

Pharmacy Inventory & Stock Management System

1. Introduction

The Pharmacy Inventory & Stock Management System is designed to help pharmacies efficiently manage their medicine stocks, track expiry dates, and ensure timely restocking. By allowing pharmacists to maintain detailed records, monitor stock levels, and generate alerts for low or expiring medicines, this system helps improve operational efficiency, reduce waste, and ensure patient safety. The solution is built using technologies like FastAPI, Postman and MongoDB to handle real-time data management and reporting.

2. Objectives

- Provide a structured system to register and manage medicines with details like name, brand, quantity, price, and expiry date.
- Monitor stock availability and for low stock or near-expiry medicines.
- Ensure scalability and performance for large pharmacies.
- Track sales and manage stock updates when medicines are sold, keeping accurate inventory and plan for restocking.

3. Technologies Used

- Backend Framework: FastAPI (Python) – for creating RESTful APIs quickly and efficiently.
- Database: MongoDB – flexible document-based storage for medicine records, alerts, and sales tracking.
- Version Control: GitHub – for tracking changes and managing source code.
- Testing Tools: Postman – for API testing and validation.

4. Features

1. **Medicine Registration:** Add and manage medicine details including name, brand, quantity, price, expiry date, and description.
2. **Stock Monitoring:** Track current stock levels and receive alerts when stock falls below predefined thresholds.
3. **Expiry Alerts:** Identify medicines nearing their expiry for timely removal or restocking.

4. **Search & Filter:** Quickly search medicines by name, brand, or expiry date to assist pharmacists in daily operations.
5. **Sales Monitoring:**
 - Record medicine sales by specifying the medicine name and quantity sold.
 - Automatically update the available stock when a sale is recorded.
 - View all recorded sales and filter them by medicine name.
 - Helps in planning stock and ensuring that medicines are always available when needed.

5. System Architecture

User Interface API (Postman) → Backend API (FastAPI) → MongoDB Database (medicine records, stock, expiry alerts, and sales records)

The system architecture allows seamless data flow between pharmacists and the database for stock management and sales tracking.

6. Workflow

1. Medicines are added with all relevant details including batch numbers, price, and expiry dates.
2. The stock levels and expiry dates are continuously monitored.
3. Pharmacists view, update, or delete medicine records as needed to maintain accurate stock information.
4. When a medicine is sold, pharmacists record the sale, and the system updates the stock automatically.

7. Benefits

- Improved Efficiency: Easy access to stock details.
- Patient Safety: Reduces risks from expired or unavailable medicines.
- Cost Saving: Minimizes waste due to expired stock and avoids overstocking.
- Scalability: Designed to handle large volumes of medicines and multiple users.
- Real-Time Management: Fast updates and reporting through API-driven architecture.
- Better Inventory Control: Automated stock updates after sales help in keeping accurate records and planning for timely restocking.

8. Future Enhancements

- Integration with mobile apps for pharmacists to manage stock on the go.
- Email and SMS alerts for low stock and expiry notifications.
- Supplier integration for automated restocking requests.
- Barcode scanning for quick medicine entry.
- Analytics dashboards for insights into sales and inventory patterns.
- Advanced Sales Reports: Providing graphs and patterns to help pharmacies forecast demand and optimize stock levels.

9. Conclusion

The Pharmacy Inventory & Stock Management System is a robust and scalable solution that addresses the challenges of inventory control in pharmacies. By using FastAPI and MongoDB, it ensures real-time tracking, easy data access, and efficient management of medicines. This system helps pharmacies operate smoothly while ensuring patient safety and reducing wastage. With the addition of the Sales feature, pharmacies can now track sales, manage stock updates automatically, and better plan for their inventory needs, making the system even more efficient and useful.

The logo for ZennialPro features the word "ZennialPro" in a large, light grey, sans-serif font. To the right of the text is a small icon consisting of two overlapping squares, one light blue and one light orange, arranged in a stylized 'Z' or 'P' shape.

ZennialPro