SQL 100 Days Challenge – Day 55 Reflection

Topic: HR Analytics – Employees, Departments, Performance & Attendance

Dataset:

- **Departments** (DeptID, DeptName, Location)
- **Employees** (EmpID, Name, Gender, HireDate, DeptID, Salary, ManagerID)
- **Performance** (EmpID, Year, Rating)
- **Attendance** (EmpID, Month, DaysPresent)

Practice Experience

Today's practice session was special for me. While the questions were **easy in nature**, I noticed that due to recent gaps in my daily practice (caused by festivals and health), my **solving speed slowed down**.

This reminded me in the hardest way about the **power and impact of consistency** in learning. SQL skills, just like fitness, sharpen with daily effort. I've decided to keep up **daily practice without breaks** moving forward.

Key Learnings from Queries

1. **Highest-Paid by Department:** Used ROW_NUMBER() with partitioning.
2. **Employees Never Rated High:** Applied LEFT JOIN + null check for ratings < 4.
3. **Salary Analysis:** Compared department vs overall average salary.
4. **Top Performers:** Ranked employees by their average rating.
5. **Managers' Team Size:** Counted direct reports per manager.
6. **Tenure Calculation:** Used DATEDIFF() to calculate >3 years tenure.
7. **Attendance vs Performance:** Found employees with high attendance and high ratings.
8. **Year-over-Year Change:** Applied LAG() to track performance improvement/decline.
9. **High-Paying Departments:** Identified those above company average salary.
10. **Performance Jump:** Employees moving from low (<3) to high (≥4) ratings.
11. **Bonus – Attrition Risk:** Advanced query combining low rating, low attendance, and salary below company median.

Insights

- **David (Finance)** stood out as one of the highest-paid employees.
- Some employees (e.g., Eva) improved performance significantly from 2021 to 2022.
- Departments like **Finance** and **IT** maintain average salaries higher than the company average.
- The **attrition risk query** was powerful — blending salary, attendance, and performance metrics to identify potential concerns.

Skills Reinforced

- Window functions: ROW_NUMBER(), RANK(), LAG()
- Aggregations with subqueries (AVG, comparison with company average)
- Correlation analysis between attendance and performance
- Using NTILE() for salary distribution
- Designing realistic HR analytics queries with business implications

Personal Note

Today reminded me that **practice gaps can slow down momentum**, but also taught me the importance of discipline.
From here, I'm committed to **daily problem-solving without fail**. SQL is not only about queries — it's also about building consistency and problem-solving stamina.