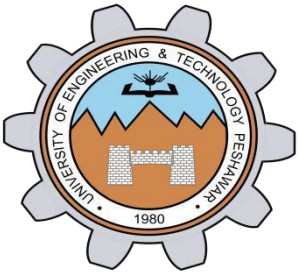
Key Milestone 1: Conceptual Schema



DBMS Final Project

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"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work"

Department of Computer Systems Engineering

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Project: Restaurant Management System

Main Entities & Their Description:

1. users:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
name	String	name
phone	String	phone
email	String	email
address	String	address
password	string	password

2. employees:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
name	String	name
role	String	role
phone	String	phone
salary	Integer	salary
shift_timing	DateTime	shift
date_of_joining	Date	date_joining

3. foods:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
title	String	title

detail	String	detail
price	Integer	price
image	String	image

4. orders:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
user_id (FK)	Integer	user_id
food_id (FK)	Integer	food_id
Employee_id (FK)	integer	Employee_id
amount	Integer	amount
status	String	status

5. tables:

Attributes	Datatypes	Name in Database
id(PK)	Integer	id
capacity	Integer	capacity
details	String	detail
status	String	status

6. books:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
table_id (FK)	Integer	table_id
phone	String	phone
guests	Integer	guests
date	DateTime	date

time	DateTime	time

7. reviews:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
food_id (FK)	Integer	food_id
review	String	review
rating	Integer	rating
date	DateTime	date

8. carts:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
user_id (FK)	Integer	user_id
food_id (FK)	Integer	food_id
quantity	Integer	quantity

1. invoice:

Attributes	Datatypes	Name in Database
id (PK)	Integer	id
order_id (FK)	Integer	order_id
user_id (FK)	Integer	user_id
amount	Integer	amount
status	String	status
date	DateTime	date

Business Rules for Restaurant Management System:

1. users

Business Role:
Stores the details of customers who use the restaurant system. Each user can browse the menu, add items to their cart, place orders, leave reviews, and book tables.

Key Functional Rules:

- One user can have multiple orders.
- One user can post multiple reviews.
- One user can have multiple invoices and carts.
- Each user is uniquely identified by their ID.

2. employees

Business Role:
Manages records of restaurant staff such as waiters, chefs, and managers. Employees are assigned to handle orders and work shifts.

Key Functional Rules:

- Each employee has a designated shift.
- Employees may be linked to handling one or more orders.

3. food

Business Role:
Maintains the master list of food items offered by the restaurant. This includes information like name, description, price, and image for display.

Key Functional Rules:

- Food items appear in the menu.
- Food items are referenced in orders, cart, and reviews.

4. orders

Business Role:
Stores all placed orders made by users. Each order links a user to a food item and the employee responsible for fulfilling it. Contains the order's current status and amount.

Key Functional Rules:

- Each order belongs to one user.
- Each order is assigned to one employee.
- Each order is for one food item (in flattened design).
- Order statuses include: Pending, Completed, Cancelled.

5. tables

Business Role:
Stores information about the physical dining tables in the restaurant including their seating capacity and current availability status.

Key Functional Rules:

- Each table can be reserved (linked via books).
- Table status can be: Available, Reserved, Occupied.

6. books

Business Role:
Manages customer reservations for dining tables. Tracks which user reserved which table at what date and time, for how many guests.

Key Functional Rules:

- A user can make multiple bookings.
- A table can have multiple bookings (on different dates/times).
- Booking includes time and number of guests.

7. reviews

Business Role:
Captures feedback from users about food items. Each review includes a rating and review text, tied to a specific food item.

Key Functional Rules:

- A user can review multiple food items.
- A food item can have many reviews.
- Ratings help in calculating average food quality scores.

8. carts

Business Role:
Temporarily stores food items that a user is planning to order. Acts like a shopping basket before converting to an order.

Key Functional Rules:

- A cart is user-specific.
- Items in the cart are not yet part of any official order.
- Cart is cleared when the order is placed.

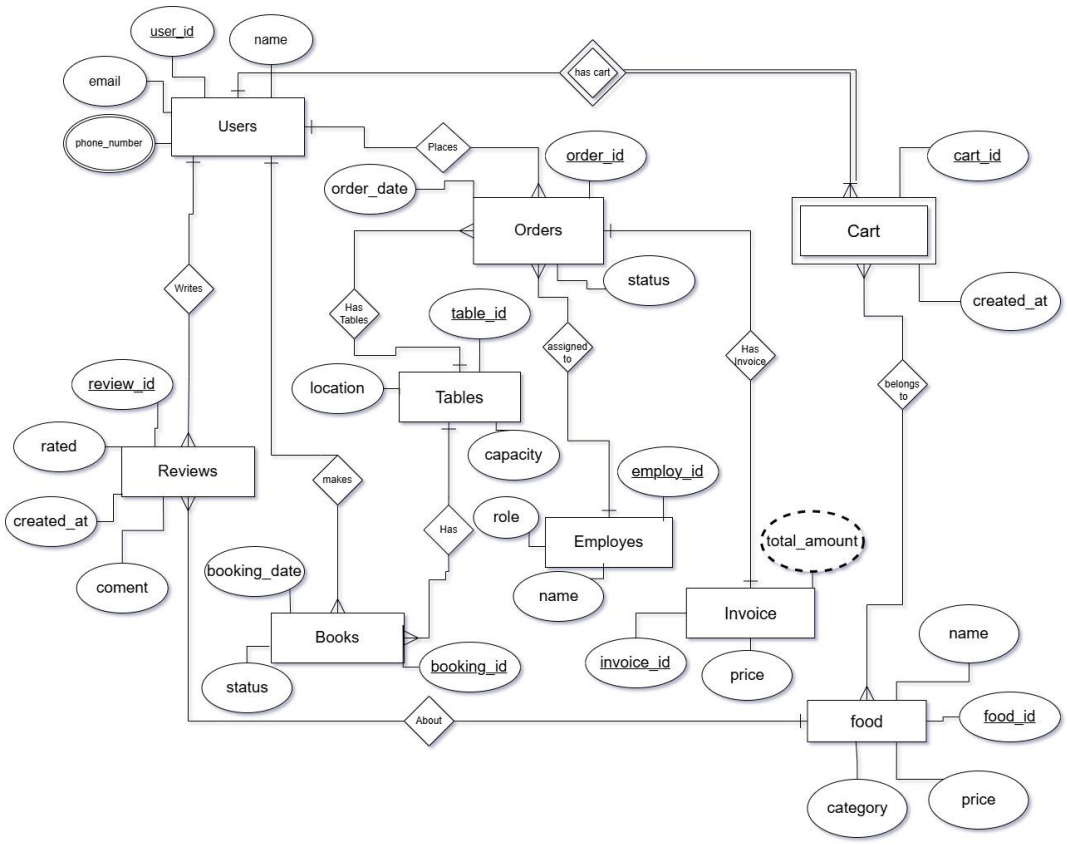
9. invoice

Business Role:
Keeps a financial record of each completed order. Used for billing, accounting, and payment tracking.

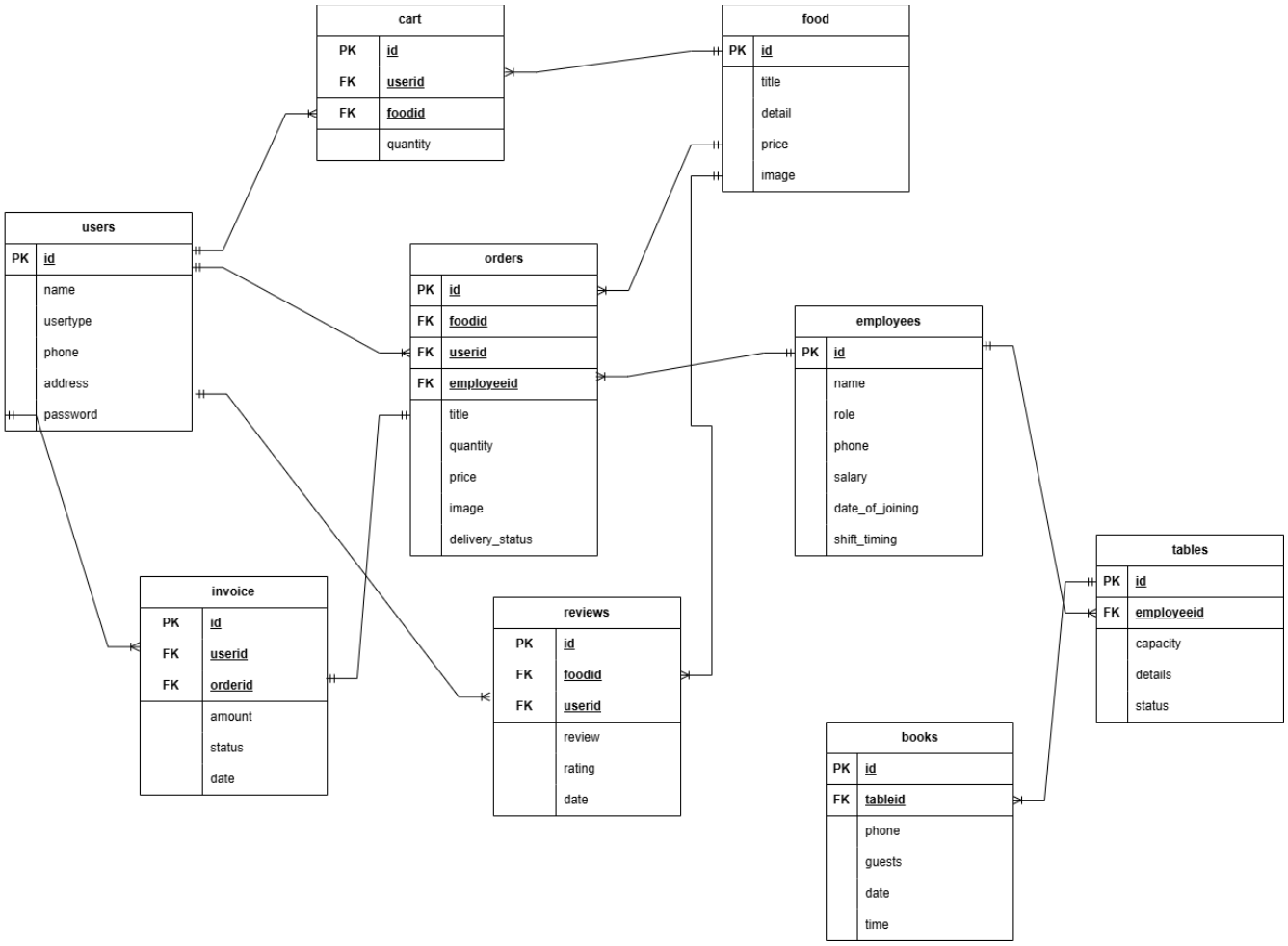
Key Functional Rules:

- Each invoice belongs to a user and an order.
- Invoices store final amount, status (e.g., Paid, Unpaid), and timestamp.
- One invoice per order.

ERD (Entity Relationship Diagram):



EERD (Enhanced Entity Relationship Diagram):



References:

- ChatGPT
- Youtube
- Draw.io
- Claude