Project Proposal: Food Reserve - F&B Reservation and Queue Management System

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Introduction

The Food Reserve is a web-based application designed to streamline the reservation and queue management process for Food & Beverage (F&B) establishments. The system will provide a modern, responsive, and user-friendly interface for customers and staff, enabling efficient management of reservations, queues, and notifications. The system will support multiple outlets under a single F&B establishment, allowing each outlet to manage its reservations and queues independently while maintaining a centralized administrative view.

Objectives

Enhance Customer Experience

Provide a seamless reservation and queuing system to reduce wait times and improve customer satisfaction.

Operational Efficiency

Enable restaurant staff to manage reservations and queues effectively, especially during peak hours.

Scalability

Build a high-performance system capable of handling high customer volumes during busy periods like Ramadan.

Fraud Prevention

Implement mechanisms to prevent phantom queues and no-shows through confirmation notifications and a blacklist system.

Technologies

Frontend

Admin/Outlet Portal: Blazor with Mudblazor
Reservation/Queue Form: React (Nextjs)

Backend

ASP.NET Core Web API

Database

MariaDB

Notification Services

WhatsApp API

Scope of Work

Reservation System

- Allow customers to book tables with details such as name, outlet, phone number, number of guests, date, and time.
- Send confirmation notifications via WhatsApp.
- Enable customers to modify or cancel reservations before the scheduled date & time.

Queue Management

- Customers scan a QR code to join the queue.
- Collect essential information (name, contact number, number of guests, special requests).
- Provide real-time queue updates via WebSockets.
- Send automated WhatsApp notifications when a table is ready.

Admin Portal

- Create and manage multiple outlets with customizable settings.
- Configure outlet-specific details (location, operating hours, capacity).
- Manage staff logins and permissions.
- Ban customer numbers to prevent no-shows.

Outlet Portal

- Dedicated portal for each outlet to manage reservations and queues.
- Staff can view bookings, monitor queues, call customers, and send notifications.

User Roles and Permissions (Role-based access control)

- Admin: Full access to system settings.
- Outlet Staff: Manage bookings, queues, and notifications for specific outlets.
- Customers: Make, modify, and cancel reservations, join queues, and receive notifications.

User Interface

- Modern, responsive, and intuitive UI using MudBlazor (Admin/Outlet Portal) and React (Nextjs) (Reservation/Queue Form).
- Mobile-friendly design for accessibility across devices.

Backend and Database

- Develop a robust backend API using .NET Core.
- Use MariaDB for scalable and efficient database management.

- Integrate WhatsApp APIs for notifications.
- Implement authentication and role-based access control.

Scalability and Performance

- Optimize the system to handle high traffic during peak hours.
- Ensure fast response times with efficient database queries.

Expected Outcomes

- A seamless reservation and queuing system for F&B establishments.
- Reduced wait times and improved customer experience, especially during peak periods like Ramadan.
- Increased operational efficiency for restaurant staff.
- A modern, scalable, and high-performance system capable of handling high customer volumes.
- Prevention of phantom queues and no-shows through confirmation mechanisms and a blacklist system.

Conclusion

The Food Reserve - F&B Reservation and Queue Management System will revolutionize the way F&B establishments handle reservations and queues. By leveraging modern technologies like ASP .NET Core Web API, MudBlazor, React (Reactjs), and WhatsApp API, the system will provide a seamless experience for customers and staff alike. The project will deliver a scalable, high-performance solution that enhances operational efficiency and customer satisfaction, especially during peak periods like Ramadan.

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