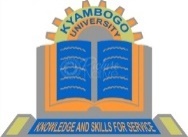
KYAMBOGO ****UNIVERSITY

ELECTRONIC STUDENT INFORMATION MANAGEMENT SYSTEM

CASE STUDY: KYAMBOGO UNIVERSITY

BY

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A RESEARCH PROPOSAL SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF COMPUTING AND INFORMATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE BACHELORS DEGREE IN INFORMATION TECHNOLOGY AND COMPUTING OF KYAMBOGO UNIVERSITY

FEBUARY 2024

# DECLARATION

I, Ogwang Tonny, declare that the work presented in this research project is my original work and has not been submitted to any University or Institution of Higher Learning for any academic award. All work from other authors has been fully and properly acknowledged and cited.

Signature :……………………………………. Date:………………………………

OGWANG TONNY

(Researcher)

# APPROVAL

This is to certify that this research project titled: “*Electronic Student Information Management System”* has been carried out under my/our supervision and is now ready for submission to the Examinations Board and Senate of Kyambogo University.

Signature:……………………………………. Date:………………………………

Dr. Aguti Beatrice (Supervisor)

# DEDICATION

First and foremost, I dedicate this work to the Almighty God who has been my source of Strength, Grace and Wisdom throughout the period of my course.

Secondly,my beloved Supervisor, Dr. Aguti Beatrice for his distinguished guidance and support towards my research and entire development.

This research paper is sincerely dedicated to my supportive parents who encouraged and inspired me in conducting this study.

I dedicate my dissertation work to my family and many friends.

# ACKNOWLEDGEMENT

You may acknowledge/thank/appreciate all those persons that have helped you with your research or with your studies generally. People who were interviewed, filled the questionnaire (not to be acknowledged individually, but collectively), those who helped you with reading resources, equipment, advice and guidance about the research/studies, the sponsors of your studies, etc., may be acknowledged here.

# LIST OF ACRONYMS

Any acronym/abbreviation used

CAD Computer Aided Design

SWOT Strengths, Weaknesses, Opportunities and Threats

EPC Event-driven Process Chains

ICT Information Communication Technology

KYU Kyambogo University

DB Database

DBMS Database Management System

IMS Information Management System

Std Student

PHP PHP Hypertext Programming

SDLC System Development Life Cycle

SIMS Student Information Management System

SOA Service Oriented Application

UDDI Universal Description Discovery and Integration

XHTML Extensive Hyper Text Markup Language

# DEFINITION OF TERMS USED

Student

Application Use

Electronic

Information Management System

person who is enrolled in a school or educational institution in this case Kyambogo University.

technologies to send services to the Student, and receive services from the organization through mobile applications (mainly mobile phones) (Davies, 1986; Davies et al., 1989). In this research, we define mobile application use as the utilization of mobile applications, technologies, etc., by financial institutions or their Student to send or receive services via these mobile applications/technologies, e.g., phones.

having or operating with components such as microchips and transistors that control and direct electric currents.

Refers is a general term for software or system that helps store, organize, and retrieve information

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# ABSTRACT

For the last 4 years students results have been processed and released lately, this is where exams are marked and results of the previous semester are released almost at the end of the current or new semester, this may have been caused by missing marks of some of the students, Delayed marking by some lecturer, delayed submitting of marks into the current system in Kyambogo University. Complaints like missing results are submitted after the release of results and worked upon. Data can easily be lost if there is no database which is storing and updating these data (results). The researcher studied and discovered that, the system was cumbersome to students and the people who are involved in preparing results, hence implemented a new Electronic Student Information Management System (ESIMS) which could store and retrieve students’ academic results which can be viewed online. This ease the workload of staff and students whereby they will be able to check their results wherever they are and at the convenient time.

# CHAPTER ONE: INTRODUCTION

## Introduction

Electronic Student Information Management System (ESIMS) is a system developed for students to access their results on Internet and utilize internet when they need. The system presents a comprehensive view and integration of a database that can be maintained and manipulated with great flexibility to meet the needs of institution administration, students and the public at large.

This will lead to a clear specification of priority of aims, objectives, justification and a decision to concentrate on efforts on building up database driven website that is user friendly, reliable, confidential and cost effective with elements of flexibility to build confidence in the management of an institutions

## Background to the Study

Kyambogo University (KYU) is a government University which started in 2004, it is located along Nakawa, Banda. 1 Kilometers from Jinja Road, the university has many different Campuses all over the country. The university offers various courses from certificate level to postgraduate/master. With its potential KYU has attracted many students from neighboring countries like Kenya, Tanzania, Rwanda, DRC Congo, Ethiopia, Somalia and others. This implies that during university closure most of the students travel back home for their holidays. It is during this period that the University conducts their Examination marking Session so that the results for the previous semester are ready in time. Usually before the opening of the next semester or academic year, the results are ready and published. Students find it difficult and time consuming to travel back to University for their results.

## The problem statement:

Although student’s information is being provided by the management from the faculty, it is not efficiently propagated hence poor accessibility of timely and important communication. Any communication or announcements were pinned on the notice boards and glass windows of the office; this meant that students had to pass by every day to read the current communication. The congestion in the corridors made it impossible to get what has been communicated on time hence students would not respond on time. According to Stearns and Courty, (Stearns and Courtney, 2000), “Examinations should be an opportunity to show what adolescents know, not what they do not know”. Questions should provide the opportunity for learners at different places along the learning continuum to demonstrate their understanding. Assessments can be useful teaching tools, recapturing the essential education aims of helping our students learning and aiding us in instruction” This has been contrary in Kyambogo University due to poor Information flow between the lecturers and students. Educational materials such as class work notes, trial questions and question approach guidelines are distributed by private secretarial service vendors in the University. Access of Examinations, Tests and course work results is a problem due to congestion in the corridors of the faculty premises as a result hence affecting student’s performance. Management and administrative communication and consultations were via meetings or moving from office to office and this would delay taking timely decisions to resolve any arising problems for the University to run efficiently. Apparently, there is no formal system to facilitate various stakeholders’ discussion forums on issues of academic consequence. Students, lecturers, alumni and the entire community of School of Computer studies don’t have a centralized system to be able to make positive contributions that would help the management make necessary improvements on academic performance. Therefore, there is need to develop a Web-based Academic Management System which should make necessary information available in a systematic, convenient and accessible way.

## General Objective/Aim/Purpose

1. To develop an online system which will make it easier for students toeasily access their results and offer better service to the students.

### Specific Objectives

1. To study the current system, analyse the system and make recommendations for the new system.
2. To Investigate and identify requirements for the Web-Based Academic Management System.
3. To design electronic student information management system for kyambogo University.
4. To develop a database driven website which will store and retrieve student results when they are needed.
5. To test and validate the system developed during the course of study

## Research Questions

1. How is information being managed at the School of computing?
2. What are systems in place and what type of infrastructure do exist? Are they compatible with the proposed system or integration is a possible solution.
3. What are the requirements of the electronic student information management system?
4. How can the new electronic student information management system for Kyambogo University be designed?
5. Is it effective and satisfactory to the Administration, students, staff Students and Management of Kyambogo University?
6. Is it possible to design a database driven web System which will store students results, display the results and update students with current information?
7. How can the new system be implemented, tested and validated?

## Significance/Importance/Relevance/Justification/Contribution

The reason for implementing Electronic Student Information Management System (ESIMS) is to help students to know their academic performance. This enables students to prepare for what they are going to do the coming academic year.

## Scope

The scope provides for the boundary of the research in terms of depth of investigation, content, and sample size, geographical, time frame and theoretical coverage.

### Content/Subject/Academic Area

This study only looked at the design of a computerized information management system of University Management System. The design will be done using dataflow diagrams (DFDs) and it will be implemented on a windows platform using tools such as MYSQL, Apache server and PHP or hosted for online easy access.

### Geographical Scope

This study is carried out at Kyambogo University, Nakawa, Banda, Kampala District.

### Time Scope

This study looked at documents spanning a period of five years (2018– 2023) and will lasted for six (6) months (February – July 2024).

The development of the system will be between the beginning of OCTOBER 2023 and the end of JUNE 2024

## CONCEPTUAL FRAMEWORKS

The model of this system based on a client server architecture where by a client who is a student, sends a request to a web server and a server reply for the results like a student’s requests to view the database which have results, they may be asked to click to download the results and be requested to enter username and passwords to view individual results. When a client/student request for the page, the request is sent to the server and the web server process the results which are kept in MySQL database. MySQL is used it is the standard query language for interacting with databases. It is an open source, SQL database server that is more or less free and fast. This can be illustrated below

**Figure 1: CONCEPTUAL FRAMEWORKS**

# CHAPTER TWO: LITERATURE VIEW



## Introduction

This chapter reviewed literature on information systems, which is published in textbooks, journals, the internet and others, and is relevant to the problem tinder study.



## Information systems.

Information systems as a collection of people, procedures and equipment designed, built, operated and maintained to collect, store, retrieve, and display information. Information systems are generally meant to satisfy organizational information requirements. They are responsible with planning information services and designing systems that can meet user requirements. Information as an assemblage of data in a comprehensible form that is recorded on paper or some other medium, which is capable of being communicated to others (Harold, 1984). Also observed that information is not a commodity which one can afford to collect and possess (Abidi, 1991). It has to be used for increased benefit for solution of problems for appropriate development and decision-making, the observation by Abidi justifies information as indeed a basic resource that is essential for any organization to perform its activities and hence achieve its goals.

Information sources represent facts of knowledge necessary for day-day running of any organization. The absence of information will undermine organizational planning, control and management. Information is relevant in answering the necessary questions within an organization. According to Groller (1976), data flows from both within and outside an organization. This data is encoded, processed, transmitted and stored in suitable memories and then later retrieved to support decision-making. Therefore, the total apparatus for handling information within the organization in all respects in all respects (Chapman and Oliver, 1999).

### Management Information Systems

Management Information Systems are systems that process data from both internal and external sources into information in order to support management decision-making. According to McGraw (1989), Management information systems produce information products that support many of the day-to-day decision-making needs of managers and business professional. The systems provide information on the firm’s performance in

order to help managers in monitoring and controlling the business. Management information systems contain other systems embedded within them. Lucey (1997) outlines them as follows Database systems, which process and store information that later becomes the organizations memory. Direct control systems, which monitor and report on activities such as output levels, credit account in arrears and daily activities. Enquiry systems based on database, which provide specific information such as performance of a department or an Lecturer. Support systems that provide computer-based procedures for providing forecast.

Management information system is a system by which people apply manual and computerized information systems to process data and information needed for solving problems in an organization (Hambrick, 2007). A management information system is a system or process that provides information needed to manage organizations effectively.

Management information systems are regarded to be a subset of the overall internal controls procedures in a business, which cover the application of people, documents, technologies, and procedures used by management accountants to solve business problems such as costing a product, service or a business-wide strategy (John. G. Scholes, 2008). Management information systems are distinct from regular information systems in that they are used to analyze other information systems applied in operational activities in the organization (Glad Well, 2000).

Management information systems is a planned system of the collecting, processing, storing and disseminating data in the form of information needed to carry out the functions of management. In a way it is a documented report of the activities that were planned and executed (Hamel et al, 1994). It must provide for reports based upon performance analysis in areas critical to that plan, with feedback loops that allow for titivation of every aspect of the business, including recruitment and training regimens. In effect, Management information systems must not only indicate how things are going, but why they are not going as well as planned where that is the case. These reports would include performance relative to cost centers and projects that drive profit or loss, and do so in such a way that identifies individual accountability, and in virtual real-time (Ham brick, 2007).

Management information systems actually describe specific systems that “provide managers with reports and, in some cases, on-line access to the organization’s current performance and historical records. Management information systems primarily serve the functions of planning, controlling, and decision making at the management level.” Management information systems are one of a number of different types of information systems that can serve the needs of different levels in an organization (John. G. Scholes, 2008).

### Benefits of Management Information Systems

Management information systems could be of great importance to organizations when employed in their daily operations since they could quicken and make easier their mode of operation. They are quit vital (important) in the following ways:

They provide support for structured decision making at all levels by providing the necessary information needed. The system also provides on-line access to the systems in order to give summarized information on the performance of the organization (Baramati, 1997). According to Kurtz (2001), Management information systems also possess “drill down” facilities, which search into depth and provide more detailed information on the organizations operation and performance.

McVeigh (2002) observed that Management Information Systems could also be used by trading institutions for competitive advantage over their business rivals because they provide details of the number of students registered, indicate the size of the classroom required and the number of teachers per subject. This could enhance better planning thus being more competitive. In other words, management information systems provide information to an organization on the use of information technology, the type of information to be used, the degree of expertise existing throughout the organization and the availability of equipment needed. (Lacey, 1987).

### Challenges/Barriers Associated with Management information systems

Organization implementation of electronic meeting is also a big barrier to management information systems. Mackintosh (1987) observed that these meetings are not able to yield enough data that would be needed by system data provided/received from these meetings is limited to the space provided by the electronic tool that is being used.

Information technology and competitors is a big barrier to Management Information. This is so because competitors tend to block the channels of data information from reaching the organization and thus making it difficult for the system to operate well without the data.

(Ferrat, 1995). Barriers to software re-use adoption. Mint berg (1997 said that organizations have not yet adopted the mechanism of software re-use. This has greatly hindered the development of management information system.

Lack of agency processes supporting distributed records and information management. The transition from central Managed records and information management to a decentralized environment where records and information management responsibility lies with the users at the desktop, has created problems for the identification, management, and preservation of agencies’ information assets.

Rapid technological obsolescence. The rapid pace of technological evolution is an issue for electronic records and information that need to be available for long periods of time (e.g. more than 10 years). In many cases, agencies may need electronic records and information for 30 years or more to conduct ongoing business or to preserve rights, and in other cases, they may be needed indefinitely to document the national experience. For example, FAA needs access to aircraft safety records for as long as the aircraft is in use, FDA must retain reports of adverse drug reactions for as long as the drug is used, and DOE must keep long-term records of nuclear waste disposal.

Differences in mission, technology, and culture also exist within agencies. This makes it difficult to implement an enterprise-wide approach to records and information management within an agency. For example, until recently, the evaluation of software needs is not consolidated at the agency level, creating a situation where agencies had redundant stovepipe systems that could not share data across the enterprise. At the desktop, users do not have a standard set of metadata or indexing scheme for managing electronic records and information at the point of creation. As a result, there is no agency-wide consistency in how records and information are identified and maintained, which leads to difficulties in sharing and retrieving this information, not only within the creating until, but also across the enterprise (McVeigh, 2002).

## Database.

Database is a shared collection of logically related data and description of this data, designed to meet the information needs of the organization (Carolyn, 2004). A collection of records or files of information grouped together, hopefully because they have something in common. The Data Base Management System allows these records to be sorted, searched, or accessed by selected. An organized collection of data on a particular subject usually held on a computer. A database be maintained by an organization for its own purpose only, or may be made available, usually on payment of a fee, to other.

Database is an integrated collection of logically related records or files (James.et al 1997). A database consolidates records previously stored in separate file into common pool of data, records that provide data for many applications. Database is a single organized collection of structured data, stored with minimum of duplication of data items so as to provide a consistent and controlled pool of data (French 1996). Database is a file of data structured in such a way that serve as a number of applications without its structure being dictated by any of those applications, the concept being that programs are written round the database rather than files being structured to meet the needs of particular products.

French (2001) defined a database as a single organized collection of structured data, stored with a minimum of duplication of data items so as to provide a consistent and controlled pool of data. A database is also looked at as a data structure used to store organized information. A database is made up of many linked tables, rows and columns. Database software such as Microsoft Access, Oracle, SQL are designed to help companies and individuals, organize large amounts of information for faster data searching, sorting and uniform updating. This database can provide critical information and can help managers and executives better control of operations. The same type of database can also be used by individuals who own personal computers. In some case, you can enter your own data into your personal computer and use sophisticated database programs to manipulate and retrieve this data (Ralph M.Star, 2003).

### Classification of Database.

According to C.S French (1 996), database may be classified according to the approaches taken to data base organization and they include Relational Network Hierarchical and File inversions the last two are more basic have a number of practical limitations. Relational database use type of tables called relations.

### Relational data base management system.

The most popular definition of a relational data base management system is imprecise and not strictly based on relational theory: some argue that merely presenting a view of data as a collection of rows and column is sufficient to qualify as a relational data base management system.

### Database security

It should be noted that is of particularly personal and private nature and there is a natural concern that it should be abused or stored without knowledge of the individual concerned “people who know their way around company may use this knowledge to gain access to confidential information. Students occasionally crack a school’s company code and obtain tasks in advance (Popy, 1983). Database records should be encrypted as separate entities and also be sufficiently strong to withstand a sustained intensive cryptanalytic attack (Longley and Sham, 1994).

The security designs for specific database systems typically specify further security administration and management functions (such as administration and reporting of user access rights, log management and analysis, database replication1syflchr0niZati01~ and backups) along with various business-driven information security controls within the database programs and functions data entry validation and audit trails). Furthermore, various security-related activities (manual controls) are normally incorporated into the procedures, guidelines etc. relating to the design, development, configuration, use, management and maintenance of databases. Another security layer of a more sophisticated nature includes real-time database activity monitoring, either by analyzing protocol traffic over the network, or by observing local database activity on each server using software agents, or both. Use of agents or native logging is required to capture activities executed on the database server, which typically include the activities of the database administrator. Agents allow this information to be captured in a fashion that can not be disabled by the database administrator, who has the ability to disable or modify native audit logs.

Different routing protocols exist and each employs its own mechanism for securing the protocol packets on the wire. While most already have some method for accomplishing cryptographic message authentication, in many cases the existing methods are dated, vulnerable to attack, and employ cryptographic algorithms that have been deprecated. The HKeying and Authentication for Routing Protocols” (KARP) effort aims to overhaul and improve these mechanisms. This document has two main parts - the first describes the threat analysis for attacks against routing protocols’ transports and the second enumerates the requirements for addressing the described threats. This document, along with the KARP design guide and KARP framework documents, will be used by KARP design teams for specific protocol review and overhaul. This document reflects the input of both the IETF’s Security Area and Routing Area in order to form a jointly agreed upon guidance. This document specifies the information contained in a database of long

lived cryptographic keys used by many different security protocols. The database design supports both manual and automated key management. In many instances, the security protocols do not directly use the long-lived key, but rather a key derivation function is used to derive a short-lived key from a long-lived key.

### Database Maintenance

The databases of an organization need to be updated continually to reflect new business transactions and other events must also be made to update and correct data to ensure accuracy data within the data base (O’Brien, 2004). Maintenance of the database consist of capturing the data recording in the file to keep the records up to date. Procedures must be established for each of these processes as well as for data retrieval must be carefully designed to protect against accidental destruction of rearrangement of any file element. (Brabb and McKean, 1982).

## Types of database

According to Clifton (2000), databases are used in many applications in extracting data using a database management system to meet the users’ needs. He further states that databases are a preferred method of storage for large multi — users’ applications where there is coordination between many users. Databases are put in a number of forms which include the following.

### Data warehouse databases

These store data from current and previous years that has been extracted from the various operational and management database of an organization. It is a central source of data that has been standardised and integrated to meet different user’s needs.

### Relational database

According to stern (2001) a relational database is a database consisting of table like files, each table consists of a series of rows which are in effect the database records and columns which are in effect the fields within the records structures. The tables are independent of each other and are carefully constructed to maximise efficiency and ensure data integrity. The users can create useful linkages between the various tables and discover useful relationships between records

### Hierarchical database

According to Clifton (2000) asserts that records are organised in layers whereby it is possible to penetrate down the layers by the links provided in order to access successively more detailed information. The head master may wish to have access to more detailed information about the pupils in a particular class where by it becomes easy if such information can be easily obtained when there is an organised database.

### Network database

Clifton (2000) asserts that network databases place records into sets. The sets consist of a head record known as the owner record plus one or more records. The individual records can belong to more than one set by a network of linkages.

### End- user database

According to Dale (2004) end user databases consist of variety of data files developed by end users at their workstations. For example, users may have their own electronics data files generated using (DBMS) database management system packages.

## Advantages of a database.

Advantages of the data base include the following:

### Data sharing

According to Bachman (2004) data sharing means not only that existing application will share the records in the database, but also new applications will be developed to operate against the same data, in other words it might be possible to satisfy the data requirements of new applications without having to add new data to the database.

### Redundancy reduction

According to Tara (2006) asserts that in a non-database system each application has its own private files. This fact can often lead to considerable redundancy in data that will be stored, with resultant waste in storage space for example a class teacher may own students records while at the same time the head teacher owns the same, those two files can be integrated thus eliminating redundancy.

### Security enhancement.

According to Brett (2003), having complete jurisdiction over database can ensure that the only means to access to the database is through proper channels and hence can define security constraints or rules that will be checked whenever access is attempted to sensitive data. A password is developed that would be used to check the authenticity of anyone attempting to access information from the database.

### Avoiding inconsistence

If a given fact is represented by a single entry, then inconsistency did not occur. Two contrary facts relating to a particular student could not occur because only one entry could be shared by a number of users for instance students records once entered into the database, they shared by the class teacher when updating examinations and tests records, the head of department when updating department records, the director of studies while analyzing performance. Basically, consistency is highly maintained.

### Data integrity maintenance

According to Fowler (2006), database integrity involves ensuring that data in the database is correct, inconsistency between two entries that purport to represent the same facts is an example of data integrity, Fowler further stresses that records that will be entered into the database have to be thoroughly checked whenever an update operation will be performed for instance, whenever the class teacher updated his/her records regarding say tests or examinations, they were thoroughly checked to ensure that such information did not contradict the information held by other administrators.

### Automation

Dale (2004) asserts that by touch of a button a database management system will perform numerous functions such as editing records, updating records, performing mathematical operations generating reports and charts, generating documents in other programmes and more. These were built in to ensure that the information entered into the system meets the entries that you want such as confirming that date with in which a certain time frame lies and update various users that gained access to those records to effect various decisions.

## Database Management System.

Database Management System is a complex software system that constructs, expands and maintains the database’s (French. C. S. 1996). It also provides the controlled interface between the user and the data in the database. According to Thomas and Carolyn (2004), Database Management System is software that enables users to define, create, maintain and control access to the database. The DBM approach consolidates data records into database data can be accessed by many different application programs. Database Management System serves as a software interface between users and database. It is a set of computer programs that controls the creation, maintenance and use of the database of an organization and its end users.

A database management system is a computer program (or more typically a suit of them) designed to manage a database (a large set of structured data), and run operation on the data request by numerous clients. Typical example of Database Management System use

includes accounting, human resources and Student support systems. Originally found only in large organizations with the computer hardware needed to support large data sets, Database Management System have more recently emerged as a fairly standard part of any company back office.

# CHAPTER THREE: SYSTEM STUDY AND INVESTIGATION



## Introduction

This chapter focused on the methodology which the researcher used to carry out the study. It contained the research methods and research instruments. The chapter also provided some information about the investigation of the existing system and it also includes the systems requirements specifications, systems constraints and the systems design.

## Data collection techniques

The researcher moved to the company’s head offices and generates data through interviewing, observations, use of questionnaires and document reviews.

### Observation

This method helped the researcher to witness with his eye’s activities carried out at the company. For example, data collection, recording and hence make judgment on the user requirements, identify the systems constraints and the method is the best in identifying those requirements which could not be easily expressed by the staff at the company.

### Document review

The project developer gathered information from the company’s documents, libraries the internet, journals text books and review other relevant published literature on the development of an effective loan processing system.

## Data sources

Data will be gathered from both primary and secondary sources. That is primary data which will be gathered from the respondents at the company and the secondary data sources like the internet, text books, magazines, journals.

### Primary data

The source of primary data is basically the staff, Students and management of the Kyambogo University and most especially those involved in the data collection, recording in the registers and ledger cards, users of the company’s information plus the management of the company including the program manager and the chief supervisor and will be through the use of questionnaires and interviewing.

### Secondary data

Secondary data will be obtained through reviewing literature of the already published information from the internet, journals, newspapers and other relevant documents.

## Data Processing and Presentation

### Data processing

Data will be analyzed by using a database approach which was developed using html, CSS, JavaScript, PHP and MySQL. Continuous editing and modifications were carried out to ensure that the database management system meets the intended objectives.

### Data presentation

The researcher will present the data using a number of conceptual table framework which was developed using MS access, MS word and power point.

### Research Design

The researcher will use logical designs when coming up with the actual design of the database application and practically implement the database application designed to examine and test how the database application will be developed which leads to efficiency management of loans disbursed by the company.

### Sample selection

Due to the limited time for conducting the study, a few respondents will be selected from Kyambogo University, the data management section and a few staff/lecturers and Students from other sections will be involved in the data collection and recording. A total of 8 respondents from the mention section were chosen randomly.

## Systems Requirements and Analysis of Specification

The section will focus on what the researcher intends to collect on the existing system. Areas to be investigated include

* User requirements
* Functional requirements
* Nonfunctional requirements
* Systems requirement.

### User requirements

This involves the identification and analysis of end user requirements through generation of information by conducting a survey on the concerned parties.

The requirements to be identified include;

1. Capturing data
2. Processing data
3. Storing data
4. Manipulating data
5. Maintaining and updating data

### Functional Requirements

The database application will be analyzed in order to make sure that it performs the following functions

1. Capturing the right data
2. Production of reports
3. Storing of data
4. Validating and updating data.

### Non-functional requirements:

The project developer will determine the attributes required to be included in the functional requirements of the system. The following were the non-financial requirements.

* Only authorized users will be allowed to access the system.
* Only superior users are able to perform the necessary functions on the system.
* Users were trained so as to acquire the skills to operate the system.
* The system will allow centralized processing of information instead of numerous paper works.
* User friendly.
* Secure the system (passwords) thus to the secretary and the headmaster.
* Authentication of user.

### Systems requirements:

This will involve finding out the nature and the capacity of hardware and software requirements and tools required for the development of the data base.

#### Software requirements.

* A minimum of windows XP professional operating system
* SQL server software to run it on the server
* Ms access software application
* VScode Studio Compiler

#### Hardware requirement:

* Processes speed of 3.0 GHz
* I desktop computer set.
* Other peripherals like a printer

## System Design

### Description of the system

The Electronic Student Information Management System designed using html, CSS, JavaScript, PHP, MySQL and this work a relational data base management system basing on the current system which is manual. Entities, attributes and data types were identified basing on the different data gathered in the section respective registers and files. During the design attention was put on the physical and logical design layout of the data base and several objects were put in perspective when creating the application.

## System development life cycle (SDLC)

They involve the stages through which the system will pass through before implementation stage where different approaches like prototyping, waterfall and joint application design will be used. But for the purpose of this study only one approach will be used for development.

### Prototyping

This will be designed and build to a scaled down but working version of a described down but working version of a desired system. A prototype can be developed with a computer aided software engineering tool. This is the software that automates the system development life cycle steps computer aided engineering easier and, more creative by sporting the design of screen and report the system, The researcher will develop a records management system using MS Access to. In corporate it will visual basic. The system will accept input process and produce the required output such as report.

### System testing.

This will be tested in order to ensure that it is working as intended according to the defined specifications; its performance was compared to that of the existing system that helped to look out which one is more efficient. It basically looked at how the researcher identified requirements and looked at the whole process of the system development; system testing and implementation came along in final report.

### Specification requirement.

Verification of user names and pass words. Validation and updating Lecturers and administration records will help to give the final report. These were presented using PHP and MySQL Band width of 30 MB Ps. After the data flow diagram was used which is a graphic presentation that illustrates the movement of data between internal entities process and store data within the system.

Figure 2: System development life cycle (SDLC)

### Choice of entities and attributes.

**Table 1: Lecturer Table. Stores information about Lecturers and Lectures assigned**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | **Data type** | **Placeholder** | **Description** |
| Lecturer ID | Auto number |  | Primary key |
| First Name | Text | Lecturers First Name |  |
| Last Name | Text | Lecturers last Name |  |
| Position | Text | Post held by the Lecturer |  |
| Status | Text | Mr., Mrs., or Miss |  |
| Date of Recruitment | Date/time | Date of recruitment of the Lecturer |  |
| Contact | Text | Telephone contacts of the Lecturer |  |
| Department Name | Text | Department which the Lecturer belongs to |  |

**Table 2: Students Table: Stores information about a particular Student**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | **Data type** | **Placeholder** | **Description** |
| Student ID | Auto number |  | Primary key |
| First Name | Text | Student First Name |  |
| Last Name | Text | Student last Name |  |
| Residence | Text | Place where the student stays |  |
| Status | Text | Mr., Mrs., Dr. or Miss |  |
| Nationality | Text | Nationality of the Student |  |
| Contact | Text | Telephone contacts of the Student. |  |
| Course | Text | Course |  |

ESIMS

**Figure 3: Entity-Relationship Diagram**