

# 50 SQL Interview Queries



## 1. Find duplicate records in a table



```
SELECT column1, column2, COUNT(*)  
FROM your_table  
GROUP BY column1, column2  
HAVING COUNT(*) > 1;
```

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## 2. Retrieve the second highest salary from the Employee table



```
SELECT MAX(salary) AS  
SecondHighestSalary  
FROM Employee  
WHERE salary < (SELECT MAX(salary)  
FROM Employee);
```

Microsoft

### 3. Find employees without department (Left Join usage)



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```
SELECT e.*  
FROM Employee e  
LEFT JOIN Department d  
ON e.department_id =  
d.department_id  
WHERE d.department_id IS NULL;
```

### 4. Calculate the total revenue per product



```
SELECT product_id,  
SUM(quantity * price) AS  
total_revenue  
FROM Sales  
GROUP BY product_id;
```

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## 5. Get the top 3 highest-paid employees.



```
SELECT TOP 3 *  
FROM Employee  
ORDER BY salary DESC;
```



## 6. Customers who made purchases but never returned products.



```
SELECT DISTINCT c.customer_id  
FROM Customers c  
JOIN Orders o ON c.customer_id =  
o.customer_id  
WHERE c.customer_id NOT IN (  
SELECT customer_id FROM Returns  
);
```



7. Show the count of orders per customer.



```
SELECT customer_id,  
COUNT(*) AS order_count  
FROM Orders  
GROUP BY customer_id;
```



8. Retrieve all employees who joined in 2023.



```
SELECT *  
FROM Employee  
WHERE YEAR(hire_date) = 2023;
```



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## 9. Calculate the average order value per customer.



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



## 10. Get the latest order placed by each customer.



```
SELECT customer_id,  
MAX(order_date) AS  
latest_order_date  
FROM Orders  
GROUP BY customer_id;
```





## 11. Find products that were never sold.



```
SELECT p.product_id
FROM Products p
LEFT JOIN Sales s
ON p.product_id = s.product_id
WHERE s.product_id IS NULL;
```



## 12. Identify the most selling product.



```
SELECT TOP 1 product_id,
SUM(quantity) AS total_qty
FROM Sales
GROUP BY product_id
ORDER BY total_qty DESC;
```



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### 13. Get the total revenue and the number of orders per region.



```
SELECT region,  
SUM(total_amount) AS total_revenue,  
COUNT(*) AS order_count  
FROM Orders  
GROUP BY region;
```



### 14. Count how many customers placed more than 5 orders.



```
SELECT COUNT(*) AS customer_count  
FROM (  
    SELECT customer_id FROM Orders  
    GROUP BY customer_id  
    HAVING COUNT(*) > 5  
) AS subquery;
```



## 15. Retrieve customers with orders above the average order value.



```
SELECT *  
FROM Orders  
WHERE total_amount >  
(SELECT AVG(total_amount)  
FROM Orders);
```



## 16. Find all employees hired on weekends.



```
SELECT *  
FROM Employee  
WHERE DATENAME(WEEKDAY, hire_date)  
IN ('Saturday', 'Sunday');
```





## 17. Find all employees hired on weekends.



```
SELECT *  
FROM Employee  
WHERE salary BETWEEN 50000 AND  
100000;
```



## 18. Get monthly sales revenue and order count.



```
SELECT  
FORMAT(date, 'yyyy-MM') AS month,  
SUM(amount) AS total_revenue,  
COUNT(order_id) AS order_count  
FROM Orders  
GROUP BY  
FORMAT(date, 'yyyy-MM');
```



## 19. Rank employees by salary within each department.



```
SELECT employee_id, department_id,  
salary, RANK() OVER (PARTITION BY  
department_id  
ORDER BY salary DESC) AS salary_rk  
FROM Employee;
```

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## 20. Find customers who placed orders every month in 2023.



Meta

```
SELECT customer_id  
FROM Orders  
WHERE YEAR(order_date) = 2023  
GROUP BY customer_id  
HAVING COUNT(DISTINCT  
FORMAT(order_date, 'yyyy-MM')) = 12
```

## 21. Find moving average of sales over the last 3 days.



```
SELECT order_date,  
AVG(total_amount) OVER (ORDER BY  
order_date ROWS BETWEEN 2 PRECEDING  
AND CURRENT ROW) AS moving_avg  
FROM Orders;
```



## 22. Identify the first and last order date for each customer.



```
SELECT customer_id,  
MIN(order_date) AS first_order,  
MAX(order_date) AS last_order  
FROM Orders  
GROUP BY customer_id;
```

Uber

## 23. Show product sales distribution (percent of total revenue).



```
WITH TotalRevenue AS (  
  SELECT  
    SUM(quantity * price) AS total FROM Sales)  
SELECT s.product_id,  
  SUM(s.quantity * s.price) AS revenue,  
  SUM(s.quantity * s.price) * 100 / t.total  
  AS revenue_pct  
FROM Sales s  
CROSS JOIN TotalRevenue t  
GROUP BY s.product_id, t.total;
```



## 24. Retrieve customers who made consecutive purchases (2 Days)



```
WITH cte AS (  
  SELECT id, order_date,  
    LAG(order_date) OVER (PARTITION BY id  
      ORDER BY order_date) AS prev_order_date  
  FROM Orders)  
SELECT id, order_date, prev_order_date  
FROM cte  
WHERE  
  DATEDIFF(DAY, prev_order_date, order_date) = 1;
```



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## 24. Retrieve customers who made consecutive purchases (2 Days)



Walmart 

```
WITH cte AS (  
  SELECT id, order_date,  
         LAG(order_date) OVER (PARTITION BY id  
                               ORDER BY order_date) AS prev_order_date  
  FROM Orders)  
SELECT id, order_date, prev_odate  
FROM cte  
WHERE  
DATEDIFF(DAY, prev_odate, order_date) = 1;
```

## 25. Find churned customers (no orders in the last 6 months).



```
SELECT customer_id  
FROM Orders  
GROUP BY customer_id  
HAVING  
MAX(order_date) <  
DATEADD(MONTH, -6, GETDATE());
```

amazon 



## 26. Calculate cumulative revenue by day.



```
SELECT order_date,  
SUM(total_amount) OVER  
(ORDER BY order_date) AS  
cumulative_revenue  
FROM Orders;
```



## 27. Identify top-performing departments by average salary.



```
SELECT department_id,  
AVG(salary) AS avg_salary  
FROM Employee  
GROUP BY department_id  
ORDER BY avg_salary DESC;
```



## 28. Find customers who ordered more than the average number of orders per customer.



Meta

```
WITH customer_orders AS (  
  SELECT customer_id, COUNT(*) AS order_count  
  FROM Orders  
  GROUP BY customer_id)  
SELECT * FROM customer_orders  
WHERE order_count > (SELECT  
  AVG(order_count) FROM customer_orders);
```

## 29. Calculate revenue generated from new customers (first-time orders).



Microsoft

```
WITH first_orders AS (  
  SELECT customer_id, MIN(order_date) AS  
  first_order_date FROM Orders  
  GROUP BY customer_id)  
SELECT SUM(o.total_amount) AS new_revenue  
FROM Orders o JOIN first_orders f  
ON o.customer_id = f.customer_id  
WHERE o.order_date = f.first_order_date;
```



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30. Find the percentage of employees in each department.



```
SELECT
    department_id,
    COUNT(*) AS emp_count,
    COUNT(*) * 100.0 / (SELECT
COUNT(*) FROM Employee)
AS pct FROM Employee
GROUP BY department_id;
```

Uber

31. Retrieve the maximum salary difference within each department.



```
SELECT
    department_id,
    MAX(salary) - MIN(salary) AS
salary_diff
FROM Employee
GROUP BY department_id;
```

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### 32. Find products that contribute to 80% of the revenue (Pareto Principle).

```
WITH sales_cte AS (  
  SELECT product_id, SUM(qty * price) AS revenue  
  FROM Sales GROUP BY product_id),  
total_revenue AS (  
  SELECT SUM(revenue) AS total FROM sales_cte)  
SELECT s.product_id, s.revenue,  
SUM(s.revenue) OVER  
(ORDER BY s.revenue DESC ROWS BETWEEN UNBOUNDED  
PRECEDING AND CURRENT ROW) AS running_total  
FROM sales_cte s, total_revenue t  
WHERE SUM(s.revenue) OVER (ORDER BY s.revenue DESC  
ROWS BETWEEN UNBOUNDED PRECEDING AND  
CURRENT ROW) <= t.total * 0.8;
```



### 33. Calculate average time between two purchases for each customer.

```
WITH cte AS (  
  SELECT customer_id, order_date,  
  LAG(order_date) OVER (PARTITION BY  
  customer_id  
  ORDER BY order_date) AS prev_date  
  FROM Orders)  
SELECT customer_id,  
AVG(DATEDIFF(DAY, prev_date, order_date))  
AS avg_gap_days FROM cte  
WHERE prev_date IS NOT NULL  
GROUP BY customer_id;
```





### 34. Show last purchase for each customer along with order amount.



```
WITH ranked_orders AS
(SELECT customer_id, order_id,
total_amount, ROW_NUMBER() OVER
(PARTITION BY customer_id ORDER BY
order_date DESC) AS rn FROM Orders)
SELECT customer_id, order_id,
total_amount
FROM ranked_orders
WHERE rn = 1;
```



### 35. Calculate year-over-year growth in revenue.



```
SELECT FORMAT(order_date, 'yyyy') AS year,
SUM(total_amount) AS revenue,
SUM(total_amount) - LAG(SUM(total_amount))
OVER (ORDER BY FORMAT(order_date, 'yyyy'))
AS yoy_growth
FROM Orders
GROUP BY FORMAT(order_date, 'yyyy');
```





### 36. Detect customers whose purchase amount is higher than their historical 90th percentile.



```
WITH ranked_orders AS (  
  SELECT customer_id, order_id,  
         total_amount,  
         NTILE(10) OVER (PARTITION BY customer_id  
                        ORDER BY total_amount) AS decile  
  FROM Orders)  
SELECT customer_id, order_id, total_amount  
FROM ranked_orders  
WHERE decile = 10;
```



### 37. Retrieve the longest gap between orders for each customer.



```
WITH cte AS (  
  SELECT customer_id, order_date,  
         LAG(order_date) OVER (PARTITION BY  
                        customer_id ORDER BY order_date) AS  
         prev_order_date FROM Orders)  
SELECT customer_id, MAX(DATEDIFF(DAY,  
                                prev_order_date, order_date)) AS max_gap  
FROM cte  
WHERE prev_order_date IS NOT NULL  
GROUP BY customer_id;
```





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## 38. Identify customers with revenue below the 10th percentile.



Google

```
WITH cte AS (  
  SELECT customer_id, SUM(total_amount) AS  
    total_revenue  
  FROM Orders  
  GROUP BY customer_id)  
SELECT customer_id, total_revenue  
FROM cte  
WHERE total_revenue <  
  (SELECT PERCENTILE_CONT(0.1) WITHIN GROUP  
    (ORDER BY total_revenue) FROM cte);
```

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