

OrderHub - Food Ordering Management System

DAMG 6210 – Data Management & Database Design
Spring 2024

Group No 18

P2. Database Design, Initial ERD

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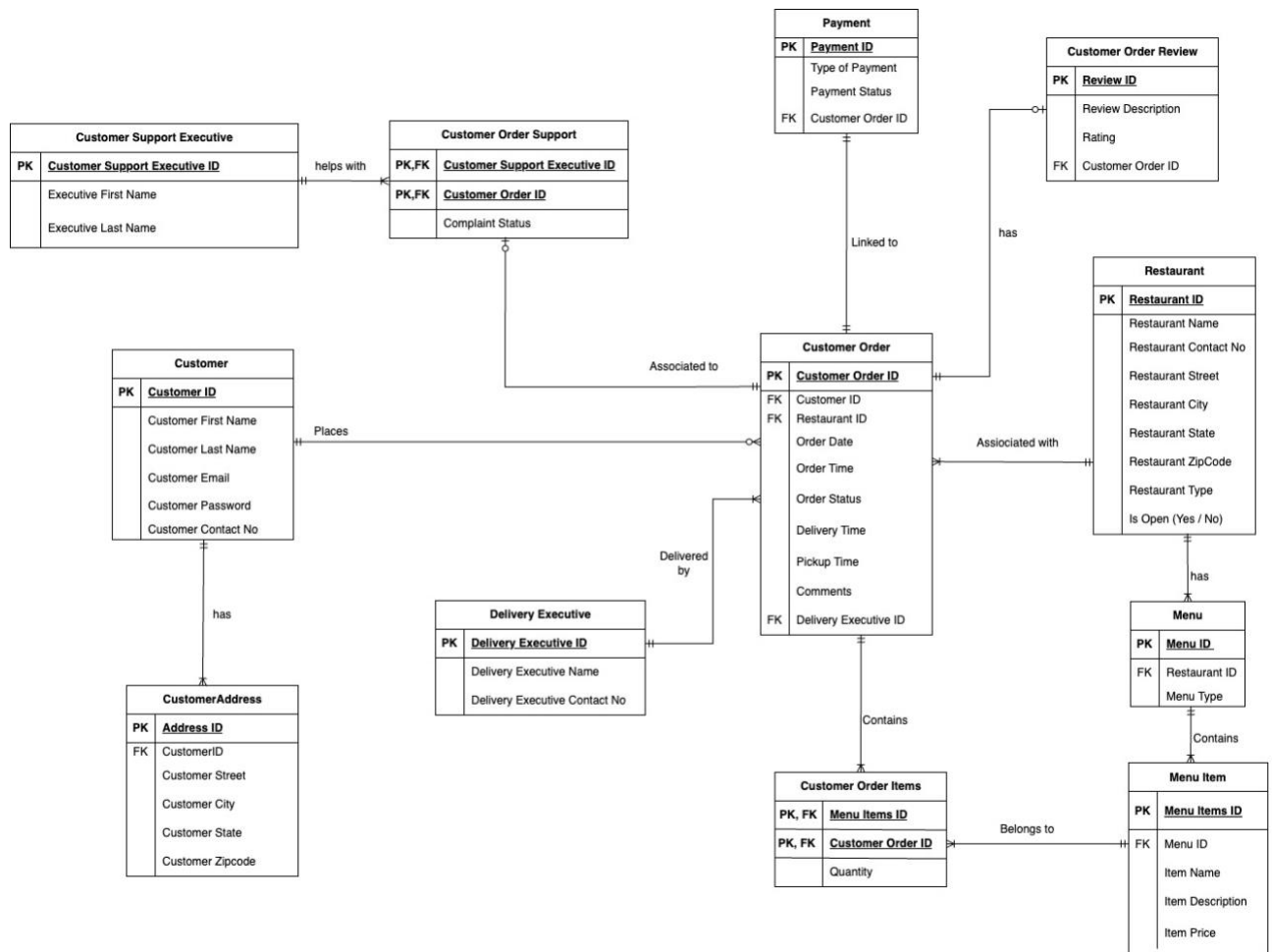
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Mission Statement:

The purpose of the OrderHub - Food Ordering Management System is to effectively manage the operational facets of a food delivery business. Data about menus, deliveries, and customer orders are all gathered and managed by it. The system uses real-time analytics to support decision-making. This system aims to streamline processes, enhance customer service, optimize inventory management, and facilitate decision-making for restaurant management, leading to increased productivity, cost-effectiveness, and customer satisfaction.

Problem Addressed:

- The current food order and delivery process is inefficient and imprecise, resulting in dissatisfied customers and poor delivery service productivity.
- Inadequate database administration can result in erroneous tracking of customer orders, menu items, inventory, and delivery information. Manual errors and inefficient processes can also result in order delays.
- A lack of real-time data analytics and information may result in inaccurate inventory management.
- Absence of real-time data analytics to guide selections and improve the overall efficacy of the ordering and delivery process.
- Transactional and reference data related to customer orders, menus, and deliveries are not efficiently tracked and handled.
- The OrderHub: Food Ordering Management System addresses these difficulties by providing a complete and accurate database management system that collects, manages, and provides real-time access to all relevant food ordering and delivery data and information.



ER Diagram

Design Rules:

1. **Customer:** Each customer has a unique Customer ID and is associated with Customer Orders and Customer Addresses.
 - A Customer can have zero or more Customer Orders.
 - A Customer is linked to one or more Customer Addresses.
2. **Customer Orders:** Customers can place orders, which are associated with a specific restaurant and delivery executive.
 - Each Customer Order may have a Payment and a Customer Order Review.
 - A Customer Order is linked to one or more Customer Order Items.
 - A Customer Order may have zero or more associated Customer Order Supports.
3. **Customer Order Item:** These are associated with both a Menu Item and a Customer Order, reflecting the many-to-many relationship between them.
4. **Customer Address:** This entity is to save all one or customer addresses for with one customer ID.
5. **Payment:** This entity contains details about the payment method and status for Customer Orders.
6. **Restaurant:** Each restaurant is associated with a Restaurant ID and contains details such as name, contact, and type.
 - Restaurants are linked to Customer Orders and have one or more Menus.
7. **Menu:** Each restaurant will have its own menus, which can be easily available to customers.
 - Each Menu can have one or more Menu Items
8. **Menu Item:** Each menu item should have its own information such as Item name, Item description, and Item Price.
9. **Customer Order Support:** Every complaint placed by a customer will be assigned a customer support executive to process all the complaint status.
10. **Delivery Executive:** Each delivery executive will be responsible for completing one or more Customer Orders.
11. **Customer Support:** The system should provide an efficient customer support system to handle customer inquiries and complaints.
12. **Customer Order Review:** The system should allow customers to review and rate their orders.

Key Design Decisions:

Sl. No.	Entity Name	Why This Entity Included	How This Entity Is Related
1.	Customer	The primary role in this database management system is that of the Customer. Orders are placed and customer profiles are managed using it.	<p>The Customer is connected to the Customer Order, Customer Address</p> <p>The Relations are:</p> <ul style="list-style-type: none">- A Address ID is linked to single Customer.- A Customer Order ID is linked to a single Customer
2.	Customer Order Items	To avoid many-to-many links between Customer Orders and Menu Items, the associated entity will hold the data of Menu Items, Customer Order ID, and Quantity.	<p>The Customer Order Items is connected to Customer Orders and Menu Items</p> <p>The Relations are:</p> <ul style="list-style-type: none">- A Customer Order ID can have one or more Customer Order Item- A Menu Item ID is linked with one or more Customer Order Items
3.	Delivery Executive	This Entity stores information about the delivery executive assigned to deliver customer orders. It also shows the availability of the delivery executive.	<p>Delivery Executive is connected to Customer Order</p> <p>The Relations are:</p> <ul style="list-style-type: none">- A Customer Order ID is linked with a single Delivery Executive
4.	Payment	This entity is used to store the payment details of the customer order. It contains payment type, payment amount, payment status and Customer Order ID	<p>Payment is associated with Customer Order.</p> <p>The Relations are:</p> <ul style="list-style-type: none">- A Customer Order ID will have one Payment ID associated to it.

5.	Restaurant	This entity will store the Restaurant name, Restaurant contact no., Restaurant type (based on the kind of food it serves), Is Open	<p>Restaurant is associated to Customer Order and Menu.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> - A Customer Order ID will have one Restaurant ID associated to it. A Menu ID will have one Restaurant ID associated to it.
6.	Menu	These are the various menus which a restaurant serves. It contains Restaurant ID and menu type (drinks, appetizers etc.)	<p>Menu is associated to a Restaurant and Menu Items.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> - A RestaurantID will have one to many MenuID associated to it. - A Menu Item ID will be associated to one Menu ID.
7.	Menu Items	This contains the list of items present on each menu. It contains Menu ID, Item Name, Item Description, and Item Price	<p>Menu Item is associated to Customer Order Item and Menu Item</p> <p>The Relations are:</p> <ul style="list-style-type: none"> - A Menu ID will have one to many Menu Item ID associated to it. - An Customer Order Item ID will have one to many Menu Item ID associated to it.
8.	Customer Order Review	This entity is used to store the order review and ratings given by Customer. It contains Customer Order ID, Review Description and Rating	<p>Customer Order Review is associated with Custom Order.</p> <p>The Relations are:</p>
			<ul style="list-style-type: none"> - A Review ID will have one Customer Order ID associated to it.

9.	Customer Order Support	The Customer Order Support Entity is used to store information about the Customer Support Executive.	<p>Customer Order Support is associated with Customer Support Executive and Customer Order.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> - A Customer Support Executive ID will help one Customer Order Support ID associated to it. - A Customer Order ID will have zero to many Customer Order Support ID associated to it.
10.	Customer Addresses	A Customer can have one or more address associated to it.	<p>Customer Addresses is linked with Customer.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> -A Customer can have many addresses for the food to be delivered at different locations.
11.	Customer Support Executive	Customer Support executive is added as an entity to store the details of the support executives.	<p>Customer Support Executive is associated with Customer Order Support.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> -Every Customer order complaint will be assigned a customer support executive to solve the problem.

12.	Customer Order	<p>The information about the customer's orders will be stored in the Customer Orders Entity. It contains Customer ID, Restaurant ID, Order Date, Order Time, Order Status, Delivery Time, Pickup time, Total price, Comments and Delivery Executive ID</p>	<p>Customer Order is associated to Customer, Restaurant, Delivery Executive, Payment, Customer Order Review, Customer Order Support and Customer Order Item.</p> <p>The Relations are:</p> <ul style="list-style-type: none"> - A Customer ID will have optional to many Customer Order ID associated to it. - A Restaurant ID will have one Customer Order ID associated to it. - A Delivery Executive ID will have one Customer Order ID associated to it. - A Payment ID will have one Customer Order ID associated to it. - A Customer Support ID will have one Customer Order ID associated to it. - A Customer Order Item ID will have one Customer Order ID associated to it. - A Review ID will have one Customer Order ID associated to it.
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