Medical Shop Automation

Software Engineering | B.Tech 3rd Year, 1st Semester

Department of Computer Science and Engineering

Submitted by

V. Mani Kumar Reddy (R200346)

Team members:

V. Premnath

M. Kowshik

J. Sharanya

K. Deepika

Under the guidance of

N. SATYANANDARAM

Lecturer, Department of CSE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES

RK VALLEY, Vempalli (M)
Kadapa (Dist),
Andhra Pradesh(S), 516330

User Requirement Document

Description:

The **Medical Shop Automation System** is a comprehensive software solution designed to streamline the day-to-day operations of a medical store. The system manages inventory, tracks sales, and automates supplier management, ensuring efficient and accurate handling of medicines and related transactions. It provides an intuitive interface for managing stock, suppliers, and sales records, reducing manual effort and minimizing errors in record-keeping.

This project aims to improve operational efficiency, enhance customer service, and maintain accurate records of stock levels, orders, and suppliers, all while ensuring compliance with expiration dates and inventory regulations.

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1. Introduction

1.1 Purpose

The purpose of this SRS document is to define the requirements for the Medical Shop Automation (MSA) software developed . This document will serve as a comprehensive guide for the development team and stakeholders to ensure that the software meets the needs of its users.

1.2 Intended Audience

This document is intended for:

- The development team at Group 5.
- The stakeholders including Medical Shop owner (pharmacist),supplier, customer, doctor
- Quality assurance teams
- End-users who will be using the software

1.3 Stakeholders

- Client – Pharmacist and Doctors
- Users – Individuals who use the MSA Tool

1.4 Product Vision

The MSA software aims to transform the operational efficiency of medical shops through automation. To develop an intelligent, user-friendly, and scalable Medical Shop Automation System that streamlines the inventory, sales, and supplier management processes, ensuring seamless operations, enhanced customer satisfaction, and improved profitability for medical shops of all sizes. It will also generate valuable insights through data analysis to support strategic decision-making and increase profitability.

2. Technologies

2.1 System in Context The MSA software will operate as a standalone web-based application, integrated into the daily operations of medical shops. It will be accessible via modern web browsers on desktop and laptop computers. The systemwill interface with vehicle databases and provide real-time management.

Technologies:

Frontend:

- HTML
- CSS
- Bootstrap
- JavaScript

Backend:

- Servlets
- JDBC
- JSP

Database:

- MySQL

3. Requirements

3.1 User Management

- **Customers:** Checking availability of medicines, checking prices, modifying or canceling orders, viewing prescriptions.

- **Pharmacist:** Supervise daily operation, ensuring smooth coordination, monitoring sales (analyzing maintenance needs), add new products, decisions on expiration return and refund.

- **Doctor:** Accessing previous prescription and medical history of the patient, create new prescriptions and suggesting medicines that are recommended necessarily for the treatment of a frequently diagnosed diseases.

- **Supplier:** Accessing the medicines through the user interface, and update the newly available stock of medicines so that the pharmacist can buy them, and supply them to the respective medical shops

3.2 Customer Management

- Customer Signup
  - Customers can register by providing personal details such as name, email address, phone number.
- Customer Login
  - Registered customers can log in to the system using their credentials.
- Order History
  - Customers can view their past orders and order status through their account dashboard.
- Medicine Search
  - Customers can search for medicines by name, availability, category and price.
- Add to Cart
  - Customers can add medicines to their cart.
- Checkout Process

The checkout process includes placing all the items in the cart

3.3 Inventory Management

- Add New Medicines
  - Pharmacist and Supplier can add new medicines, including details such astype, category, medicine ID, price, and Expiry date
- Update Inventory
  - Pharmacist can update inventory when new medicines arrive, including medicine details and availability status.

3.4 Financial Management

- Store Financial Details
  - Accountants can store financial details, including sales, and revenue.
- Financial Reporting
  - The system generates financial reports to track revenue and expenses.

3.5 Security and Access Control

- User Authentication
  - The system enforces user authentication to ensure that only authorized personnel can access specific functionalities.
- Role-based Access
  - Different user roles (customer, pharmacist, doctor, supplier) have different levels of access to system functionalities.

4. Non-Functional Requirements

4.1 Reliability

The system should consistently perform all required functions without failure. Regular backups should be implemented to prevent data loss.

4.2 Usability

The user interface should be intuitive and easy to navigate for all user types, including administrators, customers, managers, staff, and accountants.

4.3 Availability

The system should be available 24/7, with minimal downtime for maintenance.

4.4 Accessibility

The system should be accessible from various devices and comply with accessibility standards to accommodate users with disabilities.

4.5 Performance

The system should handle multiple concurrent users without performance degradation and should have quick response times for all operations.

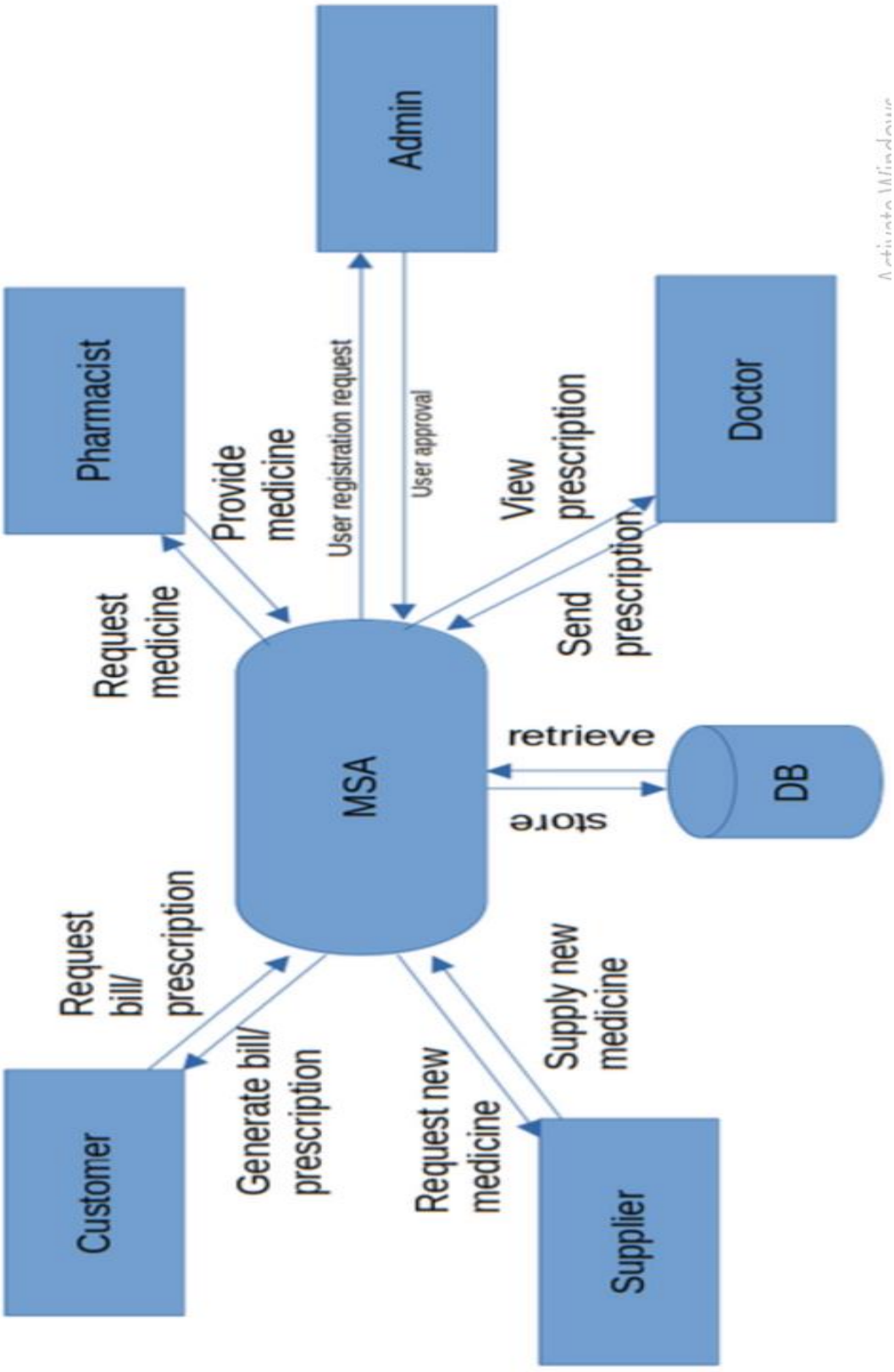
4.6 Security

User authentication and authorization must be enforced. Sensitive data should be encrypted, and the system should comply with data protection regulations.

4.7 Platform Compatibility

The system should be compatible with modern web browsers and shouldnot require any special hardware or software for access.

Context Diagram :-



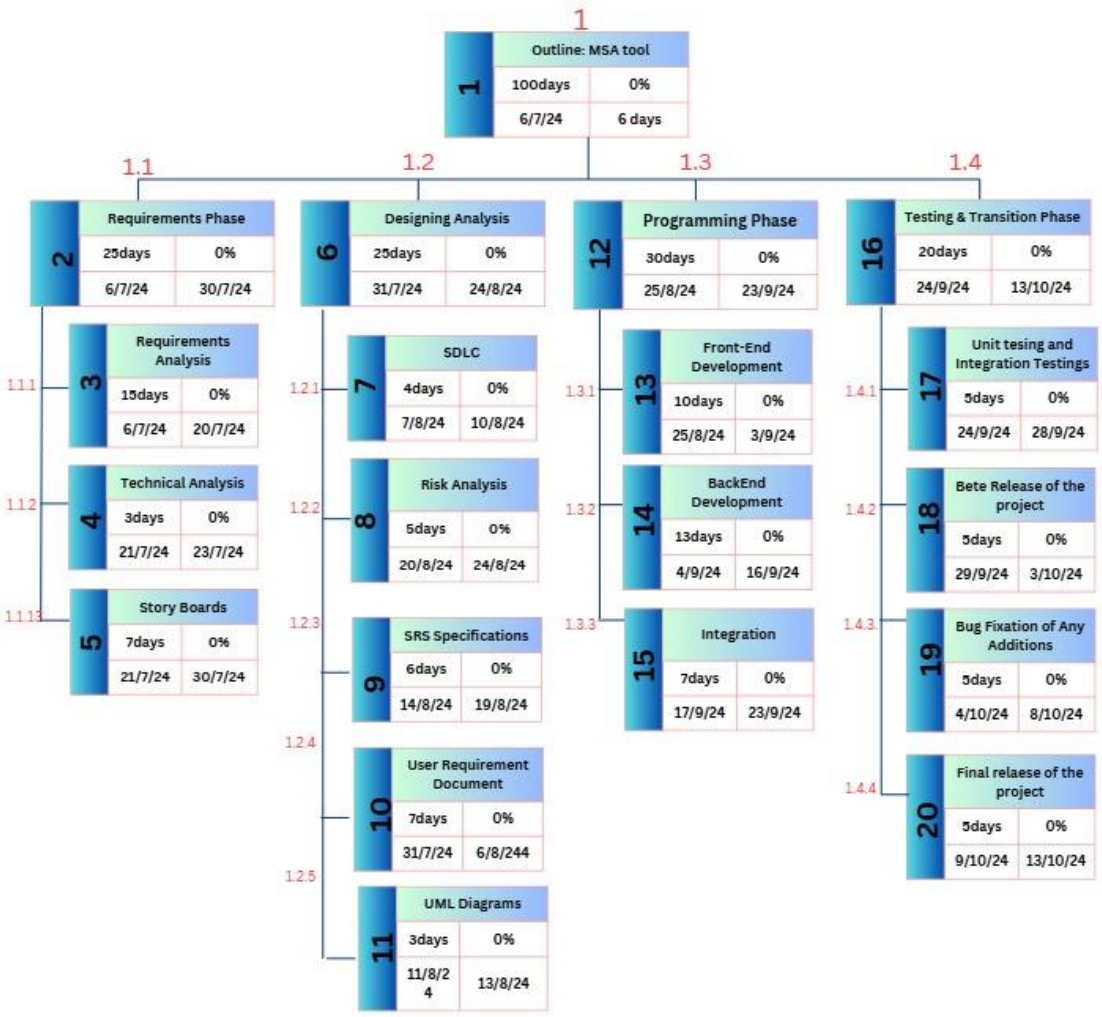
5. Work Assignment to Team

WORK NAME	*ASSIGNED PERSON*
Requirements Gathering	EntireTeam
Interface	Mani, Sharanya
Story board	Deepika, Kowshik
WBS	Mani, Premnath
URD	Premnath, Sharanya
SRS	Entire Team
Risk Analysis	Entire Team
Front end Design	Sharanya , Kowshik ,
Backend Design (Database)	Deepika, Premnath
Code Integration	Mani, Kowshik
Testing	Entire Team
Final Demo	Entire Team

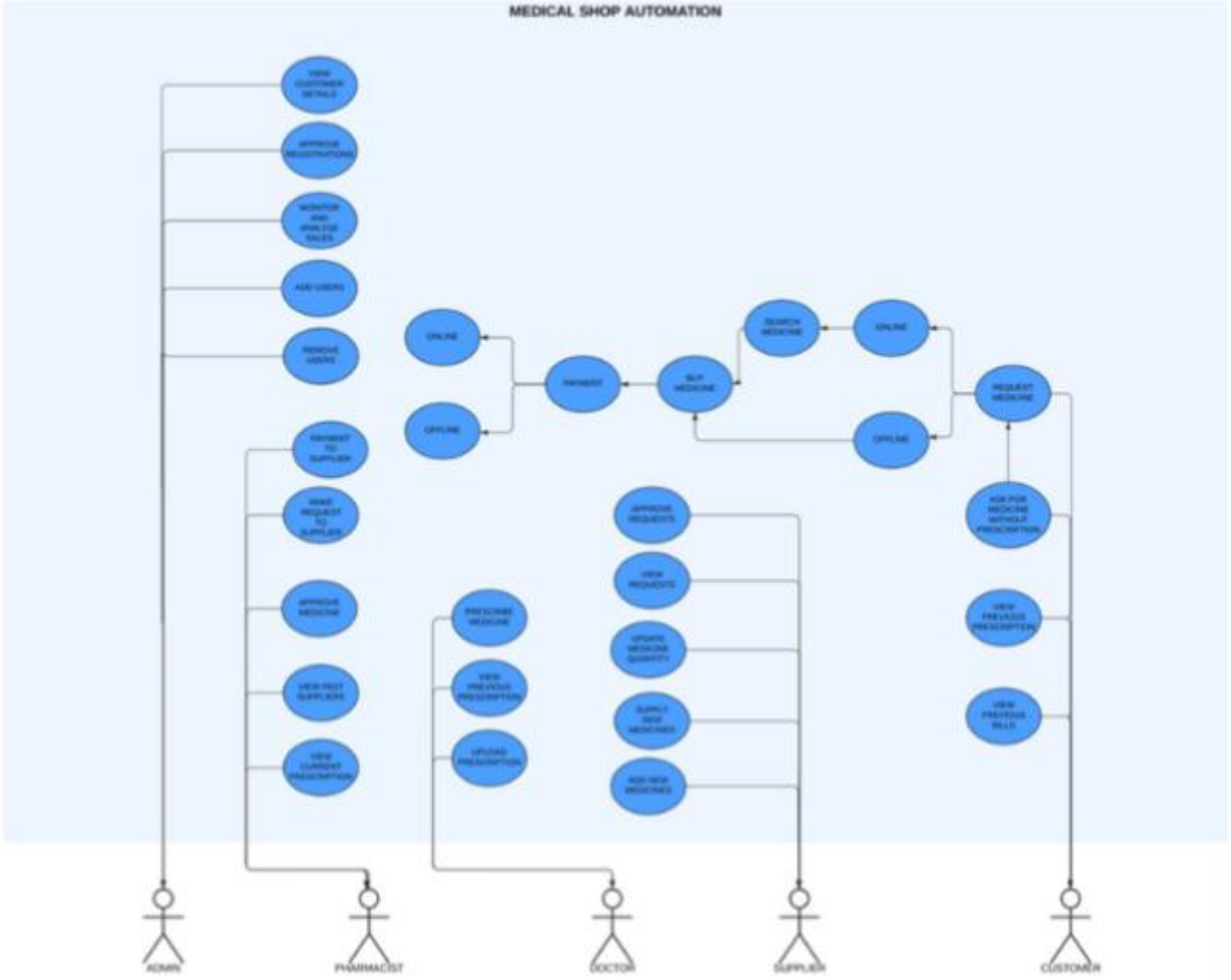
6. Work Breakdown Structure (WBS) for MSA

1. Project Initiation:
    - 1.1 Requirement Gathering
    - 1.2 Feasibility Analysis
    - 1.3 Project Plan Creation
    - 1.4 Resource Allocation
2. System Design:
    - 2.1 Architectural Design
    - 2.2 Database Design
    - 2.3 UI/UX Design
3. Development:
    - 3.1 Frontend Development
    - 3.2 Backend Development
    - 3.3 Database Development
4. Testing:
    - 4.1 Unit Testing
    - 4.2 Integration Testing
    - 4.3 System Testing
    - 4.4 User Acceptance Testing (UAT)
5. Maintenance and Support:
    - 5.1 Bug Fixes
    - 5.2 Performance Optimization
    - 5.3 Regular Updates and Enhancement

Work Breakdown Diagram:



Use Case Diagram:



System wise Requirements (Received) :-

1. ACTORS

Customer (CS):

- Interacts with the system to view available medicines, search with filters, order medicines, view prescriptions.

Pharmacist (PH):

- Oversees operations by viewing reports and statistics, setting pricing , and evaluating profitability.

Supplier(SU):

- Uses the system through interface and updates the newly available medicines stock.

Doctor (DR):

- Manages user Prescriptions, Diagnosis of patient condition, update the prescription through the MSA portal or software .

2. EVENTS (Use Cases)

1. **Register/Login:**
   - Users (Customers, Pharmacists, Supplier, Doctor) log into the system to access functionalities based on their roles.

2. **View Available Medicines(Customer/Pharmacist/Supplier):**
   - Customers browse through a list of available Medicines to buy.

3. **Search Medicines(Customer):**
   - Customers utilize advanced search filters to find specific types of medicines based on various criteria.

4. **Order Medicines(Customer):**
   - Customers order a medicine and track the order status through the system.

5. **View Prescriptions(Customer):**
   - Customer can view and get knowledge about their previous and current prescriptions, and order appropriate medicines they need.

6. **Add to Cart (Customer):**
   - Customer can add individual elements to their cart, like bookmarking the to buy later whenever it is necessary, or collecting multiple items and placing a single order.

7. **View Prescriptions (Doctor):**
   - Doctor can view and get knowledge about their previous prescriptions and Diagnose accordingly

8. **Upload Prescription (Doctor):**
   - Create a new prescription and update the patient details and diagnosis
   -

9. **Search Medicines (Doctor):**
   - Doctors utilize advanced search filters to find specific types of medicines based on various criteria

10. **Add Product (Pharmacist):**
    - Adding new medicines to the inventory or the medical shop software

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11. **Search Medicines(Pharmacist):**
    - Pharmacists utilize advanced search filters to find specific types of medicines based on various criteria.

12. **Expiring Today Medicines(Pharmacist)**
    - Pharmacist identifies the expiring medicines by taking or considering the expiry date of a medicine and remove it from the inventory

13. **Sales Report (Pharmacist):**
    - Generates the sales of a particular day and analyses the total statistics of the sales.
    - The generated reports can be printed

14. **Remove Medicines (Pharmacist):**
    - Pharmacist has the privilege to remove the medicines when,
      - the medicine has reached its expiry date
      - to update the inventory
      - add products with updated prices

15. **Search Medicines (Supplier):**
    - Suppliers utilize advanced search filters to find specific types of medicines based on various criteria

16. **Remove Medicines (Supplier):**
    - Supplier can remove the medicines whenever he wants to stop the supply.

17. **Add Product (Supplier):**
    - Adding new medicines to the software whenever stock is available to refill the inventory

18. **Logout:**
    - Safely withdraw from the application software without compromising the security.

3. USER VISIBLE EVENTS

i) Customer :

Serial No	Actor	Actions	Object	Frequency	Arrival Pattern	Response
1	Customer	Register/Login	Account	Daily	Random	Access granted/denied
2	Customer	View Medicines	Medicine List	Frequently	On-demand	Display available medicines
3	Customer	Search Medicines	Medicine	Frequently	Random	Display search results
4	Customer	Order Medicines	Order	Occasionally	On-demand	Order confirmation/status
5	Customer	View Prescriptions	Prescription	Occasionally	Random	Display prescription details
6	Customer	Add to Cart	Cart	Frequently	On-demand	Item added to cart
18	Customer	Logout	Session	Daily	Random	Session terminated safely

ii) Supplier:

Serial No	Actor	Actions	Object	Frequency	Arrival Pattern	Response
1	Supplier	Register/Login	Account	Daily	Random	Access granted/denied
15	Supplier	Search Medicines	Medicine	Occasionally	Random	Display search results
16	Supplier	Remove Medicines	Medicine	Occasionally	On-demand	Medicine removed
17	Supplier	Add Product	Medicine	Occasionally	Random	Medicine added to system
18	Supplier	Logout	Session	Daily	Random	Session terminated safely

iii) Doctor

Serial No	Actor	Actions	Object	Frequency	Arrival Pattern	Response
1	Doctor	Register/Login	Account	Daily	Random	Access granted/denied
7	Doctor	View Prescriptions	Prescription	Occasionally	On-demand	Display prescription details
8	Doctor	Upload Prescription	Prescription	Occasionally	On-demand	Prescription uploaded
9	Doctor	Search Medicines	Medicine	Occasionally	Random	Display search results
18	Doctor	Logout	Session	Daily	Random	Session terminated safely

iv) Pharmacist:

Serial No	Actor	Actions	Object	Frequency	Arrival Pattern	Response
1	Pharmacist	Register/Login	Account	Daily	Random	Access granted/denied
2	Pharmacist	View Medicines	Medicine List	Frequently	On-demand	Display available medicines
11	Pharmacist	Search Medicines	Medicine	Frequently	Random	Display search results
10	Pharmacist	Add Product	Medicine	Occasionally	Random	Medicine added to inventory
12	Pharmacist	Expiring Today Medicines	Medicine	Occasionally	Daily	Display expiring medicines
13	Pharmacist	Sales Report	Sales Data	Daily	End of Day	Generate report
14	Pharmacist	Remove Medicines	Medicine	Occasionally	On-demand	Medicine removed
18	Pharmacist	Logout	Session	Daily	Random	Session terminated safely

4.FUNCTIONAL REQUIREMENTS : Use-Case Overview

Medical Shop Automation System: Use Case Table

UID	Actor	Use Case Name	Priority	Stability	Verifiability
UC-MED-ALL-RG	All	Register	High	Stable	Verifiable
UC-MED-ALL-LG	All	Login	High	Stable	Verifiable
UC-MED-CS-VM	Customer	View Available Medicines	High	Stable	Verifiable
UC-MED-CS-SM	Customer	Search Medicines	High	Stable	Verifiable
UC-MED-CS-OM	Customer	Order Medicines	High	Stable	Verifiable
UC-MED-CS-VP	Customer	View Prescriptions	Medium	Stable	Verifiable
UC-MED-CS-AC	Customer	Add to Cart	High	Stable	Verifiable
UC-MED-DT-VP	Doctor	View Prescriptions	High	Stable	Verifiable
UC-MED-DT-UP	Doctor	Upload Prescription	High	Stable	Verifiable
UC-MED-DT-SM	Doctor	Search Medicines	Medium	Stable	Verifiable
UC-MED-PH-AP	Pharmacist	Add Product	High	Stable	Verifiable
UC-MED-PH-SM	Pharmacist	Search Medicines	High	Stable	Verifiable
UC-MED-PH-ETM	Pharmacist	Expiring Today Medicines	Medium	Stable	Verifiable
UC-MED-PH-SR	Pharmacist	Sales Report	High	Stable	Verifiable
UC-MED-PH-RM	Pharmacist	Remove Medicines	High	Stable	Verifiable
UC-MED-SP-SM	Supplier	Search Medicines	Medium	Stable	Verifiable
UC-MED-SP-RM	Supplier	Remove Medicines	Medium	Stable	Verifiable
UC-MED-SP-AP	Supplier	Add Product	High	Stable	Verifiable
UC-MED-ALL-LO	All	Logout	High	Stable	Verifiable

7. Use Case Specification

1. UC-MED-ALL-RG : Register

Use Case ID	UC-MED-ALL-RG
Use Case Name	Register
Actors	User
Description	Allows new users to register in the system by providing necessary details such as username, password, and email.
Pre-conditions	The user must have valid registration details.
Post-conditions	The user is successfully registered and redirected to the login page.
Main Flow	1. User accesses the registration page. 2. User fills in the required details (username, password, email, etc.). 3. User submits the form. 4. System validates the input data. 5. System creates a new user account and stores it in the database. 6. System displays a success message and redirects the user to the login page.
Alternative Flows	If the input data is invalid, an error message is displayed and the user is prompted to correct the details.
Priority	High
Status	Stable
Verifiable	Yes

2. UC-MED-ALL-LG : Login

Use Case ID	UC-MED-ALL-LG
Use Case Name	Login
Actors	User
Description	Allows registered users to log in to the system by providing their username and password.
Pre-conditions	The user must be registered in the system.
Post-conditions	The user is successfully logged in and redirected to the dashboard.

Main Flow	1. User accesses the login page. 2. User enters their username and password. 3. User submits the login form. 4. System verifies the credentials against the database. 5. If credentials are valid, the user is granted access to the dashboard. 6. System displays a welcome message.
Alternative Flows	If the credentials are invalid, an error message is displayed and the user is prompted to try again.
Priority	High
Status	Stable
Verifiable	Yes

3. UC-MED-CS-VM : View Available Medicines

Use-Case ID	UC-MED-CS-VM
Use-case Name	View Available Medicines
Description	The customer views a list of available medicines in the system.
Pre-conditions	1. The user must be logged in as a Customer.
Success guarantee	The user can see the list of medicines available in the inventory.
Frequency of use	High
Main success scenario	1. The user accesses the 'View Medicines' section. 2. The system displays a list of available medicines along with their details such as name, type, and quantity.
Extensions	1. If there are no available medicines, the system displays a message indicating the unavailability.
Frequency of occurrence	High

4. UC-MED-CS-SM : Search Medicines

Use-Case ID	UC-MED-CS-SM
Use-case Name	Search Medicines
Description	The customer searches for specific medicines based on various filters like name, type, or manufacturer.
Pre-conditions	1. The user must be logged in as a Customer.

Success guarantee	The user finds the desired medicines based on the search criteria.
Frequency of use	High
Main success scenario	1. The user accesses the 'Search Medicines' section. 2. The user enters search criteria such as name or type. 3. The system returns a list of medicines matching the search criteria.
Extensions	1. If no medicines match the search criteria, the system displays a message indicating no results.
Frequency of occurrence	High

5. UC-MED-CS-OM : Order Medicines

Use-Case ID	UC-MED-CS-OM
Use-case Name	Order Medicines
Description	The customer places an order for selected medicines.
Pre-conditions	1. The user must be logged in as a Customer. 2. The selected medicines must be available in sufficient quantity.
Success guarantee	The user successfully places an order and receives an order confirmation.
Frequency of use	High
Main success scenario	1. The user selects medicines from the list or cart. 2. The user proceeds to checkout. 3. The user provides delivery details and payment information. 4. The system processes the order and provides a confirmation.
Extensions	1. If the selected medicines are out of stock, the system alerts the user. 2. If payment fails, the system allows retrying with different payment options.
Frequency of occurrence	High

6. UC-MED-CS-VP : View Prescriptions

Use-Case ID	UC-MED-CS-VP
Use-case Name	View Prescriptions
Description	The customer views their uploaded or doctor-prescribed prescriptions.
Pre-conditions	1. The user must be logged in as a Customer.
Success guarantee	The user can view their prescriptions for reference or ordering medicines.
Frequency of use	Medium
Main success scenario	1. The user accesses the 'View Prescriptions' section. 2. The system displays the list of prescriptions uploaded by the user or prescribed by a doctor.
Extensions	1. If there are no prescriptions, the system displays a message indicating the absence of prescriptions.
Frequency of occurrence	Medium

7. UC-MED-CS-AC : Add to Cart

Use-Case ID	UC-MED-CS-AC
Use-case Name	Add to Cart
Description	The customer adds selected medicines to the cart for future ordering.
Pre-conditions	1. The user must be logged in as a Customer.
Success guarantee	The selected medicines are added to the cart for future checkout.
Frequency of use	High
Main success scenario	1. The user selects a medicine from the list. 2. The user clicks the 'Add to Cart' button. 3. The system adds the selected medicine to the user's cart.
Extensions	1. If the medicine is out of stock, the system alerts the user and prevents adding to the cart.
Frequency of occurrence	High

8. UC-MED-DT-UP : Upload Prescription

Use-Case ID	UC-MED-DT-UP
Use-case Name	Upload Prescription
Description	The doctor upload prescription.
Pre-conditions	1. The user must be logged in as a Doctor.

Success guarantee	The user can upload prescription.
Frequency of use	High
Main success scenario	1. The user accesses the "Upload Prescription" section. 2. The system allows the user to upload prescription.
Frequency of occurrence	High

9. UC-MED-DT-SM : Search Medicines

Use-Case ID	UC-MED-DT-SM
Use-case Name	Search Medicines
Description	The doctor search medicines.
Pre-conditions	1. The user must be logged in as a Doctor.
Success guarantee	The user can search medicines.
Frequency of use	Medium
Main success scenario	1. The user accesses the "Search Medicines" section. 2. The system allows the user to search medicines.
Frequency of occurrence	High

10. UC-MED-PH-AP : Add Product

Use-Case ID	UC-MED-PH-AP
Use-case Name	Add Product
Description	The pharmacist add product.
Pre-conditions	1. The user must be logged in as a Pharmacist.
Success guarantee	The user can add product.
Frequency of use	High
Main success scenario	1. The user accesses the "Add Product" section. 2. The system allows the user to add product.
Frequency of occurrence	High

11. UC-MED-PH-SM : Search Medicines

Use-Case ID	UC-MED-PH-SM
Use-case Name	Search Medicines
Description	The pharmacist search medicines.
Pre-conditions	1. The user must be logged in as a Pharmacist.
Success guarantee	The user can search medicines.
Frequency of use	High

Main success scenario	1. The user accesses the "Search Medicines" section. 2. The system allows the user to search medicines.
Frequency of occurrence	High

12. UC-MED-PH-ETM : Expiring Today Medicines

Use-Case ID	UC-MED-PH-ETM
Use-case Name	Expiring Today Medicines
Description	The pharmacist expiring today medicines.
Pre-conditions	1. The user must be logged in as a Pharmacist.
Success guarantee	The user can expiring today medicines.
Frequency of use	Medium
Main success scenario	1. The user accesses the "Expiring Today Medicines" section. 2. The system allows the user to expiring today medicines.
Frequency of occurrence	High

13. UC-MED-PH-SR : Sales Report

Use-Case ID	UC-MED-PH-SR
Use-case Name	Sales Report
Description	The pharmacist sales report.
Pre-conditions	1. The user must be logged in as a Pharmacist.
Success guarantee	The user can sales report.
Frequency of use	High
Main success scenario	1. The user accesses the "Sales Report" section. 2. The system allows the user to sales report.
Frequency of occurrence	High

14. UC-MED-PH-RM : Remove Medicines

Use-Case ID	UC-MED-PH-RM
Use-case Name	Remove Medicines
Description	The pharmacist remove medicines.
Pre-conditions	1. The user must be logged in as a

	Pharmacist.
Success guarantee	The user can remove medicines.
Frequency of use	High
Main success scenario	1. The user accesses the "Remove Medicines" section. 2. The system allows the user to remove medicines.
Frequency of occurrence	High

15. UC-MED-SP-SM : Search Medicines

Use-Case ID	UC-MED-SP-SM
Use-case Name	Search Medicines
Description	The supplier search medicines.
Pre-conditions	1. The user must be logged in as a Supplier.
Success guarantee	The user can search medicines.
Frequency of use	Medium
Main success scenario	1. The user accesses the "Search Medicines" section. 2. The system allows the user to search medicines.
Frequency of occurrence	High

16. UC-MED-SP-RM : Remove Medicines

Use-Case ID	UC-MED-SP-RM
Use-case Name	Remove Medicines
Description	The supplier remove medicines.
Pre-conditions	1. The user must be logged in as a Supplier.
Success guarantee	The user can remove medicines.
Frequency of use	Medium
Main success scenario	1. The user accesses the "Remove Medicines" section. 2. The system allows the user to remove medicines.
Frequency of occurrence	High

17. UC-MED-SP-AP : Add Product

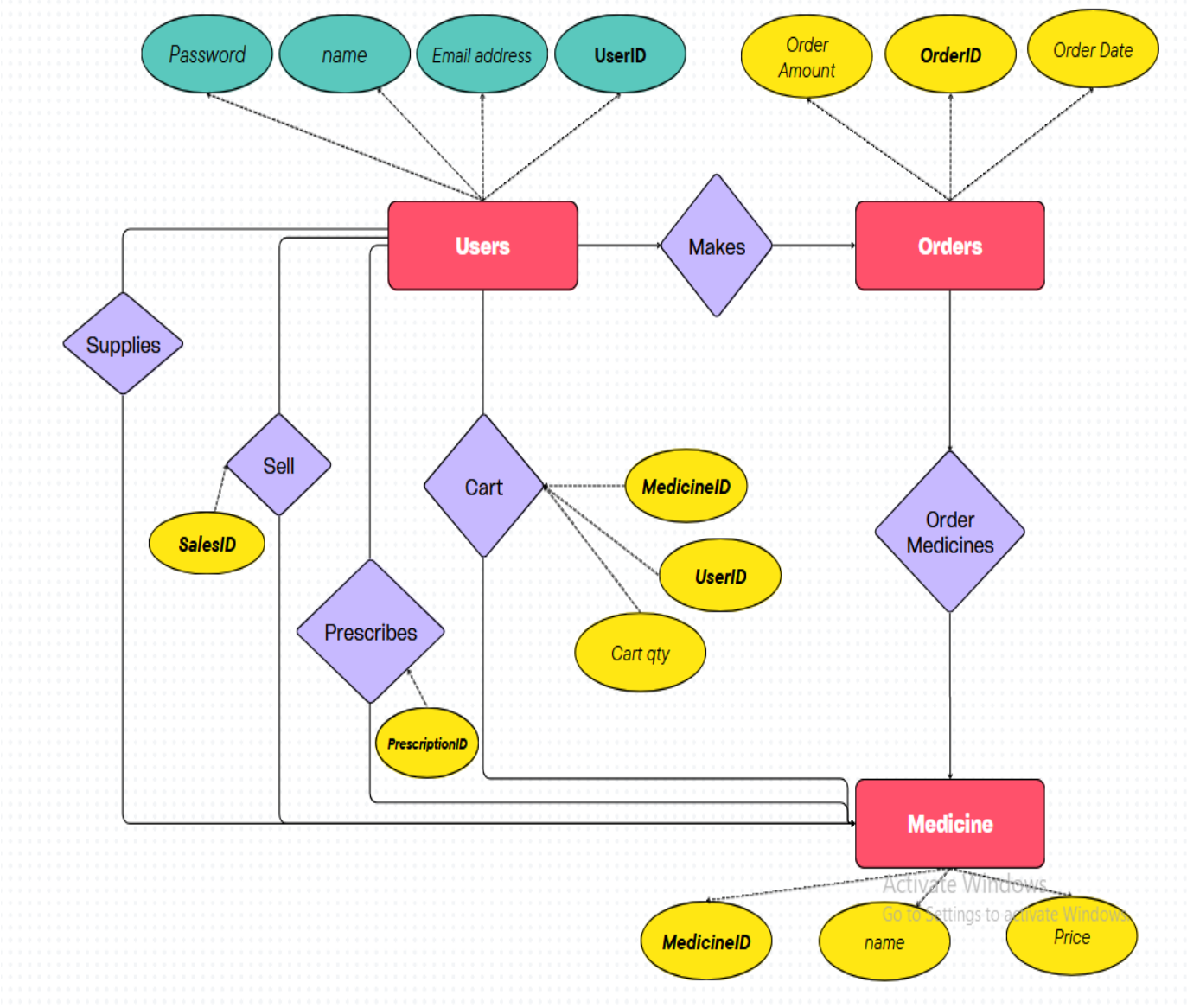
Use-Case ID	UC-MED-SP-AP
Use-case Name	Add Product
Description	The supplier add product.

Pre-conditions	1. The user must be logged in as a Supplier.
Success guarantee	The user can add product.
Frequency of use	High
Main success scenario	1. The user accesses the "Add Product" section. 2. The system allows the user to add product.
Frequency of occurrence	High

18. UC-MED-ALL-LO : Logout

Use-Case ID	UC-MED-ALL-LO
Use-case Name	Logout
Description	The common logout for everyone.
Pre-conditions	1. The user must be logged in.
Success guarantee	The user can logout.
Frequency of use	High
Main success scenario	1. The user accesses the "Logout" section. 2. The system allows the user to logout.
Frequency of occurrence	High

8. ER DIAGRAM


Password
name
Email address
UserID
Order Amount
OrderID
Order Date
Users
Makes
Orders
Supplies
Sell
Cart
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UserID
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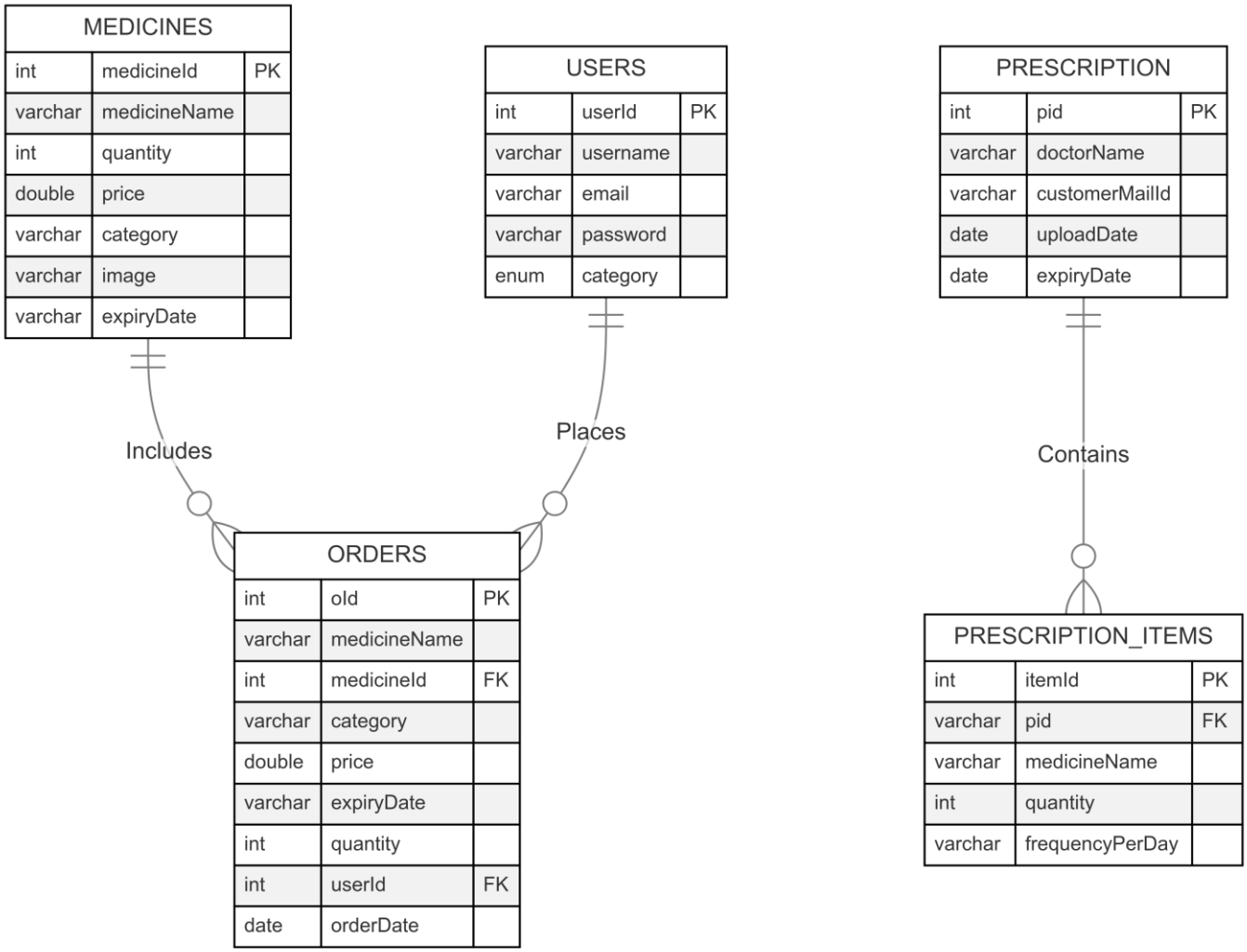
Cart qty
PrescriptionID
Medicine
MedicineID
name
Price

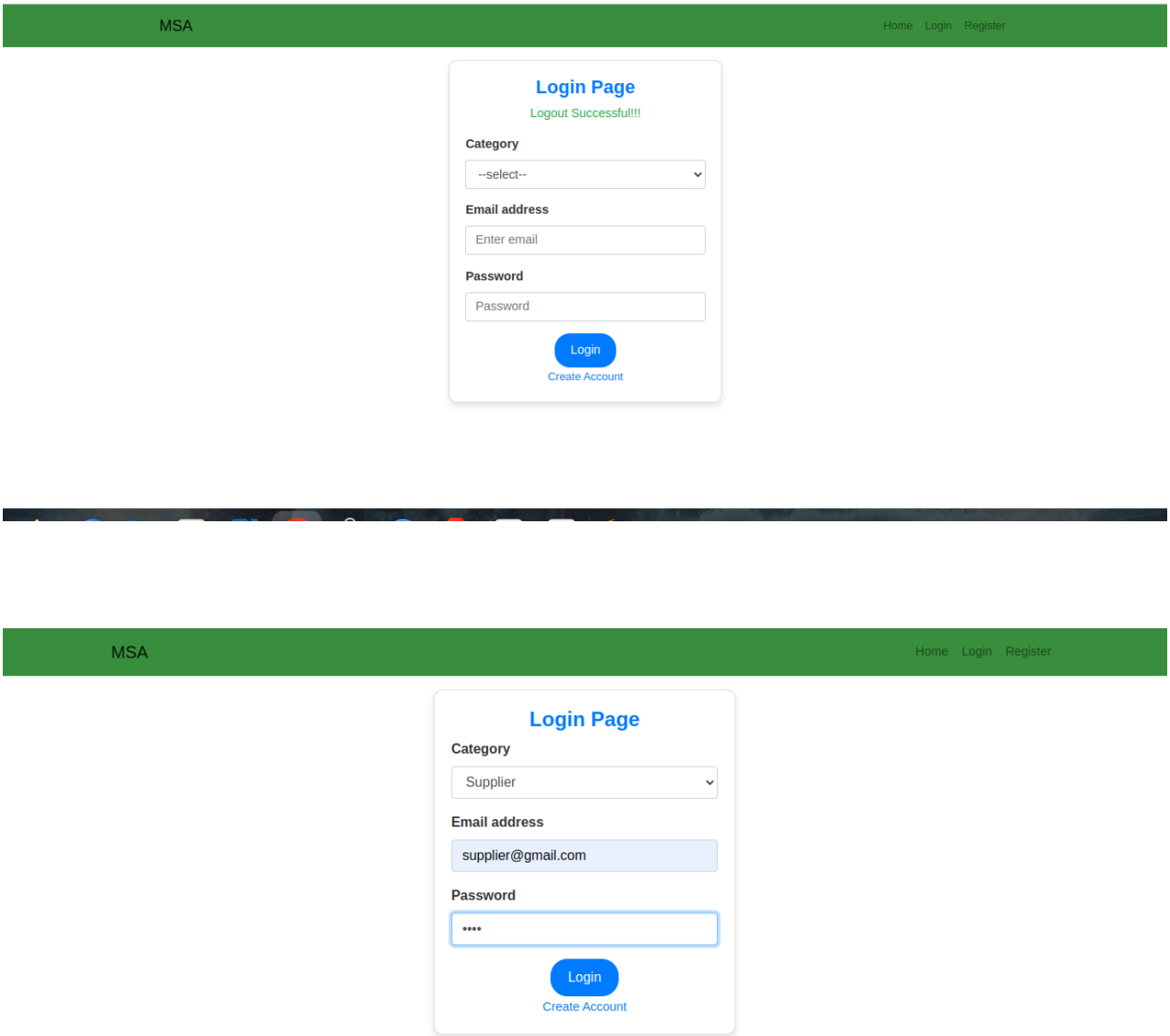
KEY BASED ER DIAGRAM

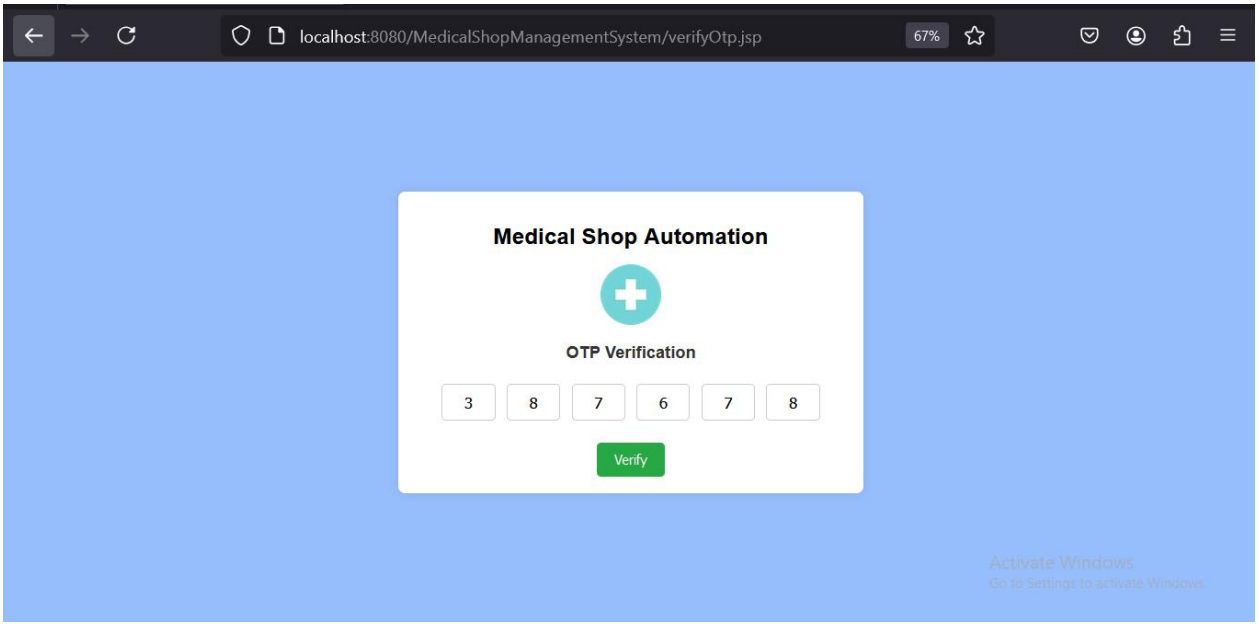


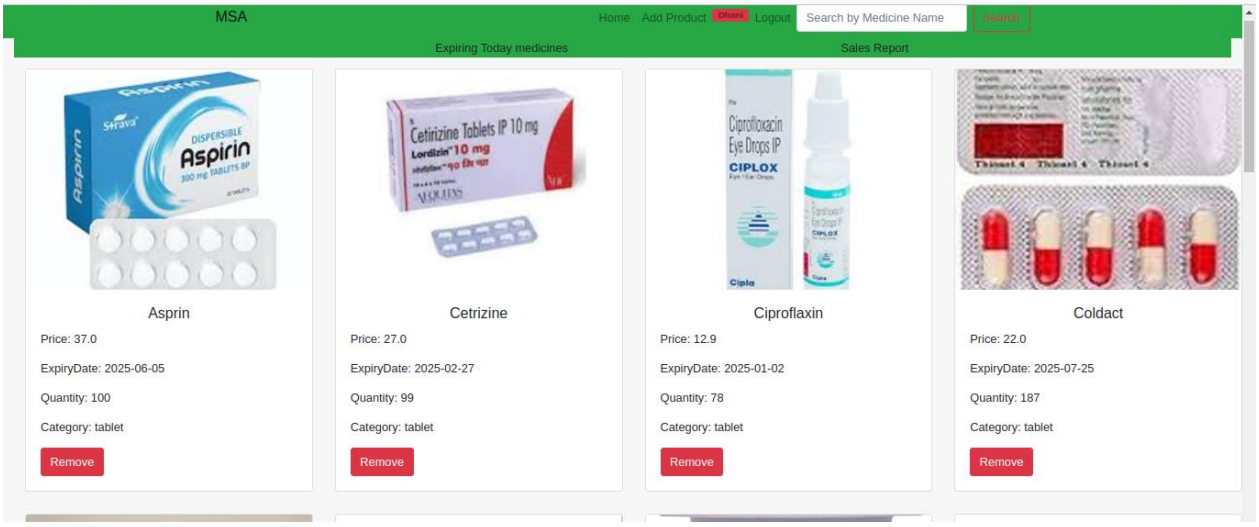
9. *CLASS DIAGRAM*

Activate W
Go to Settings

10. SAMPLE UI


MSA
Home Login Register
Login Page
Logout Successful!!!
Category
--select--
Email address
Enter email
Password
Password
Login
Create Account
MSA
Home Login Register
Login Page
Category
Supplier
Email address
supplier@gmail.com
Password
••••
Login
Create Account


localhost:8080/MedicalShopManagementSystem/verifyOtp.jsp
67%
Medical Shop Automation
OTP Verification
3
8
7
6
7
8
Verify
Activate Windows
Go to Settings to activate Windows.


MSA
Home
Add Product
Dhoni
Logout
Search by Medicine Name
Search
Expiring Today medicines
Sales Report
Asprin
Price: 37.0
ExpiryDate: 2025-06-05
Quantity: 100
Category: tablet
Remove
Cetrizine
Price: 27.0
ExpiryDate: 2025-02-27
Quantity: 99
Category: tablet
Remove
Ciproflaxin
Price: 12.9
ExpiryDate: 2025-01-02
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Category: tablet
Remove
Coldact
Price: 22.0
ExpiryDate: 2025-07-25
Quantity: 187
Category: tablet
Remove

Conclusion

The Medical Shop Automation System effectively addresses the critical needs of a modern medical store by automating core processes such as inventory management, sales tracking, and supplier coordination. By reducing manual tasks and ensuring accurate record-keeping, the system enhances operational efficiency and minimizes errors, leading to better stock control and timely replenishment of medicines. Additionally, it helps maintain compliance with expiration date regulations, ensuring customer safety and satisfaction. The intuitive interface simplifies day-to-day tasks for store personnel, enabling them to focus more on customer service and less on administrative duties. This system not only optimizes the internal workflow of the medical store but also contributes to increased customer trust and business growth.

Future Enhancements:

The Medical Shop Automation System has significant potential for future enhancements to further improve its efficiency and scalability. One key development is integrating the system with online platforms, enabling customers to place orders and make payments online, thereby expanding the store's reach. A mobile application could also be introduced, allowing store owners and staff to manage inventory and orders remotely. Implementing AI-driven analytics would help forecast demand, optimize stock levels, and automate restocking schedules, while automated expiry management could send timely alerts for products nearing expiration. Additionally, integrating the system with accounting software would streamline financial management and reporting.s