Restaurant Management System Requirements Specification

Version 3.0

March 14, 2025

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1. Executive Summary

1.1 Project Overview

This Restaurant Management System (RMS) is designed to streamline restaurant operations, including order management, menu updates, billing, and staff coordination. It ensures efficient customer service, reduces wait times, and integrates with payment systems.

2. Product/Service Description

The RMS optimizes restaurant operations by automating order processing, billing, inventory tracking, and staff coordination. It improves efficiency, and lowers errors. The system tracks inventory, facilitates staff coordination, integrates with payment gateways, permits dynamic menu updates, and supports order management for dine-in, takeout, and delivery. The RMS assists restaurants in providing quicker, more effective service by lowering manual labor and enhancing communication.

2.1 Product Context

The RMS will be used by restaurants of various sizes to manage their daily activities. It will be accessible via a web-based platform and mobile application. The system will integrate with third-party delivery services and support multiple payment gateways.

User Characteristics

- Administrator:
  - Role: Manages the entire system, user roles, and settings.
  - Experience: Restaurant operations and management.
  - Technical Expertise: Comfortable with system settings and reports.
  - Other Characteristics: Needs access to analytics and financial data to make decisions.

- Restaurant Manager:
  - Role: Oversees staff, inventory, and sales reports.
  - Experience: Several years in restaurant management.
  - Technical Expertise: Skilled with reporting tools and payment systems.
  - Other Characteristics: Requires effective dashboards for updates in real time.

- Waiter/Server:
  - Role: Takes orders and interacts with the kitchen.
  - Experience: From beginner to experienced service staff.
  - Technical Expertise: Should require minimal training.
  - Other Characteristics: Needs simple, user-friendly interface for quick order processing.

- Chef/Kitchen Staff:
  - Role: Receives and prepares orders.
  - Experience: Professional chefs and kitchen assistants.
  - Technical Expertise: Minimal interaction with the system.
  - Other Characteristics: Needs a simple, effective method for receiving and tracking orders.

- Inventory Manager:
  - Role: Monitors stock levels, places restocking orders, and ensures inventory availability.
  - Experience: From beginner to experienced service staff.
  - Technical Expertise: Should require minimal training.
  - Other Characteristics: Needs real-time inventory tracking, low-stock alerts, and an easy-to-use interface for updating stock levels.

- Customer:
  - Role: Places online orders, books tables, and makes payments.
  - Technical Expertise: All users should be able to easily navigate and understand the system.
  - Other Characteristics: Gives priority to quick checkout, secure payment methods, and ease of use.

2.2 Assumptions

- Both desktop and mobile devices with internet access will be able to access the RMS.
- Users will know the fundamentals of using common restaurant management tools and digital systems.
- Third-party delivery services and payment gateways will be integrated with the system.
- For smooth operation, the restaurant will have reliable internet access.
- Common web browsers (Chrome, Firefox, and Safari) will be supported by the RMS.
- The necessary hardware, such as computers, tablets, or smartphones, will be available to users.
- Restaurants of all sizes, from tiny to massive operations, will be able to use the system.

2.3 Constraints and Dependencies

- System Integration: The system needs to work with the restaurant's existing payment system to ensure smooth transactions.
- User Security and Access: Some features, like inventory management and payment processing, should only be accessible to authorized users.
- Data Backup and Logging: Every day, the system has to automatically backup customer, inventory, and sales data. Logs must also be kept for auditing purposes.
- In order for order processing to work properly, inventory management must be set up.
- In order to avoid slowdowns during peak hours, the system must be able to manage busy hours effectively.

3. Requirements

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_RMS_01	The system **must** allow customers to browse the menu and place orders.	Order Management. Core functionality for order processing.	1	3/14/25	
BR_RMS_02	The system **must** categorize orders into dine-in, takeout, and delivery.	Necessary for proper order management.	1	3/14/25	
BR_RMS_03	The kitchen **must** receive real-time order notifications.	Timely order preparation is critical.	1	3/14/25	
BR_RMS_04	The system **should** allow customers to track their order status.	Enhances customer experience.	2	3/14/25	
BR_RMS_05	The system **can** support AI-based recommendations for food pairing.	Improves customer satisfaction and decision-making.	3	3/14/25	

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BR_RMS_06	Admins **must** be able to add, update, or remove menu items.	Essential for dynamic menu management.	1	3/14/25	
BR_RMS_07	The system **should** allow scheduled menu updates.	Supports timely menu changes (e.g., seasonal).	2	3/14/25	
BR_RMS_08	The system **can** support images and videos for menu items.	Visual content aids customer decision-making.	3	3/14/25	
BR_RMS_09	The system **must** allow customers to reserve tables online.	Necessary for convenient and efficient table bookings.	1	3/14/25	
BR_RMS_10	The system **should** send reminders to customers before their reservation time.	Reduces the risk of no-shows.	2	3/14/25	
BR_RMS_11	The system **can** allow users to choose preferred table locations.	Enhances customer satisfaction and personalization.	3	3/14/25	
BR_RMS_12	The system **must** generate bills based on ordered items.	Ensures accurate and timely billing.	1	3/14/25	
BR_RMS_13	The system **must** support cash, credit card, and digital payments.	Provides flexibility for various payment options.	1	3/14/25	
BR_RMS_14	The system **should** support bill splitting among multiple customers.	Improves customer convenience.	2	3/14/25	
BR_RMS_15	The system **must** have role-based access control for Admins, Staff, and Customers.	Ensures appropriate access and security.	1	3/14/25	
BR_RMS_16	The system **should** support multi-factor authentication for admins.	Enhances security for sensitive access.	2	3/14/25	
BR_RMS_17	The system **must** track ingredient stock levels in real time.	Essential for inventory management and order fulfillment.	1	3/14/25	
BR_RMS_18	The system **should** send low-stock alerts to admins.	Facilitates timely reordering and stock management.	2	3/14/25	
BR_RMS_19	The system **can** predict stock requirements based on historical data.	Optimizes inventory planning and reduces waste.	3	3/14/25	
BR_RMS_20	The system **must** generate daily sales reports.	Necessary for sales tracking and analysis.	1	3/14/25	
BR_RMS_21	The system **should** provide insights on customer preferences.	Helps improve menu and service offerings.	2	3/14/25	

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BR_RMS_22	The system **can** include AI-driven sales predictions.	Assists in sales forecasting and planning.	3	3/14/25	
BR_RMS_23	The admin should be able to add, update, or remove employees from the system.	Admin employee management: Ensures staff records stay accurate and up to date.	1	3/19/25	
BR_RMS_24	The inventory manager should be able to track pending and completed supply orders.	Inventory tracking: Helps maintain stock levels and avoid shortages.	2	3/19/25	
BR_RMS_25	The chef should be able to update order statuses (e.g, Preparing, Ready, Served)	Order status updates: Keeps kitchen and staff informed for smoother service.	1	3/19/25	
BR_RMS_26	The waiter should be able to add special instructions to the kitchen orders based on the customer preferences.	Special instructions: Ensures customer preferences are communicated to the kitchen.	2	3/19/25	
BR_RMS_27	The restaurant manager should be able to assign and adjust employee work schedules based on demand.	Work schedule management: Optimizes staffing based on business needs,	2	3/19/25	
BR_RMS_28	The admin should be able to manage system security settings, including password policies and access controls.	System security management: Protects sensitive data and controls user access.	1	3/19/25	
BR_RMS_29	Customers should be able to apply available discounts or promotions to their order.	Discounts and promotions: Enhances customer satisfaction and boosts sales.	3	3/19/25	
BR_RMS_30	Customers should be able to provide feedback and rate their dining experience.	Customer feedback: Helps improve service quality and restaurant reputation.	3	3/19/25	

3.2 Non-Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_RMS_01	The system **must** have an intuitive UI for both staff and customers.	Ensures ease of use and better user experience.	1	3/14/25	
BR_RMS_02	The system **should** support multiple languages.	Increases accessibility for diverse customer base.	2	3/14/25	
BR_RMS_03	The system **must** handle up to 100 concurrent users.	Supports scalability for high-traffic periods.	1	3/14/25	
BR_RMS_04	The system **should** process orders within 2 seconds per transaction.	Ensures fast and responsive user interactions.	2	3/14/25	

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_RMS_05	The system **must** be available 99.9% of the time.	Ensures high availability and minimal downtime.	1	3/14/25	
BR_RMS_06	Scheduled maintenance **should** be notified in advance.	Helps users plan around downtime and improves transparency.	2	3/14/25	
BR_RMS_07	Customer and payment data **must** be encrypted.	Protects sensitive customer and payment information.	1	3/14/25	
BR_RMS_08	The system **should** maintain access logs for security audits.	Enables auditing and ensures system integrity.	2	3/14/25	
BR_RMS_09	The system **must** comply with restaurant industry standards.	Ensures industry-standard practices for operation.	1	3/14/25	
BR_RMS_10	Staff **must** undergo training before using the system.	Ensures proper usage and reduces errors in system operation.	1	3/14/25	
BR_RMS_11	The payment gateway **must** comply with PCI-DSS security standards.	Ensures secure payment processing and compliance.	1	3/14/25	
BR_RMS_12	The system **should** integrate with third-party food delivery services.	Expands order fulfillment options and reaches more customers.	2	3/14/25	
BR_RMS_13	The system **should** use **256-bit encryption** for storing sensitive data like passwords and payments.	Data encryption: Ensures secure storage of sensitive information.	1	3/19/25	
BR_RMS_14	The system should allow easy addition of new restaurant branches without reconfiguration.	Branch expansion: Simplifies scaling without extra setup.	2	3/19/25	
BR_RMS_15	The system should provide training and onboarding materials for employees.	Employee training: Helps staff quickly adapt to the system.	3	3/19/25	
BR_RMS_16	The system should be compatible with government tax regulations, automatically calculating VAT or service charges.	Tax compliance: Automates VAT and service charge calculations.	1	3/19/25	
BR_RMS_17	The system should allow cross-platform access, working on Windows, macOS, and Linux.	Cross-platform access: Ensures usability on multiple operating systems.	2	3/19/25	
BR_RMS_18	The system should allow quick restoration from backup within 10 minutes.	Quick backup restoration: Minimizes downtime and data loss.	1	3/19/25	

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_RMS_19	After a system failure, the chef should be able to see orders that went through before the crash.	Order recovery: Prevents lost orders after system crashes.	1	3/19/25	
BR_RMS_20	The system should include search and filter options to help users find menu items, orders, and reports quickly.	Search and filter: Improves efficiency in finding key data.	2	3/19/25	

3.2.1 Product Requirements

3.2.1.1 Usability Requirements

Include any specific usability requirements, for example,

- Both employees and clients should find the system's user interface (UI) easy to use.
- New staff should be able to learn the system within a day.
- The system should support multiple languages.

3.2.1.2 Performance Requirements

- Each transaction should take no more than two seconds to place and process an order.
- The system should handle up to 100 users at once.
- The system should support a database of at least 10,000 menu items.

3.2.1.3 Availability

- The system should be available 99.9% of the time.
- The system shall provide availability to all users across regions.
- Scheduled maintenance shall be communicated to users at least 48 hours in advance.
- The system shall maintain a Mean Time Between Failures (MTBF) of at least 1,000 hours. The maximum permitted number of failures shall be no more than 2 failures per 1,000 operational hours.

3.2.1.4 Security

- All sensitive data, including customer payment information, personal details, and order history, must be encrypted.
- All user interactions, system access, data modifications, and transaction history must be documented in the system's extensive activity logs.
- Order management, payment processing, user authentication, and other system module communications must be encrypted and closely watched for security purposes.
- All transactions and data modifications will automatically undergo data integrity checks by the system. The system administrator will receive an alert if any unauthorized changes or data inconsistencies are found.

3.2.2 Organizational Requirements

- Staff should undergo training on how to use the system.
- The system must follow to all applicable restaurant industry standards and laws, such as data protection, payment processing, and health and safety guidelines.
- The system must implement and follow the organization's backup and disaster recovery procedures.

3.2.3 External Requirements

- The payment system must follow security standards to protect payment information.
- The system must be able to connect with third-party delivery platforms for order fulfillment.
- The system must protect customer data and ensure privacy.