



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 12, Issue 4, April 2024

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 8.379**



9940 572 462



6381 907 438



ijircce@gmail.com



www.ijircce.com

# Pharmacy Management System with Integrated E-Prescription

**Balijapally Rahul, Shaik Baji, Dr.P.V.S Siva Prasad**

Student, Department of Computer Science Engineering, Anurag University, Telangana, India

Student, Department of Computer Science Engineering, Anurag University, Telangana, India

Associate Professor, Department of Computer Science Engineering, Anurag University, Telangana, India

**ABSTRACT:** To effectively support the delivery of patient care, a comprehensive Patient Management System (PMS) integrates various functionalities seamlessly. It begins with patient registration, assigning each individual a unique ID for accurate record-keeping. Continual monitoring and recording of patient details ensure healthcare providers have access to up-to-date information crucial for delivering effective care. Electronic prescribing (e-prescribing) allows healthcare professionals to generate and transmit prescriptions electronically, facilitating seamless communication with pharmacists. Stock management features track medication inventory levels, triggering automatic alerts when supplies reach minimum thresholds, ensuring uninterrupted availability of essential medications. Additionally, the system diligently stores billing data associated with dispensed drugs, enabling comprehensive management of financial transactions. Together, these components streamline administrative processes, optimize medication dispensing, and enhance patient care delivery within healthcare settings.

**KEYWORDS:** E-prescription, automatic, integrated.

## I. LITERATURE SURVEY

**Pharmacy Management System based on Spring and Hibernate** is the name of the project. The authors are V.P.GLADIS, PUSHPARATHI, R.AARTHI, T.V.JOTHI SHREE and R.USHA who have developed the project initially. The advantages of the project are:

- Automation: The system automates processes related to patient care, drug dispensing, and stock management, which can save time and reduce manual errors.
- Security: The system provides complete security for patient details, which is important for protecting sensitive health information
- Streamlining: The system reduces working expenses, saving both time and money by streamlining processes.
- The disadvantages of the project are:
- Technical challenges: Implementing and maintaining the system can pose technical challenges, such as software updates, compatibility issues, and potential bugs.
- Financial challenges: Developing and implementing the system can involve significant upfront costs.
- Operational challenges: Pharmacists and staff would require training to use the system, and there may be concerns about data security and privacy.
- Later in order to overcome the challenges another project has been developed

**A Lightweight and Secured Certificate-Based Proxy Signcryption (CB-PS) Scheme for E- Prescription Systems** is the name of the project. The authors are INSAF ULLAH NOOR UL AMIN, AHMAD ALMOGREN, MUHAMMAD ASGHAR KHAN, M. IRFAN UDDIN and QIAOZHI HUA. The advantages of the project are:

- Lightweight: The scheme is designed to work efficiently on resource constrained electronic devices.
- Provable security: The scheme has undergone formal security verification using the AVISPA tool

The disadvantage of the project are:

- Security: Some schemes are not secure due to vulnerabilities such as secure channel dependency and lack of security proofs.
- Performance: Some schemes are not efficient due to heavy exponential operations and high computational requirements.

## **II. METHODOLOGY AND APPROACH**

Automatic alert systems serve as a proactive mechanism, notifying staff when medication stock levels reach predefined thresholds. This feature not only prevents stockouts but also minimizes disruptions in patient care by facilitating prompt stock replenishment through streamlined online order generation processes. The inclusion of pharmacist identification within the system ensures direct communication channels between patients and healthcare providers, fostering patient engagement and satisfaction. Moreover, role-based access control mechanisms enhance data security and privacy by granting users appropriate access privileges based on their job responsibilities and information access needs. For regulatory compliance and patient safety, each prescription is meticulously documented within the PMS, clearly identifying the patient and their corresponding ID from jurisdictional client registries where available. Additionally, billing data associated with dispensed drugs is stored with unique bill IDs, facilitating accurate financial transactions and audit trails. In essence, the PMS not only supports the delivery of patient care through efficient dispensing of drugs and stock management but also prioritizes patient safety, data integrity, and regulatory compliance. By seamlessly integrating these functionalities, the proposed system aims to optimize healthcare workflows, enhance patient outcomes, and elevate the overall quality of care delivery.

### **Modules**

In our proposed project, the Patient Management System (PMS) serves as a robust platform facilitating efficient healthcare delivery through comprehensive medication management and patient record-keeping. Authorized pharmacists are equipped with the capability to create, access, and update patient-specific medication profiles, ensuring personalized care and medication adherence. Each patient is assigned a unique identifier within the PMS, streamlining data retrieval and enhancing patient tracking across healthcare settings.

Pharmacists play a crucial role in monitoring patient progress, with every observation meticulously recorded in the Electronic Pharmacy Record. This real-time data capture enables healthcare professionals to make informed decisions and provide timely interventions as necessary. Furthermore, the accessibility of patient data within the pharmacy premises ensures seamless coordination and continuity of care among multidisciplinary healthcare teams.

**ADMIN MODULE:** The admin module constitutes an extensive array of tools and functionalities aimed at optimizing administrative tasks and enhancing overall efficiency. Within a Property Management System (PMS), the admin module serves as a pivotal component, empowering administrators to efficiently oversee day-to-day operations, enhance guest experiences, and maximize revenue while upholding stringent control and security measures.

**PHARMACIST MODULE:** Within a Pharmacy Management System (PMS), the pharmacist module stands as a cornerstone designed to facilitate pharmacists and pharmacy staff in efficiently managing various facets of pharmacy operations. Tailored specifically to the unique needs and workflow of a pharmacy, this module encompasses essential features and functionalities:

**Prescription Management:** Pharmacists utilize this module to receive, process, and store electronic or paper prescriptions from healthcare providers. It may incorporate tools for verifying prescription authenticity and ensuring legal compliance.

**Patient Profiles:** Pharmacists maintain comprehensive patient profiles encompassing contact information, medication history, allergies, and insurance details. This facilitates personalized care and aids in identifying potential drug interactions.

**Medication Dispensing:** The module enables accurate medication dispensing, encompassing medication selection, labeling, and packaging. It may include barcode scanning functionalities to ensure precision.

**Inventory Management:** Pharmacists manage pharmacy inventory through this module, tracking stock levels and

generating alerts for low stock. It streamlines the process of reordering supplies.

**Drug Interactions:** Pharmacists receive alerts and warnings regarding potential drug interactions when processing new prescriptions, enabling them to avoid hazardous medication combinations.

**Billing and Insurance:** This module facilitates payment processing, insurance billing, and co-pay management. Additionally, it may handle claims processing and insurance verification.

**Patient Education:** Pharmacists provide patients with vital information regarding medication usage, side effects, and proper storage through resources such as patient handouts available within the module.

**Compliance Monitoring:** Pharmacists monitor and promote patient adherence to medication regimens through features such as prescription refill reminders and dosage alerts.

**PATIENT MODULE:** Within a Pharmacy Management System (PMS), the patient module assumes a pivotal role in managing patient-related information and interactions within the pharmacy setting. This module ensures efficient and accurate healthcare service delivery to pharmacy visitors, encompassing the following functionalities:

**Patient Registration:** Pharmacy staff register new patients by collecting demographic information, contact details, and insurance information, while also verifying patient identity and ensuring data accuracy.

**Patient Profiles:** Each registered patient is allocated a dedicated profile containing essential details such as name, date of birth, gender, contact information, and a unique identifier for streamlined record-keeping.

**Medication History:** The module maintains comprehensive medication histories for patients, including records of prescribed medications, dosage information, and known allergies or sensitivities, vital for ensuring patient safety.

**Prescription History:** Tracking prescriptions filled by patients at the pharmacy, this module includes details such as medication, dosage, prescribing physician, and dispensing date.

**Billing and Insurance:** Integrated with billing and insurance information, this module handles prescription payments, co-pays, claims processing, and insurance coverage verification, providing patients with accurate billing information.

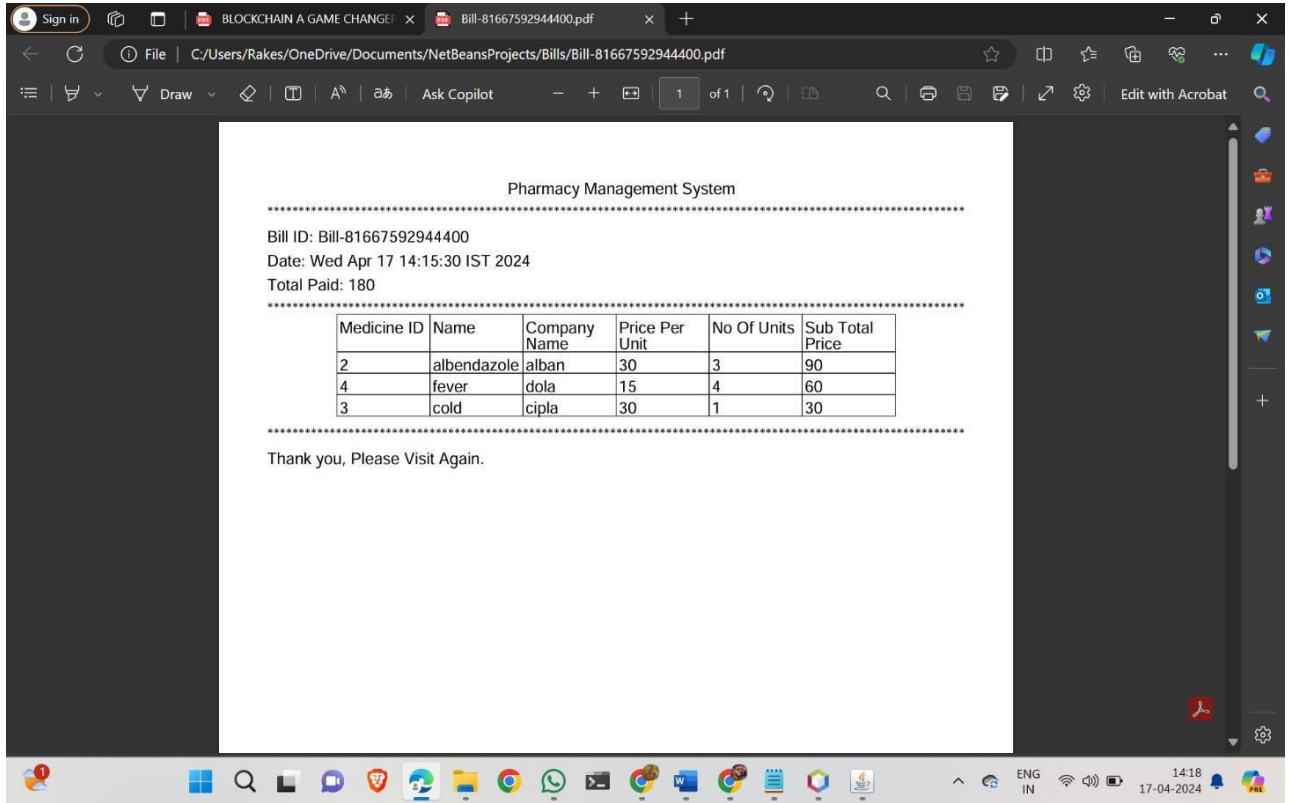
**Appointment Scheduling:** Some pharmacy systems feature appointment scheduling functionalities, allowing patients to schedule consultations with pharmacists or other healthcare professionals for medication therapy management

### **III. RESULTS AND DECLARATION**

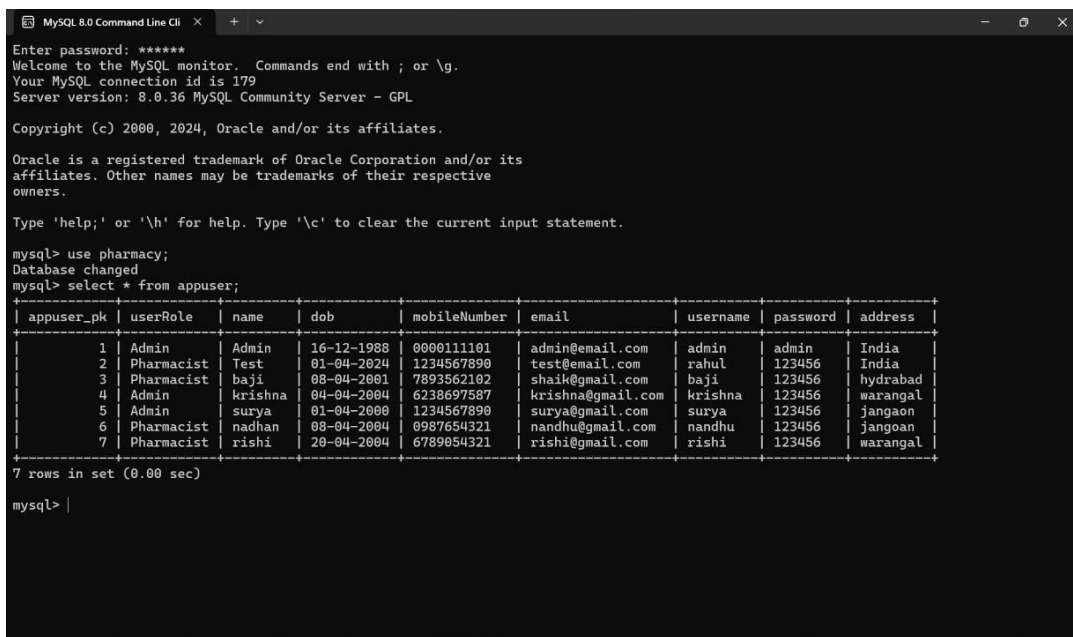
The project has yielded commendable results. We have successfully generated bills generated by the pharmacist and implemented a feature to view patient bills. Additionally, we have stored relevant data, including pictures of databases 1 and 2, on the local disk. Retrieving bills and displaying them to specific patients upon login has been achieved. Furthermore, we have addressed issues related to time management and alert management, particularly concerning low medication counts. This ensures that pharmacists can promptly inform the admin when necessary. The final outcome of the project showcases significant advancements in system functionality and efficiency.



The outcomes are displayed:-



Patients bill



Database 1



View the medicines

```
mysql> select * from medicines;
ERROR 1146 (42S02): Table 'pharmacy.medicines' doesn't exist
mysql> select * from medcines;
ERROR 1146 (42S02): Table 'pharmacy.medcines' doesn't exist
mysql> select * from medicine;
```

medicine_pk	uniqueId	name	companyName	quantity	price
1	1	Test	TEst	0	101
2	2	albendazole	alban	84	30
3	4	fever	dola	26	15
4	3	cold	cipla	49	30

```
4 rows in set (0.00 sec)
```

Database2

IV. CONCLUSION

Following are the findings have been observed in the project:

Electronic Pharmacy Record (EPhR): EPhR enables tracking of patient progress, ensuring accurate and accessible health data, enhancing personalized care, and facilitating effective monitoring of medication histories.

Stock Management: Automated alerts and online stock orders optimize inventory, preventing shortages, and ensuring timely availability of medications, thereby enhancing pharmacy efficiency. Electronic Prescribing (E-prescribing): E-prescribing improves patient safety, enables rapid prescription processing, and reduces errors by allowing pharmacists to electronically order and send prescriptions.

Role-Based Access Control: Ensures data security by restricting user access based on roles, preventing unauthorized access and safeguarding patient information confidentiality.

Billing Management: Stores billing data for dispensed drugs with unique identifiers, streamlining billing processes and ensuring accurate financial transactions.

Following justifications identified in the project:-

Patient Wait Time: The system can reduce wait times by optimizing the prescription processing workflow, automating tasks, and providing real-time updates to patients.

Formula:  $Wait\ Time = (Time\ Prescription\ Ready\ for\ Pickup) - (Time\ Prescription\ Requested)$

Error Rate: The system can improve accuracy by implementing drug interaction checks, patient allergy alerts, and automating checks for prescription accuracy.

Formula:  $Error\ Rate = (Number\ of\ Errors) / (Total\ Prescriptions\ Processed)$

Revenue per Prescription: This parameter measures the average revenue generated from each prescription filled. By optimizing pricing strategies, offering additional services, and increasing prescription volumes, the system can improve this parameter.

Formula:  $Revenue\ per\ Prescription = (Total\ Pharmacy\ Revenue) / (Total\ Prescriptions\ Filled)$ . The reasons for justification improvements are:

Alerts and Warnings: The system can issue alerts for potential drug interactions, patient allergies, or incorrect dosages,



helping pharmacists catch and prevent errors.

**Efficiency:** Streamlining workflows and reducing paperwork saves time, enabling pharmacists to focus on patient care and reducing wait times.

**Automation:** Pharmacy Management Systems automate various tasks, reducing human errors and improving the accuracy and efficiency of prescription filling and inventory management. **Integration:** Integration with E-Prescription systems and electronic health records enhances communication and reduces manual data entry errors.

#### **REFERENCES**

1. INSAF ULLAH , NOOR UL AMIN , AHMAD ALMOGREN , MUHAMMAD ASGHAR KHAN , M. IRFAN UDDIN , AND QIAOZHI HUA “A Lightweight and Secured Certificate Based Proxy Sign cryption (CB-PS) Scheme for E-Prescription Systems “- IEEE
2. V.P. Gladis Pushparathi , R. Aarthi , T.V. Jothi Shree , R. Usha “ Pharmacy Management System based on Spring and Hibernate “
3. S. Endsley, D.C. Kibbe, A. Linares, K. Colorafi, "An introduction to personal health records", IEEE TRANSACTIONS ON vol. 13, pp. 57-62, 2006.
4. J.R. Friction, D. Davies, "Personal Health Records to Improve Health Information Exchange and Patient Safety", Solutions, vol. 4, pp. 1-10, 2008.
5. [5]. Qingyuan Hou, Yanhong Zhao, "Use of information technology means to strengthen the prescription regulation of antimicrobial drugs and narcotic drugs." Pharmacy



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