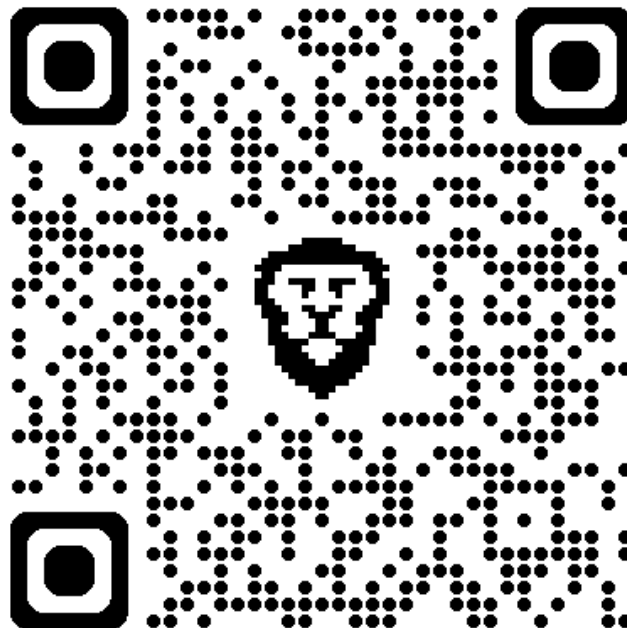


Pharmacy Inventory Management System (IMS) Project Report

Developed by Pharmacy IMS Team

Project Source Code



https://github.com/uzzal-portfolio/Pharmacy_IMS

Contents

1	Introduction	3
2	Motivation	3
3	Technical Specification	3
3.1	Technical Perspective	3
3.2	Business Perspective	4
4	Analysis & Design	5
4.1	System Flow Chart	5
4.2	Data Flow Diagrams (DFD)	6
4.2.1	Level 0 DFD (Context Diagram)	6
4.2.2	Level 1 DFD (Inventory Module)	7
4.3	Decision Tree (Access Control)	8
4.4	Decision Table (Role Permissions)	9
4.5	Entity Relationship Diagram (ERD)	9
4.6	Gantt Chart (3 Month Timeline)	9
5	User Manual	10
5.1	Login Page	10
5.2	Dashboard	10
5.3	Inventory Management	11
5.3.1	Add New Medicine	11
5.4	Point of Sale (POS)	12
5.5	Customer Management	13
5.6	Procurement	13
5.7	Reports	14
6	Dependencies and Requirements	15
6.1	Software Requirements	15
6.2	Hardware Requirements	15
6.3	Deployment Network Diagram	16
7	Conclusion	16

1 Introduction

The **Pharmacy Inventory Management System (IMS)** is an open-source web application designed to democratize pharmacy automation. Released under the ****GNU General Public License v3.0****, this project embraces the spirit of "free software"—free to run, study, change, and share. Unlike proprietary systems locked behind expensive licenses, our IMS is built on a "primal stack" of **HTML, CSS, JavaScript, and PHP**. These core technologies are the backbone of the web and are widely understood by developers globally. This strategic choice ensures that the codebase remains accessible, allowing students, hobbyists, and business owners to easily clone the repository and tailor the system to their specific needs without a steep learning curve. By leveraging the power of open source, we aim to provide a robust, flexible, and cost-effective solution for modernizing pharmacy operations while fostering a community of collaborative improvement.

2 Motivation

The primary motivation for this project drives from the belief that essential business tools should be accessible to everyone. Many existing inventory systems are either prohibitively expensive or too complex to modify. We wanted to create a solution that breaks down these barriers. By using a foundational technology stack (HTML/PHP/MySQL), we ensure that even developers with basic knowledge can maintain and enhance the system. This "easy-to-modify" architecture empowers users to clone the project and adapt it for unique workflows, whether for a small local pharmacy or a large retail chain, ensuring true technological freedom and adaptability.

3 Technical Specification

This section outlines the architectural and strategic decisions that form the foundation of the Pharmacy IMS.

3.1 Technical Perspective

The system architecture follows a classic ****Model-View-Controller (MVC)**** inspired pattern, implemented using raw PHP for transparency and ease of modification.

1. **Frontend:** Built with ****Bootstrap 4**** and ****jQuery****, providing a responsive and interactive user interface without the complexity of heavy frontend frameworks.
2. **Backend:** Core logic is written in ****Vanilla PHP (v7.4+)****. This ensures compatibility with almost any standard web hosting environment.
3. **Database:** ****MySQL**** is used for data persistence, interacting via ****PDO (PHP Data Objects)**** to ensure security against SQL injection.
4. **Architecture:**
 - **Modular Design:** Features like Inventory, Sales, and Reports are separated into distinct modules.

- **RBAC:** A robust Role-Based Access Control system restricts unauthorized access.
- **Security:** Input validation, session management, and password hashing (bcrypt) are strictly implemented.

3.2 Business Perspective

From a business standpoint, the system is designed to minimize operational costs while maximizing efficiency.

1. **Cost-Effectiveness:** Being open-source eliminates licensing fees, making it ideal for small to medium independent pharmacies.
2. **Scalability:** The modular database design allows for easy addition of new branches or features (e.g., e-commerce integration) in the future.
3. **Reliability:** Automated calculations for sales and stock levels reduce human error, preventing revenue leakage.
4. **Compliance:** The expiry tracking feature ensures no expired medication is sold, protecting the business from legal liabilities and maintaining customer trust.

4 Analysis & Design

4.1 System Flow Chart

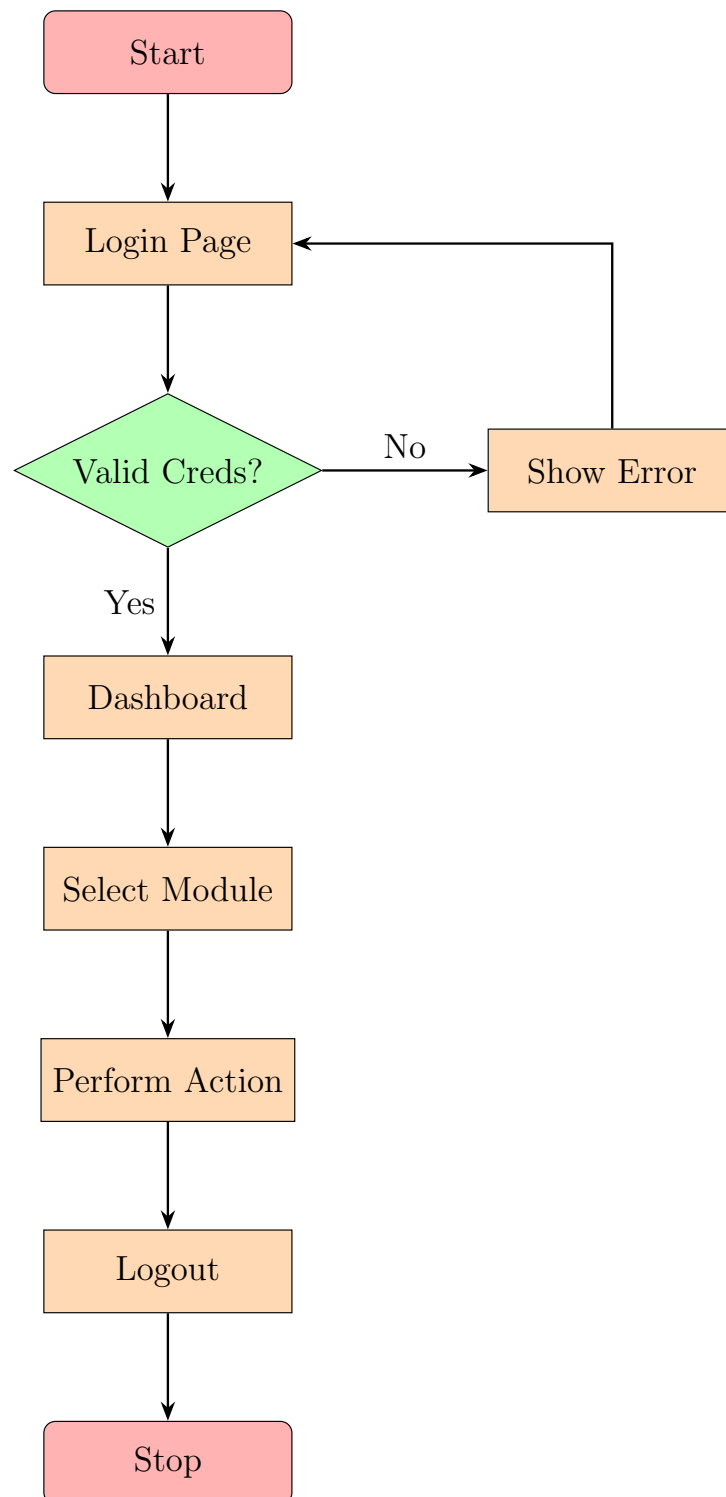


Figure 1: System Flow Chart

4.2 Data Flow Diagrams (DFD)

4.2.1 Level 0 DFD (Context Diagram)

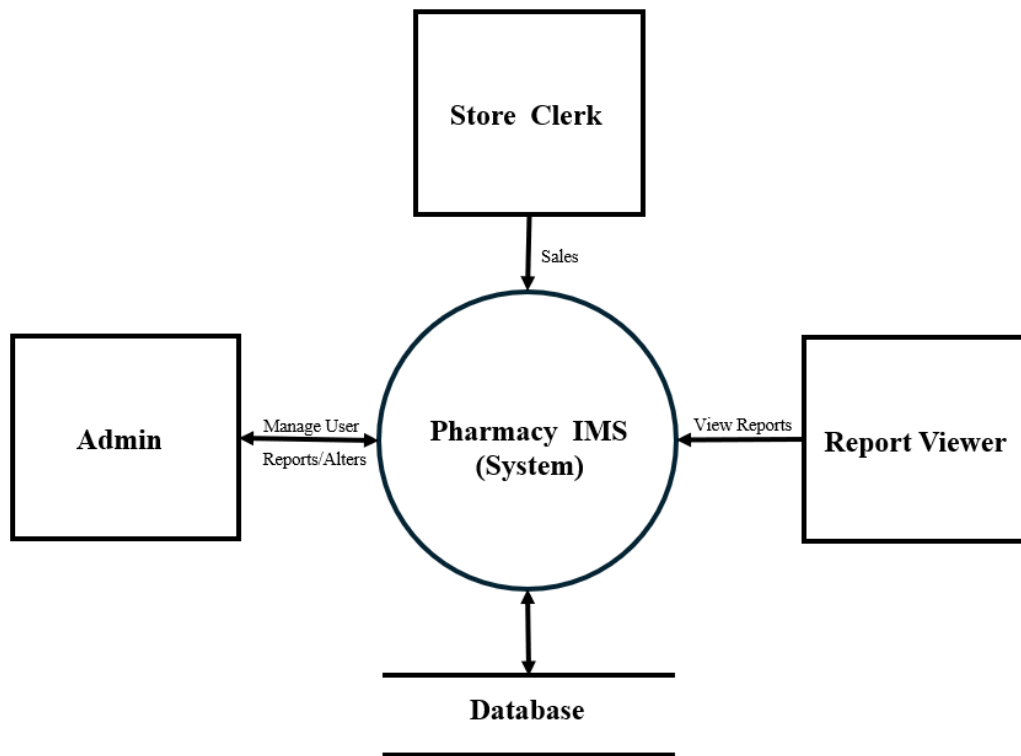


Figure 2: Level 0 DFD

4.2.2 Level 1 DFD (Inventory Module)

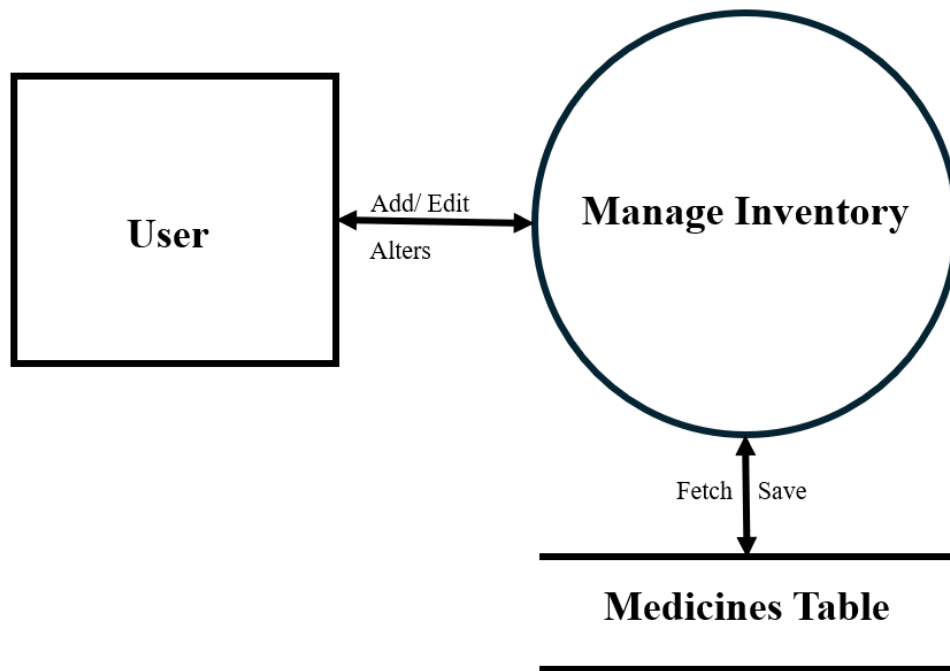


Figure 3: Level 1 DFD

4.3 Decision Tree (Access Control)

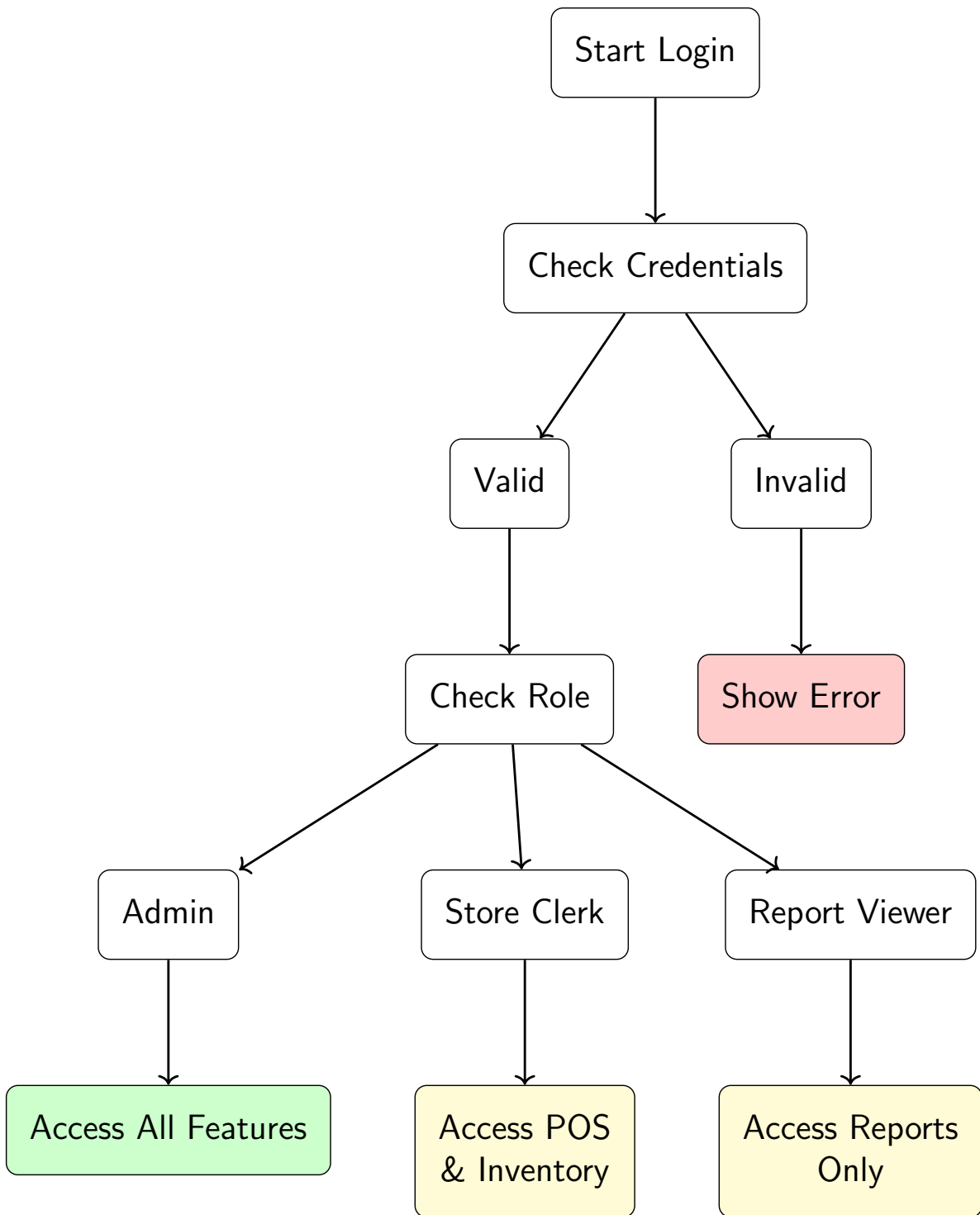


Figure 4: Access Control Decision Tree

4.4 Decision Table (Role Permissions)

Features / Roles	Admin	Store Clerk	Report Viewer
Manage Inventory	Yes	Yes	No
Process Sales (POS)	Yes	Yes	No
View Reports	Yes	No	Yes
Manage Users	Yes	No	No
Manage Customers	Yes	No	No

Table 1: System Access Control Matrix

4.5 Entity Relationship Diagram (ERD)

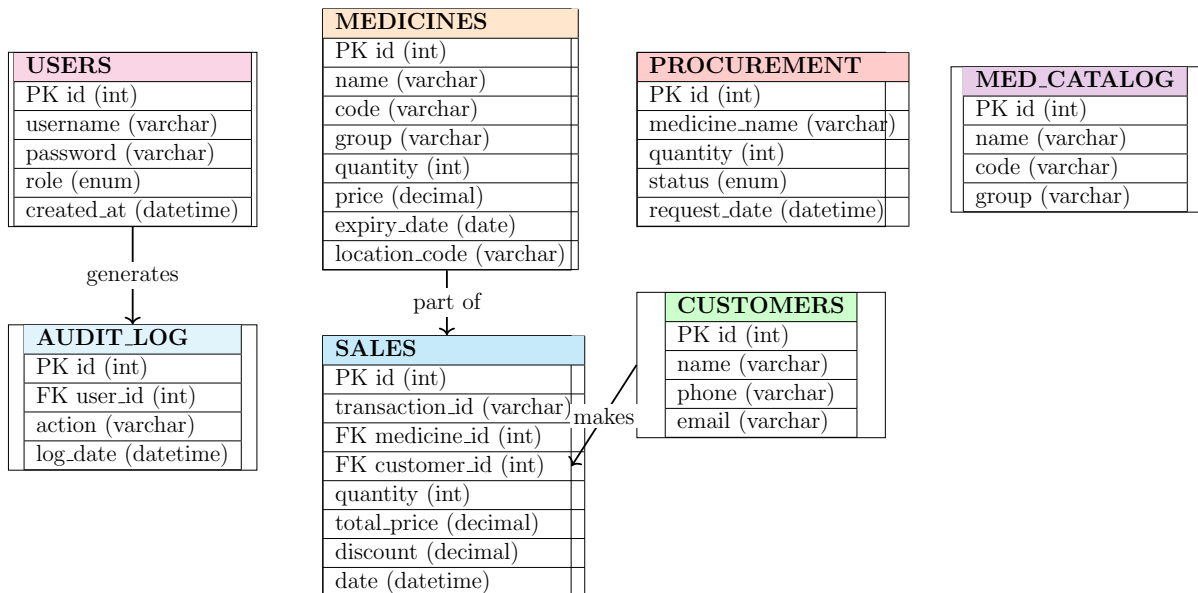


Figure 5: Entity Relationship Diagram (Database Schema)

4.6 Gantt Chart (3 Month Timeline)

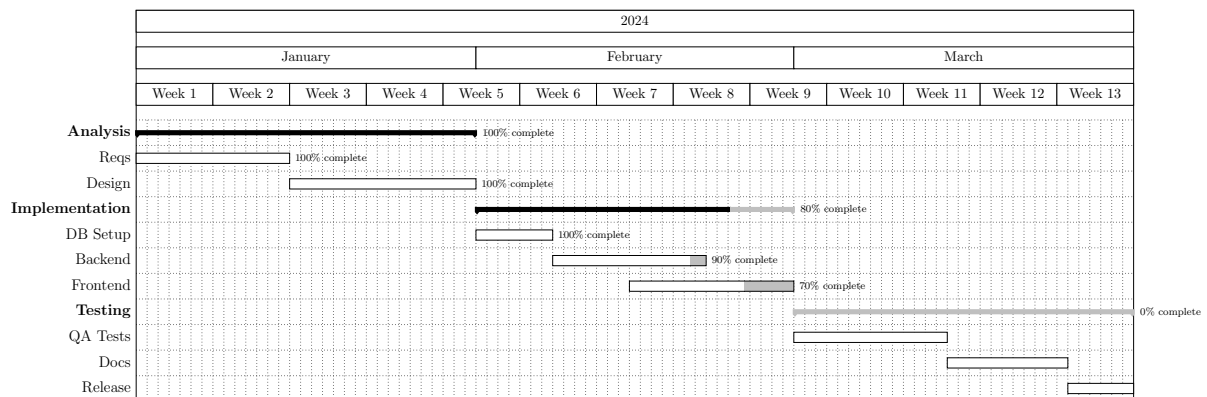


Figure 6: Project Timeline

5 User Manual

The User Manual provides a step-by-step guide to navigating and utilizing the key features of the Pharmacy IMS.

5.1 Login Page

URL: http://localhost/Pharmacy_IMS/public/login.php

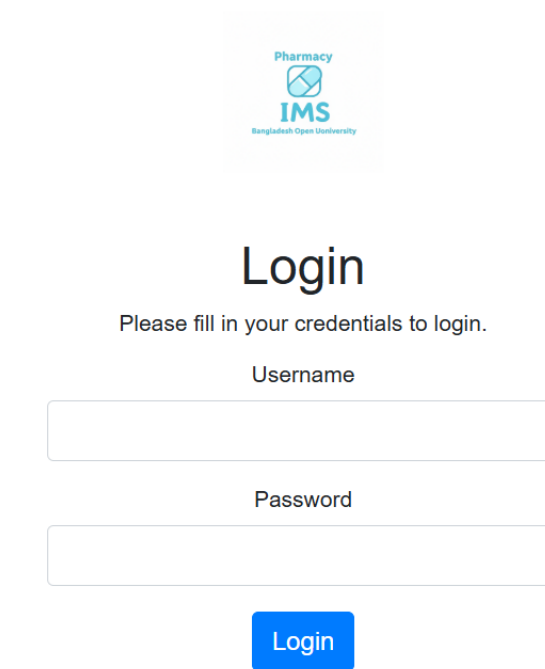
The screenshot shows the login page of the Pharmacy IMS. At the top, there is a logo for 'Pharmacy IMS' with 'Bangladesh Open University' written below it. The main heading is 'Login'. Below the heading, it says 'Please fill in your credentials to login.' There are two input fields: 'Username' and 'Password'. Below the 'Password' field is a blue 'Login' button.

Figure 7: Login Page Screenshot

- Enter your unique **Username** and **Password**.
- Click **Login**.
- If credentials are valid, you are redirected to the Dashboard based on your role (Admin, Clerk, or Viewer).

5.2 Dashboard

URL: http://localhost/Pharmacy_IMS/public/welcome.php

- View total stats: Total Medicines, Total Sales, Expiring Soon.
- Quick links to main modules: Inventory, POS, Procurement, Reports.

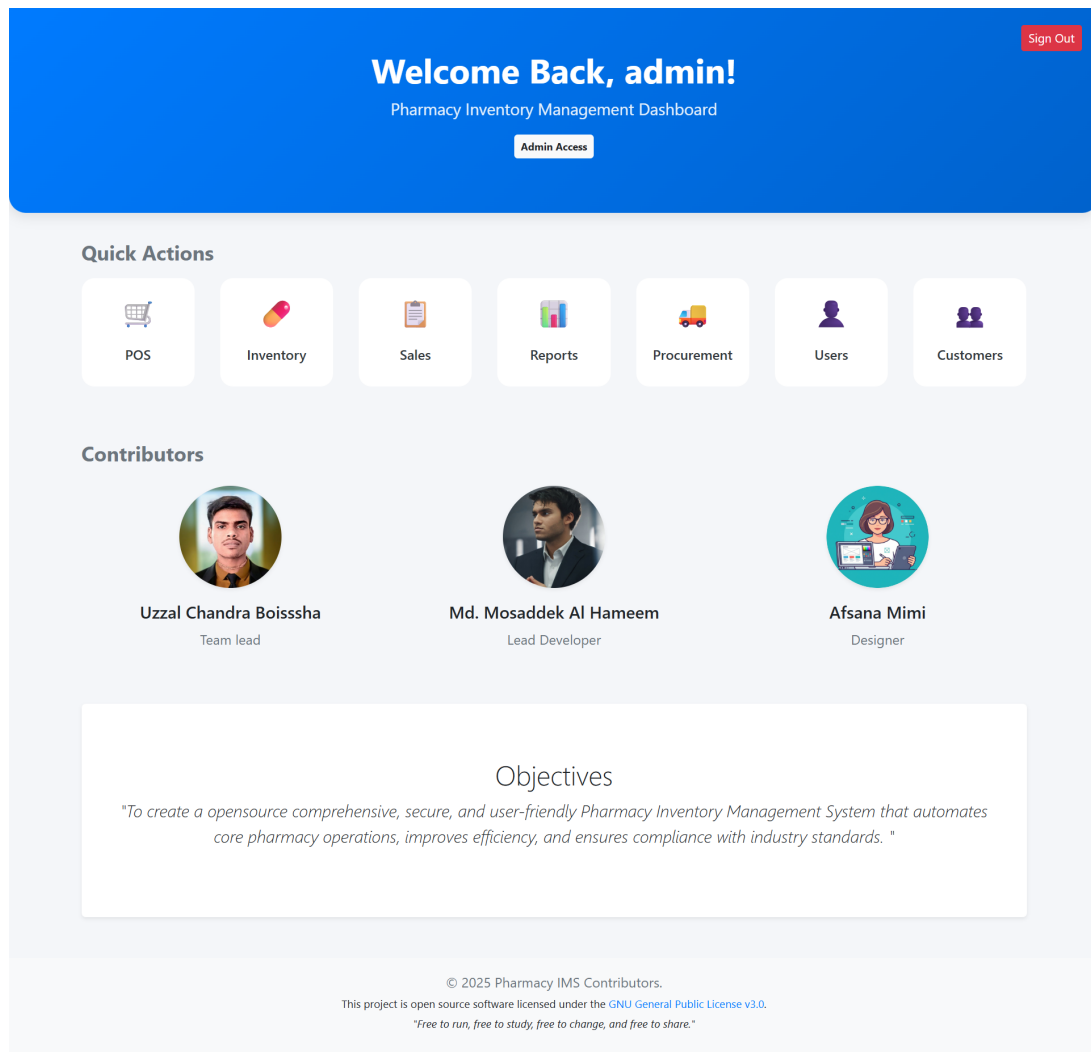



Figure 8: Dashboard Screenshot

5.3 Inventory Management

URL: http://localhost/Pharmacy_IMS/public/inventory.php

5.3.1 Add New Medicine

1. Click **Add New Medicine**.
2. **Medicine Name**: auto-complete enabled to prevent duplicates.
3. **Medicine Code**: Unique code. System alert if code already exists.
4. **Group**: Categorize medicine (e.g., Tablet, Syrup).
5. Fill Quantity, Price, Expiry Date, and Location.
6. Click **Add Medicine**.


[Home](#)
[Inventory](#)
[Sales History](#)
[POS](#)
[Procurement](#)
[Reports](#)
[User Management](#)
[Customer Database](#)
Hi, admin (admin) [Sign Out](#)

Inventory Management

Add New Medicine
[Upload CSV Catalog](#)

Medicine Name

Medicine Code

Medicine Group

Quantity

Price

Expiry Date

Location Code

Add Medicine

Current Inventory

ID	Name	Code	Group	Quantity	Price	Expiry Date	Location	Actions
No medicines found.								

Figure 9: Inventory Management Screenshot

5.4 Point of Sale (POS)

URL: http://localhost/Pharmacy_IMS/public/pos.php

- **Select Customer:** Search by Name or Phone number.
- **New Customer:** If not found, simply type the new name and proceed. The system auto-creates the profile.
- **Add Items:** Search medicine by Name or Code.
- **Expiry Check:** System blocks adding expired items to the cart.
- **Checkout:** Review cart, apply discounts, and complete sale.

Figure 10: Point of Sale (POS) Screenshot

5.5 Customer Management

URL: http://localhost/Pharmacy_IMS/public/customer_database.php

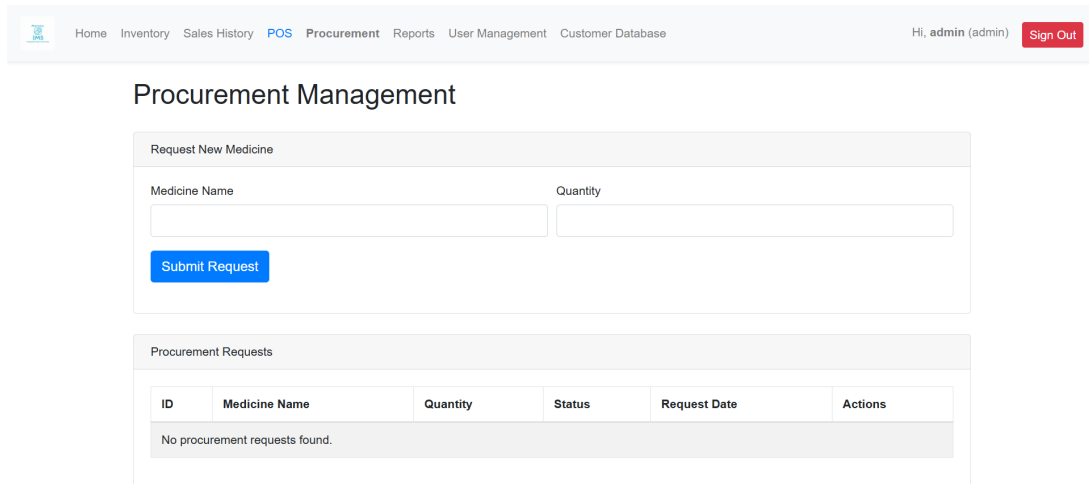
1. **Add Customer:** Enter Name (Required).
2. **Phone/Email:** Optional fields for quick entry.
3. **Validation:** Phone field accepts only digits and '+' (max 15 chars).

Figure 11: Customer Management Screenshot

5.6 Procurement

URL: http://localhost/Pharmacy_IMS/public/procurement.php

- **Request Stock:** Search for medicine by Name or Code. The form auto-fills the name.
- **Quantity:** Enter required amount.
- **Status:** Track requests as Pending, Approved, or Rejected.



Home Inventory Sales History POS Procurement Reports User Management Customer Database Hi, admin (admin) Sign Out

Procurement Management

Request New Medicine

Medicine Name Quantity

Submit Request

Procurement Requests

ID	Medicine Name	Quantity	Status	Request Date	Actions
No procurement requests found.					

Figure 12: Procurement Screenshot

5.7 Reports

URL: http://localhost/Pharmacy_IMS/public/reports.php Select a report type to generate a structured PDF:

- **Stock Report:** Current inventory status.
- **Sales Report:** Detailed financial logs.
- **Expiry Report:** List of medicines expiring soon.
- **Procurement Report:** Log of stock requests.

Generate Reports

Report Configuration

Start Date: 12/18/2025 End Date: 12/18/2025

Select Report Type:

- Stock Report**
Current inventory status and location.
- Sales Report**
Sales transactions, discounts, and revenue.
- Expiry Report**
Medicines expiring within date range.
- Procurement Report**
Medicine procurement requests and status.

Figure 13: Reports Screenshot

6 Dependencies and Requirements

6.1 Software Requirements

- **Web Server:** Apache HTTP Server (via XAMPP v7.4+ recommended).
- **Database:** MySQL or MariaDB.
- **Language:** PHP 7.4 or higher.
- **Browser:** Modern web browser (Chrome, Firefox, Edge).

6.2 Hardware Requirements

- **Processor:** Intel Core i3 or equivalent.
- **RAM:** 4GB Minimum (8GB Recommended).
- **Storage:** 500MB free disk space for application and database.

6.3 Deployment Network Diagram

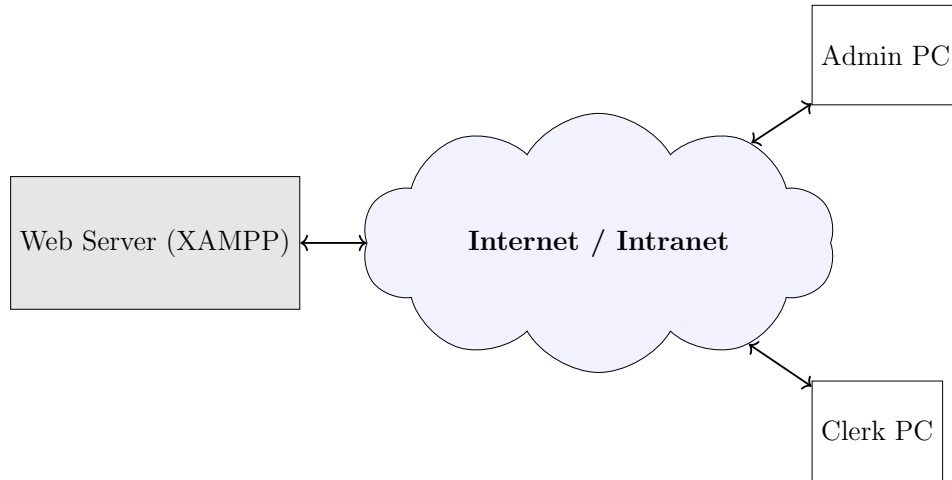


Figure 14: Deployment Network Diagram

7 Conclusion

The Pharmacy Inventory Management System successfully achieves its goal of digitizing and automating key pharmacy operations. By providing a robust platform for inventory control, sales processing, and reporting, the system minimizes manual errors and enhances operational efficiency. The modular design with Role-Based Access Control ensures security and scalability. Future enhancements could include cloud integration, barcode scanner support, and advanced predictive analytics for stock procurement, further solidifying its value as an essential tool for modern pharmacy management.