DESIGN AND IMPLEMENTATION OF A RECORDS MANAGEMENT SYSTEM

A CASE STUDY:

DESIRE MEDICAL CENTER

BY

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DECLARATION

I KAPERE MAJORIE do hereby declare to the best of my knowledge that this project report is my original work and that it has never been submitted to any university or any other institution. The literature and citations from other people's work have been duly referenced and acknowledged in the text and references.

Signed: ....

Kapere Majorie

STUDENT

Date: ...10th AUG., 2009................

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APPROVAL

I certify that this proposal has been submitted under my supervision as a university lecturer.

Mr. SSBANSELE, Yakoub

Supervisor

Signed: Yakoub

Date: 10/08/2007

DEDICATION

This work is dedicated to my beloved Grandparent Eng. A. W. Kapere, and my mother Mrs. Stella Kapere for having provided me basic Education and supported me until this level.

I also dedicate it to my brothers David, Trevor, Jonah, Brian and Sister Olivia for their tireless efforts.

Am truly thankful for the above I have mentioned for their relentless efforts made to make sure that I succeed in my Education.

ACKNOWLEDGEMENT

ACRONYMS

HIV	Human Immune Virus
IT	Information Technology
OPD	In and Out Patients Department
DBMS	Database Management System
CIA	Central Intelligence Agency
TPS	Transaction Processing System
MIS	Management Information System
DSS	Decision Support System
ES	Expert System
OAS	Office Automation System
SQL	Structured Query Language
Lab	Laboratory
ER	Entity Relationship

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ABSTRACT

The manual records kept by Desire Medical Center were pathetic and worrying that was due to poor management of patients' files and the departments that were in charge.

Computerized systems have been a vital aspect in the success of most organizations and Records Management System were developed to store, retrieve and manage the patients' data. The patients have membership cards that identify them at the Medical Center.

The membership cards quickened the process of data entry into the system, accessing and manipulation of data. This enabled Desire Medical Center to have its patients' reference records updated.

The objective of the project was to design and implement a records management system. It would store various information about the patients, the Doctor and Staff members that handled particular patients. The methodology used to achieve this was System development Life Cycle. The investigation process collected information about requirements and were analyzed.

The use of this system in the organization indicated that the problems it faced earlier were minimized and created a conducive environment for managing the patients' records.

CHAPTER 1
INTRODUCTION

1.0 General Introduction

In Africa, Information Technology (IT) has also been vital to identify the different Medical Organizations that note management of their records. Uganda is taking up technology to save time and utilize resources for faster development. Kampala region has a few areas with computer technology, and Desire Medical Center has to catch up with the fast technological advancement to achieve good record keeping and management skills.

1.2 Background of the case study.

Desire Medical Center is a private organization that commenced in 2004 by the Slum Health Initiative Uganda who own it till date. The services offered at this community project are In and Out patients' clinical, dental, Antenatal, Family planning, Immunization, HIV health programs, Health Education services. It's found in Kiwempe, Kansanga, and in Kampala district. It's approximately 4km from the city center of Uganda along Ggaba road. Desire Medical Center is made up of good staff members that thoroughly take care of their patients, and though at times some patients do report new cases of sicknesses, blood tests are done and thorough treatment is given. Further appointments are made with the Doctors, Specialists and Dentists to help the patient recover.

Although Desire Medical Center derived some benefits having been in the Medical industry for quite long, it experienced the problem of Record keeping Management. This was manifested in instances when patients came to refer to their prior related information about health progress in given years they obtained treatment. The staff obtained patients' files to recover the information and this took time, consisted of monotony if many patients came to check their records, loss of

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data for tattered files, and long hours of work. This was tiresome and greatly discouraged patients to come for medical references.

Therefore, the planned system was designed to keep good storage of all the data required by different patients, and reports about particular diseases and their symptoms were made to reduce the long hours of work for staff members.

1.2 Statement of the problem

The manual records kept by Desire Medical Center are rather pathetic and worrying. This is caused by poor management of patients' files and the departments in charge. It is therefore from this background that database systems have been chosen to solve this.

1.3 Objectives of the study

1.3.1 Main Objectives

1. The main objective of this study is to design and implement a records management system.

1.3.2 Specific Objectives

1. To analyze the system user requirements for the design of the database.
2. To design a database for the storage and retrieval of patients' data.
3. To test and implement the records management system.

1.4 Research question

• What was the current management system?

• What was the strength of the existing system?

• What were the problems faced by the Existing?

1.5 Scope of the study

The study covered the In and Out patients' department (OPD). The department lacked enough medication and equipment for its patients, and the response of the nurses was at times negative

due to the patients' status. At times they were given trial treatment to see if they would respond to it before being given the actual treatment.

The authorized individuals in this organization were the only ones who accessed particular data about their patients. This was evidenced when checking through the OPD records, and thus, improved security for the organization's data was provided.

Cases where by the Doctors or Dentists crosschecked with their patients' records while the Accountant balanced the record books, no interference was made with one another. Hence an increased concurrency. This study only covered the OPD.

1.6 Justification of the Study

The implementation of the management system saved time. In-patients of Desire Medical Center had their records updated on coming for treatment. However, data was entered in the database for record keeping for Out-patients. These had confidence and courage in Desire Medical Center.

Desire Medical Center was able to store patients' general information in a central place for easy accessibility. The numbers of files were also reduced and there was a good accountability of medicine.

The researcher was able to handle any project related to this work and thus had an experience in the same field. Skills of database planning and software design were obtained.

1.7 Conceptual Framework

Patients' records and other common types of data were needed for several different applications in the medical center such as diagnosis, pharmacy, and billing.
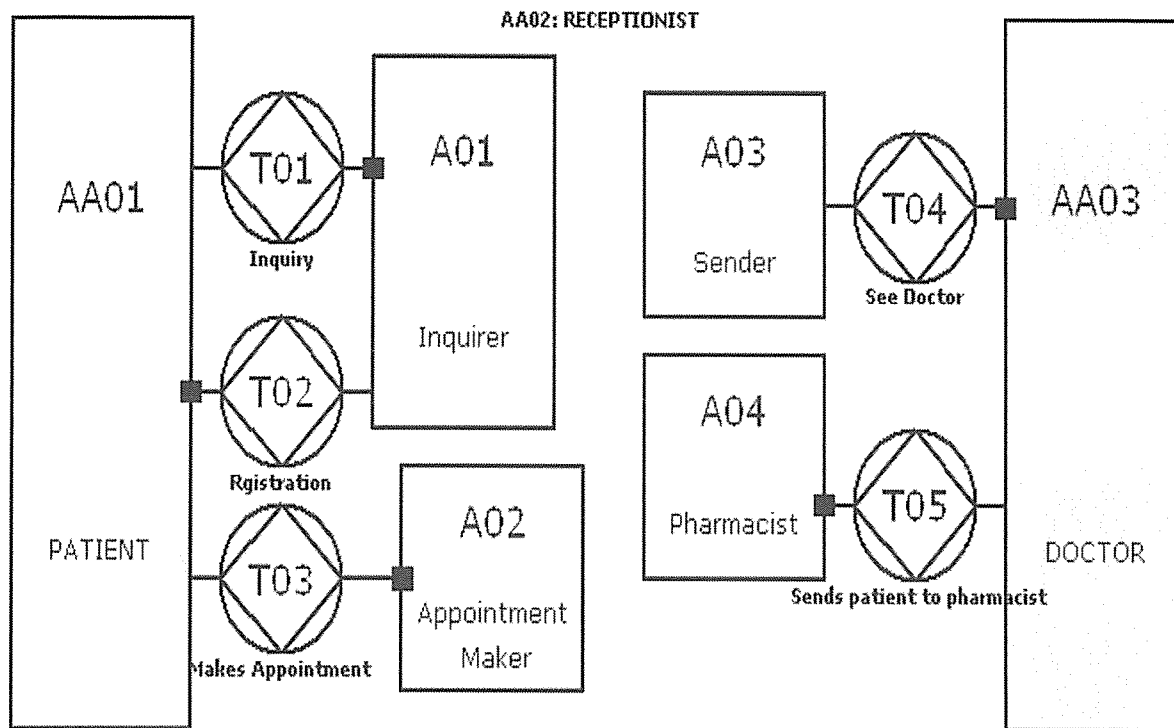
When the patient was submitted to the medical center, inquiries were made at the reception if he/she had ever been admitted. If not, the patient registered and made an appointment to see the doctor. If yes, the patient made an appointment to see the doctor. The doctor later sent the patient to the pharmacist after prescribing the treatment. This required only updating the patients' response to treatment and making changes on hi/her Account. James (2003).

CHAPTER 2
LITERATURE REVIEW

2.0 Introduction

This chapter will cover the related literature and other current materials about the study.

2.1 Information Technology

The information technology umbrella can be quite large, covering many fields. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases.

A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems.

According to James (2003), IT is a computer-based information system that uses computer hardware and software, the internet and other telecommunications networks, computer-based data resource management techniques to transform data resources into an endless variety of information products.

IT plays a major role in reengineering most business processes. The speed, information processing capabilities, and connectivity of computers and internet technologies can substantially increase the efficiency of business processes, as well as communications and collaboration among the people responsible for their operation and management.

2.1.1 Strategic uses of IT

• There are many ways that organizations may view and use IT, for example, companies may choose to use information systems strategically, or they may be content to use IT to support efficient everyday operations. But if a company emphasized strategic business uses of IT as a major competitive differentiator. It would then devise business strategies that would use IT to develop products, services and capabilities that would give the company major advantages in the markets in which it competes.

There are many ways IT can help a business implement the five basic competitive strategies. Many companies are using internet technology as the foundation for such strategies;

• Lower costs:

-Use IT to substantially reduce the cost of business processes

-Use IT to lower the cost of customers or suppliers.

• Differentiate:

-Develop new IT features to differentiate products and services.

-Use IT features to reduce the differentiation advantages of competitors.

-Use IT features to focus products and services at selected market niches.

• Innovate:

-Create new products and services that include IT components.

-Develop unique new markets or market niches with the help of IT.

-Make radical changes to business processes with IT that dramatically cut costs, improve quality, efficiency, or customer services or shorten time to market.

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• Promote Growth:

-Use IT to manage regional and global business expansion.

-Use IT to diversify and integrate into other products.

• Develop Alliances:

-Use IT to create virtual organizations of business partners.

-Develop inter-enterprise information system linked by the internet and extranets that support strategic business relationships with customers, suppliers, subcontractors, and others.

2.1.2 Success and Failures of IT

IT is effective in supporting an organization's business strategies, enabling its business processes, enhancing its organizational structures and culture, and increasing the customer and business value of the enterprises.

However, IT can be mismanaged and misapplied so that information system performance problems create both technological and business failure. For example, in the Boeing Company we see how business failure turned into business success with IT;

• Business failure: costly delays ($1.6 billion in 1997) in obtaining 6 million parts to build each aircraft with un-integrated IT systems.

• New IT solution: integrate entire supply chain into internal production systems.

• Business success: output capacity up 100% in 4yrs. Aircraft lead times reduced by 60%.

2.1.3   M anagerial challenges of IT

Today's internet worked e-business Information System plays a vital role in the business success of an enterprise. For example, the internet, intranets and extranets can provide much of the IT

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infrastructure a business needs for e-business operations, effective management, and competitive advantage. However, the information system and the technologies must be managed to support the business strategies, business processes, and organizational structures and culture of an enterprise to increase its customers' and business value in a global business environment.

2.1.4 How it supports virtual corporations;

IT allows communication and collaboration among the dispersed business partners. For example, Email, desktop videoconferencing, screen sharing, according to Turban, Mclean, Wetherbe (2002).

2.2 Information Systems

Kenneth Laudon and Jane P. Laudon (2000), describes IS as a physical process that supports an organization by collecting, processing, storing and analyzing data, and providing information to achieve organizational goals.

An IS as an arrangement of people, data processes and interfaces that interact to support and improve day-to-day operations in a business as well as support the problem-solving and decision making needs says Whitten, Bentley, Dittman (2001).

Whitten, Bentley, Dittman (2001) explains more about IS. Businesses have both Front-office IS that support business functions that reach out to customers/ constituents as well as back-office IS that support internal business operations and interact with suppliers (of materials, equipment,

supplies and services). These Front-and back-office Information Systems feed data to Management Information Systems and Decision Support Systems

2.2.1 Types of Information Systems

There are several IS such as TPS, MIS, DSS, ES and OAS according to etal (2001), however TPS is chosen for the patients' data. TPS can either;

- Respond to patients' requests (such as treatment prescription, making appointments, debit) or

- Initiate transactions (such as processing medical forms, or receipts) or possibly both.

TPS also responds to both external events (such as processing orders from customers) and internal events (such as generating production orders for the shop floor).

2.2.2 Activities in an Information System

| Data | Data and Information | Information |

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Mary Kay
Green St. 11201
In patient
Treatment prescribed
Desire Medical
Center

Desire Medical Center
Patient's Information
Name: Mary Kay
Address: Green St,
11201
Patient No: 035
Category: In patient
Treatment prescribed:
yes
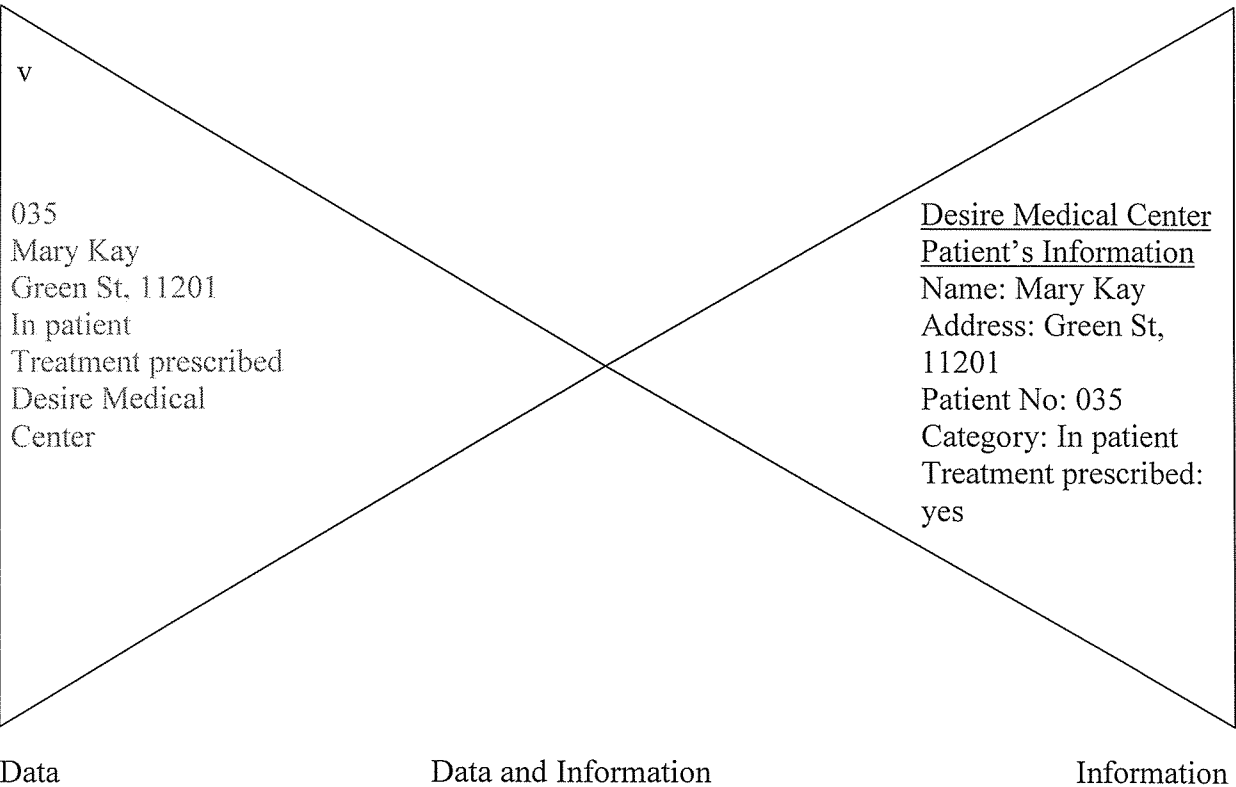
Streams of raw facts (data) representing patients' number, category, treatment prescription, name and address are processed into meaningful and useful information that will be used in the Desire Medical Center database.

Examples of TPS include airline reservations, bank deposits and withdrawals, order processing, customer returns, payroll.

TPS provides a dimension of data maintenance, for example, a provision for custodial updates to stored data and delete customers and products, as well as to change specific facts like customer address and product price.

2.3 Information Security

Information Security is the protecting of information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction.

Information Security, computer security and information assurance are frequently incorrectly used interchangeably. These fields are interrelated often and share the common goals of protecting the confidentiality, integrity and availability of information; however, there are some subtle differences between them.

These differences primarily lie in:

- The approach to the subject.

- The methodologies used.

- Areas of concentration.

Information Security offers many areas for specialization including, securing network(s) and allied infrastructure, securing applications and databases, security testing, information systems auditing, business continuity planning and digital forensics science.

2.3.1 Information Security Key concepts

The CIA Triad is a venerable, well-known model for security policy development, used to identify problem areas and necessary solutions for information security. Information Security has held that confidentiality, integrity and availability (known as the CIA triad) as the core principles of information security:

• Confidentiality

Is the property of preventing disclosure of information to unauthorized individuals or systems. For example, a credit card transaction on the internet requires the credit card number to be transmitted from the buyer to the merchant and from the merchant to a transaction processing network. The system attempts to enforce confidentiality by encrypting the card number during transmission, by limiting the places where it might appear (in databases, log files, backups, printed receipts, and so on), and by restricting access to the places where it is stored. If an authorized party obtains the card number in any way, a breach of confidentiality has occurred.

Access to stored information on computer databases has increased greatly. More companies store business and individual information on computer than ever before. Much of the information stored is highly confidential and not for public viewing.

Many businesses are solely based on information stored in computers. Personal staff details. Client lists, salaries, bank account details, marketing and sales information may all be stored on a database. Without this information, it would often be very hard for a business to operate. Information security systems need to be implemented to protect this information.

2.3.2 Forms: Breaches of confidentiality

- Permitting someone to look over your shoulder at your computer screen while you have confidential data displayed on it could result in a breach of confidentiality.

- If a laptop computer containing sensitive information about a company's employees is stolen or sold, it could result in a breach of confidentiality.

- Giving out confidential information over the telephone is a breach of confidentiality if the caller is not authorized to have information.

Confidentiality is necessary (but not sufficient) for maintaining the privacy of the people whose personal information a system holds.

- Integrity

For example, Integrity is violated when an employee accidentally or with malicious intent deletes important data files, when a computer virus infects a computer, when an employee is able to modify his own salary in a payroll database, when an unauthorized user vandalizes a web site, when someone is able to cast a very large number of votes in an online poll.

2.3.3 Ways in which integrity could be violated without malicious intent.

- A user on a system could mistype someone's address.

- On a large scale, if an automated process is not written and tested correctly, bulk updates to a database could alter data in an incorrect way, leaving the integrity of the data compromised. Information security professionals are tasked with finding ways to implement controls that prevent errors of integrity.

- Availability

For any information system to serve its purpose, the information must be available when it is needed. This means that the computing systems used to store and process the information, the security controls used to protect it, and the communication channels used to access it must be functioning correctly.

High availability systems aim to remain available at all times, preventing service disruptions due to power outages, hardware failures, and system upgrades. Ensuring availability also involves pre venting denial-of –service attacks.

2.3 Manual Systems

According to Conolly, Begg, Strachan (1996) this is a collection of application a programs that perform services for the end users such as the production of reports.

In an organization, a manual file is set up to hold all external and internal correspondence relating to a project, product, task, client or employee. Typically there are many such files, and for safety they are labeled and stored in one or more cabinets. For security, the cabinets may have locks or may be located in secure areas of the building.

2.4.1 Advantages of Manual Systems:

• The manual filing system works well while the number of items to be stored is small. It even works quite adequately when there are large numbers of items and we only have to store and retrieve them.

• An indexing system that helps us locate what we want more quickly is used in the manual systems. For Example, we may have divisions in the filing system or separate folders for different types of items that are in some way logically related.

2.4.2 Disadvantages of Manual systems:

- Data isolation: because data are scattered in various files, and files may be in different formats, writing new application programs to retrieve the appropriate data is difficult.

- Duplication of data: due to decentralized approach taken by each department, the file based system approach encouraged, if not necessitated, the uncontrolled duplication of data.

- Data dependence: changes to an existing structure are difficult because the physical structure and storage of the data files and records are defined in the application code.

- Incompatible file formats: as the structure of files is embedded in the application programs, the structure is dependent on the application programming language. For example, the structure of a file generated by a Visual Basic program may be different from the structure of a file generated by a Java program.

2.5 Database systems

This is a computerized system whose overall purpose is to store information and to allow users to retrieve and update that information on demand, according to Date (2000).

Silberschartz, Korth, Sudarshan (2002) says Database systems are designed to manage large bodies of information. Management of data involves both defining structures for storage of information and providing mechanisms for the manipulation of information. Database systems are widely used in banks, airlines, medical centers, universities, human resources, sales, telecommunication, finance, manufacturing companies.

Database systems must ensure the safety of the information stored despite system crashes or attempts of unauthorized access.

2.5.1 Advantages of Database systems

There are several advantages and some of them are according to Date (2000);

• Compactness: there's no need for possibly voluminous paper files because all the data is properly stored and compressed.

• Speed: the machine can retrieve and update data far faster than a human can. For example, ad hoc spur-of-the-moment queries ("Do we have more zinfardel than Pinot Noir?") can be answered quickly without any need for time-consuming manual or visual searches.

• Less drudgery: much of the sheer tedium of maintaining files by hand is eliminated. Mechanical tasks are always better done by machines.

Conolly, Begg, Strachan (1996) explains other Database system advantages;

• Control of data redundancy: Database approach eliminates the redundancy by integrating the files so that several copies of the same data are not stored.

• Data consistency: by eliminating or controlling redundancy, we are reducing the risk of inconsistencies occurring. If a data item is stored only once in the database, any update to its value has to be performed only once and the new value is immediately available to all users. If a data item is stored more than once and the system is aware of this, the system can ensure that all copies of the item are kept consistent.

• Sharing of data: database belongs to the entire organization and can be shared by all authorized users. In this way, more users share more of the data. Furthermore, new applications can use

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existing data in the database and then require only additional data that is not currently stored, rather than having to define all the data requirements again.

• Improved Security: database security is the protection of the database from unauthorized users. Without suitable security measures, integration makes the data more vulnerable than file-based system. However, integration allows the database administrator to define, and the database management system to enforce database security. Usernames and passwords are used to identify people authorized to use the database and the access that an authorized user is allowed on the data may be restricted by the operation type (retrieval, insert, update, delete).

• Economy of Scale: combining all of an organization's operational data into one database with the applications that are required can result in cost savings. Instead of allocating a budget to each department for the development and maintenance of the file-based system, it is combined resulting in a lower total cost.

2.6.2 Disadvantages of Database Systems

•Complexity: the functionality we expect of a good database management system makes the database management system an extremely complex piece of software. Database designers, developers, the data and database administrators and end-users must understand this functionality to take full advantage of it. Failure to understand the system can lead to bad design decisions which can be disastrous for the organization.

• Size: the complexity and breadth of functionality makes the database management system an extremely large piece of software, occupying many megabytes of disk space and requiring substantial amounts of memory to run efficiently.

• Additional hardware costs: the disk storage requirements for the database management system and the database may necessitate the purchase of additional storage space. Furthermore, to achieve the required performance, it may be necessary to purchase a larger machine.

• Higher impact of failure: the centralization of resources increases the vulnerability of the system. Since all users and applications rely on the availability of the database management system, the failure of any component can bring operations to a halt.

CHAPTER 3
METHODOLOGY

3.0 Introduction

This chapter covered the study design, organizational units, study population, sample size, research instruments, data collection and presentation, data analysis, development tools, limitations of the study, and the project plan and schedule.

3.1 Study Design

The researcher used the following types of design to gather information:

- Interviews: interviews were conducted one at a time. Between the interviewer and the superintendent, doctors, In and Out patients.

- Observation: the superintendent, few staff members and patients were observed.

- Existing records: data from the existing records of Desire Medical Center were used.

3.2 Organizational units

The system was implemented at the In and OPD and was the center of control of Desire Medical Center. In and OPD provided new information into the database for the Out patients and made updates for the In patients. The system identified the amount to be paid on a particular kind of disease such that the patient could not report without the specified amount of money and safely secured to avoid loss of data about the organization.

3.3 Study population

The superintendent of Desire Medical Center, employees (receptionist), patients, doctors and nurses were studied to retrieve data about the loopholes of the organization as far as the

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organization's record keeping system was concerned and the routine operation of the Medical Center.

3.4 Sample Size

The sample size was 10. This included 1 superintendent, 6patients and 3 support staff.

3.5 Research Instruments

3.5.1 Interviews

This was partly used for research at Desire Medical Center. The interviewer asked the superintendent, doctors, In and Out patients some questions. This provided the researcher with the required data to design a records management system for Desire Medical Center. Interviews were convenient because the reaction of the respondent was got there and then. The interviewer was given chance to ask questions that she had not prepared prior to the interview.

3.5.2 Observation

Observation was done secretly during working hours without prior information. Ongoing activities in the medical center were noted to collect data. The superintendent, few staff members and patients were also observed.

3.5.3 Existing records

This involved obtaining data from the existing records of Desire Medical Center. It was used to make analysis of how the OPD programs were conducted.

3.6 Data collection and Presentation

After the interview was carried out, data was presented in form of a report to the administration of Desire Medical Center which opted for the design of a systematic and modernized proper record keeping system.

3.7 Data Analysis

Prototyping: process of building a model of a system. In terms of an information system, prototypes were employed to help system designers build an information system that was intuitive and easy to manipulate for end users. This prepared a data model as a simple, non redundant, flexible database.

3.8 Development tools

The tools that were used for the front and back end are displayed in the table. Back end tools were designed by the researcher to facilitate the functionality of the Front end tools that served the end users.

Front end	1. Windows XP operating system 2. Visual Basic. Net or a higher version
Back end	1. SQL Server 2000 or 7.0 or +. 2. Server operating system: Windows 2000 server+.

3.9 Limitations of the study

• Change was a difficult issue to comply with. This was expected with some staff members. Some were furious and thought that being interviewed was time wastage.

• Denial of access to manual files that were to be used as base line for the design of the system.

CHAPTER 4

SYSTEM DESIGN

4.0 Introduction

This chapter involves the existing system that was used in the Desire Medical Center and the detailed proposed system using the development tools like Visual Basic.Net and SQL Server that defines requirements for input, processing, storage and output as well as system control and backup. This includes the Conceptual, Logical and Physical modeling of the database.

4.1 Features of the Existing System

• The manual system was used in Desire Medical Center for purposes of record keeping and referencing in which patient's data was stored. This was the chosen system in the Medical Center at the time it commenced.

• There was difficulty in accessing data since they had to look through several files to get the particular information for their patients. This became tedious since one department had to obtain another department's information to be able to acquire the patients' details.

• There was data duplication. Same data was entered more than once and this led to loss of data integrity, wastage of space and time. This occurred because different programs held the same patients' data.

• Limited sharing of data: For each department to be a success, it must have had specific patient's data which another department could not use to support its functionality.

- Data isolation and separation: data was kept in separate files since each program maintained its own set of data as a single logical unit. Unknown data was held by other programs which the staff was not aware about.

- Data dependence: file structures were defined using the program code that led to incompatible file formats such that when changes were made to the existing structure, they would not be of great importance then.

4.2 Flow charts

Figure 1: Flow chart for the Existing System
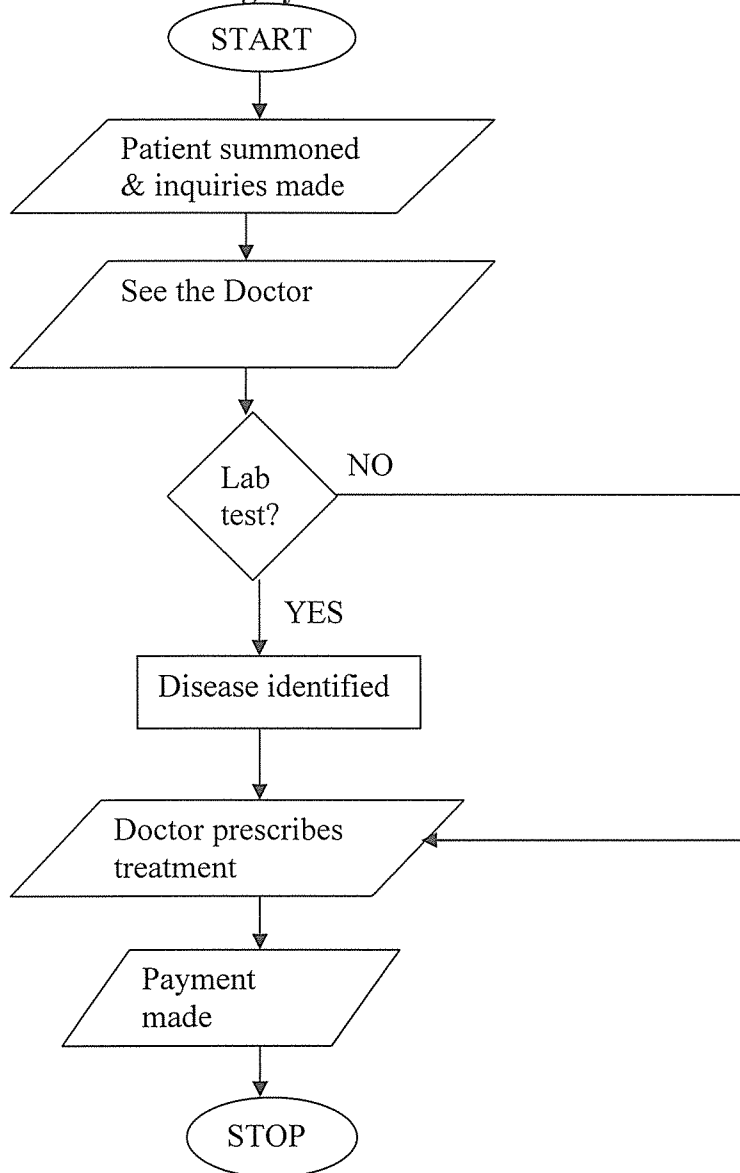
The patient is summoned to Desire Medical center and inquiries are made at the reception of what he/she could be suffering from. Patient is sent in to see the Doctor who determines whether he/she should go for a Lab test or not. If the Lab test is not necessary, treatment is prescribed basing on the symptoms. However, a Lab test is taken to identify the disease if there any parasites. The doctor prescribes treatment and the patient makes payment.

Figure 3a: Data Flow Diagram
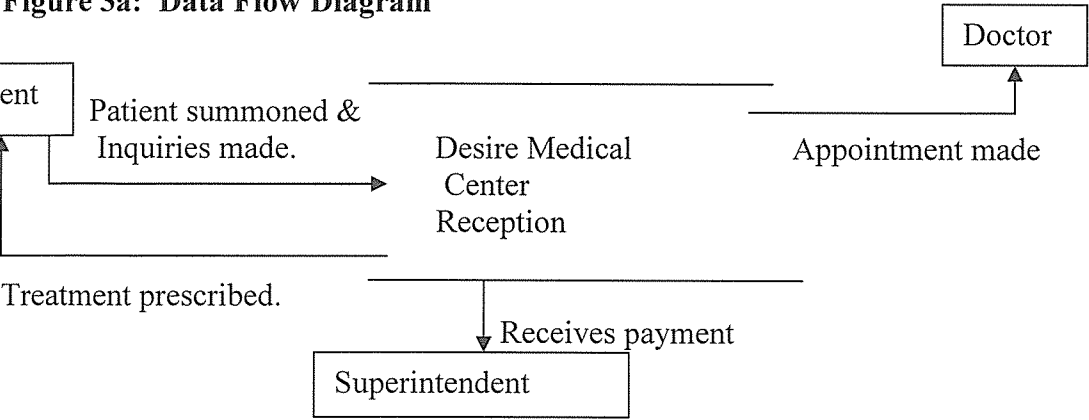
The patient is summoned and inquiries are made at the Desire Medical Center reception where she can make an appointment to see the Doctor. At the reception, treatment prescribed is given to the patient and payment is also made there which the Superintendent receives.

Figure 3b: Data flow decomposition diagram
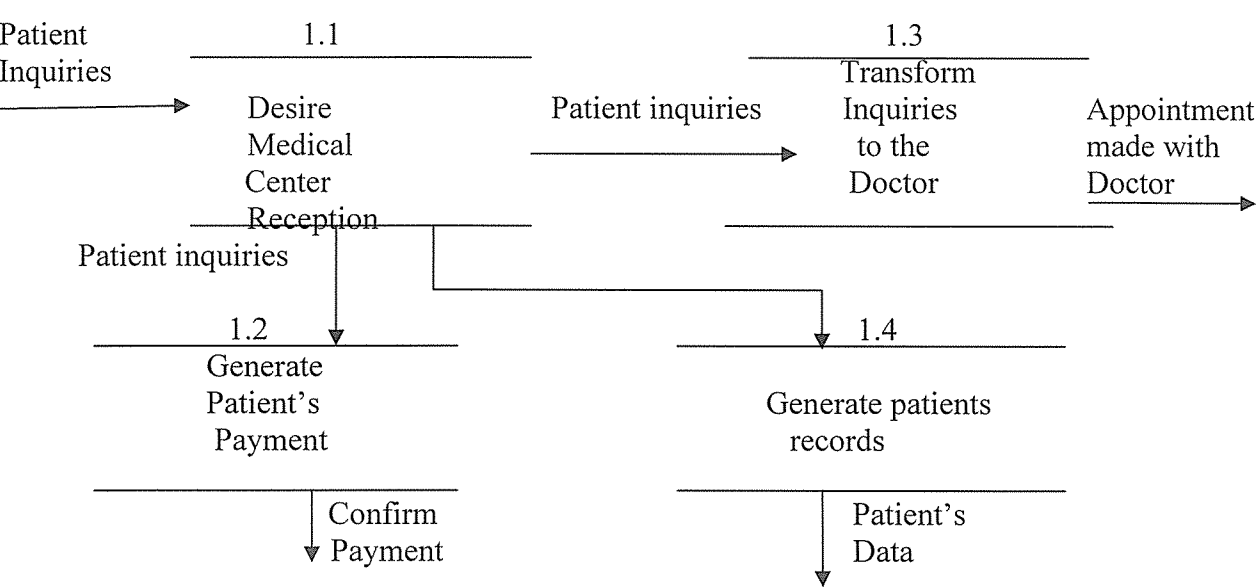
At Desire Medical Center reception, patients' inquiries are made and an appointment is made to see the Doctor. With the processing of patients' inquiries, payment is generated and confirmed to him/her by the superintendent while the receptionist generates patients' records.

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4.3 Features of the New System

- Centralized control and management was enforced to enable necessary modifications. This did not affect other application changes that met the data independence of the DBMS requirements.

- Reduction of redundancies: unnecessary data duplication was avoided effectively leading to reduced total amount of data required and storage space. It also eliminated extra processing, and any redundancies that existed in the DBMS were controlled and the system ensured that these multiple copies were consistent.

- There was data sharing that was controlled by a number of application programs in the DBMS that enabled the organization to have a backup.

- The factor of increased concurrency was evident. Two or more users were able to access the database concurrently without any interference. This was due to the DBMS management of the database.

- Improved data independence was supported that involved both logical and physical data. Changes made to the conceptual schemes were changed without affecting the external schemes that existed before and the structures that stored data were changed without necessitating a change in the conceptual view. This explained logical and physical data respectively.

Figure 4: Flow chart of the New System
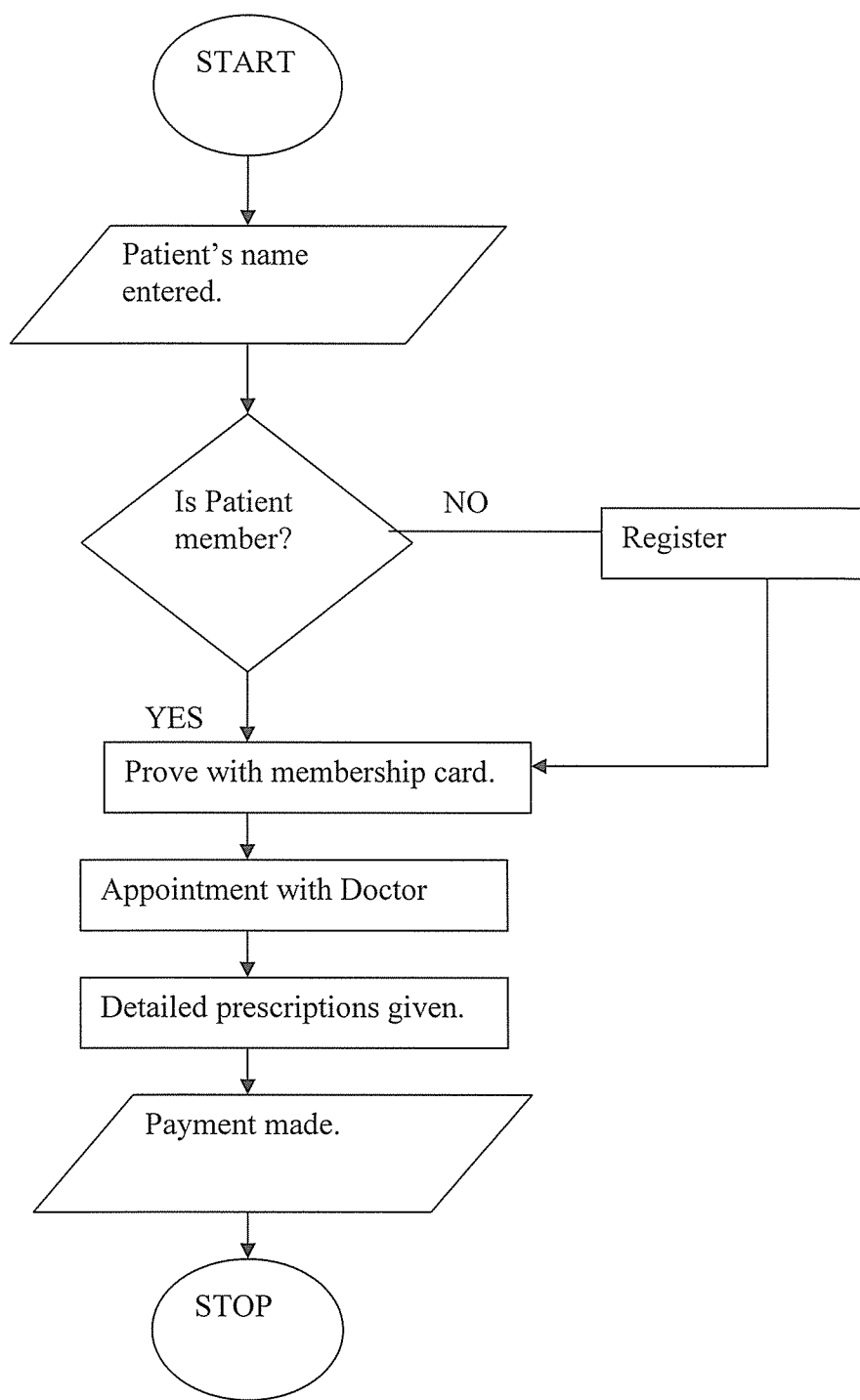
Once a patient's name is entered in the system, a search is made if he/she is a member (Inpatient) in the Medical Center. If not, his/her particulars are obtained and is registered into the system and also given a membership card, otherwise a membership card is shown at inquiry. The patient

can then make an appointment to see the Doctor who will prescribe treatment after identifying

the symptoms for a given disease. Payment is made to the Accountant.

Figure 5a: Level 1.0 Data Flow diagram showing the processes and detailed New system
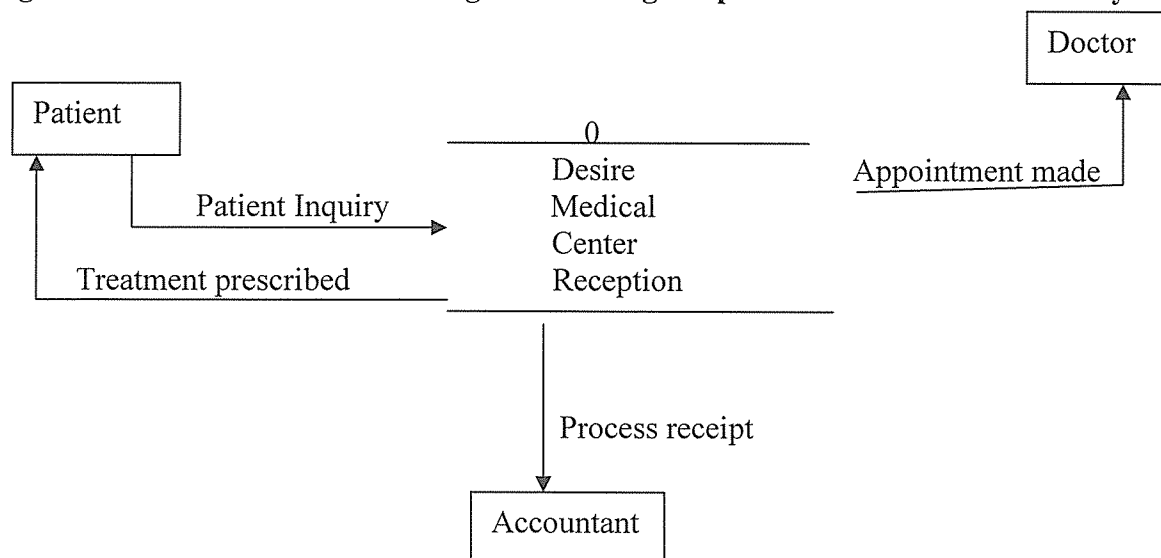
A patient is questioned if he/she has ever been at the Medical Center before. If not, the patient is

requester to register and if has ever been there, then both parties can make an appointment to see

the doctor.

After treatment is prescribed, the accountant processes the payment receipt.

Figure 5b: Data Flow decomposition diagram
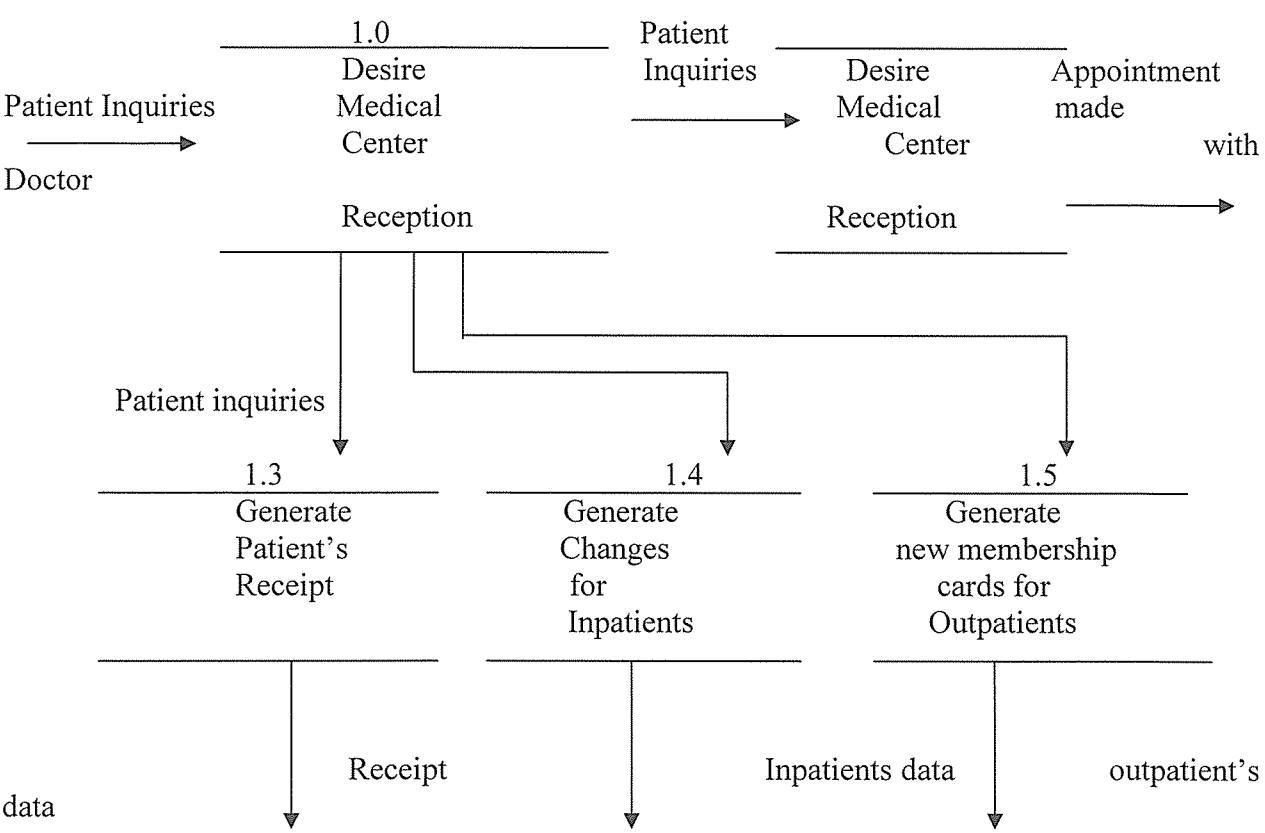
At the reception, inquiries are made if a patient is a member so he/she can register and make an appointment with the Doctor. After being prescribed treatment, the accountant generates the patient's payment receipt and later updates the Inpatients' file to effectively manage Inpatients' data.

He also generates new membership cards for Outpatients so as to make updates to the Outpatients' file to keep their data up to date.

4.4 Logical Design of the New System

Table structures
Patients

Field	Datatype	size	description
P_ID(primary key)	tid (varchar)	6	patient's identity
Fname	nvarchar	10	patient's first name
Lname	nvarchar	10	patient's last name
Sex	nvarchar	4	patient's sex
Location	nvarchar	7	residence of patient
DR_ID	tid(varchar)	20	identity of doctor
Start_date	datetime	8	beginning date
End_date	datetime	8	finishing date

Staff

Field	Datatype	size	Description
S_ID (primary key)	tid (varchar)	6	Staff's identity
FName	Nvarchar	10	staff's first name
LName	Nvarchar	10	the last name
Session	Nvarchar	10	Staff's session
Acc_ID	Nvarchar	6	Accountant's Identity
Start_Date	datetime	8	beginning date
End_Date	datetime	8	finishing date

Laboratory

Field	Datatype	Size	Description
Lab_ID	varchar	6	lab attendants identity
Fname	nvarchar	10	lab attendant's first name
Lname	nvarchar	10	lab attendant's last name
DR_ID	varchar	6	identity of doctor
Disease	nvarchar	20	patient's disease
Labname	nvarchar	20	Name of Lab
Start_date	datetime	8	beginning date
end_date	datetime	8	finishing date

Membership

Field	Datatype	size	Description
mem_id	varchar	6	identity of member
S_ID	varchar	6	identity of staff
Reg_date	datetime	8	date of registration
P_ID	varchar	6	patient identity
Start_Date	datetime	8	beginning date
End_Date	datetime	8	finishing date

Doctors

Field	Datatype	size	Description
Dr_ID(primarykey)	tid (varchar)	6	Doctor's identity
Sex	nvarchar	6	Doctor's sex
Month	nvarchar	10	Work schedule
Lab_ID	tid (varchar)	6	Lab identity
S_ID	tid(varchar)	6	Identity of staff
Start_Date	datetime	8	beginning date
End_Date	datetime	8	finishing date

Accounts

Field	Datatype	size	Description
Acc_ID(primaryke)	tid(varchar)	6	Account's identity
Fname	nvarchar	20	First name of accountant
Lname	nvarchar	15	Lastnameofaccountant
S_ID	tid(varchar)	6	Staff's identity
Start_Date	datetime	8	beginning date
End_Date	datetime	8	finishing date

Security

Field	Datatype	size	Description
Username	varchar	20	Identity of the user
Password(primary key)	tid(varchar)	20	User's password

4.4.1 ER Schema

Patient (P_ID, FName, LName, Age, Sex, Location, Dr_ID*)

Staff (S_ID, FName, LName, Session, Acc_ID*)

Laboratory (Lab_ID, FName, LName, Dr_ID*, Disease, Lab_name)

Membership (Mem_ID, S_ID, Reg_date, P_ID*)

Doctors (Dr_ID, Sex, Month, Lab_ID*, S_ID*)

Accouns (Acc_ID, Fname, Lname, S_ID*)

Security (Username, Password)

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4.4.2 ER Diagram

PATIENT —1— ⟨received by⟩ —M— DOCTOR
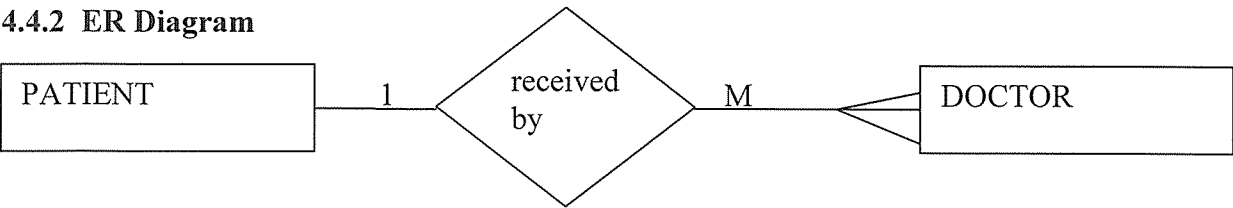
Each patient is attended to by one or more patients.

PATIENT —1— ⟨Registers⟩ —M— MEMBERSHIP

Each patient is supposed to register and may have more than one membership card.

DOCTOR —1— ⟨Attends to⟩ —M— PATIENTS
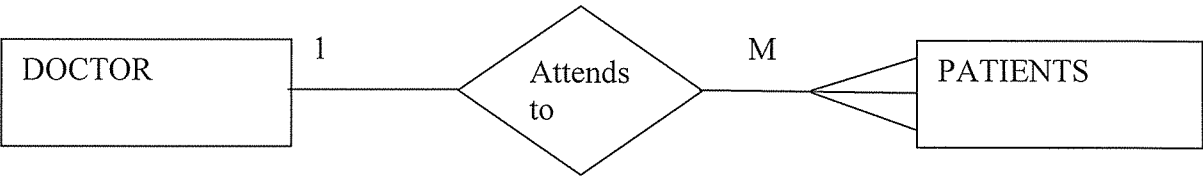
The Doctor is able to attend to many Patients per day.

DOCTOR —1— ⟨Analyses⟩ —M— LABORATORY
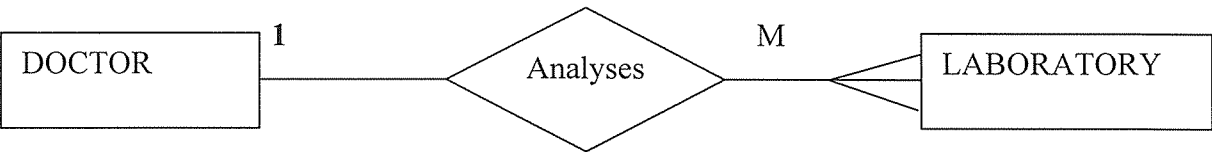
Doctor analyses all the results obtained from the Lab to prescribe the required treatment.

STAFF —M— ⟨Access⟩ —M— ACCOUNTS
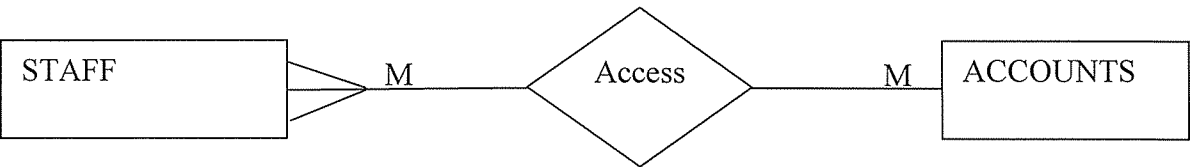
At least 3 staff members are able to access Account records when requested for by the Superintendent.

4.3 Relationships
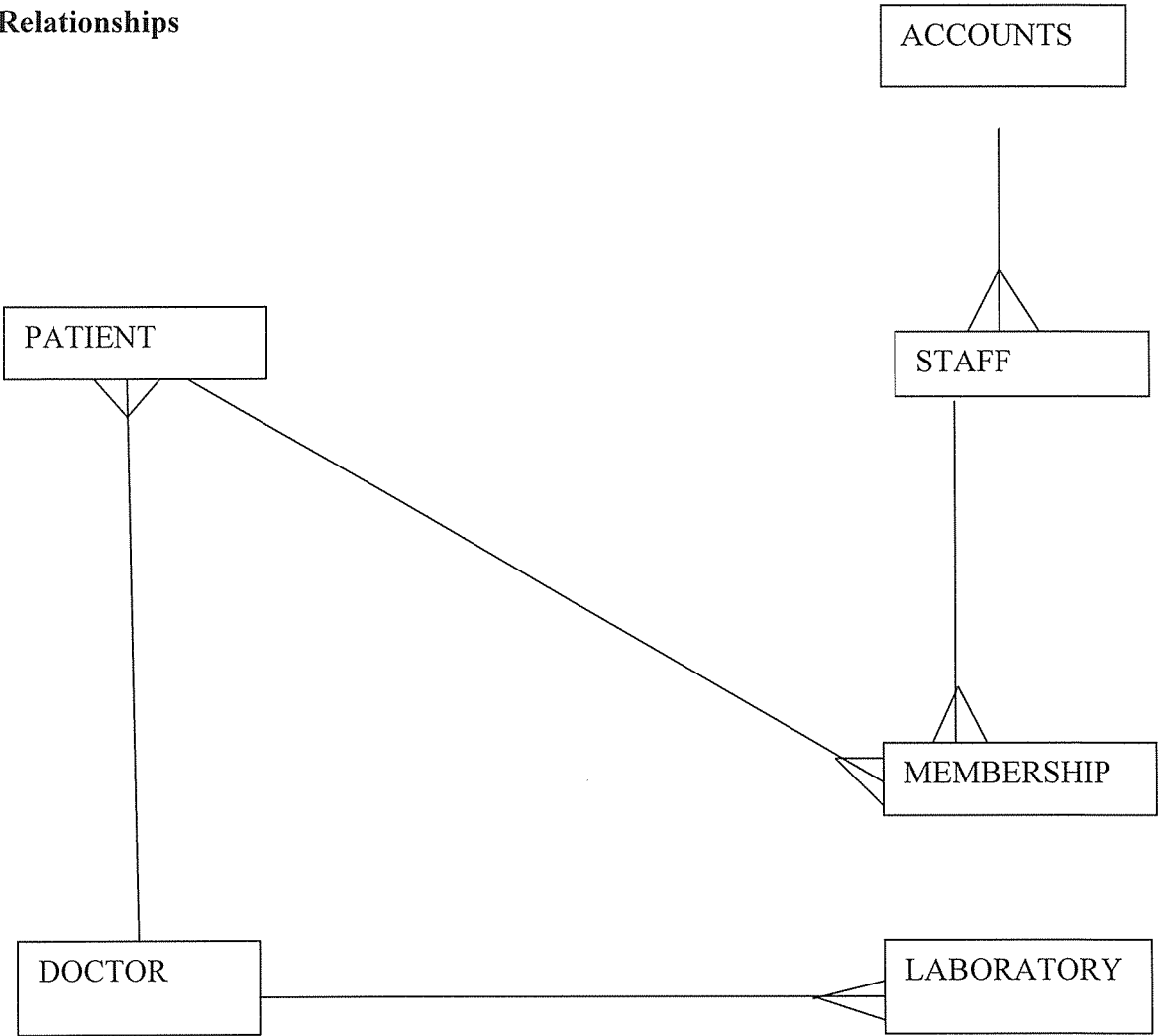
4. 5 User Requirements

4.5.1 Functional Requirements

These are services the system should provide, how it should react to particular inputs, or how it should behave in particular situations. They include the following;

• The System was designed to enable effective storage and retrieval of patients' data and improve on the security of records for Desire Medical System.

• Data input from the users through forms will be accepted by the system.

• Reports shall be generated when needed.

4.5.2 Non-Functional Requirements

This involves the constraints on the services offered by the system, they include:

• Promotion of data integrity. Only the authorized individuals like the Accountant, Doctor, Superintendent, Senior Nurse will be allowed to access the Medical Center's records. Therefore, unauthorized users should not be able to alter data input.

• The proposed system should run on a plat form operating system.

• Consistent information should be provided to all the users. It should be the same to all the users that access it.

• Reports should be provided in a timely manner.

4.6 Physical Design

This shows not only what a system is or does, but also how the system is physically and technically implemented. The implementation is dependent because it reflects technology choices and the limitations of those technology choices.

4.6.1 Architectural Design

This gives high-level view of the new system within the main components of the system and the services they provide and how they communicate to the system.

At this stage of the system development, the focus is on the definition of the central architecture of the system. One of the major interests was the definition of the structural models and the control models. The server and the client sides are identified with their respective interfaces. The product at this stage is the architectural model identifying the different components of the system. The figure below shows the design.
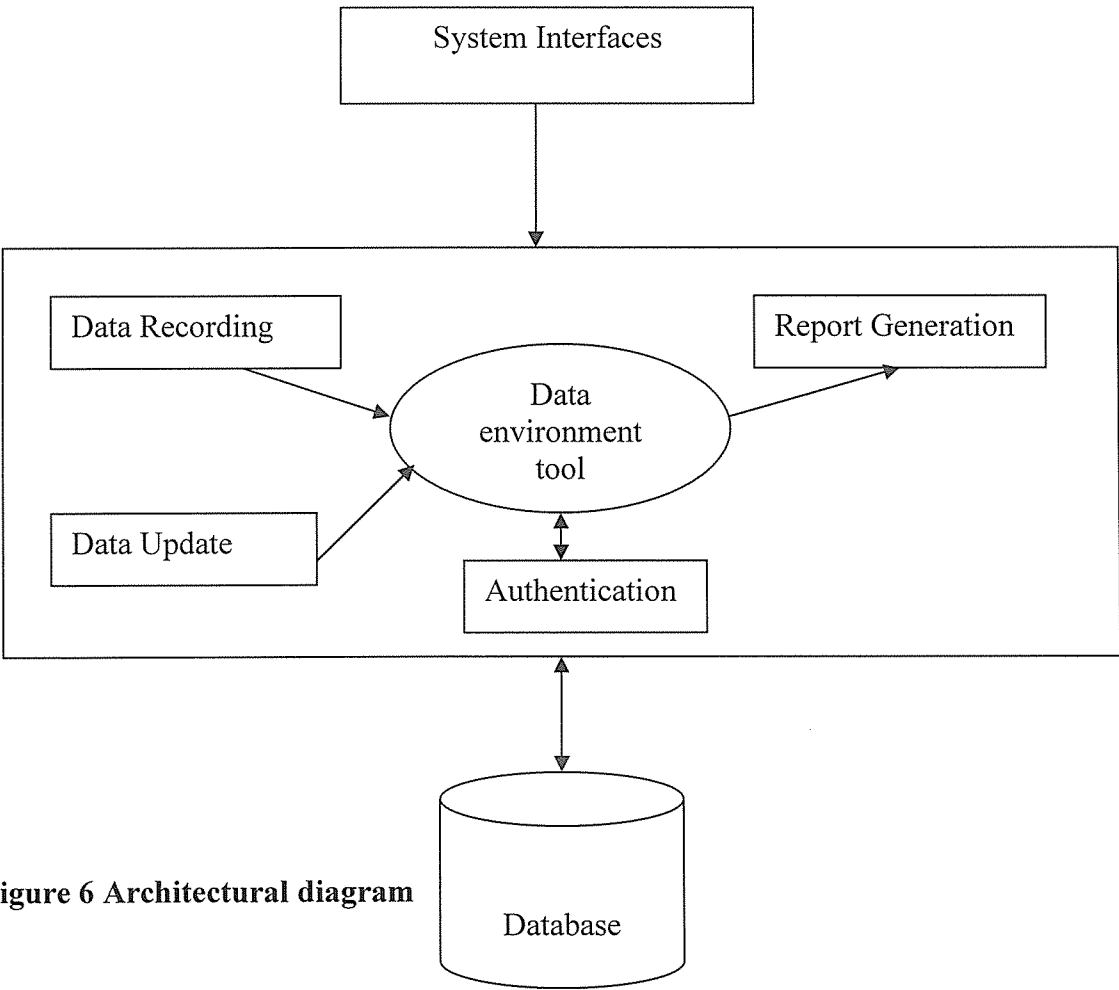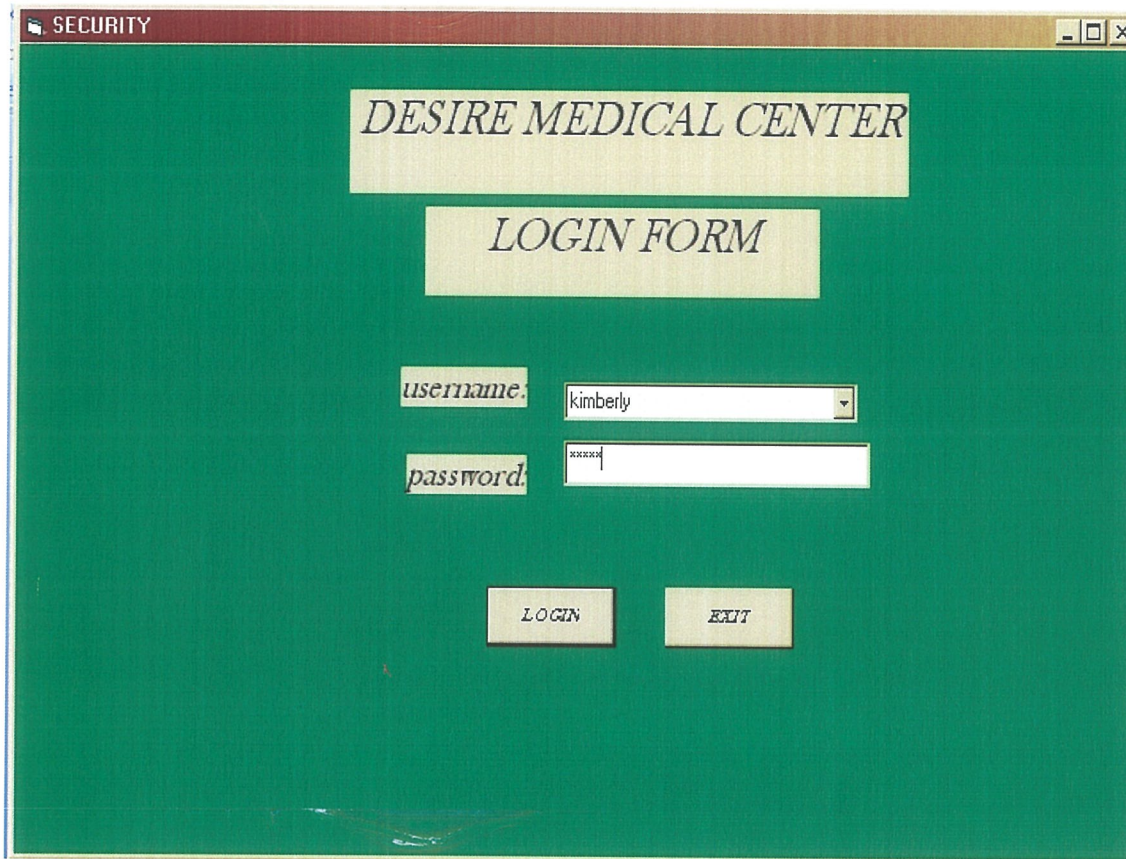
Figure 6 Architectural diagram

4.7 System Interfaces

Login Form
Enables the authorized users to access the information found in the database.

System Switchboard

Contains all the forms found in the system and the reports generated.
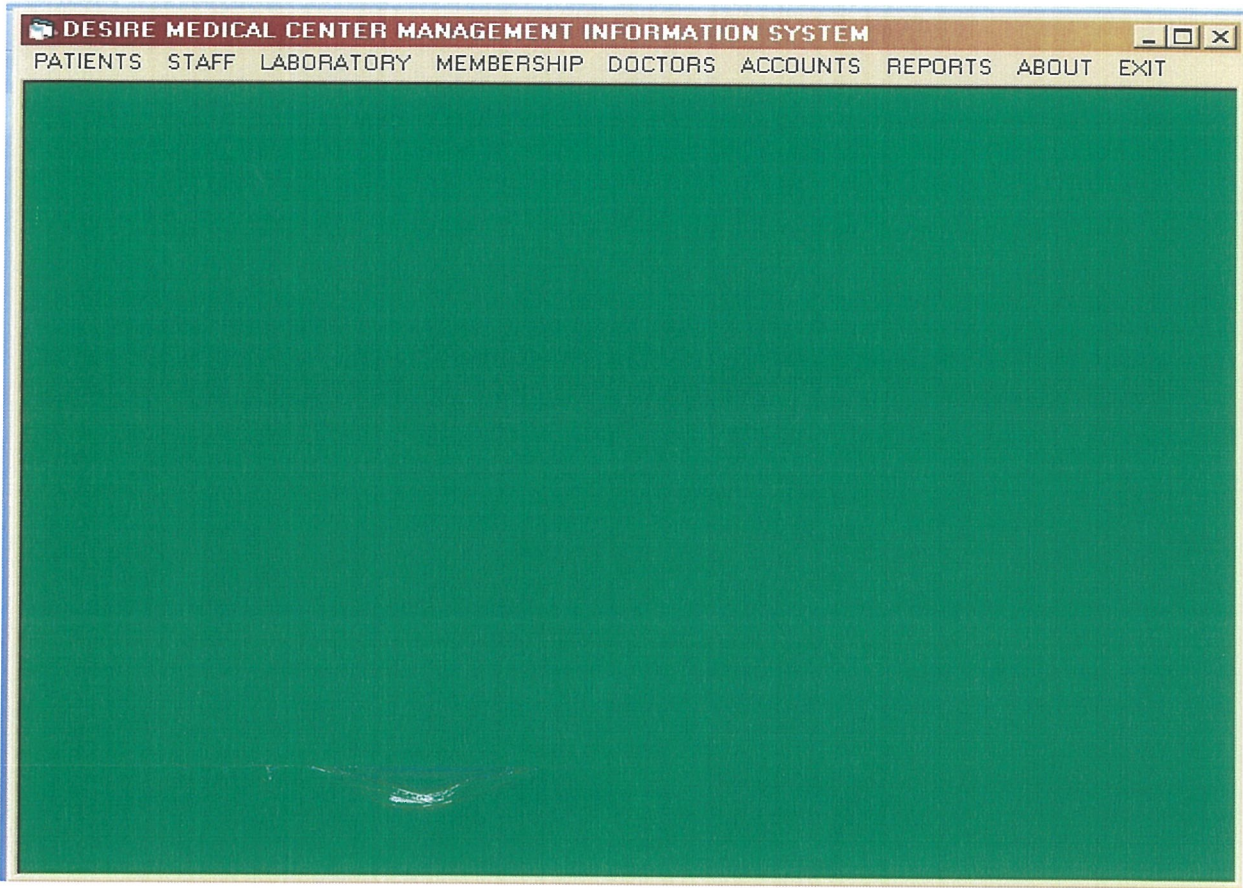
Patient form

Displays the first record about patients' details.

DESIRE MEDICAL CENTER MANAGEMENT INFORMATION SYSTEM - [PATIENTS]		
PATIENTS STAFF LABORATORY MEMBERSHIP DOCTORS ACCOUNTS REPORTS ABOUT EXIT		

DESIRE MEDICAL CENTER

PATIENTS DETAILS

Patient ID:	PA01	FIRST
Fname:	MARY	NEXT
Lname:	KAY	PREVIOUS
Age:	20	LAST
Sex:	FEMALE	ADD
location:	GREEN STREET 1121	DELETE
Doctor ID	DR64	CANCEL
Start Date	1/20/2008	UPDATE
End Date	4/25/2008	SEARCH
		EXIT

Staff form

User is asked if he or she would like to delete a record from the table.

Doctors' form

Showing how the user can search for the Doctor's Identity.

Laboratory Form

Shows that the record has been updated.

DESIRE MEDICAL CENTER MANAGEMENT INFORMATION SYSTEM - [LABORATORY]

PATIENTS   STAFF   LABORATORY   MEMBERSHIP   DOCTORS   ACCOUNTS   REPORTS   ABOUT   EXIT

DESIRE MEDICAL CENTER

LABORATORY

Laboratory ID:	LB11
First name:	ESTHER
Last name:	PUCKETT
Droctor ID:	DR01
Disease:	BRAIN TUMOUR
Lab Name	SURGERY
Start Date	2/2/2009
End Date	2/17/2009

DMC

Record : LB11 Updated

OK

FIRST
NEXT
PREVIOUS
LAST
ADD
DELETE
CANCEL
SEARCH
UPDATE
EXIT

Membership form

An inquiry is made if the user wants to exit.

Accounts Form.

This shows the last record about Account details.

DESIRE MEDICAL CENTER MANAGEMENT INFORMATION SYSTEM - [ACCOUNTS]

PATIENTS   STAFF   LABORATORY   MEMBERSHIP   DOCTORS   ACCOUNTS   REPORTS   ABOUT   EXIT

DESIRE MEDICAL CENTER

ACCOUNTS DETAILS

Account ID:	ACC09	FIRST
Accountant: FName	HUGH	NEXT
Accountant: LName	GRANT	PREVIOUS
Staff ID:	SS32	LAST
Start Date	2/25/2009	ADD
End Date	6/26/2009	DELETE
		CANCEL
		UPDATE
		SEARCH
		EXIT

Patients' data

Report generated to display details found in the table.

4.8 Testing

This was done in the ways shown below:

i) Unit testing involved testing individual components separately to remove errors. Prior to our coded data and physical design model, we tested individual forms separately and debugged where required. We made sure all the command-buttons were functioning as required, attributes and entities in the required format and their programming syntax responded to their appropriate calls as needed for example the **Next, First, last, previous** buttons were all working as expected to function when tested separately. **Next-buttons** would give you the next record and so also the **first button** to give you the first record and **last-button** gives you the last record.

ii) System testing tested the functioning of Information System as a whole to determine if discrete modules would function together as planned. All the unit tested actual data was brought together to form one system. For example the search button could search any record available in the database, the **first, next, last** buttons all gave their record as required plus others and the database path referenced as required.

4.8.1 Implementation phase

This phase started from the point when the system design was formally approved to when the system was in place and ready to be used. Therefore, the system had to be tested to determine whether it produced the desired results or not. The major objective for testing includes removing errors to verify that the system satisfies user requirements.

The following conversion strategy was therefore used:

4.8.2 Parallel strategy

Both the old and the new systems were run together for some time. The old one being file-based system that the Desire Medical Center used for record-keeping, it had draw-backs like time

wastage when leafing through the records, tattered written records but they helped in comparing records on paper-based with that of the new system designed.

The comparison was also made to enable the availability of records on file-based in case the new system failed, hence avoiding total record disappearance.

4.8.3 Training users

The wage of the new system needed training the unskilled users on how to use the new system. The training was on opening the database, Entering data, Navigating data in the application window and Processing of data.

4.9 Monitoring and Maintenance

After the new system is installed and conversion is complete, the system was produced. Maintenance followed and the following occurred during maintenance;

(a) Up-grading of Hardware and Software.

Hardware was upgraded to work on the current system being used and software up-graded to be compatible with current one in use.

(b) Repair of Hardware.

Hardware was always monitored incase of drive-failure, key-board or mouse and repaired.

(c) Security enhancement.

Unauthorized users were always denied access to data in the new system through password policies created.

d) Update functionalities of the system.

Various parts of the new system were up-dated like the software and hardware used to enable them work on this new platform.

e) Back-up and Recovery

Equipment for backup like flash and compact disks were put in place as storage devices to avoid losing large amounts of data due to uncertainties like power loss, or system break-down due to viruses.

CHAPTER 5
RECOMMENDATIONS AND CONCLUSIONS

5.0 Introduction

The project was successfully completed. It implemented the goal stipulated at the beginning of the project. The application will be able to create queries, relations between databases, ease in searching of records, which will save time and prove efficiency of stored data.

5.1 Recommendations

Desire Medical Center is recommended to constantly upgrade and maintain its hardware and software for efficient running and to avoid machine breakdown. This may also enhance the computer's lifecycle. For efficient results, the administrator should enter correct information in the Medical record keeping Management Information System.

Antivirus software should be installed and used to scan all the documents for the Medical center to deal with the malware and macros that could lead to data loss. Updates for the antivirus should also be made whenever it expires. This will build the organization's confidence about the software.

The hard disk for the system will be partitioned into two to have a backup hard disk on which the organization's information will be stored. This will enable Desire Medical Center from totally losing its information.

5.2 Conclusion

The designed new computerized system will now replace the inefficient manual system. It will overlook the problems caused by the existing system and will enable easy access and updating of information because it will be user friendly in Desire Medical Center. Reports will be processed depending on the particular information needed at a particular time.

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APPENDICES

APPENDIX i

System codes
Accounts

```
Private Sub CMDADD_Click()

DMC.rsaccounts.AddNew

open_Click

End Sub


Private Sub cmdCancel_Click()

On Error GoTo errdes


     'Command1.Enabled = True

     ' Command2.Enabled = True

     'Command3.Enabled = True

     'Command4.Enabled = True

     ' Command5.Enabled = True

     ' Command11.Visible = False

     ' Command7.Enabled = True

     ' command8.Enabled = True

     DMC.rsaccounts.CancelUpdate

     DMC.rsaccounts.MoveFirst

     LOCK_CLICK

Exit Sub

errdes:

 MsgBox Err.Description, vbInformation, "DMC"

End Sub


Private Sub CMDDELETE_Click()

On Error GoTo errdes

Dim TSG As Integer
```

```vb
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
If TSG = 6 Then
DMC.rsaccounts.Delete
MsgBox "you have deleted the following record:  " + txtacc_ID.Text
DMC.rsaccounts.MoveFirst
Else
MsgBox "Record not deleted"
End If
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
Unload Me
Else
MsgBox "Exit later"
End If
End Sub


Private Sub CMDFIRST_Click()
If DMC.rsaccounts.BOF = False Then
    DMC.rsaccounts.MoveFirst
    'Move to the first record in the record set.
  ElseIf DMC.rsaccounts.BOF = True _
    And DMC.rsaccounts.EOF = True Then

    MsgBox "There is no data in the record set!"
```

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```
End If
End Sub


Private Sub CMDLAST_Click()
If DMC.rsaccounts.EOF = False Then
      DMC.rsaccounts.MoveLast
      'Move to the last record in the record set.
   ElseIf DMC.rsaccounts.BOF = True _
      And DMC.rsaccounts.EOF = True Then


      MsgBox "There is no data in the record set!"
   End If
End Sub


Private Sub CMDNEXT_Click()
If DMC.rsaccounts.EOF = False Then
      DMC.rsaccounts.MoveNext


      If DMC.rsaccounts.EOF Then
          'This will prevent the user from moving to
          'the EOF Marker if he or she is on the last
          'record.
          MsgBox ("This is last Record")
          DMC.rsaccounts.MoveLast
      End If
   Else
     If DMC.rsaccounts.BOF Then
         'Check to see if there is any data in the recordset.


         MsgBox "There is no data in the record set!"
      Else
```

```
        DMC.rsaccounts.MoveLast

        'Move the user to the last record if he or she

        'tries to move past the last record.

      End If

    End If

End Sub


Private Sub CMDPREVIOUS_Click()

If DMC.rsaccounts.BOF = False Then

      DMC.rsaccounts.MovePrevious

      'Check to see if you are at the front of the record set.

      'If you are not, then you can move forward.


      If DMC.rsaccounts.BOF = True Then

        'This will prevent the user from moving to

        'the BOF marker if he or she is on the first record.

        MsgBox "This is the First Record"

        DMC.rsaccounts.MoveFirst

      End If

  Else

    If DMC.rsaccounts.EOF Then

        'Check to see if there is any data in the record set.

        MsgBox "There is no data in the record set!"

    Else

      DMC.rsaccounts.MoveFirst

      'If the user is at the BOF marker, then move

      'to the first record.


      End If

    End If

End Sub
```

```vb
Private Sub CMDSEARCH_Click()
DMC.rsaccounts.MoveFirst
Dim content, name As String
    name = InputBox("Enter Account ID to search for an Accountant")
    content = Trim(name) & "*"
    content = "Acc_ID like '" & content & "'"
    If name = "" Then
        MsgBox ("You didn't enter a value")
    ElseIf name <> "" Then
        DMC.rsaccounts.Find content

    End If
    If txtacc_ID.Text = "" Then
    MsgBox "The ID you entered does not exist"
    DMC.rsaccounts.MoveFirst
    End If
End Sub


Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rsaccounts.Update
MsgBox "Record : " + UCase(txtacc_ID.Text) + " Updated"
LOCK_CLICK
Exit Sub
```

```vb
errdes:
    MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txtAccountant.Locked = True
txtPaid.Locked = True
txts_ID.Locked = True
Text1.Locked = True
Text2.Locked = True
txtacc_ID.Locked = True
End Sub
Private Sub open_Click()
txtAccountant.Locked = False
txtPaid.Locked = False
txts_ID.Locked = False
Text1.Locked = False
Text2.Locked = False
txtacc_ID.Locked = False
End Sub


Private Sub Form_Load()
LOCK_CLICK
End Sub
```

Doctors

```vb
Private Sub CMDADD_Click()
open_Click
DMC.rsdoctors.AddNew
End Sub


Private Sub cmdCancel_Click()
```

```vb
On Error GoTo errdes

    'Command1.Enabled = True
    ' Command2.Enabled = True
    'Command3.Enabled = True
    'Command4.Enabled = True
    ' Command5.Enabled = True
    ' Command11.Visible = False
    ' Command7.Enabled = True
    ' command8.Enabled = True
    DMC.rsdoctors.CancelUpdate
    DMC.rsdoctors.MoveFirst
    LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDDELETE_Click()
On Error GoTo errdes
Dim TSG As Integer
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
If TSG = 6 Then
DMC.rsdoctors.Delete
MsgBox "you have deleted the following record:  " + txtDr_ID.Text
DMC.rsdoctors.MoveFirst
Else
MsgBox "Record not deleted"
End If
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
```

```
End Sub

Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
Unload Me
Else
MsgBox "Exit later"
End If
End Sub

Private Sub CMDFIRST_Click()
If DMC.rsdoctors.BOF = False Then
    DMC.rsdoctors.MoveFirst
    'Move to the first record in the record set.
  ElseIf DMC.rsdoctors.BOF = True _
    And DMC.rsdoctors.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
End Sub

Private Sub CMDLAST_Click()
If DMC.rsdoctors.EOF = False Then
    DMC.rsdoctors.MoveLast
    'Move to the last record in the record set.
  ElseIf DMC.rsdoctors.BOF = True _
    And DMC.rsdoctors.EOF = True Then

    MsgBox "There is no data in the record set!"
```

```
    End If
End Sub


Private Sub CMDNEXT_Click()
If DMC.rsdoctors.EOF = False Then
    DMC.rsdoctors.MoveNext


    If DMC.rsdoctors.EOF Then
        'This will prevent the user from moving to
        'the EOF Marker if he or she is on the last
        'record.
        MsgBox ("This is last Record")
        DMC.rsdoctors.MoveLast
    End If
Else
    If DMC.rsdoctors.BOF Then
        'Check to see if there is any data in the recordset.


        MsgBox "There is no data in the record set!"
    Else
        DMC.rsdoctors.MoveLast
        'Move the user to the last record if he or she
        'tries to move past the last record.
    End If
End If
End Sub


Private Sub CMDPREVIOUS_Click()
If DMC.rsdoctors.BOF = False Then
    DMC.rsdoctors.MovePrevious
    'Check to see if you are at the front of the record set.
```

```
'If you are not, then you can move forward.


    If DMC.rsdoctors.BOF = True Then
        'This will prevent the user from moving to
        'the BOF marker if he or she is on the first record.
        MsgBox "This is the First Record"
        DMC.rsdoctors.MoveFirst
    End If
  Else
    If DMC.rsdoctors.EOF Then
        'Check to see if there is any data in the record set.
        MsgBox "There is no data in the record set!"
      Else
        DMC.rsdoctors.MoveFirst
        'If the user is at the BOF marker, then move
        'to the first record.


    End If
  End If
End Sub


Private Sub CMDSEARCH_Click()
DMC.rsdoctors.MoveFirst
Dim content, name As String
    name = InputBox("Enter Doctor ID to search for a Doctor")
    content = Trim(name) & "*"
    content = "Dr_ID like '" & content & "'"
    If name = "" Then
        MsgBox ("You didn't enter a value")
    ElseIf name <> "" Then
        DMC.rsdoctors.Find content
```

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```vb
    End If
    If txtDr_ID.Text = "" Then
    MsgBox "The ID you entered does not exist"
    DMC.rsdoctors.MoveFirst
    End If
End Sub


Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rsdoctors.Update
MsgBox "Record  :  " + UCase(txtDr_ID.Text) + " Updated"
LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txtDr_ID.Locked = True
txtSex.Locked = True
txtmonth.Locked = True
txtlab_id.Locked = True
Text1.Locked = True
End Sub
Private Sub open_Click()
```

```
txtDr_ID.Locked = False
txtSex.Locked = False
txtmonth.Locked = False
txtlab_id.Locked = False
Text1.Locked = False
End Sub
Private Sub Form_Load()
LOCK_CLICK
End Sub
```

laboratory

```
Private Sub CMDADD_Click()
open_Click
DMC.rslaboratory.AddNew
End Sub


Private Sub cmdCancel_Click()
On Error GoTo errdes

      'Command1.Enabled = True
      ' Command2.Enabled = True
      'Command3.Enabled = True
      'Command4.Enabled = True
      ' Command5.Enabled = True
      ' Command11.Visible = False
      ' Command7.Enabled = True
      ' command8.Enabled = True
      DMC.rslaboratory.CancelUpdate
      DMC.rslaboratory.MoveFirst
      LOCK_CLICK
   Exit Sub
```

```vb
errdes:
    MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDDELETE_Click()
On Error GoTo errdes
Dim TSG As Integer
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
If TSG = 6 Then
DMC.rslaboratory.Delete
MsgBox "you have deleted the following record:  " + txtlab_id.Text
DMC.rslaboratory.MoveFirst
Else
MsgBox "Record not deleted"
End If
Exit Sub
errdes:
    MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
Unload Me
Else
MsgBox "Exit later"
End If
End Sub


Private Sub CMDFIRST_Click()
```

```vb
If DMC.rslaboratory.BOF = False Then
    DMC.rslaboratory.MoveFirst
    'Move to the first record in the record set.
  ElseIf DMC.rslaboratory.BOF = True _
    And DMC.rslaboratory.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
End Sub


Private Sub CMDLAST_Click()
If DMC.rslaboratory.EOF = False Then
    DMC.rslaboratory.MoveLast
    'Move to the last record in the record set.
  ElseIf DMC.rslaboratory.BOF = True _
    And DMC.rslaboratory.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
End Sub


Private Sub CMDNEXT_Click()
If DMC.rslaboratory.EOF = False Then
    DMC.rslaboratory.MoveNext

    If DMC.rslaboratory.EOF Then
        'This will prevent the user from moving to
        'the EOF Marker if he or she is on the last
        'record.
        MsgBox ("This is last Record")
        DMC.rslaboratory.MoveLast
```

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```
        End If
    Else
        If DMC.rslaboratory.BOF Then
            'Check to see if there is any data in the recordset.

            MsgBox "There is no data in the record set!"
        Else
            DMC.rslaboratory.MoveLast
            'Move the user to the last record if he or she
            'tries to move past the last record.
        End If
    End If
End Sub


Private Sub CMDPREVIOUS_Click()
If DMC.rslaboratory.BOF = False Then
    DMC.rslaboratory.MovePrevious
    'Check to see if you are at the front of the record set.
    'If you are not, then you can move forward.

    If DMC.rslaboratory.BOF = True Then
        'This will prevent the user from moving to
        'the BOF marker if he or she is on the first record.
        MsgBox "This is the First Record"
        DMC.rslaboratory.MoveFirst
    End If
Else
    If DMC.rslaboratory.EOF Then
        'Check to see if there is any data in the record set.
        MsgBox "There is no data in the record set!"
    Else
```

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```
        DMC.rslaboratory.MoveFirst
        'If the user is at the BOF marker, then move
        'to the first record.


    End If
  End If
End Sub


Private Sub CMDSEARCH_Click()
DMC.rslaboratory.MoveFirst
Dim content, name As String
   name = InputBox("Enter Lab ID to search for Lab Identity")
   content = Trim(name) & "*"
   content = "Lab_ID like '" & content & "'"
   If name = "" Then
      MsgBox ("You didn't enter a value")
   ElseIf name <> "" Then
      DMC.rslaboratory.Find content


   End If
   If txtlab_id.Text = "" Then
   MsgBox "The ID you entered does not exist"
   DMC.rslaboratory.MoveFirst
   End If
End Sub


Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
```

```vb
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rslaboratory.Update
MsgBox "Record : " + UCase(txtlab_id.Text) + " Updated"
LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txtlab_id.Locked = True
txtFname.Locked = True
txtLname.Locked = True
txtDr_ID.Locked = True
txtdisease.Locked = True
txtstartdate.Locked = True
txtenddate.Locked = True
Text1.Locked = True
End Sub
Private Sub open_Click()
txtlab_id.Locked = False
txtFname.Locked = False
txtLname.Locked = False
txtDr_ID.Locked = False
txtdisease.Locked = False
txtstartdate.Locked = False
txtenddate.Locked = False
End Sub
Private Sub Form_Load()
LOCK_CLICK
```

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```
End Sub


Membership
Private Sub CMDADD_Click()
open_Click
DMC.rsmembership.AddNew
End Sub


Private Sub cmdCancel_Click()
On Error GoTo errdes


    'Command1.Enabled = True
    ' Command2.Enabled = True
    'Command3.Enabled = True
    'Command4.Enabled = True
    ' Command5.Enabled = True
    ' Command11.Visible = False
    ' Command7.Enabled = True
    ' command8.Enabled = True
    DMC.rsmembership.CancelUpdate
    DMC.rsmembership.MoveFirst
    LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDDELETE_Click()
On Error GoTo errdes
Dim TSG As Integer
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
```

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```vb
If TSG = 6 Then
DMC.rsmembership.Delete
MsgBox "you have deleted the following record:  " + txtmem_ID.Text
DMC.rsmembership.MoveFirst
Else
MsgBox "Record not deleted"
End If
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure you want to Exit?", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
Unload Me
Else
MsgBox "Exit later"
End If
End Sub


Private Sub CMDFIRST_Click()
If DMC.rsmembership.BOF = False Then
    DMC.rsmembership.MoveFirst
    'Move to the first record in the record set.
  ElseIf DMC.rsmembership.BOF = True _
    And DMC.rsmembership.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
```

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```
End Sub


Private Sub CMDLAST_Click()
If DMC.rsmembership.EOF = False Then
     DMC.rsmembership.MoveLast
     'Move to the last record in the record set.
   ElseIf DMC.rsmembership.BOF = True _
     And DMC.rsmembership.EOF = True Then


     MsgBox "There is no data in the record set!"
   End If
End Sub


Private Sub CMDNEXT_Click()
If DMC.rsmembership.EOF = False Then
     DMC.rsmembership.MoveNext


     If DMC.rsmembership.EOF Then
         'This will prevent the user from moving to
         'the EOF Marker if he or she is on the last
         'record.
         MsgBox ("This is last Record")
         DMC.rsmembership.MoveLast
     End If
   Else
     If DMC.rsmembership.BOF Then
         'Check to see if there is any data in the recordset.


         MsgBox "There is no data in the record set!"
     Else
         DMC.rsmembership.MoveLast
```

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```
        'Move the user to the last record if he or she
        'tries to move past the last record.
      End If
    End If
End Sub


Private Sub CMDPREVIOUS_Click()
If DMC.rsmembership.BOF = False Then
      DMC.rsmembership.MovePrevious
      'Check to see if you are at the front of the record set.
      'If you are not, then you can move forward.


      If DMC.rsmembership.BOF = True Then
         'This will prevent the user from moving to
         'the BOF marker if he or she is on the first record.
         MsgBox "This is the First Record"
         DMC.rsmembership.MoveFirst
      End If
    Else
      If DMC.rsmembership.EOF Then
         'Check to see if there is any data in the record set.
         MsgBox "There is no data in the record set!"
      Else
         DMC.rsmembership.MoveFirst
         'If the user is at the BOF marker, then move
         'to the first record.


      End If
    End If
End Sub
```

```vb
Private Sub CMDSEARCH_Click()
DMC.rsmembership.MoveFirst
Dim content, name As String
    name = InputBox("Enter Mem_ID to search for a Member's Identity")
    content = Trim(name) & "*"
    content = "Mem_ID like '" & content & "'"
    If name = "" Then
        MsgBox ("You didn't enter a value")
    ElseIf name <> "" Then
        DMC.rsmembership.Find content


    End If
    If txtmem_ID.Text = "" Then
    MsgBox "The ID you entered does not exist"
    DMC.rsmembership.MoveFirst
    End If
End Sub


Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rsmembership.Update
MsgBox "Record  : " + UCase(txtmem_ID.Text) + " Updated"
LOCK_CLICK
Exit Sub
errdes:
```

```vb
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txtmem_ID.Locked = True
txts_ID.Locked = True
txtreg_date.Locked = True
txtp_id.Locked = True
txtstartdate.Locked = True
txtenddate.Locked = True
End Sub
Private Sub open_Click()
txtmem_ID.Locked = False
txts_ID.Locked = False
txtreg_date.Locked = False
txtp_id.Locked = False
txtstartdate.Locked = False
txtenddate.Locked = False
End Sub
Private Sub Form_Load()
LOCK_CLICK
End Sub
```

Patients

```vb
Private Sub CMDADD_Click()
open_Click
DMC.rspatients.AddNew
End Sub


Private Sub cmdCancel_Click()
On Error GoTo errdes
```

```
    'Command1.Enabled = True
    ' Command2.Enabled = True
    'Command3.Enabled = True
    'Command4.Enabled = True
    ' Command5.Enabled = True
    ' Command11.Visible = False
    ' Command7.Enabled = True
    ' command8.Enabled = True
    DMC.rspatients.CancelUpdate
    DMC.rspatients.MoveFirst
    LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDDELETE_Click()
On Error GoTo errdes
Dim TSG As Integer
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
If TSG = 6 Then
DMC.rspatients.Delete
MsgBox "you have deleted the following record:  " + txtp_id.Text
DMC.rspatients.MoveFirst
Else
MsgBox "Record not deleted"
End If
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
```

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```vb
Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
Unload Me
Else
MsgBox "Exit later"
End If
End Sub


Private Sub CMDFIRST_Click()
If DMC.rspatients.BOF = False Then
    DMC.rspatients.MoveFirst
    'Move to the first record in the record set.
  ElseIf DMC.rspatients.BOF = True _
    And DMC.rspatients.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
End Sub


Private Sub CMDLAST_Click()
If DMC.rspatients.EOF = False Then
    DMC.rspatients.MoveLast
    'Move to the last record in the record set.
  ElseIf DMC.rspatients.BOF = True _
    And DMC.rspatients.EOF = True Then

    MsgBox "There is no data in the record set!"
  End If
```

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```
End Sub


Private Sub CMDNEXT_Click()
If DMC.rspatients.EOF = False Then
        DMC.rspatients.MoveNext


        If DMC.rspatients.EOF Then
            'This will prevent the user from moving to
            'the EOF Marker if he or she is on the last
            'record.
            MsgBox ("This is last Record")
            DMC.rspatients.MoveLast
        End If
    Else
        If DMC.rspatients.BOF Then
            'Check to see if there is any data in the recordset.


            MsgBox "There is no data in the record set!"
        Else
            DMC.rspatients.MoveLast
            'Move the user to the last record if he or she
            'tries to move past the last record.
        End If
    End If
End Sub


Private Sub CMDPREVIOUS_Click()
If DMC.rspatients.BOF = False Then
        DMC.rspatients.MovePrevious
        'Check to see if you are at the front of the record set.
        'If you are not, then you can move forward.
```

```
If DMC.rspatients.BOF = True Then
    'This will prevent the user from moving to
    'the BOF marker if he or she is on the first record.
    MsgBox "This is the First Record"
    DMC.rspatients.MoveFirst
    End If
Else
    If DMC.rspatients.EOF Then
        'Check to see if there is any data in the record set.
        MsgBox "There is no data in the record set!"
    Else
        DMC.rspatients.MoveFirst
        'If the user is at the BOF marker, then move
        'to the first record.


    End If
    End If
End Sub


Private Sub CMDSEARCH_Click()
DMC.rspatients.MoveFirst
Dim content, name As String
    name = InputBox("Enter Patients ID to search for a patient")
    content = Trim(name) & "*"
    content = "P_ID like '" & content & "'"
    If name = "" Then
        MsgBox ("You didn't enter a value")
    ElseIf name <> "" Then
        DMC.rspatients.Find content
```

```
        End If
        If txtp_id.Text = "" Then
        MsgBox "The ID you entered does not exist"
        DMC.rspatients.MoveFirst
        End If
End Sub


Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rspatients.Update
MsgBox "Record  :  " + UCase(txtp_id.Text) + " Updated"
LOCK_CLICK
Exit Sub
errdes:
   MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txtp_id.Locked = True
txtFname.Locked = True
txtLname.Locked = True
txtAge.Locked = True
txtSex.Locked = True
txtlocation.Locked = True
txtDr_ID.Locked = True
txtstartdate.Locked = True
```

```
txtenddate.Locked = True
End Sub
Private Sub open_Click()
txtp_id.Locked = False
txtFname.Locked = False
txtLname.Locked = False
txtAge.Locked = False
txtSex.Locked = False
txtlocation.Locked = False
txtDr_ID.Locked = False
txtstartdate.Locked = False
txtenddate.Locked = False
End Sub
Private Sub Form_Load()
LOCK_CLICK
End Sub
```

Staff

```
Private Sub CMDADD_Click()
open_Click
DMC.rsstaff.AddNew
End Sub


Private Sub cmdCancel_Click()
On Error GoTo errdes

    'Command1.Enabled = True
    ' Command2.Enabled = True
    'Command3.Enabled = True
    'Command4.Enabled = True
    ' Command5.Enabled = True
```

```vb
' Command11.Visible = False
' Command7.Enabled = True
' command8.Enabled = True
DMC.rsstaff.CancelUpdate
DMC.rsstaff.MoveFirst
LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDDELETE_Click()
On Error GoTo errdes
Dim TSG As Integer
TSG = MsgBox("Are you sure you want to delete", vbYesNo + vbQuestion, "Confirm")
If TSG = 6 Then
DMC.rsstaff.Delete
MsgBox "you have deleted the following record:  " + txtp_id.Text
DMC.rsstaff.MoveFirst
Else
MsgBox "Record not deleted"
End If
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub CMDEXIT_Click()
Dim ans As Integer
ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")
If ans = 6 Then
```

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```
Unload Me
Else
MsgBox "Exit later"
End If
End Sub


Private Sub CMDFIRST_Click()
If DMC.rsstaff.BOF = False Then
     DMC.rsstaff.MoveFirst
     'Move to the first record in the record set.
   ElseIf DMC.rsstaff.BOF = True _
     And DMC.rsstaff.EOF = True Then

     MsgBox "There is no data in the record set!"
   End If
End Sub


Private Sub CMDLAST_Click()
If DMC.rsstaff.EOF = False Then
     DMC.rsstaff.MoveLast
     'Move to the last record in the record set.
   ElseIf DMC.rsstaff.BOF = True _
     And DMC.rsstaff.EOF = True Then

     MsgBox "There is no data in the record set!"
   End If
End Sub


Private Sub CMDNEXT_Click()
If DMC.rsstaff.EOF = False Then
     DMC.rsstaff.MoveNext
```

```
    If DMC.rsstaff.EOF Then
        'This will prevent the user from moving to
        'the EOF Marker if he or she is on the last
        'record.
        MsgBox ("This is last Record")
        DMC.rsstaff.MoveLast
    End If
Else
    If DMC.rsstaff.BOF Then
        'Check to see if there is any data in the recordset.

        MsgBox "There is no data in the record set!"
    Else
        DMC.rsstaff.MoveLast
        'Move the user to the last record if he or she
        'tries to move past the last record.
    End If
End If
End Sub


Private Sub CMDPREVIOUS_Click()
If DMC.rsstaff.BOF = False Then
    DMC.rsstaff.MovePrevious
    'Check to see if you are at the front of the record set.
    'If you are not, then you can move forward.

    If DMC.rsstaff.BOF = True Then
        'This will prevent the user from moving to
        'the BOF marker if he or she is on the first record.
        MsgBox "This is the First Record"
```

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```vb
            DMC.rsstaff.MoveFirst
        End If
    Else
        If DMC.rsstaff.EOF Then
            'Check to see if there is any data in the record set.
            MsgBox "There is no data in the record set!"
        Else
            DMC.rsstaff.MoveFirst
            'If the user is at the BOF marker, then move
            'to the first record.


        End If
    End If
End Sub


Private Sub CMDSEARCH_Click()
DMC.rsstaff.MoveFirst
Dim content, name As String
    name = InputBox("Enter Staff ID to search for a Staff member")
    content = Trim(name) & "*"
    content = "S_ID like '" & content & "'"
    If name = "" Then
        MsgBox ("You didn't enter a value")
    ElseIf name <> "" Then
        DMC.rsstaff.Find content

    End If
    If txts_ID.Text = "" Then
    MsgBox "The ID you entered does not exist"
    DMC.rsstaff.MoveFirst
    End If
```

```vb
End Sub

Private Sub CMDUPDATE_Click()
On Error GoTo errdes
CMDFIRST.Enabled = True
CMDNEXT.Enabled = True
CMDPREVIOUS.Enabled = True
CMDLAST.Enabled = True
CMDADD.Enabled = True
CMDSEARCH.Enabled = True
DMC.rsaccounts.Update
MsgBox "Record  :  " + UCase(txts_ID.Text) + " Updated"
LOCK_CLICK
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
Private Sub LOCK_CLICK()
txts_ID.Locked = True
txtFname.Locked = True
txtLname.Locked = True
txtsession.Locked = True
txtacc_ID.Locked = True
txtstartdate.Locked = True
txtenddate.Locked = True
End Sub
Private Sub open_Click()
txts_ID.Locked = False
txtFname.Locked = False
txtLname.Locked = False
txtsession.Locked = False
```

```vb
txtacc_ID.Locked = False
txtstartdate.Locked = False
txtenddate.Locked = False
End Sub
Private Sub Form_Load()
LOCK_CLICK
End Sub
```

System switchboard
```vb
Private Sub MDIForm_Load()
If security.Combo1.Text = "kimberly" Then
'MDIform1.mnuforms.Enabled = True
Else
'MDIform1.mnuforms.Enabled = False
End If
End Sub
Private Sub Exit_Click()
Dim ans
ans = MsgBox("Do you want to Exit?", vbQuestion + vbYesNo, "DMC CONFIRM")
If ans = vbYes Then
    Me.Hide
    security.Show
    security.Combo1.Text = ""
    security.Text2.Text = ""
    security.Combo1.SetFocus

Else
    Exit Sub
End If

End Sub
```

```vb
Private Sub MDIForm_Unload(Cancel As Integer)
Cancel = 1
Exit_Click
End Sub


Private Sub MNUABOUT_Click()
frmAbout.Show
End Sub


Private Sub mnuaccounts_Click()
If security.Combo1.Text = "kimberly" Then
accounts.CMDADD.Enabled = True
accounts.CMDDELETE.Enabled = True
accounts.CMDUPDATE.Enabled = True
Else
accounts.CMDADD.Enabled = True
accounts.CMDDELETE.Enabled = False
'accounts.CMDUPDATE.Enabled = False
End If
accounts.Show
End Sub


Private Sub mnudoctors_Click()
If security.Combo1.Text = "kimberly" Then
doctors.CMDADD.Enabled = True
doctors.CMDDELETE.Enabled = True
doctors.CMDUPDATE.Enabled = True
Else
doctors.CMDADD.Enabled = True
doctors.CMDDELETE.Enabled = False
```

```
'doctors.CMDUPDATE.Enabled = False
End If
doctors.Show
End Sub


Private Sub mnuexit_Click()
Cancel = 1
Exit_Click
End Sub


Private Sub mnulaboratory_Click()
If security.Combo1.Text = "kimberly" Then
laboratory.CMDADD.Enabled = True
laboratory.CMDDELETE.Enabled = True
laboratory.CMDUPDATE.Enabled = True
Else
laboratory.CMDADD.Enabled = True
laboratory.CMDDELETE.Enabled = False
'laboratory.CMDUPDATE.Enabled = False
End If
laboratory.Show
End Sub


Private Sub mnumembership_Click()
If security.Combo1.Text = "kimberly" Then
membership.CMDADD.Enabled = True
membership.CMDDELETE.Enabled = True
membership.CMDUPDATE.Enabled = True
Else
membership.CMDADD.Enabled = True
membership.CMDDELETE.Enabled = False
```

```
'membership.CMDUPDATE.Enabled = False
End If
membership.Show
End Sub


Private Sub mnupatients_Click()
If security.Combo1.Text = "kimberly" Then
patients.CMDADD.Enabled = True
patients.CMDDELETE.Enabled = True
patients.CMDUPDATE.Enabled = True
Else
patients.CMDADD.Enabled = True
patients.CMDDELETE.Enabled = False
'patients.CMDUPDATE.Enabled = False
End If
patients.Show
End Sub


Private Sub mnureportaccounts_Click()
searchaccounts.Show
End Sub


Private Sub mnureportdoctors_Click()
searchdoctors.Show
End Sub


Private Sub mnureportlaboratory_Click()
searchlaboratory.Show
End Sub


Private Sub mnureportmembership_Click()
```

```
searchmembership.Show
End Sub


Private Sub mnureportpatients_Click()
searchpatients.Show
End Sub


Private Sub mnureportstaff_Click()
searchstaff.Show
End Sub


Private Sub mnustaff_Click()
If security.Combo1.Text = "kimberly" Then
staff.CMDADD.Enabled = True
staff.CMDDELETE.Enabled = True
staff.CMDUPDATE.Enabled = True
Else
staff.CMDADD.Enabled = True
staff.CMDDELETE.Enabled = False
'staff.CMDUPDATE.Enabled = False
End If
staff.Show
End Sub
```

Security form

```
Private Sub CMDEXIT_Click()
End
End Sub


Private Sub CMDLOGIN_Click()
On Error GoTo errdes
'security.Refresh
```

```
DMC.rssecurity.MoveFirst
While Not DMC.rssecurity.EOF
If Combo1.Text = "" And Text2.Text = "" Then
MsgBox "You must enter a user name and a password"
Combo1.SetFocus
Combo1.Text = ""
Text2.Text = ""
Exit Sub
ElseIf Combo1.Text = "" And Text2.Text <> "" Then
MsgBox "You must enter a user name"
Combo1.SetFocus
Combo1.Text = ""
Text2.Text = ""
Exit Sub
ElseIf Combo1.Text <> "" And Text2.Text = "" Then
MsgBox "You must enter a password"
Combo1.SetFocus
Combo1.Text = ""
Text2.Text = ""
Exit Sub
ElseIf Combo1.Text = DMC.rssecurity.Fields(0) And Text2.Text = DMC.rssecurity.Fields(1) Then
'MsgBox "WELCOME  :" + UCase(Combo1.Text)
MDIform1.Show
Me.Hide
Exit Sub
Else
DMC.rssecurity.MoveNext
End If
Wend
MsgBox "INVALID DETAILS"
Combo1.SetFocus
```

```
Combo1.Text = ""
Text2.Text = ""


errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub


Private Sub Form_Load()
On Error GoTo errdes
DMC.rssecurity.MoveFirst
Do While Not DMC.rssecurity.EOF
  Combo1.AddItem DMC.rssecurity("username")
    DMC.rssecurity.MoveNext
Loop
Exit Sub
errdes:
  MsgBox Err.Description, vbInformation, "DMC"
End Sub
```

Report for Search Patients

```
Private Sub bttnfind_Click()
DMC.rspatients.MoveFirst
Dim content, name As String
  name = InputBox("Enter Patients ID to search for a patient")
  content = Trim(name) & "*"
  content = "P_ID like '" & content & "'"
  If name = "" Then
    MsgBox ("You didn't enter a value")
  ElseIf name <> "" Then
    txtStart_Date.Visible = True
    txtEnd_Date.Visible = True
```

```vba
        txtp_id.Visible = True

        txtFname.Visible = True

        txtLname.Visible = True

        txtAge.Visible = True

        txtSex.Visible = True

        txtlocation.Visible = True

        txtDr_ID.Visible = True

        DMC.rspatients.Find content

    End If

    If txtp_id.Text = "" Then

    MsgBox "The ID you entered does not exist"

    DMC.rspatients.MoveFirst

    End If

End Sub


Private Sub CMDEXIT_Click()

Dim ans As Integer

ans = MsgBox("Are you sure", vbYesNo + vbQuestion, "DMC CONFIRM")

If ans = 6 Then

Unload Me

Else

MsgBox "Exit later"

End If

End Sub

Private Sub LOCK_CLICK()

txtp_id.Locked = True

txtFname.Locked = True

txtLname.Locked = True

txtAge.Locked = True

txtSex.Locked = True

txtlocation.Locked = True
```

```
txtDr_ID.Locked = True
txtStart_Date.Locked = True
txtEnd_Date.Locked = True
End Sub
Private Sub Form_Load()
LOCK_CLICK
txtp_id.Visible = False
txtFname.Visible = False
txtLname.Visible = False
txtAge.Visible = False
txtSex.Visible = False
txtlocation.Visible = False
txtDr_ID.Visible = False
txtStart_Date.Visible = False
txtEnd_Date.Visible = False

End Sub
```

APPENDIX ii

Budget

1	ITEM	SPECIFICATION	QUANTITY	PRICE ($)	TOTAL
2	Antivirus	Kaspersky	1	75	75
3	Visual Basic	VB.net+		35	35
4	SQL Server	sql server 2000 or 7.0+		200	200
5	**Sub Total**				310
6	**Hardware**				
7	Computer Set	Hard disk 80GB, processor 1.7 dual core	2 machines	800	1600
8	Ink Jet printer		1	225	225
9	Scanner		1	75	75
10	UPS (APS)		1	125	125
11	Flash Disk (4GB)		2	50	100
12	**Sub Total**				2125
13	**Others**				
14	Stationery			150	150
15	Photocopying			50	50
16	Transport			50	50
17	**Sub Total**				250
18	**Grand Total**				2685

APPENDIX iii

Project plan and Schedule

It involved identifying the required tasks to accomplish the design and implementation of the system. In the project

Scheduling and planning, a table was used to display the different tasks that were included in the planning, designing and

implementation of the system.

TASKS IN PROJECT PLAN

TABLE EXPLAINING DIFFERENT TASKS THAT WERE ACCOMPLISHED IN THE DESIGN AND IMPLEMENTATION OF THE SYSTEM

	Task Name	Duration	Start	Finish
1	Preliminary Investigation	5 days	Mon 2/9/09	Fri 2/13/09
2	Problem Analysis	1 day	Mon 2/16/09	Mon 2/16/09
3	Requirement Analysis	2 days	Tue 2/17/09	Wed 2/18/09
4	Documentation	7 days	Thu 2/19/09	Fri 2/27/09
5	Design&Coding	14 days	Mon 3/2/09	Thu 3/19/09
6	Testing	1 day	Fri 3/20/09	Fri 3/20/09
7	Implementation	1 day	Mon 3/23/09	Mon 3/23/09
8	Training users	14 days	Tue 3/24/09	Fri 4/10/09
9	Documentation	7 days	Mon 4/13/09	Tue 4/21/09
10		1 day?	Fri 7/24/09	Fri 7/24/09

APPENDIX iv

Questionnaire

The questionnaire below is to be filled basing on one's knowledge of the question. You are requested to fill in only what you know. It will be confidential and used for research purpose only.

1) How do you keep information about patients?

………………………………………………………………………………………..

………………………………………………………………………………………..

2) What kind of information is kept on patients?

………………………………………………………………………………………

………………………………………………………………………………………

3) How often are patients' records kept?

☐	☐	☐	☐
Daily	Weekly	Monthly	Yearly

4) Are patients' records re-viewed always?

☐	☐
Yes	No

5) How secure are patients' records?

☐	☐
Strongly Secure	Good Security
☐	☐
Weakly Secure	Poor Security.

6) What kind of work do you do in Desire Medical Center?

    ....

    ....

7) Who collects medical lab-records and from where to where?

    ....

    ....

8) Are both children (pediatrics) and adult patients records stored together? Explain please.

    ....

    ....

9) Is it true that you deal with both Out-patients and In-patient's records in file based

    [   ]   [   ]

    True   False

10) Are there Out-patients cases that need lab tests?

    [   ]   [   ]

    Yes   No

APPENDIX v

Interview *Guide*

Date: ....   Time: ....

Location: ....

<u>Interview Questions</u>

1)   What kind of records do you keep about patients here?

      ....

      ....

2)   How often are patients' records gathered in Desire Medical Center?

      ....

      ....

3)   Where are the patients' records taken after registration?

      ....

      ....

4)   How good is the current computerized record keeping system compared to the Old manual system?

      ....

      ....

5)   How long does your staff take recording patients' records down?

      ....

      ....

6)   Is there a way you think Desire Medical Center can do to improve better the present record-keeping? Explain it if you agree.

      ....

      ....

7)   How are patients' records managed?

      ....

      ....

8)   Are you satisfied with the new computerized record keeping management system?

      ....

      ....