

# 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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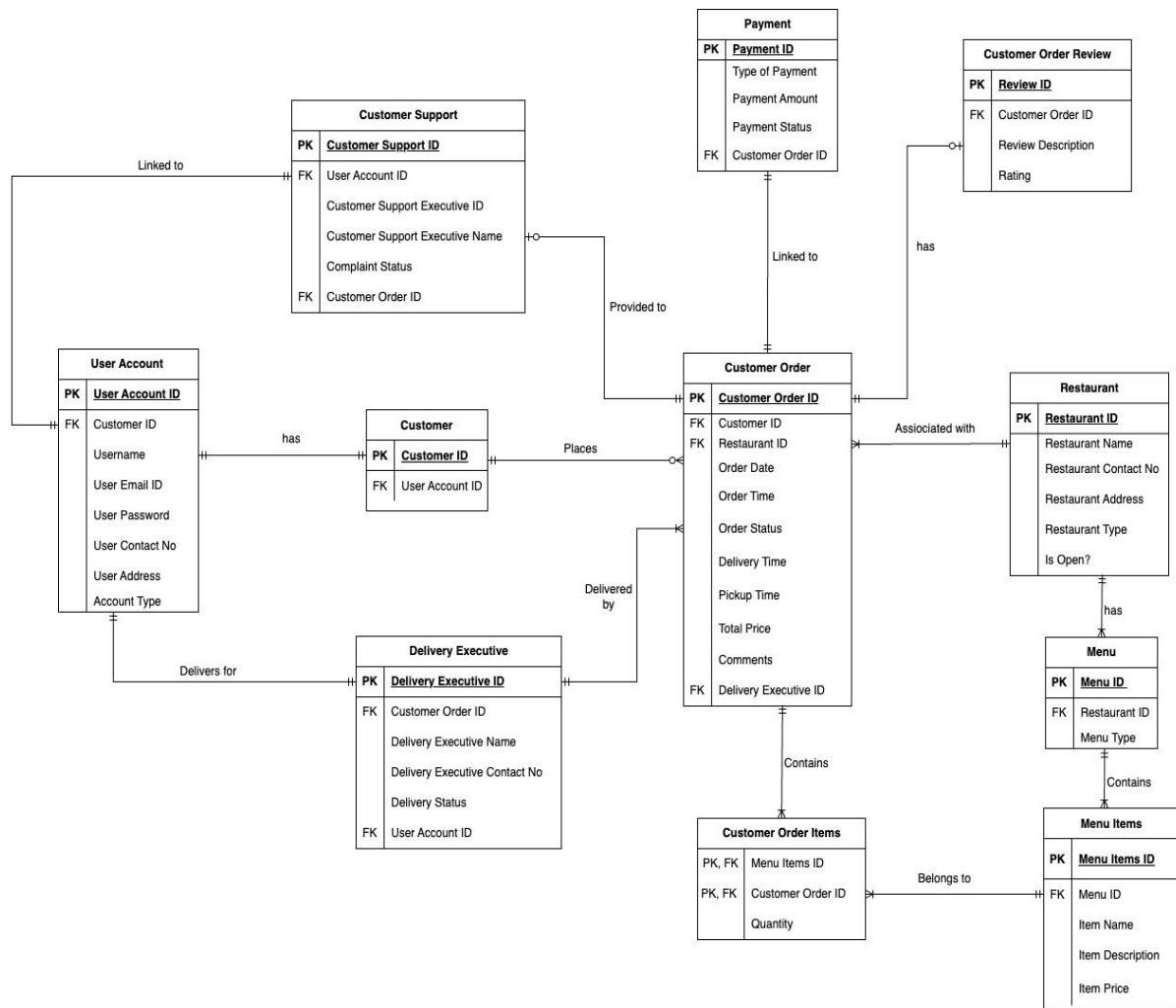
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## Mission Statement:

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. **User Account:** Every Member will be assigned a user account with personal information such as Username, User Email ID, User Password, User Contact No, User Address and Account Type.
  - a. Each Customer, Delivery Executive, and Customer Support will be linked to one User Account
2. **Customer:** Each customer will have a unique User Account
  - a. Each Customer can place zero or more Customer Orders
3. **Customer Orders:** The system should allow customers to place orders and track order status in real time.
  - a. Each Customer Order can have zero or one Customer Order Review
  - b. One or more Customer Orders will be associated with one Restaurant
  - c. Each Customer Order will have one Payment linked to it.
  - d. One or more Customer Orders will be delivered by one Delivery Executive
  - e. Each Customer Order can have zero or one Customer Support
  - f. Each Customer Order contains one or more Customer Order Items
  - g. Zero or more Customer Orders are placed by one Customer
4. **Customer Order Item:** One or more Customer Order Items will belong to one and only one menu item
5. **Payment:** The system will allow the Payment entity to store the Payment type, Payment Amount, Payment Status and Customer Order ID for the orders.
6. **Restaurant:** Each restaurant will have information such as Restaurant Name, Restaurant Contact No, Restaurant Address, Restaurant Type and information if it is open or closed.
  - a. Each Restaurant can have one or more Customer Orders
  - b. Each Restaurant will have one or more Menu
7. **Menu:** Each restaurant will have its own menus, which can be easily available to customers.
  - a. 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. **Delivery Executive:** Each delivery executive will be responsible for completing one or more Customer Orders.
10. **Customer Support:** The system should provide an efficient customer support system to handle customer inquiries and complaints.
11. **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.	User Account	This entity is the most significant component of this database management system. This item contains user information such as Username, Email ID, User Password, User Contact No, Address and Account type	<p>The User Account is linked to the Customer, Customer Support and Delivery Executives.</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A single user account will be linked to each Customer ID.</li> <li>- A single user account will be linked to each Customer Support ID.</li> <li>- A single User Account will be linked to each Delivery Executive ID</li> </ul>
2.	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, User Account</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A User Account ID is linked to single Customer</li> <li>- A Customer Order ID is linked to a single Customer</li> </ul>
3.	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><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A Customer Order ID can have one or more Customer Order Item</li> <li>- A Menu Item ID is linked with one or more Customer Order Items</li> </ul>
4.	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 and User Account</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A User Account ID is linked with a single DeliveryExecutive</li> <li>- A Customer Order ID is linked with a single Delivery Executive</li> </ul>

5.	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><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A Customer Order ID will have one Payment ID associated to it.</li> </ul>
6.	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><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A Customer Order ID will have one Restaurant ID associated to it.</li> <li>- A Menu ID will have one Restaurant ID associated to it.</li> </ul>
7.	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><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A RestaurantID will have one to many MenuID associated to it.</li> <li>- A Menu Item ID will be associated to one Menu ID.</li> </ul>
8.	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 Order Item and Menu</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A Menu ID will have one to many Menu Item ID associated to it.</li> <li>- A Order Item ID will have one to many Menu Item ID associated to it.</li> </ul>
9.	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><b>The Relations are:</b></p>

			<p>- A Review ID will have one Customer Order ID associated to it.</p>
10.	Customer Support	The Customer Support Entity is used to store information about the Customer Support Executive.	<p>Customer Support is associated with User account and Customer Order.</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A User ID will have one Customer Support ID associated to it.</li> <li>- A Customer Order ID will have zero to many Customer Support ID associated to it.</li> </ul>
11.	Customer Order	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>Customer Order is associated to Customer, Restaurant, Delivery Executive, Payment, Customer Order Review, Customer Support and Customer Order Item.</p> <p><b>The Relations are:</b></p> <ul style="list-style-type: none"> <li>- A Customer ID will have optional to many Customer Order ID associated to it.</li> <li>- A Restaurant ID will have one Customer Order ID associated to it.</li> <li>- A Delivery Executive ID will have one Customer Order ID associated to it.</li> <li>- A Payment ID will have one Customer Order ID associated to it.</li> <li>- A Customer Support ID will have one Customer Order ID associated to it.</li> <li>- A Customer Order Item ID will have one Customer Order ID associated to it.</li> <li>- A Review ID will have one Customer Order ID associated to it.</li> </ul>