项目文档

# Functional Requirement

## Functional Requirement List  
  
| \*\*Requirement ID\*\* | \*\*Description\*\* |  
|---------------------|-----------------|--------------|---------------|------------|--------------------------|  
| \*\*FR-1\*\*: Restaurant-Grocery-Browse-001 | The system shall allow users to search or browse restaurants and grocery stores by food type, restaurant name, or promotional offers.   
| \*\*FR-2\*\*: Cart-Management-001 | The system shall enable users to add, view, and save selected items to a cart.  
| \*\*FR-3\*\*: Cart-Management-002 | The system shall allow users to edit cart contents (e.g., remove, modify quantities, or replace items).   
| \*\*FR-4\*\*: Order-Progress-AutoSave-001 | The system shall auto-save the user’s cart and order progress at key steps (e.g., after item selection, delivery address entry).   
| \*\*FR-5\*\*: Order-Progress-AutoSave-002 | The system shall restore saved progress if the app is restarted or the user logs out and back in.   
| \*\*FR-6\*\*: Checkout-Transparency-001 | The system shall display all applicable delivery fees, taxes, and total cost in a clear, upfront manner.   
| \*\*FR-7\*\*: Checkout-Transparency-002 | The system shall allow users to review order details before finalizing the payment.  
| \*\*FR-8\*\*: Payment-Management-001 | The system shall remember and auto-fill preferred payment methods for quick checkout.  
| \*\*FR-9\*\*: Payment-Management-002 | The system shall allow users to select a different payment method if desired.   
| \*\*FR-10\*\*: Checkout-Error-Handling-001 | The system shall provide clear error messages and recovery options if a crash occurs during checkout.  
| \*\*FR-11\*\*: Checkout-Error-Handling-002 | The system shall preserve cart contents and order progress for later restoration.   
| \*\*FR-12\*\*: Order-Tracking-001 | The system shall enable real-time tracking of orders with an estimated delivery time.   
| \*\*FR-13\*\*: Order-Tracking-002 | The system shall send notifications to users if any issues arise during delivery before finalization. |  
| \*\*FR-14\*\*: Reordering-001 | The system shall allow users to reorder past meals or restaurants with one click.   
| \*\*FR-15\*\*: Reordering-002 | The system shall preserve and restore customizations and selections from previous orders automatically. | Must Have | Ensures consistency and reduces user input for repeat orders.  
| \*\*FR-16\*\*: Cross-Device-Sync-001 | The system shall synchronize saved orders, favorites, and user preferences across multiple devices (e.g., phone, tablet).   
| \*\*FR-17\*\*: Cross-Device-Sync-002 | The system shall ensure all user data is accessible regardless of the device used.   
| \*\*FR-18\*\*: Session-Restore-001 | The system shall restore the user to the last active screen or step in the ordering process after an app restart or re-login.  
| \*\*FR-19\*\*: Session-Restore-002 | The system shall ensure no data loss occurs during the restoration process.

# External Description

# 5. Constraints  
  
## 5.1 Regulatory/Legal Constraints  
  
The system shall comply with all applicable data protection regulations, including but not limited to the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), for the handling of user data, particularly payment and personal information.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Legal compliance is essential to avoid penalties and to ensure user trust.   
- \*\*Source\*\*: SRL-5.5   
- \*\*Acceptance Criteria\*\*: All data storage, processing, and transmission mechanisms must be audited for compliance with GDPR and CCPA standards.  
  
The system shall support the secure handling of payment data in accordance with the Payment Card Industry Data Security Standard (PCI-DSS).   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Secure handling of payment information is necessary to maintain user trust and prevent financial fraud.   
- \*\*Source\*\*: SRL-5.5   
- \*\*Acceptance Criteria\*\*: All payment gateways and data handling functions must be verified to meet the latest PCI-DSS requirements.  
  
## 5.2 Hardware Constraints  
  
The system shall operate on mobile devices with at least 2GB of RAM and 32GB of storage.   
- \*\*Priority\*\*: Should Have   
- \*\*Rationale\*\*: These are the minimum hardware requirements to ensure smooth performance of the app.   
- \*\*Source\*\*: SRL-5.1   
- \*\*Acceptance Criteria\*\*: The system must pass performance testing on devices with these specifications.  
  
The system shall not require additional hardware beyond what is provided by standard mobile devices (e.g., no external GPS or payment readers).   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: To ensure accessibility and compatibility across a wide range of user devices.   
- \*\*Source\*\*: SRL-5.1   
- \*\*Acceptance Criteria\*\*: All required features shall function on standard mobile hardware.  
  
## 5.3 Interface Constraints  
  
The system shall integrate with external payment gateways such as Stripe and PayPal using their publicly available APIs.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Integration with established payment platforms ensures a secure and familiar payment experience for users.   
- \*\*Source\*\*: SRL-5.4   
- \*\*Acceptance Criteria\*\*: Payment gateway APIs must be successfully integrated and tested for functionality and security.  
  
The system shall communicate with restaurant and grocery partners via their respective APIs for real-time menu updates and order status tracking.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Real-time data exchange with partners is critical for accurate order processing and delivery tracking.   
- \*\*Source\*\*: SRL-5.4   
- \*\*Acceptance Criteria\*\*: The system must successfully retrieve and update order and inventory data from partner APIs.  
  
The system shall not impose any additional constraints on the APIs provided by restaurant or grocery partners beyond their documented specifications.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: To maintain flexibility and reduce integration complexity for partners.   
- \*\*Source\*\*: SRL-5.4   
- \*\*Acceptance Criteria\*\*: All API integrations must be verified for compliance with partner specifications.  
  
## 5.4 Design and Implementation Constraints  
  
The system shall be developed as a native mobile application with cross-platform compatibility to allow for future expansion to web or desktop platforms.   
- \*\*Priority\*\*: Should Have   
- \*\*Rationale\*\*: Cross-platform compatibility ensures the system can evolve to meet future user needs.   
- \*\*Source\*\*: SRL-5.2   
- \*\*Acceptance Criteria\*\*: The system must be developed using cross-platform frameworks that allow for future portability to web or desktop.  
  
The system shall use cloud services such as AWS or Firebase for user data storage and synchronization.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Cloud-based storage ensures scalability, reliability, and seamless cross-device synchronization.   
- \*\*Source\*\*: SRL-5.4   
- \*\*Acceptance Criteria\*\*: All user data synchronization features must be tested using the selected cloud service.  
  
The system shall not implement any design decisions that would prevent the reuse of cart data and user preferences across devices.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Cross-device synchronization is a key user expectation and differentiates QuickEats from competitors.   
- \*\*Source\*\*: SRL-5.2   
- \*\*Acceptance Criteria\*\*: User preferences and cart data must be restored consistently across devices.  
  
## 5.5 Other Constraints  
  
The system shall not support offline order submission or delivery tracking.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: These features rely on external services and real-time data exchange, which are not available offline.   
- \*\*Source\*\*: SRL-5.3   
- \*\*Acceptance Criteria\*\*: The app must disable order submission and tracking when no internet connection is detected.  
  
The system shall not allow users to access or modify order data or preferences without being logged in.   
- \*\*Priority\*\*: Must Have   
- \*\*Rationale\*\*: Authentication is required to maintain data integrity and privacy.   
- \*\*Source\*\*: SRL-5.5   
- \*\*Acceptance Criteria\*\*: All account-related actions must require valid user authentication.  
  
The system shall not permit any modifications to the progress bar or step-by-step guide during checkout without user feedback.   
- \*\*Priority\*\*: Should Have   
- \*\*Rationale\*\*: Maintaining a consistent and intuitive checkout process is essential for user satisfaction.   
- \*\*Source\*\*: SRL-NFR-7   
- \*\*Acceptance Criteria\*\*: The progress indicator shall remain unchanged unless updated through a user feedback cycle.