- Retrieve all customers who have placed an order in the last 30 days.

```
mysql> SELECT DISTINCT c.name, c.email, c.address
    -> FROM customers c
    -> JOIN orders o ON c.id = o.customer_id
    -> WHERE o.order_date >= '2023-10-01';
    -> WHERE o.order_date >= '2023-10-01';
+-------+-----------------+-------------------------------------------------+
| name  | email           | address                                         |
+-------+-----------------+-------------------------------------------------+
| cyril | cyril@gmail.com | no.15/pillayar kovil street, dalmiapuram, trichy |
| sahil | sahil@gmail.com | no.31/8 ukkadai, kumbakonam, thanjaur           |
+-------+-----------------+-------------------------------------------------+
2 rows in set (0.04 sec)
```

- Get the total amount of all orders placed by each customer.

```
mysql> SELECT c.name AS customer_name, SUM(o.total_amount) AS total_spent
    -> FROM customers c
    -> JOIN orders o ON c.id = o.customer_id
    -> GROUP BY c.id;
+---------------+-------------+
| customer_name | total_spent |
+---------------+-------------+
| cyril         |      998.00 |
| sahil         |      899.00 |
| saran         |       99.00 |
| nijam         |      599.00 |
| rashika       |      599.00 |
+---------------+-------------+
5 rows in set (0.02 sec)
```

- Update the price of Product C to 45.00.

```
mysql> select * from products;
+----+-----------+--------+---------------------------+----------+
| id | name      | price  | Description               | discount |
+----+-----------+--------+---------------------------+----------+
|  1 | product A | 899.00 | the branded jean          |     NULL |
|  2 | product B |  99.00 | pure cotton hand kerchief |     NULL |
|  3 | product C |  45.00 | the comfort palazzos      |     NULL |
+----+-----------+--------+---------------------------+----------+
3 rows in set (0.00 sec)
```

- Add a new column discount to the products table.

```
mysql> alter table products
    -> add discount decimal(10,2) ;
Query OK, 0 rows affected (0.76 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc products;
+-------------+---------------+------+-----+---------+----------------+
| Field       | Type          | Null | Key | Default | Extra          |
+-------------+---------------+------+-----+---------+----------------+
| id          | int           | NO   | PRI | NULL    | auto_increment |
| name        | varchar(20)   | NO   |     | NULL    |                |
| price       | decimal(10,2) | NO   |     | NULL    |                |
| Description | text          | YES  |     | NULL    |                |
| discount    | decimal(10,2) | YES  |     | NULL    |                |
+-------------+---------------+------+-----+---------+----------------+
5 rows in set (0.06 sec)
```

- Retrieve the top 3 products with the highest price.

```
mysql> select name ,price
    -> from products
    -> order by price desc
    -> limit 3;
+-----------+--------+
| name      | price  |
+-----------+--------+
| product A | 899.00 |
| product C | 549.00 |
| product B |  99.00 |
+-----------+--------+
3 rows in set (0.00 sec)
```

- Get the names of customers who have ordered Product A.

```
mysql> INSERT INTO order_items (order_id, product_id, quantity) VALUES
    -> (1, 1, 1),   -- 1 of Product A in Order 1
    -> (2, 2, 1),   -- 1 of Product B in Order 2
    -> (3, 3, 1),   -- 1 of Product C in Order 3
    -> (4, 1, 2),   -- 2 of Product A in Order 4
    -> (5, 2, 1),   -- 1 of Product B in Order 5
    -> (6, 3, 2);   -- 2 of Product C in Order 6
Query OK, 6 rows affected (0.37 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql>
mysql> SELECT DISTINCT c.name
    -> FROM customers c
    -> JOIN orders o ON c.id = o.customer_id
    -> JOIN order_items oi ON o.id = oi.order_id
    -> JOIN products p ON oi.product_id = p.id
    -> WHERE p.name = 'Product A';
+-------+
| name  |
+-------+
| cyril |
| sahil |
+-------+
```

- Join the orders and customers tables to retrieve the customer's name and order date for each order.

```
mysql> select c.name,o.order_date
    -> from customers c
    -> join orders o on c.id =o.customer_id;
+---------+------------+
| name    | order_date |
+---------+------------+
| cyril   | 2023-10-01 |
| cyril   | 2023-10-05 |
| sahil   | 2023-11-01 |
| saran   | 2023-09-17 |
| nijam   | 2023-05-22 |
| rashika | 2023-01-15 |
+---------+------------+
6 rows in set (0.00 sec)
```

- Retrieve the orders with a total amount greater than 150.00.

```
mysql> select id,customer_id,order_date,total_amount
    -> from orders
    -> where total_amount > 150;
+----+-------------+------------+--------------+
| id | customer_id | order_date | total_amount |
+----+-------------+------------+--------------+
|  1 |           1 | 2023-10-01 |       899.00 |
|  3 |           5 | 2023-01-15 |       599.00 |
|  4 |           2 | 2023-11-01 |       899.00 |
|  6 |           4 | 2023-05-22 |       599.00 |
+----+-------------+------------+--------------+
4 rows in set (0.00 sec)
```

- Normalize the database by creating a separate table for order items and updating the orders table to reference the order_items table.

```
mysql> CREATE TABLE order_items (
    ->     id INT AUTO_INCREMENT PRIMARY KEY,
    ->     order_id INT,
    ->     product_id INT,
    ->     quantity INT,
    ->     FOREIGN KEY (order_id) REFERENCES orders(id),
    ->     FOREIGN KEY (product_id) REFERENCES products(id)
    -> );
Query OK, 0 rows affected (2.36 sec)
```

```
mysql> select * from order_items ;
+----+----------+------------+----------+
| id | order_id | product_id | quantity |
+----+----------+------------+----------+
|  1 |        1 |          1 |        1 |
|  2 |        2 |          2 |        1 |
|  3 |        3 |          3 |        1 |
|  4 |        4 |          1 |        2 |
|  5 |        5 |          2 |        1 |
|  6 |        6 |          3 |        2 |
+----+----------+------------+----------+
6 rows in set (0.00 sec)
```

- Retrieve the average total of all orders.

```
mysql>  select avg(total_amount) as average_order_total
    -> from orders;
+--------------------+
| average_order_total |
+--------------------+
|          532.333333 |
+--------------------+
1 row in set (0.02 sec)
```