

BAIUShaire, An application for Information Sharing:

A case Study of Bukar Abba Ibrahim University (BAIU).

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APPROVAL PAGE

This is to declare that this proposal is done by **Sheriff Ali Kachalla** with registration number **JAN16/COMP/007X**. The proposal has been presented in accordance with the guideline governing the award of Master of Science in Computing (Computer Security) at Uganda Technology and Management University (UTAMU).

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DECLARATION

I, **Sheriff Ali Kachalla** with the registration number **JAN16/COMP/007X** solemnly declare that this proposal was gathered and written by me and with the aid of my able supervisor Prof Florence Tushabe.

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TABLE OF CONTENTS

CHAPTER ONE	6
1.1 Introduction.....	6
1.2 Bukar Abba Ibrahim University (BAIU)	7
1.3 Background of the problem	8
1.4 Statement of the problem	9
1.5 General Objective	9
1.6 Specific Objectives	9
1.7 Research Question	10
1.8 Significance of the study.....	10
1.9 Scope of the study.....	10
1.9.1 Geographical Scope	10
1.9.2 Subject Scope.....	10
1.9.3 Time Scope	11
1.10 Operational Definitions.....	11
CHAPTER TWO	12
2.0 Literature Review.....	12
2.1 Introduction.....	12
2.2 The Existing System	12
2.3 The Existing information Sharing Techniques at BAIU.....	13
2.4 Secure Web-based application for Information Sharing as a Techniques	13
2.5 Conceptual Framework.....	14
CHAPTER TWO	15
3.0 Methodology	15
3.1 Introduction.....	15
3.1.1 System Planning.....	16
3.1.2 System Analysis.....	16
3.2.1 Interviews.....	16
3.2.2 Document Review.....	16
3.1.3 System Design	17
3.1.4 System Implementation	17
3.1.5 System Testing.....	18
3.3 Validity	18

CHAPTER ONE

1.1 Introduction

The main objective of sharing information is to offer information to others, either proactively or upon request, such that the information has an influence on another person's image of the realm, i.e., it changes the person's image of the world, and creates a mutually compatible working, understanding of the realm [1]. The information sharing is vital to safeguarding and promoting the welfare for staff in higher institutions, and is a channel that enhances productivity within the organization [2]. As such, it is a high priority that information is secure with a high degree of confidentiality, integrity, and availability especially for academic purposes.

Information sharing comprises providing information, confirming to make sure that the information is been received without altering. The information sharing it is an essential activity in all collaborative work, and helps to bind groups and communities together [3].

Currently, the information share between staff of Bukar Abba Ibrahim University (BAIU), by using Hardcopy, email and social media for sending and receiving confidential information. The existing system lacks secure platform to share information. BAIU, within the staff, need secure information sharing has dramatically increased with the explosion of the Internet and increasing of sharing information use and size are daily activity, which requires information sharing platform that can handle all information sharing challenges at BAIU.

The aims proposal, to solve the challenges of information sharing within BAIU, particularly within Staff through developing centralize information sharing application platform, without internet connectivity to share confidential information. Since the establishment of the university in 2006, lacks high speed internet for information sharing and is great challenge.

In higher institution today, it is difficult to find an information sharing application that fulfills all requirements and needs of the users. Especially for large media rich institutions, where the file sharing scenarios are many and files can be shared internally and externally with dissimilar feature and security requirements.

1.2 Bukar Abba Ibrahim University (BAIU)

Higher institutions in Nigeria, rely on efficient ways of sharing all kind of information through hardcopy, email, social media platforms and physical devices e.g. USB flash drives. However, no tool seems to fit all secure information sharing use cases. Information sharing is essential in higher institutions [3] For example, e-mails are common when documents are shared but cannot be used for large video files due to file size limitations. An information sharing use cases combined with various file sharing tools makes it difficult for staff to be consistent of how files are shared internally and externally. Users struggle to remember which files are shared, with whom and by which tool [7].

Additionally, the sharing of secure information with email, hardcopy, and physical devices are liable to expose confidentiality, integrity and privacy are may differ to secure within staff. An example of such Institution like BAIU, a institutions with many staff and the information sharing rich in institution, where large images, videos and files are share on a daily basis. Today, staff across different departments use several social media to share confidential information for different use cases of privacy exposed. Besides the inconsistency of what platform to use. This is concerning due to the risk of confidential academic information leakage, both internally and externally.

This proposal aims to solve these issues through centralization of information sharing within staff of BAIU to one single application called BAIUShare. The goal is to replace their current information sharing systems with BAIUShare, which will provide the functionality for all use cases that their current tools do. Furthermore, BAIUShare interface shall be control, by authorized staff of BAIU.

1.3 Background of the problem

The staff of higher institutions have always face challenges in protecting confidential information from being revealed to unauthorized parties and also existing tools are not sufficient to share secure large size information. Such challenges are even harder to address when staff needs such confidential information to be shared between them to achieve a particular task. BAIU used to share it confidential information through hardcopy file, Email and physical drives. The staff need confidentiality in sharing information among them, and by sharing through mentions tool, likely it privacy can be compromise. Threats from outside the institution are always a major worry; hence, staff cannot ignore the risk of unauthorized insiders, revealing confidential content to unauthorized parties.

Information share between the management of the BAIU and other supporting staff is carried out using files and papers. If the management need to pass the message down to staff of the university like memo, usually the information use to be printed on paper and place on the notice board. As a result of that, both staffs and students of the university will have access to such information which is supposed to be official of sharing information.

There are many cases of file missing or removal of query letters when files are physically move from one office to another. The system lacks secrecy whereby authorized insiders are able to access the information and intrude into the files and read the content.

Another challenges facing the university is lack of good internet services due to poor network and bandwidth issues, the problem is there since the inception of the university in the year 2006 up to date.

1.4 Statement of the problem

Absence of a secured platform and high speed internet that will guarantee sharing of large files among staff of the university contributed a lot in bringing problems that negatively affect the confidentiality and integrity of information sharing in BAIU.

To this end, the target of this proposal is to develop a new centralize secure platform of resource sharing context for BAIU called BAIUShare.

1.5 General Objective

The general objective of this research is to develop information sharing applications and centralizing staff of BAIU information sharing to a single application called ***BAIUShare***.

1.6 Specific Objectives

The specific objectives this work are to:

- To gather requirement for the centralized information sharing platform
- Design secure application for information sharing (BAIUShare) for c staff.
- To implement BAIUShare as a secure application system.
- To test and validate the secure application for information sharing system.

1.7 Research Question

- How does the existing system will be used to gather requirements for the new system?
- What are steps to be followed on developing the new platform
- How the new application platform for information sharing will be implement in the new system?
- How can we conduct the unit testing and validation of the new system?

1.8 Significance of the study

The significance of the study in this research proposal focus on the three phases:

- The new information sharing platform will help the staff of Bukar Abba Ibrahim University, by ensuring privacy and confidentiality of information sharing.
- More information can be share at once without internet within university premises without altering by unauthorized patties.
- The platform will help to ease the method of communication between the staff of the university.

1.9 Scope of the study

1.9.1 Geographical Scope

The study shall be carried out at Bukar Abba Ibrahim University (BAIU) in Nigeria.

1.9.2 Subject Scope

The research study look at the designing and implementation of secure application that shall share information within staff of BAIU. The technologies discussed in the literature review will also focus on the same subject.

1.9.3 Time Scope

The time dedicated to this dissertation proposal is 1 - 2 months and is disturbed among the following units initial investigation, requirements gathering, system design, system analysis, and implementation of the secure application for information sharing with staff of BAIU. To specify what shall and shall not be include, the proposal scope must make clear to the stakeholders and what service shall be carryout.

1.10 Operational Definitions

Information: is a collection of facts and knowledge acquired through study or experience or instruction.

Sharing Information: Information sharing describes the exchange of data between various organizations, people and technologies.

Web application: is a computer application that is accessed via web browser over network.

Security: is the protection of information assets through the use of technology, processes, and training.

Privacy: is the right to be let alone, or freedom from interference or intrusion.

CHAPTER TWO

2.0 Literature Review

2.1 Introduction

This chapter provides an overview of the current literature concerning on information sharing within academic staff. Properly points out that information are share mostly through email, hardcopy files, social media platform and physical devices within academic staff, which is likely to secure the confidentiality, integrity and availability of the information within academic staff [10]. This proposal shall focuses on secure information sharing within academic staff of higher institution and the issue accepted by analysts, researchers, and users. In so doing, it will determines the issues that need to be address in this area.

While the proposal does not address every corner of information sharing within academic staff, it does provide a summary of the most recent studies in the area, and we present a summary of the existing works and why they fall short, and next we describe them in detail. The main objective of the proposal is to design secure application for information sharing with academic staff of higher institution

2.2 The Existing System

The existing system used by academic staff of BAIU is a manual off line system and online but not efficient for secure sharing confidential information within academic staff. The existing tools used to share information in BAIU for academic staff are Email, Hardcopy, social media platforms and physical drives which is not efficient for information sharing. As examples Hardcopy files are delivered by messenger from destination A to B with doing so, confidentiality, integrity and availability shall be compromise, and staff will not able to share large size document with email e.g large size video or audio is unable to be share with the staff.

2.3 The Existing information Sharing Techniques at BAIU

The information sharing is a fundamental ingredient for academic staff looking for share secure information within them is big challenge [9]. The understanding and practice of information sharing is becoming increasingly essential for higher institution especially for academic staff to secure from altering of information confidentiality, integrity and availability. Sharing a secure information within the higher institution are autonomous for the existing challenges and Information sharing and security in vibrant threats [11].

2.4 Secure Web-based application for Information Sharing as a Techniques

The web-based application for secure information sharing can be one of the way to reduce the information sharing challenges in higher institutions. The web-based application for secure information sharing can be used for information sharing in between staff of BAIU of different departments. The staff are therefore in control of their files and also make sure that a file is only access by the authorized staff in the higher institution.

The use of web-based application for information sharing can help to reduce the costs of privacy leakages, communication, and information processing [7]. BAIUShaire application for information sharing can promote all the academic staff of BAIU objective and provide reasonable and flexible services to staff than the current tools that used to share information at the BAIU institution.

The other web based application for sharing information are:

- i. Email
- ii. Google Drive
- iii. Drop Box
- iv. Social Media

2.5 Conceptual Framework

Conceptual framework of the study. All academic staff within departments Bukar Abba Ibrahim University will share the information via the University Central Application server which encrypts information for storage purposes. The application server controls access of all authorized user and their files uploaded on the database to control accessibility by unauthorized staff in the university. When a user request for information from the file server, the application server manages the decryption of information and sends it back to intended recipient client. This helps the academic staff of the university for easy access at request time since the application is secure and can reduce the challenges involved in information sharing within staff by denying unauthorized to access the information being shared by the staff of BAIU.

CHAPTER TWO

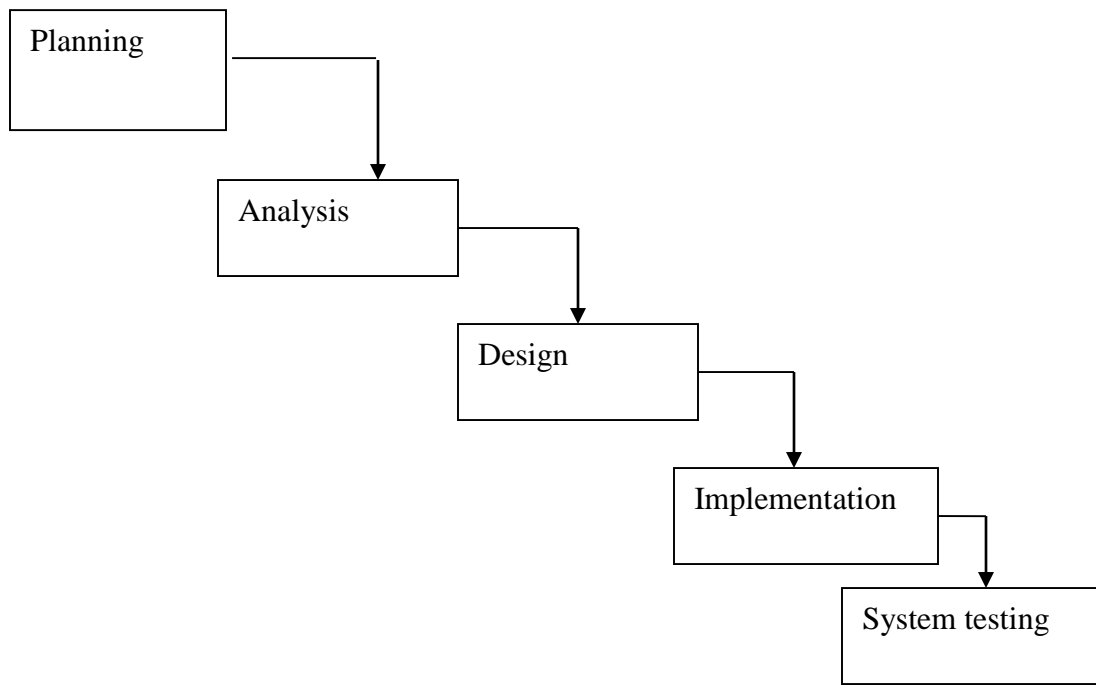
3.0 Methodology

3.1 Introduction

This chapter explains and describes the system flows, process and the functionalities of the different players and modules of the system. It also demonstrates the flow of data that was collected by the system, the different processes that the system used to process the data and the final processed information that was released at the end [6].

In this proposal chapter shall describes how the study process and functionalities, from information gathering, to the design process and how the design guidelines we are to determine [10]. The approach shall be used in the system development methodology is the waterfall design and the study contained of five main phases:

Figure 3.1 *The waterfall development methodology.*



3.1.1 System Planning

Is to study the existing system of sharing information within the staff of BAIU and in order to obtain the actual system and user requirements staff of Bukar Abba University.

3.1.2 System Analysis

The system analysis, we shall collect data and cross check to see that the findings were in line with the systems objectives [9]. During this stage, the identified system requirements included functional and non-functional based on the existing system study, users of the system, processes and information sharing tools.

In order to achieve, number of research tools shall use to determine requirements for a secure information sharing staff of BAIU and the techniques use to carry out both qualitative and quantitative methods of data collection and analysis will be applied [10]. Data for this study will be derived from both primary and secondary sources. Primary data will be obtained using the interviews. Secondary data will be obtained by means of document review and review the existing literature with the view of identifying requirements for the suggested secure application for information sharing.

3.2.1 Interviews

Interviews shall conduct with academic staff of the BAIU to know an insight of their information sharing, facing challenges and to also know their views about the introduction of secure application for information sharing for Academic staff of BAIU. We shall do interviews by verbally and record

3.2.2 Document Review

Document analysis will be used in studying the already existing literature and documents, and the method for gathering data through research based using the academic room known as “**Web of**

Knowledge as well as Google Scholar”, will review some papers on technical solutions that can be used in securing privacy in Sharing information and currently articles. in order to either find gaps that can be filled by the study or evidence that can support or contradict the quantitative and quantitative findings.

The design addressed the functional and non-functional requirements that provided guidance on describing the data and process for an information sharing application for institutions.

3.1.3 System Design

The design will address the functional and non-functional requirements that provided guidance on describing the data and process for an information sharing application for staff of BAIU. After the mentioned tools are used successfully, we shall believe that the secure application for information sharing within staff of BAIU will be enhanced.

3.1.4 System Implementation

In the implementation stage, the following tools shall be use; Html is a mark-up language for adding some annotation to text, show how authorized staff interface shall be display. The design shall be use Microsoft Office Visio model Dataflow and the model requirements and give a clear understanding of the information sharing system for information sharing of staff of BAIU. Xampp server shall be used to store information from user interaction through the system interface and also as a relational database management information system. Xampp server shall use to store file data, such as file names, location on server, access control and security details as well as content. On the retrieval instance, SQL queries were used to create sets from the database in order to display

information to authorize after comparing their details with those in the database and processes from different district departments and other related entities.

3.1.5 System Testing

This is the process of executing application programs with the aim of finding out errors, using Careful planned test strategies and realistic data the system was carefully and thoroughly tested to uncover faults in the application programs and the database structure. The errors found shall be correct and the process shall repeat until the system has to be confirmed working according to users' specification and performance requirements.

This this shall achieved through:

- Testing the system performance, efficiency, disk space and its throughput to ensure proper functioning of the system.
- Testing for security issues like resistance to remote attacks and authentication procedures.

3.3 Validity

This was done to ensure that data fed into the system satisfies the pre-determined formats, it was presented to experts to identify weaknesses and strengths of the system and give advice where necessary. Here different users were allowed to interact with the system to find out its validity and the system was found to be valid.

According to Gay (1996) construct validity over an instrument is refined based on expert advice. After constructing the questionnaire, the researcher will contact the supervisor and three other experts in order to get expertise judgment on the validity.

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