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**DESIGNING AN ELECTRONIC STUDENTS RECORDS MANAGEMENT
SYSTEM: A CASE STUDY OF ST FRANCIS SCHOOLS OF HEALTH
SCIENCES NAMATABA MUKONO (SFRASH)**

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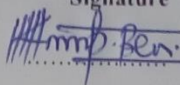
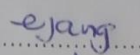
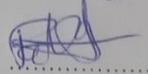
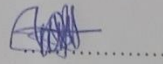
**A PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF A BACHELORS
DEGREE OF RECORDS AND ARCHIVES MANAGEMENT
OF MAKERERE UNIVERSITY**

OCTOBER 2022

DECLARATION

DECLARATION

We declare this dissertation titled "Electronic Students Records Management System" a case study of St Francis Schools of Health Sciences Namataba Mukono is our group work and has never been submitted in any University or any other higher institution of learning for any award or any other purpose.

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APPROVAL

APPROVAL

This is to certify that this dissertation entitled Designing an Electronic Students Records Management System case study of St Francis Schools of Health Sciences (SFRASH) Uganda was done by group "U" under my supervision and is ready for submission as a partial requirement for the award of a Bachelor's Degree of Records and Archives Management of Makerere University.

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ACKNOWLEDGEMENT

We would like to express my sincere thanks to the Almighty God and Allah for the gift of life, wisdom and understanding he gave as, a reason of our existence

In a special way, we wish to express our sincere appreciation to Mr. Ssenono Richard for the expertise and intelligence he displayed while supervising this project work.

May GOD reward them abundantly!

We take this opportunity thank all the academic staff of EASLIS Makerere University for all the guidance offered to us during the course of our study and research development.

We extend our sincere thanks to different sponsors our parents, guardians, brothers and sisters for their contribution towards our study through their tireless contributions it has made us reach this far God and Allah bless them and keep them to see the results of their endeavors.

A special gratitude to our dearest friends who contributed one way and the other for the successful completion of this research project.

DEDICATION

We dedicate this research project to our parents, brothers and sisters for their endless care and tireless parental and financial support rendered to us during the course of study. May almighty God and Allah Almighty bless them abundantly!

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LIST OF ABBREVIATIONS AND ACRONYMS

CIA	:	International Committee on Archives
CINA	:	Chinese Information and Network Association
SRMS	:	Students' records management system
CS	:	Computer Science
COCIS	:	College of Computing and Information Sciences
DBMS	:	Database Management System
DFD	:	Dataflow Diagram
EASLIS	:	East African School of Library and Information Sciences
ESRMS	:	Electronic Students Records Management System
ERDMS	:	Electronic Records Document Management System
ICT	:	Information and Communication Technology
IRMT	:	International Records Management Trust
IT	:	Information Technology
ISO	:	International Standardization Organization
RM	:	Records Management
RMS	:	Records Management System
NHO	:	National Health Organization
SFRASH	:	St Francis Schools of Health Sciences Mulago
UNSA	:	Uganda National Students Association

DEFINITION OF KEY TERMS

A system

It is a group of components (people, objects and processes) that work together to achieve a common goal, or multiple goals, by accepting input, processing it and producing output in an organized manner.

Records

They are specific pieces of recorded information generated, collected or received in the initiation, conduct or completion of an activity and which comprises sufficient content, context and structure to provide proof or evidence of that activity'.

Records management (RM)

Is the practice of controlling records of an organization from the time they are created to the time of disposal which includes identifying, creating, classifying, using, storing, securing, retrieving, and destroying or permanently preserving records.

Records management system

Is a collection of elements in an organization managing records.

The activities in this management include the systematic and efficient control of the creation, maintenance and destruction of the records along with the business transaction associated with them, for this case which is students' records management system.

Electronic students' records management system

Is a computer program or set of programs designed to manage and store records. The software can be used to manage the creation and maintenance of records with in classification schemes, apply retention and disposal schedules, and control access and us.

ABSTRACT

Electronic Students Record Management System as designed to provide efficient and accurate recording of records, to maintain and secure the student's records and easy retrieval of student records, to lessen the workload of the staffs. The study aimed at designing an Electronic Students Records Management System at SFRASH Namataba Mukono to handles the storage, maintenance and retrieval of information of students. This manual system is associated with a number of challenges such as misfiling, difficulty in retrieval, loss of files, and consumption of office space and hence delay in service delivery.

The study was guided by the following objectives as: general objective to design an electronic system that would ease the management of the students' records effectively and efficiently to enable timely decision making in St Francis Schools of Health Sciences (SFRASH) and specific objectives: To find out the various types of records kept, to investigate the current system of student's record management, to gather requirements for designing an electronic student's records management system, to design and implement an electronic students records management system and to test and validate the system at SFRASH.

The study was also carried out under the following research questions: What are the different types of records kept, how are students records currently kept, what are some of the requirements and the tools used for gathering information for the requirements needed for designing an electronic student's records management system, how will the system be designed and implemented and what are the methods for testing and validating the system.

Data was gathered using interviews, observation and document review. The collected data was sorted and analyzed using tables and it was found out that the current manual system is in-efficient, time and space consuming in addition to being insecure hence judged not good for the management of records. The system was designed using visual studio 2019 and Microsoft Access Database 2013.

An electronic system developed enables electronic capturing of students' data, storing of this data in an electronic database which eases the retrieval of the same data, any time by only authorized people. The developed computerized system also allows the backup of data on movable devices like flash disks, memory cards and external hard drives which increases the capacity of backup.

CHAPTER ONE

1.0 Introduction

This chapter covers background of the study, background of the organization, statement of the problem, Objectives of the study (general and specific), Scope of the study (geographical, content and time) and Significance of the Study, Limitations of the study.

1.1 Background of the study

SFRASH is one of the private owned institution with big number of students admitted per intake in Mukono district Namataba. Every student who is admitted to the institution has to register with the academic registrars and different schools to help track the number of students enrolled and easy records management. When a student visits the Academic registrar's office for registration, he or she is given a registration form for him or her to fill. After filling the form the he/she buys a file puts his registration form in the file and then moves with the file to different offices for signing before it's then returned to registrar's office for assigning of registration numbers and shelving for future retrieval.

Electronic students/computerized Record Management System is a good example of a computer-generated process. This can lessen the workload and provides accurate and precise information needed to the school. As a result, it will benefit not only the students but also the administration as a whole. Computerization of school's information records and files inter-relates different yet interdependent transactions in a systematized and functional way (Ana QUIMBO, 2011; Boddy et al., 2009).

It was according to the above background that inspired the researchers to design an electronic student's records management system for SFRASH Namataba Mukono.

1.2 Organization background

St. Francis Schools of Health Sciences (SFRASH) was established in 2013. The school was inspected by the Ministry of Education and Sports on 22/07/2013, accredited by the Ministry of Health through Allied Health Professions Council and has an accredited center for Allied Health Exams i.e The Uganda Allied Health Examinations Board (UAHEB/056).

SFRASH is located in a wide spacious environment with state of the art medical skills facilities that is to say medical skills lab and medical skills lab to ensure academic Excellency and proper health care service delivery.

Our Mission: “To provide professional practitioners with knowledge, skills and professional attitudes necessary to accurately serve while demonstrating an extra-ordinary compassion and commitment to the service of others”.

Our Vision: “To prepare individuals who enter the health profession as personnel with knowledge, skills and attitude necessary to achieve competence and to demonstrate continued professionalism for betterment of humanity”.

Core Values: Our core values define who we are, how we live and how we work together so as to create a compelling and sustainable future. We therefore strive for: Christ Centeredness, Communication, Centricity, Teamwork, Excellence, Integrity, Innovation, Honesty & Accountability.

1.3 Problem statement

Records are very important in ensuring that the organization is governed effectively and efficiently and is accountable to its staff and the community it serves. The information contained in organizational records need to be stored in a planned and coordinated way because records support decision-making, provide evidence and assist in proper accountability in the organization.

SFRASH just like other schools generates or creates a lot of records like student’s records, letters, and minutes of meeting, reports, leave records, appraisal forms, payrolls and contracts. As a result, these records increase in size and they become complex, misplaced, lost, accessibility and retrieval very difficult due to poor records storage and retrieval system which is characterized with limited record storage space and equipments. In addition to the above, Searching for student’s record is also among the challenges faced in SFRASH and it consumes time for the individual searching for that particular document hence leading to delayed decision making and proper planning in the institution.

In order to solve the above problems, there is need to put up a proper record storage and retrieval system in SFRASH (electronic students records management system). The new system will help

to protect records against deterioration, limit access of records by unauthorized personnel and also enable easy record retrieval and storage. Therefore, it was according to this background that the purpose of the research project was to design an electronic student's records management system that would solve the problems faced by students and staff with the manual system.

1.4 General objective of the study

To design an electronic system that would ease the management of the students' records effectively and efficiently to enable timely decision making in St Francis Schools of Health Sciences (SFRASH)

1.5 Specific objectives of the study

- 1) To find out the various types of records kept in St Francis Schools of Health Sciences (SFRASH)
- 2) To investigate the current system of students' record management St Francis Schools of Health Sciences (SFRASH)
- 3) To gather requirements for designing an electronic students' records management system.
- 4) To design and implement an electronic students records management system
- 5) To test and validate the system.

1.6 Research questions

The study was guided by the following research questions

- 1) What are the different types of records kept in SFRASH?
- 2) How are students records currently kept in SFRASH?
- 3) What are some of the requirements and the tools used for gathering information for the requirements needed for designing an electronic student's records management system SFRASH?
- 4) How will the system be designed and implemented SFRASH?
- 5) What are the methods for testing and validating the system?

1.7.0 Scope of the study

1.7.1 Geographical scope

The study was conducted at St Francis Schools of Health Sciences-SFRASH Namataba Mukono, Uganda.

1.7.2 Content Scope

The study aimed at applying the use of electronic student's records management system for student's records that are created at SFRASH.

1.7.3 Time scope

The study was carried out for a period of Three months that is from June, 2022 to Sept, 2022 June to August for topic approval and proposal writing and the rest of one remaining months for developing, testing and implementing the system.

1.7.4 Conceptual Scope

The study covered student's records which are very essential for daily operation of SFRASH as academic institution.

1.8 Significance of the study

Data integrity

ESRMS maintains data integrity and thus eliminates accidental duplicate entry by organizing information throughout all system modules. This helps the management by minimizing the time spent searching and retrieving for a particular file.

Reference

The study will help other scholars who will come up with the idea of doing research in a related field and they can use it as a reference to their research.

Electronic backup

The use of electronic system helps the institution to record students information easily and improves backed up which also improves security of data and information because in case or any destruction, copies of that information can easily got on backups.

Space reduction

Physical space required by the paper based system is minimized since computers don't take much space compared to the existing system.

Cost saving and cost avoidance

ESRMS will help to reduce the costs of handling the paper work associated with record keeping because once the system is fully functional, however, the back-up paper system is no longer needed. This saves the cost of space, buying papers and cardboards as the records accumulate.

1.9 Justification of the study

Once the system is developed, implemented and used, the Electronic Students Records Management System (ESRMS) should be able to offer timely services to SFRASH, students, staff and other stakeholders.

The system should be able to help academic registrar's office SFRASH to easily interact with all the schools and departments under SFRASH and other stakeholders through providing timely information.

Security of records will be improved, cost of buying especially bulky storage facility such as cabinets, metallic shelves and cupboards will be reduced, improve management decision making and effective administration will be achieved.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents the literature review on various types of records kept, investigation of the current system and challenges with the current system, requirements for designing an electronic students' records management system, design and implement an electronic student's records management system and testing and validation of the system.

Literature review involves the systematic, location and analysis of documents containing information related to the research problem being investigated. The research work will focus on the revision of relevant literature.

It aims at providing detailed knowledge of the topic being studied. It helps the researchers uncover what has been done by other researchers related to the problem being studied. It helps researchers avoid unnecessary and unintentional duplication; it also forms the framework within which the research findings are to be interpreted (Mugenda and Mugenda, 2003:14). On the other hand, literature review shows the researchers the results of that are already related to the study being reported and also provides a framework for establishing the importance of the study as well as a benchmark for comparing results of the study with other findings.

2.1.0 Common categories of records kept at SFRASH

2.1.1 Records management

O'Brien (2002) defines Records management as an activity established by an organization to achieve economy, efficiency and effectiveness in the creation, distribution, use, maintenance, storage, and disposition of all types or records created or received by that organization in the course of its business. In essence a records management system provides the right information, to the right person at the right time, for the right length of time, at the lowest possible cost.

ISO Standard 15489:2001 defines Records Management (RM) as the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including the processes for capturing and maintaining evidence of and

information about business activities and transactions in the form of records [<http://www.aiim.org>].

Records management according to NHO (National Health Organization) Healthcare Records Management Steering Committee (2007: 16) “is the systematic and consistent control of all records in which they are held throughout their lifecycle. Whether electronic or paper, the management of the record must be consistent. Organizations need to control how records are produced, received, organized, registered, stored and retrieved, retained, destroyed or permanently preserved and all records that includes all documents, active and inactive, formal ones and informal regardless of the medium in which they are held is the systematic and consistent control of all records throughout their lifecycle”.

Records management Tallahassee Florida (2009), the basics of records management, is defined as the application of systematic and scientific controls to recorded information required in the operation of an agency’s business.

2.1.2 Records

International Standardization Organization for (ISO), 2001 Defines records as 'information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of businesses.

The International Committee on Archives (CIA) and Electronic Records defines a record as, a specific piece of recorded information generated, collected or received in the initiation, conduct or completion of an activity and which comprises sufficient content, context and structure to provide proof or evidence of that activity.

Records is a documented evidence of our daily activities, it is a document, regardless of form or medium created, received, maintained and used by an organization (public or private) or an individual in pursuance of legal obligation, or in the transaction of business of which it forms a part or provides an evidence (Popoola 2000).

Saffady (2011) paper documents include office, files, business forms, engineering, drawings, charts, medical or scientific imagery maps, plans, patient records, student records project file, legal case files, technical or managerial reports and computer print outs.

Electronic records include computers files, data bases, word processing file, spread sheet, files, presentations, email messages, voice mail, instant messages, document imaged and video recordings.

Read and Ginn (2008), there are four categories of records and they include; Vital Records. These are necessary records for continuity operation of the organization, they are usually non replaceable and highest degree of protection is necessary Kim (2004).

Useful records, these are helpful in conducting business operations such as letters, memos and others Kim (2004). Non-essential records, these records are destroyed after their use, for example memos, notices, newspapers etc.

Lucy (2002) gives a general view of how records are categorized that is some are vital, useful important and non-essential, vital records maintain or keep vital records information and these help in the continuity of the organization's operations and they should be kept to permanently due to their uniqueness.

Records are categorized according to the value that they hold or the format in which they are created. (Franks, 2018) Stated that records can exist in various formats depending on their value but (Cunningham & Montana, 2006) argued that records exist in various formats regardless of their retrieval media. Researchers have tried to give and explain types of records according to their perspectives. (Wythe, 2004), listed types of records as Administrative, Fiscal, Legal, Electronic, Historical and Research.

The type of student information kept does not significantly differ between institutions. However, the detail varies from institution to institution depending on the needs and requirements in the intended environment. The common types of student's records kept are:

- Personal information
- Admission and selection
- Registration and enrolment
- Examination records
- Qualifications and awards
- Administrative, discipline and clearance

- Statistics normally include dropout rates, enrolment statistics, performance, registration, and qualification statistics.
- Medical records/health status
- Correspondence and administrative records like letters written to students, within or outside organizations, for instance by boards of governors or staff. Various educational institutions store circulars.
- Procedures, rules and regulations include policy statements, college regulations governing awards, resolutions, agreements and procedures.
- Financial and clearance information
- Employment and alumni records
- Student body records
- Co- and extra-curricular students' records

2.2.0 Investigation of the current system of students' records management

2.2.1 Information System

Adelman. C. (2000). Information systems is a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making, coordination, and control in an organization. 0751854298

(OThrien, 2002), defines Information System as any organized combination of people, hardware, software, communication networks and data resources that control, transform and disseminate information in an organization. (O'brien, 2002), further reveals that the data resources of information systems are typically organized, stored and accessed by a variety of data resource management technologies into:

- Databases that hold processed and organized data
- Knowledge bases that hold knowledge in a variety of forms such as facts, rules, and 5 case examples about successful business practices.

According to the State of Montana, Montana Historical Society (2002) and Hounsome (2001), there are many causes of the problem of poor records management practices:

- Lack of records management policies and procedures. Are they adequate? Are they philosophically consistent across the organization?
- Lack of qualified staff such as a records manager and archivist. Will the experience and qualifications of the existing staff be suitable for managing a records management programme?
- Records management costs that are not immediately apparent. Cost may only become significant over a period of time and thus not attract management's attention.
- Limited resources to implement a system according to requirements (legislation). Is the number of staff and other resource adequate? Is the records retention and disposal schedule in place? Has this been approved by legal services?

It is on record that university programmes have become extremely complex over the years. It has equally become a recurring decimal that records of students are irretrievable when required especially in Nigerian institutions (Fabunmi, 2004). Nwankwo (2001) as cited by Akor and Udensi (2014) observed also that Nigerian tertiary institutions have an information generation capacity of 76% and a utilization of 3%. This gap is a huge point to worry about. However, Lundu and Mberve (2004) stated the inability of most educational institutions to put up sound information management policies to guide the generation, processing, storage and retrieval of stored data.

Owing to less attention given to the records management issues by most institutions and giving priority attention to other sectors, the concerns of the registry staff and other record keepers are taken for granted and as such, their training is not considered as a priority. This in turn affects their productivity. Akor and Udensi (2014) noted that records management at university is not receiving the attention it deserves. Society of Human Resource Management (2011) adds that employers may offer job-specific training to provide employees with the appropriate skills to enable them to perform their duties effectively. Nwaomah (2015). The immediate application of skills acquired through such training may boost employee confidence and productivity. Muhenda and Lwanga (n.d) argue that training and development enhance staff's absorption capacity. Muhenda and Lwanga, (n.d), established that employees who are highly trained and whose career development are effectively managed show high levels of commitment, are flexible, multi skilled and capable of making remarkable contribution to the services they render in organizations'. And sadly enough,

“some organizations are reluctant to train their staff for fear that upgrading the skills of the workforce, would expose them to competitors” Nwaomah, (2015) added.

SFRASH registers students manually that is students are given different registration forms and then buy file to file their records, use pens to record their information on papers (registration form) and the files are kept in shelves for later retrieval, and errors are common on students' files. Due to the increase of students enrolment theirs is rapid increase of paper records and students file hence demand of more shelves, cabinets for shelving students files, files are misplaced due to poor filing and shelving since the files are many, duplication of files due to loss of original files created during first registration, students privacy is also tempered since students are given to look for their files from the shelves and cabinets, there is inconsistencies due to creation of other files incase old file gets lost and too much space is required and occupied due large volumes of paper files for students created on daily basis.

Accessing specific students files for decision making is tiresome and time wasting since one has to go through all the files searching for specific file hence becoming inefficient, time wasting during the generation of reports, retrieval also becomes very hard, papers deteriorate due to over handling, touching with dirty hands, opening of different files in search of right file, records on different files are plucked of hence rendering record incomplete and also files are misplaced hence duplication to create another file for student since the old one is lost among others.

According to the above mentioned problems of the current system and how Webster and Watson explained about how a system should behave, the SFRASH needs a computerized system that will help them accomplish the activities required to manage student's records.

2.3.0 Requirements for designing an electronic students' records management system

2.3.1 Electronic student's records management system

Electronic students records management system is a computer program or set of programs designed to manage and store records. The software can be used to manage the creation and maintenance of records within classification schemes, apply retention and disposal schedules, and control access and use. The requirements for electronic records management system are of two

types: nonfunctional requirement and functional requirements. Electronic System for storing and managing records.

A computer program or set of programs designed to track and store records.

The software can be used to manage the creation and maintenance of records within classification schemes, apply retention and disposal schedules, and control access and use. They help record business transactions, including income and expenses, payments to workers, and stock and asset details.

Electronic Records Management System enables the capture and management of those electronic documents required as records.

Electronic Records Management System (ERMS). The electronic management of electronic and non-electronic records contained in an IT system using computer equipment and software according to accepted principles and practices of records management. Electronic Record Management Systems is a very complex information system.

Requirements pertaining to it are quite diverse and unique. Basically, in almost all types of information systems, requirements are categorized into two and they are functional requirements and non-functional requirements. Functional requirements are requirements that an information system must have in order for it to operate seamlessly. The non-functional requirements are requirements that technically support the operation of the information system. Information systems are designed and developed based on these two requirements [Satzinger, Jackson & Burd, 2009]; [Shelly & Rosenblatt, 2010].

2.3.2 Functional requirements

Functional requirements describe what the software system should do or the behavior of the system as it relates to the system's functionality while nonfunctional requirements describe how the system will do its intended work in other words the performance characteristics of the system.

Functional requirements are grouped according to the clusters in the high-level model: Create which includes capturing, identification and classification. Design which includes ease of use, performance, system availability and interoperability. Maintenance which includes prevents over writing, prevent any modification of a record's unique identifier, once it is defined, control and security of the system, hybrid records, retention, migration and disposal. Disseminate which

includes search, retrieve, view, print and render. Administer which covers administrative tools (ICA, 2008).

Not all of these requirements will necessarily be implemented as automated "system functions" in ERSMS, or other records management system.

Some functional requirements may be implemented through non-automated organizational policies, practices, or records management procedures.

In all requirements that follow, the term "user" refers to authorized users only. Different functions are permitted to different groups of users - administrative functions to records managers, retrieval functions to end-users, etc.

2.3.3 Non-functional requirements

Nonfunctional requirements include ease of use, performance and scalability, system availability, technical standards, legislative and regulatory requirements, outsourcing and third, party management of data, long term preservation and technology obsolescence. (Bruxelles Luxembourg, 2001)

Shepherd and Yeo (2003:22), in particular, departments will need to make their own assessment on the relative importance of non-functional requirements, and the technical operating environment in which electronic records management will be situated. An outline of non-functional requirements is included here as an informative rather than normative section; and they include the following;

- a) Size, scalability, number of users
- b) Performance factors and response times
- c) Usability factors & existing technical operating environment
- d) Training and installation consultancy needs
- e) Applicable technical standards.

Non-functional requirements are requirements which specify criteria that can be used to judge the operation of a system rather than specific behaviors. This is contrasted with functional requirements that specify specific behavior or functions. Systems must exhibit software quality attributes, such as accuracy, performance, cost, security and modifiability plus usability i.e. easy

to use for the intended users. Non-functional requirements help to achieve the functional requirement of a system. Thus the proposed system does the following:

- The system has high performance and reliability level. The mean time between failures, mean time to repair and accuracy are very high.
- The system has user-friendly interfaces, this ensures the ease with which the system can be learned or used. The system can allow users to install and operate it with little or no training.
- Handles growing amounts of work in a graceful manner as can be readily enlarged i.e. the ease, with which the system can be modified to handle a large increase in users, workload or transactions.
- The system prevents unauthorized access to the system with user authentication via log-on system. (Bbale Richard, 2012)

2.4.0 Designing and developing electronic records management system

2.4.1 Systems Design

Systems design and development can generally be thought of as having two major components: Systems analysis and Systems design.

System design is the process of planning a new business system or one to replace or complement an existing system. But before this planning can be done, we must thoroughly understand the old system and determine how computers can best be used to make its operation more effective.

System analysis, then, is the process of gathering and interpreting facts, diagnosing problems, and using the information to recommend improvements to the system. (Dr. Jawahar)

It is a process of planning a new business system or replacing an existing system by defining its components or modules to satisfy the specific requirements. Before planning, you need to understand the old system thoroughly and determine how computers can best be used in order to operate efficiently. System Design focuses on how to accomplish the objective of the system. (*Tutorials point*)

2.4.2 Steps in Developing a Records Management System

World Health Organization regional office for western pacific. (WHO, 2004) [18] and O'Brien (2002), recommends the following steps while developing record management information system:

1. Review the existing system
2. Define the data needs for relevant units within the record system
3. Determine the most appropriate and effective data flow
4. Design the data collection and reporting tools
5. Develop the procedures and mechanisms for data processing
6. Develop and implement a training program for data providers and data users
7. Pre-test, and if necessary re-design the system for data collection, data flow, data processing and data utilization
8. Monitor and evaluate the system
9. Develop effective data dissemination and feedback mechanisms
10. Evaluate the system

According to (Chrisanthi and Comford. 1998). The process of development of an Information System can be seen as a list of tasks, starting with identification and launching of an information system's project and ending with maintenance of its optional components for a period before the system is phased out or replaced. However, they say that this varies from one organization description to another. On their part they suggest the following steps to be typical for most organizations:

- i. Identification of a problem, pressure or opportunity
- ii. Determination of general requirements for change
- iii. Feasibility study to explore possible approaches
- iv. Systems analysis to model detailed requirements for technical components or organizational reform
- v. Systems design to work out how requirements are to be met
- vi. Development or acquisition of software and hardware and their configuration
- vii. Systems implementation with the organizational settings

- viii. Operation and maintenance
- ix. Phase out when the system is no longer needed or used.

According to the above literature from different authors about system design and development steps, the team recommends that following them while designing a system may lead to efficient and effective system design and implementation since they clearly state and define each step to be followed from the start to end.

2.4.3 System requirements

Systems requirements is a statement that identifies the functionality that is needed by system in order to satisfy the customer's requirement.

This section describes the hardware components and software requirements needed for effective and efficient running of the system.

Table 2. 1: Shows software and hardware requirements for designing the system

Requirement	Recommended
Processor	2 GHz or faster, Dual-core processor
RAM (Memory)	4GB for 64-bit systems and 2GB for 32-bit systems
Hard Disk space	4 GB of available Hard Disk Space
Operating System	Windows 10 and above (32 and 64 bit) and 2014 (32 and 64 bit)
Framework	Integration with Business Connectivity Services requires Microsoft .NET Framework version 3.5 SP1
Database Software	MS access 2010 and above

2.5.0 Testing and validating of the system designed

2.5.1 Implementation

Implementation is a very important aspect in the development of any computerized system, and this also applies to the development of an electronic filing system. Pro-development Implementation usually involves two main steps, these are;

- System Construction: The system is built and tested to make sure it performs as designed.
- Installation: Preparation is made to support the installed system. This involves associated documentation.

2.5.2 Testing

Assurance of reliability of software is achieved by execution of quality plans and testing during the software development process. This involves unit code testing and integration testing in accordance with the principles of (ISO 12207). The development and testing of hardware and software will be done, documented and formally agreed between the various parties. Locations and responsibilities for testing (depending on the category of the software and system) are outlined.

Testing is critical for a newly developed system as a prerequisite for it being put into an environment where the end users can use it. Exhaustive testing is conducted to ensure accuracy and reliability and to ensure that bugs are detected as early as possible. In the process of designing the ESRMS, three levels of testing will be conducted, namely, unit testing, integration testing and system testing.

Unit test is where the system is tested partially and independently, component by component, to ensure that particular portion or module is workable within it. This test will be used by the researchers to verify that every input of data is assigned to the appropriate tables and fields.

2.5.3 Integration Test

One of the most critical aspects of development of software is the integration testing phase where individual elements of software code (and hardware, where applicable), are combined and tested during or prior to this stage until the entire system has been integrated. Extra benefits may be achieved by code walk-throughs including evaluation of critical algorithms and/or routines, prior

to testing. Errors found at the integration testing phase are much cheaper to correct than errors found at a later stage of testing. Code review (walk-through) is best done as early in the process as possible, preferably before submitting a module to test. Code reviews are best performed before formal unit code testing (i.e. before a unit or module is frozen and enters formal testing).

Integration test is where a combination of several portions or components/sub components of programs are being tested sequentially and continuously. At this stage, all the system components are integrated and a test will be based on how they work together. This involves observing the interaction of the ESRMS. After which the system test follows

2.5.4 System Test

A system normally consists of all components that make up the total system to function. It is required to ensure the smooth running of the system as a whole, and it should perform as expected and as required. Here, technical and functional testing is performed. The technical testing involves the process of testing the system's compatibility with the hardware, operating system, data integrity in the database and user authorization access rights. Functional testing is also carried out to establish how the system will function in its intended working environment.

2.5.5 User Acceptance Test

Due to a few constraints, this part of testing will not be done by the researchers, however, after the oral presentation of the project work, the system developer intends to review the system with the intended system users so as to analyze acceptability and usability and also to identify areas that may require modification before the system can fully be commissioned for use.

2.5.6 System Documentations

System documentation is a crucial aspect of system development. It provides a frame of reference with regards to the design and development process. In designing the ESRMS for student's records management at SFRASH - Mulago Uganda. The documentation will be done in the form of a report that users of the system can refer to if they have any challenges as far as using the system is concerned.

2.5.7 Validation

For the validation of electronic systems there should be a system in place that assures the formal assessment and reporting of quality and performance measures for all the life-cycle stages of software and system development, its implementation, qualification and acceptance, operation, modification, requalification, maintenance and retirement. This will enable both the regulated user, and competent authority, to have a high level of confidence in the integrity of both the processes executed within the controlling computer system(s) and in those processes controlled by and/or linked to the computer system(s), within the prescribed operating environment(s). (PIC/S GUIDANCE, 2007) (PA/PH/OMCL (08) 88 R, 2009

CHAPTER THREE: RESEARCH METHODS

3.0 Introduction

This chapter presents the research design, area of study, population, sampling and sample size, methods of data collection and Information instruments, data quality control, ethical considerations.

3.1 Research design

The researchers used qualitative and quantitative research design. A research design is a blueprint for conducting the study that maximizes control over factors that could interfere with the validity of the findings (Leedy & Ormrod, 2013). It defines a framework of methods and techniques chosen by the research team to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled (Creswell J. W., 2018).

3.2 Area of the study

The study was carried out at St Francis Schools of Health Sciences (SFRASH) Namataba Mukono, Uganda.

3.4 Study population

According to Kombo and Tromp (2006, p.76) a population is a group of individuals, objects or items from which samples are taken for measurement. Population is an aggregate or totality of the objects, subjects, or members that conform to a set of specifications needed for the subject under investigation, Amin (2005). According to Vinay, & Joshi (2015) population refers to all elements that meet the criteria for inclusion in the study. Population is the entire set of individuals or other entities to which study findings are to be generalized (Engel & Schutt, 2005).

The study population consisted of (8) participants that is Academic Registrar's office staff, IT staff, records office staff and, Heads of schools in each school since they are the main users of the system.

3.5.0 Sampling

3.5.1 Sampling techniques

Kalian and Kasim (2008) explained sampling as the act, process, or technique of selecting a representative part of a population to determine parameters or characteristics of the whole population. Sampling method is a technique adopted in the process of selecting a representative group from the population under study (Harris, Hedges, & Jeffrey, 2009).

To collect information rich data, the researchers will use purposive sampling and snowball sampling techniques. Purposive sampling involved selecting only those respondents who have knowledge about the topic and are willing to respond. These includes Academic Registrar, IT staff, record officers, Heads of Departments etc. In snowball the researchers pre-selected respondents to direct them to other respondents who may be having basic knowledge about the research topic.

3.5.2 Sample size

The sample size is the portion chosen from the population that is to participate in the research (Michae, Bryman, & Futing, 2004). A research sample is a specific unit/section of the population that we take to study basically because it is practically difficult to study the entire population. A research sample is expected to mirror the population from which it comes. The researchers determined their sample size from the population of Academic Registrar's staff, IT officer, records officers, Heads of Department. The total sample was 8 respondents.

3.6.0 Data collection methods

According to Cohen (2007), a method refers to a range of approaches that may be used by the research team in the process of collecting data. This study used interviews, document analysis and observation methods for collecting data.

3.6.1 Interview method

Interviewing was one of the methods the researchers used to collect data. The interview method is a predetermined set of questions and Information instructions intended to harmonize or standardize the interview process and procedure (Amin M, 2005). It contains standard questions which give direction to the investigation. It also refers to a list of standard questions that are asked by the

research team to the respondents to enable him or her to collect reliable, accurate, and quality data (Engel & Schutt, 2005).

The researchers conducted face - to- face interviews with the different respondents. An interview schedule was designed and guiding questions prepared which acted as a tool for collecting data. The interviews were conducted on the study population at SFRASH. The research team chose interview method because it's reliable, accurate and gives satisfactory results. It helps to discover how individuals think and feel about a topic and why they hold certain opinions.

3.6.2 Document review method

Analyzing documents incorporates coding content into themes similar to how focus group or interview transcripts are analyzed (Commonwealth, 2004). Document analysis is a form of qualitative research in which documents are interpreted by the research team to give voice and meaning to the topic being investigated (Department of mines, 2015).

A thorough review of the documents was done at SFRASH with the intent to study how students' records are managed and discover the loopholes in the system. A number of documents were reviewed including personal files, daily routines per student. This method was chosen because it's cheap as data is already available thus it permits examination of trends over the past and there are few biases about information.

3.6.3 Observation method

Sahu (2013), defines observation as a planned, carefully and thoughtfully selected method of data collection. Under observation, information is sought by the use of investigator's own direct observation without seeking information from correspondents. By using the observation method, the researchers will be able to record the activities and responses of individual or groups under specified directions. It helped the research team to observe how the records are filed, the gender distribution among respondents, equipment used at SFRASH and this first-hand information is important to verify the response from the other methods.

3.7.0 Data collection instruments

Research Information instruments can be defined as materials, objects, and tools that help to use the research methods (Reason & Hilary, 2001). The study adopted different Information

instruments when collecting data that is, an interview guide, observation guide, and document analysis guide.

3.7.1 Interview guide

The interview guide was developed to help the research team collect information from the respondents through one-on-one discussion. An interview guide is a list of questions that is prepared by the research team before going to the field to gain guidance and prevent confusion during interaction with the respondent (Harris, Hedges, & Jeffrey, 2009).

3.7.2 Document review Guide

The review was done with the help of a documentary review checklist to address relevant research questions of the study. The research team developed this tool to obtain wide knowledge on the study being investigated. Different documents were reviewed and research thesis on related research. This instrument helped the research team to remain focused on the area of study.

3.7.3 Observation guide

The research team used a check list to observe how certain aspects in student's records management are handled at SFRASH.

According to Kawulich (2005), observation guide refers to a list of aspects that the research team is to be keen with, to study in the field. The research team used own eyes to observe what takes place at the organization and the tool is of help in getting first-hand information without interacting with staff members.

3.8 Data Analysis and Interpretations

To ensure the quality of data and information collected from the study, the tools for collecting information were pre-tested by the researchers and trained research assistants (supervisor) to be part of the selected sample. This made it possible to determine whether the items in the research instruments are stated clearly and are understandable, have the same meaning to all respondents to measure the average time required to fill and respond to them.

The researchers read through all the filled data collection instruments used and also listen to the recordings for face-to-face interviews and other data collected to discover possible omissions and

in case of inconsistencies, the researchers will sit to decide on what next. All data collection instruments were given serial numbers of three digits to avoid repetition.

3.9 Data quality control

The term quality control refers to the efforts and procedures that survey researchers put in place to ensure the quality and accuracy of data being collected using the methodologies chosen for a particular study (Agyedu, Donkor, & Obeng, 2010). According to Loshin (2010), data quality is a set of measures that describe a condition where the examined data exhibits some level of tolerable or intolerable defects "data quality is not the absence of defects; it is the absence of intolerable defects." Researchers used credibility, dependability, confirmability, transferability and reflexivity criteria to ensure data quality of their findings.

3.10 Data Validity

Validity, according to CINA (Chinese Information and Networking Association) (2010) always refers to the degree to which empirical evidences and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores. Data Validation is the test and evaluation method used to determine compliance with security specifications and requirements, to ensure correctness and reasonableness of data. Data validation is a process that ensures the delivery of clean and clear data to the programs, applications, and services using it. Data validation ensures that the data complies with the requirements and quality benchmarks.

To ensure the validity of data, the study employed different data collection methods such as interviews, observation and document analysis. Each method has an advantage over the other. So, triangulation enabled a technique to overcome the weakness of each method.

3.11 Data reliability

Reliability is concerned with consistency in measures and therefore reliability is the degree to which the measuring instrument produces equivalent results for repeated trials (Bless and Higgson-Smith, 2006). Reliability entails stability of scores and a reliable instrument is the one which produces same scores when used to measure an unchanging value.

Reliability refers to the extent to which assessments are consistent. Reliability is consistency across time (test-retest reliability), across items (internal consistency), and researchers. Reliability reflects consistency and reliability over time. Furthermore, reliability is seen as the degree to which a test is free from measurement errors since the more measurement errors occur the less reliable the test (McMillan & Schumacher, 2006).

To ensure the reliability of the Information instrument, data collection Information instruments were sampled to the students who posed as clients to test for the relevancy of the questions before approaching the respondents.

3.12 Ethical Considerations

Ethical practices exceed the mere following of a set of acceptable guidelines.

An introductory letter was obtained from Makerere University East African School of Library and Information Sciences Department of Records and Archives Management to introduce the research team to the study site/area and ensure the acceptance. The research team then proceeds ahead and secures a letter of permission from the Rector SFRASH and other relevant authorities that give them permission to carry out the study.

Before any data collection, a thorough explanation was given about the purpose of the study and the need for their cooperation.

The possible benefits of the study was also explained to ensure confidentiality about the information to be collected.

Anonymity of the respondents was taken care of during the study so as not to victimize them and they are informed.

The informed consent was sought from the study on individual basis and each person had freedom to accept or reject participation.

At the end of the research process, the research team submitted a copy to the organization to confirm that information collected from respondents was presented the way it was provided.

3.13 System flow/dataflow diagram

A data flow diagram also known as process model, graphically shows the flow of data through a system that is, the essential process of a system along with inputs, outputs, and files. (Hutchinson,

Figure 3. 1 Shows Level 0 DFD

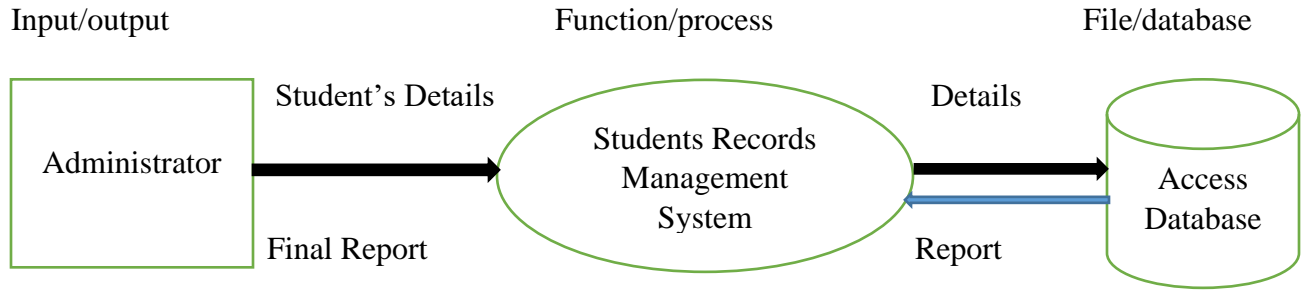


Figure 3. 2 Shows Level 1 DFD

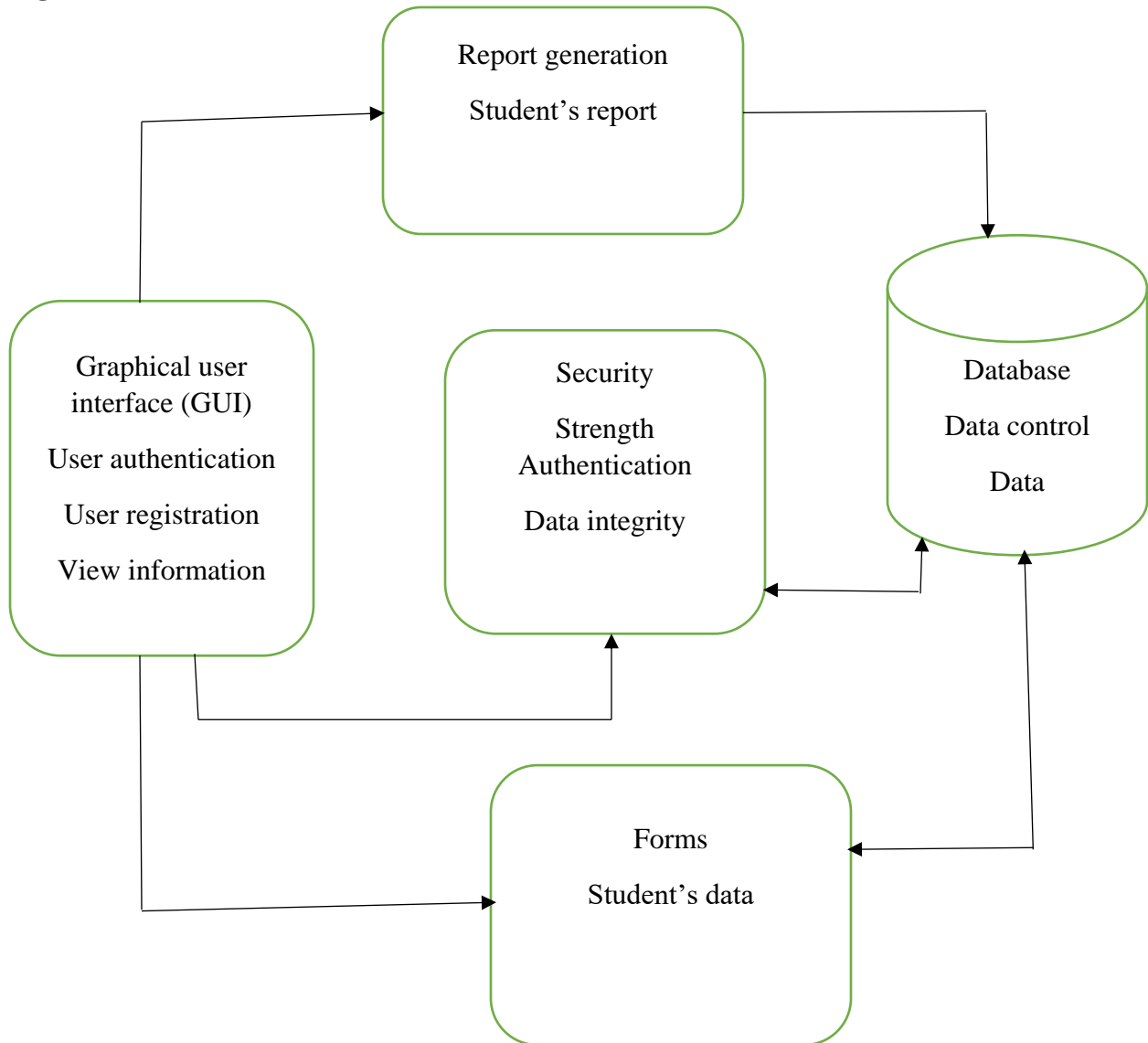
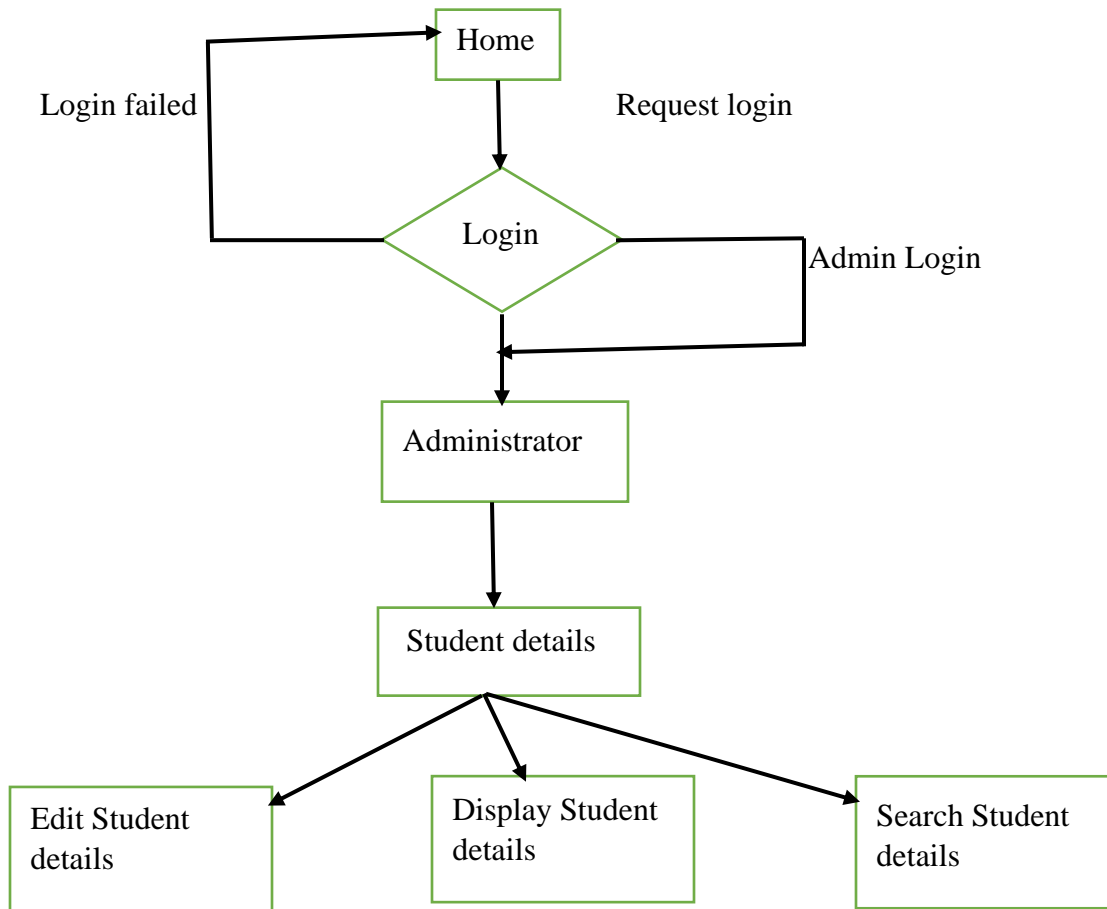


Figure 3. 3 Shows system decision tree



CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter discusses how the researcher presented and analyzed data and how the new system was designed.

4.1 Data Analysis

Data was collected using interviews and observation from different individuals at the institution and was analyzed and presented in form of frequency tables, pie charts and graphs.

4.2.0 Results obtained by interview

The researchers conducted interviews where most of the respondents including H.O.Ds, lectures and the Dean at the Institution were asked questions related to the current Students' Records

Management System, how it works and the challenges being faced while using it. The researchers found out that the current system of records management was not perfect to the institution in terms of time management, file retrieval and storage.

The interview results are presented in the tables as follows: -

4.2.1 Socio-demographic Characteristics of the Respondents

The socio-demographic characteristics of the respondents in this study are presented in this section.

Table 4. 1 Shows the Gender of Respondents

Responses	Frequency	Percentage
Male	5	62.5
Female	3	37.5
Total	8	100

Source: Source: Primary data

Above depicts the gender distribution of the respondents. Majority of the respondents were male represented by (5) 62.5% and female (3) 37.5%.

4.2.2 Education Level of Respondents

Table 4. 2: Shows the distribution of respondents by academic qualification

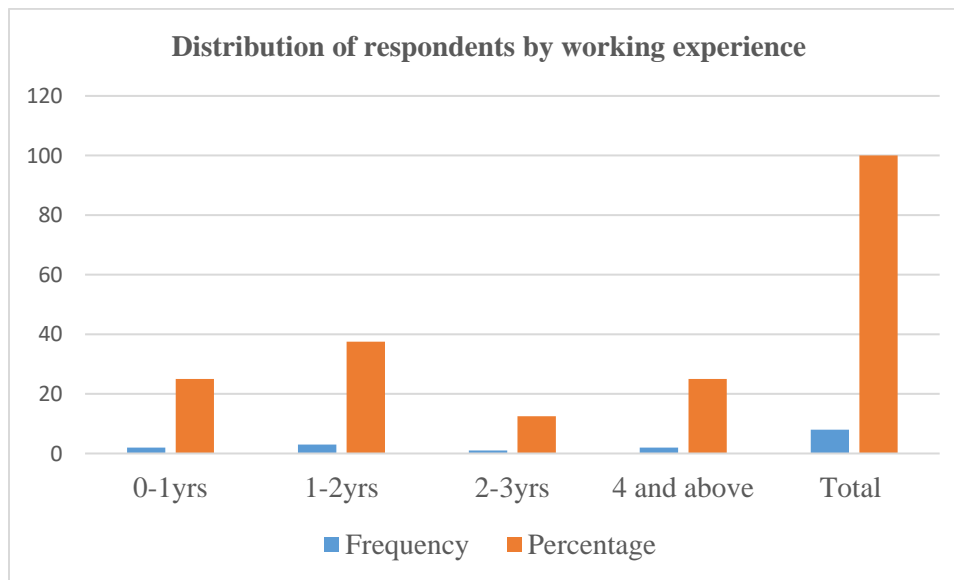
Responses	Frequency	Percentage
Postgraduate Diploma	1	12.5
Degree	2	25
Diploma	3	37.5
Certificate	2	25
Total	8	100

Source: Source: Primary data

As indicated in table above, out of the total of 8 respondents interviewed, 37.5% (3) had Diploma, 25% (2) each had Degree and Certificate respectively and 12.5% (1) had Postgraduate Diploma.

4.2.3 Working Experience of Respondents

Figure 4. 1 Shows the distribution of respondents by working experience



Source: Source: Primary data

According to the interviews conducted the researchers found out as seen in the figure above 2(12.5%) worked for 0-1year, 3(37.5%) worked for 1-2years, 1(12.5%) worked for 2-3years and 2(25%) worked for 4 years and above. Implying that the majority of the respondents worked below

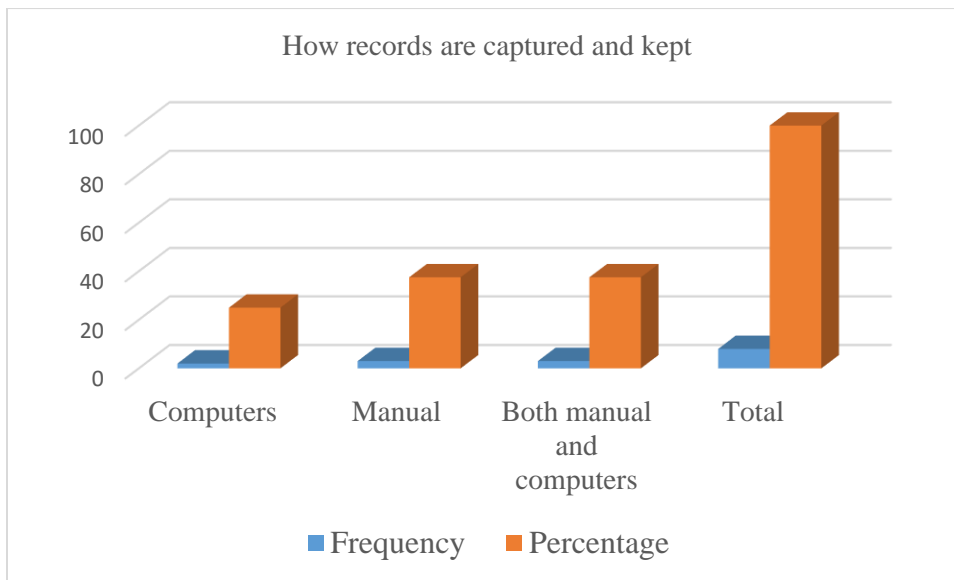
4 years which guided the researchers to develop student’s records management system to help capture student’s records hence reducing loss of records incase staff leaves the organization and replaced by new staff.

4.3.0 Categories of records

Interviews conducted by researchers showed that most of the records kept at the institution are financial records, admission records, administrative records, legal records, employee records, and association records and students results among others.

4.3.1 How are the records kept

Figure 4. 2 Shows how records are captured and kept



Source: Source: Primary data

The above figure shows that out of the 8 respondents interviewed 2(25%) said that the institution uses computers for capturing and storing records, 3(37.5%) said they used traditional methods that is use of pens, papers and file folders for capturing and storing records and 3(37.5) said that the institution keeps records manually and computers for capturing and keeping records. But they emphasized that though they use computers to capture store student’s records, majority of the records are kept manually.

4.3.2 Person responsible for keeping students records

The findings of the interviews revealed that the records of the institution are kept in the academic registrar and heads of departments offices those relating to academics, financial records are kept in the accounts department, employee records are kept in the human resource office among others implying that records are not uniformly kept hence higher chances of loss most especially the students records hence need for students records management system..

4.3.3 Storage space for records created

The findings of the interviews revealed that there is limited space for storing records due to the increasing number of students enrolment at the institution hence need for electronic students records management system which will help to create enough space for records storage and hence security.

4.4.0 Systems Analysis and design

4.4.1 Existing system

The institute was using traditional method (use of pens, papers and paper files) to register students and keeping them in files and there was also use of computers at a small extent.

Under the above mentioned method of record keeping, the institute members get had time to update, manage and retrieve the files and takes them a lot of time to arrange and search for the needed files. There was also a challenge of loss of some files because every semester the numbers of students keep increasing which leads to the miss use of files. This also results into the need of more cabinets/shelves which used to consume a lot of space hence congestion in the faculty. This proves the current manual system inefficient and insecure hence not able to enhance business in today's technological era.

4.4.2 Weakness of the current system

The current system uses a lot of paperwork which takes much time as compared to other methods of records keeping. It also makes it difficult for the users to retrieve a particular file because one has to go through all the files first. Congestion was also another weakness since files kept increasing as the number of students also was increasing and this resulted into need of more shelves

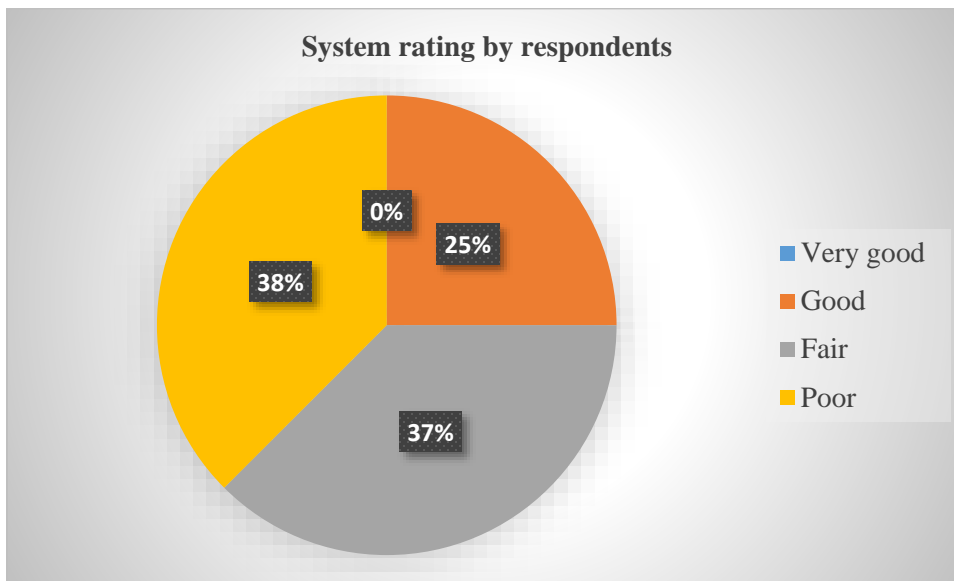
which increased congestion in the faculty. Another weakness is loss of some files because as files increase in number, the old ones are seen as useless hence misused. The current system was insecure in terms of data access and confidentiality. This was more so because there are no strict measures implemented that denies unauthorized people from accessing the information and this led to data being distorted or compromised with.

To solve the above weaknesses of the current system, it requires good measures to ensure that the system can meet users' needs. Implying that the institute required an electronic students' records management system to solve all the above problems.

4.4.3 Key records management functions performed with the current system

All respondents 8(100%) supported students' registration, supported records retrieval, supported updating of records, supported report submission, supported report generation and this gave a researcher an appropriate view of what and how the system should work such that it could fully help to achieve users' needs.

Figure 4. 3 Shows current system rating by respondents



Source: Source: Primary data

Pie-chart shows that none of the respondents rated the current system as very good, 2(25%) rated that the system is good, 3(37.5%) rated the system as fair and 3(37.5%) rated the system as poor. Implying that there is need for better system for the management of student's records.

4.4.4 Need for the new system

According to the findings of the interviews all the respondents expressed the need for an electronic records management system since the current system has a lot of challenges as far as students records management is concern. Hence this motivated the researchers to design an electronic records management system.

4.5.0 The Designed System

The system designed was an electronic system which would help in storing a lot of records and carry out automatic report generation. The new system is more advantageous than the old system in the following ways; the new system generates reports within minimum time and with minimum errors as compared to the old system. The new system uses computerized methods in capturing and processing of data which are cheaper as compared to the old system which uses papers and pens that take a lot of time and space during processing and capturing and consumes a lot of space. Since the new system does not occupy a lot of space, it makes it easy for the institute to overcome the problem of congestion.

All the records/particulars concerning students are captured electronically in the new system stored in the database for the efficiency of the system.

4.5 System Users and their requirements

During analysis of the system, different user categories were identified with their requirements.

The system users include; Registrars of different schools, Heads of Programs, secretaries and the Dean.

Authorized users have certain roles that determine their usage. The user requirements for each user were identified and are as follows:

The authorized users can use the system to:

- Register a new student into the system
- Update and edit information of individual student
- Search and view student's reports

The system administrators (Academic registrar, school academic registrars and Heads of Programs)

- Add new users to the system among others
- Delete users from the system
- View all the reports

CHAPTER FIVE: CHALLENGES FACED, SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATION AND AREA FOR FURTHER RESEARCH

5.0 Introduction

In this chapter, the researchers looked at the challenges faced, summary of the findings, conclusions, and recommendations of the study on designing an electronic Student records Management System.

5.1 Challenges faced

The research was conducted successfully from the month of June to October 2022. However the researchers met some challenges which include the following;

- Most of the institute members were not realizing the weakness of the traditional method which was being used therefore it was difficult to get the right information from them.
- The researchers faced a problem of expenses when buying equipments like transport, pens, flash disks, paper, printing expenses and binding materials which facilitated the development for the new system. There was also a problem of time because the researchers are student so they could get hard time to manage both studies and carrying out research.
- Limited time allocated to the students to carry out research hence making it had for researchers to compile comprehensive research projects and designing systems leading to half-baked work.
- Limited training offered to students on research hence making it hard for them to cope with the challenging research activity.
- Challenge of getting acceptance letters to conduct research form institutions selected as case studies hence delay and costly changes in the research project.

5.2 Summary of the findings

The findings of the study revealed that the institution keeps two types of records that is non-academic records and academic records that is financial records, admission records, administrative records, legal records, employee records, and association records and students results among others.

The findings also revealed that most of the workers in the institution have worked below 5 years which requires an electronic students records management system to keep records in case new staff is hired hence continuity of business operation.

The study also revealed that the institution uses both manual and computerized records management system though manual is highly used hence need for designing electronic records management system

The findings of the interviews revealed that the records of the institution are kept in the academic registrar and heads of departments offices those relating to academics, financial records are kept in the accounts department, employee records are kept in the human resource office among others implying that records are not uniformly kept hence higher chances of loss most especially the students records hence need for students records management system..

The findings of the interviews revealed that there is limited space for storing records due to the increasing number of students enrolment at the institution hence need for electronic students records management system which will help to create enough space for records storage and hence security.

The findings also revealed that all the staff at the institution supported the idea of designing an electronic students records management system since it will internally simplify their work at the institution.

Findings also revealed that there was no respondents who responded as very good for the current system implying that the current system wasn't favorable for student's records management system hence need for electronic records management system.

The respondents also expressed need for electronic records management system since the manual system consumed a lot of space, retrieval time of records, difficulty in backing up records and misplacing of files.

5.3 Conclusion

The study was carried out in order to solve the problem of the institute about records of the students. Accordingly, SFRASH found out that the idea of designing and implementation of an electronic student's records management system in the institution was very helpful and efficient as compared to the manual method of record keeping. SFRASH also found out a lot of benefits

with the use of the new system that will not only serve the institution but also the member of the SFRASH. Benefits to the staffs include; ease of use, time saving, easy retrieval, continued running of the institution activities even if the staff leaves and new staff are hired and creation of reports.

5.4 Recommendations

The researchers recommend the following:

- ❖ Training of all the members of the institution to get them used to the functionalities of the system and educating all the staff on how the system operates and how it supplements their efforts.
- ❖ Involving all the institute staff in the operationalization of the system to avoid them from thinking the system will lead to them being fired from work.
- ❖ Training of the staff on the security measures of the system and ensure that there is no unauthorized access to the passwords, system servers among others to ensure security of students records.
- ❖ Students records should also be backed up to other backup devices in case of any fault to the main system the records are not completely lost since they can be recovered.
- ❖ The system should also be connected online to help in remote access of student's records for the case of those working remotely.
- ❖ Designing of the system that can store all the records of the institution electronically to avoid distorting of the institute records and ensuring uniformity in records management procedures.
- ❖ Sensitizing of the staff on the impact of proper records management to the institution and the staff themselves.

5.5 Area for further study

Designing document records management system for all the records of an organization to help in bringing all the institute records together.

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Appendices

Appendix 1: Proposed Budget for the study

Table 5. 1: Showing Proposed budget for the study

Activity	Item	Quantity	Cost unit	Amount
Proposal writing	Papers,	1 ream	25,000	25000
	Folder	1	5000	5000
	Pens	4	1000	4000
Software				200,000
Hardware				100,000
Transport				300,000
Typing and printing, data collection tools, proposal (draft, final proposal)				200,000
Binding proposal		3	5000	15000
External hard disk		1-500GB	150,000	150,000
Miscellaneous (Airtime, data, Lunch, Supervisory fee, transport etc.)				500,000
Grand Total				1,499,000

Appendix 2: Work plan for the study

Table 5. 2: Showing work plan for the study

Activity(ies)/Months	July	August	September
Submission of topic, topic approval, assigning of groups, assigning of supervisors and enrolment in the course			
Proposal writing and Approval, approval and signing of proposal			
Introductory letter from Head of Department/ School			
Data collection and Data analysis and management			
Report writing and submission			

Time Frame: 03 Months

Figure 5. 1 Shows login form



Figure 5. 2 Shows login form with field details

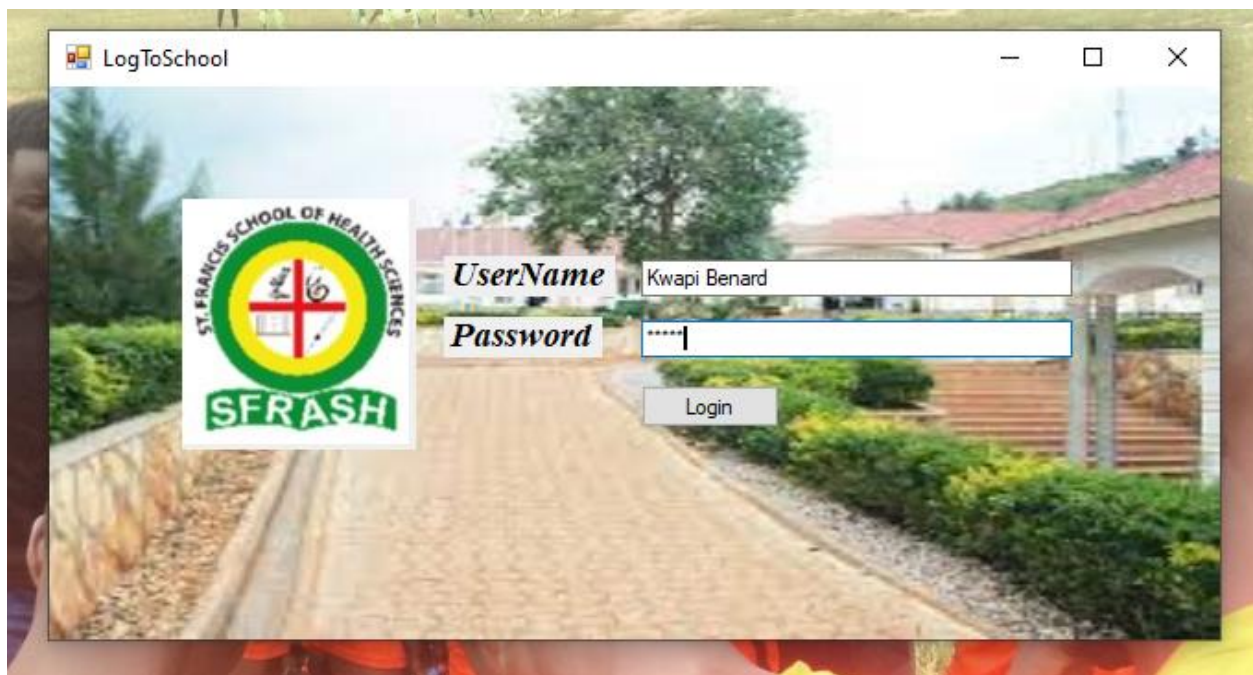


Figure 5. 3 Shows students registration form with empty fields

ST FRANCIS SCHOOLS OF HEALTH SCIENCES

STUDENTS DETAILS

STDREGNO **School**

FirstName **EntryYear**

LastName **CompletionYear**

DOB **Semester**

Address **Session**

Phone **Hostel**

Program

STDREGNO	FirstName	LastName	DOB	Address	Phone	Program	School
19/U/28340	Kwapi	Benard	Saturday, 2 Janu...	Kumi	774427580	DMRI	Managen
19/U/9074	Fatima	Adam	Tuesday, 27 Sep...	Kawempe	774427580	DPHA	Allied Hei
19/U/10594	Ejang	Patricia Ewang	Sunday, 4 Septe...	Lira	774427580	CPHA	Allied Hei
19/U/8718	Makand	Latifah	Monday, 5 Septe...	Namugongo	770495000	CPMI	Managen

Figure 5. 4 Shows Students registration form with field fields

ST FRANCIS SCHOOLS OF HEALTH SCIENCES

STUDENTS DETAILS

STDREGNO 19/U/28340 **School** Management and Applied Science
FirstName Kwapi **EntryYear** Monday , 26 September, 2022
LastName Benard **CompletionYear** Tuesday , 4 October , 2022
DOB Sunday , 2 January , 2022 **Semester** 1
Address Kumi **Session** Inservice
Phone 0774427580 **Hostel** Penmogi
Program DMRI

	STDREGNO	FirstName	LastName	DOB	Address	Phone	Program	School
▶	19/U/28340	Kwapi	Benard	Saturday, 2 Janu...	Kumi	774427580	DMRI	Managem
	19/U/9074	Fatima	Adam	Tuesday, 27 Sep...	Kawempe	774427580	DPHA	Allied Hea
	19/U/10594	Ejang	Patricia Ewang	Sunday, 4 Septe...	Lira	774427580	CPHA	Allied Hea
	19/U/9719	Nkand	Latif	Monday, 5 Septe...	Namugongo	774427580	CPHA	Managem

Figure 5. 5 Shows empty student records Microsoft Access Database

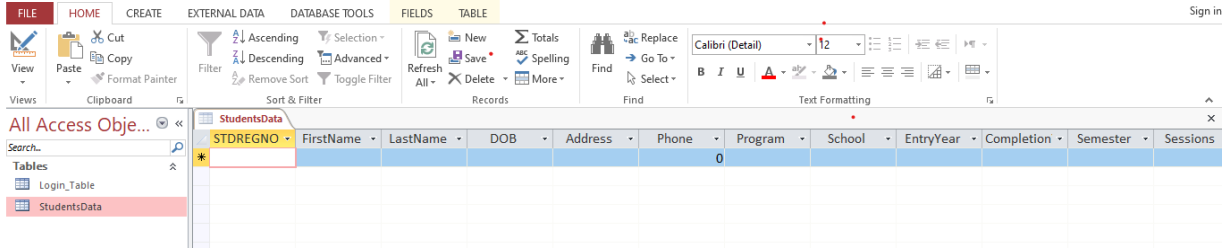
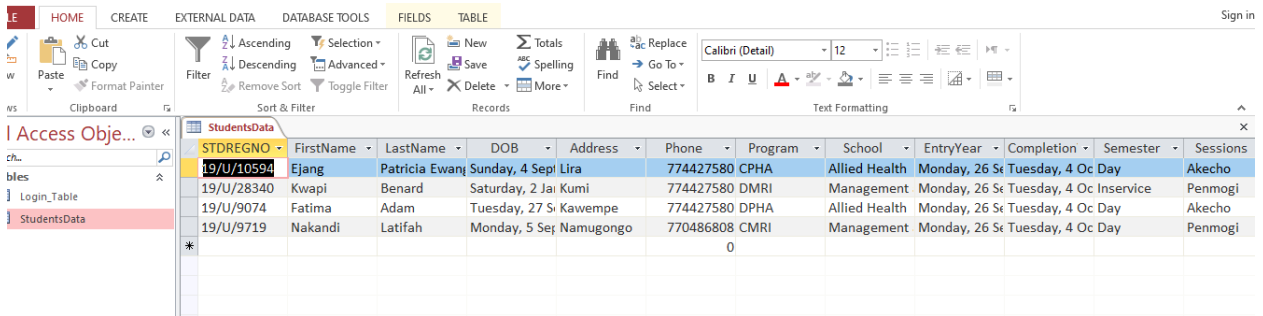


Figure 5. 6 Shows students records in Microsoft Access Database



Appendix 3: Introductory letter

MAKERERE

P.O.Box 7062 Kampala Uganda
Email: info@cis.mak.ac.ug
URL: http://www.cis.mak.ac.ug



UNIVERSITY

Tel: +256-392-000-180
Fax: +256-414 540 620
twitter: @cocismak
facebook: makcocis

**COLLEGE OF COMPUTING & INFORMATION SCIENCES
EAST AFRICAN SCHOOL OF LIBRARY AND INFORMATION SCIENCE(EASLIS)**

September 26, 2022

The Institute Rector
St. Francis Schools of Health Sciences
P. O. Box 111, Namataba
Mukono – Uganda

Dear Sir/ Madam,

RE: INTRODUCTION LETTER

This is to introduce to you the following students pursuing a Bachelor's Degree in Records and Archives Management (BRAM Year III) at the East African School of Library and Information Science under the College of Computing & Information Sciences, Makerere University.

- | | |
|-------------------------|----------------|
| 1. Ejang Patricia Ewang | 19/U/10594/EVE |
| 2. Nakandi Latifah | 19/U/9719/EVE |
| 3. Kwapi Benard | 19/U//28340 |
| 4. Fatima Adam | 19/U/9074/EVE |

As part of their degree program, they are entitled to carry out research under the course BRM 3204. The title of their research is "*Designing an Electronic Students Records Management System: A Case Study of St. Francis Schools of Health Sciences*".

The purpose of this communication is to request you to offer them the necessary assistance required.

Please note that all the information obtained shall be used for academic purposes only.

Sincerely,

Dr. David Luyombya
**HEAD OF DEPARTMENT
RECORDS AND ARCHIVES MANAGEMENT**

Appendix 5: Interview Guide

We are students at Makerere University pursuing a Bachelor's Degree in records and Archives Management. As part of our course, we are conducting a research project intending to design an electronic student's records management system at SFRASH Namataba Mukono Uganda. We humbly request to have an interview with you promising that the findings of this study will be used only for academic purposes and to improve students records management in the institution.

BIOGRAPHIC DATA OF THE RESPONDENT

SECTION A:

1. What is your name?
2. What is your highest level of education?
3. What is your position in the organization?
4. How long have you worked with this organization?

SECTION B: Types of records kept

1. What are the different types of records kept?
2. How are the records kept?
3. How are students records captured?
4. Who's responsible for managing student's records? Is it students themselves or registrar?
5. Is there enough storage space for records created?

SECTION C: Existing student's records management system

- i. Does SFRASH have a records management system to support management of records?
- ii. If yes, is the system available....
- iii. If no, do you plan to introduce student's records management system to support management of records?
- iv. If no, is it important to introduce student's records management system to support management of records?
- v. What are the challenges faced with the current system used for keeping records?
- vi. Does it require designing an electronic system for managing student's records?
- vii. If yes, Will it solve the problems faced by the current system?

- viii. If no, What do you suggest to be done to solve the problems faced by current system?
- ix. How do you retrieve records if they are needed?
- x. How do you ensure safety of records in the current system?

SECTION D: Requirements for designing an electronic student’s records management system.

- 1) What are the requirements needed for designing
- 2) What are the personal requirements?
- 3) What are the information needs of users?
- 4) What are the organizational requirements?
- 5) What are the technological requirements?
- 6) What are the software requirements?
- 7) What are the human resources?
- 8) What are the financial resources?

SECTION E: Designing an electronic students records management system for SFRASH

- I. What are the equipment that may be introduced in order to improve student’s records management system?
- II. How best records access and retrieval can be performed?
- III. When a digital filing system should be updated and how best it should be done?
- IV. What other areas that you would recommend for improvement of records access and retrieval at SFRASH?
- V. Which software do you prefer for electronic records management system?
- VI. Should the system be networked?
- VII. If yes, why?
- VIII. If no, why?
- IX. How the system should be implemented.....
 - a. Academic registrar’s office first.....
 - b. The whole institution at once.....

SECTION F: To test and validate the system

A. Does staff need training to use the system?

B. How should the system be tested...

After the design

During design process

C. Should all the system be involved during the system testing process or only few?

Thank you very much for your participation

Appendix 6: Acceptance letter

