```
-- Creating Employees Table
CREATE TABLE employees (
    employee_id INT PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    department VARCHAR(50),
    salary DECIMAL(10,2),
    hire_date DATE,
    email VARCHAR(100)
);

-- Creating Products Table
CREATE TABLE products (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(100),
    category VARCHAR(50),
    price DECIMAL(10,2)
);

-- Creating Orders Table
CREATE TABLE orders (
    order_id INT PRIMARY KEY,
    customer_id INT,
    order_date DATE
);

-- Creating Customers Table
CREATE TABLE customers (
    customer_id INT PRIMARY KEY,
    customer_name VARCHAR(100)
);

-- Creating Sales Table
CREATE TABLE sales (
    sale_id INT PRIMARY KEY,
```

```
    product_id INT,
    department VARCHAR(50),
    amount DECIMAL(10,2)
);

-- Creating Students Table
CREATE TABLE students (
    student_id INT PRIMARY KEY,
    student_name VARCHAR(100),
    score INT
);

-- Inserting Sample Data into Employees Table
INSERT INTO employees (employee_id, first_name, last_name, department, salary, hire_date, email) VALUES
(1, 'John', 'Doe', 'HR', 60000, '2021-06-15', 'john.doe@example.com'),
(2, 'Jane', 'Smith', 'IT', 75000, '2020-08-23', 'jane.smith@example.com'),
(3, 'Michael', 'Brown', 'Finance', 72000, '2019-07-10', 'michael.brown@example.com'),
(4, 'Sarah', 'Johnson', 'Sales', 58000, '2022-03-01', 'sarah.johnson@example.com'),
(5, 'David', 'Wilson', 'Marketing', 62000, '2021-09-14', 'david.wilson@example.com'),
(6, 'Emma', 'Clark', 'IT', 70000, '2020-11-30', 'emma.clark@example.com'),
(7, 'Robert', 'Miller', 'HR', 54000, '2023-01-22', 'robert.miller@example.com'),
(8, 'Sophia', 'Garcia', 'Finance', 67000, '2019-05-27', 'sophia.garcia@example.com'),
(9, 'James', 'Martinez', 'Sales', 59000, '2022-07-19', 'james.martinez@example.com'),
(10, 'Olivia', 'Lopez', 'Marketing', 63000, '2021-12-05', 'olivia.lopez@example.com');

-- Inserting Sample Data into Products Table
INSERT INTO products (product_id, product_name, category, price) VALUES
(1, 'Laptop', 'Electronics', 1200.00),
(2, 'Smartphone', 'Electronics', 800.00),
(3, 'Table', 'Furniture', 150.00),
(4, 'Chair', 'Furniture', 100.00),
(5, 'Headphones', 'Electronics', 200.00),
(6, 'Monitor', 'Electronics', 300.00),
(7, 'Keyboard', 'Accessories', 50.00),
(8, 'Mouse', 'Accessories', 30.00),
```

(9, 'Printer', 'Electronics', 250.00),

(10, 'Desk Lamp', 'Furniture', 75.00);

-- Inserting Sample Data into Orders Table

INSERT INTO orders (order_id, customer_id, order_date) VALUES

(1, 1, '2024-01-15'),

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

(3, 3, '2024-03-05'),

(4, 4, '2024-04-20'),

(5, 5, '2024-05-25'),

(6, 6, '2024-06-30'),

(7, 7, '2024-07-15'),

(8, 8, '2024-08-18'),

(9, 9, '2024-09-22'),

(10, 10, '2024-10-29');

-- Inserting Sample Data into Customers Table

INSERT INTO customers (customer_id, customer_name) VALUES

(1, 'Alice Johnson'),

(2, 'Bob Williams'),

(3, 'Charlie Brown'),

(4, 'Daniel Garcia'),

(5, 'Ella Martinez'),

(6, 'Frank Taylor'),

(7, 'Grace Wilson'),

(8, 'Henry Harris'),

(9, 'Ivy Clark'),

(10, 'Jack Moore');

-- Inserting Sample Data into Sales Table

INSERT INTO sales (sale_id, product_id, department, amount) VALUES

(1, 1, 'Electronics', 5000.00),

(2, 2, 'Electronics', 3000.00),

(3, 3, 'Furniture', 1000.00),

(4, 4, 'Furniture', 800.00),

(5, 5, 'Electronics', 1500.00),

(6, 6, 'Electronics', 2000.00),

(7, 7, 'Accessories', 700.00),

(8, 8, 'Accessories', 400.00),

(9, 9, 'Electronics', 1800.00),

(10, 10, 'Furniture', 600.00);

-- Inserting Sample Data into Students Table

INSERT INTO students (student_id, student_name, score) VALUES

(1, 'John Adams', 85),

(2, 'Emily Carter', 90),

(3, 'William Evans', 78),

(4, 'Sophia Green', 82),

(5, 'Daniel Hall', 88),

(6, 'Olivia King', 91),

(7, 'James Lewis', 76),

(8, 'Charlotte Miller', 80),

(9, 'Benjamin Nelson', 92),

(10, 'Amelia Perez', 87);

Common Aggregate Functions:

Using COUNT()

SQL Query: SELECT COUNT(*) AS employee_count FROM employees;

employee_count
10

Using SUM()

SQL Query: SELECT SUM(amount) AS total_sales FROM sales;

total_sales
25000.00

Using AVG()

SQL Query: SELECT AVG(salary) AS average_salary FROM employees;

average_salary
63400.00

Using MIN() and MAX()

SQL Query: SELECT MIN(price) AS min_price, MAX(price) AS max_price

FROM products;

min_price	max_price
30.00	1200.00

Grouping Data with Aggregate Functions

SQL Query: SELECT product_id, COUNT(*) AS sales_count, SUM(amount) AS total_sales

FROM sales

GROUP BY product_id;

product_id	sales_count	total_sales
1	1	5000.00
2	1	3000.00
3	1	1000.00
4	1	800.00
5	1	1500.00
6	1	2000.00
7	1	700.00
8	1	400.00
9	1	1800.00
10	1	600.00

Using HAVING with Aggregate Functions

SQL Query: SELECT product_id, SUM(amount) AS total_sales FROM sales GROUP BY product_id HAVING SUM(amount) > 5000;

product_id	total_sales
1	5000.00
2	3000.00

WHERE Clause

1 Simple WHERE Clause

SQL Query: SELECT first_name, last_name FROM employees WHERE department = 'HR';

first_name	last_name
John	Doe
Robert	Miller

2 Using WHERE with Numeric Values

SELECT product_name, price FROM products WHERE price > 100;

product_name	price
Laptop	1200.00
Smartphone	800.00
Headphones	200.00
Monitor	300.00
Printer	250.00

3 Combining Conditions with AND

SELECT name, salary FROM employees WHERE department = 'IT' AND salary > 50000;

first_name	last_name
Jane	Smith
Emma	Clark

4 Using WHERE with Date

SELECT order_id, order_date FROM orders WHERE order_date > '2020-01-01';

order_id	order_date
1	2024-01-15
2	2024-02-10
3	2024-03-05
4	2024-04-20
5	2024-05-25
6	2024-06-30
7	2024-07-15
8	2024-08-18
9	2024-09-22
10	2024-10-29

5 Using IN to Filter Multiple Values

SELECT product_name, category FROM products WHERE category IN ('Electronics', 'Furniture');

product_name	category
Laptop	Electronics
Smartphone	Electronics
Table	Furniture
Chair	Furniture
Headphones	Electronics
Monitor	Electronics
Printer	Electronics
Desk Lamp	Furniture

Using LIKE for Pattern Matching

SELECT customer_name FROM customers WHERE customer_name LIKE 'A%';

customer_name
Alice Johnson
Amalia Perez

ETC LIKE THIS