Travel Route Insights Using SQL Window Functions

Project Title:

Travel Route Insights Using SQL Window Functions

Overview:

This project demonstrates advanced SQL techniques on a travel route dataset. It highlights my ability to solve real-world problems using window functions, recursive CTEs, ranking, and data transformation.

The dataset simulates realistic travel routes between Indian cities, focusing on data analytics for transportation insights.

Skills Demonstrated:

- SQL Window Functions: ROW_NUMBER, RANK, LEAD, LAG, NTILE
- Recursive CTEs for indirect travel path discovery
- Use of GREATEST/LEAST for route comparison
- CASE logic for trend analysis
- Duplicate detection using ROW_NUMBER
- Partitioned ranking and data segmentation

Key Highlights:

1. Identify one-way and round-trip routes between cities.
2. Rank routes based on travel distance using ROW_NUMBER and RANK.
3. Detect increasing/decreasing/flat route trends using LAG.
4. Classify routes into distance-based tiers using NTILE.
5. Use recursive CTE to find all indirect paths from Delhi.

6. Clean up duplicate route records using window logic.

Ideal For:

Clients in logistics, travel analytics, or route optimization who need SQL-based analysis to derive insights from location and route data.