Riphah International University Lahore, Pakistan

Riphah School of Computing & Innovation

Final Year Project

PROJECT REPORT (Part-2)

[Courier 360]

Project ID:

Project Team

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Project Report

Courier 360

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
	1.0		<Original Draft>	
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			<Changes Based on Feedback From Faculty>	
			<Added Project Plan>	
			<Changes Based on Feedback from Supervisor>	

APPROVAL

PROJECT SUPERVISOR

Comments: ____

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Name:______________________________

Date:________________________________ Signature:___________________________

PROJECT MANAGER

Comments:

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Date:________________________________ Signature:___________________________

HEAD OF THE DEPARTMENT

Comments:

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Date:________________________________ Signature:___________________________

Dedication

This work is dedicated to my parents, teachers, and mentors for their constant support, guidance, and encouragement throughout my academic journey.

Acknowledgements

I am really thankful to my supervisor who has guided me throughout this project with valuable suggestions, continuous support, and encouragement. I am also grateful to my teachers for their cooperation and knowledge sharing. Special thanks to my family and friends for their motivation and patience during the completion of this project.

Executive Summary

Courier360 is a web-based Courier Management System designed to automate and streamline courier service operations. It manages employee records, courier bookings, hub logistics, corporate clients, and delivery schedules efficiently. The platform reduces manual tasks and enhances real-time tracking for both users and admins. With features like invoice generation, performance monitoring, and customer history, Courier360 improves transparency and service quality. It is tailored for courier companies in Pakistan, aiming to boost productivity and client satisfaction through digital transformation.

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Chapter 1

Introduction

Chapter 1: Introduction

Courier360 is a comprehensive web-based Courier Management System designed to streamline the operations of courier service providers. It offers integrated modules for managing courier bookings, real-time tracking, hub logistics, employee assignments, and corporate client services. With a user-friendly interface and automation tools, Courier360 simplifies day-to-day tasks and enhances service delivery. The system is scalable, making it ideal for both local and nationwide logistics companies.

a. Background

Courier360 was conceived to address the growing demand for flexible, technology-driven courier services. With the rise of e-commerce, small business shipping, and freelance logistics, traditional courier companies often fail to meet modern customer expectations for speed, transparency, and interactivity. Courier360 aims to offer a complete, digital-first courier management system that bridges the gap between customers, riders, and service providers through one unified platform.

b. Motivations and Challenges

Motivations:

- Increasing demand for on-demand delivery and real-time tracking.
- Limited access to courier services in remote or underserved areas.
- Desire for rider flexibility through freelance models.
- The need for eco-conscious, efficient, and engaging logistics experiences.

Challenges:

- Ensuring secure and verified deliveries without manual checks.

- Building a scalable system to support both individuals and SMEs.
- Managing rider availability, performance, and routing in real time.
- Competing with established brands like TCS and Leopards.

c. Goals and Objectives

Goal:

To design and develop an innovative courier management platform that modernizes delivery operations and enhances user satisfaction.

Objectives:

- Implement gamified parcel tracking for customer engagement.
- Develop a rider marketplace for freelance delivery personnel.
- Support split delivery options and real-time traffic-based routing.
- Provide secure QR code parcel verification.
- Offer tools and branding options for small businesses and corporate clients.
- Enable Shop2Shop (community-based) pickup and delivery points.

d. Literature Review/Existing Solutions

Most courier platforms today offer basic delivery services, limited to tracking numbers and standard notifications. Popular platforms like:

- TCS & Leopards: Offer shipment tracking and booking but lack freelance rider support, gamification, or small business tools.

- Bykea & Careem Delivery: Use freelance riders but are focused more on ride-hailing and food delivery than structured parcel logistics.

- PostEx & Swyft: Offer e-commerce integrations but lack flexible delivery experiences and custom branding.

e. Gap Analysis

Current Market Offering	**Courier360 Solution**
Limited tracking visuals	Gamified, animated delivery progress
No real-time traffic/delay insights	Live courier traffic map with zone alerts
No community pickup integration	Stop to Shop pickup/drop-off locations
Rigid courier workforce	Flexible freelance rider marketplace
No secure delivery verification	QR/OTP-based parcel handover authentication
No post-delivery feedback	Rider rating and tipping integrated in the app
Weak small business support	Bulk uploads, invoice management, white label branding tools

f. Proposed Solution

Courier360 addresses these challenges by providing a centralized, automated platform to manage all courier-related operations. It allows efficient courier booking, real-time tracking, smart hub and employee management, corporate client handling, and detailed analytics through dashboards. By integrating optional AI features, Courier360 further improves delivery efficiency and enhances customer experience.

g. Project Plan

1 1. Requirements gathering

2 2 Feasibility study

3 3 Scope definition

4 4 Timeline & resource planning

5 5 Tools & technology finalization

i. Work Breakdown Structure

1. Project Planning

6 1.1 Requirements gathering

7 1.2 Feasibility study

8 1.3 Scope definition

9 1.4 Timeline & resource planning

10 1.5 Tools & technology finalization

---

2. UI/UX Design

1) 2.1 Wireframe design (Homepage, Dashboard, Booking Form, etc.)
2) 2.2 Prototyping with Figma/Adobe XD
3) 2.3 UI approval from stakeholders
4) 2.4 Responsive layout design

3. Frontend Development

1 3.1 User interface implementation (HTML, CSS, JS/React)

2 3.2 Navigation and routing setup

3 3.3 Forms (Courier booking, employee registration, login)

4 3.4 Dashboard with charts and tables

5 3.5 Responsive and mobile-friendly layout

4. Backend Development

1. 4.1 Database schema design (MySQL or MongoDB)
2. 4.2 API development (Express.js or Laravel)
3. 4.3 User authentication (JWT)
4. 4.4 Employee and hub management modules
5. 4.5 Courier booking & tracking system
6. 4.6 Corporate client billing system
7. 4.7 PDF generation for invoices and receipt

5. Testing & Debugging

- 6.1 Unit testing of modules
- 6.2 Integration testing
- 6.3 Bug fixing and code optimization
- 6.4 User acceptance testing (UAT)

6. Deployment

1 7.1 Web hosting (AWS)

2 7.2 Domain setup

3 7.3 Database deployment

4 7.4 Final security configuration

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7. Documentation & Training

1. 8.1 User manual preparation
2. 8.2 Admin guide
3. 8.3 Technical documentation (APIs, DB schema)
4. 8.4 Training session/demo for staff

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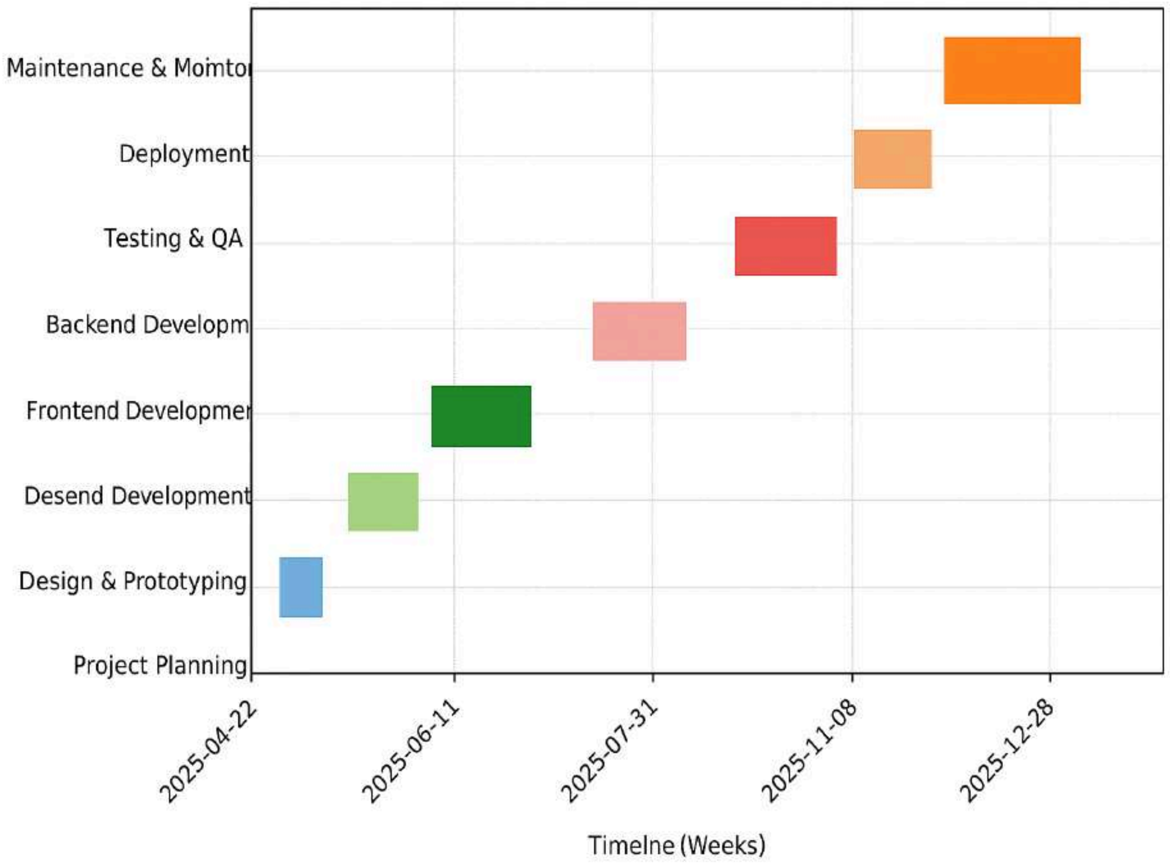
8. Project Closure

- 9.1 Final review
- 9.2 Handover
- 9.3 Feedback collection
- 9.4 Maintenance plan (if applicable)

ii. Gantt Chart

Phase	Task/Feature	Start Date	End Date	Duration (Days)
Initiation	Project Initiation & Planning	02-May-2025	15-May-2025	13
Planning	Requirement Gathering	07-May-2025	18-May-2025	11
	Feasibility & Finalizing Features	09-May-2025	14-May-2025	5
Design Phase	UI/UX Design for Web	20-May-2025	30-May-2025	10
	Flow Diagrams for Each Feature	17-May-2025	29-May-2025	12
	Design Review & Finalization	01-June-2025	06-June-2025	5
Development Phase	Gamified Delivery Tracking Module	07-June-2025	10-June-2025	3
	Interactive Courier Traffic Module	11-June-2025	14-June-2025	3
	Marketplace for Freelance Riders	15-June-2025	20-June-2025	5
	Community Pickup (Shop2Shop) Integration	21-June-2025	23-June-2025	2
	Split Delivery (Priority vs Standard)	24-June-2025	27-June-2025	3
	Verify Parcel via QR Code	28-June-2025	30-June-2025	2
	Tips for Rider and Rating System	01-July-2025	02-July-2025	1
	Small Businesses Portal	03-July-2025	06-July-2025	3
	White Label	07-July-2025	09-July-2025	2

	Branding Support			
	Parcel Receiving Alert System	10-July-2025	12-July-2025	1
Testing Phase	Unit Testing (Module-wise)	13-July-2025	17-July-2025	4
	Integration & System Testing	18-July-2025	20-July-2025	2
	User Acceptance Testing (UAT)	21-July-2025	24-July-2025	3



Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

a. Introduction

Courier360 is a comprehensive web-based Courier Management System designed to streamline the operations of courier service providers. It offers integrated modules for managing courier bookings, real-time tracking, hub logistics, employee assignments, and corporate client services. With a user-friendly interface and automation tools, Courier360 simplifies day-to-day tasks and enhances service delivery. The system is scalable, making it ideal for both local and nationwide logistics companies.

i.

ii. Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the detailed functional and nonfunctional requirements of the Courier360 system. Courier360 is an innovative, all-in-one courier service platform designed to enhance the efficiency, transparency, and flexibility of package deliveries for individuals, businesses, and freelance riders. This document serves as a formal agreement between stakeholders including developers, project managers, clients, and end-users.

iii. Document Conventions

Font Styles

- **Section Titles:** Bold, Size 14, Calibri
- **Body Text:** Calibri, 11pt
- **Technical Terms:** Italicized

Priority

1. **P1 (Critical):** Must-have
2. **P2 (Important):** Highly beneficial
3. **P3 (Optional):** Nice-to-have

Highlighting

1. Requirements marked in **bold**
2. Key terms in *italic*

Formatting

Bullet points for clarity

Requirement IDs use `[REQ-SECTION-ID]` format

Tables used where applicable for summaries

iv. Intended Audience and Reading Suggestions

Intended Audience:

Project managers

Software Developers

UI/UX design

Quality Assurance team

Marketing and sales teams

Client and Stakeholders

Reading Suggestions:

Section 1 – Introduction: Recommended for all readers for a general overview.

Section 2 – Overall Description: Important for business stakeholders and product owners to understand the system context and user needs.

Section 3 – Specific Requirements: Crucial for developers, testers, and designers for technical and design implementations.

Appendices & Glossary: Useful for all readers unfamiliar with domain-specific terms or needing clarification.

v. Product Scope

Courier360 is an advanced, all-in-one courier management platform designed to optimize the delivery process for both end-users and courier service providers. It introduces a variety of innovative features such as gamified delivery tracking, interactive courier traffic, a marketplace for freelance riders, and split delivery options. The system aims to provide seamless experiences through mobile and web applications, empowering small businesses, enhancing user interaction, and increasing operational efficiency.

vi. References

GitHub Repositories and Open Source Libraries

Google Maps Platform Documentation

IEEE 830-1998: IEEE Recommended Practice for Software Requirements Specifications

Firebase Documentation

OWASP Secure Coding Practices

b. Overall Description

i. Product Perspective

Courier360 is a centralized and innovative courier management solution designed to streamline parcel delivery services for individuals, small businesses, and corporate clients. This system is developed as a **standalone web and mobile application** that integrates various modern features such as gamified tracking, interactive courier traffic updates, marketplace access for freelance riders, and secure QR-based parcel verification.

ii. Product Functions

Marketplace for Freelance Riders: A portal for freelance riders to accept delivery gigs.

Verify Parcel via QR Code: Secure and contactless parcel confirmation using QR authentication

White Label Branding: Custom branding option for business clients.

Split Delivery (Priority vs Standard): Flexible delivery timing based on urgency.

Community Pickup (Shop2Shop): Drop and collect parcels at local trusted shops.

iii. User Classes and Characteristics

End Users / Customers: Individuals using the system for sending or receiving parcels.

Small Business Owners: Users managing frequent deliveries for their businesses.

Freelance Riders: Riders accepting and delivering orders through the platform.

Courier Admin Staff: Responsible for backend management, assignments, and monitoring.

System Administrators: Oversee system updates, data integrity, and security.

iv. Operating Environment

Client Side: Android/iOS mobile apps, responsive web app (Chrome, Firefox, Edge).

Server Side: Hosted on cloud platforms (e.g., AWS, Azure), backend in Node.js or Django, database using PostgreSQL or MySQL.

API Integration: RESTful APIs, real-time map and location services (Google Maps API), and SMS/Email alert systems.

v. Design and Implementation Constraints

Must comply with OWASP security practices.

Web version must support cross-browser compatibility.

GDPR compliance for data protection and privacy.

vi. User Documentation

User manuals for mobile and web versions.

FAQs and video tutorials.

In-app tooltips and onboarding guides.

vii. Assumptions and Dependencies

Users have active internet access.

Google Maps API and SMS gateway services are functional.

External freelance riders are verified by admin.

c. External Interface Requirements

i. User Interfaces

Web Portal for Customers:

Admin Dashboard:

Shopkeeper/Small Business Portal:

ii. Hardware Interfaces

QR Code Scanners (Mobile/Web Camera or external device): For Security purpose

GPS Modules/Devices: For real time tracking

iii. Software Interfaces

Google Maps API / GPS Services:

Firebase Authentication:

RESTful APIs:

PDF Generation Libraries:

iv. Communications Interfaces

Notification Engine (via Firebase or third-party service):

. Sends push notifications, email alerts, or SMS updates regarding delivery statuses and Promotions .

Secure HTTP/HTTPS Protocols:

. Ensures encrypted data transfer between client and server components.

d. System Features

1. Gamified Delivery Tracking

Description:
Adds a gamified experience to parcel tracking for customers. Users see their package journey through an interactive map with animated visuals, checkpoints, and estimated delivery progress.

Functional Requirements:

[REQ-GDT-01]: Users should be able to view real-time package locations on a map.

[REQ-GDT-02]: System updates progress at each delivery milestone.

[REQ-GDT-03]: Visual elements (badges, levels, or progress bars) should reflect delivery stages.

[REQ-GDT-04]: Backend must send tracking data using GPS API.

2. Interactive Courier Traffic

Description:
Displays live traffic data to couriers and admins for optimizing routes and improving delivery time estimates.

Functional Requirements:

[REQ-ICT-01]: Integrate Google Maps or equivalent to display traffic overlays.

[REQ-ICT-02]: Couriers see real-time congestion alerts and rerouting options.

[REQ-ICT-03]: Admin dashboard shows delivery route conditions per region.

[REQ-ICT-04]: Traffic data influences delivery ETA updates.

3. Marketplace for Freelance Riders

Description:
A module allowing freelance riders to register and accept available deliveries, functioning similarly to gig platforms.

Functional Requirements:

[REQ-MFR-01]: Riders can register and complete a verification process.

[REQ-MFR-02]: Admin approves/rejects rider applications.

[REQ-MFR-03]: Available deliveries are listed with details (pickup, drop-off, pay).

[REQ-MFR-04]: Riders can accept tasks; the system assigns them accordingly.

4. Community Pickup (Shop2Shop)

Description:
Customers can drop parcels at partner shops and receivers can collect from local hubs, enabling Shop-to-Shop delivery without home pickups/drops.

Functional Requirements:

[REQ-CP-01]: Users choose a nearby shop/hub as drop-off or pickup point.

[REQ-CP-02]: System provides shop location list with working hours.

[REQ-CP-03]: Notifications are sent when a parcel is ready for pickup.

[REQ-CP-04]: Shopkeepers update status via their portal on parcel handover.

5. Split Delivery (Priority vs Standard)

Description:
Enables customers to choose between **priority delivery** (fast, premium) and **standard delivery** (economical, slower).

Functional Requirements:

[REQ-SP-01]: During booking, customers select "Standard" or "Priority".

[REQ-SP-02]: System calculates ETA and cost accordingly.

[REQ-SP-03]: Admin can manage different pricing and time slots for both options.

[REQ-SP-04]: Tracking info reflects delivery type (e.g., colored badges or labels).

6. Verify Parcel via QR Code

Description:
Each parcel gets a unique QR code to be scanned at every delivery stage for tracking and validation.

Functional Requirements:

[REQ-VP_QR-01]: System generates a QR code upon parcel booking.

[REQ-VP_QR-02]: Staff scan codes during pickup, transit, and delivery using mobile/web.

[REQ-VP_QR-03]: Scans update parcel status in real time.

[REQ-VP_QR-04]: QR scanner module must be accessible via rider and shopkeeper portals.

7. Tips for Rider and Rating System

Description:
Customers can rate riders and optionally give them tips after a successful delivery.

Functional Requirements:

[REQ-TRS-01]: After delivery confirmation, users are prompted to rate rider (1–5 stars).
[REQ-TRS-02]: Option to tip using a fixed amount or custom value (virtual or real payment).
[REQ-TRS-03]: Ratings are stored in the rider profile.
[REQ-TRS-04]: Admin panel shows average ratings and total tips per rider.

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8. Small Businesses Portal

Description:
Portal tailored for small businesses to manage frequent deliveries, track history, and access special rates.

Functional Requirements:

[REQ-SBP-01]: Businesses can register and access a dashboard.
[REQ-SBP-02]: Booking in bulk or via file upload (CSV, etc.).
[REQ-SBP-03]: View invoice history, earnings, and package status.
[REQ-SBP-04]: Set branding preferences if white-labeling is enabled.

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9. White Label Branding

Description:
Courier360 allows corporate or business clients to use their own branding (logo, colors) on customer-facing materials like invoices, notifications, and tracking pages.

Functional Requirements:

[REQ-WLB-01]: Business accounts can upload logos and customize theme colors.
[REQ-WLB-02]: System applies branding to customer notifications and documents.
[REQ-WLB-03]: Admin manages templates per business client.
[REQ-WLB-04]: Tracking pages reflect the client's brand, not Courier360.

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10. Parcel Receiving Alert

Description:
Sends instant alerts (SMS/email/app notifications) to recipients when a parcel arrives at the delivery location or pickup hub.

Functional Requirements:

[REQ-PRA-01]: Trigger alert when parcel status changes to "Delivered" or "Ready for Pickup".
[REQ-PRA-02]: Notification includes parcel ID, time, and pickup instructions (if needed).
[REQ-PRA-03]: Supports multiple channels (push notification, email, SMS).
[REQ-PRA-04]: Admin can configure alert templates.

e. Other Nonfunctional Requirements

i. Performance Requirements

The system must support at least 10,000 concurrent users during peak hours.

Parcel tracking updates must reflect status changes within 5 seconds of scanning or status change.

The system must process delivery booking requests within 2 seconds under normal conditions.

ii. Security Requirements

User data must be encrypted during transmission using HTTPS.

Authentication must be managed securely using Firebase Authentication (or equivalent), supporting email/OTP-based login.

Admin and rider portals must have role-based access control.

The rider verification process must ensure identity and compliance checks.

iii. Software Quality Attributes

1. Scalability

- The platform should scale horizontally to accommodate growth in users, deliveries, and rider registrations.
- Modular architecture must allow easy addition of new cities, shops, or delivery hubs without major refactoring.

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2. Availability

- The system must be available **99.9% of the time** on a monthly basis.
- Critical services (booking, tracking, login) should remain accessible during minor outages via fallback mechanisms or retries.

3. Maintainability

1. Codebase must follow standard coding practices and be documented thoroughly.
2. Admin settings, business rules (e.g., pricing, delivery zones), and notifications must be **configurable** without code changes.
3. APIs and frontends must be loosely coupled to allow updates without breaking dependencies.

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4. Usability

- Customer and rider interfaces must be **mobile-first and intuitive**, with minimal training required.
- Admin dashboard must have clear navigation, reports, and control panels.

- Feedback and rating systems should be easy to access and use.

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5. Reliability

- All parcel status transitions must be logged and traceable.
- The system should recover automatically from service interruptions (e.g., retries, backups).
- Delivery status should never be lost due to system crash or restart.

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6. Compatibility

- Web platforms should support modern browsers (Chrome, Firefox, Edge, Safari).
- Mobile apps/websites must function smoothly on Android 9+ and iOS 13+ devices.
- The system must integrate with external APIs like **Google Maps**, **Firebase**, and **payment gateways**.

Chapter 3
Use Case Analysis

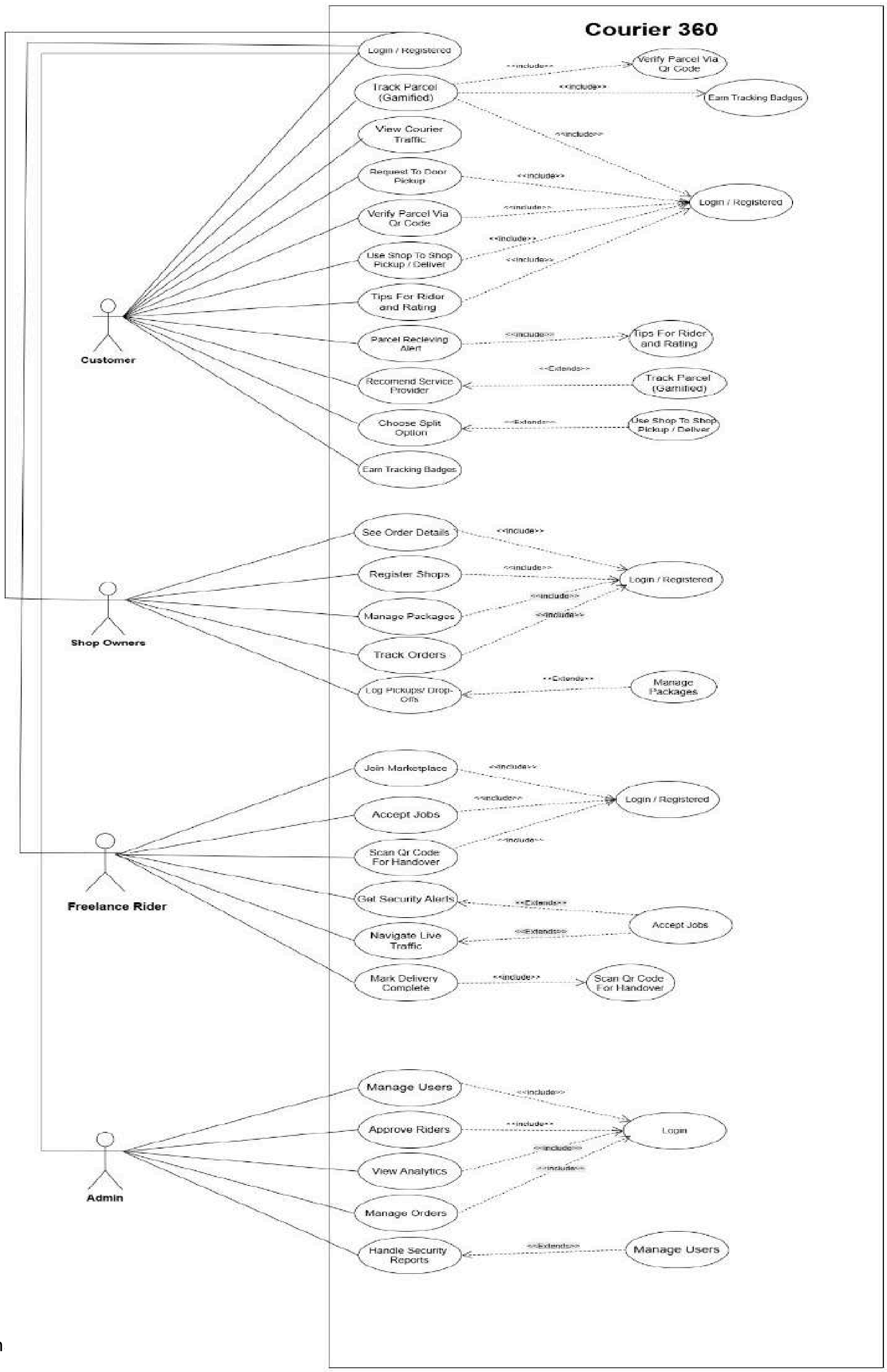
Chapter 3: System Analysis

This chapter focuses on the detailed examination and understanding of the Courier 360 system requirements and functionalities. It outlines the interaction between users and the system through use case diagrams, providing a clear visualization of system behavior in various scenarios. The chapter also identifies the primary actors involved, such as customers, admins, and delivery personnel, and their interactions with different modules of the application. Additionally, it highlights system constraints, performance considerations, and functional requirements that influence the development process. By conducting this analysis, we ensure a strong foundation for system design and implementation.

1: Use Case Model:

The Use Case Model provides a high-level overview of the functional requirements of the Courier 360 system. It visually represents the interactions between various system users (actors) and the system's main functions. Each use case illustrates a specific feature or service that the system offers, such as booking a courier, tracking a shipment, managing delivery routes, and updating order statuses. By identifying the relationships between users and system operations,
The use case model serves as a blueprint for understanding user behavior and system expectations. This model is essential for guiding further design, development, and testing phases.

2: Use Case Diagram:


Courier 360
Customer
Shop Owners
Freelance Rider
Admin
Login / Registered
Track Parcel (Gamified)
View Courier Traffic
Request To Door Pickup
Verify Parcel Via Qr Code
Use Shop To Shop Pickup / Deliver
Tips For Rider and Rating
Parcel Recieving Alert
Recomend Service Provider
Choose Split Option
Earn Tracking Badges
<<include>>
<<Extends>>
Verify Parcel Via Qr Code
Earn Tracking Badges
Login / Registered
Tips For Rider and Rating
Track Parcel (Gamified)
Use Shop To Shop Pickup / Deliver
See Order Details
Register Shops
Manage Packages
Track Orders
Log Pickups/ Drop-Offs
Login / Registered
Manage Packages
Join Marketplace
Accept Jobs
Scan Qr Code For Handover
Get Security Alerts
Navigate Live Traffic
Mark Delivery Complete
Login / Registered
Accept Jobs
Scan Qr Code For Handover
Manage Users
Approve Riders
View Analytics
Manage Orders
Handle Security Reports
Login
Manage Users

3: Fully Dressed Use Cases:

This section will elaborate on specific use cases. Fully dressed use cases are as follows:

Fully Dressed Use case of Customer:

Title	Login and signup and booking the order and then tracking
Primary Actor	Customer
Goal	After successful Login the customer booking the order and after booking the user tracks the order details and also tracks the rider's real time location and also submit the feedback of the rider.
Pre-conditions	The Customer has access to a login account to book the order.
Description	The Customer login the account and then booking the order and after successful booking of order the customer tracks the order and last customer's also give the feedback of rider about order.

Fully Dressed Use case of Shop Owners:

Title	Booking the Orders and managing the orders and also tracking the orders by details and rider's location.
Primary Actor	Shop Owners
Goal	After successfully registering the shop and login, the owner books the order and manages the order to deliver to the other shops like shop to shop business and also tracks the order.
Pre-conditions	The Owner has access to register the shops to book the order.
Description	The Owner registers the shops and then login the account and then books the orders and manages from shop to shop and also tracks the order's details and rider's location.

Fully Dressed Use case of Freelance Rider:

Title	Riders join our company like jobs, login on rider site and share the location during placing the order.
Primary Actor	Freelance Rider
Goal	After successfully selecting for the job the rider logs in the account and places the order after placing he shows the delivery of order and fulfill the payment and also shows his real time location during placing the order.
Pre-conditions	The rider selects for this job and then starts working.
Description	Riders login the account and then placing the order, they also show the order's status and also shows the payment status and also tracks the order's details and real time location.

Fully Dressed Use case of Admin:

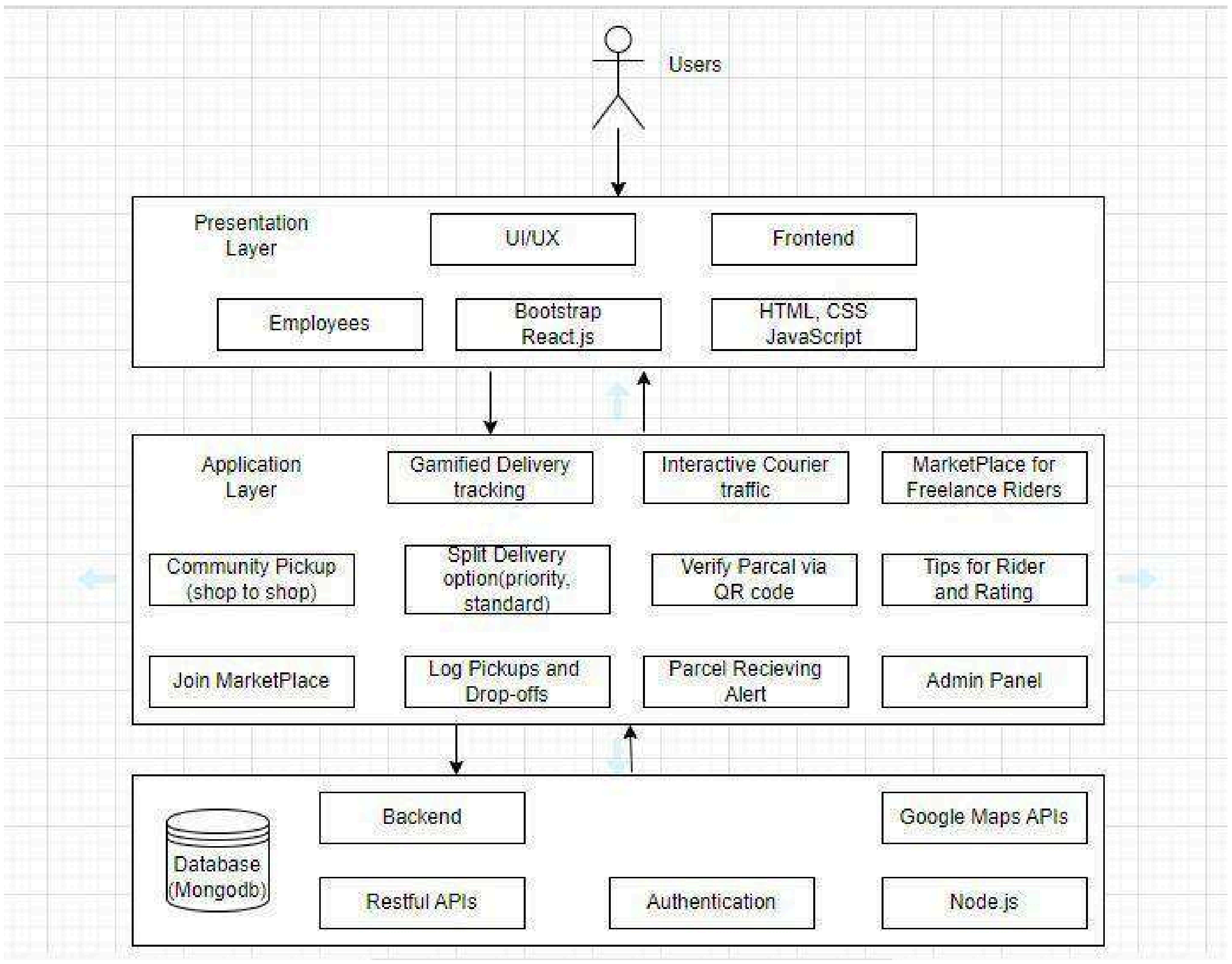
Title	Admin logins the account, manages the users and also manages the order.
Primary Actor	Admin
Goal	Admin logins account, and then manages the users also and manages the order and shows the status of the order and also shows the payment status of the order and shows the feedback of the customer's about order and also the orders.
Pre-conditions	The Admin has access to a login account to manage the users and orders.
Description	Admin logins account, and then manages the users also and manages the order and shows the status of the order and also shows the payment status of the order and shows the feedback of the customer's about order and also the orders and admin also shows the graph of orders in weekly, monthly and yearly and also shows the orders stats on admin dashboard.

Chapter 4
System Design

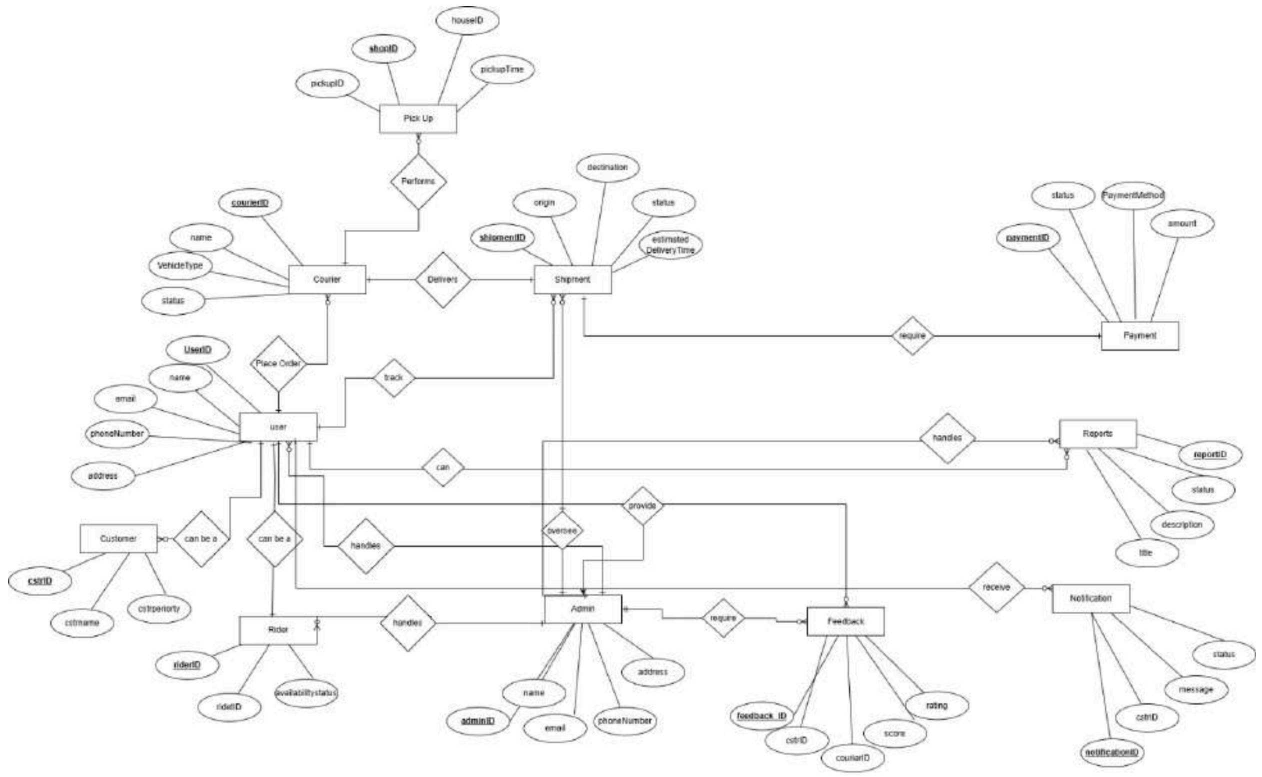
Chapter 4: System Design

This chapter focuses on the architectural and detailed design aspects of the Courier 360 system. It outlines how the system's components will interact, the data flow, and the user interface structure. System design bridges the gap between requirements gathered during system analysis and the actual development process by providing blueprints for implementation. Key elements such as the system architecture, database design, UML diagrams, and interface layouts are discussed. This ensures the system is well-structured, scalable, and meets both functional and non-functional requirements identified earlier.

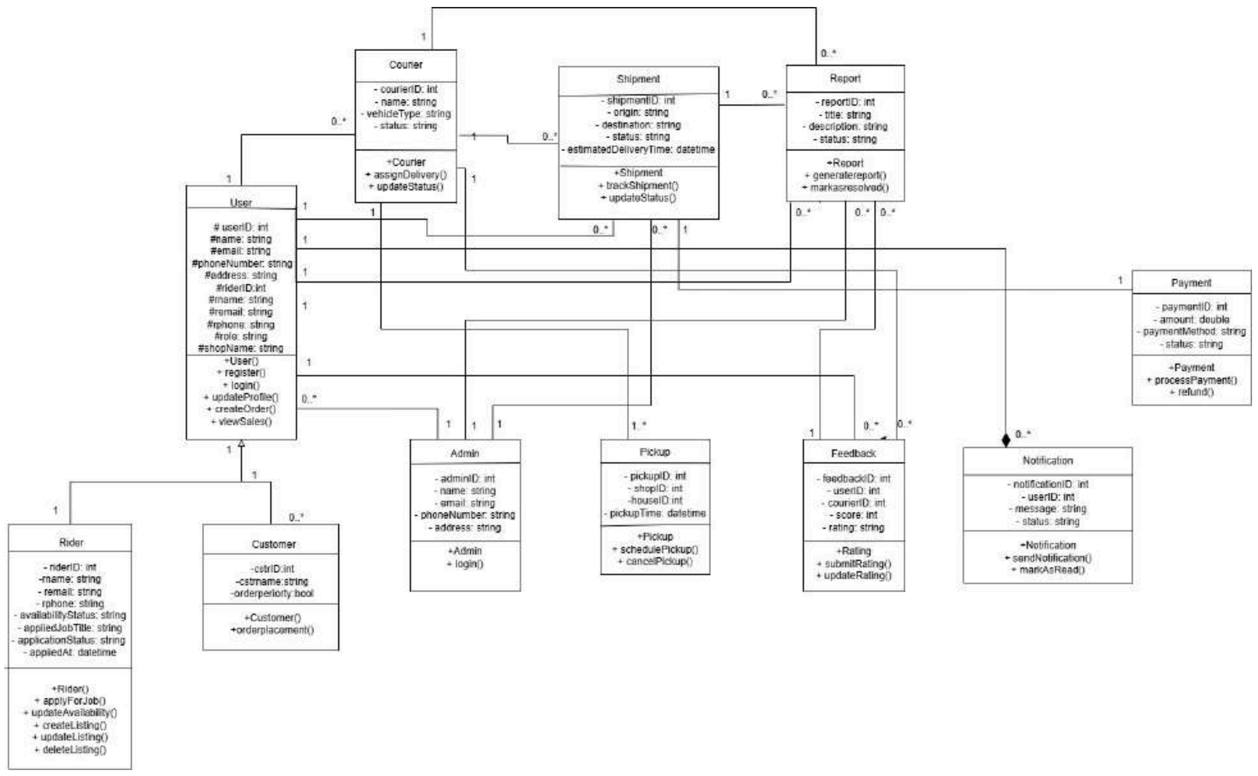
a: Architecture Diagram


Users
Presentation Layer
UI/UX
Frontend
Employees
Bootstrap React.js
HTML, CSS JavaScript
Application Layer
Gamified Delivery tracking
Interactive Courier traffic
MarketPlace for Freelance Riders
Community Pickup (shop to shop)
Split Delivery option(priority, standard)
Verify Parcal via QR code
Tips for Rider and Rating
Join MarketPlace
Log Pickups and Drop-offs
Parcel Recieving Alert
Admin Panel
Database (Mongodb)
Backend
Google Maps APIs
Restful APIs
Authentication
Node.js

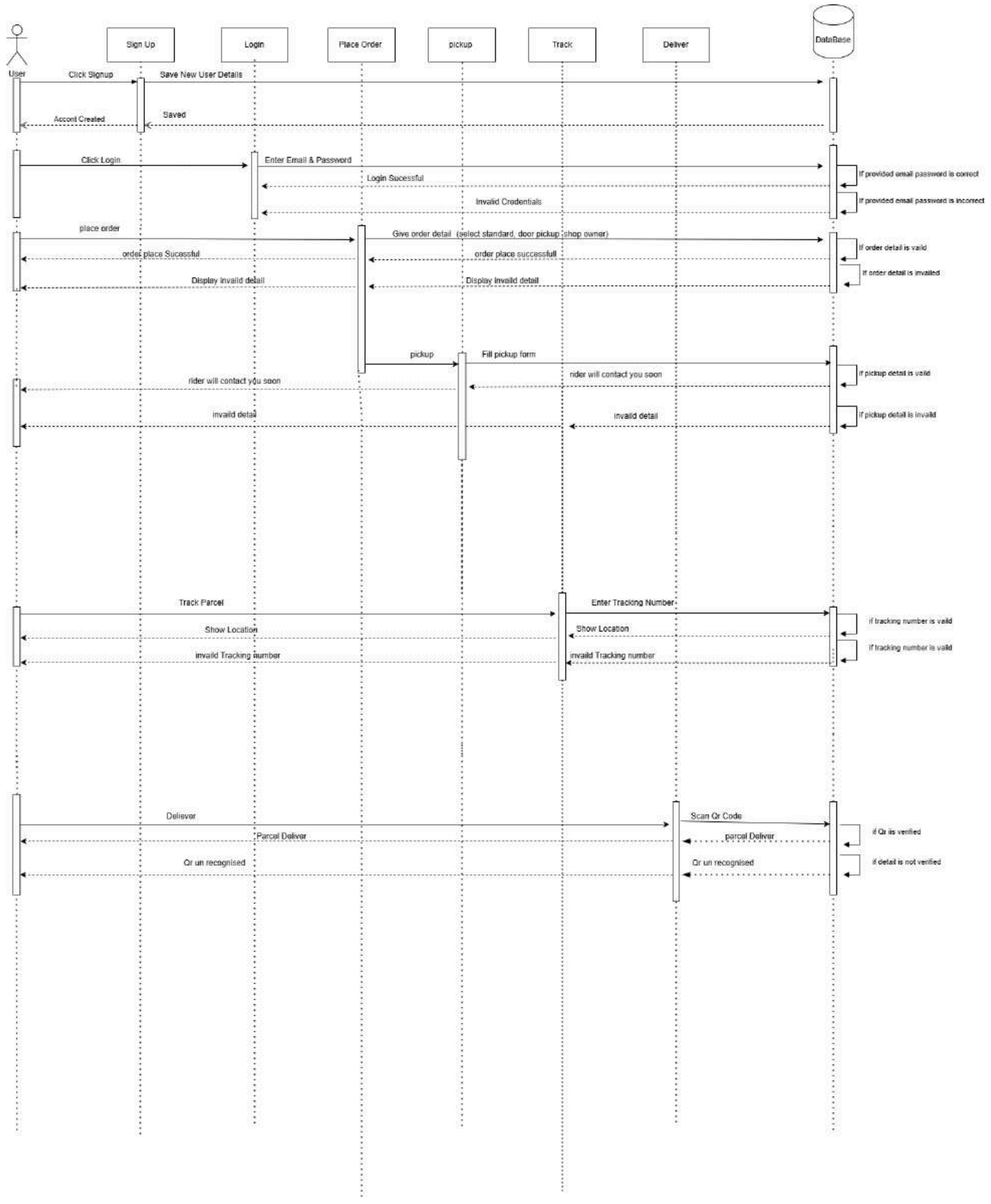
b: Entity Relationship Diagram with data dictionary



c: Class Diagram



d: Sequence / Collaboration Diagram



Chapter 5
Implementation

Chapter 5: Implementation

This chapter describes the technical implementation of the Courier360 project using the MERN (MongoDB, Express.js, React.js, Node.js) stack in Visual Studio Code. It outlines how the core functionalities were developed, including the structure of APIs, front-end logic, backend services, and database connections. Additionally, this chapter discusses the flow of control within the system, the tools and techniques used during development, and deployment environments. It also covers the use of version control and the coding standards followed to ensure maintainability and performance.

1.1. Important Flow Control/Pseudo codes

The Courier360 system follows a modular flow where user actions on the front end trigger asynchronous API calls to the backend. For example, when a user books a parcel, the React frontend captures input, sends it via Axios to a Node.js Express route, and stores it in MongoDB. Pseudo code for the booking flow:

Pseudo code:

```
IF user submits courier booking form THEN
  VALIDATE user input
  IF validation successful THEN
    SEND booking data to Express API
    GENERATE tracking ID
    SAVE data to MongoDB
    RETURN success response
  ELSE
    RETURN error response
ENDIF
```

1.2. Components, Libraries, Web Services and stubs

Frontend Libraries (React.js): Axios (API calls), React Router, React Icons, QR Code Scanner

Backend (Node.js with Express): Mongoose (MongoDB ODM), JWT (authentication), Bcrypt.js (password encryption), Multer (file upload)

Database: MongoDB Atlas (cloud database)

Web Services: Google Maps API (location tracking), Nodemailer (email alerts), Twilio API (SMS notifications)

Stubs & Testing Tools: Postman (API testing), Jest (unit testing)

1.3. Deployment Environment

The Courier360 platform is developed and tested in Visual Studio Code with version control through Git. The backend is hosted using Render or Railway, and the frontend is deployed on Vercel or Netlify. MongoDB Atlas is used for cloud-hosted database services. The environment supports both development and production configurations using `.env` files to securely manage environment variables such as API keys, tokens, and database URIs.

1.4. Tools and Techniques

Visual Studio Code (VS Code) as the primary IDE

MERN stack for full-stack development

Postman for API testing and response validation

Git & GitHub for version control and collaboration

Agile methodology using weekly sprints and module-based development

Responsive design techniques using Tailwind CSS and custom components

1.5. Best Practices / Coding Standards

Followed **ESLint** and **Prettier** for consistent code formatting

Used **MVC (Model-View-Controller)** architecture for backend separation

Reusable **React components** and hooks to reduce redundancy

Proper **error handling** with try-catch and HTTP status codes

Secure coding practices using **OWASP** guidelines (e.g., sanitizing inputs, avoiding token exposure)

Stored all sensitive credentials in **.env files** not committed to version control

1.6. Version Control

Version control was implemented using **Git**, with project repositories hosted on **GitHub**. The team followed a **branching strategy** where:

> `main` held stable code

> `dev` contained ongoing development

> feature branches like `feature-tracking`, `feature-qr-verification` were merged via pull requests after testing

Commits were made with clear messages, and the team used GitHub Issues and Projects for task tracking and collaboration.

Chapter 6
Testing and Evaluation

Chapter 6: Testing and Evaluation

Testing and evaluation for Courier360 ensure that all system components function correctly, efficiently, and securely before deployment. This process involves validating each module—such as booking, tracking, QR verification, and rider marketplace—to confirm that they meet the defined requirements. Both functional and non-functional tests are performed to check usability, performance, reliability, and data integrity. User testing is included to gather real-world feedback and highlight potential improvements. Overall, testing and evaluation help guarantee that Courier360 delivers a seamless, error-free, and user-friendly courier management experience.

Test Approach:

The test approach for Courier360 follows a structured and layered methodology to ensure the platform meets functional, performance, and security expectations. Testing begins with Authentication testing, where individual modules such as user login, parcel booking, QR scanning, and real-time tracking are validated for correctness. This is followed by Features testing to verify that modules interact properly—for example, ensuring that booking data flows correctly into tracking and hub management systems.

Test Plans:

Features to tested for Courier360 as follows:

<u>User Side:</u>

1: Authentication

  a: Login

  b: Signup

2: Order Booking

3: Order Details

4: Tracking Order

5: Feedback

<u>Admin Side:</u>

1: Authentication

a: Login

b: Signup

2: Managed Users

3: Managed Requests

4: Managed Orders

5: Show Feedbacks

<u>Rider Side:</u>

1: Authentication

a: Login

b: Signup

2: Show Orders

3: Show Tracking on Map Location

4: Status Change

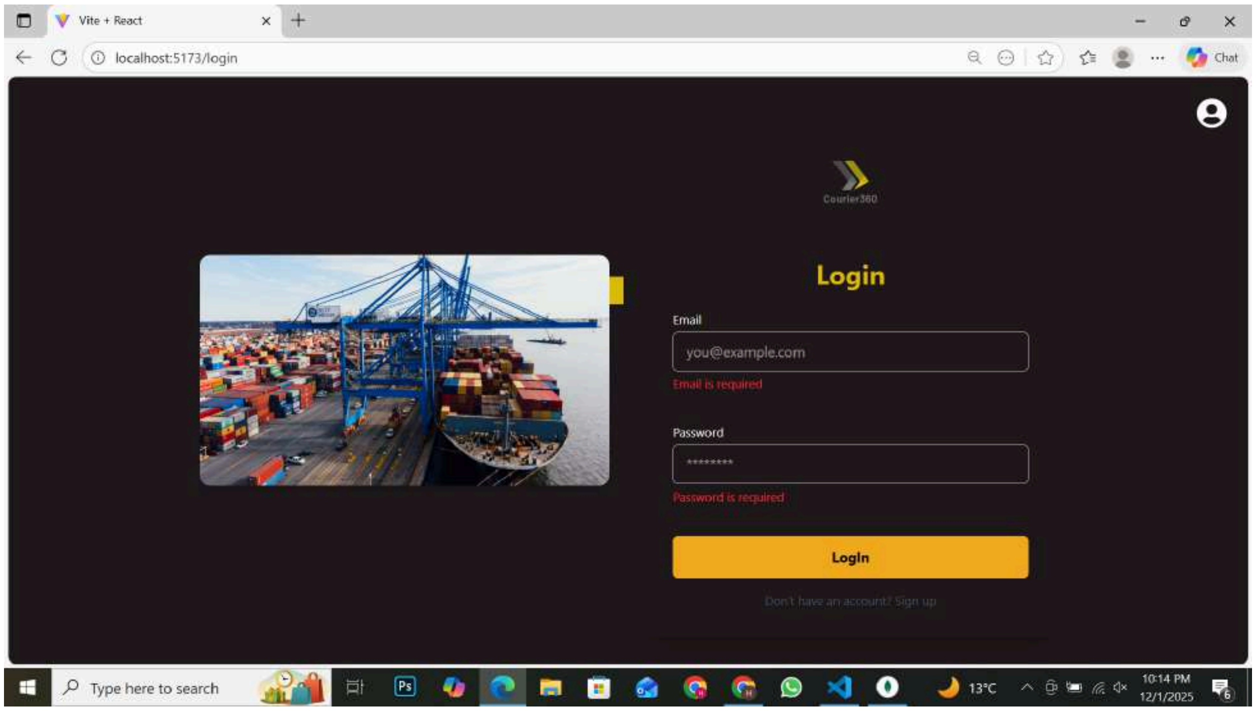
5: Change payment method

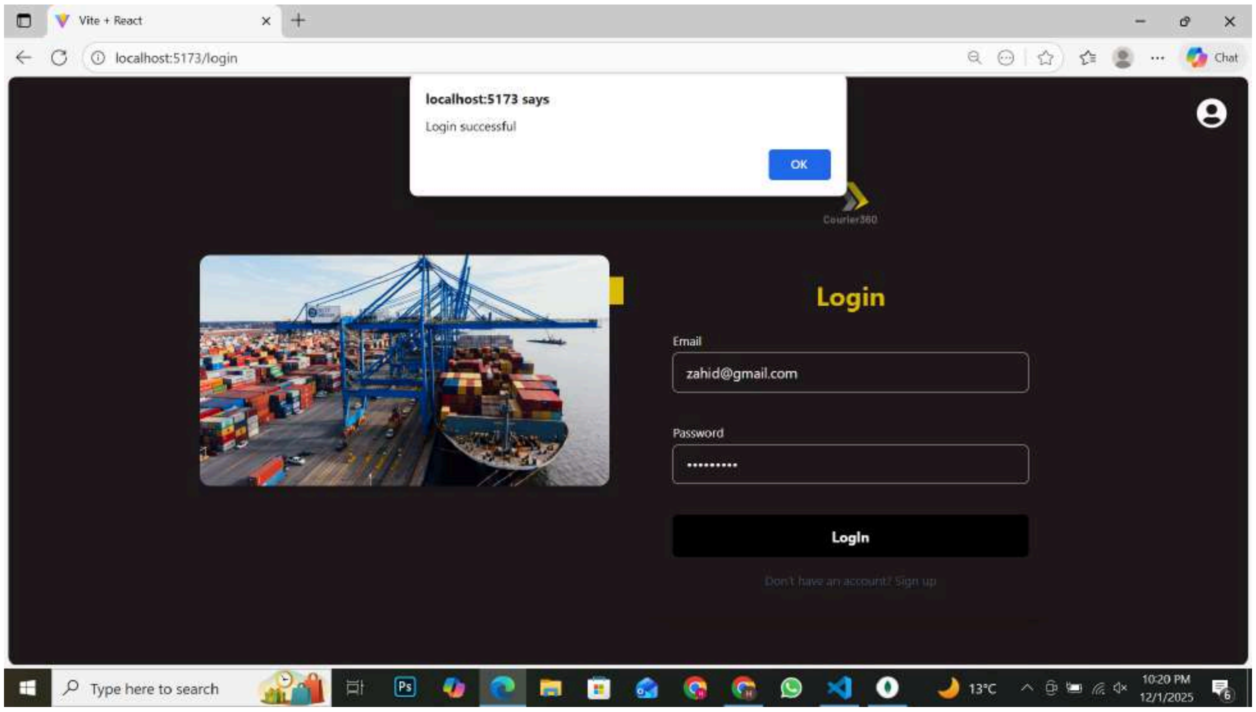
<u>User Side:</u>

1: Authentication - Login

Test case ID	TC-1
Feature	Authentication
Sub-Feature	Login
Summary	Login with valid credentials
Test steps	. Open the website . Next to Login Page . Enter the valid credentials

Test Results	If valid then successful, otherwise forward to Signup page
Advantages	Security for invalid credentials
Disadvantages	Checking only when database connection

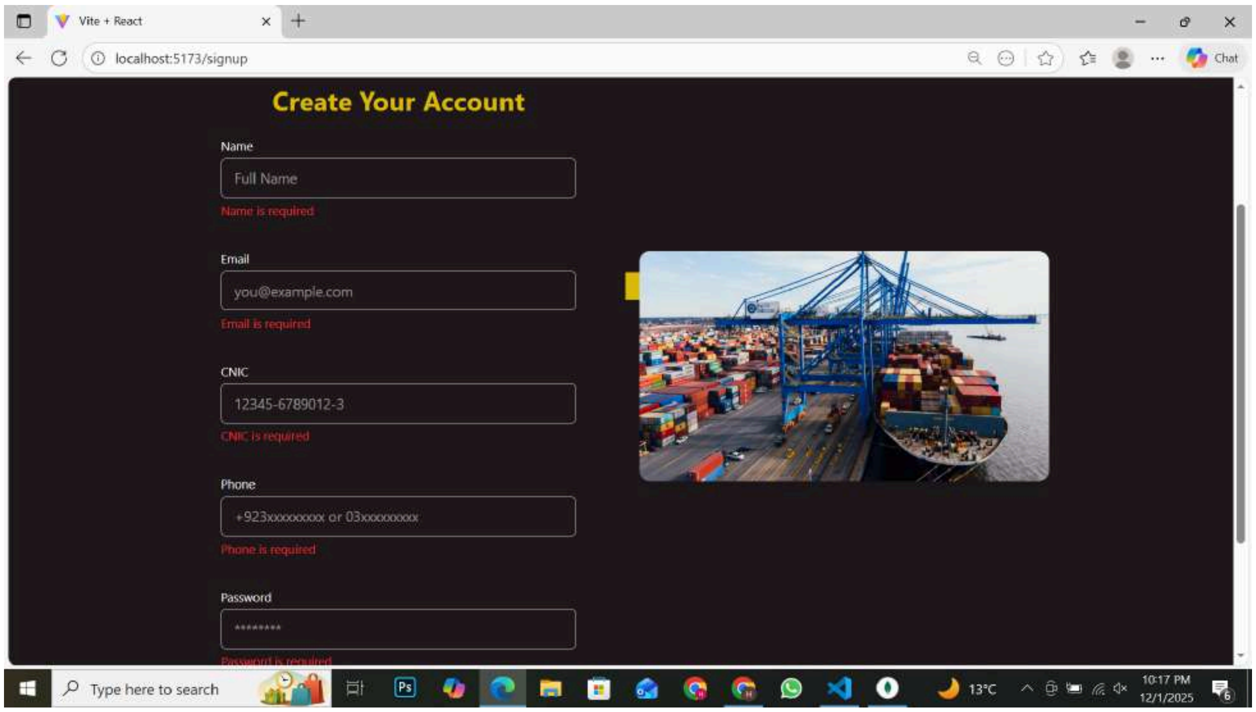



localhost:5173 says

Login successful

1: Authentication - Signup

Test case ID	TC-2
Feature	Authentication
Sub-Feature	Signup
Summary	Enter valid credentials
Test steps	. Open the website . If login failed, then move to signup page . Enter valid credentials
Test Results	If valid then successful, otherwise re-enter
Advantages	Information of new user and save in database
Disadvantages	Checking only when database connection



Create Your Account

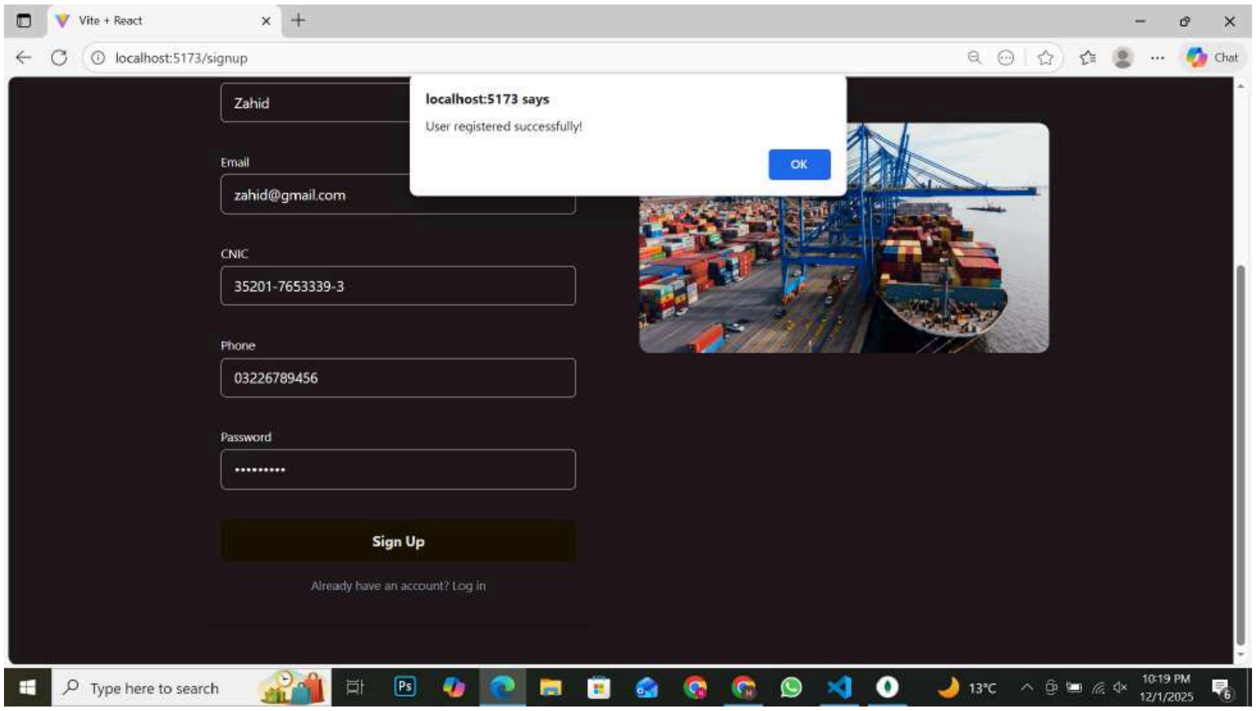
Name
Full Name
Name is required

Email
you@example.com
Email is required

CNIC
12345-6789012-3
CNIC is required

Phone
+923xxxxxxxxx or 03xxxxxxxxx
Phone is required

Password
****
Password is required


localhost:5173/signup

localhost:5173 says
User registered successfully!

Zahid

Email
zahid@gmail.com

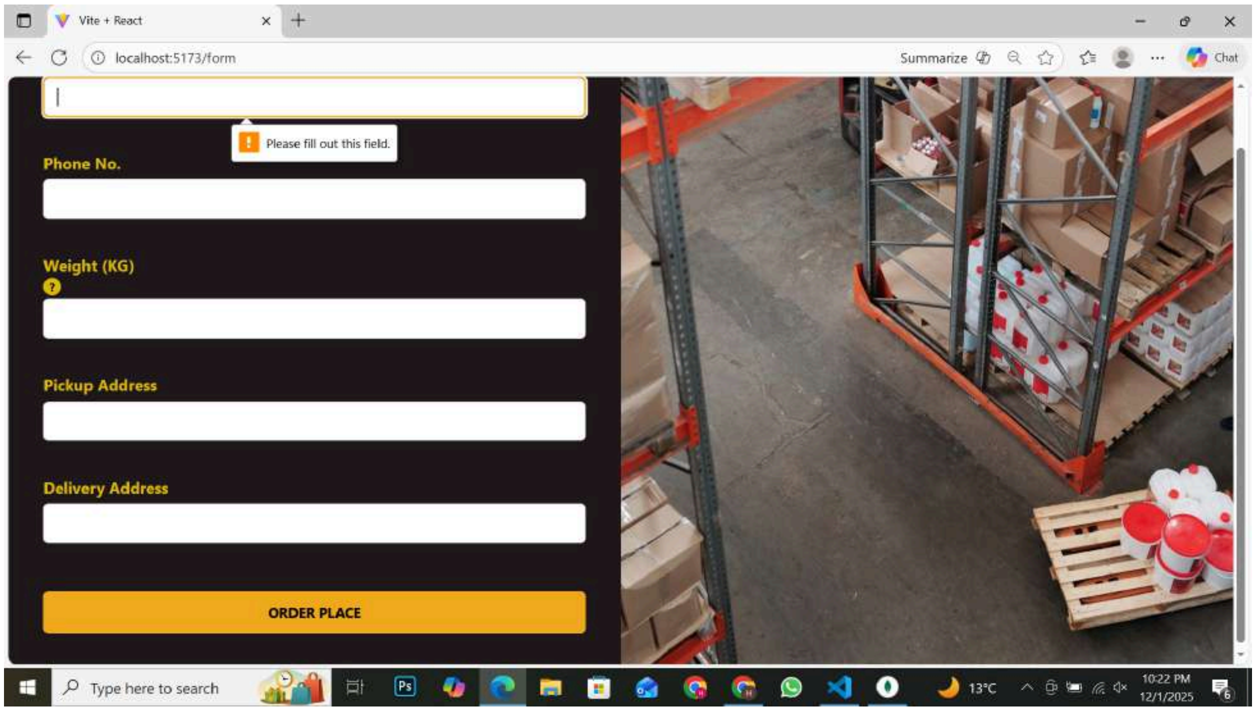
CNIC
35201-7653339-3

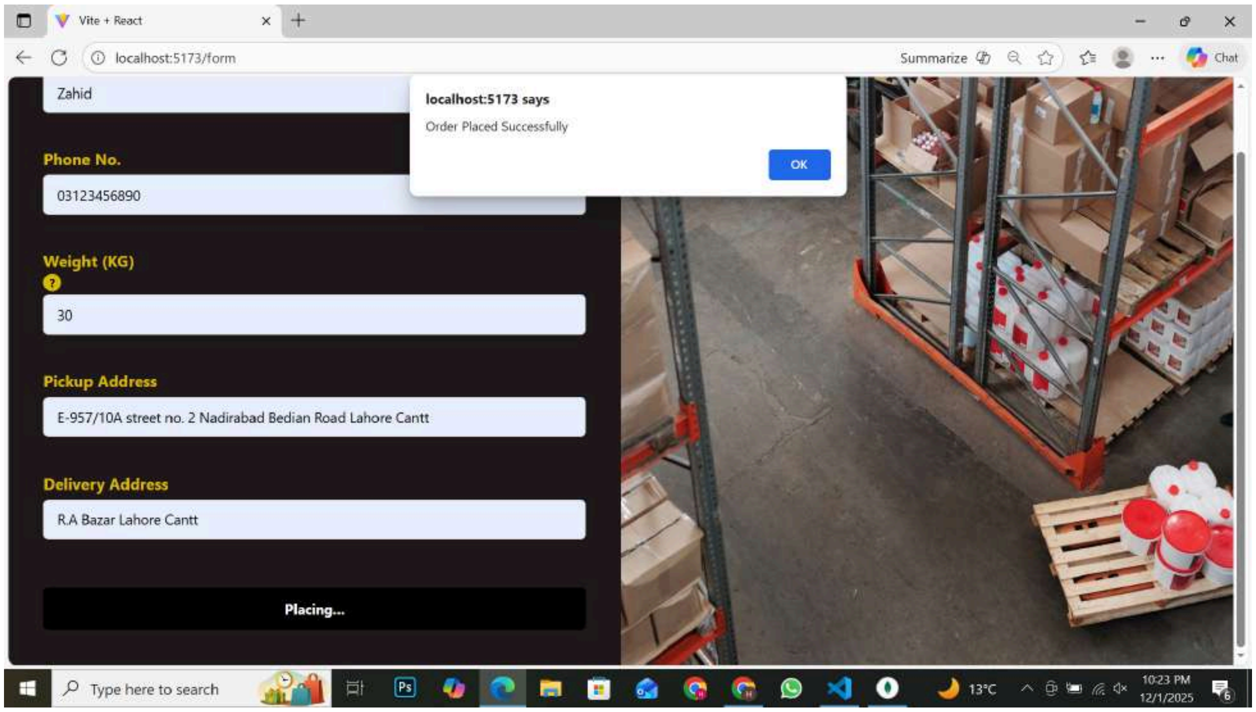
Phone
03226789456

Password
•••••••••

2: Order Booking

Test case ID	TC-3
Feature	Order Booking
Summary	Enter valid credentials for booking the order
Test steps	. Open the website . Move to the order place method . Name . Phone . Weight(KG) . Pickup Address . Delivery Address
Test Results	If valid then generate tracking number and Payment
Advantages	All the information regarding order is save in database
Disadvantages	Checking only when database connection




localhost:5173 says

Order Placed Successfully

Zahid

Phone No.

03123456890

Weight (KG)

30

Pickup Address

E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt

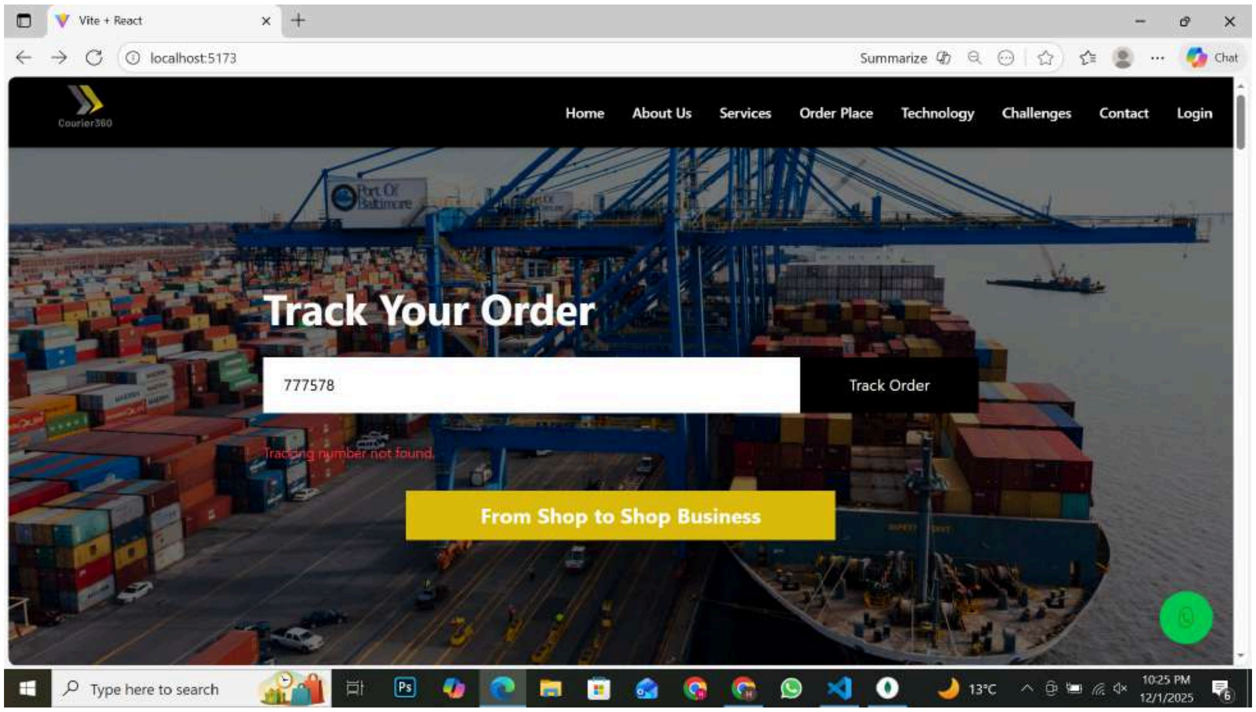
Delivery Address

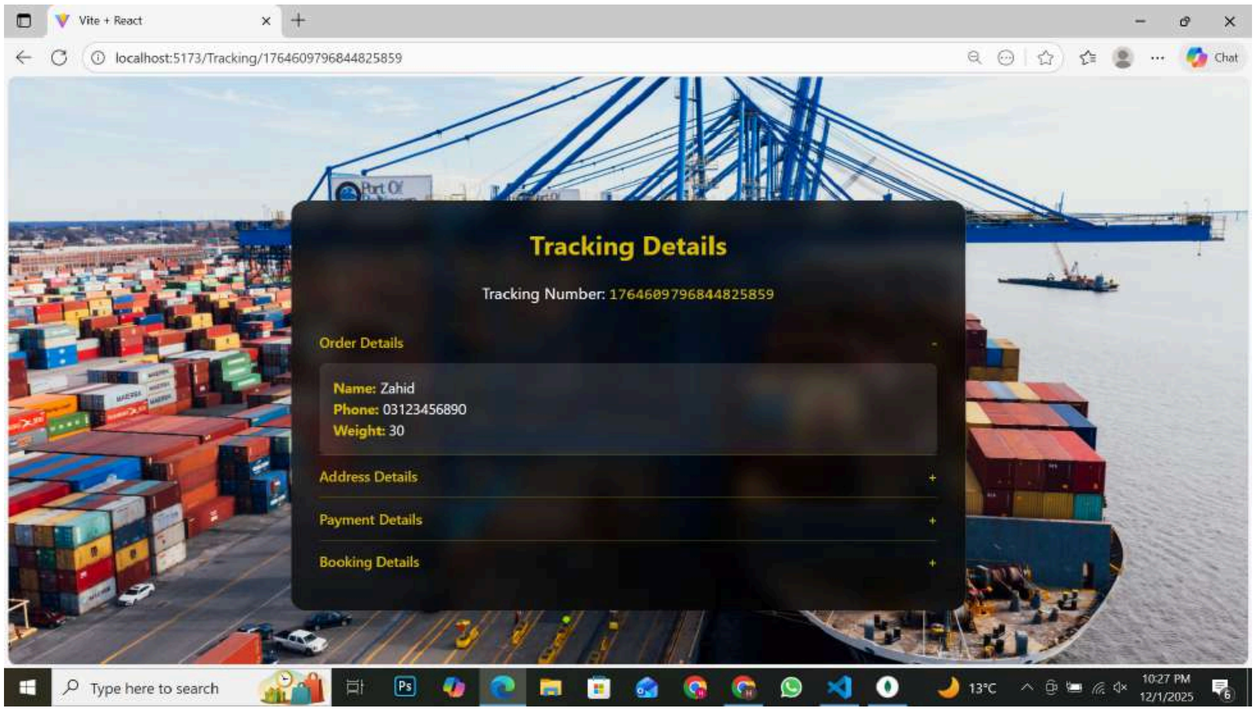
R.A Bazar Lahore Cantt

3: Order Details

Test case ID	TC-4
Feature	Order Details

Summary	Checking the all details that entered during order's booking
Test steps	. Open the website . Enter tracking number then check the results . order details . address details . payment details . status
Test Results	If valid tracking number then check information of order
Advantages	All the entered information is also checked by user
Disadvantages	Checking only when database connection





Tracking Details

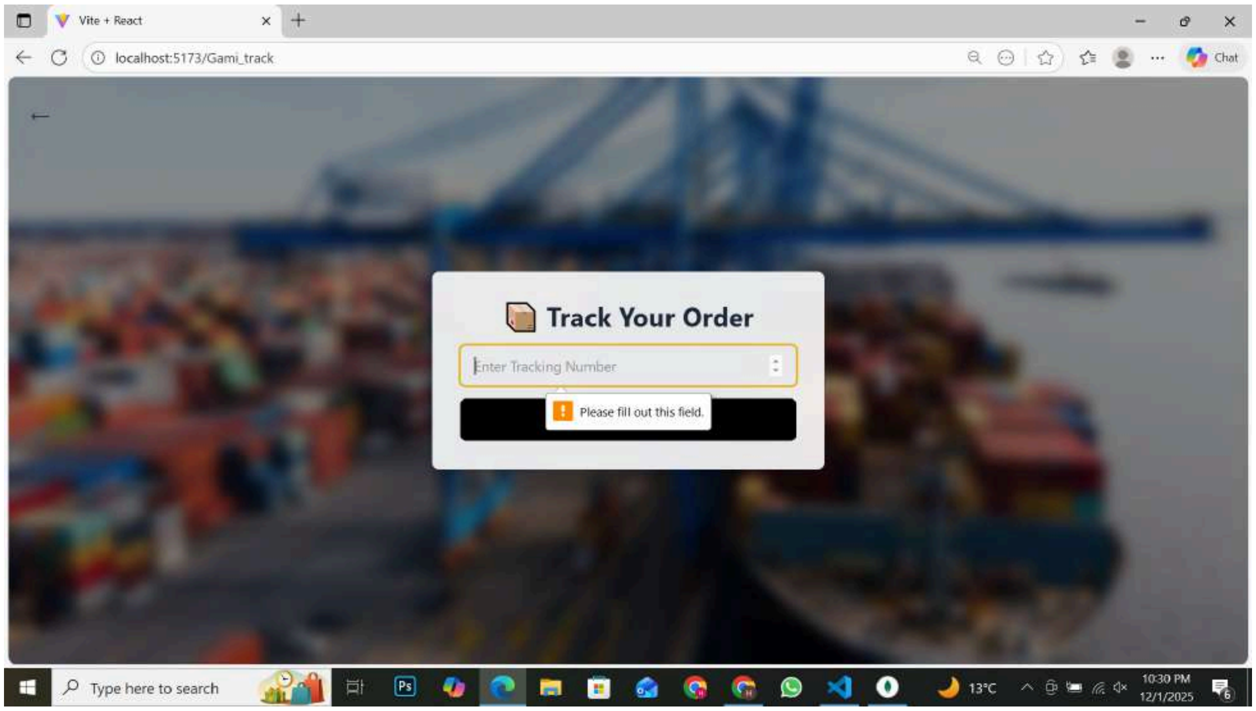
Tracking Number: 1764609796844825859

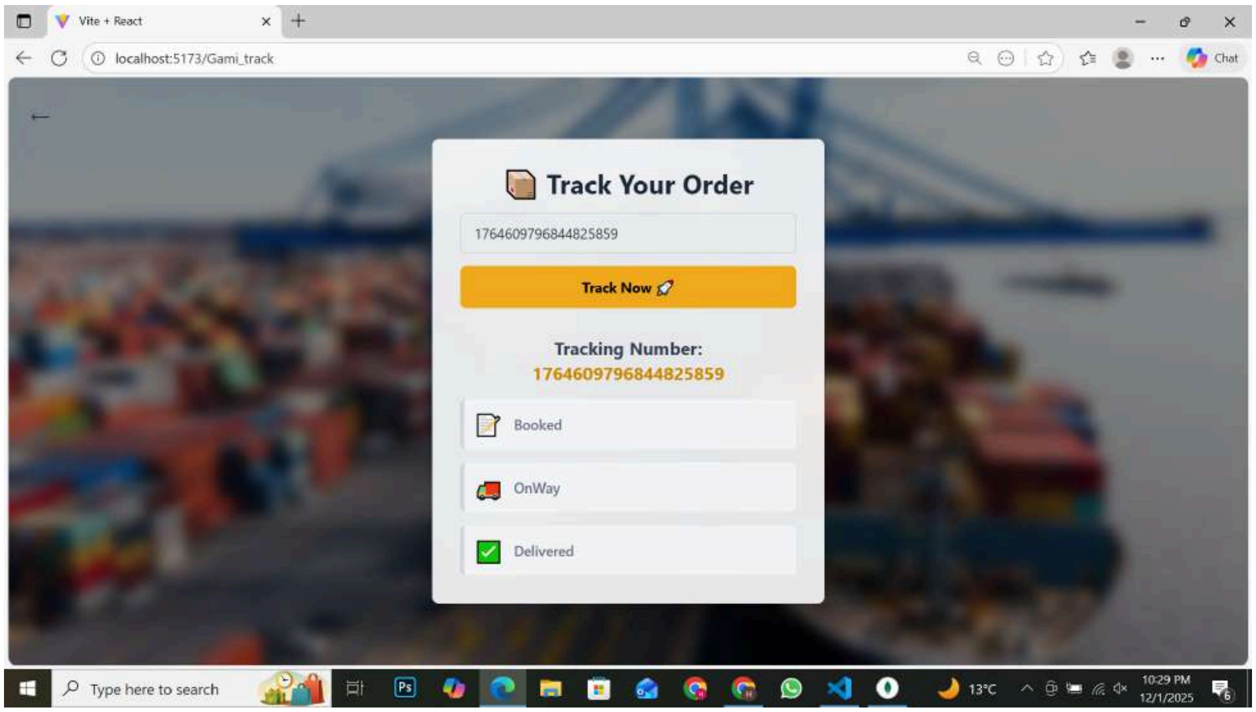
Order Details

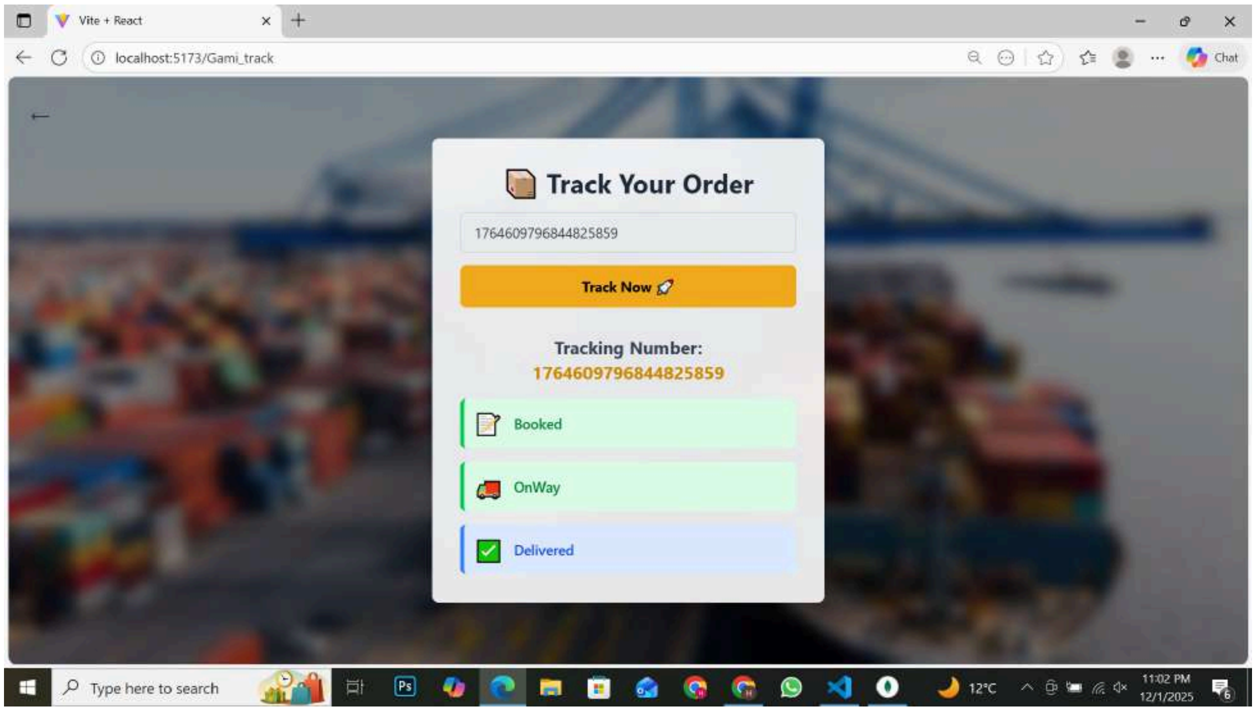
Name: Zahid
Phone: 03123456890
Weight: 30

4: Tracking Order

Test case ID	TC-5
Feature	Tracking Order
Summary	Information of order from where it reach
Test steps	. Open the website . Enter tracking number to check the information of order . Order Booking . On the way . Delivered
Test Results	If there is a valid tracking number then check the order's information.
Advantages	Users also check from where the order reach
Disadvantages	Checking only when database connection


Vite + React
localhost:5173/Gami_track
Track Your Order
Enter Tracking Number
Please fill out this field.
Type here to search
13°C
10:30 PM
12/1/2025


Vite + React
localhost:5173/Gami_track
Track Your Order
1764609796844825859
Track Now
Tracking Number:
1764609796844825859
Booked
OnWay
Delivered
Type here to search
13°C
10:29 PM
12/1/2025

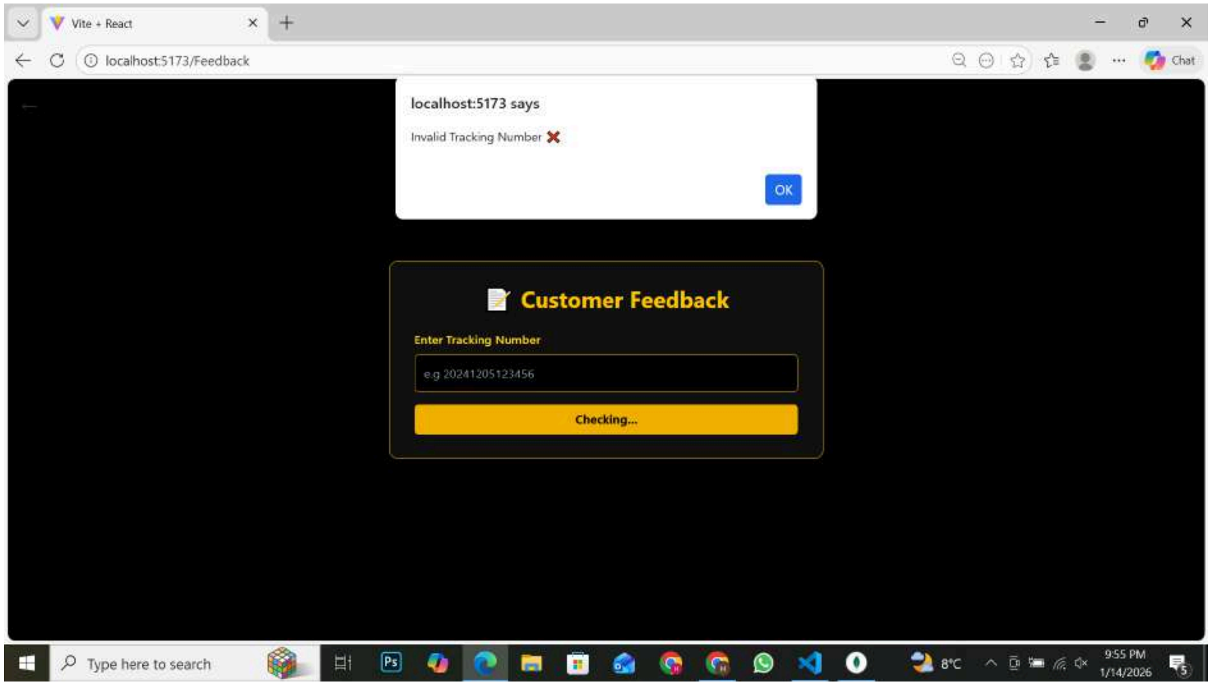


5: Feedback

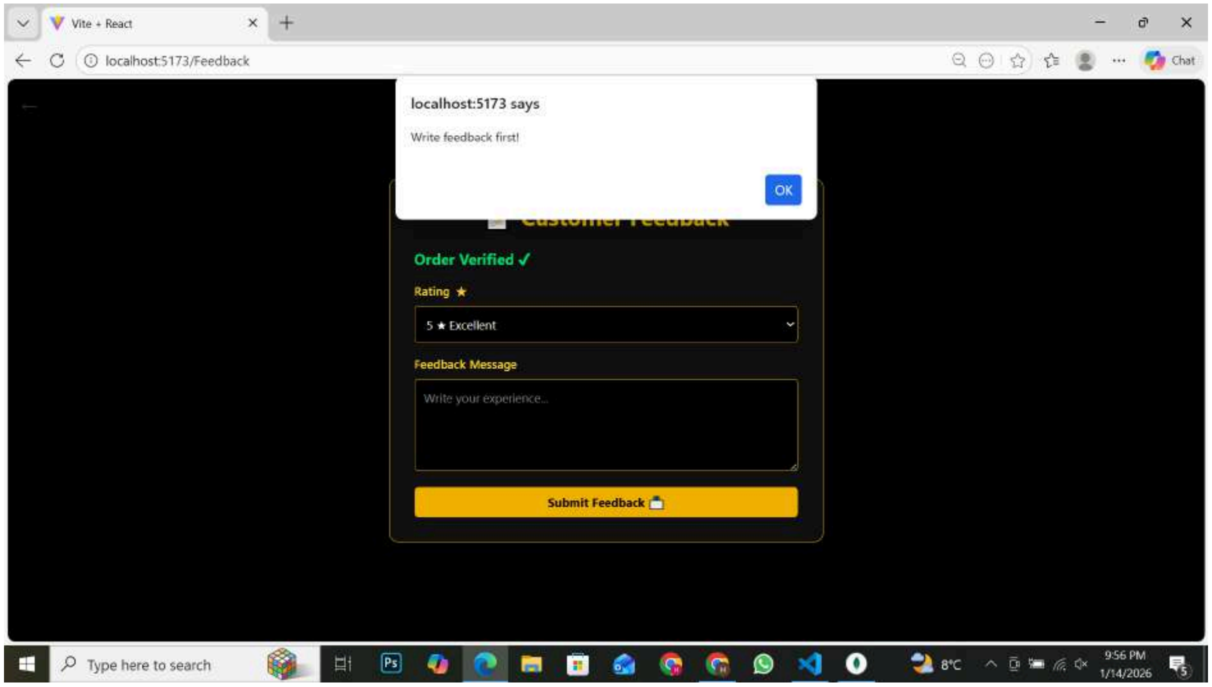
Test case ID	TC-6
Feature	Feedback
Summary	Customers enter the services according to order.

Test steps	. Open the website
	. Enter tracking number to enter feedback of the order
	    . Rating
	    . Reviews

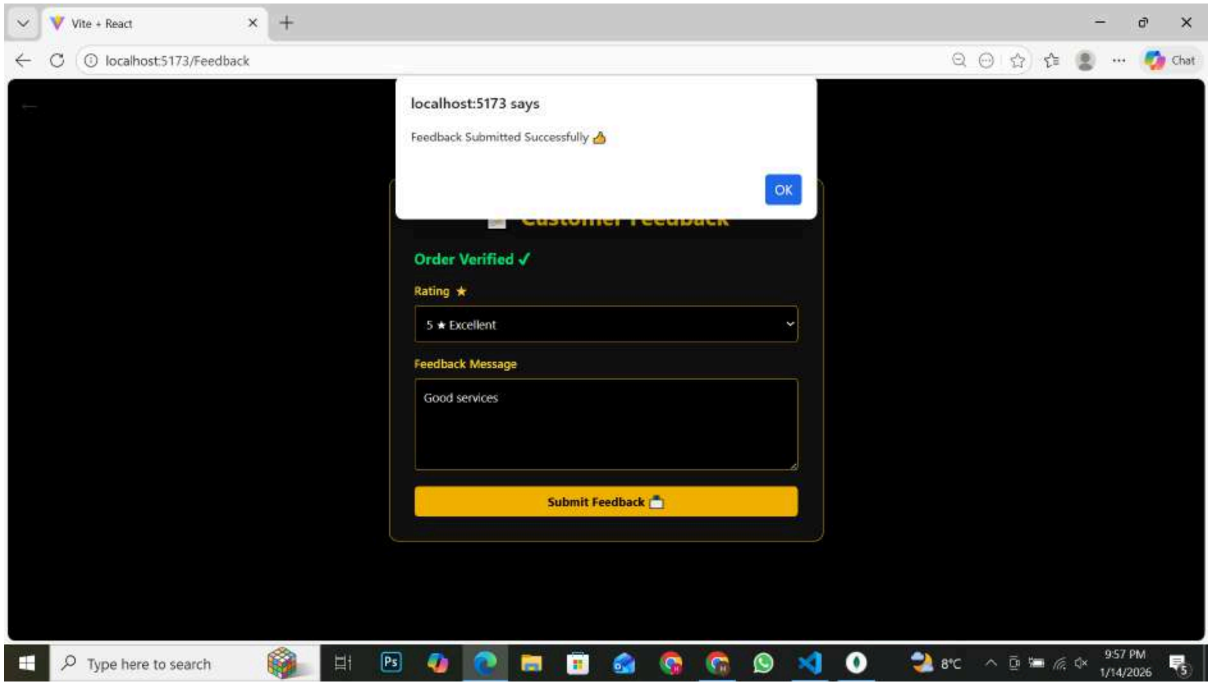
Test Results	If there is a valid tracking number then enter the order’s feedback.
Advantages	Users submit their tips or feedback according to order.
Disadvantages	Checking only when database connection


localhost:5173 says

Invalid Tracking Number ❌


localhost:5173 says

Write feedback first!

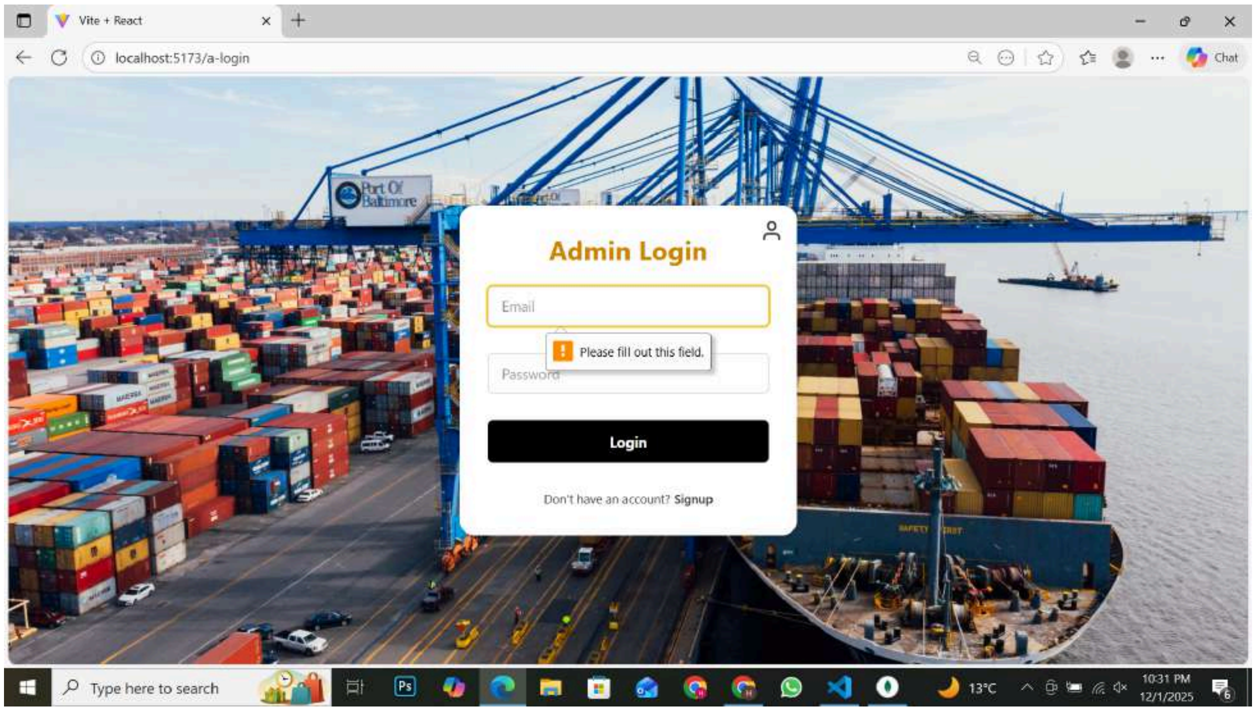

localhost:5173 says

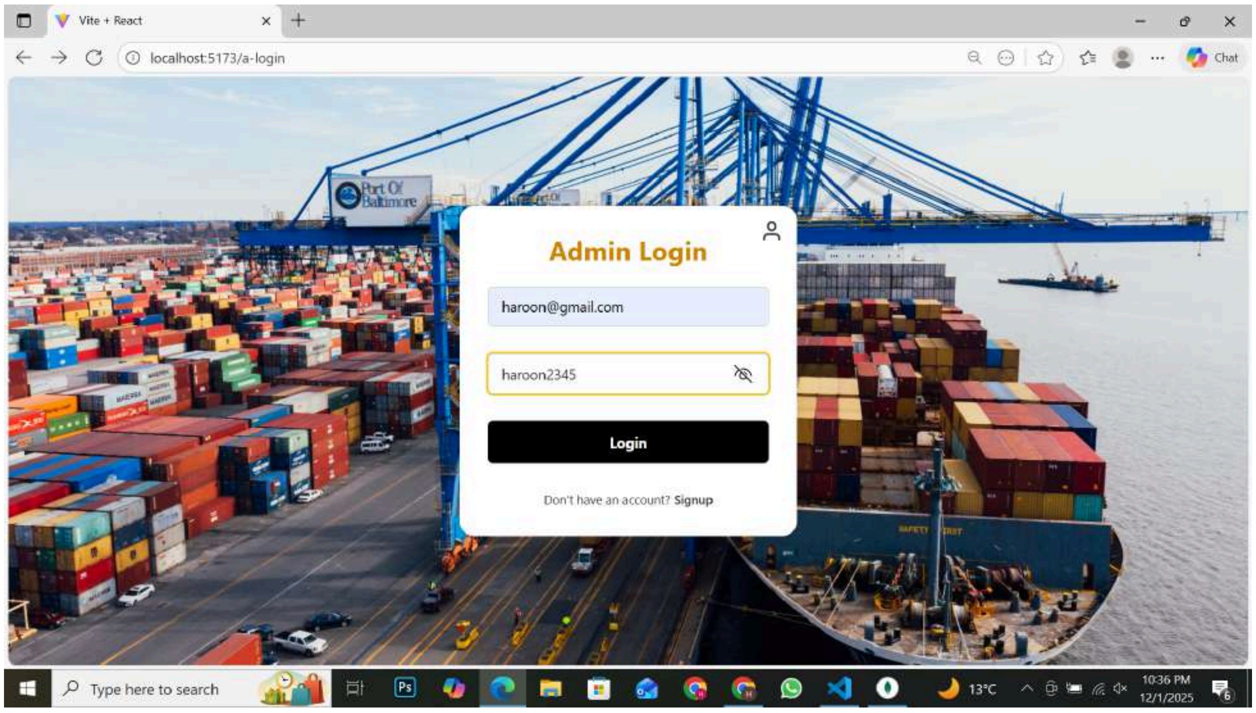
Feedback Submitted Successfully 👍

Admin Side:

1: Authentication - Login

Test case ID	TC-1
Feature	Authentication
Sub-Feature	Login
Summary	Login with valid credentials
Test steps	. Open the website . Forward to Admin side . Next to Login Page . Enter the valid credentials
Test Results	If valid then successful, otherwise forward to Signup page
Advantages	Security on admin side for invalid credentials
Disadvantages	Checking only when database connection



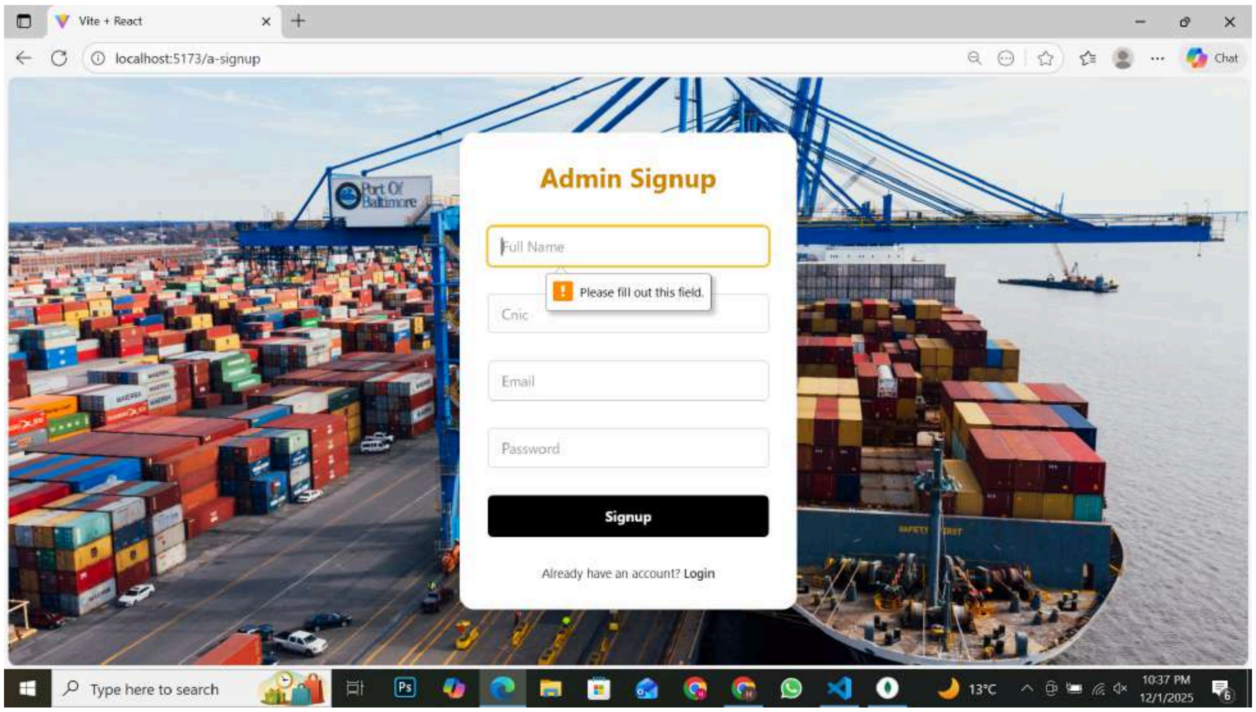


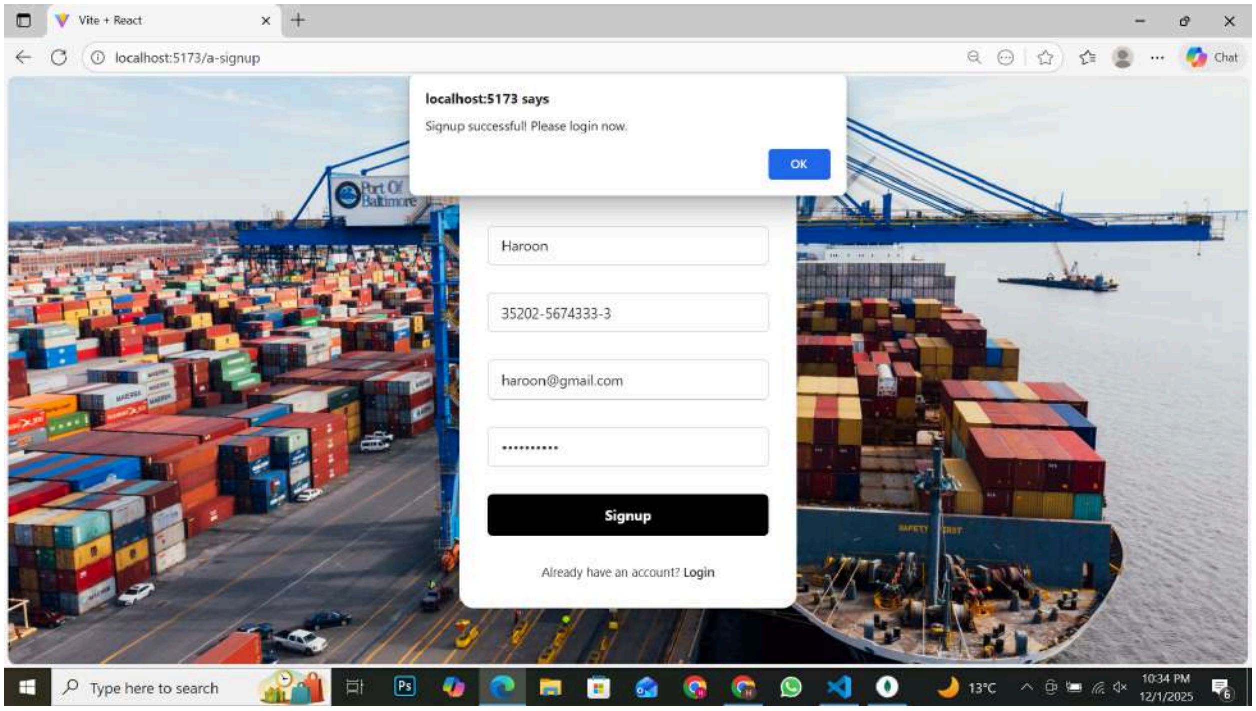
haroon@gmail.com

haroon2345

1: Authentication - Signup

Test case ID	TC-2
Feature	Authentication
Sub-Feature	Signup
Summary	Enter valid credentials
Test steps	. Open the website . Forward to Admin side . If login failed, then move to signup page . Enter valid credentials
Test Results	If valid then successful, otherwise re-enter
Advantages	Information of new person in admin and save in database
Disadvantages	Checking only when database connection





localhost:5173 says

Signup successful! Please login now.

OK

Haroon

35202-5674333-3

haroon@gmail.com

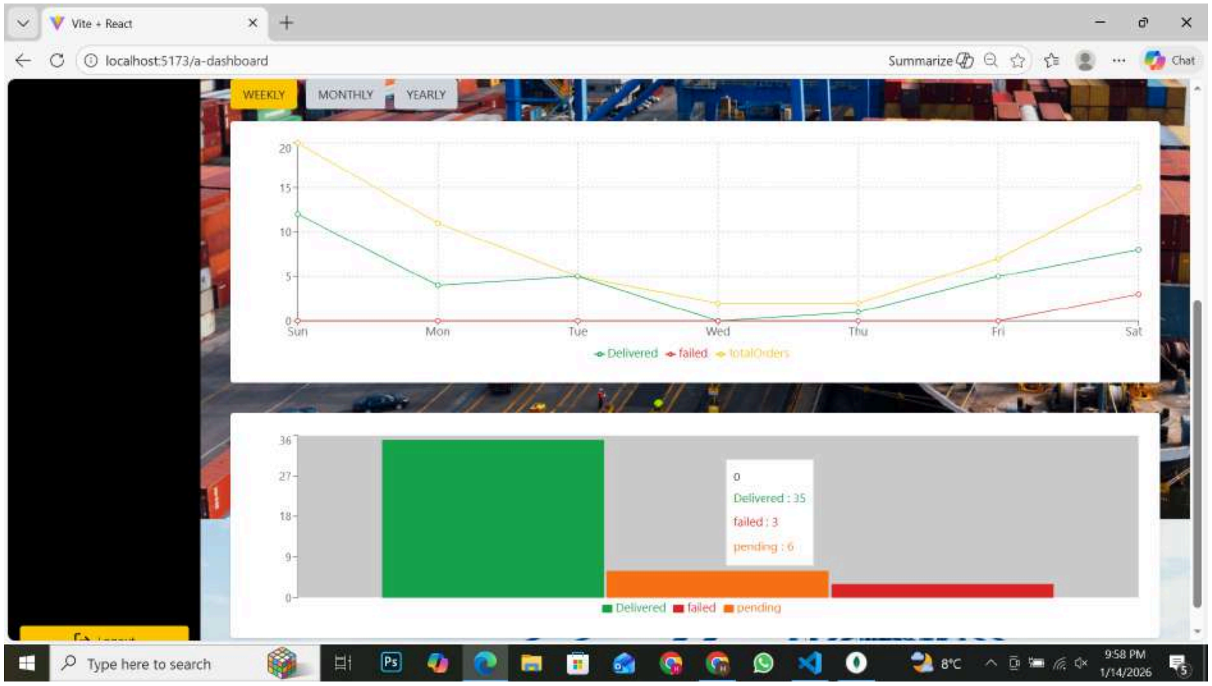
••••••••••

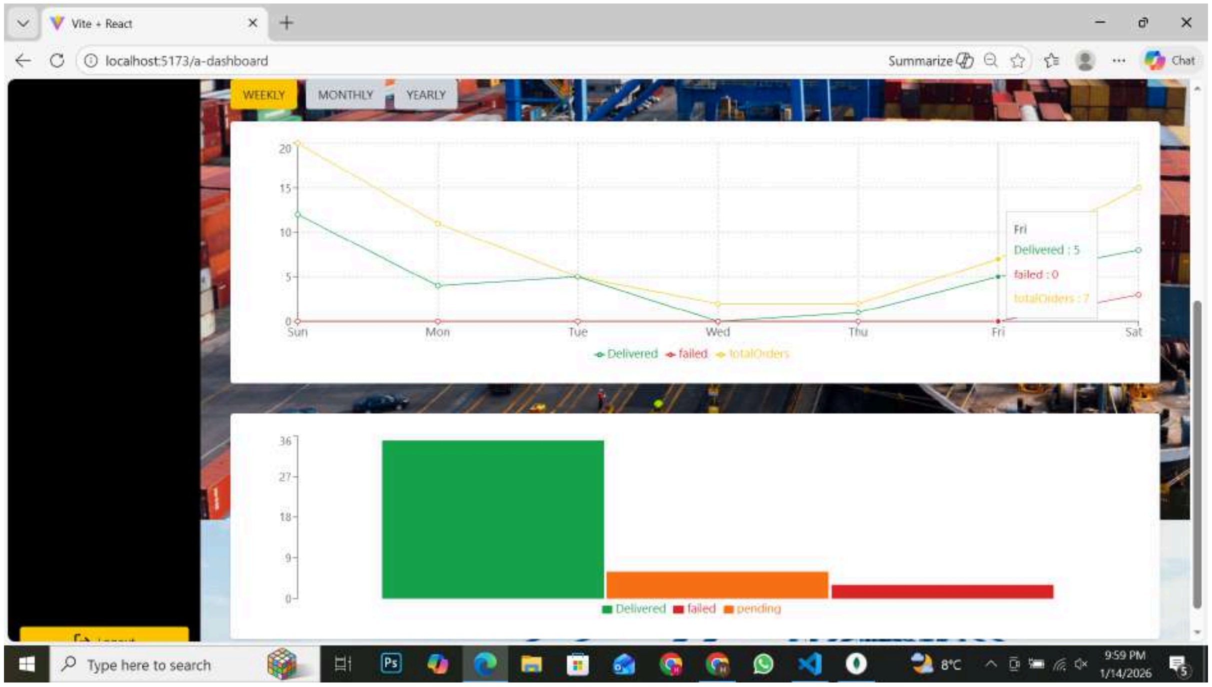
Signup

Already have an account? Login

2: Managed Users

Test case ID	TC-3
Feature	Managed Users
Summary	Managed the new users to show the orders, deliver, pending and failed.
Test steps	Shows the new users and previously users to show the total orders or deliver or pending and failed orders
Test Results	Shows the information in graphical form
Advantages	Shows the weekly, monthly and yearly graph of the orders.
Disadvantages	Checking only when database connection

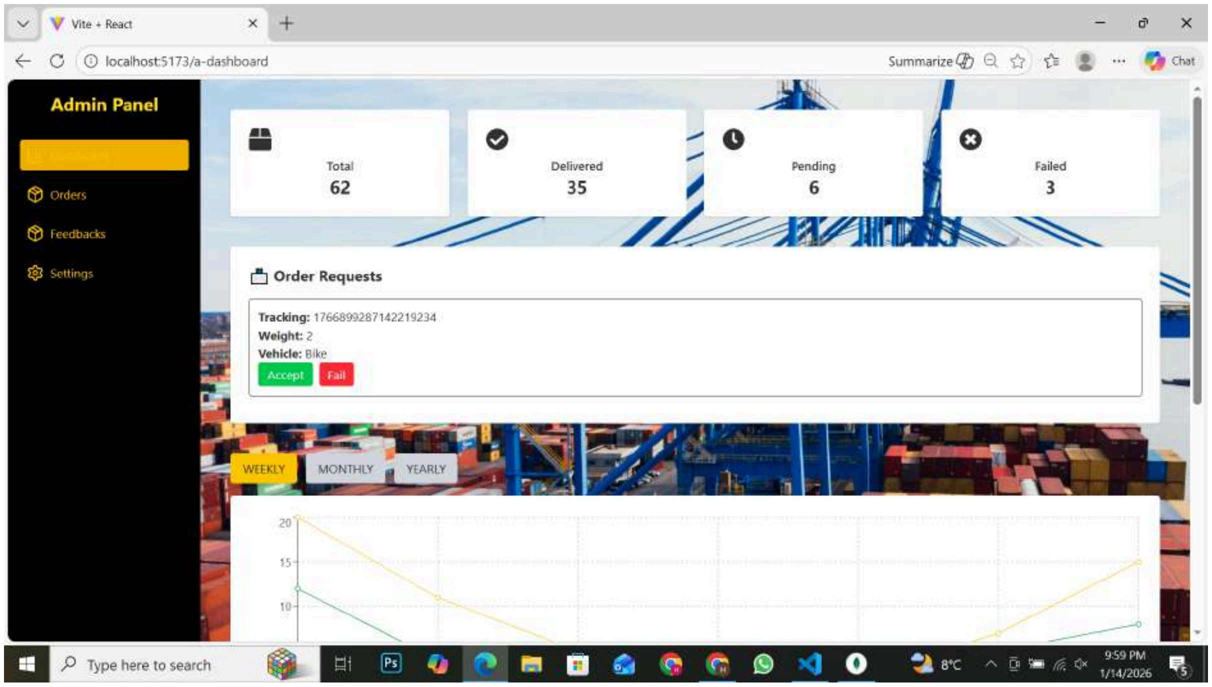




3: Managed Requests

Test case ID	TC-4
Feature	Managed Requests
Summary	Manage the requests of the new orders with the order's booking method to check if the credentials are true or not.

Test steps	Shows the new orders and previously orders to check the order's credentials.
Test Results	Show the orders that check the correct credentials. If true then accept the order, now the order is pending. If not correct then fail the order, then order is failed.
Advantages	Show all the correct credentials of Order
Disadvantages	Checking only when database connection

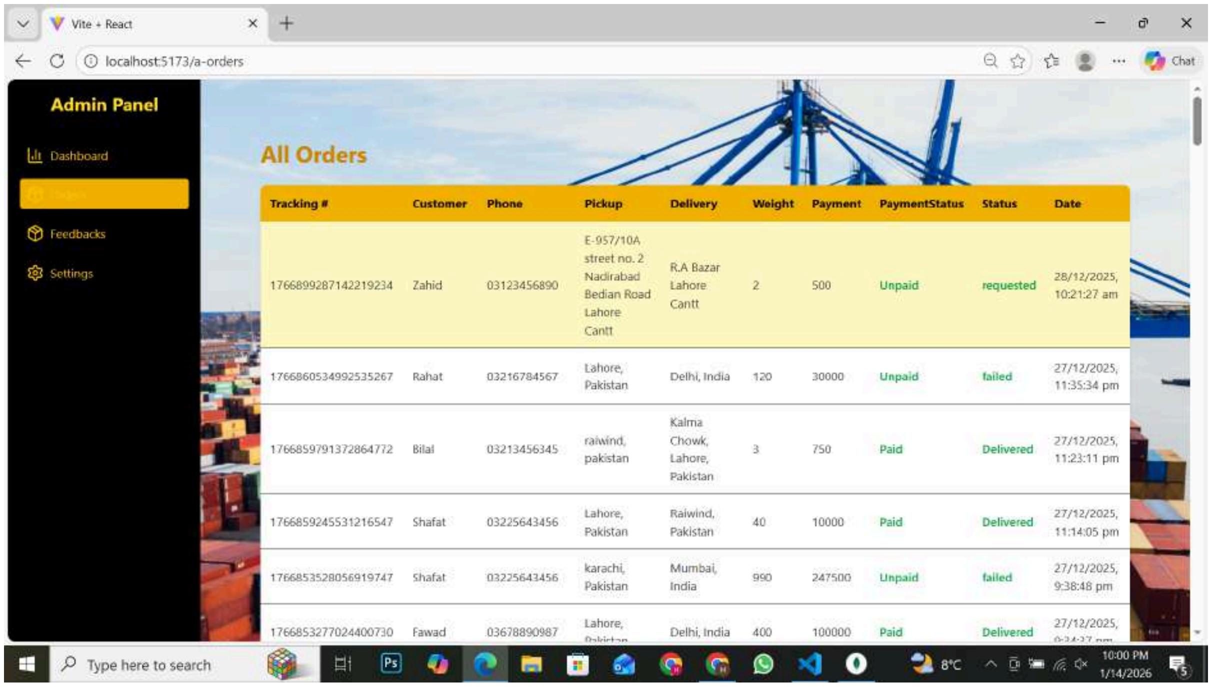


Tracking: 1766899287142219234
Weight: 2
Vehicle: Bike

4: Managed Orders

Test case ID	TC-5
Feature	Managed Orders
Summary	Manage the new orders to show with the order's booking method. If the order is accepted then show the pending status. If the order fails then show the failed status.
Test steps	Shows the new orders and previously orders to show the total orders or deliver and pending of orders and failed orders

Test Results	Show the orders in step by step, e.g new order is on first and other second or third later on
Advantages	Show all information of Order
Disadvantages	Checking only when database connection

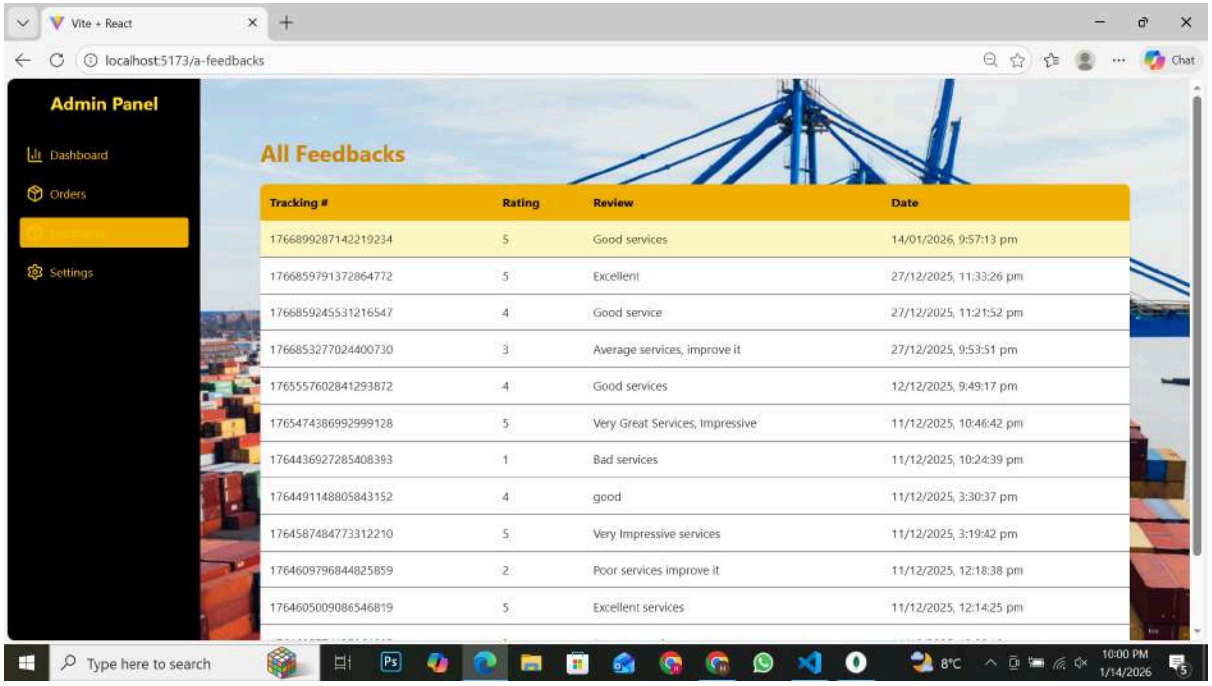


All Orders

Tracking #	Customer	Phone	Pickup	Delivery	Weight	Payment	PaymentStatus	Status	Date
1766899287142219234	Zahid	03123456890	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	2	500	Unpaid	requested	28/12/2025, 10:21:27 am
1766860534992535267	Rahat	03216784567	Lahore, Pakistan	Delhi, India	120	30000	Unpaid	failed	27/12/2025, 11:35:34 pm
1766859791372864772	Bilal	03213456345	raiwind, pakistan	Kalma Chowk, Lahore, Pakistan	3	750	Paid	Delivered	27/12/2025, 11:23:11 pm
1766859245531216547	Shafat	03225643456	Lahore, Pakistan	Raiwind, Pakistan	40	10000	Paid	Delivered	27/12/2025, 11:14:05 pm
1766853528056919747	Shafat	03225643456	karachi, Pakistan	Mumbai, India	990	247500	Unpaid	failed	27/12/2025, 9:38:48 pm
1766853277024400730	Fawad	03678890987	Lahore,	Delhi, India	400	100000	Paid	Delivered	27/12/2025,

5: Show Feedbacks

Test case ID	TC-6
Feature	Show Feedbacks
Summary	Admin shows the feedback of all customers in the admin portal.
Test steps	Shows the all feedback of customer’s reviews according to services of order.
Test Results	Shows the all feedback of customers step by step according to tracking number, Rating, Review and Date.
Advantages	Shows all feedback of the customer.
Disadvantages	Checking only when database connection



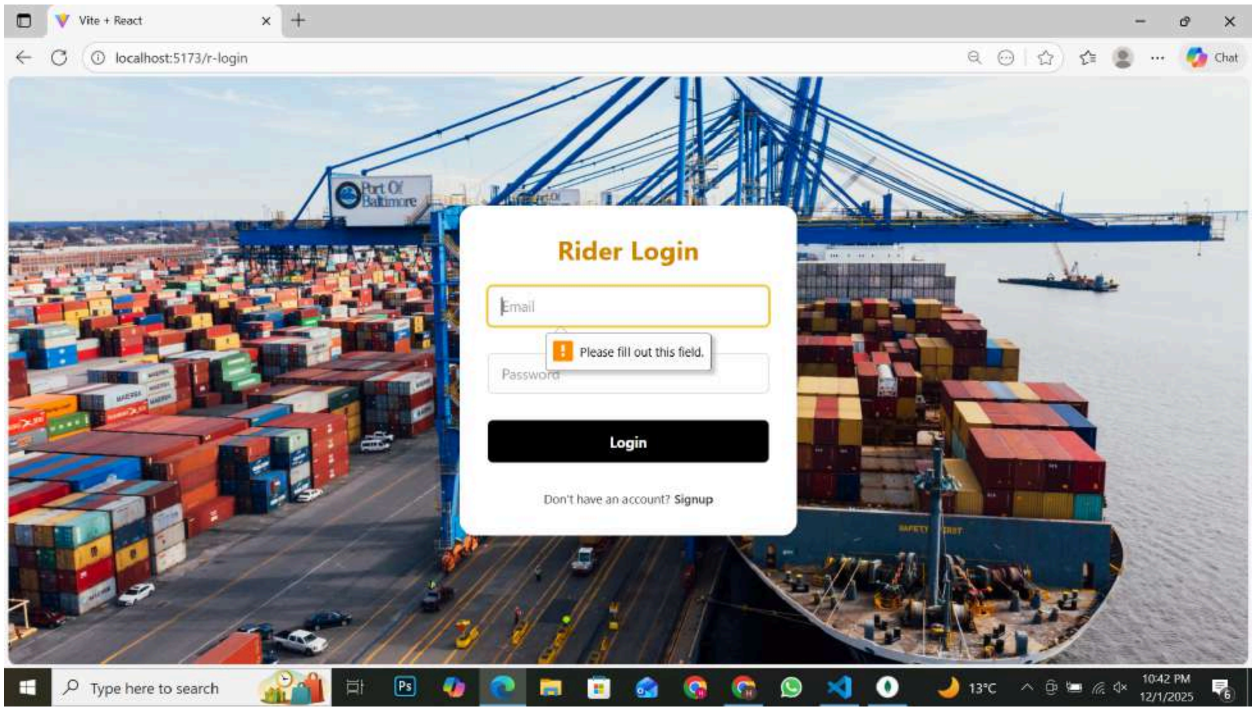
All Feedbacks

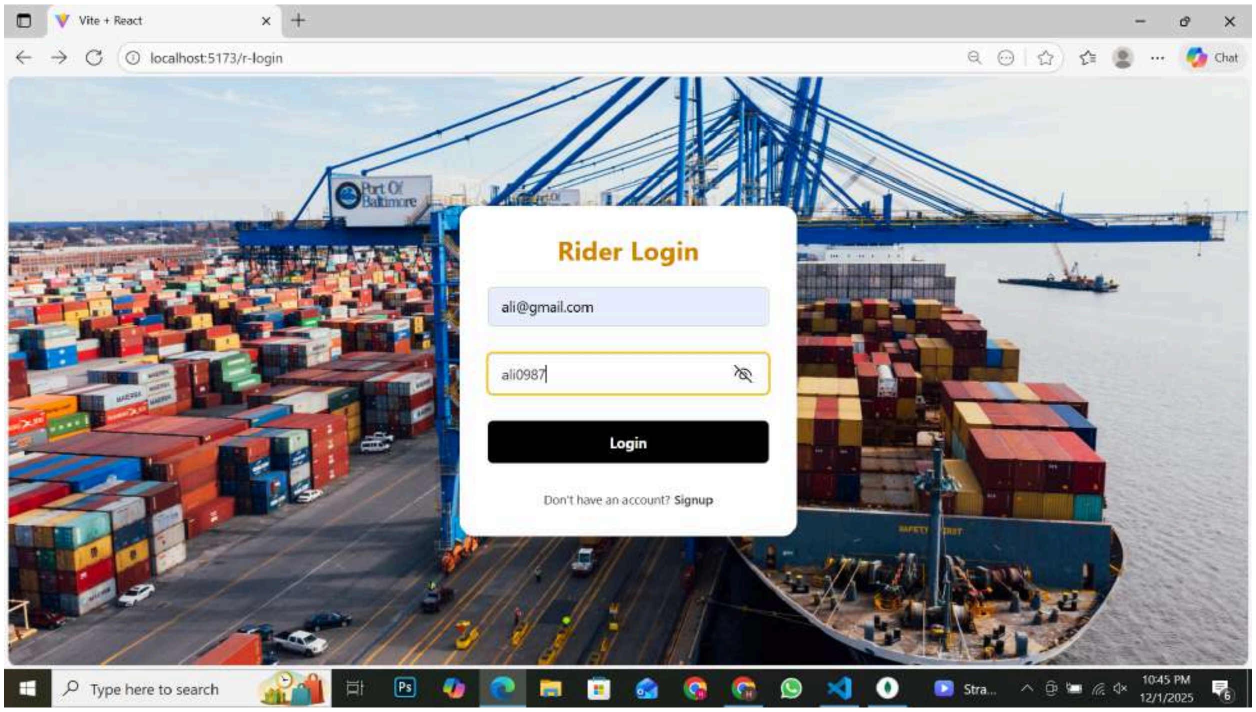
Tracking #	Rating	Review	Date
1766899287142219234	5	Good services	14/01/2026, 9:57:13 pm
1766859791372864772	5	Excellent	27/12/2025, 11:33:26 pm
1766859245531216547	4	Good service	27/12/2025, 11:21:52 pm
1766853277024400730	3	Average services, improve it	27/12/2025, 9:53:51 pm
1765557602841293872	4	Good services	12/12/2025, 9:49:17 pm
1765474386992999128	5	Very Great Services, Impressive	11/12/2025, 10:46:42 pm
1764436927285408393	1	Bad services	11/12/2025, 10:24:39 pm
1764491148805843152	4	good	11/12/2025, 3:30:37 pm
1764587484773312210	5	Very Impressive services	11/12/2025, 3:19:42 pm
1764609796844825859	2	Poor services improve it	11/12/2025, 12:18:38 pm
1764605009086546819	5	Excellent services	11/12/2025, 12:14:25 pm

Rider Side:

1: Authentication - Login

Test case ID	TC-1
Feature	Authentication
Sub-Feature	Login
Summary	Login with valid credentials
Test steps	. Open the website . Forward to Admin side . Forward to Rider side . Next to Login Page . Enter the valid credentials
Test Results	If valid then successful, otherwise forward to Signup page
Advantages	Security on rider side for invalid credentials
Disadvantages	Checking only when database connection

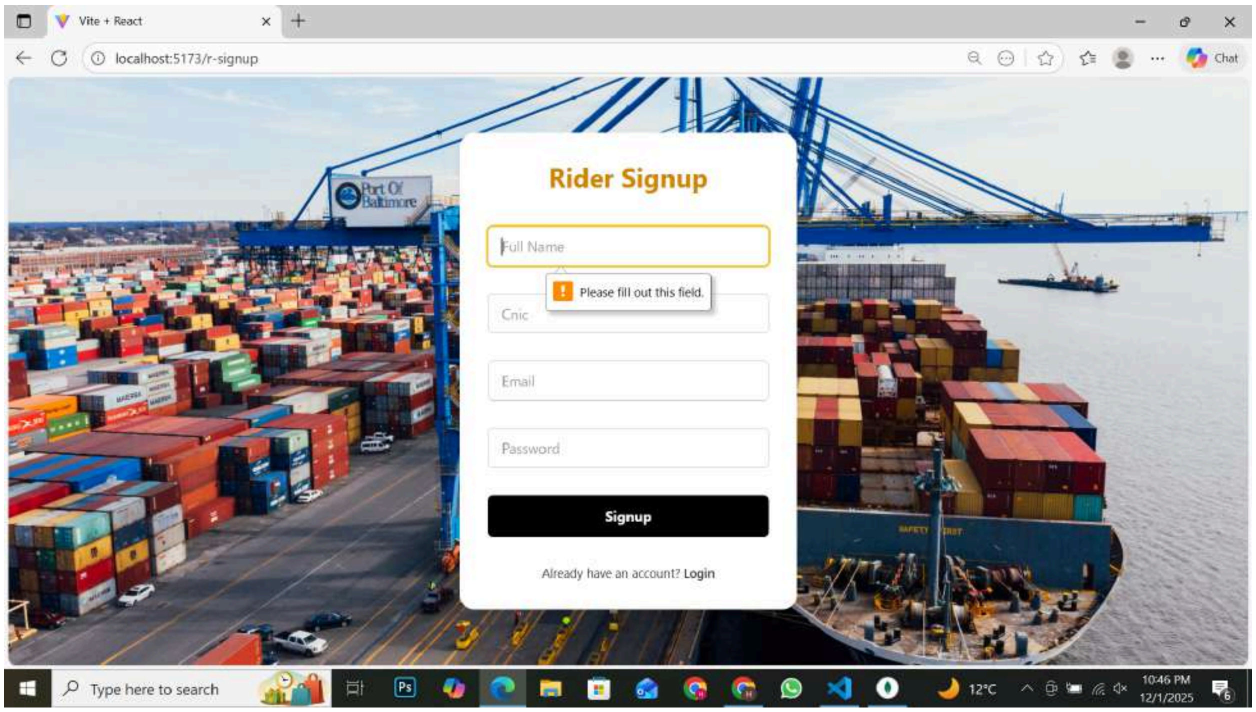


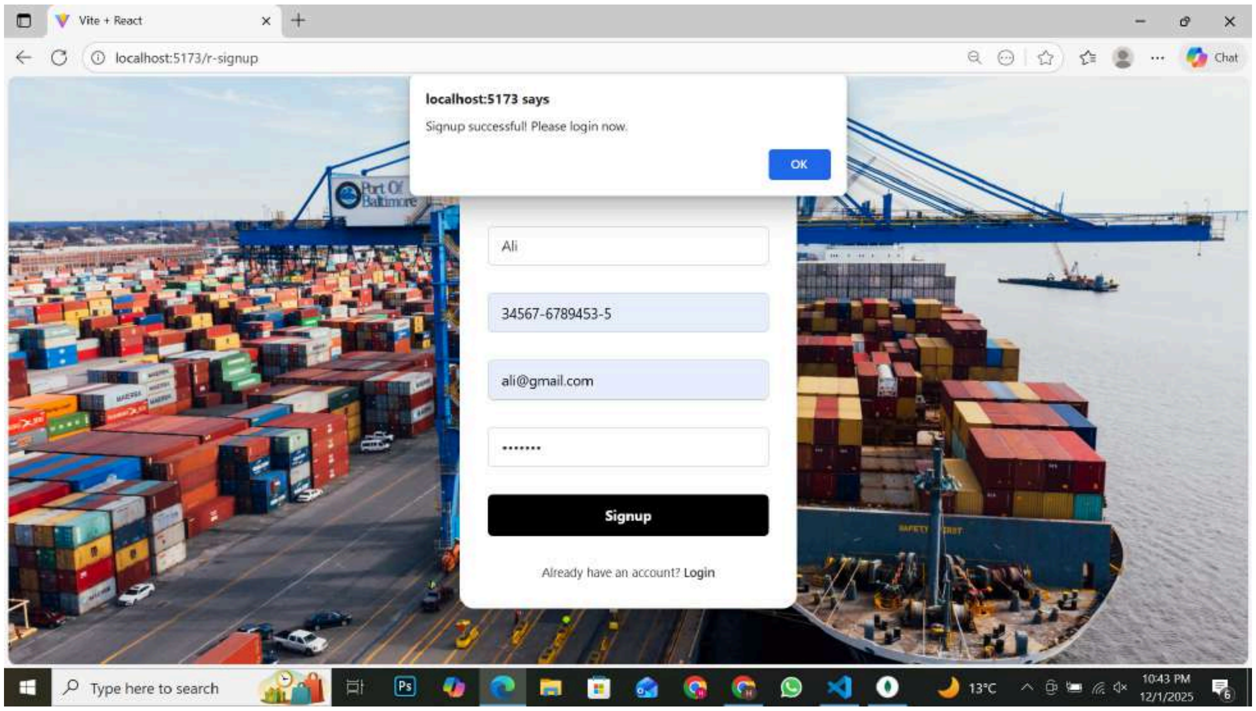


1: Authentication - Signup

Test case ID	TC-2
Feature	Authentication

Sub-Feature	Signup
Summary	Enter valid credentials
Test steps	. Open the website . Forward to Admin side . Forward to Rider side . If login failed, then move to signup page . Enter valid credentials
Test Results	If valid then successful, otherwise re-enter
Advantages	Information of new rider in rider section and save in database
Disadvantages	Checking only when database connection





localhost:5173 says

Signup successful! Please login now.

Ali

34567-6789453-5

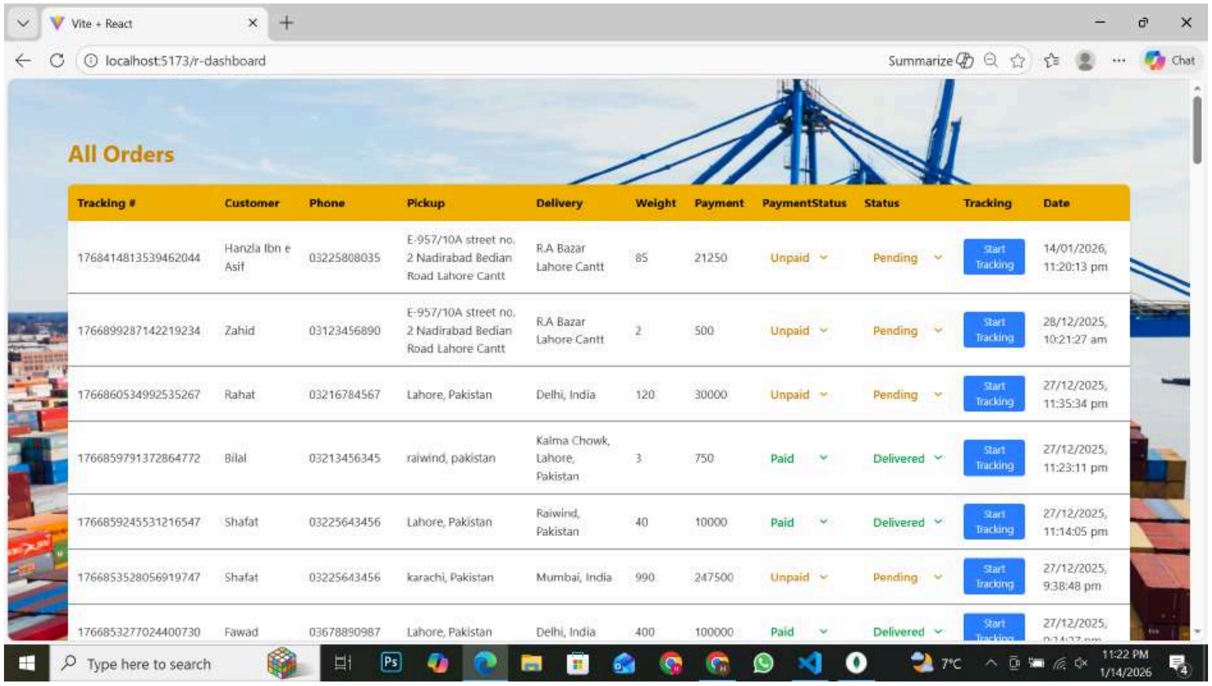
ali@gmail.com

•••••••

Already have an account? Login

2: Show Orders

Test case ID	TC-3
Feature	Show Orders
Summary	Show all the orders on rider dashboard
Test steps	Show the new orders and previously orders to show the total orders or deliver and pending of orders on rider portal
Test Results	Show the orders in step by step, e.g new order is on first and other second or third later on
Advantages	Show all information of Order
Disadvantages	Checking only when database connection

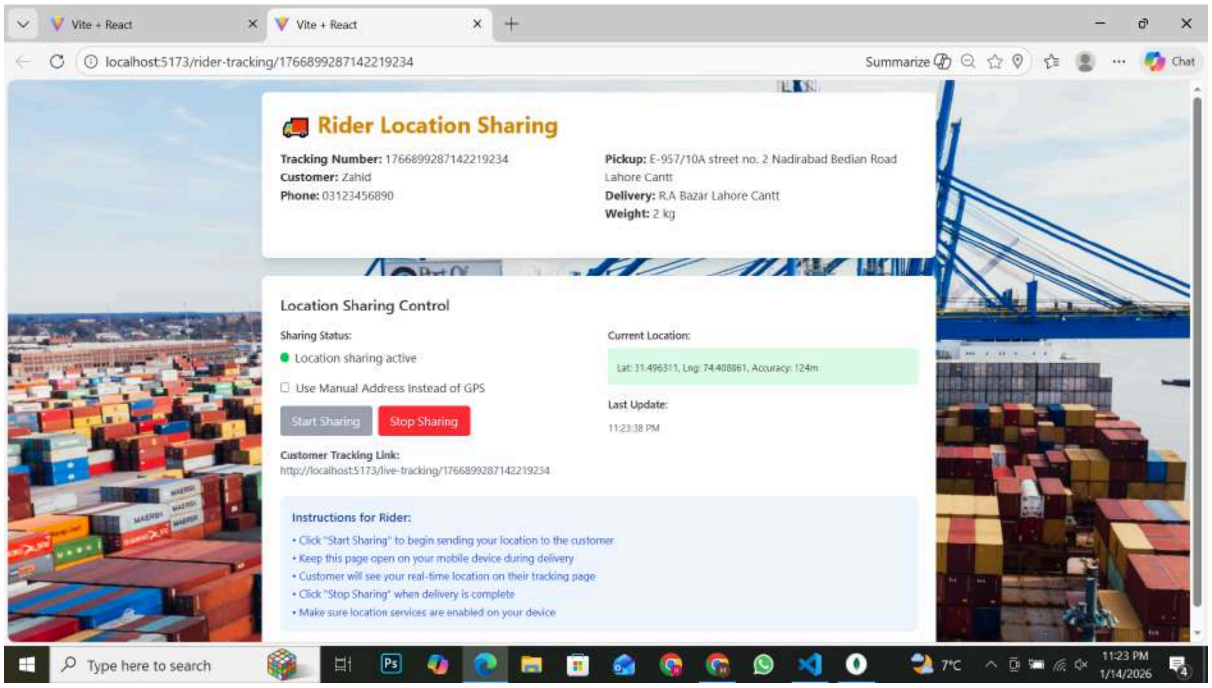


All Orders

Tracking #	Customer	Phone	Pickup	Delivery	Weight	Payment	PaymentStatus	Status	Tracking	Date
1768414813539462044	Hanzla Ibn e Asif	03225808035	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	85	21250	Unpaid	Pending	Start Tracking	14/01/2026, 11:20:13 pm
1766899287142219234	Zahid	03123456890	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	2	500	Unpaid	Pending	Start Tracking	28/12/2025, 10:21:27 am
1766860534992535267	Rahat	03216784567	Lahore, Pakistan	Delhi, India	120	30000	Unpaid	Pending	Start Tracking	27/12/2025, 11:35:34 pm
1766859791372864772	Bilal	03213456345	raiwind, pakistan	Kalma Chowk, Lahore, Pakistan	3	750	Paid	Delivered	Start Tracking	27/12/2025, 11:23:11 pm
1766859245531216547	Shafat	03225643456	Lahore, Pakistan	Raiwind, Pakistan	40	10000	Paid	Delivered	Start Tracking	27/12/2025, 11:14:05 pm
1766853528056919747	Shafat	03225643456	karachi, Pakistan	Mumbai, India	990	247500	Unpaid	Pending	Start Tracking	27/12/2025, 9:38:48 pm
1766853277024400730	Fawad	03678890987	Lahore, Pakistan	Delhi, India	400	100000	Paid	Delivered	Start Tracking	27/12/2025,

3: Show Tracking on Map Location

Test case ID	TC-4
Feature	Show Tracking on Map Location
Summary	Shows the tracking on map location on user portal.
Test steps	First start tracking and then share the location on the user portal and location change after 5 to 10 sec.
Test Results	Shows the live location and also shows the point given location on map.
Advantages	Shows all the locations on map.
Disadvantages	Checking only when database connection



localhost:5173/rider-tracking/1766899287142219234

Rider Location Sharing

Tracking Number: 1766899287142219234
Customer: Zahid
Phone: 03123456890

Pickup: E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt
Delivery: R.A Bazar Lahore Cantt
Weight: 2 kg

Location Sharing Control

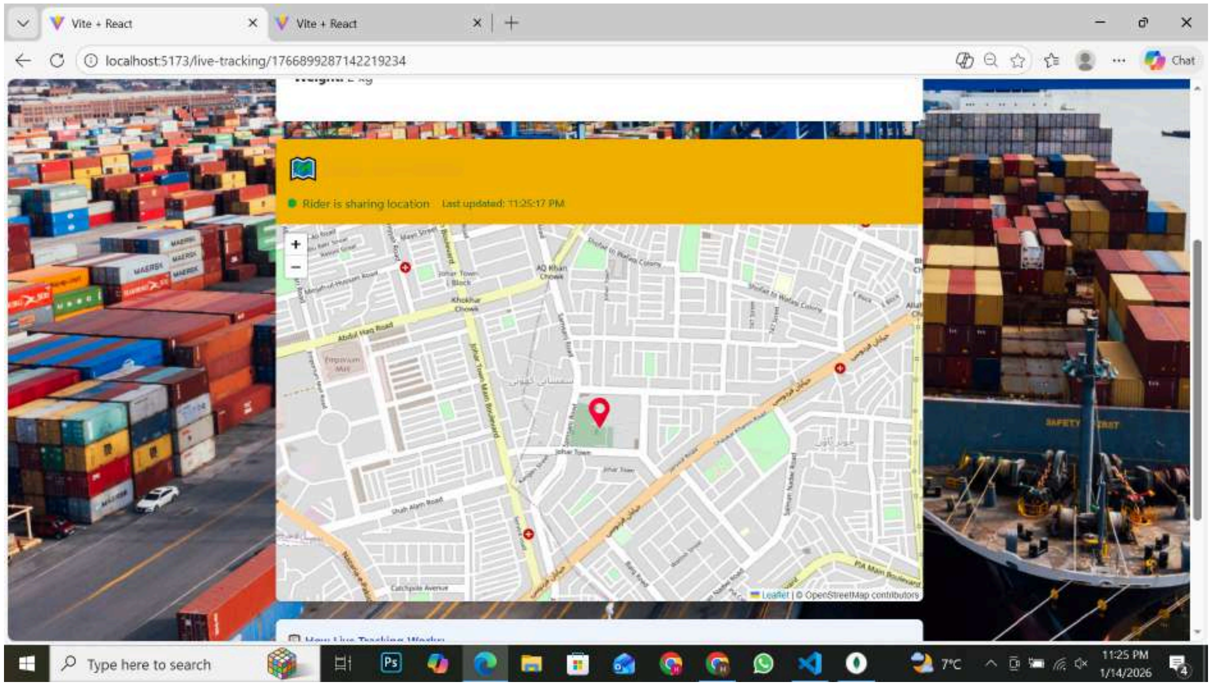
Sharing Status:
● Location sharing active
☐ Use Manual Address Instead of GPS

Current Location:
Lat: 31.496311, Lng: 74.408861, Accuracy: 124m

Last Update:
11:23:38 PM

Customer Tracking Link:
http://localhost:5173/live-tracking/1766899287142219234

Instructions for Rider:
- Click "Start Sharing" to begin sending your location to the customer
- Keep this page open on your mobile device during delivery
- Customer will see your real-time location on their tracking page
- Click "Stop Sharing" when delivery is complete
- Make sure location services are enabled on your device



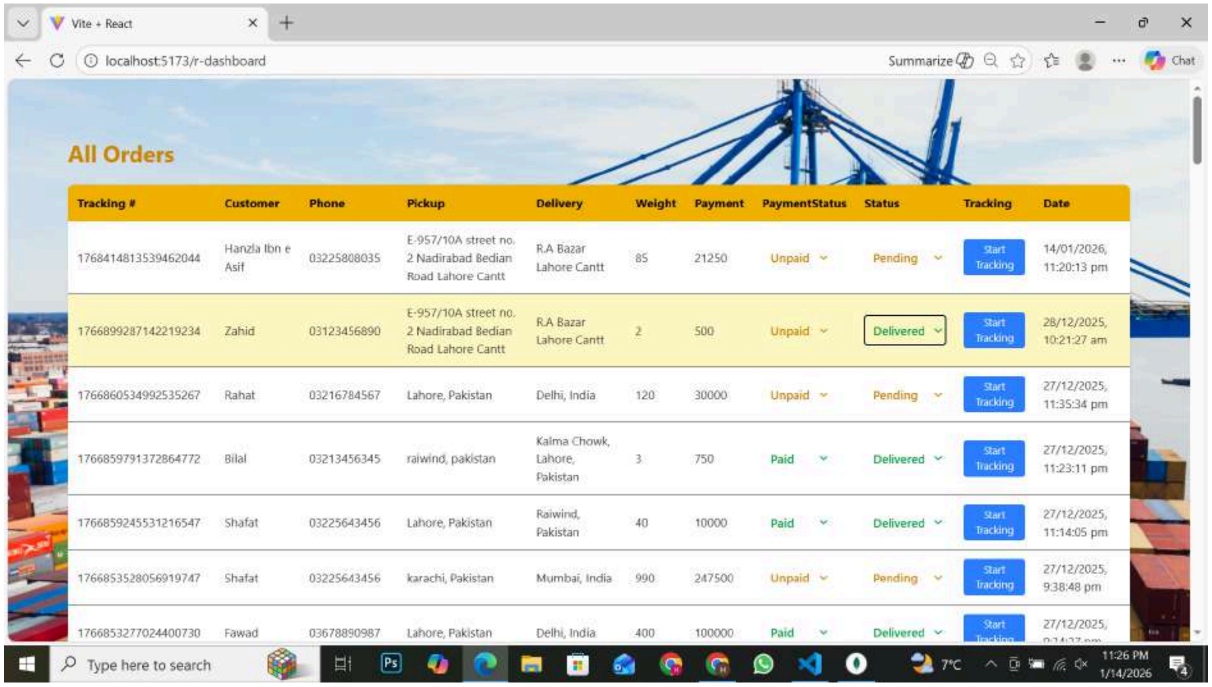
localhost:5173/live-tracking/1766899287142219234

● Rider is sharing location   Last updated: 11:25:17 PM

4: Status Change

Test case ID	TC-5
Feature	Status Change
Summary	Rider change the status of order

Test steps	Rider change the status of order, after deliver the order he may change into order pending to delivered
Test Results	After change the status pending to delivered it may change into all sides
Advantages	Status change on all sides like admin side, user side and on database
Disadvantages	Checking only when database connection



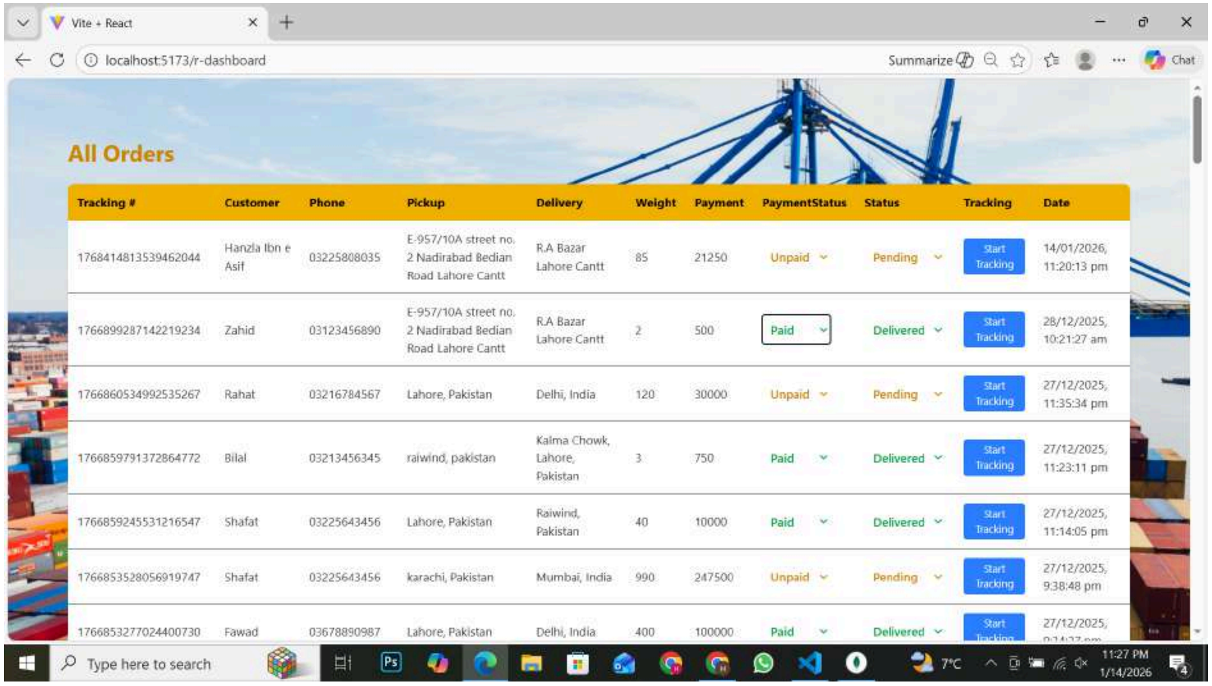
All Orders

Tracking #	Customer	Phone	Pickup	Delivery	Weight	Payment	PaymentStatus	Status	Tracking	Date
1768414813539462044	Hanzla Ibn e Asif	03225808035	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	85	21250	Unpaid	Pending	Start Tracking	14/01/2026, 11:20:13 pm
1766899287142219234	Zahid	03123456890	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	2	500	Unpaid	Delivered	Start Tracking	28/12/2025, 10:21:27 am
1766860534992535267	Rahat	03216784567	Lahore, Pakistan	Delhi, India	120	30000	Unpaid	Pending	Start Tracking	27/12/2025, 11:35:34 pm
1766859791372864772	Bilal	03213456345	raiwind, pakistan	Kalma Chowk, Lahore, Pakistan	3	750	Paid	Delivered	Start Tracking	27/12/2025, 11:23:11 pm
1766859245531216547	Shafat	03225643456	Lahore, Pakistan	Raiwind, Pakistan	40	10000	Paid	Delivered	Start Tracking	27/12/2025, 11:14:05 pm
1766853528056919747	Shafat	03225643456	karachi, Pakistan	Mumbai, India	990	247500	Unpaid	Pending	Start Tracking	27/12/2025, 9:38:48 pm
1766853277024400730	Fawad	03678890987	Lahore, Pakistan	Delhi, India	400	100000	Paid	Delivered	Start Tracking	27/12/2025,

5: Change Payment Method

Test case ID	TC-6
Feature	Change Payment method
Summary	Rider change the payment method
Test steps	Rider change the payment method, when user pay the cost of order rider change into payment to paid

Test Results	After change the payment method the payment is paid to user's side
Advantages	Due payment change method it confirm the order is fully completed
Disadvantages	Checking only when database connection



All Orders

Tracking #	Customer	Phone	Pickup	Delivery	Weight	Payment	PaymentStatus	Status	Tracking	Date
1768414813539462044	Hanzla Ibn e Asif	03225808035	E-957/10A street no. 2 Nadirabad Bedian Road Lahore Cantt	R.A Bazar Lahore Cantt	85	21250	Unpaid	Pending	Start Tracking	14/01/2026, 11:20:13 pm
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Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1: Project Summary

Courier360 is a modern courier management platform designed to streamline logistics operations for small and medium-sized businesses. It provides an all-in-one solution for parcel booking, real-time tracking, hub management, and delivery verification. The system introduces unique features such as gamified delivery tracking, QR-based parcel verification, split delivery options, and community pickup points. Built on the MERN stack, Courier360 ensures scalability, performance, and ease of use. The platform improves transparency, customer engagement, and operational efficiency. Overall, Courier360 offers a smarter and more flexible alternative to traditional courier systems.

7.2: Achievements and Improvements

Courier360 successfully achieved the development of a unified courier management platform that integrates booking, tracking, hub coordination, and delivery verification in one system. The project introduced innovative features such as gamified delivery tracking, QR-based parcel verification, and community pickup points, enhancing user engagement and security. Real-time tracking and automated notifications improved transparency for both customers and businesses. The system demonstrated improved efficiency compared to traditional courier platforms by reducing manual processes. Performance, usability, and reliability were enhanced through structured testing and evaluation. Overall, Courier360 represents a significant improvement in providing a flexible, scalable, and customer-focused courier solution.

7.3: Critical Review

Courier360 presents a strong and innovative approach to courier management by combining multiple logistics functions into a single platform. The project effectively addresses common limitations of traditional courier systems, such as lack of transparency and limited customer interaction. However, the platform's success depends on reliable internet connectivity and accurate GPS data, which may vary in different regions. Initial onboarding of users and riders may require training to fully utilize advanced features. While scalability is supported by the MERN stack, real-world performance under heavy load will need continuous monitoring. Overall, Courier360 is a well-designed system with high potential, requiring ongoing optimization and user adoption strategies.

7.4: Lessons Learnt

During the development of Courier360, we learned the importance of understanding real-world logistics workflows before designing technical solutions. Proper requirement analysis helped in avoiding feature overlap and unnecessary complexity. The project highlighted how user-friendly design greatly improves adoption for small businesses and customers. Team coordination and version control were essential to manage changes efficiently throughout development. We also learned that testing at each stage reduces errors and improves system reliability. Overall, the project strengthened our skills in full-stack development, system planning, and problem-solving in a practical domain.

7.5: Future Enhancements/Recommendations

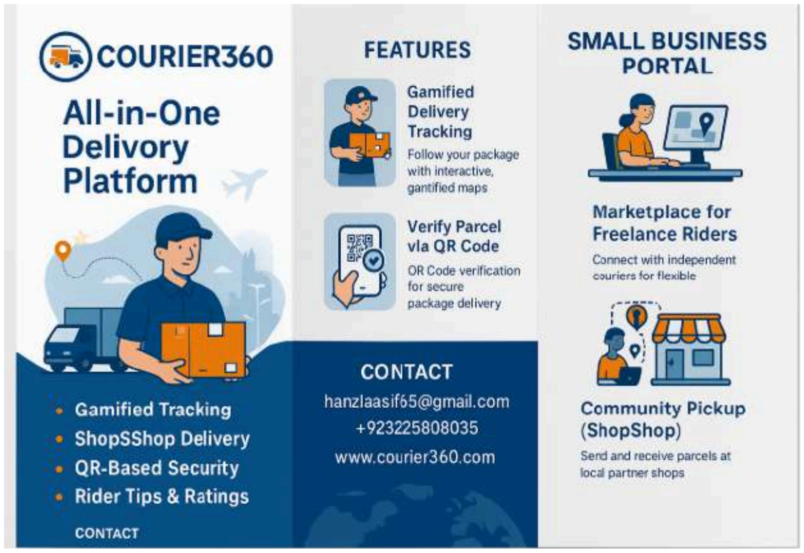
In the future, Courier360 can be enhanced by integrating advanced analytics to predict delivery delays and optimize operations further. Mobile applications for customers and riders can be introduced to improve accessibility and real-time interaction. Integration with digital payment gateways and banking systems would streamline transactions for businesses. The platform can also expand to support international shipping and multi-currency handling. Adding multilingual support will help reach a wider user base. Continuous performance optimization and security enhancements are recommended as the platform scales.

Appendices

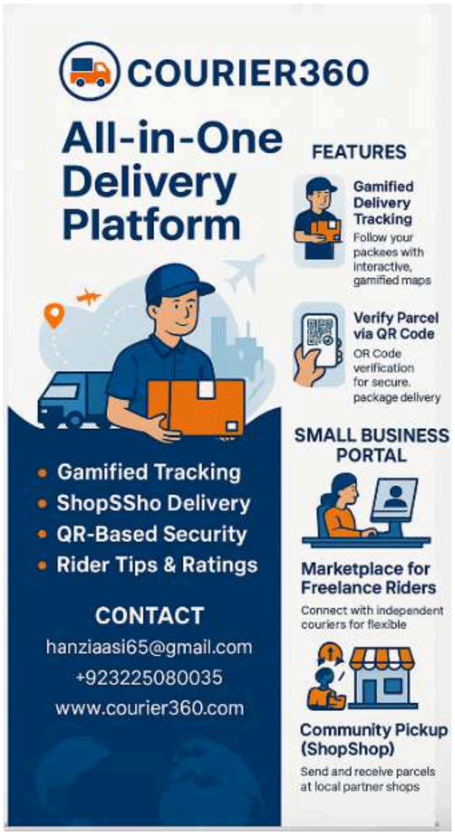
Appendix A: Information / Promotional Material

This appendix provides a collection of the visual marketing and informational content developed to promote the Courier360 platform. It includes key promotional materials such as a brochure, flyer, standee, and banner—all designed to highlight the platform's features, benefits, and user value. These materials are intended for use in exhibitions, tech fairs, academic showcases, or business meetings. Each item reflects the brand identity of Courier360 and communicates its core offerings in a clear and engaging manner.

1.1. Brochure


COURIER360
All-in-One Delivery Platform
Gamified Tracking
ShopSShop Delivery
QR-Based Security
Rider Tips & Ratings
CONTACT
FEATURES
Gamified Delivery Tracking
Follow your package with interactive, gantified maps
Verify Parcel vla QR Code
OR Code verification for secure package delivery
CONTACT
hanzlaasif65@gmail.com
+923225808035
www.courier360.com
SMALL BUSINESS PORTAL
Marketplace for Freelance Riders
Connect with independent couriers for flexible
Community Pickup (ShopShop)
Send and receive parcels at local partner shops

1.2. Flyer



COURIER360

All-in-One Delivery Platform

- Gamified Tracking
- ShopSSho Delivery
- QR-Based Security
- Rider Tips & Ratings

CONTACT

hanziaasi65@gmail.com

+923225080035

www.courier360.com

FEATURES

Gamified Delivery Tracking

Follow your packees with interactive, gamified maps

Verify Parcel via QR Code

OR Code verification for secure. package delivery

SMALL BUSINESS PORTAL

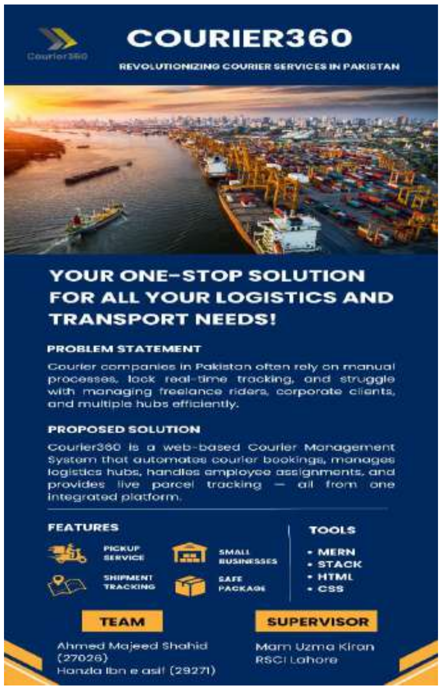
Marketplace for Freelance Riders

Connect with independent couriers for flexible

Community Pickup (ShopShop)

Send and receive parcels at local partner shops

1.3. Standee



COURIER360

REVOLUTIONIZING COURIER SERVICES IN PAKISTAN

YOUR ONE-STOP SOLUTION FOR ALL YOUR LOGISTICS AND TRANSPORT NEEDS!

PROBLEM STATEMENT

Courier companies in Pakistan often rely on manual processes, lack real-time tracking, and struggle with managing freelance riders, corporate clients, and multiple hubs efficiently.

PROPOSED SOLUTION

Courier360 is a web-based Courier Management System that automates courier bookings, manages logistics hubs, handles employee assignments, and provides live parcel tracking — all from one integrated platform.

FEATURES

PICKUP SERVICE

SMALL BUSINESSES

SHIPMENT TRACKING

SAFE PACKAGE

TOOLS

- MERN
- STACK
- HTML
- CSS

TEAM

Ahmed Majeed Shahid (27026)

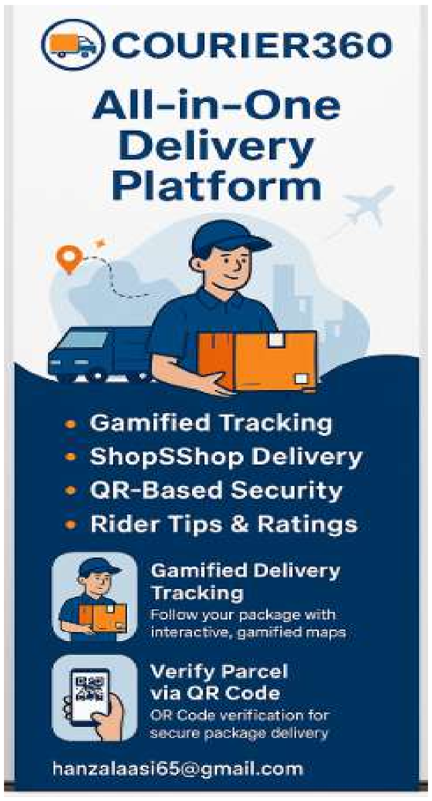
Hanzla Ibn e asif (29271)

SUPERVISOR

Mam Uzma Kiran

RSCI Lahore

1.4. Banner


COURIER360
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• QR-Based Security
• Rider Tips & Ratings
Gamified Delivery Tracking
Follow your package with interactive, gamified maps
Verify Parcel via QR Code
QR Code verification for secure package delivery
hanzalaasi65@gmail.com

1.5. First Level heading, Courier360 Promotion Strategy:

Courier360's promotional materials are designed to target small businesses, tech-savvy users, and logistics partners. The visual tone is modern, clean, and engaging. All marketing content was designed in Figma and exported for digital and print use. Materials are optimized for clarity and quick communication of value.

1.5.1. Second level heading, Key Objectives:

The main objectives of the promotional materials are to:

> Create brand awareness

> Educate users on unique features

> Attract early adopters and testers

> Generate traffic to the platform

A.1.1: Third level heading, Design Consistency:

All designs follow a consistent theme of Courier360’s color palette (blue, white, and grey), use clear typography, and maintain a modern tech-based layout. Logos, icons, and screenshots are used effectively to enhance message clarity.

Appendix B: Testing Reports:

This appendix contains summaries and results of the testing phases conducted during Courier360's development. It includes unit tests, integration tests, and user acceptance testing (UAT). The goal of this appendix is to demonstrate the reliability, stability, and readiness of the Courier360 system.

B.1: First Level heading, Unit Testing:

Each module was tested individually using Jest (for Node.js) and component testing libraries in React. All core functions—like tracking, booking, QR verification, and login—were verified for correctness and performance.

B.1.1: Second level heading, Integration Testing:

API endpoints and database interactions were tested using Postman and automated scripts. Mock data and test accounts were used to simulate full user flows and ensure that components worked together as expected.

B.1.2: Third level heading, UAT Results:

A small group of beta users tested the Courier360 system and provided feedback. The system passed all critical use cases with minor UX suggestions, which were noted and resolved before deployment.

Reference and Bibliography

Reference and Bibliography

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6: Node.js & Express.js Documentation – *nodejs.org*, *expressjs.com*.
7: IEEE. *IEEE 830 / IEEE 29148 – Software Requirements Specification Standards*.
8: Research articles and case studies on courier and logistics management systems.