

## Basic SQL Training Questions Answer

-- Step 1: Create Database

CREATE DATABASE e\_commerce;

USE e\_commerce;

```
mysql> CREATE DATABASE e_commerce;
Query OK, 1 row affected (0.03 sec)

mysql> USE e_commerce;
Database changed
mysql> show databases;
+-----+
| Database |
+-----+
| e_commerce |
| information_schema |
| mysql |
| org |
| performance_schema |
+-----+
5 rows in set (0.00 sec)
```

-- Step 2: Create Tables

```
CREATE TABLE Customers (
    customer_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50),
    email VARCHAR(50),
    mobile VARCHAR(15)
);
```

```
mysql> CREATE TABLE Customers (
->     customer_id INT AUTO_INCREMENT PRIMARY KEY,
->     name VARCHAR(50),
->     email VARCHAR(50),
->     mobile VARCHAR(15)
-> );
Query OK, 0 rows affected (0.04 sec)
```

CREATE TABLE Products (

```
id INT,  
name VARCHAR(50) NOT NULL,  
description VARCHAR(200),  
price DECIMAL(10,2) NOT NULL,  
category VARCHAR(50)  
);
```

```
mysql> CREATE TABLE Products (  
  ->   id INT,  
  ->   name VARCHAR(50) NOT NULL,  
  ->   description VARCHAR(200),  
  ->   price DECIMAL(10,2) NOT NULL,  
  ->   category VARCHAR(50)  
  -> );  
Query OK, 0 rows affected (0.04 sec)
```

-- step 3: Modify Tables

ALTER TABLE Customers MODIFY name VARCHAR(50) NOT NULL;

```
mysql> ALTER TABLE Customers MODIFY name VARCHAR(50) NOT NULL;  
Query OK, 0 rows affected (0.08 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Customers MODIFY email VARCHAR(50) NOT NULL;

```
mysql> ALTER TABLE Customers MODIFY email VARCHAR(50) NOT NULL;  
Query OK, 0 rows affected (0.13 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Customers ADD UNIQUE (email);

```
mysql> ALTER TABLE Customers ADD UNIQUE (email);  
Query OK, 0 rows affected (0.05 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Customers ADD COLUMN age INT;

```
mysql> ALTER TABLE Customers ADD COLUMN age INT;  
Query OK, 0 rows affected (0.06 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Products CHANGE COLUMN id product\_id INT;

```
mysql> ALTER TABLE Products CHANGE COLUMN id product_id INT;
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Products MODIFY product\_id INT PRIMARY KEY AUTO\_INCREMENT;

```
mysql> ALTER TABLE Products MODIFY product_id INT PRIMARY KEY AUTO_INCREMENT;
Query OK, 0 rows affected (0.16 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

ALTER TABLE Products MODIFY description TEXT;

```
mysql> ALTER TABLE Products MODIFY description TEXT;
Query OK, 0 rows affected (0.17 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

-- step 4: create order table

```
CREATE TABLE Orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    customer_id INT,
    product_id INT,
    quantity INT NOT NULL,
    order_date DATE NOT NULL,
    status ENUM('Pending', 'Success', 'Cancel'),
    payment_method ENUM('Credit', 'Debit', 'UPI'),
    total_amount DECIMAL(10,2) NOT NULL,
    FOREIGN KEY (customer_id) REFERENCES
Customers(customer_id),
    FOREIGN KEY (product_id) REFERENCES Products(product_id)
);
```

```
mysql> CREATE TABLE Orders (
->     order_id INT AUTO_INCREMENT PRIMARY KEY,
->     customer_id INT,
->     product_id INT,
->     quantity INT NOT NULL,
->     order_date DATE NOT NULL,
->     status ENUM('Pending', 'Success', 'Cancel'),
->     payment_method ENUM('Credit', 'Debit', 'UPI'),
->     total_amount DECIMAL(10,2) NOT NULL,
->     FOREIGN KEY (customer_id) REFERENCES Customers(customer_id),
->     FOREIGN KEY (product_id) REFERENCES Products(product_id)
-> );
Query OK, 0 rows affected (0.10 sec)
```

-- step 5: modify order table

```
ALTER TABLE Orders MODIFY status ENUM('Pending', 'Success', 'Cancel') DEFAULT 'Pending';
```

```
mysql> ALTER TABLE Orders MODIFY status ENUM('Pending', 'Success', 'Cancel') DEFAULT 'Pending';
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
ALTER TABLE Orders MODIFY payment_method ENUM('Credit', 'Debit', 'UPI', 'COD');
```

```
mysql> ALTER TABLE Orders MODIFY payment_method ENUM('Credit', 'Debit', 'UPI', 'COD');
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
ALTER TABLE Orders ADD FOREIGN KEY (product_id) REFERENCES Products(product_id);
```

```
mysql> ALTER TABLE Orders ADD FOREIGN KEY (product_id) REFERENCES Products(product_id);
Query OK, 0 rows affected (0.20 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

-- step 6: Insert some sample records in all the tables.

```
INSERT INTO Customers (name, email, mobile, age) VALUES
('John Doe', 'john@example.com', '1234567890', 25),
('Jane Smith', 'jane@example.com', '0987654321', 30),
('Alice Johnson', 'alice@example.com', '2345678901', 28),
('Bob Brown', 'bob@example.com', '3456789012', 35),
('Charlie White', 'charlie@example.com', '4567890123', 40),
('David Green', 'david@example.com', '5678901234', 22),
('Emily Adams', 'emily@example.com', '6789012345', 27),
('Frank Carter', 'frank@example.com', '7890123456', 32),
('Grace Hall', 'grace@example.com', '8901234567', 29),
('Henry Lee', 'henry@example.com', '9012345678', 31),
('Isabella King', 'isabella@example.com', '0123456789', 26),
('Jack Martin', 'jack@example.com', '1234509876', 37),
('Katherine Scott', 'katherine@example.com', '2345609875', 24),
('Liam Turner', 'liam@example.com', '3456709874', 33),
('Mia Walker', 'mia@example.com', '4567809873', 36),
('Noah Young', 'noah@example.com', '5678909872', 29),
```

('Olivia Baker', 'olivia@example.com', '6789009871', 23),  
('Paul Harris', 'paul@example.com', '7890009870', 34),  
('Quinn Nelson', 'quinn@example.com', '8900009869', 28),  
('Rachel Moore', 'rachel@example.com', '9000009868', 21);

```
mysql> INSERT INTO Customers (name, email, mobile, age) VALUES
-> ('John Doe', 'john@example.com', '1234567890', 25),
-> ('Jane Smith', 'jane@example.com', '0987654321', 30),
-> ('Alice Johnson', 'alice@example.com', '2345678901', 28),
-> ('Bob Brown', 'bob@example.com', '3456789012', 35),
-> ('Charlie White', 'charlie@example.com', '4567890123', 40),
-> ('David Green', 'david@example.com', '5678901234', 22),
-> ('Emily Adams', 'emily@example.com', '6789012345', 27),
-> ('Frank Carter', 'frank@example.com', '7890123456', 32),
-> ('Grace Hall', 'grace@example.com', '8901234567', 29),
-> ('Henry Lee', 'henry@example.com', '9012345678', 31),
-> ('Isabella King', 'isabella@example.com', '0123456789', 26),
-> ('Jack Martin', 'jack@example.com', '1234509876', 37),
-> ('Katherine Scott', 'katherine@example.com', '2345609875', 24),
-> ('Liam Turner', 'liam@example.com', '3456709874', 33),
-> ('Mia Walker', 'mia@example.com', '4567809873', 36),
-> ('Noah Young', 'noah@example.com', '5678909872', 29),
-> ('Olivia Baker', 'olivia@example.com', '6789009871', 23),
-> ('Paul Harris', 'paul@example.com', '7890009870', 34),
-> ('Quinn Nelson', 'quinn@example.com', '8900009869', 28),
-> ('Rachel Moore', 'rachel@example.com', '9000009868', 21);
Query OK, 20 rows affected (0.07 sec)
Records: 20  Duplicates: 0  Warnings: 0
```

INSERT INTO Products (name, description, price, category) VALUES  
('Laptop', 'Gaming laptop', 799.99, 'Electronics'),  
('Smartphone', 'Latest model', 499.99, 'Electronics'),  
('Headphones', 'Noise-canceling', 99.99, 'Electronics'),  
('Keyboard', 'Mechanical keyboard', 69.99, 'Electronics'),  
('Mouse', 'Wireless mouse', 39.99, 'Electronics'),  
('Monitor', '27-inch 4K display', 299.99, 'Electronics'),  
('Tablet', '10-inch display', 199.99, 'Electronics'),  
('Smartwatch', 'Fitness tracking', 149.99, 'Electronics'),  
('Bluetooth Speaker', 'Portable speaker', 79.99, 'Electronics'),  
('Camera', 'Digital camera', 399.99, 'Electronics'),  
('Coffee Maker', 'Automatic machine', 89.99, 'Home Appliances'),  
('Vacuum Cleaner', 'Cordless vacuum', 149.99, 'Home Appliances'),  
('Microwave', 'Countertop microwave', 129.99, 'Home Appliances'),  
('Refrigerator', 'Double-door fridge', 899.99, 'Home Appliances'),  
('Washing Machine', 'Front-load washing machine', 499.99, 'Home Appliances'),

```

('Sofa', 'Leather sofa', 699.99, 'Furniture'),
('Dining Table', 'Wooden dining table', 349.99, 'Furniture'),
('Chair', 'Ergonomic office chair', 119.99, 'Furniture'),
('Bed', 'Queen-size bed frame', 599.99, 'Furniture'),
('Bookshelf', '5-tier bookshelf', 99.99, 'Furniture');

```

```

mysql> INSERT INTO Products (name, description, price, category) VALUES
-> ('Laptop', 'Gaming laptop', 799.99, 'Electronics'),
-> ('Smartphone', 'Latest model', 499.99, 'Electronics'),
-> ('Headphones', 'Noise-canceling', 99.99, 'Electronics'),
-> ('Keyboard', 'Mechanical keyboard', 69.99, 'Electronics'),
-> ('Mouse', 'Wireless mouse', 39.99, 'Electronics'),
-> ('Monitor', '27-inch 4K display', 299.99, 'Electronics'),
-> ('Tablet', '10-inch display', 199.99, 'Electronics'),
-> ('Smartwatch', 'Fitness tracking', 149.99, 'Electronics'),
-> ('Bluetooth Speaker', 'Portable speaker', 79.99, 'Electronics'),
-> ('Camera', 'Digital camera', 399.99, 'Electronics'),
-> ('Coffee Maker', 'Automatic machine', 89.99, 'Home Appliances'),
-> ('Vacuum Cleaner', 'Cordless vacuum', 149.99, 'Home Appliances'),
-> ('Microwave', 'Countertop microwave', 129.99, 'Home Appliances'),
-> ('Refrigerator', 'Double-door fridge', 899.99, 'Home Appliances'),
-> ('Washing Machine', 'Front-load washing machine', 499.99, 'Home Appliances'),
-> ('Sofa', 'Leather sofa', 699.99, 'Furniture'),
-> ('Dining Table', 'Wooden dining table', 349.99, 'Furniture'),
-> ('Chair', 'Ergonomic office chair', 119.99, 'Furniture'),
-> ('Bed', 'Queen-size bed frame', 599.99, 'Furniture'),
-> ('Bookshelf', '5-tier bookshelf', 99.99, 'Furniture');
Query OK, 20 rows affected (0.01 sec)
Records: 20  Duplicates: 0  Warnings: 0

```

```

INSERT INTO Orders (customer_id, product_id, quantity, order_date,
status, payment_method, total_amount) VALUES
(1, 2, 1, '2025-02-01', 'Success', 'Credit', 499.99),
(3, 4, 2, '2025-02-02', 'Pending', 'UPI', 139.98),
(5, 6, 1, '2025-02-03', 'Success', 'Debit', 299.99),
(7, 8, 1, '2025-02-04', 'Success', 'Credit', 149.99),
(9, 10, 2, '2025-02-05', 'Pending', 'COD', 799.98),
(11, 12, 1, '2025-02-06', 'Success', 'UPI', 149.99),
(13, 14, 1, '2025-02-07', 'Pending', 'Credit', 899.99),
(15, 16, 1, '2025-02-08', 'Success', 'Debit', 699.99),
(17, 18, 1, '2025-02-09', 'Success', 'Credit', 119.99),
(19, 20, 1, '2025-02-10', 'Pending', 'COD', 99.99),
(2, 1, 3, '2025-02-11', 'Success', 'Credit', 1499.97),
(4, 3, 2, '2025-02-12', 'Pending', 'UPI', 279.98),
(6, 5, 1, '2025-02-13', 'Success', 'Debit', 39.99),
(8, 7, 2, '2025-02-14', 'Pending', 'Credit', 399.98),
(10, 9, 1, '2025-02-15', 'Success', 'COD', 79.99),
(12, 11, 3, '2025-02-16', 'Pending', 'UPI', 269.97),

```

(14, 13, 2, '2025-02-17', 'Success', 'Credit', 259.98),  
 (16, 15, 1, '2025-02-18', 'Pending', 'Debit', 499.99),  
 (18, 17, 2, '2025-02-19', 'Success', 'Credit', 699.98),  
 (20, 19, 1, '2025-02-20', 'Pending', 'COD', 99.99);

```
mysql> INSERT INTO Orders (customer_id, product_id, quantity, order_date, status, payment_method, total_amount) VALUES
-> (1, 2, 1, '2025-02-01', 'Success', 'Credit', 499.99),
-> (3, 4, 2, '2025-02-02', 'Pending', 'UPI', 139.98),
-> (5, 6, 1, '2025-02-03', 'Success', 'Debit', 299.99),
-> (7, 8, 1, '2025-02-04', 'Success', 'Credit', 149.99),
-> (9, 10, 2, '2025-02-05', 'Pending', 'COD', 799.98),
-> (11, 12, 1, '2025-02-06', 'Success', 'UPI', 149.99),
-> (13, 14, 1, '2025-02-07', 'Pending', 'Credit', 899.99),
-> (15, 16, 1, '2025-02-08', 'Success', 'Debit', 699.99),
-> (17, 18, 1, '2025-02-09', 'Success', 'Credit', 119.99),
-> (19, 20, 1, '2025-02-10', 'Pending', 'COD', 99.99),
-> (2, 1, 3, '2025-02-11', 'Success', 'Credit', 1499.97),
-> (4, 3, 2, '2025-02-12', 'Pending', 'UPI', 279.98),
-> (6, 5, 1, '2025-02-13', 'Success', 'Debit', 39.99),
-> (8, 7, 2, '2025-02-14', 'Pending', 'Credit', 399.98),
-> (10, 9, 1, '2025-02-15', 'Success', 'COD', 79.99),
-> (12, 11, 3, '2025-02-16', 'Pending', 'UPI', 269.97),
-> (14, 13, 2, '2025-02-17', 'Success', 'Credit', 259.98),
-> (16, 15, 1, '2025-02-18', 'Pending', 'Debit', 499.99),
-> (18, 17, 2, '2025-02-19', 'Success', 'Credit', 699.98),
-> (20, 19, 1, '2025-02-20', 'Pending', 'COD', 99.99);
Query OK, 20 rows affected (0.03 sec)
Records: 20  Duplicates: 0  Warnings: 0
```

-- step 7: Perform following queries:

SELECT category, COUNT(\*) AS product\_count FROM Products  
 GROUP BY category;

```
mysql> SELECT category, COUNT(*) AS product_count FROM Products GROUP BY category;
+-----+-----+
| category      | product_count |
+-----+-----+
| Electronics   |             10 |
| Home Appliances |              5 |
| Furniture     |              5 |
+-----+-----+
3 rows in set (0.00 sec)
```

SELECT \* FROM Products  
 WHERE category = 'Electronics'  
 AND price BETWEEN 50 AND 500  
 AND name LIKE '%a%';



```
mysql> SELECT * FROM Products
-> WHERE category = 'Electronics'
-> AND price BETWEEN 50 AND 500
-> AND name LIKE '%a%';
```

product_id	name	description	price	category
2	Smartphone	Latest model	499.99	Electronics
3	Headphones	Noise-canceling	99.99	Electronics
4	Keyboard	Mechanical keyboard	69.99	Electronics
7	Tablet	10-inch display	199.99	Electronics
8	Smartwatch	Fitness tracking	149.99	Electronics
9	Bluetooth Speaker	Portable speaker	79.99	Electronics
10	Camera	Digital camera	399.99	Electronics

7 rows in set (0.00 sec)

```
SELECT * FROM Products
WHERE category = 'Electronics'
ORDER BY price DESC
LIMIT 5 OFFSET 2;
```

```
mysql> SELECT * FROM Products
-> WHERE category = 'Electronics'
-> ORDER BY price DESC
-> LIMIT 5 OFFSET 2;
```

product_id	name	description	price	category
10	Camera	Digital camera	399.99	Electronics
6	Monitor	27-inch 4K display	299.99	Electronics
7	Tablet	10-inch display	199.99	Electronics
8	Smartwatch	Fitness tracking	149.99	Electronics
3	Headphones	Noise-canceling	99.99	Electronics

5 rows in set (0.00 sec)

```
SELECT * FROM Customers
WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM
Orders);
```

```
mysql> SELECT * FROM Customers
-> WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM Orders);
Empty set (0.02 sec)
```

```
SELECT customer_id, AVG(total_amount) AS avg_spent
FROM Orders GROUP BY customer_id;
```



```
mysql> SELECT customer_id, AVG(total_amount) AS avg_spent
-> FROM Orders GROUP BY customer_id;
```

customer_id	avg_spent
1	499.990000
2	1499.970000
3	139.980000
4	279.980000
5	299.990000
6	39.990000
7	149.990000
8	399.980000
9	799.980000
10	79.990000
11	149.990000
12	269.970000
13	899.990000
14	259.980000
15	699.990000
16	499.990000
17	119.990000
18	699.980000
19	99.990000
20	99.990000

20 rows in set (0.01 sec)

SELECT \* FROM Products

WHERE price < (SELECT AVG(price) FROM Products);

```
mysql> SELECT * FROM Products
-> WHERE price < (SELECT AVG(price) FROM Products);
```

product_id	name	description	price	category
3	Headphones	Noise-canceling	99.99	Electronics
4	Keyboard	Mechanical keyboard	69.99	Electronics
5	Mouse	Wireless mouse	39.99	Electronics
6	Monitor	27-inch 4K display	299.99	Electronics
7	Tablet	10-inch display	199.99	Electronics
8	Smartwatch	Fitness tracking	149.99	Electronics
9	Bluetooth Speaker	Portable speaker	79.99	Electronics
11	Coffee Maker	Automatic machine	89.99	Home Appliances
12	Vacuum Cleaner	Cordless vacuum	149.99	Home Appliances
13	Microwave	Countertop microwave	129.99	Home Appliances
18	Chair	Ergonomic office chair	119.99	Furniture
20	Bookshelf	5-tier bookshelf	99.99	Furniture

12 rows in set (0.01 sec)

SELECT customer\_id, SUM(quantity) AS total\_quantity  
FROM Orders GROUP BY customer\_id;

```
mysql> SELECT customer_id, SUM(quantity) AS total_quantity
-> FROM Orders GROUP BY customer_id;
```

customer_id	total_quantity
1	1
2	3
3	2
4	2
5	1
6	1
7	1
8	2
9	2
10	1
11	1
12	3
13	1
14	2
15	1
16	1
17	1
18	2
19	1
20	1

20 rows in set (0.00 sec)

```
SELECT Orders.order_id, Customers.name AS customer_name,
Products.name AS product_name, Orders.quantity, Orders.order_date,
Orders.status
FROM Orders
JOIN Customers ON Orders.customer_id = Customers.customer_id
JOIN Products ON Orders.product_id = Products.product_id;
```

```
mysql> SELECT Orders.order_id, Customers.name AS customer_name, Products.name AS product_name, Orders.quantity, Orders.order_date, Orders.status
-> FROM Orders
-> JOIN Customers ON Orders.customer_id = Customers.customer_id
-> JOIN Products ON Orders.product_id = Products.product_id;
```

order_id	customer_name	product_name	quantity	order_date	status
1	John Doe	Smartphone	1	2025-02-01	Success
2	Alice Johnson	Keyboard	2	2025-02-02	Pending
3	Charlie White	Monitor	1	2025-02-03	Success
4	Emily Adams	Smartwatch	1	2025-02-04	Success
5	Grace Hall	Camera	2	2025-02-05	Pending
6	Isabella King	Vacuum Cleaner	1	2025-02-06	Success
7	Katherine Scott	Refrigerator	1	2025-02-07	Pending
8	Mia Walker	Sofa	1	2025-02-08	Success
9	Olivia Baker	Chair	1	2025-02-09	Success
10	Quinn Nelson	Bookshelf	1	2025-02-10	Pending
11	Jane Smith	Laptop	3	2025-02-11	Success
12	Bob Brown	Headphones	2	2025-02-12	Pending
13	David Green	Mouse	1	2025-02-13	Success
14	Frank Carter	Tablet	2	2025-02-14	Pending
15	Henry Lee	Bluetooth Speaker	1	2025-02-15	Success
16	Jack Martin	Coffee Maker	3	2025-02-16	Pending
17	Liam Turner	Microwave	2	2025-02-17	Success
18	Noah Young	Washing Machine	1	2025-02-18	Pending
19	Paul Harris	Dining Table	2	2025-02-19	Success
20	Rachel Moore	Bed	1	2025-02-20	Pending

20 rows in set (0.00 sec)

```
SELECT * FROM Products
```

WHERE product\_id NOT IN (SELECT DISTINCT product\_id FROM Orders);

```
mysql> SELECT * FROM Products  
      -> WHERE product_id NOT IN (SELECT DISTINCT product_id FROM Orders);  
Empty set (0.00 sec)
```