📄 Day 34 – SQL Practice Reflection

🔹 Dataset & Setup

Worked with **Customers, Products, and Sales** tables to analyze customer spending, sales distribution, and churn patterns. Implemented indexes and constraints for realistic database optimization.

🔑 Learnings & Experiences

1. **Date-related Queries Becoming Easier**
    - Successfully solved the 3rd question on monthly sales totals on my own.
    - Confident in applying DATENAME, YEAR, and grouping by dates.
2. **Window Functions Practice**
    - Revised and implemented **LAG** and **ROW_NUMBER()** for analyzing purchase gaps (Q5).
    - Practiced **NTILE(4)** to divide products into quartiles (Q8).
    - This reinforced advanced SQL ranking and partitioning logic.
3. **Ntile Function – New Learning**
    - Implemented **NTILE** for the first time to categorize price ranges into quartiles.
    - Understood how it can help in segmentation analysis.
4. **Challenging Problems**
    - 10th question on churn rate required breaking the problem into multiple **CTEs** (Pre2021 customers, Active2021 customers, stats, final churn calculation).
    - Bonus challenge (Top 2 customers per country using window functions) was complex but improved problem-solving flow.

🛠 Improvements in Querying Style

- Using **CTEs** more effectively for readability.
- Breaking complex problems into smaller chunks (e.g., churn calculation).
- Becoming faster and more comfortable with **window functions** like LAG, NTILE, and RANK.

📌 Key Takeaways

- Dates and aggregations are getting easier with consistent practice.
- Window functions are powerful tools for advanced reporting.
- Real-world business metrics like **churn rate** and **top customers by segment** are now more approachable.
- Regular practice is building both **speed** and **confidence** in solving advanced SQL problems.

✅ Reflection Summary:

Day 34 was a strong mix of **intermediate + advanced SQL concepts**. I could solve date-based and ranking problems with more ease, but challenges like churn rate and bonus queries highlighted the need for structured problem breakdown.