

## Day 10 SQL Practice – Courses, Instructors & Enrollments Dataset

Day 10 marked a new level of SQL thinking — connecting course structures with instructor performance and enrollments. It wasn't an easy ride; most questions required thoughtful logic, and several pushed me outside my comfort zone.

### What I Practiced Today:

- Linking multiple tables (Courses, Instructors, Enrollments) to generate insights.
- Using `COUNT`, `AVG`, and `SUM` with `GROUP BY` to calculate performance metrics.
- Exploring edge cases using `LEFT JOIN` to include courses without enrollments.
- Applied `HAVING` clauses to filter grouped results.
- Implemented `RANK()` and `DENSE\_RANK()` to find top performers.
- Nested subqueries and CTEs for filtering based on maximum values.

### Fixes & Key Observations:

- Initially used JOINS for Q2 and Q3 but later improved logic by switching to `LEFT JOIN` for completeness.
- Q10 was particularly difficult, the logic to isolate the most enrolled course per instructor took multiple attempts and external reference.
- The Bonus Challenge again helped deepen my understanding of `DENSE\_RANK()` within a CTE context.

### Key Takeaway from Day 10:

Not every query will come easily and that's okay. The goal is not to memorize, but to learn how to think through logic. Today's toughest questions forced me to improve how I reason through table relationships, ranking functions, and aggregate filters.