

Task 8: SQL Window Functions – Ranking & Running Totals

Tools:

- Primary: PostgreSQL (free)
- Alternatives: MySQL 8+, SQLite (limited window functions), DuckDB
- GUI Tools: DBeaver, PgAdmin, MySQL Workbench

Dataset:

- "Global Superstore Dataset" (import CSV into SQL)
- "Online Retail II"
- "E-Commerce Sales Dataset"

Hints / Mini Guide:

1. Import CSV into PostgreSQL and ensure correct datatypes (date, numeric).
2. Write base aggregation: total sales per customer using GROUP BY.
3. Use ROW_NUMBER() to rank customers by sales per region (PARTITION BY region).
4. Use RANK() and DENSE_RANK() and compare tie-handling.
5. Calculate running total sales using SUM(sales) OVER (ORDER BY order_date).
6. Calculate MoM growth using LAG() on monthly totals.
7. Find Top 3 products per category using DENSE_RANK() in CTE.
8. Export outputs (CSV) and write 3 insights.
9. Save all queries into one .sql file.

Deliverables:

- task8_window.sql
- ranked_customers.csv
- mom_growth.csv
- insights_task8.txt

Final Outcome:

- Ability to write advanced reporting SQL using window functions.

Interview Questions Related To Above Task:

- ROW_NUMBER vs RANK vs DENSE_RANK?
- Why use PARTITION BY?
- What is running total and how to calculate it?
- Why is LAG useful in analytics?
- Write SQL for Top 3 products per category.

Task Submission Guidelines

-  **Time Window:**

You can complete the task anytime between 10:00 AM to 10:00 PM on the given day. Submission link closes at 10:00 PM

-  **Self-Research Allowed:**

You are free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively.

-  **Debug Yourself:**

Try to resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

-  **No Paid Tools:**

If the task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

-  **GitHub Submission:**

Create a new GitHub repository for each task.

Add everything you used for the task — code, datasets, screenshots (if any), and a short README.md explaining what you did.

Submit Here:

After completing the task, paste your GitHub repo link and submit it using the link below:

-  [\[Submission Link\]](#)

