项目文档

# Functional Requirement

Requirement ID Requirement Statement Priority Rationale Source Acceptance Criteria  
001 The system shall suggest restaurants and dishes based on user preferences and past orders. Must Have Enhances user experience by reducing search time and improving relevance. FR-1 Users receive at least three personalized suggestions upon opening the app or initiating a search.  
002 Users shall be able to filter restaurant and dish options by dietary restrictions, including vegetarian preferences and allergen information. Must Have Accommodates diverse user needs and ensures safe consumption. FR-2 The app provides a UI with at least five dietary filter options (e.g., vegetarian, gluten-free, nut-free, dairy-free, halal), and filtering is applied instantly.  
003 The search functionality shall support auto-complete and real-time suggestions as the user types. Should Have Improves usability and reduces typing effort for users. FR-3 The app displays auto-complete suggestions within 500ms of each character typed, and suggestions are contextually relevant.  
004 Users shall be able to save and reuse their search preferences for future use. Should Have Increases efficiency for frequent users by minimizing repetitive input. FR-4 Users can save at least five custom search profiles and select them with one click.  
005 The system shall support a shared cart feature, allowing multiple users to contribute to an order simultaneously in real time. Must Have Facilitates group ordering and collaboration. FR-5 Multiple users can add/remove items from a shared cart in real time, with all changes synchronized across devices.  
006 Users shall be able to assign specific items to individual participants in a group order. Must Have Enables clear cost distribution and personal responsibility in group orders. FR-6 The organizer can assign items to specific participants, and the app displays a visual confirmation of the assignment.  
007 Each user shall be able to add custom dietary or preference notes for the items they select. Must Have Ensures accurate fulfillment of dietary and personal preferences. FR-7 Users can input and save custom notes for each selected item, and these notes are visible to the organizer and restaurant.  
008 Only the organizer of the group order shall have the authority to place the final order. Must Have Maintains control and accountability in group order finalization. FR-8 The app disables the "Place Order" button for participants and enables it only for the organizer.  
009 The organizer shall be able to view and edit the contributions of all participants in the group order. Must Have Allows the organizer to ensure accuracy and completeness of the order. FR-9 The organizer can see a list of all participants’ contributions, and each item can be edited or removed.  
010 The system shall notify all participants when the order is finalized. Must Have Keeps all users informed and reduces confusion or duplication. FR-10 All participants receive a push notification and in-app message within 5 seconds of the order being placed.  
011 The system shall provide real-time map-based order tracking with GPS location updates for the delivery. Must Have Increases transparency and user trust in the delivery process. FR-11 The map updates the delivery location every 15 seconds, with a visual indicator of the delivery status.  
012 The system shall display a clear and updated estimated arrival time for the order. Must Have Helps users plan their time effectively. FR-12 The app shows the estimated arrival time (ETA) in a dedicated field and updates it in real time as the delivery progresses.  
013 Users shall be able to report delivery issues (e.g., wrong or missing items) with minimal input, such as a few taps or voice input. Should Have Encourages quick feedback and facilitates issue resolution. FR-13 The app provides a one-click "Report Issue" button and a voice-to-text input feature for issue description.  
014 The system shall include an in-app messaging system for communication with the restaurant or delivery team. Must Have Enhances communication and customer service. FR-14 The app allows users to send and receive messages in real time, with message history retained for at least 30 days.  
015 The system shall automatically notify users of delivery delays and provide compensation options such as discounts or coupons. Should Have Mitigates user dissatisfaction and supports customer retention. FR-15 If a delay is detected, the system sends a notification and offers at least one compensation option within 30 seconds.  
016 Users shall be able to select a default or previously used address during checkout. Should Have Reduces time and effort during the checkout process. FR-16 The app displays a list of previously used addresses with a "Set as Default" option, and the default is auto-selected.  
017 The billing system shall provide a transparent breakdown of the total bill, including each participant’s contribution in a group order. Must Have Ensures clarity and fairness in group billing. FR-17 The app displays a detailed breakdown of the total cost with each participant’s assigned items and cost.  
018 Users shall be able to split the bill either equally or by custom cost allocation. Must Have Provides flexibility in group billing. FR-18 The app allows the organizer to choose between "Split Equally" and "Custom Split" options, and displays the final allocation.  
019 The system shall send push notifications for order status updates, including delays, delivery in progress, and completion. Must Have Keeps users informed without requiring them to constantly check the app. FR-19 The app sends push notifications for all major status changes (e.g., order placed, out for delivery, delivered) with a latency of under 5 seconds.  
020 The system shall provide in-app messages for estimated arrival times and delivery confirmations. Must Have Ensures users receive timely and accurate information. FR-20 In-app messages are displayed for ETA and delivery confirmation, with a retention period of at least 30 days.  
021 The system shall send SMS notifications for order confirmation and final delivery notifications. Should Have Provides an additional communication channel for users without push notification access. FR-21 SMS notifications are sent within 10 seconds of the event (order confirmation and delivery completion).

# External Description

# 5. Constraints  
  
## 5.1 Regulatory/Legal Constraints  
  
- \*\*C-REG-001\*\*: The system shall comply with GDPR (General Data Protection Regulation), CCPA (California Consumer Privacy Act), and other relevant data protection laws in the target operating regions.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: To ensure legal compliance and user trust, the system must handle personal and sensitive data in accordance with local and international regulations.   
 - \*\*Source\*\*: SRL-5.5   
 - \*\*Acceptance Criteria\*\*: The system shall pass a third-party audit for compliance with GDPR and CCPA.  
  
- \*\*C-REG-002\*\*: The system shall ensure secure handling of payment data in accordance with PCI DSS (Payment Card Industry Data Security Standard).   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: Payment processing requires secure handling of financial data to prevent fraud and data breaches.   
 - \*\*Source\*\*: SRL-5.5   
 - \*\*Acceptance Criteria\*\*: The system shall pass a PCI DSS compliance review and use a certified payment gateway.  
  
## 5.2 Hardware Constraints  
  
- \*\*C-HW-001\*\*: The system shall be operable on mobile devices with at least 2 GB of RAM and a screen resolution of 720p or higher.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: To ensure a consistent user experience, the system must be compatible with a wide range of mobile devices.   
 - \*\*Source\*\*: SRL-5.1   
 - \*\*Acceptance Criteria\*\*: The system shall be tested and verified to function correctly on devices with 2 GB RAM and 720p resolution.  
  
- \*\*C-HW-002\*\*: The system shall require GPS-enabled devices to support real-time order tracking.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: Real-time map-based tracking is a core feature for user confidence and experience.   
 - \*\*Source\*\*: SRL-5.1   
 - \*\*Acceptance Criteria\*\*: The app shall fail gracefully on GPS-disabled devices and prompt the user to enable GPS if required functionality is disabled.  
  
## 5.3 Interface Constraints  
  
- \*\*C-INT-001\*\*: The system shall interface with third-party mapping and GPS services (e.g., Google Maps or Mapbox) for location tracking.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: Real-time location data is essential for accurate order tracking.   
 - \*\*Source\*\*: SRL-5.4   
 - \*\*Acceptance Criteria\*\*: The system shall display map-based tracking using an external API, and the integration shall be verified through test scenarios.  
  
- \*\*C-INT-002\*\*: The system shall integrate with SMS gateways (e.g., Twilio or Nexmo) to deliver order confirmation and delivery notifications.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: SMS notifications provide a reliable and universal means of communication to users.   
 - \*\*Source\*\*: SRL-5.4   
 - \*\*Acceptance Criteria\*\*: The system shall send SMS messages for order confirmation and delivery, and the functionality shall be verified with a test harness.  
  
- \*\*C-INT-003\*\*: The system shall interface with secure payment gateways (e.g., Stripe or PayPal) to process transactions.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: Secure payment handling is essential for user trust and legal compliance.   
 - \*\*Source\*\*: SRL-5.4   
 - \*\*Acceptance Criteria\*\*: The system shall process transactions using a secure payment gateway, and integration shall be verified through test cases.  
  
- \*\*C-INT-004\*\*: The system shall support cloud storage (e.g., Amazon S3 or Google Cloud Storage) for storing user preferences and order history.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: Cloud storage ensures data persistence and scalability for user data across sessions and devices.   
 - \*\*Source\*\*: SRL-5.4   
 - \*\*Acceptance Criteria\*\*: The system shall store and retrieve user preferences and order history from a cloud storage service, and the integration shall be verified through test scenarios.  
  
## 5.4 Design and Implementation Constraints  
  
- \*\*C-DI-001\*\*: The system shall not enforce any specific design or implementation approach for the mobile application.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: To allow for flexibility and innovation, the system design and implementation shall remain open to multiple development strategies.   
 - \*\*Source\*\*: General   
 - \*\*Acceptance Criteria\*\*: The SRS shall not contain any design or implementation-specific statements.  
  
- \*\*C-DI-002\*\*: The system shall maintain a consistent and predictable interaction model across all user interfaces.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: Consistency in the UI reduces user confusion and enhances usability.   
 - \*\*Source\*\*: SRL-4.6   
 - \*\*Acceptance Criteria\*\*: The system shall pass a usability test with a minimum of 90% user success rate on task consistency.  
  
- \*\*C-DI-003\*\*: The system shall not require any specific mobile development framework or toolchain.   
 - \*\*Priority\*\*: Must Have   
 - \*\*Rationale\*\*: To avoid vendor lock-in and allow for technology flexibility, no specific framework or toolchain shall be mandated.   
 - \*\*Source\*\*: General   
 - \*\*Acceptance Criteria\*\*: The SRS shall not specify any development frameworks or toolchains.  
  
## 5.5 Other Constraints  
  
- \*\*C-OTH-001\*\*: The system shall be optimized for battery and data usage to minimize user impact.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: Battery and data efficiency are crucial for user adoption and retention.   
 - \*\*Source\*\*: SRL-5.7   
 - \*\*Acceptance Criteria\*\*: The system shall demonstrate less than 10% battery usage per hour of active use and support low-data mode for users on limited data plans.  
  
- \*\*C-OTH-002\*\*: The app shall be compatible with a variety of devices, including smartphones and tablets.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: Device compatibility ensures the system can be used in diverse user environments.   
 - \*\*Source\*\*: SRL-5.7   
 - \*\*Acceptance Criteria\*\*: The app shall be tested and verified to function on smartphones and tablets with varying screen sizes and resolutions.  
  
- \*\*C-OTH-003\*\*: The system shall provide localization and language support for the target market regions.   
 - \*\*Priority\*\*: Should Have   
 - \*\*Rationale\*\*: To serve a diverse user base, the system must support multiple languages and cultural conventions.   
 - \*\*Source\*\*: SRL-5.7   
 - \*\*Acceptance Criteria\*\*: The app shall provide language options and localized content for at least three target regions.