

**DESIGN AND IMPLEMENTATION OF A WEB BASED PHARMACEUTICAL
SYSTEM**

(A CASE STUDY OF H-MEDIX PHARMACEUTICAL STORES)

BY

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CERTIFICATION

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DEDICATION

This project work is dedicated to God Almighty.

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ABSTRACT

Web based Pharmacy management system is an online management system that is designed to improve accuracy and to enhance safety and efficiency in the pharmaceutical store, It is a computer based system which helps the Pharmacist to improve inventory management, cost, medical safety. It also involves manual entry upon arrival of new batches of drugs and upon drug movement out of the pharmacy for a certain period, e.g. every month, the pharmacist may want to generate report for the movement of drugs in and out of the pharmacy, getting information about the drugs e.g. expiry date, date purchased, number of drug type left, location of a drug in the pharmacy.

This project work will prompt the pharmacist about drugs that are close to expiry, preventing those drugs from being sold, preventing congestion in the pharmacy and also providing solution to the earlier stated problems.

Web based Pharmacy management system would be designed to help make the rigorous activities carried out in a pharmacy much easier by providing the statistics of drugs in stock, monitoring drug movement in the pharmacy and ensuring effective policing of the activities in the pharmacy.

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CHAPTER ONE

INTRODUCTION

Background to the study

Applications for health-care delivery need a robust and safe system for providing medicine. Stock-outs, especially for chronic diseases, can have serious negative effects on patient care. (Kumar &Bano, 2017). A term used today to describe the usage of information and communication technology in the health sector is the Electronic Pharmacy System.

Currently, there have been a significant growth implementing the pharmacy application and integrating it with data gotten from the existing systems; this could help to increase the accuracy and ease of the creation of medical needs and stock management. Besides, the number of stock-outs of medical supplies will decrease (Fung et al., 2013).

The Electronic Pharmacy System (EPS) is a web-based sales program for medication that uses software and technology to achieve its objectives and carry out its work more accurately. In general, the growing popularity of computers and gadgets has not delayed the birth of new revolutionary methods in the pharmaceutical management system in any way (Ferrández et al., 2017).

Computers have been an essential part of the lives of many people these days because of the machines' flexibility and how much they can do with very little effort (Yousif et al., 2017). It has become possible to perform tasks in seconds that would have taken hours and even days in the past. In very little time, the creation of the web and the Internet other services such as search engines (Google being a prime example) have made it possible to

search for the most distant stuff possible (Shepherd & Peterson, 2011).

The portability of computer systems has also helped to make data more portable than it was in the past. The Web-based pharmacy management system is an online management system developed to enhance accuracy and improve pharmaceutical store safety and productivity (Jabar, 2015). It is a computer-based system that helps improve inventory management, expense, and medical safety for the pharmacist. During the opening of stock and sales transactions, the device allows the customer to enter an output and expiry date for a specific product or drug (Goldberg *et al* , 2011).

Often the system will report the list of expired items after a given date before the product finally expires. It also requires manual entry for a certain period after the delivery of new batches of drugs and drug movement from the pharmacy, e.g. every month, the pharmacist will want to produce reports on the drug movement in and out of the pharmacy, collecting information on the drugs, e.g. expiry date, purchased date, number of drug type left, location of a drug in the pharmacy (Holm *et al.*, 2015).

The manual method in the pharmacy is currently being used. It allows the pharmacist to track each medication available in the pharmacy manually. This usually leads to mistakes as the pharmacist's workload increases (Mao *et al.*, 2008). Due to the size and quality service of the pharmacy, the pharmacy has a very large customer base (Muallem *et al.*, 2015). Many of these clients prefer to visit the pharmacy for services when they close off work. The number of customers patronizing the pharmacy is growing at this stage, rendering the pharmacists' workload even more tedious (Martin, 2011). This condition makes it impossible for the pharmacist to handle clients within a limited period. Meanwhile the pharmacist needs to ensure quality satisfaction in services to keep their

customers.

The above factors contribute to delays in supplying consumers with services, thus slowing down sales and losing the chance of losing important customers in the end.

1.2 STATEMENT OF THE PROBLEM

In filing cabinets, pharmacy administration maintained paper records. It would be boring, dangerous and difficult to keep track of inventories of drugs in the shop, expiry date, quantity of drugs available depending on the categories and their functions, to operate a very large pharmacy with paper records. To replenish the already dwindling stock, the pharmacist has to order medicines. Moreover, the ordering of drugs is carried out manually. As the pharmacist has to go through the stock, balance and make a rough calculation of the sum to be ordered based on figures, considerable time is allocated for writing the order. Since they expire, medications are not meant to be used. This project work would enable the pharmacist to address drugs that are near expiry, avoid the selling of those drugs, prevent congestion in the pharmacy, and provide a solution to the problems mentioned earlier.

1.3 Aim and Objectives

The aim of this research is to design a web based pharmacy management system for H-Medix pharmacy that will speed up the disbursement of medicines for patients through safety process. The following are the objectives:

- i. To design a web based pharmaceutical system for H-Medix pharmacy.
- ii. To design a database for H-Medix.
- iii. To evaluate the developed system.

1.4 Significance of the Study

The enhancement of the web-based pharmaceutical system will be of significant benefit to H-Medix pharmacy. Data from the web-based pharmaceutical system will enhance both quick delivery of services and the issue of congestion within the pharmacy environment.

Since a web-based pharmacy system can have a more precise image of whether a certain prescription is available in the store or otherwise and, based on empirical evidence, correctional services will be in place. Similarly, the level of knowledge provided by the web-based pharmacy management system will help patients verify the availability of medications prescribed to them by their doctors and help the pharmacy management keep inventory of the shop.

1.5 Scope and Limitation

The scope of this research work is limited to the activities of H-Medix pharmaceutical store, which includes improving health outcomes, reduce hospital and long-term care admissions, enhance access and care in the Estate and surrounding communities and ensuring best use of resources. The use of an internet and computer based management system for improving the efficiency of a pharmacy is needed and it is an essential part of any modern continuously evolving society. The machine would not be able to manage the prescribing of medications, the contact between drugs and drugs. Contraindication and polypharmacy in a prescription would not be treated by the system;

1.6 RESEARCH METHODOLOGY

A description of how the web-based pharmacy management system will be developed is

provided in the research method used for this project work.

Therefore, the method used in the design and collections of information from various sources are as follows:

- i. Studying the present system in detail and the organizational style.
- ii. Knowing and understanding the input and output processes of the existing system.

1.7 DEFINITION OF TERMS

System: This is a complex collection of interrelated components that work together to achieve certain goals.

Drug interaction: is a situation in which, when both are administered together, a substance (usually another drug) affects the activity of a drug.

Polypharmacy: is the use by a patient of multiple medications, particularly when a patient is using too many forms of medication, i.e. when more medications are prescribed than clinically warranted.

Contraindication: is the condition or factor that serves as a reason to withhold a certain medical treatment.

1.8 CHAPTER LAYOUT

This project's chapter layout is outlined sequentially beginning with Chapter one, consisting of the Introduction, Study Background, Problem Statement, Aims and Objectives, StudySignificance, Methodology of Research, Scope, Limitation, and Terms Definition.

Chapter 2 consists of introduction, Literature review of the project, an overview of pharmacy management in the past, at present and include the benefits of pharmacy

management.

Chapter 3 deals with the analysis of the existing system, and would discuss the description of the current system, the issues of the current system, the description of the proposed system, and the benefits of the proposed system. System.

Chapter 4 The system design would include an input and output design consisting of system design, system implementation and system documentation under the system design.

Chapter 5 A review, conclusion and recommendation will be included. It consists of the project report overview, suggestions based on the project study, and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.1 REVIEW OF CLOSELY RELATED WORKS

The online pharmaceutical field is largely underdeveloped and untapped, looking at Sub-Saharan Africa in general. The nature of a pharmaceutical inventory system has not been completely captured by the systems available. In view of the above, the objective of this research work is to correct this problem by providing a forum for the ever-growing pharmaceutical industry in the country as well as in the region as a whole.

Several applications are equivalent to the pharmacy system based on the internet there are several applications that are equivalent to the pharmacy system based on the internet. Via the use of the internet, these apps work to promote the process of having a prescription product; e-pharmacies are split into several forms, like hospital pharmacies and health facilities or autonomous electronic pharmacy. In the Arab and Western world, for example, there are many similar applications for electronic pharmacy, but our emphasis was on electronic pharmacy in the Arab world, such as Dubai Electronic Pharmacy System, Adama Pharmacy, Fouda Pharmacy and Dowa Kuwait Online Pharmacy.

Adama Pharmacy, located in Saudi Arabia, created a new framework design in the field of customer service. It is, moreover, a pioneer in this field. So far, everybody

commends the service offered at the high-class level. This includes many sections, including Mother & Baby, Skin Care, Hair Care, and others. Each section contains several products. This pharmacy is characterized by multiple sections and carrying a large number of products and medicines.

The instruction of how to use this website is straightforward by choosing the appropriate language to facilitate the selection of product or medication. Then, the patient can log in to the site and select the product from the offered list. Or the search tool could be used to find the product and calculate the price and enter the place of delivery and use the credit card number to pay (Adama pharmacy, 2016).

Fouda Pharmacy is the First Electronic Interactive Pharmacy in Egypt. This website requires the customer registration as the first step to enter a user name and Password. Then you can on the site choose a medical product that you want, after which the selected product is inserted into the customer data and the card number, and then sent to the address.

This pharmacy only sells herbal products and, like most e-pharmacies, does not include medical or nutritional products (Skin Care-hair Care-mother and baby products). It has a large number of categories and there are massive numbers of medicines in each category (Dowa Kuwait, 2016).

Dowa Kuwait Online Pharmacy is an automated service that provides prescription and healthcare products to consumers without having to go to the pharmacy.

It is the Middle East's first online, high-quality pharmacy operation. In addition to specialized distribution services, it supplies useful online healthcare knowledge. Simply place your order online via Dowa on this website, and it will be delivered to your

doorstep wherever you are.

To register in this website, you need an e-mail and password. This web site contains online doctor, Special Offers, multiple Categories, Brands and Products. The method of selecting a similar product or drug to what happens on the Fouda pharmacy website (Dowa Kuwait, 2016).

2.3 CONTENT MANAGEMENT SYSTEMS

A Content Management System (CMS) is one that is used to manage information, be it web-based systems or information delivery systems.

These types of structures carefully handle data (Holm, Rudis & Wilson, 2015). Content management has been around for a while, but before the era of technologies such as the Internet, such as handheld computers, it finally did not become appropriate (Swanson et al, 2012).

The content stored in the system is generated in a native format that allows information to be easily retrieved. During the processing of information, most content management systems have different processes embedded in them. They also have usability features such as search boxes, user interaction, customization, all of which enhance the user experience (Rockley et al., 2003).

CMS are contained in frameworks that are used for online systems that involve trading of goods and services. One of such services can be seen in Amazon, which is an American company that deals with the sale of all kinds of goods from verified vendors.

2.4 PHARMACY INVENTORY MANAGEMENT SYSTEMS.

The management of inventory and taking stock of goods and services in different organizations have become so much easier with the growth of the computer system

(Goldberg et al, 2011). These days, even phones and tablets have faster processing power than the early generation computers, which has made it easier to perform tasks.

Our economies has been referred to as the “learning economy”, because of the rate at which innovations come to light (Abbas, Alhasan, & Hamza, 2015). In China, a text message system was developed to help in general patient pharmaceutical care, and promote mobile systems (Mao et al., 2008). The management of inventory has taken various shapes and forms, one of which is called a Vendor-Managed Inventory (VMI) system. The VMI gives a supplier full discretion to deliver goods and services, as long as the customer can fully optimize these goods and services. This method or level under the VMI system is called the Maximum Level. The other level in the system is called **Order-up-to policy** that allows the supplier to get the inventory of the customer to its maximum capacity at every delivery (Coelho & Laporte, 2015). Various computerized management systems have been useful in helping to save lives around the world.

The earthquake in Haiti in 2010 brought about a need for medicines for the injured, and aid for them. Due to the high influx of medicines into the country at the time, an inventory management system was developed to help the cause. The hospitals in the country did not at the time have the means to provide medicines to the needy without losing track of what has been given to who, and what has not been given. Furthermore, the management systems proposed and introduced later helped to solve scarcity issues, saving countless lives in the process.

There were four processes in the Pharmacy Computerized Inventory Program (PCIP) that included: needs assessment, PCIP growth, PCIP implementation, and results and data analysis. The program proved to be a success and greatly reduced the turmoil going on in the land at the time of the earthquake (Holmet al., 2015). Other parts of the

world such as the Middle East have not been left out of the trend. At King Saud Bin Abdulaziz University of Health Sciences in Saudi Arabia, a group of individuals came together to research and present findings on a pharmacy inventory management system at a hospital in Saudi Arabia. Their software controlled and monitored existing stock levels, which allowed them to decide how much quantity of drugs to order in order to be at full capacity.

The application was installed on all computers of the staff in the hospital which was used and information was directly updated to the database (Muallem et al., 2015). These various systems have allowed ease of work at the hospitals and pharmacies, and reduction of errors in drug related practices. In addition, with the introduction of these practises, the prescription drug abuse trend has been curbed to a considerable extent. These days, applications make use of large databases and verification processes.

2.5 PHARMACY PRACTICE IN THE PAST

This gives an overview of events that have occurred in pharmacy practice through several ages both in the past and in present, and indicates possible events of the future.

2.1.1 The History of Pharmacy

As long as there have been societies, there have been specialists and physicians whose sole purpose was to prepare and administer medicinal treatments. The earliest healers engaged in what is now called Pharmacognosy, which is the study and application of plants and herbs for healing. Proof that early man used pharmacognosy to cure disease is indisputable, with archaeological findings attesting to the fact that either the growth of agriculture or animal husbandry was pre-dated. The pharmacy's origins are old.

When the first person expressed juice from a succulent leaf to apply to a wound, this art was being practiced. In Greek mythology, Asclepius, the god of the art of healing, was

assigned to Hygeia the duty of compounding his remedies. She was his apothecary (or pharmacist). The physician-priests of Egypt were divided into two classes: those who visited the sick and those who remained in the temple and prepared remedies for the patients (Homan, 2008).

At least as far back as the Sumerian population, living in modern day Iraq from about 4000 BC, the pharmacy practice can be traced; they used medicinal plants such as liquorice, mustard, myrrh and opium. As a different function from diagnosis and care, which was carried out by medics, there were separate persons who worked to prepare medicines.

They also combined their position with that of a priest with these precursors to pharmacists. The earliest surviving prescriptions were written by the Sumerians from at least 2700 B.C. -So, almost 5000 years ago (Griggs, 1999). The Ancient Egyptians, known as Pastophor, had unique medicine preparers.

Pharmacy was seen as a medical branch of high status, and again, like the Sumerians, these pharmacists were priests who served and studied in the temples as well (Anderson, 2005). We know from surviving papyrus scrolls, especially the Ebers Papyrus dating from 1500 BC, that infusions, ointments, lozenges, suppositories, lotions, enemas, and pills were made and used by the Egyptians. 875 prescriptions and 700 medications are part of the Ebers Papyrus.

Meanwhile, in about the same era in China (2000 BC), the first native herbal was written by a man named ShenNung, which included explanations of 365 plant-based drugs (Anderson, 2005). Around 1900 B.C., there were stalls and shops selling medical supplies. On the Euphrates River in the town of Sippara. The earliest known shop dealing with medicine sales in London, however, was opened in 1345. The art of healing

recognised a separation between the duties of the physician and those of the herbalist, who provided the physician with the raw materials from which to produce medicines, in ancient Greece and Rome and throughout the middle ages in Europe. However during the 8th century, the Arab presence in Europe contributed to the practice of separate duties for pharmacists and physicians.

The movement towards specialization was later intensified by a law passed by the city council of Bruges in 1683, banning physicians from preparing drugs for their patients. In America, when he named an apothecary to the Pennsylvania Hospital, Benjamin Franklin took a central step in holding the two occupations apart. However during the 8th century, the Arab presence in Europe contributed to the practice of separate duties for pharmacists and physicians.

The movement towards specialization was later intensified by a law passed by the city council of Bruges in 1683, banning physicians from preparing drugs for their patients. In America, when he named an apothecary to the Pennsylvania Hospital, Benjamin Franklin took a central step in holding the two occupations apart. Since World War II, the growth of the pharmaceutical industry has led to the discovery and use of new and effective drugs. It also changed the pharmacist's position.

The need for extemporaneous drug compounding has been greatly reduced and the need for the deceptive expertise traditionally applied by the pharmacist to the preparation of tablets, plasters, and potions has been greatly reduced (Rosenberg, 2008). The pharmacist, however, continues to fulfill the intentions of the prescriber by providing advice and information; by formulating, storing, and providing correct dosage forms; and by ensuring the effectiveness and consistency of the medicinal product dispensed or

supplied.

2.6 THE PRESENT DAY PHARMACY

The modern drugstore varies significantly from its ancient counterparts. While the proprietors of pharmacies in the far distant past were often making numerous medical decisions - diagnosing and treating patients without the consultation of physicians - pharmacists in the modern drugstore are tasked instead with the responsibility of evaluating the appropriateness and managing the dispensation of pharmaceuticals prescribed to patients under a doctor's care.

Among the most important of pharmacist jobs is assuring that the patient has not been prescribed two drugs that will have an adverse interaction. An in-depth study of pharmacology is required to make such evaluations and in all states, such positions are highly regulated and require testing before the issuance of a pharmacist's license. Far from being just a clerk behind a counter, pharmacists also play a role in disease management and evaluation of test results.

In hospitals, pharmacists are often in the role of interpreting chemical signatures in complex test results and advising physicians on treatment options as well as making doctors aware of new and possibly more effective drugs. Many people interested in a career as a pharmacist have found that in recent times it is a quite reliable profession in times of economic hardship.

Earnings for professional pharmacists continue to rise while the industry for new and returning workers is quite robust.

2.7 THE FUTURE OF PHARMACY

Automation will assist with this, because anything that streamlines and automates the dispensing and distribution process will obviously free the pharmacist to fulfil more of a clinical role as well, “according to (James, 2016).

Simply put, tomorrow's pharmacists and pharmacies need to find ways to improve profit margins by lowering the cost of prescribing, adopting technology, and relying more on their clinical experience in patient counseling, immunizations, education, and other natural offshoots. Some experts predict that the future of pharmacy will embrace the clinical skills and care pharmacists have always been qualified to deliver. Technological options available to pharmacies today are as numerous as they are convenient. As the healthcare system becomes more digital, the most exciting thing is that pharmacists will have the potential to become more connected to patients and have more time for patient-centred activities.”

Pharmacies that do not step up to this challenge will lose the ability to handle important drugs, and this will mean loss of some of their most valuable prescriptions and patients.

“Several companies sell software and hardware that increase the efficiency of pharmacies by managing workflow. The pharmacist will play a significant role in making contributions to patient care, and these contributions will be documented using technology and transmitted using technology, and that care will be recorded in the EHR (electronic health records) in the future. Pharmacists will be integral team members as far as the care of patients is concerned.”

Improved care and reduced errors will be the cornerstones of this relationship between pharmacists and automation.

2.7.2 The physical layout or appearance of tomorrow's pharmacies

The physical layout or appearance of tomorrow's pharmacies The physical layout or appearance of tomorrow's pharmacies some experts say it depends on the individual pharmacy and the type of automation being implemented. According to Bill G. Felkey, BA MS, professor of healthcare informatics in the department of pharmacy care system at Auburn University in Alabama predicted that many pharmacies across the country would choose to move the pharmacist to a more conspicuous forward location in their stores. With the pharmacist in front, however, you can put the technology behind closed doors or you can believe that patients will be fascinated to see how these robotics works. There will exist a mixed reception, depending upon where the pharmacy is and upon how well the patients receive the display of all these technologies. Muller said that dispensing machines have a definite impact on layout.

It has to be easily accessible to staff, but not located in an area that causes traffic and bottlenecks. Workflow also affects the logical placement of a dispensing machine. If the machine counts but does not label and vial, it needs to be located in the technician area and positioned so all techs have easy access.

If the machine labels and vials, and only requires the final pharmacist check, it needs to be located between the pharmacists and technicians, depending on who is putting the prescription in the bag. Automation needs to fit into workflow, not just be a part of it. Christopher Thomsen, vice president, Kirby Lester Incorporation, business growth, agreed, adding that even in a case where a chain might have gone to a central-fill scheme, where, say, 20 to 30 percent of the volume is transported off-site, it still needs to decide how best to use automation to meet the remaining requirements for on-site dispensing.

Which is why, Muller said, not only can you add a computer to an existing layout; some thought and consideration must be provided to represent the behind-the-counter space

properly to get the most out of your investment. The bottom line is that everything has to move into a more effective efficient flow, which is why, Muller said, you will not only add a computer to an existing layout; some thought and consideration must be provided to represent the behind-the-counter space properly to get the most out of your investment. The bottom line is that everything needs to move into an effective, more successful flow.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

System is a set of interrelated elements which work together to accomplish an objective Analysis of the system is the systematic examination or detailed study of a system in order to identify problems of the system, and using the information gathered in the analysis stage to recommend improvements or solution to the system.

System design is an abstract representation of a system component and their relationship and which describe the aggregated functionality and performance of the system. System design is plan or blueprint for how to obtain answer to the questions being asked. The design specifies which of the various type of approach.

3.1 SYSTEM ANALYSIS

System is a set of interrelated elements which work together to accomplish an objective Analysis of the system is the systematic examination or detailed study of a system in order to identify problems of the system, and using the information gathered in the analysis stage to recommend improvements or solution to the system.

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3.1.1 ANALYSIS OF EXISTING SYSTEM

We need to carefully highlight the problems of the existing system Before the researcher analyse the design of the proposed system, to avoid recurrence.

This analysis serves as a pointer on how to embark on building the proposed system that will help the Pharmacist provide optimal drug inventory management by monitoring the drug movement and state in the pharmacy. The problems of the current system should be outlined. Below are some of the problems associated with the existing system;

- Significant amount of time is allocated for writing the order as the pharmacist needs to go through the stock balance and make rough estimate for the amount to order based on Figures.
- The state of drugs in stock is manually checked.
- Mistake of selling expired drugs to customers.
- Too much workload on employees
- Filing cabinet in the pharmacy with paper record.

3.1.2 ANALYSIS OF PROPOSED SYSTEM

The proposed system would be designed to help make the rigorous activities carried out in a pharmacy much easier by providing the statistics of drugs in stock, monitoring drug movement in the pharmacy and ensuring effective policing of the activities in the pharmacy.

From the problems listed in the existing system, the implementation of the proposed

system shall focus on;

- The system would enhance management services and improve productivity.
- The system would enhance User/System interface.
- The system would be cost effective.
- The system would improve information quality and accessibility.
- Pharmacists and patients having access to the proposed system at any time.
- Ensuring effective policing by providing statistics of the drugs in stock.
- Generating report within a specified period.

3.2 REQUIREMENTS DEFINITION

Preliminary investigation plays an important role in developing a satisfactory requirement. Its' as a result of thorough investigation of how the current or the existing system works using the facts gathered at the preliminary investigation that leads to focusing on the possibility of replacing the existing system or improving upon the existing system. This task involves information gathering.

3.2.1 METHOD OF INFORMATION GATHERING

Collection of fact is the act of getting and gathering information from various sources in order to be able to compose the project. Data used for designing the system were gathered through several means. Method used in the design and collections of information from various sources are as follows:

- a. Collecting and analysing existing materials on the project topic, written by different expert. Studying the present system in detail and the organizational style.

- b. Knowing and understanding the input and output processes of the existing system.
- c. **Interviews:** A qualitative form of interview was conducted in the pharmacy to know the equipment needed, and the mode of operation of the old system.
- d. **Primary data:** This source has to do with the textbook contacted for the development of this project.

3.3 SYSTEM DESIGN

System design is the approach used by system modeling to determine the architecture, components, modules, interfaces, and data for a system to meet defined requirements. One might see it as the application of the theory of systems to produce development. This system's architecture will be user friendly. It is structured in such a way that workers can quickly navigate through the information given by the system.

In other words, system design consists of design activities that produce system specifications satisfying the functional requirements that were developed in the system analysis process. System design specifies how the system will accomplish. System design is the structural implementation of the system analysis.

3.4 SYSTEM MODELLING

During the system requirements and design activity, systems may be modelled as a set of components and relationships between these components. These are normally illustrated graphically in a system architecture model that gives the reader an overview of the system organisation. System modelling helps to give more detailed system

specifications that are in form of graphical representations that can describe problem to be solved or the system that is to be developed.

Because of the graphical representations used, models are often more understandable than detailed natural language description of the system requirements. Examples of such modelling tool is a System Flowchart.

3.5 SYSTEM FLOWCHART

System flowchart is a type of diagram that represents an algorithm or process, showing the steps as boxes of various kinds, and their order by connecting these with arrows. This diagrammatic representation can give a systematic solution to a given problem. Process operations are represented in these boxes, and arrows connecting them represent flow of control. Flowcharts are used in analysing, designing, documenting or managing a process or program in various fields. Different symbols are used in the flowchart to represent input, output, decision, connectors and process.(see fig. 3.1)

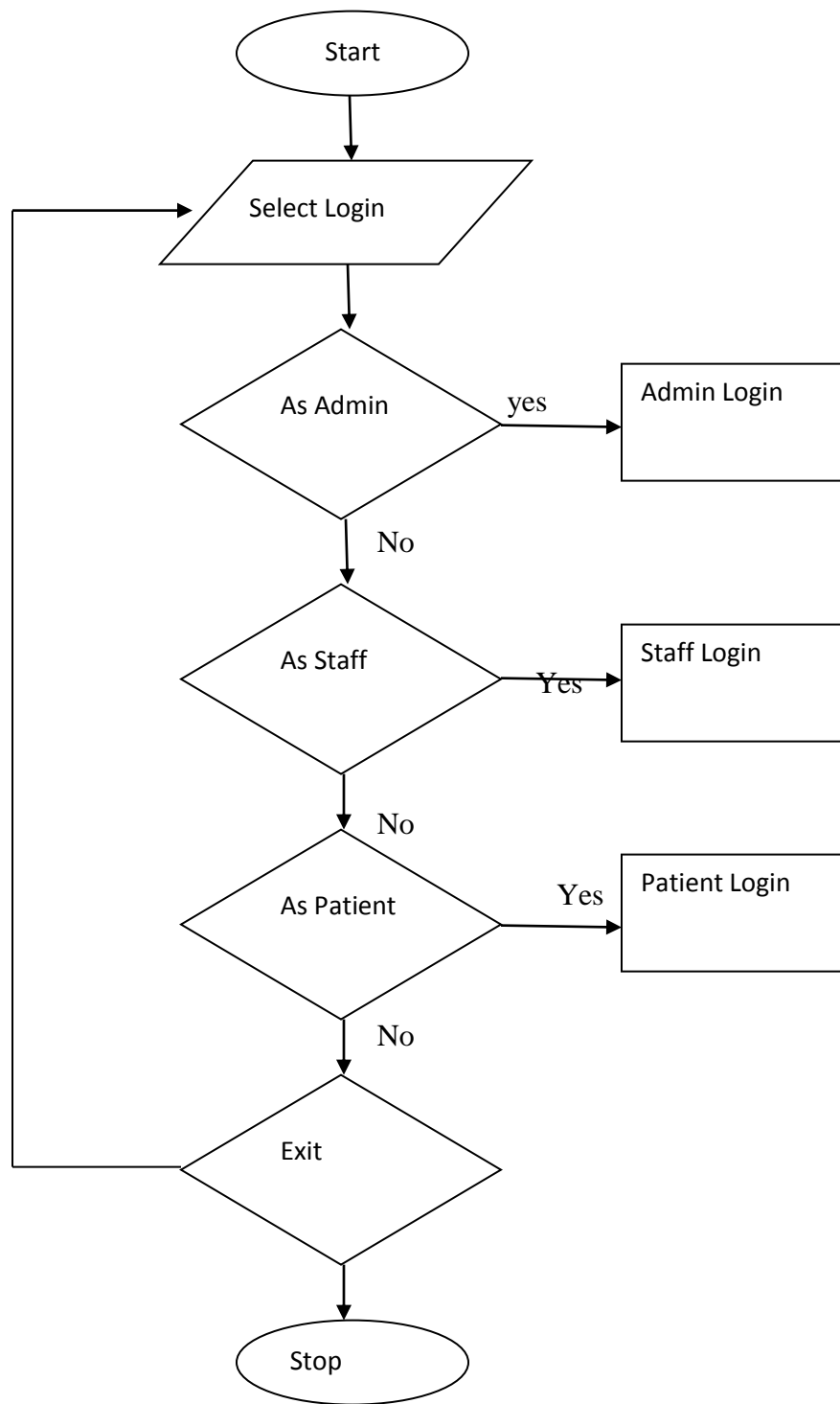


Figure 3.1: System flowchart.

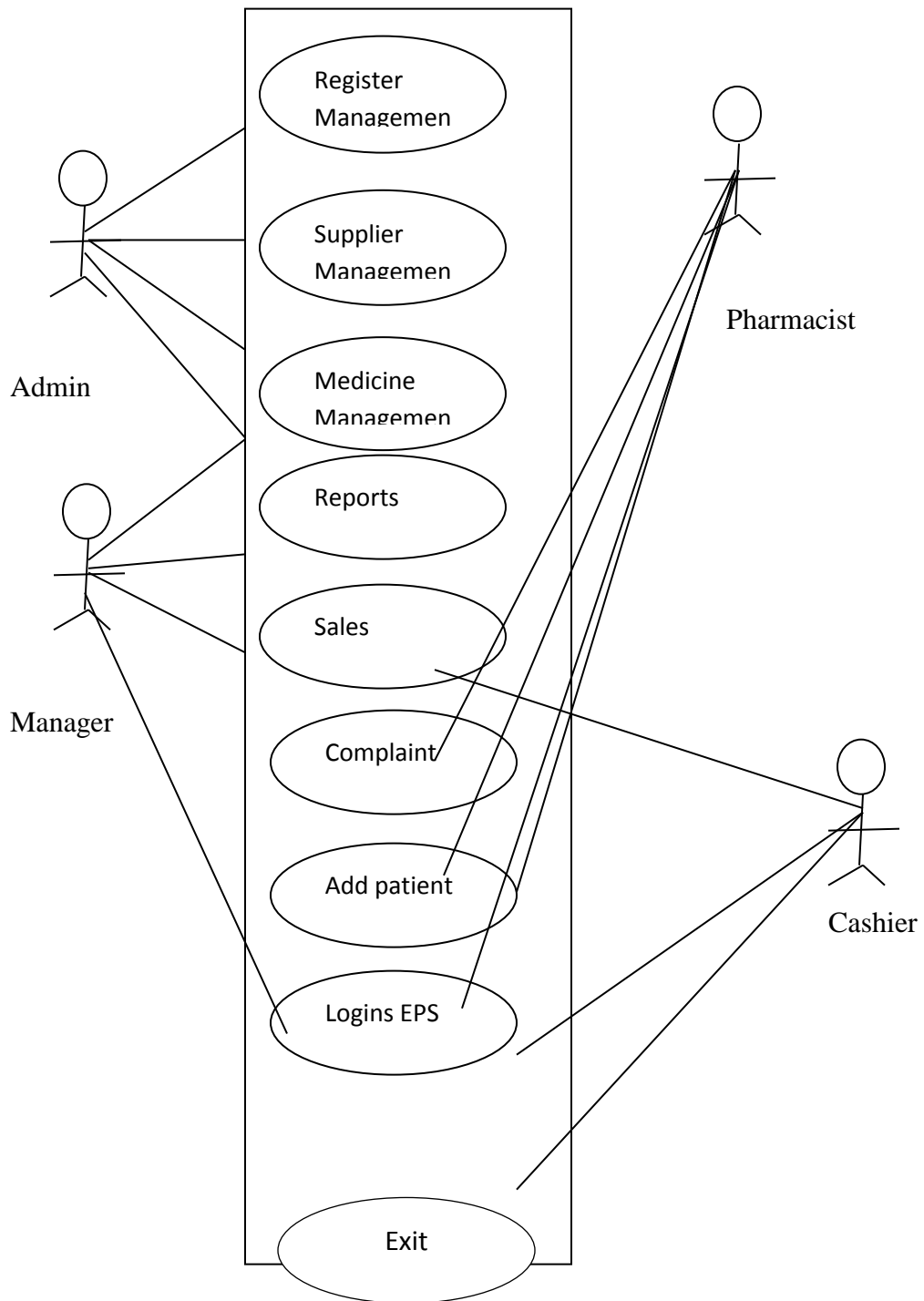


Figure 3.2: System Use Case Diagram

3.6

METHODOLOGY

The approach that is used in the design of the system is the Incremental Model of System Development Life Cycle where the product being designed is implemented and tested incrementally. It is relatively cheap and is used for small projects.

This methodology is most suitable for the project due to the project's future requirements which would require changes in the system (Muallem, 2015). This is further broken down in the use of:

1. JavaScript and Cascading Style Sheet tools for the web page components of the application
2. PHP as a server-side scripting language to compute records and information.
3. MySQL for database management to bring web application features to the system.

CHAPTER FOUR

IMPLEMENTATION AND DISCUSSION

4.1 SYSTEM DEVELOPMENT

This phase produces the actual code that will be delivered as the 'running system'.

Individual modules developed in this phase are tested before being delivered to the next phase.

4.2 SOFTWARE IMPLEMENTATION

Software implementation occurs when the new or proposed software might have been realized after which the new software is tested and found to be working properly without errors. It is the installation of new software after all requirements are met based on user definition of quality.

The new system must have additional functionality before it can be considered to replace (if necessary) the old system. Such functionality includes; reliability of the software, performance of the software and security of the software.

4.2.1 CHOICE OF PROGRAMMING LANGUAGE

Choosing a programming language and the language of your experience depends on the scope of the application created.

The small applications are often created by using the same language; it is unusual to develop a large number of applications using the language. PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994. PHP is a recursive acronym for "PHP: Hypertext Pre-processor".

PHP is a server side scripting language that is embedded in HTML. It is used to manage

dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, Oracle, Sybase, Informix, and Microsoft SQL Server.

PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the UNIX side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.

4.3 SYSTEM TESTING AND DEBUGGING

Software testing is an integral part of the development process. They need to ensure that the trial is to concentrate on the integration and application of the test to ensure that the quality system is the ability to work in an effective and Troubleshooting section of the program will not be compromised. The fixing of errors detected during the implementation of the program is debugging.

The system deals with real-life test system, to ascertain how much has been expected in carrying out the work. This was carried out in two phases.

Number one is to test the program logic test source code. Secondly, the details of the test and the test system should be given to specific conditions regarding how to do it, which. It collects data and inputting the output of the assessment is to see this product compared to the old system and whether it can replace the old system.

4.4 DATABASE SPECIFICATION

Detailed information is collected and stored in a database or data that is not present in a file at least twice. The data is consistent and controlled bridge construction. A good database for all users must be independent of the program and use it to create a common product. However, these systems used as a MySQL database application tool. . Only the database administrator (admin) is restricted to the database management system. It is the

responsibility of the system builder / developer / programmer to manage the database and to upgrade the entire software.

4.5 SYSTEM MAINTENANCE

Maintenance is an ongoing method of making improvements and updating the program. This normally begins after the program has been put into use. There are two distinct forms that can be preserved by this program. They include:

- i. **Additive or Enhancement maintenance:** Business processes are dynamic. As business processes change, applications that support these processes must evolve to reflect these changes. Thus, for this application to perform optimally and to meet changing user requirements, it must be modified continuously.
- ii. **Corrective maintenance:** This is required in the event that an error occurred when the application is in use. Corrections must be made to changes discovered that can cause malfunctioning of the system. The proposed application is design to allow the user perform the basic operation (web-based pharmacy management system).

Therefore, the application comprises of different interface phases for the user. The interfaces are shown below:

4.5.1 HOME PAGE


This is the first page the user will see at the first visit of the site; it also contains some login links (i.e. login as admin, manager, pharmacist or cashier). The login allows users to logon and access different aspect of the application, depending on their privileges defined by the application. (See fig. 4.1)



Figure 4.1: Home page

4.6 USER LOGIN PAGE

The login screen will not allow any person to enter into the main menu of the software without knowing the secret code, which is the user name or password provided by the authorized user of the software. (see fig 4.2)



Login here

Figure 4.2: User login page

4.7 ADMIN PAGE

The Super admin used to manage the H-Medix pharmacy directly (see fig 4.3) in this page

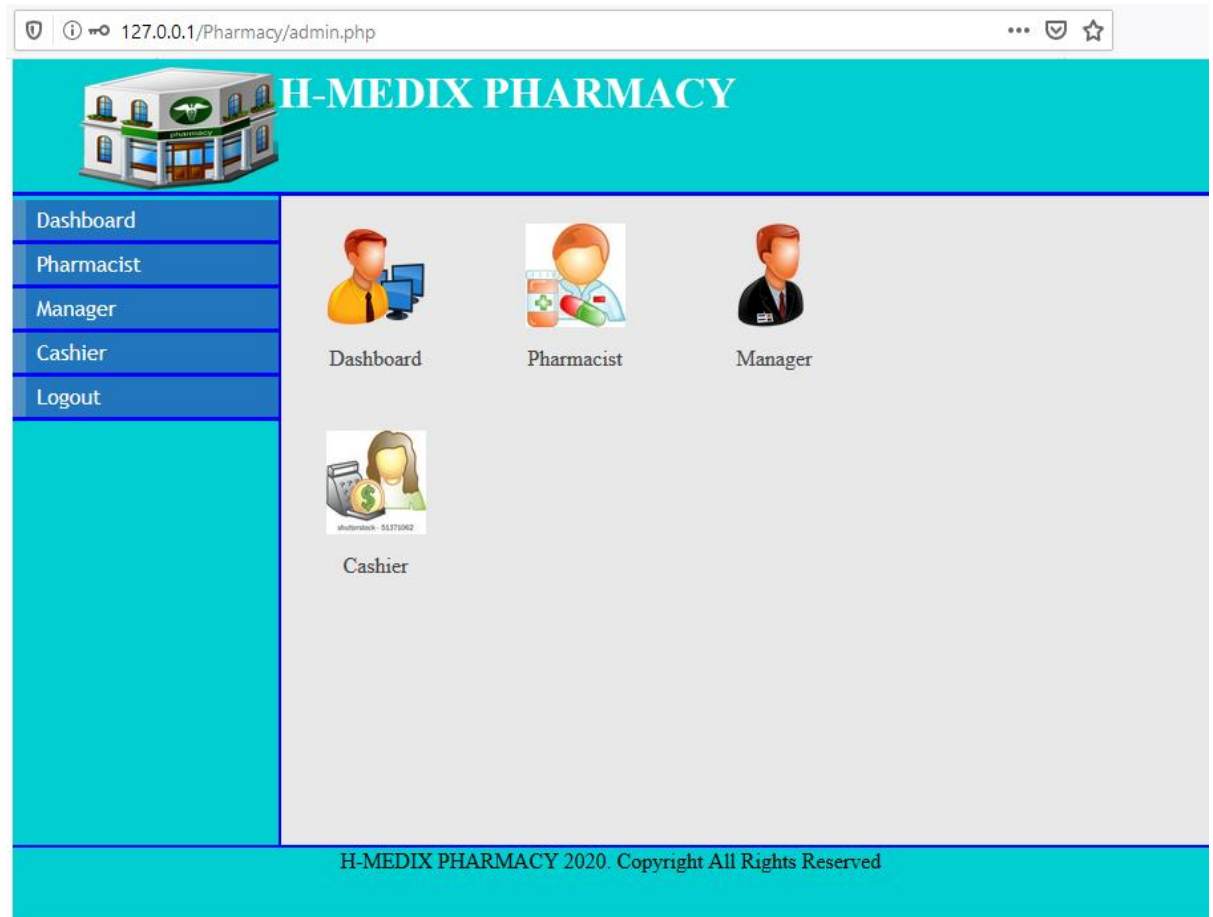


Figure 4.3: Admin page

4.8 PHARMACIST PAGE

The pharmacist used to manage the H-Medix pharmacy directly by prescribing drugs and at the same time checking stock of drugs left (see fig 4.4) in this page

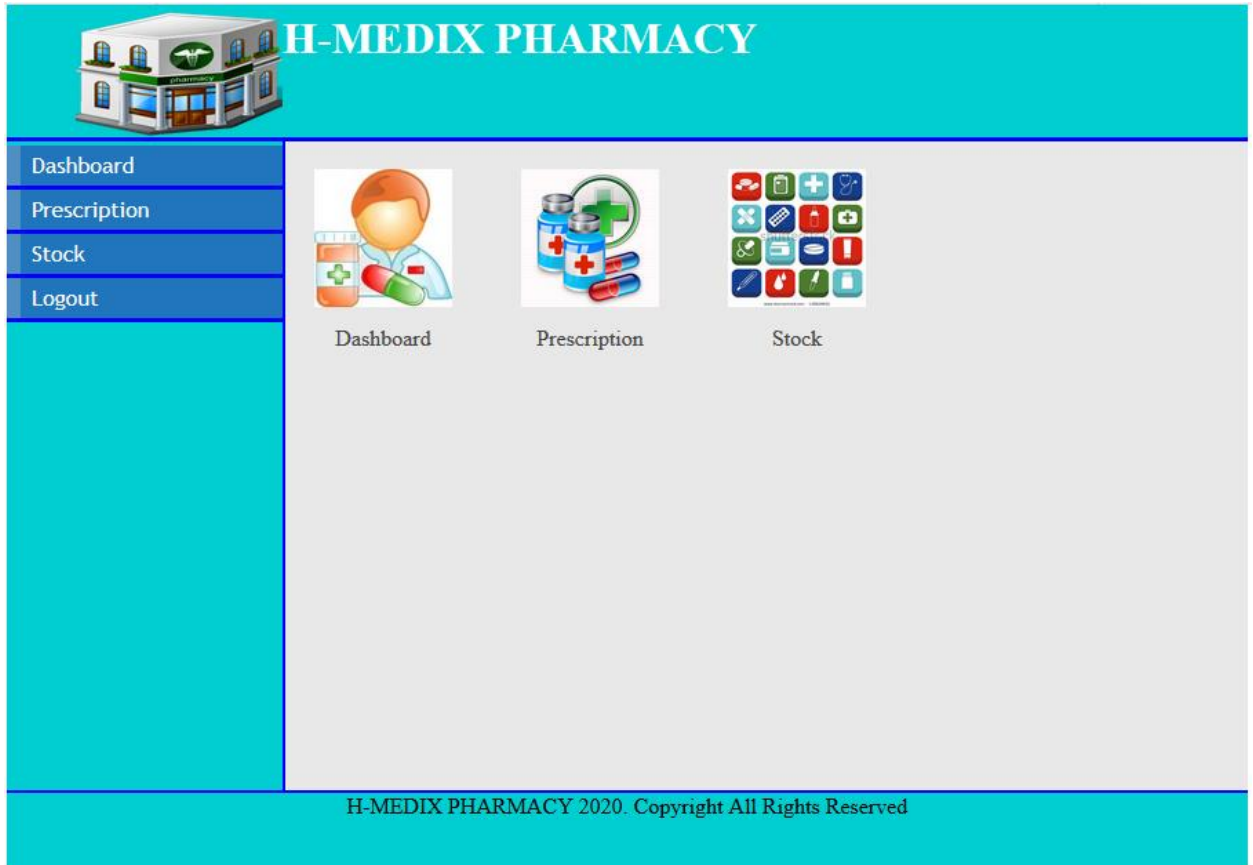


Figure 4.4: pharmacist page

4.9 MANAGER PAGE

This is the page in which the manager use to manage the H-Medix pharmacy directly by viewing prescription made by pharmacist, view users and invoice and also manage the stock of drugs left (see fig 4.5).



Figure 4.5: Manager page

4.10 CASHIER PAGE

The cashier used to perform his duty on H-Medix pharmacy directly by processing payment of the client/patient (see fig 4.6) in this page.

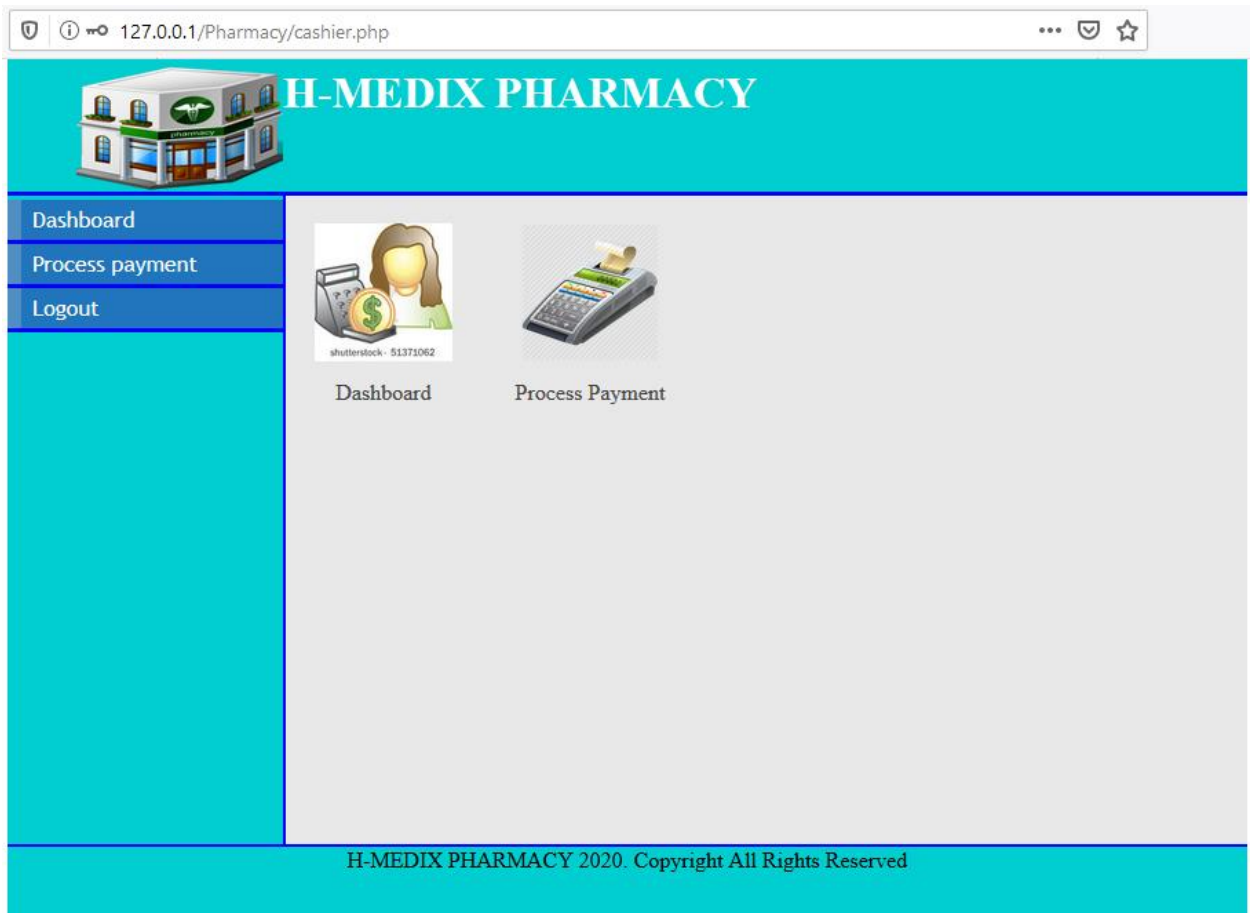


Figure 4.6: cashier page.

CHAPTER FIVE

5.1 SUMMARY

This work incorporates new modern technology for pharmacy management. The work has tried to portray the importance and useful nature of computer and its application in pharmacy management. The database is intended to properly store data that has been implemented using MYSQL and PHP as the server-side scripting language for computing the server's features, as well as collecting the necessary data to be stored in the database. For easy management, PHP was used to build the application interface in a user-friendly way. The developed system contributes enormously to the computer services' active and general growth and eliminates the manual data processing approach that is associated with a lot of problems and vulnerable to manipulation by improving reliability and efficiency, as well as being quicker and much more than any manual counterpart.

5.2 CONCLUSION

This project focused on the application of technology to pharmacy management. Having extensively looked at the pharmacy management to understand present situation and identify areas that require improvement. Information availability, presentation, reliability and usability were selected as an entry point for technology application. It is on this premise that developing web-based pharmacy management system was decided on. To ensure the solution meets standard and suitably serves the proposed customers, the management was analysed and a requirement specification put forward. In developing the user requirement specification some assumptions were made based on the management analysis previously done. Hence further action was geared towards building the solution. The first of which was carrying out a research.

The assumptions made from the analysis required that they should be tested and validated. Also during research, it was discovered from the results that although a unanimously accessible information system would be viable for the pharmacy management, customers would be more inclined to use the solution if their information is secure and the system does not expose them to fraud. It was further discovered that regardless of the few but key challenges that might arise during development or in the future, they all come under the acceptable risk threshold. This allows the management a promise of return on investment, customer satisfaction and a good brand identity. Some of these are Usability, accuracy, flexibility, and security.

These requirements were then taken into consideration, and the portal was built using well-researched and standardized methodologies for development of the solution architecture, implementation plan and structure modelling and the final prototype. Finally, the framework for pharmacy management has been checked and rated by users. Also from an information technology standpoint, it was emphasised that the most effective solution to the pharmacy information provision need is the provision of a web-based pharmacy management system.

5.3 RECOMMENDATION

Also having looked at the technologies that are in existence in developed economies, and understanding the benefits as well as consequence involved in doing so. The following are the technologies that are presently not in use in pharmacy management and would be credible areas for further research: -

- a. **Authenticity Verification:** From the research it was discovered that the customers would very much like to ascertain the authenticity of prescribed drug sources.

- b. This creates an opportunity for further research as methods of calculating or estimating information source authenticity.
- c. **QR-Codes:** The adaptation of QR codes compared other technologies seems highly promising as user will not be requiring internet connectivity subscription separately from that which they already have via their mobile service provider.
- d. Hence, researching ways in which QR codes can successfully penetrate the pharmacy management will be a worthwhile venture especially with the growth of smart phone usage. In addition, to implement such technology it would require more supporting focuses on generating these codes, managing them to ensure that its introduction is not exploited for different purposes for which it was developed or even crime.
- e. Thus, posing high barriers to entry as such services would have to be imported as well as the human resource to manage it. It would also be a good area or research if ways of developing and managing this QR codes by indigenous companies.
- f. We will also develop and improve the design of the pharmacy to be new, attractive and consistent in colors and images, lines and satisfy customers.
- g. We will further promote more for the products in the pharmacy by doing advertisements in the internet, newspapers, television, by SMS and social networking media

REFERENCES

- Fung, K. W., Kayaalp, M., Callaghan, F., & McDonald, C. J. (2013). Comparison of electronic pharmacy prescription records with manually collected medication histories in an emergency department. *Annals of emergency medicine*, 62(3), 205-211.
- Ferrández, O., Urbina, O., Grau, S., Mateu- de- Antonio, J., Marin- Casino, M., Portabella, J., & Salas, E. (2017). Computerized pharmacy surveillance and alert system for drug- related problems. *Journal of clinical pharmacy and therapeutics*, 42(2), 201-208.
- Ibtisam A. AL-Balushi, Jabar H. Yousif, Majid O. Al-Shezawi (2017). “Car Accident Notification based on Mobile Cloud Computing”, *International Journal of Computation and Applied Sciences (IJOCAAS)*. 2(2), Pp46-50, April, ISSN 2399-4509.
- Jabar H Yousif (2015) “Classification of Mental Disorders Figures based on Soft Computing Methods”. *International Journal of Computer Applications* 117(2):5-11, May.
- Jabar H Yousif. (2013).” Natural Language Processing based Soft Computing Techniques”, *International Journal of Computer Applications* 77(8):43-49, September. Published by Foundation of Computer Science, New York, USA. DOI: 10.5120/13418-1089.
- Jabar H. Yousif, (2011). “Information technology development”, LAP LAMBERT Academic Publishing, Germany ISBN 9783844316704.

Kumar, S., & Bano, S. (2017). Comparison and Analysis of Health Care Delivery Systems:

Pakistan versus Bangladesh. *Journal of Hospital & Medical Management*.

Majid O. Al-Shezawi, Jabar H. Yousif, Ibtisam A. AL-Balushi (2017). "Automatic Attendance Registration System based Mobile Cloud Computing", *International Journal of Computation and Applied Sciences (IJOCAAS)*. 2(3), Pp116-122, August, ISSN 2399-4509.

Shortliffe, E. H., & Blois, M. S. (2006). The computer meets medicine and biology: emergence of a discipline. *Biomedical Informatics*, 3-45.

Yousif, Jabar H., and Nebras N. Alattar (2017). "Cloud Management System based Air Quality." *International Journal of Computation and Applied Sciences (IJOCAAS)*. 2(2), pp145-152, Volume 3, Issue 1.

APPENDIX A

```
<?php
session_start();
include_once('connect_db.php');
if(isset($_SESSION['username'])){
$id=$_SESSION['admin_id'];
$user=$_SESSION['username'];
}else{
header("location:http://".$_SERVER['HTTP_HOST'].dirname($_SERVER['PHP_SELF']
)."/index.php");
exit();
}
?>
<!DOCTYPE html>
<html>
<head>
<title><?php echo $user;?> - H-MEDIX PHARMACY</title>
<link rel="stylesheet" type="text/css" href="style/mystyle.css">
<link rel="stylesheet" href="style/style.css" type="text/css" media="screen" />
<link rel="stylesheet" type="text/css" href="style/dashboard_styles.css" media="screen"
/>
<script src="js/function.js" type="text/javascript"></script>
<style>
#left_column{
height: 470px;
}

</style>
</head>
<body>
<div id="content">
<div id="header">
<h1><a href="#"></a> H-MEDIX
PHARMACY</h1></div>
<div id="left_column">
<div id="button">
```

```

<ul>
    <li><a href="admin.php">Dashboard</a></li>
    <li><a href="admin_pharmacist.php">Pharmacist</a></li>
    <li><a href="admin_manager.php">Manager</a></li>
    <li><a href="admin_cashier.php">Cashier</a></li>
    <li><a href="logout.php">Logout</a></li>
</ul>
</div>
</div>
<div id="main">
<!-- Dashboard icons -->
    <div class="grid_7">
        <a href="admin.php" class="dashboard-module">
            
            <span>Dashboard</span>
        </a>
        <a href="admin_pharmacist.php" class="dashboard-module">
            
            <span>Pharmacist</span>
        </a>
        <a href="admin_manager.php" class="dashboard-module">
            
            <span>Manager</span>
        </a>
        <a href="admin_cashier.php" class="dashboard-module">
            
            <span>Cashier</span>
        </a>
    </div>
</div>
<div id="footer" align="Center"> H-MEDIX PHARMACY 2020. Copyright All Rights
Reserved</div>
</div>
</body>
</html>

```

APPENDIX B

```

<?php
session_start();
include_once('connect_db.php');
if(isset($_SESSION['username'])){
$id=$_SESSION['admin_id'];
$username=$_SESSION['username'];
}else{
header("location:http://".$_SERVER['HTTP_HOST'].dirname($_SERVER['PHP_SELF']
)."/index.php");
exit();
}
if(isset($_POST['submit'])){
$fname=$_POST['first_name'];
if (!preg_match("/^[a-zA-Z ]*$/",$fname))
{
$nameErr = "Only letters and white space allowed";
}
$lname=$_POST['last_name'];
$sid=$_POST['staff_id'];
$postal=$_POST['postal_address'];
$phone=$_POST['phone'];
$email=$_POST['email'];
$user=$_POST['username'];
$pas=$_POST['password'];
$sql1=mysql_query("SELECT * FROM cashier WHERE username='$user'")or
die(mysql_error());
$result=mysql_fetch_array($sql1);
if($result>0){
$message="<font color=blue>sorry the username entered already exists</font>";
}else{
$sql=mysql_query("INSERT INTO
cashier(first_name,last_name,staff_id,postal_address,phone,email,username,password,dat
e)
VALUES('$fname','$lname','$sid','$postal','$phone','$email','$user','$pas',NOW())");
if($sql>0)
{header("location:http://".$_SERVER['HTTP_HOST'].dirname($_SERVER['PHP_SELF']
)."/admin_cashier.php");
}else{
$message1="<font color=red>Registration Failed, Try again</font>";
}
}}
?>

```

```

<!DOCTYPE html>
<html>
<head>
<title><?php echo $username;?> - H-MEDIX PHARMACY</title>
<link rel="stylesheet" type="text/css" href="style/mystyle.css">
<link rel="stylesheet" href="style/style.css" type="text/css" media="screen" />
<link rel="stylesheet" href="style/table.css" type="text/css" media="screen" />
<script src="js/function.js" type="text/javascript"></script>
<script src="js/validation_script.js" type="text/javascript"></script>
<!--<script>
function validateForm()
{

//for alphabet characters only
var str=document.form1.first_name.value;
    var valid="abcdefghijklmnopqrstuvwxy
ABCDEFGHIJKLMN
OPQRSTUVWXYZ";
    //comparing user input with the characters one by one
    for(i=0;i<str.length;i++)
    {
        //charAt(i) returns the position of character at specific index(i)
        //indexOf returns the position of the first occurrence of a specified value in a
string. this method returns -1 if the value to search for never occurs
        if(valid.indexOf(str.charAt(i))!=-1)
        {
            alert("First Name Cannot Contain Numerical Values");
            document.form1.first_name.value="";
            document.form1.first_name.focus();
            return false;
        }
    }

if(document.form1.first_name.value=="")
{
alert("Name Field is Empty");
return false;
}

//for alphabet characters only
var str=document.form1.last_name.value;
    var valid="abcdefghijklmnopqrstuvwxy
ABCDEFGHIJKLMN
OPQRSTUVWXYZ";
    //comparing user input with the characters one by one

```

```

for(i=0;i<str.length;i++)
{
//charAt(i) returns the position of character at specific index(i)
//indexOf returns the position of the first occurrence of a specified value in a
string. this method returns -1 if the value to search for never occurs
if(valid.indexOf(str.charAt(i))!=-1)
{
alert("Last Name Cannot Contain Numerical Values");
document.form1.last_name.value="";
document.form1.last_name.focus();
return false;
}}

```

```

if(document.form1.last_name.value=="")
{
alert("Name Field is Empty");
return false;
}
}

```

```

</script>-->
<style>
<style>#left-column {height: 477px;}
#main {height: 477px;}</style>
</style>
</head>
<body>
<div id="content">
<div id="header">
<h1><a href="#"></a> H-MEDIX
PHARMACY</h1></div>
<div id="left_column">
<div id="button">
<ul>
<li><a href="admin.php">Dashboard</a></li>
<li><a href="admin_pharmacist.php">Pharmacist</a></li>
<li><a href="admin_manager.php">Manager</a></li>
<li><a href="admin_cashier.php">Cashier</a></li>
<li><a href="logout.php">Logout</a></li>
</ul>
</div>

```

```

</div>
        </div>
<div id="main">
<div id="tabbed_box" class="tabbed_box">
    <h4>Manage Cashier</h4>
<hr/>
    <div class="tabbed_area">

        <ul class="tabs">
            <li><a href="javascript:tabSwitch('tab_1', 'content_1');" id="tab_1"
class="active">View User</a></li>
            <li><a href="javascript:tabSwitch('tab_2', 'content_2');" id="tab_2">Add
User</a></li>

        </ul>

        <div id="content_1" class="content">
            <?php echo $message;
                echo $message1;

            /*
            View
            Displays all data from 'Cashier' table
            */

            // connect to the database
            include_once('connect_db.php');

            // get results from database

            $result = mysql_query("SELECT * FROM cashier")
                or die(mysql_error());

            // display data in table

            echo "<table border='1' cellpadding='5' align='center'>";
            echo "<tr> <th>ID</th><th>Firstname </th> <th>Lastname </th> <th>Username
</th><th>Update </th><th>Delete</th></tr>";

            // loop through results of database query, displaying them in the table

```

```

while($row = mysql_fetch_array( $result )) {

    // echo out the contents of each row into a table
    echo "<tr>";

    echo '<td>' . $row['cashier_id'] . '</td>';
    echo '<td>' . $row['first_name'] . '</td>';
        echo '<td>' . $row['last_name'] . '</td>';
        echo '<td>' . $row['username'] . '</td>';
        ?>
        <td><a href="update_cashier.php?username=<?php echo
$Row['username']?>"></a></td>
        <td><a href="delete_cashier.php?cashier_id=<?php echo
$Row['cashier_id']?>"></a></td>
        <?php
    }
    // close table>
    echo "</table>";
?>
</div>
<div id="content_2" class="content">
    <!--Cashier-->
    <?php echo $message;
        echo $message1;
        ?>
    <form name="form1" onsubmit="return
validateForm(validation_script.js);" action="admin_cashier.php" method="post" >
        <table width="220" height="106" border="0" >
            <tr><td align="center"><input name="first_name"
type="text" style="width:170px" placeholder="First Name" required="required"
id="first_name" /></td></tr>
            <tr><td align="center"><input name="last_name"
type="text" style="width:170px" placeholder="Last Name" required="required"
id="last_name" /></td></tr>
            <tr><td align="center"><input name="staff_id"
type="text" style="width:170px" placeholder="Staff ID" required="required"
id="staff_id"/></td></tr>
            <tr><td align="center"><input name="postal_address"
type="text" style="width:170px" placeholder="Address" required="required"
id="postal_address" /></td></tr>

```



```

        <tr><td align="center"><input name="phone" type="text"
style="width:170px"placeholder="Phone" required="required" id="phone" /></td></tr>
        <tr><td align="center"><input name="email" type="email"
style="width:170px" placeholder="Email" required="required" id="email" /></td></tr>
        <tr><td align="center"><input name="username"
type="text" style="width:170px" placeholder="Username" required="required"
id="username" /></td></tr>
        <tr><td align="center"><input name="password"
type="password" style="width:170px" placeholder="Password" required="required"
id="password"/></td></tr>
        <tr><td align="right"><input name="submit"
type="submit" value="Submit"></td></tr>

    </table>
    </form>
</div>

</div>

</div>

<div id="footer" align="Center"> H-MEDIX PHARMACY 2020. Copyright All Rights
Reserved</div>
</div>
</body>
</html>

```

APPENDIX C

```

<?php
session_start();
include_once('connect_db.php');
if(isset($_SESSION['username'])){
$id=$_SESSION['admin_id'];
$username=$_SESSION['username'];
}else{
header("location:http://".$_SERVER['HTTP_HOST'].dirname($_SERVER['PHP_
SELF'])."/index.php");
exit();

```

```

}
if(isset($_POST['submit'])){
    $fname=$_POST['first_name'];
    $lname=$_POST['last_name'];
    $sid=$_POST['staff_id'];
    $postal=$_POST['postal_address'];
    $phone=$_POST['phone'];
    $email=$_POST['email'];
    $user=$_POST['username'];
    $pas=$_POST['password'];
    $sql1=mysql_query("SELECT * FROM manager WHERE username='$user'")or
die(mysql_error());
    $result=mysql_fetch_array($sql1);
    if($result>0){
        $message="<font color=blue>sorry the username entered already exists</font>";
    }else{
        $sql=mysql_query("INSERT INTO
manager(first_name,last_name,staff_id,postal_address,phone,email,username,pass
word,date)
VALUES('$fname','$lname','$sid','$postal','$phone','$email','$user','$pas',NOW()
");
        if($sql>0)
        {header("location:http://".$_SERVER['HTTP_HOST'].dirname($_SERVER['PHP
_SELF'])."/admin_manager.php");
        }else{
            $message1="<font color=red>Registration Failed, Try again</font>";
        }
    }
}
?>
<!DOCTYPE html>
<html>
<head>
<title><?php echo $username;?> - H-MEDIX PHARMACY</title>
<link rel="stylesheet" type="text/css" href="style/mystyle.css">
<link rel="stylesheet" href="style/style.css" type="text/css" media="screen" />
<link rel="stylesheet" href="style/table.css" type="text/css" media="screen" />
<script src="js/function.js" type="text/javascript"></script>
<script>
function validateForm()
{
//for alphabet characters only

```

```

var str=document.form1.first_name.value;
    var valid="abcdefghijklmnopqrstuvwxy
ABCDEFGHIJKLMN
OPQRSTUVWXYZ";
    //comparing user input with the characters one by one
    for(i=0;i<str.length;i++)
    {
        //charAt(i) returns the position of character at specific index(i)
        //indexOf returns the position of the first occurrence of a specified value in a
string. this method returns -1 if the value to search for never occurs
        if(valid.indexOf(str.charAt(i))!=-1)
        {
            alert("First Name Cannot Contain Numerical Values");
            document.form1.first_name.value="";
            document.form1.first_name.focus();
            return false;
        }
    }

if(document.form1.first_name.value=="")
{

```