

**A PATIENT PAYMENTS MANAGEMENT SYSTEM FOR MUKAMA
YAWONYA SPECIAL RESEARCH CENTRE (U) LTD**

**BY
KIKAMBI JOHN BOSCO
BIT/18038/72/DU**

AND

**KENYI OLIVER JADA
BIT/16823/71/DU**

**A GRADUATION PROJECT REPORT SUBMITTED TO THE SCHOOL OF
COMPUTER STUDIES,IN PARTIAL FULFILLMENT FOR THE
AWARD OF A BACHELOR OF INFORMATION
TECHNOLOGY OF KAMPALA
INTERNATIONAL
UNIVERSITY,**

NOVEMBER 2011

ACKNOWLEDGEMENT

Many talented instructors, students, programmers, writers and researchers provided a helpful comments and thought, and suggestions at every stage in this proposal writing which eventually made us to produce a relevant research proposal. We therefore extend our gratitude for their contribution to the quality of our research.

We also acknowledge our fellow lectures that they did much in teaching me the basics that we have used to produce this research proposal. We extend our gratitude to Mr. Komakech brains and madam Onkangi who are lecturers at Kampala International University for his work of making a foundation on object oriented programming with visual basic or software development with visual basic.

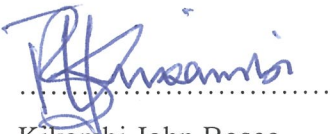
Our supervisor Madam Namataba Josephine not only handling many details needed to bring the research proposal to production, but the ideas and enthusiasm nurtured us during the preparation of this research proposal. Lastly but not least, we are very grateful to Microsoft cooperation for its commitment to produce outstanding programming languages and for its permission to use their copies everywhere in the world.

DEDICATION

This project has been designed to illustrate our capability of whatever we have covered during our days at Kampala International University. With this therefore, let it be a gift to our parents especially Mrs. Scholastic Namusis Ntabaazi, thanking them for having paid all the necessary requirements at the university. Our lectures not only imputing knowledge but also their focus made us to have great determination. We also dedicate this project to our supervisor madam Namataba Josephine for having paid time, her cooperation and the enthusiasm which has made us to come up with a clear project. We also dedicate this project to our brothers and sisters that their prayers we all good.

DECLARATION

We declare that the information provided is through the extent of our efforts. It is not a duplication nor a copy and paste from neither some ones' work nor a print out from web pages, but a copy of our knowledge and skills we gained from proposal writing. We therefore submit it to the school of computer studies and to the department of information technology with a lot of confidence. For any falseness discovered during research review by the administrator's we are ready to provide evidences. And any copy related to our research proposal is just a duplication of this work.



Kikambi John Bosco

BIT/18038/72/DU

Student



Kenyi Oliver Jada

BIT/16823/71/DU

Student

Date: 27/06/2011

Date: 27/06/2011

APPROVAL

We have submitted this Project Report to the school of computer studies in preparation of our final dissertation that will be handed in, in partial fulfillment for the award of a degree in information technology of Kampala international University with the approval of :-



Miss. Namataba
Josephine
(Supervisor)

Date : 27/06/2011

ABSTRACT

Abstract is a document designed to show a review of whatever the designer tackled on during designing processes of the project. It also summarizes the content in all chapters. This project comprises of five chapters that is, chapter one which includes a number of sub topics like background, problem statement and also objectives are discussed with in this chapter, the justification of the study to mention but a few. Chapter two covers literature review that describes the review of literature relating to some writers and scholars plus other researchers and designers. Chapter three describes the methodology including both the physical and logical techniques used and even the tools applied during the design of the final report. The design was basically related to what other writers and designers say about what and so on and so forth. Chapter four includes system development and testing which illustrates the system development life cycle up to the end, lastly chapter five describes system evaluation including the design lay outs of the system the problems encountered during the development phase and lastly the recommendations made. It is helpful to the user as well since it will produce the information required for the project design. After passing through this project, you will be able to understand the system to be designed. In the appendices, the methods used like the questioner, forms, reports, codes and many others are included in this part.

TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	ii
DEDICATION	iii
DECLARATION.....	iv
APPROVAL	v
ABSTRACT	vi
 Chapter one.....	 1
1.0 Introduction	1
1.1 Back ground of the study.....	1
1.2 Problem statement	2
1.3 Purpose of study	2
1.3.1 Specific objectives.....	2
1.4 Scope of the study	3
1.5 Justification of the study.....	3
1.6 Research questions	3
 Chapter two	 4
Literature review	4
2.0. Introduction	4
2.1 Definition of patient information system	4
2.2 History over patient information systems.....	5
2.4. Features of patient information systems.....	7
2.5 Format of patient information systems.....	7
2.6 Users of the patient information systems	7
2.7 Significance of patient information systems	8
2.7.1 Advantages of patient information system	8

Chapter three	9
Methodology.....	9
3.0 Introduction	9
3.1 Analytical tools and design	9
3.2 Data collection methods and tools.....	9
3.3 Design techniques and tools	9
3.4 Testing of the designed system.....	10
3.5 Documentation	10
3.6 Preliminary investigation.....	10
3.6.1 The nature and performance of the existing system.	10
3.7 Systems analysis	11
3.8 Logical design for the current system	11
3.7.1 Activity diagram for the new system.....	12
3.7.2 conceptual model for the new system	13
3.8 Entity relationship diagram for the new system	14
3.8.1 Data dictionary	14
3.8.1.1 Advances	15
3.8.1.2 Patients	15
3.8.1.3 Payments.....	15
3.8.1.4 Staff	16
3.8.1.5 User details	16
3.9 System design.....	16
3.9.1 Functional capabilities of the new system.....	16
3.9.1.1 System requirements specification	17
3.9.1.3 Hardware requirements	17
3.9.1.3 Soft ware requirements	18

Chapter 4	19
System development, testing and implementation	19
4.0 introduction.....	19
4.1 system development	19
4.2 The new computerized system	19
4.2.1 Functionalities of the new system	19
4.3 The for designs	20
4.4 Reports.....	20
4.5 Implementation.....	20
4.5.1 Data conversion	21
4.5.2 Installation and change over.....	21
4.5.3 User training	21
4.6 Accessibility	21
 Chapter five	 27
System Evaluation, Recommendation, further areas of improvement and Conclusion	27
5.0 System Evaluation	27
5.1 Limitations.....	27
5.2 Problems uncouneted	27
5.2.1 Solutions to problems	27
5.3 System maintenance	28
5.4 Recommendation	28
References	29
Appendix A:Questionnaire	30
Appendix B:Project plan	32
Appendix C:Estimated budget for the whole project.	33
Appendix D:Program code	34

Chapter one

1.0 Introduction

This chapter covers a number of sub chapters including, background of study, problem statement, scope of the study, justification of the study, purpose of the study, as well as the research questions.

1.1 Back ground of the study

Mukama Yawonya Special Research Centre is a privately owned company dealing in healing using Hydrotherapy, Reflexology, Aromatherapy, Massage Therapy, Nutrition, Physiotherapy, to mention but a few.

The Director of Mukama Yawonya Special Research Centre, IT (International Therapist) Habu Mugisha Francis, stated that, it was founded in late 2006 with only a small branch located at Katwe (Kampala). As per now Mukama Yawonya has extended to a number of branches all of which are located in different districts of Uganda. The main branch is located at Muyenga stage after Hotel International and it is estimated to have more than 3,000 patients.

According to the national bureau of standards (2000), many people live in absolute poverty whereby it is hard for them to afford the necessities. This makes it difficult for them to live in a good health. The increasing spread of AIDS also has made people to lose hope. Besides, the increasing change in climate has made it worse whereby in rainy seasons diseases are spread at a very high speed. With all of this, there is limited support from the government and even the required medicine is not available in hospitals.

Under the above circumstances therefore, many people have now adopted the new methods as noted earlier in the introduction with a thought that it is better than even the early methods of using injections. Besides reflexology and massage, this healing mechanism also involves the use of natural herbs which are also common everywhere and can at least be afforded by poor people.

Mukama Yawonya has a vision to introduce other method besides the noted methods. With all the entire above, there is no centralized system which can be used as central location for data storage and access patients, the company is still using the old method of data recording since they are based on files and books to register new and old. These method are very slow, provide false information some times and even they are not secured no backup at all times. Therefore there was a need to design and implement a system to help in recording patients as well as providing easy access to data and or information whenever needed by the administrators.

1.2 Problem statement

The increasing number of patients at Mukama Yawonya resulted into poor data recording, increasing expenditures on purchasing stationary, low speed in data recording, poor management in all branches and lack of integration and coordination in workers. It is in this context therefore that designers designed a system help in data recording processing and improve security through backup files.

1.3 Purpose of study

The main purpose of the study was to develop patients' payments record management system for Mukama Yawonya special research centre Uganda limited.

1.3.1 Specific objectives

- a) To ensure that Mukama Yawonya has a centralized database management system that will act as a storage location.
- b) To reduce on the costs involved in purchasing stationary periodically for data recording.
- c) To maximize on the speed at which data is recorded since writing on papers and books is tiresome and hard to some data entrants.
- d) To increase on security over data and organizational information through the creation of back up files and shared documents.

1.4 Scope of the study

The system is designed for Mukama Yawonya Special Research Centre (U) LTD main branch located at Muyenga stage after International Hotel, and it is to benefit administrators, the workers, the accountants or auditors, in their job of storing data and easy access to data whenever required.

1.5 Justification of the study

The system is designed for growth and development. Therefore is to benefit all the users and administrators as well as patients. Keeping payment receipts is not an easy task, so with the new system the patients can be given clearance cards and or forms after clearing the required payments. Administrators can be able to monitor the performance of the company. To a great extent the workers can secure data by creating backup files and find the required information easier than taking long to check in manual files.

1.6 Research questions

The research questions over the designed system were;-

1. Can a researcher design a system which can help in tracking patient payments?
2. Lack of security over data and information, poor coordination and management with in organizations is due to absence of a centralized system. Justify the statement.
3. Any programming language to be good for users must produce user friendly applications. Do you agree with the statement?
4. Which programming language as well as database management system can be good in designing systems?

All of the above questions have been answered through a designed system. Since it is compatible with all computer components, it can achieve all the user requirements like producing reports and many others at any time whenever needed by the user.

Chapter two

Literature review

2.0. Introduction

This chapter emphasized the review of existing literature basing on the stated objectives. It reviewed the past work for other researchers, the methodologies they used, and all in all the definition of the objectives and related to the designed new system.

2.1 Definition of patient information system

According to the November 2006 publication by Image Computing Systems Laboratory, patient information management systems are electronic databases that store patient files in a centralized location. There is no limit to the amount of pages, or files that can be uploaded into patient information management systems.

Other writers describe Patient information system as an interactive choice menu system that can give Information about Services and Procedures, Insurance and payment methods, Detailed Driving Direction, Take messages for front desk and Appoints plus Call your live answering service or the Doctor for emergencies.

Many Insurance companies are referring new patients to your office every week, unfortunately many call your office in the evening or early morning while your office is closed resulting in hang-ups and missed opportunities. While other offices are saying they are closed and “please call back when the office is open”. You will be able to help new patients and exiting patient with by providing them with answers to the most commonly asked questions.

The Automated receptionist will answer all calls when your office is closed and provide information to satisfy new patients who are curious about your office and what services you provide. Patients can also call late evening or early mornings to get detailed Driving Directions how to get to your office. The phone direction system is interactive and allows them to hear step by step directions coming from any area regardless if they live 10 minutes away or an hour away.

2.2 History over patient information systems.

In 1998, the Health Information and Management Systems Society (HIMSS) and Radiological Society of North America (RSNA) began a joint initiative called Integrating the Healthcare Enterprise (IHE) to "bring together healthcare professionals, vendors, and IT executives to develop a framework within existing industry standards, which enables plug-and-play interoperability among systems from different vendors" (Vegoda, 2004)). This allows patient information to be transferred within and between departments seamlessly among systems so that caregivers can access all relevant patient information throughout the health system, and thus provide them with optimal care.

IHE is necessary because providing patients with optimal healthcare requires that physicians have access to all relevant information concerning the patient (IHE, 2003). Currently, patient data is stored in many different systems which do not communicate effectively. Redundant entry of data can lead to errors and mismatches, and case decisions may have to be made without all pertinent data being available. IHE is designed to aid the flow of information between various personnel involved in a patient's care. It does not create new standards, but promotes the adoption of standards to meet specific clinical needs (HIMSS, 2004).

The IHE has "defined a common language within the Human Level-7 (HL-7) and Digital Imaging and Communications in Medicine (DICOM) standards, which removes the ambiguity when discussing the Information coming from different exhibitions and conferences given by the RSNA and the HIMSS (RSNA, 1999). Technical problems also arise because of different standards, for example: DICOM and HL7; different interpretations or implementation of HL7; different ways used to achieve the same results; no agreed system boundaries; no guaranteed application interoperability; and different information models. In the first year, several improvements had been achieved by IHE (RSNA, 1999). In terms of organization, imaging and information systems vendors and users are working together. On the technical front, a common vocabulary and data model are now used, the product boundaries have been addressed; HL7 and DICOM options have been agreed upon; and application interoperability has been achieved. IHE

defines the use of established standards for higher levels of integration. Products implemented under the Technical Framework are easier to integrate and give flexibility to address a variety of healthcare enterprise needs; this results in reduced integration costs and increased efficiency. In August of 1993, the IHE set forth the IT Infrastructure Technical Framework (ITI TF) which "defines specific implementations of established standard.

Although it is like that, but however there still some offices in which patient are recorded in a book. If a patient comes and would like to be registered, the receptionist will only open a book and then record the name and the card to ensure that his or her details have references. Further still patient may need to pay on his or her bill. Again cashiers will open receipts records money, and then issue out receipt. This process or action is done to over and over 100 patients a day. The cashier and receptionist will go home when they are very tired and cannot do anything else.

The patient data information system of the present invention integrates patient image data and patient textual data and provides a method for patient data creation, maintenance and retrieval. The patient data information system comprises a display unit coupled to a workstation with the workstation configured to operate a first software application which is configured to display patient images for a patient on the display unit. The workstation also is configured to work a second software application. When the first software application is configured to generate a patient context for the patient being treated and provide the patient context to the second software application and display patient data from the second software application based on the patient context. The first software application retrieves patient image data from a Picture Archival and Communication System (PACS). And the second software application is configured to retrieve patient textual data from a Radiology Information System (RIS) wherein the patient data includes the patient textual data. A high resolution monitor displays the patient image data and the patient textual data and the user of the present patient data information system retrieves and inputs data utilizing an input unit from a group consisting of a mouse, a voice recognition system, a keystroke on a keyboard, a switch and a light pin. The second

software application includes a plurality of RIS applications such as a case sign out application, a report entry application, an order detailing the application and an order viewer application.

2.3 Development and growth of patient information systems.

Early patient computer systems developed from business computing systems in the late 1950s and early 1960s, and were used for accounting, billing, inventory and similar business-related functions.

Others were developed during the 1960s primarily for storing patient information to be used by medical staff.

These types of systems have been slow to integrate. Surveys (Dorenfest 1987, 1992) of hospitals since 1980 have shown that less than half of community hospitals have full Hospital Information Systems, mainly because few were available to integrate all the functions needed. Research and teaching hospitals presumably have a much higher usage of Hospital Information Systems.

2.4. Features of patient information systems

The November 2006 publication by Image Computing Systems Laboratory states that patient information management systems can contain any type of information about a patient, from his general demographics to the kinds of medication he is on.

2.5 Format of patient information systems

Patient information management systems are formatted to read like a regular medical chart. Users can click on files that they want to open, and the document will appear on the screen. Files can be emailed, faxed or printed upon request.

2.6 Users of the patient information systems

Not everybody can access a patient information management system, because medical files are highly confidential documents that are protected by the HIPAA regulation. According to the U.S. Department of Health and Human Services, patient information management systems are highly

restricted areas, so users are assigned (usually doctors, nurses or medical assistants, accountants and cashiers) and given special permission to access information when appropriate.

2.7 Significance of patient information systems

Patient information management systems have helped doctors' offices become more efficient. Instead of writing everything down by hand, medical staff can input information directly into a system that will do all the storing and filing for them. Also, patient information management systems make patient data easily accessible.

2.7.1 Advantages of patient information system

Why all the fuss about Patient Information Systems? What's so great about them? A 1992 survey of executive nurses (Simpson 1992) listed these benefits:

- Increased time nurses and cashiers spend with patients
- Access to information
- Improved quality of documentation
- Improved quality of patient care
- Increased nursing productivity
- Improved communications
- Reduced errors of omission
- Reduced medication errors
- Reduced hospital costs
- Increased nurse job satisfaction
- Compliance with regulations of the Joint Commission on Accreditation of Health Care Organizations (JCAHO)
- Development of a common clinical database
- Improved patient's perception of care
- Enhanced ability to track patient's record
- Enhanced ability to recruit and retain staff

Chapter three

Methodology

3.0 Introduction

This chapter focused on a planned structure or details of how the designer carried out his work. It also emphasized on the methodology including tools and techniques used during the design of the system.

3.1 Analytical tools and design

The designers used prototyping method where by data was collected from the company files and members, organized and represented in a format that was good to illustrate the flow of the whole work and even the nature of the project. Since the company needed of a new system in a short limited time, the designers applied a rapid application development (RAD) to complete in a short time.

3.2 Data collection methods and tools

During data collection, the designers drafted a questionnaire that they use. Questions were sent to Mukama Yawonya administration and they gave a feedback through writings and answering the set questions. They analyzed the data, organized it and made conclusions so that the information is smart and accurate. In addition the designers use interviews as well as observation from the existing files of the company and the user or workers at the branch. Since the research required a lot of writings, the data collections tools included not only pens but also books and papers.

3.3 Design techniques and tools

The format of the application will extremely be object oriented with buttons and objects that will support the user with a lot of reduced expertise. The tools which the researcher will use include visual basic tools interface design, and oracle database 10g express edition to help in creating databases. The designers preferred the mentioned tools because they found them easy to use,

compatible with all machines, and common everywhere and can be accessed at any time whenever required.

3.4 Testing of the designed system

After system development, to ensure that the system was tested using different ways; - These included unit testing whereby the different units of the project were tested to ensure that they are producing the designer's intentions. This was done by carrying out continuous testing and debugging using true data as well as false data.

3.5 Documentation

After the overall stage, the researchers will include text to direct the user how to use the new system. Documentation included directions on how to install the new system and even help files on the new system will be used, maintained as well as secured in terms of password assignments.

3.6 Preliminary investigation

During this phase the designer conducted interviews, drafted questioners and used the existing literature to find out the organization's objectives, intentions, and requirements as well as the nature and the scope of the problems in the existing system.

3.6.1 The nature and performance of the existing system.

- ☞ The file based system consumed a lot of space
- ☞ Chances of information loss and misplacement during their transfers were very high
- ☞ Information security was very poor with no backup files, unauthorized users, data redundancy to mention but a few.
- ☞ A lot was spent on purchasing stationary.
- ☞ Data retrieval and processing was very slow and consumed a lot of time.
- ☞ Files are prone to natural calamities such as water, fire, pests, and dust.

And it was in this context that the designer came up with the system that can overcome all of the mentioned problems as well.

3.7 Systems analysis

During this stage, data was gathered, analyzed using flow charts as a modeling tool to present a graphical representation of the new system and the existing system.

3.8 Logical design for the current system

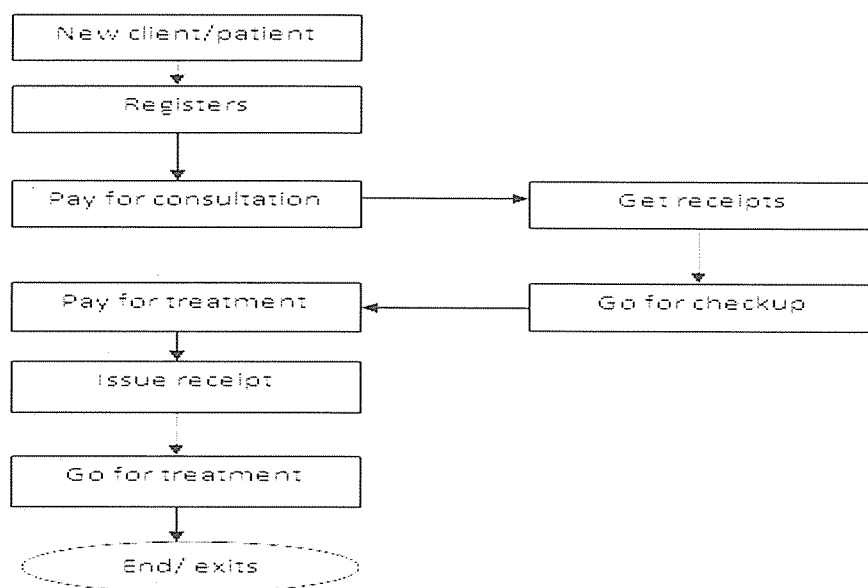


Figure 1

3.7.1 Activity diagram for the new system

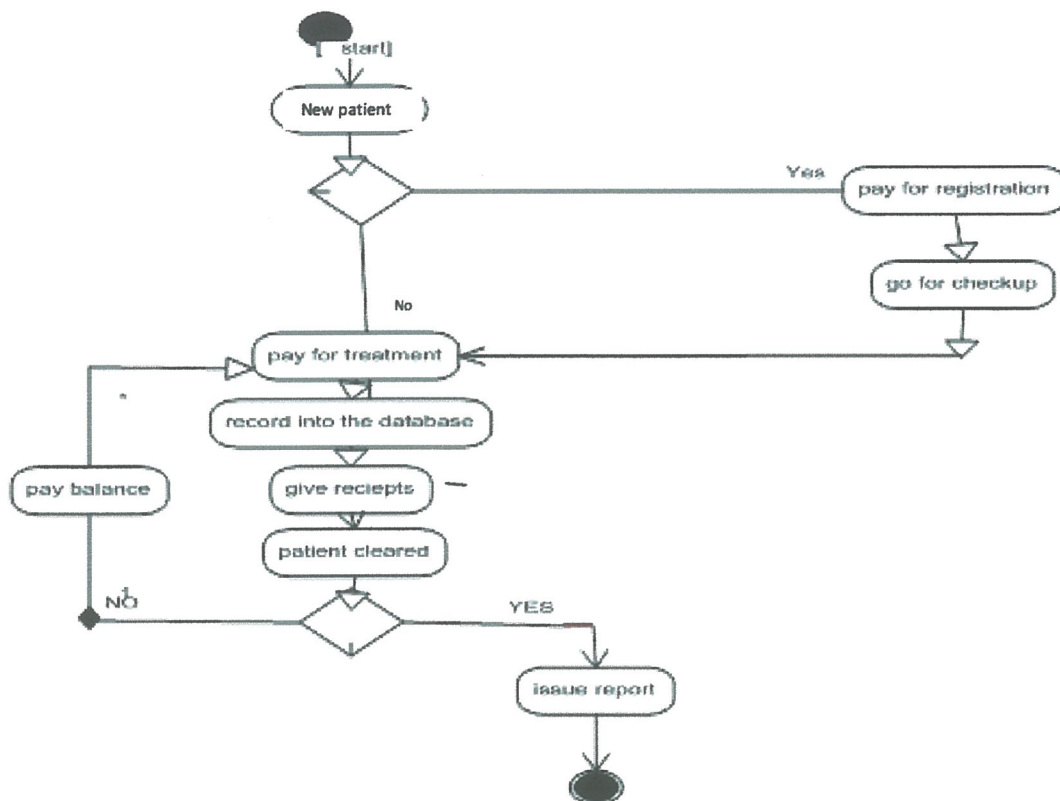


Figure 2

3.7.2 conceptual model for the new system

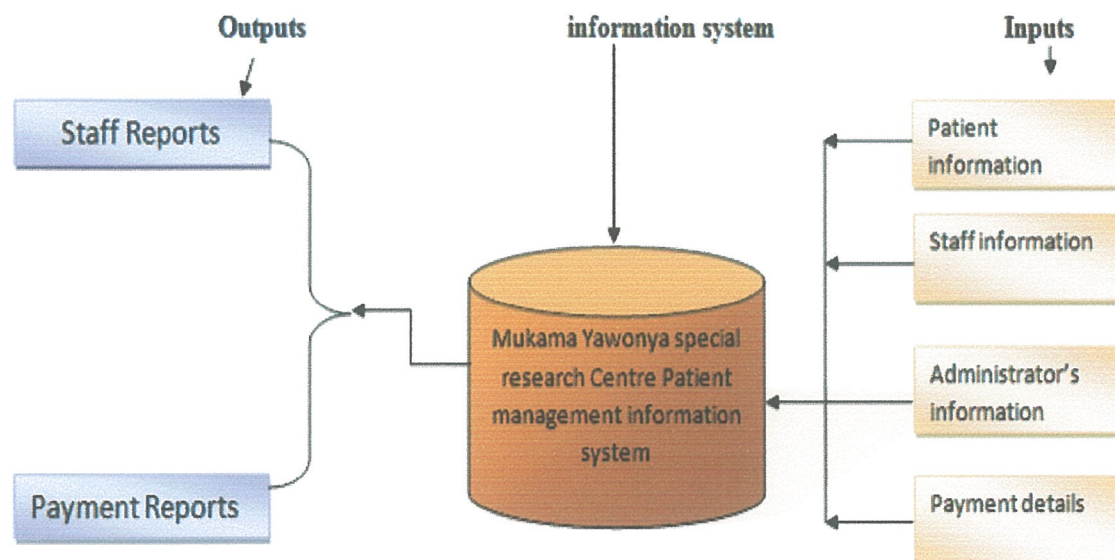


Figure 3

In the diagrams above, the system consists of a number of input forms. When a new patient comes, then the user or the data entrant will only run the system, opens the form patient enters the required details, and if necessary he or she outputs the required reports. All of the processes and all input forms will only be allocated in Mukama Yawonya patient management information system. The purpose of the reports is to output the required information on the patient and even to avoid carrying receipts every time the patient comes for treatment.

Input forms are for the purpose of inputting data required by the user so that it can be processed to produce reports. At the time of data analysis by the administrators, it will now be possible for them to retrieve data and all of the required information about the patients. Even through reports it will now be possible for the patients not to carry payment receipts whenever required by the data entrants for payment review.

3.8 Entity relationship diagram for the new system

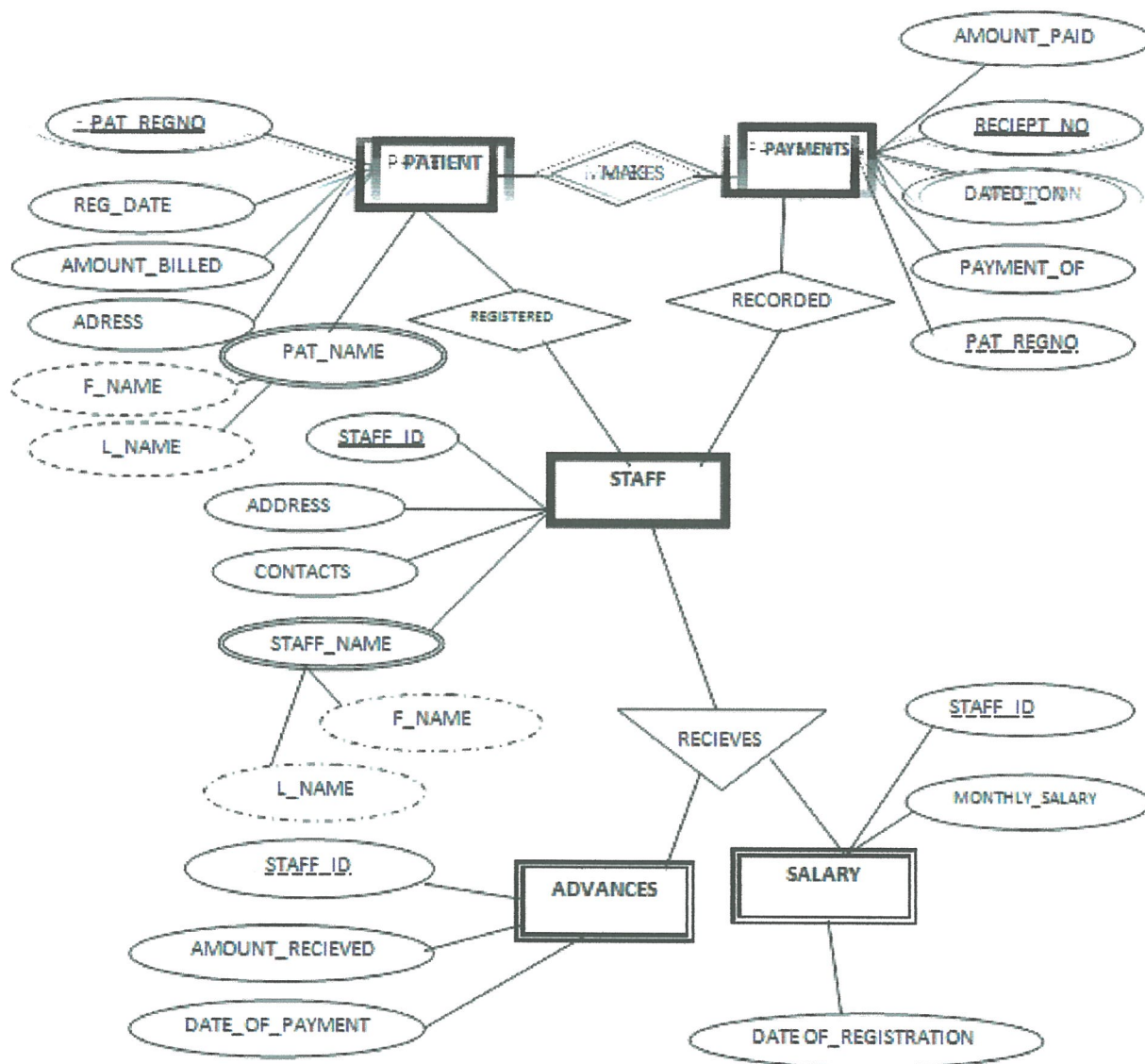


Figure 4

3.8.1 Data dictionary

This one contains all lists of files in the database system, the number of records in each file, and the names and types of each field. Most patient information systems hides' data dictionary from the users to prevent them from accidentally destroying its contents. For this case, a data

dictionary is a collection of descriptions of each data object, item in a data model for the benefit of programmers and others who need to refer to them.

Below are the different entities and their corresponding attributes in oracle database included in different tables.

3.8.1.1 Advances

Column Name	Data Type	Nullable	Default	Primary Key
STAFF_REGNO	VARCHAR2(10)	No	-	-
AMOUNT_RECIEVED	VARCHAR2(10)	No	-	-
RECIEVED_DATE	DATE	No	-	-
PAYMENT_NO	VARCHAR2(10)	No	-	-
1 - 4				

Figure 5

3.8.1.2 Patients

Column Name	Data Type	Nullable	Default	Primary Key
PAT_REGNO	CHAR(100)	No	-	1
FNAME	CHAR(100)	No	-	-
LNAME	CHAR(100)	No	-	-
ADRESS	CHAR(100)	No	-	-
AGE	NUMBER	No	-	-
BILLED	NUMBER	No	-	-
DATED_ON	DATE	No	-	-

Figure 6

3.8.1.3 Payments

Column Name	Data Type	Nullable	Default	Primary Key
PAT_REGNO	CHAR(100)	No	-	1
AMOUNT_PAID	NUMBER	No	-	-
RECIPT_NO	NUMBER	No	-	-
DATED_ON	DATE	No	-	-
BEING_PAYMENT_OF	CHAR(100)	No	-	-

Figure 7

3.8.1.4 Staff

Column Name	Data Type	Nullable	Default	Primary Key
STAFF_REGNO	CHAR(100)	No	-	1
FNAME	CHAR(100)	No	-	-
LNAME	CHAR(100)	No	-	-
ADRESS	CHAR(100)	No	-	-
TEL_NO	NUMBER	No	-	-
DESIGNATION	CHAR(100)	No	-	-
REGISTRATION_DATE	DATE	No	-	-
MONTHLY_SALARY	VARCHAR2(100)	Yes	-	-
				1 - 8

Figure 8

3.8.1.5 User details

Column Name	Data Type	Nullable	Default	Primary Key
USER_NAME	VARCHAR2(10)	No	-	-
PASSWORD	VARCHAR2(8)	No	-	-
RETYPE_PASSWORD	VARCHAR2(8)	No	-	-
USER_RIGHTS	VARCHAR2(10)	No	-	-
				1 - 4

Figure 9

3.9 System design

Under this, the main objective was to make a preliminary (logical) design and then a detailed Physical design. The logical design described the functional capabilities of the new system as well as the requirements specifications. The physical design illustrates how the proposed system will deliver the general capabilities, the output and input requirements, the processing requirements as well as the security control and backup.

3.9.1 Functional capabilities of the new system

- ❖ Improve security and access controls over data
- ❖ Provides better services to the patients and administration
- ❖ Change the access to data needed from sequential to random

- ❖ Allows regular updates
- ❖ Provide accurate and timely information needed by the administrators
- ❖ Increase throughput and decrease the response time.

3.9.1.1 System requirements specification

This describes the requirements and needs for the information system to give or produce an output. The requirements are divided into functional requirements and non functional requirements. The functional requirement includes all the features and functions which must be included into the system for it to produce the specifications. The non functional requirements are mainly defined by the user and they are not included in the system.

Functional requirements include

- ❖ The system be able to output patients reports as well as responding to user requests in short time
- ❖ Be reliable, portable. Compatible, and usable

Non function requirements include

- ❖ The development cost and user training cost should be cheap.
- ❖ The system must be completed in the agreed time
- ❖ The must be able to respond fast and in a short time.

3.9.1.3 Hardware requirements

The hard ware requirements are hardware specifications which were needed to design, and implement the system. They include the following below.

Table 1

Component	Specification
Processor	Intel's Pentium iv
Ram	256 MBS
Hard disk	80 GBS
CD ROM drive	52 x
Printer	Hp laser printer

4.5.1 Data conversion

The data from the old system is transferred safely to the new system. This is done by; Users enter data to the new system. . One has to ensure that data entry error is controlled from the file system to the new computerized system.

4.5.2 Installation and change over

This stage involve the following;-

1. Installation on site. Here the hard ware is bought on site, the software is installed (this includes operating system and the new information system).
2. Site commissioning. Here the system is installed on site, connected to any other third party component, commissioning tests are run to identify discrepancies between interfaces, until the system works without any problem.

With system change over, direct method is used. It occurs when at a given time one system ends. And a replacement starts immediately. The advantage is that, it is cheapest and there is clear break down between the old and the new system. This system does not operate on its own dependence, but the database management system software is supposed to be installed first then followed by the new system.

4.5.3 User training

All the user of the new system were trained on how to use the new system. This was conducted using projected on screen presentation. Training was the most interesting part of the study. The administrators were the first in the training and then the works followed. The administrators were given details than the workers to ensure that the users do what they are supposed to do than going into details.

4.6 Accessibility

Not everybody has access to the system but only authorized personnel have privileges. The system was created and secured with passwords. The user can change the password at any time whenever needed by the administrators.

FORMS AND REPORTS LAYOUTS

The Splash form



Login form

A login window titled "Login" with a standard Windows-style title bar. It contains two input fields: "User Name" with the text "admin" entered, and "Password" which is empty. Below the fields are two buttons: "OK" and "Cancel".

The MDI form (multiple documents interface)

A multiple document interface (MDI) window titled "MUKAMA YAWONYA SPECIAL RESEARCH CENTRE P.O.BOX 30588 KAMPALA UGANDA". The window has a menu bar with "file", "Databases", and "Reports". The main content area has a dark green header with the text "Mukama Yawonya Special Research Centre (U) Ltd" in white. Below the header, there is a section titled "Below is our menu" with four buttons: "PATIENTS", "STAFF", "ADMINISTRATORS", and "PAYMENTS DETAILS". In the center of this section is a "TODAYS CALENDER" showing "Mon 21 Feb 2011" and a large oval graphic. Below the calendar is a digital clock showing "1:36:04 PM". At the bottom of the window, there is a dark green bar with the text "we have a proven solution for you" and a button labeled "Close program".

Payments form

MUKAMA YAWONYA SPECIAL RESEARCH CENTRE PAYMENT INFORMATION FORM

please insert into the form below the patient payment details

PATIENT REG NO	MYSRCT122	RECEIPT NO	2343
AMOUNT PAID	20000	DATE	12 Jan 2011
BEING PAYMENT OF		TREATMENT	

SAVE ADD NEW DELETE EXT SHOW TABLE

←← PAYMENTS →→

Patients form

MUKAMA YAWONYA SPECIAL RESEARCH CENTRE PATIENT INFORMATION FORM

ENTER PATIENT DETAILS IN THE FORM BELOW

PATIENT NO	MYSRCT122	AGE	23
FIRST NAME	KIKAMBI	PATIENT ID	200000
LAST NAME	JOHNBOSCO	DATE	17 Jan 2011
ADDRESS	MAKINDYE		

SAVE ADD NEW DELETE EXT PROGRAM SHOW TABLE FIND RECORD

←← patient →→

Staff details

MUKAMA YAWONYA SPECIAL RESEARCH CENTRE STAFF MEMBERS FORM

PLEASE INPUT DETAILS FOR THE STAFF MEMBERS

F NAME	MYSRCT1	L NAME	KIKAMBI
ADDRESS	MUTUNGO	TELEPHONE NO	344434334
REG NO	61	DESIGNATION	DIRECTOR
REGISTRATION DATE	2/12/2011		
MONTHLY SALARY	200000		

SAVE ADD STAFF DELETE STAFF EXT SEARCH

←← STAFF →→

FORMS

ADVANCES VIEW REPORT

Advances

EMPLOYEE ADVANCES

**EMPLOYEE'S DETAILS ON HOW HE
ACQUIRED A SPECIFIC ADVANCE**

STAFF REGNO: MYSRC11

AMMOUNT RECIEVED: 20000

PAYMENT_NO: 12

DATE: 12-Feb-2011

SAVE DELETE EXIT

◀ ◻ ▶ ◻ ▶

System components and report printing

SYSTEM COMPONENTS AND REPORT SERVICES

**system administrators allowed to access
system components and details.**

system information

view system information

print report

search

system devises and Documents for users

C:\
Users
Patrick
Desktop
bosco docs
mukana soft ware

close program

Change users

change user accounts for security purpo...

New user: robina

password: XXXX

Retype password: XXXX

User_rights: admin

Save change exit

All payments

DataReport2

Zoom 100%

MUKAMA YAWONYA SPECIAL RESEARCH CENTRE UGANDA LIMITED
OVER ALL AMOUNT OF MONEY PAID BY THE PATIENTS

PRINTED ON: 24 February, 2011 AT: 12:30:45 AM

PATIENT REGNO	AMOUNT PAID	RECIPT NO	PAYMENT OF	DATE OF PAYMENT
MYSRC122	20000	12343	TREATMENT	12-Jan-2011
MYSRC122	200000	132455	TREATMENT	15-Jan-2011
MYSRC122	234500	234244	TREATMENT	15-Jan-2011
MYSRC122	200000	2314414	TREATMENT	15-Jan-2011
MYSRC122	600000	123425	TREATMENT	15-Jan-2011
MYSRC122	200000	12324	TREATMENT	01-Jan-2011
MYSRC122	100000	234414	TREATMENT	12-Jan-2011
MYSRC122	100000	17282	TREATMENT	12-Jan-2011
TOTAL AMOUNT	1954500			

The overall total amount of money paid by the patients is 1954500 /=Uganda shillings

Pages: 1 | 1

DATA IN ORACLE DATABASE TABLE

ORACLE Database Express Edition

User: PATIENT

Home > Object Browser

Tables

ADVANCES

PATIENT

PAYMENTS

STAFF

USER_DETAILS

PATIENT

Create

Table Data Indexes Model Constraints Grants Statistics UI Defaults Triggers Dependencies SQL

Query Count Rows Insert Row

EDIT	FNAME	LNAME	ADDRESS	AGE	BILLED	DATED_ON	PAT_REGNO
	KIKAMBI	JOHN BOSCO	MASAKA	25	250000	02-DEC-11	MYSRC122
	NAMATABA	JOSEPHINE	MAKERERE	24	280000	20-JUN-11	21

row(s) 1 - 2 of 2

Download

javascript:ob_PPR_TAB('fp=4500:TABLE_DATA:712680387019037:NO:RP:')

Object Browser - Mo... Final report [Compati...

9:58 AM

Chapter five

System Evaluation, Recommendation, further areas of improvement and Conclusion

5.0 System Evaluation

The old system was evaluated and found to have some pitfalls and lacked effectiveness and efficiency in the following areas.

Data recording speed. The old system of using manual recording takes time while workers tend to look for different recording places. There was no data validation, as a result the company prone, errors leading to misconceptions, loss of funds and other inconveniences associated with lack of record keeping. It is in this context therefore the designer designed a new computerized system which as a result can improve the speed of data recording, security to mention but a few.

5.1 Limitations

Factors such as finance for the purpose of software sources eg, visual basic programming language and oracle software and the time factors like printing costs photocopying costs, and transport were a limit. During data collection, some people could not give true information and therefore there was a need to seek for information from many users and administrators.

5.2 Problems uncouneted

During the overall stages of the system development, there was a number of problems which were encountered. These are illustrated as below;

- The case study was very far meaning that moving up to where it is located involved lots of costs in transport as well as other expenditures.
- Lack of full knowledge over the oracle database designer
- Power fluctuations especially during the design phase of the interfaces.

5.2.1 Solutions to problems

However these problems were solved as follows;-

- Self financing of the system design development and implementation

- There was a training in oracle for two weeks
- Creation of back up files on CDS FLASH DISCS and other devices.

To a great extent the designer hard worked and because of determination of the designers then the system was developed.

5.3 System maintenance

Due to the need of the system in a short time a system does not produce some functionalities like balances and producing weekly reports and many. This will be maintained in future and the system will be in position to produce all.

5.4 Recommendation

The system must be installed well and further the database management system must also be installed. The package is highly recommended to be used in Mukama Yawonya for effective process and retrieval of patient's payments as well as staff salary information. It is build with visual basic and oracle. Therefore these software must be installed in order to be compatibles to every computer.

With the entire above the system is expected to full fill the user specifications as well as meeting the organization's requirements. The system may be found to have some pitfall; however it can produce the specification. The ineffective components will be improved as long as needed by the administrators.

References

- A 1992 survey of executive nurses (Simpson 1992)
- Surveys of hospitals since 1980 (Dore fest 1987, 1992)
- National bureau of standards (2000)
- IHE, 2003
- HIMSS, 2004
- Vegoda, 2004
- RSNA, 1999
- Dore fest, S. 1993.
- The Dore fest 3000+ Database and the Dore fest Guide to the Hospital Information Systems Market. Chicago: published by the author. Quoted in Saba and McCormick 1996, p. 190.
- Marr, P., E. Duthie, K. Glassman et al. 1993.
- Bedside terminals and quality of nursing documentation. Computers in Nursing, 11(4), 176-182. Quoted in Saba and McCormick 1996, p.371.
- Saba, V. and K. McCormick. 1996.
- Essentials of Computers for Nurses. Second edition. New York: McGraw-Hill.
- What nursing leaders are saying about technology? Nursing Management, 23(7), 28-32. Quoted in Saba & McCormick, pp. 358-9.
- A 2010 update by the Healthcare Information and Management Systems Society,
http://www.ehow.com/facts_6395272_patient-information-management-system_.html
www.ehow.co/health/
www.courses.wccnet.edu/computer/mod/m30c.htm#saba

Appendix A
Questionnaire

Mukama Yawonya Special Research Centre

P.o.box. 30588 Kampala Uganda

With great respect, we are very grateful to send to you this questionnaire. We request you sir/madam to fill the questions so that we can cooperate to introduce a new system that will make our work easier and simplified from lots of complex.

1. When did the company emerge?

.....
.....

2. What do you extremely deal in and which services do you offer?

.....
.....

3. What is the total number of patient do the company has and how many are expected every year?

.....
.....

4. Some people believe that a company without a system lacks organization and coordination among the workers. Do you agree?

.....
.....

5. Do you have a system?

.....
.....

6. If yes, how does the system perform?

.....
.....

7. If no, would you like to acquire one?

.....
.....

8. Include in the below space the information that you would like to capture from the patients.

.....
.....
.....

9. Which type of computer systems do you have?

.....
.....

10. What type of operating system is installed on your computers?

.....
.....

11. Designing a system requires attention and maximum concentration so that they can be good and effective. When would you like to start using the system?

.....
.....

Project plan

This project is estimated to take two month and two weeks approximately. The estimated project activities are described with the help of the diagram below (Gantt chart)

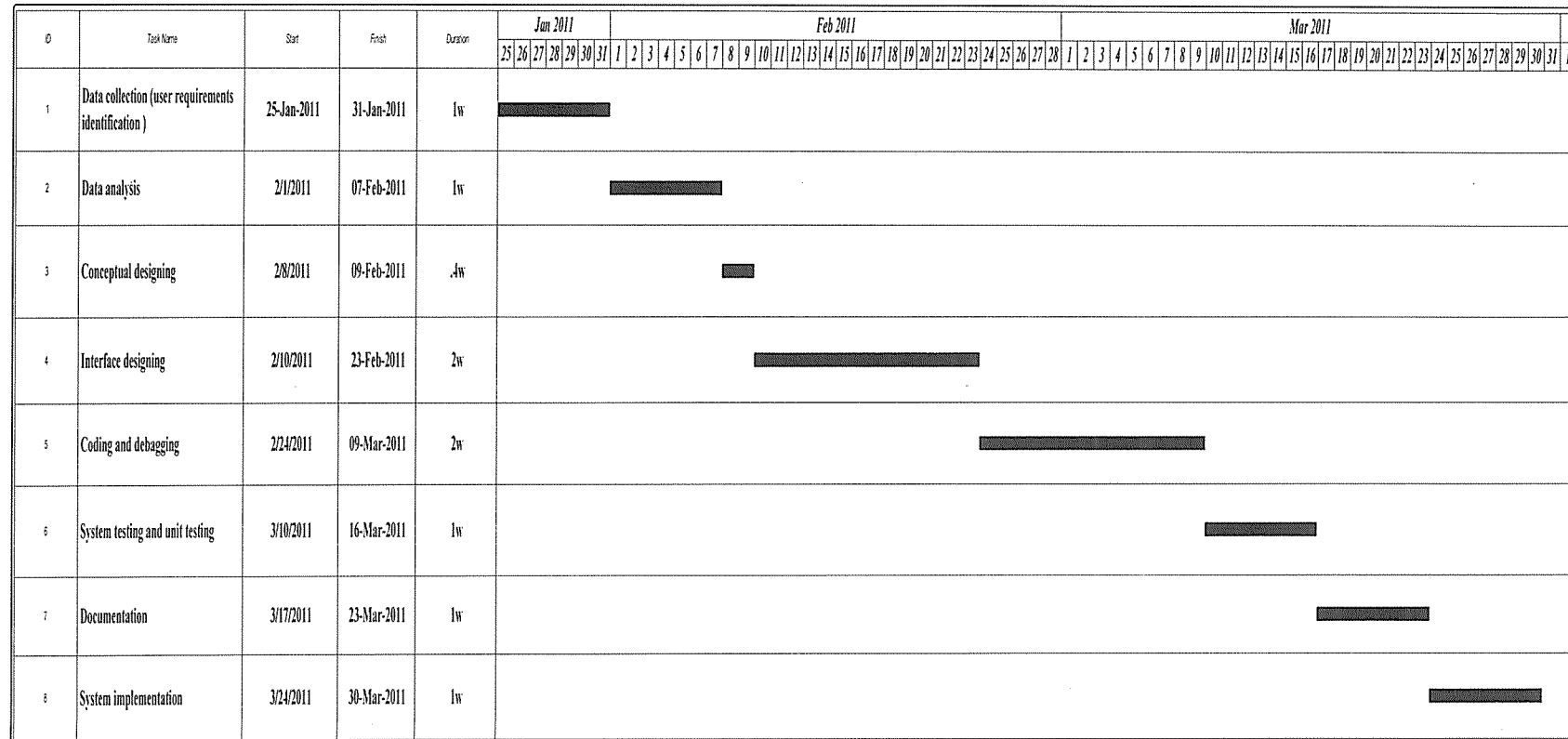


Figure 10

Appendix C

Estimated budget for the whole project.

In the table it is the estimated budget for the whole project.

Item required	Amount	Quantity	Quality
1. Computer	500000.00	1	Dell compatible
2. Pens and books	4800.00	Dozen	Bic pens
3. Transport	100000.00	Whole project	Bodaboda
4. System analysts	50000.00	1 person, one day	
5. Software for application	30000.00	1 copy	Visual basic
design	50000.00	1 copy	Oracle database 10g express edition
and database design			
6. Labor	200000.00	Once	Ugx
Grand total	934800.00		Ugx

Figure 11

Amount in words: nine hundred thirty four thousand eight hundred shillings

Appendix D

Program code

1. Splash form

```
Option Explicit
Private Sub Timer1_Timer()
On Error Resume Next
Static count As Integer 'declaration of count variable as static
count = count + 1 ' count is initialised to one
If count = 100 Then 'statment to test count
Label2 = "loading databases..." ' let lable 2 display the massage
Shape1.Visible = True 'the visibility of shape one is set true
Label3.BackColor = vbYellow
ElseIf count = 350 Then
Label2 = "loading module application..."
Shape1.Visible = True
Label1.Visible = False
Label3.BackColor = vbGreen
ElseIf count = 400 Then
Label2 = "applying system settings..."
Label3.BackColor = vbBlue
ElseIf count = 450 Then
Label2 = "now loading please wait..."
Shape1.Visible = False
Label1.Visible = True
Label1.ForeColor = vbBlue
Label1.BackColor = vbYellow
Label3.BackColor = vbRed
ElseIf count = 750 Then
ProgressBar1.Visible = True
Label1.Visible = False
Label2 = "please wait....."
Dim s As Integer
For s = 1 To 2000 Step 2
ProgressBar1.Value = ProgressBar + Value + s
```



```

Label3.Caption = ProgressBar1.Value & "%"
Next s
ElseIf count = 1000 Then
Timer1.Enabled = False
Label1.Visible = True
Unload Me
frmLogin.Show
End If
End Sub

```

2. Login form

```

Private Sub cmdOK_Click()
    'check for correct password
    If frmLogin.txtPassword = frmUsers.Text2 Then
        'place code to here to pass the
        'success to the calling sub
        'setting a global var is the easiest
        LoginSucceeded = True
        Unload Me
        frmMDI.Show
    ElseIf txtPassword = "" And txtUserName = "" Then
        MsgBox "Username and password can not contain a null value", vbExclamation
    Else
        MsgBox "Invalid Password, try again!", vbExclamation, "Login"
        txtPassword.SetFocus
    End If
End Sub

```

3. Multiple document interfaces (MDI)

```

Private Sub cmdAdmin_Click()
    frmLogin1.Show
End Sub

Private Sub cmdEnd_Click()
    Unload Me

```

```

frmLogin.Show
End Sub
Private Sub cmdpatient_Click()
Unload Me
frmpatients.Show
End Sub
Private Sub cmdpayments_Click()
Unload Me
frmpayment.Show
End Sub
Private Sub cmdStaff_Click()
Unload Me
frmstaff.Show
End Sub
Private Sub mnuchange_Click()
frmUsers.Show
End Sub
Private Sub mnuexit_Click()
Unload Me
End Sub
Private Sub mnupat_Click()
frmPatientsTable.Show
End Sub
Private Sub mnupayments_Click()
frmPayments_table.Show
End Sub
Private Sub mnureport_Click()
DataReport1.Show
End Sub
Private Sub mnustaff_Click()
frmStaffTable.Show
End Sub
Private Sub Timer1_Timer()
Dim Today As Variant

```

```

Today = Now
lblDay.Caption = Format(Today, "ddd")
lblmonth.Caption = Format(Today, "mmm")
lblYear.Caption = Format(Today, "yyyy")
lblnumber.Caption = Format(Today, "d")
lblTime.Caption = Format(Today, "h:mm:ss ampm")
End Sub

```

4. Patients form

```

Option Explicit
Private Sub cmdAdd_Click()
Dim ctl As Control
For Each ctl In Controls
If TypeOf ctl Is TextBox Then
ctl.Text = ""
End If
Next ctl
End Sub
Private Sub cmdDelete_Click()
'Delete item from database
Dim Rvalue As Integer
Rvalue = MsgBox("Are you sure you want to delete this item?", vbQuestion + vbYesNo, "Delete Item")
If Rvalue = vbNo Then Exit Sub
Adodc1.Recordset.Delete
Adodc1.Recordset.MoveNext
If Adodc1.Recordset.EOF Then
If Adodc1.Recordset.BOF Then
MsgBox "You must add an item.", vbOKOnly + vbInformation, "Empty Database"
Call cmdDelete_Click
Else
Adodc1.Recordset.MoveFirst
End If
End If
End Sub
txtPat_Regno.SetFocus
End Sub

```

```

Private Sub cmdExit_Click()
Unload Me
frmMDI.Show
End Sub

Private Sub cmdFind_Click()
Dim Searchvar As String
Dim sBookMark As String
Searchvar = InputBox("Enter the REGNO to find")
Searchvar = Trim$(Searchvar) 'remove surplus spaces
If Searchvar <> " " Then 'cancel if nothing entered
With Adodc1.Recordset
sBookMark = .Bookmark
.Find "PAT_REGNO like '" + Searchvar + "'"
If .BOF Then 'record not found
Adodc1.Recordset.MoveNext
If .EOF Then
Adodc1.Recordset.MovePrevious
MsgBox "Hey! There is no such record in this Database ", vbYesNoCancel
Else
If Searchvar = "" Then
MsgBox "You must add an item", vbOKCancel
End If
End If
End If
End With
End If
End Sub

Private Sub cmdSave_Click()
Rem addnew record
Adodc1.Recordset.AddNew
txtPat_Regno.SetFocus
If txtPat_Regno.Text = "" Then
MsgBox "please add new entries", vbDefaultButton3
End If

```

```

End Sub
Private Sub cmdShow_Click()
frmPatientsTable.Show
End Sub
Private Sub Form_Load()
lblDate.Caption = Date
If frmLogin.txtUserName.Text = "admin" Then
cmdDelete.Enabled = True
End If
End Sub
Private Sub Timer1_Timer()
Dim Today As Variant
Today = Now
lblTime.Caption = Format(Today, "h:mm:ss ampm")
End Sub

```

5. Payments form

```

Private Sub cmdAdd_Click()
Dim ctl As Control
For Each ctl In Controls
If TypeOf ctl Is TextBox Then
ctl.Text = ""
End If
Next ctl
End Sub
Private Sub cmdDelete_Click()
'Delete item from database
Dim Rvalue As Integer
Rvalue = MsgBox("Are you sure you want to delete this item?", vbQuestion + vbYesNo, "Delete Item")
If Rvalue = vbNo Then Exit Sub
Adodc1.Recordset.Delete
Adodc1.Recordset.MoveNext
If Adodc1.Recordset.EOF Then
If Adodc1.Recordset.BOF Then
MsgBox "You must add an item.", vbOKOnly, "Empty Database"

```

```

    Call cmdDelete_Click
Else
    Adodc1.Recordset.MoveFirst
End If
End If
txtRegNo.SetFocus
Unload Me
frmMDI.Show
End Sub
Private Sub cmdExit_Click()
Unload Me
frmMDI.Show
End Sub
Private Sub cmdReport_Click()
DataReport2.Show
End Sub
Private Sub cmdSave_Click()
Rem add new record
Adodc1.Recordset.AddNew
txtRegNo.SetFocus
End Sub
Private Sub cmdShow_Click()
frmPayments_table.Show
End Sub
Private Sub Form_Load()
lblDate.Caption = Date
End Sub
Private Sub Timer1_Timer()
Dim Today As Variant
Today = Now
lblTime.Caption = Format(Today, "h:mm:ss ampm")
End Sub

```

6. System information and printing

```
Private Sub cmdExit_Click()
Unload Me
End Sub

Private Sub cmdSystem_Click()
frmLogin2.Show
End Sub

Private Sub cmdSearch_Click()
frmPatientsTable.Show
End Sub

Private Sub cmdPrint_Click()
DataReport1.Show
End Sub

Private Sub Dir1_Change()
On Error GoTo SysInfoErr
    Dim rc As Long
    Dim SysInfoPath As String
    ' Try To Get System Info Program Path\Name From Registry...
    If (HKEY_LOCAL_MACHINE) Then
    ' Try To Get System Info Program Path Only From Registry...
    ElseIf (HKEY_LOCAL_MACHINE) Then
        ' Validate Existence Of Known 32 Bit File Version
        If (Dir(SysInfoPath & "\MSINFO32.EXE") <> "") Then
            SysInfoPath = SysInfoPath & "\MSINFO32.EXE"
            ' Error - File Can Not Be Found...
        Else
            GoTo SysInfoErr
        End If
    ' Error - Registry Entry Can Not Be Found...
    Else
        GoTo SysInfoErr
    End If
    Call Shell(SysInfoPath, vbNormalFocus)
```

```

Exit Sub
SysInfoErr:
    MsgBox " You do not have access to System Information. click Retry to try again or exit to exit! ",
vbCritical + vbRetryCancel
End Sub

```

7. New_User form

```

Private Sub cmdchange_Click()
'Delete item from database
Dim Rvalue As Integer
Rvalue = MsgBox("change user?", vbQuestion + vbYesNo, "Change user account")
If Rvalue = vbNo Then Exit Sub
Adodc1.Recordset.Delete
Adodc1.Recordset.MoveNext
If Adodc1.Recordset.EOF Then
    If Adodc1.Recordset.BOF Then
        Call cmdchange_Click
    Else
        Exit Sub
    End If
End If
Text1.SetFocus
End Sub

```

```

Private Sub cmdExit_Click()
Unload Me
End Sub
Private Sub cmdSave_Click()
Rem ADDNEW
If Text2.Text = Text3.Text Then
Adodc1.Recordset.AddNew
Else
MsgBox "Please pasword dont match Retype password", vbCritical
Exit Sub

```



```

If Text1.Text = "" Then
MsgBox "User id should not contain a null value"
End If
End If
Text2.SetFocus
Me.ValidateControls
End Sub

```

8. Form About (system information)

```

Option Explicit
' Reg Key Security Options...
Const READ_CONTROL = &H20000
Const KEY_QUERY_VALUE = &H1
Const KEY_SET_VALUE = &H2
Const KEY_CREATE_SUB_KEY = &H4
Const KEY_ENUMERATE_SUB_KEYS = &H8
Const KEY_NOTIFY = &H10
Const KEY_CREATE_LINK = &H20
Const KEY_ALL_ACCESS = KEY_QUERY_VALUE + KEY_SET_VALUE + _
    KEY_CREATE_SUB_KEY + KEY_ENUMERATE_SUB_KEYS + _
    KEY_NOTIFY + KEY_CREATE_LINK + READ_CONTROL

' Reg Key ROOT Types...
Const HKEY_LOCAL_MACHINE = &H80000002
Const ERROR_SUCCESS = 0
Const REG_SZ = 1          ' Unicode nul terminated string
Const REG_DWORD = 4       ' 32-bit number
Const gREGKEYSYSINFOLOC = "SOFTWARE\Microsoft\Shared Tools Location"
Const gREGVALSYSINFOLOC = "MSINFO"
Const gREGKEYSYSINFO = "SOFTWARE\Microsoft\Shared Tools\MSINFO"
Const gREGVALSYSINFO = "PATH"
Private Declare Function RegOpenKeyEx Lib "advapi32" Alias "RegOpenKeyExA" (ByVal hKey As
Long, ByVal lpSubKey As String, ByVal ulOptions As Long, ByVal samDesired As Long, ByRef
phkResult As Long) As Long

```

```

Private Declare Function RegQueryValueEx Lib "advapi32" Alias "RegQueryValueExA" (ByVal hKey
As Long, ByVal lpValueName As String, ByVal lpReserved As Long, ByRef lpType As Long, ByVal
lpData As String, ByRef lpcbData As Long) As Long
Private Declare Function RegCloseKey Lib "advapi32" (ByVal hKey As Long) As Long
Private Sub cmdSysInfo_Click()
    Call StartSysInfo
End Sub
Private Sub cmdOK_Click()
    Unload Me
End Sub
Public Sub StartSysInfo()
    On Error GoTo SysInfoErr

    Dim rc As Long
    Dim SysInfoPath As String

    ' Try To Get System Info Program Path\Name From Registry...
    If GetKeyValue(HKEY_LOCAL_MACHINE, gREGKEYSYSINFO, gREGVALSYSINFO,
SysInfoPath) Then
        ' Try To Get System Info Program Path Only From Registry...
        ElseIf GetKeyValue(HKEY_LOCAL_MACHINE, gREGKEYSYSINFOLOC,
gREGVALSYSINFOLOC, SysInfoPath) Then
            ' Validate Existence Of Known 32 Bit File Version
            If (Dir(SysInfoPath & "\MSINFO32.EXE") <> "") Then
                SysInfoPath = SysInfoPath & "\MSINFO32.EXE"

                ' Error - File Can Not Be Found...
            Else
                GoTo SysInfoErr
            End If
        ' Error - Registry Entry Can Not Be Found...
    Else
        GoTo SysInfoErr
    End If

```

```

Call Shell(SysInfoPath, vbNormalFocus)

Exit Sub
SysInfoErr:
    MsgBox "System Information Is Unavailable At This Time", vbOKOnly
End Sub

Public Function GetKeyValue(KeyRoot As Long, KeyName As String, SubKeyRef As String, ByRef
KeyVal As String) As Boolean
    Dim i As Long                ' Loop Counter
    Dim rc As Long               ' Return Code
    Dim hKey As Long             ' Handle To An Open Registry Key
    Dim hDepth As Long          '
    Dim KeyValType As Long       ' Data Type Of A Registry Key
    Dim tmpVal As String         ' Tempory Storage For A Registry Key Value
    Dim KeyValSize As Long       ' Size Of Registry Key Variable
    '-----
    ' Open RegKey Under KeyRoot {HKEY_LOCAL_MACHINE...}
    '-----
    rc = RegOpenKeyEx(KeyRoot, KeyName, 0, KEY_ALL_ACCESS, hKey) ' Open Registry Key

    If (rc <> ERROR_SUCCESS) Then GoTo GetKeyError    ' Handle Error...

    tmpVal = String$(1024, 0)        ' Allocate Variable Space
    KeyValSize = 1024                ' Mark Variable Size

    '-----
    ' Retrieve Registry Key Value...
    '-----
    rc = RegQueryValueEx(hKey, SubKeyRef, 0, _
        KeyValType, tmpVal, KeyValSize) ' Get/Create Key Value

    If (rc <> ERROR_SUCCESS) Then GoTo GetKeyError    ' Handle Errors

```

```

If (Asc(Mid(tmpVal, KeyValSize, 1)) = 0) Then      ' Win95 Adds Null Terminated String...
    tmpVal = Left(tmpVal, KeyValSize - 1)          ' Null Found, Extract From String
Else                                              ' WinNT Does NOT Null Terminate String...
    tmpVal = Left(tmpVal, KeyValSize)              ' Null Not Found, Extract String Only
End If

'-----
' Determine Key Value Type For Conversion...
'-----

Select Case KeyValType                          ' Search Data Types...
Case REG_SZ                                     ' String Registry Key Data Type
    KeyVal = tmpVal                             ' Copy String Value
Case REG_DWORD                                 ' Double Word Registry Key Data Type
    For i = Len(tmpVal) To 1 Step -1             ' Convert Each Bit
        KeyVal = KeyVal + Hex(Asc(Mid(tmpVal, i, 1))) ' Build Value Char. By Char.
    Next
    KeyVal = Format$("&h" + KeyVal)                ' Convert Double Word To String
End Select

GetKeyValue = True                             ' Return Success
rc = RegCloseKey(hKey)                         ' Close Registry Key
Exit Function                                  ' Exit

GetKeyError:  ' Cleanup After An Error Has Occured...
    KeyVal = ""                                 ' Set Return Val To Empty String
    GetKeyValue = False                         ' Return Failure
    rc = RegCloseKey(hKey)                     ' Close Registry Key
End Function

```

Directions for System installation

Mukama Yawonya software can be successfully installed by following the steps below.

1. Turn on your computer
2. Insert a CD in either a DVD ROM or CD ROM
3. Run the setup for the project
4. Press the installation icon
5. Once an error appears, press an ignore button
6. When ready press ok
7. After the setup installation then insert an oracle database 10g express edition CD into your CD or DVD ROM
8. Install oracle database 10g express edition with user name system and password admin
9. Create an account (user) into the oracle database named "PATIENT" and the user password is "PAT" from the administrative tools.
10. Load the databases form the CD to the created account.
11. Modify the database tables by removing un necessary components
12. Name them
 - . PATIENT
 - .PAYMENTS
 - .USER_DETAILS
 - . STAFF
 - . ADVANCES

This will allow you to work well with your program as a table corresponds with the database.

THE END