

SQL of the Day

Salary Differences Problem

Practice is a big part of learning. So, I've started getting back into SQL exercises and came across an interesting one on StrataScratch:

Link: https://platform.stratascratch.com/coding/10308-salaries-differences?code_type=1

"How big is the highest salary gap between the Marketing and Engineering departments?"

The question uses two tables, db_employee and db_dept, and I found two approaches:

Approach 1: Using CTEs

```
WITH marketing AS (  
    SELECT MAX(e.salary) AS max_sal  
    FROM db_employee e  
    JOIN db_dept d ON e.department_id = d.id  
    WHERE d.department = 'marketing'  
),  
eng AS (  
    SELECT MAX(e.salary) AS max_sal  
    FROM db_employee e  
    JOIN db_dept d ON e.department_id = d.id  
    WHERE d.department = 'engineering'  
)  
SELECT ABS(m.max_sal - e.max_sal) AS salary_difference  
FROM marketing m  
CROSS JOIN eng e;
```

Approach 2: A cleaner one-liner

```
SELECT  
    ABS(  
        MAX(CASE WHEN d.department = 'marketing' THEN e.salary END) -  
        MAX(CASE WHEN d.department = 'engineering' THEN e.salary END)  
    ) AS salary_difference  
FROM db_employee e  
JOIN db_dept d ON e.department_id = d.id;
```

Result: The gap is 4,139

Why this is useful:

Simple queries like this can reveal hidden insights, whether about compensation structure or performance in

a department. It's a great example of how SQL can support decision-making in HR.