SOFTWARE ENGINEERIGN PRINCIPLES

LAB ASSESSMENT-3

SHRIYA GARG-23MID0169
SHARMILEE PRUSTY-23MID0003
ARYAN SINHA-23MID088

ENTITY RELATIONSHIP DIAGRAM

Online Food Ordering and Delivery System

Features:

1. **User Registration and Secure Login:**
    - Users can sign up and create their accounts.
    - Secure login system to protect personal details.
2. **Browse Restaurants and Order Food:**
    - Users can explore a variety of restaurants.
    - A simple interface to choose food and place orders.
3. **Live Menu Updates:**
    - Shows real-time menu availability and prices.
    - Ensures users see the latest restaurant offerings.
4. **Customizable Orders:**
    - Users can personalize their orders.
    - Options to add special instructions for food preferences.
5. **Order Tracking & Notifications:**
    - Live tracking of orders from placement to delivery.
    - Alerts about order progress and estimated arrival time.
6. **Secure Payment Options:**
    - Supports multiple payment methods (cards, digital wallets, cash on delivery).
    - Ensures safe transactions through secure payment gateways.
7. **Table Booking Feature:**
    - Users can reserve tables at restaurants in advance.
    - Option to select preferred seating and dining time.

Entities and Attributes

1. Customer (Individuals placing orders or booking tables)

- **CustomerID (Primary Key):** Unique identifier for each customer.
- **Name:** Customer's full name.
- **Address:** Customer's physical address.
- **ContactNumber:** Customer's phone number.
- **Email:** Customer's email address.

2. Restaurant (Offering food for delivery and table reservations)

- **RestaurantID (Primary Key):** Unique identifier for each restaurant.
- **ItemID (Foreign Key):** Unique identifier for each menu item.
- **OrderID (Foreign Key):** Unique identifier for each order.
- **Name:** Restaurant's name.
- **Address:** Location of the restaurant.
- **CuisineType:** Type of cuisine offered.
- **ContactNumber:** Restaurant's phone number.

3. Menu Item (Food items available for ordering)

- **ItemID (Primary Key):** Unique identifier for each menu item.
- **Name:** Name of the menu item.
- **Description:** Details about the dish.
- **Price:** Cost of the item.
- **RestaurantID (Foreign Key):** Links to the restaurant offering the item.

4. Order (Placed by customers for food delivery)

- **OrderID (Primary Key):** Unique identifier for each order.
- **CustomerID (Foreign Key):** Links to the customer placing the order.
- **OrderDate:** Date and time of order placement.
- **TotalAmount:** Total cost of the order.
- **DeliveryAddress:** Address for order delivery.

5. Delivery Personnel (Handles food delivery)

- **DeliveryPersonID (Primary Key):** Unique identifier for each delivery personnel.
- **OrderID (Foreign Key):** Unique identifier for each order.
- **Name:** Name of the delivery personnel.

- **ContactNumber:** Contact details of the delivery personnel.

6. Table Booking (For customers reserving tables at restaurants)

- **BookingID (Primary Key):** Unique identifier for each reservation.
- **CustomerID (Foreign Key):** Links to the customer making the reservation.
- **RestaurantID (Foreign Key):** Links to the restaurant being booked.
- **BookingDateTime:** Date and time of the reservation.
- **NumberOfGuests:** Total guests included in the booking.
- **SpecialRequests:** Optional field for additional requests (e.g., window seat, vegan menu).

Relationships Between Entities

1. Customer - Order Relationship

- One **customer** can place multiple **orders** (one-to-many).
- **CustomerID** in the Order table references **CustomerID** in the Customer table.

2. Customer - Table Booking Relationship

- One **customer** can make multiple **table bookings** (one-to-many).
- **CustomerID** in the Table Booking table references **CustomerID** in the Customer table.

3. Order - Menu Item Relationship

- Each **order** may contain multiple **menu items**, and each **menu item** can appear in multiple **orders** (many-to-many).
- An **OrderItem table** acts as a junction table containing:
    - **OrderID** (Foreign Key) → References the Order table.
    - **ItemID** (Foreign Key) → References the Menu Item table.

4. Order - Delivery Personnel Relationship

- Each **order** is assigned to **one delivery personnel** (one-to-one).
- **OrderID** in the Order table references **DeliveryPersonID** in the Delivery Personnel table.

5. Restaurant - Table Booking Relationship

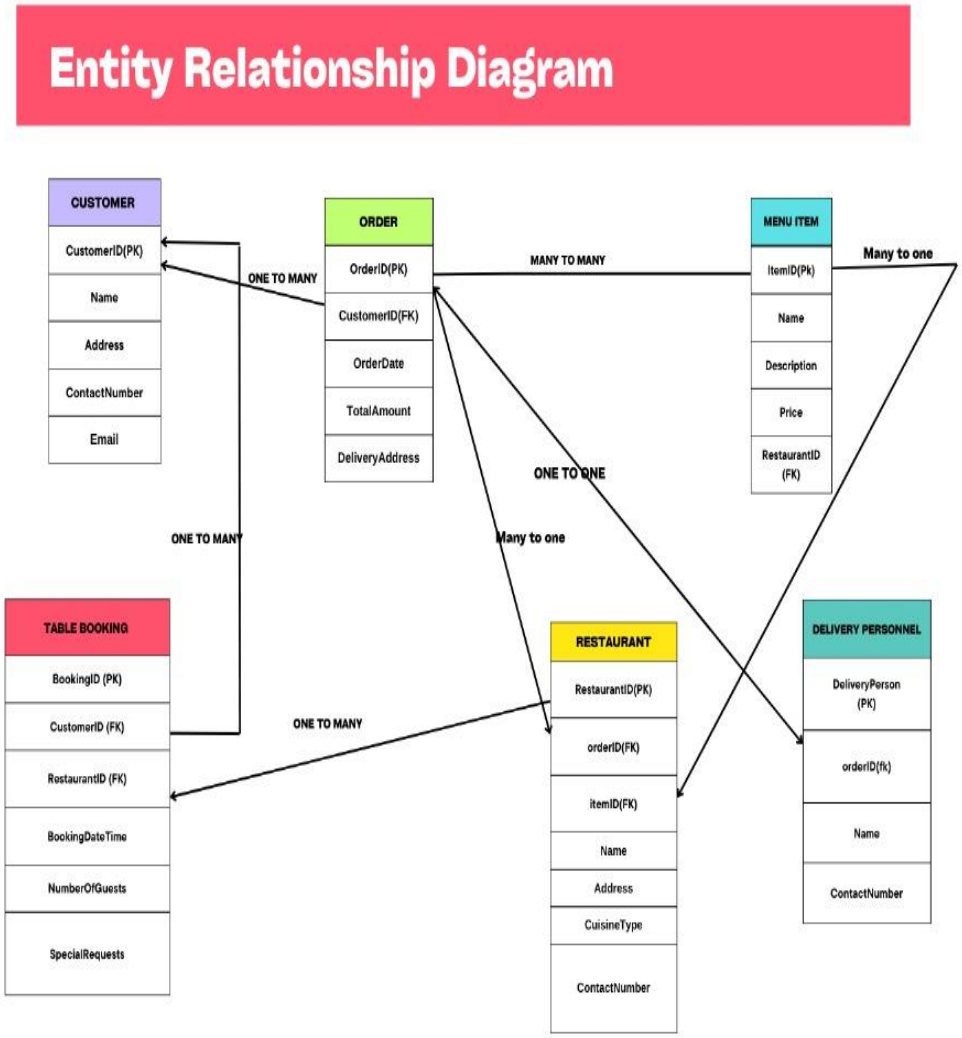
- One **restaurant** can have multiple **table bookings** (one-to-many).
- **RestaurantID** in the Table Booking table references **RestaurantID** in the Restaurant table.

6. Restaurant-order Relationship

- One **restaurant** can have multiple **orders** (one-to-many).
- **RestaurantID** in the Order references **RestaurantID** in the Restaurant table.

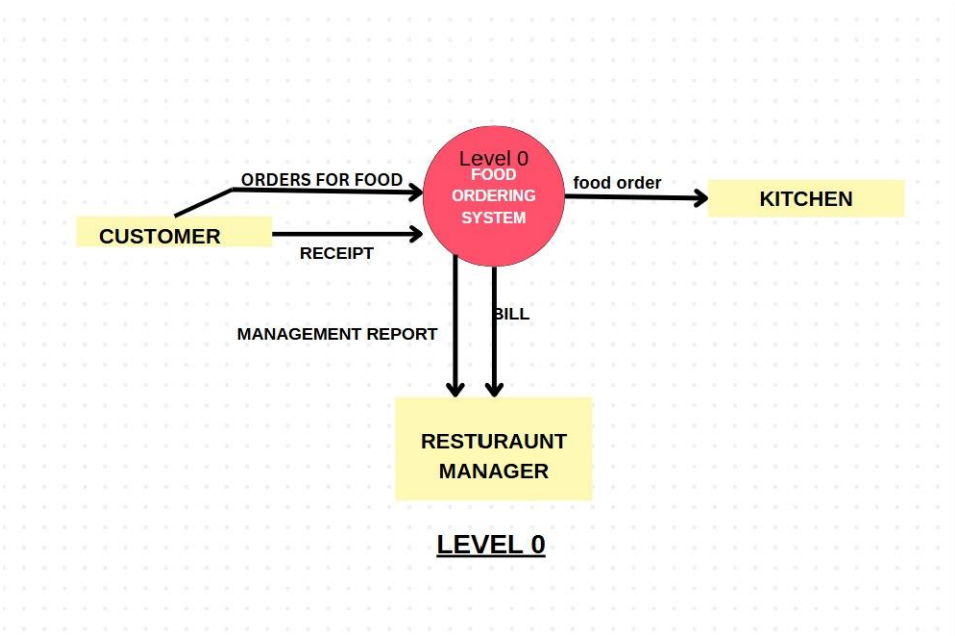
7. Menu item – Restaurant Relationship

- One **restaurant** can have multiple **items** (one-to-many).
- **RestaurantID** in the menu references **RestaurantID** in the Restaurant table.

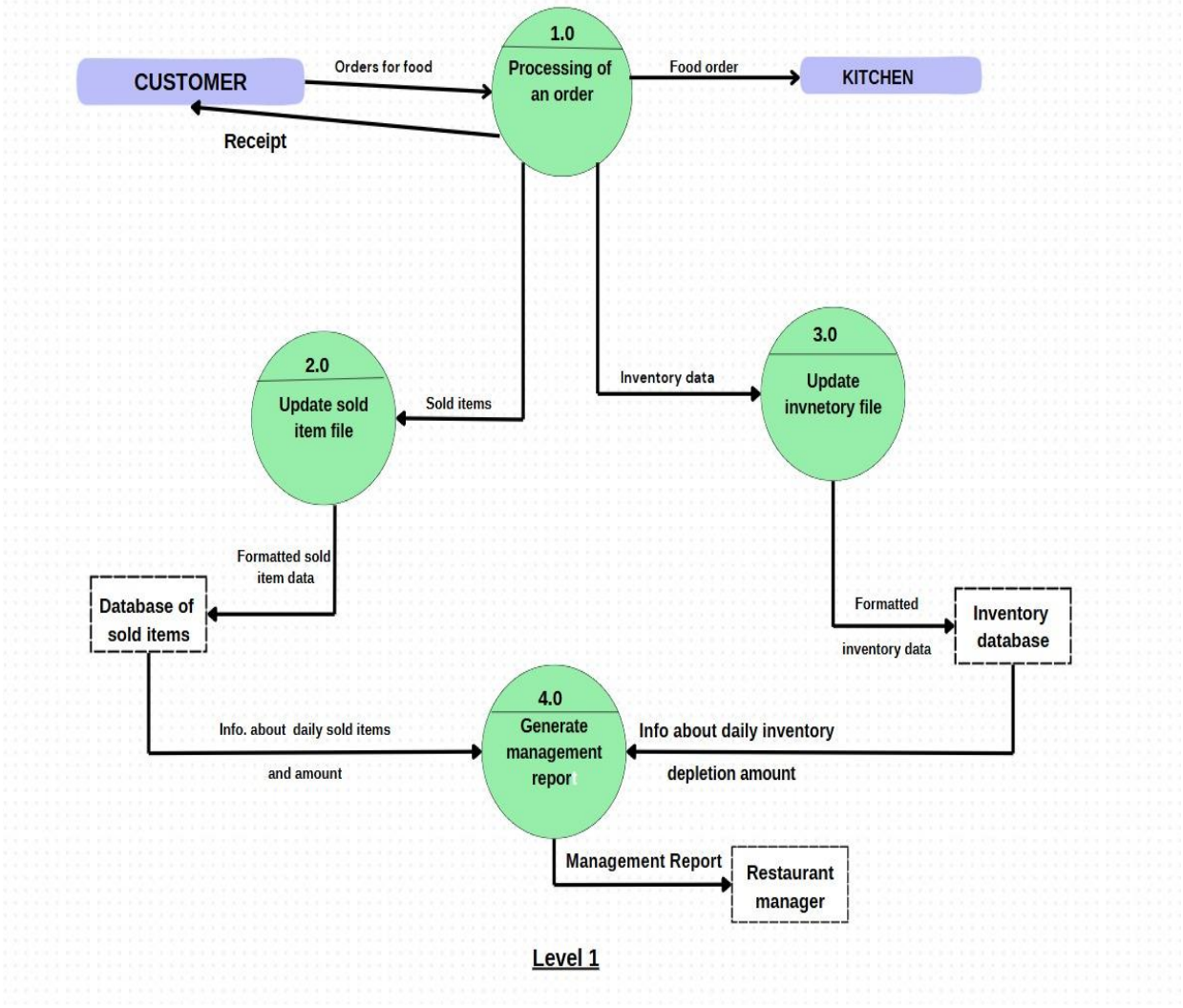


DATA FLOW DIAGRAM

Level 0 DFD –
At this level, the Input and Output of the system are shown. The system is designed and established across the world with input and output at this level.



Level 1 DFD –
For processing the order, process 1.0 is responsible. The detailed information about daily sold items should be available to create and report management and the list of items that are available 'in-stock' should be kept by maintaining the inventory data



Level 2 DFD –

Detailed information about “Processing of an Order” is shown below .