🧠 Day 71 – Reflection: Advanced HR Analytics Dataset

📂 Dataset Overview

- **Tables Used:** Departments, Employees, Salaries, Performance
- **Core Concepts Practiced:**
  - CTEs, Nested CTEs
  - Correlated Subqueries
  - Window Functions (RANK, LAG)
  - Analytical KPI Design
  - Real-world HR metrics

🔍 Learning Highlights

1. **CTE Mastery:**
   Learned how to layer multiple CTEs for progressive calculations like net salary → department payroll → ranking top-earning departments.
2. **Correlated Subqueries:**
   Implemented comparison between employee salary vs. department average, improving filtering logic understanding.
3. **Analytical Insights:**
   Explored realistic HR metrics — efficiency KPI combining performance and salary data.
4. **Window Functions:**
   Gained more fluency using **LAG** and **RANK** to track performance trends and department efficiency ranks.
5. **Bonus Challenge:**
   The "Most Cost-Effective Top Performer" query was **the toughest** — combining ranking, ratio calculation, and filtering top performers. It helped in developing analytical query structuring like those asked in **SQL interviews**.

⚙️ Technical Takeaways

- Nested CTEs improve query readability and scalability for multi-layer calculations.
- Ranking logic helps in business intelligence queries (salary tiers, department KPIs).
- Handling NULLs and performance conditions enhances accuracy in analytical queries.

💪 Personal Reflection

"All questions were tough today — a true test of endurance and logic building. But mastering this dataset made me feel closer to real-world HR analytics and interview-level query complexity."