Our food order management system database can now handle items data. But the client also needs to record customer orders. They want the customer name and phone (unique) to be recorded along with their purchases. So when they make an order, we can see who make the order, how much is the total price paid for one order, and the order date. They also want the order details recorded, which items are bought in one order and how many (quantity of each item bought).

- **Define the additional entities and design the entity relationship diagram**
- **Create tables that represent the entities**
- **Insert minimal 5 dummy records for each entity**
- **Display data which contains all orders information, with their respective customer name and phone information**

ANSWER

Define the additional entities:

- CUSTOMERS

This entity stores the data of each customer, assuming that their details will only be stored after they made their first order (this means, each customer needs to make at least one order). This entity is supposed to store their name and unique phone number. However, I still created an ID for the primary key in order to prevent data leak when passing the customer's primary key.

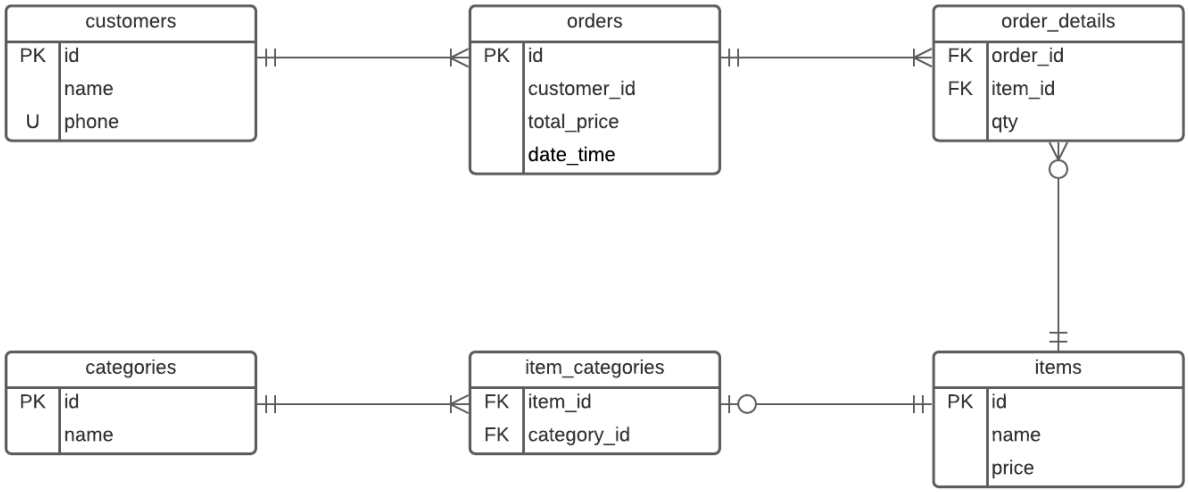
- ORDERS

This entity stores which customer made the order, the total price, date and time, along with the order's unique ID. Each order can be made by one and only one customer. However, an order can contain one or many order details.

- ORDER_DETAILS

This entity stores the order ID, item ID, and the quantity of the item. One order detail belongs to only one order, but an order can have many order details (if the customer orders items with different IDs). Each order detail can only be linked to one item.

The ERD:


customers
PK id
name
U phone
orders
PK id
customer_id
total_price
date_time
order_details
FK order_id
FK item_id
qty
categories
PK id
name
item_categories
FK item_id
FK category_id
items
PK id
name
price

Create tables that represent the entities:

Notes: I only attached the code for additional entities because other entities, such as items, categories, and item_categories have been created before in class.

```
mysql> CREATE TABLE customers (
    -> id INT NOT NULL AUTO_INCREMENT,
    -> name VARCHAR(50) NOT NULL,
    -> phone VARCHAR(14) NOT NULL,
    -> PRIMARY KEY (id)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESCRIBE customers;
+-------+-------------+------+-----+---------+----------------+
| Field | Type        | Null | Key | Default | Extra          |
+-------+-------------+------+-----+---------+----------------+
| id    | int         | NO   | PRI | NULL    | auto_increment |
| name  | varchar(50) | NO   |     | NULL    |                |
| phone | varchar(14) | NO   |     | NULL    |                |
+-------+-------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE orders (
    -> id INT NOT NULL AUTO_INCREMENT,
    -> customer_id INT NOT NULL,
    -> total_price INT NOT NULL,
    -> date_time DATETIME NOT NULL,
    ->
    -> PRIMARY KEY (id),
    -> FOREIGN KEY (customer_id) REFERENCES customers(id)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESCRIBE orders;
+-------------+----------+------+-----+---------+----------------+
| Field       | Type     | Null | Key | Default | Extra          |
+-------------+----------+------+-----+---------+----------------+
| id          | int      | NO   | PRI | NULL    | auto_increment |
| customer_id | int      | NO   | MUL | NULL    |                |
| total_price | int      | NO   |     | NULL    |                |
| date_time   | datetime | NO   |     | NULL    |                |
+-------------+----------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE order_details (
    -> order_id INT NOT NULL,
    -> item_id INT NOT NULL,
    -> qty INT NOT NULL,
    ->
    -> FOREIGN KEY (order_id) REFERENCES orders(id),
    -> FOREIGN KEY (item_id) REFERENCES items(id)
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> DESCRIBE order_details;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| order_id | int  | NO   | MUL | NULL    |       |
| item_id  | int  | NO   | MUL | NULL    |       |
| qty      | int  | NO   |     | NULL    |       |
+----------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Insert minimal 5 dummy records for each entity:

```
mysql> INSERT INTO customers (name, phone) VALUES ('Gabriel', '+6211021030012');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO customers (name, phone) VALUES ('John', '+6212131939909');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO customers (name, phone) VALUES ('Sally', '+6231231124192');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO customers (name, phone) VALUES ('Ariel', '+6251425770176');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO customers (name, phone) VALUES ('Zack', '+6211221723599');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM customers;
+----+---------+-----------------+
| id | name    | phone           |
+----+---------+-----------------+
|  1 | Gabriel | +6211021030012 |
|  2 | John    | +6212131939909 |
|  3 | Sally   | +6231231124192 |
|  4 | Ariel   | +6251425770176 |
|  5 | Zack    | +6211221723599 |
+----+---------+-----------------+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO orders (customer_id, total_price, date_time) VALUES (1, 94000, '2021-03-12 14:51:12');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO orders (customer_id, total_price, date_time) VALUES (2, 42000, '2021-03-25 19:11:45');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO orders (customer_id, total_price, date_time) VALUES (3, 20000, '2021-04-01 11:47:59');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO orders (customer_id, total_price, date_time) VALUES (4, 18000, '2021-04-29 17:21:36');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO orders (customer_id, total_price, date_time) VALUES (5, 13000, '2021-05-17 09:35:27');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM orders;
+----+-------------+-------------+---------------------+
| id | customer_id | total_price | date_time           |
+----+-------------+-------------+---------------------+
|  1 |           1 |       94000 | 2021-03-12 14:51:12 |
|  2 |           2 |       42000 | 2021-03-25 19:11:45 |
|  3 |           3 |       20000 | 2021-04-01 11:47:59 |
|  4 |           4 |       18000 | 2021-04-29 17:21:36 |
|  5 |           5 |       13000 | 2021-05-17 09:35:27 |
+----+-------------+-------------+---------------------+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (1, 1, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (1, 7, 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (1, 4, 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (1, 5, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (2, 3, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (2, 2, 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (3, 8, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (4, 4, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO order_details (order_id, item_id, qty) VALUES (5, 6, 1);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM order_details;
+----------+---------+-----+
| order_id | item_id | qty |
+----------+---------+-----+
|        1 |       1 |   1 |
|        1 |       7 |   1 |
|        1 |       4 |   1 |
|        1 |       5 |   1 |
|        2 |       3 |   1 |
|        2 |       2 |   1 |
|        3 |       8 |   1 |
|        4 |       4 |   1 |
|        5 |       6 |   1 |
+----------+---------+-----+
9 rows in set (0.00 sec)
```

Display data which contains all orders information, with their respective customer name and phone information:

```
mysql> SELECT orders.id AS 'Order ID', orders.date_time AS 'Order Date and Time', customers.name AS 'Customer Name',
    -> customers.phone AS 'Customer Phone', orders.total_price AS 'Total', GROUP_CONCAT(items.name) AS 'Items bought'
    -> FROM customers
    -> RIGHT JOIN orders ON customers.id = orders.customer_id
    -> LEFT JOIN order_details ON orders.id = order_details.order_id
    -> LEFT JOIN items ON order_details.item_id = items.id
    -> GROUP BY customers.id;
+----------+---------------------+---------------+----------------+-------+-----------------------------------------------------------+
| Order ID | Order Date and Time | Customer Name | Customer Phone | Total | Items bought                                                |
+----------+---------------------+---------------+----------------+-------+-----------------------------------------------------------+
|        1 | 2021-03-12 14:51:12 | Gabriel       | +6211021030012 | 94000 | Nasi Goreng Gila,Cordon Bleu,Green Tea Latte,Orange Juice |
|        2 | 2021-03-25 19:11:45 | John          | +6212131939909 | 42000 | Spaghetti,Ice Water                                       |
|        3 | 2021-04-01 11:47:59 | Sally         | +6231231124192 | 20000 | French Fries                                              |
|        4 | 2021-04-29 17:21:36 | Ariel         | +6251425770176 | 18000 | Green Tea Latte                                           |
|        5 | 2021-05-17 09:35:27 | Zack          | +6211221723599 | 13000 | Vanilla Ice Cream                                         |
+----------+---------------------+---------------+----------------+-------+-----------------------------------------------------------+
5 rows in set (0.02 sec)
```