Online Food Ordering System

System Description Document

1. Problem Statement

Traditional food ordering processes create challenges for customers (difficult menu discovery and order tracking), restaurants (inefficient order management during peak hours), and delivery agents (lack of centralized assignment tools). The Online Food Ordering System provides a centralized web platform that digitizes the entire food ordering workflow, reduces errors, provides real-time visibility, and enables efficient payment and delivery coordination.

2. Stakeholders

Primary Stakeholders: - **Customer:** Browses menus, places orders, tracks deliveries, provides ratings - **Restaurant:** Manages menus, receives and processes orders, prepares food - **Delivery Agent:** Picks up and delivers orders, manages availability

Secondary Stakeholders: Payment Gateway, Notification Service, Mapping/GPS Service

3. Functional Requirements

User Management - User registration, authentication, and address management

Menu and Restaurant Discovery - Browse and search restaurant menus by category with real-time availability - Restaurant menu management (pricing, descriptions, availability)

Order Processing - Shopping cart management with quantity control - Order total calculation (subtotal, taxes, delivery fees) - Promotional code application - Immediate or scheduled delivery options - Restaurant order acceptance/rejection - Order status tracking: *Pending* → *Confirmed* → *Preparing* → *Ready* → *Out for Delivery* → *Delivered*

Payment Processing - Multiple payment methods (online payment, cash on delivery) - Secure external payment gateway integration - Automated refund processing for cancelled/rejected orders

Delivery Management - Automated order assignment to available delivery agents - Delivery agent acceptance/decline functionality - Real-time delivery status updates and tracking - Estimated arrival time display

Feedback and Ratings - Customer ratings and feedback after order completion - Aggregate rating calculation for restaurants and delivery agents

4. Non-Functional Requirements

Category	Requirement
Performance	Fast order confirmation processing under normal load
Availability	High uptime during peak ordering periods
Scalability	Support for concurrent users and multiple restaurants
Security	Industry-standard encryption for data and payment transactions
Usability	Responsive, user-friendly web interface
Reliability	Graceful handling of external service failures with retry mechanisms

5. Key Assumptions

Business: Restaurants can process digital orders; delivery agents use GPS-enabled devices; customers have internet access; platform operates on commission-based model

Technical: External services (payment, mapping, notifications) are reliable; infrastructure supports horizontal scaling

Operational: Restaurants maintain accurate menu availability; delivery agents update availability status; customers provide valid addresses; cash payments are accurately collected

6. Constraints

- Initial deployment limited to predefined geographic regions
- Payment processing depends on third-party service availability
- Real-time tracking accuracy depends on GPS signal quality
- Scheduled orders limited to fixed future time window

7. System Scope

In Scope: User authentication, restaurant and menu management, order placement and payment processing, delivery assignment and tracking, ratings and feedback

Out of Scope: Restaurant inventory management, delivery agent recruitment, financial accounting systems, advanced loyalty programs, multi-language support