DESIGN AND IMPEMETATION OF AN E-LEARNING MANAGEMENT SYSTEM FOR KAFUMU SCHOOL OF COMPREHENSIVE NURSING IN MBARARA-UGANDA.

BY

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A GRADUATION PROJECT SUBMITTED TO THE COLLEGE OF APPLIED SCIENCES AND TECHNOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR DEGREE IN INFORMATION TECHNOLOGY OF KAMPALA INTERNATIONAL UNIVERSITY.
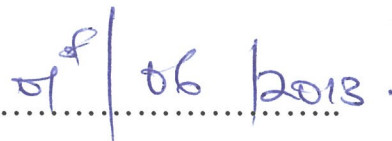
AUGUST 2013

Declaration

We do hereby declare that this report is original and has not been published or submitted for any other degree award to any other University before.

Signed........................... Date........................
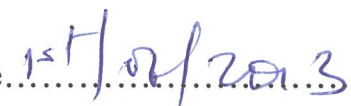
BYARUHANGA ALEX

Signed........................... Date.... 01-08-2013

SSENGOOBA DENNIS

Approval

This project report has been submitted for examination with the approval of our supervisor.

Signed………………………………   Date…1st/02/2013.

MR. OCHEN MOSES.

DEDICATION

We wish to dedicate this entire project report to our beloved parents for the tireless support they accorded to us ever since we were little children. We thank them for the spirit of hard work, courage and determination they instilled in us throughout our school days till today. We also honor and owe our dear sisters and brothers a share of our happiness and appreciation for the guidance protection and financial support offered.

ACKNOWLEDGEMENT

First and foremost, we would like to express our sincere thanks to God the Almighty for the gift of life, wisdom and understanding he has given to us, a reason for our existence. And to our families for the love and support they have provided throughout our life.

We also thank the staff of Kafumu School of Nursing for having given their time at will during our System Study and Analysis stage they had been particularly helpful in providing the necessary data about the manual school record management system.

Special thanks go to Mr. Ochen Moses for initiating the ideas for our research topic hence establishing a framework for the project report; he too has been a good and understanding supervisor.

We also won't forget our friends in the College of Applied Science and Technology for the academic interactions and company they have accorded to us especially Mr. Muhame Emmanuel, Mr. Nuwagaba Abraham, Gatete Steven among others, they shall always be remembered as being good friends in a life time.

Lastly, we would like to convey our gratitude to the lecturers in our Faculty for the good job done during the 3 year period of our course, to all who knew us personally and to all those who might have heard about us, that the good lord may bless them and keep them safe.

List of Abbreviations

TFS-   Traditional File System

JAD-   Joint Application Development

SDLC-   Systems Development Life Cycle

OMT-   Object Modeling Technique

HTML-   Hyper Text Markup Language

LAN-   Local Area Network

PHP-   Personal Home Page/Forms

Abstract

This project report documents the detailed steps for implementation of an e-learning management system for students' easy mode of learning. Currently the students wish to access their information whenever needed. The project will be able to help students access their information and interact with their lecturers through the system, Lecturers will use less time in interacting with their students, know the number of their students in their class.

Students' records will be easy to access through any Computer in the office and the process will help the Administrator to keep school records constantly updated with no need to look for hard copy files. The Administrator has full control to each and every user in the system.

Table of Contents

CHAPTER ONE

GENERAL INTRODUCTION

1.0   Introduction

The project report is intended to explore the challenges of the increasing number of student's management and difficulties to conduct distance studies by Kafumu School of comprehensive nursing with an aim of designing an E-learning management system. The project report is organized into six chapters. Chapter one covers an overview of the project which consists of project background, statement of the problem, objectives of the study, scope of the study, significance of the study, limitations and possible solutions.

Chapter two covers the literature and chapter three covers systems development lifecycle methodology, Chapter four covers Systems Study, Analysis and Design, Chapter five covers system testing and implementation and Chapter six covers discussions, conclusions and recommendations.

1.1.0. Background of the study

Kafumu School of comprehensive nursing, year after year adds new attractions to its existence. This is due to the vast size of its site and range of medical courses offered. For this reason, students have found it increasingly difficult to visit the majority of these sites during their holidays.

To reduce the attributed problems, Kafumu will need series of navigation cascading style sheets to enable easy and quick access of these E – learning resources for its students. Clients will be able to download various notes and many more.

Like most organizations or institutions, Kafumu could be facing big problems of providing adequate educational services to the increasing number of students and inconsistency of distance students to access study materials due to manual system usage such as in class lectures.

The project has however been given to us in form of task to do for our graduation report as per the degree level. In bid to overcome the stated problem, the project was developed using an automated system for a multipurpose use. It will be built on prototype of an optimized video based e-learning management system based on the proposed design layout. This will enable the designers to effectively evaluate and test the prototype for Kafumu nursing school.

1.1.1. Problem Statement

According to the principal Mr. Lutakome Mathias there is an increasing number of students and owing to the fact that the system in place is less competent, there are delays in students accessing study materials and processing their information. All these contribute to a high level of operational costs in trying to make timely, accurate and proper decisions.

Thus, the project that developed an optimized video based e-learning management system that would improve on the efficiency of the system in place, which is associated with poor management.

1.1.2. Objectives of the study

1.1.3. General objectives

The overall objective for this project is to plan, design, implement and evaluate an automated prototype for an optimized video based e-learning management system for Kafumu School of comprehensive nursing, which will ensure an efficient and effective access and management of users (students') information.

1.1.4. Specific objectives

- To improve on the online learning and distance education.
- To provide a broad based understanding and knowledge on technology and web based education system to students.
- To develop an automated and self driven e-learning management system.
- To speed up the record tracking, processing and retrieval of users (students') information.
- Provide students with a background in an e-learning development.

1.1.5. Research questions

(a)   What challenges are faced by the prevailing study system?

(b)   Will the new system completely eliminate the problems of the current one?

(c)   Will the new system allow the application to share information with other programs?

(d)   Is it possible to build a secure program that does not allow unauthorized access to some students' information?

(e)   Will the program permit the users' (students) to access notes and download them?

1.1.6. Scope of the study

This project covers planning, design and development methodology of an optimized video based e-learning management system. This operates by tracking the users records through access to online downloads and managing results.

The program has enabled students to login and register before downloading notes and printing information acquired.

It also allows students to browse only to make enquiries to determine operational effectiveness and efficiency.

1.1.7. Significance of the study

The system definitely has a better performance than the past one, acquainting to the fact that the system in place has phased out on being subjected to increase numbers of students. It has eased data storage, processing, retrieval from a protected database.

With the involvement of a well planned, analyzed, designed and tested system, the project generates a more efficient system having the following benefits:-

- A unique and high level of automation.
- It possesses a simple database and user friendly interface to use.
- The ability to run processing cycle in a short period of time, this will overcome unnecessary delays when put into use.
- Ability to store a large volume of data handled by the institution.

- The system provides many services that will reduce on number of workforce in the institution, hence lowering its expenditure.

1.1.8. Limitations (anticipated problems) and possible solutions

- Fear of the computerized system reducing workforce that may lead to some lecturers / tutors losing their jobs. This will be solved by expansion of the strategy to teach them on the operation of the system as tool to support and ease their work.

- High development costs in terms of study materials and equipment will hinder development of the project. This will be addressed using freeware to develop some system modules.

- Time constraints a major hindrance as the proposal will be bound to change and improvements made as per the client requests at a later stage. This will be reduced by proper planning and detailed consultations through using appropriate data collection techniques.

- General fear of change from the traditional class room environment to a computer based e-learning platform. This will be addressed through intensive user training.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter explores and reveals the sources of the study materials as well as aspect of the basic components of system development that are useful in establishing this project. The researchers have discussed into details the tools available for developing system applications and recommended the most suitable tools for the system.

2.1.0 General research

2.1.1. Research findings

Research is broadly defined as a systematic inquiry designed to further our knowledge and understanding of a subject. (Christine A. Hult, 1996). It therefore promotes careful, critical and systematic thinking. Research takes a number of forms including facts finding, drafting, writing the plan or outline, revising, making of changes and even proof reading in order to produce quality work.

Research is nothing more than finding out what you need to know (Richard Veit, 1994)

2.1.2. Statistical Survey

Statistical surveys are the most popular ways of obtaining desired data.

A survey is a process of collecting data from existing population units with no particular control over factors that may affect the population characteristics in the study. (Dr. S.P Gupta, 2002)

A statistical survey may be either a general purpose survey or a special survey. This particular research is a special purpose survey, since the data to be obtained will be used for analyzing a particular problem. Statistical survey involves planning the survey, defining the units of data collection, setting clear specification of the study, i.e. objectives, problem statements etc and establishing the scope of the survey.

2.1.3. Project development

This project was carried out basing on the system development life cycle (SDLC) and system development methodologies. This involves all the processes needed to build the system from its elementary to the final statement.

"A project is a temporary science of unique, complex and connected activities having one goal or purpose that must be completed by specific time, within budget and according to specification" (Jeffrey L. Whitten, Lonnie D. Bentley and Kevin C. Dittman, 2001)

System life cycle divides the life of an information system into two stages; system development, system operation and support. A system development methodology defines a set of activities; methods best practices, deliverables and automated tools for the system developers and project managers to use to develop most information systems and software.

A number of aspects should be taken into consideration to build a good and sound project. Some of which include proper project management, system analysis such as feasibility study, system design and application architecture.

2.1.4. System bound approach

2.1.5. Introduction

Technologies advances of several kinds are emerging to transform the way in which we generate, store, retrieve and use information. For instance databases built to store a wide variety of information and information types, hence improving on software applications.

A software application is a program written to solve problems, to produce specific report and to update specific files. (Edwin D. Relly, David Heemmendinger, 2000)

However, Lan Somerville (2000), claims that software is not just a program but also all associated documentations and configuration of data, which is needed to make these programs operate correctly.

It consists of a number of separate programs, configuration files that are used to set up these programs, system documentation which describes the system structure and user documentation.

As per this project, software (engineering) is layered technology that begins with the organization's commitment to quality and the moves on to software process. The process works as glue that holds the technology (tool & methods) together and enables rational and timely development of computer software. Below is a model that represents software production.

2.1.6. Software Production Layers
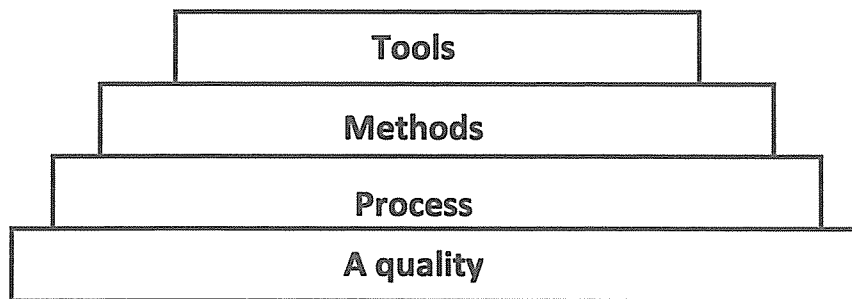
The figure above illustrates software production layers (Crio Cheezz, 2002)

2.1.7. Software production Process.

Software production process is the process we follow to build, deliver and evolve the software product from inception of an idea all the way to the delivery and final retirement of the system. (Crio Cheezz, 2002)

2.1.8. Software Design

Design is the process of applying several techniques and principles for the purpose of defining system sufficient details to permit its physical realization.

According to Lan Somerville (2002, Pg 56), design is a description of structure of the software to be implemented, the data which is part of the system, the interfaces between the system components and sometimes the algorithm.

2.1.9. Development methodology

Joint application development (JAD) is a process whereby highly structured group meetings are conducted to analyze problems and define system requirements (Jeffry L. Whitten, Lonnie D. Bentley and Kevin C. Dittman 2001, Pg 238). The techniques help to eliminate errors that may emerge after project completion and builds a system that meets the users' needs.

2.2.0. Database

...*Mysql database*

Information in the database is stored in tables. A table is a collection of unique records that generally share some sort of classification for example, you may have a table that stores employee's records and another that holds the inventory information.

A table is defined by the collection of fields that consists of a special container that is reserved for holding a specific nugget of knowledge, for example one of the fields in the mailing list would hold zip code information, and another field would hold street address information. Fields generally correspond to columns.

Though a table can be defined as a collection of field that consists of, it is not actually a table until you input data. This data consists of one or more records. Each record in a table is an array of information, where each item in the array corresponds to a field in the table. For example, one record in mailing lists would be the address information about a particular person. Records generally correspond to rows in the database table.

2.2.1. Object Oriented Methodology

The authors RUMBAUGH, BLAHA, PREMERLANI, EDDY and LORESEN (2002, Pg 4 & 5) discussed object oriented modeling as follows;

The methodology consists of building a module of an application domain and then adding implementation details to it during the design of the system. This approach is called object modeling technique (OMT). The methodology has the following;

2.2.2. Analysis

Starting from the problem, the analysis builds a model of the real – world situation showing its important properties. The system designer must work with the client to understand the problem because the problem statements are rarely complete or correct. The analysts' model is a concise. Precise abstraction of what the desired system must do. Not how it will be done. The objects in the model should be application domain concepts and not computer implementation concepts such as data structure. A good model can be understood and criticized by application experts who are not programmers. The analysts' model should not contain any implementation decisions; it should be described in terms of attributes and operations visible to a user.

2.2.3. System Design

The system designer makes a high level decision about the overall architecture. During system design the target system is organized into sub – systems based on both the analysis structure and the proposed architecture. The system designer must decide what performance characteristics to optimize and choose a strategy of attacking the problem and make tentative allocations necessary.

2.2.4 Object Design

The object designer built a design based on the analysis model but containing implementation details. The designer added details to the design model in accordance with the strategy established during system design. The focus of the object is the data structures and algorithms needed to implement each class. The object classes from analysis are still meaningful, but they are augmented with computer domain data structures and algorithms chosen to optimize important performance measures.

2.2.5. Implementation

The object design is then translated into particular programming language, database or hardware implementation. Programming was a relatively minor and mechanical part of the development cycle, because all of the hard decision were made during design. The target language influence design decision to some extent, the design should not depend on the fine details any programming language. During implementation it is important to follow good software engineering practices so that traceability to the design is straight forward and so the implementation system remains flexible and extensible.

CHAPTER THREE

METHODOLOGY

3.0   Introduction

This chapter covers the systems design and development methodology phases of the project development. It discusses the development methodology and tools applied in the system. It also provides sketches of the design of the interfaces used to develop the forms, MYSQL storage applications.

Methodology refers to the method used to conduct research. The methods chosen for data collection of this project are a combination and quantitative methods which is always the best and most effective or efficient approach for collecting accurate and complete information. Quantitative methods used for conducting research rely on open ended exploration of people's words, thoughts, actions and intentions. They supply detailed and in depth information to provide outside audience with an understanding of what a target population may think or feel about specific issues or environment. Purely quantitative methods include observation, focus group discussion and case studies. Quantitative methods includes interviews, questionnaires and review of documents where the selected methods out of the above combination of elicitation because of the advantages that each have.

3.1.0 Data Collection Techniques.

These are data collection techniques/ways which are used to collect information from the end users of the system, in order to get their main requirements of the system. Through different data collection techniques, as mentioned below:

3.1.1.   Interviews:-

This is the most common techniques used by the analyst or researchers to collect information from individual or groups. Interviews are generally users of the existing system, potential users of the proposed system, providers of data to the proposed system or those who will be affected by the system.

Types of interviews

Unstructured interviews:-

In this the interviewer carries out the interview with only a general goal of or subject in mind but with few or on specific questions. The interviewer depends solely on the interviewee to give him the framework and direct the interview. This type of interview has the danger of running off the track and for this reason it does not work for system design and analysis.

Structured interviews:-

The interviewer has specific questions which directs to the interviewee, but he often adds other questions to obtain clarification and verification of the interviewees' responses.

Questions are either closed or open ended.

Open ended questions allow interviewee to respond in any way he deems appropriate where as closed ended questions restrict answers to either specific choices or short and direct responses.

Advantages of the interview techniques:-

Provide an opportunity to gather information from respondents who are knowledgeable about the system.

It allows the analyst to adapt or re-word questions for each person.

Allows the analyst to discover areas of misunderstanding, unrealistic expectation and indications of resistance to the proposed system.

It is especially used for respondents who do not communicate effectively in writing or those with no time to complete questionnaires.

Frequently the best source of qualitative information that is to say, opinions, policies and subjective description of activities and problems.

3.1.2. Questionnaire techniques:-

These are sets of documents with questions which are prepared and sent out to respondents. Questionnaire allows collection of data from large number of people and then wide distribution ensures that some things remain anonymous leading to more honest answers.

Advantages of questionnaire method:-

Allows collection of data from a large number of people, the use of standardized questions formats can yield more reliable data than any other technique.

Questionnaire can be useful where a full set of replies or responses is not necessary to determine facts.

Questionnaires are good method of cross checking information that can be gathered using other methods.

The wide distribution implies that respondents will remain anonymous and this can lead to more honest responses.

3.1.3. Observation techniques:-

Here the researcher asks no questions, instead, he observes the object or actions in which he is interested. He observes and records the desired information. In this method, the researcher either participates in or watches in a person performing some activities. This method is more likely used when the validity of the data collected by other method is questionable.

Advantages of observation methods.

Data collected are highly reliable.

System analyst is able to see clearly what is being done; complex tasks are sometimes difficult to explain in work

Allow the system analyst to do work measurements

It is relatively inexpensive method as compared with other techniques

3.1.4. Preliminary study prospect

Initial project consideration

This project was chosen by the developers as one that suited their field of knowledge. The idea behind venturing into the project will be sought as a way of transforming the skills and knowledge we have acquired into a practical scenario, as we prepare for the outside world.

Planning of the project

The project is meant to build an automated and self driven system that will provide on the existing services offered at Kafumu.

The client institution needs a system that can be used to input student's information, store it in a data source that can be retrieved at a later time for managerial purposes.

The institution provided an already drafted design specification and criteria to be followed in the development of the system.

3.1.5. These are the major design specification provided by the institution

A student registration interface, comprising of different but related forms for students information. This should be developed in dream weaver HTML. The form manipulates student details and process them.

The program generates user (student's particulars) and give provision to enquire if the student needs a print out or not. If there is need for one, it should produce a holiday reference number.

A provision for user's (students) details (records) containing their identification, category and year of studies, was developed in mysql database system.

3.1.6. Development methodology and tools

In order to achieve the stated objectives, the project used the system development life cycle (SDLC) methodology. These include the planning phase, analysis phase, design phase and implementation.

3.1.7. System requirements and tools

Hardware requirements

- At least 40 GB of hard disk capacity

This is because the system uses a program that should have the capacity to store a huge amount of student's records.

- At least 256MB of RAM (memory)

This makes it possible to run several programs concurrent at the same time.

- A Pentium 4 processor of at least 0.5 GHZ of speed.

This speed rate is to allow processing of students details within the shortest possible time.

- A 17 inch monitor.

This is to support the appearance of the entire design interface, since it will be designed on the given monitor specification.

- A printer networked to the computer system

This is necessary to for printing the students and data source records.

- Network facilities, such as switches, a LAN, NICs.

This is to connect the different computers to other offices at the institution.

- An interruptible power supply

This is not a basic requirement, but for efficiency reasons it can be provided.

3.1.8. Software requirements.

- An operating system installed

Windows XP Service Park 2 or 3 can be used, since will be to design and test the prototype.

- Tools or program installed.

MYSQL server should be available, since it's applied in the new system as a back-end data source to store student's information.

Dream weaver .v.8, should be installed.

This software will be used as a programming tool to design the front –end interface and act as the system user interface.

Banner shop GIF Animator 5

3.1.9. Technical requirements.

Good knowledge of web design.

Good knowledge of system application tools and database tools.

3.2.0. Other requirements.

- Furniture.
- Stationary
- Communication facilities.

3.2.1. Economic aspects of the study.

This will be analyzed to determine whether the existing funds are sufficient enough to build such a system. The project analyst discovered that there will be limited finance to develop the whole project, and thus there will be need to acquire some tools and equipment from outside sources. The funders also had to adjust on the initially planned budget.

3.2.2. Operational aspects of the study.

3.2.3. System users.

The system users being the final beneficiaries of the new system, emphasis will be put to ensure that it meets the user specification. We worked hand in hand with the users to produce what will be in their perspective. This will be done through interactions and consultations with the users.

3.2.4 Personnel (technical expertise) required.

3.2.5. System administrator.

The system administrator is equipped with the knowledge to control and manage the entire environment accessing the system database, such as equipments attached to the network. He decides on which user should have access to systems database and fixes problems arising within the system. The system designers recommend one with at least a diploma in website and database systems administration.

3.2.6. Computer Professional (Trainer).

The trainer will teach students on how to operate the system that need skills in website and database system knowledge.

3.2.7. Expectations (Benefits) of the new system.

The system will reduce congestion of lecture rooms and file stores, thus providing space for other facilities.

The system will eliminate the use of hard copy handouts instead students download notes, thus an increase in efficiency of academic performance.

Speeds up academic process since students will not be waiting for study materials from their tutors, thus improving on the students' services.

3.2.8. Conceptual mode.

To achieve the implementation of the system, the following basic requirements are necessary.

- A full set of computers or networked computers.
- Availability of students' information.
- An interactive user interface which will enable the user to interact with the program and database.
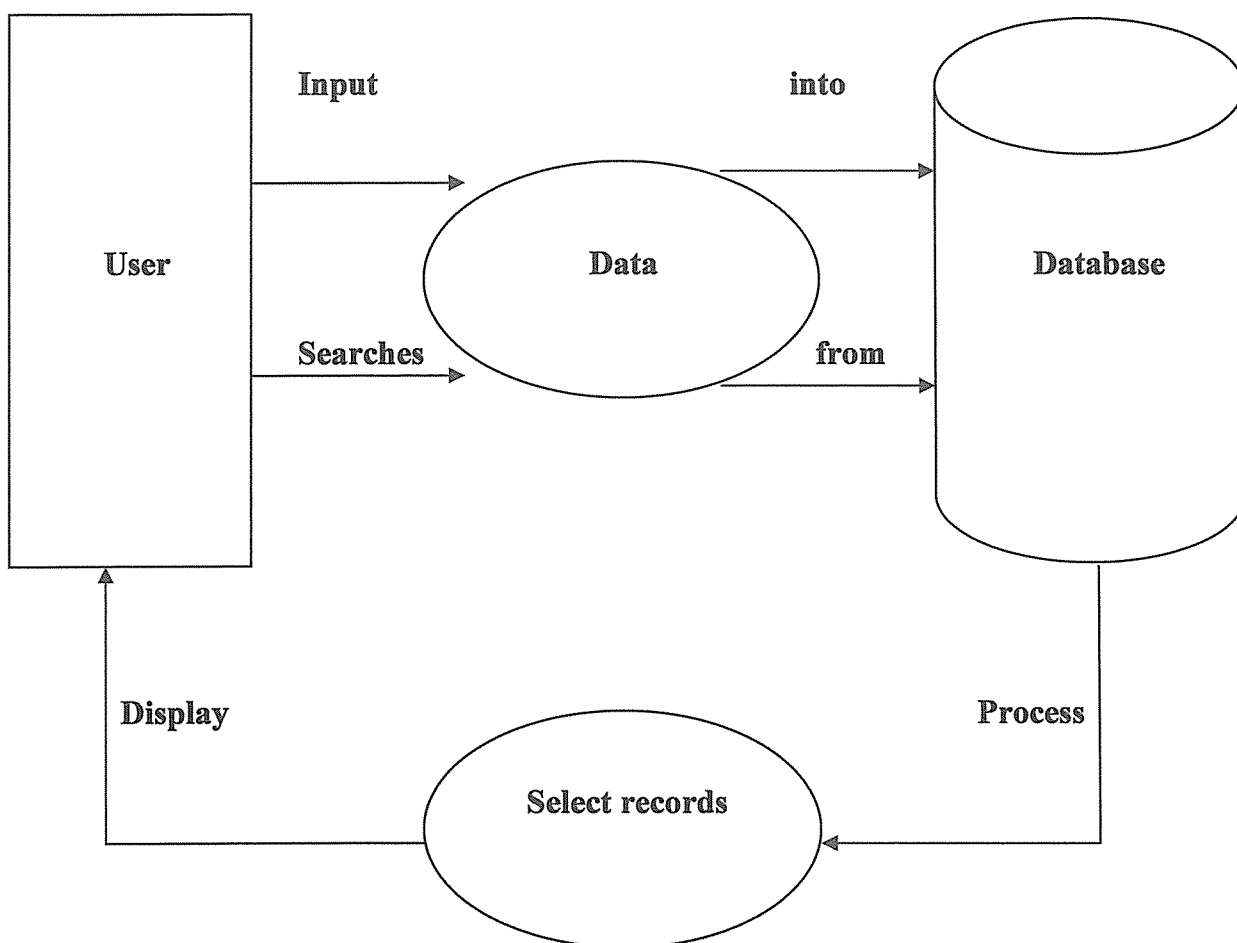
3.2.9. System frame work.

Figure 3.2.8 System frame work:-

3.3.0. Procedure of system operation.

a. The system requires that a user enters data.

b. The database searches for specified students details.

c. The user retrieves the student's details from the data source.

d. The record of the students is then availed to the user.

3.3.1. Planned lay-out of the new system

3.3.0 *Sketch of the user interface of students login form.*

LOGIN FORM

USER NAME

PASSWORD

LOGIN

Figure 3.3.0

The above sketch diagram illustrates how the user login interface of the students appears in the design layout of the system. It will entail the entry of student's initial information, which includes username and password.

The system was programmed to enable access to students registration form automatically. The table below the form will contain commands for user to login and will automatically apply to the form at design.

3.3.1. A sketch of the user interface of a student details registration form.

STUDENTS' REGISTRATION FORM

STD – ID:

FIRST NAME:

LAST NAME:

DATE OF BIRTH:

AGE:

GENDER:

COURSE:

NATIONALITY:

YEAR OF STUDY:

SEMESTER:

ADD

Figure 3.3.1

Definition of an algorithm, it's a procedural method or step by step computational process which transforms a given input into a well defined output within a specified or a particular length of time during problem solving.

Or as per our program, the researchers refer to an algorithm as a systematic approach of solving a problem in a finite number of steps, with in a specific period of time using a fine amount of effort, for example, getting the GCF of a number or its factorial.

CHAPTER FOUR

PLANNING AND ANALYSIS OF THE SYSTEM

4.0 Introduction

This chapter covers planning and analysis of the system. It's intended to meet the user requirements identified during planning and analysis phases. It represents the logical and physical design of the system.

4.1.0. Overview

The chapter provides information flow chart illustrating how data is input, processed and output. It shows the display of the screenshots of the students report and records storage in the source.

4.1.1 Information flow diagrams.

Flow charts are used to provide an algorithmic approach of the design of a diagram.

Definition of an algorithm, it's a procedural method or step by step computational process which transforms a given input into a well defined output within a specified or a particular length of time during problem solving.

Or as per our program, we refer to an algorithm as, a systematic approach of solving a problem and a finite number of steps, within a specific period of time using a fine amount of effort, for example, getting the GCF of a number or its factorial.

The information flowcharts drawn below provide an algorithmic procedure and lay out of how the interface s design will appear.
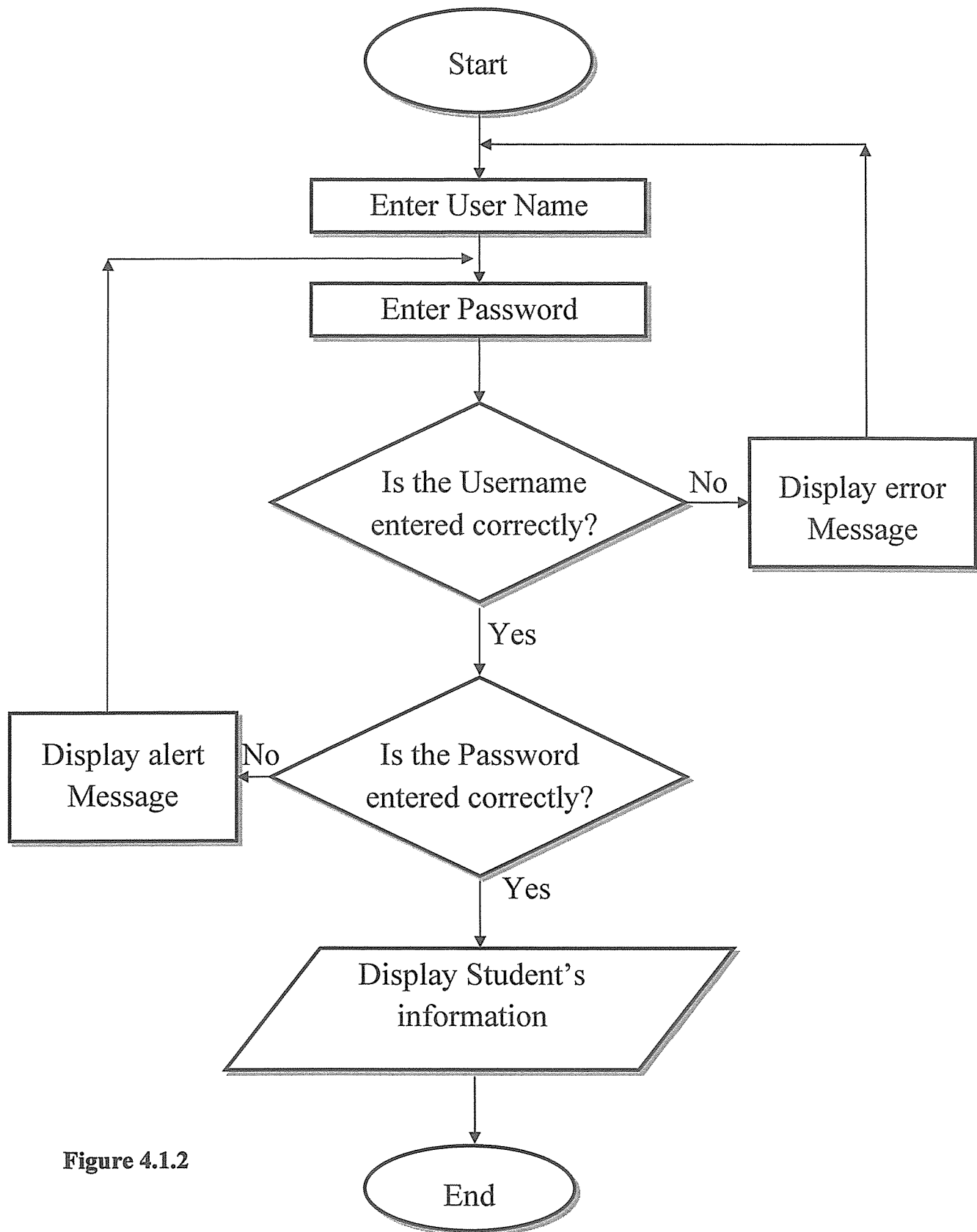
4.1.2. Flow chart for students login form.


```
                        ┌─────────┐
                        │  Start  │
                        └────┬────┘
                             │
                             ▼
                   ┌──────────────────┐
                   │  Enter User Name │◄──────────┐
                   └────────┬─────────┘           │
                            │                     │
                            ▼                     │
                   ┌──────────────────┐           │
          ┌───────►│  Enter Password  │           │
          │        └────────┬─────────┘           │
          │                 │                     │
          │                 ▼                     │
          │           ◇ Is the Username ◇   No  ┌──────────────┐
          │           ◇ entered correctly? ◇────►│ Display error│
          │                 │                    │   Message    │
          │                Yes                   └──────────────┘
          │                 │
          │                 ▼
   ┌──────────────┐   ◇ Is the Password ◇
   │Display alert │◄──◇ entered correctly? ◇
   │   Message    │No       │
   └──────────────┘        Yes
                            │
                            ▼
                    ╱ Display Student's ╱
                   ╱    information    ╱
                            │
                            ▼
                        ┌─────────┐
                        │   End   │
                        └─────────┘
```

Figure 4.1.2

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4.1.3. Flow chart for students registration form.
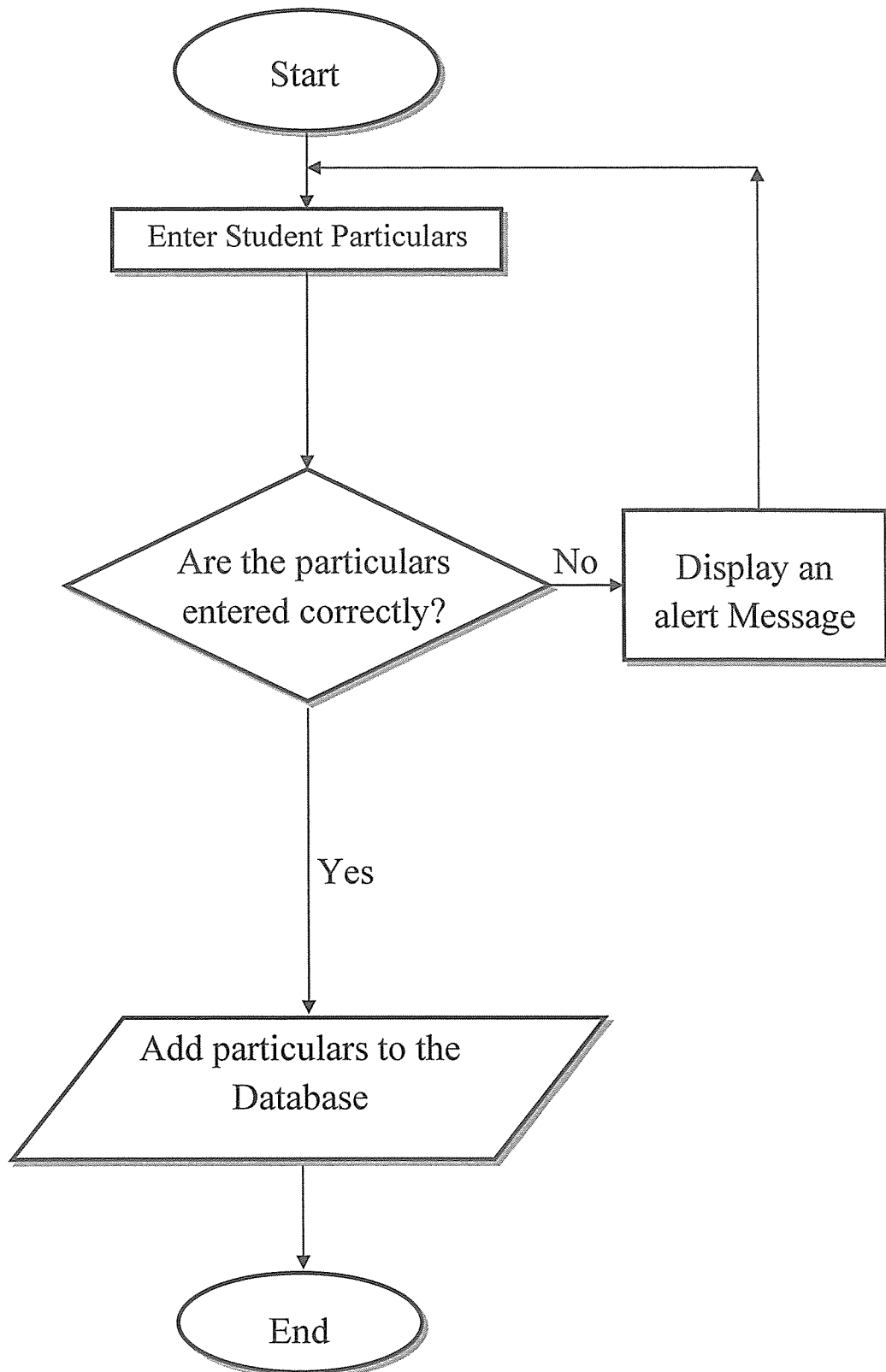
Figure 4.1.3

4.1.4. customized interfaces.

The following are screenshot displaying the design of the interfaces developed for handling student's information. The forms are designed for entry of student's information, the report is to generate number of students who access the system and who register. The MYAQL

Data base at the end of the chapter act as data source for storage of student's records.

4.1.5. Screenshot of the interface displaying student's login form.
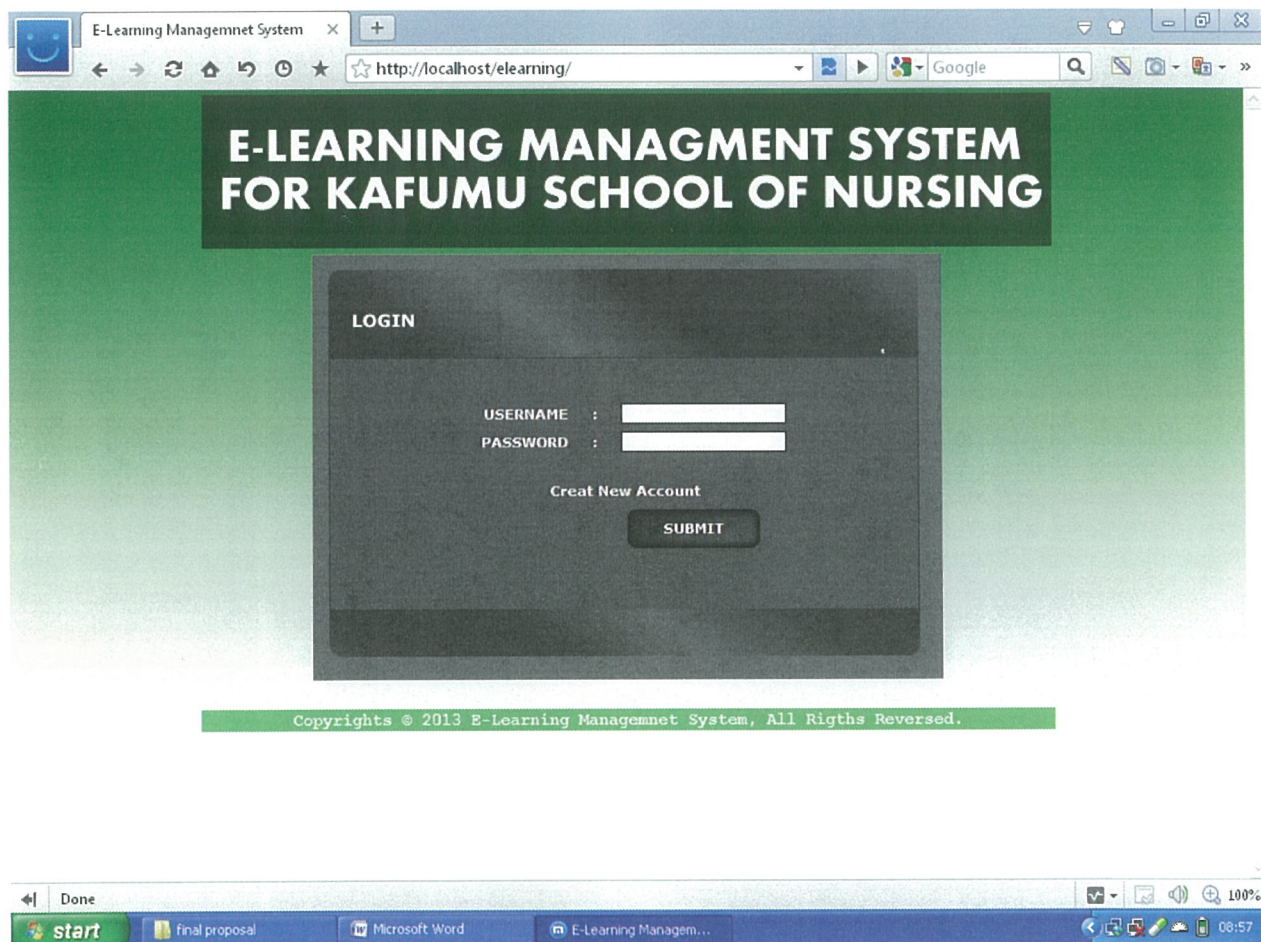
Figure 4.1.5

The above form is a screen shot of the student's login form and so it involves their identification (initials). Here the user (student) enters the username and password and the user (student) will have access to the information. Recommended button "SUBMIT" is used to login such that you can have access to the student's information.

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4.1.6. Screenshot of an interface for the students registration form.

Figure 4.1.6

This is the second form for filling student's records, after login form. A student is supposed to enter his/her particulars and submits to the database before access to resources. On entering the particulars, the system will generate and displays the information highlighted bold on the preview page.

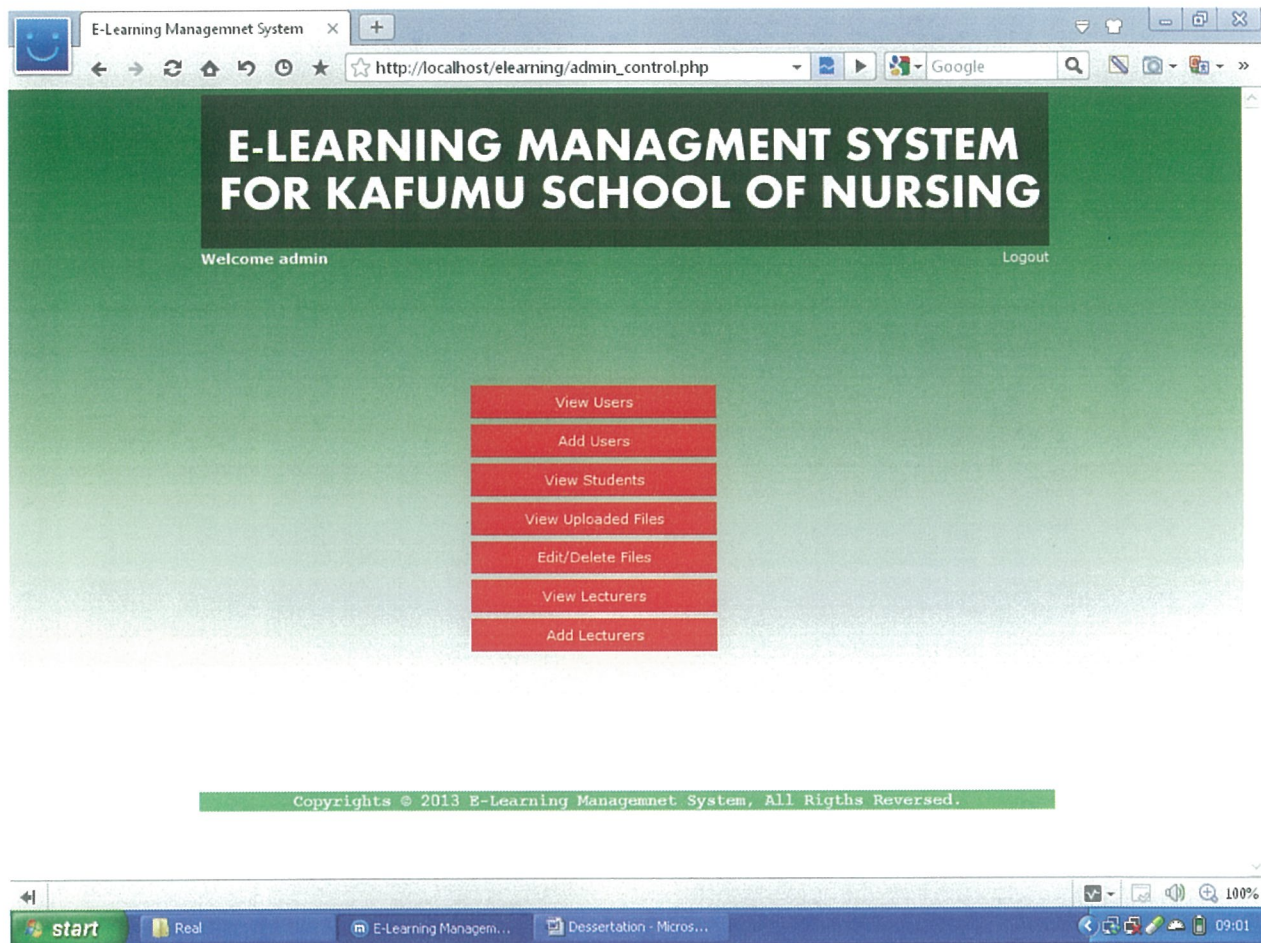**4.1.7. Screenshot of an interface for the administrator to login and access the student's details/particulars.**

Figure 4.1.7

4.1.8. Screenshot of an "out of range" error message on the student's login form.
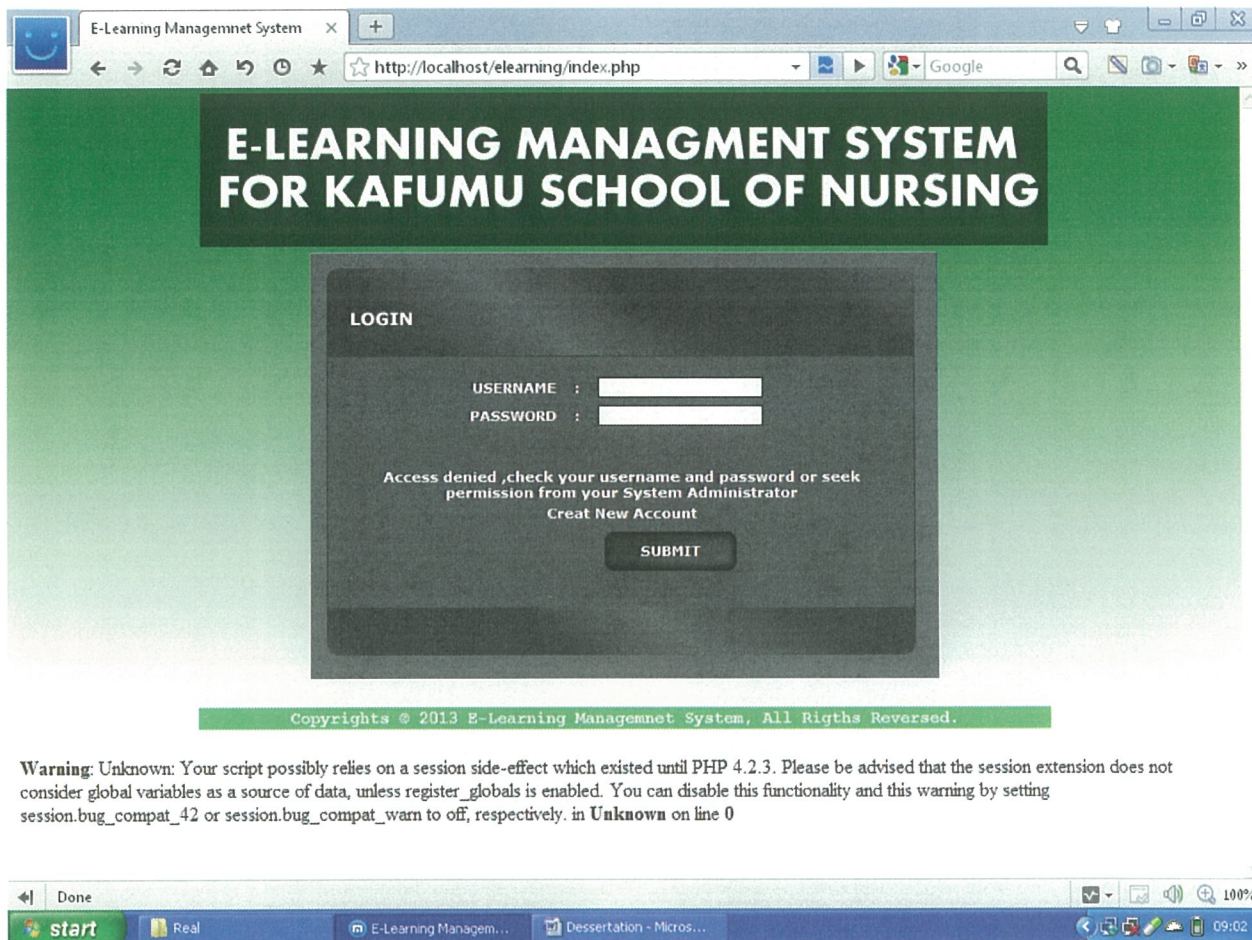

Figure 4.1.8

As shown above, if the system user enters wrong username or password, the system generates an error message. This alerts the users to enter the correct username and password, thus, accuracy is maintained within the database.

4.1.9. Screenshot of an "out of range" error message on the Lecturer's Registration form.

Figure 4.1.9

4.2.0. Screenshot showing users with details.

E-LEARNING MANAGMENT SYSTEM FOR KAFUMA SCHOOL OF NURSING

Welcome admin   Logout

System User's Report

ID	Username	Password	Usertype		
KSN/2013 /2	staff	staff	Staff	Edit	Delete
KSN/2013 /4	admin	admin	Administrator	Edit	Delete
KSN/2013 /23	john	john123	Student	Edit	Delete
KSN/2013 /24	Alex	alex123	Staff	Edit	Delete
KSN/2013 /27	alexb	alex123	Student	Edit	Delete
KSN/2013 /28	dennis	dennis123	Staff	Edit	Delete
KSN/2013 /29	abaho	abaho123	Staff	Edit	Delete
KSN/2013 /31	kasim	kasim123	Student	Edit	Delete
KSN/2013 /32	abaho	abaho123	Student	Edit	Delete
KSN/2013 /33	musiime	musiime123	Student	Edit	Delete
KSN/2013 /34	mutoni	mutoni123	Student	Edit	Delete
KSN/2013 /35	mwangi	mwangi123	Student	Edit	Delete
KSN/2013 /36	munila	munila123	Student	Edit	Delete
KSN/2013 /37	mukwana	mukwana123	Student	Edit	Delete

Print

Back to main page

Figure 4.2.0.

The above figure shows student's particulars report that can be printed by Admin and kept for management purposes.

The report shows information from all the three forms combined together to make a detailed record.

4.2.1. The screenshot illustrates a database records in an MYSQL, sheet

Figure 4.2.1

Every user (student's) records entered into the system is stored in this section of the database. It contains a number of details listed horizontally to help tracking all records of users (student's) at Kafumu school of nursing one-learning program.

From the database, records can be retrieved at a later time, deleted if not required and can also be printed out for managerial purposes

4.2.2. **Below is a screenshot of Kafumu Nursing School web learning environment with embedded health video and refreshment video.**
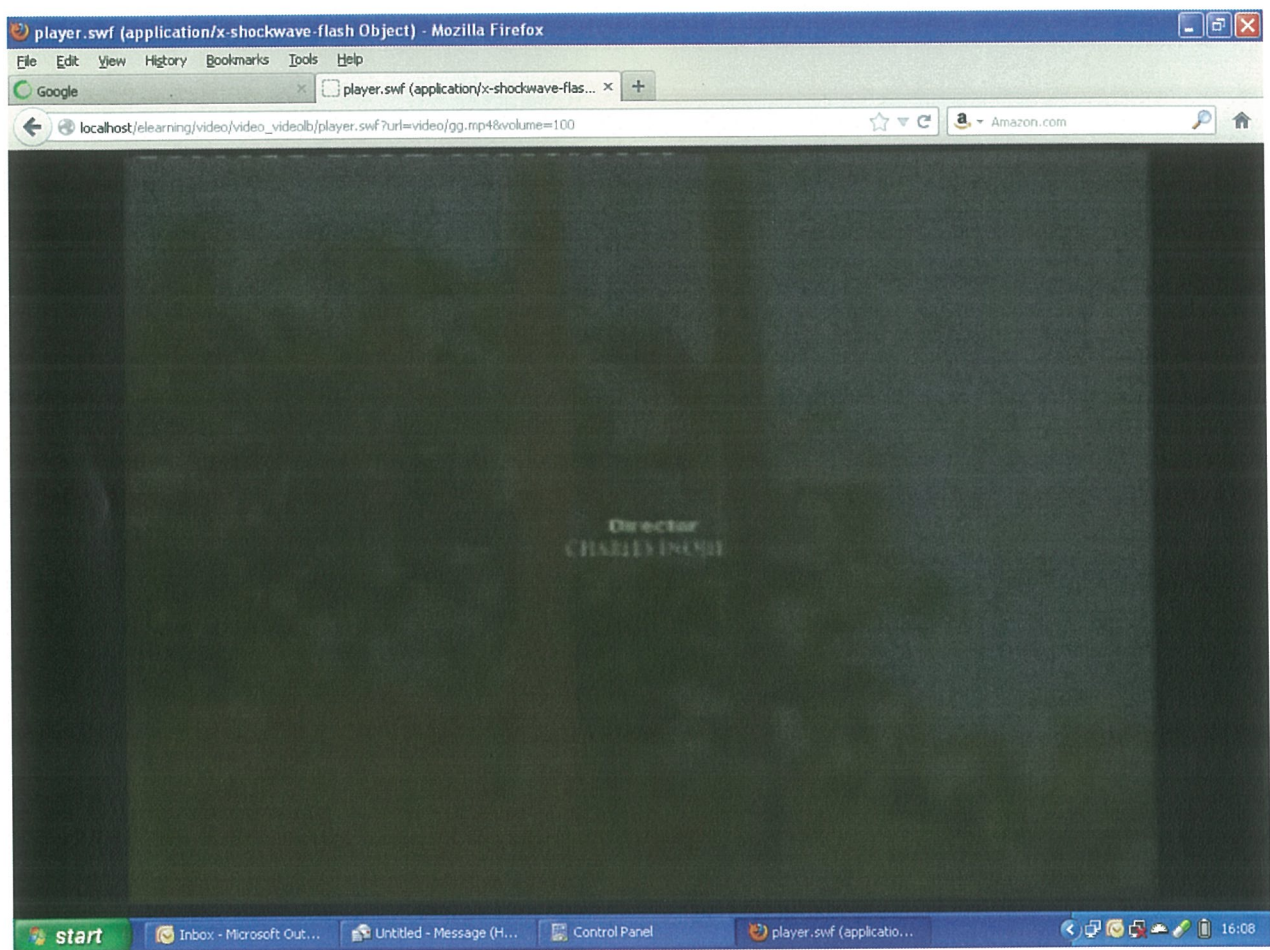
Figure 4.2.2

CHAPTER FIVE

SYSTEM TESTING AND IMPLEMENTATION

5.0 Introduction

Every system is normally subjected to a series of test after it's designed, before it's referred for implementation to find out its strength and weakness. After providing its effectiveness, it's then given for routine monitoring to ensure smooth operation and running.

5.1. System testing

The testing of the software was carried out in the Kafumu school of comprehensive nursing computer labs to ensure effectiveness of the developed system.

5.1.1. The new system was tested in order to

- Ensure that all the system files were free from error and malfunction.
- Guarantee that the end users can successfully interact with the system.
- Discover that the new system can achieve the objects it's meant to fulfill.
- Establish whether the components of the system interface are correct and intact.
- Make sure that the user can effectively handle and manipulate the system.
- The testing was done immediately after completion of designing the system. It was tested individually, by testing each module separately and then later the system as a whole.
- During the testing, the system user and system designers were present and involved
- The system was tested with all kind of data such as incorrect entries, the system reached effectively to the testing procedures, thus it was rendered effective

5.1.2. System implementation.

On a successful completion of the testing phase, the system was set ready for implementation. The system users and designers worked together to implement.

This went through a series of stages as listed below.

Physical preparation of the site

This involved choosing the rooms to be used and setting up the necessary furniture to accommodate the computer sets and other devices.

Acquiring and assembling the equipment.

This involved purchasing and fixing of computer parts and other accessories as per the hardware requirements, as well as organizing them. It also involved networking the computers.

5.1.3. Installation of the software.

The software type to be installed, this mainly involved an operating system as the core, where windows XP was recommended and MS Windows 2003 Or 2007.

Important installation note: The program does not run independently from its data base files, otherwise the MYSQL data source will not be recognized. Therefore installation, the user should first copy the database file into program files of the computer to ensure smooth running of the installed software.

Program file of the computer in located in my computer Local Disk(C :\wamp\www)

Training of personnel: The system designer recommends that a computer professional should be hired to train users on computer basics and applications

Selecting and assigning personnel:

Due the limited number of personnel, there was no problem in assigning personnel to operate on the various tasks.

Converting data files

This process was done with a lot of care and systematically to ensure that manual data files were fetched into a computer without causing any errors or malfunction.

Debugging

Errors that were recognized during the conversion were rectified at that instant.

5.1.4. System evaluation.

After rendering the system operational, it was then evaluated.

Involvement evaluation: the new system was evaluated and it was found out that the development of the system was done at a minimal cost, within the shortest possible time. The development was carried out using PHP scripts, Banner shop GIF animation, Dreamweaver, respectively as the basic programming language.

Operation evaluation: the new system was seen to provide a large storage capacity to carter for the huge amount of data that Kafumu nursing school handled. The system had good response time and it got rid of the traditional file system (TFS) in us. The user on the other hand confessed that the system was compatible, reliable and easier to work with.

System Monitoring: the new system was recommended for routine monitoring by the designer. This was meant to ensure that any errors that could a rise in the system were fixed within this period. This will help to eliminate the effect that may arise from such errors and thus saving later inefficiency in the system. The new system has undergone a series of test as seen and has proved that it can perform the work for which it was incepted. This means that the system is effective so far.

CHAPTER SIX

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

6.0. Introduction

This chapter summarizes the findings of the project on existing issues, the extent to which the project will be useful to the institution and possible future upgrade of the system.

6.1.1. Problems encountered

Time Limits, the College of Applied Science and Technology gave a period of only two months to do the graduation project with attached deadline penalties; as a result it was not possible to make the study detailed enough.

Lack of equipment, There was scarcity of tools and some basic equipment for use. Some included storage devices, software and portable computers for working at convenience.

Financial constraints, sources of finance were a serious mischief in the development of the project. Adjustments were made to fit the budget, by looking into outside sources.

Restriction in the institution facilities, the institution ICT department provided for limited time to only, three hours per day to access the institutions laboratory. This was coupled with the limited member of computers with Dreamweaver and Wamp server software; the researchers were unable to make a detailed design.

6.1.2. Conclusion

The project was developed through the system development life cycle, with a systematic approach to the phases discussed in chapter three, four and five. It also depicts a wide range of research reading from sources such as text books, the internet and guidelines from tutors, as implicated by the literature review covered in chapter two of this book.

The system could have much more comprehensive, had it not been for the limited time frame provided to the researcher. This is because some particular areas such as customization of the interfaces needed further development and synthesis. The system that has been developed

will be in position to increase the efficiency and speed at which the academic services are carried out. It will also improve student's care enhancing their satisfaction.

6.1.2. Recommendations

The database is ready for use but more work should be done to make it more interactive. The faster the project is implemented, the faster the institutions market will start widening. For easy sharing of client's data, the institution should network its computers. The authors also recommended that users should be offered training on short database courses and application packages as it looks forward to upgrading the system.

6.1.3. Further work

Much as the project is ready for deployment, the authors feel that more work can be done to make it more interactive. This will be done at a later stage and can be achieved by revising the institutions information system. Some improvements include security measures, modules for editing and deleting should be secured by passwords for security and efficiency purpose. This will help in tracking down forgery of documents and mishandling of the institutions information.

Limitation in access levels, each person should be given access to the section that he / she is concerned with, not the entire database. This can be achieved by creating several password protected forms various sections, other than general password. More forms should be created for the users to interact more with the institution's information system.

Designing an additional program to print holiday reference numbers on the information prints out depending on the response of the students on whether he / she needs information print outs. Including features such as setting up a help file, tailoring tool bar as appropriate to the application.

Addition of more advanced programming features such as assigning global and local variables, reacting to events, calling procedures from other procedure and manipulating date as appropriate to the application.

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APPENDIX I

BUDGET

ITEM	AMOUNT
Computer set (Laptop)	1,500,000=
Flash Disk (4Gb)	50,000=
Transport	100,000=
Pens	2000=
Papers	24,000=
Internet cost	20.000=
Total	1,696,000=

APPENDIX II

TIME SCHEDULE

MAY	JUNE	JULY	AUGUST
$1^{st}-15^{th}$ Collection of data	1st Project design begins	$1^{st}-20^{th}$ Project design continues	$1^{st}-5^{th}$ Report writing continues
$15^{th}-20^{th}$ Purchase of software and hardware	$2^{nd}-28^{th}$ Project design continues	$21^{st}-25^{th}$ Summarizing project design	$6^{th}-20^{th}$ Summarizing and conclusion of the report
$20^{th}-25^{th}$ Setting up hardware and installation of software		$26^{th}-30^{th}$ Report writing begins	

APPENDIX III

PROJECT PROGRAM CODES

Connection codes for Login.

```php
<?php

session_start();

$_SESSION['id']=session_id();

$_SESSION['username']=$usename;

$errorMessage = '';

if (isset($_POST["username"]) && isset($_POST["password"])) {

        // check if the username and password combination is correct

        //and exists in the database

        $username = $_POST["username"];  $password = $_POST["password"];

    // session_register("userId");

        $eaconn = @mysql_connect("localhost","root","")

        or die("Could not connect to the database!");

        $eadb = @mysql_select_db("aor", $eaconn) or die ("Failed to find User name/password,Please
contact the administrator!");

        //create query to check n c if staff exists

        $finduser = "SELECT * FROM users

        WHERE username = '$username'

        AND password = '$password'";

        $result = @mysql_query($finduser, $eaconn)

        or die ("User Login failed!" .mysql_error());

        if (@mysql_num_rows($result) == 1) {
```

45

```php
// the username and password match,

//open apporiate pages

$row = mysql_fetch_array($result);

if ($row["usertype"] == "Administrator"){

// set the session

$_SESSION['Administrator_is_logged_in'] = true;

// after login we move to the main page

header('Location: admin_control.php');

exit;

}        elseif($row["usertype"] == "Staff"){

// set the session

$_SESSION['Staff_is_logged_in'] = true;

// after login we move to the main page

header('Location: staff_control.php');

exit;

}        elseif($row["usertype"] == "Student"){

// set the session

$_SESSION['Student_is_logged_in'] = true;

// after login we move to the main page header('Location: student_control.php');

exit;

}

}        else

{

$errorMessage = " Access denied ,check your username and password or seek permission from your System Administrator";

}        }?>
```

Connection codes for Registration form

```php
<?php

$host="localhost"; // Host name

$username="root"; // Mysql username

$password=""; // Mysql password

$db_name="aor"; // Database name

// Connect to server and select database.

mysql_connect("$host", "$username", "$password")or die("cannot connect");

mysql_select_db("$db_name")or die("cannot select DB");

$username = $_POST['username'];

$password = $_POST['password'];

$usertype = $_POST['usertype'];

///student info

$rno = $_POST['rno'];

$fname = $_POST['fname'];

$sname = $_POST['sname'];

$gender = $_POST['gender'];

$email = $_POST['email'];

$yos = $_POST['yos'];

$course = $_POST['course'];

$query = "INSERT INTO users

VALUES ('','$username','$password','$usertype')";

$query1 = "INSERT INTO student

VALUES ('','$rno','$fname','$sname','$gender','$email','$yos','$course')";

$results = mysql_query($query) or die

("The Registration number already Exists : $query." . mysql_error());
```

```php
$results1 = mysql_query($query1) or die

("The Registration number already Exists ");

mysql_close();

if ($results && $results1)

{

echo "Record  added  successfully.";

echo "<meta http-equiv=Refresh content=2;url=index.php>";

}

mysql_close();

?>
```