Creating Database;

mysql> create database ecommerce;

mysql> show databases;

| Database | | ecommerce | | fsdwtb11 | | information_schema | | mysql | | performance_schema | | products1 | | sys |

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selecting ecommerce;

mysql> select database();

| database() |

| NULL |

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mysql> use ecommerce; Database changed mysql> select database(); +------------+ | database() | +------------+ | ecommerce | +------------+ \

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creating tables customers, orders and products;

mysql> use ecommerce; Database changed mysql> CREATE TABLE customers (-> id INT AUTO_INCREMENT PRIMARY KEY, -> name VARCHAR(255) NOT NULL, -> email VARCHAR(255) UNIQUE NOT NULL, -> address TEXT ->);

mysql> select * from customers;

mysql> desc customers; +---------+--------------+------+-----+---------+----------------+ | Field | Type | Null | Key | Default | Extra
+---------+--------------+------+-----+---------+----------------+	id	int	NO	PRI	NULL	auto_increment
name	varchar(255)	NO		NULL
	email	varchar(255)	NO	UNI	NULL
	address	text	YES		NULL
+---------+--------------+------+-----+---------+----------------+

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mysql> CREATE TABLE orders (-> id INT AUTO_INCREMENT PRIMARY KEY, -> customer_id INT NOT NULL, -> order_date DATE NOT NULL, -> total_amount DECIMAL(10, 2) NOT NULL, -> CONSTRAINT fk_customer FOREIGN KEY (customer_id) REFERENCES customers(id) ->);

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

```
| +---------+-------------+------+-----+---------+----------------+ | id | int | NO | PRI | NULL | auto_increment |
| name | varchar(255) | NO | | NULL |
| | email | varchar(255) | NO | UNI | NULL |
| | address | text | YES | | NULL |
| +---------+-------------+------+-----+---------+----------------+
```

```
mysql> CREATE TABLE products ( -> id INT AUTO_INCREMENT PRIMARY KEY, -> name VARCHAR(255) NOT
NULL, -> price DECIMAL(10, 2) NOT NULL, -> description TEXT -> );
```

```
mysql> desc products; +-------------+--------------+------+-----+---------+----------------+ | Field | Type |
Null | Key | Default | Extra | +-------------+--------------+------+-----+---------+----------------+ | id | int | NO
| PRI | NULL | auto_increment | | name | varchar(255) | NO | | NULL |
| | price | decimal(10,2) | NO | | NULL |
| | description | text | YES | | NULL |
| +-------------+--------------+------+-----+---------+----------------+ 4 rows in set (0.00 sec) mysql> CREATE
TABLE order_items ( -> id INT AUTO_INCREMENT PRIMARY KEY, -> order_id INT NOT NULL, -> product_id INT
NOT NULL, -> quantity INT NOT NULL, -> FOREIGN KEY (order_id) REFERENCES orders(id), -> FOREIGN KEY
(product_id) REFERENCES products(id) -> );
```

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```
mysql> mysql> desc order_items; +------------+------+------+-----+---------+----------------+ | Field | Type |
Null | Key | Default | Extra | +------------+------+------+-----+---------+----------------+ | id | int | NO | PRI |
NULL | auto_increment | | order_id | int | NO | MUL | NULL | | | product_id | int | NO | MUL | NULL | | | quantity |
int | NO | | NULL | | +------------+------+------+-----+---------+----------------+
```

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```
inserting values; mysql> INSERT INTO products (name, price, description) VALUES -> ('Product A', 20.00,
'Description of Product A'), -> ('Product B', 30.00, 'Description of Product B'), -> ('Product C', 40.00,
'Description of Product C'), -> ('Product D', 50.00, 'Description of Product D'), -> ('Product E', 60.00,
'Description of Product E'); Query OK, 5 rows affected (0.01 sec)
```

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```
mysql> INSERT INTO orders (customer_id, order_date, total_amount) VALUES -> (1, CURDATE() - INTERVAL 15
DAY, 100.00), -> (2, CURDATE() - INTERVAL 10 DAY, 200.00), -> (3, CURDATE() - INTERVAL 35 DAY, 50.00), ->
(4, CURDATE() - INTERVAL 5 DAY, 150.00), -> (5, CURDATE() - INTERVAL 25 DAY, 300.00); Query OK, 5 rows
affected (0.01 sec)
```

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```
mysql> INSERT INTO order_items (order_id, product_id, quantity) VALUES -> (1, 1, 2), -- Order 1 includes 2
units of Product A -> (1, 3, 1), -- Order 1 includes 1 unit of Product C -> (2, 2, 3), -- Order 2 includes 3 units of
Product B -> (3, 4, 1), -- Order 3 includes 1 unit of Product D -> (4, 5, 2), -- Order 4 includes 2 units of Product
E -> (5, 1, 1); -- Order 5 includes 1 unit of Product A Query OK, 6 rows affected (0.01 sec)
```

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First Query; select c.name from customers as c join orders as 0 on c.i

```
-> d = 0.customer_id where o.order_date >= CURDATE() - INTERVAL 30
-> (5, 1, 1); -- Order 5 includes 1 unit of Product A^C
```

mysql> SELECT DISTINCT c.name
-> FROM customers c -> JOIN orders o ON c.id = o.customer_id -> WHERE o.order_date >= CURDATE() - INTERVAL 30 DAY; +---------------+ | name | +---------------+ | Alice Johnson | | Bob Smith | | Diana Prince | | Edward Stone | +---------------+

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2nd QUERY: Get the total amount of all orders placed by each customer.

SELECT c.name, SUM(o.total_amount) AS total_spent -> FROM customers c -> JOIN orders o ON c.id = o.customer_id -> GROUP BY c.name; +---------------+-------------+ | name | total_spent | +---------------+-------------+ | Alice Johnson | 100.00 | | Bob Smith | 200.00 | | Charlie Brown | 50.00 | | Diana Prince | 150.00 | | Edward Stone | 300.00 | +---------------+-------------+

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3rd Query: Update the price of Product C to 45.00.

mysql> update products set price = 45.00 where name = "product c "; Query OK, 1 row affected (0.01 sec) Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from products; +----+-----------+-------+--------------------------+ | id | name | price | description | +----+-----------+-------+--------------------------+ | 1 | Product A | 20.00 | Description of Product A | | 2 | Product B | 30.00 | Description of Product B | | 3 | Product C | 45.00 | Description of Product C | | 4 | Product D | 50.00 | Description of Product D | | 5 | Product E | 60.00 | Description of Product E | +----+-----------+-------+--------------------------+

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4th Query: Add a new column discount to the products table.

mysql> alter table products add column discount decimal(5, 2); Query OK, 0 rows affected (0.02 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(255) | NO | | NULL |
	price	decimal(10,2)	NO		NULL
	description	text	YES		NULL
	discount	decimal(5,2)	YES		NULL
+-------------+---------------+------+-----+---------+----------------+

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5th Query: Retrieve the top 3 products with the highest price.

```
mysql> select price from products order by price desc limit 3; +-------+ | price | +-------+ | 60.00 | | 50.00 | | 45.00 | +-------+
```

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6th QUERY: Get the names of customers who have ordered Product A.

```
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 | +---------------+ | Alice Johnson | | Edward Stone | +---------------+
```

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7th Query: Join the orders and customers tables to retrieve the customer's name and order date for each order.

```
mysql> select customers.name, orders.order_date from customers -> join -> orders -> on customers.id = orders.id; +---------------+------------+ | name | order_date | +---------------+------------+ | Alice Johnson | 2024-12-12 | | Bob Smith | 2024-12-17 | | Edward Stone | 2024-12-02 | | Charlie Brown | 2024-11-22 | | Diana Prince | 2024-12-22 | | Edward Stone | 2024-12-02 | +---------------+------------+
```

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8th QUERY: Retrieve the orders with a total amount greater than 150.00.

```
mysql> select * from orders where total_amount > 150.00; +----+-------------+------------+--------------+ | id | customer_id | order_date | total_amount | +----+-------------+------------+--------------+ | 2 | 2 | 2024-12-17 | 200.00 | | 5 | 5 | 2024-12-02 | 300.00 | +----+-------------+------------+--------------+
```

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9th QUERY: 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 NOT NULL, -> product_id INT NOT NULL, -> quantity INT NOT NULL, -> FOREIGN KEY (order_id) REFERENCES orders(id), -> FOREIGN KEY (product_id) REFERENCES products(id)
-> );
```

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10th Query: Retrieve the average total of all orders.

```
mysql> select AVG(total_amount) as Average_Order_Total from orders; +---------------------+ | Average_Order_Total | +---------------------+ | 160.000000 | +---------------------+
```

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