DESIGN AND IMPLEMENTATION OF PATIENT MANAGEMENT SYSTEM

BY

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CERTIFICATION

We the undersigned, certify that this project "Design and Implementation of patient management System was carried out by **MUTAIRU MURI MAT NO. ICT/2252050719** of the department of Computer Science Auchi Polytechnic

We also certify that the work is adequate in scope and quality in partial fulfillment of the requirement for the award of Higher National Diploma (HND) in Computer Science.

…… ……

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DEDICATION

This project work is dedicated to **God Almighty** for His protection, guidance, grace and favor upon my life and study.

ACKNOWLEDGEMENTS

My utmost gratitude goes to **God Almighty** for the knowledge, wisdom and understanding that he bestowed on me to carry out his project. I appreciate my supervisor **Mr. Uduiguomen, U.C** for the supervision and support that he gave me which helped in the easy progression and smoothness of the project. The cooperation is much indeed appreciated. God bless you sir

My grateful thanks goes to the Head of Department Mr. Akhetuamen O. Sylvester and the entire lecturers in Computer Science Department, Auchi polytechnic, Auchi.

Special thanks also to my parents Mr. and Mrs.mamud Matairu , my aunty shaibu awawu and my good friends and my entire family who encouraged and supported me financially, prayerfully and morally throughout this project. May God Almighty bless and reward you all.

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ABSTRACT

This study investigated online hospital management system as a tool to revolutionize medical profession. With many writers decrying how patients queue up for hours in order to receive medical treatment, and some end-up being attended to as „spillover", the analyst investigated the manual system in detail with a view to finding out the need to automate the system. Subsequently, a computer-aided program was designed to bring about improvement in the care of individual patients, taking the advantage of computer speed, storage and retrieved facilities. The software designed will take care of patient ''s registration, billing, treatment and payments.

The programming language employed in this work was Microsoft.

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

The goal of any system development is to develop and implement the system cost effectively; user-friendly and most suited to the user's analysis is the heart of the process. Analysis is the study of the various operations performed by the system and their relationship within and outside of the system. During analysis, data collected on the files, decision points and transactions handled by the present system. General hospital Ware, is a prestigious hospital situated in Warri with a very large patient capacity. This number is increasing at a rapid pace with each passing day. The management of the hospital is concerned with the increasing effort in keeping records of the patient and recording their activities. Health is generally said to be wealth. It takes healthy people to generate the wealth the nation requires for the general well-being of its people. There is therefore the need for adequate Medicare especially in the area of diagnosis and treatment of diseases. Since there is a good relationship between the job output and health of the workers, a good Medicare is vital.

Unfortunately, in most developing nation (including Nigeria), this adequate Medicare is lacking due to how standard of technological and manual handling of most medical problems. As observed by (Lyiama H.Cl) "very often, people in

developing countries who are critically ill are rushed abroad for special treatment because it is felt that Medicare facilities at home are inadequate. This is partly because computer aided Medicare has become a reality in many developed countries". It is also a known fact that the production of qualified medical doctors and other medical personnel and consultants is on the increase, but is not enough to meet the health needs of the increasing population. The ratio of patients to a doctor is still high. This situation creates problems, because proper and adequate medical attention of patients is far-fetched. Nowadays, the low-income class is mostlyaffected. Doctors hurry over their duties in order to attend to all the patients. At the end of the day, they are tired and over worked.

Considering the rate of population growth the medical care and facilities available, and the health needs of the people, computer-aided Medicare is in evitable for more accurate. Furthermore with the present shift to an information society, it is necessary to anticipate the future use of a sophisticated electronic machine. This is necessary because the computer is rapidly finding its way into every field of human endeavor, including medicine. Its application includes patient care and protection, clinical administration, intensive monitoring duringemergencies, surgical operations, diagnosis and automation of medical records.

For instance, during a complex surgical operation as exemplified by (Lyiama and Chukwu) “the computer monitors person being operated on, revealing all vital signs (pulse, blood pressure, breathing rate, etc) of interest to the doctors in the theatre, thus helping them tobe more accurate and effective in what they are doing. Such a patient monitoring system can be with a video Display Unit (VDU), a keyboard for interactive inputs and an alarm”.

The wide range of the use of computer is due to its versatility as a data processing machine and its ability to do things including complicated tasks faster, better and more accurately than human beings would.

1.1 Statement of the Problem

It has been observed that to receive medical treatment in most of our hospitals, the patients queue up for several hours from one unit of the hospital to another starting from obtaining a new hospital folder, or retrieving an old one before consulting a doctor, to the laboratory unit for lab test then to the pharmacy to get the prescribed drugs and so on. With the manual processes involved in handling the patient most of them waste the whole day in the hospital. Very often, patients leave their homes very early in the morning in order to be among the first group to see the doctor. Otherwise, they may end up wasting the whole day without due attention.

This situation is discouraging to most patients and sometimes forces them to turn to non-professionals or even resort to self-medication for quick recovery.

Moreover, the volume of work for the hospital personnel is much. Patients outnumber the doctors, nurses and other medical personnel that too much are required from them. In this regard, to examine all his patients for the day the doctor hurries over his work without adequate attention and expertise to his clients. Still, at the end of the day he is exhausted.

In addition to this, the diagnosis and prescription depend on the doctor's memory and drug of choice. Their brains are often loaded with different diseases, signs and symptoms, complications and various drugs for their treatment and so on. Some of which are very similar. To remember and process these huge information in his clinical work is very tasking. For this reason accurate diagnosis and prescription may not always be obtained.

The keeping and retrieval of accurate records on patients are poorly carried out in most of our hospitals. Files may be misplaced; the record in them may be wrongly filled. Hence, it is not easy to obtain accurate and timely information or data.

1.2 Objective of the Study

The objective of the study is to implement a computerized patient management system that will satisfy the following objectives:

i. Examine the current procedures employed in our hospitals with regards to patients' admission, diagnosis and treatment.

ii. Examine the associated problem(s) or flaws in the current system

1.4 Scope of the Study

This research work is limited to patients admission, keeping of patients' records, bills and payments in General Hospital Warri, Edo State. The software developed will be carried out using HTML, javaScript, CSS for the design, Php for the system development and MySQL for the database.

1.3Significance of the Study

Several possible advantages to practical patient management software system over paper records have been proposed which includes:

- **Reduction of cost**

A vast amount of funds are allocated towards the health care industry. The computerized system will reduce the personnel cost.

- **Improve quality of care**

The implementation of electronic health records (EHR) can help lessen patientsufferance due to medical errors and the inability of analysts to assess quality.

- **Promote evidence-based medicine**

Computerized medical record provides access to unprecedented amounts of clinical data for research that can accelerate the level of knowledge of effective medical practices.Realistically, these benefits may only be realized if the systems are interoperable and wide spread (for example, national or regional level) so that various systems can easily share information.

- **Record keeping and mobility**

EHR systems have the advantages of being able to connect to many electronic medical record systems. In the current global medical environment, patients are shopping for their procedures.

1.5 Limitation of the Study

This project was constrained by the following factors:

1. **Financial Constraints:** Bearing in mind the economic state of the nation, it was found difficult in making both ends meet, because of the exorbitant nature of things nowadays in travelling for the collection of data needed for the project.
2. **Time Constraints:** Looking at the interval between the resumption and vacation of the final semester for the project to be completed, the time given

seemed to be short for the collection of required information for better work to be done.

1.6Definition of Terms

i. **Electronic Health Record**: An electronic health record (EHR) (also electronic patient record (EPR) or computerized patient record) is an evolving concept defined as a systematic collection of electronic health information about individualpatients or populations.

ii. **Information**: Information is data, or raw facts, shaped into useful form for human use.

iii. **System:** A system is a combination or arrangement of parts to form an integrated whole, working together to achieve specific tasks. A system includes an orderly arrangement according to some common principles or rules.

iv. **Expert System:**Is software that uses a knowledge base of human expertise for problem solving, or clarify uncertainties where normally one or more human experts would need to be consulted.

v. **Hospital information system (HIS):**Variously also called clinical information system (CIS) is a comprehensive, integrated information system designed to manage the administrative, financial and clinical aspects of a

hospital. This encompasses paper-based information processing as well as data processing machines.

vi. **MIS:** Management Information System is the system that stores and retrievesinformation and data, process them, and present them to the management as information to be used in making decision. It can also be defined as an integrated machine system that provides information to support the planning and control functions of managers in all organizations. By these definitions, MIS must serve the basic functions of management, which include planning, organizing, staffing, directing and controlling. Information systems that only support operations and donot have managerial decision making significance is not part of MIS.

CHAPTER TWO

LITERATURE REVIEW

2.0 Electronic Health Record

Electronic health record (HER) is an evolving concept defined as a systematic collection of electronic health information about individual patients or populations.Terry (2005)

It is a record in digital format that is capable of being shared across different health care settings, by being embedded in network- connected enterprise-wide information systems. Such records may include a whole range of data in comprehensive or summary form, including demographics, medical history, medication and allergies, immunization status, laboratory test results, radiology images, vital signs, personal stats like age and weight, and billing information. Its purpose can be understood as a complete record of patient encounters that allows the automation and streamlining of the workflow in health care settings and increases safety through evidence-based decision support, quality management, and outcomes reporting, Swinglehurst(2009).

2.1 Meaning of Patient Management

Arizona(2011), patient management is a broad term, with two categories of definitions. One definition refers to a software tool that streamlines processes

within a medical practice or hospital, and the other refers to an entire system of care involving both patient and practice.

Previously, the Food and Drug Administration (FDA) regulated some types of patient management software (PMS): Those used as medical devices (such as a wearable technology) to collect personal data, or those that used data or performed analysis to help a physician diagnose or treat a patient. Instead of handling tasks like booking appointments, checking in patients at an office, or billing, the goal of these systems is to increase patient engagement and help them take an active role in their own health care. In December 2016, however, the FDA changed its regulations and is no longer treating this type of software as a medical device.

Habib(2010), resource and patient management systems (RPMS) combine the medical data and analysis aspects of other software with administrative tools to help make a practice or hospital more efficient. This system combines patient management and health with the medical practice or hospital management. This approach to health care is more than a procedure because it focuses on the relationship between and practice and not just an illness.

2.2 How Patient Management Software Improves the Health Care Experience

Hoffman(2008) said that time and health are two precious commodities and patient management can help improve both. From the moment you enter a doctor's

office or hospital to receive treatment, your care management begins. From signing in to pulling up medical records to the physician's post-visit notes, many systems work together to keep processes moving. In addition to looking at some existing patient management software applications, this project will explore the many aspects of patient management, what it involves, how it can help both physicians and patients, and features to consider when buying a patient management system.

A RPMS can also reduce waste. "A lot of healthcare systems were set up by the doctors and this stuff is not their strength," says David Belson, PhD, Adjunct Professor of Industrial Engineering at the University of Southern California (USC) Viterbi School of Engineering. Strong patient management can reduce patient and staff wait times and minimize how long vital equipment sits idle. "A lot of patients are flowing through the system and you want to keep a steady flow," he adds.

What Do You Manage in Patient Management?

It's safe to say all patient management tools have something to do with the overall patient experience. Whether it's an online tool to make appointment booking easier or a way to converse with a physician, practices and hospitals are evaluating their systems. In medical practices, patients are the customers, and keeping them happy has become a priority. Physicians are also looking for ways to improve patient care and build relationships between office visits. Office staffs

often need ways to automate administrative tasks and collect information. Patient management can do all that and more, and sometimes save money in the process.

2.3 Functions and Regulations of a Patient Management System

Robson andBaek(2009), a patient management system often goes beyond just being an electronic health record or electronic medical record (EMR). Government incentives helped expedite the move towards electronic health records, and many practices realized that other software and systems could be beneficial. Patient management software can integrate appointment history, patient information, diagnoses, prescriptions, billing records, and more. It can also help practices and hospitals reduce costs by automating some tasks like appointment scheduling, sending reminders, and billing.

The 21st Century Cures Act passed Congress in December 2016 and amended the definition of a medical device to exclude certain software functions. Before this law, it was unclear which types of medical software required regulation and often left up to interpretation. Section 3060 of the new law, called "Clarifying Medical Software Regulation," mentioned five major types of software that no longer require classification. Here are the software types as outlined in Section 3060:

i. For administrative support of a health care facility, including the processing and maintenance of financial records, claims or billing information,

appointment schedules, business analytics, information about patient populations, admissions, practice and inventory management, analysis of historical claims data to predict future utilization or cost-effectiveness, determination of health benefit eligibility, population health management, and laboratory workflow;

ii. For maintaining or encouraging a healthy lifestyle and is unrelated to the diagnosis, cure, mitigation, prevention, or treatment of a disease or condition;

iii. To serve as electronic patient records, including patient-provided information, to the extent that such records are intended to transfer, store, convert formats, or display the equivalent of a paper medical chart, so long as [such records] were created, stored, transferred, or reviewed by health care professionals, or by individuals working under supervision of such professionals [and the software] is not intended to interpret or analyze patient records, including medical image data, for the purpose of the diagnosis, cure, mitigation, prevention, or treatment of a disease or condition;

iv. For transferring, storing, converting formats, or displaying clinical laboratory test or other device data and results, findings by a healthcare professional with respect to such data and results, general information about

such findings, and general background information about such laboratory test or other device, [unless the software] is intended to interpret or analyze clinical laboratory test or other device data, results, and findings;

v. Unless the function is intended to acquire, process, or analyze a medical image or a signal from an in vitro diagnostic device or a pattern or signal from a signal acquisition system, for the purpose of:

- ✓ Displaying, analyzing, or printing medical information about a patient or other medical information (such as peer-reviewed clinical studies and clinical practice guidelines);
- ✓ Supporting or providing recommendations to a health care professional about prevention, diagnosis, or treatment of a disease or condition;
- ✓ Enabling such health care professional to independently review the basis for such recommendations that such software presents so that it is not the intent that such health care professional rely primarily on any of such recommendations to make a clinical diagnosis or treatment decision regarding an individual patient.

The new law recognizes that these types of practice management software solutions pose little or no risk to patients, but the FDA does have some authority to regulate new types of software if it deems it necessary.

The clarifications were essential because there were many gray areas under the old laws. Some critics said software reading data from devices could replace the decision and judgment of a physician.

2.4 Functions of Patient Management System

Tuttelrnann(2006), functionality and needs differ depending whether or not the medical practice is small and independent or part of a larger medical group. PMS systems work entirely differently within a hospital setting. The software can link practices and medical offices so things like patient records are easy to access on a variety of devices in different settings.

- A patient management software system can provide any of the following functions:
- Welcome patients to a practice or hospital and allow people to sign in
- Screen identification and print badges for visitors
- Complete forms before appointments to decrease patient time spent in the waiting room and administrative time spent inputting data
- Keep medical records and allow easy accessibility from a variety of locations including from a mobile device

- Schedule appointments and allow patients to see what is available and pick the best time for them
- Send confirmations of appointments and place them on an electronic calendar
- Send reminders about appointments, hopefully reducing the number of no-shows
- Send follow-up health information, advice, and reminders of what physicians said to do to increase patient participation in their own health care
- Notify physicians when patients arrive to decrease wait times
- Keep records of patient encounters so both physicians and patients can refer to previous conversations and appointments
- Monitor and receive data from medical devices and provide alerts both to physicians and patients if medical attention is necessary
- Allow emails and conversations between patient and physician
- Generate bills and insurance claims

When looking for patient management software, there are a few security and HIPAA compliance factors to consider:

- Is data transmitted with encryption?

- Are servers housed in secure locations with backup plans and disaster recovery systems?
- How are users verified?
- How is data stored?
- Are the firewalls strong?

Hartzband(2009), all of the elements are things to consider when looking into patient management tools. Remember, patient management is much more than a piece of software: It's about taking everything into account from the moment a patient walks in the door to interactions after that patient leaves.

2.5 Potential Benefits of Patient Management for Medical Practices and Hospitals

Laura(2007), paying attention to patient management can have many benefits for medical practices and hospitals. Speeding up communications and administrative tasks reduces administrative staffing time and allows staff to focus on direct patient care. The amount of time spent on data entry, record keeping, and appointment reminder phone calls is also reduced.

Smaller practices with limited resources can especially benefit from such a system because it minimizes administrative staff time and can potentially link

practices together to create larger health systems. Data analysis can help practices or hospitals change policies and procedures if something is not working as effectively or efficiently as it should.

Belson(2001), a doctor's office is a doctor's office, a hospital is a hospital,Collecting and analyzing similar data from various locations can help identify possible gaps and inefficiencies. "If you measure that and compare it to other places, it tells you where you need to focus your attention," he says. Software can link electronic health records with practice management tools to help with things like immediate record transfers between medical practices, hospitals, and other care centers, as well as automate electronic prescribing and data analysis. Connecting to patient management systems from a mobile device is also useful when determining physician on-call schedules and accessibility.

Going electronic creates a cleaner and less-cluttered office, and also reduces treatment errors that result from incomplete paper records. Another bonus of going digital is that it eliminates the potential of misinterpreting bad handwriting. Capitalizing on the incentives that come from recent billing changes to Medicare and Medicaid as part of the Affordable Care Act and adopted by many insurance companies can help keep a patient healthy and prevent illness. Douglass uses an example of a pre-diabetic patient. With paper charts, there is no efficient way to tell which patients had not had specific blood sugar tests or seen a doctor recently

without looking through every chart. “Some practices tried, but found it was not cost effective to do that,”. With the data from a practice management system, office staff can quickly identify which patients need a visit to the practice,Douglass (2001).

Backup systems are also easier when everything is electronic. Many software system providers offer cloud backups that make it easier to restore systems in the case of a hardware failure. Some systems, like Practice Fusion, are entirely cloud-based. In the event of a natural disaster like a flood or a storm, physical records might be damaged or destroyed, but electronic ones will remain intact. There is also a high level of security and privacy protection necessary to comply with HIPAA regulations. Scheduling appointments electronically can have many benefits for practices because patients can see available appointment times and select the times they want instead of going back and forth with someone on the phone. The software can also send voice, email, and text reminders about appointments, which can greatly reduce the number of no-shows.

2.6 Patient Management System Benefits for Physicians

(Robson and Baek2009), a physician’s main goal is the overall health and wellness of a patient. Achieving that takes teamwork, and efficient and effective patient management can help. Although implementing new systems costs money and often has a learning curve, the results can be an asset to patients, not just an

expense. Because some administrative tasks handled by staff can be handled by technology, staff morale in medical offices can improve because of a decreased manual workload. Most patient management systems integrate with electronic medical records and electronic health records so a physician has quick access to someone's entire medical history. Physicians can also communicate directly with patients to clarify care instructions or diagnosis, or to monitor their progress towards health goals. Healthcare providers can respond when it is convenient for them and can provide educational materials if necessary. Systems can also automatically remind patients about advice from their physicians. Linking to labs can also expedite issuing test results for patients. Specialists can also communicate with other doctors to coordinate care and recommendations for patients. If some medical devices are part of a patient's care plan, medical offices can monitor that data and intervene when needed. This data and monitoring can help drive treatment decisions, especially in patients with chronic conditions.

2.7 How Patient Management Software Improves the Health Care Experience

Dunlop(2007), in some communities, hospitals attempt to standardize EHR systems by providing discounted versions of the hospital's software to local healthcare providers. A challenge to this practice has been raised as being a

violation of Stark rules that prohibit hospitals from preferentially assisting community healthcare providers.

In 2006, however, exceptions to the Stark rule were enacted to allow hospitals to furnish software and training to community providers, mostly removing this legal obstacle. An important consideration in the process of developing electronic health records is to plan for the long-term preservation and storage of these records. The field will need to come to consensus on the length of time to store EHRs, methods to ensure the future accessibility and compatibility of archived data with yet-to-be developed retrieval systems, and how to ensure thephysical and virtual security of the archivesAdditionally, considerations about long-term storage of electronic health records are complicated by the possibility that the records might one day be used longitudinally and integrated across sites of care. Records have the potential to be created, used, edited, and viewed by multiple independent entities. These entities include, but are not limited to, primary care physicians, hospitals, insurance companies, and patients. Choices about the structure and ownership of these records will have profound impact on the accessibility and privacy of patient information,(Kohane2001).

The required length of storage of an individual electronic health record will depend on national and state regulations, which are subject to change over time.

Ruotsalainen and Manning have found that the typical preservation time of patient data varies between 20 and 100 years. In one example of how an ERR archivemight function, their research “describes a co-operative trusted notary archive (TNA) which receives health data from different EHR-systems, stores data together with associated meta-information for long periods and distributes ERR-data objects. TNA can store objects in XML-format and prove the integrity of stored data with the help of event records, timestamps and archive e-signatures, (Manning 2007).

2.8 Potential Drawbacks of Patient Management

Since, as of January 1, 2014, all medical practices accepting insurance are required to use electronic medical records to maintain existing Medicaid and Medicare reimbursement levels, many practices are choosing to deploy full practice and patient management software.

While the benefits may outweigh the drawbacks, it’s important to be aware of potential challenges. As with any software, hacking is a possibility so security is critical. Transmission of computerized physician order entry (CPOE) can also be a security concern. CPOE is a form of patient management software since it deals with the care and processes of patients. With this process, a medical practitioner enters instructions about medical care or treatment and transmits that information

over a computer network to other departments. This practice is common in hospitals, so their network security is essential, Wang (2002).

2.9Electronic Medical Record Contrast with Paper- Based Record

Perlin(2006), an electronic medical record (EMR) is a computerized medical record created in an organization that delivers care, such as a hospital and doctor's surgery.

Electronic medical records tend to be a part of a local stand-alone health information system that allows storage, retrieval and modification of records. Paper based records are still by far the preferred method of recording patient information for most hospitals and practices, new England Journal of Medicine, March 25, (2009). The majority of doctors still find their ease of data entry and low cost hard to part with. However, as easy as they are for the doctor to record medical data at the point of care, they require a significant amount of storage space compared to digital records. The costs of storage media, such as paper and film, per unit of information differ dramatically from that of electronic storage media. When paper records are stored in different locations, collating them to a single location for review by a health care provider is time consuming and complicated, whereas the process can be simplified with electronic records. This is particularly true in the case of person-centered records, which are impractical to maintain if not electronic (thus difficult to centralize or federate). When paper- based records are

required in multiple locations, copying, faxing, and transporting costs are significant compared to duplication and transfer of digital records. Because of these many “after entry” benefits, federal and state governments, insurance companies and other large medical institutions are heavily promoting the adoption of electronic medical records.

One study estimates electronic medical records improve overall efficiency by 6% per year, and the monthly cost of an EMR may (depending on the cost of the EMR) be offset by the cost of only a few “unnecessary11 tests or admissions.

Hartzband(2009), however, the increased portability and accessibility of electronic medical records may also increase the ease with which they can be accessed and stolen by unauthorized persons or unscrupulous users versus paper medical records as acknowledged by the increased security requirements for electronic medical records included in the Health Information and Accessibility Act and by recent large-scale breaches in confidential records reported by.EMR users, Institute of Medicine (1999). Concerns about security contribute to the resistance shown to their widespread adoption. Handwritten paper medical records can be associated with poor legibility, which can contribute to medical errors. Pre-printed forms, the standardization of abbreviations, and standards for penmanship were encouraged to improve reliability of paper medical records. Electronic records help with the standardization of forms, terminology and abbreviations, and

data input. Digitization of forms facilitates the collection of data for epidemiology and clinical studies. In contrast, EMRs can be continuously updated (within certain legal limitations). The ability to exchange records between different EMR systems ("interoperability") would facilitate the co-ordination of healthcare delivery in nonaffiliated healthcare facilities. In addition, data from an electronic system can be used anonymously for statistical reporting in matters such as quality improvement, resource management and public health communicable disease surveillance, (Judy 2006).

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.0 System Analysis

The existing system of managing patients' record in general hospital Warri is one that has been manually operated over the years. Critical analysis of this system reveals that it is prone to errors. It has been observed that to receive medical treatment in the hospital, Patients queue for several hours in the sequence of first come first serve (FCFS) though, a new patient usually register into the hospital by filling patients form. Also, this gives the person access to own a hospital folder which is used to store the basic information about the diagnosis and drug prescribed to the patient.

In other hand, if it is an old patient, the staff retrieved his hospital folder which the doctor have a look at first, before examining the patient and carry out the appropriate therapy which is either he referred the patient to laboratory unit for lab test (if the need be) or to the pharmacy unit to obtain the prescribed drugs. But, any treatment offered to the patient by the doctor must be recorded on the patient's folder to avoid inappropriate therapy. Though, it sounds so easy but it is quite tedious, time consuming and less efficient and accurate in comparison to the computerized system.

3.1 Weakness of the Existing System

The weaknesses of the existing system are highlighted below.

Lack of Accuracy: This situation crates problem in the sense that proper and adequate medical attention is far-fetched. Due to doctors usually hurries over their duties in order to attend to all the patient present in the hospital and along the line they may became exhausted, and the cases of traits and errors may be practiced.In addition, the diagnosis, and prescription depends on the doctors memory so their brain are often loaded with different diseases, symptoms and various drugs for treatment, hence, to remember and process the hug information is his clinical work is very tasking. For this reason accurate diagnosis and prescription may not always be obtained.

Lack of speed of operations and effectiveness: Normally, the medical records system in general hospital Warri is based on the manual file keeping system. Although, many patients are attended to with the method of information recording or retrieving an old file but above all, it wastes time. And at times many patients are as spillover.

3.2 Justification for the New System

The new system will have the following characteristics which will improve the current system in use.

i. The new system designed will help the management to use computer system to find patients information with regards to billing, treatments, etc.
ii. Accuracy is maintained, as the computer information will yield an accurate result.
iii. There will not be much congestion in hospitals, as the medical system developed will assist patients to be treated and the information stored.
iv. The speed of operation of the medical system is high when compared to manual method.

System Design

Achieving the aim and goal of patient management system will require some form of software which will make it possible to design the necessary features.

The system software needed for the development of the proposed system is HTML, javaScript, CSS for the design,Php for the system development and MySQL for the database.

3.3 Input/output Design Specification

Input

The input to the new system is derived from the patient's card. When a patient visits the hospital, he/she fills the patients form from where a card is issued to the patient. This forms the input to the new system designed. The information required for entry into the system includes:

i. Patients Name
ii. Sex
iii. Address
iv. Age
v. Diagnosis
vi. Date visited

- **PATIENTS NAME:** This is the name of the patient that might be admitted or require a treatment from the hospital.
- **SEX:** This is a gender in which the patient is a female or a male
- **ADDRESS:** This is use to locate the patient, the location in which the patient can be located.
- **AGE:** This is use to identify the old duration of a being of the patient, to determine how mature he/she is.

- **DIAGNOSIS:**This is the identification of the nature and causes of an illness.
- **DATE VISITED:** This is the day or the time a patient visited the hospital.

NAME	FIELD TYPE	FIELD SIZE
PATIENT NAME	TEXT	20
SEX	TEXT	8
ADDRESS	TEXT	40
AGE	INTEGER	2
DIAGNOSIS	TEXT	25
DATE VISITED	INTEGER	8

- **Process Analysis**

Based on the information collected from the patient, an analysis is carried out. The symptoms are processed to obtain the accurate diagnosis of the sickness. Also the diagnosis will help in the processing of the system to obtain the best emergency health care system to be administered to the patient.

- **Output Analysis**

The output is derived from the processing carried out on the input data. The output is presented in form of reports on a patient's diagnosis and possible treatment to the ailment. The reports are displayed on the screen and can also be printed out as a hard copy.

PATIENT DETAIL INFORMATION

OKE GIFT MABAMIJE

Gender : female

Card number : BV4389

Date of birth : 20/08/2021

Phone number : 09063170807

Address : CHELSEA HOSTEL, DELTA

Form

CHAPTER FOUR

SYSTEM IMPLEMNTATION AND TESTING

4.1 Output Specification and Design

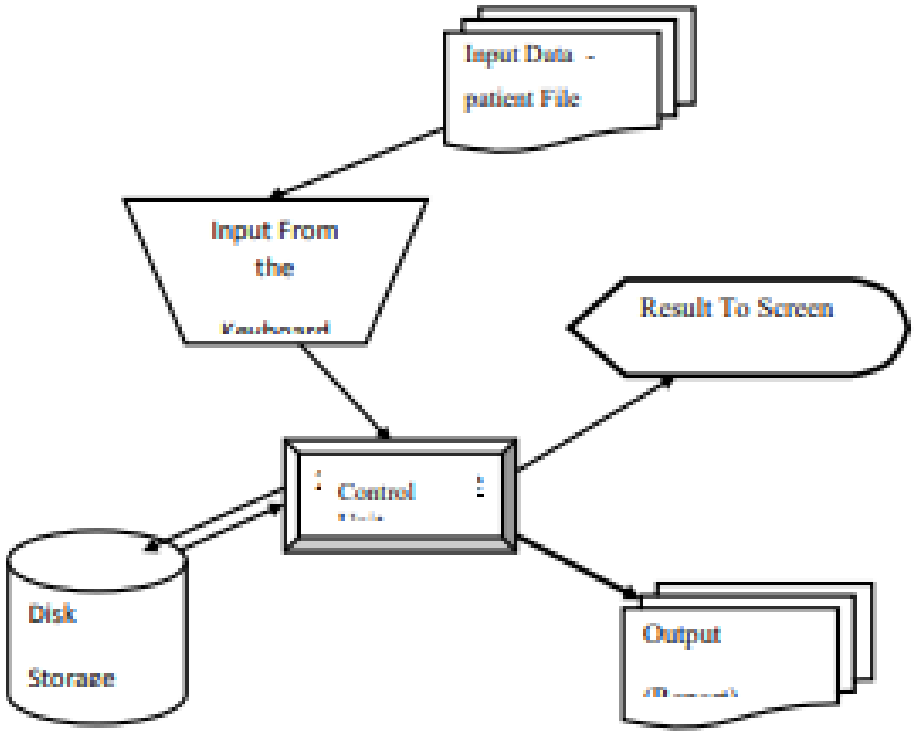
The output form is designed to generate printable reports from the database. The output is placed on a database grid and contains information on patient‟s records. The output produced can be printed on a hard copy or viewed on the screen. The output generated includes:

1. Patients File
2. Bill Record
3. Treatment Record.

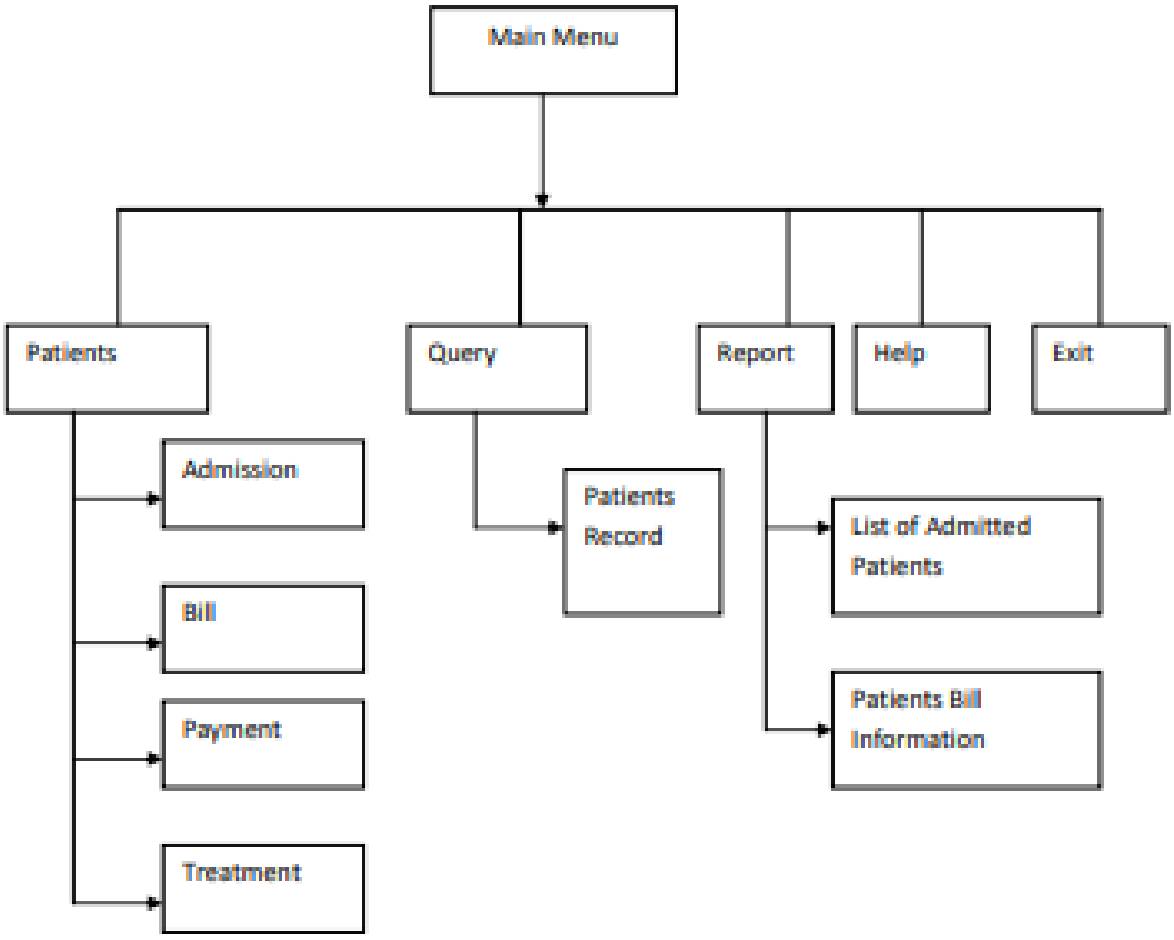
4.2 File Design

In any good database design, effort should be made to remove completely or at worst reduce redundancy. The database design in the software is achieved using Microsoft access database. Below is the structure of the file designed in the database.

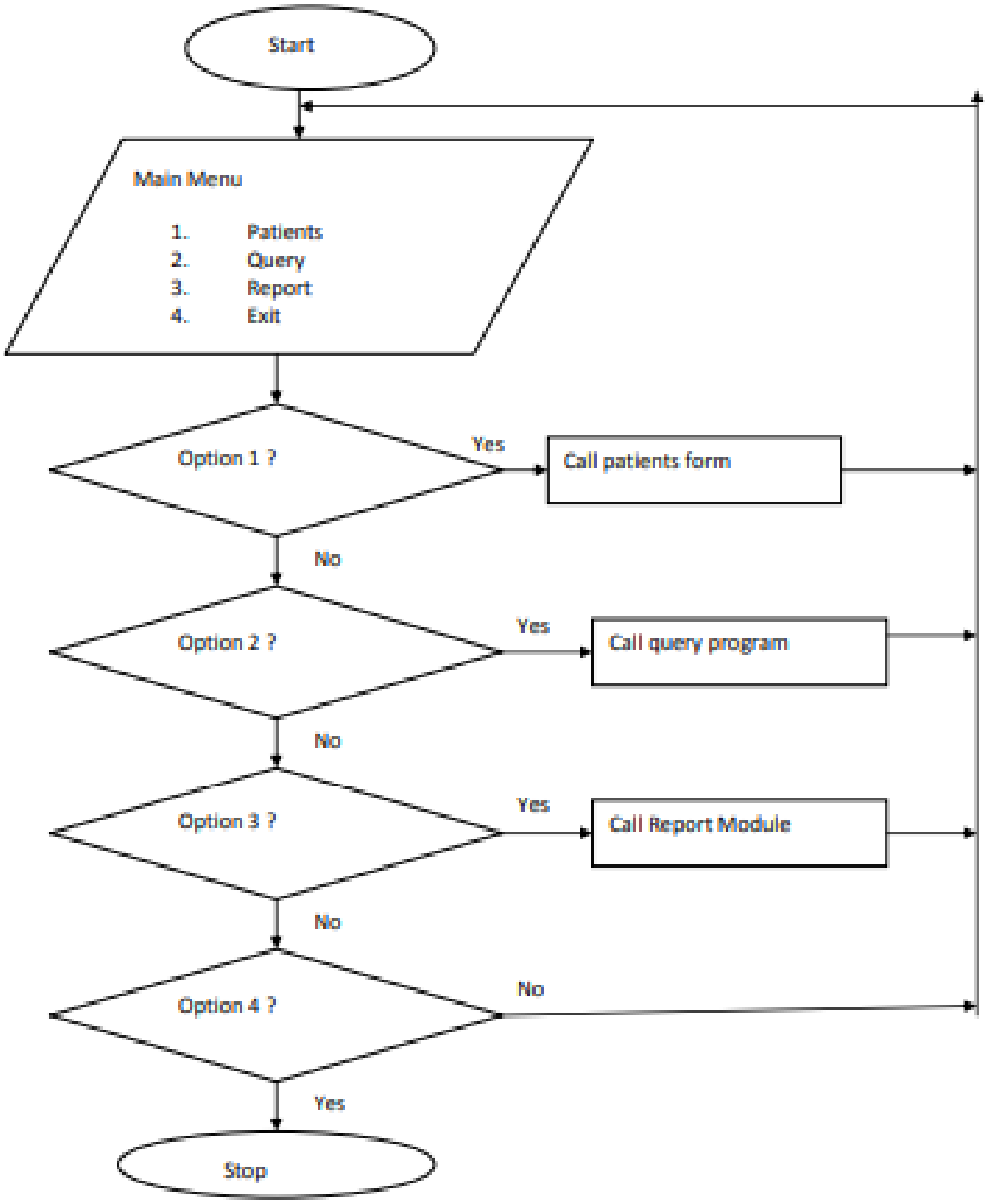
System flowchart



Procedure Chart



Program Flowchart



CHOICE OF PROGRAMMING LANGUAGE

The new system is implemented using Microsoft C#. This is because the programming language has the advantage of easy development. Flexibility and it has the ability of providing the developer/programmer with possible hints and it produces a graphical user interface.

4.1 Hardware and Operating System Requirement

Computer system is made up of units that are put together to the work as one to achieve a common goal. There are two parts of the computer system, namely.

- The Hardware
- The Software

Hardware Requirement

The **hardware requirements** are the requirements of a hardware device. Most hardware only has operating system requirements or compatibility. For example, a printer may be compatible with Windows XP but not compatible with newer versions of Windows like Windows 10, Linux, or the Apple macOS.

If a hardware device is not compatible with your computer, it is up to the manufacturer to release drivers. Unfortunately, many manufacturers only release updated drivers to fix problems with older drivers and often do not release drivers for newer operating systems or alternative operating systems. If a hardware device doesn't have drivers for your operating system, the only solution may be to get a more up-to-date replacement device.

The program for this project is written in HTML Programming Language. it is designed to run on an IBM personal computer. The following minimum hardware specification is needed

Intel Pentium 1. MMX technology

VGA or SVGA Monitor

1GB RAM

3.5 Floppy Drive

24 x CD ROM Drive 40

1 GB Hard Drive

Keyboard

Printer

Software Requirement

Requirement is a condition or capability possessed by the software or system component in order to solve a real world problem. The problems can be to automate a part of a system, to correct shortcomings of an existing system, to control a device, and so on. **IEEE** defines requirement as A condition or capability needed by a user to solve a problem or achieve an objective. (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed documents

Requirements describe how a system should act, appear or perform. For this, when users request for software, they provide an approximation of what the new system should be capable of doing. Requirements differ from one user to another and from one business process to another.

Guidelines for Expressing Requirements

The purpose of the requirements document is to provide a basis for the mutual understanding between the users and the designers of the initial definition of the software development life cycle (SDLC) including the requirements, operating environment and development plan.

The requirements document should include the overview, the proposed methods and procedures, a summary of improvements, a summary of impacts, security, privacy, internal control considerations, cost considerations, and alternatives. The requirements section should state the functions required in the software in quantitative and qualitative terms and how these functions will satisfy the performance objectives. The requirements document should also specify the performance requirements such as accuracy, validation, timing, and flexibility. Inputs, outputs, and data characteristics need to be explained. Finally, the requirements document needs to describe the operating environment and provide (or make reference to) a development plan.

There is no standard method to express and document requirements. Requirements can be stated efficiently by the experience of knowledgeable individuals, observing past requirements, and by following guidelines. Guidelines act as an efficient method of expressing requirements, which also provide a basis for

software development, system testing, and user satisfaction. The guidelines that are commonly followed to document requirements are listed below.

- Sentences and paragraphs should be short and written in active voice. Also, proper grammar, spelling, and punctuation should be used.
- Conjunctions such as ‘and’ and ‘or’ should be avoided as they indicate the combination of several requirements in one requirement.
- Each requirement should be stated only once so that it does not create redundancy in the requirements specification document.

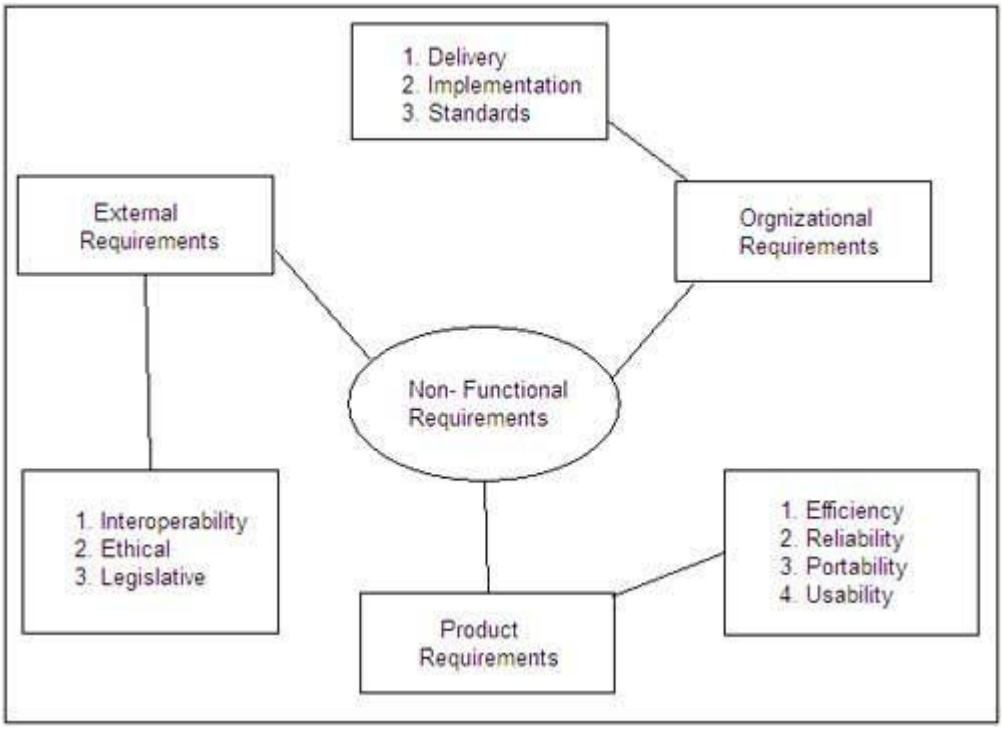
Types of Requirements

Requirements help to understand the behavior of a system, which is described by various tasks of the system. For example, some of the tasks of a system are to provide a response to input values, determine the state of data objects, and so on. Note that requirements are considered prior to the development of the software. The requirements, which are commonly considered, are classified into three categories, namely, functional requirements, non-functional requirements, and domain requirements.

- **Product requirements:** These requirements specify how software product performs. Product requirements comprise the following.
- **Efficiency requirements:** Describe the extent to which the software makes optimal use of resources, the speed with which the system executes, and the memory it consumes for its operation. For example, the system should be able to operate at least three times faster than the existing system.

- **Reliability requirements:** Describe the acceptable failure rate of the software. For example, the software should be able to operate even if a hazard occurs.
- **Portability requirements:** Describe the ease with which the software can be transferred from one platform to another. For example, it should be easy to port the software to a different operating system without the need to redesign the entire software.
- **Usability requirements:** Describe the ease with which users are able to operate the software. For example, the software should be able to provide access to functionality with fewer keystrokes and mouse clicks.
- **Organizational requirements:** These requirements are derived from the policies and procedures of an organization. Organizational requirements comprise the following.
- **Delivery requirements:** Specify when the software and its documentation are to be delivered to the user.
- **Implementation requirements:** Describe requirements such as programming language and design method.
- **Standards requirements:** Describe the process standards to be used during software development. For example, the software should be developed using standards specified by the ISO and IEEE standards.
- **External requirements:** These requirements include all the requirements that affect the software or its development process externally. External requirements comprise the following.
- **Interoperability requirements:** Define the way in which different computer based systems will interact with each other in one or more organizations.

- **Ethical requirements:** Specify the rules and regulations of the software so that they are acceptable to users.
- **Legislative requirements:** Ensure that the software operates within the legal jurisdiction. For example, pirated software should not be sold.



Non-functional requirements are difficult to verify. Hence, it is essential to write non-functional requirements quantitatively, so that they can be tested. For this, non-functional requirements metrics are used. These metrics are listed in Table.

Requirements which are derived from the application domain of the system instead from the needs of the users are known as **domain requirements.** These requirements may be new functional requirements or specify a method to perform some particular computations. In addition, these requirements include any constraint that may be present in the existing functional requirements. As domain requirements reflect the fundamentals of the application domain, it is important to

understand these requirements. Also, if these requirements are not fulfilled, it may be difficult to make .the system work as desired.

A system can include a number of domain requirements. For example, it may comprise a design constraint that describes the user interface, which is capable of accessing all the databases used in a system. It is important for a development team to create databases and interface designs as per established standards. Similarly, the requirements of the user such as copyright restrictions and security mechanism for the files and documents used in the system are also domain requirements. When domain requirements are not expressed clearly, it can result in the following difficulties.

Problem of understandability: When domain requirements are specified in the language of application domain (such as mathematical expressions), it becomes difficult for software engineers to understand them.

Problem of implicitness: When domain experts understand the domain requirements but do not express these requirements clearly, it may create a problem (due to incomplete information) for the development team to understand and implement the requirements in the system.

The following minimum software specification is needed:

Microsoft windows 98, XP, 7, 8, 8.1, 10 or later versions

XAMP

My SQL

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Since, the implementation of this system does more good than harm in our country especially health sector. Hence, not only does it provide good health with the help accuracy, flexibility, and speeding treatment. But, also it will be a big relief for medical doctors and nurses when attending to patients.

This project is well designed with reliability and efficiency as our mainstay, have come just in time to correct those weaknesses and anomalies, which exist in the existing manual method. The achievements made in this design can be summarized as:

i. Result of high processing speed of the computerized system
ii. Patient's records can now be retrieved easily and faster.
iii. Billing system in the hospital will be more effective.

iv. Similarly there is also an easy accesses to clinical reports for research purpose and decision making

5.2 Conclusion

The implementation of a patient billing software for a hospital will be a big relief for medical doctors and nurses when operational. The system can be a tremendous help to hospital management. It will also serve as a tool for quick operational decision making of the patient, thus enabling them to reach the solutions of their problem more quickly and more accurately than human being. Thus the overall effect of the use of computer in medical system is that patients acquire competence, accuracy, and effectiveness within the shortest time in their operations and can break into new ground with certainty.

5.3 Recommendations

Having carried out the required study of the design and implementation of a patient management system for General Hospital Warri, the organization can now comfortably eliminate the manual method which have been proved inefficient, tedious, time consuming and prone to errors..

The important of a patient management system cannot be over emphasized therefore; the government should adopt the system and implement it not only for General Hospital Warri but for other government hospitals. This will go a long way in helping both patients and doctors.

Finally, having carefully examined the usefulness of a patient management system, this system is recommended to General Hospital Warri, in order to enable them adopt an efficient management and likewise reduce the complexity of manual work. More also, this system is likewise recommended to private hospitals not only in Warri but the country at large.

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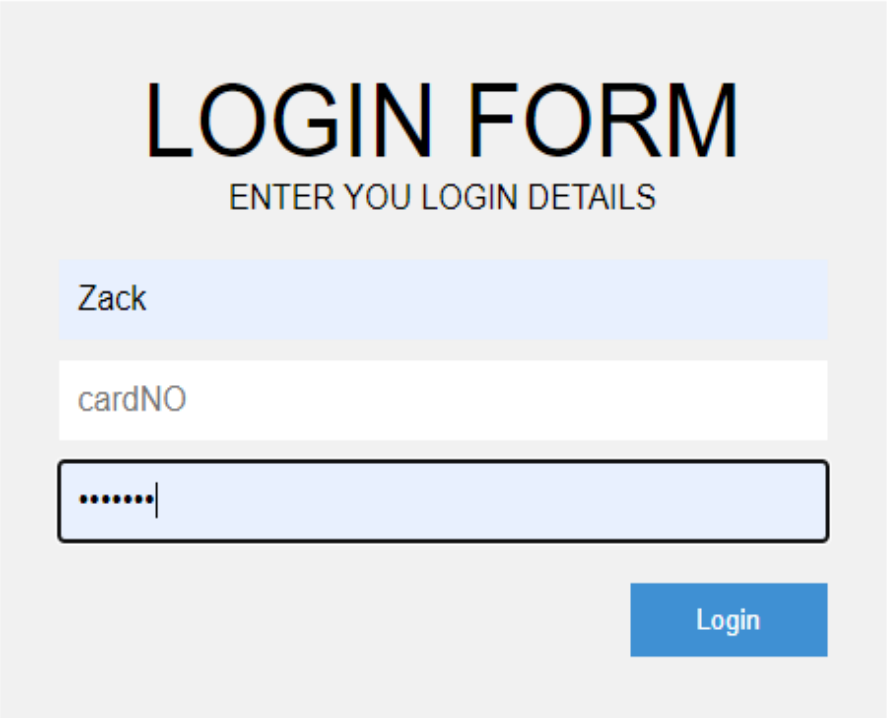
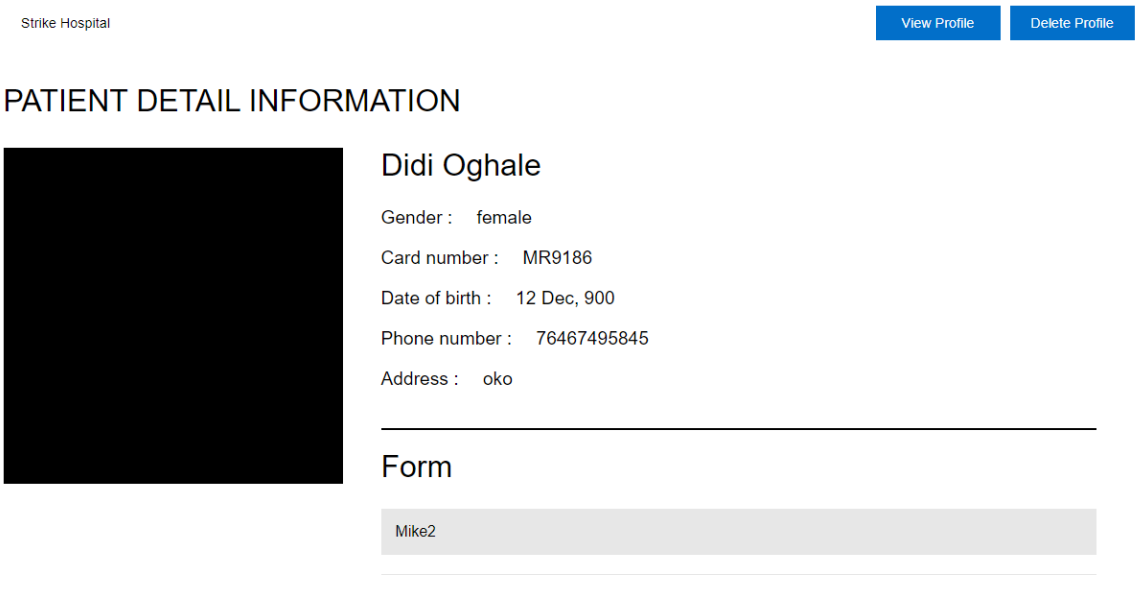

LOGIN FORM
ENTER YOU LOGIN DETAILS
Zack
cardNO
Login


Strike Hospital
View Profile
Delete Profile
PATIENT DETAIL INFORMATION
Didi Oghale
Gender : female
Card number : MR9186
Date of birth : 12 Dec, 900
Phone number : 76467495845
Address : oko
Form
Mike2

Headache

02/17/2021

02/28/2021

she go fight.

PATIENT DETAILS 1

pay (remaining: -200)

Doctor use

Hits to the head

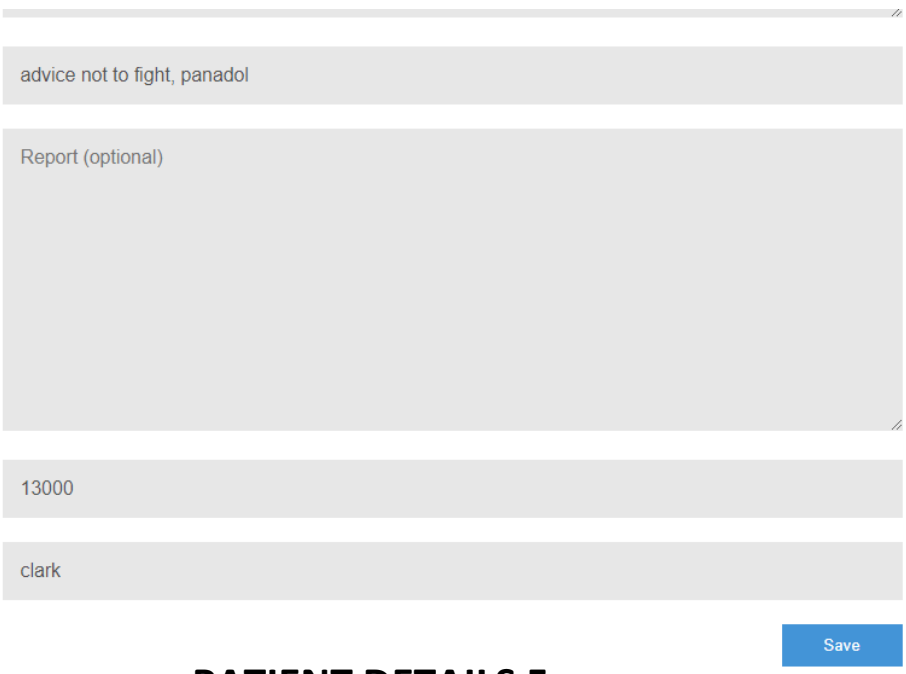
PATIENT DETAILS 2

she nor dont konw how to fight, so I nor know

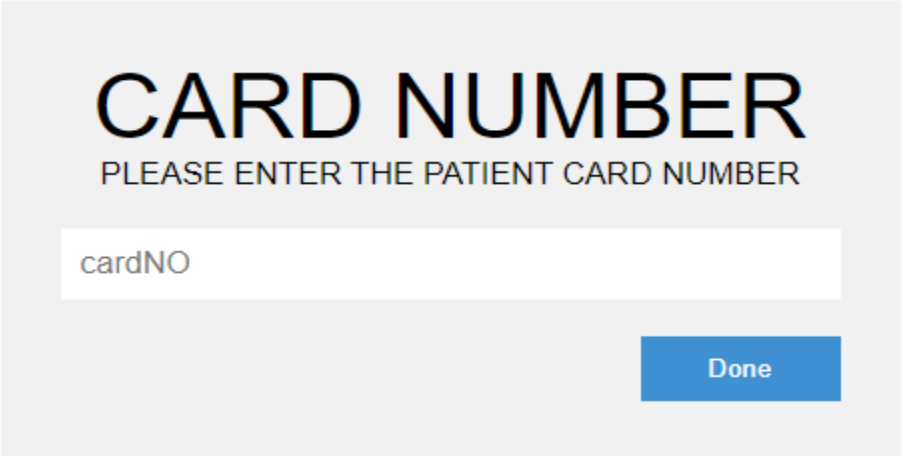
advice not to fight, panadol

Report (optional)

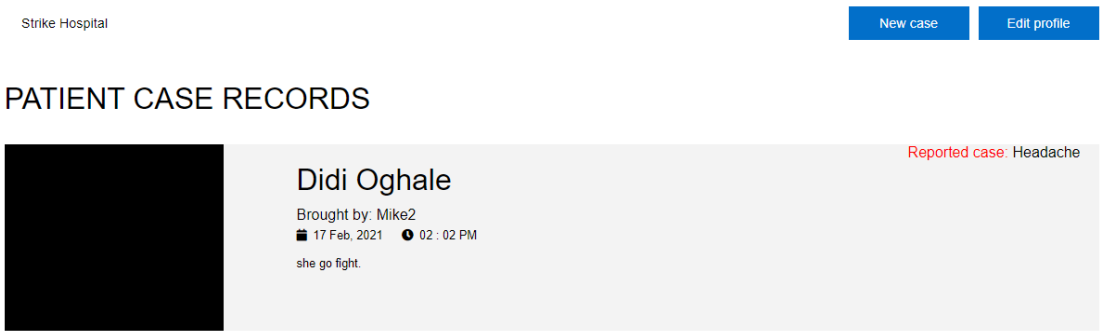
PATIENT DETAILS 3



PATIENT DETAILS 5



PATIENT LOG IN



PATIENT RECORD

APPENDIX II

INDEX.PHP

```
<?php
session_start();
include_once("include/header.inc.php");
include_once("private/function.php");
if(isset($_SESSION['logged_in'])){
unset($_SESSION['logged_in']);
    $_SESSION['logged_in'] = null;
  }
if(isset($_SESSION['p_loggin'])){
unset($_SESSION['p_loggin']);
    $_SESSION['p_loggin'] = null;
  }
?>
<div class="login-form">
<form method="post" action="private/process.php">
<h2 class="font4">
login form
</h2>
<h3 class="font3">Enter you login details</h3>
<div>
<input type="text" placeholder="Username" name="username" class="font3">
</div>
```

```
<div>
<input type="text" placeholder="cardNO" name="card_no" class="font3">
</div>
<div>
<input type="password" placeholder="Password" name="password"
class="font3">
</div>
<div class="error font3" style="text-align: left; color: red; font-size: .8em; margin-
bottom: 10px;"><?phpdisplayErrors(); displaySuccessMessage(); ?></div>
<button type="submit" name="loggin_staff" class="font3">Login</button>
<div class="clearfix"></div>
</form>
</div>


<?php
include_once("include/footer.inc.php");
?>
```

CARDINPUT.PHP

```
<?php
session_start();


if(isset($_SESSION['logged_in']) && $_SESSION['logged_in']['staff_status'] == 'doctor'){
    $navName = 'View Patients';
    $navLink = 'patients_list.php';


include_once("include/header.inc.2.php");
}else{
    $navName1 = "create new";
    $navLink1 = "patient_detail.php?create_new_user";

    $navName2 = 'View Patients';
    $navLink2 = 'patients_list.php';

include_once("include/header.inc.4.php");
  }
include_once("private/function.php");


if(!isset($_SESSION['logged_in']) || empty($_SESSION['logged_in'])){
saveErrorAndRedirect('Login first.', 'index.php');
exit;
```

```
  }


if(isset($_SESSION['p_loggin'])){
unset($_SESSION['p_loggin']);
    $_SESSION['p_loggin'] = null;
  }
?>
<div class="login-form">
<form method="post" action="private/process.php">
<h2 class="font4">
        Card number
</h2>
<h3 class="font3">Please enter the patient card number</h3>
<div>
<input type="text" placeholder="cardNO" name="card-input">
</div>
<div class="error font3" style="text-align: left; color: red; font-size: .8em; margin-bottom: 10px;"><?phpdisplayErrors(); displaySuccessMessage(); ?></div>
<button type="submit" class="font3" name="search-card-id">Done</button>
</form>
</div>
<?phpinclude_once("include/footer.inc.php") ?>
```

PATIENT_DETAILS.PHP

```
<?php
session_start();
include_once("private/dbconnect.inc.php");
include_once("include/header.inc.3.php");
include_once("private/function.php");


if(!isset($_SESSION['logged_in']) || empty($_SESSION['logged_in'])){
saveErrorAndRedirect('Login first.', 'index.php');
   }
if(isset($_GET['view_profile'])){
      $patient = $_GET['cd_no'];
      $sql = "SELECT * FROM patient_db WHERE card_no = '$patient'";
      $query = mysqli_query($connect, $sql);
      $resource = mysqli_fetch_assoc($query);
if(is_null(($resource))){
         $sql = "SELECT * FROM staff WHERE card_no = '$patient'";
         $query = mysqli_query($connect, $sql);
         $resource = mysqli_fetch_assoc($query);
if(is_null(($resource))){
saveErrorAndRedirect('no record found.', '../cardinput.php');
exit;
         }
      }
}elseif(isset($_GET['edit_user'])){
```

```
        $patient = $_GET['cd_no'];
        $sql = "SELECT * FROM patient_db WHERE card_no = '$patient'";
        $query = mysqli_query($connect, $sql);
        $resource = mysqli_fetch_assoc($query);
if(is_null(($resource))){
            $sql = "SELECT * FROM staff WHERE card_no = '$patient'";
            $query = mysqli_query($connect, $sql);
            $resource = mysqli_fetch_assoc($query);
if(is_null(($resource))){
saveErrorAndRedirect('no record found.', '../cardinput.php');
exit;
            }
        }
    }
?>
<div class="main-content">
<div class="info-profile">
<div class="info-img grid-30">
<imgsrc="" alt="">
</div>
<div class="info-wrap grid-70">
<div class="info-txt font3">
<div class="profile-info">
<div class="info-form" style="border: 0;">
<form action="private/process.php" method="post">
```

```
<div>

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo
'name="first_name"'; } ?><?php if(isset($_GET['edit_user'])){ echo
'name="first_name"'; } ?> id="" placeholder="First name" class="font3
grid-100"<?php if(isset($_GET['view_profile'])){ echo
'value='.$resource['first_name'];}elseif(isset($_GET['edit_user'])){ echo
'value='.$resource['first_name'];} ?>>

</div>

<div>

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo
'name="last_name"'; } ?><?php if(isset($_GET['edit_user'])){ echo
'name="last_name"'; } ?> id="" placeholder="Last name" class="font3 grid-
100"<?php if(isset($_GET['view_profile'])){ echo
'value='.$resource['last_name'];}elseif(isset($_GET['edit_user'])){ echo
'value='.$resource['last_name'];} ?>>

</div>

<div>

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo
'name="phone_no"'; } ?><?php if(isset($_GET['edit_user'])){ echo
'name="phone_no"'; } ?> id="" placeholder="Phone number" class="font3
grid-100"<?php if(isset($_GET['view_profile'])){ echo
'value='.$resource['phone_no'];}elseif(isset($_GET['edit_user'])){ echo
'value='.$resource['phone_no'];} ?>>

</div>

<div>

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo
'name="address"'; } ?><?php if(isset($_GET['edit_user'])){ echo
'name="address"'; } ?> id="" placeholder="Address" class="font3 grid-
100"<?php if(isset($_GET['view_profile'])){ echo
'value='.$resource['address'];}elseif(isset($_GET['edit_user'])){ echo
'value='.$resource['address'];} ?>>

</div>
```

** **

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo 'name="date_of_birth"'; } ?><?php if(isset($_GET['edit_user'])){ echo 'name="date_of_birth"'; } ?> id="" placeholder="Date of birth" class="font3 grid-100"<?php if(isset($_GET['view_profile'])){ echo 'value='.$resource['date_of_birth'];}elseif(isset($_GET['edit_user'])){ echo 'value='.$resource['date_of_birth'];} ?>>

** **

** **

<select <?php if(isset($_GET['create_new_user'])){ echo 'name="gender"'; } ?><?php if(isset($_GET['edit_user'])){ echo 'name="gender"'; } ?> id="" class="font3 grid-100">

<option value="male"<?php if((isset($_GET['view_profile']) || isset($_GET['edit_user'])) && $resource['gender'] == 'male'){ echo 'selected';}?>>Male</option>

<option value="female"<?php if((isset($_GET['view_profile']) || isset($_GET['edit_user'])) && $resource['gender'] == 'female'){ echo 'selected';}?>>Female</option>

</select>

** **

** **

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo 'name="genotype"'; } ?><?php if(isset($_GET['edit_user'])){ echo 'name="genotype"'; } ?> id="" placeholder="Geno type" class="font3 grid-50"<?php if(isset($_GET['view_profile'])){ echo 'value='.$resource['genotype'];}elseif(isset($_GET['edit_user'])){ echo 'value='.$resource['genotype'];} ?>>

** **

** **

<input type="text"<?php if(isset($_GET['create_new_user'])){ echo 'name="bloodgroup"'; } ?><?php if(isset($_GET['edit_user'])){ echo

'name="bloodgroup"'; } ?> id="" placeholder="Blood group" class="font3 push-5 grid-45"<?php if(isset($_GET['view_profile'])){ echo 'value='.$resource['bloodgroup'];}elseif(isset($_GET['edit_user'])){ echo 'value='.$resource['bloodgroup'];} ?>>

** **

** **

** <?phpdisplayErrors(); displaySuccessMessage(); ?> **

<?php if(!isset($_GET['view_profile'])): ?>

<button type="submit"<?php if(isset($_GET['create_new_user'])){ echo 'name="create_button"'; }else{ echo 'name="edit_button" value='.$_GET['cd_no'];} ?>>save</button>

<?phpendif; ?>

** **

</form>

** **

** **

** **

** **

** **

** **

** **

PATIENT_INFO.PHP

```
<?php


session_start();
   $navName1 = 'View Profile';
   $navLink1 = 'patient_detail.php?view_profile&cd_no='.$_GET['cd_no'];
   $navName2 = 'Delete Profile';
   $navLink2 = 'event/delete.php?cd_no='.$_GET['cd_no'];
include_once("include/header.inc.4.php");
include_once("private/function.php");
include_once("private/dbconnect.inc.php");


if(isset($_SESSION['logged_in']) &&isset($_SESSION['p_loggin'])){
if(!empty($_SESSION['logged_in']) && !empty($_SESSION['p_loggin'])){
        $card_no = $_GET['cd_no'];
        $sql = "SELECT * FROM patient_db WHERE card_no =
'$card_no'";
        $query = mysqli_query($connect, $sql);
        $resource = mysqli_fetch_assoc($query);
if(is_null($resource)){
saveErrorAndRedirect('invalid loggin.', 'cardinput.php');
exit;
        }
```

```
}else{
saveErrorAndRedirect('invalid loggin.', 'cardinput.php');
exit;
      }
}else{
saveErrorAndRedirect('invalid loggin1.', 'cardinput.php');
exit;
   }


if(isset($_GET['edit_case'])){
    $id = $_GET['id'];
    $sql = "SELECT * FROM case_detail WHERE id = '$id'";
    $query = mysqli_query($connect, $sql);
    $resource_case = mysqli_fetch_assoc($query);
 }
?>
<div class="head">
<div class="grid-container">
<h2 class="font4">
            Patient detail information
</h2>
</div>
</div>
<div class="grid-container">
<div class="info-profile">
```

```
<div class="info-img grid-30">

<imgsrc="" alt="">

</div>

<div class="info-wrap grid-70">

<div class="info-txt font3">

<h2 class="name font2"><?php echo
$resource['first_name'].''.$resource['last_name']; ?></h2>

<h3>Gender : <span><?php if(!isset($resource['username'])){echo
$resource['gender'];}else{echo 'null';} ?></span></h3>

<h3>Card number : <span><?php if(!isset($resource['username'])){echo
$resource['card_no'];}else{echo $resource['card_no'];} ?></span></h3>

<h3>Date of birth : <span><?php if(!isset($resource['username'])){echo
$resource['date_of_birth'];}else{echo 'null';} ?></span></h3>

<h3>Phone number : <span><?php if(!isset($resource['username'])){echo
$resource['phone_no'];}else{echo 'null';} ?></span></h3>

<h3>Address : <span><?php if(!isset($resource['username'])){echo
$resource['address'];}else{echo'null';} ?></span></h3>

</div>

<div class="info-form">

<h2 class="name font2">Form</h2>

<form action="private/process.php" method="post">

<div>

<input type="text" name="brought_by" id="" placeholder="Brought by"
class="font3 grid-100"<?php if($_SESSION['logged_in']['staff_status'] ==
'doctor'){echo 'disabled';} ?><?php if(isset($_GET['edit_case'])){echo
'value="'.$resource_case['brought_by'].'"';} ?>>

</div>

<div>
```

<input type="text" name="case_reported" id="" placeholder="Case reported" class="font3 grid-100"<?php if($_SESSION['logged_in']['staff_status'] == 'doctor'){echo 'disabled';} ?><?php if(isset($_GET['edit_case'])){echo 'value="'.$resource_case['case_reported'].'"';} ?>>

** **

<?php if(isset($_GET['edit_case'])): ?>

** **

<input type="date" name="date_admitted" id="" placeholder="Date admitted" class="font3 grid-50"<?php if($_SESSION['logged_in']['staff_status'] == 'doctor'){echo 'disabled';} ?><?php if(isset($_GET['edit_case'])){echo 'value="'.$resource_case['date_admitted'].'"';} ?>>

** **

<?phpendif; ?>

<?php if(isset($_GET['edit_case'])): ?>

** **

<input type="date" name="date_discharged" id="" placeholder="Date discharged" class="font3 grid-45 push-5"<?php if($_SESSION['logged_in']['staff_status'] == 'doctor'){echo 'disabled';} ?><?php if(isset($_GET['edit_case'])){echo 'value="'.$resource_case['date_discharged'].'"';} ?>>

** **

<?phpendif; ?>

** **

<textarea placeholder="Statement" name="statement" class="grid-100"<?php if($_SESSION['logged_in']['staff_status'] == 'doctor'){echo 'disabled';} ?>><?php if(isset($_GET['edit_case'])){echo $resource_case['statement'];} ?></textarea>

** **

<?php if(isset($_GET['edit_case'])): ?>

<input type="text" name="pay" id=""<?php
if(isset($_GET['edit_case'])){echo 'placeholder="pay (remaining:
'.$resource_case['remaining'].')"';}else{echo 'placeholder="Pay"';} ?>
class="font3 grid-100"<?php if($_SESSION['logged_in']['staff_status'] ==
'doctor'){echo 'disabled';} ?>>

<?phpendif; ?>

<?php if(isset($_GET['edit_case'])): ?>

<input type="text" name="id"<?php if(isset($_GET['edit_case'])){echo
'value="'.$resource_case['id'].'";} ?> class="font3 grid-100">

<?phpendif; ?>

<?php if($_SESSION['logged_in']['staff_status'] != 'doctor'): ?>

<div class="error font3" style="text-align: left; color: red; font-size: .8em;
margin-bottom: 10px;"><?phpdisplayErrors(); displaySuccessMessage();
?>

<?phpendif; ?>

<h2 class="name font3">Doctor use</h2>

<input type="text" name="diagnoses" id="" placeholder="Diagnoses"
class="font3 grid-100"<?php if(isset($_GET['edit_case']) &&
!is_null($resource_case['diagnoses'])){echo
'value="'.$resource_case['diagnoses'].'";} ?><?php
if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?>>

<textarea name="comment" placeholder="Comment" class="grid-100"<?php if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?>><?php if(isset($_GET['edit_case']) && !is_null($resource_case['comment'])){echo $resource_case['comment'];} ?></textarea>

** **

** **

<input type="text" name="treatment" id="" placeholder="Treatment" class="font3 grid-100"<?php if(isset($_GET['edit_case']) && !is_null($resource_case['treatment'])){echo 'value="'.$resource_case['treatment'].'"';} ?><?php if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?>>

** **

** **

<textarea placeholder="Report (optional)" name="report" class="grid-100"<?php if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?>><?php if(isset($_GET['edit_case']) && !is_null($resource_case['report'])){echo $resource_case['report'];} ?></textarea>

** **

** **

<input type="text" name="bill" id="" placeholder="Bill" class="font3 grid-100"<?php if(isset($_GET['edit_case']) && !is_null($resource_case['bill'])){echo 'value="'.$resource_case['bill'].'"';} ?><?php if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?>>

** **

<?php if(isset($_GET['edit_case']) && !is_null($resource_case['doctor_name'])): ?>

** **

<input type="text" id="" placeholder="Doctor name" class="font3 grid-100"<?php if(isset($_GET['edit_case']) && !is_null($resource_case['doctor_name'])){echo 'value="'.$resource_case['doctor_name'].'"';} ?><?php if($_SESSION['logged_in']['staff_status'] != 'doctor'){echo 'disabled';} ?> disabled>

** **

<?phpendif; ?>

<?php if($_SESSION['logged_in']['staff_status'] == 'doctor'): ?>

** <?phpdisplayErrors(); displaySuccessMessage(); ?> **

<?phpendif; ?>

**<button <?php if(isset($_GET['edit_case'])){echo 'name="case_button_update"';}else{echo 'name="case_button"';} ?><?php echo 'value='.$_GET['cd_no']; ?>>Save</button> **

</form>

** **

** **

** **

** **

</body>

</html>