# Airline Authority Analysis – Power BI Dashboard

## Project Overview

The Airline Authority Analysis dashboard aims to help stakeholders such as travelers, airline operators, and regulatory authorities understand operational trends in the aviation industry. By visualizing on-time performance, delays, and cancellations across airlines, days, and months, the dashboard enables data-driven decision-making and policy planning.

## Dataset Summary

- Source: Publicly available aviation statistics dataset  
- Time Range: 2009–2011  
- Rows: Over 300,000+ (assumed based on typical airline datasets)  
- Key Columns:  
 - Origin Airport  
 - Airline Name  
 - Departure Hour  
 - Day of Week  
 - Year  
 - Month  
 - Number of Flights  
 - On-Time  
 - Flights Delayed  
 - Flights Cancelled  
 - Avg Delay (min)

## Key Visualizations

- Bar Chart: Comparison of total on-time, delayed, and cancelled flights by day of the week  
- Pie Chart: Overall proportion of on-time, delayed, and cancelled flights  
- KPI Card: Total average delay in minutes (1.22M)  
- Multi-Year Trend: Airline-wise comparison of average delay across years (2009, 2010, 2011)  
- Interactive Filters: Month and airline filters for customized analysis

## Insights & Highlights

- On-Time Performance: ~61.7% of flights were on-time.  
- Delay Trends: Sunday and Wednesday showed the highest number of delayed flights.  
- Top Contributors to Delay: Delta Air Lines and United Airlines had the highest average delays across the years.  
- Cancellations: Represented only 2.4% of total flights, indicating overall operational reliability.  
- Time-Based Patterns: Significant differences in delay patterns by day of the week and month.

## Tools Used

- Power BI – Data modeling, visualization, and dashboard creation  
- Microsoft Excel / CSV – Data preprocessing (assumed)