DESIGN AND IMPLEMENTATION OF AN ELECTRONIC PATIENT MANAGEMENT SYSTEM.

BY

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PSC1713527

DEPARTMENT OF COMPUTER SCIENCE

FACULTY OF PHYSICAL SCIENCES.

UNIVERSITY OF BENIN

BENIN CITY

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A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE, FACULTY OF PHYSICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY. IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.) DEGREE IN COMPUTER SCIENCE.

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CERTIFICATION

This is to certify that the project work titled **"**DESIGN AND IMPLEMENTATION OF AN ELECTRONIC PATIENT MANAGEMENT SYSTEM" was carried out by **OBORIA SYLVIA OSALETIN** with the matriculation number **PSC1713527** of the Department of Computer Sciences, Faculty of Physical Sciences, University of Benin, Benin City, has been read and approved having met the requirement for the award of Degree of Bachelor of Science in Computer Science.

....

Prof. Mrs Susan KONYEHA Date

(Project Supervisor)

……. ……..

Prof. G. O. Ekuobase Date

(Head of Department)

APPROVAL

This project is hereby approved by the Department of Computer Science in partial fulfillment of the requirements for the award of Bachelor of Science (B.Sc.) Degree in Computer Science of University of Benin.

_____ _____

Prof. G. O. Ekuobase Date

(Head of Department)

DEDICATION

I dedicate this work to God Almighty for his sufficient grace towards the actualization of this project. I also dedicate this to my whole family.

ACKNOWLEDGEMENT

I wish to acknowledge my project supervisor, Prof. Mrs. Susan Konyeha, for her immense contribution to the success of this project work. He was always available to make corrections to the project work and offer remarkably deep insight into the project work.

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ABSTRACT

This project title is written to help hospitals especially in the areas they encounter problems in keeping their attendance scheme for patient and the solution given to tackle problem such as transforming the existing manual attendance scheme for patients system in which the existing problems involved at the time was laziness of the Doctors to work, misplacement of files, excessive loitering around of patient for their files and loitering of paper in the office.

This software reports on our pilot evaluation of AN ELECTRONIC PATIENT MANAGEMENT SYSTEM and their Doctors. The aim is to improve the quality of care to patient and the information about them, as indicated by an improvement in the effectiveness and efficiency of care and in an increase in patient's satisfaction.

This study makes clear that a thorough exploration of users needs before building the system, using qualitative research methods may be crucial because it can prevent data mismatch and maximize the chance that the eventual management system meets its most important aim: to enhance patient's empowerment and improve the quality of care services.

In order to handle this, I decided to introduce a new Electronic Patient Management System for patients. The project dwells more on Computer duty schedule. This is implemented with Visual Basic programming 6.0 language and Microsoft Access for effective information keeping.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

An Electronic Patient Management System is any tool used to assist in the delivery of clinical care from point of care initiation to completion. Tools include computer based attendance scheme for patient, payment processing software and information technology systems, blood group and genotype to avoid test result mismatch of data. Electronic based attendance scheme for Patients is used by hospital to create process and record their attendance scheme for patient's information. This system is used to calculate the nurse punctuate to work. It's an effective tool in the hands of the hospital management.

Duty is a term that conveys a sense of moral commitment to someone or something. The moral commitment is the sort that results in action, and it is not a matter of passive feelings or mere recognition. When someone recognizes a duty, that person commits himself/herself to the cause involved without considering the self-interesting courses of actions that may have been relevant previously. This is not to suggest that living a life of duty precludes one from the best sort of life, but duty does involve some sacrifice of immediate self-interest. Cicero is an early philosopher who acknowledged this possibility. He discusses duty in his work "On Duty". He suggests that duties can come from four different sources:

1. It is a result of being human
2. It is a result of one's personality place in life (your family, country, and job)
3. One's own moral expectations for you can generate duties

From the root idea of obligation to serve or give something in return, involved in the conception of duty, have sprung various derivative uses of the word; thus it is used of the services performed by a minister of a church, by a soldier, or by any employee or servant. Nurses today have a broad scope of responsibility as health care providers that require them, under some circumstance, to exercise independent professional judgment. When nurses exercise their judgment negligently, they may be held liable because courts hold them to a correspondingly higher level of accountability. Nurses have been held liable for their failure to monitor and/or promptly respond to patients by informing physicians of significant changes in patient's condition. Under these types of circumstance, nurses have an affirmative duty to exercise their professional judgment to ensure that all adequate steps are taken to treat patients appropriately.

Usage of Information Technology (IT) remained comparatively very less in Health sectors that other sector despite having more potential. Health Institution, which is an important sector, should encourage IT usage resulting better productivity, effectiveness, efficiency and economics leading to better health care of all. This paper tells a success of implementation of ICT (Information Communication Technology) in monitoring of medicine in health institution. System work on lowend

resources and E-mail (Electronic mail) based data transfer from District Head Quarter to State Head Quarter. Implementation of Med-Centre in all the district of Enugu result in checking on pilferage (the act of stealing amounts or small articles) for medicine, increase in availability of medicine at Government institution, increase in attendance of patients/doctor in health institution, optimal utilization of medicine and data capturing at source, resulting in availability of error-free data at Head Quarter.

Electronic Patient Management System is a certified automated payment processing software. It is used by hospitals to input, process and display their patient information. This system is used to manage and maintain electronic medical records, patient information, prescriptions, lab reports etc. It is an effective tool in the hand of the hospital management. For instance, Shonahan Hospital, Nsukka, Enugu State has patients whose fees are to be collected after treatment. Shonahan Hospital, Nsukka, Enugu State is one of the biggest and well equipped hospitals in Nigeria. It has nine (9) training schools/programmers in the hospital. From the studies carried out by the researcher, the hospital's initial means of recording was manual from automated system to computerized system which lacked some features such as patients and nurses records.

The Hospital is a very important part of our society and it is imperative for healthcare providers to do their jobs in an efficient and effective manner. Each day hundreds of

thousands of patients enter healthcare facilities challenging the administration to run the show smoothly. The employees have to manage and integrate clinical, financial and operational information that grows with the practice. Information technology has made a significant impact on the healthcare sector. The past decade has witnessed the foray of numerous information systems and their resultant products into the hospital scenario. The number of investments in computers and types of hospital systems has increased. This is because paper medical records are cumbersome, bulky to use and difficult to manage. On the other hand digital records are much easier to handle and improve the workflow efficiency by integrating various tasks. The ultimate objective therefore, is to build a network of interdependent centers such as the clinical laboratory, radiology department, pharmacy, and so on in order to effectively meet the needs arising within the hospital. Despite the fact that these individual centers are autonomous, they are interdependent in terms of delivering services and to ensure effectiveness of providing care. All this can be achieved through hospital information systems that have formed the cornerstone of today's modern hospital.

A patient is any person who receives medical attention, care or treatment. The person is most often ill or injured and in need of treatment by a physician or any other medical professional whereas an outpatient is a patient who is not hospitalized for

24 hours or more but who visits a hospital, clinic, or associated facility for diagnosis or treatment. Treatment provided in this fashion is called ambulatory care.

This Electronic Patient Management System is necessary to ensure the medical practitioner to maintain its operations in an organized and well-coordinated manner. These solutions save time and run the operations using the best mechanisms against liabilities. This system is especially helpful in organizing and keeping patient records up-to-date. Patient names, records of treatment and medicine given records are well maintained. Maintaining patient records is really helpful when you are allowed to refer to the patient's old history. Say for example, you want to refer your old patients for mouth cancer or jaw piece ulcers and cancers, you may be able to locate such records on the basis of their symptoms or conditions as you had entered in the database in the past. By law hospitals are required to record in the outpatient information register once at the beginning of the morning session and once during the afternoon whether the pupil is present, absent, engaged in an approved, or unable to attend due to exceptional circumstances as defined in regulation. If compulsory hospital patients are absent the register must show whether the absence is authorized or unauthorized. It must also record the nature of any approved activities. By using this Electronic Patient Management System, the department will provide the patients with convenience and security of having their payment records been stored automatically into the database for further processing. This automated method is the

most advanced and least expensive way to maintain and process patient's payment records. If a patient's payment record is not found in the database, definitely that patient's fees has not yet been paid.

1.2 Statement of the Problem

Prior to the problem encountered with patient's attitude to their check up and treatment, the nurse's laxity (laziness) over their duties, the need arose to develop a software that will be able to solve the problem. The problem caused by the use of manual method of keeping outpatient information and the use of manual method of keeping attendance scheme for patients can only be solved by computerizing the hospital attendance scheme for patients and computerizing the hospital outpatient information system. The problems that this project is set to solve in the manual method of keeping outpatient information are:

1. Improper documentation of patient payment record.
2. Difficulty in retrieving patient payment record.

1.3 Objectives of the Study

The primary purpose of this project is to enhance the reliability, security, and convenience in the administration of Hospital and to have a database that contains complete and comprehensive details of patient departmental payment records as well as a computer based attendance scheme.

The subsidiary objectives of this project are:

1. **To improve checkup and treatment load functionality:** Staffing level and appropriate skill-mix per shift can be more easily determined by the shift modules. This leads to less time spent in designing and amending roasters.
2. **Better care planning:** Time spent on care planning is reducing, while the quality of what is recorded improved. This makes for more complete care plans and more complete assessments and evaluations.
3. To facilitate diagnosis of patients thereby reducing patients wasting time
4. To exploit the use of ICT as a platform for medical services
5. To better drugs administration
6. For better maintenance of duty rosters

1.4 Significance of the Study

A patient management system works best as an early intervention; more success was reported when targeted at more entrenched cases. While some patient's care is usually required, the nursing supervisee's new checkup and treatment include setting up checkup and treatment schedules, assigning checkup and treatment to a nursing staff, and ensuring that each member of the nursing team is adequately trained. This means that they must ensure that nursing records are correctly maintained, that report is correctly given at each shift change that patient data are up to date and that equipment and other supplies are in stock. Among these, other areas where this project work is significant include:

1. Reducing mortality rate arising from important administration in the medical service.
2. Helping to determine how computerized of hospitals has contributed to easy medical services.

Furthermore, this work will serve as a reference work to students who are carrying research on this topic.

1.5 Scope of the Study

The scope of this study is centered on designing an Electronic Patient management system for patients. In fact it involves all parts of medical field in terms of record keepings for patient's records and all other aspect of field. However, this project has been limited to GOPD (General Out–Patient Department) which includes the following areas:

1. Recording of patient health record
2. Acceptance of patient/personal symptom and compliant
3. Provisional prescription and treatment.

1.6 Definition of Terms

Computer: This is an electronic device that can accept data information of inputs, process the data and it have the ability to store the data and also retrieves it for future use.

Data: These are groups of non-random symbols such as words, figures, values which represent event and things that have taken place.

Database: This is the collection of related files.

Doctors: These are those that give medical aid to patients.

Duty: This is a term that conveys a sense of moral commitment to someone or something.

Hardware: This can be defined as the physical component of the computer system. Such as monitor, keyboard, printer, mouse. Etc.

Hospital: This is a health facility where people who are ill or injured are given medical treatments and care.

File: These are collection of related records.

Information: this is a data that has been processed into a form which is meaningful to the recipient and which is of perceived value in either current or prospective decisions or action by the recipient.

Management: This is the process of getting activities completed efficiently with and through other people.

Nursing: This is a profession focused on assisting individuals, families and communities in attaining, maintenance, and recovering optimal health and functioning. Modern definition of nursing defines it as a science and an act that

focuses on promoting quality of life as defined by persons and families, throughout their life experiences from birth to care at the end of life.

Records: These are collection of related fields.

Software: This is an application or program that can be run on computer.

Storage: This is a processing of storage data and information using storage media.

1.7 Project Work Organization

The report is explained in details from Chapter 1, which contains the preliminary part of the project that discuss the procedures/methods used in carrying out the research.

Chapter two discuss the literature review of various researchers in the field and their analysis.

Chapter Three discuss the system design and methodology that explains the methods used.

Chapter Four explains the system analysis, Implementation and Integration that delivers the implied system of the work

Chapter Five discussed the summary, recommendation and conclusion of the project

CHAPTER TWO

LITERATURE REVIEW

According to David (1992), an electronic based attendance scheme for patients provides the information necessary to begin an effective attendance management program, which will yield long-term results. The electronic based attendance scheme for patients is intended to be a guide rather than` an instruction manual or policy. To make an attendance management program truly successful, it will require insight into the special dynamics present in my work place. It will require two-way communication, as both the needs of the employees and of management must be met if good attendance is too achieved.

Attendance is the responsibility to everyone, especially those who directly manage the human resources of my organization. Attendance is not only an expectation; employers have the right to receive good attendance. Each and every employee has a contractual obligation to attend work regularly. All levels of management must believe in, be committed to, and communicate their expectations of good attendance. If a specific number of sick days are considered acceptable per employee, at best that will be the result. Employees will live up to the expectations that will set for them. Expectations must be clear to both management programs to get maximum results. Goals must be tangible. Attendance expectations must be clearly communicated and followed.

According to Sandra (2007), the patients' registration regulations govern the admissions and attendance registers that all hospitals must keep. They also regulate the power of special hospitals and maintained hospitals to grant leave of absence. By the law, hospitals are required to record in the attendance register once at the beginning of the morning session and once during the afternoon whether the patient is present, absent, engaged in an approved, supervised activity off-site, or unable to attend due to exceptional circumstance as defined in regulation. If a compulsory patient is absent the registers must show whether the absence is authorized or unauthorized. It must also record the nature of any approved, supervised activities. Reduced patients' absence and persistent absence to treatment

and checkup is a vital and integral part of hospitals' and local authorizes' work to:

- Promote patients' welfare and safeguarding.
- Ensure every patient has access to the full-time to which they are entitled.
- Ensure that patients' succeed whilst at hospital.
- Ensure that patients have access to the widest possible range of opportunities when they leave school.

According to Charles Bugger (2000), nursing attendance scheme for patients information system are computer systems that manage clinical data from a variety of healthcare environment, and made available in a timely and orderly fashion to aid patients in improving patient care. To achieve this, most nursing attendance scheme

for patients information systems are designed using a database and at least one nursing classification language such as North American Nursing Diagnosis (NANDA), Nursing Intervention Classification (NIC) and Nursing Diagnosis Extension and Classification (NDEC).

2.1 Patient Management System

According to Wikipedia.org, An Electronic Patient Management System (PMS) is a comprehensive, integrated information system designed to manage the medical, administrative, financial and legal aspects of a hospital and its service processing. It can be composed of one or a few software components with specialty-specific extensions as well as of a large variety of sub-systems in medical specialties, e.g. Laboratory Information System (LIS), Radiology Information System (RIS) or Picture archiving and communication system (PACS).

An Electronic Patient Management System is essentially a computer system that can manage all the information to allow health care providers to do their jobs effectively. These systems have been around since they were first introduced in the 1960s and have evolved with time and the modernization of healthcare facilities. The computers were not as fast in those days and they were not able to provide information in real time as they do today. The staff used them primarily for managing billing and

hospital inventory. All this has changed now, and today hospital information systems include the integration of all clinical, financial and administrative applications.

Modern Electronic Patient Management Systems' includes many applications addressing the needs of various departments in a hospital. They manage the data related to the clinic, finance department, laboratory, nursing, pharmacy and also the radiology and pathology departments. The hospitals that have switched to electronic Patient Management System have access to quick and reliable information including patients' records illustrating details about their demographics, gender, age etc. By a simple click of the mouse they receive important data pertaining to hospital finance systems, diet of patients, and even the distribution of medications. With this information they can monitor drug usage in the facility and improve its effectiveness. As an area of medical informatics, the aim of an Electronic Patient management System is to achieve the best possible support of patient care and outcome and administration by presenting data where needed and acquiring data when generated with networked electronic data processing.

2.2 Types of an Electronic Patient Management System

2.2.1 Nursing Information Systems (NIS)

These computer based information systems are designed to help nurses provide better patient care. A good NIS can perform a number of functions and deliver benefits such as improving staff schedules, accurate patient charting and improve

clinical data integration. The nursing department can have a better managed work force through schedule applications enabling managers to handle absences and overtime. The solution can also be used to monitor staffing levels and achieve more cost-effective staffing. Patient charting applications allow users to enter details regarding patients' vital signs. Nurses also use it for admission information, care plan and all relevant nursing notes. All important data is securely stored and can be retrieved when required. All these features in NIS ultimately lead to a reduction in planning time and better assessments and evaluations. The chance of prescribing the wrong medication also decreases since there is always a reference for electronically prescribed drugs.

2.2.2 Physician Information Systems (PIS)

As the name suggests, PIS systems aim to improve the practice of physicians and are also recommended by the government for deployment. Physicians can avail themselves of the Federal Government stimulus package aimed to provide better medical care. Various packages are available to suit different budgets and can be implemented to increase efficiency, cut costs and deliver high quality patient care. Physician information systems are delivered through computers, servers, networks, and use widely deployed and popular applications such as, electronic medical records (EMRs), electronic health records (EHRs), and more. Most of these services

have 24/7 remote support that allows hospital staff to troubleshoot problems occurring during system usage.

2.2.3 Radiology Information System (RIS)

These systems are also popular for their ability to provide radiology billing services, appointment scheduling as well as reporting and patient database storage. The radiology practice has become more complex with advances in technology and more hospitals now turn to RIS to manage the business side of their practices.

2.2.4 Pharmacy Information Systems (PIS)

Designed to address the demands of a pharmacy department, PIS helps pharmacists monitor how medication is used in hospitals. PIS helps users supervise drug allergies and other medication-related complications. The system allows users to detect drug interactions and also helps administer the proper drugs based on the patient's physiologic factors.

2.3 Benefits of an Electronic Patient Management System

An Electronic Patient Management systems have become very advanced and new innovations are continuously being introduced. But an Electronic Patient management System is useless if it confuses the hospital employees. The system must be user friendly and should include training by the vendors. A good Hospital Information System offers numerous benefits to a hospital including but not limited to the delivery of quality patient care and better financial management. The Hospital

Information System should also be patient centric, medical staff centric, affordable and scalable. The technology changes quickly and if the system is not flexible it will not be able to accommodate hospital growth. Modern hospital information systems typically use fast computers connected to one another through an optimized network. These computers are programmed to collect, process, and retrieve patient care and administrative information ensuring better ROI and delivery of service. If the hospital authorities have more relevant information they can make better decisions. Patient Management Systems leverage a highly optimized core library that ensures the delivery of operational and administrative information required by users. A centralized information system can be customized according to the specific requirements of a hospital. A hospital can tell the solution provider its needs and the applications can then be molded to deliver exactly what was demanded. An effective Electronic Patient management System delivers benefits such as: **Easy Access to Patient Data:** This is vital, so as to generate varied records, including classification based on demographic, gender, age, and so on. It is especially beneficial at ambulatory (out-patient) point, hence enhancing continuity of care. As well as, Internet-based access improves the ability to remotely access such data.

Structured Information: Information captured in Hospital Information System is well organized, thus making it easier to maintain, and quicker to search through for

relevant information. The information is also legible, making it less likely that mistakes would be made due to illegible writing.

Decision Support System: It helps as a decision support system for the hospital authorities for developing comprehensive health care policies.

Efficient Administration: Efficient and accurate administration of finance, diet of patient, engineering, and distribution of medical aid.

Improved monitoring of drug usage, and study of effectiveness: This leads to the reduction of adverse drug interactions while promoting more appropriate pharmaceutical utilization.

Information Integrity: Enhances information integrity, reduces transcription errors, and reduces duplication of information entries.

2.4 Development and Future of Electronic Patient Management Systems

Patient electronic medical records can be seen on two levels. These levels are represented through hospitals and centralized system of health care. Taking into account this fact, and the current state of development of information systems, which represents a reference hospital, we can say that for the introduction of electronic medical records in this hospital, initial preconditions were made in terms of building communications infrastructure and implementation of laboratory and radiology information system which made the first steps toward creating a unique patient records. Electronic patient record created like this is a good basis for achieving better

results in terms of providing services for patient, but also in terms of business planning, further analysis of group data, and ultimately achieve business excellence of Shonahan Hospital. However, this electronic process is applicable only in the mentioned hospital facility, given that at present there is no centralized integrated health information system which would include all electronic records of patients, irrespective of which medical facility they are treated in. However, looking only at Shonahan Hospital, it can be concluded that the basic version of the electronic patient records already exist and that the data manipulation and storage of these confidential information could be further improved by introducing the information system for management of patient records which would be integrated into the Shonahan Hospital management

System.

2.5 Features of Electronic Patient Management System

1. **Patient Charting:** A patient's vital signs, admission and nursing assessments, care plan and nursing notes can be entered into the system either as structured or free text. These are stored in a central reposition and retrieved when needed.
2. **Staff Schedules:** Patients can self-schedule their shifts using scheduling rules provided in shift modules. The shifts can later be confirmed or changed

by a scheduling coordinator or manager. Shift modules are designed to handle absences, overtime, staffing levels and cost-effective staffing.

3. **Clinical Data Integration:** Here, clinical information from all the disciplines can be retrieved, viewed and analyzed by nursing staff and then integrated into a patient's care plan.

4. **Decision Support:** Decision support can be added to Nursing Information System, and they provide prompts and reminders, along with guides to diseases linkages between signs/symptoms, etiologies/related factors and patients populations, online access to medical resources can also be made available.

CHAPTER THREE

SYSTEMANALYSIS AND DESIGN

3.1 Methodology

Research Methodology is the idea within which research is arranged or done according to plan. This methodology is on the basis of critical examination undertaken, with the act to find new facts and information that would enhance patient empowerment and improve the quality of care in terms of efficiency and effectiveness. This methodology used examines the methods that are necessary to achieve these required subjects, facts and other relevant information connected to the project research with reduced expenses on effort, time and money.

3.2 Method of Data Collection

The source of data collection used for this project work are categorized into primary and secondary source of data collection.

3.2.1 Primary Source

These are method of data collection collected from the doctors and nurses in Hospital. Also more data from patient, attendants and patrons of the hospital including personal interviews and observation. Some of the staffs were interviewed to share their feelings and experiences about the manual system of planning and processing workers and patient care duty. They stressed that the manual system has not helped them much.

3.2.2 Secondary Source

This includes the use of several newspapers, magazines, journals and surfing the internet with related articles on electronic patient management system downloads to enlighten my understanding with a clearer view or picture.

3.3 Analysis of the Existing System

The electronic patient management system is a system that is been carried out in terms of manual operation, a system in which all the methods of hospital administration is a manual approach. The approach is such that the hospital staff will record duty information on a paper or register and kept in a file. Critical analysis of this system reveals that it is a system prone to a lot of errors and it is not effective. Searching for workers duty information is time consuming and boring. The system is in such a way that the office is full of files. This tends to make the office untied. Careful analysis also shows that because of the complexities of the manual system, information stored is difficult to retrieve. Also because of the inconsistency of the manual system, at times files are lost because of mismanagement.

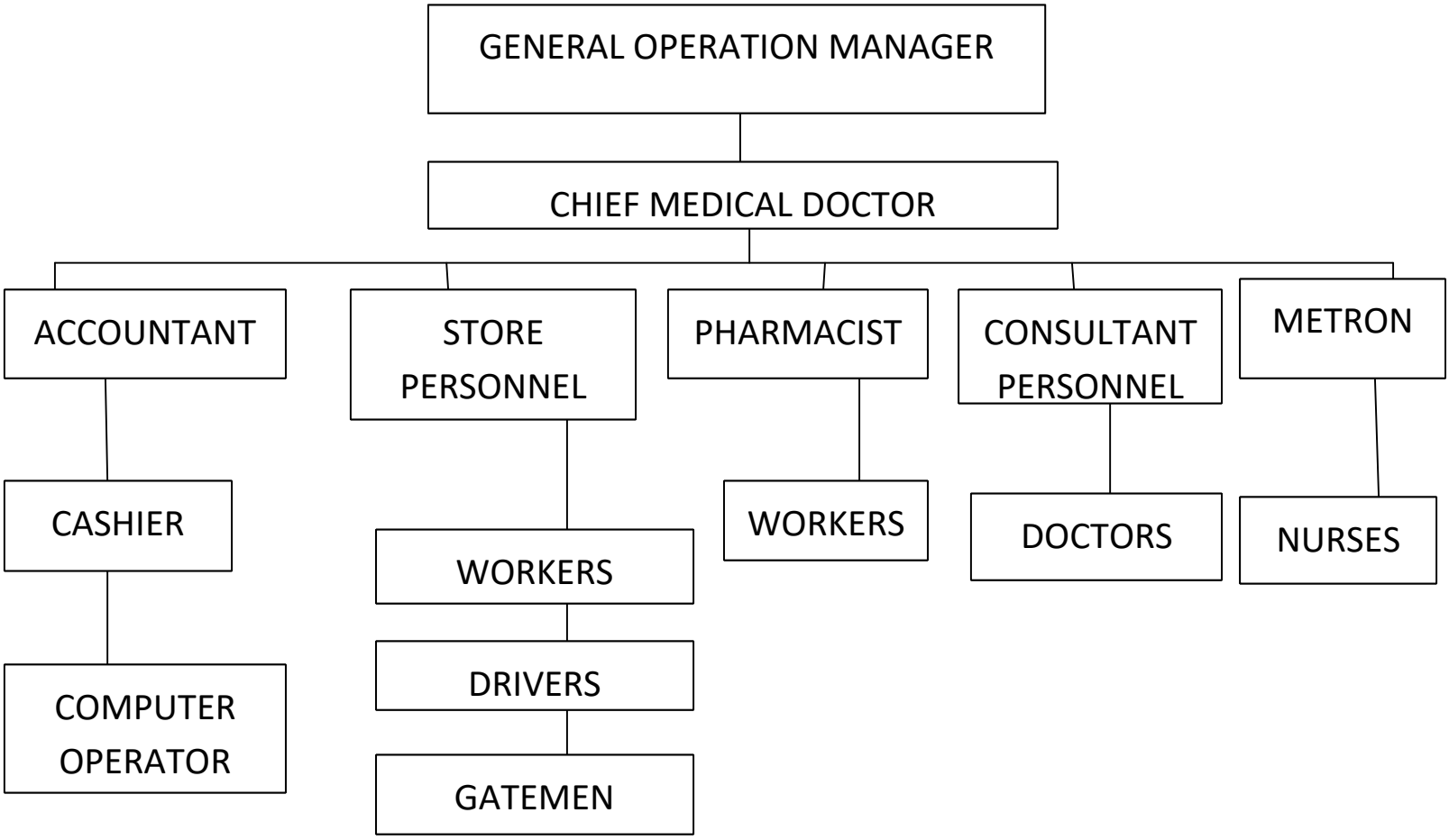


Figure 3.1: Organizational Chart

The organization chart of Hospital is a function that shows the direction and chain of command from the top to the least in office and who is responsible and answerable to each other to enhance effective communication in the hospital for delivery of an effective and efficient policy.

3.3.1 Input Analysis

This deals with the process used to feed data to the system for processing. Here the inputs to the system are through staff record form, and attendance scheme for patients form. All these are through which data are supplied to the system which are Employee name, employee number, sex, age, marital status, address, phone number, L.G.A, state, job description, salary, qualification, starting time, ending time, date, work description, and remark (if any).

3.3.2 Process Analysis

Once the inputs are collected, the obtained data are processed properly for effective use. The data/information processed is stored in the computer for subsequent use.

3.3.3 Output Analysis

This involves the resultant documentation generated after the processing of data/information supplied to the system. The output here can be:

1. Printed roster card
2. Store nurses data

3.4 Limitations of the Existing System

A lot of problems are associated with the existing system. The existing system involves the use of manual method to store duty data/information. The system has proved defective as the objective of the system has also failed. Among the problems associated with the existing system include the following:

1. Time wasted in searching/sorting for workers duty information.
2. Poor security and protection.
3. Misplacement and mismanaging of checkup and treatment files.
4. A lot of time being wasted by patient while on queue.

3.4.1 Justification for the New System

It is expected that the introduction of the new system, a lot of positive changes will be noticed. The numerous problem associated with the manual system will be minimized, if not totally put to an end. The hospital staff that previously had difficulties in carrying out their work will now have to appreciate it. Head nurses supervise nursing activities in a variety of settings. While some patient care is usually required, the nursing supervisor's new duties to a nursing staff, and ensuring that each member of the nursing team is adequately trained. Head nurses are ultimately responsible for the performance of the nurses on their team. This means that they must ensure that ensure that nursing records are correctly maintained, that report is correctly given at the shift change, and that equipment and other supplies are in stock.

3.5 System Design

Files are necessary in monitoring of patients record since there are many patients whose records must be kept for references purpose. This fact has given rise to the

creation and maintenance of several files within the company. Below are various files and their uses:

- **Request File:** This file contains the request from customers who wish to buy drugs specifying the amount and quantity they need.
- **Consumer File:** this is the file that contains information about sales in the company. This file is used specifying the quantity that was sent to different individuals and depots.
- **Return File:** After the drugs must have been sent to individuals and depot in particular, return forms are sent back specifying the amount of crates and cartons that was received in each depot whether there are breakages, fail and empties. They are all filed here.
- **Complaint File:** this file used to help all complaints from customers, individuals and depots. This helps the company to make necessary amendments.

3.5.1 Input Design and Specification

The input to the system comes from about 48 forms. Each of these forms has the function of collecting specific data from the doctors, staff and patients as the case may be. The first form is the admission form details that enables the system to prompt the Doctors to fill a form that requires details from the patient concerning personal and health. The others are for doctors, employee, bed management, patient

in and out, etc. are solely intended for the administrative use for the staff. Here, the staff can add patients, doctors etc. that can include the services render by the hospital and change other things.

Patient Form

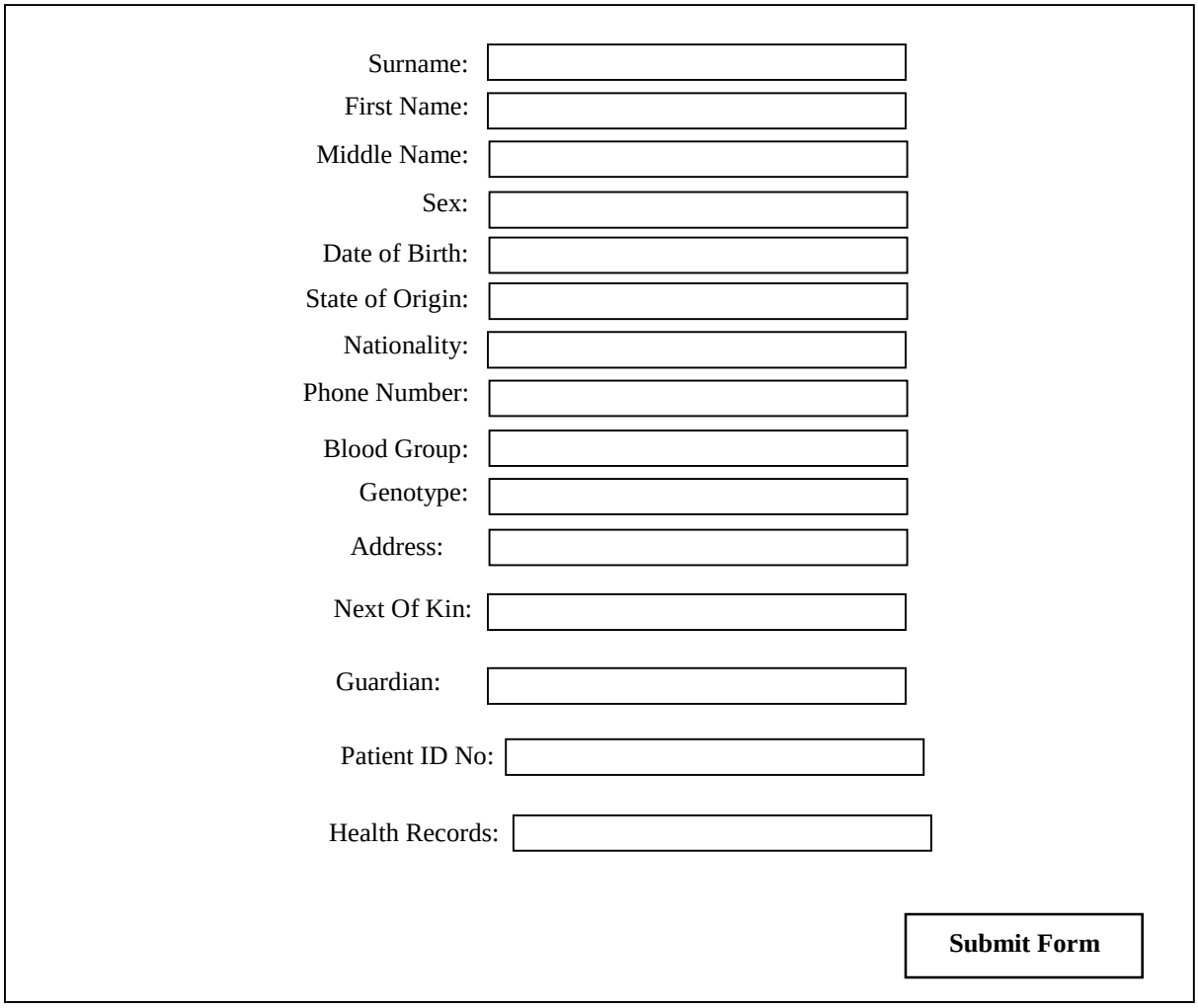


Figure 3.2: Patient Form

The patient form is a table to fill patient personal data to be able to gain admission into the hospital for proper registration process both for inpatient and outpatient. The Patient Form is an important prerequisite for patient diagnosis in the Hospital programme. As can be seen from the form above, the Doctor will provide details from personal interrogation. This record will help the Hospital staff to monitor, supervise and pay close attention to patients even after they have been discharged.

Add Doctor Form

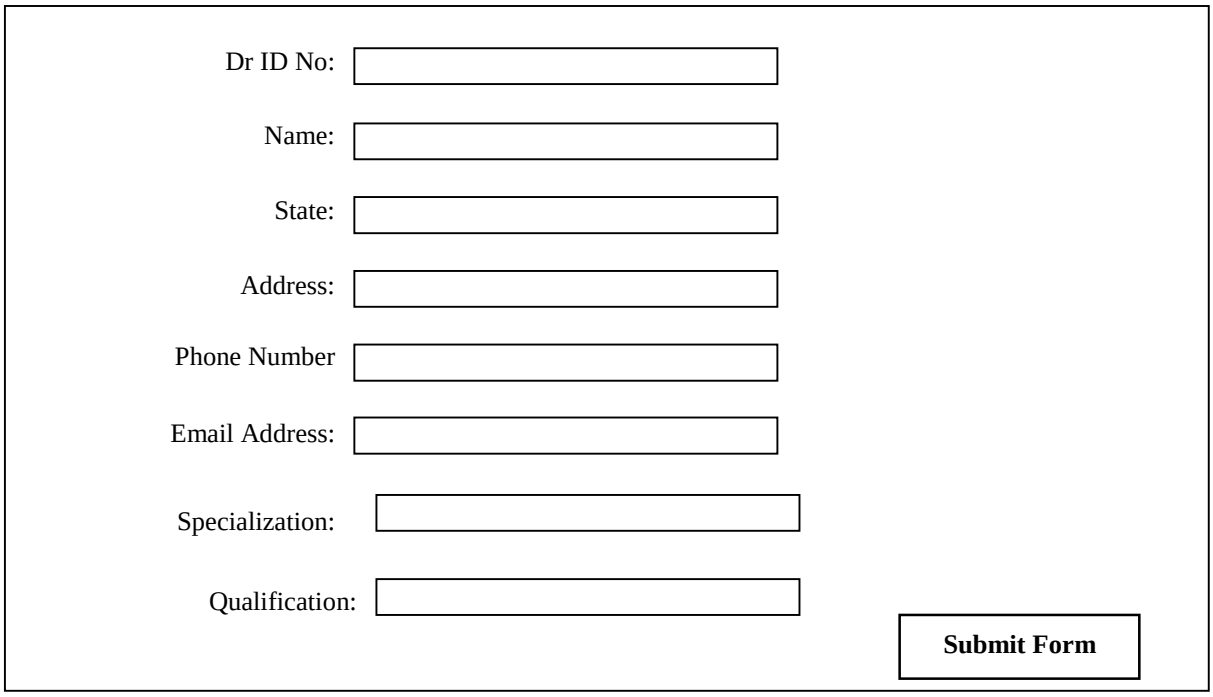


Figure3.3:AddDoctors Form

The Add Doctors form, as mentioned earlier, is primarily used by the hospital administrators to add Doctors that are employed with the hospital, and can accept patients for proper treatment and admission. Looking at the form above, there has been provision made for personal details of the Doctors and specialization before saving to the database.

Employee Form

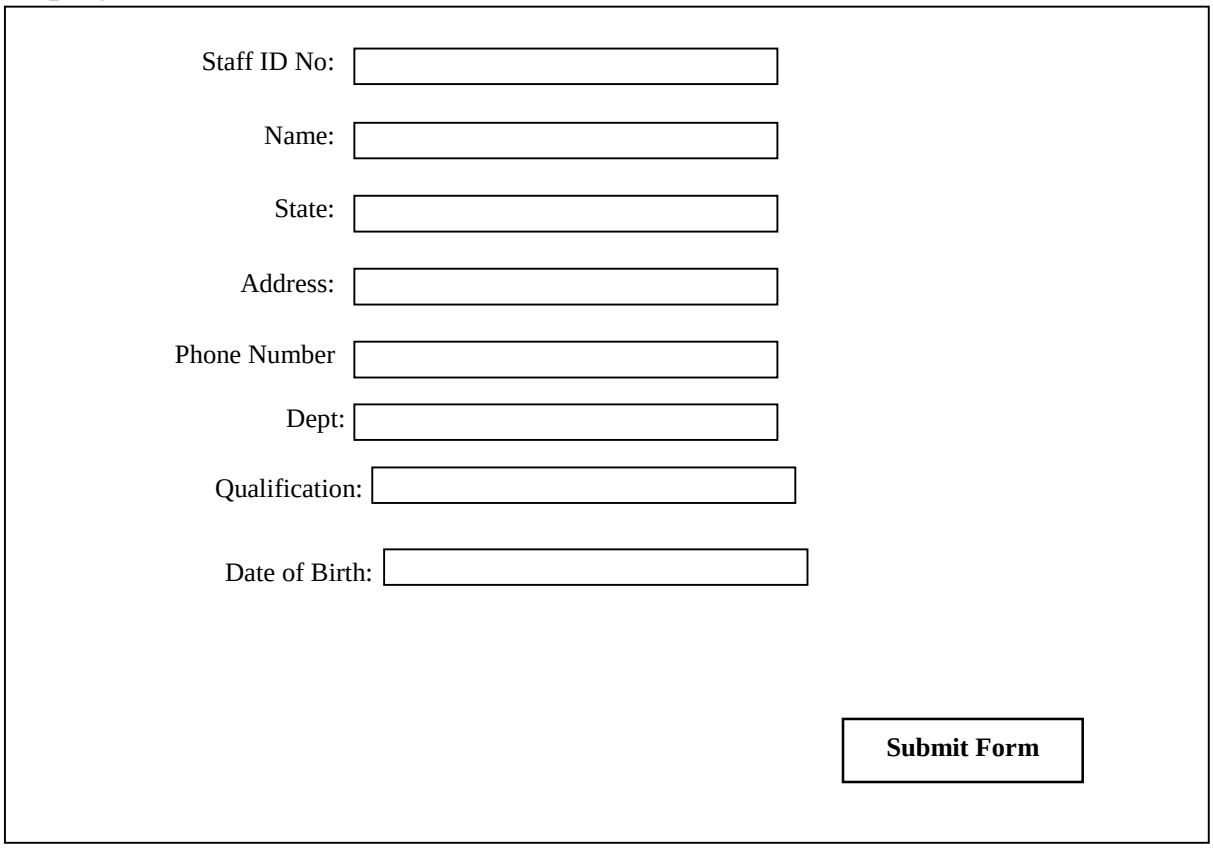


Figure 3.4:AddEmployee Form

The Add Employee form, as mentioned earlier, is primarily used by the Hospital staff to add employees that are accepted into the hospital, and can perform basic function in areas of quality of care to patients depending on their varying departments as they are added to the database.

Hospital Service Form

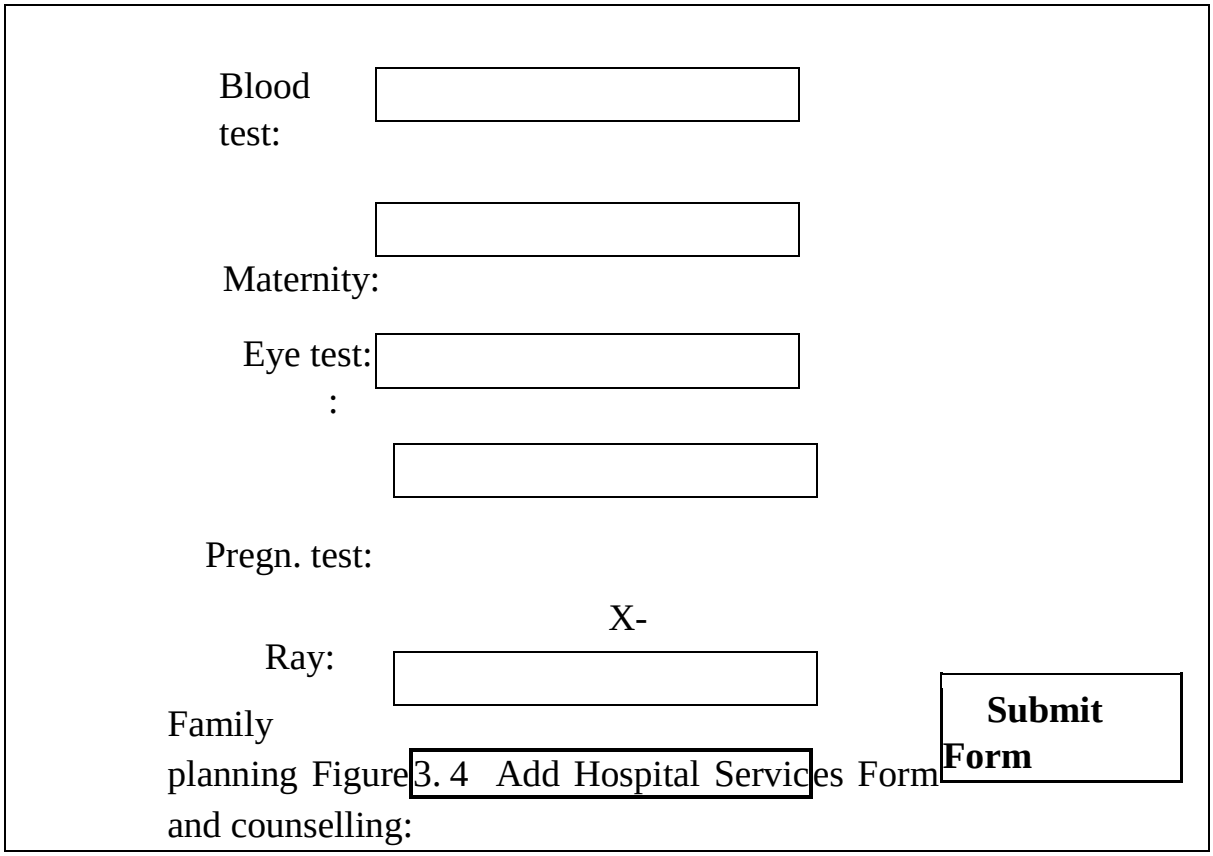


Figure 3. 4 Add Hospital Services Form

Figure 3.5: Hospital service Form

The Add Hospital Service form is mainly used to add more hospital services that patients must come for them to be able to get efficient care and treatment in case there be a new service that is mostly needed and can be guaranteed.

Add Bed Form

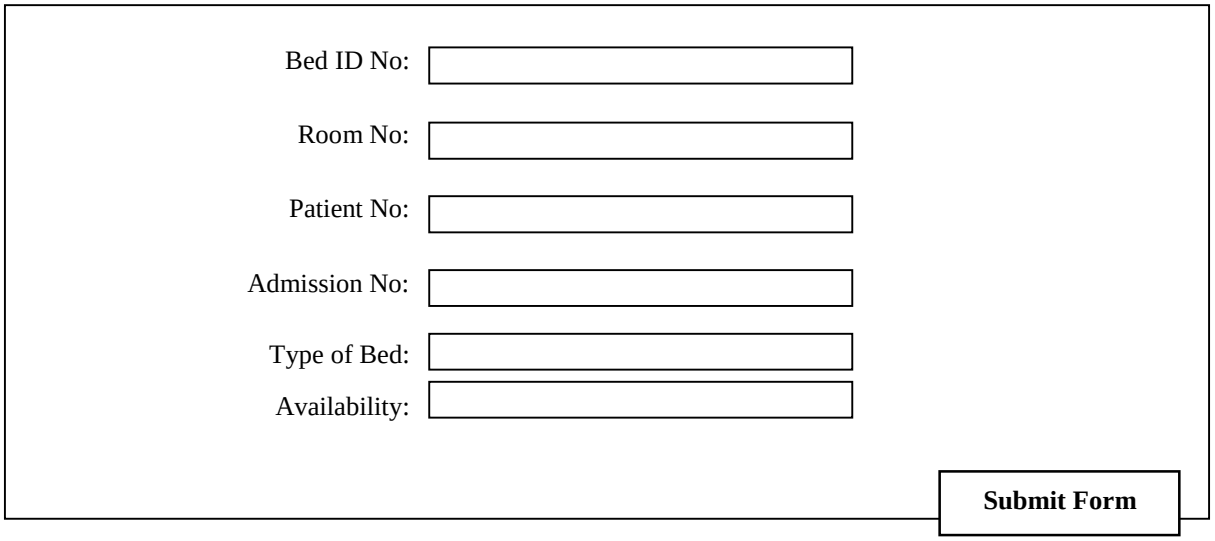


Figure 3.6:Add Bed Form

The Add Bed form is used to add Bed credentials for rooms to be able to know which room or bed is available for in patients. Also as can be seen from the form above, the type of bed is required.

3.5.3 Information Flow Diagram

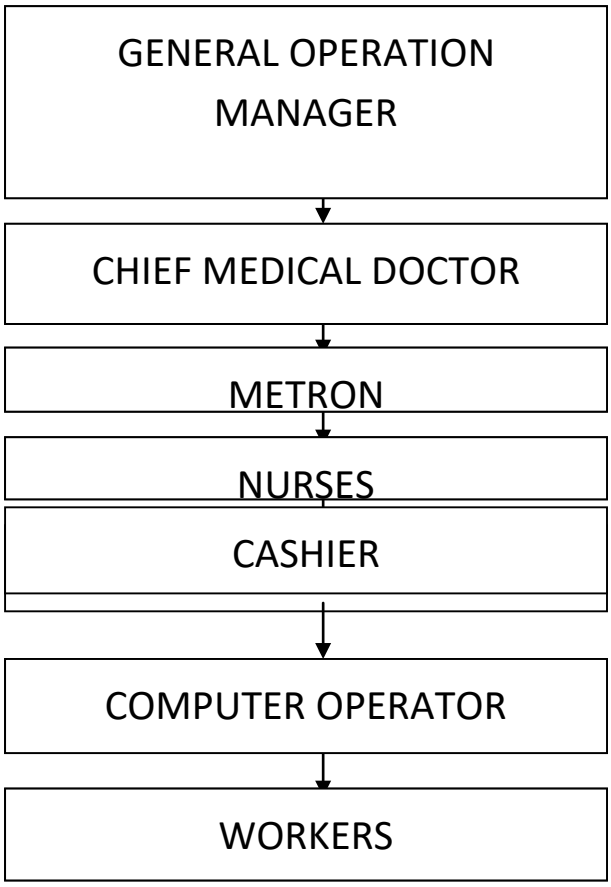


Figure 3.7:Information Flow Diagram

The Information Flow Chart shows how the information are kept and transferred to various department heads for easy accessibility.

3.6 Database Design

Microsoft Access database was used for this system because of its simplicity and easy to use and since my project is not a commercial as well as the language programme used is attached with it already. It consists of 48 tables. As it would be

clumsy outlining all these 48 tables, the two most prominent and important tables are described below:

1. Patientform: a table to fill patient personal data to be able to gain admission into the hospital for proper registration process both for inpatient and outpatient.
2. Employeeform: a table to fill employee's personal data to be able to be gainfully employed into the hospital management staff list in the database.

Table 3.1 Table Name: Patientform

SN	FIELD NAME	FIELD TYPE	FIELDWIDTH
1	PATIENT FIRST NAME	TEXT	20
2	PATIENT MIDDLE NAME	TEXT	20
3	PATIENT SURNAME	TEXT	20
4	DATE OF BIRTH	DATE/ TIME	20
5	SEX	TEXT	10
6	MARITAL STATUS	TEXT	10
7	DISABILITY	TEXT	20
8	ADDRESS	TEXT	50
9	PHONE NUMBER	NUMBER	15

10	LOCAL GOVT. AREA	TEXT	20
11	STATE	TEXT	20
12	QUALIFICATION	TEXT	50
13	AGE	TEXT	10
14	JOB DESCRIPTION	TEXT	20
15	SALARY SCALE	TEXT	20
16	LEVEL	TEXT	20
17	NEXT OF KIN	TEXT	20
18	STARTING TIME	TEXT	20
19	ENDING TIME	TEXT	12
20	JOB DESCRIPTION	TEXT	12
21	DATE	TEXT	12
22	REMARK	TEXT	12

The table above explain and declares the various field for the data type as it is used to fill in the patient description and stored in the database and the structure of its length and width of the database.

Table 3.2 Table Name: Employee form

SN	FIELD	FIELD TYPE	FIELDWIDTH
1	EMPLOYEE FIRST NAME	TEXT	20
2	EMPLOYEE MIDDLE NAME	TEXT	20
3	EMPLOYEE SURNAME	TEXT	20
4	DATE OF BIRTH	DATE/TIME	20
5	SEX	TEXT	10
6	MARITAL STATUS	TEXT	10
7	DISABILITY	TEXT	20
8	ADDRESS	TEXT	50
9	PHONE NUMBER	NUMBER	PN	15
10	LOCAL GOVT. AREA	TEXT	LGA	20
11	STATE	TEXT	ST	20
12	QUALIFICATION	TEXT	Q	50
13	AGE	TEXT	AG	10
14	JOB DESCRIPTION	TEXT	OC	20
15	SALARY SCALE	TEXT	SS	20
16	LEVEL	TEXT	L	20
17	NEXT OF KIN	TEXT	NOK	20
18	STARTING TIME	TEXT	ST	20
19	ENDING TIME	TEXT	ET	12
20	JOB DESCRIPTION	TEXT	JD	12
21	DATE	TEXT	D	12
22	REMARK	TEXT	R	12

The above table also explains the data type and the structure of the database of the employees in the hospital as the entries are filled by the administrators.

3.7 System Flow Chart

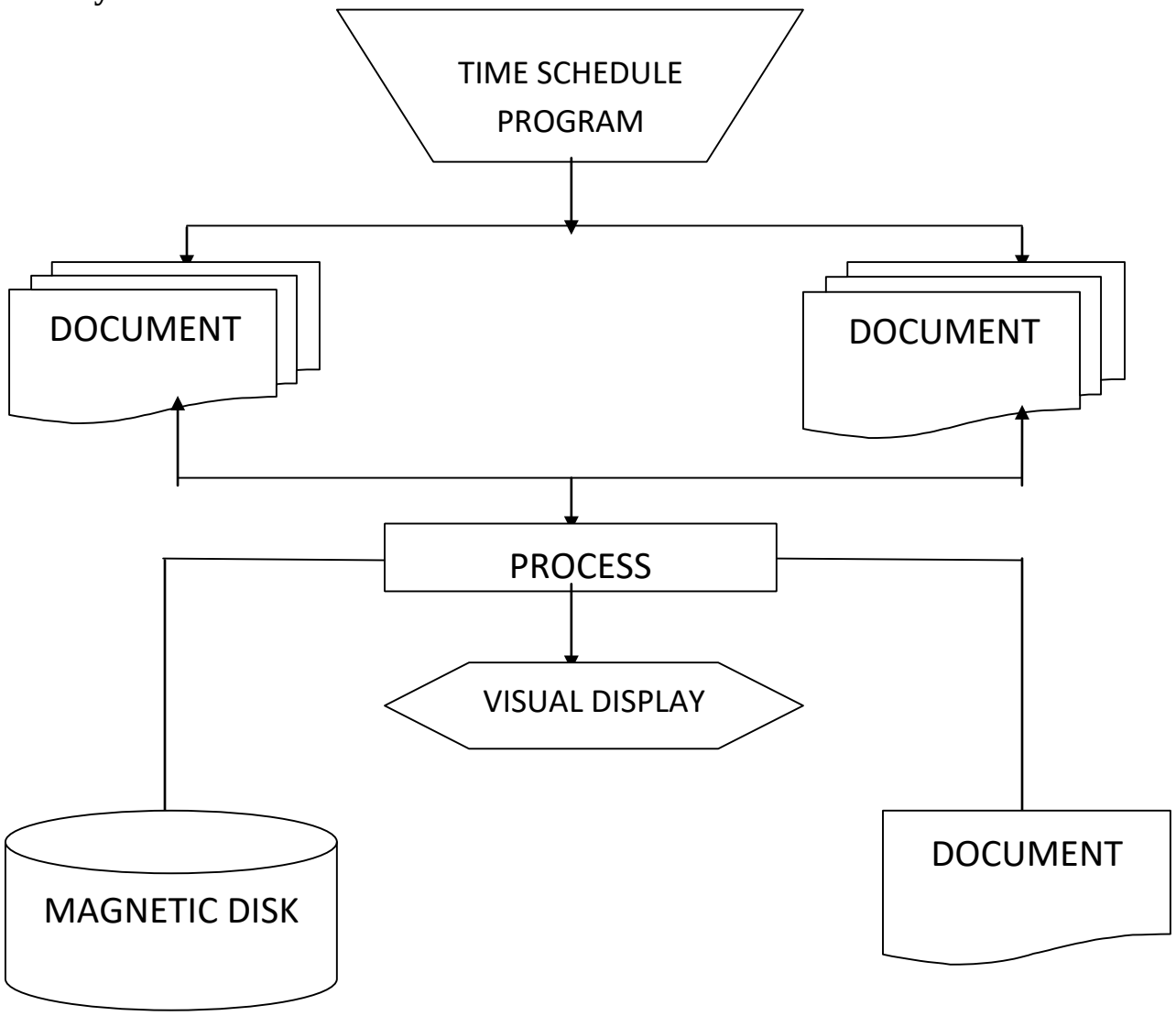
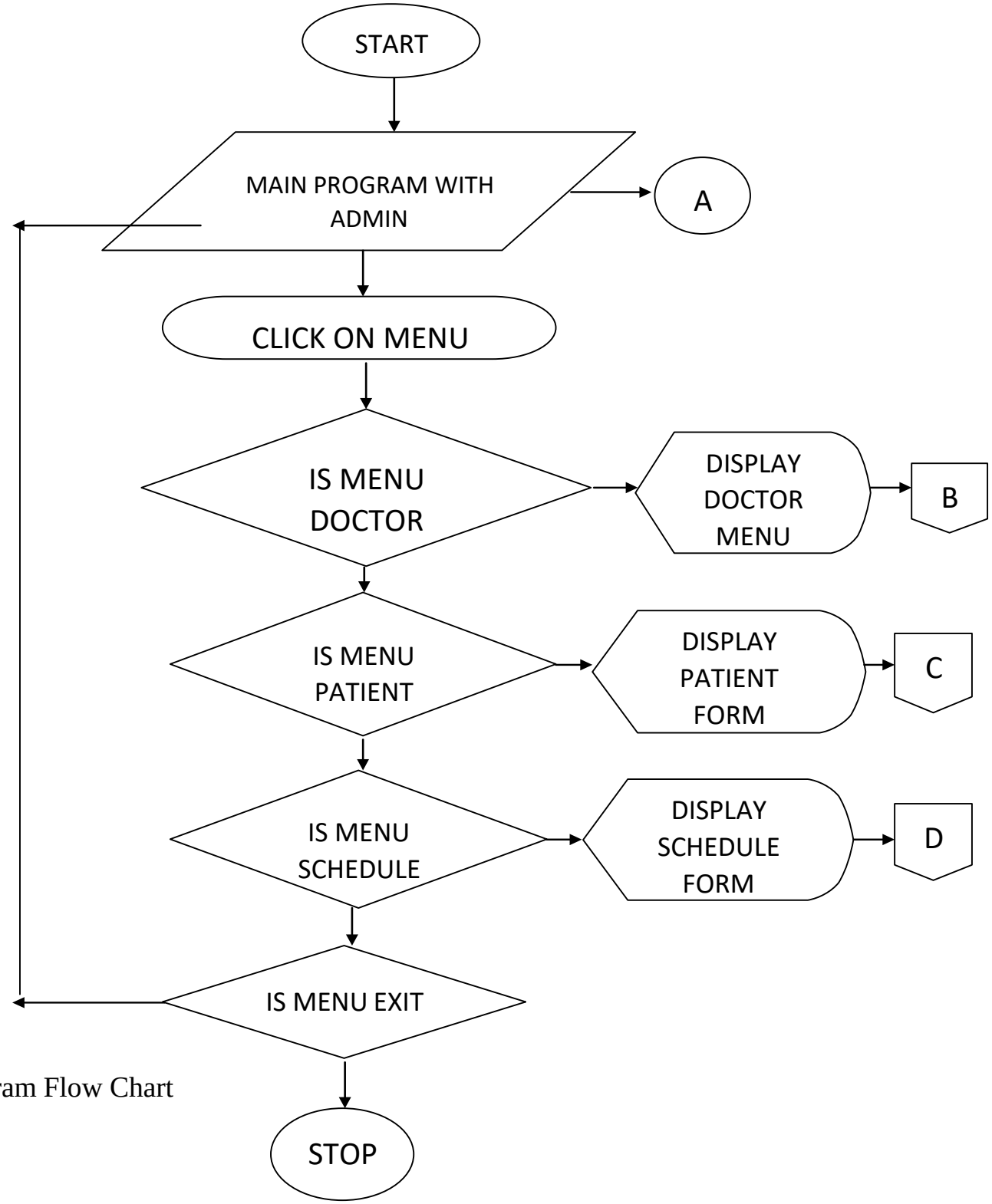


Figure 3.8:System Flow Chart

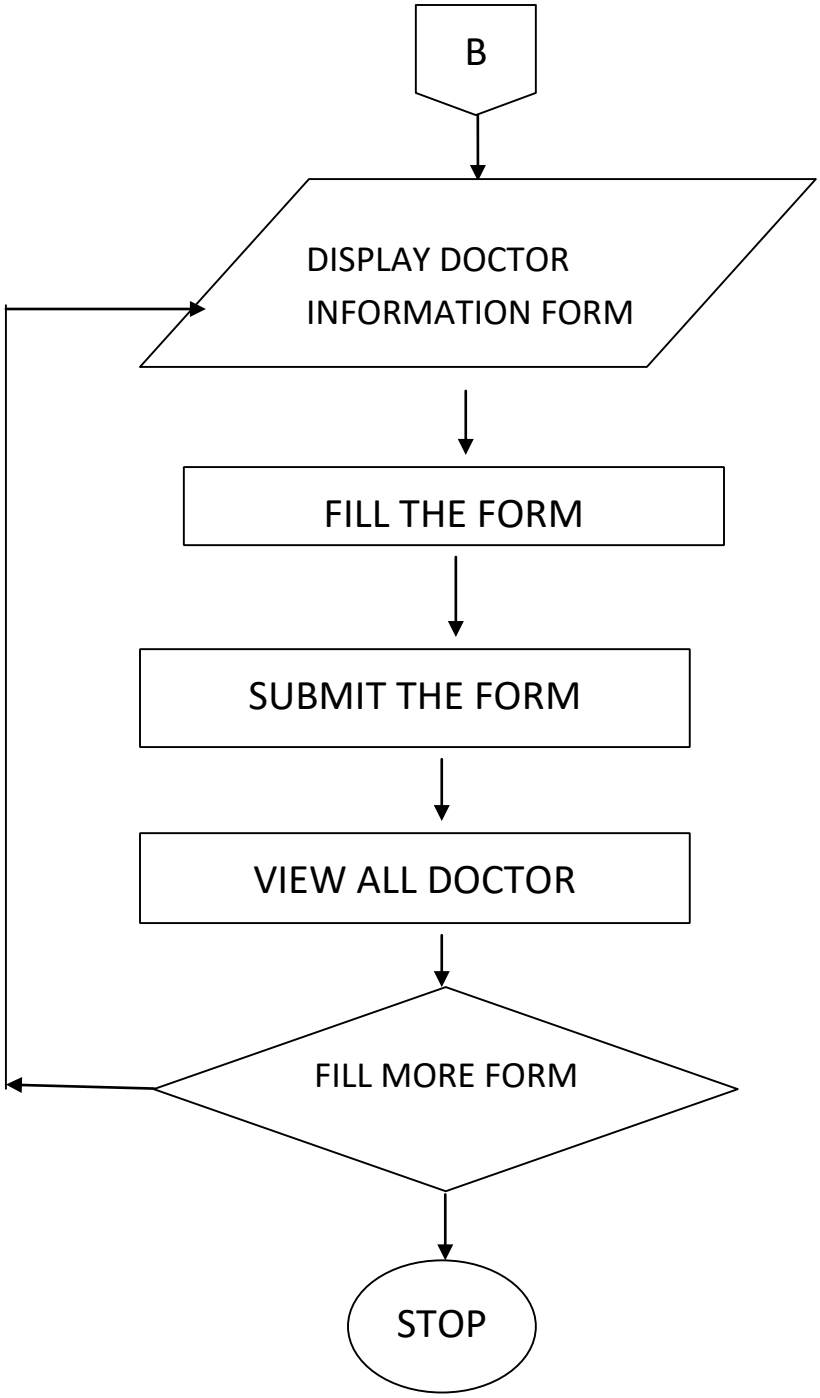
The figure above is a system flow chart. The system flow chart is a valuable presentation aid because it shows how the system's major components fit together. In effect, it serves as a system road map. The system flow chart shows the key inputs and outputs associated with the program. The shape of the symbols indicate the types of input or output devices.

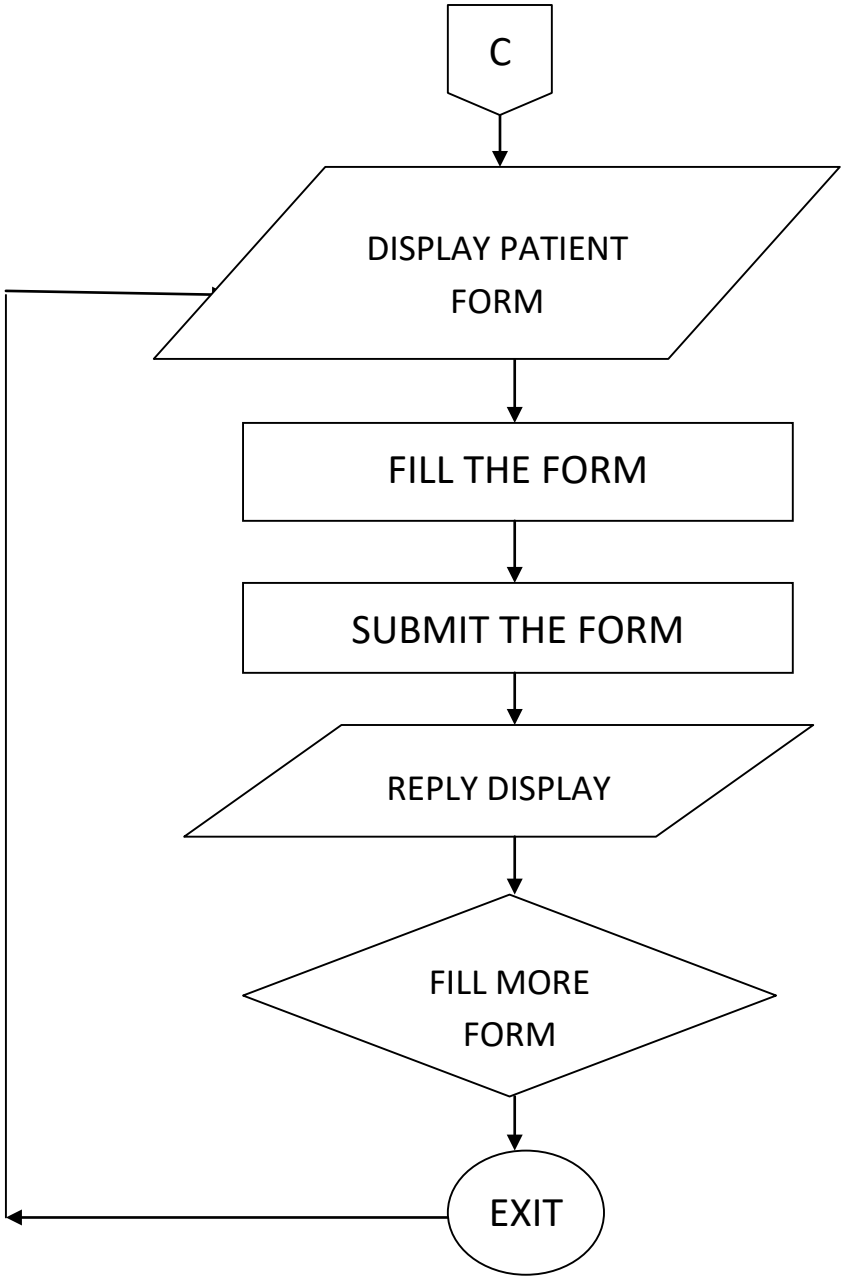
3.7.1 Program Flow Chart



Program Flow Chart

figure 3.9


B
DISPLAY DOCTOR INFORMATION FORM
FILL THE FORM
SUBMIT THE FORM
VIEW ALL DOCTOR
FILL MORE FORM
STOP


C
DISPLAY PATIENT FORM
FILL THE FORM
SUBMIT THE FORM
REPLY DISPLAY
FILL MORE FORM
EXIT

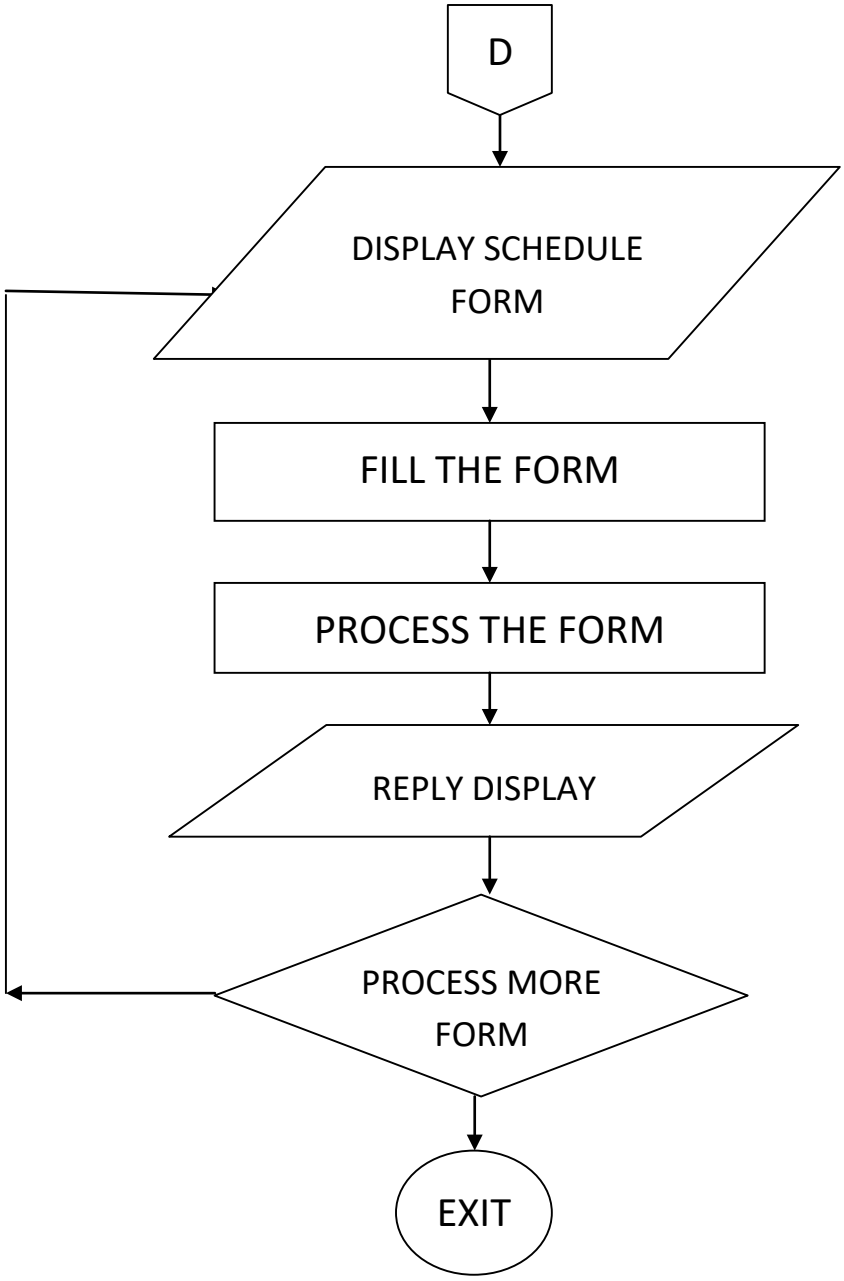


Figure 3.9 Program flow Chart

3.8 Top Down Design of the System

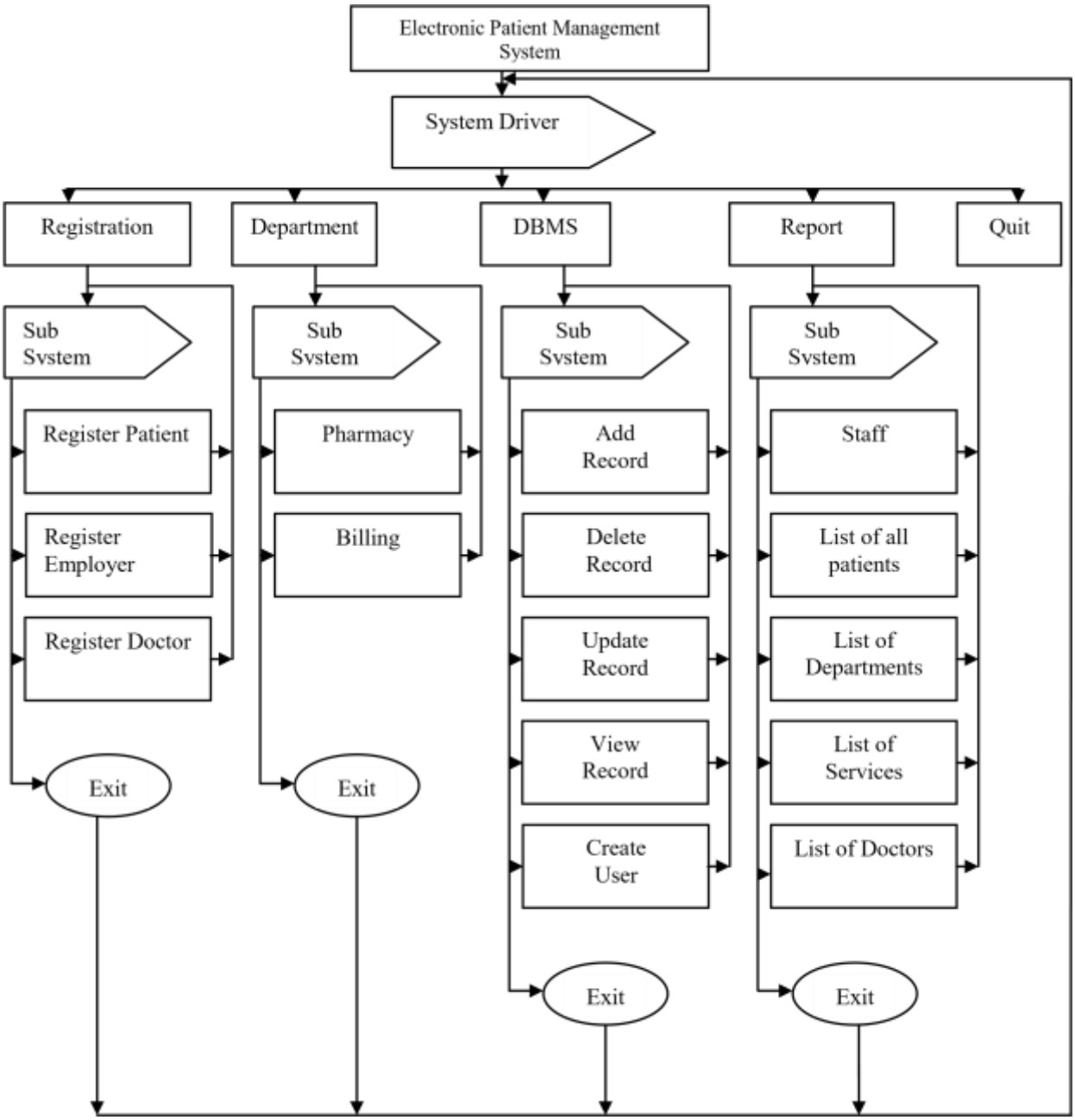


Figure 3.10: Top Down Design of the System

Figure 3.8 is the Top Down design of the Electronic Patient Management system. It is divided into four sub-systems which include: the Registration subsystem, the department Form subsystem, the DBMS subsystem and the Report subsystem.

3.8.1 Registration Subsystem

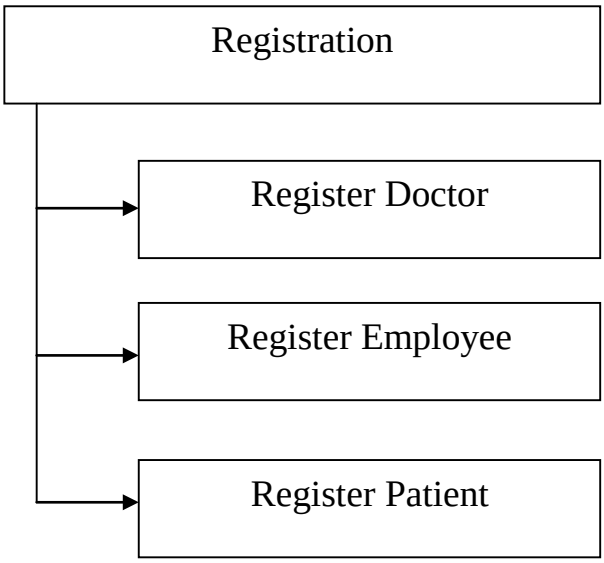


Figure 3.11:Electronic Patient Management Registration Subsystem

The registration subsystem is solely intended for the Hospital Staff (Administrator) to register doctors, employee and patients, of which all must be affiliated with an identity number before sending it to the database. This subsystem handles only the registration of these aforementioned areas. It is from the functionality of this subsystem that the administrator view all users file, records and services.

3.8.2 Department Form Subsystem

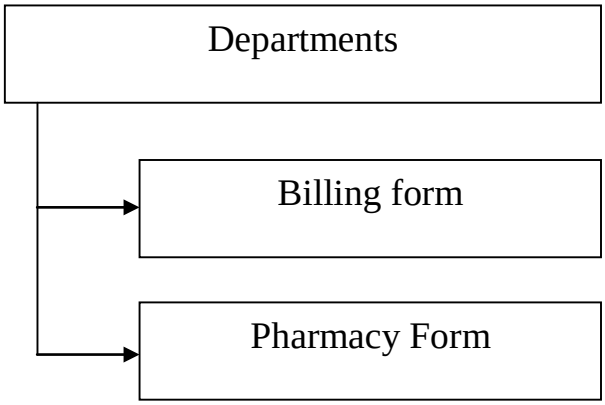


Figure 3.12:Department Form Subsystem

The Department Form subsystem can also be referred to as the subsystem for the Administrator because it is responsible for providing the means by which patients can be registered and billed with accordingly after transferring their drugs and admission identity number too.

3.8.3 DBMS Subsystem

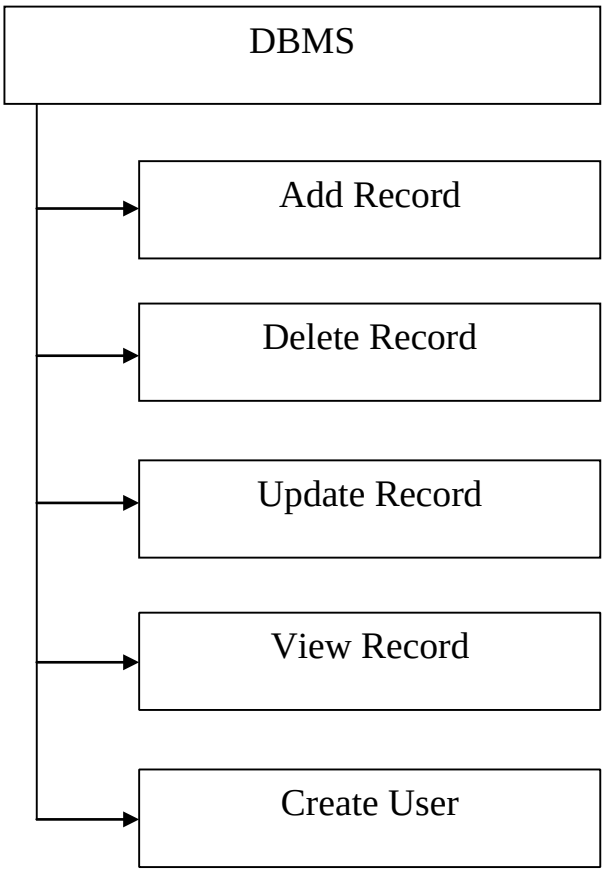


Figure 3.13:Electronic Patient Management DBMS Subsystem

The Electronic Patient management subsystem controls the creation, maintenance, and use of the hospital database.

3.8.4 Report Subsystem

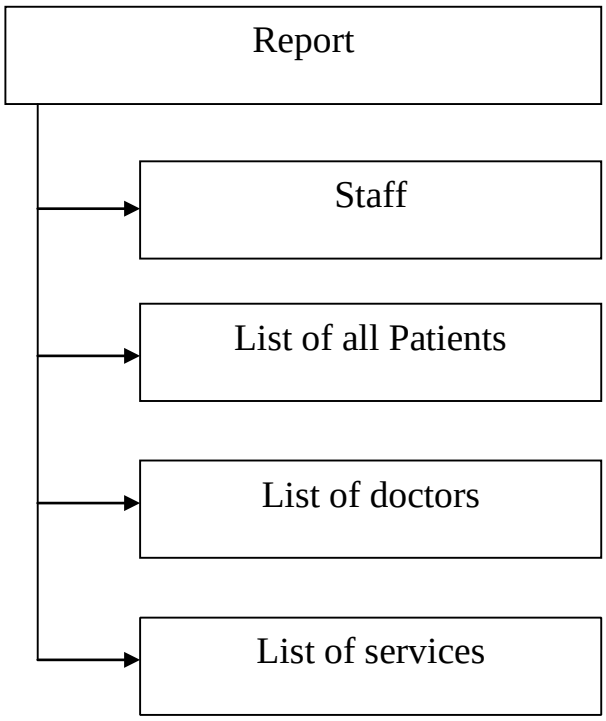


Figure 3.14: Electronic Patient Management Report Subsystem

The Electronic Patient management report subsystem can readily generate reports concerning the patients, doctors, daily events of the day of the hospital on this subsystem.

CHAPTER FOUR

SYSTEM IMPLEMENTATION, TESTING AND INTEGRATION

4.1 Choice of Development Tools

The development tools are defined as the basic required devices that are used during the design of the computer based processing and publishing system to enable the programmer design an effective and efficientsoftware. There were five components that were needed to be added in the system when the development of the system was yet at an initial stage. These components can be referred to as the software development tool. The under listed tools were chosen and used because of their features and ease of accessibility. These tools are briefly discussed below:

4.1.1 Operating System

The programming work was carried out on one computer which ran windows XP as the operating system. In the final implementation, the visual basic 6 was tested on two computers which ran windows 7 and XP.

4.1.2 Visual Basic 6.0

The choice of programming language used in this project work is the Microsoft Visual Basic.

Microsoft Visual Basic is a program that allows its user(s) to create new program in a graphical user interface, it is especially well suited to the creation of programs for supporting business operations and it has gained considerable acceptance in various

companies and organizations around the world because of its following characteristics:

- It is an object oriented language
- It flexibility allows modular programming techniques.
- Applications written in Visual Basic are interactive easy to use and understandable.
- It enables input and output statement to function in window statement.

4.1.3 Microsoft Access

Microsoft Access is a relational database management system that runs as a server providing multi-user access to a number of database. Microsoft access is owned and sponsored by Microsoft Corporation. It is free for open source and not for profit projects as it was designed for three principles, performance, easy to use and simplicity. It is a perfect tool for developers and administrators to establish, maintain and configure applications.

4.2 Hardware and Software Requirements

4.2.1 Hardware Requirement

The hardware components of a computer system refers to the physical part that makes up the computer system. For an effective operation, the system can be implemented provided the following hardware components are at least met.The following hardware is required for the efficient work of the system:

1. Storage: 13-20 gigabyte of storage.
2. Memory: 128MB of ram and above.
3. Keyboard: Enhanced keyboard
4. Drivers: c d rom 48x and above, 3.5 (1.44mb) fdd drive
5. Mouse: Enhanced serial or parallel mouse
6. CRT: 15” svgacolored monitor
7. Model: Pentium 580 mml and above
8. Printer: Optimal (Colored/black and white)

4.2.2 Software Requirements

Computer software is a collection of computer programs and related data that provides the instructions for telling a computer what to do and how to do it. In other words, software is a set of programs, procedures, algorithms and its documentation concerned with the operation of a data processing system. Program software performs the function of the program it implements, either by directly providing instructions to the computer hardware or by serving as input to another piece of software. The following list of software are needed for adequate implementation of the system

1. Window 98/2000/ XP.
2. Visual Basic language (VB).
3. Microsoft Access.

4. Anti-virus program (updated).

4.3 System Implementation

Implementation is the realization of an application or execution of a plan, idea, model, design, specification, standard, algorithm or policy. It is also the realization of a technical specification or algorithm as a program, software component or other computer system through programming and deployment. The purpose of system implementation is to make the new system available to a prepared set of patients and members of staff of Shonahan Hospital, and also positioning an on-going support and maintenance of the system within the hospital. This entails that all steps would be taken to educate both the patient, doctors etc.on the use of the new system and confirming that all data required at the start of operations is available and accurate , and validating that the business functions that interact with the new system are functioning properly.

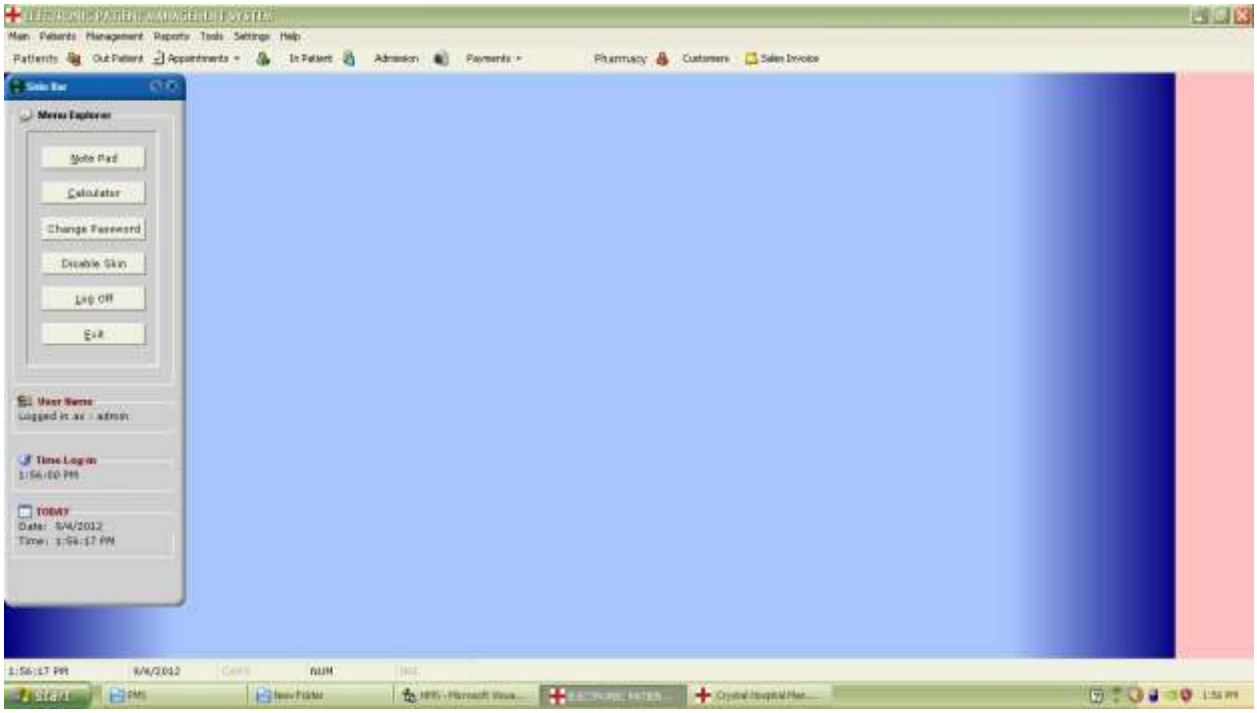


Figure 4.1 The Main Menu of the Electronic Hospital Management System

The figure above explains and shows the various menus of the program and as well as the accessibility options granted by the remote user or the administrators as the case may be. To the left is the side bar that offers a quick show of events or actions to be carried out including the name of the user and time spent in logging in while the top of the program is the list or features of various options in the menu bar (drop down list) to perform certain options. This main menu background has access to all files and data. It is divided into categories like hospital management, patient management, doctor management and employee's management. It can add a doctor, register a patient i.e. out or in patient, add employee, view log reports, add schedule

or appointment for a doctor and patient, bill a patient, add room, prescribe drugs for patient etc.

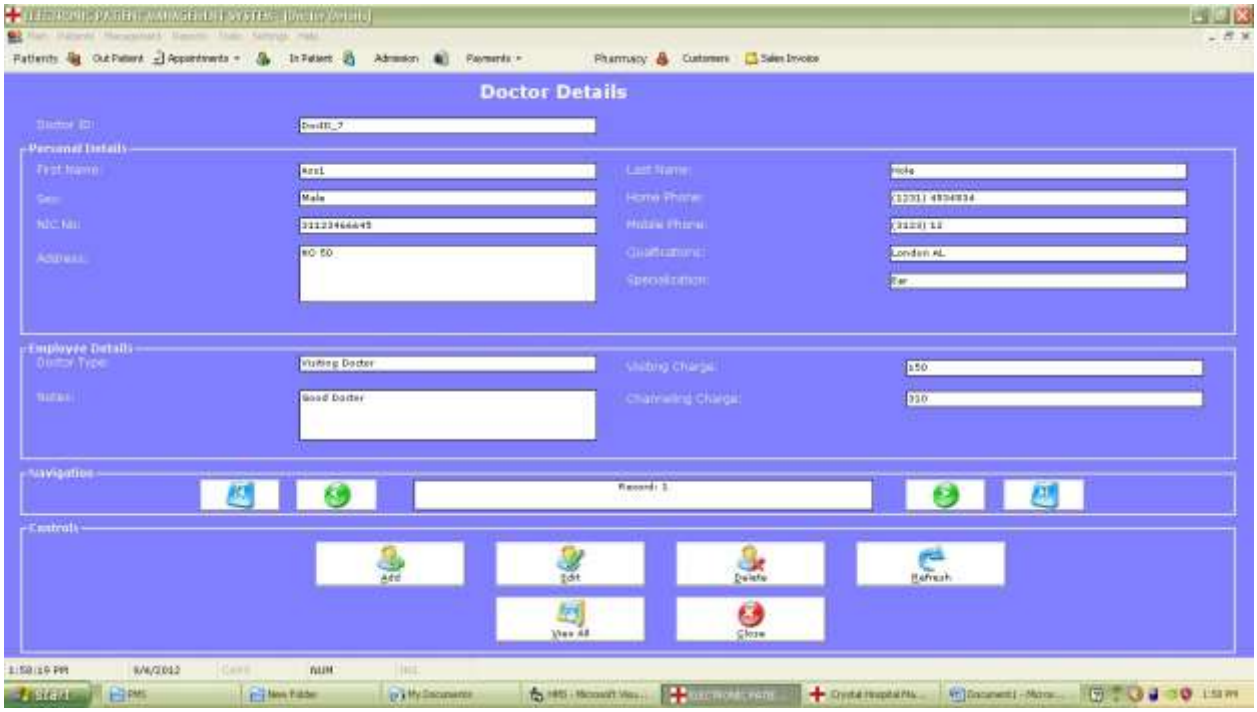


Figure 4.2 Doctors Detail and personal data form

The doctors detail and personal data form is used to fill in doctors personal data form to accept the doctor as a staff of the hospital as it is been done by the administrator. You must first click to add doctor to generate a doctors identity number automatically before filling other data pertaining his qualification before finally clicking on add to ensure it is completely sent to the database.

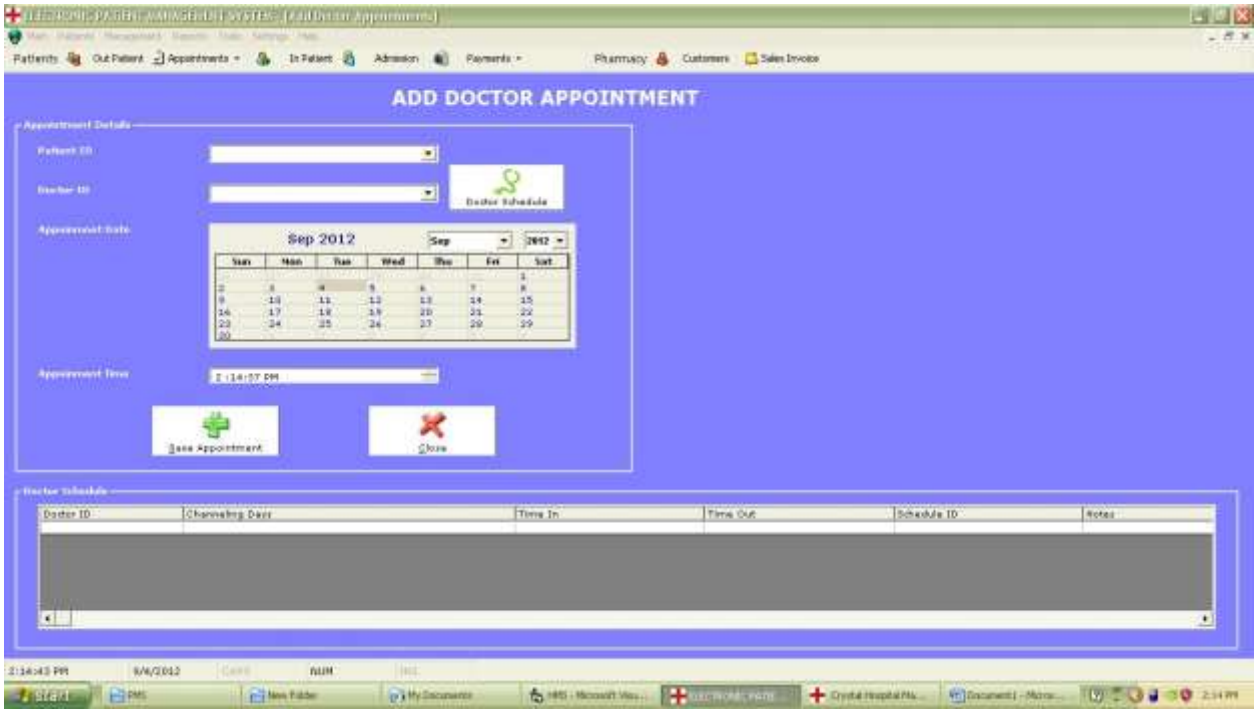


Figure 4.3 Doctors Appointment Form

The Doctors appointment form is used to view as well as book an appointment schedule for in and out patients who may want to see the doctor for a routine check up or for an illness both now and in subsequent time at their convenience .

Figure 4.4 Room Detail Form

The room detail form is a function of the hospital management . it generates a room identity number automatically when you click on add to register the numbers of rooms available in the hospital and in use by patients before adding it to save it in the database.

Figure 4.5 Ward detail Form

The ward detail form registers the number of ward in the hospital as there are many types like the Aid ward for Aids patient, Burnt ward for accidental victims and Emergency ward for the critically unconscious victim who may soon be operated upon or need close watch. It also generates identity number automatically before adding it to the database.

Figure 4.6 In Patient Detail form

The in patient detail form registers the in patients to be admitted in the hospital depending on their cases and consequently register them into their duely ward after filling up their detail as well as clicking on add to send it to the database.

Figure 4.7 Guardian detail form.

The guardian detail form is responsible for registering and admitting the patients to a ward/room because each patient is entitled to a guardian. The guardian's data are as well filled and sent to the database when clicked on add to generate a new guardian identity number so when matters arise the patient's family can be of reach quickly as possible too.

Figure 4.8: Discharge Detail Form.

The discharge detail form guarantees that the patient has fully recovered and as well been duly treated. After registering a patient, the patient will get an admission identity number and its presumed discharge date will be filled depending on his recovery speed.

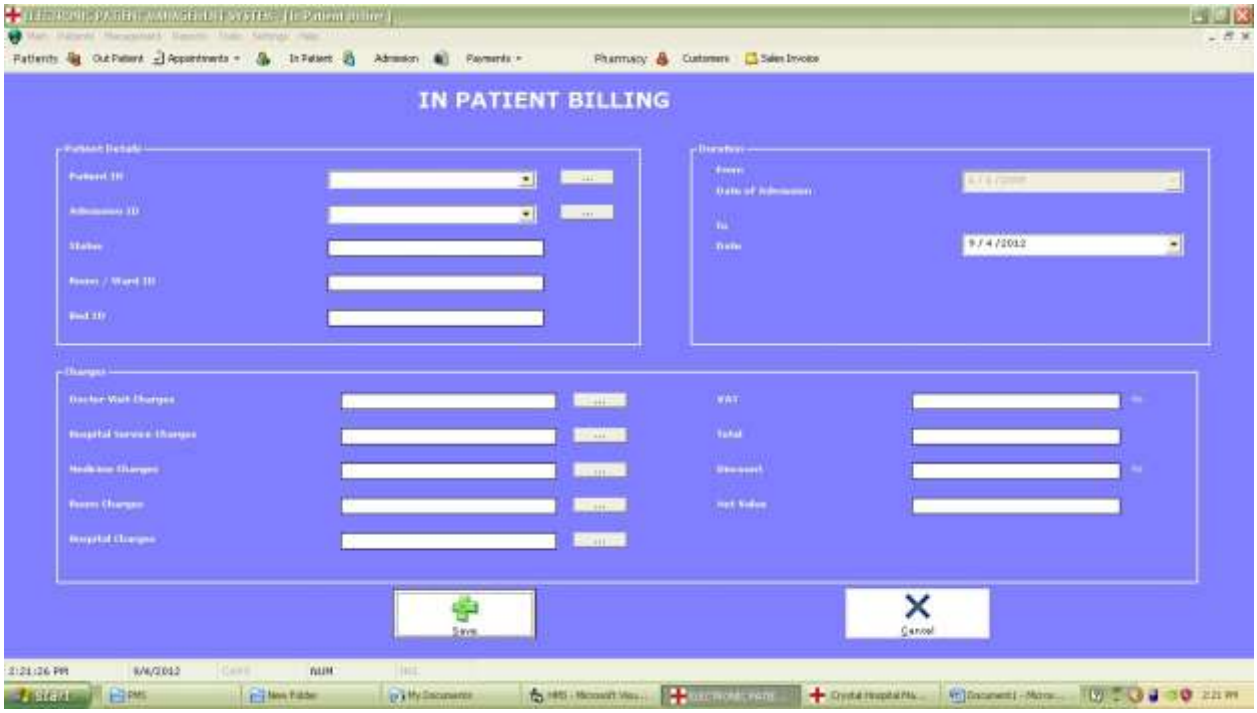


Figure 4.9 In Patient Billing form

The In patient Billing form does bill the total amount to be paid by the patient or guardian to the billing department before been cleared to leave the hospital. Charges are made through the medical care or attention given, drugs and accomodation too with the admission identity number for accuracy.

4.4 System Testing

System testing involves the various activities carried out to uncover possible problems that might still be found in the designed system. Program testing involves the testing of the programs designed to see how they work individually. It also involves the testing of different programs, the system and how they interact with one another.

System testing uncovers weakness that was not found in earlier testing normally. This can include system failure. The testing normally starts with low volumes of data to the upper bond. This test is carried by a System Analyst or System Designer. The system as a whole is tested for recovery and fall back after various major features to ensure that no data had been lost during the emergency.

4.4.1 Unit Test

This is the process of educating the user on how to operate the system. Orientation is to be organized for the user, to educate them on how the system works. Documentation at the end of this work can be of such help. It also involves all the forms of training given to the user to acquaint them with the way the system works. The system will be used after the users have gone through some series of training concerning how the system works for a unit system.

4.4.2 System Test

At this stage, the project team would want to be sure that the format and the language of each documentation organization is in line with the system standard.

User acceptance test is conducted by the user to ascertain whether the system is working according to its specification. The proposed system is tested by the user during the implementation phase and all the features of the system as required are in place.

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSIONS.

5.1 Summary

The essence of this project work takes a look at the various problems associated with the existing system which are improper documentation, loss and mismatch of patient data, time wastage etc. With all these problems being critically analysed, a solution was embarked on, to eliminate these problems. With the design of an electronic patient management systemsuch problems are considered to be history, in the sense that this new system is able to provide as well as guarantee the following:

- Easy documentation.
- Eliminate loss of payment records.
- Reduction of time spent during payment.
- Reduces the number of errors made during calculation.

The various design methods used in accomplishing this task were discussed in details in all the chapters of this project work.

.It updates the references for duty roster files; adds a reference for examples, some methods used in portraying details to units of varying size; and provide additional guidance on the use of explanatory remarks on duty roster. It also changes figure to provide an example of a consolidated roster, to illustrate a variety of explanatory remark and their listing on the reverse of attendance scheme for patients Form.

5.2 Limitations

However, because of limited funds, the new system was not fully implemented with the features that was dully meant to be. The researcher did his best to develop a functional system with the material and tools available. To be precise, the problem of availability of information about patients' data and records in Shonahan Hospital posed a serious setback to the researcher. Although, there wasn't much external information on this aspect. The researcher as a result of this had to make use of the limited information from Shonahan staff, my experience as a patient and intuition to provide a workable platform for the success of the project work. These among others were the problem encountered during the course of the project work.

5.3 Recommendation

In this project work, I recommend that computer based attendance scheme for patients should be used by the hospital to create process and record their attendance scheme for patients' information. This system is used to calculate the nurses punctuate to work and to keep good and reliable history of patient health care. It is an effective tool in the hand of the hospital management. Duty is a term that conveys a sense of moral commitment is the sort that results in action, and it is not a matter of passive feelings or mere recognition. When someone recognizes a duty, that person commits himself/herself to the cause involved without considering the self-interesting courses of actions that may have relevant previously. This is not to

suggest that living a life of duty precludes one from the best sort of life, but duty does involve some sacrifice of immediate self-interest.

5.4 Conclusion

Based on the objectives of this study and the various analysis made, I hereby conclude that the Electronic Patient management system has formed an integral part of Information Technology (**IT**) in Computer Engineering Department and all institution of higher learning at large. As the cases presented in this project demonstrated, the patients' role in the health care arena is expanding, and nurses are becoming an increasingly critical link between patient and physicians. Nurses and Doctors must take affirmative steps to learn the applicable standards of care for their particular skills, so that they can be able to make independent assessments of patient's condition, and also to enable them recognize signs and symptoms that they must communicate to patients' physicians.

Conclusively, this project work has been a worthwhile effect because it has expose me to project design and implementation which I know will surely be an experience that will be of help to me in the near future.

5.5 Bill of Engineering Measurement and Evaluation Costing.

The cost of going through with this project is as follows.

Table 5.1: Bill Of Engineering Measurement and Evaluation Costing.

ITEMS	**COST(N)**
HP G60 Notebook	120,000
MTN 3.5G Modem	5000
Project Printing	4000
Project Hard Cover Binding	1,200
Microsoft Office and Visual Basic 6.0	2,500

The above table consists of major items and material used for the implementing and designing of the project and its estimated budget before the construction of the work.

REFERENCES

Arnett, K. and Posey, A. (1986), A strategy for the successful implementation of online scheduling. The Journal of the American Association of Collegiate Registrars, 61, (3), 169-74.

Lisker, P. (1987 July 14), Online registration a first at Ohio State. PC Week, 4, (28), 36.

Lonabocker, L. and Long, R. (1983), Cross registration at Boston College: a successful online approach. College and University, Fall, 58-70. Social Factors and Online Registration 18 University of the Pacific

Thomas, P; Carswell, L. and Price, B. (1998). A historic approach to supporting distance learning using the internet: transformation, not translation. British Journal of Educational Technology, 29, (2), 149-61.

Shulman, Richard (2002), Thinking Ahead. Patients Check-up and Treatment.

APPENDIX A

PROGRAM CODE LISTING

```
Imports System.Data.OleDb

Module DBConnection

    Public Const connection As String =
"Provider=Microsoft.ACE.OLEDB.12.0;Persist
Security Info=False;Data

Source=Database/PatientFormDatabase.accdb"

Public EnumFormState adStateAddMode = 0

adStateEditMode = 1

    End Enum

    'Fill ListView control with data

    Public Sub FillListView(ByRefLVSearchPAtientList As
ListView, ByRefmyData As
OleDbDataReader)

        Dim itmListItem As ListViewItem

        Dim strValue As String        Do

WhilemyData.Read itmListItem = New

ListViewItem() strValue =

IIf(myData.IsDBNull(0), "",
```

```
myData.GetValue(0)) itmListItem.Text
= strValue
            For shtCntr = 1 To
myData.FieldCount() - 1
If myData.IsDBNull(shtCntr)
Then
itmListItem.SubItems.Add("")
                Else
itmListItem.SubItems.Add(myData.GetString(shtCntr))
                End If
            Next shtCntr
LVSearchPAtientList.Items.Add(itmListItem)
        Loop
    End Sub
    'Execute Non Query
    Public Function
ExecNonQuery(ByValstrSQL As
String)        Dim cnHotel As
```

```
OleDbConnection cnHotel = New
OleDbConnection
        Try
            With cnHotel
                If .State = ConnectionState.Open Then .Close()
                .ConnectionString = connection
                .Open()
            End With
            Dim cmd As OleDbCommand = New
OleDbCommand(strSQL, cnHotel) cmd.ExecuteNonQuery()
            Return True
        Catch ex As OleDbException
            Return
ex          Finally
cnHotel.Close()
        End Try
    End Function
    Public Function GetData(ByValsSQL As String)
        Dim cnPatients As OleDbConnection
```

```
        Dim sqlCmd As OleDbCommand =
New OleDbCommand(sSQL)        Dim
myData As OleDbDataReader cnPatients =
New OleDbConnection(connection)
        Try
cnPatients.Open()
sqlCmd.Connection =
cnPatients myData =
sqlCmd.ExecuteReader
            Return myData
        Catch ex As Exception
            Return ex
        End Try
    End Function
End Module
Public Class WelcomeForm
    Private Sub WelcomeForm_Click(ByVal sender As Object,
ByVal e As
System.EventArgs) Handles Me.Click
```

```
Me.Hide()

MainForm.Show()

   End Sub

End Class

Public Class MainForm

   Private Sub btnProceed_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles btnProceed.Click

Me.Hide()

AdminShow.Show()

   End Sub

End Class

Public Class AdminShow

   Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button1.Click

      Dim Dialog AsDialogResult

      Dialog = MessageBox.Show("Do You want to EXIT this
Program?", "Patient Billing
System", MessageBoxButtons.YesNoCancel,
MessageBoxIcon.Information)

      If Dialog = System.Windows.Forms.DialogResult.Yes Then

         End
```

```
        End If

        If Dialog = System.Windows.Forms.DialogResult.Cancel Then

Me.Hide()

MainForm.Show()

        End If

    End Sub

    Private Sub btnAdmin_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles btnAdmin.Click

Me.Hide()

EnterPassKeys.Show()

    End Sub

End Class

Imports System.Data.OleDb

Public Class EnterPassKeys


    Private Sub Button2_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button2.Click

        Dim Dialog AsDialogResult

        Dialog = MessageBox.Show("Do You want to Cancel Your
Current Action?", "Patient
```

```
Billing System", MessageBoxButtons.YesNo,
MessageBoxIcon.Information)

        If Dialog = System.Windows.Forms.DialogResult.Yes Then

Me.Hide()

AdminShow.Show()

        End If

    End Sub

    Private Sub Button3_Click(ByVal sender As

System.Object, ByVal e As System.EventArgs)

Handles Button3.Click txtPassword.Text = ""

txtUsername.Text = ""

    End Sub

    Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button1.Click

        Dim connAccount As String =
"Provider=Microsoft.ACE.OLEDB.12.0;Persist Security
Info=False;Data Source=Database/PatientFormAccount.accdb"

        If txtUsername.Text = "" Or txtPassword.Text = "" Then

MessageBox.Show("Please fill in all fields", "Enter Username and
Password",
MessageBoxButtons.OK, MessageBoxIcon.Error)

            Exit Sub
```

```
        End If

        Dim conn As New OleDbConnection(connAccount)

        Dim cmd As OleDbCommand = New
OleDbCommand("SELECT * FROM
AdminAccount WHERE Username = '" &txtUsername.Text& "'
AND PassKey = '"
&txtPassword.Text& "' ", conn)

conn.Open()

        Dim sdr As OleDbDataReader =

cmd.ExecuteReader()        If

(sdr.Read() = True) Then conn.Close()

Me.Hide()

AdminPanel.Show()

        Else

MessageBox.Show("Invalid Username or Password",

"Enter Username and Password",

MessageBoxButtons.OK, MessageBoxIcon.Error)

txtPassword.Text = "" txtUsername.Text = ""

        End If

    End Sub

End Class
```

```
Public Class AdminPanel

    Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button1.Click

Me.Hide()

PatientForm.Show()

    End Sub

    Private Sub Button5_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button5.Click

Me.Hide()

AdminShow.Show()

    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button2.Click

Me.Hide()

SearchPatient.Show()

    End Sub

    Private Sub Button3_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button3.Click

Me.Hide()
```

```
DeleteRecord.Show()

    End Sub

    Private Sub Button6_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button6.Click

Me.Hide()

CreatePassKeys.Show()

    End Sub

    Private Sub Button4_Click(ByVal sender As System.Object,
ByVal e As
System.EventArgs) Handles Button4.Click

Me.Hide()

ChangePassword.Show()

    End Sub

End Class
```

APPENDIX B: Sample output

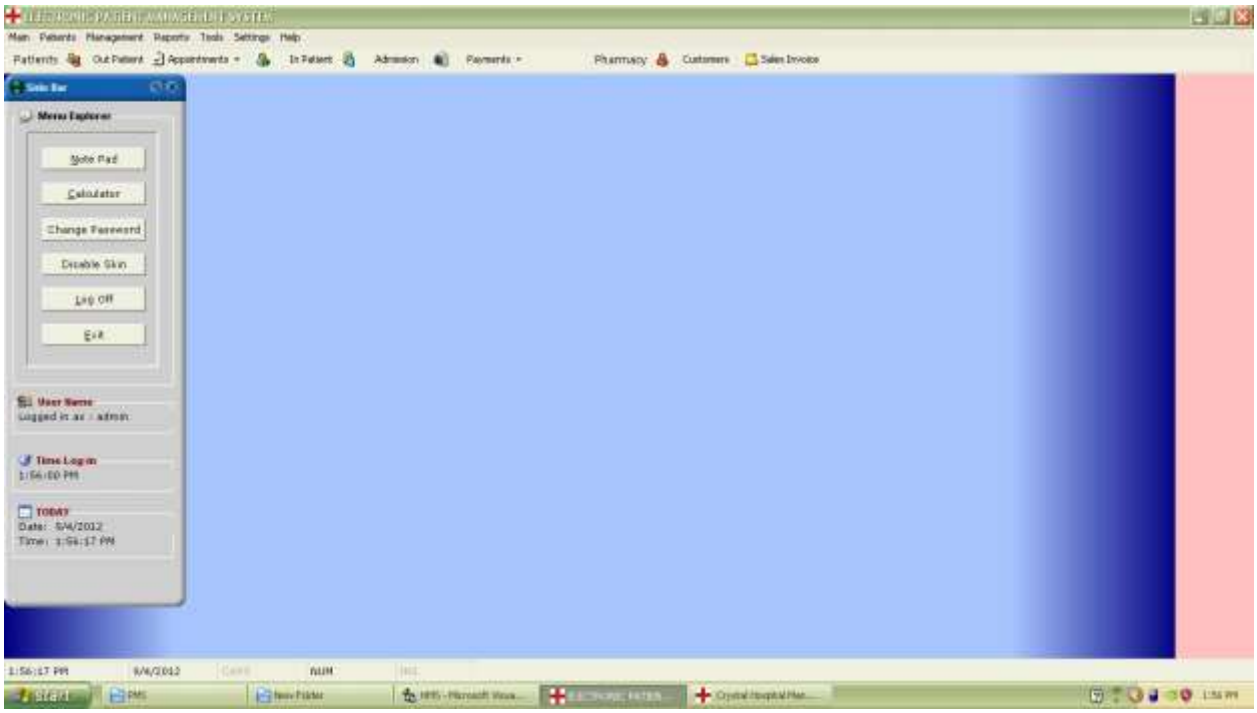


FIGURE 1: MAIN MENU

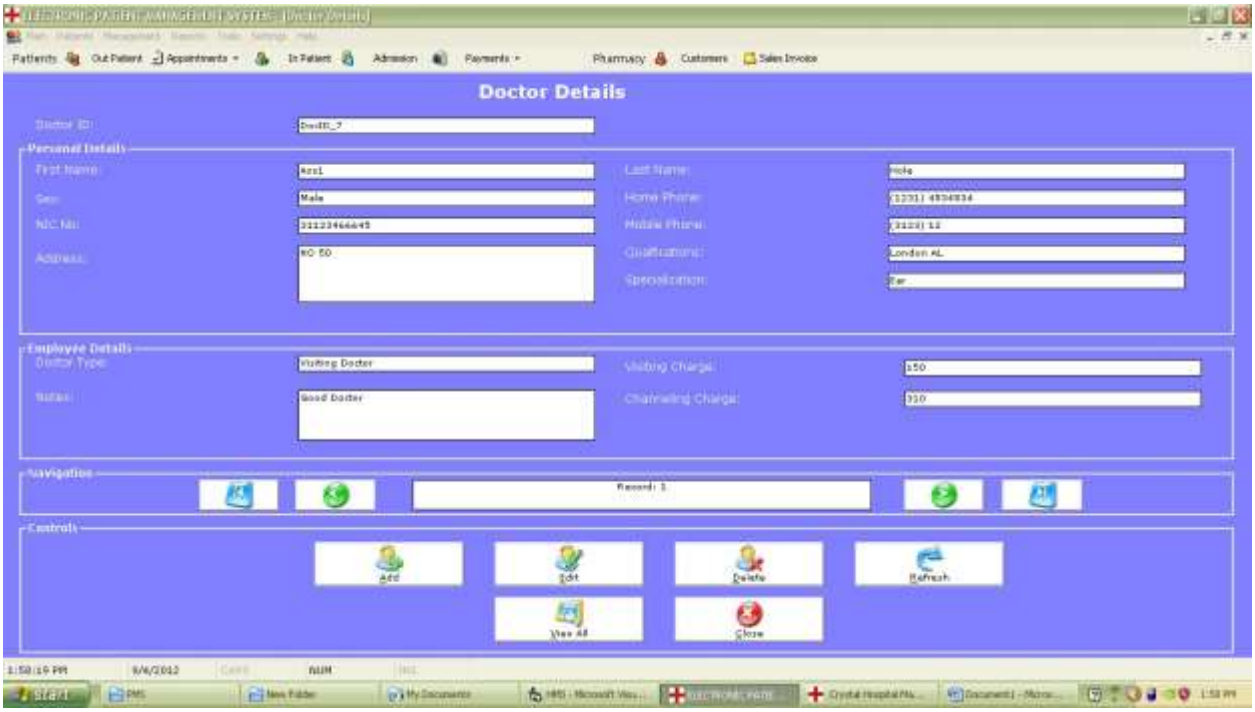


FIGURE 2: PATIENT FORM

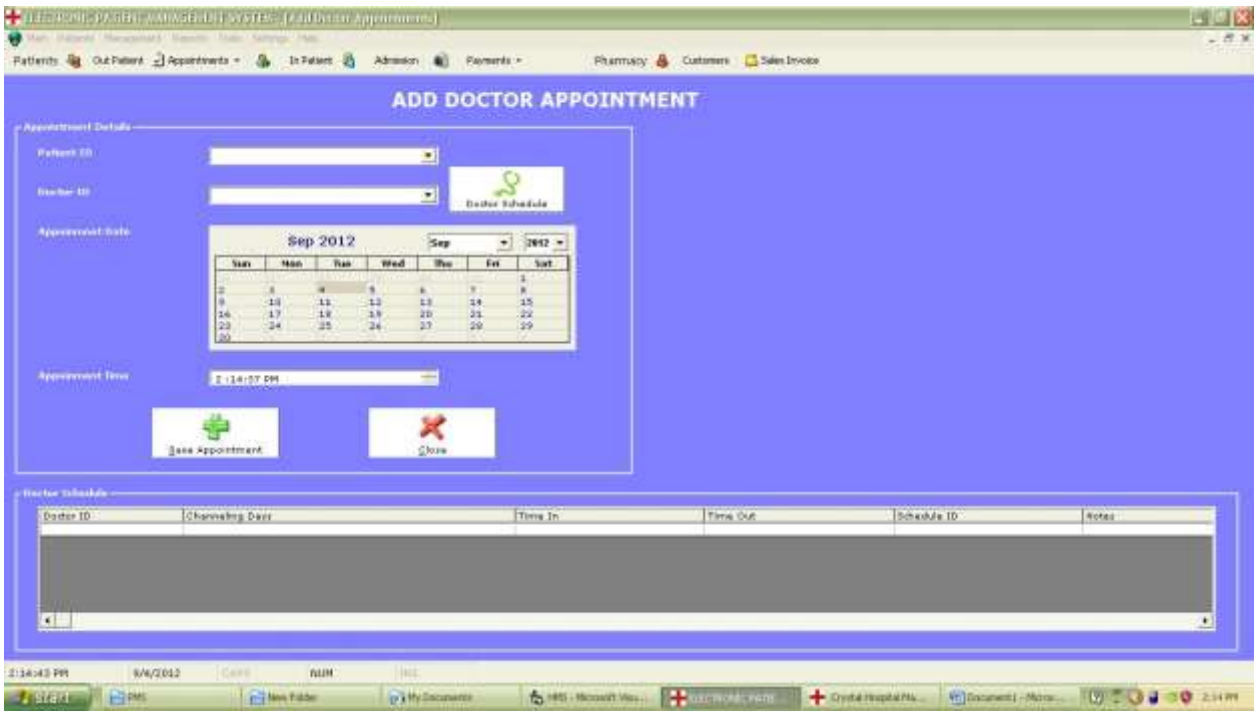


FIGURE 3: ADD DOCTOR APPOINTMENT

FIGURE 4: ADD ROOM

FIGURE 5: ADD WARD

FIGURE 6: REGISTER PATIENT

FIGURE 7: ADD GUARDIAN

FIGURE 8: DISCHARGE DETAIL

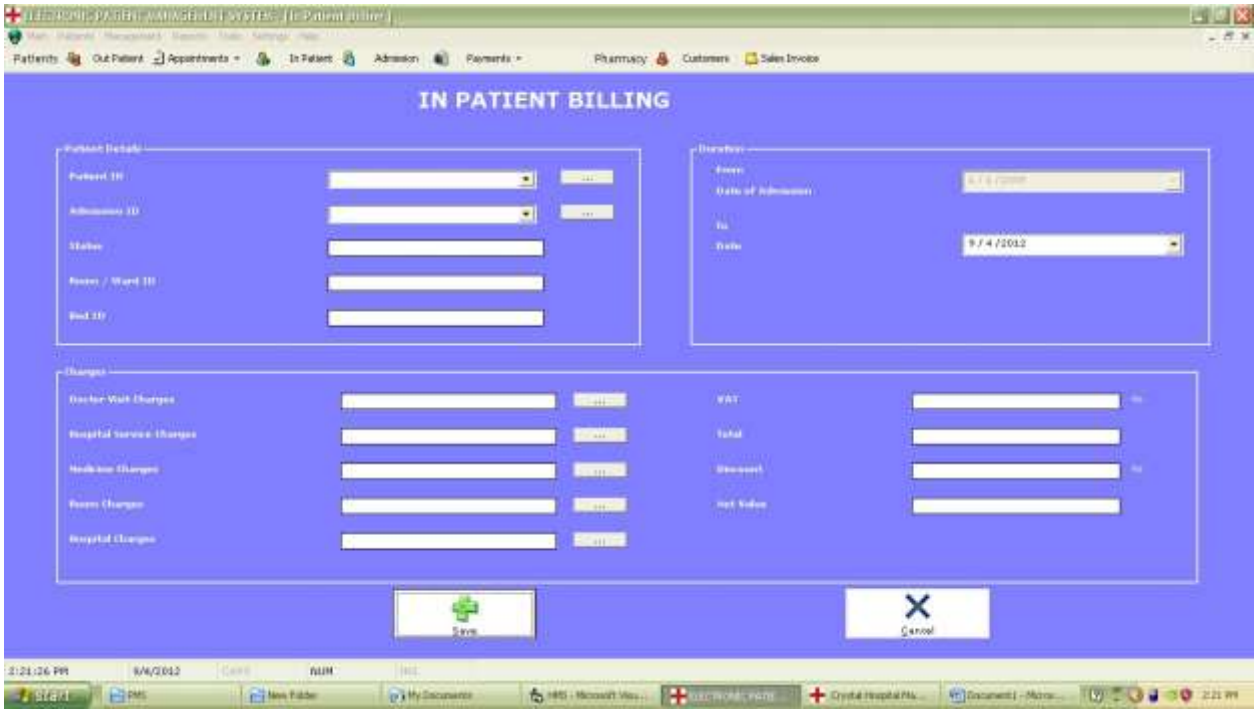


FIGURE 9: IN PATIENT BILLING

Appendix c: user guide

1. When you double click on the program, it will take you to a visual basic environment, then it will pop out a small dialogue box asking you to input your user name and password

2. If the username and password is correct then it will grant you access to the main menu background of the hospital management system although you may access to limited files or menu bar depending on the access granted on the user name and password used.

3. If the password is incorrect, it will show a message in a small dialogue box indicating that the password is incorrect.

4. The main menu consists of 7 menu features on the top of the program and each has a drop down box or contains an extension of an action that will enable the user perform a certain operation, for example, a user that log on with admin can add a doctor, register patient, add hospital service and many more.

5. Also the main menu has a dialogue box that will pop out to show you a little information about the events or breaking news of the daily data in the hospital.

6. To the left of the main menu is also a side bar where easily accessed files or data can be retrieved. It also contains a calculator log in user name and a time showing how long a user has been on the hospital program.

7. The other 7 main menu bar are settings, tools, hospital services etc and can be used to perform so many functions that pertains and contribute to the quality of effective and efficient care to patient.

8. Only an authorized person (administrator) can change or add user, view or add employee as well as doctor etc.

9. Once the user is through with the program, it or she can log out of the program for security reasons.