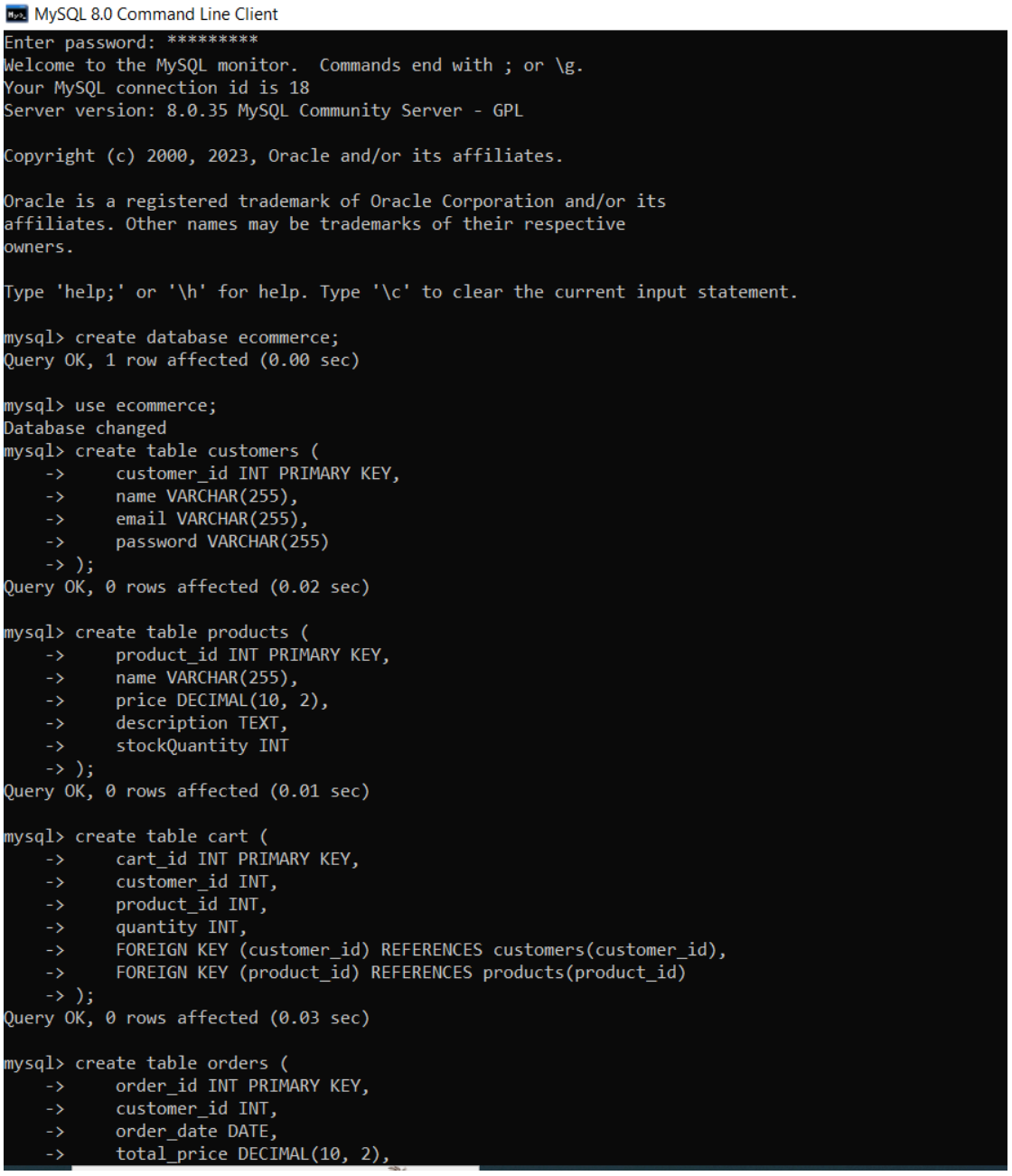
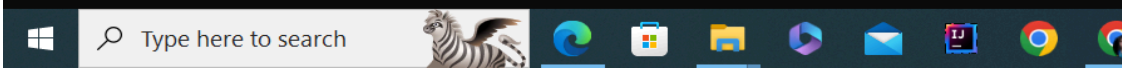
CODING CHALLENGE : MYSQL
Coding_challenge_6
Ecommerce - SQL

1. Creating database as ecommerce and added following tables:
    a) Customers
    b) Products
    c) Carts
    d) Orders
    e) order_items



MySQL 8.0 Command Line Client

```
mysql> create table customers (
    ->     customer_id INT PRIMARY KEY,
    ->     name VARCHAR(255),
    ->     email VARCHAR(255),
    ->     password VARCHAR(255)
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> create table products (
    ->     product_id INT PRIMARY KEY,
    ->     name VARCHAR(255),
    ->     price DECIMAL(10, 2),
    ->     description TEXT,
    ->     stockQuantity INT
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql> create table cart (
    ->     cart_id INT PRIMARY KEY,
    ->     customer_id INT,
    ->     product_id INT,
    ->     quantity INT,
    ->     FOREIGN KEY (customer_id) REFERENCES customers(customer_id),
    ->     FOREIGN KEY (product_id) REFERENCES products(product_id)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> create table orders (
    ->     order_id INT PRIMARY KEY,
    ->     customer_id INT,
    ->     order_date DATE,
    ->     total_price DECIMAL(10, 2),
    ->     shipping_address TEXT,
    ->     FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> create table order_items (
    ->     order_item_id INT PRIMARY KEY,
    ->     order_id INT,
    ->     product_id INT,
    ->     quantity INT,
    ->     FOREIGN KEY (order_id) REFERENCES orders(order_id),
    ->     FOREIGN KEY (product_id) REFERENCES products(product_id)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql>
```



MySQL 8.0 Command Line Client

```
mysql> desc customers;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| customer_id | int          | NO   | PRI | NULL    |       |
| name        | varchar(255) | YES  |     | NULL    |       |
| email       | varchar(255) | YES  |     | NULL    |       |
| password    | varchar(255) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc products;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| product_id    | int           | NO   | PRI | NULL    |       |
| name          | varchar(255)  | YES  |     | NULL    |       |
| price         | decimal(10,2) | YES  |     | NULL    |       |
| description   | text          | YES  |     | NULL    |       |
| stockQuantity | int           | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc cart;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| cart_id     | int  | NO   | PRI | NULL    |       |
| customer_id | int  | YES  | MUL | NULL    |       |
| product_id  | int  | YES  | MUL | NULL    |       |
| quantity    | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc orders;
+------------------+---------------+------+-----+---------+-------+
| Field            | Type          | Null | Key | Default | Extra |
+------------------+---------------+------+-----+---------+-------+
| order_id         | int           | NO   | PRI | NULL    |       |
| customer_id      | int           | YES  | MUL | NULL    |       |
| order_date       | date          | YES  |     | NULL    |       |
| total_price      | decimal(10,2) | YES  |     | NULL    |       |
| shipping_address | text          | YES  |     | NULL    |       |
+------------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc order_items;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
```

MySQL 8.0 Command Line Client

```
mysql> desc products;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| product_id    | int           | NO   | PRI | NULL    |       |
| name          | varchar(255)  | YES  |     | NULL    |       |
| price         | decimal(10,2) | YES  |     | NULL    |       |
| description   | text          | YES  |     | NULL    |       |
| stockQuantity | int           | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc cart;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| cart_id     | int  | NO   | PRI | NULL    |       |
| customer_id | int  | YES  | MUL | NULL    |       |
| product_id  | int  | YES  | MUL | NULL    |       |
| quantity    | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc orders;
+------------------+---------------+------+-----+---------+-------+
| Field            | Type          | Null | Key | Default | Extra |
+------------------+---------------+------+-----+---------+-------+
| order_id         | int           | NO   | PRI | NULL    |       |
| customer_id      | int           | YES  | MUL | NULL    |       |
| order_date       | date          | YES  |     | NULL    |       |
| total_price      | decimal(10,2) | YES  |     | NULL    |       |
| shipping_address | text          | YES  |     | NULL    |       |
+------------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc order_items;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| order_item_id | int  | NO   | PRI | NULL    |       |
| order_id      | int  | YES  | MUL | NULL    |       |
| product_id    | int  | YES  | MUL | NULL    |       |
| quantity      | int  | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
4 rows in set (0.00 sec)

mysql> desc orders;
+------------------+---------------+------+-----+---------+-------+
| Field            | Type          | Null | Key | Default | Extra |
+------------------+---------------+------+-----+---------+-------+
| order_id         | int           | NO   | PRI | NULL    |       |
| customer_id      | int           | YES  | MUL | NULL    |       |
| order_date       | date          | YES  |     | NULL    |       |
| total_price      | decimal(10,2) | YES  |     | NULL    |       |
| shipping_address | text          | YES  |     | NULL    |       |
+------------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc order_items;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| order_item_id | int  | NO   | PRI | NULL    |       |
| order_id      | int  | YES  | MUL | NULL    |       |
| product_id    | int  | YES  | MUL | NULL    |       |
| quantity      | int  | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> alter table customer add column address(text);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL
mysql> alter table customer add column address text;
ERROR 1146 (42S02): Table 'ecommerce.customer' doesn't exist
mysql> alter table customers add column address text;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc customers;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| customer_id | int          | NO   | PRI | NULL    |       |
| name        | varchar(255) | YES  |     | NULL    |       |
| email       | varchar(255) | YES  |     | NULL    |       |
| password    | varchar(255) | YES  |     | NULL    |       |
| address     | text         | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
mysql> insert into  customers (customer_id, name, email, password, address)
    -> values  (1, 'John Doe', 'johndoe@example.com', 'password123', '123 Main St, City'),
    ->     (2, 'Jane Smith', 'janesmith@example.com', 'password456', '456 Elm St, Town'),
    ->     (3, 'Robert Johnson', 'robert@example.com', 'password789', '789 Oak St, Village'),
    ->     (4, 'Sarah Brown', 'sarah@example.com', 'password101', '101 Pine St, Suburb'),
    ->     (5, 'David Lee', 'david@example.com', 'password234', '234 Cedar St, District'),
    ->     (6, 'Laura Hall', 'laura@example.com', 'password567', '567 Birch St, County'),
    ->     (7, 'Michael Davis', 'michael@example.com', 'password890', '890 Maple St, State'),
    ->     (8, 'Emma Wilson', 'emma@example.com', 'password321', '321 Redwood St, Country'),
    ->     (9, 'William Taylor', 'william@example.com', 'password432', '432 Spruce St, Province'),
    ->     (10, 'Olivia Adams', 'olivia@example.com', 'password765', '765 Fir St, Territory');
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from customers;
+-------------+---------------+---------------------+-------------+-------------------------+
| customer_id | name          | email               | password    | address                 |
+-------------+---------------+---------------------+-------------+-------------------------+
|           1 | John Doe      | johndoe@example.com | password123 | 123 Main St, City       |
|           2 | Jane Smith    | janesmith@example.com | password456 | 456 Elm St, Town      |
|           3 | Robert Johnson | robert@example.com | password789 | 789 Oak St, Village     |
|           4 | Sarah Brown   | sarah@example.com   | password101 | 101 Pine St, Suburb     |
|           5 | David Lee     | david@example.com   | password234 | 234 Cedar St, District  |
|           6 | Laura Hall    | laura@example.com   | password567 | 567 Birch St, County    |
|           7 | Michael Davis | michael@example.com | password890 | 890 Maple St, State     |
|           8 | Emma Wilson   | emma@example.com    | password321 | 321 Redwood St, Country |
|           9 | William Taylor | william@example.com | password432 | 432 Spruce St, Province |
|          10 | Olivia Adams  | olivia@example.com  | password765 | 765 Fir St, Territory   |
+-------------+---------------+---------------------+-------------+-------------------------+
10 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
mysql> insert into products (product_id, name, description, price, stockQuantity)
    -> values
    ->     (1, 'Laptop', 'High-performance laptop', 800.00, 10),
    ->     (2, 'Smartphone', 'Latest smartphone', 600.00, 15),
    ->     (3, 'Tablet', 'Portable tablet', 300.00, 20),
    ->     (4, 'Headphones', 'Noise-canceling', 150.00, 30),
    ->     (5, 'TV', '4K Smart TV', 900.00, 5),
    ->     (6, 'Coffee Maker', 'Automatic coffee maker', 50.00, 25),
    ->     (7, 'Refrigerator', 'Energy-efficient', 700.00, 10),
    ->     (8, 'Microwave Oven', 'Countertop microwave', 80.00, 15),
    ->     (9, 'Blender', 'High-speed blender', 70.00, 20),
    ->     (10, 'Vacuum Cleaner', 'Bagless vacuum cleaner', 120.00, 10);
Query OK, 10 rows affected (0.00 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from products;
+------------+---------------+--------+-------------------------+---------------+
| product_id | name          | price  | description             | stockQuantity |
+------------+---------------+--------+-------------------------+---------------+
|          1 | Laptop        | 800.00 | High-performance laptop |            10 |
|          2 | Smartphone    | 600.00 | Latest smartphone       |            15 |
|          3 | Tablet        | 300.00 | Portable tablet         |            20 |
|          4 | Headphones    | 150.00 | Noise-canceling         |            30 |
|          5 | TV            | 900.00 | 4K Smart TV             |             5 |
|          6 | Coffee Maker  |  50.00 | Automatic coffee maker  |            25 |
|          7 | Refrigerator  | 700.00 | Energy-efficient        |            10 |
|          8 | Microwave Oven |  80.00 | Countertop microwave    |            15 |
|          9 | Blender       |  70.00 | High-speed blender      |            20 |
|         10 | Vacuum Cleaner | 120.00 | Bagless vacuum cleaner  |            10 |
+------------+---------------+--------+-------------------------+---------------+
10 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
Query OK, 0 rows affected (0.03 sec)

mysql> insert into cart (cart_id, customer_id, product_id, quantity)
    -> values
    ->     (1, 1, 1, 2),
    ->     (2, 1, 3, 1),
    ->     (3, 2, 2, 3),
    ->     (4, 3, 4, 4),
    ->     (5, 3, 5, 2),
    ->     (6, 4, 6, 1),
    ->     (7, 5, 1, 1),
    ->     (8, 6, 10, 2),
    ->     (9, 6, 9, 3),
    ->     (10, 7, 7, 2);
Query OK, 10 rows affected (0.00 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from cart;
+---------+-------------+------------+----------+
| cart_id | customer_id | product_id | quantity |
+---------+-------------+------------+----------+
|       1 |           1 |          1 |        2 |
|       2 |           1 |          3 |        1 |
|       3 |           2 |          2 |        3 |
|       4 |           3 |          4 |        4 |
|       5 |           3 |          5 |        2 |
|       6 |           4 |          6 |        1 |
|       7 |           5 |          1 |        1 |
|       8 |           6 |         10 |        2 |
|       9 |           6 |          9 |        3 |
|      10 |           7 |          7 |        2 |
+---------+-------------+------------+----------+
10 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
Query OK, 0 rows affected (0.03 sec)

mysql> insert into orders (order_id, customer_id, order_date, total_price, shipping_address)
    -> values
    ->     (1, 1, '2023-01-05', 1200.00, '123 Main St, City'),
    ->     (2, 2, '2023-02-10', 900.00, '456 Elm St, Town'),
    ->     (3, 3, '2023-03-15', 300.00, '789 Oak St, Village'),
    ->     (4, 4, '2023-04-20', 150.00, '101 Pine St, Suburb'),
    ->     (5, 5, '2023-05-25', 1800.00, '234 Cedar St, District'),
    ->     (6, 6, '2023-06-30', 400.00, '567 Birch St, County'),
    ->     (7, 7, '2023-07-05', 700.00, '890 Maple St, State'),
    ->     (8, 8, '2023-08-10', 160.00, '321 Redwood St, Country'),
    ->     (9, 9, '2023-09-15', 140.00, '432 Spruce St, Province'),
    ->     (10, 10, '2023-10-20', 1400.00, '765 Fir St, Territory');
Query OK, 10 rows affected (0.00 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from orders;
+----------+-------------+------------+-------------+-------------------------+
| order_id | customer_id | order_date | total_price | shipping_address        |
+----------+-------------+------------+-------------+-------------------------+
|        1 |           1 | 2023-01-05 |     1200.00 | 123 Main St, City       |
|        2 |           2 | 2023-02-10 |      900.00 | 456 Elm St, Town        |
|        3 |           3 | 2023-03-15 |      300.00 | 789 Oak St, Village     |
|        4 |           4 | 2023-04-20 |      150.00 | 101 Pine St, Suburb     |
|        5 |           5 | 2023-05-25 |     1800.00 | 234 Cedar St, District  |
|        6 |           6 | 2023-06-30 |      400.00 | 567 Birch St, County    |
|        7 |           7 | 2023-07-05 |      700.00 | 890 Maple St, State     |
|        8 |           8 | 2023-08-10 |      160.00 | 321 Redwood St, Country |
|        9 |           9 | 2023-09-15 |      140.00 | 432 Spruce St, Province |
|       10 |          10 | 2023-10-20 |     1400.00 | 765 Fir St, Territory   |
+----------+-------------+------------+-------------+-------------------------+
10 rows in set (0.00 sec)

mysql>
```

MySQL 8.0 Command Line Client

```
mysql> insert into order_items (order_item_id, order_id, product_id, quantity)
    -> values
    ->     (1, 1, 1, 2),
    ->     (2, 1, 3, 1),
    ->     (3, 2, 2, 3),
    ->     (4, 3, 5, 2),
    ->     (5, 4, 4, 4),
    ->     (6, 4, 6, 1),
    ->     (7, 5, 1, 1),
    ->     (8, 5, 2, 2),
    ->     (9, 6, 10, 2),
    ->     (10, 6, 9, 3);
Query OK, 10 rows affected (0.00 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> seelct * from order_items;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL se
mysql> select * from order_items;
+---------------+----------+------------+----------+
| order_item_id | order_id | product_id | quantity |
+---------------+----------+------------+----------+
|             1 |        1 |          1 |        2 |
|             2 |        1 |          3 |        1 |
|             3 |        2 |          2 |        3 |
|             4 |        3 |          5 |        2 |
|             5 |        4 |          4 |        4 |
|             6 |        4 |          6 |        1 |
|             7 |        5 |          1 |        1 |
|             8 |        5 |          2 |        2 |
|             9 |        6 |         10 |        2 |
|            10 |        6 |          9 |        3 |
+---------------+----------+------------+----------+
10 rows in set (0.00 sec)

mysql>
```

1. Update refrigerator product price to 800.

MySQL 8.0 Command Line Client

```
10 rows in set (0.00 sec)

mysql> UPDATE products
    -> SET price = 800.00
    -> WHERE name = 'Refrigerator';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from products;
+------------+----------------+--------+-------------------------+---------------+
| product_id | name           | price  | description             | stockQuantity |
+------------+----------------+--------+-------------------------+---------------+
|          1 | Laptop         | 800.00 | High-performance laptop |            10 |
|          2 | Smartphone     | 600.00 | Latest smartphone       |            15 |
|          3 | Tablet         | 300.00 | Portable tablet         |            20 |
|          4 | Headphones     | 150.00 | Noise-canceling         |            30 |
|          5 | TV             | 900.00 | 4K Smart TV             |             5 |
|          6 | Coffee Maker   |  50.00 | Automatic coffee maker  |            25 |
|          7 | Refrigerator   | 800.00 | Energy-efficient        |            10 |
|          8 | Microwave Oven |  80.00 | Countertop microwave    |            15 |
|          9 | Blender        |  70.00 | High-speed blender      |            20 |
|         10 | Vacuum Cleaner | 120.00 | Bagless vacuum cleaner  |            10 |
+------------+----------------+--------+-------------------------+---------------+
10 rows in set (0.00 sec)

mysql>
```

2. Remove all cart items for a specific customer

MySQL 8.0 Command Line Client

```
mysql> DELIMITER ##
mysql>
mysql> CREATE PROCEDURE RemoveCartItemsForCustomers(IN customerId INT)
    -> BEGIN
    ->     DELETE FROM cart WHERE customer_id = customerId;
    -> END ##
Query OK, 0 rows affected (0.00 sec)

mysql>
mysql> DELIMITER ;
mysql> call RemoveCartItemsForCustomers(4);
Query OK, 1 row affected (0.00 sec)

mysql> seelct * from cart;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your M
mysql> selct * from cart;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your M
mysql> select * from cart;
+---------+-------------+------------+----------+
| cart_id | customer_id | product_id | quantity |
+---------+-------------+------------+----------+
|       1 |           1 |          1 |        2 |
|       2 |           1 |          3 |        1 |
|       3 |           2 |          2 |        3 |
|       4 |           3 |          4 |        4 |
|       5 |           3 |          5 |        2 |
|       7 |           5 |          1 |        1 |
|       8 |           6 |         10 |        2 |
|       9 |           6 |          9 |        3 |
|      10 |           7 |          7 |        2 |
+---------+-------------+------------+----------+
9 rows in set (0.00 sec)

mysql>
```

.

3. Retrieve Products Priced Below $100.

MySQL 8.0 Command Line Client

```
mysql> SELECT *
    -> FROM products
    -> WHERE price < 100.00;
+------------+---------------+-------+-----------------------+---------------+
| product_id | name          | price | description           | stockQuantity |
+------------+---------------+-------+-----------------------+---------------+
|          6 | Coffee Maker  | 50.00 | Automatic coffee maker |            25 |
|          8 | Microwave Oven | 80.00 | Countertop microwave  |            15 |
|          9 | Blender       | 70.00 | High-speed blender    |            20 |
+------------+---------------+-------+-----------------------+---------------+
3 rows in set (0.00 sec)

mysql>
```

4. Find Products with Stock Quantity Greater Than 5.

MySQL 8.0 Command Line Client

```
mysql> SELECT * FROM products WHERE stockQuantity > 5;
+------------+---------------+--------+------------------------+---------------+
| product_id | name          | price  | description            | stockQuantity |
+------------+---------------+--------+------------------------+---------------+
|          1 | Laptop        | 800.00 | High-performance laptop |            10 |
|          2 | Smartphone    | 600.00 | Latest smartphone      |            15 |
|          3 | Tablet        | 300.00 | Portable tablet        |            20 |
|          4 | Headphones    | 150.00 | Noise-canceling        |            30 |
|          6 | Coffee Maker  |  50.00 | Automatic coffee maker |            25 |
|          7 | Refrigerator  | 800.00 | Energy-efficient       |            10 |
|          8 | Microwave Oven |  80.00 | Countertop microwave   |            15 |
|          9 | Blender       |  70.00 | High-speed blender     |            20 |
|         10 | Vacuum Cleaner | 120.00 | Bagless vacuum cleaner |            10 |
+------------+---------------+--------+------------------------+---------------+
9 rows in set (0.00 sec)

mysql>
```

5. Retrieve Orders with Total Amount Between $500 and $1000.

MySQL 8.0 Command Line Client

```
9 rows in set (0.00 sec)

mysql> SELECT * FROM orders
    -> WHERE total_price BETWEEN 500.00 AND 1000.00;
+----------+-------------+------------+-------------+---------------------+
| order_id | customer_id | order_date | total_price | shipping_address    |
+----------+-------------+------------+-------------+---------------------+
|        2 |           2 | 2023-02-10 |      900.00 | 456 Elm St, Town    |
|        7 |           7 | 2023-07-05 |      700.00 | 890 Maple St, State |
+----------+-------------+------------+-------------+---------------------+
2 rows in set (0.00 sec)

mysql>
```

6. Find Products which name end with letter ‘r’.

MySQL 8.0 Command Line Client

```
mysql>
mysql> SELECT * FROM products where name LIKE '%r';
+------------+---------------+--------+------------------------+---------------+
| product_id | name          | price  | description            | stockQuantity |
+------------+---------------+--------+------------------------+---------------+
|          6 | Coffee Maker  |  50.00 | Automatic coffee maker |            25 |
|          7 | Refrigerator  | 800.00 | Energy-efficient       |            10 |
|          9 | Blender       |  70.00 | High-speed blender     |            20 |
|         10 | Vacuum Cleaner | 120.00 | Bagless vacuum cleaner |            10 |
+------------+---------------+--------+------------------------+---------------+
4 rows in set (0.00 sec)

mysql>
```

7. Retrieve Cart Items for Customer 5.

MySQL 8.0 Command Line Client

```
mysql> SELECT * FROM cart WHERE customer_id = 5;
+---------+-------------+------------+----------+
| cart_id | customer_id | product_id | quantity |
+---------+-------------+------------+----------+
|       7 |           5 |          1 |        1 |
+---------+-------------+------------+----------+
1 row in set (0.00 sec)

mysql>
```

8. Find Customers Who Placed Orders in 2023.

MySQL 8.0 Command Line Client

```
1 row in set (0.00 sec)

mysql> SELECT DISTINCT c.* FROM customers c
    -> JOIN orders o ON c.customer_id = o.customer_id
    -> WHERE YEAR(o.order_date) = 2023;
+-------------+---------------+----------------------+-------------+-------------------------+
| customer_id | name          | email                | password    | address                 |
+-------------+---------------+----------------------+-------------+-------------------------+
|           1 | John Doe      | johndoe@example.com  | password123 | 123 Main St, City       |
|           2 | Jane Smith    | janesmith@example.com | password456 | 456 Elm St, Town        |
|           3 | Robert Johnson | robert@example.com   | password789 | 789 Oak St, Village     |
|           4 | Sarah Brown   | sarah@example.com    | password101 | 101 Pine St, Suburb     |
|           5 | David Lee     | david@example.com    | password234 | 234 Cedar St, District  |
|           6 | Laura Hall    | laura@example.com    | password567 | 567 Birch St, County    |
|           7 | Michael Davis | michael@example.com  | password890 | 890 Maple St, State     |
|           8 | Emma Wilson   | emma@example.com     | password321 | 321 Redwood St, Country |
|           9 | William Taylor | william@example.com | password432 | 432 Spruce St, Province |
|          10 | Olivia Adams  | olivia@example.com   | password765 | 765 Fir St, Territory   |
+-------------+---------------+----------------------+-------------+-------------------------+
10 rows in set (0.00 sec)

mysql>
```

9. Determine the Minimum Stock Quantity for Each Product Category.

MySQL 8.0 Command Line Client

```
mysql> SELECT
    ->     p.description AS category,
    ->     p.name AS product_name,
    ->     MIN(p.stockQuantity) AS Min_stockQquantity
    -> FROM products p
    -> GROUP BY p.description, p.name;
+-------------------------+---------------+--------------------+
| category                | product_name  | Min_stockQquantity |
+-------------------------+---------------+--------------------+
| High-performance laptop | Laptop        |                 10 |
| Latest smartphone       | Smartphone    |                 15 |
| Portable tablet         | Tablet        |                 20 |
| Noise-canceling         | Headphones    |                 30 |
| 4K Smart TV             | TV            |                  5 |
| Automatic coffee maker  | Coffee Maker  |                 25 |
| Energy-efficient        | Refrigerator  |                 10 |
| Countertop microwave    | Microwave Oven |                15 |
| High-speed blender      | Blender       |                 20 |
| Bagless vacuum cleaner  | Vacuum Cleaner |                10 |
+-------------------------+---------------+--------------------+
10 rows in set (0.00 sec)

mysql>
```

10. Calculate the Total Amount Spent by Each Customer.

MySQL 8.0 Command Line Client

```
mysql> SELECT
    ->     o.customer_id,c.name AS customer_name,
    ->     SUM(o.total_price) AS total_amount_spent
    -> FROM orders o
    -> JOIN customers c ON o.customer_id = c.customer_id
    -> GROUP BY o.customer_id, c.name;
+-------------+---------------+--------------------+
| customer_id | customer_name | total_amount_spent |
+-------------+---------------+--------------------+
|           1 | John Doe      |            1200.00 |
|           2 | Jane Smith    |             900.00 |
|           3 | Robert Johnson |             300.00 |
|           4 | Sarah Brown   |             150.00 |
|           5 | David Lee     |            1800.00 |
|           6 | Laura Hall    |             400.00 |
|           7 | Michael Davis |             700.00 |
|           8 | Emma Wilson   |             160.00 |
|           9 | William Taylor |             140.00 |
|          10 | Olivia Adams  |            1400.00 |
+-------------+---------------+--------------------+
10 rows in set (0.00 sec)

mysql>
```

11. Find the Average Order Amount for Each Customer.

MySQL 8.0 Command Line Client

```
10 rows in set (0.00 sec)

mysql> SELECT o.customer_id, c.name AS customer_name,
    ->     AVG(o.total_price) AS average_order_amount
    -> FROM orders o
    -> JOIN customers c ON o.customer_id = c.customer_id
    -> GROUP BY
    ->  o.customer_id, c.name;
+-------------+---------------+----------------------+
| customer_id | customer_name | average_order_amount |
+-------------+---------------+----------------------+
|           1 | John Doe      |          1200.000000 |
|           2 | Jane Smith    |           900.000000 |
|           3 | Robert Johnson |           300.000000 |
|           4 | Sarah Brown   |           150.000000 |
|           5 | David Lee     |          1800.000000 |
|           6 | Laura Hall    |           400.000000 |
|           7 | Michael Davis |           700.000000 |
|           8 | Emma Wilson   |           160.000000 |
|           9 | William Taylor |           140.000000 |
|          10 | Olivia Adams  |          1400.000000 |
+-------------+---------------+----------------------+
10 rows in set (0.00 sec)

mysql>
```

12. Count the Number of Orders Placed by Each Customer.

MySQL 8.0 Command Line Client

```
+-------------+----------------+----------------------+
10 rows in set (0.00 sec)

mysql> SELECT o.customer_id, c.name AS customer_name,
    ->     COUNT(o.order_id) AS order_count
    -> FROM orders o
    -> JOIN
    ->     customers c ON o.customer_id = c.customer_id
    -> GROUP BY
    ->     o.customer_id, c.name;
+-------------+----------------+-------------+
| customer_id | customer_name  | order_count |
+-------------+----------------+-------------+
|           1 | John Doe       |           1 |
|           2 | Jane Smith     |           1 |
|           3 | Robert Johnson |           1 |
|           4 | Sarah Brown    |           1 |
|           5 | David Lee      |           1 |
|           6 | Laura Hall     |           1 |
|           7 | Michael Davis  |           1 |
|           8 | Emma Wilson    |           1 |
|           9 | William Taylor |           1 |
|          10 | Olivia Adams   |           1 |
+-------------+----------------+-------------+
10 rows in set (0.00 sec)

mysql>
```

13. Find the Maximum Order Amount for Each Customer.

MySQL 8.0 Command Line Client

```
10 rows in set (0.00 sec)

mysql> SELECT o.customer_id, c.name AS customer_name,
    ->     MAX(o.total_price) AS max_order_amount
    -> FROM orders o
    -> JOIN customers c ON o.customer_id = c.customer_id
    -> GROUP BY o.customer_id, c.name;
+-------------+----------------+------------------+
| customer_id | customer_name  | max_order_amount |
+-------------+----------------+------------------+
|           1 | John Doe       |          1200.00 |
|           2 | Jane Smith     |           900.00 |
|           3 | Robert Johnson |           300.00 |
|           4 | Sarah Brown    |           150.00 |
|           5 | David Lee      |          1800.00 |
|           6 | Laura Hall     |           400.00 |
|           7 | Michael Davis  |           700.00 |
|           8 | Emma Wilson    |           160.00 |
|           9 | William Taylor |           140.00 |
|          10 | Olivia Adams   |          1400.00 |
+-------------+----------------+------------------+
10 rows in set (0.00 sec)

mysql>
```

14. Get Customers Who Placed Orders Totaling Over $1000.

MySQL 8.0 Command Line Client

```
10 rows in set (0.00 sec)

mysql> SELECT c.customer_id, c.name AS customer_name,
    ->     SUM(o.total_price) AS total_order_amount
    -> FROM
    ->     customers c
    -> JOIN
    ->     orders o ON c.customer_id = o.customer_id
    -> GROUP BY
    ->     c.customer_id, c.name
    -> HAVING
    ->  total_order_amount > 1000.00;
+-------------+---------------+--------------------+
| customer_id | customer_name | total_order_amount |
+-------------+---------------+--------------------+
|           1 | John Doe      |            1200.00 |
|           5 | David Lee     |            1800.00 |
|          10 | Olivia Adams  |            1400.00 |
+-------------+---------------+--------------------+
3 rows in set (0.00 sec)

mysql>
mysql>
```

15. Subquery to Find Products Not in the Cart.

MySQL 8.0 Command Line Client

```
mysql>
mysql> SELECT * FROM products
    -> WHERE product_id NOT IN (SELECT DISTINCT product_id FROM cart);
+------------+----------------+-------+-----------------------+---------------+
| product_id | name           | price | description           | stockQuantity |
+------------+----------------+-------+-----------------------+---------------+
|          6 | Coffee Maker   | 50.00 | Automatic coffee maker |            25 |
|          8 | Microwave Oven | 80.00 | Countertop microwave   |            15 |
+------------+----------------+-------+-----------------------+---------------+
2 rows in set (0.00 sec)

mysql>
```

16. Subquery to Find Customers Who Haven't Placed Orders.

MySQL 8.0 Command Line Client

```
2 rows in set (0.00 sec)

mysql> SELECT * FROM customers
    -> WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM orders);
Empty set (0.00 sec)

mysql>
```

17. Subquery to Calculate the Percentage of Total Revenue for a Product.

MySQL 8.0 Command Line Client

```
mysql> SELECT product_id, product_name,
    ->     (product_revenue / total_revenue) * 100 AS Percentage_Of_Total_Revenue
    -> FROM (
    ->     SELECT p.product_id, p.name AS product_name,
    ->         SUM(o.total_price) AS product_revenue,
    ->         (SELECT SUM(total_price) FROM orders) AS total_revenue
    ->     FROM
    ->         products p
    ->     LEFT JOIN
    ->         order_items oi ON p.product_id = oi.product_id
    ->     LEFT JOIN
    ->         orders o ON oi.order_id = o.order_id
    ->     GROUP BY
    ->         p.product_id, p.name
    -> ) AS product_revenue_summary;
+------------+----------------+----------------------------+
| product_id | product_name   | Percentage_Of_Total_Revenue |
+------------+----------------+----------------------------+
|          1 | Laptop         |                  41.958042 |
|          2 | Smartphone     |                  37.762238 |
|          3 | Tablet         |                  16.783217 |
|          4 | Headphones     |                   2.097902 |
|          5 | TV             |                   4.195804 |
|          6 | Coffee Maker   |                   2.097902 |
|          7 | Refrigerator   |                       NULL |
|          8 | Microwave Oven |                       NULL |
|          9 | Blender        |                   5.594406 |
|         10 | Vacuum Cleaner |                   5.594406 |
+------------+----------------+----------------------------+
10 rows in set (0.00 sec)

mysql>
```

18. Subquery to Find Products with Low Stock.

MySQL 8.0 Command Line Client

```
mysql> SELECT product_id, name AS ProductName, stockQuantity
    -> FROM products
    -> WHERE stockQuantity < (SELECT AVG(stockQuantity) FROM products);
+------------+----------------+---------------+
| product_id | ProductName    | stockQuantity |
+------------+----------------+---------------+
|          1 | Laptop         |            10 |
|          2 | Smartphone     |            15 |
|          5 | TV             |             5 |
|          7 | Refrigerator   |            10 |
|          8 | Microwave Oven |            15 |
|         10 | Vacuum Cleaner |            10 |
+------------+----------------+---------------+
6 rows in set (0.00 sec)

mysql>
```

19. Subquery to Find Customers Who Placed High-Value Orders.

MySQL 8.0 Command Line Client

```
mysql> SELECT c.customer_id, c.name AS customer_name, TotalOrderValue
    -> FROM customers c
    -> JOIN
    ->     (SELECT customer_id, SUM(total_price) AS TotalOrderValue
    ->         FROM orders
    ->         GROUP BY customer_id
    ->     ) AS customer_order_summary ON c.customer_id = customer_order_summary.customer_id
    -> WHERE
    ->     TotalOrderValue > (SELECT AVG(total_price) FROM orders);
+-------------+---------------+-----------------+
| customer_id | customer_name | TotalOrderValue |
+-------------+---------------+-----------------+
|           1 | John Doe      |         1200.00 |
|           2 | Jane Smith    |          900.00 |
|           5 | David Lee     |         1800.00 |
|          10 | Olivia Adams  |         1400.00 |
+-------------+---------------+-----------------+
4 rows in set (0.00 sec)

mysql>
```