MAASAI MARA UNIVERSITY

A Project on:

CHAMA ONLINE MANAGEMENT SYSTEM

(COMS)

Submitted to

MAASAI MARA UNIVERSITY

Bachelor of Computer Science

For the partial Fulfillment of the requirement for the degree of Computer science.

Submitted by

Name: KOSKEY AMOS

ADMNO: BS02/1003/2012

Supervised By

MR. ABRAHAM MATHEKA

16th May 2016

DECLARATION

I declare that this project is my original work and has never been submitted for the award of Bachelor of Science in Computer science degree or any other Certificate in any institution of higher learning or any institution approved by the Ministry of Education, Science and Technology.

KIPROTICH AMOS

Sign: …….. **Date: _____/____/2016.**

This project has been submitted for the examination and as per the requirement of computer science project 2 course with the Approval of my Supervisor.

MR .Abraham Mutua

Sign…….. **Date: ____/_____/2016.**

Dedication

To my beloved Father John Sambu, My Mother Ann Sambu, My Brother Davis and Kenneth Koskey ,My cousin Mercy , and finally to Mr.Mutua Abraham, my lecturer, advisor and supervisor for their Big support through My Entire studies

Acknowledgement

Without any help, I would have not engineered the production of the Chama Online Management System (COMS) alone. Thanks to God for the gift of life and good health.

To all lecturers from the Department of Computer Science, who have tirelessly imparted knowledge in me, I pass my regards to you. I am grateful to Dr. Esther Imbamba and Mr. Ope Justus for your immeasurable knowledge on Software engineering you have armed me with, which enabled me to develop my software through an engineering approach. Thanks to Mr. Mutua Abraham and Mr.Noseli Lemayian Moses for your programming knowledge your imparted in me.

To Mr. Mutua Abraham for your acceptance and commitment to supervise my project, your advices and corrections contributed a big deal to the success of this project, thank you sir.

To my colleagues who we invariably shared a lot as far as programming in PHP is concerned. The knowledge I got from them enabled me to implement the software.

To the workers of in the office of Joyful women organisation (Joywo) , for their cooperation during requirements Elicitation. Finally, I would like to appreciate anyone who by either direct or indirect means contributed to the success of my project.

To my parents who provided me with the required facilities and finances that accomplish my project. Not forgetting their constant enweaving prayers.

ABSTRACT

Over the weekend while chatting way forward with friends, on how we could invest or venture into business, someone mentioned something about the *table banking* concept. Interestingly I realized from the conversation, most of us didn't understand it at all. I mean, what is it anyway? How does It work? How is it different from the chama (informal saving and investments groups) concept we know so well here in Kenya?

I remember for example some of my friends in Campus who had Chama's for raving. They used to put money together and used part of it for the night. This helped them save and control their expenditure. They usually went out as a group and at the end of the semester they would divide the savings plus the interest earned from loaning. (*Remember that these were the days when most of us were broke university and college students*).According to Growth hub article Chama Pesa-The Social Savings System: Quick Fact Sheet, Kenya has approximately 1.2 million Chama's, the registered ones are 300,000 and an estimated 900,000 unregistered Chama's. Registered Chama's are known to manage about $4 billion per year in member savings, an average of $11,000 per Chama. 12 million Kenyans (33%) are members of Chama's and many are members of more than one Chama simultaneously. Milele alliance, Mapato Groupand Awesome group are examples of successful Chamas which have wealth and influence in Kenya.

Joyful Women Organization ,an NGO providing financial resources to women to engage in livelihood projects through table banking concept, started in 2009 with a handful of groups. The program has now grown to 431 groups and 10,000 women who have accumulated a total of over 100,000,000 Kenyan shillings or over $1 million which they put to work in a wide variety of income generating projects. Salonist and Mpesa shop owner, is a good example as one beneficiary of table banking .She started off with a small salon, from the loan she had taken from the group. She managed to pay back in four months then opted to take a much bigger amount so as to venture into *boda boda* business by buying one motorbike. Right now she owns three motorcycles and a taxi, which all of them gives her an average of 4,000 kshs per day. Her success and financial stability is as a result of the group she joined 4 years ago, which has helped her family build a house and educate children.

Table of Contents

CHAPTER ONE

1.0 INTRODUCTION.

1.1 BACKGTOUND OF THE STUDY.

Over the weekend while chatting way forward with friends, on how we could invest or venture into business, someone mentioned something about the *table banking* concept. Interestingly I realized from the conversation, most of us didn't understand it at all. I mean, what is it anyway? How does It work? How is it different from the chama (informal saving and investments groups) concept we know so well here in Kenya?

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Her success and financial stability is as a result of the group she joined 4 years ago, which has helped her family build a house and educate children.

1.2 PROBLEM STATEMENT.

The problem of registering, taking and storing details for members contribution as affected both members and the management of Joywo organization in keeping track of how members place their saving's, loan repayment and borrowing. These details include member's personal information, member's savings', loan repayment and loan borrowings'.

Members will open a group account which comprise of 15-20 members and enter there details.

The drawback of the existing system is that:

i. Is very hard to retrieve data from files in the cabinet, do analysis and give unbiased report.
ii. Less accurate to keep record in files for future reference due to human error and can be destroyed by a personnel in order to hide evidence for a suspicious
iii. Data redundancy may occur and this may lead to inconsistency within the data.
iv. Manual system is time consuming as the process of registering, retrieving and updating record takes long and tiresome. Manual systems involve paperwork which is hard to maintain or even backup.

1.3 OBJECTIVES.

The proposed system should be able to effectively maintain the details about the group members and their savings as well as borrowed loan.

The proposed system should be able to provide friendly, simple and fast interactive environment for users to optimize data entry and retrieval.

The proposed system should be able to enhance security of data through use of user-name and password for logging in which allow only specific personnel the privilege to manipulate data in the database.

The proposed system should minimize storage space and data redundancy since data will conceptually and logically organized in the database.

1.4 SCOPE

The scope for this project is to keep records of every group and its members. The testing for this project will be done on a smaller group of members.

1.5 JUSTIFICATION.

The Need to implement "chama" online management system management

The proposed system will be hosted online to enable people to create groups, add members and contribute their savings'. Group members will be registered online and all the activities going on, transaction statements, members details and members monthly contribution will be saved and accessed by every member in the group to ensure transparency.

Figure 1.0 : Traditional file system

CHAPTER TWO

2.0 LITERATURE REVIEW

The WEB-based applications simplify various human day-to-day activities simply because everyone can easily access the internet at any time anywhere.

I. Village saving associations get mobile money product
The voice of Africa's ICT sector

Airtel Uganda, Grameen Foundation and plan Uganda have launched a new group savings solution to serve savings groups across Uganda. The service that will allow Village Savings and loan Associations (VLSAs) and other forms of savings groups, such as Chamas or investment clubs, to store their group's cash as mobile money. This was made possible by a grant received from the GSMA women programme , which works with the mobile industry to increase women's access to and use of mobiles. Plan Uganda has over the years supported the formation of, Village Savings and Loan Associations (VLSAs) leading the formation of close to 3000 savings groups with the aim of improving financial inclusion. To date, these groups are using manual systems of transaction and record keeping. This new service will be rolled out across the country. The 2013 Fin scope survey on financial services needs and uses revealed that two-thirds adults in Uganda save money through informal groups. While some institutions have offered savings accounts to groups to provide a safe place to store cash and earn interest, most groups still face the challenge of distance, as few bank branches are located in rural communities where groups meet. Members carrying large sums long distance face the risk of theft and must account for the additional cost of transportation. History, and installments' can be paid from the group wallet. Savings groups are an especially important alternative for the vast number of women who are unlikely to be served by brick-and-mortar financial institutions due to the lack of a savings culture. With all the successes and benefits of savings groups and mobile phone technology, combining the two creates the potential to improve each. A mobile phone has ceased to be merely a communication device. Instead, it has rapidly evolved into a safe and secure money transfer tool. It is also increasingly being used to conduct more complex transactions like settling utility and expense bills. "Plan Uganda is currently supporting 400 youth led saving groups with funding from Swedish Development Agency, under a project known as A Working Future. This project has Village Savings and Loan Associations as the entry point. The new innovation of group mobile product will digitalize the transactions of the VSLAs, enhance possible linkages with formal financial institutions that can lead to employment creation." Mr. Abebe Fikru; Country Director; Plan Uganda said. Commenting on this group savings innovation, Grameen Foundation's Director of Mobile Financial Services Lisa Kienzle said "Grameen Foundation is proud to partner with one of the leading mobile network operators in Uganda, Airtel, to develop this service, which has been specifically designed to help rural savings groups overcome the challenges associated with physical cash storage and transportation. This new product helps groups store funds safely and combat the risks associated with carrying cash." Savings groups are structured to

prevent just one person from having access to group funds. These groups store money in a box protected by three locks. The group's treasurer keeps the box and there are three additional key holders. These four individuals only come together with the box and keys during group meetings and group funds can only be access during those times. The mobile product has been designed to replicate this system. The group wallet involves one individual who holds the group SIM, and three additional mobile users and PIN holders who are like the key holders. These three people will be notified when the SIM-keeper initiates a cash-in or cash-out transaction. The SIM Keeper can request a transaction, but all three must approve it before cash can be withdrawn. These individuals will receive a text message with an identification number indicating they need to approve the transaction before any money is moved

CHAPTER THREE

3.0 METHODOLOGY.

In developing the system there is need to determine ways and procedures to go through. These procedures occur step by step thereby allowing the developers measure their progress in developing the system. This is to ensure that the most optimal system is delivered timely. It therefore requires the developing team to seek different approaches so as to meet the system requirements and measure their progress by setting deliverables for every stage.
(Ian, 2004)

3.1 Life Cycle Models

There are various software life cycle models that can be used to complete this software namely:

- Evolutionary Model
- Spiral model
- Reuse Oriented Model
- Waterfall model
- Incremental Model

Recommended Solution Strategy

Waterfall Model
The most recommended solution strategy is the waterfall model. It is the best strategy because of the following reasons:

- When this model is used the software is well engineered.
- It ensures that each and every activity is carried out to completeness before moving to the next stage.
- Using this model it is easy to detect errors early long before the software project is almost completed. Hence reducing costs that may have been used to debug or correct the error after the system has been developed.
- It is the most recommended method for student projects. (Ian S. , 2003)

This model segments the life cycle into a series of successive activities. Each activity results in a well defined product. It is also referred to as linear sequential model, phased life cycle model or classic life cycle model.

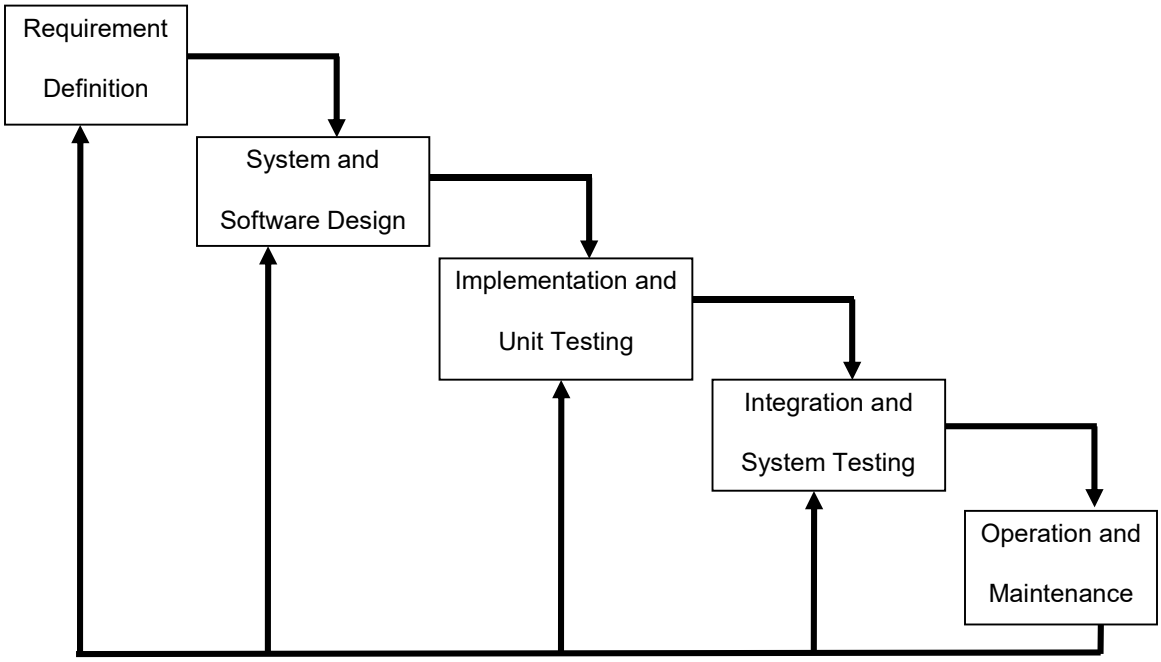


FIGURE 1.1: WATERFALL MODEL

The principal stages of the model map onto fundamental development activities:

a. ***Requirements analysis and definition-*** The system's services, constraints and goals are established by consultation with system users. They are then defined in detail and serve as a system specification.

b. ***System and software design-*** The systems design process partitions the requirements to either hardware or software systems. It establishes overall system architecture. Software design involves identifying and describing the fundamental software system abstractions and their relationships.

c. ***Implementation and unit testing-*** During this stage, the software design is realized as a set of programs or program units. Unit testing involves verifying that each unit meets its specification.

d. ***Integration and system testing-*** The individual program units or programs are integrated and tested as a complete system to ensure that the software requirements have been met. After testing, the software system is delivered to the customer.

e. ***Operation and maintenance-*** Normally (although not necessarily) this is the longest life-cycle phase. The system is installed and put into practical use. Maintenance involves correcting

errors which were not discovered in earlier stages of the life cycle, improving the implementation of system units and enhancing the system's services as new requirements are discovered.

3.2 Requirements

Definition

This step involves gathering of requirements, studying the requirements to establish their feasibility and then specify them.

This is done through the use of various stages of software requirements engineering.

Stages:

- Requirements investigation/elicitation
- Feasibility study

3.2.1 Requirements Investigation/Elicitation

a. Requirements elicitation

In this stage, Information is gathered from the multiple stakeholders identified. The Requirements

Analyst draws out from each of these groups what their requirements from the application are and what they expect the application to accomplish.

Considering the multiple stakeholders involved, the list of requirements gathered in this manner could run into pages. (Daniel A and Yeates, 1992)

The level of detail of the requirements list is based on the number and size of user groups, the degree of complexity of business processes and the size of the application.

The information used to understand the problem and to help in finding a solution to the current crisis was from:

- Narok Registrar Births staff/office.
- Applicants
- *Internet*

3.3 Tools used in Requirements Elicitation

Techniques used include:

- Interviews
- Questionnaires
- Observation
- Use cases

The following methods were used to obtain information about the system:

I. *Observation:*

i. The system should cater for ultimate security
ii. The software should be flexible.
iii. Applicants need to register.
iv. Child birth must be registered before application of birth certificate.
v. The system ought to be effective.
vi. A child should only be registered only once to reduce redundant records.
vii. The system should allow changes of child particulars if need be.

II. *Interview:*

Office of Registra of Births were interviewed to obtain the characteristics of the System:

i. Should be able to detect errors.
ii. Should be accessible to applicants.
iii. Should be able to generate birth certificate on request- real time processing.
iv. Should be fast.
v. Should provide for authentication.
vi. Admin should have the upper hand in controlling the site like update or altering information that have been requested. Deleting information if necessary and producing and verifying documents.

Applicants were key people to be considered in this process

vii. Should guide and direct.
viii. Should be able to change application details whenever they want before submission.
ix. Should assure quality service.
x. Should be transparent enough.
xi. System should always be accurate.
xii. 3.5 Schedule.

4.0 SYSTEM ANALYSIS AND REQUIREMENT MODELING

4.1 Introduction

The process of system analysis involves collection of all the necessary information about the elements of the current system of an organization in this case (Joyful Women Organisation (JOYWO) application system). The development of a computer based application is intended to automate the activities within a particular existing manual system. This enhances efficient operations within the system. In order to meet the needs of a particular system, it is important to understand the roles played by each element existing within the system of that particular organization.

4.2 Aim

- To find out the types of elements that exists within the system of the organization (Joyful Women Organisation (JOYWO) Office's).
- To record and analyses finding on the roles and characteristics of each element.
- Find out how the current system is running
- To document and understand the findings.

4.3 HOW CURRENT GROUP SAVINGS ARE DONE.

Note that there is a registration fee of 200 and 50 sh for the printed forms

Table banking is a group based funding strategy in which members save and borrow immediately. It is a concept which has been in existence for some time and is being practiced in many parts of the world. It caters for small business people who require credit to finance their income generating activities but are neither able to access credit from formal banks nor from most micro- finance institutions due to long distances, high charges and interest rates and Conditionalities which they cannot meet (ROK, 2009). On a given date in a month members place their savings and loan repayments on the table and immediately borrow all the monies placed on the table except a small percentage for administration hence "table banking'. Savings include monthly contributions for insurance and education, various penalty fines, membership fees and other micro funds. Initial capital comes from the members. However, the managing institution provides further funding, also known as Table Top-Ups, to boost the capital and pay for social mobilization and administration services in the early stages (ROK, 2009).

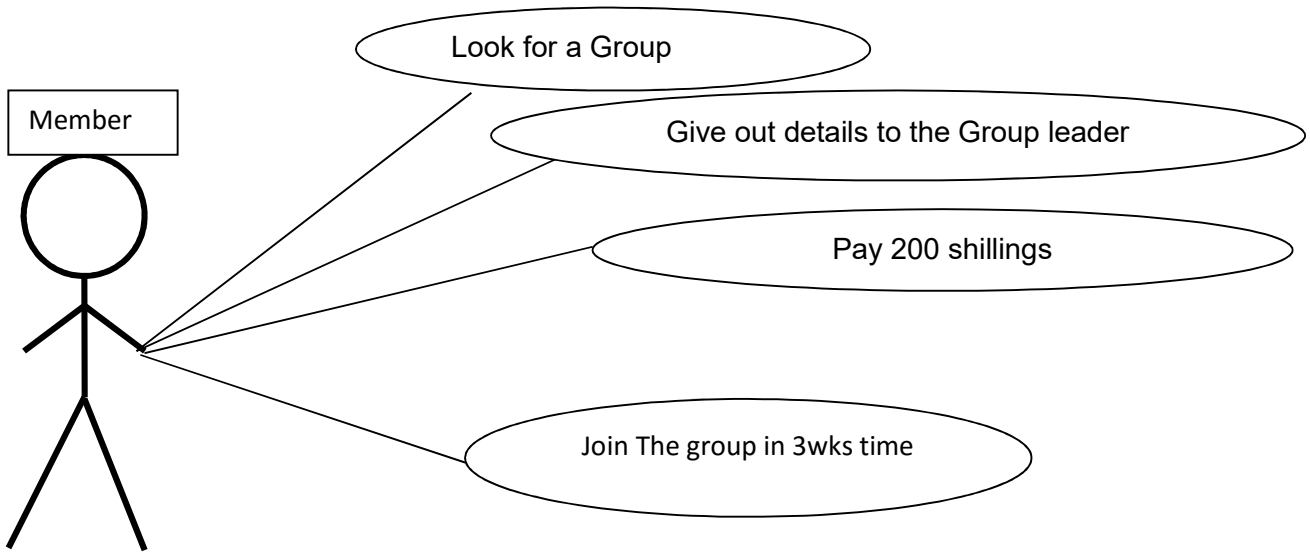


FIGURE 1.2: APPLICANTS USE CASE IN CURRENT APPLICATION SYSTEM

5.0 SYSTEM DESIGN

5.1Introduction

In this document, the conceiving, planning out and specification of both internal and external characteristics of the software is indicated. This design document describes a system that will satisfy the requirements of the SRS. Decisions made in creating this design document are based on those requirements and an understanding of available technologies and components. Once the design has been drafted, work on the system implementation and unit testing may begin. It is divided into two namely:

- Internal design: involves both architectural and detailed design. These are the systems internal characteristics.
- External design: involves the externally observable characteristics of a software product.

5.2Design Goals

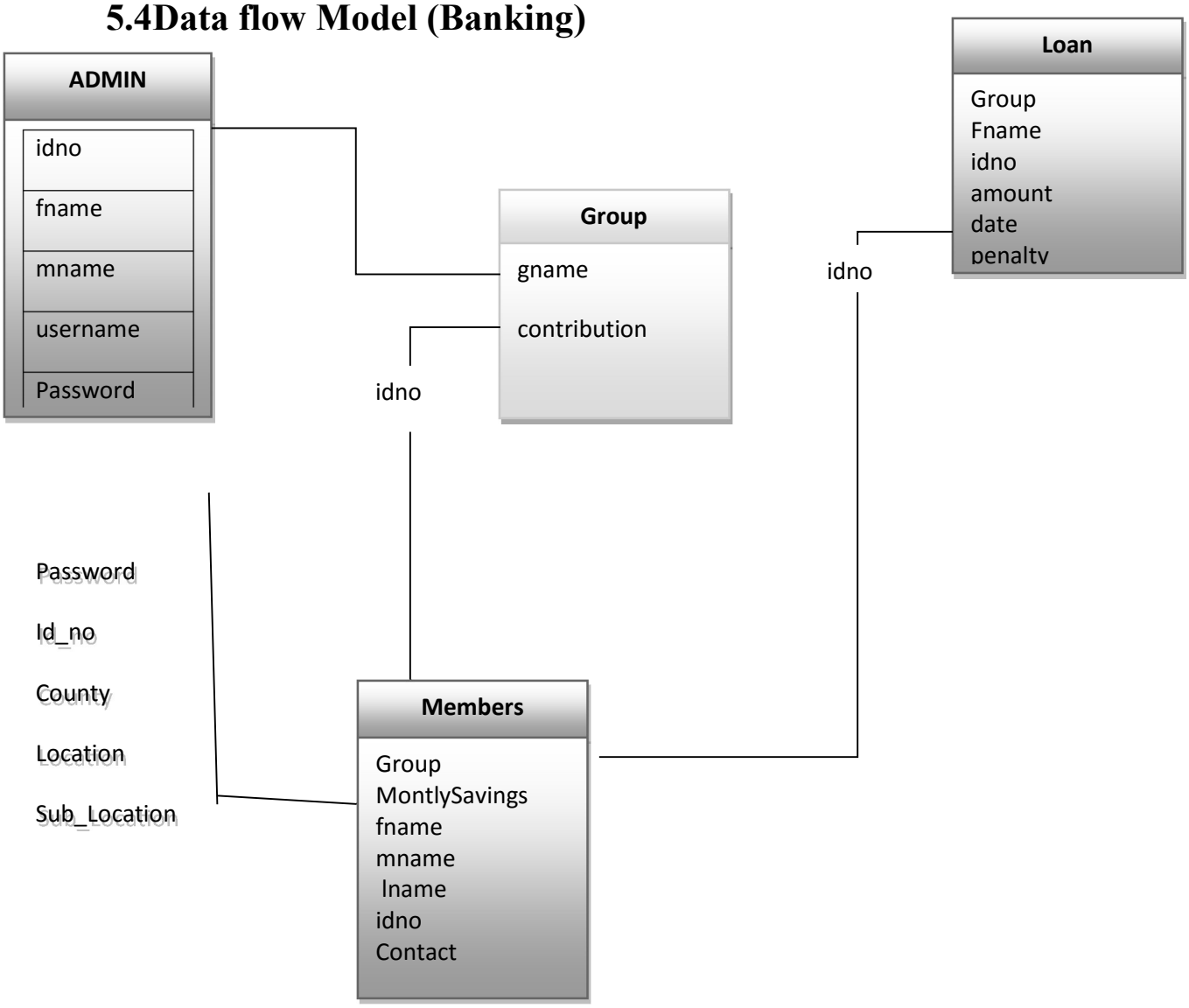
- Correctness
- Feasibility
- Understandability
- Implementation phase guidance
- Modularity
- Extensibility
- Testability
- Efficiency

5.3Data design

This section transforms the information domain model created in the software requirement analysis into a data structure. The data dictionary forms the basis of this. The database to be employed by the system is MySQL server database. And To be linked using php.

The basis for data design is from data dictionary and data object and the Entity Relation Diagram.

5.4Data flow Model (Banking)



5.5Data Dictionary

FIGURE 1.4

User_Login(TABLE)

Field	Type	Null	Default	Extra
username	varchar(40)	No		Unique
password	varchar(40)	No		

Member (TABLE)

Field	Type	Null	Default	Extra
first_name	varchar(40)	No		
Last_name	varchar(40)	No		**Auto_increment**
UserName	varchar(40)	No		
password	varchar(40)	No		
idno	varchar(40)	No		
county	varchar(40)	No		
gender	varchar(40)	No		
dateofbirth	varchar(40)	No		

Group(TABLE)

Field	Type	Null	Default	Extra
groupname	varchar(20)	No		
contribution	varchar(20)	No		

County (TABLE)

Field	Type	Null	Default	Extra
id	varchar(20)	No		
county	varchar(20)	No		

Loan

Field	Type	Null	Default	Extra
groupname	**varchar(40)**	**No**		
fname	**varchar(40)**	**No**		
date	**varchar(40)**	**No**		
amount	**varchar(40)**	**No**		
Periodofrepay	**varchar(40)**	**No**		
penalty	**varchar(40)**	**No**		

5.6 Architectural Design

The architectural design is the preliminary blueprint from which software is constructed. Software architecture of a program or computing system is the structure of the system, which comprises software components, the externally visible properties of those components and the relationship among them.

The architectural design designs the relationship between the structural elements of the software e.g., how the subsystems interact with each other. This section describes the hierarchical structure of the program components, the manner in which the components interact and the structure of data that are used by the components.

Reasons why architecture is important:

i. To enable communication of representation.
ii. To communicate early design decisions.
iii. Architecture constitutes a relatively small intellectually graspable model of how the system is structured and how its components work together.

The basis of this is the DFDs

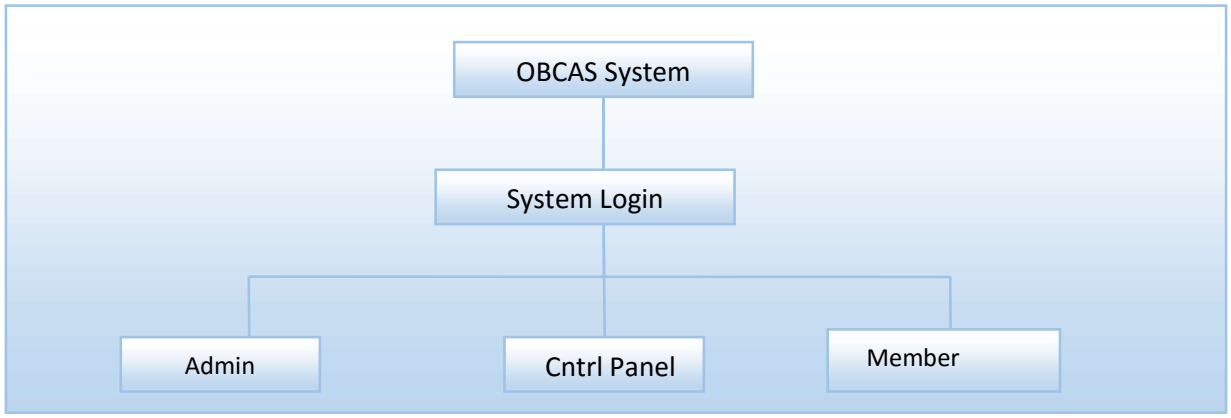


FIGURE 1.5

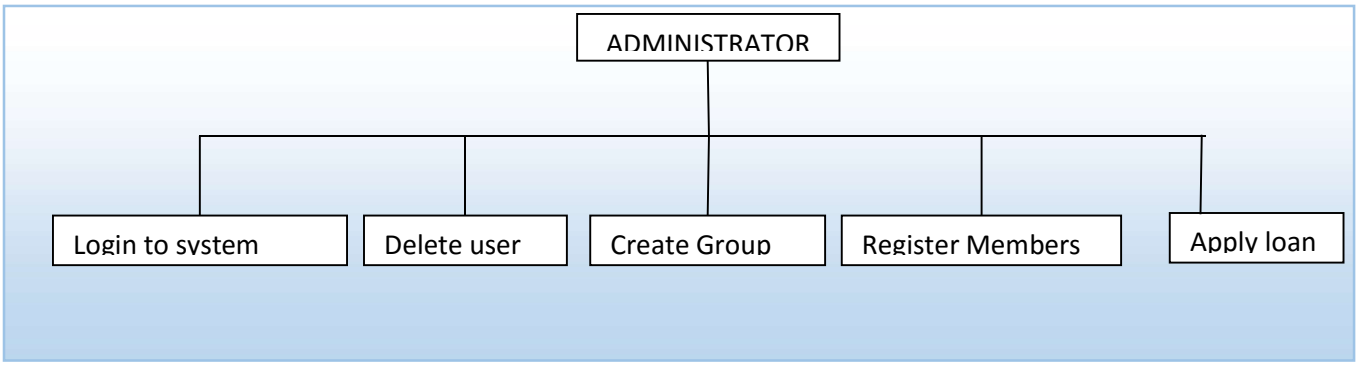


FIGURE 1.6

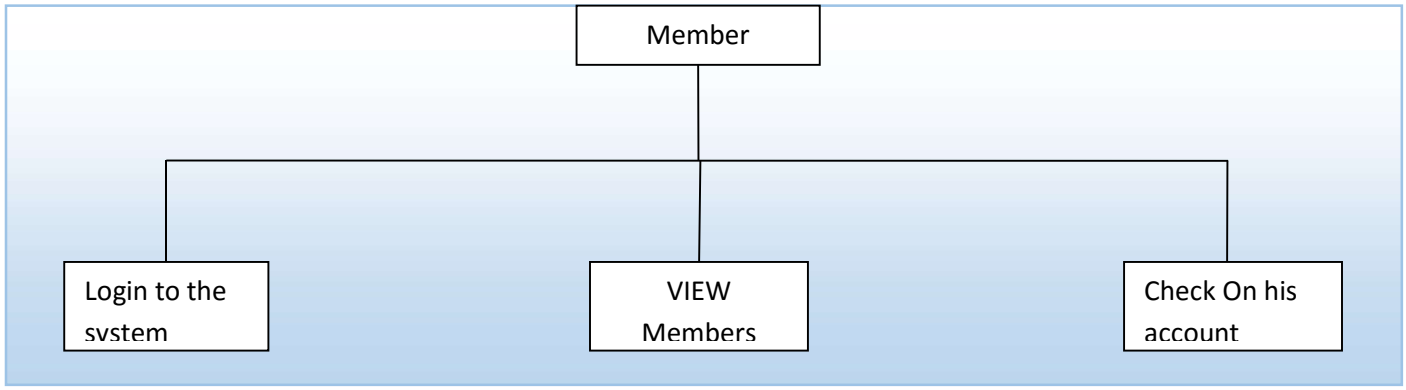


FIGURE 1.7

5.6 Requirements Elicitation tools used included:

- Use cases
- Data flow diagrams

(a)Use Cases

Applicant's use case

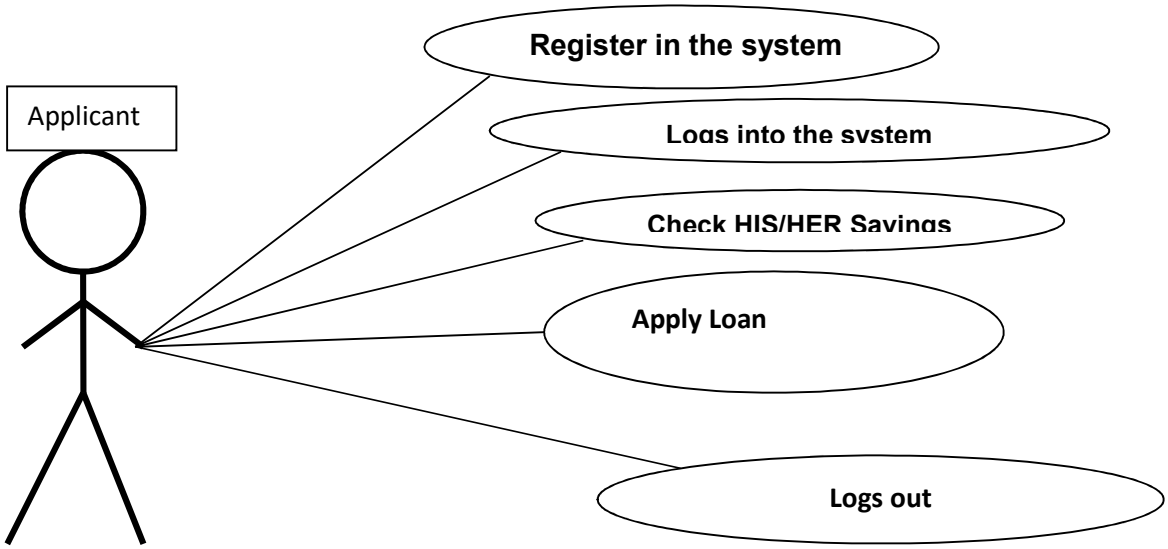
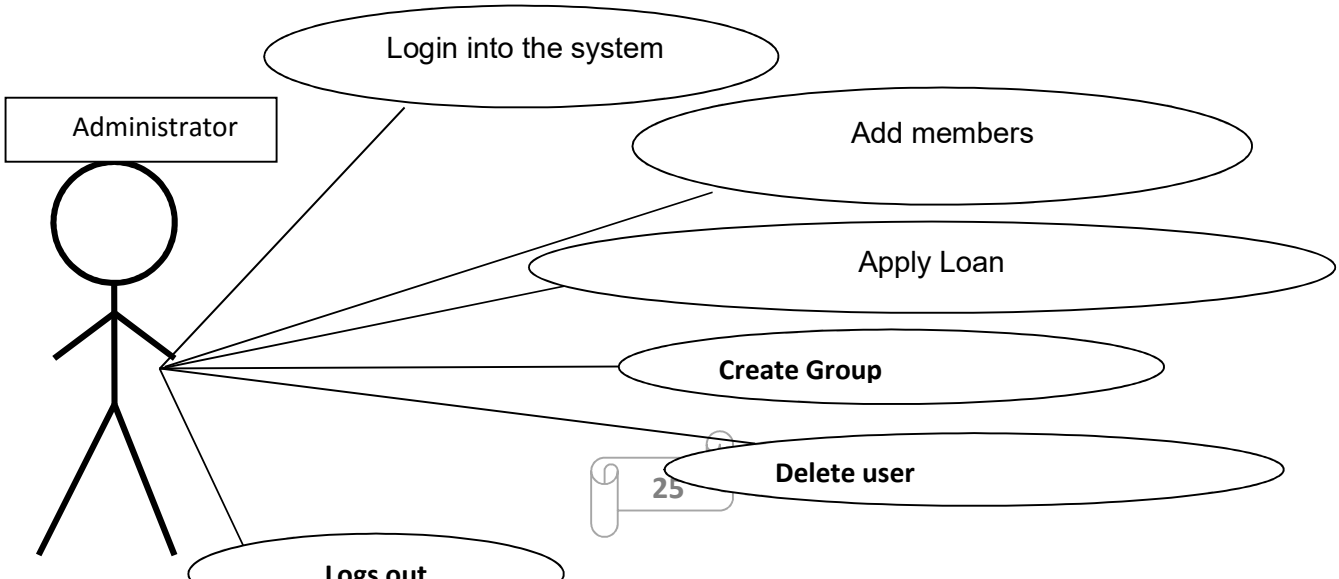


FIGURE 2.0: APPLICANTS USE CASE



(b)Dataflow diagram

Context level DFD (Level 0)

This shows the sub – system that make up the entire **Chama Online Management System(COMS).**

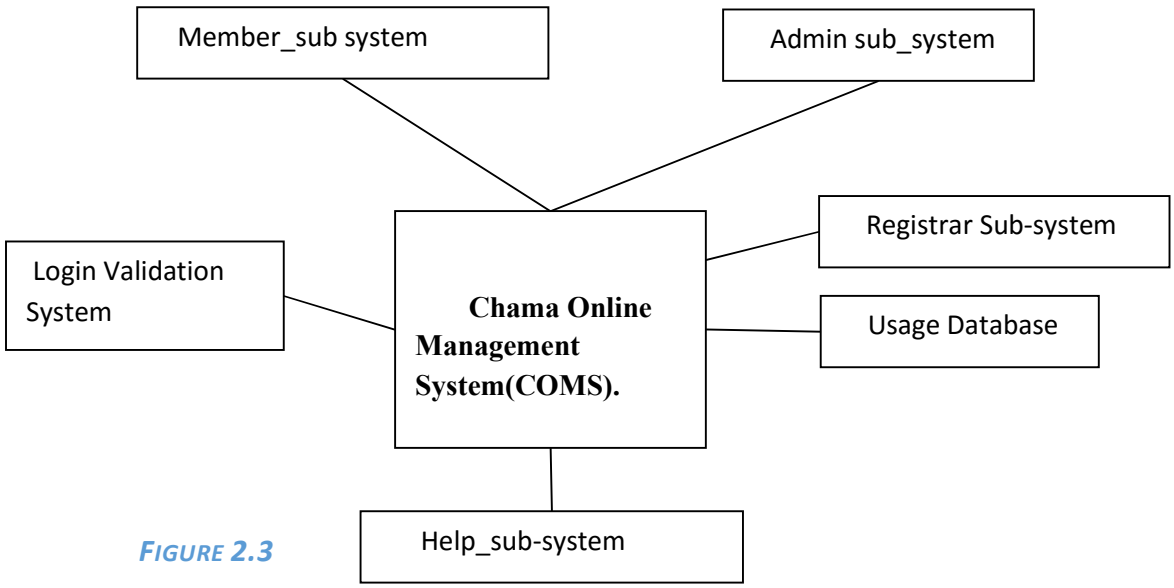


FIGURE 2.3

Dataflow diagram (DFD)

Dataflow diagram showing the steps taken by the member

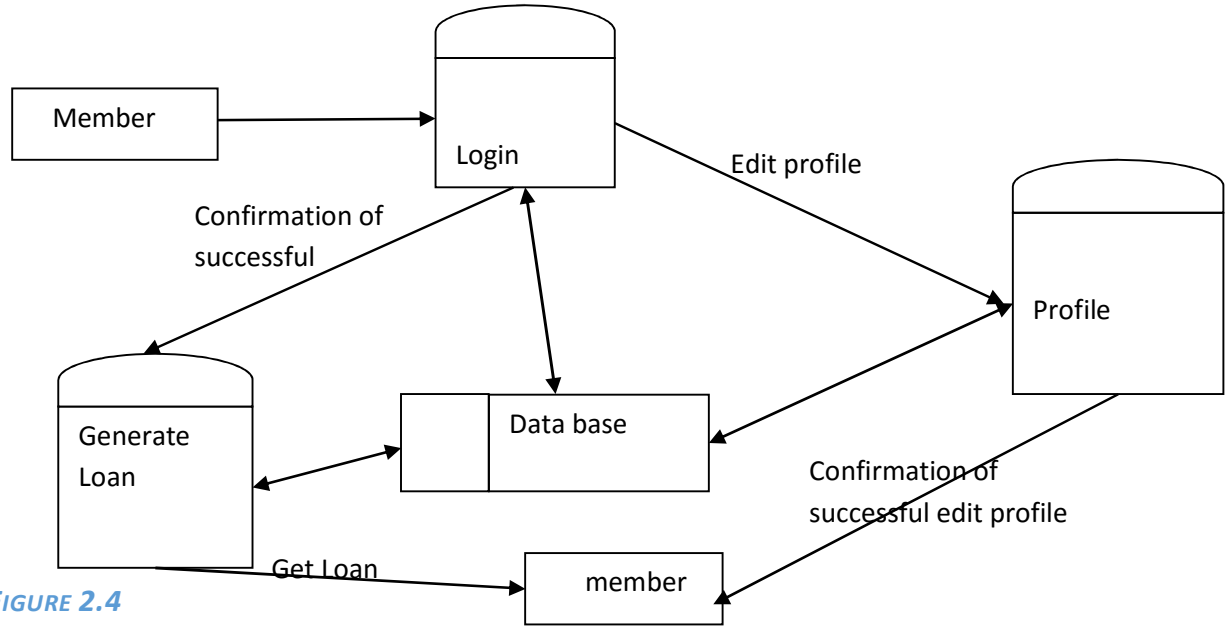
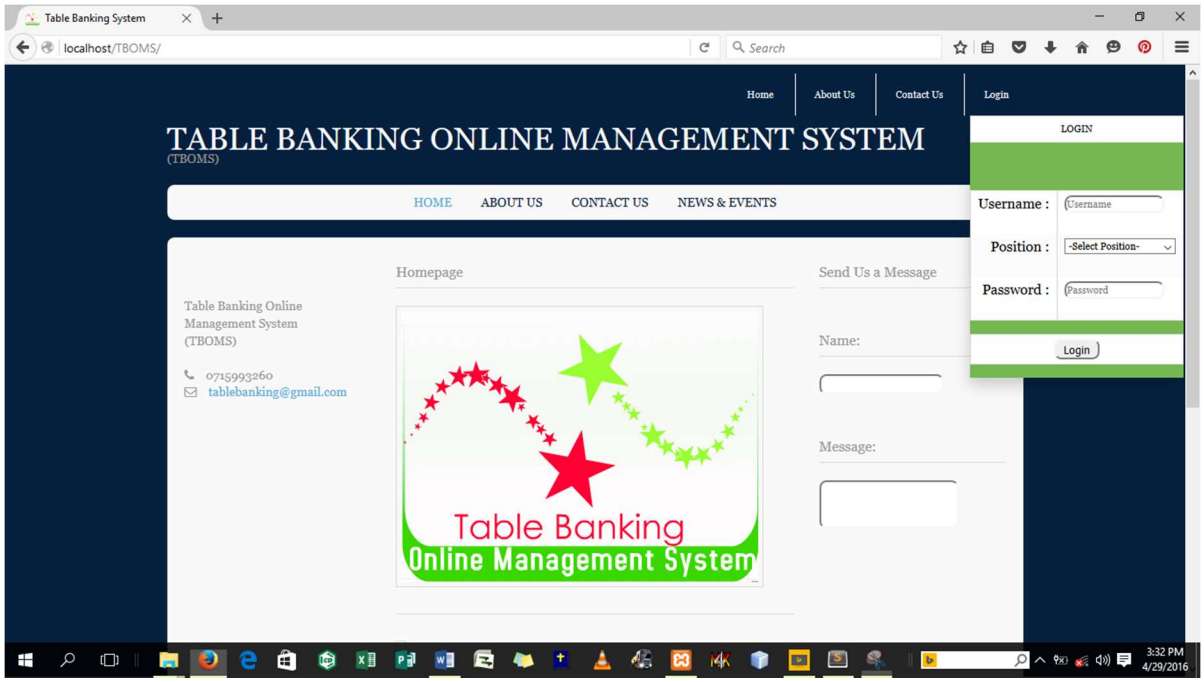


FIGURE 2.4

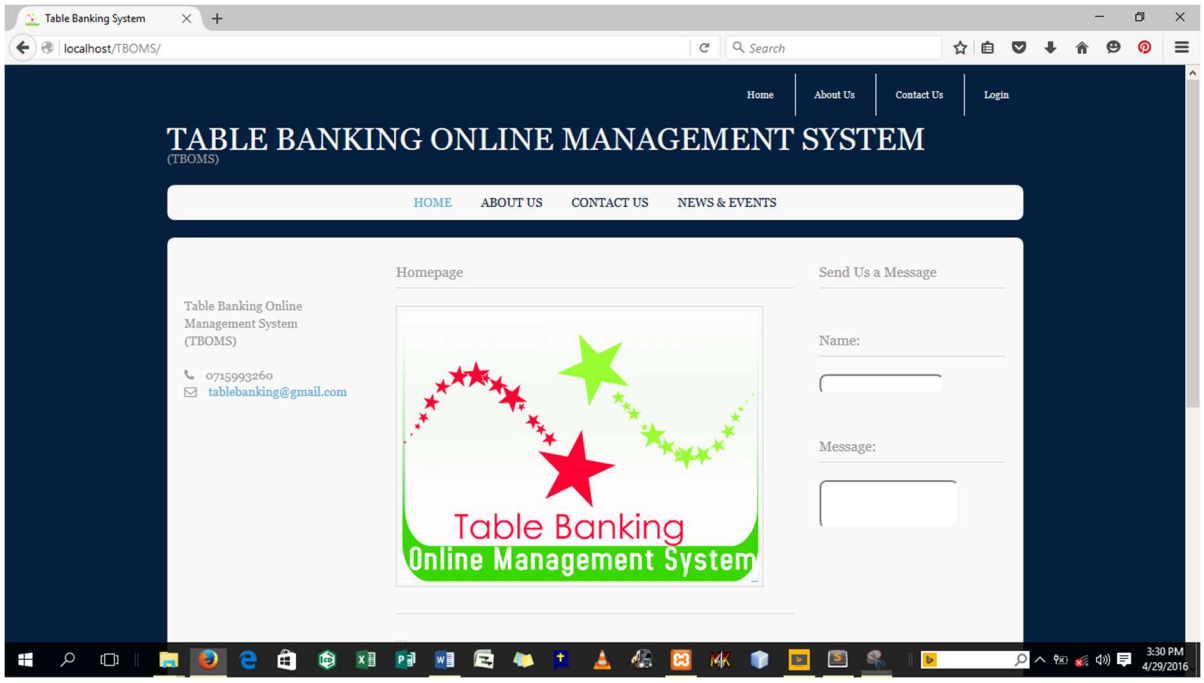
5.9 Interface Design

FIGURE 2.8

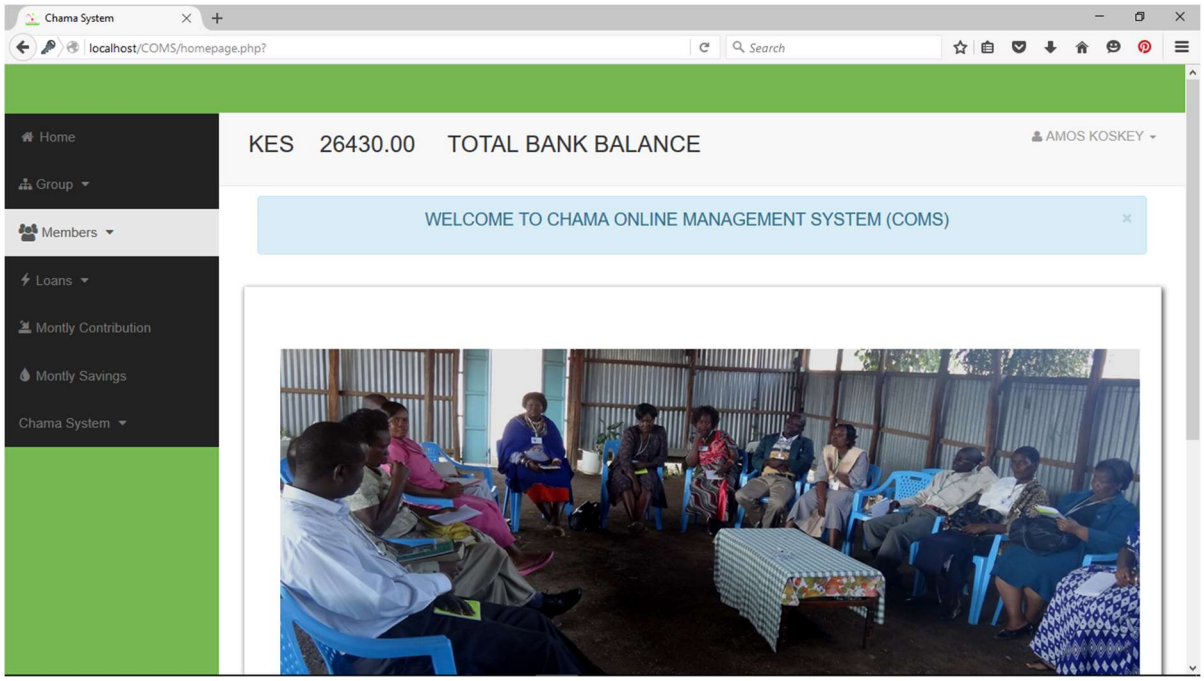
Login interface;



Home interface;



Admin Home;



6.0 CODING, IMPLIMENTATION AND TESTING

6.1 Introduction

The major aim of this document is to show the code that was used in major parts of the system. This is to enhance the maintainability of the system. Most of the coding is done in Php, while a small part is done in Java Script, Css and HTML (in interface and validation).

6.2 code for database connection

The following code was used to connect database:

```
<?php

mysql_select_db('tablebanking',mysql_connect('localhost','root',''))or die(mysql_error());

?>
```

6.3 Code for member profile

The following code was used to check reference number using applicant's first name:

```
 Chama Online Management System<br>
      (COMS)<br>

      <br>
      <i class="fa fa-phone pright-10"></i> 0715993260<br>
      <i class="fa fa-envelope-o pright-10"></i> <a href="#">chama@gmail.com</a>
      </address>
       </div>
      <!-- / Left Column -->
      <!-- Middle Column -->
      <div class="one_half">
        <!--
########################################################################################
########## -->
       <h2><?php echo $rec['fname'] ?>   <?php echo $rec['mname'] ?>  <?php echo $rec['lname'] ?>
</h2>
       <ul class="nospace listing">
         <li class="clear">
           <table>
<tr>
```

```
<td>First Name</td>
<td>Montly Savings</td>
<td>Date</td>
</tr>
      <tr>
<td><?php echo $rec['fname'] ?> </td>
<td><?php echo $rec['amount'] ?></td>
<td><?php echo $rec['date] ?></td>
</tr>

     </table>

          </li>
          <li class="clear">
            <div class="span3">    <img class="index_logo" height="900"
width="900" src="assets/img/logo2.jpg"></div>

          </li>
          <li class="clear">
            <div class="imgl borderedbox"><img src="images/demo/120x120.gif" alt=""></div>

          </li>
        </ul>
          </div>
       <!-- / Middle Column -->
       <!-- Right Column -->
       <div class="one_quarter sidebar">
         <!--
########################################################################################
########## -->
        <div class="sdb_holder">
          <h6><?php echo $rec['room_name']; ?> Group</h6>
          <div class="mediacontainer"><img src="images/demo/video.gif" alt="">
            <p><a href="#"></a></p>
          </div>
        </div>
         <div class="sdb_holder">
          <h6>Total Savings:</h6>
          <ul class="nospace quickinfo">
       <?php echo $rec['amoun']; ?>  Ksh

          </ul>
        </div>
        <div class="sdb_holder">
          <h6>Loan Due:</h6>
          <ul class="nospace quickinfo">
       <?php echo $res['amountapp']; ?>  Ksh

          </ul>
        </div>
```

```
<div class="sdb_holder">
 <h6>Saving History:</h6>


 </ul>
</div>
```

6.4 Code to insert data (Eernisse, 2004)

The following code was used to insert data to the database:

```
   <?php

if (isset($_POST['save'])){

$groupname=$_POST['groupname'];

$contribution=$_POST['contribution'];




$query = mysql_query("select * from group where groupname = '$groupname ")or
die(mysql_error());

$count = mysql_num_rows($query);


if ($count > 0){ ?>

<script>

alert('Group Name Already Exist');

</script>

<?php

}else{

mysql_query("insert into group (groupname,contribution)
values('$groupname','$contribution')")or die(mysql_error());


?>
```

6.5Testing

Testing involves running new or revised programs to determine if they process all data properly. The test is done using test data that is made available by the users and developers of the system. This process helps to evaluate the software product developed. Test data is a set of data created for testing new or revised programs. It should be developed by the user as well as the programmer and must contain a sample of every category of valid data as well as many invalid conditions. Validation and verification are important elements of this process. The system was tested with some sample data which was then stored in a database. The system was seen to work well for the given data although later increments will still be welcomed integration after visiting the customer and delivering the product.

The types of testing included:

- Functional or black box Tests

Functional tests on the system were implemented by providing the stimulated nominal inputs to the system and observing the **actual output** versus the **expected output** and results noted down. Various test cases were chosen for both boundary and non-boundary values. (Zawodny, 2004)

- **Structural or White Box Tests.**

This one involved checking the internal logic of the program modules. Stimulated data was availed and this test data was input into the system to check the validity of the algorithms and functions that performed the tasks at hand. The major things that were tested during this kind of testing were conditional statements, use of Boolean variables , loops and iterations

- Acceptance tests

This include Beta Testing and Alpha testing

Beta Testing- Testing by the customer at the customer's site .this exposes the software to the real environment and any errors are reported to the developers. (Clifton, 2000)

Alpha testing- this is the final stage in the testing process before the system is accepted for operational use. It is done by the customer at the Developers site.

- Stress tests

This is testing the software with abnormal or extreme data usually with an intention to break down the system. It attempts to find the limits with which the system will fail through abnormal quantities of inputs.

6.6 Testing Process

The computerized system automatically makes checks on data type entered and the length of the data entered. The system also checks whether the inputs lie within accepted domains e.g the accepted numerical/alphanumerical. This ensures that the data entered is correct and is designated to the correct place. It should also display error messages whenever an error is detected. (Merral, 1998)

The following data tests were performed on the various forms in the system.

The expected results and the actual results obtained are tabulated below. (Thomson, 2001)

Test Data

Login form

Text field	Data Input	Expected Results	Actual Results
username	Nothing input(blank)	Error Message	Error Message
	KOSKEY	OK	OK
	Thhhr	Error Message	Error Message
password	Nothing Input(blank)	Error Message	Error Message
	KOSKEY	OK	OK

OTHER FORMS

Text field	Data Input	Expected Results	Actual Results
First_name	Nothing input(blank)	Error Message	Error Message
	6756	Error Message	Error Message
	kipkoech	OK	OK
Id Number	Nothing input(blank)	Error Message	Error Message
	GHFT	Error Message	Error Message
	23733619	OK	OK
Last_name	Nothing input(blank)	Error Message	Error Message
	John	OK	OK
	345678%^&$	Error Message	Error Message

CHAPTER SEVEN

7.0 LIMITATION, CONCLUSION AND RECOMMENDATION

7.1 LIMITATIONS

The constraints that limit the project and / or are imposed on the product include:

- The project to be completed in one semester. This is approximately three months. This is a short period of time that is not enough to implement and document embedded software with the effort of a single individual.
- The programming languages used which include the use of PHP and HTML which require plenty of time and effort to master.
- Lack of sufficient support to use the software technology. E.g. use of some automated tools.
- Some of the software to be used are very costly to acquire.
- Maintenance of the product will be costly. This includes patenting as well as running cost.
- Trying to understand the expected logic and concepts required in designing the project is extremely difficult for one software developer.
- Developing the project individually is extremely difficult since software development is recommended to be done by different groups of people.

7.2 CONCLUSION

The designing and writing of this system has been a success to some extent. The users of the system were cooperative and gave the relevant information which assisted in the development of the system. However, the system will evolve through intermediate versions as users try to develop a better understanding of their requirements until a final version that fully meets their requirements is met .The system has maximized the use of the database to maintain data integrity and consistency. Reliable and accurate data can therefore be guaranteed by the system.

7.3 RECOMMENDATIONS

Duration of the project should be increased, in order to give more time for research and to enable development of quality systems

Students should be encouraged to get involved in activities that will help to expose them and interact with the world. A perfect avenue for doing this is joining the IEEE (Institute of Electrical and Electronics Engineers). This organization serves as the catchments area for the world's think-tanks.
The University administration should provide students with basic equipment and material necessary in developing their projects

CHAPTER EIGTH

8.0. BIBLIOGRAPHY

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9.0 APPENDICES

9.1 Appendix one.

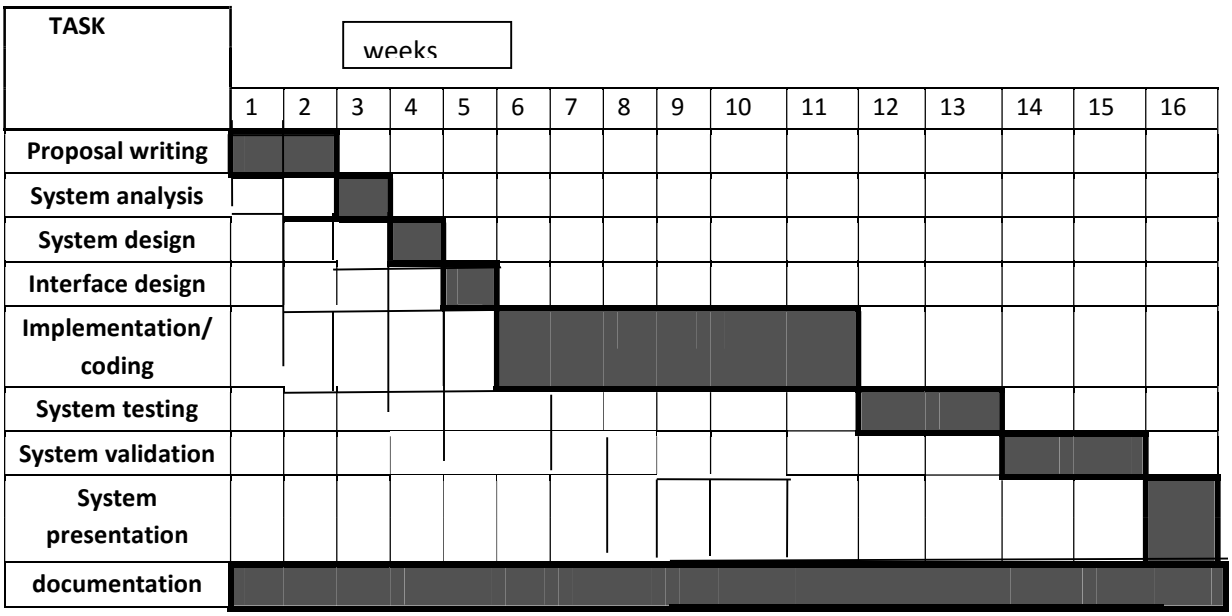
Hardware Requirements

Hardware Device	Minimum	Optimized
Monitor	• 800 by 600 screen resolution • 14” Monitor	• 1024 by 768 resolution • 17” Monitor
Keyboard	• Standard 101/102 Keyboard.	
Pointing Device (Mouse)	• PS/2 Mouse or USB Mouse with 3D Scroll/touch pad.	
Processor	• Intel Pentium 3000 MHz or Celeron 3200 MHz.	• Intel Pentium IV 3200 MHz Duo Core and above
Memory	• 512 MB RAM.	• 1024 MB RAM or more.
Hard Disk	• 40Gb	• 80 Gb and above
Modem or WiFi		
Uninterrupted Power Supply (UPS)		

9.2 Appendix two.

Budget

ITEM	COST
Laptop (pavilion 2000)	45,000
Paper work	1,500
Modem	1,000
Internet bundles	1,000
Travelling	1,000
communication	500
Total	50,000



9.3 Appendix three. (Time schedule)