Travel Data Insights Using SQL Window Functions

Project Title:

Travel Data Insights Using SQL Window Functions

Overview:

This project demonstrates advanced SQL techniques on a travel route dataset. It highlights your 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:

- Window Functions: ROW_NUMBER, RANK, LEAD, LAG, NTILE
- Recursive CTEs for indirect route discovery
- Conditional logic: CASE, ISNULL, ABS, GREATEST, LEAST
- Data trend detection and classification
- Duplicate removal using ROW_NUMBER and PARTITION BY
- Aggregation and ranking over partitioned data

Key Highlights:

1. Detect one-way vs round-trip travel paths.
2. Rank routes based on distance from each source city.
3. Identify route trends like increasing/decreasing/flat distances using LAG.
4. Apply NTILE to divide routes into distance-based segments.
5. Use recursive CTE to explore multi-leg paths from Delhi.

6. Clean duplicate data using windowed row numbers.

Files Included:

- SQL Script: Travel_Route_Insights_SQL_Window_Functions_Vijay.sql

- Sample queries and solutions with real-world context

Ideal For:

Clients seeking SQL-based analytics for transportation, logistics, or route optimization. Useful for travel portals, delivery networks, and mobility data solutions.