

Online Medical Prescription System (OMPS)

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Abstract: - Paper based prescription system jeopardized patients safety and has negatively affected the outcomes of medical therapy. Access to doctors and prescriptions is a big challenge especially in a developing economies. To remedied these, an online medical prescription system has been proposed as effective intervention as information technology tools has been ubiquitous in recent times

The online medical prescription system will eliminate the use of paper, pen, lost files, searching for patients' record, staying on queue, manual medicals purchase and other accompanied stresses etc.

An incremental model was adopted in developing the application. We used UML modeling language tools for designing the application and the system was implemented using HTML, CSS as the front-end and MYSQL, PHP, JavaScript for the back-end in a Windows environment powered by WAMP application server

Keywords- prescription, Doctor, UML, Use Case, Patients, Windows

I. INTRODUCTION

Online Medical Prescription System is the term used to refer to internet-based remote patient-doctor medical consultations [1]. The ability of someone getting medication from a doctor or a certified medical professional is called medical prescription. A great number of people are now moving to the internet in order to get medication, in other words everyone are now turning online to get their medical prescriptions and medications from their pharmacists and their doctors. There are various sites on the internet providing various types of solutions to problems related to your health, without the need for you to see a qualified health care provider, your health issues are resolved by just clicking a mouse. Doctors are also turning to this modernized system, by going online and providing consultations and various kinds of problem and questions. People are searching online for their particular problems and are provided with various search results giving medical recommendations and offering medications.

Medicine generally is composed of four parts: a superscription, inscription, subscription, and signature. The superscription zone contains the medicine date and patient information (name, age, residence etc.). Inscription defines what the medication is such as the chief or premise ingredient

intended to cure, an adjuvant to assist its action and make it cure quickly, a corrective to prevent or lessen any undesirable effect and vehicle to make it suitable for administration and pleasant to the patient. [2]

The subscription section contains dispensing directions to the pharmacist, which may be compounding instructions or quantities. The signature area contains bearings to the patient and is regularly abbreviated "Sig." or "Signa." It clearly contains the signature of the medical specialists prescribing though the word signature has two distinct meanings here and the abbreviations are used to avoid confusion [2].

The 21st century is said to be a century of growth, since so numerous things are now made simpler and faster. Going to the health center nowadays to get medical attention can be exceptionally disheartening because of the method of queuing, wasteful record keeping of the patient by the health center. The conventional strategy of prescribing drugs to the patient is moderate and inconvenient for both the patient and specialists and this conventional method encourages the use of paper, pencils for record keeping, which is not secure enough [3]. The trouble in maintaining records is profoundly troublesome. Hence, the proposed system is the best solution for avoiding all these issues.

II. PROBLEM STATEMENT

In a developing world such as Nigeria, the health industry has been ineffective enough in efficiently endorsing drugs for the sick patients due to the process taken for a patient to acquire drug prescription from the doctor is cumbersome and frustrating. In most cases patients endure more stress waiting in line while their files are being search since records are still kept manually. This practices discourages patients from visiting the hospital to consult doctors. This paper is aimed at designing and implementing an online medical prescription application to solve this problems.

III. AIM AND OBJECTIVES

The aim of this paper is to design and implement a web based application that will help patients search for prescribed drugs that would help treat the disease that is diagnosed with without physical contact with a doctor or having to visit a

hospital for treatment. The patients have the option, to either go to a nearby pharmacy to purchase the prescribed drugs recommended by the application or have the drugs delivered to their designated location

The specific objectives is to design and implement a medical prescription system with features to:

1. facilitate search for drugs availability
2. order for prescribed drugs
3. enable interaction between the doctor and the patient to ascertain the patients state of health

IV. SYSTEM REQUIREMENTS

A. Functional requirements

This depicts how the framework would respond to specific situations and desired result. The framework also involves factors that must be available in order for the framework to handle its required function and task fully and accurately. This include

- 1) The system should allow users have a profile.
- 2) The system should allow users view drugs and purchase them.
- 3) The system should not allow users consult with a doctor that is available.
- 4) The system should allow users to have an online consultation.
- 5) The system should not authorize users with invalid login credentials.

B. Non-functional requirements

They are system properties and restrictions on function, this include

- 1) The framework should be compatible with any browser and portable.
- 2) The system should be online 24 hours a day.
- 3) The systems failure occurrence has to be minimal.
- 4) The systems response to requests should be fast.

C. User requirements

The user requirement describes contains the desires of a client. It is an organized document which includes an exhaustive explanation of what the services the framework provides. This include:

- 1) Users need to login to be granted access to the website.
- 2) User should be able to change their passwords when forgotten.
- 3) Users should be able to log out.
- 4) Users should be able to have consultation online.
- 5) Users should be able to view profile.
- 6) Users should be able to buy drugs online.
- 7) Users should have the ability to provide their symptoms.

D. Hardware requirements

The following are the minimum hardware requirements

- 1) Pentium/ Intel based systems
- 2) Processor Speed: 1.4GHZ or higher
- 3) Hard disk: 80GB or higher
- 4) System Memory: 128MB Minimum or 256MB Recommended
- 5) Cache size: 512kb
- 6) RAM: 512MB Minimum or higher
- 7) Network Card: Any network card
- 8) Network Connection: Must be Present either in LAN or Wireless connection

E. Software requirements

The following are the minimum software specifications

- 1) An operating system – windows/ ios/Linux
- 2) A web browser such as Mozilla Firefox, Opera mini, Google Chrome etc.
- 3) WAMP server containing MySQL and PHP

V. REVIEW OF RELATED WORKS

This section provides clarity, information and understanding on what online medical prescription system is all about by reviewing related works in relation with the proposed framework. Amid this exploration, a wide survey of some administration frameworks so as to recognize a few principal relationships between our proposed framework and the now existing ones

A. MD PROACTIVE

MDPROACTIVE is an online medical provider that aims to treat common medical ailments by Board Certified Doctors from the consolation of their domestic or office 24/7/365. Patients are able to get an online consultation and medicine transmitted to the drug store of their choice from their computer or smartphone. The concept was conceived by Dr. Narendra K. Garg, a board-certified internist who in his 30+ years of private practice noticed that the majority of patients waiting to see him or calling his office were seeking prescriptions for minor, easily diagnosable conditions such as UTI, URI or Upper respiratory infection, Sore throat, Sinusitis, Flu. Minor injuries, Acne, Cold sores, Allergies and many others. Most of these conditions can be safety treated by video or online consultation [4]

This software has not yet been fully automated to be an actual prescription framework because there is no means of buying drugs online, does not provide platform for the patients to arrange and have their prescribed drugs brought to them, only minor ailments are addressed and wrong prescription due to incorrect data provided by the patient.

B. LLOYD'S PHARMACY

Lloyd's Pharmacy is a leading community pharmacy and healthcare provider with over 1,500 pharmacies across UK, mainly in community and health center locations. They employ around 17,000 staff and dispense over 150 million prescription items every year [5]

Lloyd's Pharmacy is committed to 'healthcare life' and their vision is to be a great healthcare brand. Through their pharmacies and website, Lloyd's Pharmacy offers high quality healthcare products and services.

During their long history, a number of esteemed names in their sector have been involved in creating the Lloyd's Pharmacy we know today. Such names include Savory & Moore, Aliens Chemist, Cross & Herbert, R Gordon Drummord, Kingswood GK and, of course, Lloyd's Chemist and Hills Pharmacy.

The Lloyd's Pharmacy software has not yet been fully automated to be an actual prescription framework for the following reasons; patients cannot enter their symptoms, the ailments that can be address are already predefined on the website, no effective payment reports of daily profits and loss, wrong prescription due to incorrect data provided by the patient.

C. PLUSH CARE

Plush Care is an internet based framework that is created for providing medical administrations to patients online, it is a restorative medicine program that permits patients to book an arrangement from anyplace, 24/7, chat with a specialist on a phone or computer and pick up prescriptions at the pharmacy and they can also send prescriptions anywhere.[6]

The drawback is that this framework used to offer medical aid to patients is not as efficient as it is meant to be, due to the queuing system when the patient gets to the healing center and treatment of some major and minor ailments that require urgent attention.

D. ELECTRONIC MEDICATION SUPPORT SYSTEM (EMSS)

Electronic Medication Support System (EMSS) is a web based application that creates a more controlled approach for patients to buy drugs online from the comfort of their home without leaving their home to get to the hospital depending on their prescriptions. This system also serves as an intermediary between hospital pharmacies and drug manufacturers through a platform that allows for the order of drugs with just a click of a button [7]

The limitations of EMSS are; users cannot order for drugs online, the framework cannot accommodate major ailments, users have to go to the pharmacist to get their drugs, and users cannot get result of test carried out online.

VI. SOFTWARE METHODOLOGY

The approach that was utilized within the plan of the framework is the Incremental Model of System Development Life Cycle that permits the framework to be developed in modules. This is often the model for this paper due to tendency for addition of future necessities.

The incremental model is a software development model in which individual modules of the system are developed and integrated in stages as shown in Fig.1. Integration of two or more components is not dependent on the rest of the components. In this model, however, modules once developed cannot be modified to accommodate new requirements. Because modules are viewed independent of one another, feedback for one module is not implemented in other modules[8]

To legitimize the utilization of the incremental model for this venture is because it combines the waterfall model with iterative reasoning, by including requirements, creating and maintaining the framework until the product is finished, the prerequisites investigation stage where the clients prerequisites are gotten, the framework planning stage where the framework is planned based on the information collected from clients in respects to their necessities, the next stage after the plan of the framework is the implementation phase where the framework is tested to make sure it meets the necessities and expectations of the client. Each of these stages would be done incrementally and addition of new client necessities would be done until the finished product is achieved [9]

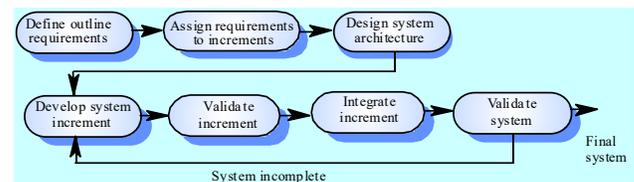


Fig.1 Incremental model. [10]

VII. ANALYSIS OF THE SYSTEM

The results of survey of the relatedworks revealed the major part of the online medical prescription framework need to incorporate login, booking, and enrolment and so on. It is pertinent to create a database which will store and secure the information put into it. The application will allow the patient enter his symptoms and have an online consultation with the doctor, for the doctor to have a clear understanding of the problem the patient is having. Patients can decide to buy their medication online and have it delivered to them or go to a nearby pharmacy to get their medications. This system will include three main modules as follows:

A. Administrator Module

The administrator is responsible for managing both the doctors and the patients, uploading of the drugs and managing the patients drug orders, the administrator is also responsible

generating login details and passwords for the doctors, to avoid unauthorized users to register as a doctor.

B. Doctors Module

The doctor module is responsible for responding to the patient when they request for consultancy, giving the patient with the proper medication and prescription depending on the symptoms provided by the patient.

C. Patients Module

This module enable the patients to register by providing details information from the doctor consultation such as symptoms, and medical prescription order.

VIII. SYSTEM MODEL AND DESIGN

The Unified Modelling Language(UML) [11] was the model adopted in this paper. It is a modelling language within the field of software engineering meant to provide a visual design of a system. The UML was developed by Ivar Jacobson, Grady Booch, and James Rumbaugh at Rational Software in 1994-1995 [12]. Use case is one of the tool in UML for depicting the beaviour of the system.

The Fig.2 explains the structural process with respect to the distinctive sections under the online medical prescription framework, also contains data of what each user is capable of doing within the framework.

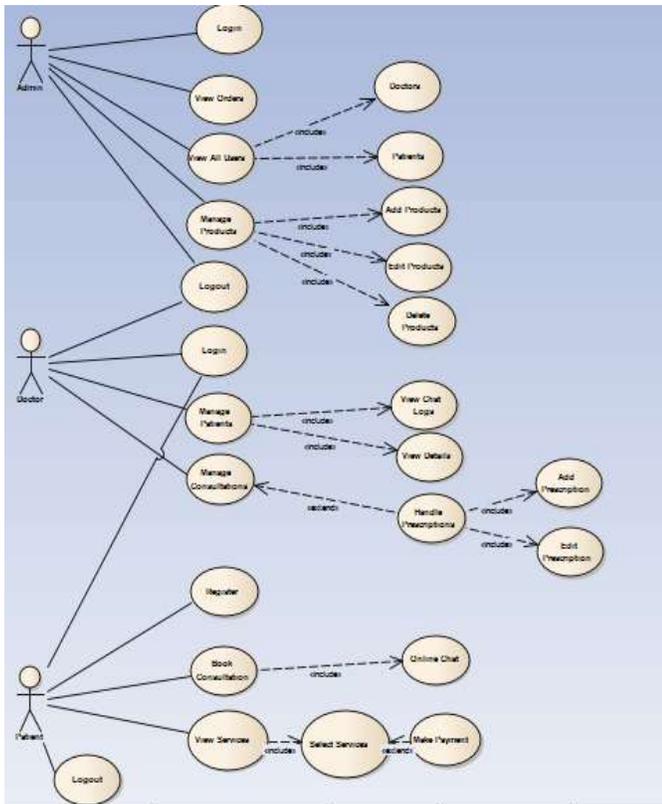


Fig.2 Use case for Online Medical Prescription System.

Entity-Relationship (ER) diagram in Fig.3 depicts the relationship between the components of the system.

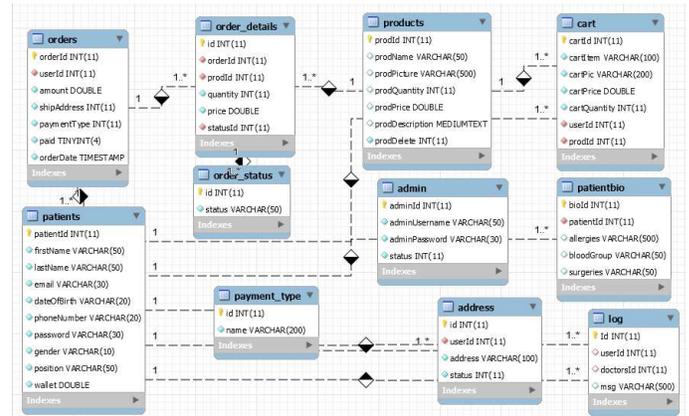


Fig.3 E-R diagram for Online Medical Prescription System

IX. SYSTEM IMPLEMENTATION

This section shows the interfaces of main core components of the application when it is execution. The first step is to register before using the system, Fig.4 is the registration window for the customer.

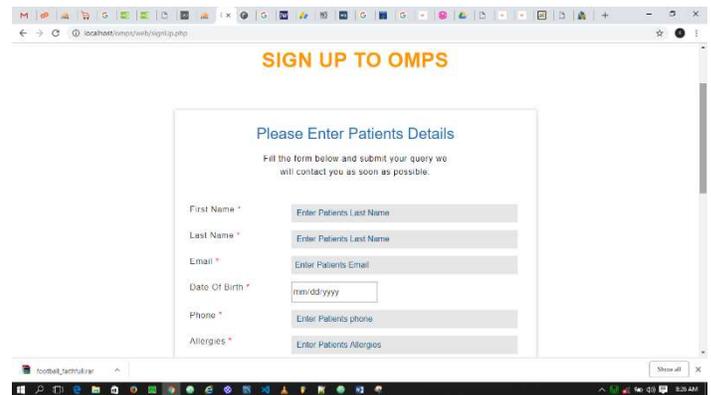


Fig.4 customer registration window

After registration, the customer can now login into the system by supplying login details as shown in Fig.5

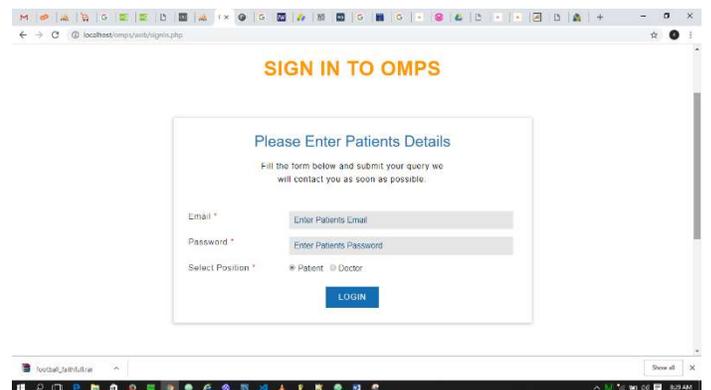


Fig.5 Login window

Fig.6 show the main window through which the user login into the system

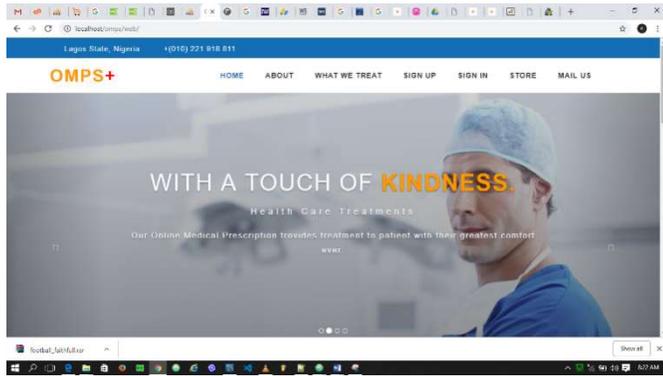


Fig.6 Main window

Fig.7 is the User window which is use to enter the user's information during the registration process such as date of birth, first name, last name, gender, position either patient or doctor

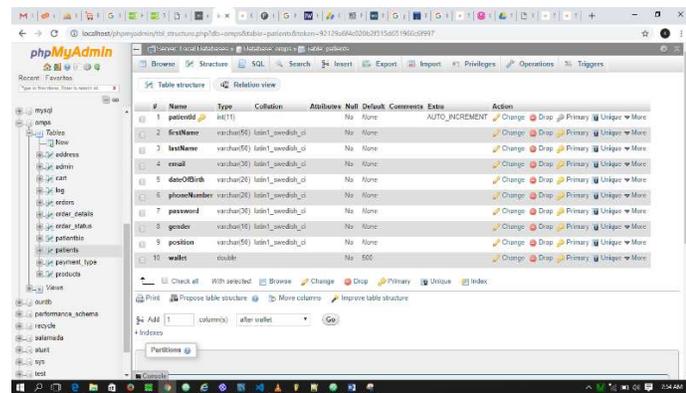


Fig.7 User window

Fig. 8 is the administrator interface table that administrator username and password.

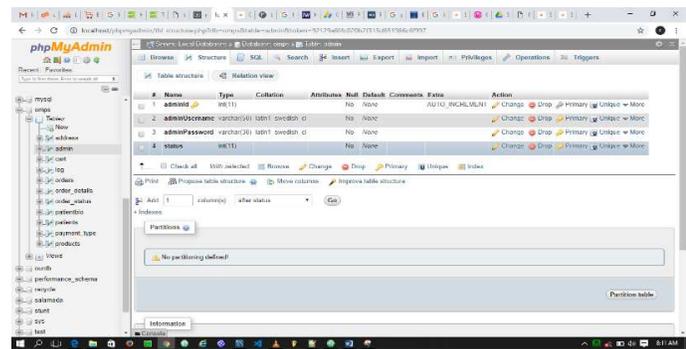


Fig.8 Administrator window

The following Fig.9 is the patient interface table that stores information about the patients such as patient identification number, allergies, blood group, surgeries etc.

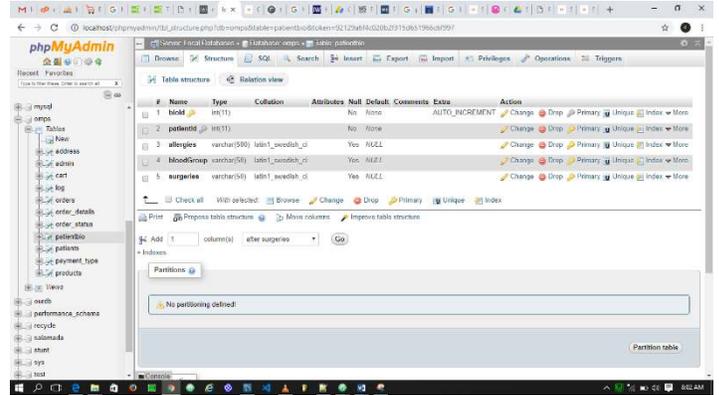


Fig.9 Patient window

Fig.10 is the product window for the input of information relating to product such as product name, product picture, quantity, price, description

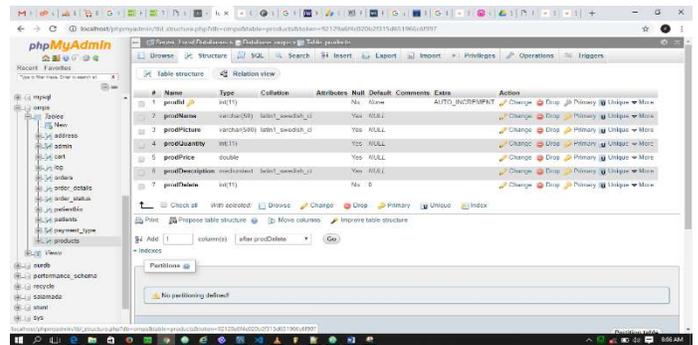


Fig.10 Product window

The cart window in Fig.11 is used to capture the required information for the patient to add and store their products in a cart before purchase. This information include cart name, cart picture, cart price, cart quantity, user ID, product ID

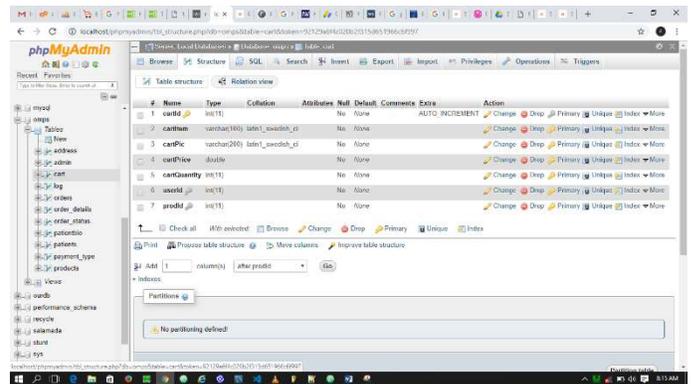


Fig.11 Cart window

The address window in Fig.12 is used to inputs the required information such as the user ID, address for the patient to specify an address where ordered products can be delivered

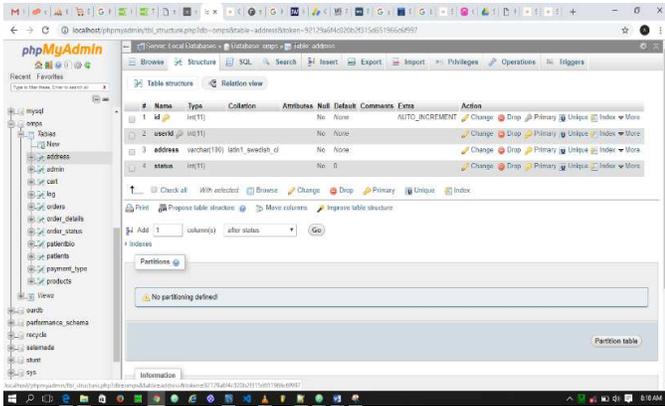


Fig.12 Address window

The order window in Fig.13 is use to enter order information by the ;patient such as user ID, amount, ship address, payment type, paid, order date.

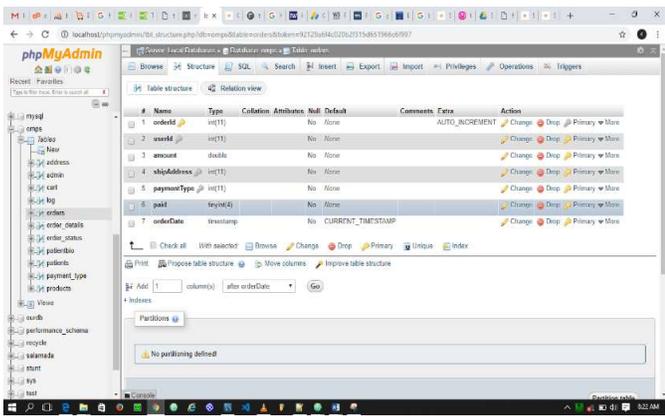


Fig.13 Order window

Fig.14 is the order details window that displays order details

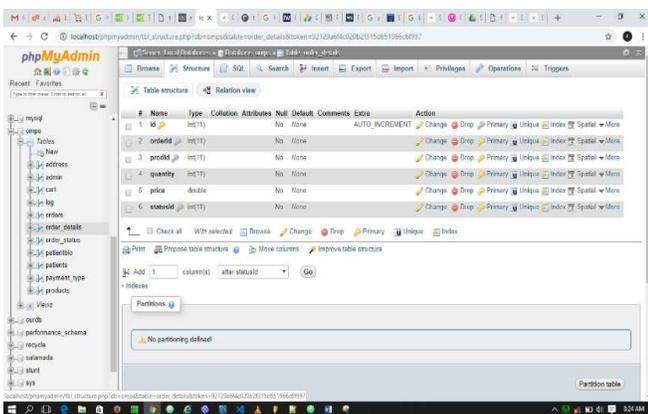


Fig.14 Order details window

X. CONCLUSION

The Online Medical Prescription system is not a new system, but rather a local solution to a problem with a global view of how the system should work. This system looks at how patient’s get their medication through a few clicks on the

internet from the comfort of their home and reducing the mortality rate in the society by encouraging more people to turn to the health specialist’s for their medical aid due to how easy getting their medication is and the reduction of the queuing system in hospitals and wastage of resources in storing patients records. Patients can rely completely on this platform to get their medical prescription and purchase their medications.

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