CREATE TABLE categories (

category\_id INTEGER PRIMARY KEY,

category\_name TEXT

);

CREATE TABLE customers (

customer\_id INTEGER PRIMARY KEY,

customer\_name TEXT,

email TEXT,

phone TEXT,

address TEXT

);

CREATE TABLE products (

product\_id INTEGER PRIMARY KEY,

product\_name TEXT,

category\_id INTEGER,

description TEXT,

FOREIGN KEY (category\_id) REFERENCES categories(category\_id) ON DELETE CASCADE

);

CREATE TABLE orders (

order\_id INTEGER PRIMARY KEY,

customer\_id INTEGER,

order\_date DATE,

total\_amount NUMERIC,

FOREIGN KEY (customer\_id) REFERENCES customers(customer\_id) ON DELETE CASCADE

);

CREATE TABLE order\_items (

order\_item\_id INTEGER PRIMARY KEY,

order\_id INTEGER,

product\_id INTEGER,

quantity INTEGER,

unit\_price NUMERIC,

FOREIGN KEY (order\_id) REFERENCES orders(order\_id) ON DELETE CASCADE,

FOREIGN KEY (product\_id) REFERENCES products(product\_id) ON DELETE CASCADE

);

INSERT INTO categories (category\_id, category\_name)

VALUES (1, 'Office Supplies'), (2, 'Electronics'), (3, 'Furniture'), (4, 'Books'), (5, 'Stationery');

INSERT INTO customers (customer\_id, customer\_name, email, phone, address)

VALUES

(1, 'Alisa', 'alisa@example.com', '823456789', '123 Main St'),

(2, 'Luna', 'luna@example.com', '834567890', '456 Not Main St'),

(3, 'Neville', 'neville@example.com', '845678901', '789 Pineapple St'),

(4, 'Hermione', 'hermione@example.com', '856789012', '101 MarpleSyrup St'),

(5, 'Draco', 'draco@example.com', '867890123', '202 CedarApple St');

INSERT INTO products (product\_id, product\_name, category\_id, description)

VALUES

(1, 'Laptop', 2, 'High-performance laptop'),

(2, 'Desk Chair', 3, 'Ergonomic desk chair'),

(3, 'Notebook', 5, 'A4 notebook with 100 pages'),

(4, 'Bookshelf', 3, 'Wooden bookshelf'),

(5, 'Printer', 2, 'Laser printer');

INSERT INTO orders (order\_id, customer\_id, order\_date, total\_amount)

VALUES

(1, 1, '2024-10-01', 5000.00),

(2, 2, '2024-10-02', 2500.00),

(3, 3, '2024-10-03', 3000.00),

(4, 4, '2024-10-04', 4500.00),

(5, 5, '2024-10-05', 6000.00);

INSERT INTO order\_items (order\_item\_id, order\_id, product\_id, quantity, unit\_price)

VALUES

(1, 1, 1, 1, 5000.00),

(2, 2, 3, 10, 2500.00),

(3, 3, 4, 2, 1500.00),

(4, 4, 2, 1, 4500.00),

(5, 5, 5, 1, 6000.00);

SELECT c.category\_name, SUM(oi.quantity \* oi.unit\_price) AS total\_revenue

FROM order\_items oi

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

JOIN categories c ON p.category\_id = c.category\_id

GROUP BY c.category\_name;

**a)**

WITH order\_summary AS (

SELECT

o.order\_id,

c.customer\_name,

o.order\_date,

o.total\_amount,

SUM(oi.quantity) AS total\_quantity

FROM

orders o

JOIN

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

JOIN

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

GROUP BY

o.order\_id, c.customer\_name, o.order\_date, o.total\_amount

)

SELECT \* FROM order\_summary;

**b)**

WITH product\_sales AS (

SELECT

p.product\_id,

p.product\_name,

c.category\_name,

SUM(oi.quantity \* oi.unit\_price) AS total\_revenue

FROM

products p

JOIN

categories c ON p.category\_id = c.category\_id

JOIN

order\_items oi ON p.product\_id = oi.product\_id

GROUP BY

p.product\_id, p.product\_name, c.category\_name

)

SELECT \* FROM product\_sales;

1. **Retrieve the customer who has made the most orders:**

SELECT

c.customer\_name,

COUNT(o.order\_id) AS total\_orders

FROM

customers c

JOIN

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

GROUP BY

c.customer\_name

ORDER BY

total\_orders DESC

LIMIT 1;

**2.Retrieve the product that has been ordered the most in terms of quantity:**

SELECT

p.product\_name,

SUM(oi.quantity) AS total\_quantity\_ordered

FROM

products p

JOIN

order\_items oi ON p.product\_id = oi.product\_id

GROUP BY

p.product\_name

ORDER BY

total\_quantity\_ordered DESC

LIMIT 1;

### 3.Retrieve the product that has generated the most revenue:

SELECT

p.product\_name,

SUM(oi.quantity \* oi.unit\_price) AS total\_revenue

FROM

products p

JOIN

order\_items oi ON p.product\_id = oi.product\_id

GROUP BY

p.product\_name

ORDER BY

total\_revenue DESC

LIMIT 1;

### 4. Retrieve the total revenue generated by the customer with the most orders:

WITH most\_orders\_customer AS (

SELECT

c.customer\_id,

c.customer\_name,

COUNT(o.order\_id) AS total\_orders

FROM

customers c

JOIN

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

GROUP BY

c.customer\_id, c.customer\_name

ORDER BY

total\_orders DESC

LIMIT 1

)

SELECT

moc.customer\_name,

SUM(o.total\_amount) AS total\_revenue

FROM

most\_orders\_customer moc

JOIN

orders o ON moc.customer\_id = o.customer\_id

GROUP BY

moc.customer\_name;