**Description**

This documentation outlines the design and structure of a Restaurant Management System based on the given ER diagram and initial requirements. The system covers several modules, including AI customer service, restaurant web page management, menu management, table reservations, online ordering and delivery, employee management, and customer management. The documentation includes the required entities, their relationships, and the proposed technology stack.

**Modules and Entities**

1. AI Customer Service

**Description**: This module handles customer interactions through AI, providing support, answering queries, and resolving issues.

**Entities**:

* **AI Customer Service**: Manages the integration with the chatbot.
* **Chatbot**: Stores chatbot configurations and interaction logic.
* **Customer Queries**: Logs customer queries and their statuses.
* **FAQs**: Stores frequently asked questions and their answers.
* **Feedback**: Collects and manages feedback from customers.

1. Web Page for Each Restaurant

**Description**: This module manages the creation and content of individual restaurant web pages.

**Entities**:

* **Webpage**: Stores details of each restaurant's webpage.
* **Restaurant**: Represents the restaurant entity linked to a webpage.

1. Menu Management

**Description**: This module handles menu item creation, updating, and deletion.

**Entities**:

* **Item Description**: Represents the menu items available at the restaurant.

1. Table Management / Reservations

**Description**: This module manages table reservations and seating arrangements.

**Entities**:

* **Reservation/Table Management**: Stores reservation details.
* **Table**: Represents the dining tables available in a restaurant and their types (i.e, Regular, VIP, VVIP).

1. Online Ordering / Delivery

**Description**: This module handles online orders and delivery logistics.

**Entities**:

* **Online Ordering**: Represents the orders placed by customers.
* **Dispatch/Delivery**: Manages the dispatch of orders from the kitchen to customers.

1. Employee Management

**Description**: This module manages employee information and work schedules.

**Entities**:

* **Employee**: Stores details of the employees working in the restaurant.
* **Chef**: Manages the orders being processed by the kitchen staff.

1. Customer Management

**Description**: This module manages customer information and interactions.

**Entities**:

* **Customer**: Stores customer details.

**Technology Stack**

**Frontend**:

* **Framework**: Next.js
* **Languages**: TypeScript, React
* **Styling**: Tailwind CSS

**Backend**:

* **Framework**: Nest.js
* **Languages**: TypeScript.
* **Database**: PostgreSQL

**Entity Relationship Diagram (ERD)**

The ER diagram visualizes the system's structure, depicting entities and their relationships. Below is a detailed description based on the attached image:

**Entities and Relationships**:

1. **Webpage**:
   * id (Primary Key)
   * Restaurant ID (Foreign Key to Restaurant)
   * AI customer service ID (Foreign Key to AI Customer Service)
2. **Restaurant**:
   * id (Primary Key)
   * online order ID (Foreign Key to Online Ordering)
   * Reservation ID (Foreign Key to Reservation)
3. **AI Customer Service**:
   * id (Primary Key)
   * chatbot ID (Foreign Key to Chatbot)
   * customer query handling ID (Foreign Key to Customer Queries)
   * Feedback ID (Foreign Key to Feedback)
4. **Chatbot**:
   * id (Primary Key)
   * FAQ ID (Foreign Key to FAQs)
5. **FAQs**:
   * id (Primary Key)
   * Frequently Asked Questions (Text)
6. **Customer Queries**:
   * id (Primary Key)
   * Query item (Text)
   * Resolution status (Boolean)
   * chatbot ID (Foreign Key to Chatbot)
7. **Feedback**:
   * id (Primary Key)
   * Feedback (Text)
8. **Item Management**:
   * id (Primary Key)
   * Name (Text)
   * Price ($)
   * Description (Text)
9. **Online Ordering/Delivery**:
   * id (Primary Key)
   * Item ID (Foreign Key to Item Management)
   * Quantity (BigInt)
   * Price ($) (BigInt)
   * Customer ID (Foreign Key to Customer)
10. **Employee**:
    * id (Primary Key)
    * First Name (Text)
    * Last Name (Text)
    * Phone (BigInt)
    * Email (Text)
    * Role (Text)
    * Role id (BigInt)
    * Monthly Salary ($)(BigInt)
    * Shift schedule (Time)
11. **Reservation/Table Management**:
    * id (Primary Key)
    * Customer ID (Foreign Key to Customer)
    * Reserved time (Date)
    * Table id (Foreign Key to Table)
12. **Table**:
    * id (Primary Key)
    * Type (Text)
    * Price ($)(BigInt)
13. **Customer**:
    * id (Primary Key)
    * First Name (Text)
    * Last Name (Text)
    * Phone (BigInt)
    * Email (Text)
    * Address (Text)
14. **Dispatch**:
    * id (Primary Key)
    * Order ID (Foreign Key to Online Ordering/Delivery)
15. **Chef**:
    * id (Primary Key)
    * Order ID (Foreign Key to Online Ordering/Delivery)