System Design Document

1. Introduction

The ERP Pharmacy System is designed to streamline and integrate all pharmacy operations, improving efficiency and service quality. This system will manage inventory, sales, purchasing, patient records, billing, and regulatory compliance, thereby supporting pharmacists in providing better healthcare services.

2. Objectives

- Inventory Management: Maintain accurate inventory records, track stock levels, and manage suppliers.

- Prescription Management: Store and manage patient prescriptions securely.

- Sales Tracking: Process sales transactions and maintain transaction records.

- Reporting: Generate reports for analysis and compliance.

- Integration: Seamlessly integrate with other healthcare systems and pharmacies.

3. System Architecture

The system architecture of the ERP Pharmacy System can be illustrated using a 3-layer architecture:

- Presentation Layer: User interface where pharmacists and staff interact with the system. This layer could include web and mobile applications.

- Business Logic Layer (Service Layer): Contains the core functionalities of the system, implementing business rules and processes.

- Data Layer: Database management system (DBMS) for data storage, management, and retrieval.

4. Functional Requirements

4.1 User Management

- User registration and authentication (Pharmacists, Technicians, Admins).

- Role-based access control.

4.2 Inventory Management

- Track stock levels and expiration dates.

- Manage orders from suppliers.

- Automatic reordering of low stock items.

4.3 Prescription Management

- Database for storing patient prescriptions.

- Alert system for drug interactions and allergies.

4.4 Sales and Billing

- Point of Sale (POS) system integration for processing sales transactions.

- Billing module for insurance claims and patient invoices.

### 4.5 Reporting

- Generate inventory reports, sales reports, and compliance reports.

4.6 Integration

- Ability to integrate with EHR (Electronic Health Records) systems and other healthcare systems.

Non-Functional Requirements

- Performance: The system should handle up to 1,000 concurrent users with minimal latency.

- Scalability: Must support scalability to accommodate an increasing number of users and transactions.

- Availability: The system should be available 99.9% of the time.

- Regulatory Compliance: The system must comply with healthcare regulations (HIPAA, GDPR).