Restaurant Management System – Schema Documentation

Entity Overview

The database contains **20 entities** categorized into:

- **System Entities:** Admin, Role, Manager
- **Business Entities:** Branch, Employee, Customer, DiningTable
- **Menu System:** Menu, MenuCategory, MenuDish
- **Inventory System:** Supplier, Ingredient, Inventory, MenuDishIngredient
- **Transaction Entities:** Order, OrderItem, Payment, Reservation, Feedback, Shift

Data Dictionary

Customer

- customer_id (PK)
- name
- phone (UNIQUE)
- email (UNIQUE)
- created_at

Employee

- employee_id (PK)
- name

- salary
- role_id (FK)
- branch_id (FK)

MenuDish

- dish_id (PK)
- dish_name
- price
- category_id (FK)

Order

- order_id (PK)
- order_time
- customer_id (FK)
- employee_id (FK)

OrderItem

- order_item_id (PK)
- order_id (FK)
- dish_id (FK)
- quantity

Payment

- payment_id (PK)
- order_id (FK UNIQUE)

- amount
- method

Constraints

- Primary keys ensure entity uniqueness
- Foreign keys maintain referential integrity
- CHECK constraints enforce business rules (positive price, rating range)
- UNIQUE constraints avoid duplicate phone/email

Indexing

Indexes created on:

- Order(order_time)
- Customer(phone)
- MenuDish(dish_name)

These improve query performance for frequent searches.

User Roles

- **Admin:** Full system control
- **Manager:** Branch-level management
- **Employee:** Order processing

Normalization

The database follows **Third Normal Form (3NF)**.
Many-to-many relationships are resolved using associative entities.
Redundancy and update anomalies are eliminated

Conclusion

The schema supports scalable restaurant operations, multi-branch management, and real-world menu and inventory systems.