**Business Problem Statement: Airline Passenger Satisfaction Analysis**

Understanding customer satisfaction is crucial for airlines to enhance service quality, optimize passenger experience, and improve brand loyalty. This project will analyze passenger feedback to identify key drivers of **satisfaction and dissatisfaction** across different customer segments.

We will use **SQL for exploratory data analysis (EDA)** and **Power BI for visualization** to uncover insights and trends that impact customer satisfaction.

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**Key Business Questions to Solve:**

**1. Overall Passenger Satisfaction Trends**

✅ What percentage of airline passengers are **satisfied**?
✅ Does satisfaction vary by **customer type** (e.g., first-time vs. returning customers)?
✅ How does satisfaction differ across **types of travel** (e.g., Business vs. Leisure)?

**2. Customer Segmentation & Profile Analysis**

✅ What is the typical profile of a **repeating airline passenger**?
✅ Do returning passengers show higher satisfaction than new customers?
✅ How do satisfaction levels vary by **gender and age group**?

**3. Flight Patterns & Their Impact on Satisfaction**

✅ Does **flight distance** affect customer preferences or behavior?
✅ How do **departure and arrival delays** influence satisfaction?
✅ Are certain travel **classes** (Economy, Business, First Class) associated with higher satisfaction?

**4. Factors Contributing to Satisfaction & Dissatisfaction**

✅ Which service areas (e.g., **Check-in, Online Boarding, Seat Comfort**) contribute most to satisfaction?
✅ What factors lead to **dissatisfaction** (e.g., **Baggage handling, In-flight service, WiFi, Food & Drink**)?
✅ Is there a relationship between **cleanliness ratings** and overall satisfaction?

**5. Operational Efficiency & Service Improvements**

✅ Which **airline services (Online Booking, Check-in, Gate Location, In-flight Service, Entertainment)** have the lowest ratings?
✅ Can we identify specific **flight routes or schedules** with higher dissatisfaction rates?

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**SQL Techniques to Use:**

✓ **Basic SQL**: Aggregations (COUNT, AVG, MAX, MIN), CASE statements
✓ **Intermediate SQL**: Filtering (WHERE, GROUP BY, HAVING), date/time functions
✓ **Advanced SQL**:

- **Common Table Expressions (CTEs)**: To segment passengers based on satisfaction levels
- **Window Functions**: To analyze trends in customer satisfaction across time and customer types
- **Subqueries**: To identify key dissatisfaction factors by comparing satisfaction scores
- **Joins**: To explore relationships between customer attributes and satisfaction levels

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**Final Deliverables:**

📌 **SQL Queries & Insights**: Answering the key business questions
📌 **Power BI Dashboard**: Data visualization of satisfaction trends and customer profiles
📌 **Passenger Satisfaction Report**: Summary of findings and recommendations