SQL 100 Days Challenge – Day 52 Reflection

Topic: Airline Booking & Passenger Analytics

Dataset: Passengers, Flights, Bookings

Practice Experience:

- Today's set of queries felt comparatively **easy and smooth**.
- Questions 1–10 mainly focused on **revenue, cancellations, loyalty tiers, monthly trends, frequent flyers, and distance insights**.
- I was able to use **LAG() and RANK() functions** efficiently without much difficulty — these are concepts that earlier felt tricky but now come naturally.
- The **Bonus Challenge (Frequent Flyer Upgrade Eligibility)** was slightly advanced but still manageable, involving **CTEs, filtering with dates, and conditional logic**.

Key Learnings:

1. **Revenue by Route:** Aggregated confirmed booking revenue per origin-destination pair.
2. **Top Passengers by Spend:** Ranked customers by spend to identify high-value travelers.
3. **Cancellation Rates:** Used CASE WHEN to calculate percentage of cancelled bookings.
4. **Ticket Pricing by Loyalty Tier:** Compared Gold, Silver, and Bronze loyalty members.
5. **Monthly Revenue Trends:** Applied LAG() to calculate month-over-month changes.
6. **Frequent Flyers:** Identified passengers booking more than 2 flights.
7. **Route Ranking:** Ranked flight routes using RANK() based on confirmed bookings.
8. **Booking Timeline:** Leveraged LAG() to track each passenger's booking history.
9. **Distance Insights:** Calculated miles flown per passenger with averages.
10. **Country-Wise Contribution:** Ranked countries by revenue contribution.
11. **Bonus Challenge:** Designed an upgrade eligibility rule (≥ 2 flights in 90 days + avg price > $1000).

Insights:

- Indian passengers appeared prominently in revenue contribution.
- Gold-tier passengers often had higher average ticket prices.
- Cancellation rates varied by route, showing risk in long-distance flights.
- Frequent flyers with consistent high spend could be targeted for loyalty upgrades.

Skills Reinforced:

- Ranking & Window Functions (RANK, LAG)
- Aggregations with CASE WHEN
- Date filtering for last 90 days
- CTE usage for upgrade eligibility
- Business metrics: cancellations, revenue per route, loyalty analysis

Personal Note:
Today felt **rewarding yet comfortable** — I could solve most questions quickly. It's encouraging to see how much smoother it is now to handle functions like LAG and RANK compared to earlier days. The bonus challenge was a good reminder of how SQL logic supports **real-world loyalty program strategies** in aviation.

Next Steps:

- Explore customer segmentation by spend + loyalty tier.
- Expand monthly trends into year-over-year growth analysis.
- Create churn risk models for passengers with low booking frequency.