A HOSPITAL DATABASE MANAGEMENT SYSTEM

CASE STUDY: KAMPALA SKIN AND SURGICAL CENTRE

BY:

SSENDOWOOZA ABDUL

DCS/ 7702 / 61/ DU

AND

SSEBBOWA MOHAMMED

DCS/12027/61/DU

A Graduation Project Submitted to the School of Computer Studies

In Partial Fulfillment of the Requirement for the Award of the Diploma in Computer Science

Of

Kampala International University

August 2009

A Hospital DataBase by A.Ssendowooza, Sebbowa.M

DECLRARATION.

I, Ssendowooza Abdul do hereby declare that this project is original and has never been submitted for any other diploma award to any other University before.

Date: 8/09/2009

Signature Den 1

A Hospital DataBase by A.Ssendowooza, Sebbowa.M

APPROVAL.

This Project Report has been submitted for Examination with the approval of the following supervisor.

Miss. Esther Wabule.

DEDICATION

This Project is dedicated to Our Almighty Father for His lovely guide throughout the. Study of the Course. I also dedicate this project to my parents, lecturers at the department of computer science especially my Supervisor, friends and relatives.

A Hospital DataBase by A.Ssendowooza , Sebbowa.M

ACKNOWLEDGEMENT

I acknowledge first of all the Almighty God for His care, love and guide to the production of this system. Special thanks to my father Abdul kalule, my sister, Mum Jennifer Namagambe for their credible financial support. Thanks to my supervisor Miss. Esther Wabule for her thought-provoking comments. Excellent research assistance was provided by Mr. Isaac Mulindwa and in fact any Errors are my own.

A Hospital DataBase by A.Ssendowooza, Sebbowa.M

.

.

TABLE OF CONTENTS: CHAPTER ONE. PAGES

.

DECLARATIONi
APPROVALii
DEDICATIONiii
ACKNOWLDGEMENTiv
LIST OF TABLESv
LIST OF FIGURESvi
LIST OF APPENDICESvii
LIST OF ABBREVIATIONSxi
1.0 INTRODUCTION1
1.1 BACKGROUND1
1.2 PROBLEM STATEMENT
1. 3 AIM OF THE STUDY2
1.4 OBJECTIVES OF THE STUDY2
1.4.1 GENERAL OBJECTIVE2
1.4.2 SPECIFIC OBJECTIVES
1.5 SCOPE OF THE STUDY
1.6 JUSTIFICATION OF THE STUDY

CHAPTER TWO

LITERATURE REVIEW	5
	V

A Hospital DataBase by A.Ssendowooza, Sebbowa.M

2.0 I	NTRODUCTION	5
2.11	VTRODUCTION OF MANAGEMENT INFORMATION SYSTEM	7
2.1.2	INFORMATION TECHOLOGY	}
2.1.3	INFORMATION SYSTEM	¢
2.2	DATABASE AND ALL ITS ASPECTS)
2.3	ADVANTAGES OF DATABASES1	0

•

CHAPTER THREE

METHODOLOGY	.13
3.0 INTRODUCTION	.13
3.1 DATA COLLECTION	.13
3.2 ANALYSIS	.14
3.3 DESIGN	.14
3.4 DEVELOPMENT	.14
3.3.0 FRONT END	14
3.3.1 BACK END1	14
3.4 TESTING	.14

CHAPTER FOUR

SYSTEM ANALYSIS, DESIGN AND IMPLEMENTATION	
4.0 INTRODUCTION1	6
4.1 DATA ANALYSIS1	16
4.2 THE EXISTING SYSTEM ANALYSIS1	8
4.3 REQUIREMENT ANALYSIS1	8
4.4 DATABASE SYSTEM DESIGN1 VII	9

4.4.1	INTERFACE MODEL	0
4.4.2	PROCESS MODEL2	1
4.4.3	DATA MODEL	22
4.4.4	HARDWARE REQUIREMENT2	4
4.4.5	SOFTWARE REQUIREMENT2	!4
4.5 IN	APLEMENTATION2	5
4.5.1 I	MPLEMENTATION APPROACH2	5
4.5.2 S	SYSTEM TESTING2'	7
4.5.3	USER TRAINING2	27
4.5.4	FILE CONVERSION	3

CHAPTER FIVE

DISCUSSION, RECOMMENDATION, CONCLUSION AND LIMITATION

LIST OF ABBREVIATIONS

KSSC	Kampala Skin and Surgical Centre
DBMS	Database Management System
IT	Information Technology
DB	Database

A Hospital DataBase by A.Ssendowooza , Sebbowa.M

,

DECLRARATION.

I, Ssendowooza Abdul do hereby declare that this project is original and has never been submitted for any other diploma award to any other University before.

Date:

Signature

APPROVAL.

This Project Report has been submitted for Examination with the approval of the following supervisor.

Signed:

Date:

Miss. Esther Wabule.

DEDICATION

This Project is dedicated to Our Almighty Father for His lovely guide throughout the Study of the Course. I also dedicate this project to my parents, lecturers at the department of computer science especially my Supervisor, friends and relatives.

ACKNOWLEDGEMENT

I acknowledge first of all the Almighty God for His care, love and guide to the production of this system. Special thanks to my father Abdul kalule, my sister, Mum Jennifer Namagambe for their credible financial support. Thanks to my supervisor Miss. Esther Wabule for her thought-provoking comments. Excellent research assistance was provided by Mr. Isaac Mulindwa and in fact any Errors are my own.

3.1	DATA COLLECTION	13
3.2	ANALYSIS	.14
3.3	DESIGN	.14
3.4	DEVELOPMENT1	4
3.3.(FRONT END	14
3.3.1	I BACK END	14
3.4	TESTING	14

CHAPTER FOUR

SYSTEM ANALYSIS, DESIGN AND IMPLEMENTATION
4.0 INTRODUCTION
4.1 DATA ANALYSIS
4.2 THE EXISTING SYSTEM ANALYSIS
4.3 REQUIREMENT ANALYSIS
4.4 DATABASE SYSTEM DESIGN
4.4.1 INTERFACE MODEL
4.4.2 PROCESS MODEL
4.4.3 DATA MODEL
4.4.4 HARDWARE REQUIREMENT
4.4.5 SOFTWARE REQUIREMENT
4.5 IMPLEMENTATION25
4.5.1 IMPLEMENTATION APPROACH
4.5.2 SYSTEM TESTING
4.5.3 USER TRAINING

4.5.4	FILE CONVERSION		8
-------	-----------------	--	---

CHAPTER FIVE

LIST OF ABBREVIATIONS

KSSC		Kampala	Skin and	Surgical	Centre
------	--	---------	----------	----------	--------

- DBMSDatabase Management System
- ITInformation Technology
- DBDatabase

CHAPTER ONE

1.0 Introduction

This project involves the development of the most efficient way of data storage and faster ways of searching for information, this Kampala Skin and Surgical Centre (KSSC) was faced with a problem of how to keep and maintain data regarding its patients. The project focuses on creating a computerized database system that will help them efficiently keep the data connecting to their patient medical records, general administration as well as the discharge and also for easy retrieval.

1.1 Background

Kampala Skin and Surgical Centre is located at Nakurabye junction along Sir Apolo road opposite Makerere University. This hospital was founded by Dr. Senteza John Bosco,. It has three departments , the Dental Clinic, Skin Clinic and Surgical Centre. Each of the department mentioned has specialized Doctors. When a patient is admitted, he is referred to the right department depending on what he/she is suffering from. In this Centre there are various forms used by patients which include Notification forms used in Dental and Skin department and patient administration forms for all patient and lastly Laboratory Request forms for all patients referred to the laboratory but they still use manual record keeping system which leads to a number of human errors, may be due to much work loaded by the personnel concerned in the department and loss of important information.

1.2 Problem Statement

KSSC had been carrying out the duties manually and encountering with a lot of losses and failure to progress because of the improper method of balancing the payments and calculating the amount paid, poor managing and keeping the records at of the Laboratory, and administration forms were exposed to insects like cockroaches, Rats etc, which at off some vital information, leading to poor follow-ups of students so they would need a better finance database system that will help them process information as fast as possible for the students they need in order to meet the patient demands and have, a good information for future reference.

1.3 Aim of the study

The study aim of creating a computerized system in Surgical department to store data for more efficient retrieval, to increase the efficiency by having fast access to information, to reduce on the rate of human errors, a mount of paper work in the surgical department, to reduce on high expenses both in buying materials like papers and to reduce on time taken in cross checking patients files

1.4 Objectives of the study

1.4.1 General objective

• To modify the old manual system into a new computerized and find out how the Financial Management and record keeping.

1.4.2 Specific Objectives

- To ensure maximum data security by creating user account to perform work, the database thus locking out unauthorized computer hackers.
- To register and handle enormous number of patients information, analyze the data internally, and output this data in well formatted forms that will help top level decision makers think out strategies.
- To ensure proper data storage, regular backup and recovery that will help data loss
- To reduce amount of paper work in the department.
- The system will be in position to balance the payment and calculate for the payment automatically.
- To Design the Computerized Data Base System for record keeping.
- To test and debugger for errors
- To implement the system and its software project

1.5 Scope of the study

This study will encompass all aspects of Computerized system. The staff and the patients were interviewed and analyzed their problems, opinions on the current system sought. Due to time constraints, questionnaires are viewed to be more effective as it will obtain the necessary information from most of the patients in a timely manner. Issue most likely to be questioned are the existing system integrity and reliability. Management also have to give their input as the final decision on whether to give the go a head on a new system rests in their hand.

1.6 Justification of the study

- This system store as much information as possible pertaining an installation and on student thus significantly it reduces the manual work strains in recording any data.
- This system also provides a reliable and easy reference to student's history
- This system will provides a report for every student and staff.
- The system is supposed to implement security measures of the stored data through authentication, which is use of password to log into the database.
- It will also reduce the amount of paper storage space

CHAPTER TWO LITERATURE REVIEW

2.0 Introduction

This chapter reviews the past and the present literature on directories and research support systems. It as well presents significant researches on projects that were done to enhance the management of the hospitals' transaction queries.

This literature review may not be exhaustive because it is presented in a condensed form as the reader is always referenced or referred to the original papers.

Ramakrishnan/ Johanner Gehrke, defined database is a collection of data, typically describing the activities of one or more related organization.

Silberschatz. Korth, he defined database as designed to manage large bodies of information. Management of data, involves both defining structures of information and providing mechanisms for the manipulation of information.

Gerald .V. Post, defined database is a collection of data stored in a standardized format, designed to be shared by multiple users.

James Martin, database may be defined as a collection of interrelated data stored together without harmful or unnecessary redundancy to serve one or more applications in an optimal fushion, the data are stored so that they are independent of programs which use the data, a common and controlled approach is used in adding new data and in modifying and retrieving existing data within the database. One system is said to contain a collection of database if they are entirely separate in structure.

Charles Bachman, defined database is a collection of the occurrences of multiple record types, containing the relationships between records, data aggregates, and data items. The software used to handle and query database is known as a database

management system (DBMS). The concept of a database is the idea of collection of facts. Facts may be structured in the number of ways, known as **data model**. Data models arose at this time:

- Network model
- Hierarchical model

www. wikiped.com describe database is a structured collection of records or data that is stored in a computer system.

Hansen W. Gary, describe a Database as a collection of interrelated data items that can be processed by one or more application systems and some of the roles of database are:-

- Data is shared. Data can be shared between functional units, between levels of management and between geographical units.
- Data can control. Control is provided by a database management system whose facilities are managed by personnel known as a Database Administrator.
- Data is integrated in logically sound fashion so redundancies are highly eliminated, ambiguities of definition are resolved and internal consistence between data elements is maintained

Laudon C.Kenneth, defines database as a collection of data organized to service many applications at the same time by storing and managing data so that they appear to be in one location.

Date. C. J (2000), describe data base is basically just a computerized record keeping system. The database itself can be regarded as a kind of electronic filing cabinet. It is a repository or container for the collection of computerized data files.

Users of such systems can perform the following operations:

- Adding new empty files to the Data Base
- Inserting data in existing files
- Retrieving data from existing files

- Deleting data from existing files
- Changing data from existing files
- Removing existing files from the database

Date C.J(2001), defined a database Management System is the software that handles all access to the database. A database Management System, like Microsoft Access, allow one to use s computer to create Data Base, add, change, and delete data in a database, sort the data in the database, retrieve data in the database, and create forms a and reports using data in the database, there fore Database is an important tool to rely on in terms of Data storage.

Peter Bishop(1987) talks of a database as consisting of the stored data, the various model, a piece of software called a Database Management system(DBMS) and a person called a Database Administrator(DBA).

Ideally DBMS is a large and complex piece of software that is responsible for all types of aspects of the location, accessing and updating of the database. DBA is a person in charge of the entire running of the database system.

Kenneth C. laudon and jane p. laudon (1998) defined a database as a collection of data organized to service many application at the same time by storing and managing data so that they appear to be in one location.

2.1 Introduction of Management Information System

This chapter involved looking through earlier research documents and related literature with an aim of identifying a problem of concern such that no duplication of earlier research work is done. This was sourced by reviewing documented resources such as text books and online publications, related with our research topic, we have described the Database, the Database System and the database management Information system, benefits, the effects of the Database and database management system as addressed by the earlier writers.

It must be remembered that today in the 21st century the information systems have become the order of the day and their impacts are witnessed by almost every organization ranging from small, medium sized and big.

In the old days way back in the 1990's managers were responsible for controlling, maintaining and standardizing paper records, office supervisors were responsible for dayto-day management of office work, secretaries and office workers used such tools as adding machines, key punch machines and type writers to perform paper work processing tasks but to day things have changed leading to a high level of technology in information management.

2.1.1 Information Technology

This is the bringing about changes in the organization that make the firm even more dependent than in the past on the knowledge learning and decision making of individual employees Kenneth (Laudon, 2000) [15].

Information refers to data that has been shaped in to a form that is meaning full and useful to human beings. Data are streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged in to a form that people can understand and use (Laudon, 2000) [15].

Information flows in a system there fore a need to take a quick look at what *a system is*: A system is a set of interrelated components that must work together to a achieve some common goal, failure for the components to work together the system will malfunction example suppose marketing (one component of the system that is the organization) sells more than expected of some product then production (another component) would have to

8

special-order materials or pay over time to produce more than the planned time Martin *etal*,(1999)

There fore information systems contain information about significant people places and things with in the organization or in the environment surrounding it

2.1.2 Information system

Is a collection of computer hardware and software, procedure, documentation, forms and people responsible for the capture, movement management and distribution of data and information. As with many systems it's crucial that the components of the IS work together the components must be consistent, minimally redundant complete and well connected with each other (Carol, 1999) [10].

2.2 Database and all its aspects

For any information system to function to the satisfaction of its need it must have a database to enable the storage of data. Therefore basing on this background we have seen it right and fitting to address a brief view of Databases as the information below depicts. Data base systems are designed to manage large bodies of information. Management of data involves both defining structures for storage of information. In addition databases ensures safety of information stored , despite system crashes or attempts at an authorized access since this shared data to be shared therefore the system must avoid possible anomalous results.

According to Martin *etal* (1999), A database is a shared collection of logically related data, organized to meet the needs of an organization .A database management system is a

support software that is used to create, manage and protect organization data .A DBMS works with the operating system and modify data and to make data accessible in variety of meaningful and authorized ways Martin *etal* (1999).

Data base is a collection of related data and processed by the computer Gerald and Anderson (1997).

James(1995) [06], fond that a data base is an integrated collection of logically related records or objects .DBMS is asset of computer programs that controls the creation, maintenance, and use of databases of an organization and its end-users by O'Brien(1995) [06].

Date (2001) [09], states that the data base is a collection of persistent data that is used by the application systems of some given enterprise. Enterprise is a convenient generic term for any reasonably self contained commercial, scientific, technical or other organization. An enterprise can be a single individual (with a small data base) or a complete corporation or A supermarket, bank. Any organization must necessarily maintain data about its operations. Such data is referred to as "*persistent data*" as referred above Therefore among the persistent data we could have sales made, account data among others.

2.3 Advantages of databases

a) Data can be shared;

It might be possible to satisfy the data requirements of the new applications with out having to add new data to the data base (Date, 2001) [09].

b) Redundancy can be reduced;

In file based system redundancy is un avoidable, but with the data base files are integrated and this problem is eliminated as long as the data administrator is aware of the data requirements for both applications (Date, 2001) [09].

c) Inconsistence can be avoided in file based.

Suppose there is a change in one file means changes have to be made in all other files other wise data becomes inconsistent but for the data base a change in one record is done automatically to all others as well through a process called *Progating updates* (Date, 2001) [09].

d) Transaction support is provided.

Having a logical unit of work typically involving several database operations in particular, several update operations. Examples transferring cash amount from account A to account B clearly two updates are required one to withdraw cash from A and the other to deposit to account B, if the user has stated that the two updates are part of the same transaction then the system can effectively guarantee that either both of them or neither is even (say because of power outage) half way the process (Date, 2001) [09].

e)Integrity can be maintained;

To ensure that the data in the data base is correct ,data is controlled centrally by permitting the data administrator define and the data base administrator implement integrity constraints known as *business rules* (Date,2001) [09]

f) Security can be enforced.

Data access is restricted to those with passwords and proper permissions (Date, 2001) [09].

g) Conflicting requirements can be balanced.

Here the data base administrator under the instruction of the data administrator's direction can so structure the system as to provide an overall service that is "best for the enterprise" to avoid the conflicting requirements issue(Date,2001) [09].

h) Standards can be enforced

Date (2001) [09], states that the data base administrator under the data administrator's instruction ensures that all applicable standards are enforced in the presentation of data. The applicable standards may include any or all of the following departmental installation, international standards. Standardizing data representation is particularly desirable as an aid to aid interchange or movement between systems.

In this chapter, we explored a lot about data management as it's our guide to this research / study. But before looking at data management in data base management system we shall first look at IT it self which is the prime holder of data.

In each organization there is normally a department that is given the responsibility of data and information processing together with the task of ensuring smooth flow of commodities among all organizations departments this department is IT. The data base originates from in it, it's huge and difficult to explore fully but we shall take a quick look on its subset which is a data base today DB has gained

Momentum at data management for any Organization to accomplish its activities.

.DBMS, today the shape of the work has significantly changed where the success of the organization depends entirely on its ability to acquire accurate and timely data about its operations.

CHAPTER THREE

Methodology

3.0 Introduction

This chapter looks at the methods of data collection, tools and the relevant materials for the system to be developed. Some of these materials include; Data collection, analysis, Design, Development and finally Testing and Implementation as specified from the following.

3.1 Data Collection

Documentation

This involved collecting information on the already done projects at the department of computer science and IT relating to any hospital systems topics. Abstracts or summaries of these projects were digitized and uploaded into the database. Basic contact information was carried along so as to facilitate interaction.

Other directories, such as the web services that provided more relevant information on the challenges management faces in carrying out the hospital daily transactions.

• Interview

Patients and management were asked already laid down questions in order to get answers to be used as data for processing. This system helped us to outline the problems they are facing and giving recommendations on what they thought would improve in their department. And also took few stationery materials like books, pens and others.

• Questionnaire

We also used this method contained number of standard questions and we gave them chance to write answers. This method helped us to get correct answers because we gave them ample time to consult records.

3.1 Analysis

Analysis of the system involved identification of entities, attributes, relationships and processes of the intended system. Entity relationship diagrams (See in figure 4.6) played a vital role in the system modeling.

3.2 Design

In this step, the logical model of the system was developed indicating all the vital steps the system development went through. From here, we intended to make use of case tools like flow charts and data flow charts (See figure). These models were important in the direction of the course of the system development.

3.3 Development

The development of this system was divided into two parts; thus the Front end and the back end as seen below:

3.3.0 Front end

Visual Basics 6.0 was used to connect to the database, design user interfaces and forms as well as designing reports layout with the program code.

3.3.1 Back end

Access was used to form validation and authentication of the system.

3.4 Testing

This is basically involved to test functionality and whether the output matches the expected outcome. The system is to be implemented, updated and maintained. The main

j.

objective in this case is to check for ease of access and effective limitations for access by administrators/doctors and patients transactions.

CHAPTER FOUR

SYSTEM ANALYSIS, DESIGN AND IMPLEMENTATION 4.0 introduction

This covers a range of activities associated with the process of developing a computer based data management system.

4.1 Data Analysis

1

Question	
1 which year was this bossitul	answers
- this year was this hospital opened?	1982
. How many patients are admitted per day	20.45 man J
How many full timer dectors 1	20-45 per day
in the unce doctors do you have in this	s 12
ospitals?	
How do you update each individual Stars	
When the state of	manually
what are the fields that make up a patients file?	5
s you fill contented with the way manual fit	
anged if not them to a	No
anged, if not then why?.	
low do you manage to control pests from damaging the	V
Vsical files containing data in at	Keeping them properly
	in the shelves
Does the hospital have specialized record keeping staff?	Vec
w do you compare the innotions and it	
in the out going	Manual cross checking
is records when using a manual system every year?	
by you have back up copies for patients files in and	
desertare like Sur et 0	No
- servers like lire etc?	
low is it easy to track out each patients File?	YA
low does this time of	its very hard
tor uses uns type or system contribute to the	Its still backward
Jopment of the administration.	
Above	

Above these are some of the sample questions that were interviewed with the hospital wardens and the patients.

Table2:	Table	showing	the	respondents.
---------	-------	---------	-----	--------------

Respondents	Frequency	Percentage%
Nurses	6	33.3%
Doctors	12	66.7%
Total		100%



This implies that there are more Doctors than female Nurses in kampala skin and surgical center.



From the above graph, we can see that the number of students is growing steadily. This is an indication that in time to come, the current manual system will not only be inefficient but also unable. Hence making the new current system

4.1 The existing system analysis

The existing system was basically manual. There were a number of forms used for all kinds of patients and these forms were kept in files so whenever a patient appeared again, his/her file could be traced from a heap of files, who would take a bit of some time to get his/her actual card, the system was tedious and wasted a lot of time that is why we came up with the database system.

4.1.1 Requirement Analysis

This system will require the following:-

Password, this is an access which allow the user to interact with the database management system. Therefore, every user must have a password from the administrator so that he/she access the database as the table below shows



4.2 Database system design

This database utilizes tables which act as the data containers, as the graphical user interfaces where data can be input into database, they help users who are naïve and also help the users not to memorize the commands. Tables were suggested as important means of doing so. Briefly, in the tables are attributes that are the distinct properties of an entity. The following are the tables in the database

Patient table

Field name	Data type	Size	Description
Id No	Number	2	Identity number
First Name	Text	10	
Last Name	Text	9	
Age	Number	2	
Address	Text	8	

Doctor table

Field name	Data type	Size	Description
Doctor Id No	Number	2	Doctor Identity number
Doctor name	Text	10	
Sex	Text	1	
Photo	Obl		
Mobile number	Number	9	

Working Rooster table

Field number	Data type	size	Description
WRId	Number	2	Working rooster
			identification
Time began work	Date/Time		
Time work ends	Date/Time		
Days absent	Text	3	

Department table

Field number	Data type	Size	Description
Dept No	Number	2	
Dept name	Text	9	

4.2.1 Interface model

Interface models were used to depict the external inputs and outputs to and form the system and their sources and destination. They served as the basic for designing user and system interfaces.

We used context diagram as our interface model

Context diagram for database system of KSSC



4.2.2 Process models

Process models were used for organizing and documenting the structure and the flow of data through our system process, and the logic used, policies, and procedures were implemented by the system processes. We used a data flow diagram.

A detailed content of all inputs, outputs, files and the logic of all processes were recorded.

DATA FLOW DIAGRAM



A data flow diagram is a graphical representation of the data within an Information System and between the Information System and the outside the world.

Data flow diagrams also show the ways in which data is processed within an Information System. The production of a data flow diagram is often the first step in a structure system analysis because it provides a basic understanding of how the system works. The following are some of the key terms used in data flow diagrams:

<u>A data flow.</u> Represents the movement of data from one point in the system to another.

A data store is a point, which receives a data flow and holds data

<u>Data processes</u> involve data being used or altered. The process could be manual, mechanized or computerized.

4.2.3 Data model

The data model that we used is the entity relationship diagram, which was used to document and analyze the detailed data requirements for our system.

An entity is something that can be identified in the users work environment. In this case the entities were doctor, department, working rooster and patient

An entity relationship defines a set of association between the entities. For example; how doctor work for department.



Entity relationship diagram

23

r

4.2.4 Security Requirement

4.2.4.1 Hardware Requirement

Component	Specifications
processor	Pentium III or higher
RAM	64MB
Hard disk	20GB
Floppy diskettes	3.5 inch density
Monitor	XVGA Resolution 800
Input devices	Key board
CD ROM drive	52X
Compact disks	Re-Write able
Printer	Hp DeskJet5150

The above hardware was chosen because it would help in the smooth running of system. The users of the system will be able to perform their updates and retrieval of data with a lot more ease.

.4.2 Software requirements

Software	Specification
Operating system	Ms windows2000orhigher version
Anti virus software	AVG virus scan
Application software	Ms access and visual basic

Windows 2000 operating system was chosen because it is compatible with most software therefore fewer problems are encountered during installation. The anti virus was to detect viruses in the system which could affect the running of the software there fore slow down the system.

4.3 Implementation

This phase involved system implementing, testing and conversion to the new system. The included changing of the hardware, software and files to the new system and training system users.

4.3.1 Implementation Approach

Before the implementation of the new system, we had to install the hardware needed and the software that we were to use so they would be compatible with the new system since we were converting from both manual system and computerized to fully computerized system, the conversion of hardware, software and the manual files into the new system were done using the parallel approach method of implementation. That is to say the old system and the new system were operated side by side until the new system showed reliability then the old system was abandoned.

Implementation Approach Diagram



FORM VIEWS

These will allow users to input data, manipulate the data and output the data using the new system. The forms mentioned below can be seen in appendix.

Main form(MDI)

It contained buttons that linked to all input forms in the system. This form comes first when the database file is opened, it has following forms

- Doctor form
- Patient form
- Admission form
- Working Rooster form
- Department form

Doctor form

This form is use to capture the information about the doctor, it has the following fields

.

- Doctor Name
- Sex
- Phone Number
- Address
- DoctorID
- Department

Department Form

This included doctor as regards his or her department he/she is. It also included the following

- Dept Name
- Position held
- Dept ID

Working Rooster form

This captured all the information that dealt with doctor work schedule such as

- Time he/ she began work
- Time work ends
- Days absent from work

Patient form

This is the form that captured the general information about the patient such as

- Name
- Sex
- Age
- Address
- Mobile number
- Fax
- Email Address

Admitting form

Patients use this forms to see the doctor they are interested in, they also try to specify which disease suffering, this form has the following fields.

- Patient Name
- Admission Number
- Type of Disease

Finally we have Reports, which are generated at the end of the day after entering data into the forms, these reports help to make decisions.

4.3.2 System Testing

All software packages, custom-built programs and any existing programs that comprised the new system was tested to ensure that they all worked together. In this case the analysts of the system until we had a successful system in operation.

The system users were to hold the ultimate authority to check whether the system was operating correctly. The following were tested;

System performance

The throughput and response time for processing adequately to meet normal processing workload was tested.

Methods and procedures test

The methods and procedures for the new system were put to their first real test.

4.3.3 User Training

In any system, users are one of the most important people, and therefore they were not neglected when implanting a new computer system. Hence, involving users from the beginning of the SDLC and ensuring proper training are essential.

Training was done using a number of tools, which range from documentation to live classes, to one-to-one, side-by-side doctor training.

4.3.4 File Conversion

Converting the files of the old filing system to the new filling system was done with accuracy. For our case the files were converted from manual to soft filing system and also the old computerized files were removed and replaced with the new files. These allow users to in put data, manipulate the data and output the data the system.

CHAPTER FIVE

DISCUSSION, RECOMMENDATION, CONCLUSION AND FUTRE WORK

5.0 Introduction

This chapter represents detailed discussion about the system, recommendation of the system, future work of the system and the conclusion.

5.1 Discussion

The system which is designed will benefits the management and patients. In the management department like administration staff of the hospital, the system will promote them. The nearly established system reduce on costs of buying materials and other products used, this will help a lot the hospital management to improve a lot in terms of doing their work.

5.2 conclusion

The user of system will find it easy to input data and access the database and quarries through the permission of an administrator thus eased information dissemination. Reports will be generated showing daily records and what has been saved in the database and also reports will help managers to make decisions.

Inclusion you may not copy or document the software for security reasons unless otherwise for making back up.

5.3 Recommendations

It's recommended that in long run the database be made for all other departments like catering for Dental Clinic and Maternity Nursing Home .

It's also recommend that in the future the database should be upgraded using Structured Query Language to handle multiple task and very large databases preferably using SQL or Oracle Language for more capabilities.

There should be also special data backups in addition to the others like floppy disk drives, data backup system is setup to cater for eventualities such as software and hardware failure that lead to massive loss of data.

5.4 Limitations

While doing this project, I experienced a lot of power cuts of which some of them lasted fro months which retarded my effort, I always want to challenge they it has been and find better ways, besides I enjoy seeing the result of my work realized in products and are driven to make this happen however one of the difficult aspect that has killed my initiative is using the resources like computers independently, allocating of time slots followed by interruptions.

REFERENCES

- 1. Microsoft sql training (2000), Microsoft press, a division of Microsoft corporation.redmond
- 2. Database management systems-designing and building business applications (2000)raghu ramakrishnan/johannes-gehrike
- 3. Systemsanalysis and design methods (2000)-jeffery,l. whitten, lonnie d.bentley,kevin c.dittman
- 4. databaseprocessingfundamentalsdesignandimplementation (2000)-david kroenke
- 5. Computing today (2004)-timothy j.o'leary
- 6. Computer concepts (2003)-june jamriah, parsons.dan.oja
- 7. . Software development with uml (2003)-lunn, k
- 8. Technology of internet business (2002)-elain, l, newton, s, corbitt b. Braith waite,r and parker,c,milton.
- 9 Silberschchartz, (2002).<u>Database System Concepts 4th Edition</u>, McGraw-Hill United States
- C.J. Date, (2001).<u>Introduction to database Systems 4th.Addition</u> Wesley Longman (Singapore) pte.Ltd.Delhi, India
- 11 Carol.V.Brown, David W.Daniel, Jeffrey A Hoffer and Willia C.Perkins.(1999), <u>Management Information Technology. A Simon</u> <u>and Schuster company</u>, New Jersey, USA

- A Hospital Database Mgt by A.Ssendowooza, M.Ssebbowa
- 12 David, Kroenke, (2003) Data base processing fundamentals, Design and implementation seventh edition. Irwin Mc Fraw-Hils
- 13 Http://en.wikipedia.org/wiki/Database_management_system last viewed on 11th march [2008]
- 14. James A. O'Brien, (2003) Introduction to information systems eleventh
- 15. edition. McGraw-Hill Education Irwin.

.

APPENDIX I

- a- In which year did this hospital opened up?
- **b-** How many Patient do you admitted a day?
- c- How many full-timer doctors do have in your hospital?
- d- How do you update each individual files?
- e- What are the fields that make up a patient's file?
- f- Do you fill contented with the way manual files are arranged, if not then why?
- **g-** How do manage to control pests from damaging the physical files containing data in place?
- h- Does the hospital have specialized record keeping staff?
- i- How do you compare the in-patient and the out going patients records when using a manual system every year?
- **j** Do you have back-up copies for patients' files in case of any deserters like fire etc?
- k- How is it easy to track out each patients file?
- I- How Dose this type of system contribute to the development of the administration of the hospital?

APPENDIX II

Database Table Design Formats

Doctor Table

	doctor : Table		
	Field Name	Data Type	Description
•	DoctorName	Text	
-	Sex	Text	
8	IdNo	Number	
Ť	Department	Text	
1.6	Time	Date/Time	
	PhoneNo	Number	
12	Address	Text	
	General Lookup Field Size Format	50	Field Properties
	Input Mask Caption Default Value Validation Rule Validation Text Required Allow Zero Length Indexed	No Yes No	A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Patient Table

l patient : Table			
Field Name	Data Type	Description	
Name	Text		
Sex	Text		
Age	Number		
Address	Text		
Mobile	Number		
Fax	Number		
Email	Number		
			×
	Field Propert	ies	and a second
General Lookup			
Field Size	50		A Gold
Format			A Helu
Input Mask			he up to
Caption			64
Default Value			characters
Validation Rule			long,
n le la resta de la compañía de la c			including

APPENDIX III

DATA ENTRY FORMS

MDI Form



Doctor Form

	DOCTOR	FORM	DETIALS	•
DoctorNam	ie kawooya	Phone	No 772356472	
Sex	MALE	- Addres	ss kampala	
Time	12:30:00 PM	1 IdNo	12	
Cause	AddNew	Nevt	Previuos	Delete

Patient Form

🖣 Patient F	orm				
PATIENT FORM DETIALS					
P* - 11		Åre	10		
FirstName	John	Aye	12		
LastName	kintu	Patient No	9		
Gender	MALE 👻	Parent Name	mary		
Address	kampala	Email	tu@yahoo	o.com	
Mobile	77234567				
Caus	<u>ÅrldNew</u>	Next P	revious	Delete	
Save	Addinew		10110013	5000	

Working rooster

Image: Second state sta	S WORKING	ROOSTER	2		
Time began work 8 /20/2005 Time work ends 8 /20/2005 Days absent	WORK	(ING R	oosti	ER DETI	ALS
Time work ends 8 /20/2005 Days absent Days present Doctor Name	Time began w	ork 8	/20/2005 💌	1	
Days absent Days present Doctor Name	Time work en	ds 8	/20/2005 -]	
Days present	Days absent]	
Doctor Name	Days present]	
	Doctor Name			1	
waaraa aaaaaa aaaaaa aaaaaaa aaaaaaaa				-	
Save AddNew Next Previous Delete	Save	AddNew	Next	Previous	Delete

Department Report

🖻 Department				
				A
	Depart	ment		
	DeptNo	DeptName	PositionHeld	
	23	surgical	doctor	
	54	maternity	nurse	
				.
Page: I	1	•		

Doctor Report

Doctor					-	
DoctorName	sex	IdNo	Time	PhoneNo	Address	1
kawooya	MALE	12	12:30:00 P M	772356472	kampala	١.
kamukamu	FEMALE	13	9:30:00 P M	1234589	kayunga	
ige: 14 4 1						Þ

Patient Report

🗈 Patient			
Patient			
FirstName	LastName	Gender	Address
			-
Page: 14 4			•

Working Rooster Report

9 Working rooster					
Working r	ooster				
Timebeganwork	Timeworkends	Daysabsent	dayspresent	DoctorName	
Page: <u> </u>		<u>19</u> 60			∕/ ا