

# **Report**

## **Airline Flights Analysis**

### **Project Overview:**

This project analyzes airline flight data using SQL for querying and Power BI for visualization. The dataset contains information on flights, routes, ticket prices, durations, arrival time, classes, stops, and departure times. The goal of the analysis is to uncover insights into pricing, routes, flight durations, and passenger options.

### **Key Findings**

#### **1) Total Flights:**

- ☐ The dataset contains around 300K flights in total.
- ☐ An important proportion of these flights fall within the next 7 days, indicating a high frequency of short-term bookings.

#### **2) Ticket Prices:**

- ☐ The cheapest flight is priced at ~1K, while the most expensive flight reaches 123K.
- ☐ Economy flights generally have a lower price range, while Business flights has the higher price range.

#### **3) Flight Classes:**

- Economy class flights represent about 69% of total flights, showing that it's the most common travel choice.
- Business class accounts for 31%, which is still a significant share.

#### **4) Flight Durations:**

- Evening and Night departures show the longest average durations (13–14 hours).

- The longest single flight durations exceed 5 hours, with airlines such as UK-866 and UK-738 among the top.

### 5) Routes & Stops:

- Busiest routes are between major Indian cities such as Bangalore, Chennai, Delhi, Hyderabad, Kolkata, and Mumbai.
- The matrix visualization highlights Delhi–Mumbai and Mumbai–Bangalore as heavily trafficked routes.
- Most flights are one-stop flights (250K) compared to direct flights (~30K), showing that layovers are common.

### 6) Airline Insights:

- Vistara has the highest average ticket price (~30K), followed by Air India (~24K).
- Low-cost airlines such as SpiceJet, GO FIRST, Indigo, and AirAsia offer significantly cheaper average fares.

### 7) Departure Times:

- Morning departures dominate (71K flights), followed by Evening (65K) and Night (48K).
- Late-Night departures are relatively less common.

### Business Insights

- **Passenger Demand:** Economy dominates, so airlines should focus on competitive pricing and maximizing economy seating.
- **Premium Market:** Despite being fewer, Business class flights command higher prices.
- **Route Planning:** Airlines may consider adding more non-stop flights on high-demand routes like Delhi–Mumbai as they have high traffic volume to improve passenger suitability.
- **Scheduling:** Longer durations in Evening/Night suggest possible layovers, optimizing flight schedules could reduce travel times.

- **Airline Pricing Strategy:** Premium carriers like Vistara and Air India can leverage their high-priced market segment as they have the highest ticket price, while budget airlines continue to compete on affordability.

## **Conclusion**

The analysis shows a dynamic flight market with strong demand for economy travel, concentration on city routes, and different strategies across airlines. Power BI dashboards provide an interactive and dynamic way to explore pricing, durations, routes and more making it easier for both airlines and passengers to identify patterns and optimize travel decisions.