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MINEDUC

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E.S.T.G(Ecole Secondaire Technique de Gisenyi)

option:COMPUTER SCIENCE

level: A2

ESTG INTRANET CLIENT MAIL SYSTEM

CASE STUDY:E.S.T.G(Ecole Secondaire Technique de Gisenyi)

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Academic Year 2014

DECLARATION

WE, Habimana Jean de Dieu, Habiyambere Daniel**,** Ishimwe Olivier to the best of our knowledge hereby declare that, this project work entitled, "**ESTG INTRANET MAIL CLIENT SYSTEM" case study *is*** original and has never been submitted to any high school or other institution, it is our own research where by other scholar's writings were cited and references are provided.

Habimana Jean de Dieu Signature……..

Habiyambere Daniel Signature……

Ishimwe Olivier Signature…….

Supervisor: Ir. Hodari Audace

Signature…….

Date…../…../2014

CERTIFICATION

This is to certify that the project entitled**" ESTG INTRANET MAIL CLIENT SYSTEM** " is a record of original work done by **Habimana Jean de Dieu, Habiyambere Daniel, Ishimwe Olivier** in partial fulfillment of the requirement for A2 Certificate in Computer science.

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SUPERVISOR**: Ir. H**ODARI **A**UDACE

DEDICATION

To allmight God,
To beloved parents,
To brothers and sisters,
To Aunts ,Auncle and cousins,
To all my Friends and Classmates.

ACKNOWLEDGEMENT

We would like first to thank God Almighty who has always given us strength and been on our side throughout our studies.

Our heartfelt thanks to our families, whose financial sacrifice and moral support have helped us to carry out this research.

Our sincere gratitude is addressed to my lovely Aunt for the support provided to me, I always pray for her and asks the almighty God to blessing her

Our sincere gratitude is addressed to my lovely Grand Mother for the support provided to me, I always pray for her and asks the almighty God to blessing her

We express our sincere thanks to the government of Rwanda for providing and maintaining practical examination in secondary school through workforce development authority (WDA).

Our deep gratitude is addressed to for the knowledge they gave us, especially **Hodari Audace** our supervisor, who assisted me during this project work by offering wise advices, time and guidance towards the success of this project.

To all our classmates, colleagues and friends, and also to everyone who contributed nearly or far for this project.

May God Bless You All!

ACCRONYMS

CMD : Conceptual Model of Data
CSS : Cascading Style Sheet
CSC : Computer Science
DBMS : Database Management System
ESTG : Ecole Secondary Technic Gisenyi
EPR : Eglise Presbyterian au Rwanda
GUI : Graphical User Interface
HTML : Hypertext Markup Language
HTTP : Hyper Text Transfer Protocol
ID : Identification
IT : Information Technology
ICT : Information Communication Technology
LAN : Local Area Network
LMD : Logical Model of Data
PC : Personal Computer
PHP : Personal Hypertext Preprocessor
PMD : Physical Model of Data
RDBMS : Relational Database Management System
W.D.A : Workforce Development Authority
WAMP : Windows Apache MySQL PHP
WWW : World Wide Web
XAMP : eXtended Apache MySQL PHP

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CHAPTER ONE: GENERAL INTRODUCTION

1.1. INTRODUCTION

Information Technology is widely used and is rapidly becoming a common asset of modern socio-economic life in this new world. Our country Rwanda sees the use of Information and Communication Technologies (ICTs) as the key tool in transforming the economy. Software development and the use of automated systems, network system development, the need to share resources within the country and the outside world, is what among other things that hold largely the degree of measure of development in the Rwandan society. Given the typical nature of Information Technology evolving day after day, there are wide ranges of activities that must be executed to Implement ICT strategic activities presented as interactive and online information. Among these activities, software development projects are made and put into action to reinforce the request for automated Systems in companies, institutions, school institutions and organizations.

Today the management messaging in ESTG is done manually by use of papers and pens, use of cupboards and use of paper holders It is not possible for the to get message without using the paper to send a message to the staff mates which not only takes more time but requires papers to write on and sometime paper wastage risk inside the offices.Thus, the following problems result in ineffectiveness and inefficient of this manual system.

Therefore, the computerized system became the effective and basic tool for the management of information. It is in this optics that thought of making a work which will contribute to the improvement of the management information system of ESTG. The most important point about this computerized Management information System is that since technology came in to reduce a number of activities that can be done within a long time just is a limited time as possible, that is why such application is of a great role taking into account how effectively it will serve in reducing the time that the users of this ESTG used to take while exchanging messages and keeping information on papers. This Research has an objective of designing and developing a web based software application that will be used to manage and control the information about the

school office messaging, the report making by new system should play a big role in producing quality service in real time.

ESTG Intranet Mail Client System is a private computer network that uses Internet Protocol technology to securely share any part of an organization's information or network operating system within that organization.

1.2. ESTG Background

Gisenyi Technical Secondary School (ESTG) was independent secondary school that started in 2006, and started by Presbyterian Church in Rwanda. The ESTG is located in kivumu cell, Gisenyi sector, Rubavu district in western Province.

ESTG started shortly after the Genocide as a vocational training center in plumber, welding and electricity. the idea behind was the creation of that vocational training center began with the Rwandan Presbyterian church members in Gisenyi parish as a way to tackle the issue of street children in Gisenyi, that increased considerably after the Genocide of Tutsi in 1994.so,it called Vocational Training center on February 5,1996 and was founded by KERK IN ACTIE.

When the center started, it carried out its daily activities in the locals serving as the guest house belonging to the Presbyterian in Gisenyi however four years after, the vocational training center got its own locals built with the aid of KERK IN ACTIE.

As aforementioned, the vocational training aimed at tackling the problems of street children by empowering them with skills that would help them to provide for their own needs, therefore reducing or eradicating the cases of street children. In addition, as the center was started by religious institution, there was a second purpose consisting of those children to spiritual grout. Since its beginning, 186 children graduated in different options.

Due to the fact that after the Genocide, so many vocational schools were created, the number of children adhering Secondary School was by a Ministerial Order as an independent technical secondary the secondary school education decreased and the founder of Gisenyi vocational training center decided to change it into a technical secondary school (ESTG).

In 2006, the Gisenyi technical school with a condition of building adequate buildings for a technical school.

Some of the objectives to create the ESTG can be summed up as following:

-Providing an opportunity to the children who couldn't complete their studies to do so;

-To increase the number of children completing the second cycle of secondary studies then reducing the number of those who drops their studies after the ordinary level

-Providing skilled technicians to the Rwandan job market; -Increasing the number of Rwandan electricians.

Today, ESTG is one of the government supported technical school following the mutual agreement between the school and the ministry of education. The school has two options namely: Electricity and computer science. Since it is changed in to a technical secondary school, three classes had graduated and the fourth will graduate by the end of this year.

The School's stakeholders are:

-ICCO&KERKINACTIE;
-PARENTS;
-EPR;
-Ministry of Education

1.3 PROBLEM STATEMENT

A matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome.

- ✓ **The process of managing ESTG using paper based consumes long time, a lot of paper .**
- ✓ Sending message was a paper based system,
- ✓ The problem of money wastage when buying pens and papers
- ✓ Data are stored in cupboard and sometime can be spoiled by the rats.

1.4. Objectives

1.4.1 General Objective

- ✓ To study and critically analyzing the uses of paper based management system to store and manage the sent and receive of mails within ESTG Intranet.
- ✓ To present challenges about the old system while storing and managing the data of ESTG.
- ✓ To sort out of above challenges by implement designing a new system to replace the old system as a result of using new system.
- ✓ To design the management system that will be used systematically for storing and managing ESTG intranet data.

1.4.2 Specific Objectives

- The main objective of this research is analysis and design of management system which will manage the sending and receiving of mails quick access to them when they are needed

1.5. Scope of the study

As required to any scientific research, it is necessary to limit this study in time, space and in the domain.

1.5.1. Limitation in space

In space, the study covered ESTG secondary school and attempt to deal with challenges faced ESTG secondary school concerning their information management system which is paper based system of course with strategies that may be used to overcome those challenges.

1.5.2. Limitation in time

This study covered the period from 2014.There was problems within ESTG related to the paper based system used ESTG for managing they messaging information.

1.5.3. Limitation in domain

In the domain, the study is limited in.

1.5.4 Geographical and time scope

The study would take place in Ecole Secondaire Technic de Gisenyi which is situated in western province, Rubavu District ,kivumu cell, will take particular in sending and receiving message between estg school.

1.6. HYPOTHESIS

- ✓ **Would I develop a computer web based application that could help ESTG to exchange messages without wasting the time so that any staff could send and receive messages using a computer application?**
- ✓ Would I implement a computer web application that could help ESTG to remove totally the system of exchanging messages by using paper based system?
- ✓ Would I develop a computer web base application that could allow ESTG school to store their data in a database without using a cupboard?.

1.7. Structure of the project

This project is divided into the following five chapters:

- ❖ The first chapter is a general introduction which contains background of study, problem statement, objectives of study, and scope of study, and structure of the study,
- ❖ The second chapter presents literature review that defines different concepts, and management information system concept,

- The third chapter is concerned with research methodology,
- The fourth chapter is analysis and design of new system which includes the system requirements,
- The Fifth chapter is includes conclusion and recommendation

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter explains related theatrical work or references used to develop the communication system and background of the system. It also expound on technologies to be used with a view of providing an overview for the concept of the system's design.

2.2. System

A collection of components that work together to realize some objectives forms a system. Basically there are three major components in every system, namely input, processing and output. In a system the different components are connected with each other and they are interdependent. For example, human body represents a complete natural system. Here we are concerned with an IT system. The objective of the IT system demands that some output is produced as a result of processing the suitable inputs.

2.3. Information

Information is referred to as data that have been processed and presented in a form suitable for human interpretation, often with the purpose of revealing trends or patterns.

2.4. Information system

Information system is a set of people, procedures and resources that collects, transforms and disseminates information in an organization; a system that accepts data resources as input and processes them into information products as output.[1]

[1] http://www.businessdictionary.com/definition/information-system.html
[3]http://www.inc.com/encyclopedia/management-information-systems-mis.html

2.5. Information technology

Information technology means all computerized and auxiliary automated information handling, including systems design and analysis, conversion of data, computer programming, information storage and retrieval, voice, video, data communications, requisite systems controls, and simulation. The term information technology is commonly abbreviated as IT .

2.6. Database concepts

In this project entitled Tuition Fees Management System has a need of database management system to manage and store all data related to students fees payment , in IT real world there is no management software without front end as background designed for users and the back end connected to the design as the database in which all data entered by software users are stored, each field and rows must contains their own data or information about students fees payments [4] .

2.6.1. Data

Data is representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automated means.

2.6.2. Database

A shared collection of logically related data designed to meet the information needs of multiple users in an organization.

2.6.3. Entity

[5]http://www.inc.com/encyclopedia/management-information-systems-mis.html

A person, place, object, event, or concept in the user environment about which the organization wishes to maintain data.

2.6.4. Table

A table is a two-dimensional display of data values corresponding to an entity. The columns of a table represent characteristics of the entity and the rows represent instances of the entity.

2.6.5. Primary key

The primary used to create relationships between tables. It's the entry keyed off of to identify the record in question. An otherwise meaningless surrogate value is often used for the primary key. The primary key for an entry must never change: if the record is referred to by a record in a different table, the relationship (link) will be often irretrievably broken.

2.6.6. Foreign key

The foreign key belongs to another table and has no meaning for the entity in which it is recorded. Usually a foreign key will be a primary key in another table.

2.6.7. Relational database

Relational database builds the relationships between fields in tables explicitly through keyed fields. Because the relationships are not handled programmatically but are integral to the data itself, users can access the data without knowing the physical structure of the data (i.e. how the data is written on disk).

2.6.8. Database Management System (DBMS)

Database management system is the software that handles all access to the database. A major role of database management system is to allow the user to deal with the data in abstract terms, rather than as the computer stores the data, Database management system is computer program

(or more typically, a suite of them) designed to manage a database (a large set of structured data), and run operations on the data requested by numerous clients. Typical examples of DBMS use include accounting, human resources, and customer support systems.

MYSQL: MySQL is a relational database system, which basically means that it can store bits of information in separate areas and link those areas together.

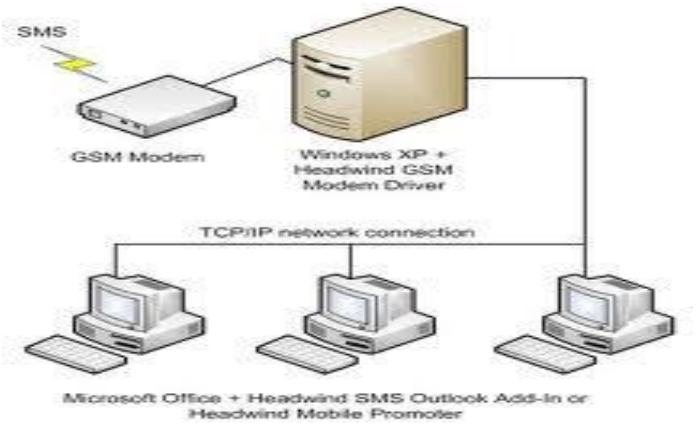
Because MySQL is a relational database management system, it allows you to separate information into *tables* or areas of pertinent information.

2.6.9. Data dictionary

A data dictionary is a set of metadata that contains definitions and representations of data elements. Within the context of a DBMS, a data dictionary is a read-only set of tables and views. The data dictionary is database in its own dictionary. For example, several tables may hold telephone numbers; using a data dictionary the data dictionaries can evolve into full anthologies when discreet logic has been added to data element definitions.

2.7. Client/server architecture

A network architecture in which each computer or process on the network is either a Client or a Server. Servers are powerful computers or processes dedicated to managing disk drives (file servers), printers (print servers), or network traffic (network servers). Clients are PCs or workstations on which users run applications. Clients rely on servers for resources, such as files, devices, and even processing power.

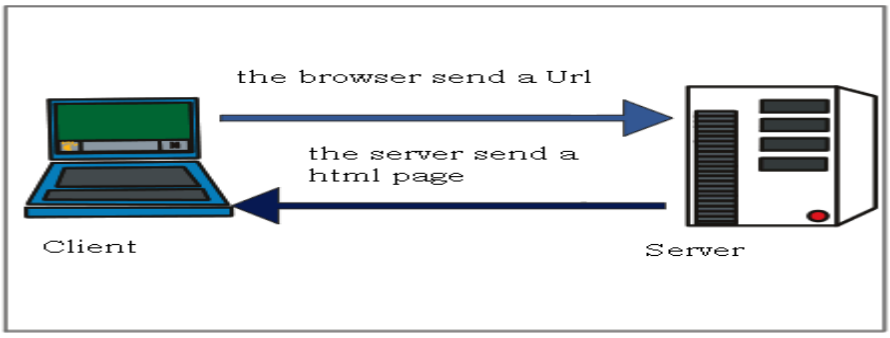


2.8. Internet

The term internet refers to the global network of public computers running Internet Protocol. The Internet supports the public WWW and many special-purpose client/server software systems. Internet technology also supports many private corporate intranets and private home LANs

2.9. Web site

Is a collection of web page linked between then and stored together in order to provide information to the users. Web pages can contain text, images, videos, sounds and so on. The popular markup language used to create website and web pages is HTML (Hypertext Markup Language.)



2.10. Web Application.

A web application is an interactive web site which provides services to the visitors. It uses scripts which can retrieve and save information into different types of database. A web application provides responses to all users requests and user and navigates according to the needs.

2.11. PHP

PHP was created in 1995 by an independent software developer named Rasmus Lerdorf. His first PHP script was a Perl/CGI program that kept a log of each visitor that came to his site.

The script then displayed how many visits he had received on each page. He soon started receiving emails from other web masters across the Internet asking how he did this (a "Counter" as this is called, were very rare back then.) Because of the interest in his script he started to develop PHP into a new language, by adding more and more features to his script.

Eventually, he decided to stop programming PHP in Perl/CGI, and start constructing it with a more powerful language, "C". Thus the interest in PHP keep growing as more features were added and soon other people started writing code for it. It is now one of the most popular languages on the Internet, with contributing programmers across the world.

2.12. XAMPP

Is a platform which means Extended Apache Mysql PHP which is a platform which combine the Local Server Services APACHE, the popular database used online MYSQL and the interpreter of PHP Language Script. It will be used to create codes of our projects. They is also other software which support those services like WAMP, EasyPHP …

2.13. APACHE Server

The Apache HTTP Server, commonly referred to as Apache is web server software notable for playing a key role in the initial growth of the World Wide Web and for today Apache server is used with MySQL database to make the web site and is most married with as languages such as PHP, MySQL, XAMPP, WampServer and so on. Apache is a server used as local to make our web site. Server is known as a computer or device on a network that manages network resources.

2.14 Macromedia Dreamweaver 8

The world's best way to create professional websites is now the easiest way to build powerful Internet applications. For the first time, you can work in a single environment to quickly create, build, and manage websites and Internet applications. Get the visual layout tools of Dreamweaver. The rapid web application features of Dreamweaver Ultra Dev. And the code-editing support of Home Site. All in one complete, integrated solution--Dreamweaver MX.

2.15 JAVA SCRIPT

JavaScript is an interpreted programming or script language from Netscape.

JavaScript is used in web site development to such things as:

- Automatically change a formatted date on a web page.
- Cause a linked-to-page to appear in a popup window
- Cause text or graphic image to change during a mouse rollover

A JavaScript program can be placed anywhere within the HTML file.

Many programmers favor placing their programs between <head> tags in order to separate the programming code from the web page content and layout and also some programmers prefer placing programs within the body of the web page at the location where the program output is generated and displayed.

CHAPTER THREE: SYSTEM ANALYSIS

3.0 Introduction

The web based ESTG Mail Client System is realized by creating a Mysql database containing all the tables to be employed in the application then the web interface will be created using PHP programming language which also joins the database tables and enables insertion, deleting from the data. The PHP language has lots of functionalities which will be elaborated more in this book.

Apart from PHP, the web pages were designed in HTML codes and JavaScript codes which are helpful in laying out the forms and table rows and columns for presenting information as well as the data to be displayed. The web server in this case is Apache.

3.1 Information gathering

In order to understand how the current system operates the researcher used various techniques to gather the information which included:

3.1.1 Interview

Interview is a data collection method for collecting data that was conducted by presentation of oral verbal stimuli and replayed in terms of oral verbal responses. This is a widely used methodology in many disciplines. The research conducted an interview with the ESTG Leaders whereby the researcher asked the Head master with other members of ESTG, questions regarding the communication between them. Then they gave all information regarding the process which helped the researcher to understand how current system operates.

3.1.2 Observation

The research was taken to the location of ESTG and we entered in to get deeply all information by observing and used in order to observe how the service of ESTG is offered in order to gather more data of the system.

3.1.3. Documentation

This technique is the method which helps to refer to books, internet (website), magazines and findings of other researchers on the same subject of the project are consulted.

3.2 Description of existing system

From all information gathered and the analysis of existing system we found that there is more money used to buy pens and papers in order to send your message, and more time used when you are going to submit your message and also The process of managing ESTG using oral and paper communication consumes long time, a lot of paper used in communication.

3. 3 Description the proposal system

Generally, ESTG mail client system is for . Every Person that are in ESTG can send a comment in contact us menu. to send and receive messages you must have an account, and a user can't make any change on messages or comment of another user can only delete his/her own messages. But Admin has a permission to delete or update comments.

3.4 software/system development model

The development models are the various processes or methodologies that are being selected for the development of the project depending on the project's aims and goals. There are many development life cycle models that have been developed in order to achieve different required objectives. One of those models is "Waterfall model"

3.4.1The waterfall model

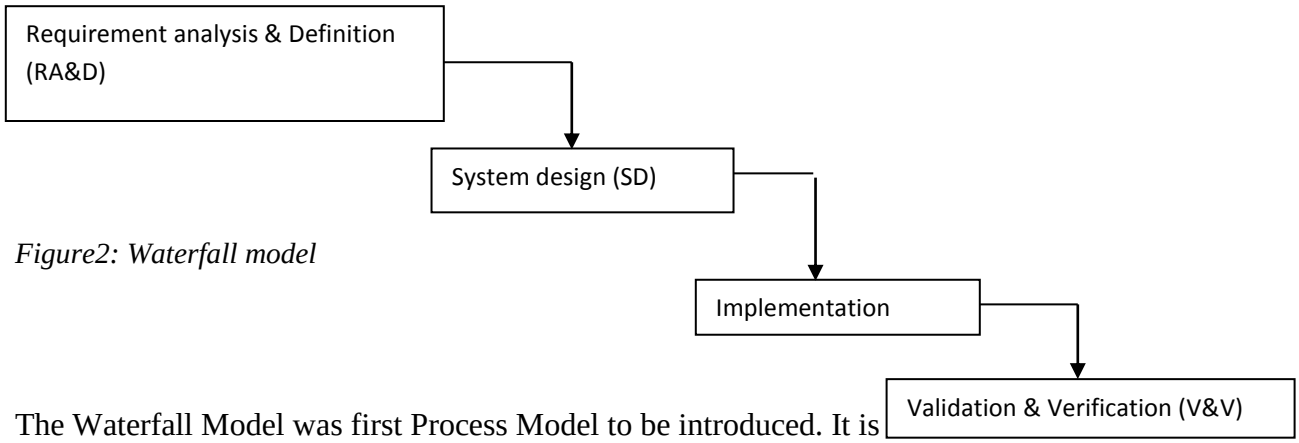


Figure2: Waterfall model

The Waterfall Model was first Process Model to be introduced. It is **sequential life cycle model**. It is very simple to understand and use. In a waterfall model, each phase must be completed fully before the next phase can begin. At the end of each phase, a review takes place to determine if the project is on the right path and whether or not to continue or discard the project. In waterfall model phases do not overlap. Advantages of waterfall model are Simple and easy to understand and use, Easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process, Phases are processed and completed one at a time, Works well for smaller projects where requirements are very well

understood. Disadvantages of it are once an application is in the **t**esting stage, it is very difficult to go back and change something that was not well-thought out in the concept stage, not a good model for complex and object-oriented projects, Poor model for long and ongoing projects, Not suitable for the projects where requirements are at a moderate to high risk of changing.

3.5. Illustration diagram

3.5.1 Use case Diagram for Existing System

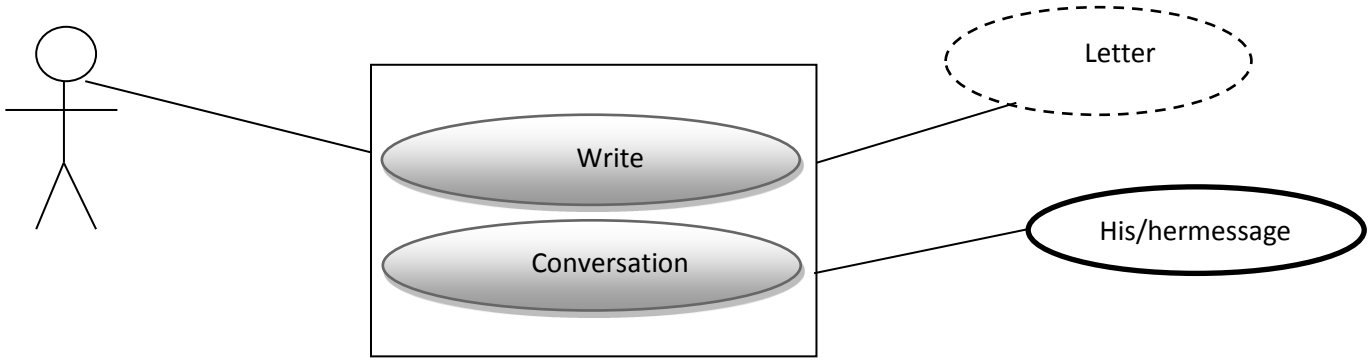


Figure 1: Use case diagram for the Existing system

3.5.2 Use case Diagram for the new System

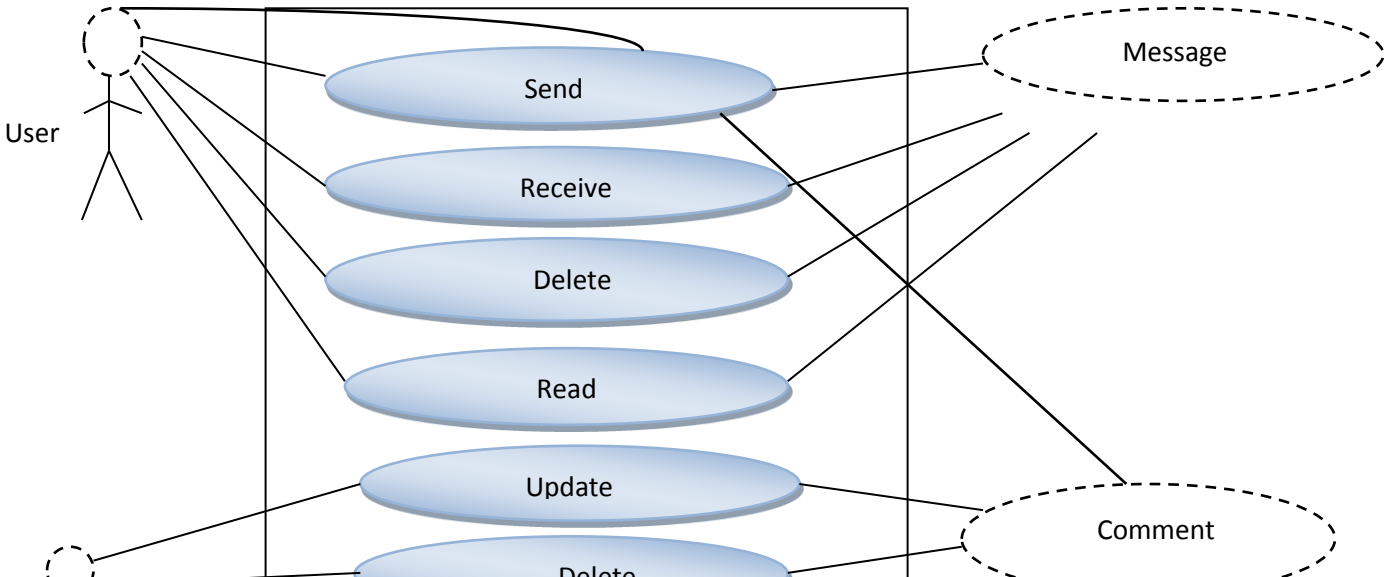


Figure 3: Use case diagram for the new system.

This use case diagram is showing all the activities that have to be done by the two actors on user

4.1. Physical model

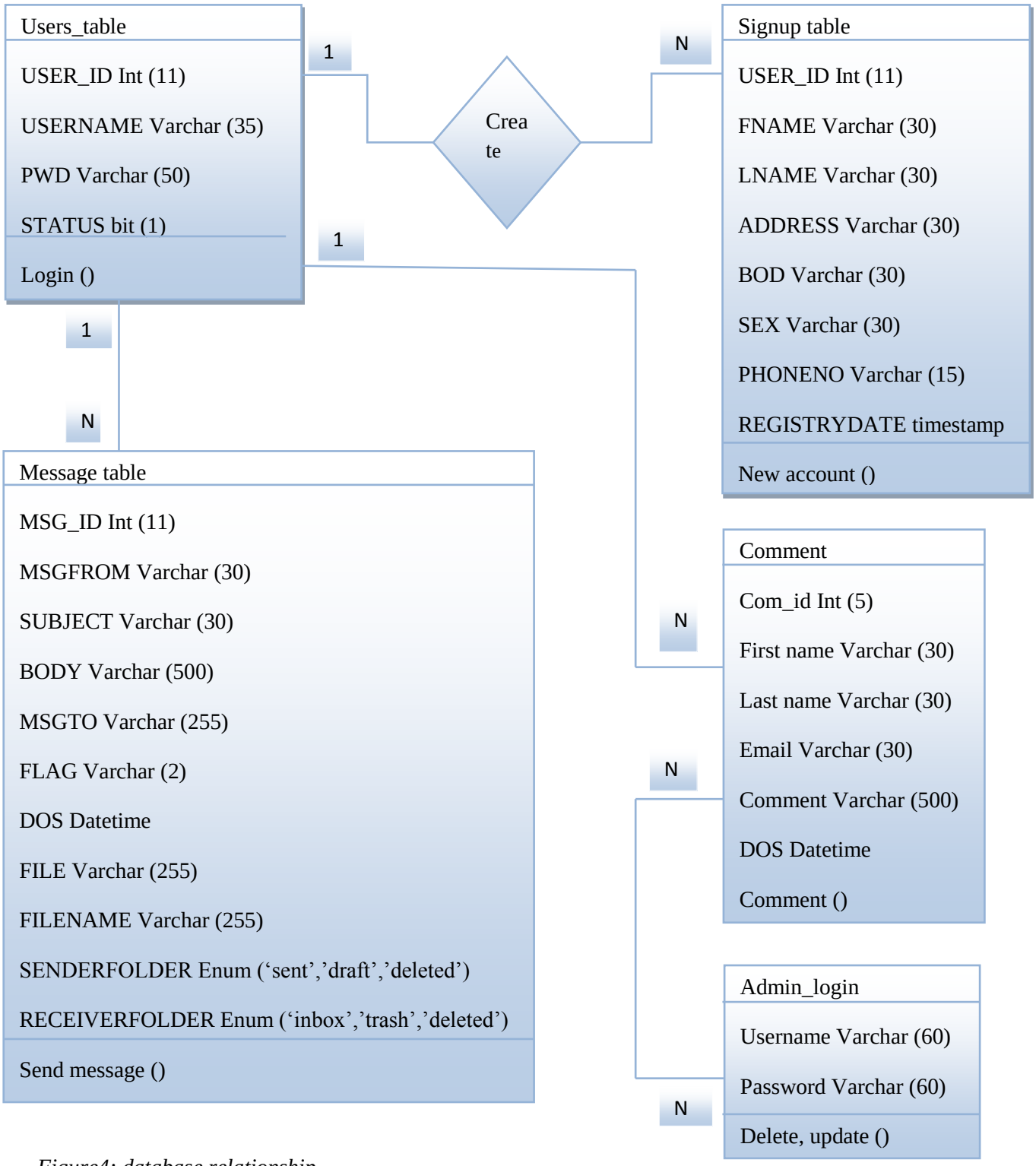


Figure4: database relationship

4.1.1 SUMMARY

This chapter describes the information gathered to the existing system in order to develop the proposal system and diagrams used in proposal system.

CHAPTER FOUR: SYSTEM DESIGN AND IMPLEMENTATION OF NEW SYSTEM

4.0 Introduction

Design is the process of applying various techniques and principles for the purpose of defining a device, a process on a system in sufficient detail to permit its physical realization. It is a process through which requirements are translated into a representation of the software. Software design is the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used.

From a project management point of view software design is conducted in two steps. Preliminary design is concerned with the transformation of requirements into data and software architecture.

Detail design focuses on refinement to the architectural representation that lead to detail data structure and algorithmic representations for software.

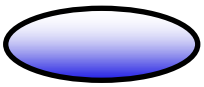
System design involves translating information requirements and conceptual design into technical specification and general flow of processing. After considering the requirements of the firm, needs are identified, related information is gathered to verify the problem and after evaluating the existing system, a new system is proposed .The proposed system consists of various modules, their maintenance works and finally report generation.

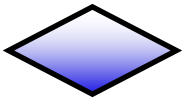
It has been assured that the system will have the functions and promises of the proposed system. In the design phase, various techniques are used to present a simple but efficient environment.

4.1 Entity Relation Diagram

ERD is a representation that illustrates the concepts of entities that exist in a system and the relationships between those entities. The entities in the ERD represent table in database, so the ERD graphic shows how entities interact and depend to each other. The relationship lines represent the keys in one table that point to specific records in the tables related

ERD is also a network model that describes stored data of a system at a high level of abstraction. For system analysis, ERD has a major benefit: it highlights the relationship between data stores on UML which would otherwise only be seen in the specification process.
The components of an ERD include:

- Entity: represented in rectangle 
- Attribute: represented in ellipse 

- Relationship: represented in diamond 

An entity is a thing or “objects” in the real world that is distinguishable from other objects
Attributes are the characteristics of the entity displayed by fields or columns of a table.
Relationship shows connections among the system’s entities
There are 3 major types of relationship used in ERDs:

- One - one relationship
- One - many relationship
- Many - many relationship

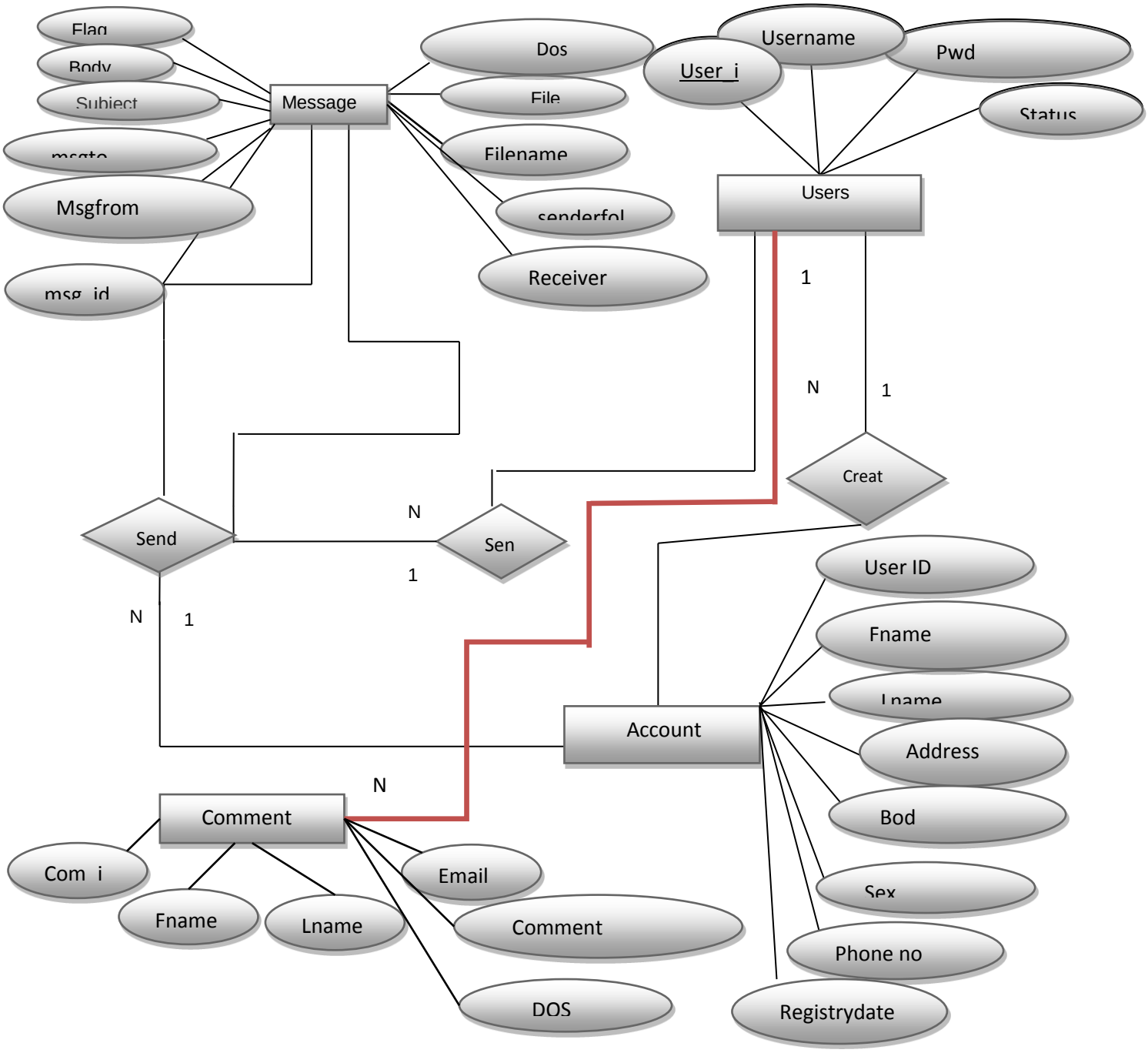


Figure5: conceptual data model

4.1.1 Database processing system

It is a database technology that has been developed to ensure the relationship of users, database application, Database Management System (DBMS), and database. Database processing program call the DBMS to access the stored data. The following figure shows the representation of a database processing System.

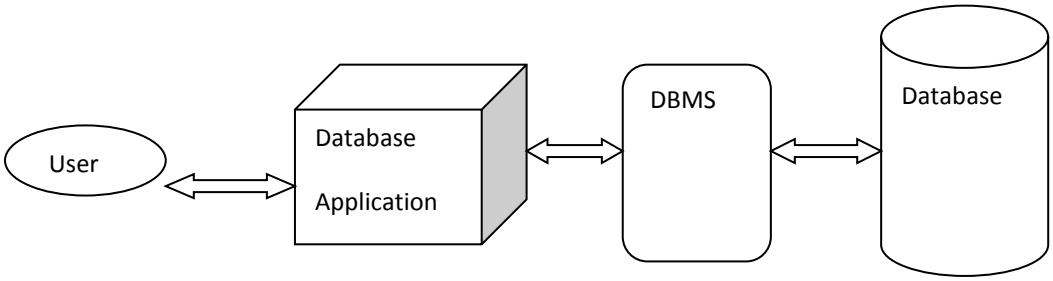


Figure6: database processing system

The fundamental purpose of database processing system is that the application programmers do not have to be concerned with the way in which data are physically stored.

Data structuring is refined through a process called normalization. Data are grouped in simple way possible so that later changes can be made with a minimum of impact on the data structure.

The following is listing of tables used in web based ESTG Intranet Mail Client system:

I. user

The information of user which is registered are stored in this table.

Field Names	Data types	Size	Description
USER_ID	Int	11	Id of user
USERNAME	Varchar	35	Name of user
PWD	Varchar	50	Password of user
STATUS	Bit	1	

Table1: user table

ii. Create account

This table contain record of user that create account

Field Names	Data types	Size	Description
USER_ID	Int	11	Id of user
FNAME	Varchar	30	Firs name of user
LNAME	Varchar	30	Last name of user
ADDRESS	Varchar	30	Address of user
BOD	Varchar	30	Date of birth
SEX	Varchar	30	Sex of user
PHONENO	Varchar	15	Phone number of user
REGISTRYDATE	Timestamp	-	Registration date

Table2: table of creating new account

iii. Message

Field Names	Data types	Size	Description
MSG_ID	Int	11	Id of message
MSGFROM	Varchar	30	Name of sender
SUBJECT	Varchar	30	Sender's email
BODY	Varchar	500	Object of the message
MSGTO	Text	255	Message to be sent
FLAG	Varchar	2	Sending date
DOS	Datetime		Date of sent
FILE	Varchar	255	Uploaded file
FILENAME	Varchar	255	Name of file
SENDERFOLDER	Enum('sent','draft','deleted')		Name of Sender folder
RECEIVERFOLDER	Enum('inbox','trash','deleted')		Name of receive folder

table3: message table

iv. Comment

Field Names	Data types	Size	Description
Com_id	Int	5	Id of commenter
First name	Varchar	30	First name of commenter
Last name	Varchar	30	Last name of commenter
Email	Varchar	30	Email of commenter
Comment	Varchar	500	Idea of commenter

Table4: comment table

v. Admin

Field Names	Data types	Size	Description
Ad_id	Int	5	Id of admin
Username	Varchar	60	Name of admin
Password	Varchar	60	Password of admin

Table5: admin table

4.1.2 Logical design

The logical design of a system pertains to an abstract representation of the data flows, inputs and outputs of the system. This is often conducted via modeling, which involves a simplistic (and sometimes graphical) representation of an actual system. In the context of systems design, modeling can undertake the following forms:

- Data flow diagrams,
- Entity relationship diagram.

4.2 Data Dictionary

Data dictionary describes the structure and attributes of data 'items' to be used within a software application (usually a database).

A data dictionary includes the names and descriptions of the tables and the fields contained in each table. It also documents information about the data type, field length and other things such as validation.

The main purpose of the data dictionary is to provide metadata, or information about data. Technically, it is a database about a database.

There is no one set standard in terms of layout or the level of detail to which a data dictionary should be written.

Software development teams need a comprehensive data dictionary to refer to during the development and maintenance of a new database. This is so that they are all working using the same data formats when reading or writing data.

3.2.1. User data dictionary

Field	Type	Collation	Attributes	Null	Default
USER_ID	int(11)			No	
USERNAME	varchar(35)	latin1_swedish_ci		No	
PWD	varchar(50)	latin1_swedish_ci		No	
STATUS	bit(1)			No	1

Table 6: user

4.2.2. Create Account data dictionary

Field	Type	Collation	Attributes	Null	Default
USER_ID	int(11)			No	
FNAME	varchar(30)	latin1_swedish_ci		No	
LNAME	varchar(30)	latin1_swedish_ci		No	
ADDRESS	varchar(30)	latin1_swedish_ci		Yes	*NULL*
BOD	varchar(30)	latin1_swedish_ci		No	
SEX	varchar(30)	latin1_swedish_ci		No	
PHONENO	varchar(15)	latin1_swedish_ci		Yes	*NULL*
REGISTRYDATE	timestamp			No	CURRENT_TIMESTAMP

Table 7: create new account

4.2.3. Message Data Dictionary

	Field	Type	Collation	Attributes	Null	Default
☐	MSG_ID	int(11)			No	
☑	MSGFROM	varchar(30)	latin1_swedish_ci		No	
☐	SUBJECT	varchar(30)	latin1_swedish_ci		Yes	*NULL*
☐	BODY	varchar(500)	latin1_swedish_ci		No	
☐	MSGTO	varchar(255)	latin1_swedish_ci		Yes	*NULL*
☐	FLAG	varchar(2)	latin1_swedish_ci		No	11
☐	DOS	datetime			No	
☐	FILE	varchar(255)	latin1_swedish_ci		No	
☐	FILENAME	varchar(255)	latin1_swedish_ci		No	
☐	SENDERFOLDER	enum('Sent', 'Draft', 'Deleted')	latin1_swedish_ci		No	
☐	RECEIVERFOLDER	enum('Inbox', 'Trash', 'Deleted')	latin1_swedish_ci		No	

Table 8: Message

4.2.4. Comment data dictionary

Field	Type	Collation	Attributes	Null	Default	Extra
Com_id	int(5)			No		auto_increment
Firstname	varchar(30)	latin1_swedish_ci		Yes	*NULL*	
Lastname	varchar(30)	latin1_swedish_ci		Yes	*NULL*	
email	varchar(30)	latin1_swedish_ci		Yes	*NULL*	
comment	varchar(500)	latin1_swedish_ci		Yes	*NULL*	

Table 9: Comment

4.2.5. Admin data dictionary

Field	Type	Collation	Attributes	Null	Default	Extra
Ad_id	int(5)			No		auto_increment
Username	varchar(60)	latin1_swedish_ci		Yes	*NULL*	
Password	varchar(60)	latin1_swedish_ci		Yes	*NULL*	

Table 10: Admin

4.3. Architecture design

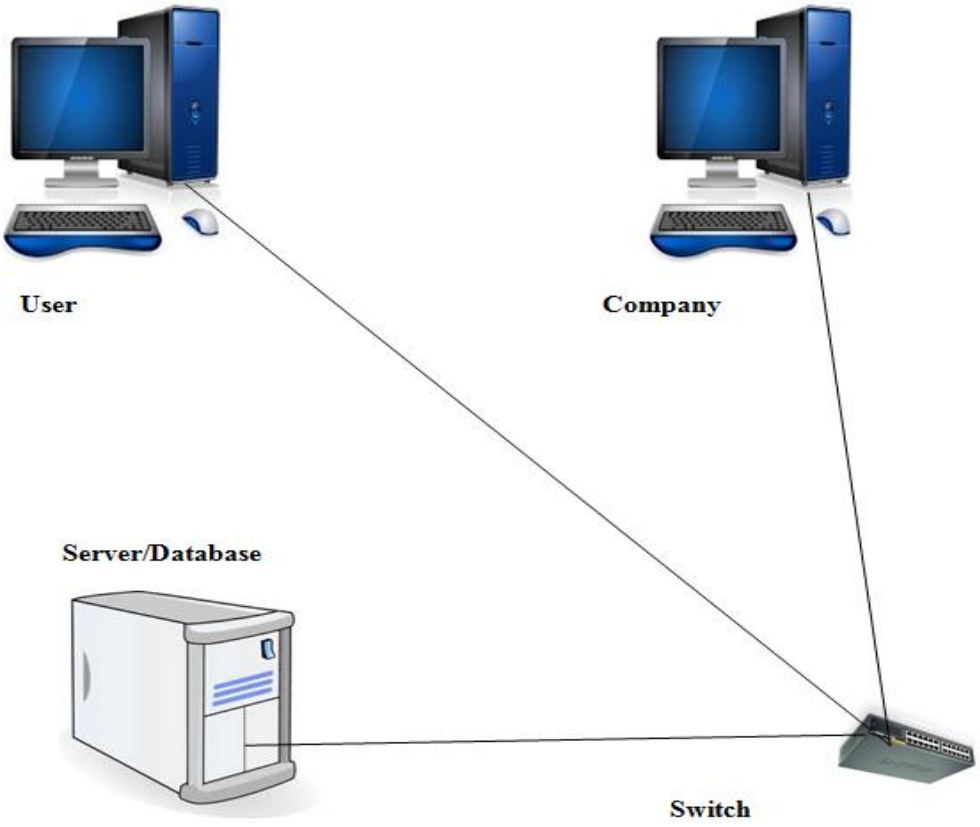


Figure7 :Architecture design

EXPLANATION

Architecture is the bigger picture: the choice of frameworks, languages, scope, goals and high-level methodologies (Rational, waterfall, agile, etc)

Design is smaller picture: the plan for how code will be organized; how the contracts between different parts of the system will look; the ongoing implementation of the projects methodologies and goals. Specification is written during this stage.

This architecture design contain different equipments like router for connecting internal network to the internet, switch for connecting different computers and serves (LAN) and servers. There are two servers, web server which will provide web services and database server which will store database.

4.4. REQUIREMENTS SPECIFICATIONS

Project Requirements

Hardware Requirements		
Processor	***RAM***	***Disk Space***
Pentium II, Pentium III, Pentium IV or higher	64 Mb or Higher	130 Mb
Software Requirements		
Operating System	***Database***	
Win-98, Win-XP, Linux or any other higher version	Mysql database	

Figure8: Project Requirements

4.5. User Characteristics

Every user should be:

- Comfortable of working with computer.
- He must have knowledge in information communication and technology Field.
- He must also have basic knowledge of English too.

4.6. Constraints

- GUI is only in English.
- Login and password is used for identification of user and there is no facility for guest.

4.7. INTRANET ORGANISATION

An intranet Organization is used to show system's functions that will be constructed and the implementation process of data diagram.

Moreover, intranet organization will also be used to determine the appearance frequency of smaller process in the data flow chart.

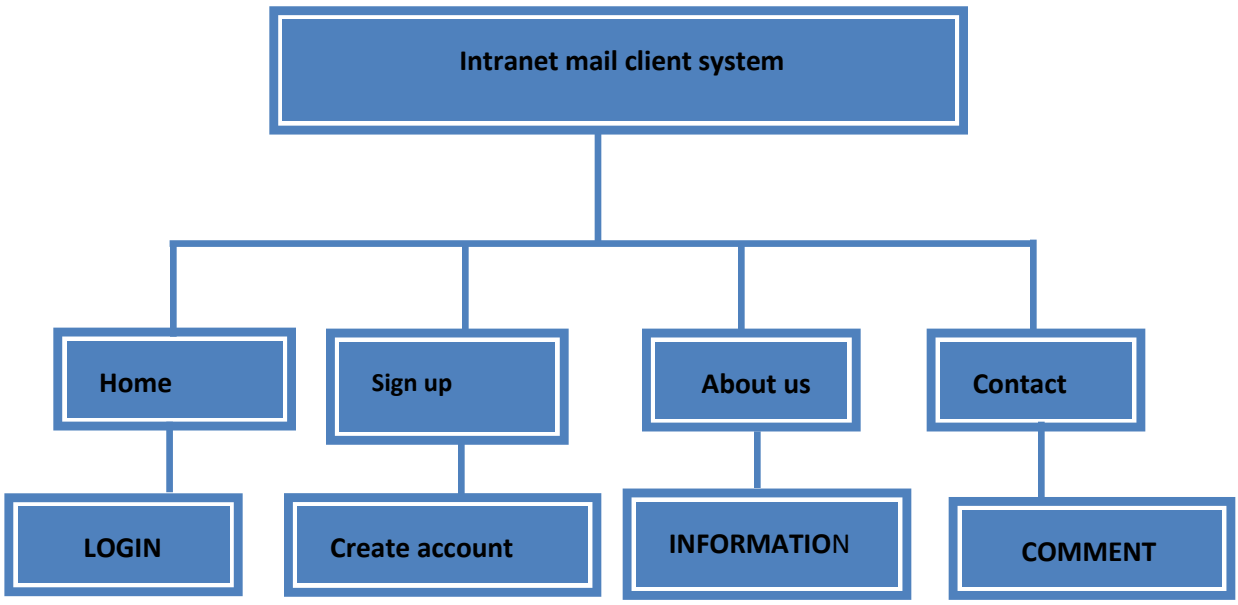


Figure9: intranet organization

4.8. Description of tools is used

This application was developed using PHP, MYSQL, CSS, HTML and Java script

PHP

PHP (recursive acronym for "Hypertext Preprocessor") is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into HTML.

PHP is one of the most popular server-side scripting languages.

MYSQL

MySQL is an SQL (Structured Query Language) based relational database management system (DBMS)

MySQL is compatible with standard SQL

MySQL is frequently used by PHP and Perl

Commercial version of MySQL is also provided (including technical support)

CSS

CSS stands for (Cascading Style Sheets) is a language which gives style to Web pages.

Style Sheets is whole technologies which give style to any documents.

We can use CSS with HTML.

HTML: Which define the structure of information and meaning of each element.

CSS: Which give how to decorate this information?

HTML

Hypertext Markup Language (HTML) is responsible for telling a Web browser (e.g., Microsoft Internet Explorer, Mozilla Firefox, Opera, Mac Safari, Google Chrome, and so on) how text and other objects in a Web document should appear. Whether the text should be small, large, bold, underlined, or right or left justified is largely determined by the HTML embedded in a Web page.

4.9. SCREEN VIEWS

4.9.1. Login Form Description

Application User Interface

This is the home page of estg intranet mail client system where user can login in system.

Figur10. Login Page

The user will fill the username and password and then click login. In order to access this page, you must login first with a registered username and password. Otherwise you will not be allowed to send and receive messages.

After entering username and password you will see a message that tells you that you are" existing user" (if you don't create an account directly) but if it is a new user you will see the message that you are" new user".

Figure 11: user page

4.9.2 CREATE NEW ACCOUNT

This is where user can create a new account with filling the fields required

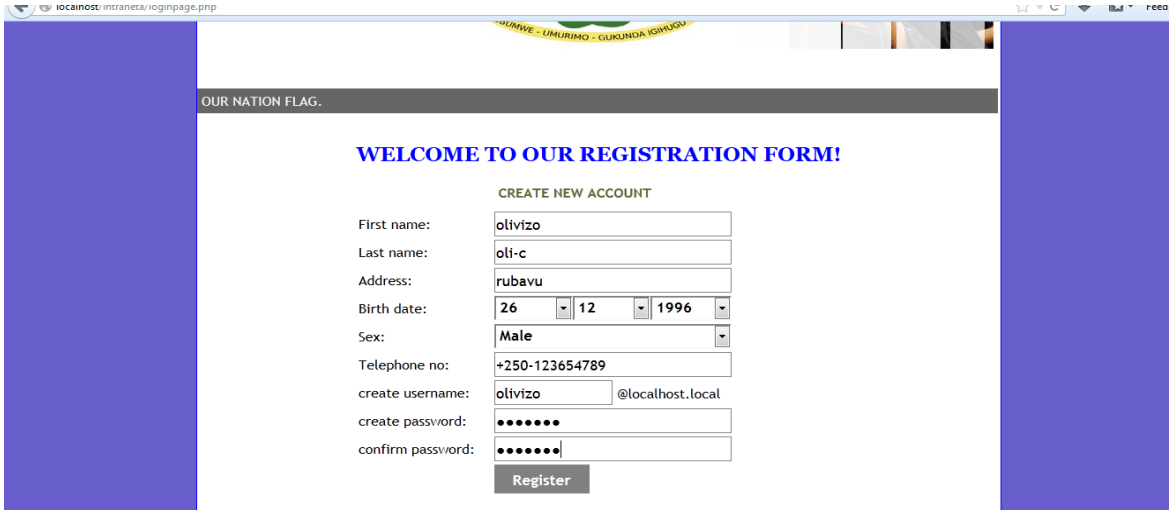


Figure12: create account

The registered user will click New account and fill by entering first name then fill the last name , fulfill the address, select your date of birth, select sex and write your phone number, your phone number must be nine after +250 as code for Rwanda, fill your username that you will use to communicate with others, fill password you will use and your password must not be less than eight and confirm your password by reenter the password you have entered and then click on register.

4.9.3 ABOUT US

This page display information about

Figure 13: about us

4.9.4 CONTACT US

This page allows the entire user to comment on system even if the user does not have an account or have.

Figure14: contact us

4.9.4 COMPOSE EMAIL MESSAGE

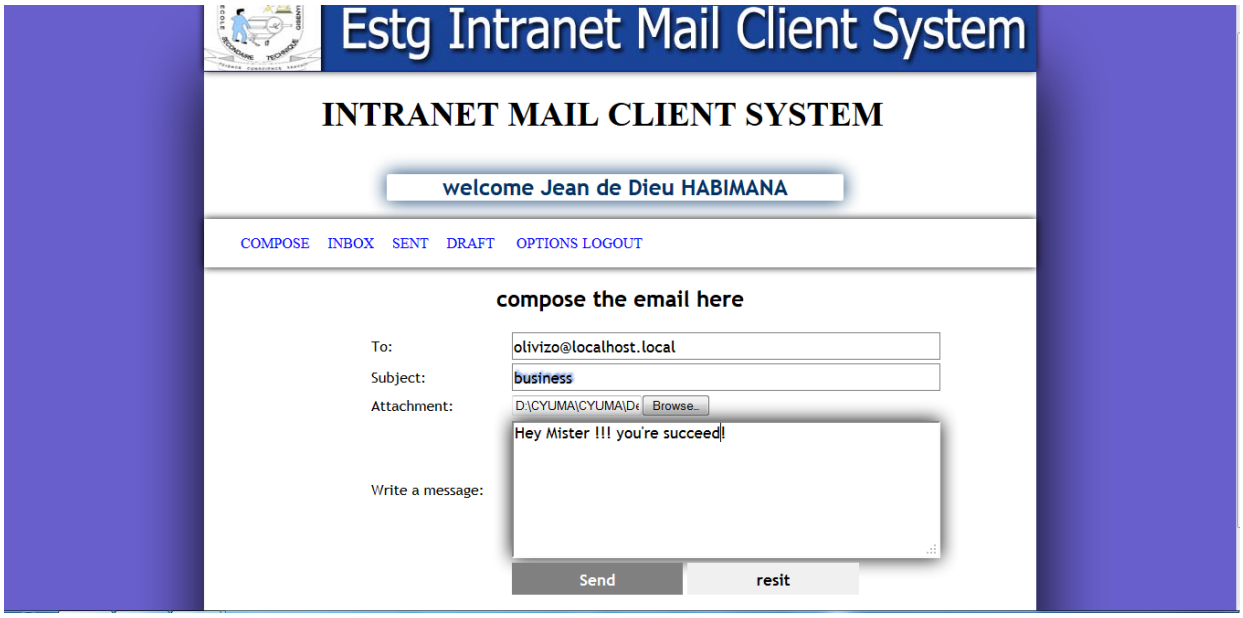
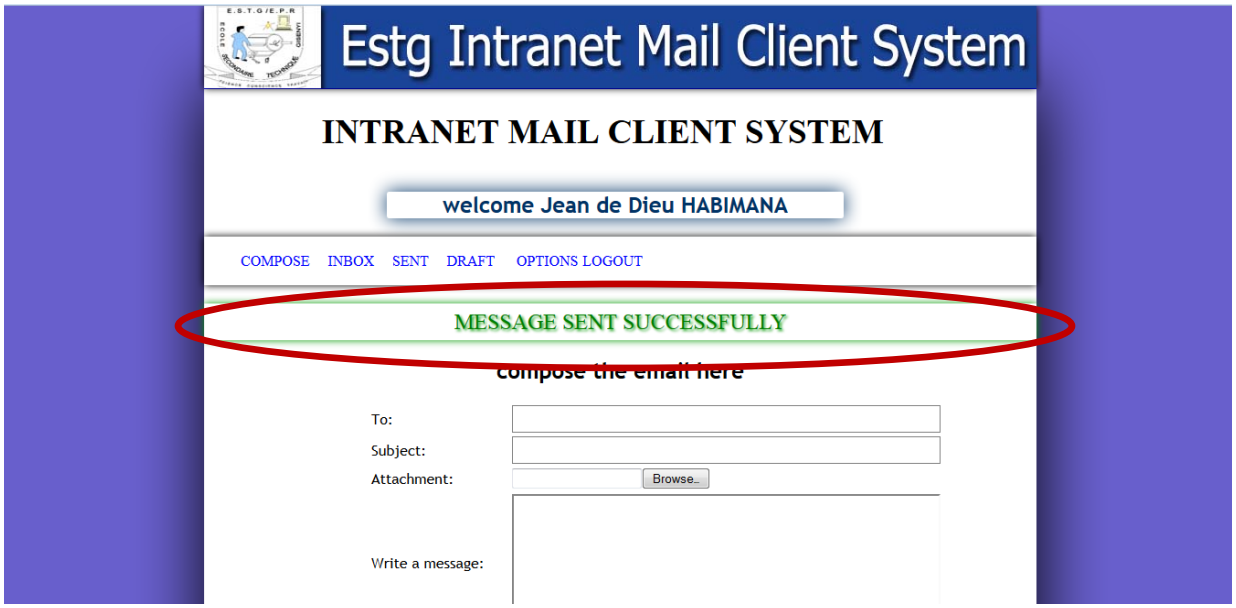


Figure15: compose a message

The User will fill all fields and on attachment you will browse in order to find whatever you want to attach. After click Send to send your message. If message sent you will see a message like below.



4.9.5 Inbox

Figure 16: inbox

When you want to see the received messages, you will click on inbox and you will see an interface like above, a new received message is shown in green white color with underline message subject from and date .you may delete it, forward and even reply, by clicking on that message.

4.9.6 SENT

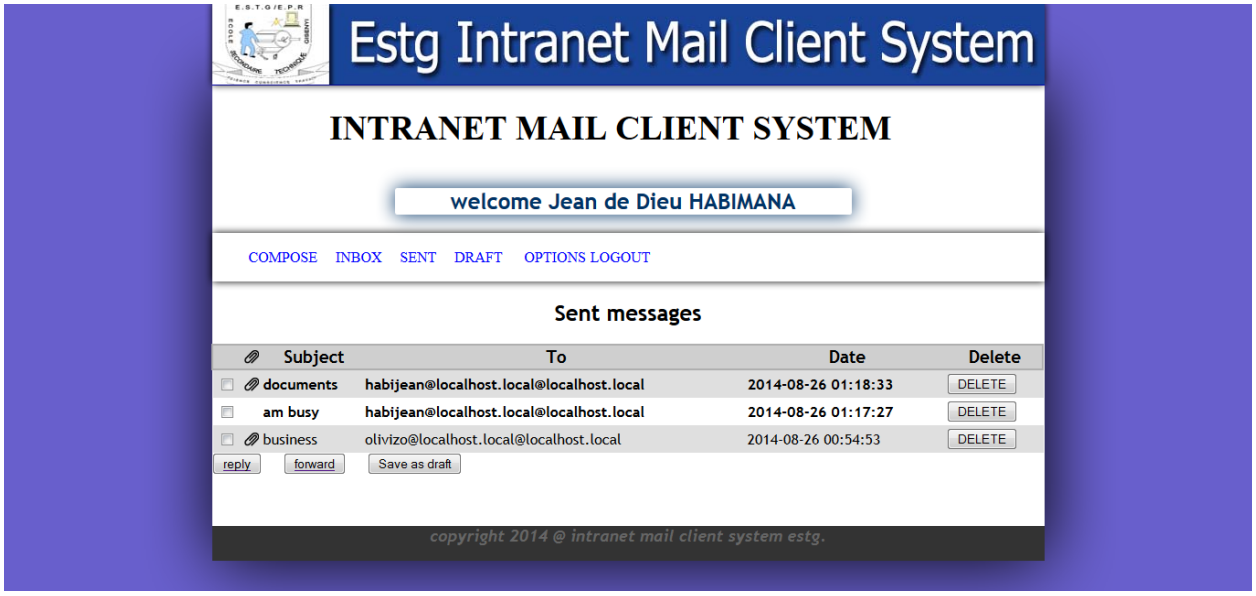


Figure 17: sent message

When you want to see the sent messages, you will click on sent and you will see an interface like above, and you may delete it, forward and even reply, by clicking on that message.

4.9.7 ADMIN

Here an admin has an important of managing the system comment

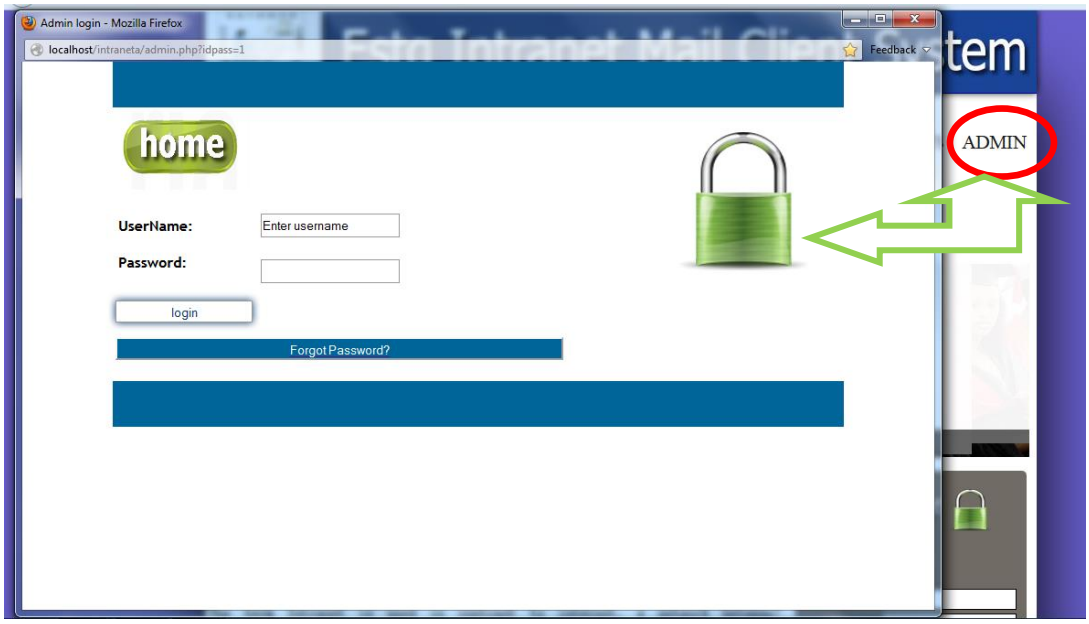


Figure 18.admin

Here an admin has right to delete or update comment if it necessary

CHAPTER FIVE: CONCLUSION AND RECOMMANDATION.

5.1. Conclusion

As conclusion, the use of Information Technology in different management and other operations is very important in the increment of the performance and usability.

ICT can be used as a tool of communication if all other companies have an intranet system which will be useful and very important to it.

5.2. Recommendation

To WDA

- To include a courses of Research and Projects management in the courses learnt in senior six to allow students to be able to prepare projects them self.
- To provide a training to teachers so that they can help us in different project activities.

To ESTG

- To continue the training they provide to students in technical options
- To prepare students for the action of project implementation since the first term.
- To increase the knowledge for the supervisor

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