

# HiFi DELIVERY EATS

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# 1. Introduction

In today's fast-paced world, finding time to enjoy a meal at a restaurant is becoming increasingly difficult. With the rise of food delivery services, people have found a more convenient way to enjoy their favorite meals at home. However, many of these services lack the quality and experience offered by fine dining establishments. HiFi Delivery Eats aims to change that by providing a platform that delivers gourmet meals directly to customers, combining convenience with a high-quality dining experience without the need to leave home.

The HiFi Delivery Eats platform connects customers, restaurants, and delivery agents, creating an efficient and user-friendly system. It allows customers to browse restaurant menus, place orders, and track deliveries in real-time. Restaurant admins benefit from tools to manage menus, analyze sales, and monitor customer feedback, while delivery agents can easily track and update the status of their assigned orders. This seamless integration ensures a smooth, timely delivery process and enhances the overall experience for all users involved.

Key features of the HiFi Delivery Eats system include real-time tracking, automated notifications, and performance analytics. Customers can stay informed with updates throughout the order process, from confirmation to delivery. Restaurant admins receive valuable insights into sales trends and customer satisfaction, which help them optimize their operations. Additionally, delivery agents have access to a dashboard where they can manage orders and communicate directly with restaurant admins to ensure timely deliveries. This combination of features helps streamline the entire food delivery process.

By focusing on efficiency, convenience, and quality, HiFi Delivery Eats is setting a new standard in the food delivery industry. The platform provides a high-end solution for restaurants looking to expand their reach and improve customer service. With its user-friendly interface, real-time updates, and data-driven insights, HiFi Delivery Eats is revolutionizing the way people enjoy food at home, ensuring a seamless and premium experience for everyone involved.

## 2. Project Objectives and Goals

### Objectives:

- **Develop a Comprehensive Delivery Management Platform:** Create a centralized platform for customers, delivery agents, and restaurant administrators to manage all aspects of food delivery.
- **Simplify Order Placement and Management:** Provide an intuitive interface for customers to browse menus, customize orders, and manage their delivery preferences.
- **Provide Analytics for Performance and Business Insights:** Generate reports and analytics to help restaurant administrators evaluate order trends, customer satisfaction, and delivery efficiency.
- **Enhance Customer Experience:** Focus on delivering a seamless and pleasant user experience for customers by offering an easy-to-use platform with fast order processing, real-time tracking, and personalized recommendations.
- **Ensure Data Security and Privacy:** Implement secure user authentication and role-based access control to ensure that personal and payment information is protected.

### Goals:

- **Develop a User-Friendly Interface:** Ensure the platform is intuitive and accessible, requiring minimal training for all users (customers, delivery agents, and restaurant administrators).
- **Comprehensive Task and Order Management:** Provide a clear and detailed workflow for managing orders, from placement to delivery, ensuring transparency and accountability.
- **Customizable Reporting and Analytics:** Allow restaurant admins to generate custom reports on sales, order trends, and performance metrics, helping optimize restaurant operations and improve decision-making.
- **Role-Based Access Control (RBAC):** Implement strict access control to ensure only authorized users can modify critical system features like menu items, order statuses, or customer data.
- **Enhance Customer Experience:** Focus on providing a seamless, fast, and satisfying experience for customers, from easy order placement to timely deliveries, ensuring high customer satisfaction and retention.
- **High Availability and Performance:** Ensure that the platform remains responsive and efficient, even with a large number of users, by optimizing server performance and minimizing latency.

### 3. Technology Stack

**Framework:** Flask (core web framework for handling routes, requests, and backend integration)

**Frontend:**

- HTML (structure for user interface)
- CSS (styling for user interface)
- JavaScript (interactivity for user interface)

**Backend:** Python

**Database:** SQLITE3

**Testing:** Unittest and Postman

## 4. Project Team

**Project Name:** Hi-Fi Delivery Eats

**Project Owner:** Balajisrinath R

### **Team 1: User Authentication and Role Management, Business Performance Insights, Automated Notifications and Report**

- **Scrum Master:** Panchadip Bhattacharjee
- **Members:** Chaitanya Satya Balaji Sangineedi, Chitirala Sai Madhu Keerthi, Gokul N, Md Irfan Ansari, Tejasri Ganji
- **Responsibilities:** Implementing secure authentication, role management, session handling, email notifications. sales and revenue insights, feedback (sentiment) analysis, anomaly detection, and delivery metrics.

### **Team 2: Menu Management, Delivery Agent's Dashboard**

- **Scrum Master:** Varshitha, Indrajeet Pimpalgaonkar
- **Members:** Kunal Salunke, Harsh, Randeep Swain, Veeramachineni Likitha, Bhargavi Bogadi
- **Responsibilities:** Managing menu operations, fast pdf menu export, filtering options, quick & clear nutritional insights, order status updates for the delivery agent, delivery agent's order management and performance metrics, delivery issue reporting and delivery route map.

### **Team 3: Order Management, Order Assignment and Visualization (Delivery Management)**

- **Team Lead:** Dhruthi M Sathish, Sanjay B.
- **Members:** Mahalakshmi R., Sk Sameer Basha, Kanduri Mahesh Babu, Dasari Lally, Seran G.
- **Responsibilities:** Handling orders, order status update for the user and tracking, agent assignment and re-assignment, real-time dashboard for admin, delivery agents' performance metrics and handling workload for delivery agents

## 5. Scope of the Project

The **HiFi Delivery Eats** project aims to revolutionize the food delivery experience by connecting customers, restaurants, and delivery agents through a comprehensive platform. This platform will ensure seamless order placement, real-time delivery tracking, and high-quality service. The primary goal of this project is to provide a sophisticated, user-friendly solution that enhances the dining experience while making food delivery more efficient and transparent.

### **User Authentication and Role Management:**

- Enable secure login and registration for different roles, including customers, delivery agents, and restaurant administrators.
- Implement role-based access control to ensure users only access features relevant to their role, maintaining system security and usability.

### **Menu Management:**

- Allow restaurant administrators to add, update, and remove menu items, ensuring an up-to-date and accurate representation of their offerings.
- Provide filtering options for customers, allowing them to browse menus based on categories, dietary preferences, or price range.

### **Order Management and Tracking:**

- Facilitate the order placement process, enabling customers to select dishes, customize orders, and track the status of their orders in real time.
- Offer visual timelines to display order progress, from being prepared to out for delivery and finally delivered, providing transparency to customers.

### **Assignment and Delivery Tracking:**

- Real-time status updates for courier tracking to provide customers with accurate delivery timelines.
- Status issue reporting for couriers to quickly address and resolve potential delivery challenges.

**Performance Analytics:**

- Sales trend analysis, popular product insights, and customer demographics to aid in business planning.
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**Business Performance Insights:**

- Generate reports and analytics on sales trends, delivery times, customer satisfaction, and operational efficiency.
- Offer visual insights like sales charts, delivery metrics, and feedback analysis to help restaurants optimize their operations.

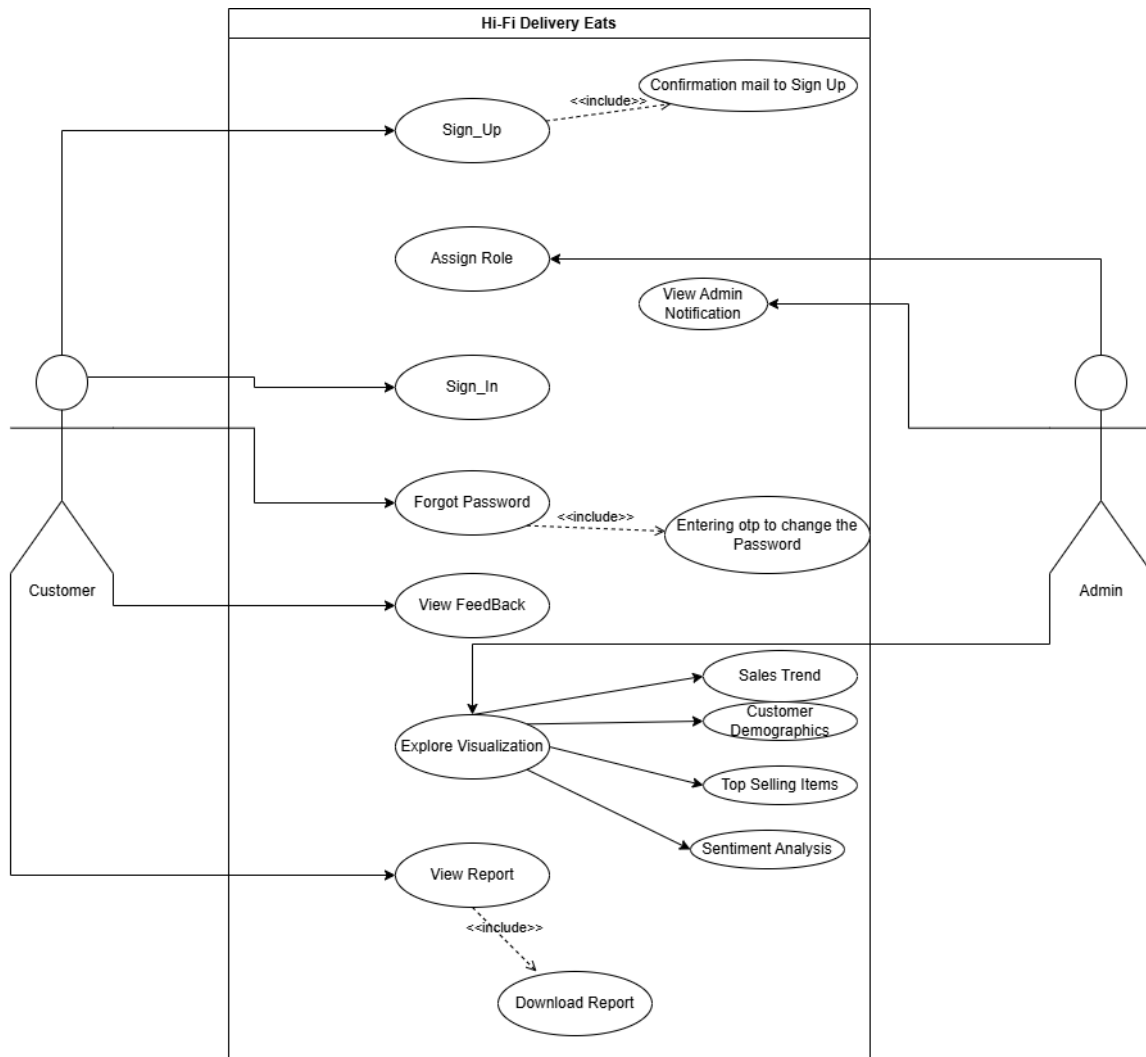
**Automated Notification and Alerts:**

- Send real-time updates via email or SMS to customers and restaurant admins regarding order statuses, delivery milestones, and promotions.
- Provide timely notifications for order confirmations, delivery confirmations.



## 6. Use case diagrams

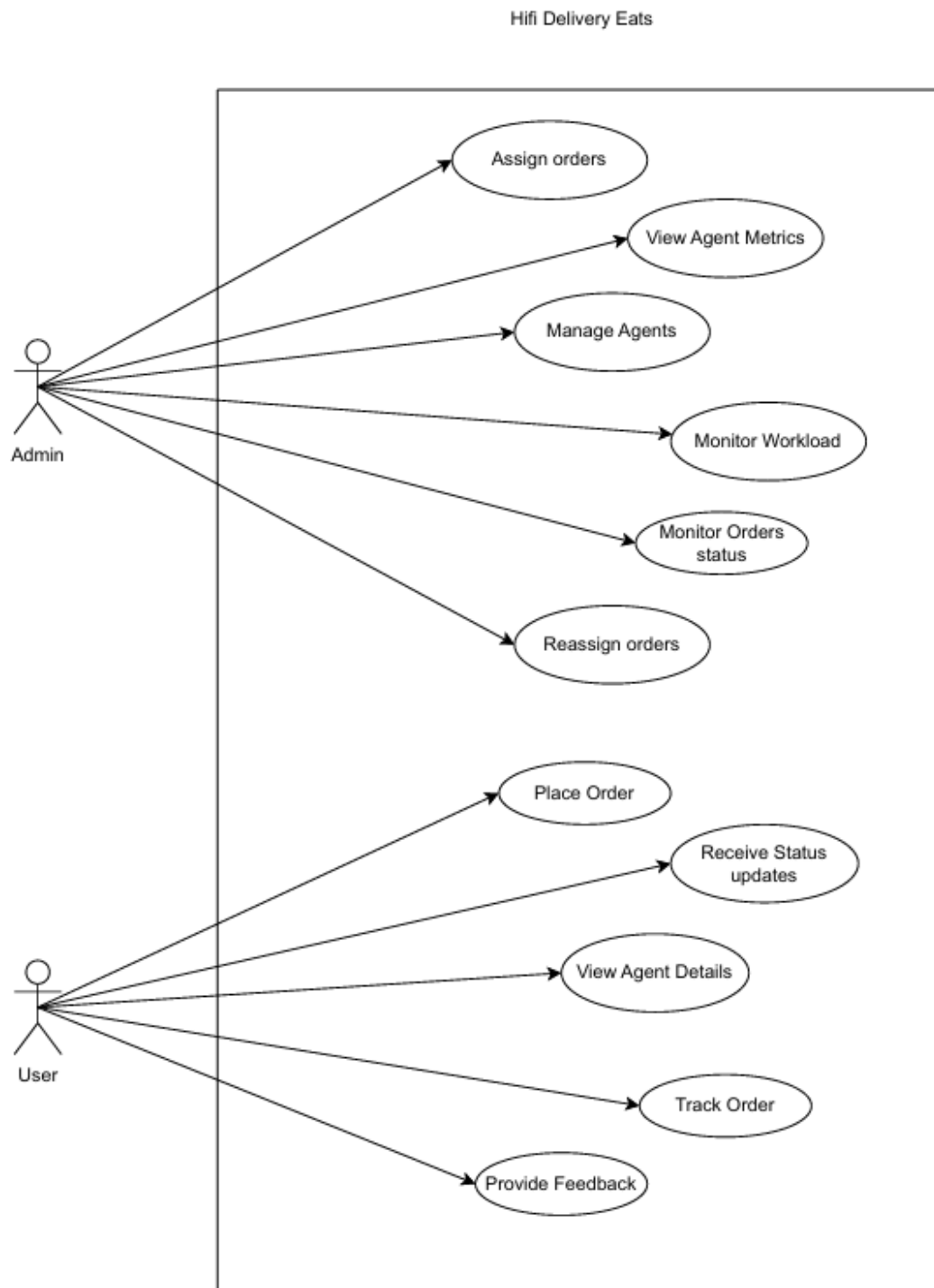
Team 1:



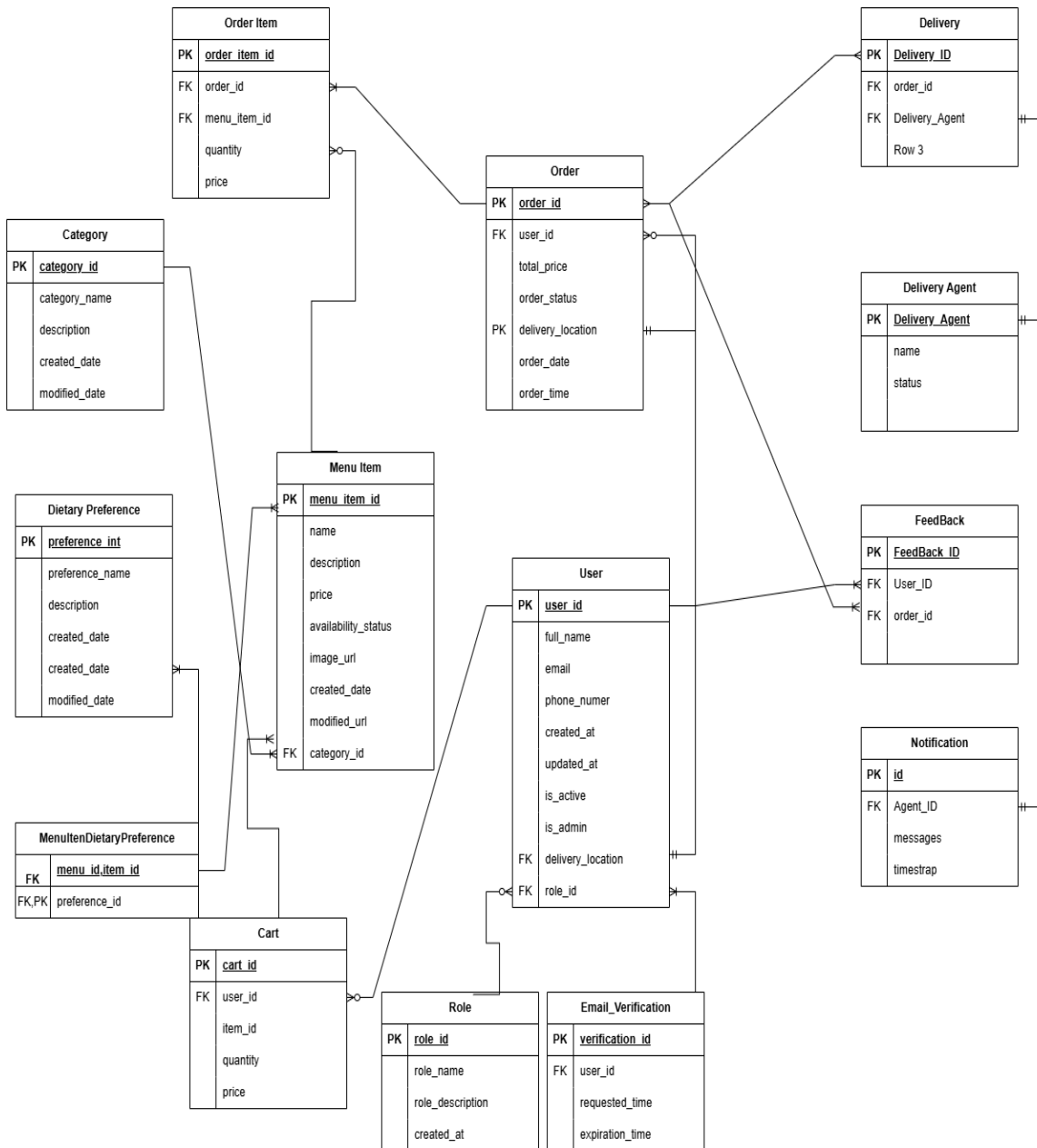
## Team 2:



## Team 3:



## 7.ER DIAGRAM



## 8. Test Plan

Test Case	Test Procedure	Conditions to be tested	Status
Test_RES LOGIN	Implemented user registration and login functionality. Ensured secure password hashing.	Verify login with valid and invalid credentials.	Passed
Test_Email Confirmation	Configured Flask-Mail to send email confirmation. Enhanced the email content and updated the flow so users are greeted with a custom welcome message.	Email is sent after successful registration.	Passed
Test_Database Management	Provided scripts to view and delete registered users from the database.	Database updation after each operation	Passed
Test_RES REGISTER	Register a new user with valid email, password	Valid registration inputs	Passed
Test_Email_Re-Registration_Check	Attempt to register a new user using an email already registered in the system.	Registration with duplicate email	Passed
Test_Database_Updation	Attempt to register and check if a user is getting registered and data is properly updated within database	Registration with a new user email	Passed
Edit User Role	Login as Admin, select a user, and modify their role.	Admin's ability to edit user roles	Passed
Role Edit Attempt	Attempt to edit user roles while logged in as a admin user only	Role editing restrictions for non-admins	Passed
Delete Unassigned Role	Login as Admin and delete a role that is not assigned to any users.	Ability to delete unassigned roles	Passed
Validate Sales Data Schema	Insert a sample sales record into the database.	Check if all required fields are present and data types are correct.	Passed
UI Display of Top-Selling Items, Sales Trends, Anomaly Detection and Sentiment Analysis	Open the UI and verify the display of all the components at specified and designated positions	Ensure all items and data points (name, price, quantity) are displayed.	Passed
Report Generation Engine	Input sales data and trigger the report generation process.	Report should be generated accurately and promptly.	Passed
Sentiment Analysis Integration	Process sample feedback through sentiment analysis and verify results.	Sentiment scores should be accurate and stored in the database.	Passed
Validate graph rendering for revenue trends	Input sample revenue data covering different months/years. Verify that graphs accurately represent the trends.	Graphs should correctly display revenue trends over time.	Passed

Test_FoodItems Sorting	Navigate to the menu page, select the sorting option for price, and verify the sorting order updates correctly.	Ensure food items are correctly sorted by price in ascending and descending order.	Passed
Test_FoodItems Selection by Preferences	Navigate to the menu page, apply filters for preferences, and verify that only matching food items are displayed.	Ensure food items can be filtered and displayed based on user preferences (e.g., beverages, desserts).	Passed
Test_CRUD_Operations_OnMenuItems	Test each CRUD operation: create, read, update, and delete menu items, ensuring all changes are reflected accurately.	Ensure that menu items can be added, updated, deleted, and viewed accurately through the admin panel	Passed
Testing of delivery agent status updation	Navigate to the dashboard, change the delivery agent's status (e.g., Available, On-Duty, Offline), and verify the status update.	Ensure the delivery agent's status updates correctly and reflects on the dashboard in real time.	Passed
Testing of order status updation	Navigate to the dashboard, update an order status (e.g., New, Delayed, In Progress, Delivered), and verify the update.	Ensure the order status updates correctly and reflects in the system.	Passed
Testing Reported Issues are resolved	Navigate to the "Reported Issues" section, mark an issue as resolved, and verify it updates in the system.	Ensure resolved issues are marked appropriately and no longer appear in the active issue list.	Passed
Test_add item to the cart	Click the "Add" button on an item	Item is selected and added to the cart	Passed
Test_view cart	Click the "View Cart" button.	Items added to the card should be displayed.	Passed
Test_update item quantity in cart	Adjust the quantity of an item in the cart using the "+" or "-" buttons.	Quantity increases or decrease as per user actions.	Passed
Test_total amount calculation	Check if the total price is calculated correctly after changing item quantities.	Total includes item prices and quantities.	Passed
Test_checkout	Click the "Checkout" button on the cart page.	Redirect to the order summary page.	Passed
Test_delivery location	Select "Enter New Location"	Enable "Enter New Location" field.	Passed
Test_view order summary	Click the "View Order Summary" button on the order confirmation page.	Redirect to the order summary page.	Passed
Test_cancel order	Click the "Cancel Order" button on the order summary.	Cancel functionality works correctly.	Passed
Test_real-time_order_status_update	Place an order and monitor its status update.	The status should update in the database in real-time.	Passed
Test_fetch_detailed_order_status	Access the detailed status for a specific order via the API endpoint.	Detailed status should be fetched and displayed.	Passed
Test_performance_metrics_visualization	Access the analytics dashboard.	Performance metrics should be displayed collectively.	Passed
Test_individual_delivery_agent_chart	View the integrated chart for all delivery agents.	Individual performance should be combined into a single chart.	Passed
Test_auto_assignment_algorithm	Trigger the order assignment process.	Orders should be assigned automatically based on availability.	Passed

Test_unassigned_order s_list	View the UI listing unassigned orders and available agents.	The list should display unassigned orders and available agents.	Passed
Test_order_timeline_u pdates	Display real-time order timeline updates in the order summary.	Place an order and monitor updates in the order timeline.	Passed
Test_email_order_statu s	Send periodic email updates to the user.	Place an order and verify email notifications for status updates.	Passed
Test_agent_details_dis play	Display delivery agent details on the order summary page.	View the order summary page.	Passed
Test_staff_managemen t_UI	Manage staff details (roles, contact info, and status) via the admin dashboard.	Access the staff management page, add/edit/delete staff details.	Passed
Test_staff_search_filter	Search and filter staff members in the management page.	Enter a keyword in the search bar or apply filters (e.g., by role, status) on the management page.	Passed
Test_agent_workload_ UI	Display workload balance per delivery agent.	View the workload visualization in the admin dashboard.	Passed
Test_workload_API	Fetch workload data for agents through the API endpoint.	Call the API endpoint and inspect the returned data.	Passed

## 9. Project Highlights

- **Real-time Order Tracking** – Seamlessly monitor orders from the restaurant to the doorstep, ensuring transparency.
- **Enhanced Security** – Implement **session timeout** to redirect inactive users to the sign-in page after 5–10 minutes.
- **Efficient Menu Management** – Enable real-time updates and effortless exporting to synchronize listings across platforms.
- **Financial Insights with Matplotlib** – Generate revenue analysis with dual graph representation for profit and loss trends.
- **Interactive Data Visualization** – Use chart.js for responsive charts to analyze trends and track performance.
- **Rule-Based Sentiment Analysis** – Utilize predefined linguistic and contextual rules to determine sentiment effectively.
- **Anomaly Detection with Machine Learning** – Identify unusual patterns and outliers using advanced ML algorithms for system reliability.
- **Integrated real-time maps** - Integrated real-time maps to assist delivery agents with navigation.

- **Push Notification** - Enabled push notifications to keep delivery agents updated in real-time.
- **Automated Order Assignment System** – Designed an algorithm for assigning orders to delivery agents based on availability.

## 10. Conclusion

HiFi Delivery Eats is a food delivery platform designed to make ordering food easy and efficient. It offers real-time tracking, menu management, and performance analytics to improve customer and restaurant experiences. The platform focuses on security, user-friendly features, and data-driven insights. Overall, it aims to provide a seamless and high-quality food delivery service.