

### Create the sales table

```
CREATE TABLE sales (
```

```
    sale_id INT PRIMARY KEY,
```

```
    product_name VARCHAR(255) NOT NULL,
```

```
    quantity INT NOT NULL,
```

```
    price DECIMAL(10, 2) NOT NULL,
```

```
    sale_date DATE NOT NULL
```

```
);
```

```
-- Insert 20 entries into the sales table with manual sale_id values
```

```
INSERT INTO sales (sale_id, product_name, quantity, price, sale_date) VALUES
```

```
(1, 'Apple', 10, 1.20, '2025-04-01'),
```

```
(2, 'Banana', 15, 0.50, '2025-04-01'),
```

```
(3, 'Carrot', 12, 0.80, '2025-04-02'),
```

```
(4, 'Tomato', 20, 1.00, '2025-04-02'),
```

```
(5, 'Milk', 8, 1.50, '2025-04-03'),
```

```
(6, 'Bread', 5, 2.00, '2025-04-03'),
```

```
(7, 'Chicken', 10, 5.00, '2025-04-04'),
```

```
(8, 'Eggs', 15, 0.25, '2025-04-04'),
```

```
(9, 'Cheese', 6, 3.50, '2025-04-05'),
```

```
(10, 'Spinach', 9, 2.20, '2025-04-05'),
```

```
(11, 'Rice', 7, 1.75, '2025-04-06'),
```

```
(12, 'Pasta', 11, 1.80, '2025-04-06'),
```

```
(13, 'Orange', 14, 1.00, '2025-04-07'),
```

```
(14, 'Potato', 16, 0.60, '2025-04-07'),
```

```
(15, 'Onion', 18, 0.90, '2025-04-08'),
```

```
(16, 'Yogurt', 5, 2.50, '2025-04-08'),
```

```
(17, 'Lettuce', 13, 1.10, '2025-04-09'),
```

```
(18, 'Cucumber', 10, 1.30, '2025-04-09'),
```

```
(19, 'Beef', 7, 6.00, '2025-04-10'),
```

```
(20, 'Fish', 5, 4.50, '2025-04-10');
```

## Sales

sale_id	product_name	quantity	price	sale_date
1	Apple	10	1.2	2025-04-01
2	Banana	15	0.5	2025-04-01
3	Carrot	12	0.8	2025-04-02
4	Tomato	20	1	2025-04-02
5	Milk	8	1.5	2025-04-03
6	Bread	5	2	2025-04-03
7	Chicken	10	5	2025-04-04
8	Eggs	15	0.25	2025-04-04
9	Cheese	6	3.5	2025-04-05
10	Spinach	9	2.2	2025-04-05
11	Rice	7	1.75	2025-04-06
12	Pasta	11	1.8	2025-04-06
13	Orange	14	1	2025-04-07
14	Potato	16	0.6	2025-04-07
15	Onion	18	0.9	2025-04-08

16	Yogurt	5	2.5	2025-04-08
17	Lettuce	13	1.1	2025-04-09
18	Cucumber	10	1.3	2025-04-09
19	Beef	7	6	2025-04-10
20	Fish	5	4.5	2025-04-10

## SELECT, WHERE, ORDER BY, GROUP BY

```
SELECT product_name, SUM(quantity) AS total_quantity, AVG(price) AS average_price
FROM sales
WHERE sale_date >= '2025-04-01' AND sale_date <= '2025-04-10'
GROUP BY product_name
ORDER BY total_quantity DESC;
```

product_name	total_quantity	average_price
Tomato	20	1
Onion	18	0.9
Potato	16	0.6
Eggs	15	0.25
Banana	15	0.5
Orange	14	1
Lettuce	13	1.1
Carrot	12	0.8
Pasta	11	1.8
Cucumber	10	1.3
Chicken	10	5
Apple	10	1.2
Spinach	9	2.2
Milk	8	1.5
Rice	7	1.75
Beef	7	6
Cheese	6	3.5
Yogurt	5	2.5
Fish	5	4.5
Bread	5	2

### Subqueries

SELECT product\_name, quantity

FROM sales

WHERE quantity > (

    SELECT AVG(quantity)

    FROM sales

);

product_name	quantity
Banana	15
Carrot	12
Tomato	20
Eggs	15
Pasta	11
Orange	14
Potato	16
Onion	18
Lettuce	13

### Aggregate Functions (SUM, AVG)

```
SELECT product_name, SUM(quantity) AS total_quantity, AVG(price) AS avg_price  
FROM sales  
GROUP BY product_name;
```

product_name	total_quantity	avg_price
Apple	10	1.2
Banana	15	0.5
Beef	7	6
Bread	5	2
Carrot	12	0.8
Cheese	6	3.5
Chicken	10	5
Cucumber	10	1.3
Eggs	15	0.25
Fish	5	4.5
Lettuce	13	1.1
Milk	8	1.5
Onion	18	0.9
Orange	14	1
Pasta	11	1.8
Potato	16	0.6
Rice	7	1.75
Spinach	9	2.2
Tomato	20	1
Yogurt	5	2.5

### Products Table

```
CREATE TABLE products (  
    product_name VARCHAR(255) PRIMARY KEY,  
    product_category VARCHAR(255)  
);  
  
INSERT INTO products (product_name, product_category) VALUES  
( 'Apple', 'Fruits'),  
( 'Banana', 'Fruits'),  
( 'Carrot', 'Vegetables'),  
( 'Tomato', 'Vegetables'),  
( 'Milk', 'Dairy'),
```

('Bread', 'Bakery'),  
('Chicken', 'Meat'),  
('Eggs', 'Dairy'),  
('Cheese', 'Dairy'),  
('Spinach', 'Vegetables'),  
('Rice', 'Grains'),  
('Pasta', 'Grains'),  
('Orange', 'Fruits'),  
('Potato', 'Vegetables'),  
('Onion', 'Vegetables'),  
('Yogurt', 'Dairy'),  
('Lettuce', 'Vegetables'),  
('Cucumber', 'Vegetables'),  
('Beef', 'Meat'),  
('Fish', 'Meat');

## Products

product_name	product_category
Apple	Fruits
Banana	Fruits
Carrot	Vegetables
Tomato	Vegetables
Milk	Dairy
Bread	Bakery
Chicken	Meat
Eggs	Dairy
Cheese	Dairy
Spinach	Vegetables
Rice	Grains
Pasta	Grains
Orange	Fruits
Potato	Vegetables
Onion	Vegetables
Yogurt	Dairy
Lettuce	Vegetables
Cucumber	Vegetables
Beef	Meat
Fish	Meat

## INNER JOIN

SELECT s.sale\_id, s.product\_name, p.product\_category, s.quantity, s.price

FROM sales s

INNER JOIN products p ON s.product\_name = p.product\_name;

sale_id	product_name	product_category	quantity	price
1	Apple	Fruits	10	1.2
2	Banana	Fruits	15	0.5
3	Carrot	Vegetables	12	0.8
4	Tomato	Vegetables	20	1
5	Milk	Dairy	8	1.5

6	Bread	Bakery	5	2
7	Chicken	Meat	10	5
8	Eggs	Dairy	15	0.25
9	Cheese	Dairy	6	3.5
10	Spinach	Vegetables	9	2.2
11	Rice	Grains	7	1.75
12	Pasta	Grains	11	1.8
13	Orange	Fruits	14	1
14	Potato	Vegetables	16	0.6
15	Onion	Vegetables	18	0.9
16	Yogurt	Dairy	5	2.5
17	Lettuce	Vegetables	13	1.1
18	Cucumber	Vegetables	10	1.3
19	Beef	Meat	7	6
20	Fish	Meat	5	4.5

Adding a Row in sales ie Avocado see the difference

```
INSERT INTO sales (sale_id, product_name, quantity, price, sale_date)
VALUES (21, 'Avocado', 3, 120.00, '2025-04-24');
```

## LEFT JOIN

```
SELECT s.sale_id, s.product_name, p.product_category
FROM sales s
LEFT JOIN products p ON s.product_name = p.product_name;
```

sale_id	product_name	product_category
1	Apple	Fruits
2	Banana	Fruits
3	Carrot	Vegetables
4	Tomato	Vegetables
5	Milk	Dairy
6	Bread	Bakery

7	Chicken	Meat
8	Eggs	Dairy
9	Cheese	Dairy
10	Spinach	Vegetables
11	Rice	Grains
12	Pasta	Grains
13	Orange	Fruits
14	Potato	Vegetables
15	Onion	Vegetables
16	Yogurt	Dairy
17	Lettuce	Vegetables
18	Cucumber	Vegetables
19	Beef	Meat
20	Fish	Meat
21	Avocado	

## RIGHT JOIN

### Flipping the Left join

```
SELECT s.sale_id, s.product_name, p.product_category
FROM sales s
LEFT JOIN products p
ON s.product_name = p.product_name;
```

### View Creation Query

```
SELECT * FROM product_sales_summary
ORDER BY total_revenue DESC;
```

product_name	product_category	total_sales	total_quantity_sold	total_revenue
Chicken	Meat	1	10	50
Beef	Meat	1	7	42
Fish	Meat	1	5	22.5
Cheese	Dairy	1	6	21
Tomato	Vegetables	1	20	20



Pasta	Grains	1	11	19.8
Spinach	Vegetables	1	9	19.8
Onion	Vegetables	1	18	16.2
Lettuce	Vegetables	1	13	14.3
Orange	Fruits	1	14	14
Cucumber	Vegetables	1	10	13
Yogurt	Dairy	1	5	12.5
Rice	Grains	1	7	12.25
Apple	Fruits	1	10	12
Milk	Dairy	1	8	12
Bread	Bakery	1	5	10
Carrot	Vegetables	1	12	9.600000000000000
Potato	Vegetables	1	16	9.6
Banana	Fruits	1	15	7.5
Eggs	Dairy	1	15	3.75

**Top-Selling Products by Quantity Sold**

```
SELECT
    p.product_name,
    SUM(s.quantity) AS total_quantity_sold
FROM sales s
LEFT JOIN products p ON s.product_name = p.product_name
GROUP BY p.product_name
ORDER BY total_quantity_sold DESC
LIMIT 10;
```

product_name	total_quantity_sold
Tomato	20
Onion	18
Potato	16
Eggs	15
Banana	15
Orange	14

Lettuce	13
Carrot	12
Pasta	11
Cucumber	10

#### Total Revenue by Product Category

SELECT

p.product\_category,

SUM(s.quantity \* s.price) AS category\_revenue

FROM sales s

LEFT JOIN products p ON s.product\_name = p.product\_name

GROUP BY p.product\_category

ORDER BY category\_revenue DESC;

product_category	category_revenue
	360
Meat	114.5
Vegetables	102.5
Dairy	49.25
Fruits	33.5
Grains	32.05
Bakery	10

#### Sales Trend Over Time (By Date)

SELECT

DATE(s.sale\_date) AS sale\_date,

SUM(s.quantity \* s.price) AS total\_revenue

FROM sales s

GROUP BY sale\_date

ORDER BY sale\_date;

sale_date	total_revenue
2025-04-01	19.5
2025-04-02	29.6
2025-04-03	22
2025-04-04	53.75
2025-04-05	40.8
2025-04-06	32.05
2025-04-07	23.6
2025-04-08	28.7
2025-04-09	27.3
2025-04-10	64.5
2025-04-24	360