

Chapter 1: Introduction

1.1 Aim of the Project

The QuickMeds Medicine Warehouse and Local Store Management System is a web-based application designed to centralize and streamline medicine inventory management and sales. The main warehouse (managed by the super admin) handles bulk inventory and tracks transactions with local stores. Each local store (managed by sub-admins) can order medicines, manage its inventory, and track sales, both online and offline. The system ensures secure, role-based access, enabling efficient collaboration between the main warehouse and local branches.

The primary goals include:

- Centralized tracking of medicine inventory for the main warehouse.
- Role-based management for super admin, sub-admins, and employees.
- Real-time synchronization of orders and sales across all branches.
- Enhanced revenue tracking and reporting capabilities for better decision-making.

1.2 Project Scope

The QuickMeds Medicine Warehouse and Local Store Management System focuses on streamlining operations between a central warehouse and distributed local stores. It ensures efficient inventory management, sales tracking, and revenue monitoring for different user roles.

In-Scope Features:

- **Super Admins:** Manage central inventory by adding, updating, and removing medicines, approving or rejecting sub-admin orders, tracking revenue, and maintaining sales logs.
- **Sub Admins:** Access the main warehouse inventory, place medicine orders, manage local store inventory, set prices with margins, record offline sales, and generate revenue reports.
- **Employees:** Record offline transactions, update the central database, and ensure data synchronization for accurate sales tracking.

Out-of-Scope Features:

- Payment gateway integration (the current scope focuses on inventory and sales management).

- Advanced analytics and machine learning-based sales predictions (may be included in future phases).

1.3 Project Objective

The objectives of this project are to:

1. **Centralize Inventory Management:** Provide a system for the super admin to manage and monitor the entire medicine inventory efficiently.
2. **Enable Local Store Operations:** Allow sub-admins to access the main inventory, place orders, and track sales performance.
3. **Facilitate Offline Sales Recording:** Equip employees with tools to record offline transactions, ensuring a complete sales record in the database.
4. **Revenue Reporting:** Generate detailed revenue and sales reports for super admins to track the performance of each local store.
5. **Ensure Security and Access Control:** Implement role-based authentication to restrict and streamline access for super admins, sub-admins, and employees.
6. **Support Franchise Orders:** Allow franchises (admins) to place orders for required medicines directly from the central inventory system.

The system aims to improve operational efficiency, minimize manual errors, and enhance collaboration between the main warehouse and local stores.

1.4 Project Modules

The system is divided into the following key modules:

1. Authentication Module:
2. User Management Module
3. Inventory Management Module
4. Order Management Module
5. Sales Management Module
6. Revenue Tracking & Reports Module
7. Notifications & Alerts Module
8. Invoice & Billing Module
9. Customer Management Module (For Sub-Admins & Employees)
10. Dashboard & Analytics Module

1.5 Project basic requirements

1.5.1 Hardware

Component	Specification	Justification
Processor	Server: Quad-Core or higher	Handles multiple API requests and backend processes efficiently.
	Client: Dual-Core or higher	For frontend operations and dashboard use
RAM	Server: 16 GB or higher	Multitasking and database performance.
	Client: 4 GB or higher	Supports web app usage
Storage	Server: 500 GB SSD	For faster speeds and reduced latency.
	Client: 256 GB HDD/SSD	For browser cache, files, and local app support.
Display	Client: 1366 × 768 resolution	For proper layout and interface visibility.
Network	Server: ≥ 50 Mbps high-speed connection	Ensures stable communication and low-latency access for all connected clients.

1.5.2 Software

Software/Tool	Description
React.js (Frontend)	For a responsive and user-friendly interface.
Node.js with Express.js (Backend)	For API handling.
MongoDB (Database)	For data storage and retrieval.
JSON Web Tokens (JWT)	For authentication and secure access control.
Visual Studio Code	Integrated Development Environment (IDE)
Git & Github	Version control software
OS	Server: Ubuntu Server 20.04 LTS, Client: Windows 10, macOS, or Linux

Chapter 2: Analysis, Design Methodology and Implementation Strategy

2.1 Literature review

1. Pharमेasy

Link: <https://www.pharमेasy.in>

Pharमेasy offers a loyalty program called Pharमेasy Plus, which provides:

- 5% Extra PharmEasy Credits on medicines and healthcare products (capped at ₹200 per order).
- Free Delivery for orders above ₹499.
- Discounts on lab tests, including 50% Extra PharmEasy Credits on the first test and 10% Extra Credits on subsequent tests.

While these features enhance customer engagement, the platform lacks centralized inventory management, advanced role-based access control (RBAC), offline sales tracking, and dynamic revenue reporting. These shortcomings make it less suitable for multi-location businesses or warehouse management.

2. NetMeds

Link: <https://www.netmeds.com>

NetMeds offers a premium membership called NetMeds First, with features such as:

- 2% NMS Cashback on prescription medicines (up to ₹100 per order).
- Free Delivery for orders above ₹99 for prepaid and COD payments, with a COD limit of ₹5000.
- 10% Discount on lab tests and packages.
- Free Doctor Consultations (3 for 6-month members, 6 for 12-month members).

Despite these customer-friendly features, NetMeds lacks offline sales tracking, comprehensive inventory management, scalability for multi-location operations, and detailed revenue reporting

3. DavaIndia

Link: <https://www.davaindia.in>

DavaIndia, part of Zota Healthcare Ltd., is India's largest private generic pharmacy retail chain. It aims to revolutionize the Indian healthcare landscape by offering high-quality generic medicines at significantly lower costs compared to branded medicines. DavaIndia's approach has earned it recognition, including the TIMES ICON 2019 award from the Times of India Group.

4. 1mg

Link: <https://www.1mg.com>

1mg's Care Plan provides benefits such as:

- Auto-applied discounts on prescription medicines for orders up to ₹15,000.
- Free Delivery for up to 20 orders applicable for orders above ₹249.
- Additional rewards through NeuCoins, redeemable across TataNeu services.

While the Care Plan is designed for customer convenience, 1mg does not support centralized inventory management, RBAC, offline sales integration, or dynamic revenue tracking, limiting its applicability for business-oriented operations.

2.2 Project Feasibility Study

1. Technical Feasibility

The project is technically feasible due to the availability of modern frameworks like React.js, Node.js, and MongoDB, which simplify development and deployment. Role-based access control ensures secure system operations.

2. Market Feasibility

There is a growing demand for automated inventory and sales management systems in the healthcare industry. Local pharmacies benefit from a platform that bridges the gap between warehouses and local stores.

3. Financial Feasibility

Development Costs: Estimated at \$5,000–\$10,000, covering server setup, development, and testing. Revenue Generation: Potential revenue sources include subscription-based access for sub-admins and inventory restocking fees.

4. Operational Feasibility

Sub-admins and staff require basic training to use the system. Regular system maintenance ensures smooth operation.

2.3 Project Timeline chart

Task	Duration	Start Date	End Date	Assigned Member(s)
Requirement Gathering	1 Week	Jan 20, 2025	Jan 27, 2025	Entire Team
System Design	1.5 Weeks	Jan 28, 2025	Feb 7, 2025	Siddhant
Frontend Development	2.5 Weeks	Feb 8, 2025	Feb 25, 2025	Het
Backend Development	2.5 Weeks	Feb 8, 2025	Feb 25, 2025	Rahul
Database Setup & Testing	1.5 Weeks	Feb 26, 2025	Mar 7, 2025	Het & Siddhant
Integration & Testing	2 Weeks	Mar 8, 2025	Mar 21, 2025	Entire Team
Deployment & Documentation	1 Week	Mar 22, 2025	Mar 28, 2025	Entire Team

Table 1: Timeline of project milestones

Product Timeline Chart

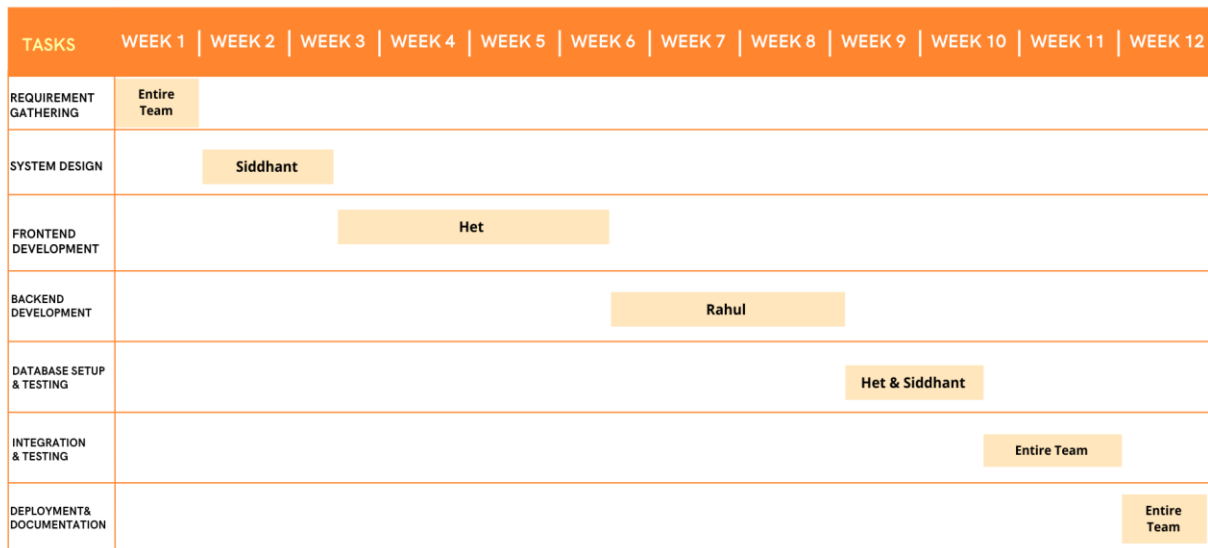


Figure 1: Visual representation of the project timeline

2.4 Detailed Modules Description

The system is divided into the following key modules:

1. Authentication Module:

Purpose: Handles user registration, login, and access control.

Features:

- User Registration (Super Admin, Sub Admin, Employee).
- Secure Login with authentication mechanisms.
- Role-based access control (Super Admin, Sub Admin, Employee).
- Password reset and recovery.

Example Use Case: A sub-admin registers an account, logs in, and accesses the dashboard to place orders.

2. User Management Module

Purpose: Allows the super admin to manage users and their roles.

Features:

- Add, update, or remove users (sub-admins, employees).
- Assign roles and permissions.
- View user activity logs.

Example Use Case: The super admin adds a new sub-admin for a newly opened local store and assigns them permissions.

3. Inventory Management Module

Purpose: Manages medicine stock, availability, and updates in the warehouse and local stores.

Features:

- Add, update, and delete medicines from inventory.
- Track stock levels in the warehouse and sub-admin stores.
- Receive notifications for low stock alerts.
- Categorize medicines by type, brand, and expiry date.

Example Use Case: The super admin updates inventory by adding 500 new units of a painkiller to the warehouse stock.

4. Order Management Module

Purpose: Handles order placement, approval, and tracking.

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Features:

- Sub-admins place orders for medicines from the warehouse.
- Super admin approves or rejects orders.
- Track order status (pending, approved, dispatched, delivered).
- Generate invoices for orders.

Example Use Case: A sub-admin places an order for 200 units of a medicine, which is approved by the super admin and then dispatched.

5. Sales Management Module

Purpose: Tracks sales transactions (both online and offline).

Features:

- Employees record offline sales data.
- Sub-admins track online sales.
- Synchronize sales data with the central database.

Example Use Case: An employee enters an offline sale of 10 units of a medicine purchased by a customer.

6. Revenue Tracking & Reports Module

Purpose: Generates financial reports and tracks revenue trends.

Features:

- Calculate total revenue from sales.
- Generate revenue reports (daily, weekly, monthly).
- Identify top-selling products and best-performing stores.

Example Use Case: The super admin generates a monthly revenue report to analyze store performance.

7. Notifications & Alerts Module

Purpose: Provides real-time updates on orders, stock, and sales.

Features:

- Notify sub-admins when stock is low.
- Alert super admins when an order is placed.
- Notify employees when an order is approved.

Example Use Case: A sub-admin receives a notification that their stock of a specific medicine is running low.

8. Invoice & Billing Module

Purpose: Generates and manages invoices for purchases and sales.

Features:

- Generate invoices for orders placed.
- Provide downloadable and printable invoices.
- Track pending and completed payments.

Example Use Case: A sub-admin downloads an invoice for a recent order placed with the warehouse.

9. Customer Management Module (For Sub-Admins & Employees)

Purpose: Tracks customer purchases and preferences.

Features:

- Maintain customer purchase history.
- Provide customer insights based on past purchases.
- Apply personalized discounts and loyalty programs.

Example Use Case: A sub-admin checks a customer's purchase history and offers a discount on their next purchase.

10. Dashboard & Analytics Module

Purpose: Provides an overview of key metrics for super admins and sub-admins.

Features:

- Visual representation of sales and revenue.
- Track inventory status in real time.
- Display recent order activities.

Example Use Case: The super admin views a dashboard showing real-time sales data and stock availability.

2.5 Project SRS

2.5.1 Use Case Diagrams

Use case diagrams are a common way to communicate the major functions of a software system. A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well.

Use cases are nothing but the system functionalities written in an organized manner. Now another thing which is relevant to the use cases are the actors. Actors can be defined as something that interacts with the system.

So in brief, the purposes of use case diagrams can be as follows:

- Used to gather requirements of a system.
- Used to get an outside view of a system.
- Identify external and internal factors influencing the system.
- Show the interacting among the requirements are actors.

Symbols used in Use Case diagram:

	Use Case		Include
	Association		Extend
	Actor		Dependency
	System		Generalization

Use Case Diagram of the System:

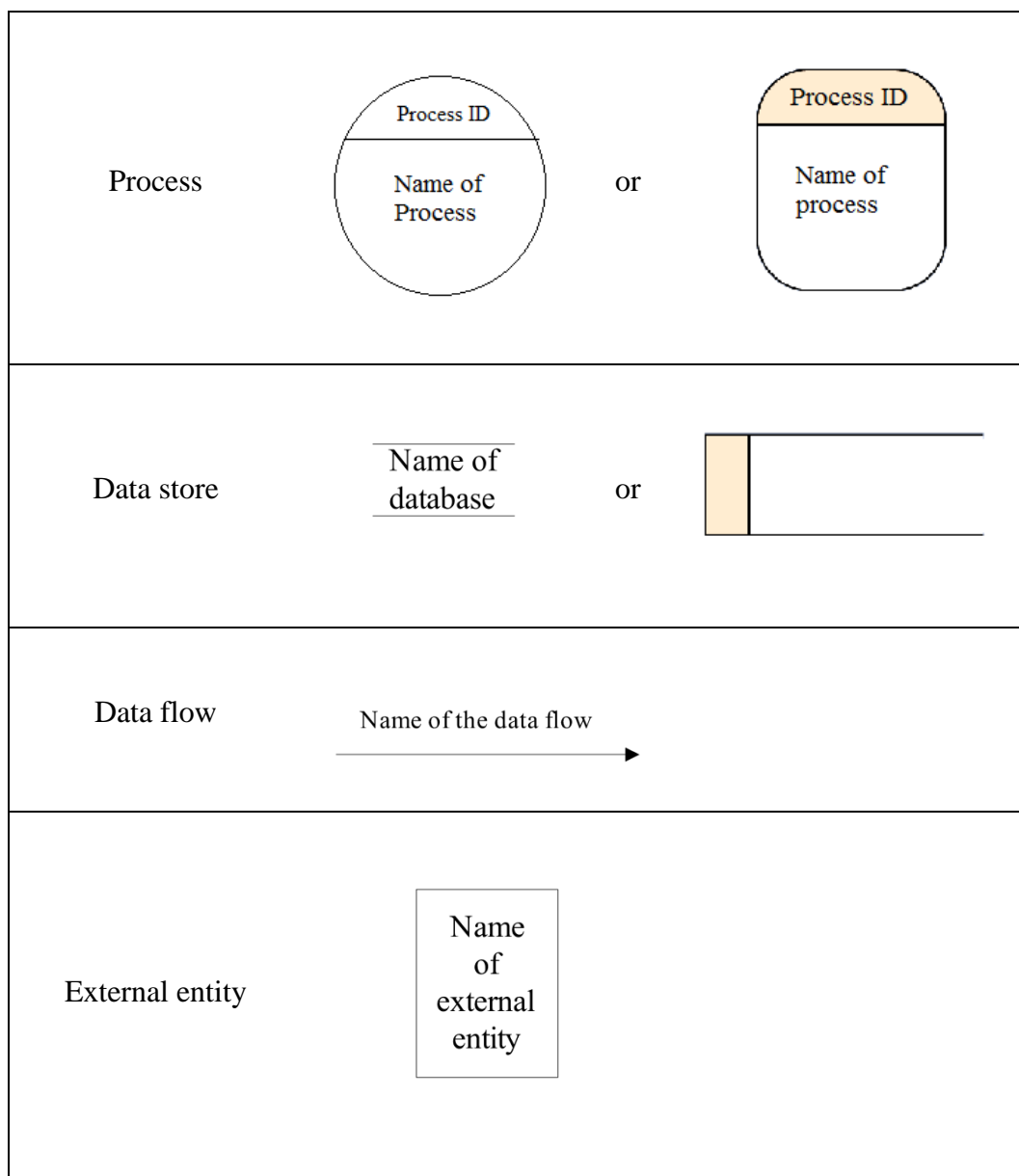


Figure 2: Use Case Diagram

2.5.2 Data Flow Diagrams

DFD provides the functional overview of a system. The graphical representation easily overcomes any gap between 'user and system analyst' and 'analyst and system designer' in understanding a system. Starting from an overview of the system it explores detailed design of a system through a hierarchy. DFD shows the external entities from which data flows into the process and also the other flows of data within a system. It also includes the transformations of data flow by the process and the data stores to read or write a data.

Symbols used in Data Flow diagram:



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Data Flow Diagram of the System:

Context level DFD (level 0):

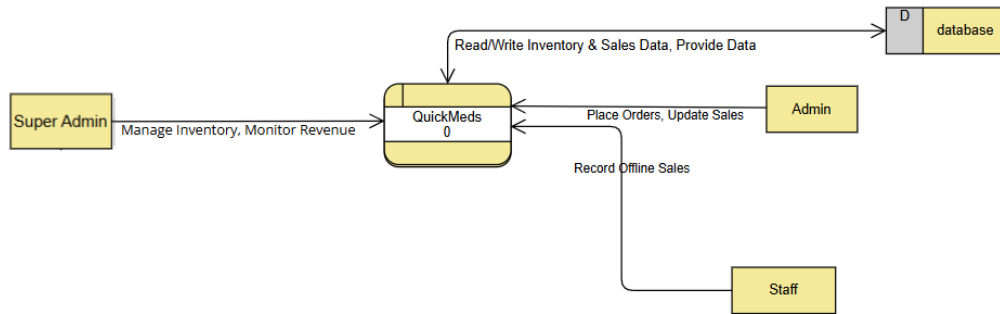


Figure 3.1: Data Flow Diagram

Level 1 DFD:

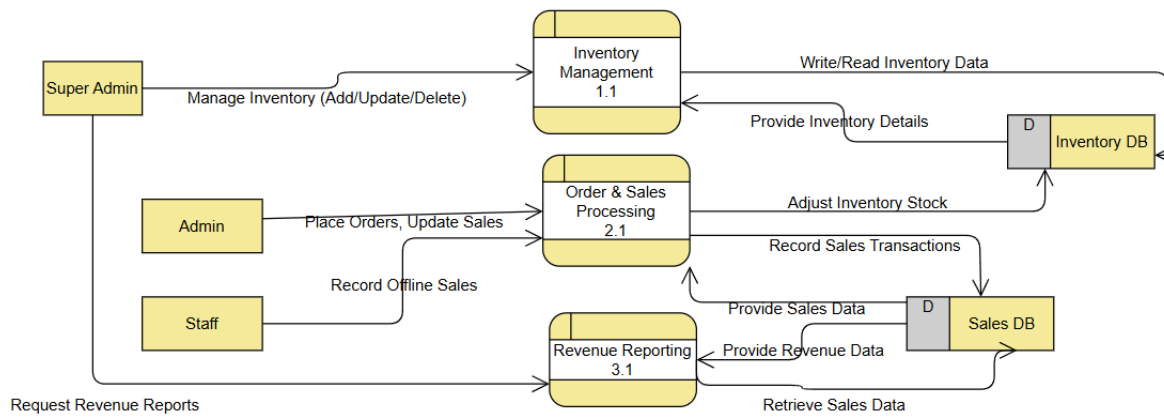


Figure 3.2: Data Flow Diagram

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Level 2 DFD:

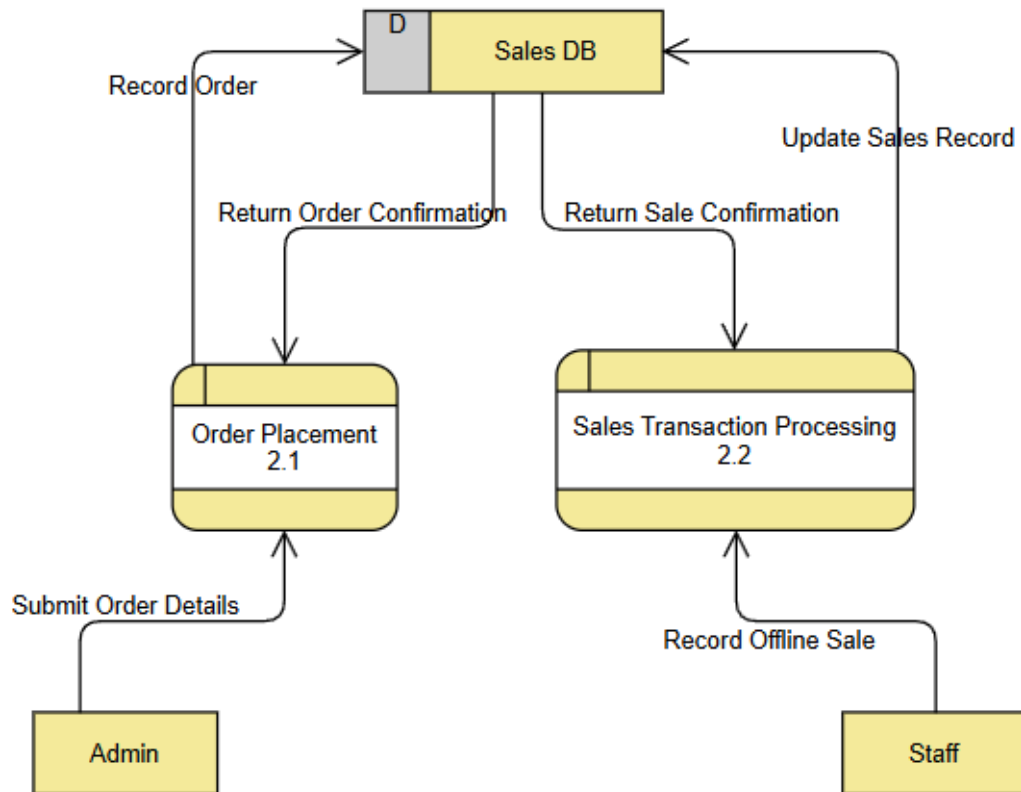


Figure 3.3: Data Flow Diagram

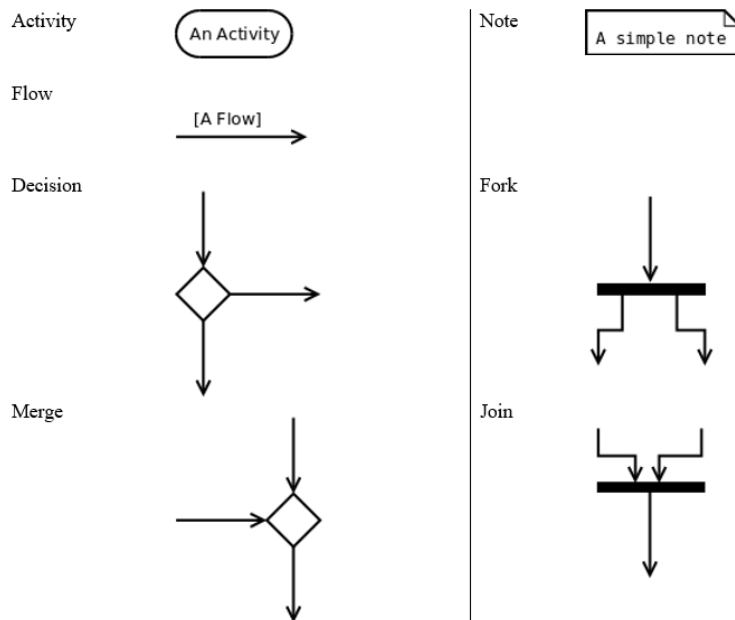
2.5.3 Activity Diagram

An activity denotes a particular action taken in the logical flow of control. This could simply be invocation of a mathematical function, alter an object's properties and so on. An activity is represented with a rounded rectangle, as shown in figure. A label inside the rectangle identifies the corresponding activity.

There are two special types of activity nodes: initial and final. They are represented with a filled circle, and a filled in circle with a border respectively. Initial node represents the starting point of a flow in an activity diagram. There could be multiple initial nodes, which mean that invoking that particular activity diagram would initiate multiple flows. A final node represents the end point of all activities. Like an initial node, there could be multiple final nodes. Any transition reaching a final node would stop all activities. A flow is represented with a directed arrow. A decision node, represented with a diamond, is a point where a single flow enters and two or more flows leave. This is represented with a diamond shape, with two or more flows entering, and a single flow leaving out. Fork is a point where parallel activities begin. A join is depicted with a black bar, with multiple input flows, but a single output flow. Physically it represents the synchronization of all concurrent activities.

Symbols used in Activity diagram:

Symbols used in Activity diagram:



Activity Diagram of the System

Staff (Employee)

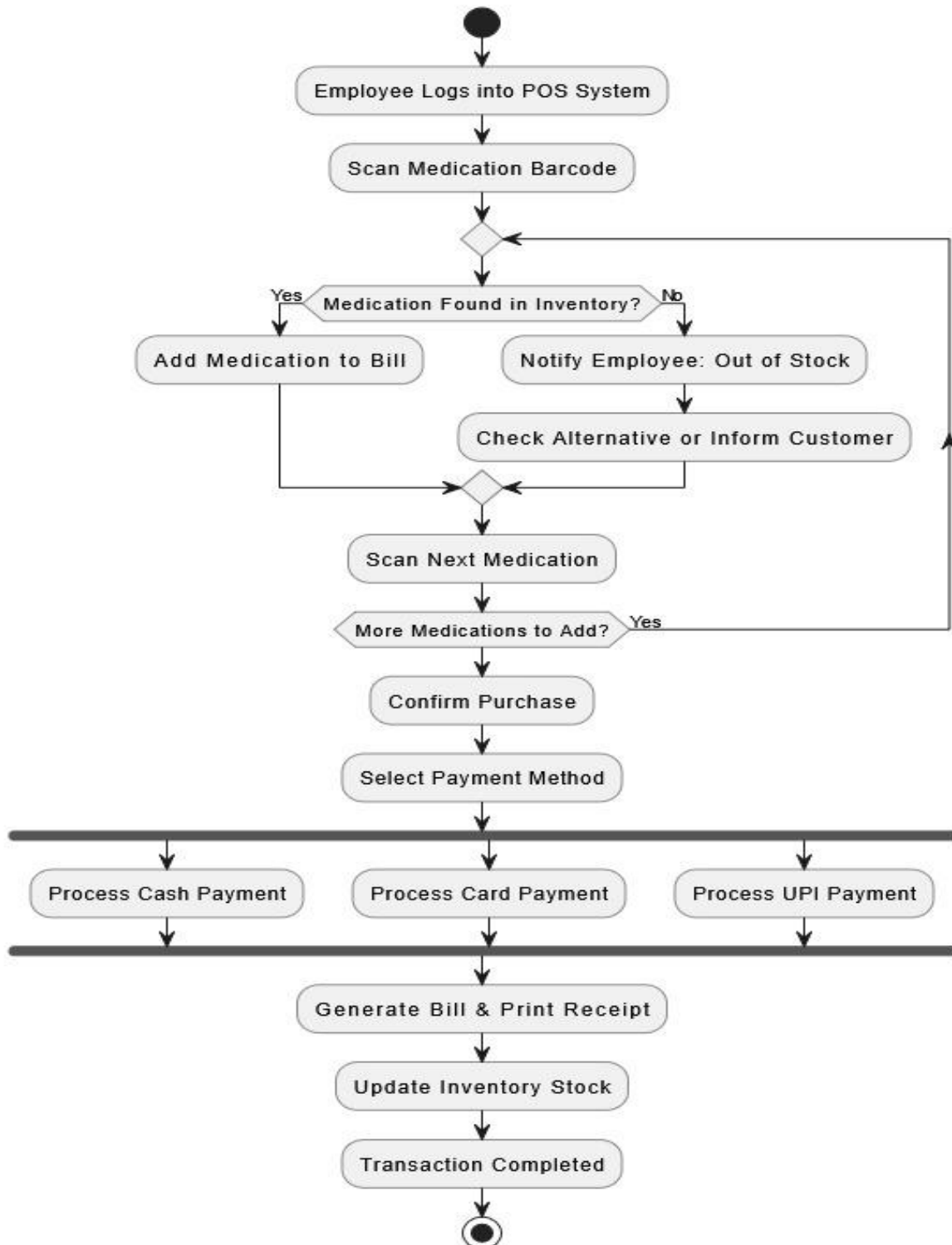


Figure 4.1: Activity Diagrams (Staff)

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Admin

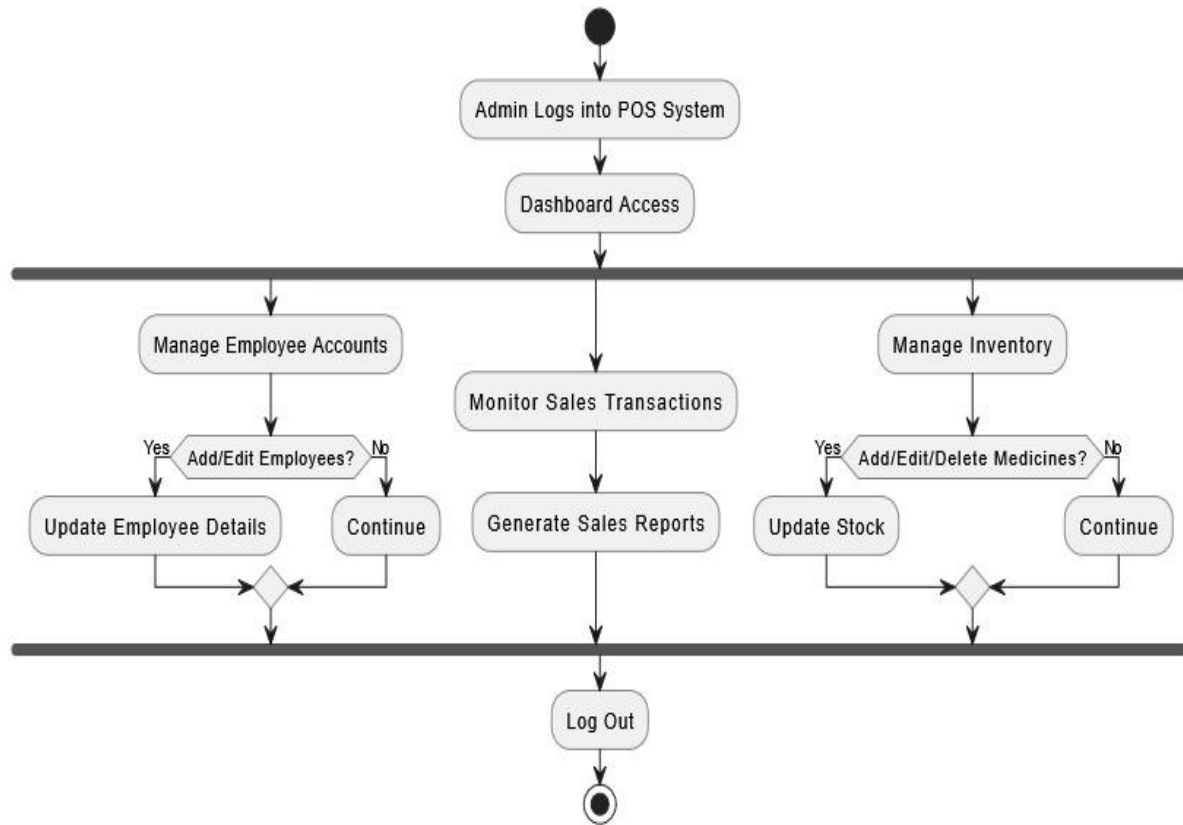


Figure 4.2: Activity Diagram (Admin)

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Super Admin

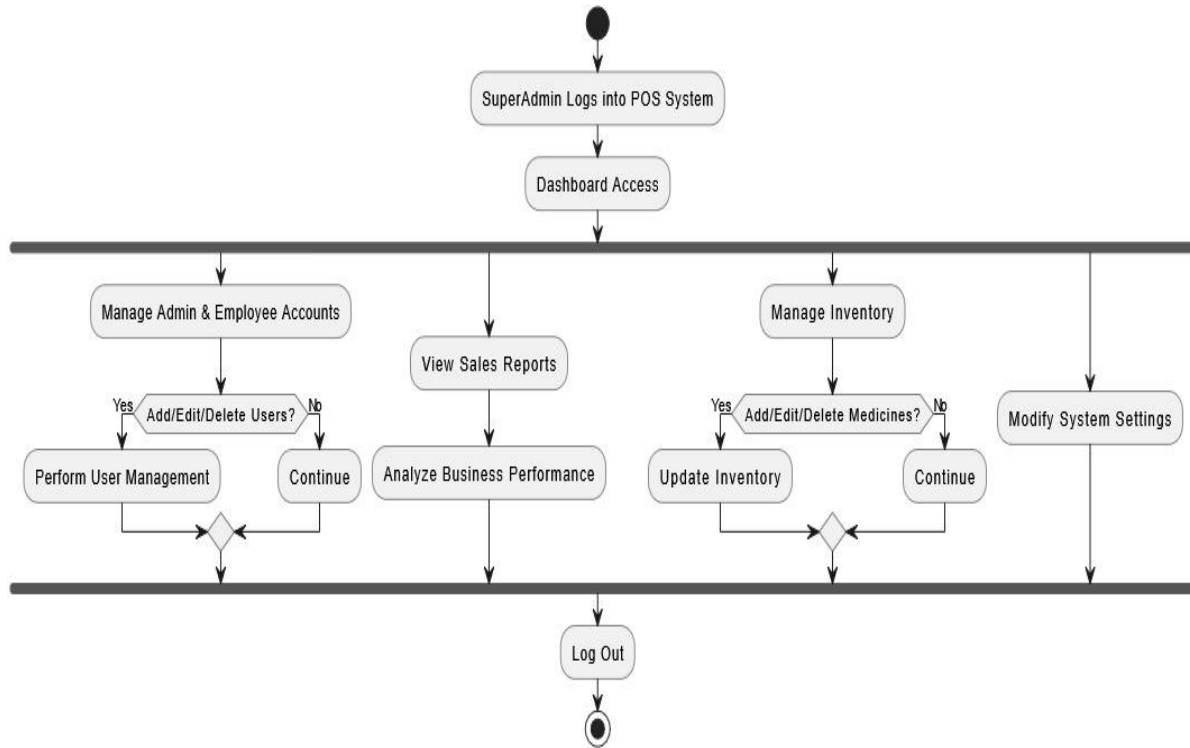


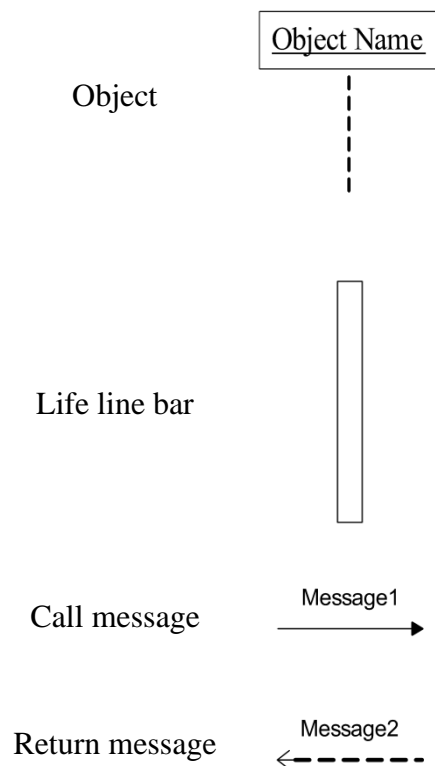
Figure 4.3: Activity Diagrams (Super Admin)

2.5.4 Event Trace Diagram

Event Trace Diagram represents the behavioural aspects of a system. Event Trace Diagram shows the interactions between the objects by means of passing messages from one object to another with respect to time in a system.

Event Trace Diagram contains the objects of a system and their life-line bar and the messages passing between them. Objects appear at the top portion of Event Trace Diagram. Object is shown in a rectangle box. Name of object precedes a colon ':' and the class name, from which the object is instantiated. The whole string is underlined and appears in a rectangle box. A down-ward vertical line from object-box is shown as the life-line of the object. A rectangle bar on life-line indicates that it is active at that point of time. Messages are shown as an arrow from the life-line of sender object to the life-line of receiver object and labelled with the message name.

Symbols used in Event Trace Diagram :



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Event Trace Diagram of the System:

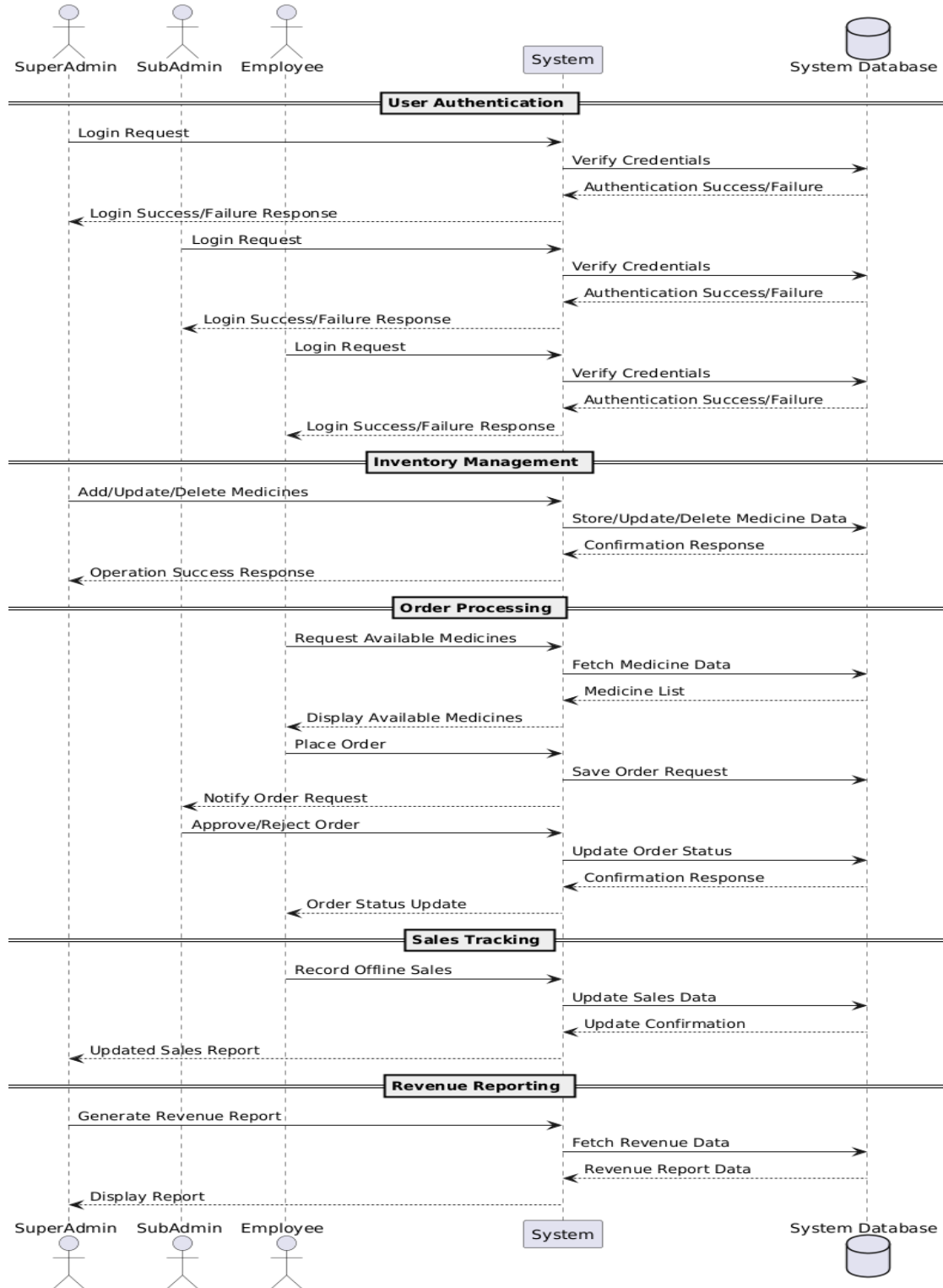


Figure 5: Event Trace Diagram

2.5.5 Class diagram

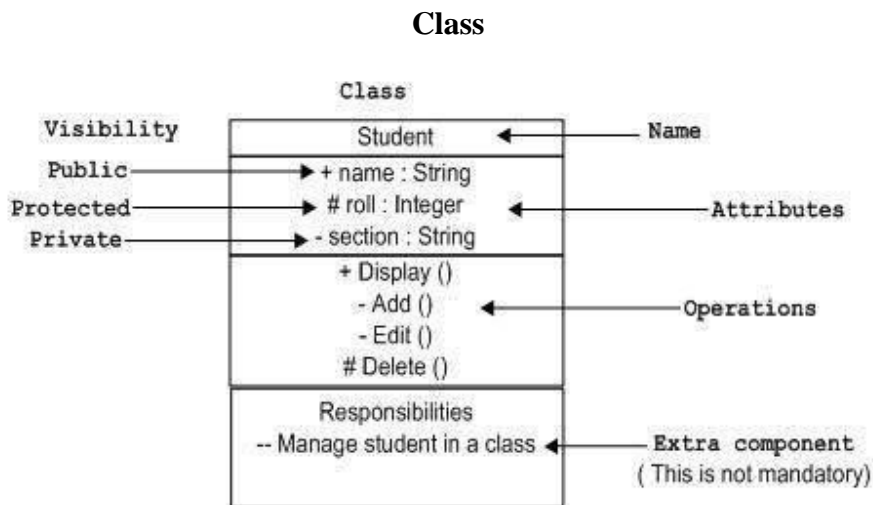
The class diagram is the main building block of object-oriented modelling. It is used both for general conceptual modelling of the systematics of the application, and for detailed modelling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed.

In the diagram, classes are represented with boxes that contain three compartments:

- The top compartment contains the name of the class. It is printed in bold and centered, and the first letter is capitalized.
- The middle compartment contains the attributes of the class. They are left-aligned and the first letter is lowercase.
- The bottom compartment contains the operations the class can execute. They are also left aligned and the first letter is lowercase.

In the design of a system, a number of classes are identified and grouped together in a class diagram that helps to determine the static relations between them. With detailed modelling, the classes of the conceptual design are often split into a number of subclasses.

Symbols used in Class diagram:



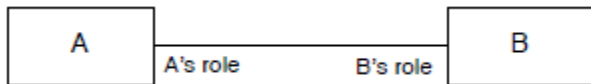
Aggregation



Composition



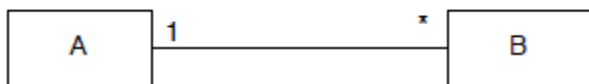
Association



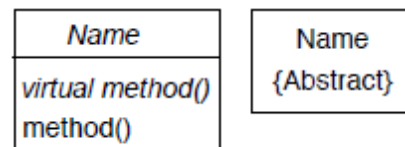
Inheritance



Multiplicity in Aggregation, Composition, or Association



Abstract Class



Class Diagram of the System:

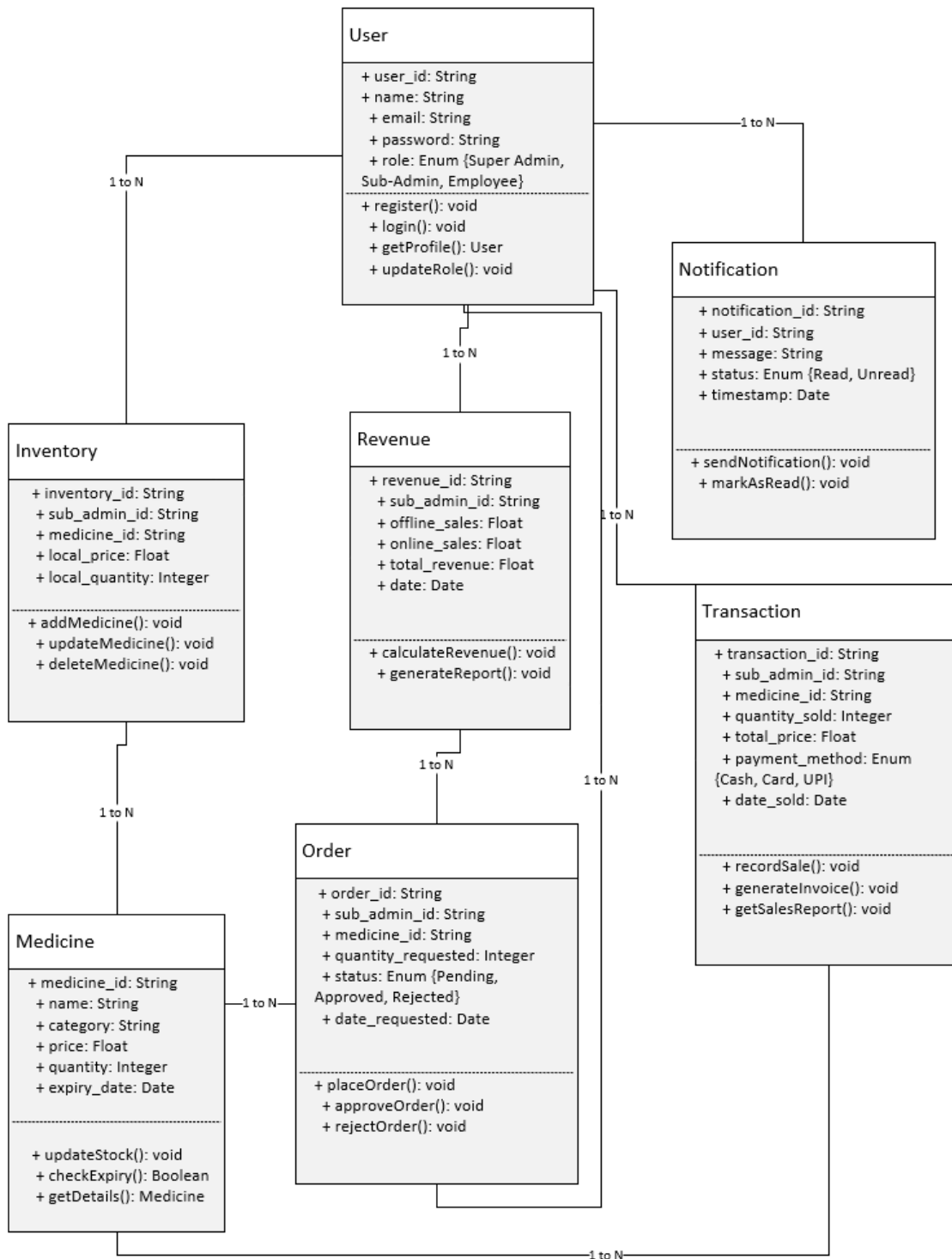


Figure 6: Class Diagram

2.6 Database design and Normalization

2.6.1 Collection Name: users

Description: Stores details of the users in the system.

Primary Key: user_id

Sr. No.	Name	Description
1	id	Unique identifier for each user
2	first_name	First name of the user
3	last_name	Last name of the user
4	role	Type of user (Admin/Superadmin/Employee)
5	email	Email address of the user
6	password	Encrypted password
7	city	City of user
8	phone	Contact number of the user
9	store_name	Store name of belonging user

Table 1: User Table

2.6.2 Collection name: customers

Description: Stores details of customers.

Sr. No.	Name	Description
1	id	Unique identifier for each user
2	name	Name of the customer

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3	Phone	Contact number of the customer
4	address	Address of the customer
5	email	Email Address of the customer
6	store	Store at which customer had signup
7	created_by	Employee ID that created the customer account
8	created_at	Timestamp when the customer account was created
9	updated_at	Timestamp when customer details were last updated

Table 2: Customer Collection

2.6.3 Collection name: products.pharmacies

Description: Total medicines categorized in pharmacy collection.

Sr. No.	Name	Description
1	id	Unique identifier for each pharmacy product
2	tradeName	Trade name of the pharmacy product
3	genericName	Generated name of the pharmacy product
4	category	Category of the pharmacy product
5	company	Manufacturing Company of the pharmacy product
6	stock	Available stock of the pharmacy product
7	packType	Pack type of the pharmacy product

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8	unitMrp	MRP of the pharmacy product
9	addedBy	Updated user of Pharmacy product
10	addedToDbAt	Timestamp of adding the product

Table 3: Pharmacies Collection

2.6.4 Collection Name: products.non-pharmacies

Description: Total medicines categorized in non-pharmacy collection.

Sr. No.	Name	Description
1	id	Unique identifier for each pharmacy product
2	tradeName	Trade name of the pharmacy product
3	genericName	Generated name of the pharmacy product
4	category	Category of the pharmacy product
5	company	Manufacturing Company of the pharmacy product
6	stock	Available stock of the pharmacy product
7	packType	Pack type of the pharmacy product
8	unitMrp	MRP of the pharmacy product
9	addedBy	Updated user of Pharmacy product
10	addedToDbAt	Timestamp of adding the product

Table 4: Non pharmacies Collection

2.6.5 Table Name: unittypes

Description: Stores the unit type of the product.

Sr. No.	Name	Description
1	id	Unique identifier for each session
2	SN	References user_table(user_id)
3	Name	Timestamp for when the session started
4	Description	Description of the unit type
5	Creator	User who created the unit type record
6	CreatedAt	Date and time when the unit type was created
7	UpdatedBy	User who last updated the unit type
8	UpdatedAt	Date and time of the last update

Table 5: Session Collection

2.6.6 Table Name: companies

Description: Medicine manufacturing companies added in the collection

Sr. No.	Name	Description
1	Id	Unique identifier for an company
2	SN	Serial number of the company
3	Name	Name of the company
4	Phone	Contact phone number of the company
5	Website	Company website URL
6	Email	Contact email of the company

7	Address	Physical address of the company
8	Creator	User who created the company record
9	CreatedAt	Date and time when the record was created
10	UpdatedBy	User who last updated the record
11	UpdatedAt	Date and time of the last update

Table 6: Companies Collection

2.6.7 Table Name: orders.pharmacy

Description: Sent pharmacy orders from the Admins of the system to the Superadmin

Sr. No.	Name	Description
1	Id	Unique identifier for the order
2	items	List of pharmacy products requested in the order
3	requestedBy	ID of the user who requested the order
4	status	Status of the order (e.g., “approved”, “pending”, “rejected”)
5	note	Optional notes regarding the order
6	requestedAt	Timestamp when the order was requested
7	approvedAt	Timestamp when the order was approved
8	approvedBy	User who approved the order

Table 7: Pharmacy Collection

2.6.8 Table Name: orders.nonpharmacy

Description: Sent non-pharmacy orders from the Admins of the system to the Superadmin

Sr. No.	Name	Description
1	Id	Unique identifier for the order
2	items	List of non-pharmacy products requested in the order
3	requestedBy	ID of the user who requested the order
4	status	Status of the order (e.g., “approved”, “pending”, “rejected”)
5	note	Optional notes regarding the order
6	requestedAt	Timestamp when the order was requested
7	approvedAt	Timestamp when the order was approved
8	approvedBy	User who approved the order

Table 8: Pharmacy Collection

2.7 Template Design

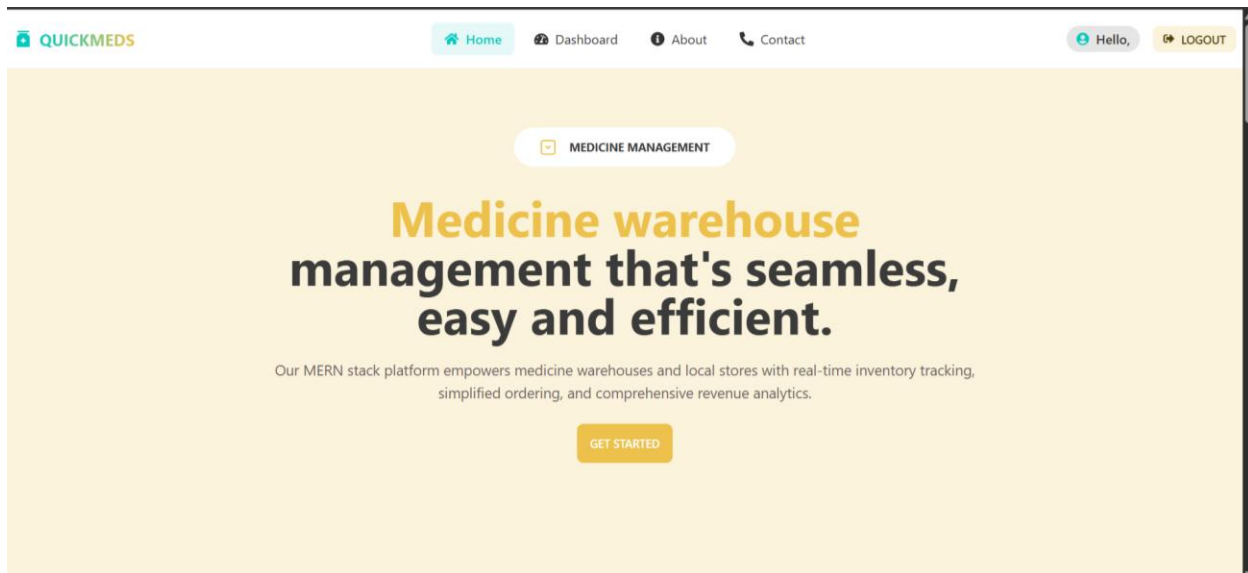


Figure 7.1 Home Page Snapshot

QuickMeds: Centralized Medicine Management System

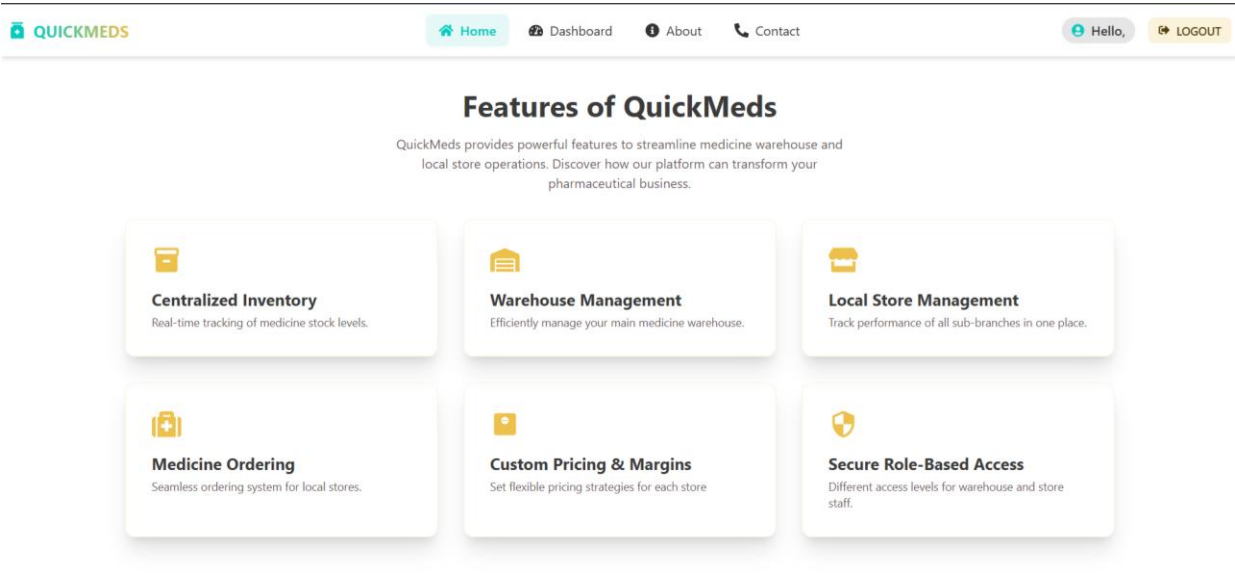


Figure 7.2 Home Page Snapshot

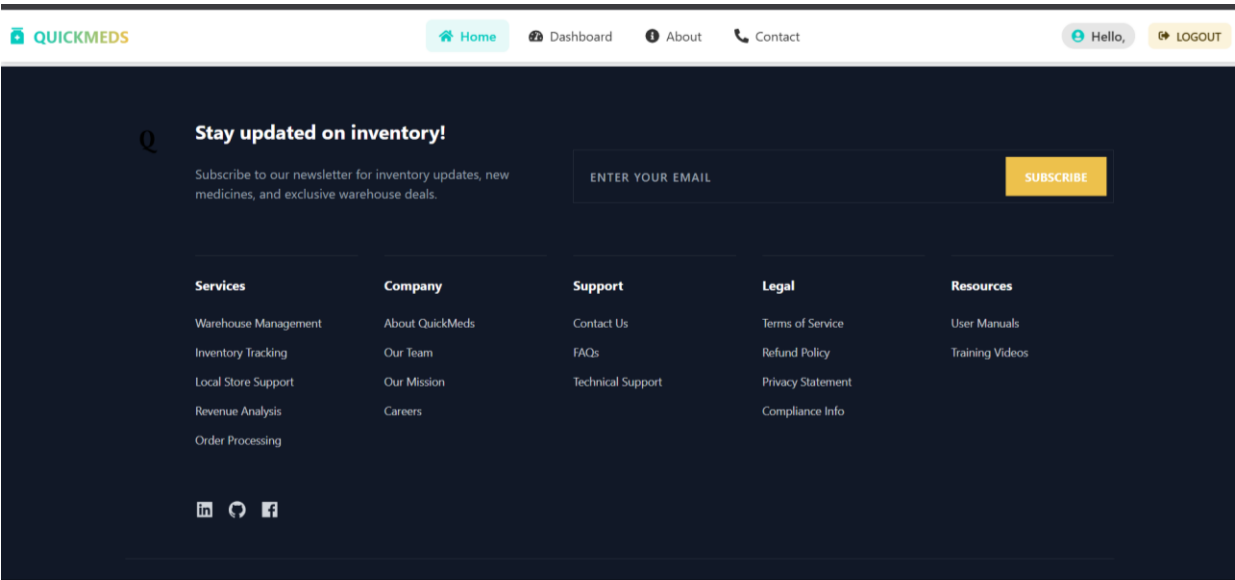


Figure 7.3 Home Page Snapshot

Chapter 3: Implementation and Testing

3.1 Software and Tools

1. Visual Studio Code (VSCode):

Used as the primary source code editor for writing and managing the frontend and backend code efficiently with extensions and integrated terminal support.

2. MERN Stack:

A full-stack JavaScript framework used for building the QuickMeds application:

- MongoDB: NoSQL database for storing pharmacy products and user data.
- Express.js: Web framework for handling server-side logic and routing.
- React.js: Frontend library for building the user interface.
- Node.js: Backend runtime environment for executing JavaScript on the server side..

3.2 User Interface and Snapshot

3.2.1 Authentication Module:

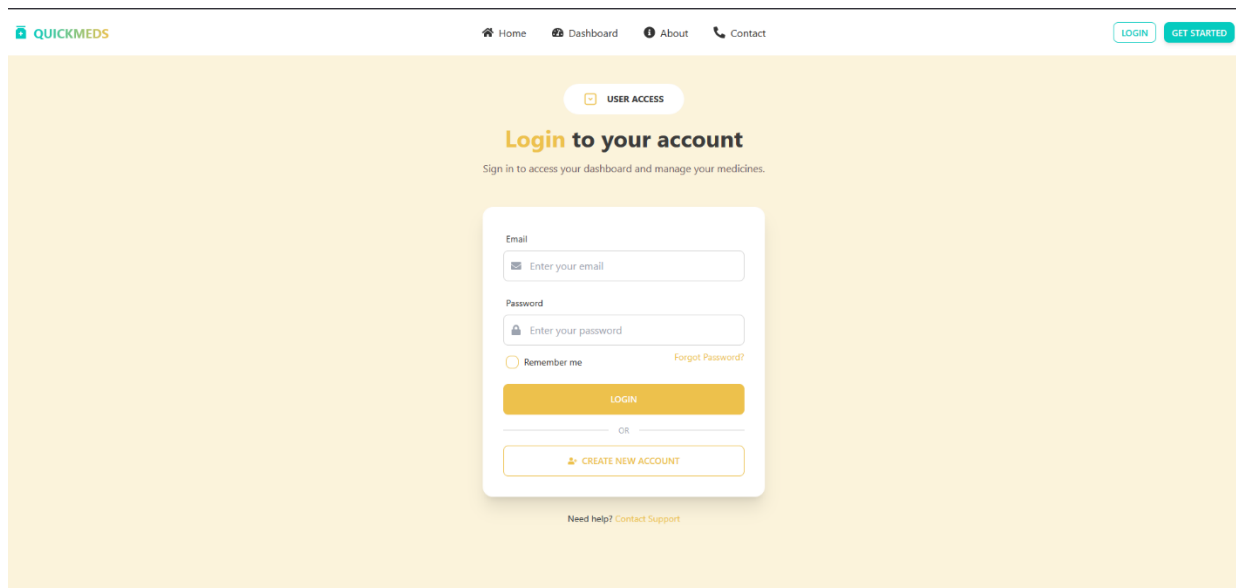


Figure 8. Login Page

QuickMeds: Centralized Medicine Management System

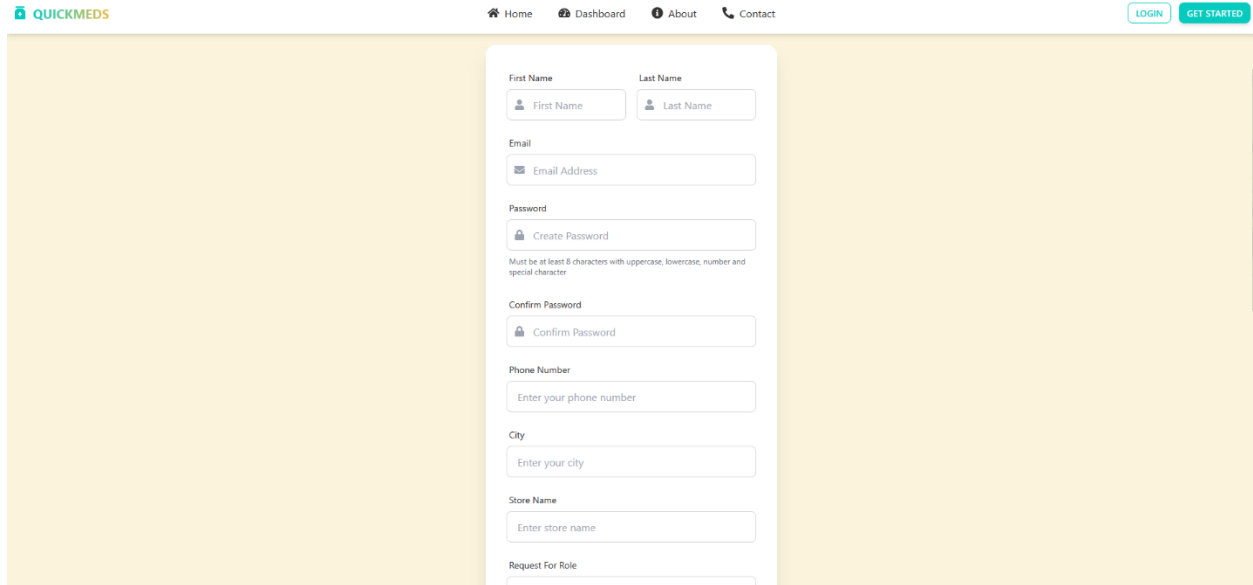
The image shows a web browser window displaying the 'Register' page of the QuickMeds system. The page has a light orange background. At the top, there is a navigation bar with links for 'Home', 'Dashboard', 'About', and 'Contact'. On the right side of the navigation bar, there are two buttons: 'LOGIN' and 'GET STARTED'. The main content area is a white form with the following fields: 'First Name' and 'Last Name' (each with a person icon), 'Email' (with an envelope icon), 'Password' (with a lock icon and a note: 'Must be at least 8 characters with uppercase, lowercase, number and special character'), 'Confirm Password' (with a lock icon), 'Phone Number' (with a note: 'Enter your phone number'), 'City' (with a note: 'Enter your city'), 'Store Name' (with a note: 'Enter store name'), and 'Request For Role'. The form is centered on the page.

Figure 9. Register Page

Purpose:

This module ensures secure and role-specific access to the QuickMeds platform. It facilitates the registration and login process for different user types, ensuring that only authorized personnel can access the system and its features. The authentication flow is designed to maintain data confidentiality, system integrity, and user accountability.

Key Features:

- **User Registration:** Enables creation of accounts for Super Admins, Sub Admins (local store managers), and Employees. Includes input validation and duplicate checks.
- **Secure Login:** Users must provide valid credentials to access their account. Passwords are encrypted using hashing algorithms (e.g., bcrypt).
- **Role-Based Access Control (RBAC):** Users can only access the modules and data relevant to their role. For example, a Sub Admin cannot access Super Admin functions.
- **Password Recovery:** Implements OTP/email-based password reset functionality.

3.2.2 User Management Module:

QuickMeds

Admin

Super Admin

superadmin

Dashboard

INVENTORY MANAGEMENT

Complete Inventory

Products

ORDERS & PURCHASES

Order Status

Purchases

Returns

PEOPLE & BUSINESS

Users

Customers

Settings

Logout

Users

SuperAdmin

Store Admins

Total: 12

+ NEW ADMIN

SEARCH

REFRESH

PRINT

SN	NAME	EMAIL	PHONE	STORE	CITY	ACTIONS
1	Siddhant Rathod	siddhantrathod.2022@gmail.com	9632587415	Vadodara_qms	Vadodara	<div><div></div><div></div></div>
2	Rahul Admin	admin@gmail.com	9624551412	QMs_Vadodara	Vadodara	<div><div></div><div></div></div>
3	siddhant Rathod	sid@gamil.com	963258741	Anand_QMs	Anand	<div><div></div><div></div></div>
4	Khanjan Soni	khanjansoni.ks13@gmail.com	7485906699	Surat_QM	Surat	<div><div></div><div></div></div>
5	Siddhant Anand	sidd_anand@gmail.com	7485906699	Anand_QM	Anand	<div><div></div><div></div></div>
6	Khanjan Soni	khanjan12@gmail.com	7043851411	Delhi_QM	Delhi	<div><div></div><div></div></div>
7	Rahul Parmar	crrahul329@gmail.com	9624551412	Vadodara_QMs	Vadodara	<div><div></div><div></div></div>
8	Het Patel	awesomethet1@gmail.com	9632587410	Waghai_QMs	Waghai	<div><div></div><div></div></div>
9	Dipti Patel	dipiti2660@gmail.com	7485906699	QMs_Anand	Anand	<div><div></div><div></div></div>

Figure 10. List of Admin Tab (Logged-in user- Superadmin)

QUICKMEDS

Dashboard

Products

Requested Items

Inventory Stock

Purchases

Returns

Settings

Employees

Customers

Suppliers

POS

LOGOUT

Employees : 11

NEW

REFRESH

PRINT

SN	FIRST NAME	LAST NAME	EMAIL	PHONE	CITY	STORE NAME	ROLE	ACTIONS
1	Siddhant	Rathod	siddhantrathod.2022@gmail.com	9632587415	Vadodara	Vadodara_qms	admin	<div><div></div><div></div></div>
2	Rahul	Parmar	rahul@quickmeds.com	N/A	N/A	N/A	superadmin	<div><div></div><div></div></div>
3	SuperAdmin	QuickMeds	superadmin@quickmeds.com	N/A	N/A	N/A	superadmin	<div><div></div><div></div></div>
4	Rahul	Admin	admin@gmail.com	9624551412	Vadodara	QMs_Vadodara	admin	<div><div></div><div></div></div>
5	siddhant	Rathod	sid@gamil.com	963258741	Anand	Anand_QMs	admin	<div><div></div><div></div></div>
6	Nit	Patel	nit@quickmeds.com	7485906699	Surat	Surat_QM	employee	<div><div></div><div></div></div>
7	sid	patel	sid@gmail.com	7412589630	Vadodara	QMs_Vadodara	employee	<div><div></div><div></div></div>
8	Kharjan	Soni	khanjansoni.ks13@gmail.com	7485906699	Surat	Surat_QM	Admin	<div><div></div><div></div></div>
9	Siddhant	Anand	sidd_anand@gmail.com	7485906699	Anand	Anand_QM	Admin	<div><div></div><div></div></div>
10	Rahul	name	abc@gmail.com	9632587415	Vadodaraa	QMs_Vadodara	Employee	<div><div></div><div></div></div>
11	Kharjan	Soni	kharjan12@gmail.com	7043851411	Delhi	Delhi_QM	Admin	<div><div></div><div></div></div>

Figure 11. List of Employees Tab (Logged-in user- Admin)

QuickMeds: Centralized Medicine Management System

SN	NAME	PHONE	WEBSITE	EMAIL	ADDRESS	CREATOR	CREATED AT	UPDATED BY	UPDATED AT	ACTIONS
1	John Doe	1234567890		john.doe@example.com	123 Main St					
2	Customer	9632587410								
3	Walk-in Customer	unknown_1746993674329								
4	Customer	123456789								
5	Customer2	9632587415								
6	Customer2	9638527415								
7	Veer	7485906699								
8	Customer	unknown_1747039407250								
9	Customer	unknown_1747039547668								
10	Walk-in Customer	unknown_1747039569420								
11	Walk-in Customer	unknown_1747039587948								
12	Walk-in Customer	unknown_1747039772793								
13	Walk-in Customer	unknown_1747039795314								
14	Customer	unknown_1747040057416								
15	Customer	unknown_1747040099503								

Figure 12. List of Customer Tab (Logged-in user- Employee)

Purpose:

This module allows the Super Admin, Admin and Employee to manage the platform's user hierarchy and ensure organizational efficiency. It provides full visibility and control over user accounts and their roles, enabling dynamic assignment and revocation of permissions as per business needs.

Key Features:

- **Add/Remove Users:** The Super Admin, Admin and Employee can create new users or remove inactive/unnecessary accounts.
- **Edit User Information:** Allows updating of user details such as contact information, assigned store, or role.
- **Role and Permission Management:** Grants or restricts access to certain modules based on role, supporting scalability as new users or roles are introduced.
- **Activity Logging:** Monitors and records actions taken by users, such as logins, inventory updates, or order submissions, aiding in audit and security tracking.

3.2.3 Inventory Management Module:

QuickMeds

Super Admin

Super Admin

superadmin

Dashboard

INVENTORY MANAGEMENT

Complete Inventory

Products

ORDERS & PURCHASES

Order Status

Pharmacy

Non Pharmacy

Purchases

Returns

PEOPLE & BUSINESS

Users

Customers

Settings

Logout

Orders

Pharmacy Orders : 41

REFRESH

PRINT

SN	ORDER ID	REQUESTED BY	STATUS	ITEMS COUNT	REQUESTED AT	NOTE	ACTIONS
1	67eee064...	SuperAdmin QuickMeds superadmin@quickmeds.com No store name provided	approved	4 items	Mar 29, 2025, 12:54 AM	-	
Order Items:							
ITEM NAME			CATEGORY	STRENGTH	REQUESTED QUANTITY	APPROVED QUANTITY	
Acyclovir 400mg Tablet			Antiviral	Unknown Strength	5	5	
Allopurinol 100mg Tablet			Gout	Unknown Strength	1	1	
Artemether-Lumefantrine 20/120mg Tablet			Antimalarial	Unknown Strength	1	1	
Atorvastatin 10mg Tablet			Cholesterol	Unknown Strength	1	1	
2	67eee123...	Rahul Admin admin@gmail.com QM_Vadodara	approved	2 items	Apr 4, 2025, 12:57 AM	-	
3	67eee54a...	SuperAdmin QuickMeds superadmin@quickmeds.com No store name provided	approved	1 items	Apr 4, 2025, 01:15 AM	-	
4	67f00c6b...	SuperAdmin QuickMeds superadmin@quickmeds.com No store name provided	approved	1 items	Apr 4, 2025, 10:14 PM	-	
5	67f00f72...	SuperAdmin QuickMeds superadmin@quickmeds.com No store name provided	rejected	1 items	Apr 4, 2025, 10:27 PM	-	
6	67f00f8c...	SuperAdmin QuickMeds superadmin@quickmeds.com	approved	1 items	Apr 4, 2025, 10:27 PM	-	

Figure 13. Screenshot of Inventory

Purpose:

This core module is responsible for real-time tracking and management of medicine stock across both central warehouses and decentralized local stores. It ensures that medicine availability, expiration, and categorization are well-maintained, enabling uninterrupted order fulfilment.





















Key Features:

- **Inventory CRUD Operations:** Admins can Create, Read, Update, and Delete medicine entries in the database.
- **Stock Monitoring:** Tracks real-time quantity of each medicine in both the central warehouse and individual stores.
- **Import/Export Functionality:** Allows bulk inventory uploads via CSV/JSON files for efficient inventory population.

QuickMeds: Centralized Medicine Management System

Pharmacy Products : 78

NEW SEARCH REFRESH PRINT

SN	TRADE NAME	CATEGORY	STRENGTH	COMPANY	STOCK	ACTIONS
1	Acyclovir 400mg Tablet	Antiviral	Unknown Strength	Lupin	190	 
2	Albuterol Inhaler	Respiratory	Unknown Strength	Novartis	90	 
3	Allopurinol 100mg Tablet	Gout	Unknown Strength	Aurobindo	250	 
4	Amlodipine 5mg Tablet	Hypertension	Unknown Strength	Micro Labs	230	 
5	Amoxicillin 250mg Capsule	Antibiotics	Unknown Strength	Lupin	300	 
6	Amoxicillin 500mg Capsule	Antibiotics	Unknown Strength	Wockhardt	150	 
7	Apixaban 5mg Tablet	Anticoagulants	Unknown Strength	Abbott	200	 
8	Artemether-Lumefantrine 20/120mg Tablet	Antimalarial	Unknown Strength	Sun Pharma	220	 
9	Aspirin 75mg Tablet	ANTIBIOTIC	Unknown Strength	Global Solutions Ltd.	150	 
10	Atorvastatin 10mg Tablet	Cholesterol	Unknown Strength	Torrent	180	 

PREVIOUS 1 2 3 ... 8 NEXT

Figure 14. Screenshot of Pharmacy Products List

Purpose:

The Order Management Module facilitates the end-to-end ordering workflow between local stores (Sub Admins) and the central warehouse (Super Admin). It ensures smooth coordination of order placement, approval, dispatch, and delivery with tracking capabilities for transparency.

Key Features:

- **Order Creation:** Sub Admins can create medicine requisition orders from their store dashboard based on current stock needs.
- **Approval Workflow:** Orders placed by Sub Admins must be reviewed and approved/rejected by the Super Admin based on stock availability and business rules.
- **Order Tracking:** Orders move through clearly defined statuses — Pending, Approved, Rejected, Dispatched, Delivered.
- **Invoice Generation:** Automatically generates invoices based on order quantity and rates. Invoices are downloadable for recordkeeping.

3.2.4 Order Management Module

Pharmacy Products : 78

VIEW ORDERS 0 Q. SEARCH REFRESH PRINT

SN	PRODUCT NAME	CATEGORY	STRENGTH	COMPANY	STOCK	ACTIONS
1	Acyclovir 400mg Tablet Unknown Generic Name	Antiviral	Unknown Strength	Lupin	190	+ ADD
2	Albuterol Inhaler Unknown Generic Name	Respiratory	Unknown Strength	Novartis	90	+ ADD
3	Allopurinol 100mg Tablet Unknown Generic Name	Gout	Unknown Strength	Aurobindo	200	+ ADD
4	Amlodipine 5mg Tablet Unknown Generic Name	Hypertension	Unknown Strength	Micro Labs	230	+ ADD
5	Amoxicillin 250mg Capsule Unknown Generic Name	Antibiotics	Unknown Strength	Lupin	300	+ ADD
6	Amoxicillin 500mg Capsule Unknown Generic Name	Antibiotics	Unknown Strength	Wockhardt	150	+ ADD
7	Apixaban 5mg Tablet Unknown Generic Name	Anticoagulants	Unknown Strength	Abbott	200	+ ADD
8	Artemether-Lumefantrine 20/120mg Tablet Unknown Generic Name	Antimalarial	Unknown Strength	Sun Pharma	220	+ ADD
9	Aspirin 75mg Tablet Unknown Generic Name	ANTIBIOTIC	Unknown Strength	Global Solutions Ltd.	150	+ ADD
10	Atorvastatin 10mg Tablet Unknown Generic Name	Cholesterol	Unknown Strength	Torrent	180	+ ADD

1 2 ... 8 »

Figure 15. Order Management Page - Admin

ADD TO ORDER

Amoxicillin 250mg Capsule

Generic Name: Unknown Generic Name
Category: Antibiotics
Strength: Unknown Strength
Available Stock: 300

Quantity: 4

ADD TO ORDER CANCEL

Pharmacy Products : 78

VIEW ORDERS 0

SN	PRODUCT NAME	CATEGORY	STRENGTH	COMPANY
1	Acyclovir 400mg Tablet	Antiviral	Unknown Strength	Lupin
2	Albuterol Inhaler	Respiratory	Unknown Strength	Novartis
3	Allopurinol 100mg Tablet	Gout	Unknown Strength	Aurobindo
4	Amlodipine 5mg Tablet	Hypertension	Unknown Strength	Micro Labs
5	Amoxicillin 250mg Capsule	Antibiotics	Unknown Strength	Lupin
6	Amoxicillin 500mg Capsule	Antibiotics	Unknown Strength	Wockhardt
7	Apixaban 5mg Tablet	Anticoagulants	Unknown Strength	Abbott
8	Artemether-Lumefantrine 20/120mg Tablet	Antimalarial	Unknown Strength	Sun Pharma
9	Aspirin 75mg Tablet	ANTIBIOTIC	Unknown Strength	Global Solutions Ltd.
10	Atorvastatin 10mg Tablet	Cholesterol	Unknown Strength	Torrent

1 2 ... 8 »

Your Order

PRODUCT	CATEGORY	STRENGTH	QUANTITY	ACTIONS
Amoxicillin 250mg Capsule	Antibiotics	Unknown Strength	4	
Apixaban 5mg Tablet	Anticoagulants	Unknown Strength	2	

Order Notes

Add any notes about this order...

CANCEL SUBMIT ORDER

Figure 16. (i) & (ii) Order Handling - Admin

Purpose:

The Order Management Module facilitates the end-to-end ordering workflow between local stores (Sub Admins) and the central warehouse (Super Admin). It ensures smooth coordination of order placement, approval, dispatch, and delivery with tracking capabilities for transparency.

Key Features:

QuickMeds: Centralized Medicine Management System

- **Order Creation:** Sub Admins can create medicine requisition orders from their store dashboard based on current stock needs.
- **Approval Workflow:** Orders placed by Sub Admins must be reviewed and approved/rejected by the Super Admin based on stock availability and business rules.
- **Order Tracking:** Orders move through clearly defined statuses — Pending, Approved, Rejected, Dispatched, Delivered.
- **Invoice Generation:** Automatically generates invoices based on order quantity and rates. Invoices are downloadable for recordkeeping.

Request for Products by Admin:

SN	PRODUCT NAME	CATEGORY	STRENGTH	COMPANY	STOCK	ACTIONS
1	Acyclovir 400mg Tablet Dava India	COUGH AND COLD	Recover fast	Digital Dynamics Co.	50	+ ADD
2	Albuterol Inhaler Unknown Generic Name	CARDIAC	Unknown Strength	Prime Logistics LLC	90	+ ADD
3	Allopurinol 100mg Tablet Unknown Generic Name	Gout	Unknown Strength	Aurobindo	95	+ ADD
4	Amlodipine 5mg Tablet Unknown Generic Name	Hypertension	Unknown Strength	Micro Labs	126	+ ADD
5	Amoxicillin 250mg Capsule Unknown Generic Name	Antibiotics	Unknown Strength	Lupin	285	+ ADD
6	Amoxicillin 500mg Capsule Unknown Generic Name	Antibiotics	Unknown Strength	Wockhardt	150	+ ADD
7	Apixaban 5mg Tablet Unknown Generic Name	Anticoagulants	Unknown Strength	Abbott	188	+ ADD
8	Artemether-Lumefantrine 20/120mg Tablet Unknown Generic Name	Antimalarial	Unknown Strength	Sun Pharma	205	+ ADD
9	Aspirin 75mg Tablet Unknown Generic Name	ANTIBIOTIC	Unknown Strength	Global Solutions Ltd.	150	+ ADD
10	Atorvastatin 10mg Tablet Unknown Generic Name	ANTI - FUNGAL	Unknown Strength	Tech Innovators Inc.	180	+ ADD

Figure 17. Admin Product Request

Purpose:

To allow sub-admins or store managers to view available pharmacy products and request required medicines from the central warehouse efficiently.

Key Features:

- Displays detailed product information including stock count and supplier.
- Provides "+ ADD" button for easy item selection and order placement.
- Real-time stock visibility ensures informed decision-making.
- Search, refresh, and print options improve usability and data handling.

QuickMeds: Centralized Medicine Management System

- Filtered view enables sub-admins to manage medicine procurement accurately.

The screenshot shows two side-by-side panels. The left panel, titled 'ADD TO ORDER', displays details for 'Acyclovir 400mg TabletT', including its generic name, category ('COUGH AND COLD'), strength ('Recover fast'), and available stock (65). It features a quantity selector set to 15 and buttons for 'ADD TO ORDER' and 'CANCEL'. The right panel, titled 'Your Order', shows a table with the same product details and a quantity of 15. Below the table is an 'Order Notes' section with a text input field and buttons for 'CANCEL' and 'SUBMIT ORDER'.

Figure 18. Add & Submit Order - Admin

3.2.5 Approval for Products by Subadmin:

The screenshot shows a web application interface for a Superadmin. The left sidebar contains navigation links for 'Dashboard', 'Inventory Management', 'Orders & Purchases', and 'People & Business'. The main content area displays a table of order requests. The table has columns for ID, Product Name, Category, Strength, Requested Quantity, and Approve Quantity. The first four rows show 'approved' orders, and the fifth row shows a 'pending' order for 'Acyclovir 400mg TabletT'. Below the table is a section for 'Order Items' with a table showing the item details and a quantity input field. At the bottom, there are buttons for 'APPROVE ORDER' and 'REJECT ORDER'.

Figure 19. Superadmin Order Approval/Rejection

Purpose:

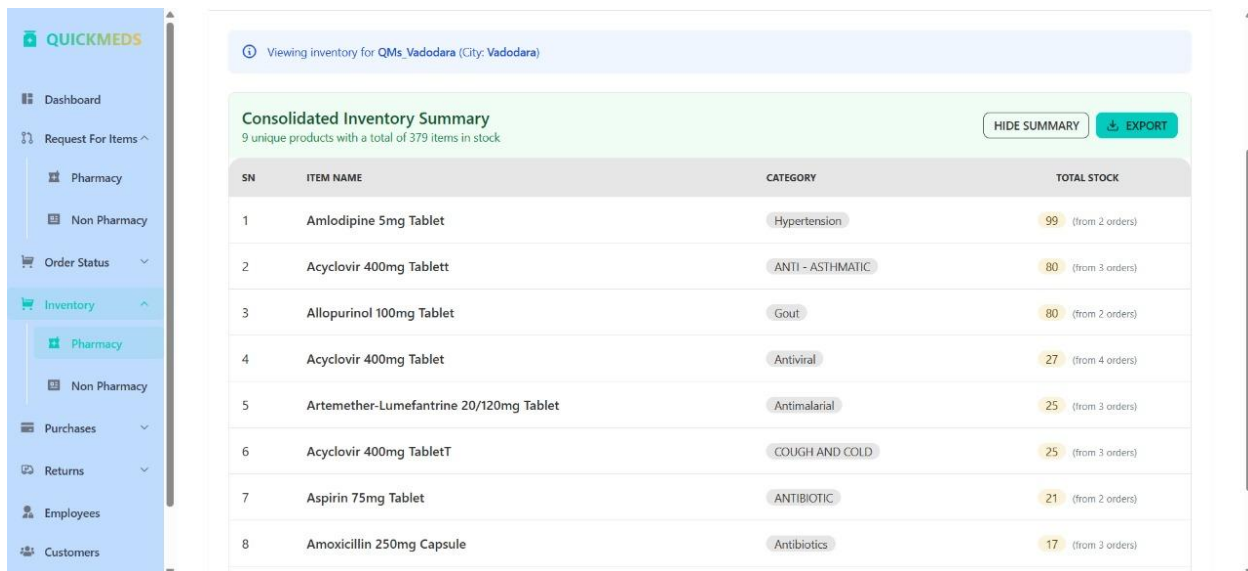
To give the Superadmin centralized control over all incoming medicine orders from local stores, allowing them to approve, reject, or dispatch orders based on stock availability and operational requirements.

Key Features:

- **Order Request List:** Displays pending orders with item details and requesting sub-admin info.

QuickMeds: Centralized Medicine Management System

- **Approval/Reject Controls:** Superadmin can approve or decline requests with a single click.
- **Stock Validation:** Ensures order is only processed if stock is available in the central warehouse.
- **Status Tracking:** Orders are moved through statuses like Pending → Approved → Dispatched.
- **Invoice Generation:** Approved orders can be linked to automatic invoice creation.
- **Notifications:** Sub-admins are notified in real-time about approval or rejection decisions.



SN	ITEM NAME	CATEGORY	TOTAL STOCK
1	Amlodipine 5mg Tablet	Hypertension	99 (from 2 orders)
2	Acyclovir 400mg Tablett	ANTI - ASTHMATIC	80 (from 3 orders)
3	Allopurinol 100mg Tablet	Gout	80 (from 2 orders)
4	Acyclovir 400mg Tablet	Antiviral	27 (from 4 orders)
5	Artemether-Lumefantrine 20/120mg Tablet	Antimalarial	25 (from 3 orders)
6	Acyclovir 400mg TabletT	COUGH AND COLD	25 (from 3 orders)
7	Aspirin 75mg Tablet	ANTIBIOTIC	21 (from 2 orders)
8	Amoxicillin 250mg Capsule	Antibiotics	17 (from 3 orders)

Figure 20. Admin Inventory

Purpose:

To give the Super Admin and Sub Admins centralized and real-time visibility over the medicine stock across the central warehouse and local stores, enabling efficient stock management, categorization, reordering, and stock level monitoring to prevent shortages or overstocking.

Key Features:

- **Inventory Summary View:** Shows total unique products and current stock quantity for the selected store.
- **Itemized Stock Table:** Displays item name, category, and total stock available, along with order contribution details.
- **Category Labels:** Medicines are tagged by category (e.g., Antibiotics, Antiviral) to

QuickMeds: Centralized Medicine Management System

simplify sorting and filtering.

- **Store-Specific Inventory:** Allows viewing inventory data filtered by individual store or location (e.g., Vadodara).
- **Stock Tracking from Orders:** Shows how many orders contributed to the current stock for transparency.

3.2.6 POS:

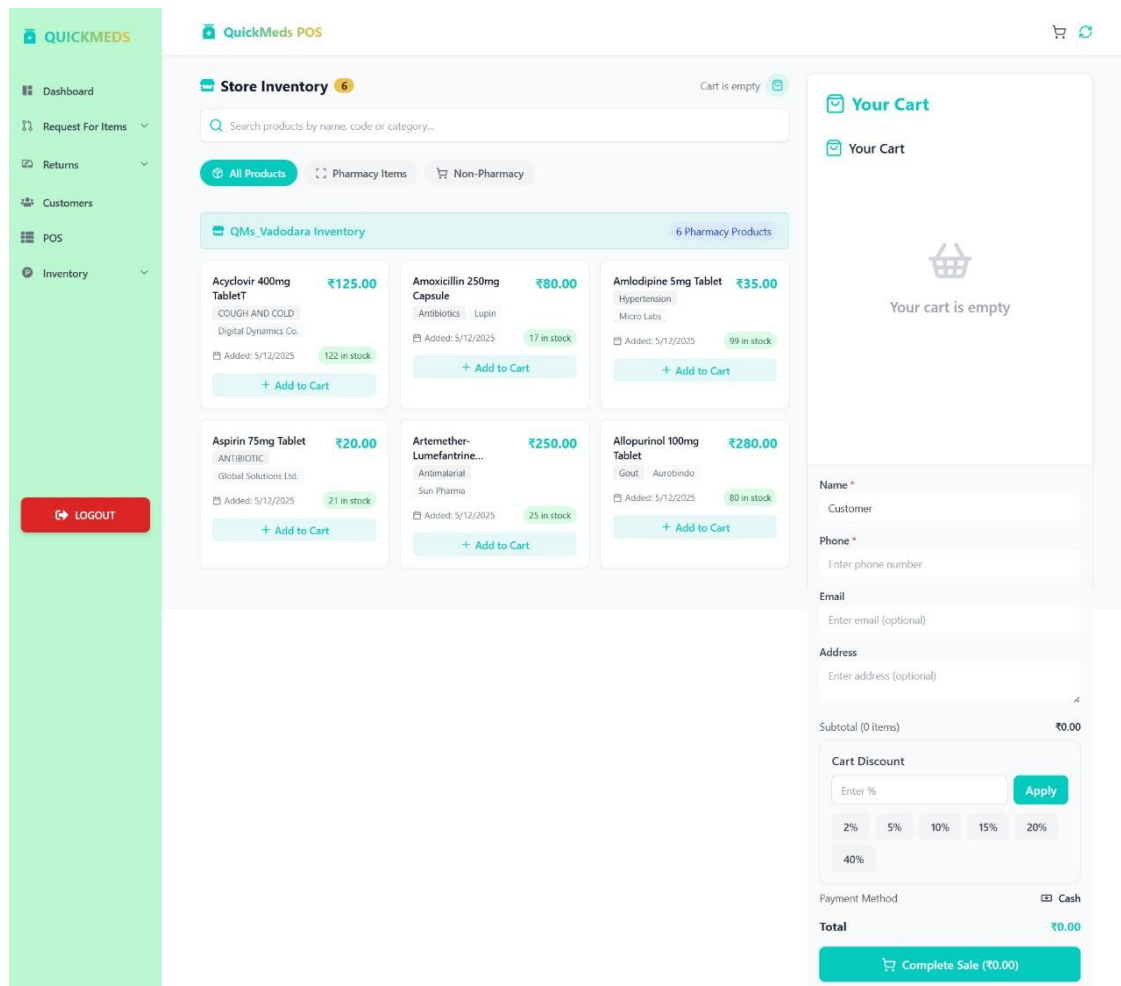


Figure 21. Point Of Sale (POS) - Employee

Purpose:

The POS system enables sub-admins and employees to efficiently process sales transactions, manage customer purchases, and ensure real-time stock updates, especially for offline purchases in local medical stores.

Key Features:

QuickMeds: Centralized Medicine Management System

- Quick billing with automated price and tax calculations.
- Real-time inventory updates after each sale.
- Customer management with purchase history tracking.
- Support for discounts, offers, and loyalty programs.
- Printable and downloadable invoices for each transaction.
- Role-based access to ensure secure and accountable usage.

Order Successful:

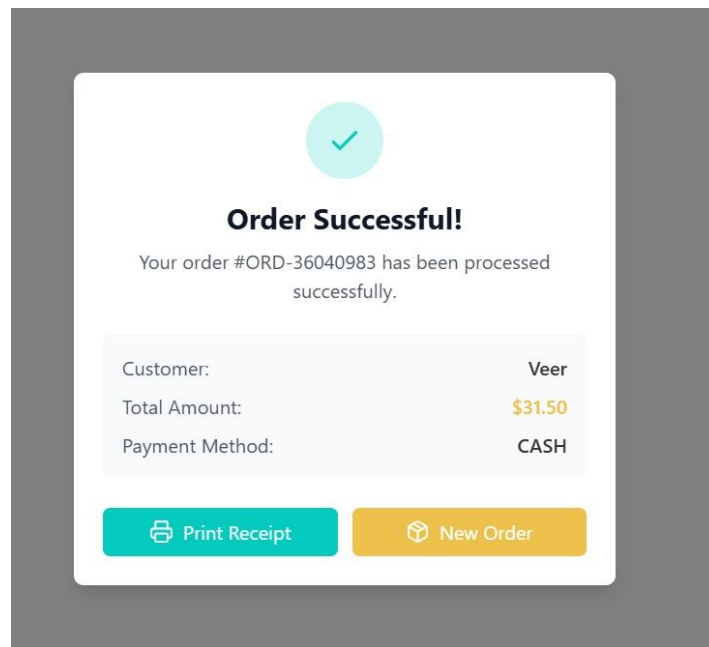


Figure 22. Order SuccessFull

Purpose:

To confirm successful transaction completion and provide employees with quick options to print a receipt or initiate a new sale.

Key Features:

- Displays order summary with key transaction details.
- Allows immediate receipt printing.
- Supports quick transition to new order entry.
- Enhances user efficiency during high customer flow.
- Visually indicates success for clear user feedback.

3.2.7 Bill Generation:

QuickMeds
QMs_Vadodara
Phone: 74859 06699
Email: info@quickmeds.com
SALES RECEIPT

Order #: ORD-36040983
Customer: Veer
Phone: 7485906699

Date: 12/5/2025
Time: 1:17:44 pm
Payment: CASH

Item	Qty	Price	Disc.	Total
	1	₹0.00	10%	₹31.50
Subtotal				₹31.50
Discount				₹0.00
TOTAL				₹31.50

ORD-36040983

Thank you for your purchase!

Return policy: Items may be returned within 7 days with receipt.
Prescription medications cannot be returned once dispensed.

Powered by QuickMeds System
12/5/2025

Figure 23. Bill

Purpose:

To confirm successful transaction completion and provide employees with quick options to print a receipt or initiate a new sale.

Key Features:

- Displays order summary with key transaction details.
- Allows immediate receipt printing.
- Supports quick transition to new order entry.
- Enhances user efficiency during high customer flow.
- Visually indicates success for clear user feedback.

3.3 Testing using Use Cases

3.3.1 Authentication Module

Test Case ID	Scenario	Test Steps / Data	Expected Result
TC_AUTH_01	Register with blank fields	Email: -Password: -	Prompt: "Please fill all fields"
TC_AUTH_02	Register with existing email	Email already in DB	Prompt: "Email already registered"
TC_AUTH_03	Register with new user role	Role: Sub-Admin Valid email/pass	Successful registration, redirect to dashboard
TC_AUTH_04	Login with invalid credentials	Wrong email/pass	Error: "Invalid credentials"
TC_AUTH_05	Login with correct credentials	Valid email/pass	Redirect to user's dashboard
TC_AUTH_06	Password reset	Email exists in DB	Password reset link sent
TC_AUTH_07	2FA Enabled Login	Enter OTP after login	Access granted after verification

Table 3.1 Testing Report - Authentication

3.3.2 User Management Module

Test Case ID	Scenario	Test Steps / Data	Expected Result
TC_UM_01	Add a new Sub Admin	Name, Email, Role: Sub Admin	Sub Admin added successfully
TC_UM_02	Update Employee details	Change name, email	Updated in system
TC_UM_03	Delete user account	User ID provided	User removed from DB

Table 3.2 Testing Report – User Management

3.3.3 Inventory Management Module

Test Case ID	Scenario	Test Steps / Data	Expected Result
TC_INV_01	Add new medicine	Name: Paracetamol, Qty: 500	Medicine added to warehouse
TC_INV_02	Update existing stock	Increase qty by 200	Updated quantity shown
TC_INV_03	Delete expired medicine	Select expired batch	Removed from inventory

Table 3.3 Testing Report – Inventory Management

3.3.4 Order Management Module

Test Case ID	Scenario	Test Steps / Data	Expected Result
TC_ORD_01	Place new order	Sub Admin → 200 units	Order request created
TC_ORD_02	Approve order	Super Admin → approve	Status: Approved
TC_ORD_03	Track order status	ID: ORD001	Status flow shown

Table 3.4 Testing Report – Order Management

Chapter 4: Conclusion and Future work

4.1 Conclusion

The QuickMeds Centralized Medicine Management System has been conceptualized, analyzed, and designed to address the operational challenges of managing inventory, orders, and sales across a network of local medical stores and a central warehouse. The system incorporates role-based access control for Super Admins, Sub Admins, and Employees, ensuring secure and efficient collaboration. Each module — including inventory management, order processing, sales tracking, and revenue reporting — has been tailored to meet the specific functional needs of a decentralized yet connected pharmacy ecosystem. By digitizing and automating critical processes such as stock updates, offline sales entries, and real-time notifications, QuickMeds aims to improve operational accuracy, enhance productivity, and support data-driven decision-making.

The project followed a systematic approach starting from requirement gathering, system design, implementation, and testing. Comprehensive testing based on use cases validated the reliability of the system modules. Overall, the project successfully meets its intended objectives of providing an integrated platform that facilitates streamlined medicine distribution and sales management.

4.2 Future work

While the current version of QuickMeds addresses the foundational needs of inventory and sales management, several enhancements can be explored in future iterations:

- **Payment Gateway Integration:** Future versions can include online payment modules for facilitating real-time customer payments and reconciling financial transactions.
- **Mobile Application Support:** Developing a cross-platform mobile app would allow Sub Admins and Employees to manage tasks conveniently on the go.
- **Machine Learning for Demand Forecasting:** Implementing predictive analytics can help in forecasting medicine demand, reducing wastage, and optimizing stock levels.
- **Customer Feedback and Ratings:** A module for capturing customer feedback on medicines or service quality can help improve customer satisfaction and store performance.
- **Integration with Health Records:** Future versions may integrate electronic health records (EHR) to allow personalized medicine suggestions based on prescription history.

QuickMeds: Centralized Medicine Management System

- **Multi-language Interface:** Adding support for regional languages would improve accessibility for users across different geographies.

These enhancements would further elevate QuickMeds into a full-scale pharmacy management platform, supporting greater scalability, intelligent decision-making, and user engagement.

Chapter 5: References

1. **PharmEasy** – <https://www.pharomeasy.in>
An online pharmacy offering medicine delivery, lab tests, and healthcare products across India.
2. **NetMeds** – <https://www.netmeds.com>
A digital pharmacy platform providing prescription medicines, wellness products, and health consultations.
3. **DavaIndia** – <https://www.davaindia.in>
A generic pharmacy retail chain focused on affordable healthcare through high-quality generic medicines.
4. **1mg** – <https://www.1mg.com>
A digital health platform offering medicine delivery, lab tests, doctor consultations, and health plans.