MEMORANDUM

To: Airline Operations Planners and Travel Analysts
From: Jyostna Sree Somisetty
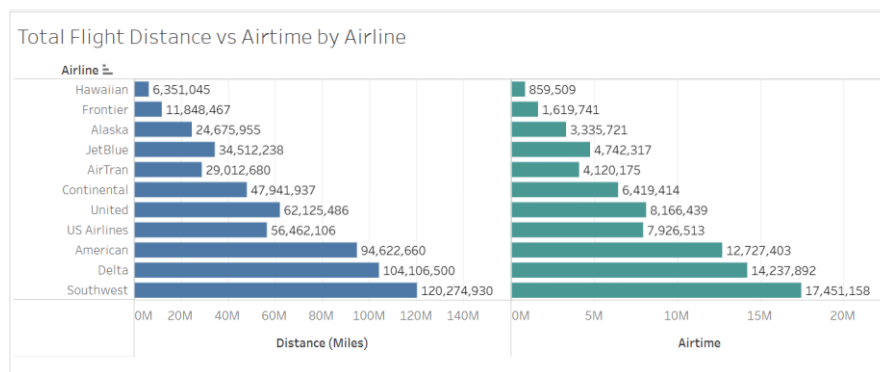**Date:** April 20, 2025
Subject: Tableau Dashboard Insights on U.S. Domestic Flight Trends (Dec 2010–Jan 2011)

Introduction

This memo summarizes insights from a Tableau dashboard analysing over **660,000 U.S. domestic flights** during **December 2010 and January 2011**. The dashboard enables exploration of operational metrics, holiday travel trends, airport delay patterns, and city-specific delay timings.

Designed for airline planners and data-driven travel analysts, the dashboard offers four interactive visualizations with filters and tooltips for exploratory analysis. Users can evaluate performance by airline, region, day of week, and more.

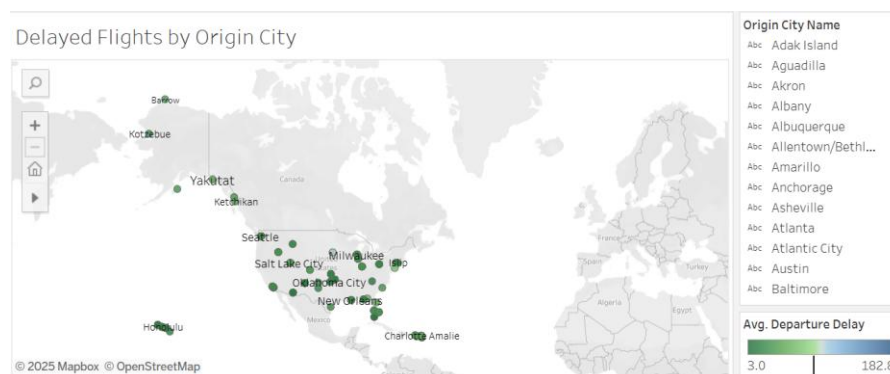## 1. Total Flight Distance vs Airtime by Airline

This dual-axis bar chart compares **total distance flown** and **total airtime** by airline.

Southwest Airlines had the highest flight activity during the two-month period, logging **120M miles** and **17.4M minutes** of airtime. **Delta** and **American Airlines** followed with significant volumes, while **JetBlue**, **Frontier**, and **Hawaiian** reported lower totals.

This comparison helps highlight route dominance and operational scale among carriers.
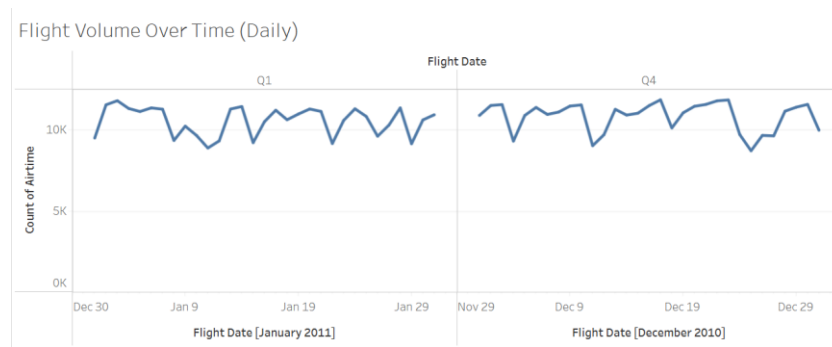
2. Delayed Flights by Origin City (Map View)

In the map, each green circle represents a city with delayed departures. Circle size reflects the **number of delayed flights**, and shading indicates **average delay time**.

Airports like **Honolulu**, **Charlotte Amalie**, and **New York** showed longer average delays.

The map helps visualize geographic delay hotspots and informs airport operations planning.
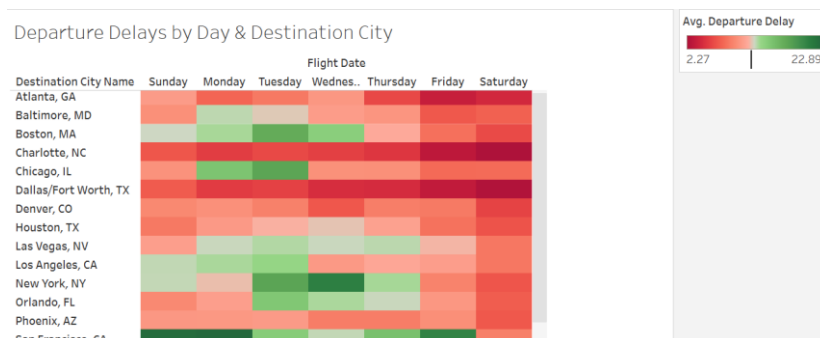
3. Flight Volume Over Time (Daily Trend)

This line chart tracks daily flight counts across the two months.

Sharp dips occurred on Dec 25 and Jan 1, aligning with Christmas and New Year's Day.

Spikes immediately before and after reflect holiday travel surges (Dec 23–24 and Jan 2–3).

This insight is valuable for scheduling crew, adjusting fleet size, and dynamic ticket pricing.

4. Heatmap of Delays by Day & Destination City

Displayed in the bottom-left, this heatmap shows **average departure delay** by **day of week** for the **top 15 U.S. cities**.

Fridays and Sundays tended to experience more frequent and longer delays across cities like **Atlanta, Chicago, and Dallas**.

Lighter tones midweek (especially Tuesdays and Wednesdays) suggest better on-time performance. This visual helps both travellers and airlines decide when to fly and where delays are most common.

Conclusion

This Tableau dashboard provides a multi-faceted view of U.S. domestic flights during a peak travel window. The insights on operational scale, delay hotspots, and weekly timing trends are valuable for decision-makers in airline operations, customer service planning, and travel advisories.

Dashboard Link:
https://prod-useast-b.online.tableau.com/#/site/msis670b/workbooks/2648448