Final Report

2015 U.S.A Airport Traffic Analysis

895K — Num of Flights

33.47 — Average Departure Delay

60.75% — On-Time Departure Rate

STATE: All AIRLINE: All

Num of Flights by Month

70567, 68461, 70813, 70603, 70352, 70279, 70769, 70791, 70305, 70867, 70567, 70598

January, February, March, April, May, June, July, August, September, October, November, December
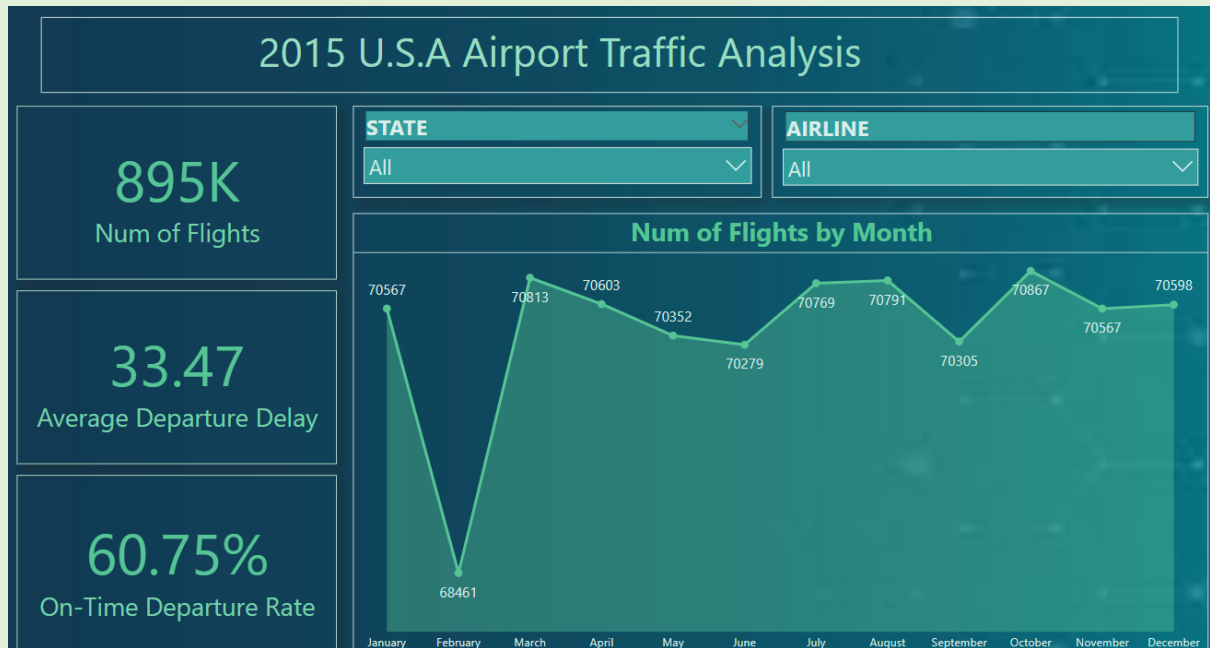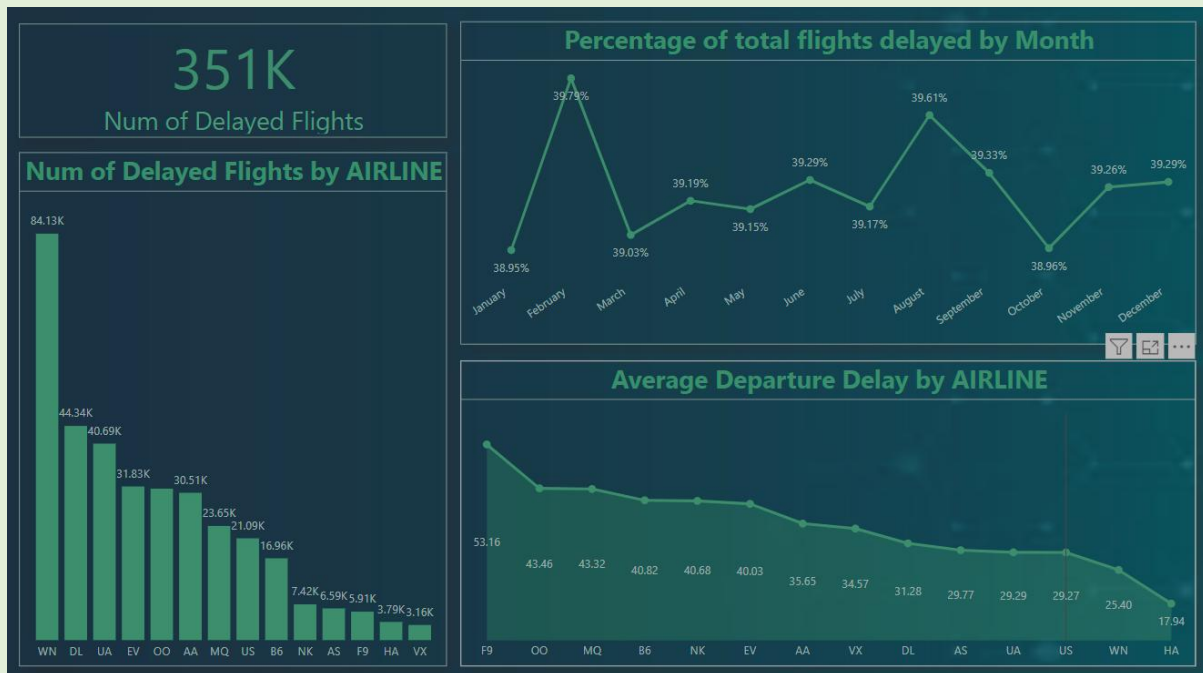
1. **OVERALL FLIGHT VOLUME VARIATION BY MONTH**
   - INSIGHTS- The figures predominantly hovered around the 70,000 mark, with the lowest recorded in February at 68,461 and the highest at 70,867. The median figure stands at 70,414
   - ACTIONS- Concentrate on discerning additional variables influencing departure delays, including airline operations, airport congestion, or air traffic control issues. Employ tailored tactics to mitigate these factors and enhance overall punctuality, regardless of the month. Moreover, maintain vigilant oversight and analysis of delay trends to facilitate proactive management and optimization of flight operations.
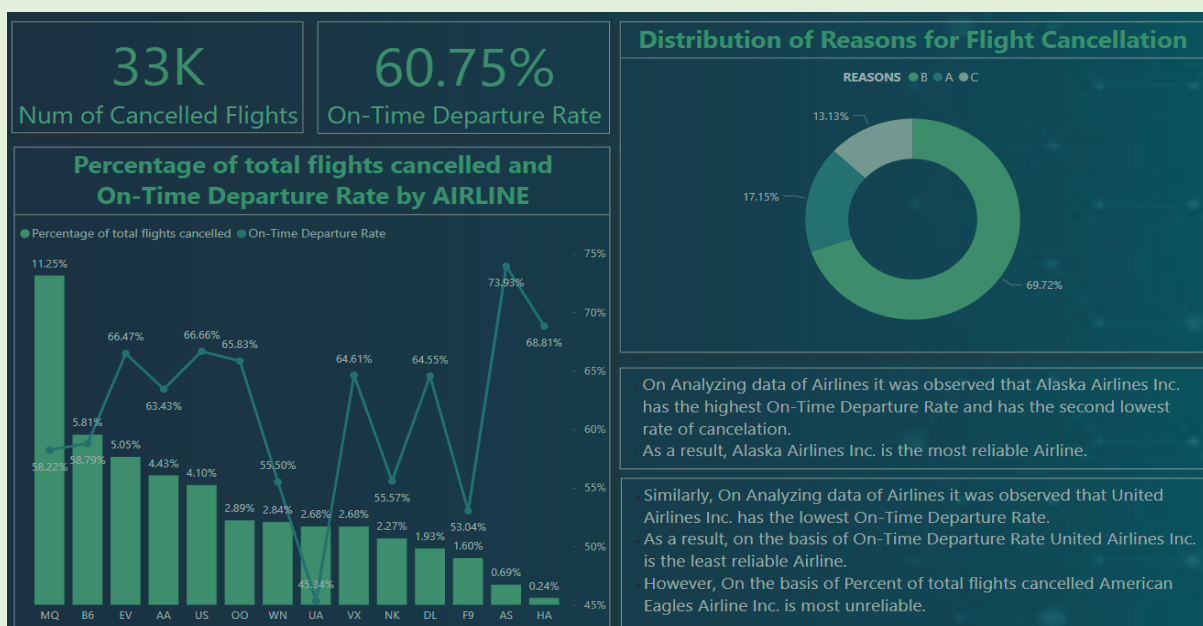
2. **PERCENTAGE OF FLIGHTS EXPERIENCING DEPARTURE DELAY AND AVERAGE DELAY TIME**
   - INSIGHTS- Approximately 39.25% of flights experienced departure delays, with an average delay duration of 33.47 minutes.
   - ACTIONS- Perform an in-depth examination of delay trends to pinpoint underlying factors and execute strategies aimed at reducing delays, improving overall punctuality, and enhancing customer satisfaction.

351K
Num of Delayed Flights

Num of Delayed Flights by AIRLINE

Percentage of total flights delayed by Month

Average Departure Delay by AIRLINE

3. **VARIATION OF DELAYED FLIGHTS PERCENTAGE THROUGHOUT THE YEAR**
   - INSIGHTS- Delay rates exhibit minor variations over the course of the year, reaching their peak in February at 39.79% and their lowest point in January at 38.95%.
   - ACTIONS- Airlines can strategically prepare for peak delay periods by dedicating supplementary resources and proactively implementing measures during the initial week of each month. This could entail bolstering staffing, refining operational efficacy, and establishing contingency strategies to handle the upsurge in delays adeptly.

33K
Num of Cancelled Flights

60.75%
On-Time Departure Rate

Distribution of Reasons for Flight Cancellation

Percentage of total flights cancelled and On-Time Departure Rate by AIRLINE

On Analyzing data of Airlines it was observed that Alaska Airlines Inc. has the highest On-Time Departure Rate and has the second lowest rate of cancelation.
As a result, Alaska Airlines Inc. is the most reliable Airline.

Similarly, On Analyzing data of Airlines it was observed that United Airlines Inc. has the lowest On-Time Departure Rate.
As a result, on the basis of On-Time Departure Rate United Airlines Inc. is the least reliable Airline.
However, On the basis of Percent of total flights cancelled American Eagles Airline Inc. is most unreliable.

4. **FLIGHTS CANCELLED IN 2015 AND KEY CANCELLATION DRIVERS**
   - INSIGHTS- In 2015, a total of 33K flights were canceled, with the majority attributed to reason B (23K), followed by reasons A (6K), C (4K), and D (3). The primary cause of flight cancellations in 2015 was reason B, indicating a significant proportion of weather-related cancellations.
   - ACTIONS- Perform an extensive examination of past weather data to recognize patterns and trends in unfavorable weather conditions resulting in flight cancellations. Devise proactive approaches, such as enhanced forecasting models or adaptable scheduling, to alleviate the repercussions of adverse weather on flight operations. Furthermore, enhance communication channels and customer support systems to diminish inconvenience for passengers affected by weather-related cancellations, thereby elevating overall customer satisfaction and fostering loyalty.

5. **MOST AND LEAST RELIABLE FLIGHTS IN TERMS OF ON-TIME DEPARTURE**
   - INSIGHTS- Analyzing the data on airlines, it was observed that Alaska Airlines Inc. has the highest on-time departure rate and the second lowest rate of cancelation. As a result, Alaska Airlines Inc. is the most reliable Airline. Similarly, upon analyzing the data on airlines, it was observed that United Airlines Inc. has the lowest on-time departure rate. As a result, on the basis of the On-Time Departure Rate, United Airlines Inc. is the least reliable Airline. However, on the basis of the percentage of total flights canceled, American Eagles Airline Inc. is the most unreliable.
   - ACTIONS- Analyze the operational procedures of airlines demonstrating high on-time departure rates to discern exemplary practices and enact enhancements aimed at augmenting overall reliability and punctuality. Foster collaborative endeavors among airlines to exchange insights and promote industry-wide advancements.