INFORMATION VISUALIZATION
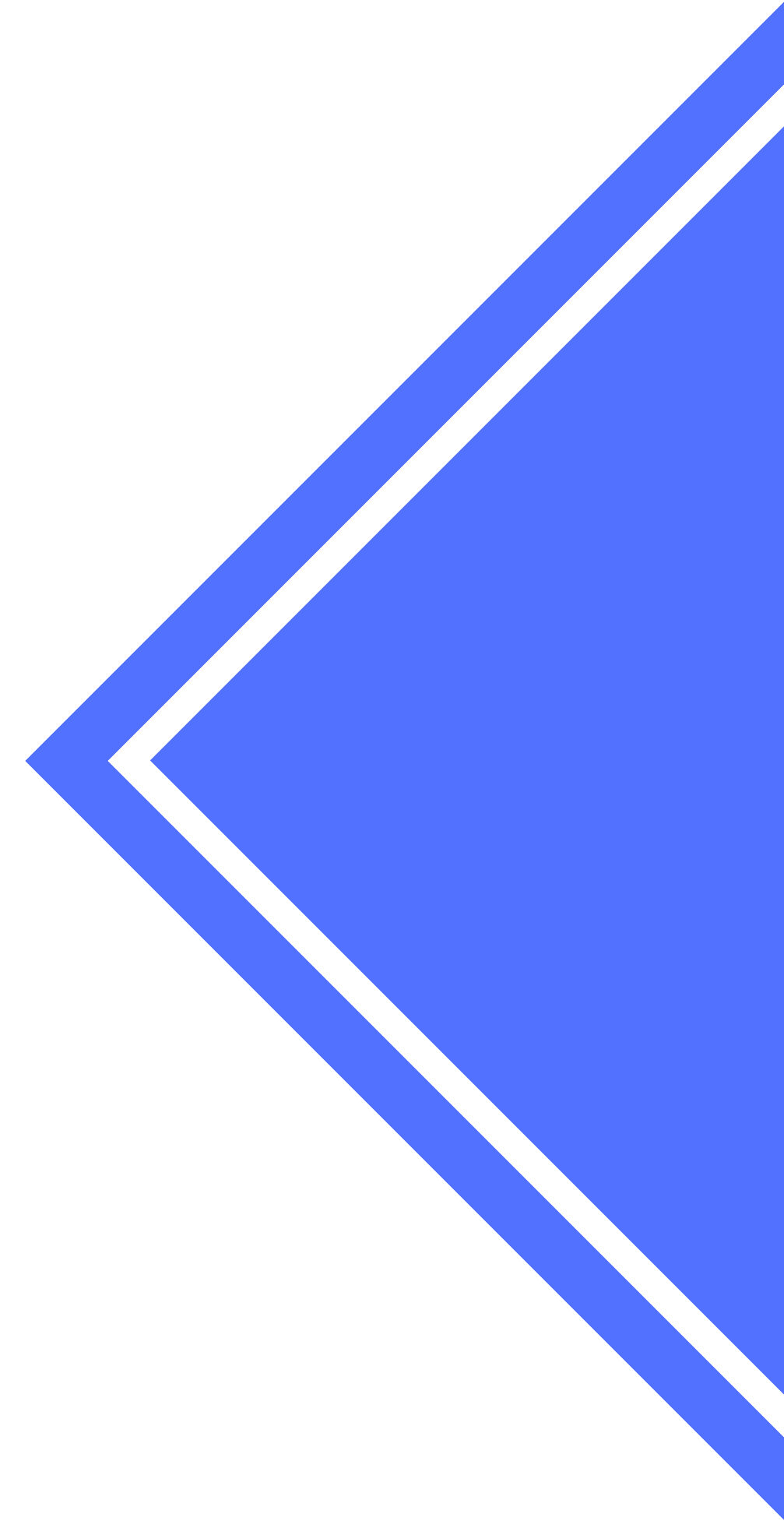
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INFORMATION VISUALIZATION-PART2 (DASHBOARDS)

AIRLINE DATA INSIGHTS: INTERACTIVE DASHBOARD PRESENTATION

A deep dive into passenger demographics, flight status, pilot performance, and time trends.

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INTRODUCTION:

- The airline industry operates in a fast-paced, data-intensive environment.

- Real-time data analysis and monitoring are essential for managing flight operations and customer satisfaction.

- The goal of developing this dashboard was to provide a holistic overview of flight operations, passenger demographics, and airport activity.

- The insights gained can help airline stakeholders identify patterns, predict issues, and make informed operational decisions.

MOTIVATION:

- Airlines face challenges such as maintaining on-time departures and ensuring efficient use of resources and delays and cancellations not only cause inconvenience to passengers but also have significant cost implications for airlines.

- This dashboard provides insights to airlines, airport authorities, and passengers to identify trends, monitor pilot performance, and address frequent delays.

- Understanding passenger demographics aids in tailoring services and improving customer satisfaction.

KEY RESEARCH QUESTIONS:

- Which airports have the highest passenger volumes, and how do they correlate with flight performance?

- What are the flight status trends (on-time, delayed, cancelled) across different continents?

- How do monthly and quarterly trends reflect changes in flight performance?

DATA SOURCE AND DISCUSSION:

- The dashboard uses real-world data from airline operation records.

- The dataset includes:
  - Flight Status: On-time, delayed, cancelled.
  - Passenger Demographics: Gender breakdown.
  - Flight Details: Arrival airports, pilot details.

- This robust data source ensures accurate representation of key airline performance metrics.

Airline Operations & Passenger Insights Dashboard
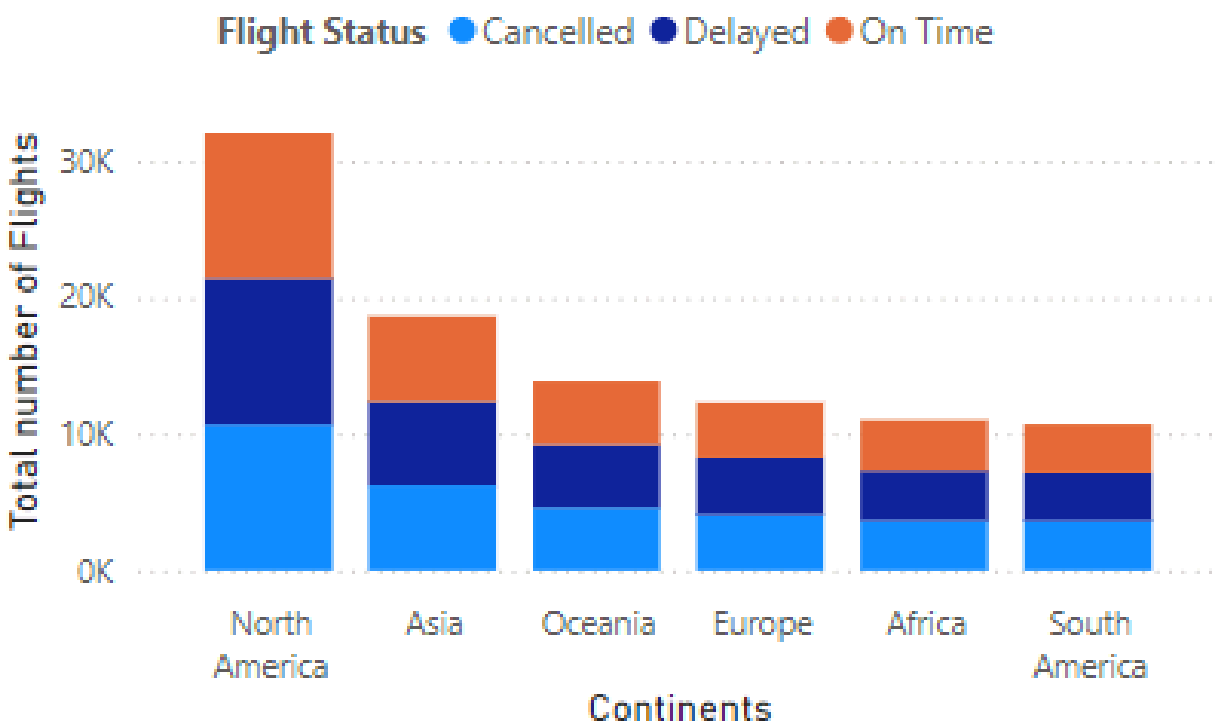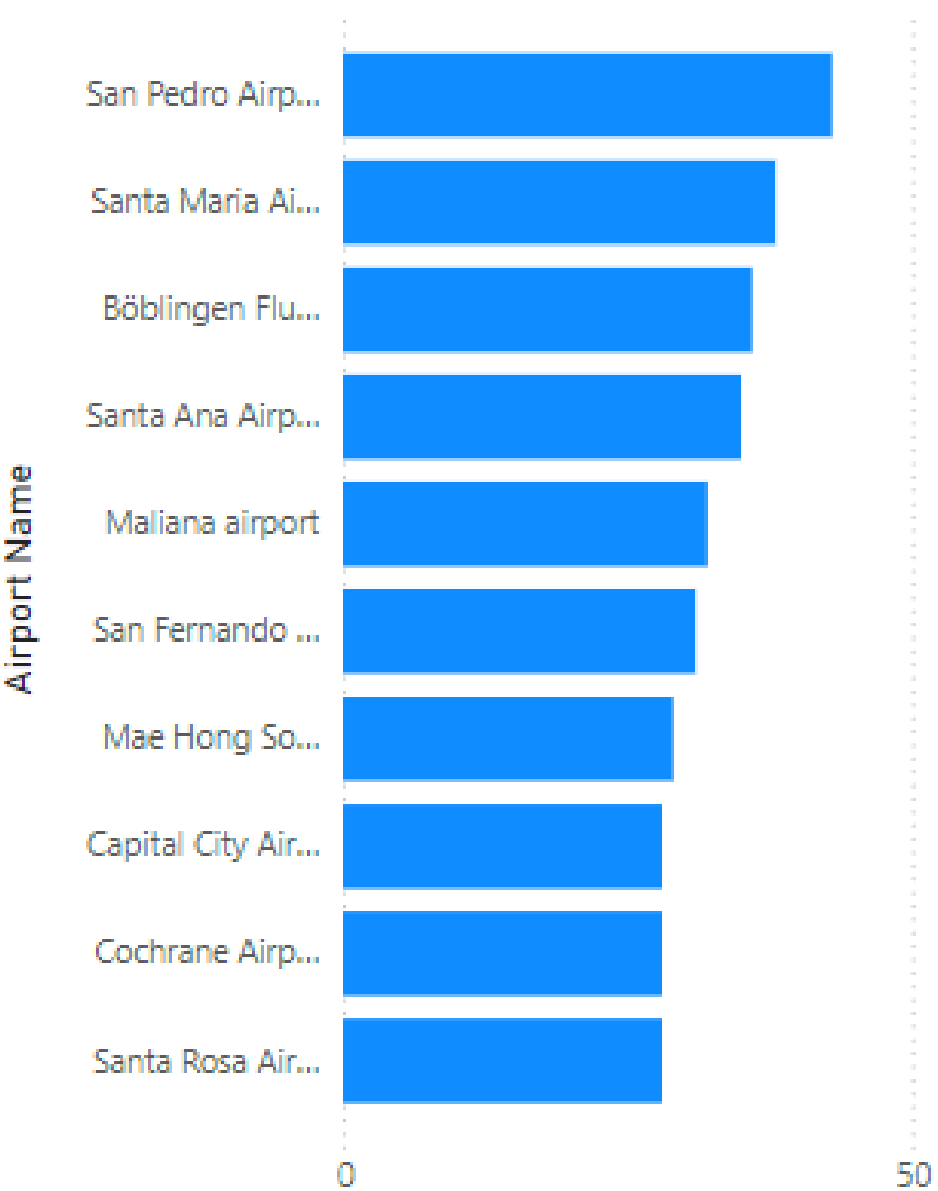
32.85K On Time Flights

32.83K Delayed Flights

32.94K Cancelled Flights

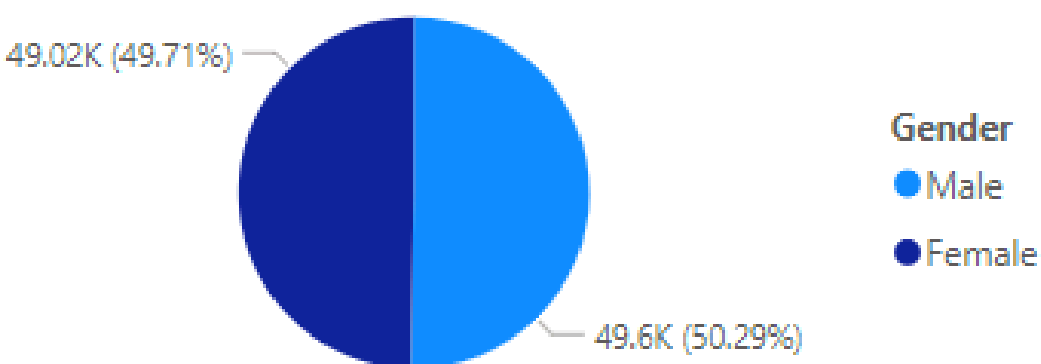Flight Status
- ☐ Cancelled
- ☐ Delayed
- ☐ On Time

Flight Status by Continents

Flight Status ● Cancelled ● Delayed ● On Time

Passenger Count (Gender)

49.02K (49.71%)
49.6K (50.29%)

Gender
● Male
● Female

Top 10 Busiest Airports

San Pedro Airp...
Santa Maria Ai...
Böblingen Flu...
Santa Ana Airp...
Maliana airport
San Fernando ...
Mae Hong So...
Capital City Air...
Cochrane Airp...
Santa Rosa Air...

Number of Passengers (Monthly)

Flight Status (Quaterly)

Flight Status ● Cancelled ● Delayed ● On Time
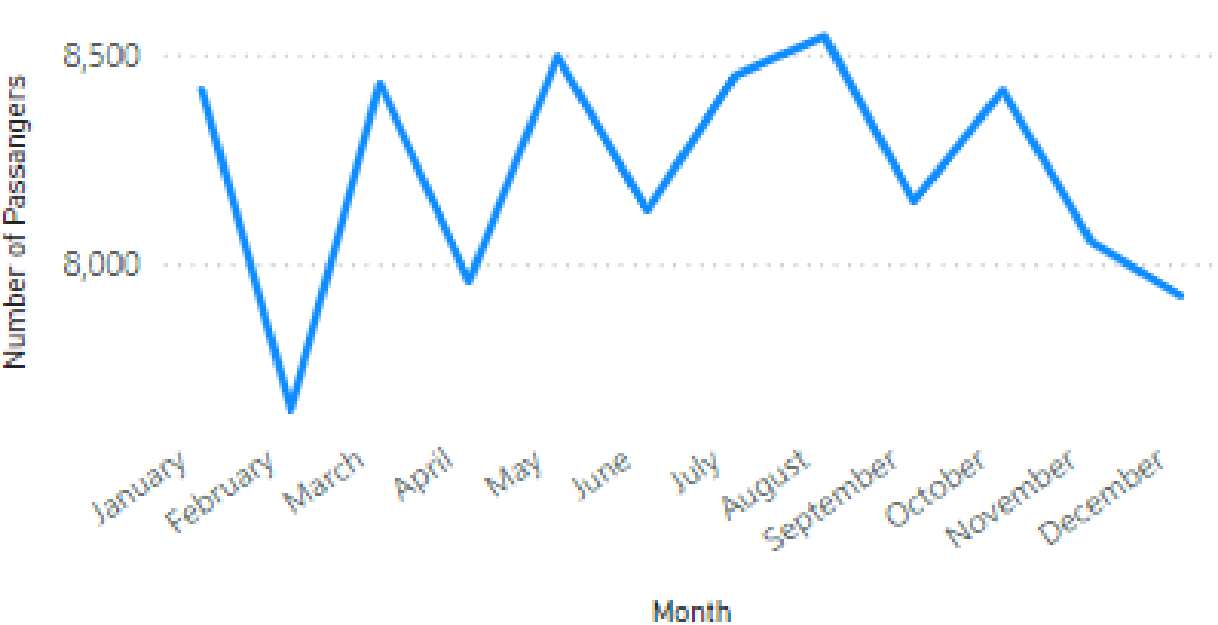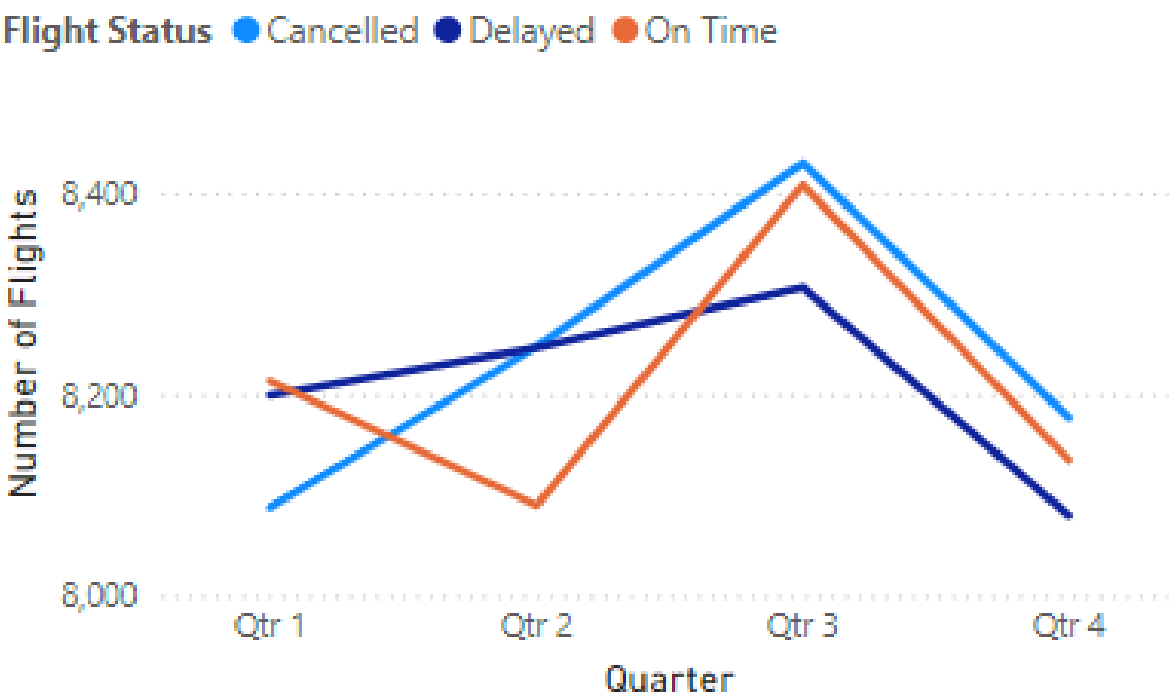
PRESENTATION OF INDIVIDUAL CHARTS:

- Passenger Count by Gender:
  - Nearly equal distribution of male and female passengers.

- Top 10 Busiest Airports:
  - Highlights high-traffic airports like San Pedro and Santa Maria.

- Flight Status by Continents:
  - Shows North America leading in flight volumes and delays.

- Monthly Passenger Trends:
  - Identifies peak travel in August.

- Quarterly Flight Status:
  - Delays most prevalent in Q2, stabilizing in later quarters.

OVERALL PRESENTATION:

- The full dashboard integrates various visualizations to give a comprehensive view of operations.

- Users can explore flight performance across different timeframes, passenger demographics, and the busiest airports.

- The interactive nature of the dashboard allows for tailored analysis and focused decision-making.

ANSWERS TO THE QUESTIONS:

- Top Airports: San Pedro and Santa Maria are the busiest, indicating the need for enhanced resource management.

- Flight Status by Continent: North America shows the highest flight activity and delay rates.

- Monthly/Quarterly Trends: Q2, especially July, shows peak delays.

LINK TO THE DATASET AND DASHBOARD:

- Dataset

- Dashboard

THANKS!