

SQL Interview Question

PwC Data Analyst Interview

"Calculate gender distribution percentages from employee data"

Input: Employee Table

id	name	→	gender
1	Alice	→	Female
2	Bob	→	Male
3	Carol	→	Female
4	David	→	Male
5	Eve	→	Female
2	Bob	→	Male
3	Carol	→	Female
4	David	→	Male
5	Eve	→	Female

Expected Output

gender	percentage
Female	60.00%
Male	40.00%

The Core Pattern

4-Step Intuition for Percentage Calculation

1

Total Count

Get denominator by counting all rows

```
SUM (COUNT(*)) OVER()
```

2

Group Count

Count occurrences per category

```
GROUP BY gender
```

3

Calculate Ratio

Divide group count by total

```
group_count ÷ total_count
```

4

Percentage

Multiply by 100 & format

```
× 100.0 + ROUND(...)
```



This pattern works for ANY percentage distribution:

Departments • Categories • Regions • Statuses • Any grouped analysis

MySQL Solution

One Pass, One Window Function

```
-- Calculate gender distribution percentages
```

```
SELECT  
gender,  
ROUND(  
COUNT(*) * 100.0 /  
SUM(COUNT(*)) OVER(),  
2  
) AS percentage  
FROM Employee  
GROUP BY gender  
ORDER BY percentage DESC;
```



Single Pass

One table scan,
optimal performance



Window Magic

SUM(COUNT(*))
OVER() gets total



Precise

* 100.0 ensures
decimal math

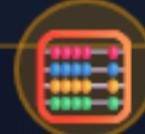
Result & Verification

Mathematical Breakdown

✓ Expected Output

gender	percentage
Female	60.00%
Male	40.00%

$$60.00\% + 40.00\% = 100.00\% \checkmark$$



Calculation

Total Employees: 5

Female: 3

Male: 2

$$\text{Female \%} = (3 \div 5) \times 100 = 60\%$$

$$\text{Male \%} = (2 \div 5) \times 100 = 40\%$$

Performance Benefits

Why This Approach Wins



Naive Approach

CTEs Used:	2+
Table Scans:	Multiple
Code Lines:	10-15
Readability:	Complex



Smart Approach

CTEs Used:	0
Table Scans:	1
Code Lines:	7
Readability:	Simple



$O(n)$ Complexity

Linear time, optimal for large data



$O(1)$ Extra Space

Minimal memory usage



Interview Ready

Pattern shows SQL mastery

Master SQL Patterns

Level Up Your Interview Game



Ready to Ace Your Next SQL Interview?

- ✓ Department percentages
- ✓ Product category distributions
- ✓ User segment analysis
- ✓ Any grouped percentage calculation

Follow for More SQL Patterns



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