSS.

Data analysis is closely related to data mining, but data running trends to focus on larger data sets, with less emphasis on making inference, and often uses data that was originally collected for a different purpose. Data analysis assumes different aspects, and possibly different names, in different fields.

3.8 Requirement Specification and establishment

Specification and establishment preliminary specifications were drawn up by covering each and every element of the requirement. This is where by identifying and specifying of the functional and non functional requirements that is used in system analysis and design. Design functional requirements are what the system should do and non functional are memory size, response time, more so website as the product contains the modules.

It is very important to involve users to be part of the system development. The system designer endeavored to ensure that the proposed system doesn't receive resistance from the users by designing a system through system specifications with help of user requirements. Once online system is developed and fully functional, a positive response is highly expected from the users. This produces a system, that is, user friendly with the fundamentals of the system.

3.9 Design

System design is the process of defining the architecture, components, modules, interfaces and data for a system (website) to satisfy specified requirements. One could take as the application of systems theory to product development.

The system was designed using Structure Query Language (SQL) for the database and the web pages were designed using Microsoft visual studio 2005. Different options are provided in the system interface which includes report generation tool, help function, system query tool and others. Also the system manual shall be provided to help user understand different functions incorporated into the system, system requirements and the operation.

The design tools that were applied include entity relationship diagrams (ERDs) and data flow diagrams (DFDs). The DFDs allowed me to analyze the data flows and how information can flow in order to come up with the new system.

3.10 Development and Implementation analysis

This is whereby the physical realization of the site and application design is done.

3.10.1 Implementation tools

In the implementation stage, the following tools was used; SQL server, mySQL and CSS languages, windows operating systems, and Microsoft Visual Studio 2005 (as the development environment).

3.10.2 SQL server

SQL server is a free server bundle that uses the server. When installed on the system, it includes MSYSQL. SQL is a popular web server that many ISP's and individuals use to host WebPages. When it installs SQL on your system your machine becomes a web server. Pages stored in your system in a "special folder" are accessible on the internet via the machine's IP address. In order for pages to be viewed on the internet, the files must be stored in a special directory; this directory is usually called htdocs, public html or www.

3.10.3 MYSQL

MYSQL is an open source relational database management system (RDBMs) that uses structured query language (SQL), the most popular language for adding, accessing and processing data in a database. Because it is open source can download MYSQL is designed as a multi-talking/multi-user database, which is the main requirement for database.

3.10.4 JavaScript

JavaScript is a scripting language most often used for client-side web development. It is a dynamic, weakly typed, prototype-based language with first-class functions. JavaScript was influenced by many languages and was designed to look like java, but be easier for non-programmers to work with. The language is best known for its use in websites (as client-side java script) but is also used to enable scripting access to objects embedded in other applications (for example Microsoft gadgets in the windows sidebar).

3.10.5 CSS Language

In web development, cascading style sheets (CSS) is used to describe the presentation of a document written in a mark up language. It is most common application is to style web pages written in HTML, but the language can be applied to any kind of XML document including JYST and XUL. CSS is used to help readers of web pages to define colours, fonts, layout and other aspects of document presentation. It is designed primarily to enable separation of document content (written in HTML or a similar mark up language) from document presentation and control in the specification of presentation characteristics, and reduce complexity and repetition in the structural content. CSS can also allow the same mark up page to be presented in different styles for different rendering methods, such as on screen, input by voice (when read out by a speech based browser or screen reader) and on Braille-based, tactile devices. CSS specifies a priority scheme to determine which style rules apply if more than one rule

After all the testing are done alive, testing is important for the website and web based applications, after uploading the site there should be a complete testing for example links test.

3.12 Maintenance and updating

Websites will need quite frequent updating to keep the standards. Bug fixes can be done during the time of maintenance. Once the website is operational, ongoing promotion, technical maintenance, content management and updating, site visit activity reports, staff training and mentoring will be needed on a regular basis depending on the complexity of the website and the needs within the organization.

matches against a particular element. In this so-called cascade priorities or weights are calculated and assigned to rules, so that the results are predictable. The CSS specifications are maintained by the World Wide Web consortium (W3C).

3.10.6 HTML

HTML, an initialization of hypertext mark up language, is the predominant mark up language for web pages. It provides a means to describe the structure of text-based information in a document by denoting certain text as links, headings, paragraphs, lists, among others and to supplement that text with interactive forms, embedded images, and other objects, HTML is written in the form of tags, surrounded by angle brackets. HTML can also describe to some degree, the appearance and semantics of a document, and include embedded scripting language code (such as JavaScript) which can affect the behavior of web browsers and other HTML processor.

3.11 Testing and validation

This is the process of executing application programs with the intent of finding errors, using careful planned test strategies and realistic data. The system is thoroughly tested to uncover facts in the application programs and the database structure. The faults were then corrected and the process would be repeated until the system proved to be working according users' specification and performance requirements.

- i. Testing the system performance, efficiency, disk space and its throughput to ensure proper functioning of the system.
- ii. Check the compatibility of the system with different operating systems for example windows XP, Linux and windows 7.
- iii. Testing for security issues like resistance to attacks and authentication procedures.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter deals with data presentation, analysis and interpretation and also discussion of findings under the objectives and research questions. Thus, collected data was intended to answer the research questions and enable the researcher to draw a comprehensive conclusion of the study. It also covered all the processes involved in analyzing the requirements and how the data were interpreted after collection and analysis of the data.

4.2 Analysis of Data Collection

The study was conducted through data collection methods that include; the use of questionnaires and observation to the specific users of the system. And the users of the system were students and staff and a range of questions was set and distributed to the respondents with the intention of fetching the opinions and facts to the related research topic to the researcher. The results obtained after the analysis enabled the user to develop a web based database system for School of Computer Studies-KIU main campus and spss software program was used to analyze the data obtained from the field.

4.3 Opinions of Targeted Users on the Introduction of A Web Database System for School of Computer Studies-KIU Main Campus.

Kampala International University School of Computer Studies (KIUSCS) students and staff were targeted for the new system. These were asked to give their views on the possible benefits of the new system, its feasibility and effectiveness.

4.3.1 Respondent by Gender

The system targeted users who were asked to indicate their gender. The researcher wanted to know the appropriate number of male and female who supports the use of a web based database system. The table below shows the percentage between male and female.

Table 4.3.1.1: Respondent by gender

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Male	188	59.1
	Female	130	40.9
	Total	318	100
STAFF	Male	23	54.8
	Female	19	45.2
	Total	42	100

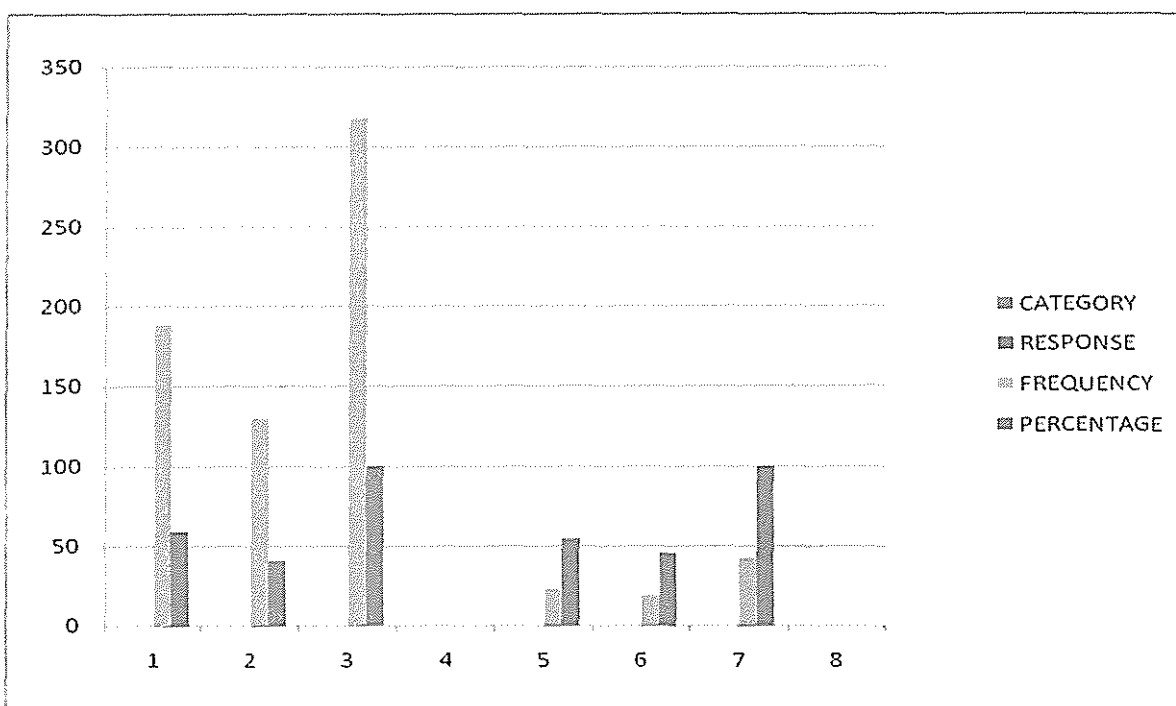


Figure 4.3.1.1: Respondent by gender

From the bar chart above, 59.1% of male students responded and 40.9% of female students responded as well. 54.8% of male staff responded and 45.2% female staff responded.

According to the statistics above,all the respondents averagely need anew and reliable system to be in place such that all their academic issues are fully accomplished.

4.3.2 Respondent by Level of Education

The system targeted users who were asked to indicate their level of education. The researcher wanted to know the level of education for each respondent who supports the use of a web based database system.

Table 4.3.2.1: Respondent by level of education

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Diploma	140	44.0
	Bachelors	164	51.6
	Masters	14	4.4
	Total	318	100
STAFF	Bachelors	30	71.4
	Masters	11	26.2
	PHD	1	2.4
	Total	42	100

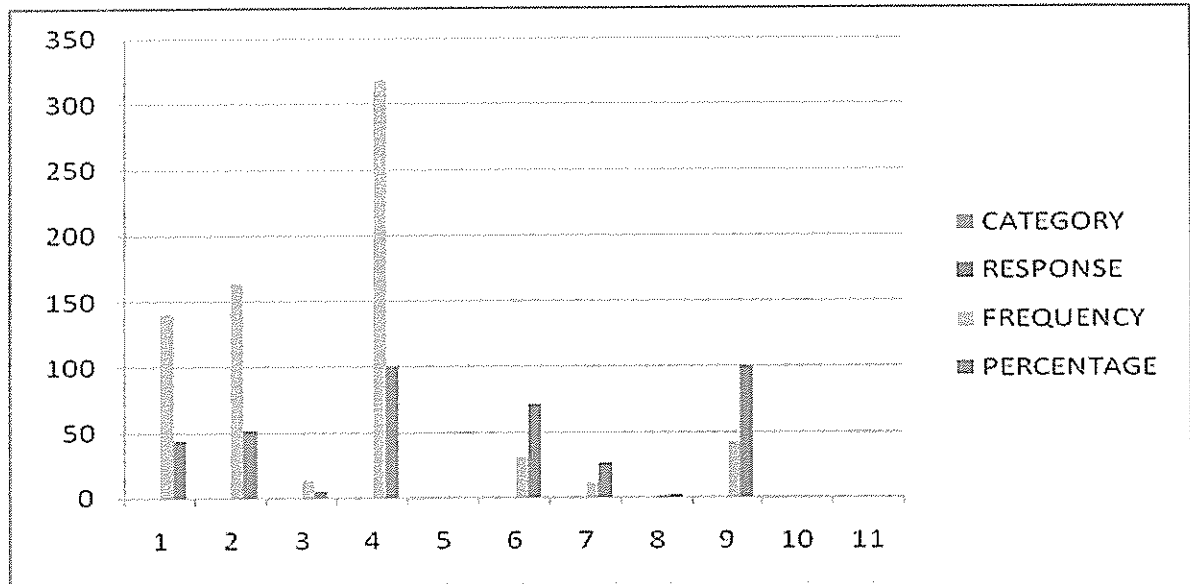


Figure 4.3.2.1: Respondent by level of education

The above chart represents the frequency number of students and staff with their percentages according to their level of education. The statistics averagely show that all levels of education require a system to be put in place.

4.3.3 Respondent by Language

The system targeted users who were asked to indicate their languages they speak. The researcher wanted to know the kind of language each respondent speaks, who supports the use of a web based database system. The table below shows the percentage of language spoken by the respondent.

Table 4.3.3.1: Respondent by Language

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	English	224	70.4
	Kiswahili	71	22.3
	Luganda	23	7.2
	Total	318	100
STAFF	English	25	59.5
	Kiswahili	9	21.4
	Luganda	8	19.0
	Total	42	100

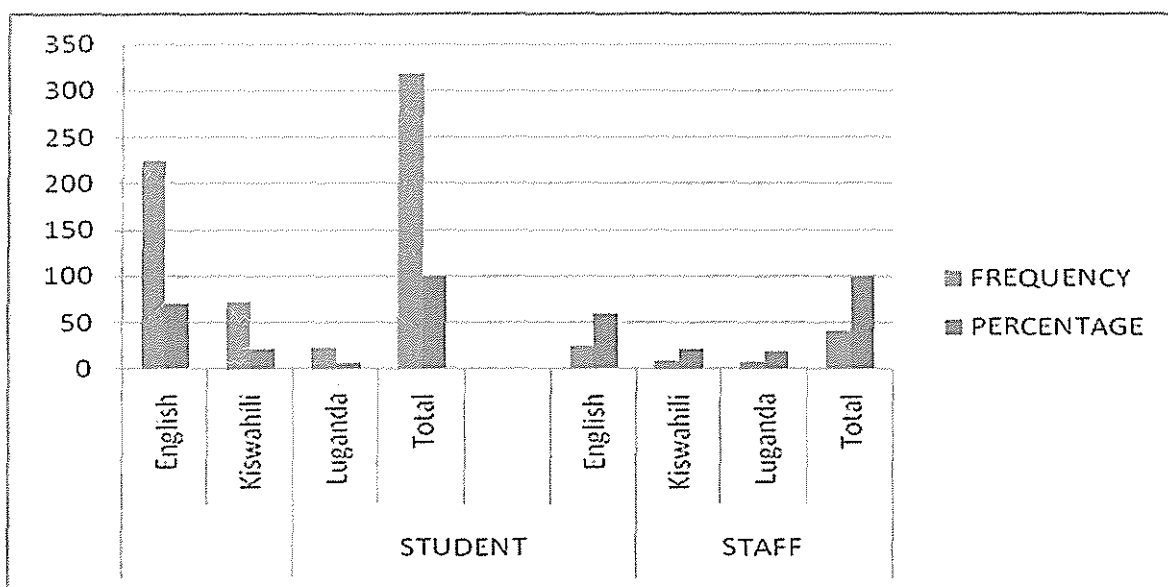


Figure 4.3.3.1: Respondent by Language

The above bar chart represents the frequency number of students and staff who responded according to their preferred language. According to the statistics, English is the most appropriate language chosen for the system.

4.3.4 How does the faculty communicate with the staff and students?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 73.9% shows that the faculty communicates with staff and students through notice boards, 25.5% shows that the faculty communicates with staff and students verbally and 6% shows that the faculty communicates with staff and students via online.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 76.2% shows that the faculty communicates with staff and students through notice boards, 9.5% shows that the faculty communicates with staff and students verbally, 11.9% shows that the faculty communicates with staff and students via online and 11.9% shows that the faculty communicates with staff and students with written documents.

Table 4.3.4.1: How does the faculty communicates with the staff and students?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Notice board	235	73.9
	Verbal	81	25.5
	Online	2	6
	Total	318	100
STAFF	Notice board	32	76.2
	Verbal	4	9.5
	Online	5	11.9
	Written	1	2.4
	Total	42	100

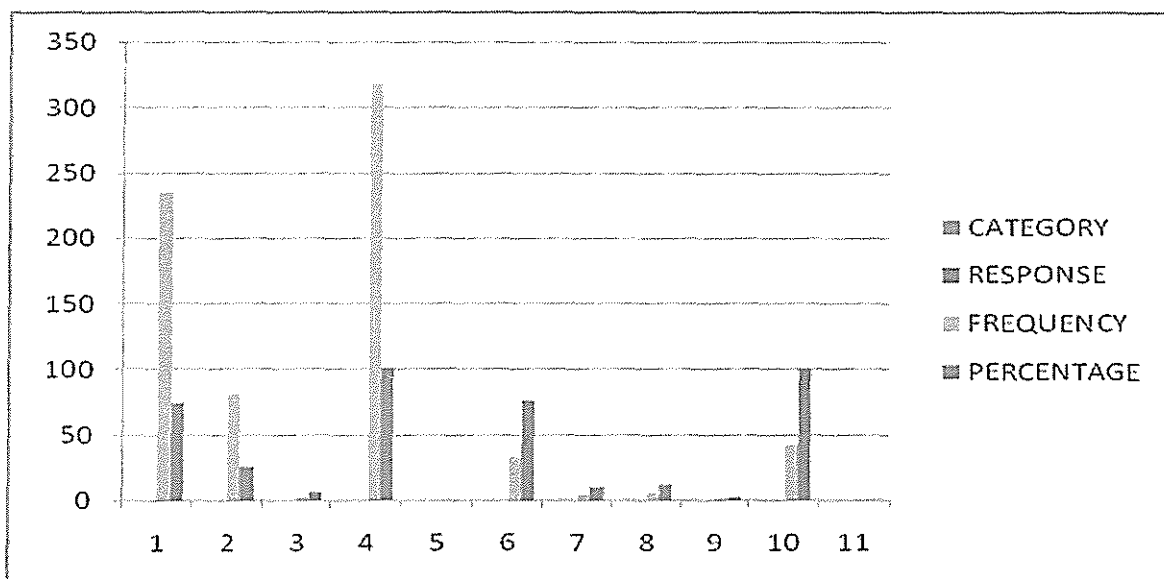


Figure 4.3.4.1: How does the faculty communicates with the staff and students?

The above bar represents information channels used by faculty to communicate to students and staff. According to the statistics, Most of the information is delivered through the notice boards therefore a need for an online system is vital for the faculty.

4.3.5 Does the faculty support online communication (e-mailing system)?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 78.0% shows that the faculty supports online communication, 22.0% shows that the faculty does not supports on line communication.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 76.2% shows that the faculty supports online communication, 23.8% shows that the faculty does not supports on line communication.

Table 4.3.5.1: Does the faculty support online communication (e-mailing system)?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Yes	248	78.0
	No	70	22.0
	Total	318	100
STAFF	Yes	32	76.2
	No	10	23.8
	Total	42	100

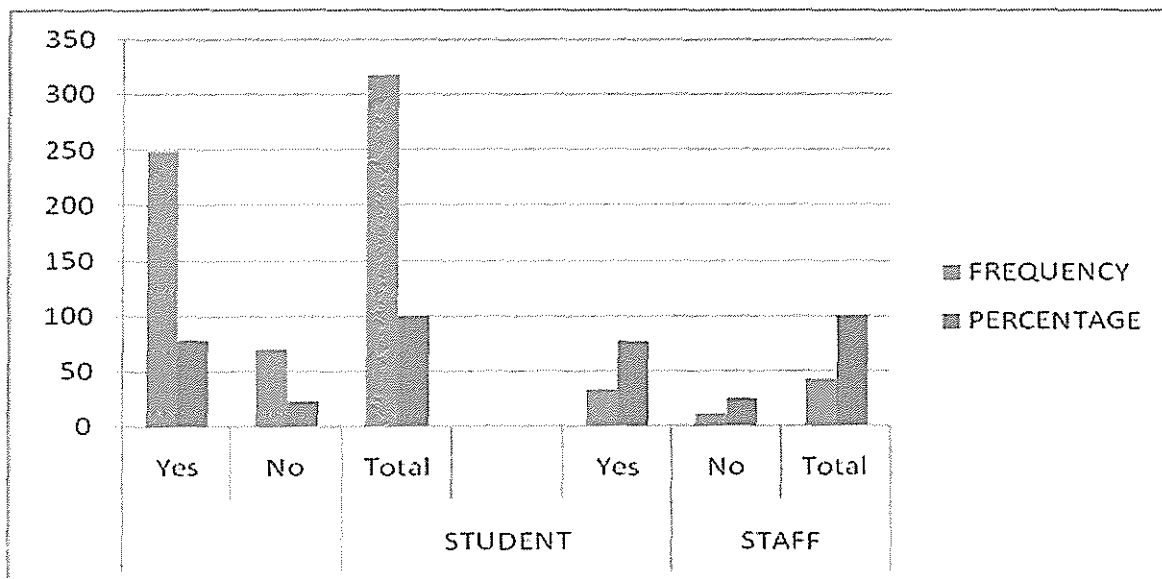


Figure 4.3.5.1: Does the faculty support online communication (e-mailing system)?

The above bar chart represents the total number of students and staff who responded on the use of online communication. According to the statistics therefore, most students and staff prefer the use of an online based system.

4.3.6 How does the faculty register students?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 54.4% shows that the faculty registers students manually and 45.6% shows that the faculty registers students by use of computers.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 73.8% shows that the faculty registers students manually and 26.2% shows that the faculty registers students by use of computers.

Table 4.3.6.1: How does the faculty register students?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Manually	175	54.4
	Computerized	143	45.6
	Total	318	100
STAFF	Manually	32	73.8
	Computerized	11	26.2
	Total	42	100

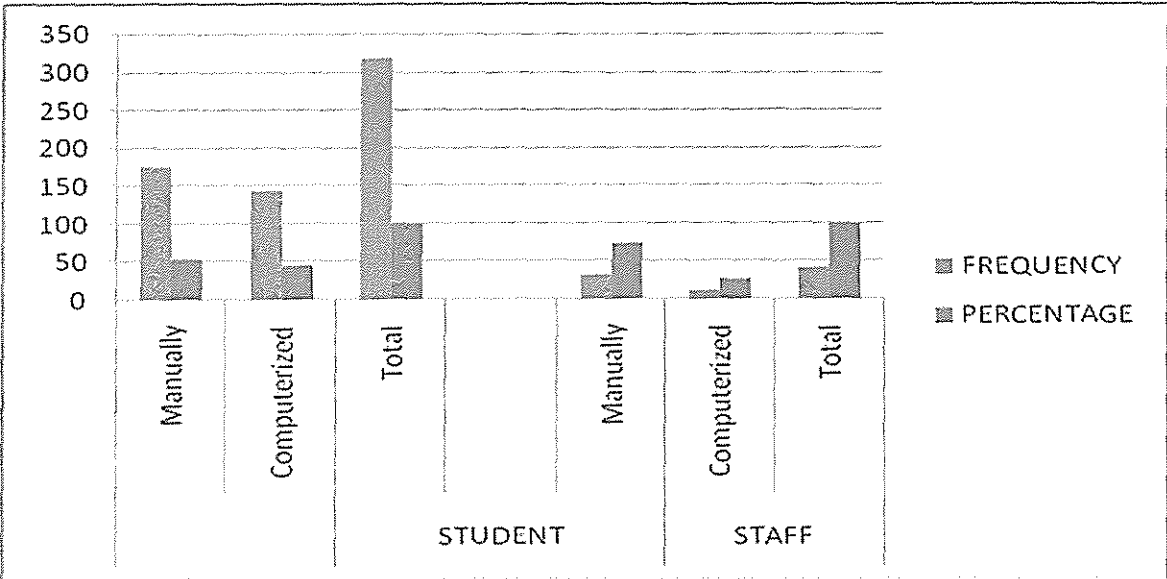


Figure 4.3.6.1: How does the faculty register students?

The above bar chart represents how the faculty registers students and staff. This shows that the system used is sem-automated. Using the statistics above it is very important to note that a fully computer automated system would be vital to curb down manual related problems.

4.3.7 Does the current process of student registration work effectively?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 45.0% shows that the current process of student registration works effectively, 55.0% shows that the current process of student registration does not work effectively.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 16.7% shows that the current process of student registration works effectively, 83.3% shows that the current process of student registration does not work effectively.

Table 4.3.7.1: Does the current process of student registration work effectively?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Yes	143	45.0
	No	175	55.0
	Total	318	100
STAFF	Yes	7	16.7
	No	35	83.3
	Total	42	100

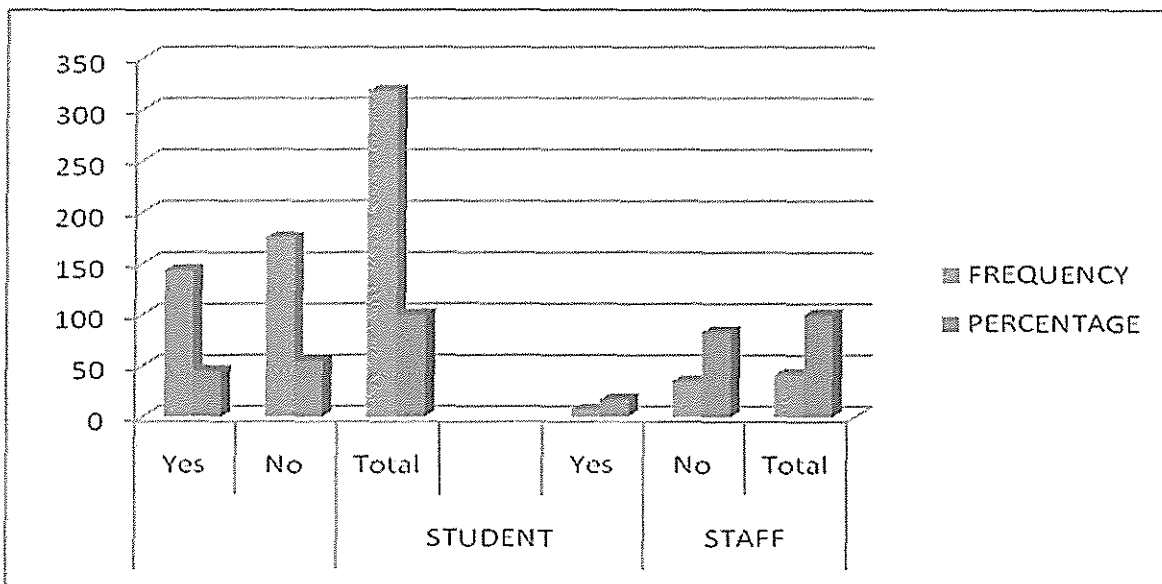


Figure 4.3.7.1: Does the current process of student registration work effectively?

The above bar chart represents how the students and staff responded to the effectiveness of the current system which is manual. Statically therefore, it was noted that most of the respondents were not conversant with the manual system of registration since it is so tiresome and time consuming.

4.3.8 Does the faculty need an online student registration?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 79.9% shows that the faculty need an online student registration, 20.1% shows that faculty does not need an online student registration.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 85.7% shows that the faculty need an online student registration, 14.3% shows that faculty does not need an online student registration.

Table 4.3.8.1: Does the faculty need an online student registration?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Yes	254	79.9
	No	64	20.1
	Total	318	100
STAFF	Yes	36	85.7
	No	6	14.3
	Total	42	100

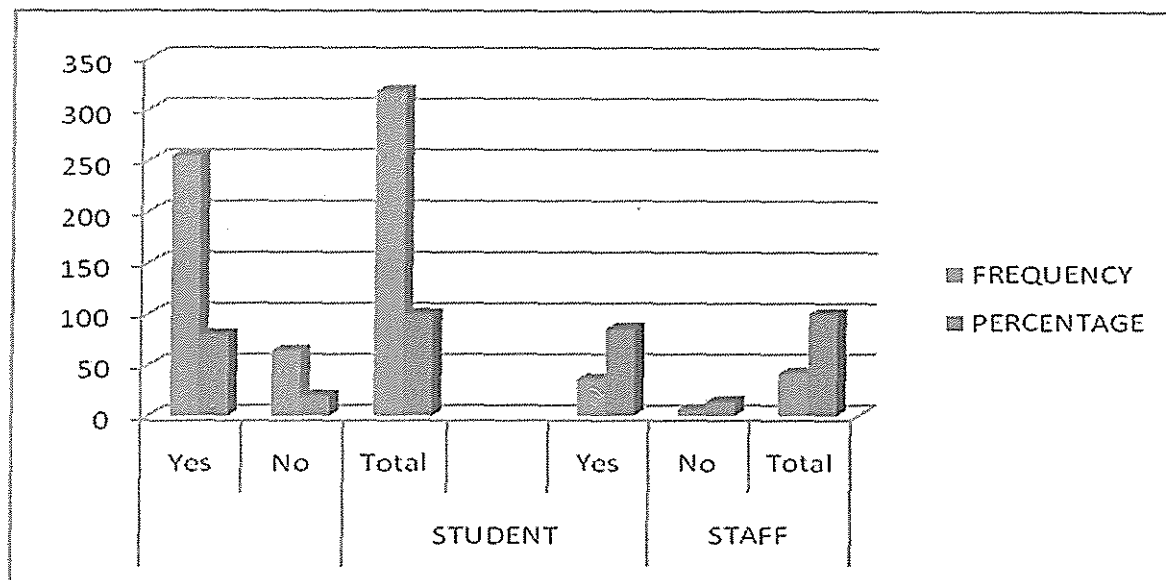


Figure 4.3.8.1: Does the faculty need an online student registration?

The above bar represents the total number of students and staff who responded on the use of an online registration system. With these statistics it is clearly noted that most of the respondents were in support of an online system of registration.

4.3.9 Will the old system work with an online registration?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 83.3% shows that the current system will work with an online registration and 16.7% shows that the current system will not work with an online registration.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 85.7% shows that the current system will work with an online registration and 14.3% shows that the current system will not work with an online registration.

Table 4.3.9.1: Will the old system work with an online registration system.

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Yes	265	83.3
	No	53	16.7
	Total	318	100
STAFF	Yes	36	85.7
	No	6	14.3
	Total	42	100

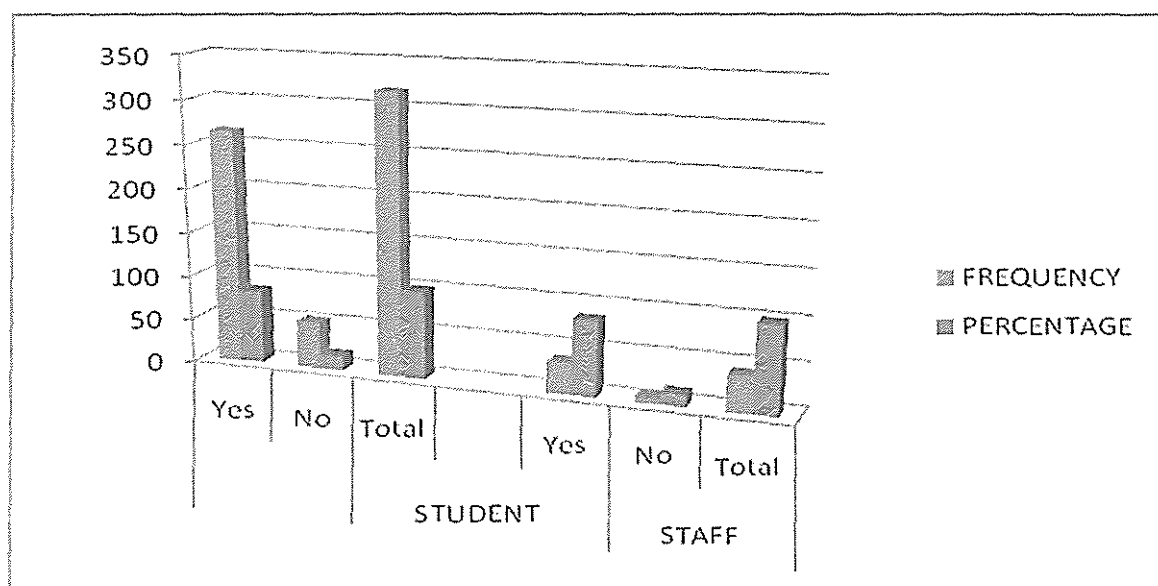


Figure 4.3.9.1: Will the old system work with an online registration system.

The bar chart above shows the total number of students' and staff's view on whether the current system will work concurrently with the new system. According to the statistics, Most of the respondents accepted the view that the old system will work with the new system fully well.

4.3.10 How does the faculty carry out teaching?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 85.8% shows that the faculty carries out teaching in classrooms, 10.4% shows that the faculty carries out teaching via online and 3.8% shows that the faculty carries out teaching with none.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 88.1% shows that the faculty carries out teaching in classrooms, 11.9% shows that the faculty carries out teaching via online.

Table 4.3.10.1: How does the faculty carry out teaching?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Class rooms	273	85.8
	Online	33	10.4
	None	12	3.8
	Total	318	100
STAFF	Class rooms	37	88.1
	Online	5	11.9
	Total	42	100

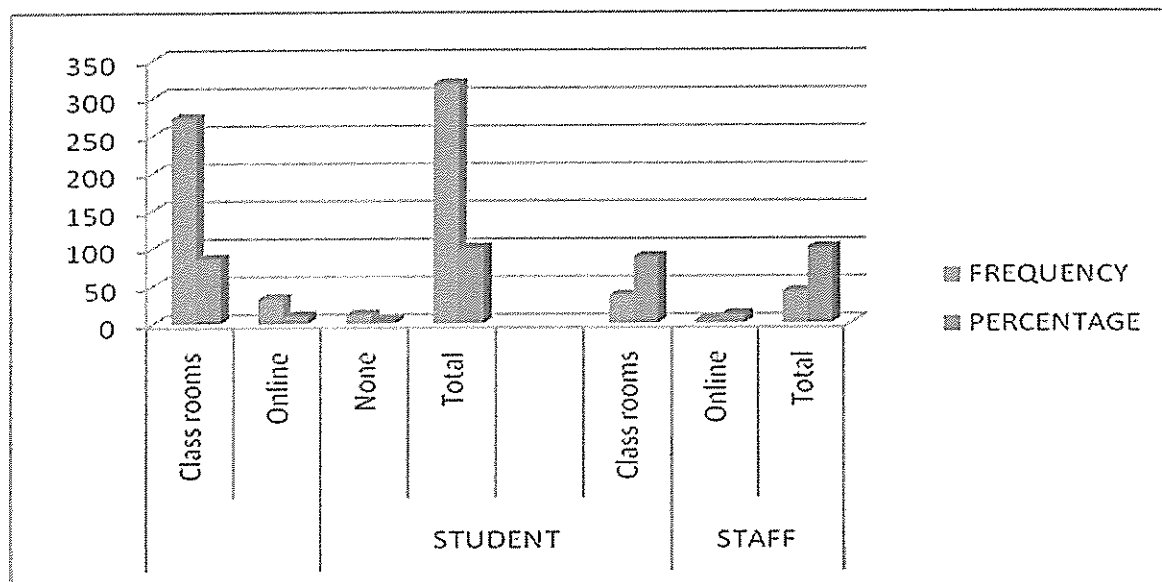


Figure 4.3.10.1: How does the faculty carry out teaching?

The above chart shows how teaching is currently conducted. Most of the teaching is done in classrooms. According to the statistics, there is a need to conduct teaching online in future. This will be supported by the advancement of this system.

4.3.11 How have been students accessing course and the course notes from lecturers?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 81.1% shows that the students have been accessing course works and course in class rooms, 17.9% shows that the students have been accessing course works and course via online and 9% shows that the students have been accessing course works with none.

The research shows that out of 42 respondents (Students) who answered the questionnaires, 88.1% shows that the students have been accessing course works and course in class rooms, 9.5% shows that the students have been accessing course works and course via online and 2.4% shows that the students have been accessing course works with none.

Table 4.3.11.1: How have been students accessing course works and course notes from lecturers?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Class rooms	258	81.1
	Online	57	17.9
	None	3	9
	Total	318	100
STAFF	Class rooms	37	88.1
	Online	4	9.5
	None	1	2.4
	Total	42	100

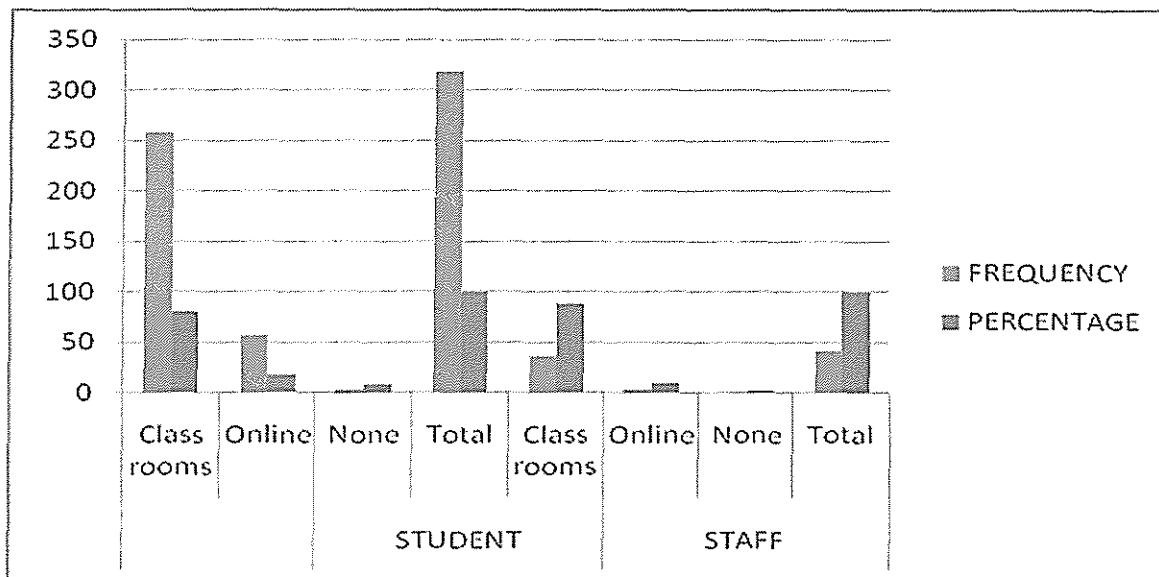


Figure 4.3.11.1: How have been students accessing course works and course notes from lecturers?

The above bar chart shows the total number of respondents who access course works in classrooms and online. Most of the respondents' access coursework in classrooms. These statistics fully show that accessing course works and notes online would be vital in future with the continuous advancement of the new system.

4.3.12 How do the students access the teaching time tables and end of semester exam time table?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 84.3% shows that the students access the teaching time tables and end of semester exam time table on the notice board, 9.1% shows that the students access the teaching time tables and end of semester exam time table verbally and 6.6% shows that the students access the teaching time tables and end of semester exam time table via online.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 57.1% shows that the students access the teaching time tables and end of semester exam time table on the notice board and 42.9% shows that the

students access the teaching time tables and end of semester exam time table verbally.

Table 4.3.12.1: How do the students access the teaching time table and end of semester exam time table?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Online	21	6.6
	Notice board	268	84.3
	Verbal	29	9.1
	Total	318	100
STAFF	Online	18	42.9
	Notice board	24	57.1
	Total	42	100

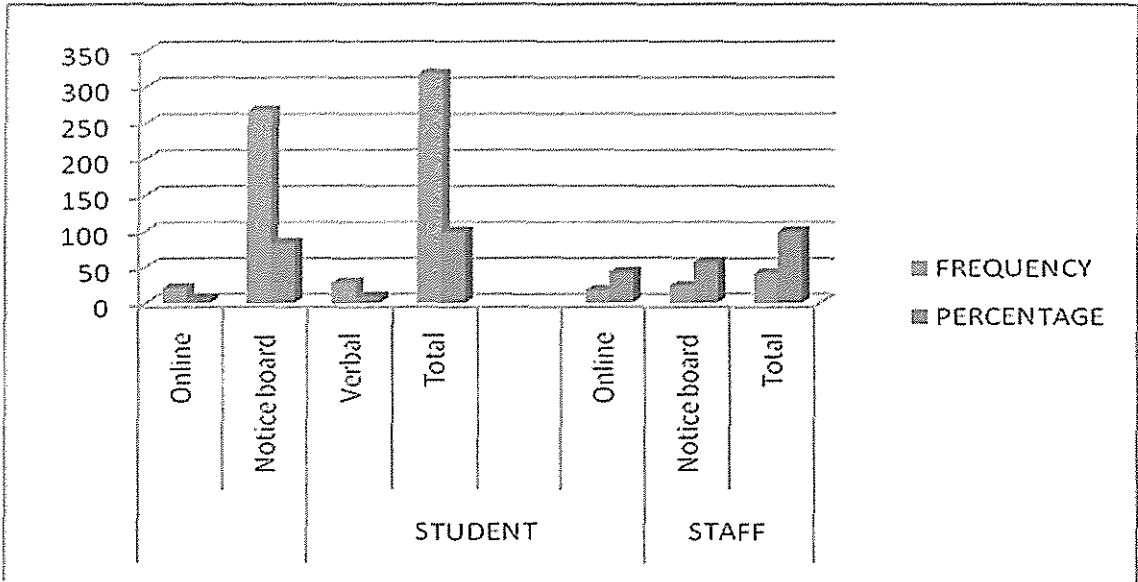


Figure 4.3.12.1: How do the students access the teaching time table and end of semester exam time table?

The above bar chart shows the respondents accessibility to the time tables. Most of the time tables are accessed via noticeboards. By using the statistics above it is vital to note an online sytem will fully support access of timetable in a convenient and reliable way.

4.3.13 Is the current system of accessing time table effective?

The research shows that out of 318 respondents (Students) who answered the questionnaires, 42.5% shows that the current system of accessing time table is effective. 57.5% shows that the current system of accessing time table is not effective.

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 11.9% shows that the current system of accessing time table is effective and 88.1% shows that the current system of accessing time table is not effective.

Table 4.3.13.1: Is the current system of accessing time tables effective?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STUDENT	Yes	135	42.5
	No	183	57.5
	Total	318	100
STAFF	Yes	5	11.9
	No	37	88.1
	Total	42	100

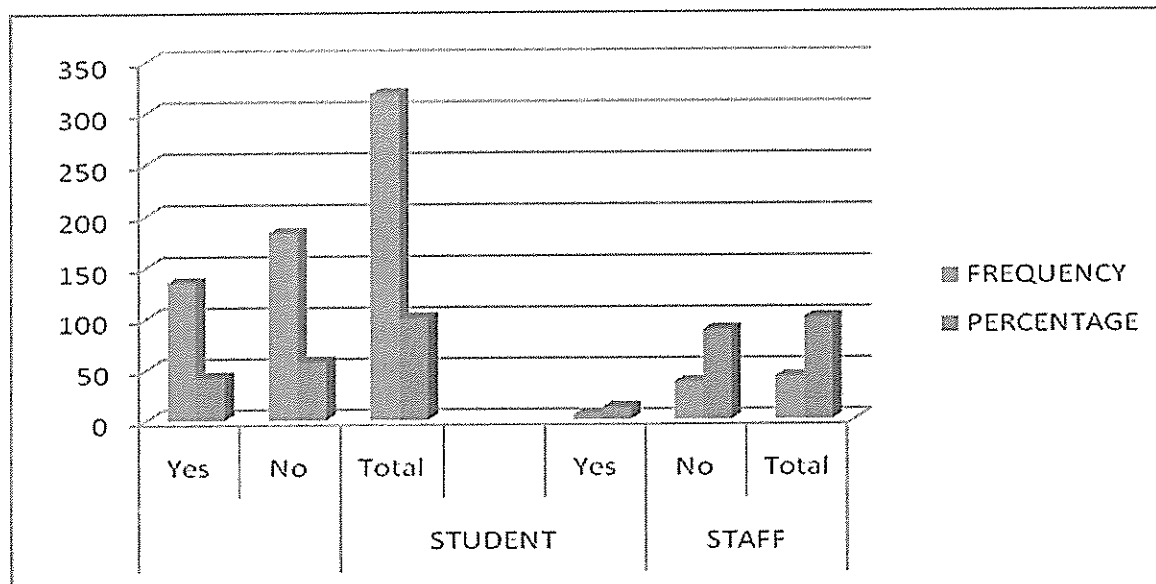


Figure 4.3.13.1: Is the current system of accessing time tables effective?

The above bar chart shows the various ways how the staff access the timetable. According to the statistics , Most of the staff members access the time tables through notice boards.The new system supports accessibility of timetables online which will ensure efficiency of the staff members.

4.3.15 Is the current system convinient for lecturers as in accessing time table as well in making changes?

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 19.0% shows that the current system is convenient for lecturers as in accessing the time tables as well in making changes and 81.0% shows that the current system is not convenient for lecturers as in accessing the time tables as well in making changes.

Table 4.3.15.1: Is the current system convenient for lecturers as in accessing the time tables as well in making changes?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STAFF	Yes	8	19.0
	No	34	81.0
	Total	42	100

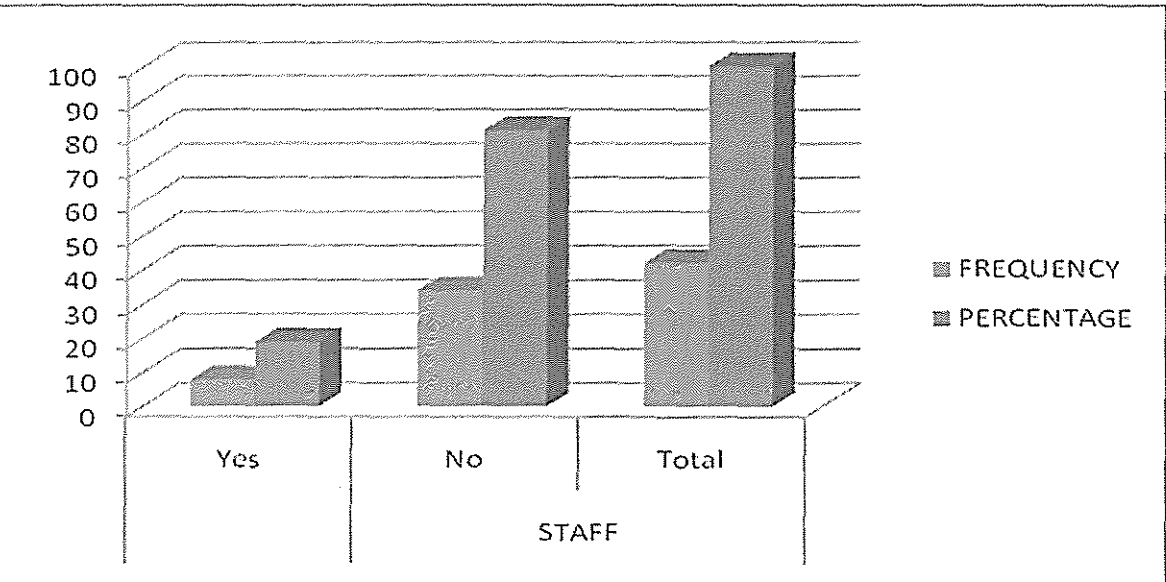


Figure 4.3.15.1: Is the current system convenient for lecturers as in accessing the time tables as well in making changes?

The bar chart statically shows that the current way of accessing time tables is inconvenient and hence many don't make changes. The new system allows the staff to make changes and increases accessibility.

4.3.16 How does the faculty store its data or records?

The research shows that out of 42 respondents (Staff) who answered the questionnaires, 64.3% shows that the faculty stores its data in physical files, 35.7% shows that the faculty stores its data in databases.

Table 4.3.16.1: How does the faculty stores its data?

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
STAFF	Physical files	27	64.3
	Database	15	35.7
	Total	42	100

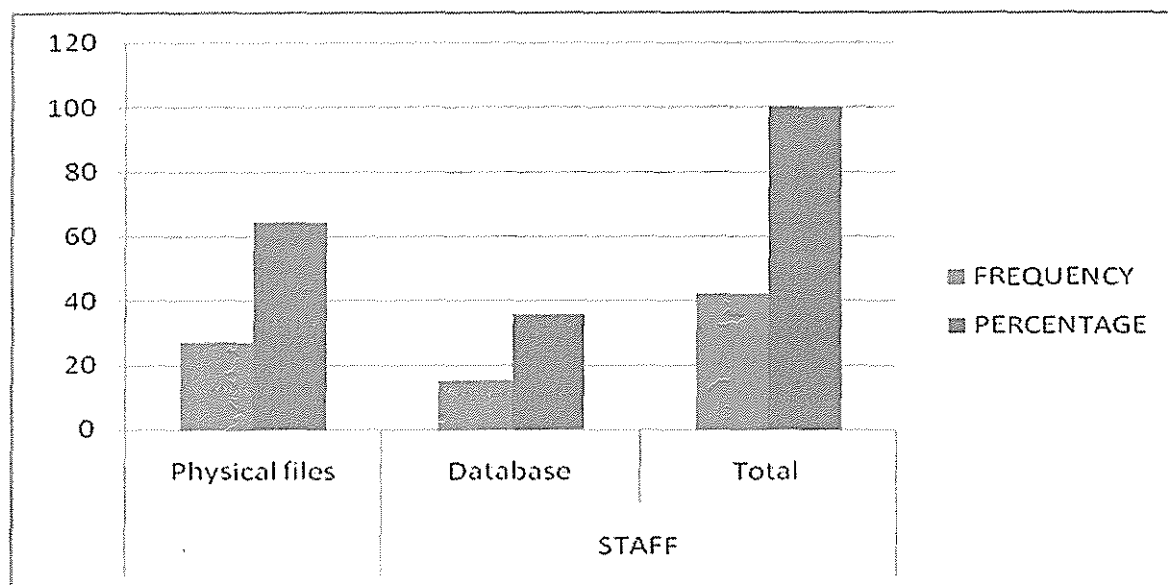


Figure 4.3.16.1: How does the faculty stores its data?

The above chart shows the methods of data storage used by the faculty. statistics show that most of the data is stored on physical files hence most of the data is liable to loss. The new system is based on the use a central repository which is a database system.

CHAPTER FIVE

SYSTEM ANALYSIS, MODELING AND DESIGN

5.1 Introduction

This chapter summarizes how user requirement analysis, design investigation and the interpretation were carried out in order to implement the proposed an online database driven system (website). The design part is mostly focused on the system analysis, modeling and designs. It presents requirements collection, Data flow diagrams, Entity relationship modeling (table design).

5.2 System Analysis

A system is a set of interrelated procedures together with the personnel that jointly the personnel and jointly performs different activities to accomplish a specific objective.

System analysis is the process of analyzing a system with the potential goal of improving or modifying it.

System analysis helps in describing how the system flows and its relationships between the different entities of the company. The system is divided into smaller parts for the purpose of studying how components work, Davis, W, S (1982).

5.3 Requirement Analysis

After investigation and gathering of the requirements, the analysis of software requirements follows and these were the findings.

5.3.1 User Requirements

1. The system is able to allocate data of all registered students and staff.
2. The system blocks non-members from performing administrative tasks like adding or editing and in as well as deleting the data.
3. The system provides reports on demand.

Table 5.3.1.1: User Requirement

User	Requirements
Users	Login Register Search the system View faculty programs Send e-mail Download data Logout
Administrators	Login Update users data Delete users particulars from the system Upload data Logout

5.3.2 System Requirements

These define the platform and technology that is required in order to run the new the system.

5.3.2.1 Functional requirements

Functional requirements define what a system is supposed to accomplish. The functional requirements for online database driven system are;

- a) The system captures students and staff information.
- b) The system stores users and administrators information in the database.
- c) The system generates reports about the students registered per semester and the administrators must be able to view reports after entry of the data by the users.
- d) The system verifies user's passwords and users name in the system in order to protect data from unauthorized users.

- e) The system deletes and updates faculty records.

5.3.2.3 Non Functional Requirements

Non functional requirements are the restrictions or constraints to be placed in the system. The system shall be able to operate 24 hours a day or seven days a week, unless prior notification is given.

They include;

- a) The system is error free.
- b) The system has been built in such away that it works with other future systems for example e-learning system.
- c) The system allows users to access faculty information at all times.
- d) The records are fully available for future reference for any institution and individuals.
- e) Response and processing time is efficient and fast enough both to users and administrators.
- f) The system is efficient and easily accessible to both students and staff.
- g) The system allows only rightful users who need or are authenticated to the system before use.
- h) Un-authorized users cannot access the system.
- i) The system has a user friendly interface that is attractive and easy to use.

5.3.3 Advantages of the new system

The Web based database system (Website) provides a number of benefits as indicated below.

- i) Password protection by encryption method.
- ii) Authentication of users and administrators enhancing the security of the system and where eligible users require usernames and passwords to access the system.

- iii) The system benefits students by making it easy for them to register online, access teaching and exam schedules online and accessing faculty programs and events online.
- iv) The staffs of school of computer studies at KIU are able to access student's detailed information on enterprise mainframe database via a faculty workstation running terminal emulation.

Administrators can view the particulars of users and manipulate the system.

5.3.4 Hardware requirements.

The system requires the following hardware specifications to run efficiently;

- a) A computer with a minimum of 2.5GHz is faster micro processing speed.
- b) The system is installed on a server that can handle a lot of traffic and requests at the same time since the system can be accessed by multiple users at a given time.
- c) Hard disk with storage capacity of at least 80GB. Allows bigger free disk space, faster the queries will be processed.
- d) Backup media- The system needs at least a CD Writer or DVD drive for backup mechanism, to sustain data integrity and consistency in case of system failure.
- e) NIC so as to be able to interface with other computers in the network.
- f) It can run in all hardware platforms and at least a Pentium III processor of 800MHz client
- g) Memory- For faster transactions of queries, at least 256 MB of RAM is sufficient
- h) Printer- A printer for outputting information such as reports for administrative purposes is a mandatory requirement. A non impact (Laser or ink-jet) printer is a good brand that produces high quality print and it is relatively faster compared to dot-matrix printer.

5.3.5 Software requirements

The system requires the following software specifications to run efficiently;

- a) Operating system- Windows NT family of operating systems, are preferably suggested for this venture. This is due to the fact that, Windows NT supports NTFS file system which is among many competitive features, it offers adequate security. It offers not only user-level security, but also folder and file level security
- b) It can run on operating systems such as windows 2003.
- c) Anti-virus software- There is a need to have an anti-viral program, to detect and disinfect viruses that may affect stored records.

5.3.6 Developing Software

- a) Browser-The system requires web browser installed on the client machine in order to run. This could be Mozilla fire fox, internet explorer or many others.
- b) Database- Aggis M. C. (2003), Database is a logical collection of interrelated information, managed and stored as a unit, usually on some form of mass-storage such as magnetic tape or disk and information about details of users, registration forms, and administrators' information are stored in a database since the website is dynamic.

The database is relational and it helps the viewers or users to access information accurately. Viewers access what they are supposed to access with their passwords for security purposes

5.3.7 Security requirements

Computer security, a techniques developed to safeguard information and information systems stored on computers. Potential threats include destruction of computer hardware and software and the loss, modification, theft,

unauthorized use, observation, or disclosure of computer data. Security can be achieved by the following approach.

a) User-Access Level Security

Windows NT allows the implementation of local security. Each user created belongs to privileged group. Group privileges differ from each other, administrators being super-users, granted supremacy of the system. Each group has default policies.

Apart from that, administrator activities grant access level as well as defining his/her policies, and the group he/she belongs to. This ensures the system security in cases such as data intrusion.

b) Passwords

The most suitable approach for a user identity is the use of the passwords. When the user identifies herself/himself by user ID or account names she/he is asked for a password. If the user supplied password stored in the system assumes that the user is legitimate.

Passwords are confidential sequences of characters that allow approved persons to make use of specified computer, software, or information. To be effective, passwords must be difficult to guess and should not be found in dictionaries. Computer systems usually limit the number of attempts and restrict the time it takes to enter the correct password before the user is allowed to log in.

5.4 The New system.

The new system is web based database system which is internet based system with its database online.

- a) Only one student can register one course to avoid data redundancy.
- b) Only the administrator can access the database of the faculty, by viewing and updating data.
- c) Un-authorized users cannot access the system.

- d) Only the administrator can create the accounts for the new users with username and password.

5.5 System Design

System design describes the architectural design and different levels of processes, data flow diagrams data store that were used to understand processes involved in the development of online Database Driven system.

System design looks at the data requirements, software construction and design of the interface, database and Data Structures.

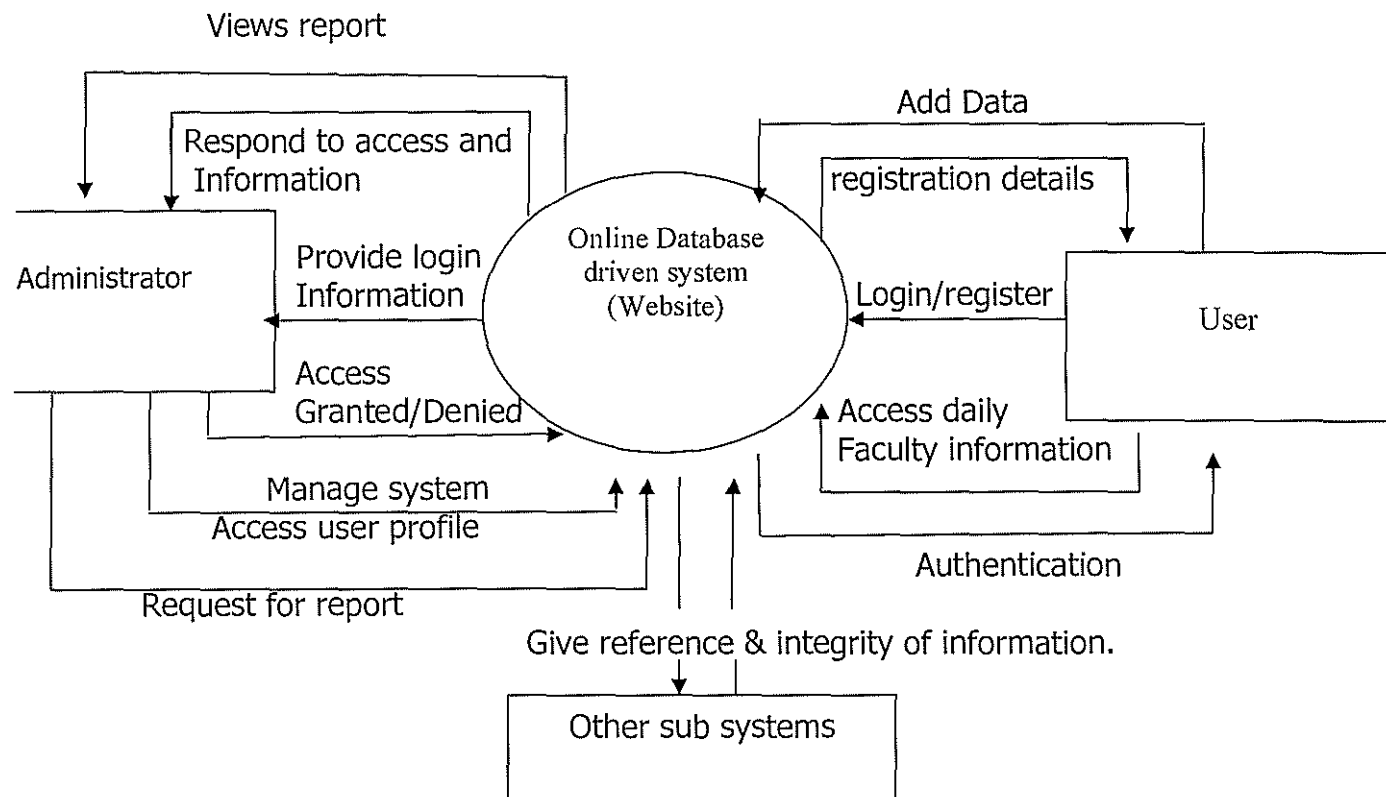


Figure 5.5.1: shows the Context Diagram for the new system

5.6 Data base design

In designing the database, it is very important to consider physical and logical (conceptual) layout of the data storage.

5.6.1 Conceptual database design

The conceptual design of the database involves components of the data model that include Entities and their attributes and the relationships between the entities. Entities are the distinct data objects, attributes are the properties on object and relationship are the associations between the entities.

5.6.1.1 Database Schemas

Entities include;

- 1) Student {regNo (pk), sname, oname, gender, date-of-birth, nationality, Year_ of _study, Academic year _of _admission, date_ of _entry, mode of entry, study session ,program_Id(fk), intake ,e-mail, telno, dept_Id(fk), password}
- 2) Staff {staff _Id (pk), sname, oname, gender, position, email, telNo, residence, dep_Id (fk) course_Id (fk)}
- 3) Department {dept_Id (pk), deptName, Description}
- 4) Program {Program_Id (pk), programName, duration}
- 5) Subject {Subject_Id (pk), subjectName, staff_Id, dept_Id }
- 6) Level {Level_Id (pk), description}
- 7) Nationality {Nationality (pk), description}
- 8) Users {username, password (pk), status, level}
- 9) Academic Year{Id(pk), Description}
- 10) Rooms{roomNo (pk), floor, building}
- 11) Time Table {Id (pk), time, lecturer, subject, room, day}

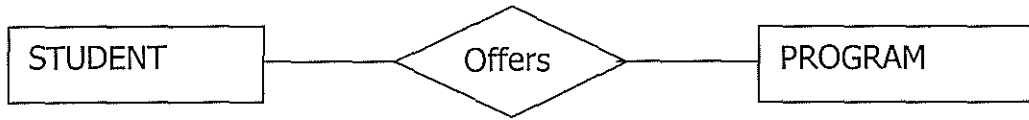
5.6.1.2 Mapping of relationships between entities

Entity Relationship Modeling

This is a set of constructs used to interpret, specify, and document logical data requirements of database processing system.



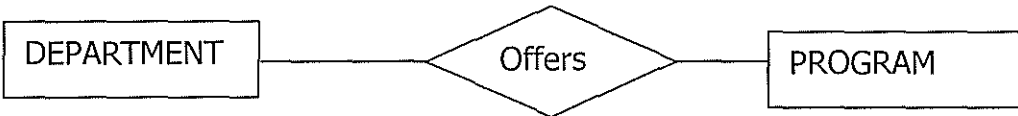
Student/students are linked to department, many students belongs to one department.



Student/students are linked to one program, many students offers one program.



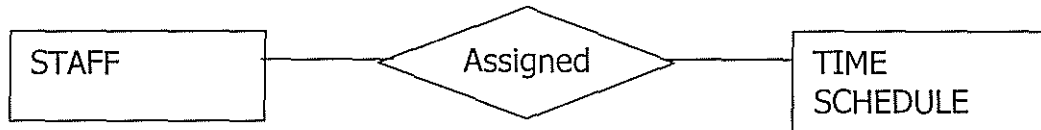
Many staff's are linked to one department; many staff's belongs to one department.



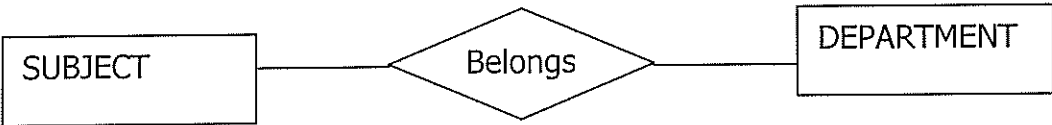
A department is linked to a program, one department offers one program.



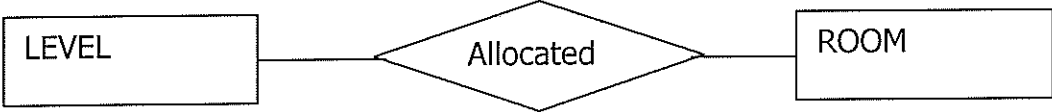
A staff is linked to many students, one staff lectures many students.



Every staff is linked to a time schedule, one staff is assigned to his/her time schedule.



Subject/Subjects are linked to a department, many subjects belongs to one department.



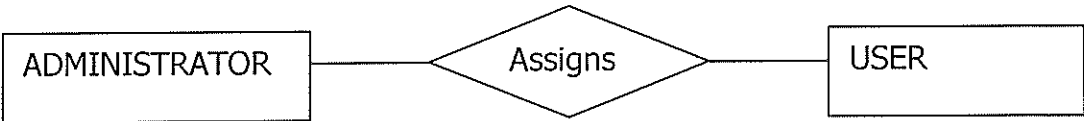
Each Level is linked to a room; one level is allocated to one room.



Students are linked to academic year, many students are admitted with in the same academic year.



Student/students are linked to a nationality, many students belongs to one nationality.



Administrator is linked to a user; an administrator assigns a password to a user.

5.6.1.3 Entity Relationship Diagrams

Entity Relationship Diagram is a detailed, logical and graphical representation of the entities, association and data elements. Otherwise it is a graphical representation of an entity relationship model.

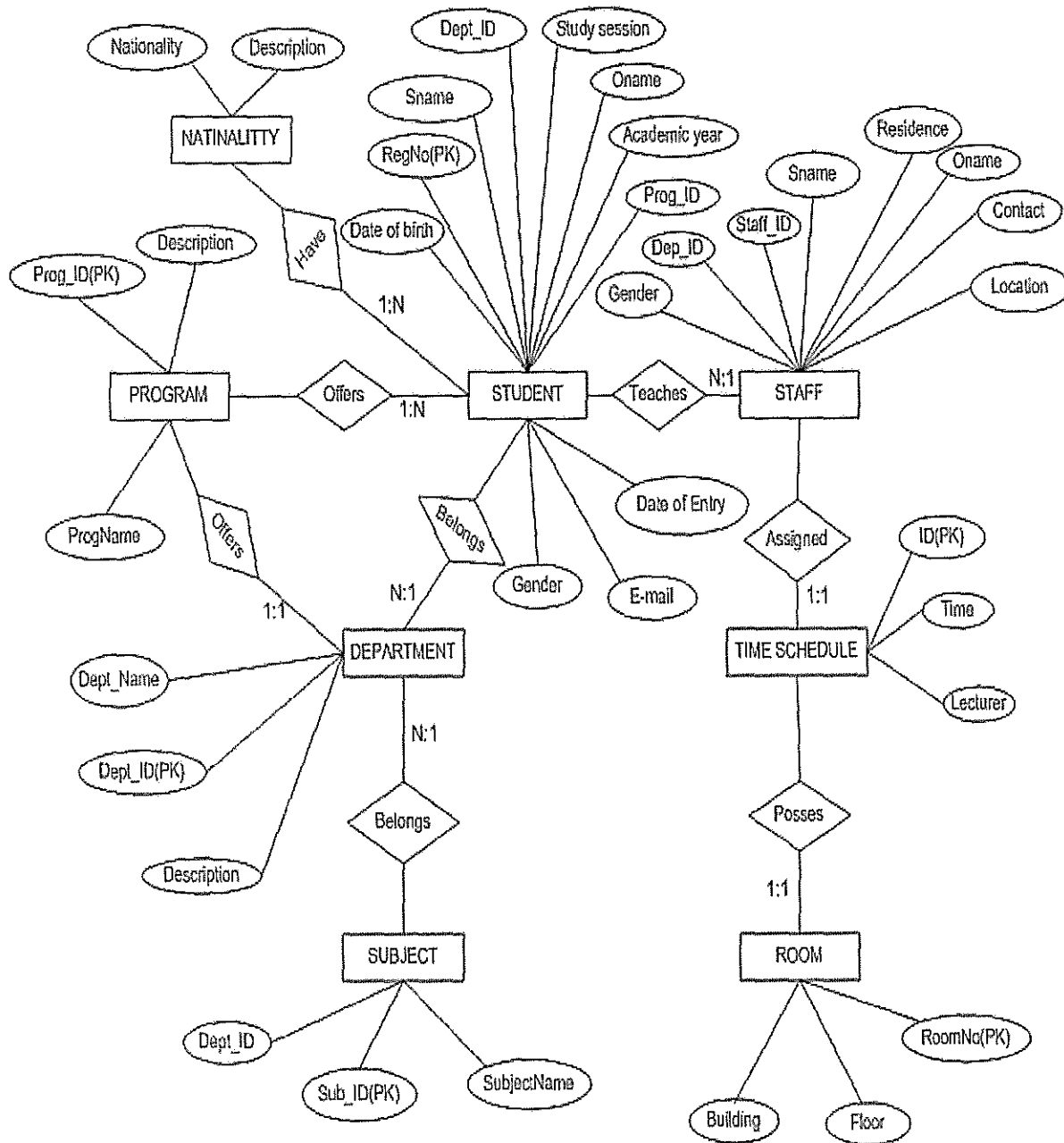


Figure 5.6.1.3.1: shows the Entity Relationship Diagram

5.7.2 Physical database design

This refers to the actual structure of database tables derived in logical design onto a physical media.

Table 5.7.2.1: Student

The table was designed to store details of the student when he/she registers in a semester for a program.


Column Name	Data Type	Allow Nulls
 REGNO	varchar(50)	<input type="checkbox"/>
SURNAME	varchar(50)	<input checked="" type="checkbox"/>
OTHERNAMES	varchar(50)	<input checked="" type="checkbox"/>
GENDER	char(10)	<input checked="" type="checkbox"/>
DOB	datetime	<input checked="" type="checkbox"/>
NATIONALITY	varchar(50)	<input checked="" type="checkbox"/>
LEVELS	varchar(50)	<input checked="" type="checkbox"/>
DOA	datetime	<input checked="" type="checkbox"/>
ENTRY_MODE	char(20)	<input checked="" type="checkbox"/>
STUDY_SESSION	char(30)	<input checked="" type="checkbox"/>
PROGRAM	char(50)	<input checked="" type="checkbox"/>
INTAKE	nchar(30)	<input checked="" type="checkbox"/>
EMAIL	varchar(50)	<input checked="" type="checkbox"/>
TELEPHONE_NO	numeric(18, 0)	<input checked="" type="checkbox"/>
DEPARTMENT	varchar(50)	<input checked="" type="checkbox"/>
FACULTY	varchar(50)	<input checked="" type="checkbox"/>

Table 5.7.2.2: Staff


Column Name	Data Type	Allow Nulls
 STAFFID	varchar(50)	<input type="checkbox"/>
SURNAME	varchar(50)	<input checked="" type="checkbox"/>
OTHERNAMES	varchar(50)	<input checked="" type="checkbox"/>
GENDER	char(10)	<input checked="" type="checkbox"/>
NATIONALITY	varchar(50)	<input checked="" type="checkbox"/>
DOB	datetime	<input checked="" type="checkbox"/>
LEVELS	varchar(50)	<input checked="" type="checkbox"/>
EMAIL	varchar(50)	<input checked="" type="checkbox"/>
TELEPHONE	numeric(18, 0)	<input checked="" type="checkbox"/>
ADDRESS	varchar(50)	<input checked="" type="checkbox"/>
DEPARTMENT	varchar(50)	<input checked="" type="checkbox"/>
FACULTY	varchar(50)	<input checked="" type="checkbox"/>

Table 5.7.2.3: Department



Column Name	Data Type	Allow Nulls
 DEPARTMENTID	varchar(50)	<input type="checkbox"/>
DEPARTMENTNAME	varchar(50)	<input checked="" type="checkbox"/>
DESCRIPTION	varchar(50)	<input checked="" type="checkbox"/>
 FACULTY	varchar(50)	<input checked="" type="checkbox"/>

Table 5.7.2.4: Program


Column Name	Data Type	Allow Nulls
 PROGRAMID	varchar(50)	<input type="checkbox"/>
PROGRAMNAME	varchar(50)	<input checked="" type="checkbox"/>
DURATION	varchar(50)	<input checked="" type="checkbox"/>
DESCRIPTION	varchar(50)	<input checked="" type="checkbox"/>

Table 5.7.2.5: Time Schedule

Column Name	Data Type	Allow Nulls
DAY	varchar(50)	<input checked="" type="checkbox"/>
TIME	varchar(50)	<input checked="" type="checkbox"/>
SESSION	varchar(50)	<input checked="" type="checkbox"/>
SUBJECT	varchar(50)	<input checked="" type="checkbox"/>
LECTULER	varchar(50)	<input checked="" type="checkbox"/>
ROOMNO	varchar(50)	<input checked="" type="checkbox"/>
LEVELS	varchar(50)	<input checked="" type="checkbox"/>
MODE	varchar(50)	<input checked="" type="checkbox"/>
YEAR	numeric(18, 0)	<input checked="" type="checkbox"/>
ID	numeric(18, 0)	<input type="checkbox"/>

Table 5.7.2.6: Subject

Column Name	Data Type	Allow Nulls
SUBJECTID	varchar(50)	<input type="checkbox"/>
SUBJECTNAME	varchar(50)	<input checked="" type="checkbox"/>
DEPARTMENTID	varchar(50)	<input checked="" type="checkbox"/>
DEPARTMENTNAME	varchar(50)	<input checked="" type="checkbox"/>
DESCRIPTION	varchar(50)	<input checked="" type="checkbox"/>

5.8 Design Implementation

A Web Based Database System provides administrators and users with login information and authorization purposes. Several login sessions have different roles in the system.

5.8.1 System structure

System structure defines the basic operation of the new system.

The new system is a web based database system which is the procedural means of generating faculty related information based on database online.

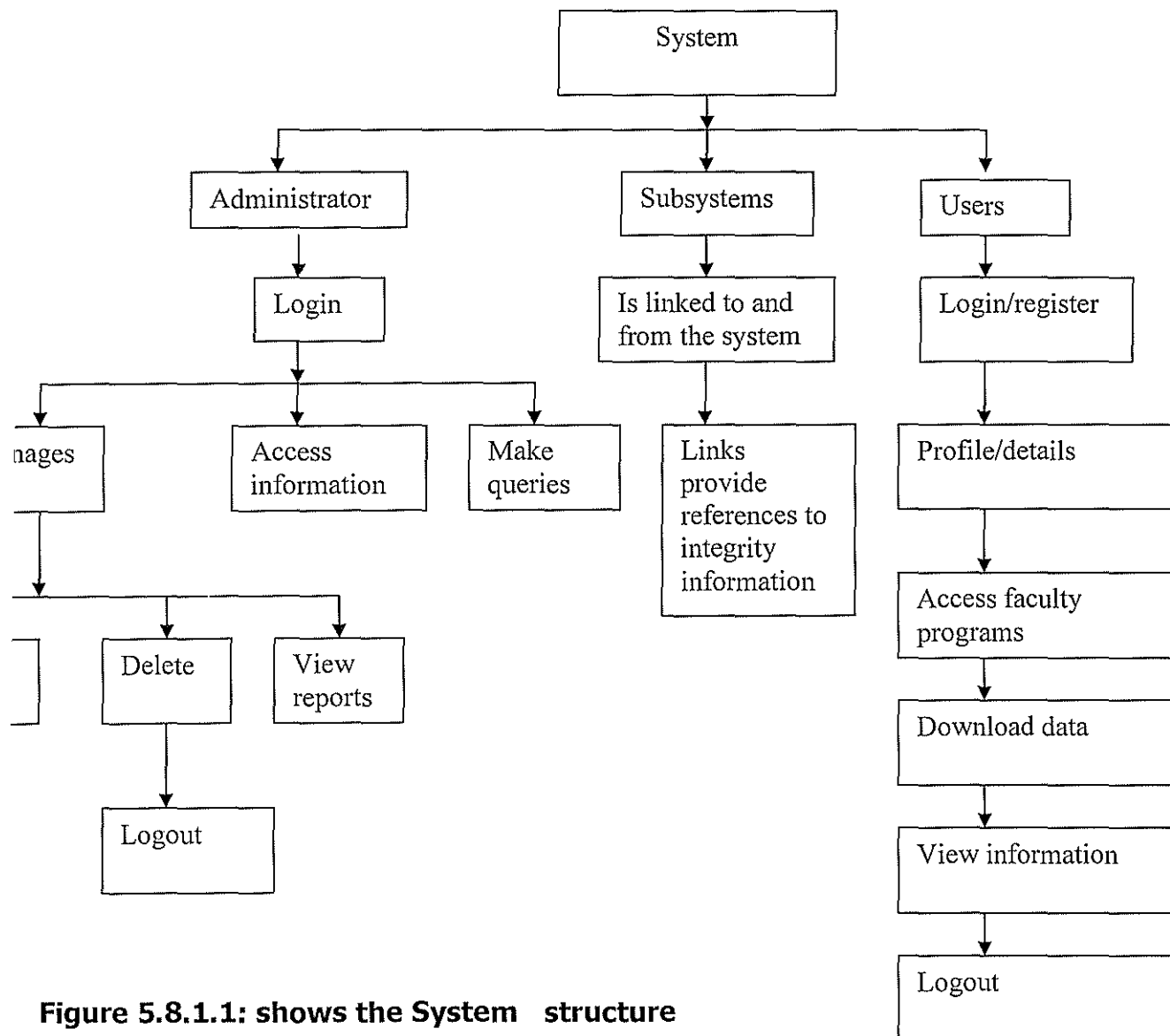


Figure 5.8.1.1: shows the System structure

5.8.2 Pseudo code

This is structured English for describing the algorithms. It was used to enhance the design process in presenting the logic of algorithms.

LOGIN

IF password and username are correct THEN

IF privilege is ADMIN

LOAD Admin page

Register users

ADD data

UPDATE data

Make queries

Create roles

View reports

Display data

Delete data

ELSE

IF privilege is User

LOAD user page

Register

View info.

Download data

Query system

ELSE

MESSAGE wrong username or password

END IF

STOP

5.9 Testing

According to Ian Smonvile (2001) system tests are meant to discover inconsistencies in programs. This is because in the event that an inconsistency creates a problem, there must be reconciliation and the program changed and retested. Embed

5.9.1 Unit Testing

This involved testing how inputs into specific interfaces work and their compliance to specifications like the size of text, data types.

The units of the system were tested by ensuring easy access by use of inputs and outputting the results in the interfaces.

5.9.2 Integration Testing

This was carried out to test the suitability and compatibility of the interfaces and connections to the SQL server, HTML, CSS interfaces and their connections to the database. The system have user friendly interface that contributes to satisfaction of the users of the system.

5.9.3 System Testing

This was done to test the input of the system against the expected output. Input like the name of user, the password of the user, the expected output was giving the details of the users, the administrator's ability to change to the users' particulars in the database.

5.10 User Interfaces

i. Home page

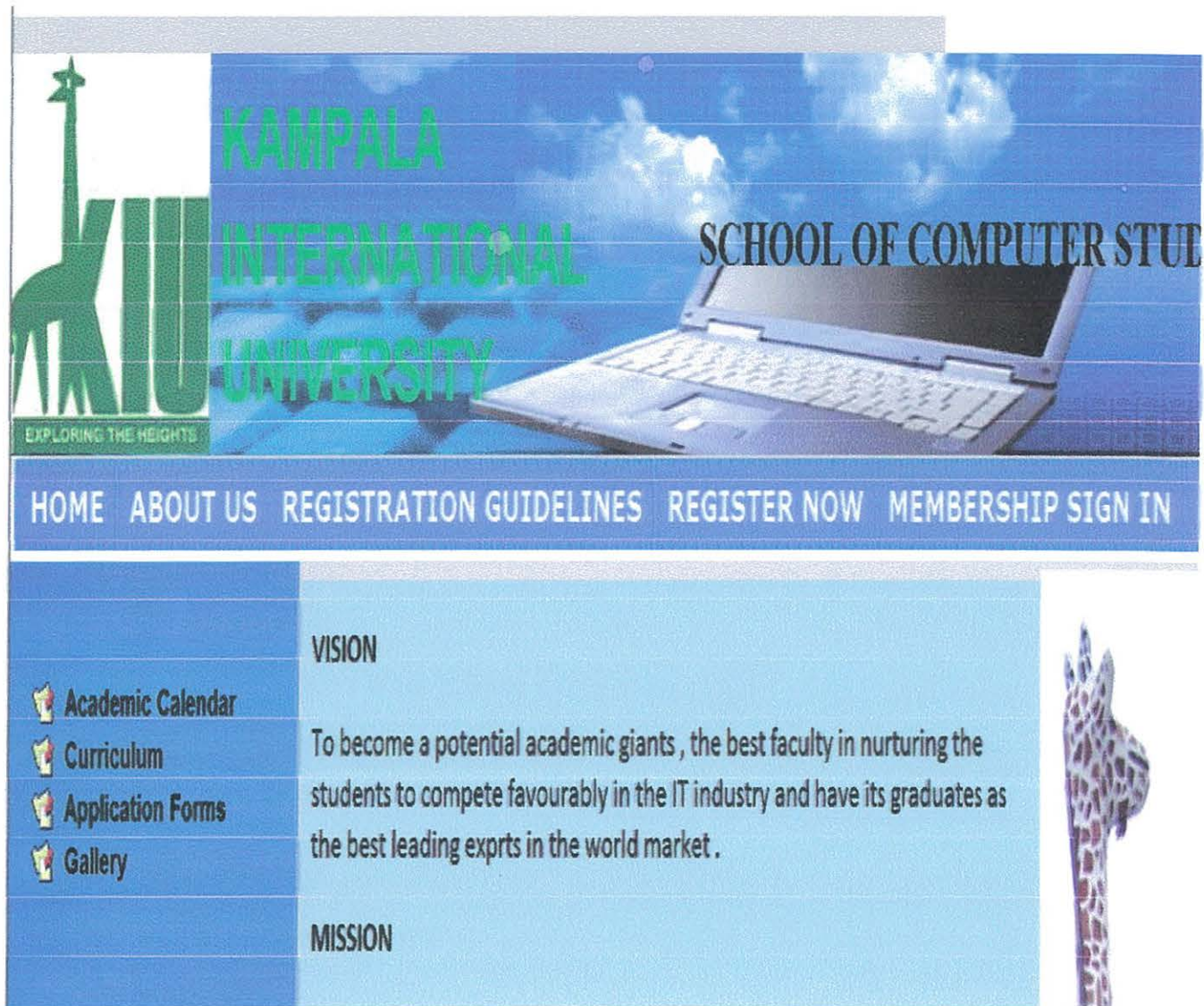


Figure 5.10.1: Home Page

- ii. Login form to be used by registered users.

HOME/BACK

SCHOOL OF COMPUTER STUDIES

welcome

Log In

User Name:

Password:

☐ Remember me next time.

[Forgot Your Password!](#)

New User? Please Register

Sign Up for Your New Account

User Name:

Password:

Confirm Password:

E-mail:

Security Question:

Security Answer:

Local intranet

Figure 5.10.2: User Login Page

- iii. This page allows a user to recover the password by entering the username to receive the password.

HOME/BACK

SCHOOL OF COMPUTER STUDIES

recover password

Forgot Your Password?

Enter your User Name to receive your password.

User Name:

Submit

CHANGE PASSWORD

Change Your Password

Password:

New Password:

Confirm New Password:

Change Password Cancel

Figure 5.10.3: Password Recovery Page

- iv. This is page where the staff fills in their details.

IU INTERNATIONAL UNIVERSITY

DOWNLOADS

- Academic Calendar
- Curriculum
- Application Forms
- Gallery

SELECT FORMS

- ACADEMIC YEAR
- DEPARTMENTS
- FACULTIES
- LEVELS
- NATIONALITY
- PROGRAMS
- STAFF **ROOMS ENTRY Form**
- STUDENTS
- SUBJECTS
- TIME TABLE

STAFFID:

SURNAME:

OTHER NAMES:

GENDER:

NATIONALITY:

DOB:

LEVELS:

EMAIL:

TELEPHONE:

ADDRESS:

DEPARTMENT:

FACULTY:

Figure 5.10.4: Staff Page

v. Department form

The screenshot shows the 'Department Entry Page' for KAMPALA INTERNATIONAL UNIVERSITY. The header features the university's logo and name. Below the header, the page is titled 'SCHOOL OF COMPUTER STUDIES'. On the left, there is a sidebar with a 'DOWNLOADS' section containing links to 'Academic Calendar', 'Curriculum', 'Application Forms', and 'Gallery'. Below this is a 'SELECT FORMS' section with a list of categories: 'ACADEMIC YEAR', 'DEPARTMENTID', 'FACULTIES', 'LEVELS', 'NATIONALITY', 'PROGRAMS', 'ROOMS', 'STAFF', 'STUDENTS', and 'SUBJECTS'. The main content area contains three input fields: 'DEPARTMENTID:', 'DEPARTMENTNAME:', and 'DESCRIPTION:', each followed by a text box for data entry. A large image of a modern building at night is positioned above the input fields.

Figure 5.10.5: Department Entry Page

The screenshot shows the 'Department Page Details' for KAMPALA INTERNATIONAL UNIVERSITY. The header is identical to the previous page. The sidebar on the left is expanded, showing the 'SELECT FORMS' section with a list of categories: 'ACADEMIC YEAR', 'DEPARTMENTID', 'FACULTIES', 'LEVELS', 'NATIONALITY', 'PROGRAMS', 'ROOMS', 'STAFF', 'STUDENTS', 'SUBJECTS', and 'TIME TABLE'. The main content area displays the details for the 'COMPUTER ENGINEERING' department. It includes the following information: 'DEPARTMENTID: C', 'DEPARTMENTNAME: COMPUTER ENGINEERING', 'DESCRIPTION:', 'FACULTY: COMPUTER STUDIES', and a row of links: 'Edit Delete New'. A large image of a modern building at night is positioned above the details. At the bottom right, there are links for 'Next Last Page'.

Figure 5.10.6: Department Page Details

CHAPTER SIX

SUMMARIES, CONCLUSION, RECOMMENDATIONS, AND FUTURE WORK

6.1 Conclusion

Generally, the new web based database system (Website) has been successful from its inception up to the final stages. It has its set objectives and exceeds the minimum standards specified for it.

A web based systems would favor the easiest and cheapest means of sharing faculty information, if thorough procedures are followed from their development to their implementation.

Going by the data analysis in this report, it is evident that this application has been designed to manage staff and student's records in the school of computer studies Kampala International University Main Campus. Once carefully implemented, it will have positive impact on record management of staff and students at the faculty.

6.2 Recommendations

The system designed will emphasize availability of data in the database and configuration management. System users therefore urged to maintain the rules and regulations specified in the design and implementation stages.

1. The researcher recommends that results of the research should be extended to other related systems like, online result processing system, e-learning system.
2. Regarding to data loss from database of the faculty have created set backs and study recommends on the following; Back ups, all files should be backed up on regular basis and to use the onsite and offsite back strategies and devices.
In as far as web based system is concerned, there is a need for transaction log to be maintained so that in the event of a system's failure there can be re-creation of all master and transaction files up to the point of a failure in the system.

3. Training of the staff; staff should be provided intensive training. Specialized information technology training can also be provided to informational professional staff whose role would be to handle all the problems of the faculty and advise management to provide financial support to improve on the Technology standards. Once aspect of training is done and there should be system analysis and design.

These staff members and management would constitute online resource committee that would promote online services that include student online registration and E-learning.

More research would be expected for the time being to ascertain the challenges and way forward in general management of online services in the faculty as well as the university.

4. The researcher recommends on the new system that the institution should acquire the hosting needs by web host providers that will constitute service level agreement that involves details on the level of support and response time.
5. System maintenance; A well maintained system means efficient delivery of work and avoids the risk of vital data loss.
6. The system should be deployed to other schools or faculties in the university.

6.3 Future Work

The research was conducted in school of computer studies-Kampala International University and there is a need to carry out similar research in other faculties and universities in Uganda. This would help in comparison purposes of the research findings. Thus creating avenues for further research since the research findings would look at the same due to different environments and locations.

These were areas to be addressed in future to enhance the system performance and its functionality.

1. The possibilities of centralizing the faculty information to improve on management and access of information.

2. Improvement of internet services by increasing the bandwidth that can maintain the high speed of the internet access, and easy access of online services.
3. Development of the system to support many local languages.
4. Development of the system to support compatibility with mobile devices developed with space age technologies.

6.4 Limitations encountered during the research

Like any other undertaking web based database system development was associated with challenges such as;

1. Lack of enough literature and other reading materials slowed down the progress of the report since there are few or limited resources of such information that I could make use of.
2. Limited time; the time that had been allotted to me for the coverage of all the steps was not enough.

Reference:

Ann hood, Tammy, J. Eschedor Voelker (1999) More about Database Driven Website Prentice Hall of India Private Limited.

Astronomo, (1998) Computer Communication Information, Seventh Edition, McGraw Hill.

Davis, W, S, (1982). System Analysis and Design, Wesley Publishing Company, Addison.

Database-driven Web Sites (Retrieved Jan. 2011, from <http://www.crendo.com/database-driven-websites.htm>

Database driven websites Retrieved Feb. 2011, from <http://www.summersault.com/services/database.html>.

Bell, Judith. Doing your research project: A guide for first time researchers in education and social science, Third edition. UK: Open University Press, (1999). ISBN: 0-335-20388-4. <http://www.openup.co.uk>.

Boulton, C. (2003). Are Open Source Databases Following in Linux' Footsteps? Retrieved Oct. 2010, from <http://boston.internet.com/news/article.php/2221901>

Building database driven Websites using Dreamweaver Retrieved May. 2011, from http://www2.shu.ac.uk/schools/cms/itf/course2.cfm?Course_ID=building

Connolly, (2000) Modern Database Systems, Second Edition, McGraw Hill.

Gary, R. (2000). Designing a Database-Driven Web Site, or, the Evolution of the INFOIGUANA. Retrieved Dec. 20, 2010, from EBSCOhost database.

Gesker, D. (2001) Alternatives for Dynamic Web Development Projects. Retrieved June. 2011, from ACM database.

- Ghanem, T. & Aref, W. (2004). Databases Deepen the Web. Retrieved Nov. 2010, from IEEE Xplore database.
- JavaServer Pages Overview. Retrieved March. 2011 from <http://java.sun.com/products/jsp/overview.html>.
- Jeffrey. L. Lonnier D, Bentley S, (2001) Systems Analysis and Design Methods, Forth Edition, McGraw Hill.
- John W, Robert B, Satzinger J, (2002) Systems Analysis and Design in changing world Third Edition, McGraw Hill.
- Journal of Literacy and Technology 2, Volume 10, Number 3: November 2009, ISSN: 1535-0975. Bee (2000); Lennex (2007); Stern (2000), Paliter and Renjilian (2003), Moor and Zazkis (2000).
- Kevin Yank (2004) Build your own Database Driven Website using PHP and MYSQL Second Edition, McGraw Hill.
- Kevin Yank (2005) Build your own Database Driven Website using PHP andMYSQL Third Edition.
- Nyerere, J, (1968). Education for Self Reliance, Essays on Socialism, Oxford University Press, England.
- Mwiria, K, (1991). 'Educational Research and Policy Formulation', The Kenyan Experience, East African Educational Publishers, Nairobi.
- Saunders Mark, Lewis Philip and Adrian Thomhill (2003), Research Methods in business, 3rd Edition. Prentice Hall.
- The International Journal of Digital Accounting Research Vol. 9, 2009, ISSN: 1577-8517. Nelson et al. (1997), Sporn (1999), Friedman and Silberman (2003).

- Therese, M. R. and Beth, L W, (1997). Students Records Management. The Greenwood Educator's Reference Collection Handbook, Greenwood Publishing Group. ISBN: 978-313-29114-2
- Toby, J (1998) Database Modeling and Design, USA: Morgan Kaufmann, Third Edition.
- Turban Mcclean. Wethebe (2000) Information Technology for Management Second Edition.
- Long (1989-2000) Database System Second Edition by McGraw.
- Lowe S. (2002). Selecting a database: Open source or commercial? Retrieved Nov. 2010, from http://techrepublic.com.com/5100-6265_11-1054291-2.html.

APPENDICES

Appendix I: Sample Questionnaire

**KAMPALA INTERNATIONAL UNIVERSITY
SCHOOL OF POST GRADUATE STUDIES AND RESEARCH
MASTERS PROGRAM**

Dear Sir/Madam,

I am a candidate for masters of Science in information system at Kampala international university with a dissertation based on an online database driven system for school of computer studies in KIU.

You're kindly requested to participate in this research work by providing the most suitable information as indicated in the questionnaire. The information is voluntary, will be treated with maximum confidentiality; please do not leave any item unanswered.

Further more, may I retrieve the filled questionnaires after 5 days from the date of distribution?

Thank you very much in advance.

Yours faithfully,

Cleave Watson .K.

INFORMED CONSENT

In signing this document, I am giving my consent to be part of the research study of Mr. Cleave Watson Kabyesiza will focus on an online based system.

I shall be assured of privacy, anonymity and confidential and that I will be given the option to refuse participation and the right to withdraw my participation any time.

I have been informed that the research is voluntary and the results will be given to me if I ask for them.

Initial: _____

Date: _____

FACE SHEET

Code# _____ Date Received by Respondent _____

A) RESPONDENT 'S PROFILE

i) Gender of the respondent

Female _____

Male _____

ii) Level of Education

Diploma _____

Degree _____

Masters _____

PHD _____

iii) Language you speak

English _____

Kiswahili _____

Luganda _____

Others _____

If others specify,

B) COMMUNICATION

i) How does the faculty communicate with students and staff?

Notice board _____

Verbal _____

Online (Website) _____

Written _____

Others _____

If others specify,

ii) Does the faculty support online communication (emailing system)?

Yes _____

No _____

Support your answer,

C) REGISTRATION

i) How does the faculty register students?

Manually _____ Computerized _____ Online _____

ii) Does the current process of student registration work effectively?

Yes _____ No _____

Comment on your choice

iii) Does the faculty need an on online student registration?

Yes _____ No _____

Give a reason for your answer.

iv) Will the old system work with online registration?

Yes _____ No _____

Support your answer

D) LEARNING

i) How does the faculty carry out teaching?

Classrooms _____ Online _____ None _____

ii) How can the e-learning help the university?

iii) Basing on the current system. How have been students accessing course works and the course notes from lecturers?

Classrooms_____ Online _____ None_____

iv) What are the challenges facing the current teaching system?

E) TIME TABLES

1) Students

i) How do the students access the teaching time tables and end of semester exam time tables?

Online (website) _____ Notice board_____ Verbal_____ None_____

ii) How can we improve on the access of the time tables at the faculty?

iii) Is the current system of accessing the time table effective?

Yes_____ No_____

Support your answer

2) Staff

i) How do the lecturers access the teaching time tables at the faculty?

Online_____ Notice board_____ Verbal_____ None_____

ii) Is the current system convenient for lecturers as in accessing the time tables as well as in making changes?

Yes _____ No_____

Give a reason for your answer.

F) FACULTY ADMINISTRATION STORAGE

i) How does the faculty store its data or records?

Physical files _____ Database _____ None _____

ii) How can the faculty improve on the storage of data?

iii) What are the challenges that are facing the faculty in storing of data?

Appendix II: Clearance for Ethics Committee



**KAMPALA
INTERNATIONAL
UNIVERSITY**

Ggaba Road - Kansanga
P.O. Box 20000, Kampala, Uganda
Tel: +256- 41- 266813 / +256- 41-267634
Fax: +256- 41- 501974
E- mail: admin@kiu.ac.ug,
Website: www.kiu.ac.ug

**OFFICE OF THE COORDINATOR, COMPUTER STUDIES
SCHOOL OF POSTGRADUATE STUDIES AND RESEARCH (SPGSR)**

July 5, 2011

Dear Sir/Madam,

**RE: REQUEST FOR KABYESIZA CLEAVE WATSON
MIS /40720/91/DU: TO CONDUCT RESEARCH IN YOUR ORGANIZATION**

The above mentioned is a bonafide student of Kampala International University pursuing a Masters of Science in Information Systems.

He is currently conducting a field research of which the title is **"An Online Database Driven System for School of Computer Studies at Kampala International University."**

Your organization has been identified as a valuable source of information pertaining to his research project. The purpose of this letter is to request you to avail him with the pertinent information he may need.

Any information shared with him from your organization shall be treated with utmost confidentiality.

Any assistance rendered to him will be highly appreciated.

Yours truly,

**Mr. Businge Mbabazi Phelix
Coordinator
Computer Studies, (SPGSR)**

"Exploring the Heights"