Online Food Delivery

CSI1007 – Software Engineering Principles Laboratory

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Online Food Delivery

DESCRIPTION:

To develop and launch a user-friendly and scalable online food delivery platform that enables restaurants to expand their customer base and customers to enjoy convenient online ordering and table reservations. The platform will provide a seamless delivery experience with secure payment processing and efficient order management, ensuring satisfaction for both customers and restaurant partners.
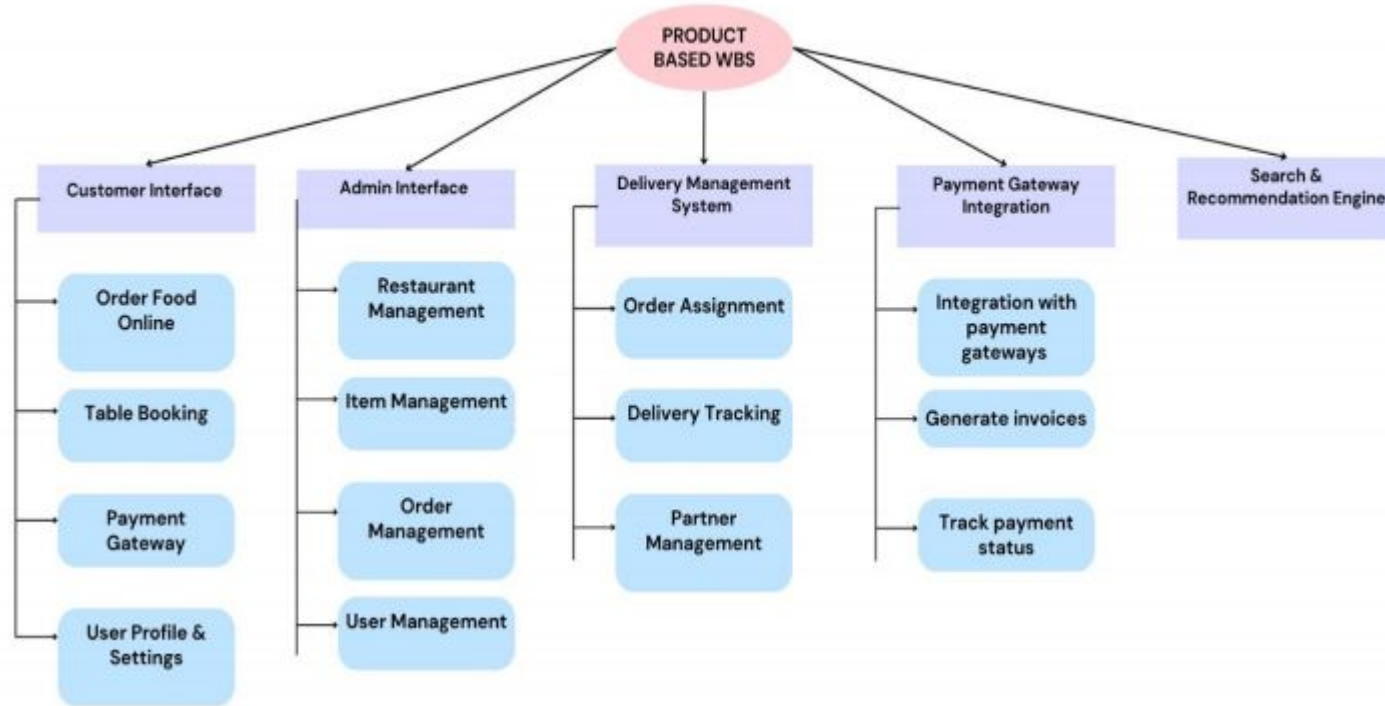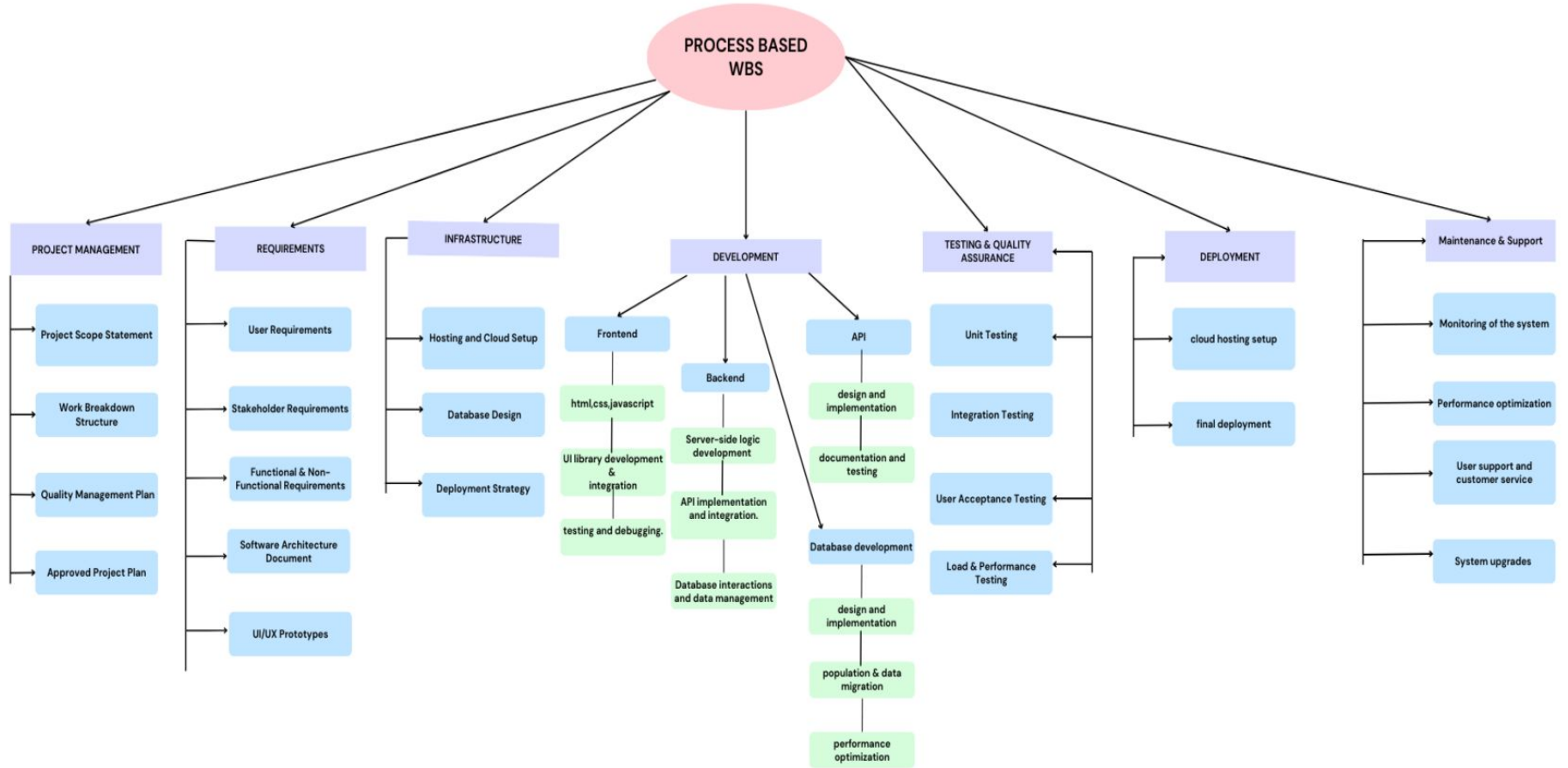
Scope:

The scope of a food delivery website includes user registration, restaurant listings, search and filters, order placement, and real-time tracking. It integrates secure payment options, promotions, and discounts while providing effective customer support. The platform ensures scalability, supports multiple restaurants, and offers an admin dashboard for managing users, orders, and analytics, delivering convenience and efficiency for all stakeholders.

Impact :

The project boosts restaurant revenue, creates new income streams, enhances customer satisfaction, and improves order management efficiency. Socially, it generates jobs for delivery partners and supports local businesses. Technologically, it promotes online ordering and delivery systems, fostering innovation in the food service industry and driving the adoption of advanced technologies for seamless operations and customer convenience.

Work Breakdown Structure

PROCESS BASED WBS

PROJECT MANAGEMENT
- Project Scope Statement
- Work Breakdown Structure
- Quality Management Plan
- Approved Project Plan

REQUIREMENTS
- User Requirements
- Stakeholder Requirements
- Functional & Non-Functional Requirements
- Software Architecture Document
- UI/UX Prototypes

INFRASTRUCTURE
- Hosting and Cloud Setup
- Database Design
- Deployment Strategy

DEVELOPMENT
- Frontend
  - html,css,javascript
  - UI library development & integration
  - testing and debugging.
- Backend
  - Server-side logic development
  - API implementation and integration.
  - Database interactions and data management
- API
  - design and implementation
  - documentation and testing
- Database development
  - design and implementation
  - population & data migration
  - performance optimization

TESTING & QUALITY ASSURANCE
- Unit Testing
- Integration Testing
- User Acceptance Testing
- Load & Performance Testing

DEPLOYMENT
- cloud hosting setup
- final deployment

Maintenance & Support
- Monitoring of the system
- Performance optimization
- User support and customer service
- System upgrades

Functional Requirements:

1. **User and Restaurant Management:** Support user registration, login, profile management, and restaurant menu updates.

2. **Search and Order Placement:** Enable searching for restaurants or dishes, applying filters, and placing orders with customization options.

3. **Table Reservations and Delivery:** Provide table booking and real-time order tracking for delivery or pickup.

4. **Secure Payment Processing:** Offer multiple payment methods with detailed order summaries and confirmations.

5. **Reviews and Notifications:** Allow users to rate restaurants, write reviews, and receive notifications for updates or promotions.

6. **Admin Panel and Support:** Provide an admin dashboard for system management and customer support for issue resolution.

Nonfunctional Requirements

5.1 Performance Requirements

The system must process up to 1,000 orders per second with minimal delays,

ensuring fast order processing and quick response times even during peak traffic.

5.2 Safety Requirements

Ensure customer data privacy: Customer information (e.g., name, address, payment

details) must be securely stored and only accessible by authorized personnel,

following privacy standards like GDPR.

5.3 Security Requirements

Use HTTPS for all communications:

All data exchanged between the system and users must be encrypted using HTTPS to

protect against unauthorized access or tampering.

5.4 Software Quality Attributes
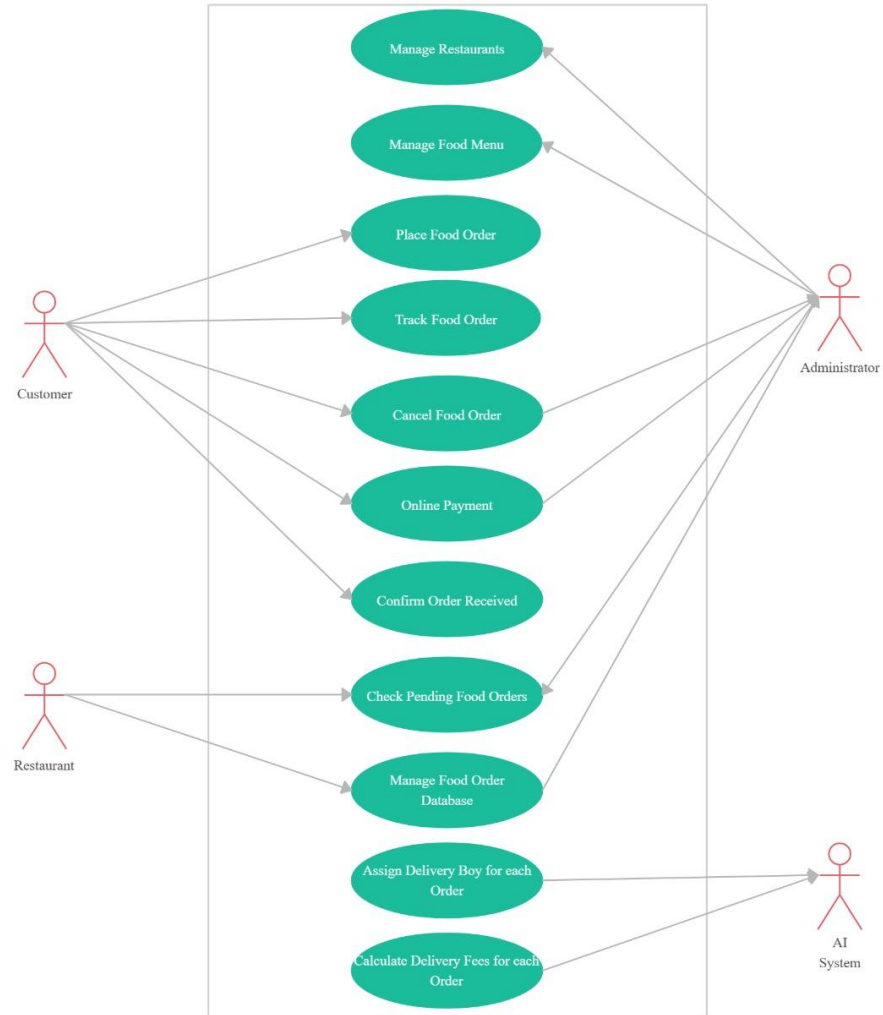
Usability: Simple navigation:

The system must have an easy-to-use interface with clear menus and options,

allowing users to complete tasks quickly without confusion.
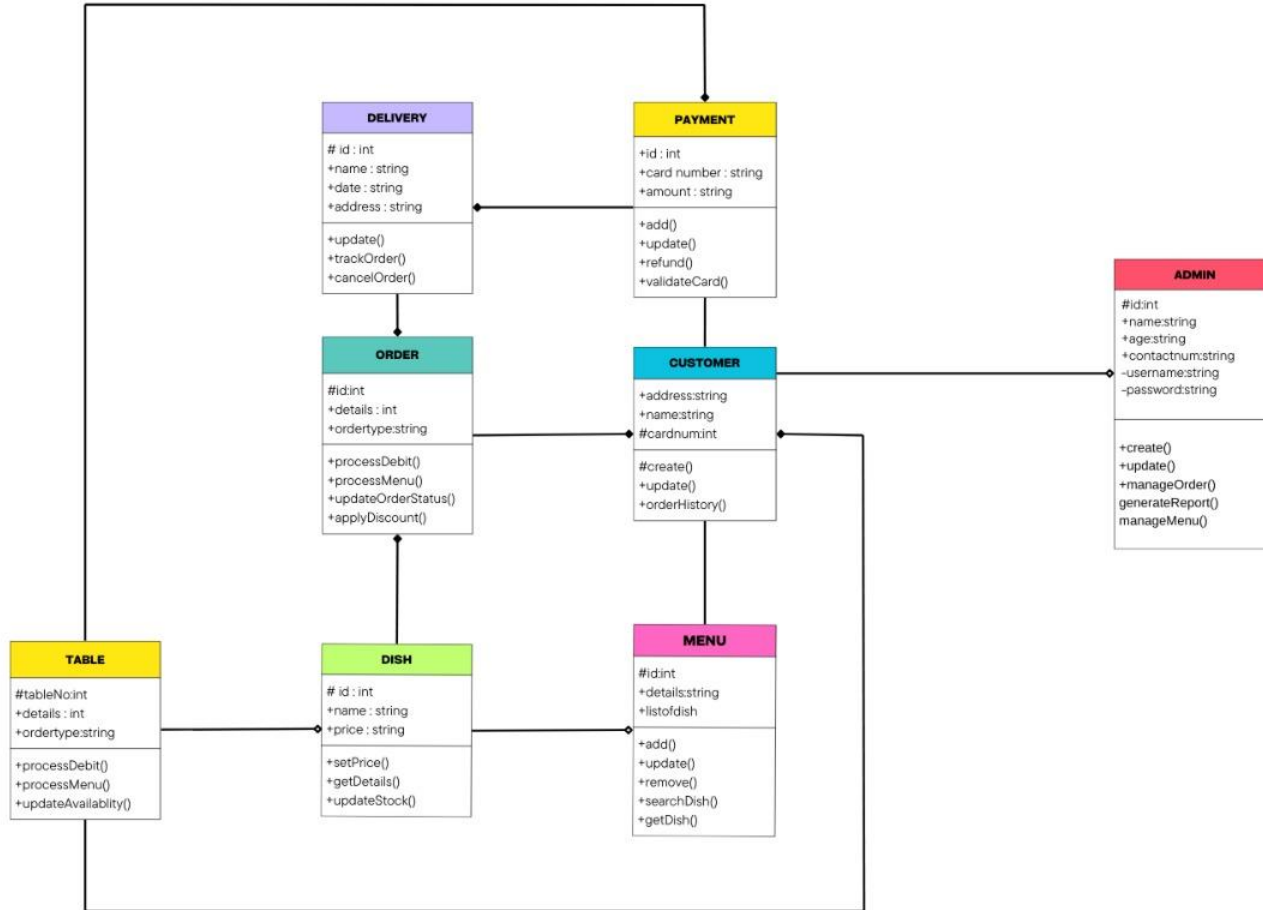
UML - Diagrams

1. Use case diagram
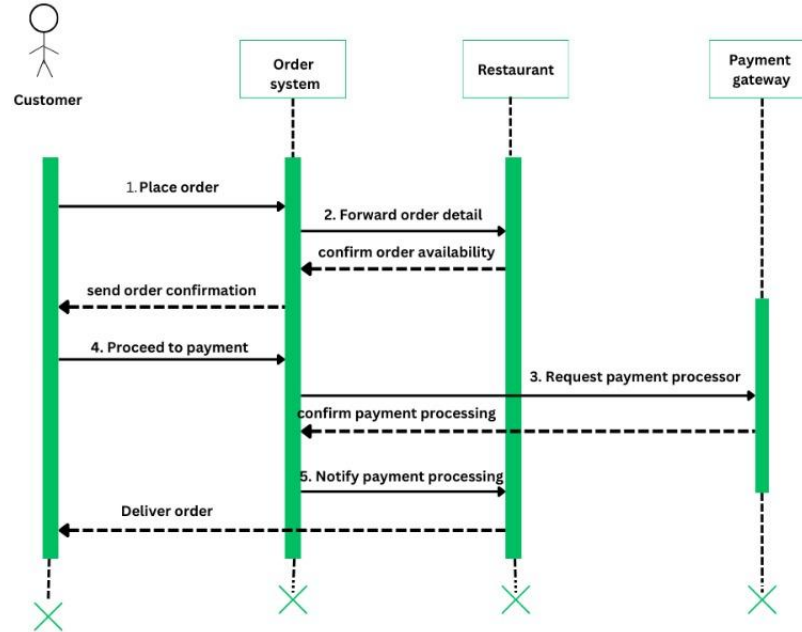2. Class diagram
3. Sequence diagram

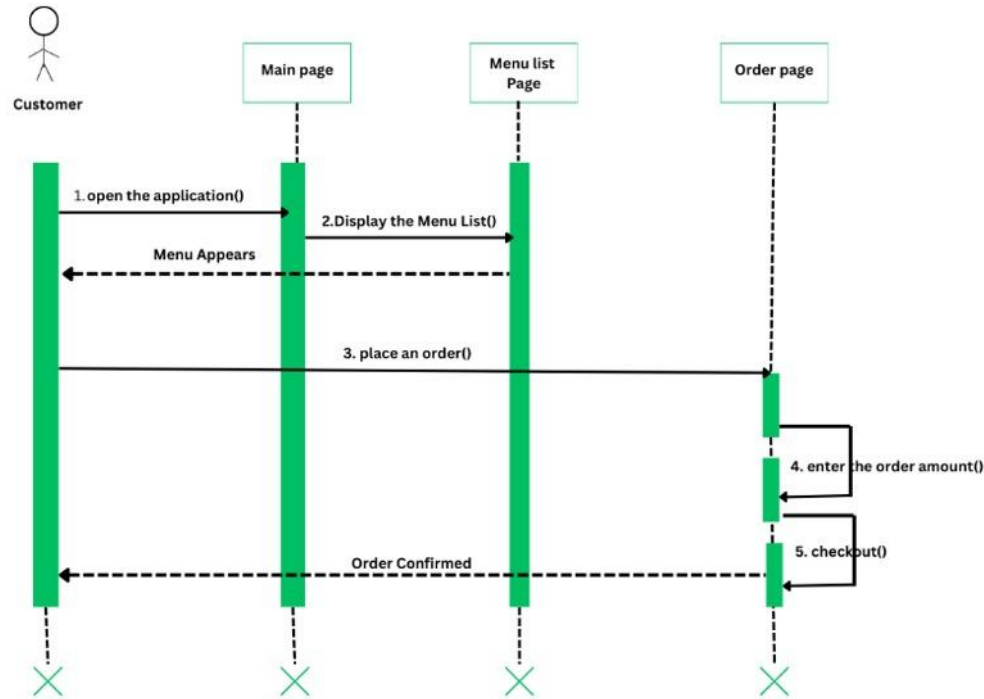Business Use Case Diagram for Food Delivery System

CLASS DIAGRAM

DELIVERY

\# id : int
+name : string
+date : string
+address : string

+update()
+trackOrder()
+cancelOrder()

PAYMENT

+id : int
+card number : string
+amount : string

+add()
+update()
+refund()
+validateCard()

ADMIN

\#id:int
+name:string
+age:string
+contactnum:string
–username:string
–password:string

+create()
+update()
+manageOrder()
generateReport()
manageMenu()

ORDER

\#id:int
+details : int
+ordertype:string

+processDebit()
+processMenu()
+updateOrderStatus()
+applyDiscount()

CUSTOMER

+address:string
+name:string
\#cardnum:int

\#create()
+update()
+orderHistory()

TABLE

\#tableNo:int
+details : int
+ordertype:string

+processDebit()
+processMenu()
+updateAvailablity()

DISH

\# id : int
+name : string
+price : string

+setPrice()
+getDetails()
+updateStock()

MENU

\#id:int
+details:string
+listofdish

+add()
+update()
+remove()
+searchDish()
+getDish()

Sequence diagram-payment process

Customer → Order system: 1. Place order
Order system → Restaurant: 2. Forward order detail
Restaurant ⇢ Order system: confirm order availability
Order system ⇢ Customer: send order confirmation
Customer → Order system: 4. Proceed to payment
Order system → Payment gateway: 3. Request payment processor
Payment gateway ⇢ Order system: confirm payment processing
Order system → Restaurant: 5. Notify payment processing
Restaurant ⇢ Customer: Deliver order

Sequence diagram-place an order

Comprehensive Test Case- Login / Registration

Test Scenario: Verify login and registration functionality with valid and invalid inputs.

Test Case Description: Ensure that the system allows new users to register successfully and existing users to log in with valid credentials while rejecting incorrect inputs.

Test Steps

Login Test Case

1. Open the login page.
2. Enter a username.
3. Enter a password.
4. Click the "Login" button.

Registration Test Case

1. Open the registration page.
2. Enter a new username.

1. Enter a valid email.
2. Enter a secure password.
3. Confirm the password.
4. Click the "Register" button.

Test Data

Valid Case (Login)

- **Username:** testuser
- **Password:** Pass@123

Invalid Case (Login)

- **Username:** wronguser
- **Password:** wrongpass

Valid Case (Registration)

- **Username:** newuser
- **Email:** newuser@example.com
- **Password:** Secure@123
- **Confirm Password:** Secure@123

Invalid Case (Registration)

- **Username:** (empty or less than required characters)
- **Email:** invalid-email-format
- **Password:** weakpassword
- **Confirm Password:** mismatchpassword

Test Expected Result

- **Login:**
  - If valid credentials are entered, the user should be redirected to the dashboard.
  - If invalid credentials are entered, an error message "Invalid Username or Password" should appear.
- **Registration:**
  - If valid details are entered, the system should successfully create an account and redirect the user to the login page.
  - If invalid details are entered, appropriate error messages should appear, such as:
    - "Invalid email format"
    - "Password must be at least 8 characters long"
    - "Passwords do not match"

Actual Result

- **Login:**
  - **Valid credentials:** Redirected to the dashboard.
  - **Invalid credentials:** Got an error message "Invalid Username or Password."
- **Registration:**
  - **Valid registration:** Account created successfully, redirected to login.
  - **Invalid registration:** Error messages displayed as expected.

Pass/Fail: Pass ✅

Comprehensive Test Case- Order Tracking

Test Case ID: TC002

Test Scenario: Verify the order tracking functionality for valid and invalid cases.

Test Case Description: Ensure that the system allows users to track their orders in real-time with accurate status updates and prevents unauthorized access to tracking details.

Test Steps

Valid Order Tracking Case:

1. Place an order successfully.
2. Navigate to the "Track Order" page.
3. Enter the valid order ID or access tracking from the order history.
4. Observe the real-time tracking status.

Invalid Order Tracking Case:

1. Navigate to the "Track Order" page.
2. Enter an invalid order ID.
3. Check if the system handles invalid input correctly.

Network Failure Case:

1. Open the "Track Order" page.
2. Disconnect from the internet.
3. Refresh the page and check the system behavior.

Test Data

Valid Case:

- **Order ID:** 12345 (Existing valid order)

Invalid Case:

- **Order ID:** 99999 (Non-existent order)

Network Failure Case:

Disconnect internet while tracking the order.

Test Expected Result

- **Valid Order:**
  - The order tracking page should display real-time updates (e.g., "Preparing", "Out for Delivery", "Delivered").
  - The map should show the delivery partner's live location.
- **Invalid Order:**
  - An error message "Order Not Found" should appear.
- **Network Failure:**
  - A message like "No Internet Connection. Please try again later." should appear.

Actual Result

- **Valid Order:** Order status updates correctly, and the map displays the real-time location.
- **Invalid Order:** Displays "Order Not Found" error message.
- **Network Failure:** Shows a "No Internet Connection" message.

Pass/Fail: Pass ✅

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Menu
Our Special Dishes

| All | Taco | Burrito | Nachos | Sides | Dessert | **Drink** |

Status

Best Seller

Online Only

Sale Off

Seasonal Dishes

New Dishes

Price

$2 - $5

$5 - $10

$10 - $12

> $12

< $2

Type

Margarita

⭐⭐⭐⭐⭐ (999)

01 Glass Per Serving

$5

Add to cart

Michelada

⭐⭐⭐⭐⭐ (999)

01 Glass Per Serving

$5

Add to cart

Paloma

⭐⭐⭐⭐⭐ (599)

01 Glass Per Serving

$5

Add to cart

Hello Admin!

Dashboard
My Store
Analytics
Messages
Team
Manage Menu

Settings
Logout

Bill Id	User Id	Phone	Address	When	Paid	Total	Status	Action
3	1	8887014665	Vellore Vit	2025-03-24T15:08	False	$20	Delivering	Delivered
2	1	8887014665	Vellore	2025-03-21T21:02	False	$39	Confirmed	Preparing Cancel