



Faculty of Computers and Artificial Intelligence

Introduction to Database Systems

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Assignment-1

Food Ordering System

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Functional Requirements

Req. ID	Requirement	Description
RQ001	Signup Customer	The system shall allow signing up a new customer by a customer or an admin by providing: Password, Name, Email, Address, Phone Number, Favorite Meal.
RQ002	Admin Login	The system shall allow an admin to log in using their Email and Password.
RQ003	Add Feedback	The system shall allow customers to submit, edit and delete feedback with Review text, Rate, and Date.
RQ004	Place Order	The system shall allow customers to place orders by selecting menu items, providing quantity, and choosing a payment method. The system calculates subtotal, tax, and total.
RQ005	View Menu Items	The system shall allow customers to browse menu items by Name, Category, Availability, Season, and Price.
RQ006	Admin Manages Menu	The system shall allow admins to manage (add, edit, delete) menu items including: Name, Description, Category, Price, Availability, Season.
RQ007	View Branch Info	The system shall allow users to view branch details including Branch ID and Location.
RQ008	Assign Favorite Meal	The system shall allow customers to set a favorite meal linked to Menu Items.
RQ009	Admin Owns Branch	The system shall allow each admin to be associated with one or more branches, indicating ownership.

RQ010	View Orders	The system shall allow customers and admins to view placed orders with Order ID, Date, Total, Tax, Subtotal, and Payment Method.
RQ011	Order Contains Items	The system shall allow each order to contain multiple menu items with their quantity and calculated product total.
RQ012	Customer Feedback History	The system shall allow customers to view all feedback they have submitted including Review, Rate, and Date.
RQ013	Branch Order Records	The system shall allow admins to access all orders associated with their branches.
RQ014	Customer Login	The system shall allow customers to log in using Email and Password.
RQ015	Manage Branch Details	The system shall allow admins to view and update information related to their branches (e.g., Location).
RQ016	Meal Availability Update	The system shall allow admins to update the availability status of menu items.
RQ017	Customer Updates Profile	The system shall allow customers to update their information including Name, Address, Email, Phone Number, and Favorite Meal.

Constraints:

Data Constraints:

- Email Uniqueness
 - Each customer and Branch_Admin must have a unique email
- Phone Number
 - Phone number must follow a valid format (15 digits)
- Rating Range
 - Feedback (rate) must be an integer between 1 and 5.
- Availability value
 - Menu_items availability should only allow 'Y' or 'N' (Yes/No)
- Cascade deletes or updates
 - Deleting a customer should cascade to: his phone number, feedback, orders, and favorites.
 - Deleting a menu item should be blocked if it exists in orders or should handle dependency

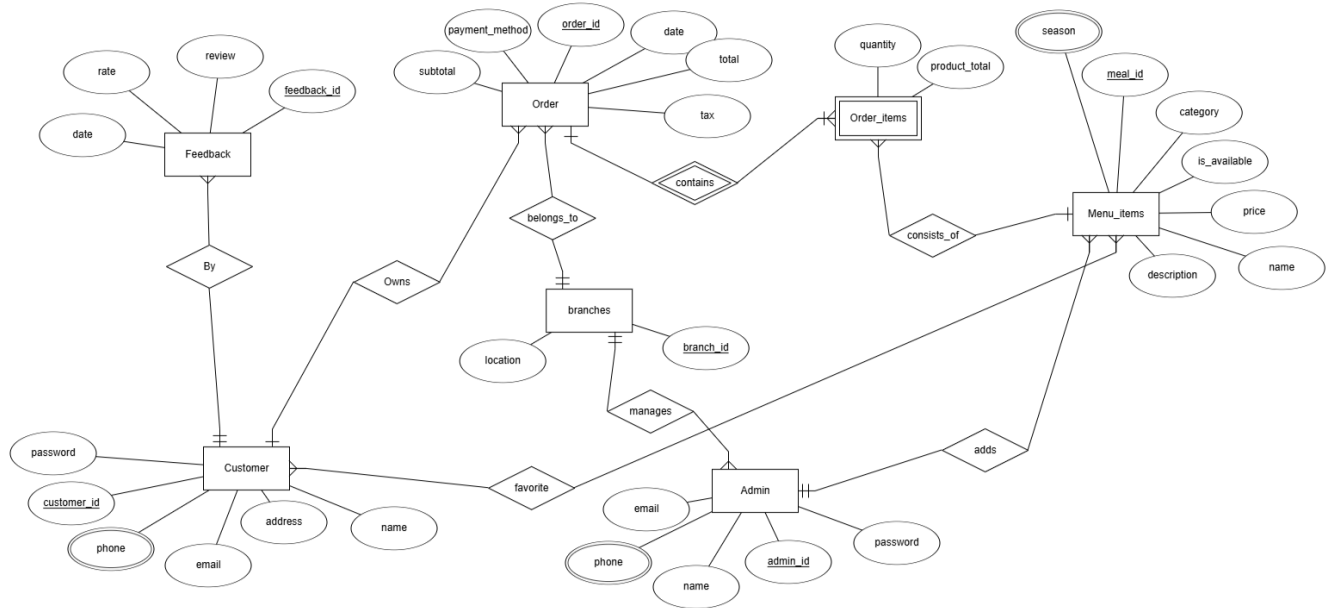
Cardinality Constraints:

- One to many:
 - One customer – many orders
 - One customer – feedbacks
 - One customer – phones
 - One branch – many orders
 - One admin – many branches and menu items
- Many to many:
 - Customers can have many favorite menu items and each item can be favored by many customers

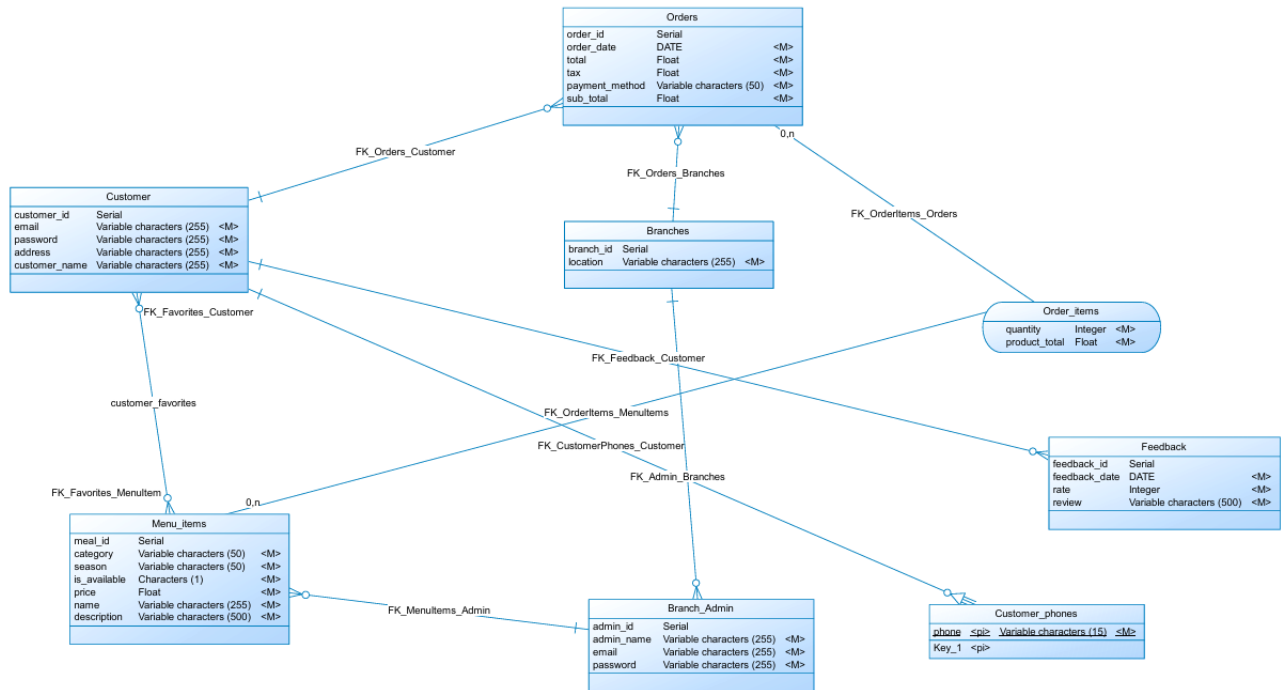
Assumptions:

- Customer signup and login are separate
 - Customers must sign up before logging in
- Admins cannot place orders
 - Admins can only manage, not order food
- A favourite meal is optional
 - A customer may or may not select a favourite meal during signup
- Multiple phone numbers per customer
 - The system allows each customer to have multiple phone numbers
- Orders must have at least one item
 - An order must contain at least one menu item to be valid
- Order totals are auto-calculated
 - Subtotal, tax and total are not manually entered but calculated based on items and quantity
- Only customers can provide feedback
 - Feedback is tied to a customer
- Admin owns menu items via branch ownership
 - Menu items managed by admins belong to branches they manage
- Admins can manage only their branch data
 - An admin cannot modify branches they do not own
- Feedback can be modified
 - Customers can edit or delete their own feedback
- Menu item availability is binary
 - Items are either available or not (Y/N).
- System trusts manual inputs for some attributes
 - For attributes like payment_method or location

Conceptual Model (ERD):



Conceptual Model (PowerDesigner):



Physical Model

