Khulna University of Engineering & Technology

Department of Computer Science & Engineering

Project Report

Project Title: **Therapeia - An AI assisted health platform**

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Objectives

1. To develop anonline pharmacy platform that enables users to browse, purchase, and track healthcare products and medicines easily.
2. To assist administrators in managing product inventory, user data, and order processing efficiently.
3. To ensure reliable medicine delivery, secure payment processing, and real-time order tracking while maintaining compliance withstandards in pharmaceutical distribution.
4. To allow users to learn and better understand the characteristics and side effects of any medicine.

Introduction

Therapeia is a web-based e-commerce platform for healthcare products designed to bridge the gap between users and licensed pharmacies. It simplifies the process of purchasing prescribed and over-the-counter medicines while providing transparency in pricing, availability, and delivery status.

The system integrates both user-side functionalities (like placing orders, making payments, and tracking deliveries) and admin-side operations (like inventory management, viewing orders, and monitoring payments). The design was guided by user stories and sprints tracked via Jira, ensuring systematic task completion and agile development progression.

Methodology

The project was developed following the Agile methodology, focusing on incremental development and iterative improvements through multiple sprints. Each sprint addressed specific user stories such as user registration, product management, and payment integration, ensuring flexibility and continuous user feedback.

Requirements Analysis

In the product backlog, key requirements included:

1. User account creation and modification
2. Product management by admin

3. Order placement and tracking
4. Payment handling
5. Search functionality by generic medicine name
6. Address management for delivery

These features formed the functional foundation of the system.

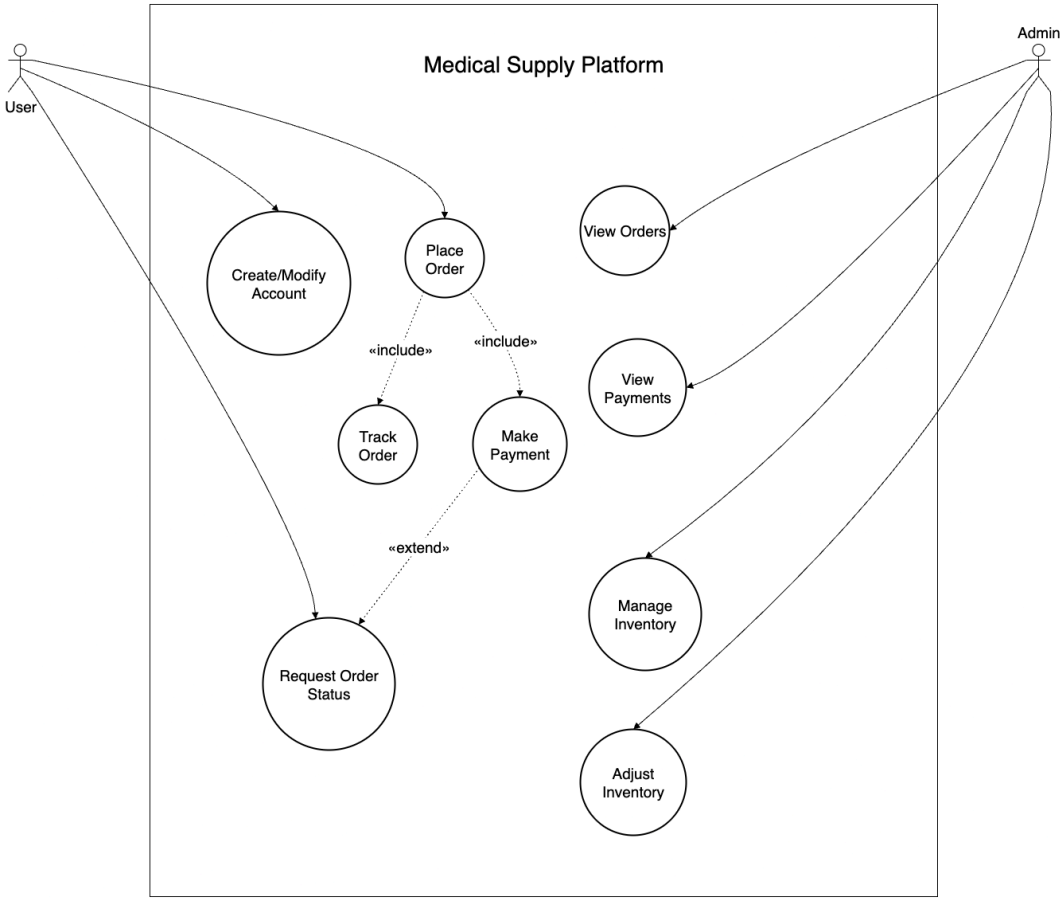


Fig 1: Use Case Diagram

The following activity diagram, sequence diagram and the use case diagram above outlines the general requirements of the system.

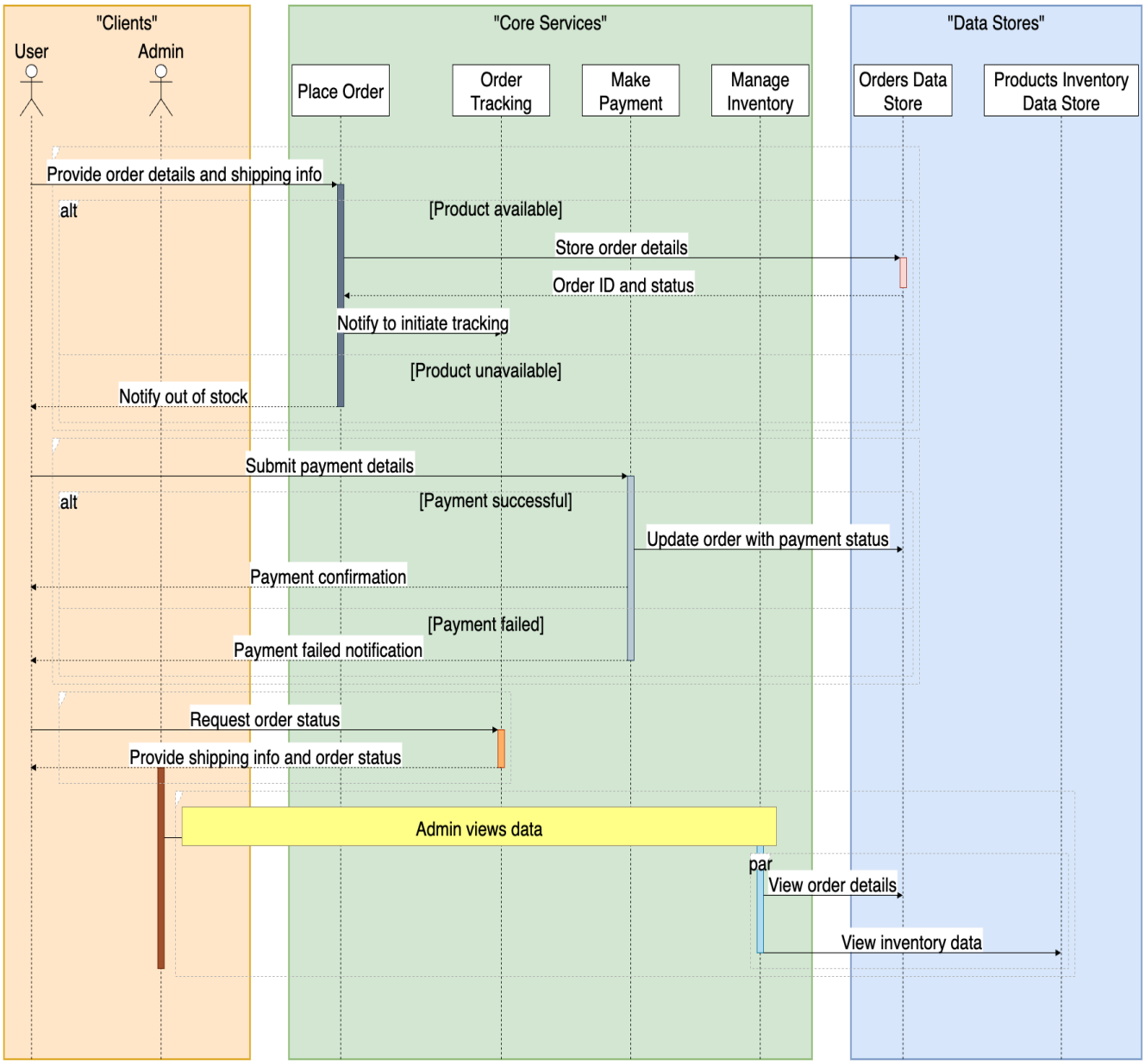


Fig 2: Sequence Diagram

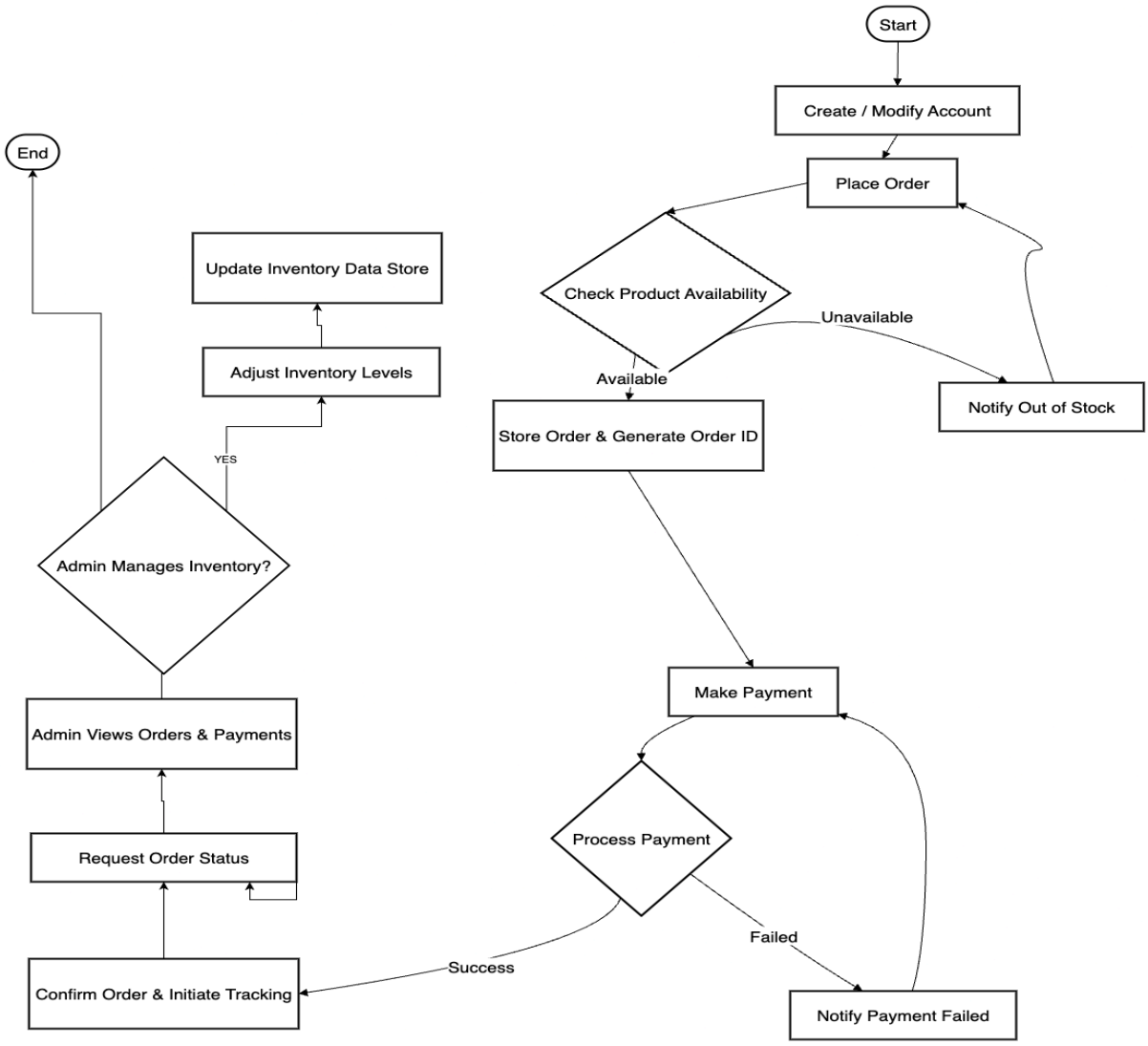


Fig 3: Activity Diagram

Design

The design process utilized UI mockups to visualize the platform's layout, ensuring a clean and accessible user interface. The design emphasizes a minimalist approach with intuitive navigation, product categorization, and clear call-to-action buttons (e.g., Add to Cart, Explore Products).

The DFD demonstrates system-level interaction between user, admin, and data stores, depicting data flow for order placement, payments, and inventory control.

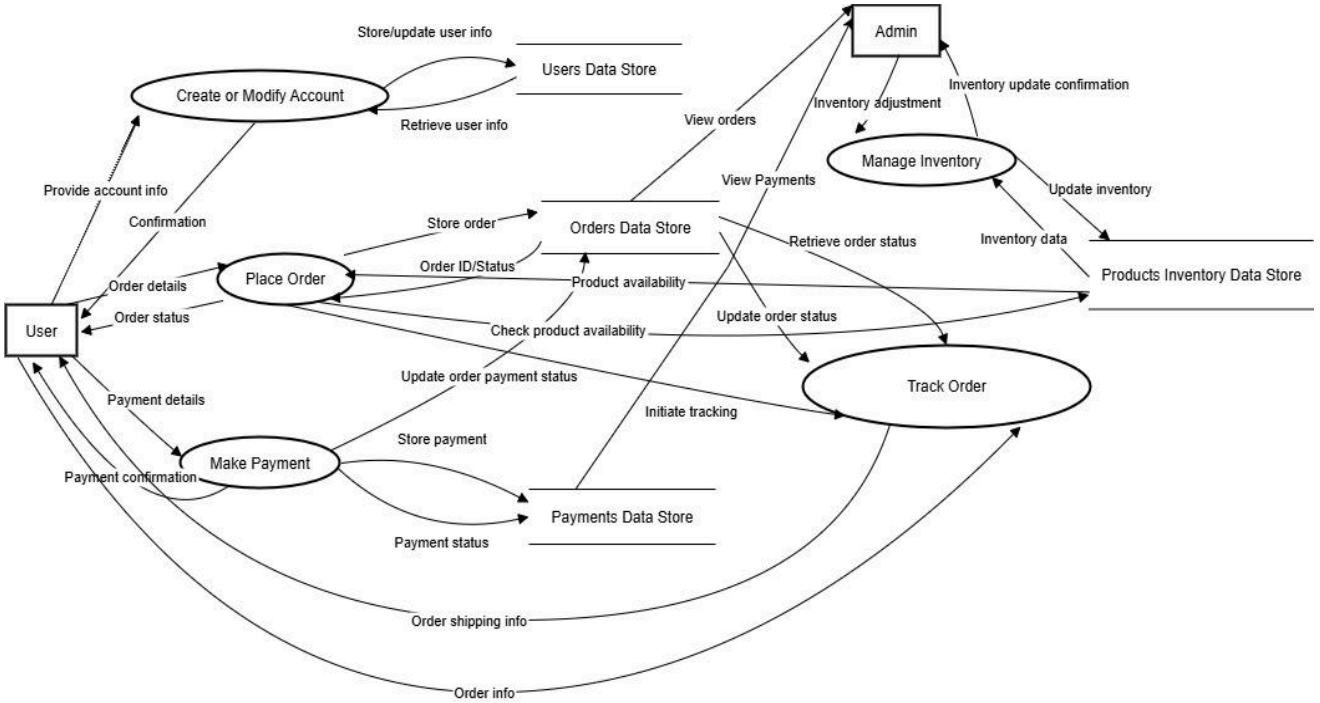


Fig 4 : DFD diagram

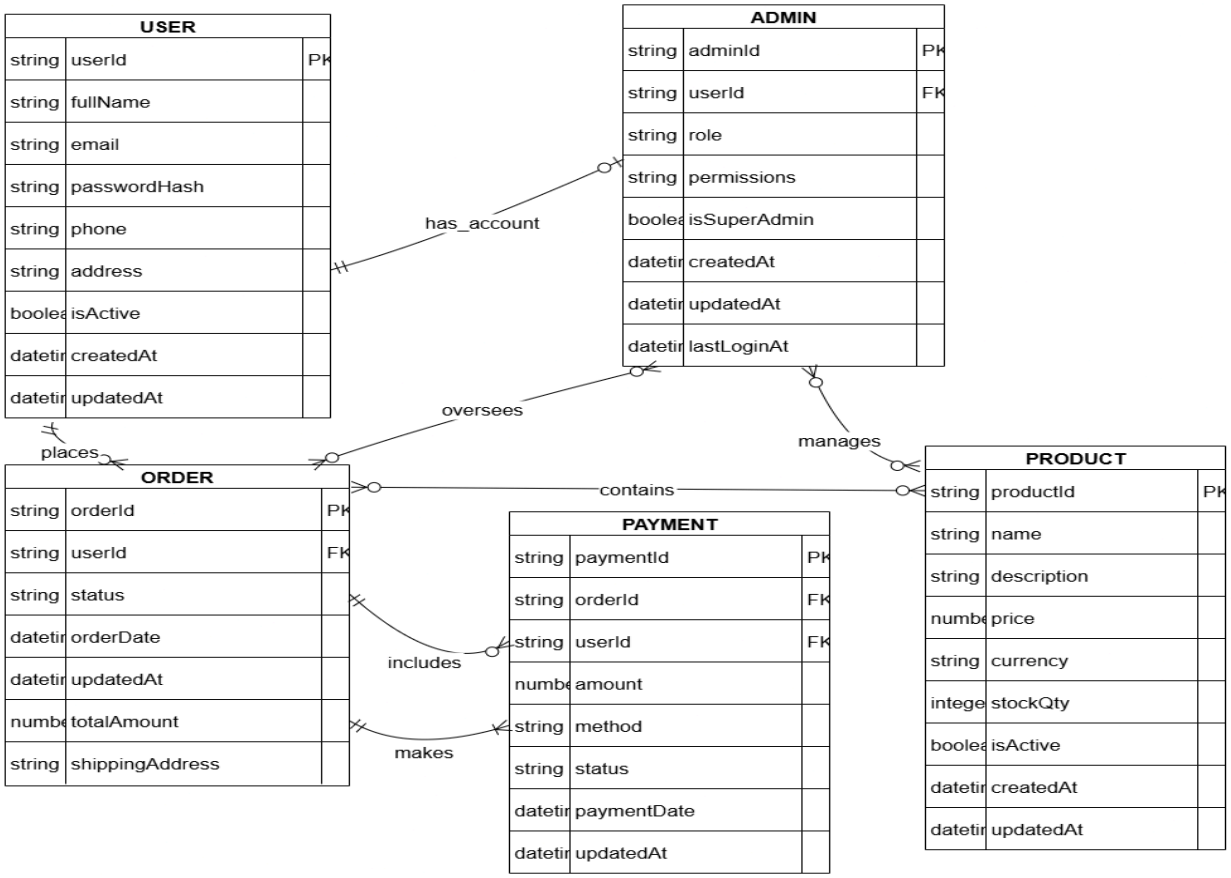


Fig 5: ER Diagram

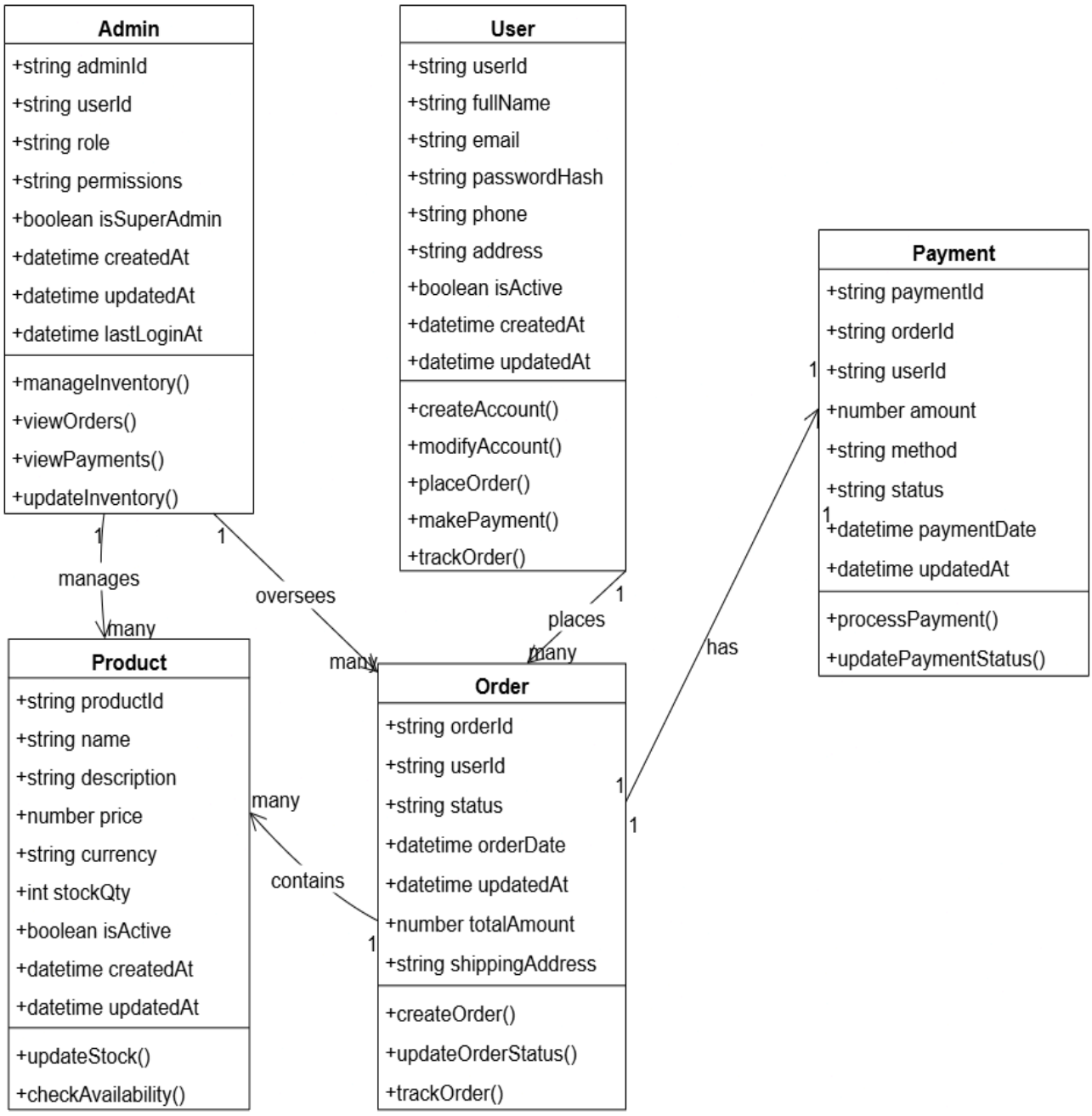
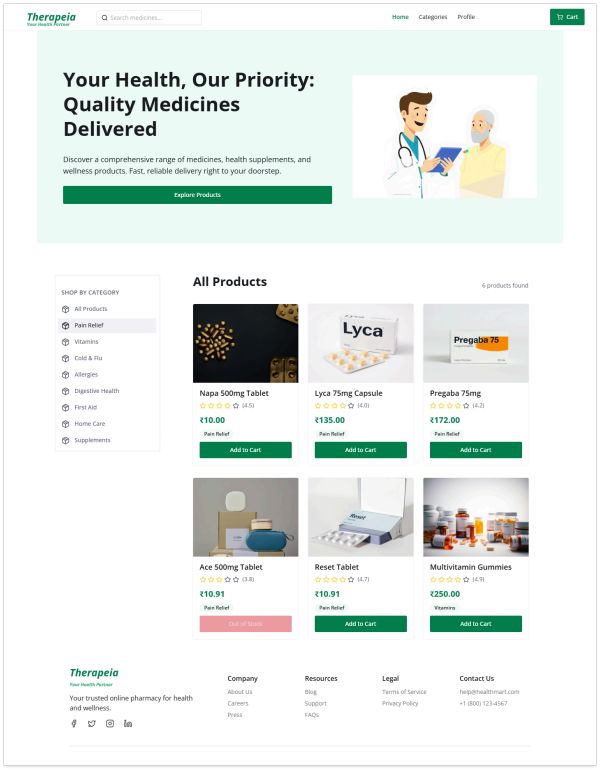


Fig 6: Class Diagram


Therapeia
Your Health Partner
Home
Categories
Profile
Cart
Your Health, Our Priority: Quality Medicines Delivered
Discover a comprehensive range of medicines, health supplements, and wellness products. Fast, reliable delivery right to your doorstep.
Explore Products
SHOP BY CATEGORY
All Products
Pain Relief
Vitamins
Cold & Flu
Allergies
Digestive Health
First Aid
Home Care
Supplements
All Products
6 products found
Napa 500mg Tablet
₹10.00
Add to Cart
Lyca 75mg Capsule
₹135.00
Add to Cart
Pregaba 75mg
₹172.00
Add to Cart
Ace 500mg Tablet
₹10.91
Out of Stock
Reset Tablet
₹10.91
Add to Cart
Multivitamin Gummies
₹250.00
Add to Cart
Therapeia
Your trusted online pharmacy for health and wellness.
Company
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Resources
Blog
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Terms of Service
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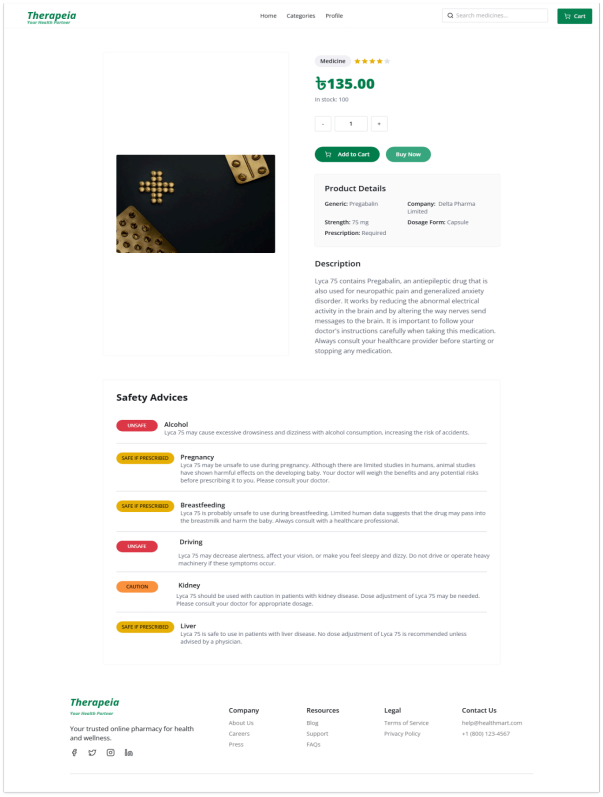
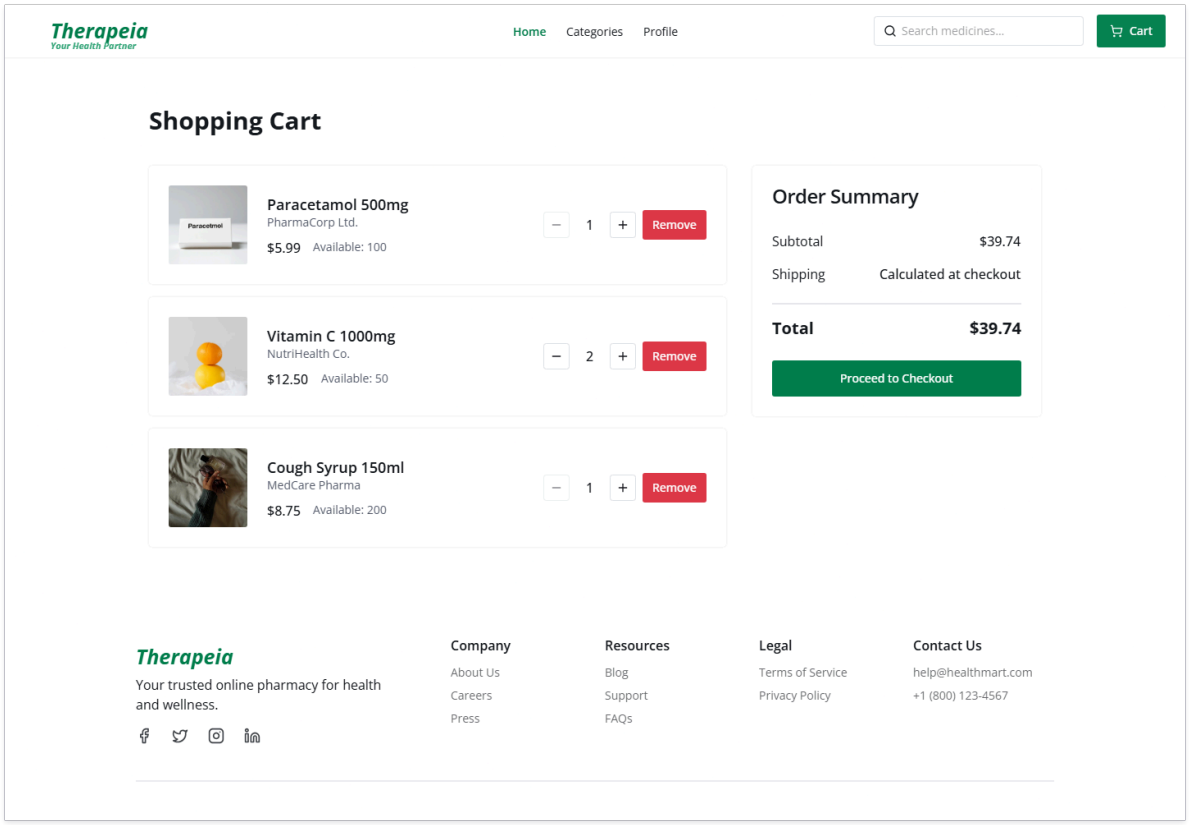
Contact Us
help@healthmart.com
+1 (800) 123-4567


Therapeia
Your Health Partner
Home
Categories
Profile
Cart
Medicine
৳135.00
In stock: 100
Add to Cart
Buy Now
Product Details
Generic: Pregabalin
Company: Delta Pharma Limited
Strength: 75 mg
Dosage Form: Capsule
Prescription: Required
Description
Lyca 75 contains Pregabalin, an antiepileptic drug that is also used for neuropathic pain and generalized anxiety disorder. It works by reducing the abnormal electrical activity in the brain and by altering the way nerves send messages to the brain. It is important to follow your doctor's instructions carefully when taking this medication. Always consult your healthcare provider before starting or stopping any medication.
Safety Advices
UNSAFE
Alcohol
Lyca 75 may cause excessive drowsiness and dizziness with alcohol consumption, increasing the risk of accidents.
SAFE IF PRESCRIBED
Pregnancy
Lyca 75 may be unsafe to use during pregnancy. Although there are limited studies in humans, animal studies have shown harmful effects on the developing baby. Your doctor will weigh the benefits and any potential risks before prescribing it to you. Please consult your doctor.
SAFE IF PRESCRIBED
Breastfeeding
Lyca 75 is probably unsafe to use during breastfeeding. Limited human data suggests that the drug may pass into the breastmilk and harm the baby. Always consult with a healthcare professional.
UNSAFE
Driving
Lyca 75 may decrease alertness, affect your vision, or make you feel sleepy and dizzy. Do not drive or operate heavy machinery if these symptoms occur.
CAUTION
Kidney
Lyca 75 should be used with caution in patients with kidney disease. Dose adjustment of Lyca 75 may be needed. Please consult your doctor for appropriate dosage.
SAFE IF PRESCRIBED
Liver
Lyca 75 is safe to use in patients with liver disease. No dose adjustment of Lyca 75 is recommended unless advised by a physician.
Therapeia
Your trusted online pharmacy for health and wellness.
Company
About Us
Careers
Press
Resources
Blog
Support
FAQs
Legal
Terms of Service
Privacy Policy
Contact Us
help@healthmart.com
+1 (800) 123-4567


Therapeia
Your Health Partner
Home
Categories
Profile
Search medicines...
Cart
Shopping Cart
Paracetamol 500mg
PharmaCorp Ltd.
$5.99 Available: 100
1
Remove
Vitamin C 1000mg
NutriHealth Co.
$12.50 Available: 50
2
Remove
Cough Syrup 150ml
MedCare Pharma
$8.75 Available: 200
1
Remove
Order Summary
Subtotal $39.74
Shipping Calculated at checkout
Total $39.74
Proceed to Checkout
Therapeia
Your trusted online pharmacy for health and wellness.
Company
About Us
Careers
Press
Resources
Blog
Support
FAQs
Legal
Terms of Service
Privacy Policy
Contact Us
help@healthmart.com
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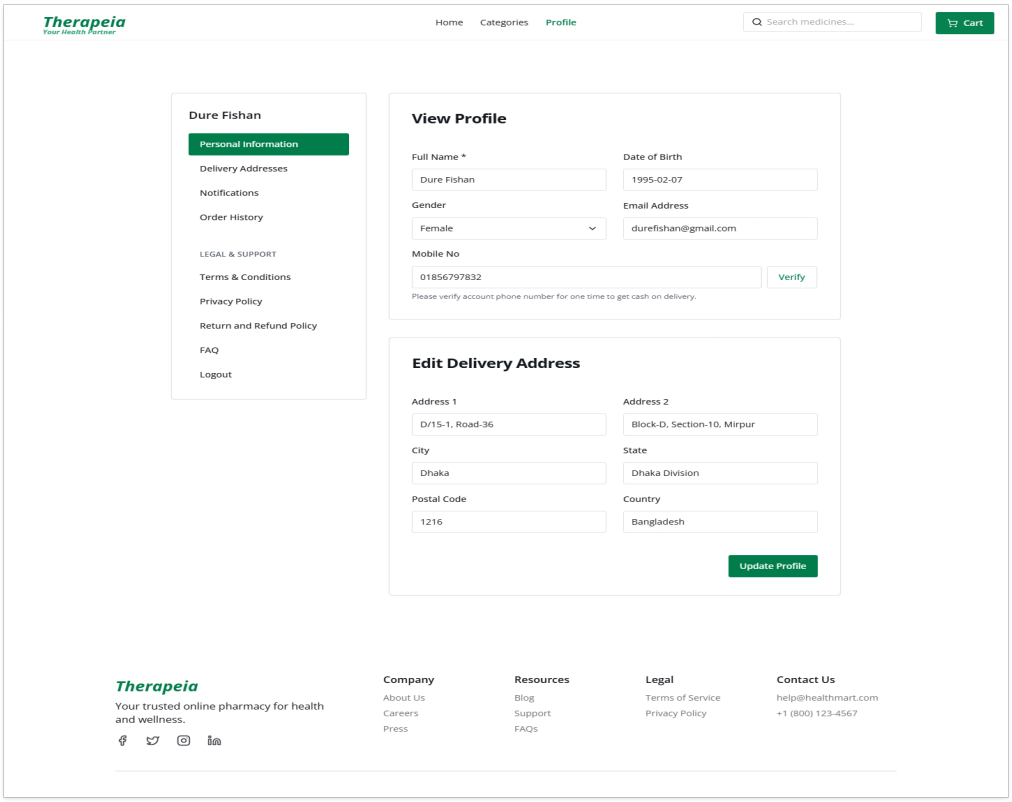

Fig 7 : UI Mockup

Coding

The project was built using the MERN (MongoDB, Express.js, React.js, Node.js) stack:
Frontend: Built with React.js for modular and responsive UI.
Backend: Developed using Node.js and Express.js to manage API routes.
Database: MongoDB Atlas for cloud-based, schema-flexible data storage.
Additional Tools: Axios for API calls,Jira for project management, Cloudinary for image hosting, and GitHub for version control and collaboration.

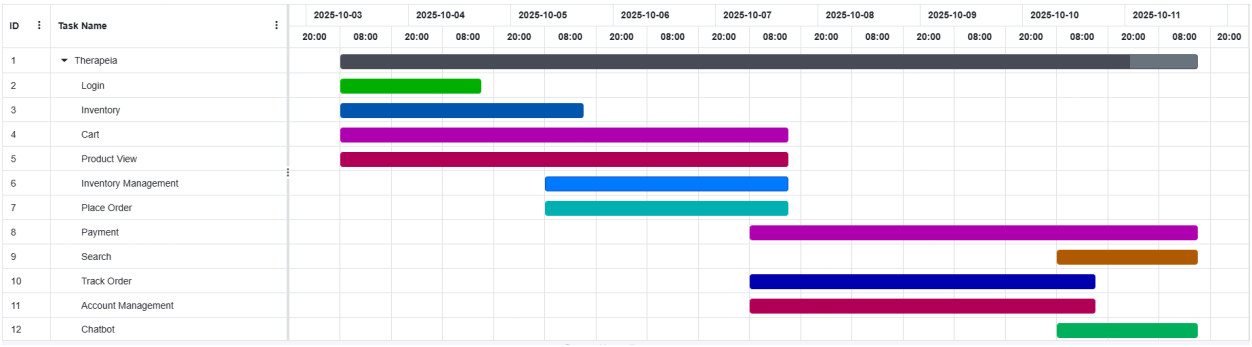

Fig 8: Gantt Chart

Testing

Both unit testing (individual component functionality) and system testing (end-to-end validation) were performed. Testing validated user registration, product search, payment updates, and order tracking. Edge cases such as unavailable products and payment errors were also tested.

Discussion

While the project successfully delivers an end-to-end e-commerce workflow for medicine delivery, several practical implementation limitations were identified:
Selling prescription-only medicines without proper digital prescription verification may conflict with health regulations. User authentication and data protection must comply with healthcare data privacy standards. Delivery logistics and delays in remote areas could affect user satisfaction.
These limitations highlight the complexity of deploying such systems in real-world pharmaceutical operations.

Conclusion

The Therapeia project demonstrates strong potential as a modern digital health commerce solution. Its modular architecture, agile workflow, and user-focused design make it suitable for further expansion into a full-scale online pharmacy platform. Future improvements may include:

Integration of AI-based prescription verification and medicine recommendations. Role-based dashboards for pharmacists, delivery agents, and users. Implementation of real-time inventory APIs with supplier networks. Enhanced security layers and audit logging for compliance and transparency.

With these enhancements, Therapeia could significantly streamline online healthcare product delivery across Bangladesh and beyond.