Pharmacy Management System based on Spring and Hibernate
V.P. Gladis Pushparathi¹, R.Aarthi², T.V. Jothi Shree³, R.Usha⁴
Associate Professor¹, Student²,³,⁴
Department of Computer Science and Engineering
Velammal Institute of Technology, Chennai, India

Abstract:
To support the delivery of patient care, dispensing of drugs and stock management are important issues. In particular, techniques for Electronic Pharmacy Record (EPhR), where it monitors and records the patients progress. The patient will be assigned with unique-id after the registration completes. PMS displays the patient’s personal details and health reports. To achieve the target, Automatic alert information on stock reaching minimum-level and online request generation of stock order is developed. Electronic prescribing (e-prescribing) allows Pharmacists to order and send prescriptions electronically based on the prescription-id. Users who are inactive after a period of time therefore need to be automatically logged out and also former employees who retain access privileges beyond their term of employment represent a potential risk to the confidentiality of patient information. It stores all billing data for dispensed drugs.

Index terms: Pharmacy Management System (PMS), Electronic Pharmacy Record (EPhR), Electronic prescribing.

I. INTRODUCTION
Pharmacy Management System is to automate the process of saving and retrieving information of Patients, Drugs and Bill Payments. The application helps Pharmacists to provide prescription for the patients and keep track of their visits and maintaining the history of the same. The Patient will be assigned with unique-id after the registration completes. PMS stores and updates the necessary information of the drugs for easy retrieval. Automatic alert information on stock reaching minimum-level and online request generation of stock order. PMS must support role-based access control by assigning users to roles based upon their job responsibilities, and assigning roles to access privileges based upon the information access needs of the users carrying out those roles. Role-based access control allows different users to have different levels of access depending on their job functions. In order for the audit function of a PPMS to function as designed, inactive users must be logged out, lest another user take over an inactive session and continue it with the result that the second user’s actions are recorded as if those actions had been taken by the first user. Users who are inactive after a period of time therefore need to be automatically logged out. It is designed to improve efficiency and enhance safety in pharmaceutical store. It is user friendly application for the Pharmacists as it improves the processing efficiency and maintains all the sections of Pharmacy. It is able to process the drug prescription and stores the previous health record into the database. Then, it automatically generates the bill for each patient. It is helpful to improve the efficiency by effective monitoring of activities and services. The main objective of the project is to support the delivery of patient care, dispensing of drugs and stock management. The System must provide ability to record, display, store and exchange patient-specific information in a manner that optimizes workflow within pharmacy teams is critical, as is the ability to exchange information with other systems such as provincial health record systems. PMS store the necessary information of the drugs for easy retrieval by implementing FIFO – First In First Out and LIFO – Last In First Out inventory management. Automatic alert information on stock reaching minimum-level and online request generation of stock order. PMS must support role-based access control by assigning users to roles based upon their job responsibilities, and assigning roles to access privileges based upon the information access needs of the users carrying out those roles. Role-based access control allows different users to have different levels of access depending on their job functions. In order for the audit function of a PPMS to function as designed, inactive users must be logged out, lest another user take over an inactive session and continue it with the result that the second user’s actions are recorded as if those actions had been taken by the first user. Users who are inactive after a period of time therefore need to be automatically logged out. Former employees who retain access privileges beyond their term of employment represent a potential risk to the confidentiality of patient information so their information are removed. PMS stores all billing data for dispensed drugs with a unique identifier.

II. LITERATURE SURVEY
Personal Health Records (PHR) are user-friendly, online solutions that give patients a way of managing their own health information. Many of the current PHR systems allow storage providers to access patients’ data. Recently, architectures of storing PHRs in cloud have been proposed. However, privacy remains a major issue for patients. Consequently, it is a promising method to encrypt PHRs before outsourcing. Encrypting PHRs prevents health organizations from analyzing medical data. In this paper, we propose a protocol that would allow health organizations to produce statistical information about encrypted PHRs stored in the cloud. The protocol depends on two threshold homomorphic cryptosystems:
Goldwasser-Micali (GM) and Paillier. We experimentally evaluate the performance of the proposed protocol and report on the results of implementation. [1] Electronic prescribing (e-prescribing) is an important part of the nation's push to enhance the safety and quality of the prescribing process. E-prescribing allows providers in the ambulatory care setting to send prescriptions electronically to the pharmacy and can be a stand-alone system or part of an integrated electronic health record system. The methodology for this study followed the basic principles of a systematic review. However, there have been significant barriers to implementation including cost, lack of provider support, patient privacy, system errors, and legal issues. [2], Personal health record (PHR) systems are a constantly evolving area in the field of health information technology which motivates an ongoing research towards their evaluation in several different aspects. In this direction, we present an evaluation study on PHR systems that provides an insight on their current status with regard to functional and technical capabilities and we present our extensions to a specific PHR system. Essentially, we provide a requirement analysis that formulates our composite evaluation model which we use to perform a systems review on numerous available solutions. Then, we present our development efforts towards an intelligent PHR system.[3] In order to strengthen hospital pharmacy management and guide drugs rational use, we introduce rational use and analysis software and embed it in the hospital information system (HIS). [Method] Establish drugs basic information and set using rights limit in the HIS. Implement online monitoring of antimicrobial drugs in real time and prompt rational use of the narcotic drugs, psychotropic drugs, and Medicare drugs.. Meanwhile, online monitoring of antimicrobial drugs in real time ensures antibiotics reasonable use. The information technology makes us master the whole hospital drug use situation and achieve the goal of effective monitoring and scientific supervision on the clinical medication. [4] Personal health record (PHR) is considered a crucial part in improving patient outcomes. To find out the barriers in adopting PHR, we have surveyed articles related to personal health record system (PHRS) from 2008 to 2016 and categorized them into 6 different categories such as motivation, barriers, ownerships, interoperability, privacy, and security and portability. In this paper, we propose a framework that can help lift such barriers and motivate people to adopt PHRS. They can manage their health by monitoring and controlling their clinical data using PHRS. [5]

III. PROPOSED SYSTEM

The proposed system PMS provides authorized Pharmacists with the capability to create, access, and update patient-specific medication profile. Each patient will be assigned with a unique patient identifier within the PMS. A pharmacist monitors the patient’s progress and it is recorded in the Electronic Pharmacy Record (EPhR). The data’s can be accessed by anyone who enters the Pharmacy as no unique-id is assigned for each patient. Automatic alert information on stock reaching minimum level and online request generation of stock order. Accurate Pharmacists-id is essential for ensuring that the patients can contact the Pharmacists if additional information is needed. PMS must support role-based access control by assigning users to roles based upon their job responsibilities, and assigning roles to access privileges based upon the information access needs of the users carrying out those roles. Role-based access control allows different users to have different levels of access depending on their job functions. In order for the audit function of a PPMS to function as designed, inactive users must be logged out, lest another user take over an inactive session and continue it with the result that the second user’s actions are recorded as if those actions had been taken by the first user. Users who are inactive after a period of time therefore need to be automatically logged out. This time period should be configurable to best meet the needs of the pharmacy professionals and their workflow. Former employees who retain access privileges beyond their term of employment represent a potential risk to the confidentiality of patient information. Significant breaches of patient confidentiality have been caused by disgruntled former employees whose access to health information systems was not terminated in a timely manner. PMS must, for each e-prescription, clearly identify the patient and the patient's ID as found in a jurisdictional client registry, where such a registry exists. This implies that, where a jurisdictional client registry exists and patient data may be created if required. PMS stores all billing data for dispensed drugs and maintains the billing information with a unique bill-id.

ADVANTAGE OF PROPOSED SYSTEM

- The important advantage of using PMS is that you can automate all your process.
- PMS provides complete security of patient details.
- And, this system reduces your working expenses which will save a lot of time and money.
- Simultaneously updates changes made to any data, item in the entire data base.

IV. SYSTEM ARCHITECTURE DIAGRAM

There are five modules login, Patient Registration, Patient Health Report, Drug Information, Prescription, and Bill Creation. The Pharmacists logins into the system and enters id and password. The user gets the health reports and personal details. The Pharmacists prescribe the medicines and generates the bill. The architecture is shown in the fig 1.1 System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. System design is the process of defining the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system. It is meant to satisfy specific needs and requirements of a business or organization through the engineering of a coherent and well-running system.
When the users enter the following link http://localhost/Pharmacy Management System in the browser, Home page appears which will have a short welcome message; a brief introduction to the purpose of the Patient Tracker, the user can choose appropriate options which are shown in fig 2.

Snapshot 2. Pharmacists Login

This module will be used by Pharmacists to get the health report of the patient. The pharmacists view the old health reports and suggest medicine to the patient. The Pharmacists should have the details of the Medicine to be entered into the system. The system should carry out the defined validations and stores the details in the system. At any point of time, the Pharmacists can deselect all or can go to home page by the clicking home which is shown in fig 3.

Snapshot 3 Patient Registration

This module will be used by Pharmacists to check the availability of the medicine and prescribe the medicine immediately. In case of insufficient medicine the system should generate an alert message stating that Stock is minimum, place the order. The order is placed automatically by using online generation form.

Snapshot 4 Drug Information
The order is placed by using the drug-id and drug-name. It also checks the expiry date of the medicine which is main advantage in our system whereas the in traditional approach the Pharmacists need to keep track of each medicine which is a tedious process which is shown in fig.4.

This module is used to prescribe medicine for the patient and to view their prescription details and consultation history date wise. The Patient and Pharmacists can view their entire history. The Patient need not have a copy of their previous health history. The health issues details can be viewed directly at any time. The Pharmacists generates the prescription by entering their symptoms and prescribing.

**Snapshot-5 Prescription and billing**

**VI. CONCLUSION**

The findings of our study shows that the system is able to record, display, store and exchange patient-specific information in a manner that optimizes workflow within pharmacy. PMS is designed to support the privacy and security of personal health information recorded and stored within the systems. PMS store the necessary information of the drugs for easy retrieval by implementing FIFO – First in First Out and LIFO – Last in First Out inventory management. It also gives automatic alert information on stock reaching minimum-level and online request generation of stock order. Electronic prescribing (e-prescribing) suggests increasing patient safety and patient medication adherence allows Pharmacists to order and send prescriptions electronically based on the prescription-id. PMS stores all billing data for dispensed drugs and maintains the billing information of each patient with a unique bill-id. Thus, it improves the efficiency of the system by effective monitoring of activities and services.

**VII. REFERENCES**


[3]. Tie Hong, ManDong, Jing Zhao,” The application of information technology in the hospital pharmacy management based on HIS”, Family practice management, Pharmacy Management System.

[4]. Qingyuan Hou, Yanhong Zhao, “Use of information technology means to strengthen the prescription regulation of antimicrobial drugs and narcotic drugs.” Pharmacy [J], 2008. 19(22): 1719-1720


[6]. Amber Porterfield, Kate Engelbert, and Alberto Coustasse, Electronic Prescribing: Improving the Efficiency and Accuracy of Prescribing, Online Research Journal.


[17]. Centers for Disease Control and Prevention (CDC) “Meaningful Use.”