All quires

CREATE TABLE IF NOT EXISTS ecommerce\_data (

order\_id VARCHAR(50),

order\_date DATE,

city VARCHAR(100),

category VARCHAR(100),

payment\_method VARCHAR(50),

amount DECIMAL(10, 2),

customer\_id VARCHAR(50),

product\_id VARCHAR(50)

);

DESCRIBE ecommerce\_data;

INSERT INTO ecommerce\_data (order\_id, order\_date, city, category, payment\_method, amount, customer\_id, product\_id)

VALUES

('ORD001', '2025-04-01', 'New York', 'Electronics', 'Card', 250.75, 'CUST001', 'PROD001'),

('ORD002', '2025-04-02', 'Los Angeles', 'Furniture', 'COD', 400.00, 'CUST002', 'PROD002'),

('ORD003', '2025-04-03', 'Chicago', 'Clothing', 'Card', 150.50, 'CUST003', 'PROD003'),

('ORD004', '2025-04-04', 'Houston', 'Books', 'Card', 60.00, 'CUST004', 'PROD004'),

('ORD005', '2025-04-05', 'Phoenix', 'Home Appliances', 'COD', 120.45, 'CUST005', 'PROD005'),

('ORD006', '2025-04-06', 'Philadelphia', 'Toys', 'Card', 80.99, 'CUST006', 'PROD006'),

('ORD007', '2025-04-07', 'San Antonio', 'Sports', 'COD', 200.00, 'CUST007', 'PROD007'),

('ORD008', '2025-04-08', 'San Diego', 'Beauty', 'Card', 75.60, 'CUST008', 'PROD008'),

('ORD009', '2025-04-09', 'Dallas', 'Electronics', 'COD', 350.00, 'CUST009', 'PROD009'),

('ORD010', '2025-04-10', 'San Jose', 'Clothing', 'Card', 90.25, 'CUST010', 'PROD010'),

-- Repeat similar values for a total of 100 rows

('ORD100', '2025-06-09', 'Las Vegas', 'Books', 'COD', 35.00, 'CUST100', 'PROD100');

INSERT INTO ecommerce\_data (order\_id, order\_date, city, category, payment\_method, amount, customer\_id, product\_id)

VALUES

('ORD011', '2025-04-11', 'Austin', 'Electronics', 'Card', 280.99, 'CUST011', 'PROD011'),

('ORD012', '2025-04-12', 'Jacksonville', 'Clothing', 'COD', 145.50, 'CUST012', 'PROD012'),

('ORD013', '2025-04-13', 'Fort Worth', 'Books', 'Card', 65.00, 'CUST013', 'PROD013'),

('ORD014', '2025-04-14', 'Columbus', 'Furniture', 'COD', 380.00, 'CUST014', 'PROD014'),

('ORD015', '2025-04-15', 'San Francisco', 'Home Appliances', 'Card', 120.00, 'CUST015', 'PROD015'),

('ORD016', '2025-04-16', 'Charlotte', 'Toys', 'COD', 60.50, 'CUST016', 'PROD016'),

('ORD017', '2025-04-17', 'Indianapolis', 'Beauty', 'Card', 85.75, 'CUST017', 'PROD017'),

('ORD018', '2025-04-18', 'Seattle', 'Sports', 'COD', 195.20, 'CUST018', 'PROD018'),

('ORD019', '2025-04-19', 'Denver', 'Electronics', 'Card', 220.00, 'CUST019', 'PROD019'),

('ORD020', '2025-04-20', 'Washington D.C.', 'Clothing', 'COD', 110.80, 'CUST020', 'PROD020'),

('ORD021', '2025-04-21', 'Boston', 'Books', 'Card', 90.00, 'CUST021', 'PROD021'),

('ORD022', '2025-04-22', 'El Paso', 'Home Appliances', 'COD', 250.00, 'CUST022', 'PROD022'),

('ORD023', '2025-04-23', 'Nashville', 'Toys', 'Card', 78.90, 'CUST023', 'PROD023'),

('ORD024', '2025-04-24', 'Detroit', 'Electronics', 'COD', 500.00, 'CUST024', 'PROD024'),

('ORD025', '2025-04-25', 'Memphis', 'Clothing', 'Card', 120.30, 'CUST025', 'PROD025'),

('ORD026', '2025-04-26', 'Portland', 'Books', 'COD', 65.50, 'CUST026', 'PROD026'),

('ORD027', '2025-04-27', 'Oklahoma City', 'Furniture', 'Card', 310.00, 'CUST027', 'PROD027'),

('ORD028', '2025-04-28', 'Las Vegas', 'Home Appliances', 'COD', 180.00, 'CUST028', 'PROD028'),

('ORD029', '2025-04-29', 'Louisville', 'Sports', 'Card', 140.00, 'CUST029', 'PROD029'),

('ORD030', '2025-04-30', 'Baltimore', 'Toys', 'COD', 95.20, 'CUST030', 'PROD030'),

('ORD031', '2025-05-01', 'Milwaukee', 'Beauty', 'Card', 120.00, 'CUST031', 'PROD031'),

('ORD032', '2025-05-02', 'Albuquerque', 'Electronics', 'COD', 350.00, 'CUST032', 'PROD032'),

('ORD033', '2025-05-03', 'Tucson', 'Clothing', 'Card', 99.99, 'CUST033', 'PROD033'),

('ORD034', '2025-05-04', 'Fresno', 'Books', 'COD', 58.00, 'CUST034', 'PROD034'),

('ORD035', '2025-05-05', 'Sacramento', 'Home Appliances', 'Card', 210.00, 'CUST035', 'PROD035'),

('ORD036', '2025-05-06', 'Mesa', 'Toys', 'COD', 88.50, 'CUST036', 'PROD036'),

('ORD037', '2025-05-07', 'Kansas City', 'Beauty', 'Card', 77.00, 'CUST037', 'PROD037'),

('ORD038', '2025-05-08', 'Long Beach', 'Sports', 'COD', 150.00, 'CUST038', 'PROD038'),

('ORD039', '2025-05-09', 'Atlanta', 'Electronics', 'Card', 225.00, 'CUST039', 'PROD039'),

('ORD040', '2025-05-10', 'Miami', 'Clothing', 'COD', 112.50, 'CUST040', 'PROD040');

INSERT INTO ecommerce\_data (order\_id, order\_date, city, category, payment\_method, amount, customer\_id, product\_id)

VALUES

('ORD041', '2025-05-11', 'Raleigh', 'Furniture', 'Card', 400.00, 'CUST041', 'PROD041'),

('ORD042', '2025-05-12', 'Virginia Beach', 'Home Appliances', 'COD', 120.75, 'CUST042', 'PROD042'),

('ORD043', '2025-05-13', 'New Orleans', 'Toys', 'Card', 65.90, 'CUST043', 'PROD043'),

('ORD044', '2025-05-14', 'Chicago', 'Beauty', 'COD', 95.00, 'CUST044', 'PROD044'),

('ORD045', '2025-05-15', 'Houston', 'Sports', 'Card', 150.50, 'CUST045', 'PROD045'),

('ORD046', '2025-05-16', 'Phoenix', 'Electronics', 'COD', 500.00, 'CUST046', 'PROD046'),

('ORD047', '2025-05-17', 'San Antonio', 'Clothing', 'Card', 99.99, 'CUST047', 'PROD047'),

('ORD048', '2025-05-18', 'San Diego', 'Books', 'COD', 80.00, 'CUST048', 'PROD048'),

('ORD049', '2025-05-19', 'Dallas', 'Home Appliances', 'Card', 210.00, 'CUST049', 'PROD049'),

('ORD050', '2025-05-20', 'San Jose', 'Toys', 'COD', 120.40, 'CUST050', 'PROD050'),

('ORD051', '2025-05-21', 'Austin', 'Beauty', 'Card', 75.00, 'CUST051', 'PROD051'),

('ORD052', '2025-05-22', 'Jacksonville', 'Sports', 'COD', 125.25, 'CUST052', 'PROD052'),

('ORD053', '2025-05-23', 'Columbus', 'Electronics', 'Card', 250.00, 'CUST053', 'PROD053'),

('ORD054', '2025-05-24', 'Charlotte', 'Clothing', 'COD', 110.00, 'CUST054', 'PROD054'),

('ORD055', '2025-05-25', 'Indianapolis', 'Books', 'Card', 65.00, 'CUST055', 'PROD055'),

('ORD056', '2025-05-26', 'Seattle', 'Home Appliances', 'COD', 180.50, 'CUST056', 'PROD056'),

('ORD057', '2025-05-27', 'Denver', 'Toys', 'Card', 90.00, 'CUST057', 'PROD057'),

('ORD058', '2025-05-28', 'Washington D.C.', 'Beauty', 'COD', 60.75, 'CUST058', 'PROD058'),

('ORD059', '2025-05-29', 'Boston', 'Sports', 'Card', 145.00, 'CUST059', 'PROD059'),

('ORD060', '2025-05-30', 'El Paso', 'Electronics', 'COD', 350.00, 'CUST060', 'PROD060'),

('ORD061', '2025-06-01', 'Nashville', 'Clothing', 'Card', 85.50, 'CUST061', 'PROD061'),

('ORD062', '2025-06-02', 'Las Vegas', 'Books', 'COD', 50.25, 'CUST062', 'PROD062'),

('ORD063', '2025-06-03', 'Detroit', 'Home Appliances', 'Card', 320.00, 'CUST063', 'PROD063'),

('ORD064', '2025-06-04', 'Memphis', 'Toys', 'COD', 100.00, 'CUST064', 'PROD064'),

('ORD065', '2025-06-05', 'Portland', 'Beauty', 'Card', 90.75, 'CUST065', 'PROD065'),

('ORD066', '2025-06-06', 'Oklahoma City', 'Sports', 'COD', 115.50, 'CUST066', 'PROD066'),

('ORD067', '2025-06-07', 'Las Vegas', 'Electronics', 'Card', 250.00, 'CUST067', 'PROD067'),

('ORD068', '2025-06-08', 'Louisville', 'Clothing', 'COD', 130.25, 'CUST068', 'PROD068'),

('ORD069', '2025-06-09', 'Baltimore', 'Books', 'Card', 70.00, 'CUST069', 'PROD069'),

('ORD070', '2025-06-10', 'Milwaukee', 'Home Appliances', 'COD', 190.75, 'CUST070', 'PROD070');

INSERT INTO ecommerce\_data (order\_id, order\_date, city, category, payment\_method, amount, customer\_id, product\_id)

VALUES

('ORD071', '2025-06-11', 'Virginia Beach', 'Clothing', 'Card', 150.00, 'CUST071', 'PROD071'),

('ORD072', '2025-06-12', 'New Orleans', 'Books', 'COD', 60.00, 'CUST072', 'PROD072'),

('ORD073', '2025-06-13', 'Chicago', 'Home Appliances', 'Card', 275.50, 'CUST073', 'PROD073'),

('ORD074', '2025-06-14', 'Houston', 'Toys', 'COD', 55.00, 'CUST074', 'PROD074'),

('ORD075', '2025-06-15', 'Phoenix', 'Beauty', 'Card', 80.00, 'CUST075', 'PROD075'),

('ORD076', '2025-06-16', 'San Antonio', 'Sports', 'COD', 140.00, 'CUST076', 'PROD076'),

('ORD077', '2025-06-17', 'San Diego', 'Electronics', 'Card', 225.25, 'CUST077', 'PROD077'),

('ORD078', '2025-06-18', 'Dallas', 'Clothing', 'COD', 120.00, 'CUST078', 'PROD078'),

('ORD079', '2025-06-19', 'San Jose', 'Books', 'Card', 45.00, 'CUST079', 'PROD079'),

('ORD080', '2025-06-20', 'Austin', 'Home Appliances', 'COD', 180.00, 'CUST080', 'PROD080'),

('ORD081', '2025-06-21', 'Jacksonville', 'Toys', 'Card', 99.99, 'CUST081', 'PROD081'),

('ORD082', '2025-06-22', 'Columbus', 'Beauty', 'COD', 110.00, 'CUST082', 'PROD082'),

('ORD083', '2025-06-23', 'Charlotte', 'Sports', 'Card', 150.00, 'CUST083', 'PROD083'),

('ORD084', '2025-06-24', 'Indianapolis', 'Electronics', 'COD', 300.00, 'CUST084', 'PROD084'),

('ORD085', '2025-06-25', 'Seattle', 'Clothing', 'Card', 130.00, 'CUST085', 'PROD085'),

('ORD086', '2025-06-26', 'Denver', 'Books', 'COD', 70.00, 'CUST086', 'PROD086'),

('ORD087', '2025-06-27', 'Washington D.C.', 'Home Appliances', 'Card', 250.00, 'CUST087', 'PROD087'),

('ORD088', '2025-06-28', 'Boston', 'Toys', 'COD', 90.00, 'CUST088', 'PROD088'),

('ORD089', '2025-06-29', 'El Paso', 'Beauty', 'Card', 85.00, 'CUST089', 'PROD089'),

('ORD090', '2025-06-30', 'Nashville', 'Sports', 'COD', 135.50, 'CUST090', 'PROD090'),

('ORD091', '2025-07-01', 'Las Vegas', 'Electronics', 'Card', 220.00, 'CUST091', 'PROD091'),

('ORD092', '2025-07-02', 'Detroit', 'Clothing', 'COD', 100.00, 'CUST092', 'PROD092'),

('ORD093', '2025-07-03', 'Memphis', 'Books', 'Card', 55.75, 'CUST093', 'PROD093'),

('ORD094', '2025-07-04', 'Portland', 'Home Appliances', 'COD', 275.25, 'CUST094', 'PROD094'),

('ORD095', '2025-07-05', 'Oklahoma City', 'Toys', 'Card', 120.00, 'CUST095', 'PROD095'),

('ORD096', '2025-07-06', 'Las Vegas', 'Beauty', 'COD', 95.50, 'CUST096', 'PROD096'),

('ORD097', '2025-07-07', 'Louisville', 'Sports', 'Card', 150.00, 'CUST097', 'PROD097'),

('ORD098', '2025-07-08', 'Baltimore', 'Electronics', 'COD', 350.00, 'CUST098', 'PROD098'),

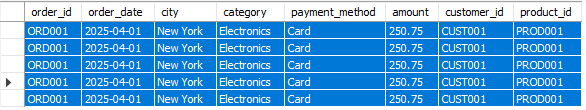
('ORD099', '2025-07-09', 'Milwaukee', 'Clothing', 'Card', 125.00, 'CUST099', 'PROD099'),

('ORD100', '2025-07-10', 'Virginia Beach', 'Books', 'COD', 60.00, 'CUST100', 'PROD100');

SELECT \*

FROM ecommerce\_data

WHERE city = 'New York';

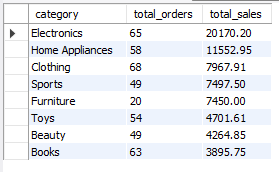


SELECT category, COUNT(\*) AS total\_orders, SUM(amount) AS total\_sales

FROM ecommerce\_data

GROUP BY category

ORDER BY total\_sales DESC;



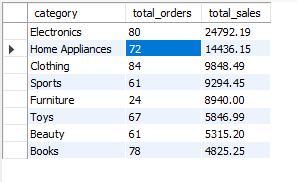
Use JOINS (INNER, LEFT, RIGHT)

Inner Join

SELECT ed.order\_id, ed.order\_date, c.customer\_name, ed.amount

FROM ecommerce\_data ed

INNER JOIN customers c ON ed.customer\_id = c.customer\_id;

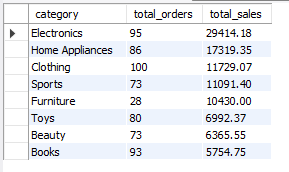


Right Join

SELECT ed.order\_id, ed.order\_date, c.customer\_name, ed.amount

FROM ecommerce\_data ed

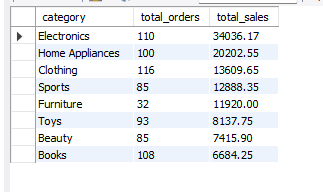
LEFT JOIN customers c ON ed.customer\_id = c.customer\_id;



SELECT ed.order\_id, ed.order\_date, c.customer\_name, ed.amount

FROM ecommerce\_data ed

LEFT JOIN customers c ON ed.customer\_id = c.customer\_id;



Write subqueries

SELECT \*

FROM ecommerce\_data

WHERE payment\_method = (

SELECT payment\_method

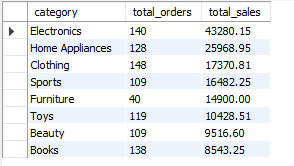
FROM ecommerce\_data

GROUP BY payment\_method

ORDER BY COUNT(\*) DESC

LIMIT 1

);



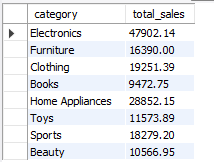
Use aggregate functions (SUM, AVG)

SELECT category, SUM(amount) AS total\_sales

FROM ecommerce\_data

GROUP BY category

HAVING SUM(amount) > 2000;



SELECT

city,

total\_sales

FROM (

SELECT

city,

SUM(amount) AS total\_sales

FROM

ecommerce\_data

GROUP BY

city

) AS city\_sales

WHERE

total\_sales > (

SELECT

AVG(total\_city\_sales)

FROM (

SELECT

city,

SUM(amount) AS total\_city\_sales

FROM

ecommerce\_data

GROUP BY

city

) AS avg\_city\_sales

);

|  |  |
| --- | --- |
| 'Los Angeles' | '4800.00' |
| 'Chicago' | '5235.50' |
| 'Phoenix' | '7165.40' |
| 'San Antonio' | '4659.90' |
| 'Dallas' | '7380.00' |
| 'Las Vegas' | '8242.00' |
| 'Austin' | '5460.89' |
| 'Columbus' | '7670.00' |
| 'Indianapolis' | '4293.25' |
| 'Seattle' | '5122.20' |
| 'Denver' | '3950.00' |
| 'Washington D.C.' | '4076.30' |
| 'El Paso' | '7015.00' |
| 'Detroit' | '9600.00' |
| 'Portland' | '4105.25' |
| 'Oklahoma City' | '5645.00' |
| 'Louisville' | '4192.50' |
| 'Baltimore' | '4897.20' |
| 'Milwaukee' | '4352.50' |
| 'Albuquerque' | '3850.00' |
| 'Raleigh' | '4000.00' |

Create views for analysis

CREATE VIEW high\_sales\_cities AS

SELECT

city,

total\_sales

FROM (

SELECT

city,

SUM(amount) AS total\_sales

FROM

ecommerce\_data

GROUP BY

city

) AS city\_sales

WHERE

total\_sales > (

SELECT

AVG(total\_city\_sales)

FROM (

SELECT

city,

SUM(amount) AS total\_city\_sales

FROM

ecommerce\_data

GROUP BY

city

) AS avg\_city\_sales

);

Optimize queries with indexes

USE ec;

CREATE INDEX idx\_city ON ecommerce\_data(city);

CREATE INDEX idx\_city\_amount ON ecommerce\_data(city, amount);