# PulseRx: Empowering Rural Pharmacies with a PHP and MySQL-Driven Healthcare Ecosystem

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*Abstract:*

*This paper introduces "**PulseRx**" an innovative web application that combines managing patient details, medicine details and stock, e-prescriptions from healthcare providers, supplier details all integrated in one platform. The application helps the pharmacist improve the efficiency and accuracy in handling the store with limited workers. In this paper, we delve into the design, functionality, and implementation of the web application features, highlighting its potential applications and benefits.*
*It also explains all about the "PulseRx" web application.*

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## I. INTRODUCTION

### 1.1. Overview

Advanced pharmacy management necessitates efficient stock management and riskless prescription methods. PulseRx addresses these needs by offering a comprehensive web application that integrates customer, supplier, medicine stock management and e-prescription. This section provides an overview of the challenges faced in medicine stock management and introduces the core features of PulseRX.

## II. RESEARCH METHODOLIGIES

### 2.1. Existing system:

A pharmacist in charge of a small staff pharmacy deals with a range of challenges on a daily basis. At first, they have to balance a lot of tasks, such giving medication, monitoring stock levels, and handling administrative work, which sometimes means they don't have enough time for each task. Moreover, long workdays without breaks can cause fatigue and burnout, which can be harmful to workers' personal health.

and the caliber of the client support they provide. Insufficient staffing also makes it more difficult to handle client demand surges that occur occasionally, which lengthens wait times and may cause dissatisfaction. Furthermore, it may be challenging for the pharmacist to keep up with evolving legal requirements and advancements in pharmaceutical practices if research and training budgets are limited.

### 2.2. Proposed System:

An extensive software program created to make it easier to manage different pharmacy operations effectively usually makes up the current pharmacy management system. Numerous features, such as prescription processing, inventory control, tracking customer information, and drug dispensing, are integrated into this system. By using the software, pharmacy workers and pharmacists can reduce manual errors associated with traditional paper-based systems and streamline workflow procedures. Features including an easy-to-use interface, safe access controls, real-time inventory tracking, and analytical reporting capabilities are frequently included in the current pharmacy management system. Additionally, it might enable smooth communication between pharmacists and healthcare providers by supporting electronic prescriptions. To further ensure flexibility and adaptability, the system may offer customization possibilities for the software to be specifically tailored to the pharmacy's needs.

## III. SYSTEM MODULES

### 3.1. System Architecture and Technologies:

The backbone of PulseRx is a well-structured system architecture that harmonizes various technologies to deliver seamless user experiences. The use of HTML, CSS, JS, Bootstrap for frontend design to create an intuitive and responsive interface. On the backend, MySQL serves as the tool to manage the database and Php

servers as the tool to connect the frontend with database. APIs enable smooth integration of different components. Ensuring data flow seamlessly between frontend and backend.
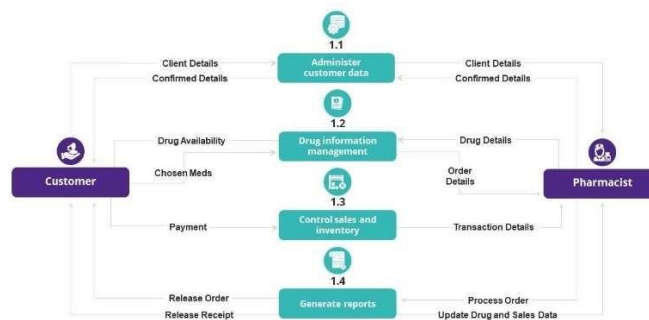


## 3.2. Admin Authentication and Interface

The admin authentication page and interface are crucial components that ensure secure access to and control over the administration tasks of a pharmacy management system. Authorized administrators can access this component by going to the login page and entering their unique credentials, which are often a username and password, to begin the authentication process . A verification procedure compares the accuracy of the information supplied with stored data to ensure that only authorized users can use the system. Furthermore, different administrators could be given varying privileges and responsibilities based on differing degrees of authority. Another advantage of this security measure is that it guarantees that only individuals with the necessary qualifications may carry out crucial tasks within the pharmacy management system. Ensuring that only qualified persons can conduct essential duties within the pharmacy management system is another benefit of this security measure, which also protects sensitive information connected to supplier information, customer details, and drug supply management.



## 3.3. Dashboard

A pharmacy management system's dashboard includes a number of features that are intended to expedite processes and give a thorough overview of important details. The sales overview, which provides real-time or condensed data on the pharmacy's income and performance, is one noteworthy feature. Inventory status is another important component; it provides a quick overview of the current stock levels of medications and highlights any items that might require maintenance. To ensure that e-prescriptions from healthcare providers are processed quickly, the dashboard also makes prescription tracking easier. Administrators are empowered with insights into purchase history, pending orders, and overall financial health thanks to its rapid access to customer information, supplier management, and financial data. Proactive management is made possible by the dashboard's integration of alerts and notifications for things like low stock and pending prescriptions. Features for user management give administrators the ability to manage user access, and capabilities for creating reports provide comprehensive information on a range of pharmacy operations topics. The dashboard makes use of graphical representation to improve data visualization, and it makes sure that only authorized staff may access important information by using secure login and authentication mechanisms. All things considered, the dashboard of the pharmacy management system acts as a focal point for the effective administration, analysis, and observation of various pharmacy operations.

### 3.4. Database for pharmacy management

A pharmacy management system's database is the central component of the whole information architecture, facilitating the management and organization of a wide range of data pertaining to pharmacy operations. Tables for prescription drugs, inventory, clients, suppliers, users, transactions, notifications, reports, and security are some of the database's essential elements. The inventory table ensures effective management by tracking stock levels, while the medication table provides vital information about available pharmaceuticals. While the supplier table arranges supplier data and optimizes the supply chain, the customer table maintains client information and helps provide individualized service. Prescriptions are kept on a special table, while staff and administrator information are managed on the user table, which facilitates safe system access. Information about sales, inventory status, and system notifications can be found in transactions, alerts, and report tables. Encryption keys and access logs are monitored by the security table, which protects sensitive data's integrity and confidentiality. The interconnection of these tables makes it easy to retrieve and manipulate data. All things considered, the database of the pharmacy management system is built to support the features of the system, which include precise drug dispensing, inventory control, customer support, and thorough reporting. The efficacy of the system depends on having a well- organized, secure database that guarantees the correctness, integrity, and accessibility of the data.



### 3.5. E-Prescription

The conventional paper-based prescription procedure has been digitally transformed by electronic prescriptions, or "e-prescriptions," which are stored in a pharmacy management system. Under this method, medical professionals use electronic health record (EHR) systems or specialized software to electronically generate prescriptions. Secure communication of vital patient and drug data from the pharmacy management system to the healthcare provider's system is guaranteed by the electronic format. The problems brought on by illegible handwriting or mistakes in manual transcription are resolved by this technique. When e- prescriptions are sent to pharmacists, they can be easily incorporated into the pharmacy's workflow, allowing for quick reviews and effective medicine administration. The computerized method reduces the possibility of errors, improving accuracy and patient safety. E-prescriptions also facilitate better communication between pharmacists and medical professionals, allowing for prompt explanations and a more efficient patient care process. The prescription history tracking feature of the pharmacy management system helps streamline refill procedures and support patient medication adherence. E- prescriptions, which prioritize accuracy, efficiency, and improved patient care, help modernize pharmacy operations overall.

### 3.6. Settings and customization

A pharmacy management system's settings and customization options offer crucial tools for adjusting the program to the requirements and tastes of the pharmacy. Typically, these features let users and administrators to up different parts of the system, like workflow procedures, user rights, and system preferences. Each employee will have a unique and effective workspace thanks to user-specific options including access levels, notification preferences, and customized dashboards. Pharmacies can also set up inventory criteria, reporting parameters, and medicine pricing to meet their own business needs. Customization of the pharmacy management system allows for improved user experience as well as software adaptation to meet changing business needs, industry best practices, and regulatory regulations. These preferences and Customization options enable pharmacies to enhance productivity, streamline processes, and offer a more specialized and efficient way to handle activities linked to pharmacy operations.



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## IV.     SCREENSHOT OF WEBSITE

### 4.1.     Open Site

## 4.1.    Login
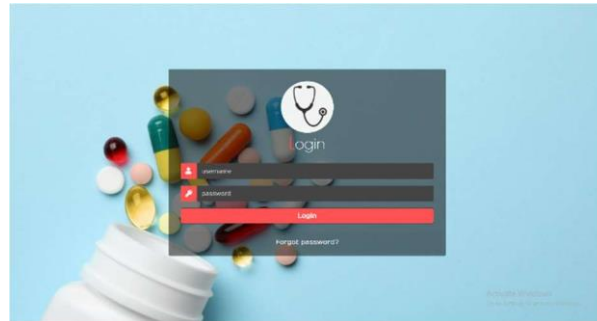


## 4.2.    Dashboard
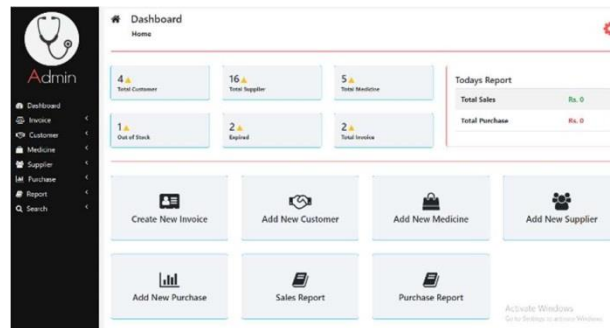


## 4.3.    Stock Management
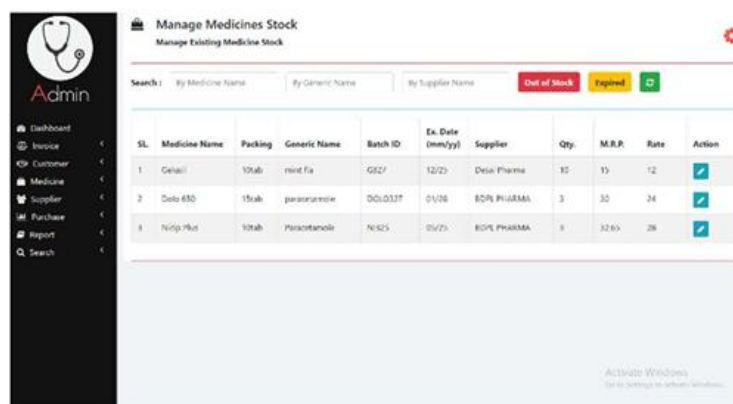
**4.4.    Customer, Suppliers details Management**



**4.5 E-prescriptions**

**4.6. Database**

# V. CONCLUSION AND FUTURE WORK

## 5.1 Conclusion

In summary, a pharmacy management system, which provides a digital solution for the smooth organization and optimization of pharmacy activities, is a significant development in the field of healthcare administration. This powerful system incorporates a few functions, such as inventory control, computerized prescription filling, tracking of client information, and reporting capabilities. Putting such a system in place improves overall productivity by reducing human error, optimizing workflow, and raising medicine administration accuracy. Furthermore, the system facilitates enhanced communication between pharmacists and healthcare practitioners, so bolstering a more cooperative and patient- focused approach to healthcare. Pharmacies can adjust the system to suit their requirements thanks to its customization possibilities, which guarantee flexibility and adherence to changing industry norms. All things considered, a properly integrated pharmacy management system enhances patient safety, operational performance, and a more contemporary, efficient method of pharmacological care.

## 5.2 Future enhancement

Future developments in pharmacy administration have the potential to completely transform the way pharmacies are run by increasing productivity, accuracy, and patient pleasure. Artificial intelligence and machine learning algorithms are examples of cutting-edge technologies that will simplify inventory management, guarantee ideal stock levels and cut waste. Pharmacists will be able to easily access patient information through the integration of electronic health records, which will enable tailored drug counseling and enhance medication adherence. Tele pharmacy services would also enable pharmacies to reach outlying locations, giving underprivileged communities access to healthcare. Automation and robotics will improve dispensing procedures even further, reducing mistakes and freeing up pharmacists' time for patient care tasks. With these developments, pharmacy management is poised to usher in a new era of innovation that will ultimately improve patient care quality while optimizing operational effectiveness.

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