Software Requirements Specification (SRS) Document for Restaurant Management System

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1. Introduction

1.1 Purpose

The purpose of this document is to outline the software requirements for the Restaurant Management System (RMS). The system is intended to streamline operations in a restaurant by managing reservations, orders, inventory, billing, and staff schedules.

1.2 Scope

The Restaurant Management System is designed to be used by various stakeholders, including restaurant managers, staff, chefs, and customers. The system aims to improve customer service, enhance operational efficiency, and provide detailed reporting for better decision-making.

1.3 Definitions, Acronyms, and Abbreviations

- **RMS**: Restaurant Management System
- **POS**: Point of Sale
- **GUI**: Graphical User Interface
- **API**: Application Programming Interface

1.4 References

- IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications.
- User requirements gathered from restaurant managers and staff.

2.2 Overall Description

2.1 Product Perspective

The RMS is part of the restaurant's existing operations, connected to various modules such as inventory management, customer relationship management (CRM), and external payment systems through secure APIs.

2.2 Product Functions

- **Reservation Management**: Allows customers to make, modify, and cancel reservations online. Staff can also manage reservations through the system.
- **Order Management**: Facilitates taking, modifying, and tracking orders for dine-in, takeout, and delivery.
- **Inventory Management**: Tracks stock levels, manages supplier orders, and generates inventory reports.
- **Billing and Payment Processing**: Handles billing, applies discounts and taxes, and processes payments through various methods.
- **Staff Management**: Schedules shifts, tracks attendance, and monitors staff performance.
- **Reporting**: Generates reports on sales, inventory, and staff performance.

2.3 User Classes and Characteristics

- **Managers**: Oversee operations and require full access to the system.
- **Staff**: Includes servers, chefs, and kitchen staff with role-based access.
- **Customers**: Can make reservations and place orders.
- **Administrators**: Manage system configurations and user access.

2.4 Operating Environment

- **Software**: Runs on web browsers (Chrome, Firefox, Safari, Edge) and mobile devices.
- **Hardware**: Compatible with desktops, tablets, smartphones, and POS systems.

2.5 Design and Implementation Constraints

- Must comply with local health regulations and data protection laws.
- Should support offline mode for POS and sync data when online.

2.6 Assumptions and Dependencies

- Assumes availability of stable internet for online features.
- Depends on third-party payment gateways for processing transactions

3 External Interface Requirements

3.1 User Interfaces

- **Web Interface**: For managers and staff to access the system.
- **Mobile App**: For customers to make reservations and place orders.
- **POS Interface**: For staff to take orders and process payments.

3.2 Hardware Interfaces

- **POS Terminals**: For order processing and payments.
- **Kitchen Display Systems (KDS)**: For chefs to view and manage orders.
- **Printers**: For printing receipts and order tickets.

3.3 Software Interfaces

- **APIs**: For integrating with payment gateways and CRM systems.
- **Database**: For storing data related to reservations, orders, inventory, and staff.

3.4 Communication Interfaces

- **Secure Protocols**: Uses HTTPS for secure communication over the internet.

4 System Features

4.1 Reservation Management

4.1.1 Description

Allows customers and staff to manage table reservations.

4.1.2 Functional Requirements

- The system shall allow customers to make, modify, and cancel reservations.
- The system shall notify staff of new or updated reservations.
- The system shall display table availability in real-time.

4.2 Order Management

4.2.1 Description

Handles order taking, modification, and tracking for dine-in, takeout, and delivery.

4.2.2 Functional Requirements

- The system shall allow staff to take and modify orders.
- The system shall support multiple order types (dine-in, takeout, delivery).
- The system shall notify the kitchen of new orders via KDS.

4.3 Inventory Management

4.3.1 Description

Manages inventory levels and supplier orders.

4.3.2 Functional Requirements

- The system shall track stock levels and alert management when inventory is low.
- The system shall allow staff to update stock levels and manage supplier orders.
- The system shall generate inventory reports.

4.4 Billing and Payment Processing

4.4.1 Description

Generates bills and processes payments.

4.4.2 Functional Requirements

- The system shall generate bills based on orders and apply discounts, taxes, and tips.
- The system shall process payments via cash, credit/debit cards, and mobile wallets.
- The system shall integrate with third-party payment gateways for secure transactions.

4.5 Staff Management

4.5.1 Description

Schedules shifts and manages staff performance.

4.5.2 Functional Requirements

- The system shall allow managers to schedule shifts and manage attendance.
- The system shall track staff performance metrics.

4.6 Reporting

4.6.1 Description

Generates various reports for analysis.

4.6.2 Functional Requirements

- The system shall generate sales reports based on date ranges, order types, and payment methods.
- The system shall provide inventory reports detailing stock levels, usage, and order history.
- The system shall generate staff performance reports.

5. Non-Functional Requirements

5.1 Performance Requirements

- The system shall support up to 100 concurrent users without performance degradation.
- The system shall respond to user actions within 2 seconds under normal load conditions.

5.2 Security Requirements

- The system shall encrypt sensitive data, such as payment information, using industry-standard encryption methods.
- The system shall provide role-based access control to restrict access based on user roles.

5.3 Usability Requirements

- The system shall provide a user-friendly interface that is easy to navigate for users of all technical levels.
- The system shall be accessible on desktops, tablets, and smartphones.

5.4 Reliability Requirements

- The system shall have an uptime of 99.9% per month.
- The system shall provide data backup and recovery options in case of system failure.

6. Other Requirements

6.1 Regulatory Requirements

- The system shall comply with local health regulations and data protection laws.

6.2 Environmental Requirements

- The system shall operate in a typical restaurant environment with standard temperature and humidity ranges.

7. Requirements Traceability Matrix (RTM)

The RTM ensures that all requirements are covered by design, development, and testing activities. Each entry in the RTM links a functional or non-functional requirement to a specific design specification, implementation module, and test case, ensuring that all requirements are accounted for throughout the project lifecycle.

Requirement ID	Requirement Description	Design Specification	Implementation Modu	Test Case ID
FR1	Manage reservations (create, modify, cancel)	DS1	IM1	TC1
FR2	Notify staff of reservation changes	DS2	IM2	TC2
FR4	Take and modify orders via POS	DS4	IM4	TC4
FR6	Notify kitchen via KDS	DS6	IM6	TC6
FR7	Track stock levels and alerts	DS7	IM7	TC7
FR10	Generate bills and process payments	DS10	IM10	TC10
FR13	Schedule shifts and manage attendance	DS13	IM13	TC13
FR15	Generate sales reports	DS15	IM15	TC15
NFR1	Support up to 100 concurrent users	DS18	IM18	TC18
NFR2	Encrypt sensitive data	DS20	IM20	TC20

This SRS document provides a comprehensive overview of the requirements for a Restaurant Management System, ensuring all stakeholders have a clear understanding of the system's functionalities, user roles, and technical specifications needed for successful implementation and operation.