Requirement Document – Online Restaurant Reservation Management System

1. Introduction

1.1 Purpose

This document defines the functional and non-functional requirements of the Online Reservation Management System. The system will provide offline and online platform for customers to make and book tables, while allowing the restaurant staff to manage reservations effectively.

1.2 Scope

The system aims to make reservations easy, enhance customer experience, optimize restaurant data management through automation. Key functionalities will include:

- Online and offline reservation management
- Order Accuracy
- Table tracking and management
- Reservation modifications and cancellations
- Pick-up Service
- Administrative dashboard for restaurant staff
- Reservation reminder through messages or emails

1.3 Case (Scenario)

Nowadays eating out and not cooking is becoming commonplace, people are preferring to eat at fancy restaurants or order something from there. However not every restaurant has a good system for managing and dealing with this subject. As a result order inaccuracy, lack of automation which causes delay of reservations, communication problem between customers and staff and range of other problems are arising. Therefore we are aiming to build a system to improve and optimize customer satisfaction. Thanks to our system, users will be able to easily make table reservations, modify their reservations, communicate more effectively with restaurant staff, place orders, and, if they wish, take advantage of our pick-up service, which will allow them to be picked up from their homes and reach the restaurant easily.

Customers will register in our system by entering their name, phone number, and email information. They will be able to view the restaurant's menu, real-time table availability, reservation status, and notifications through the application. Customers will be able to make table reservations in advance for a specific date and time. They will also have the option to reschedule their reservation up to 12 hours before their scheduled time. Additionally, to prevent double bookings and to serve as a reminder, customers will receive notifications via SMS or email about their upcoming reservations.

Based on the number of people in the reservation and customer preferences, staff will assign appropriate tables accordingly. Reserved tables will be distributed among the waiters responsible for them. This way, a waiter will not interfere with a table assigned to another colleague, preventing any confusion or mismanagement at the table. Staff will also be able to adjust reservations according to special customer requests (such as birthdays, anniversaries, holidays, business meetings, etc.). Customers arriving at the restaurant without a prior reservation will be added to the system by staff based on the number of people and available tables, ensuring that reservations are updated accordingly.

While making a reservation, customers will have the option to select our **pick-up service** in the application. With this option, they will be picked up from their homes and safely transported to the restaurant. Customers selecting this option during the reservation process will be required to enter the number of people, address, and time details. Once the reservation is confirmed, depending on the selection of the pick-up service, a suitable vehicle will be assigned by the restaurant. Customers will then be able to view details such as the driver's information, vehicle capacity, and real-time location of the assigned car.

After arriving at the restaurant, customers will be able to browse the menu, place their orders, and customize their meal preferences directly from their table without needing a waiter's assistance. This will ensure a smoother and more efficient dining experience.

Administrators will be responsible for managing user accounts, reservation data, and system settings. They will ensure compliance with restaurant policies, oversee data security protocols, and monitor system performance. Additionally, they will have access to system logs to detect suspicious activities and protect customer privacy.

1.4 Target Audience

- Software development team
- Test engineers
- Product managers
- Stakeholders (Restaurant Owners & Managers, Restaurant Staff, Customers)

2. General Overview

The system will be available as both a web application and a mobile application, providing a user-friendly interface that streamlines interactions between customers and restaurant staff. Customers will be able to log in to the system, view available tables, make reservations, and manage their bookings. Restaurant managers and staff will have access to reservation schedules, table availability, and customer preferences.

The system will also allow restaurant staff to update seating arrangements, manage walk-in customers, and track peak hours to enhance service efficiency. Additionally, managers can **set** restaurant working hours, optimize reservations, and analyze booking trends.

3. User Roles and Permissions

There are three primary user types in the system:

User Type	Permission
Customer (Diner)	Create, view, modify and cancel reservations. Explore restaurant menus and table availability. Choosing pick-up from home option
Restaurant Staff	Manage reservations, view order details, set restaurant working hours, add notes about tables.
Admin	Manage user accounts, reservation data, and system settings.

4. Functional Requirements (FR)

No	Functional Requirements
FR-01	Customers must be able to create an account.
FR-02	Customers could be able to explore restaurant menus, drinks, locations, and real-time table availability.
FR-03	Customers could be able to reserve tables for a specific date and time.
FR-04	Customers must be able to modify or cancel their reservations.

FR-05	Customers must have an option to request a pick-up service.
FR-06	Customers could be able to view pick-up service details, including vehicle information and driver details.
FR-07	Staff could be able to add walk-in customers to the system based on table availability.
FR-08	Staff could be able to view and manage reservations.
FR-09	Administrators must be able to manage reservation data and system settings.
FR-10	Restaurant should be able to update and manage its menu.
FR-11	Administrators must be able to track system performance and monitor security logs.
FR-12	The system should generate daily and monthly reports on reservations
FR-13	The system should analyze peak dining hours to optimize table allocation.
FR-14	Customers and staff should have different Access levels to the system.
FR-15	The system should genereate reports on pick-up service frequency, peak hours, and popular menu items.
FR-16	The system should be track how many customers came by pick-up service daily and monthly.

5. Non-Functional Requirements (NFR)

No	Non-Functional Requirements
NFR-01	The system should handle multiple users without performance degradation for system concurrency.
NFR-02	Real-time table availability and vehicle tracking data should be updated within seconds.
NFR-03	User accounts should be securely stored and encrypted.
NFR-04	The application must be compatible with both mobile and desktop browsers.
NFR-05	The system must allow authorized adminstrators to Access system logs to monitör security threats.
NFR-06	The system must support role-based Access control (RBAC) to restrict unauthorized access.
NFR-07	Reservation transactions should be completed in under 2 seconds to enhance user experience

6. Constraints

No	Constraints
C-01	Customers can modify or cancel their reservations only up to 12 hours before the scheduled time.
C-02	Staff members can only manage their assigned tables and cannot modify tables assigned to colleagues.
C-03	Walk-in customers can only be added to the system if a table is available at the time of arrival.
C-04	Customers cannot book multiple reservations at the same restaurant fort he same time slot.
C-05	Each driver can only handle one active pick-up request at a time to avoid overbooking.

7. Data Management

Database:

- MySQL

Key Tables:

- **Customers**(id, name, email, password, phone_number)
- **Reservations** (id, customer_id, table_id, reservation_time, status)
- **Tables** (id, capacity, staff_id, order_id, status)
- **Pickups**(id, customer_id, driver_id, address, pickup_time, status)

8. Risks

- **System failure due to high user traffic**: Load balancing will be implemented for high scalability.
- **Security of user data**: Encryption and secure session management will be applied.
- **Risk of data loss**: Daily backup mechanisms will be implemented.
- **Incorrect reservations**: Changes will not be made without user confirmation.

9. Deliverables and Timeline

Deliverables	Timeline

Requirement Analysis	2 Weeks
UI/UX Design	3 Weeks
Database Design:	2 Weeks
Backend & API Development	5 Weeks
Testing Process	3 Weeks
Deployment & Maintenance	Ongoing