Project: MediCart – Pharmacy Order & Inventory Management System

1. Introduction

MediCart is designed for pharmacy chains to manage prescription orders, inventory control, and billing workflows in a single platform. It enables customers to place medicine orders online, track delivery status, and upload prescriptions for verification. The system supports multiple pharmacy outlets, provides centralized stock visibility, and offers analytics for sales and inventory turnover. MediCart improves operational efficiency, reduces stockouts, and enhances customer convenience through digital ordering and automated billing.

Supports backend development using **Java (Spring Boot)** and **.NET (ASP.NET Core)**.

2. Module Overview

2.1 Customer Registration & Prescription Upload Module

2.2 Medicine Catalog & Inventory Management Module

2.3 Order Processing & Delivery Scheduling Module

2.4 Billing & Payment Management Module

2.5 Pharmacy Analytics & Reporting Module

3. Architecture Overview

- **Frontend:** Angular/React for customer and admin dashboards
- **Backend:** REST APIs for order and inventory workflows
- **Database:** MySQL/SQL Server for structured medicine and order data

4. Module-Wise Design

4.1 Customer Registration & Prescription Upload Module

Features:

- Register customers and maintain profiles
- Upload prescriptions for validation
- Enable secure login and authentication

Entities:

Customer

- CustomerID
- Name
- ContactInfo

- PrescriptionFile
- AccountStatus

4.2 Medicine Catalog & Inventory Management Module

Features:

- Maintain medicine details and stock levels
- Track expiry dates and batch numbers
- Synchronize inventory across outlets

Entities:

Medicine

- MedicineID
- Name
- Category
- Price
- StockQuantity
- ExpiryDate

4.3 Order Processing & Delivery Scheduling Module

Features:

- Process medicine orders linked to prescriptions
- Schedule deliveries and pickups
- Handle cancellations and returns

Entities:

Order

- OrderID
- CustomerID
- MedicineID
- Quantity
- Status (PENDING, DISPATCHED, DELIVERED)

4.4 Billing & Payment Management Module

Features:

- Generate invoices for completed orders
- Track payments and outstanding balances
- Integrate with multiple payment gateways

Entities:

Invoice

- InvoiceID
- OrderID
- Amount
- PaymentStatus
- InvoiceDate

4.5 Pharmacy Analytics & Reporting Module

Features:

- Generate reports on sales, inventory turnover, and prescription trends
- Provide dashboards for pharmacy managers
- Export compliance and audit reports

Entities:

PharmacyReport

- ReportID
- Metrics (SalesVolume, StockStatus)
- GeneratedDate

5. Deployment Strategy

- **Local:** Developer machines with sample medicine and order data
- **Production:** Cloud deployment with secure APIs and dashboards

6. Database Design

Tables: Customer → Medicine → Order → Invoice → PharmacyReport

7. User Interface Design

Wireframes:

- **Customer Portal:** Upload prescriptions, place orders, track deliveries
- **Admin Dashboard:** Manage inventory, monitor orders, view analytics

8. Non-Functional Requirements

- **Performance:** Handle 500,000 medicine orders per month
- **Security:** Encrypted data, compliance with HIPAA and PCI DSS
- **Scalability:** Support multiple pharmacy outlets and online orders

9. Assumptions & Constraints

- Customers provide valid prescriptions for restricted medicines
- Initial rollout for urban pharmacy chains only