

# My SQL Task

## Create the ecommerce database

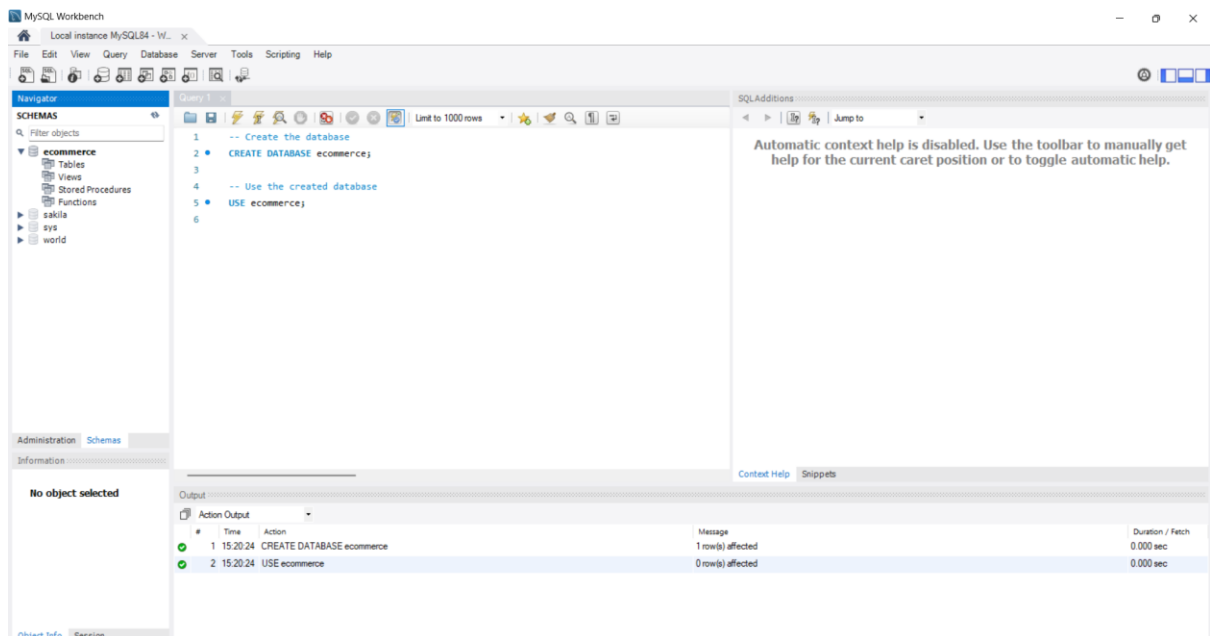
-- Create the database

```
CREATE DATABASE ecommerce;
```

-- Use the created database

```
USE ecommerce;
```

## Output:



## Create the customers, orders, and products tables

-- Create the 'customers' table

```
CREATE TABLE customers (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(100) NOT NULL,  
    email VARCHAR(100) UNIQUE NOT NULL,  
    address VARCHAR(255) NOT NULL  
);
```

-- Create the 'orders' table

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

-- Create the 'products' table

```
CREATE TABLE products (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(100) NOT NULL,  
    price DECIMAL(10, 2) NOT NULL,  
    description TEXT  
);
```

## Output:

The screenshot displays the MySQL Workbench interface. The left sidebar shows the 'SCHEMAS' tree with 'e-commerce' selected, containing tables 'customers', 'orders', and 'products'. The main editor shows two SQL queries: one for creating the 'orders' table and another for creating the 'products' table. The 'Output' pane at the bottom shows the execution results of these queries, including the creation of the 'e-commerce' database and the 'customers', 'orders', and 'products' tables. The 'Messages' pane on the right shows a warning about disabled automatic context help.

#	Time	Action	Message	Duration / Fetch
1	15:20:24	CREATE DATABASE e-commerce	1 row(s) affected	0.000 sec
2	15:20:24	USE e-commerce	0 row(s) affected	0.000 sec
3	15:22:37	Create the customers, orders, and products tables and Copy code -- Create the 'customers' table CREATE TABLE customers ( id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(100) NOT NULL, address VARCHAR(255) NOT NULL );	Error Code 1064: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ');' at line 7	0.000 sec
4	15:23:10	CREATE TABLE customers ( id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(100) NOT NULL, address VARCHAR(255) NOT NULL );	0 row(s) affected	0.063 sec
5	15:23:42	CREATE TABLE orders ( id INT AUTO_INCREMENT PRIMARY KEY, customer_id INT, order_date DATE NOT NULL, total_amount DECIMAL(10, 2) NOT NULL, FOREIGN KEY (customer_id) REFERENCES customers(id) );	0 row(s) affected	0.031 sec
6	15:24:10	CREATE TABLE products ( id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(100) NOT NULL, price DECIMAL(10, 2) NOT NULL, description TEXT );	0 row(s) affected	0.016 sec

## Insert Sample Data into the Tables

-- Insert sample data into the 'customers' table

```
INSERT INTO customers (name, email, address) VALUES  
( 'Alice Johnson', 'alice@example.com', '123 Maple St'),  
( 'Bob Smith', 'bob@example.com', '456 Oak Ave'),  
( 'Charlie Brown', 'charlie@example.com', '789 Pine Rd');
```

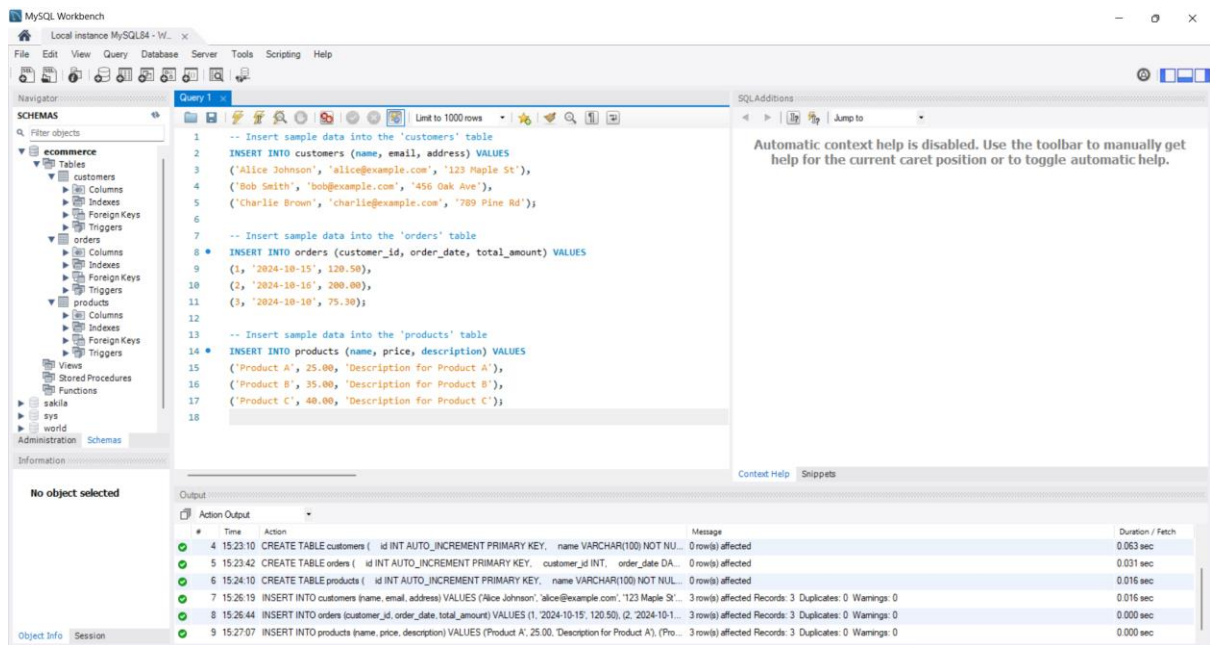
-- Insert sample data into the 'orders' table

```
INSERT INTO orders (customer_id, order_date, total_amount) VALUES  
(1, '2024-10-15', 120.50),  
(2, '2024-10-16', 200.00),  
(3, '2024-10-10', 75.30);
```

-- Insert sample data into the 'products' table

```
INSERT INTO products (name, price, description) VALUES  
( 'Product A', 25.00, 'Description for Product A'),  
( 'Product B', 35.00, 'Description for Product B'),  
( 'Product C', 40.00, 'Description for Product C');
```

## Output:



## Queries

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

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

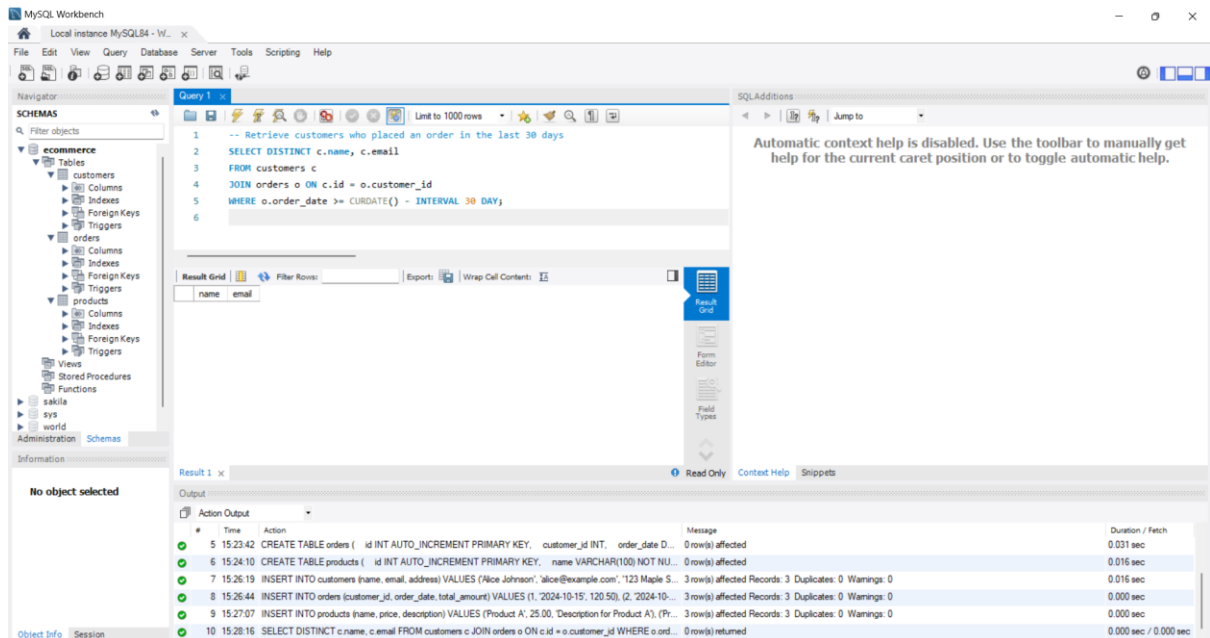
SELECT DISTINCT c.name, c.email

FROM customers c

JOIN orders o ON c.id = o.customer\_id

WHERE o.order\_date >= CURDATE() - INTERVAL 30 DAY;

## Output:



## Get the total amount of all orders placed by each customer

-- Get total amount of orders placed by each customer

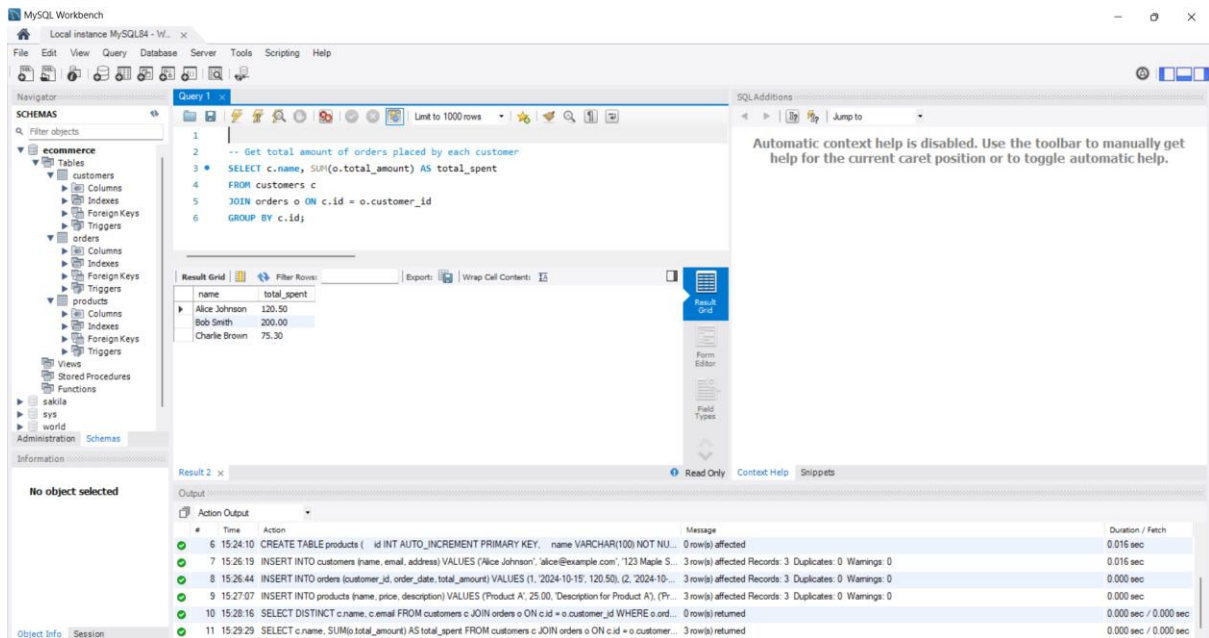
SELECT c.name, SUM(o.total\_amount) AS total\_spent

FROM customers c

JOIN orders o ON c.id = o.customer\_id

GROUP BY c.id;

## Output:



The screenshot shows the MySQL Workbench interface. The 'Query 1' window contains the following SQL query:

```
1 -- Get total amount of orders placed by each customer
2
3 SELECT c.name, SUM(o.total_amount) AS total_spent
4 FROM customers c
5 JOIN orders o ON c.id = o.customer_id
6 GROUP BY c.id;
```

The 'Result Grid' shows the output of the query:

name	total_spent
Alice Johnson	120.50
Bob Smith	200.00
Charlie Brown	75.30

The 'Output' window shows the execution log:

#	Time	Action	Message	Duration / Fetch
6	15:24:10	CREATE TABLE products ( id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(100) NOT NU...	0 row(s) affected	0.016 sec
7	15:25:19	INSERT INTO customers (name, email, address) VALUES ('Alice Johnson', 'alice@example.com', '123 Maple S...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.016 sec
8	15:26:44	INSERT INTO orders (customer_id, order_date, total_amount) VALUES (1, '2024-10-15', 120.50), (2, '2024-10-...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
9	15:27:07	INSERT INTO products (name, price, description) VALUES ('Product A', 25.00, 'Description for Product A'), (Pr...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
10	15:28:16	SELECT DISTINCT c.name, c.email FROM customers c JOIN orders o ON c.id = o.customer_id WHERE o ord...	0 row(s) returned	0.000 sec / 0.000 sec
11	15:29:29	SELECT c.name, SUM(o.total_amount) AS total_spent FROM customers c JOIN orders o ON c.id = o.customer...	3 row(s) returned	0.000 sec / 0.000 sec

## Update the price of Product C to 45.00

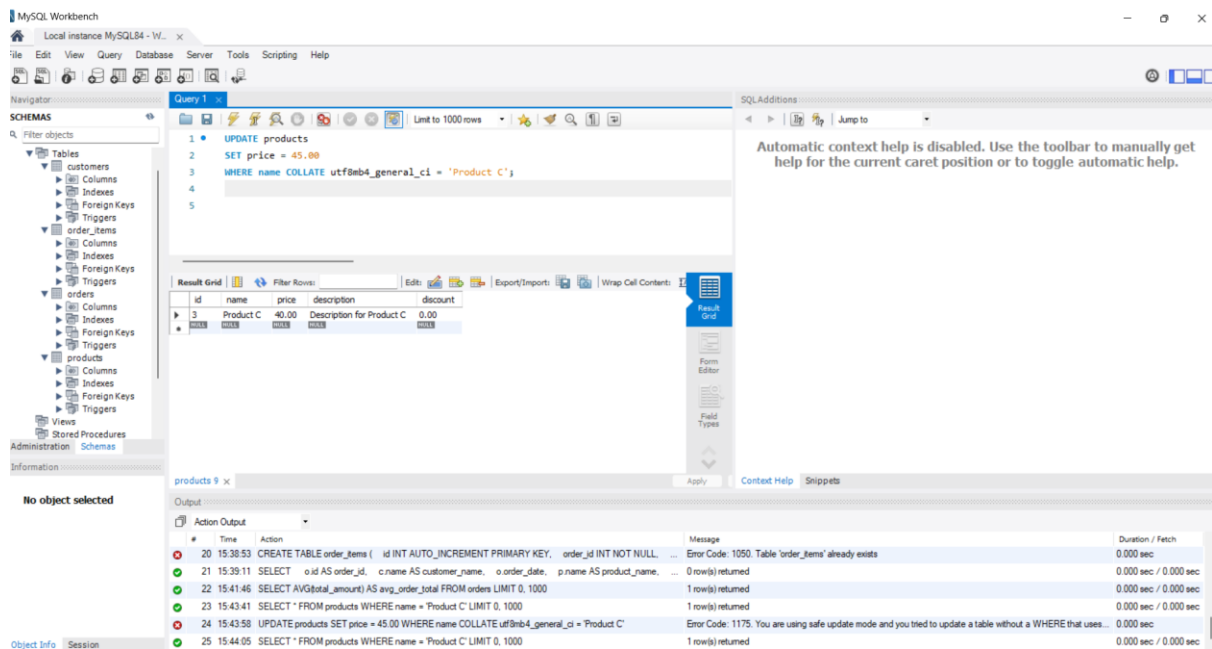
-- Update the price of Product C to 45.00

UPDATE products

SET price = 45.00

WHERE name = 'Product C';

## Output:



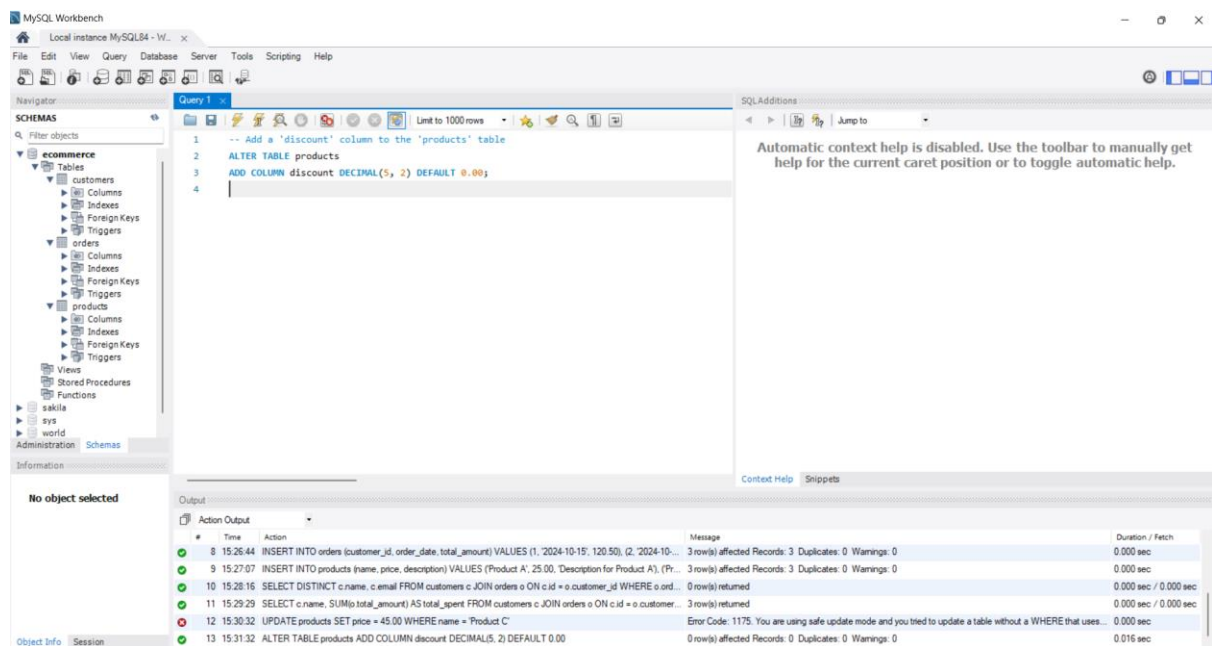
## Add a new column 'discount' to the products table

-- Add a 'discount' column to the 'products' table

ALTER TABLE products

ADD COLUMN discount DECIMAL(5, 2) DEFAULT 0.00;

## Output:



## Retrieve the top 3 products with the highest price

-- Retrieve top 3 products with the highest price

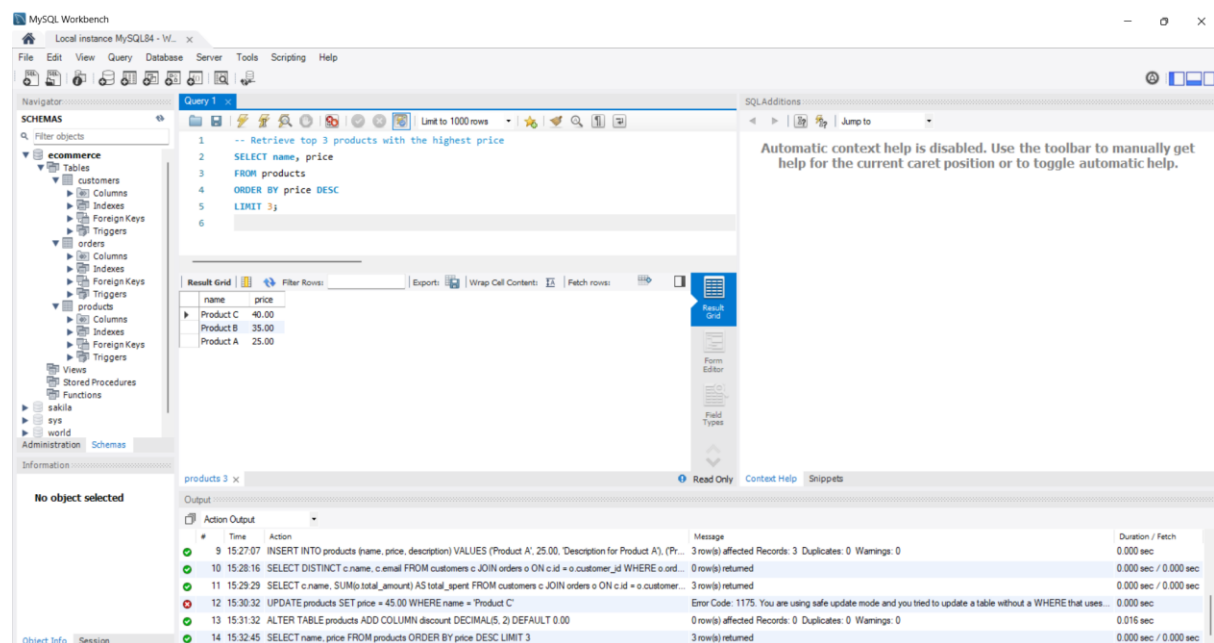
SELECT name, price

FROM products

ORDER BY price DESC

LIMIT 3;

## Output:



The screenshot shows the MySQL Workbench interface. The 'Query 1' editor contains the following SQL query:

```
1 -- Retrieve top 3 products with the highest price
2 SELECT name, price
3 FROM products
4 ORDER BY price DESC
5 LIMIT 3;
```

The 'Result Grid' displays the output of the query:

name	price
Product C	40.00
Product B	35.00
Product A	25.00

The 'Output' pane at the bottom shows the execution log with the following entries:

#	Time	Action	Message	Duration / Fetch
9	15:27:07	INSERT INTO products (name, price, description) VALUES (Product A', 25.00, 'Description for Product A'), (Pr...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
10	15:28:16	SELECT DISTINCT c.name, c.email FROM customers c JOIN orders o ON c.id = o.customer_id WHERE o.ord...	0 row(s) returned	0.000 sec / 0.000 sec
11	15:29:29	SELECT c.name, SUM(o.total_amount) AS total_spent FROM customers c JOIN orders o ON c.id = o.customer...	3 row(s) returned	0.000 sec / 0.000 sec
12	15:30:32	UPDATE products SET price = 45.00 WHERE name = 'Product C'	Error Code: 1175. You are using safe update mode and you tried to update a table without a WHERE that uses...	0.000 sec
13	15:31:32	ALTER TABLE products ADD COLUMN discount DECIMAL(5, 2) DEFAULT 0.00	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.015 sec
14	15:32:45	SELECT name, price FROM products ORDER BY price DESC LIMIT 3	3 row(s) returned	0.000 sec / 0.000 sec

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



-- Join 'orders' and 'customers' to get customer's name and order date

SELECT c.name AS customer\_name, o.order\_date

FROM orders o

JOIN customers c ON o.customer\_id = c.id;

## Output:

The screenshot shows the MySQL Workbench interface. The 'Query' tab is active, displaying the following SQL query:

```
1 -- Join 'orders' and 'customers' to get customer's name and order date
2 SELECT c.name AS customer_name, o.order_date
3 FROM orders o
4 JOIN customers c ON o.customer_id = c.id;
5
```

The 'Result Grid' shows the output of the query:

customer_name	order_date
Alice Johnson	2024-10-15
Bob Smith	2024-10-16
Charlie Brown	2024-10-10

The 'Output' tab shows the execution log with the following entries:

#	Time	Action	Message	Duration / Fetch
12	15:30:32	UPDATE products SET price = 45.00 WHERE name = 'Product C'	Error Code: 1175. You are using safe update mode and you tried to update a table without a WHERE that uses...	0.000 sec
13	15:31:32	ALTER TABLE products ADD COLUMN discount DECIMAL(5, 2) DEFAULT 0.00	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.016 sec
14	15:32:45	SELECT name, price FROM products ORDER BY price DESC LIMIT 3	3 row(s) returned	0.000 sec / 0.000 sec
15	15:33:37	SELECT DISTINCT c.name FROM customers c JOIN orders o ON c.id = o.customer_id JOIN order_items oi O...	Error Code: 1146. Table 'ecommerce.order_items' doesn't exist	0.000 sec
16	15:33:40	SELECT DISTINCT c.name FROM customers c JOIN orders o ON c.id = o.customer_id JOIN order_items oi O...	Error Code: 1146. Table 'ecommerce.order_items' doesn't exist	0.000 sec
17	15:34:37	SELECT c.name AS customer_name, o.order_date FROM orders o JOIN customers c ON o.customer_id = c.id ...	3 row(s) returned	0.000 sec / 0.000 sec

## Retrieve the orders with a total amount greater than 150.00

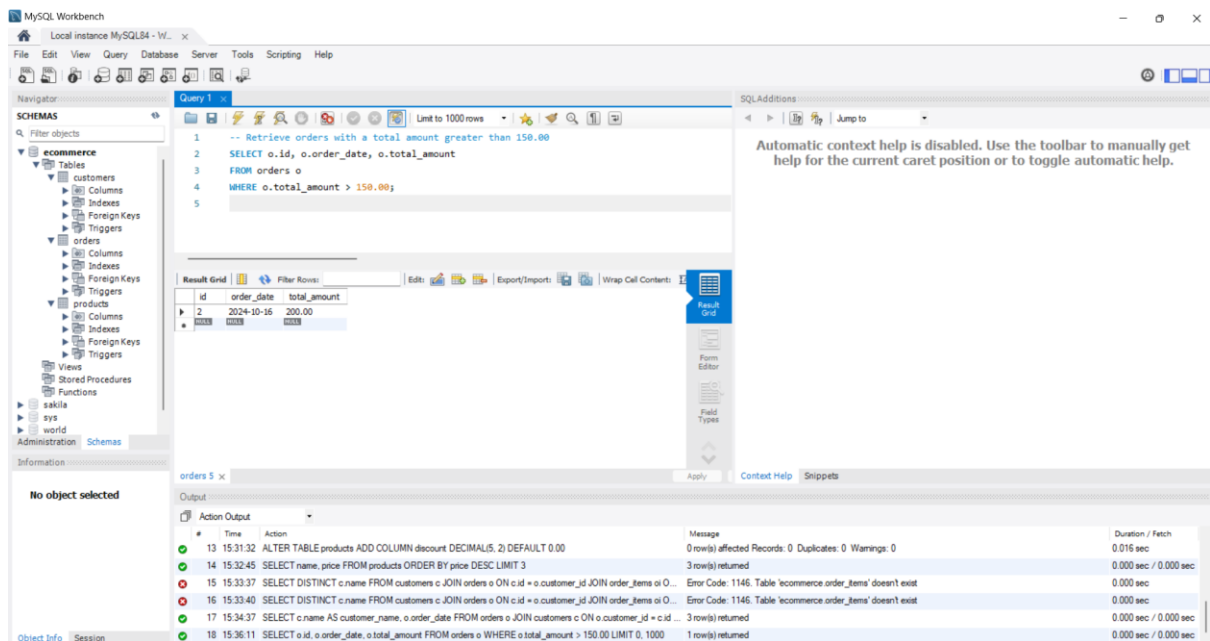
-- Retrieve orders with a total amount greater than 150.00

SELECT o.id, o.order\_date, o.total\_amount

FROM orders o

WHERE o.total\_amount > 150.00;

## Output:



## Normalize the database by creating a separate table for order items and updating the orders table

-- Create the 'order\_items' table to normalize the database

```
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)  
);
```

## Output:

The screenshot shows the MySQL Workbench interface. The 'Query' window contains the following SQL code:

```
1 -- Create the 'order_items' table to normalize the database
2 CREATE TABLE order_items (
3   id INT AUTO_INCREMENT PRIMARY KEY,
4   order_id INT,
5   product_id INT,
6   quantity INT,
7   FOREIGN KEY (order_id) REFERENCES orders(id),
8   FOREIGN KEY (product_id) REFERENCES products(id)
9 );
10
11
```

The 'Output' window shows the results of the queries:

#	Time	Action	Message	Duration / Fetch
14	15:32:45	SELECT name, price FROM products ORDER BY price DESC LIMIT 3	3 row(s) returned	0.000 sec / 0.000 sec
15	15:33:37	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	Error Code: 1146. Table 'ecommerce.order_items' doesn't exist	0.000 sec
16	15:33:40	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	Error Code: 1146. Table 'ecommerce.order_items' doesn't exist	0.000 sec
17	15:34:37	SELECT c.name AS customer_name, o.order_date FROM orders o JOIN customers c ON o.customer_id = c.id	3 row(s) returned	0.000 sec / 0.000 sec
18	15:36:11	SELECT o.id, o.order_date, o.total_amount FROM orders o WHERE o.total_amount > 150.00 LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
19	15:37:13	CREATE TABLE order_items ( id INT AUTO_INCREMENT PRIMARY KEY, order_id INT, product_id INT, quantity INT)	0 row(s) affected	0.063 sec

### Query to Join All Related Tables (Example)

Retrieve full details for each order, including customer name, order date, product name, and quantity:

SELECT

o.id AS order\_id,

c.name AS customer\_name,

o.order\_date,

p.name AS product\_name,

oi.quantity,

p.price AS product\_price,

(oi.quantity \* p.price) AS line\_total

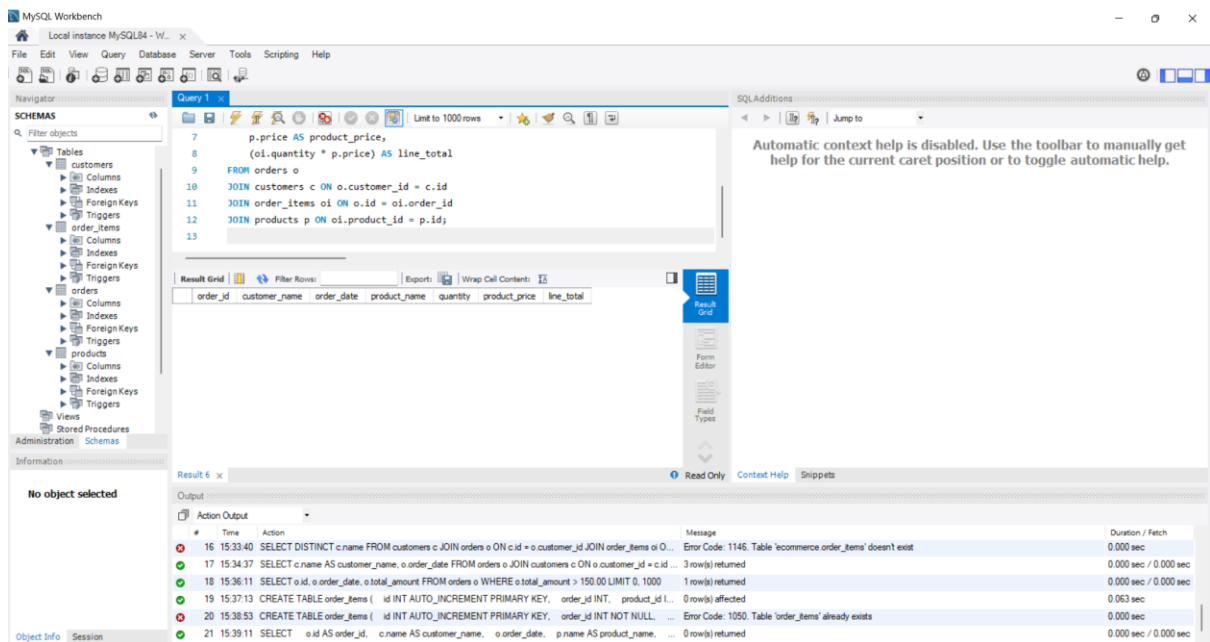
FROM orders o

JOIN customers c ON o.customer\_id = c.id

JOIN order\_items oi ON o.id = oi.order\_id

JOIN products p ON oi.product\_id = p.id;

## Output:



## Retrieve the average total of all orders

-- Retrieve the average total of all orders

SELECT AVG(total\_amount) AS avg\_order\_total

FROM orders;

## Output:

The screenshot displays the MySQL Workbench interface for a local instance of MySQL84. The left sidebar shows the 'SCHEMAS' tree with a filter on 'Tables'. The main editor window shows a query titled 'Query 1' with the following SQL code:

```
1
2 -- Retrieve the average total of all orders
3 * SELECT AVG(total_amount) AS avg_order_total
4 FROM orders;
```

The 'Result Grid' below the query shows the results of the query:

avg_order_total
131.933333

The bottom panel shows the 'Output' tab with a table of query results:

Time	Action	Message	Duration / Fetch
17 15:34:37	SELECT c.name AS customer_name, o.order_date FROM orders o JOIN customers c ON o.customer_id = c.id ...	3 row(s) returned	0.000 sec / 0.000 sec
18 15:36:11	SELECT o.id, o.order_date, o.total_amount FROM orders o WHERE o.total_amount > 150.00 LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
19 15:37:13	CREATE TABLE order_items ( id INT AUTO_INCREMENT PRIMARY KEY, order_id INT, product_id INT ...	0 row(s) affected	0.063 sec
20 15:38:53	CREATE TABLE order_items ( id INT AUTO_INCREMENT PRIMARY KEY, order_id INT NOT NULL, ...	Error Code: 1050. Table 'order_items' already exists	0.000 sec
21 15:39:11	SELECT o.id AS order_id, c.name AS customer_name, o.order_date, p.name AS product_name, ...	0 row(s) returned	0.000 sec / 0.000 sec
22 15:41:46	SELECT AVG(total_amount) AS avg_order_total FROM orders LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec