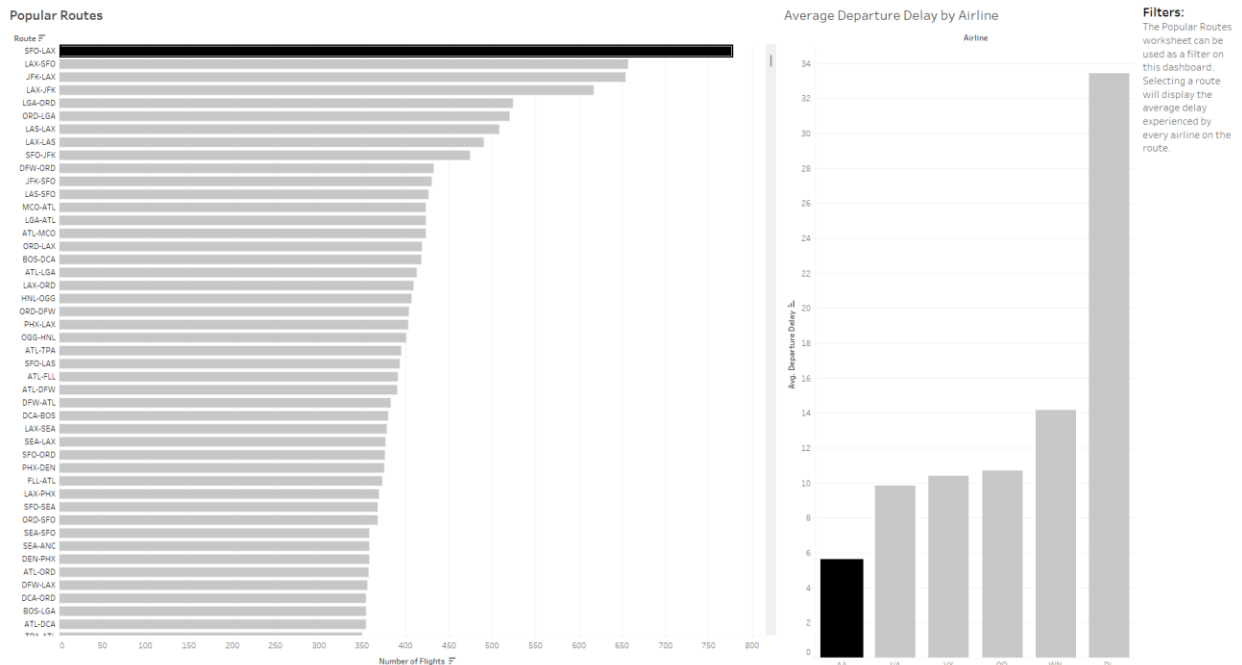
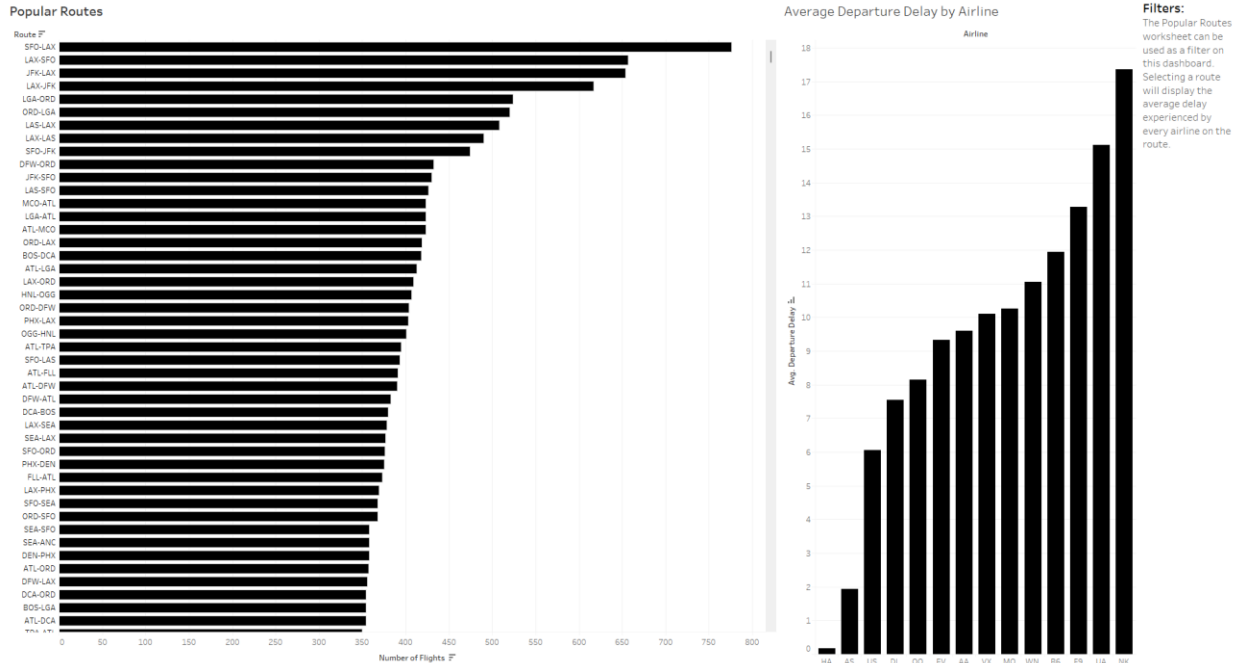


1) Which flight route is the most popular based on the number of journeys made, and which airline offers the highest reliability in terms of minimizing the risk of delays for that journey?



[View Dashboard](#)

This Dashboard features:

- **Horizontal Bar Plot** represents the most popular flight routes based on the number of journeys made.
- **Vertical Bar Plot** displaying the average delay caused by individual airlines.

Summary

The Horizontal Bar Plot visually represents every route in the country along with the total number of journeys made across the year.

The Vertical Bar Plot displays airline codes on the x-axis and their corresponding average departure delays on the y-axis.

SFO > LAX is the most popular route with 776 flights making this journey. This selection dynamically impacts the Bar Plot, displaying the airlines and rearranging them from lowest to highest. American Airlines shows the lowest average delay of 5.5 minutes while traveling from San Francisco to Los Angeles International Airport. To avoid delays, we can consider it the safest option.

Design

1) Horizontal bar Plot:

- Represents all journeys made between airports
- Sorting brings the most popular journey to the top.
- This diagram has filtering enabled, and its results are reflected on the Avg. Delays by Airlines chart.

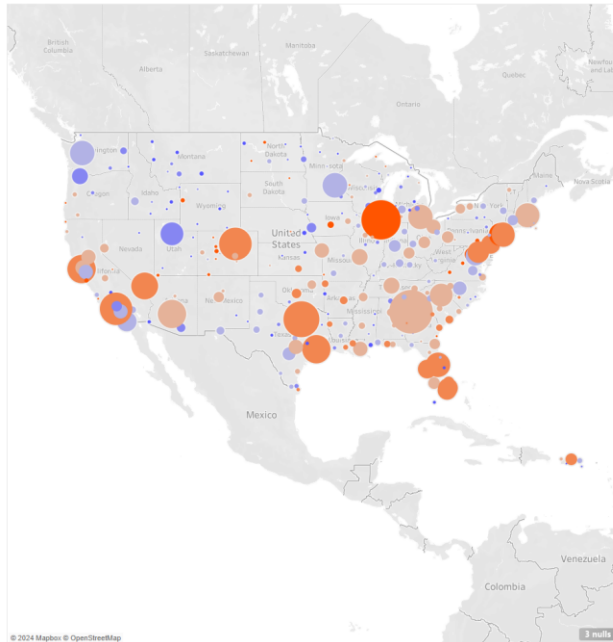
2) Bar Plot:

- **X-axis:** Displays the codes of airlines.
- **Y-axis:** Represents the average delay in minutes.
- Sorting is applied, automatically positioning the airline with the least average delay at the front of the graph for easy identification.

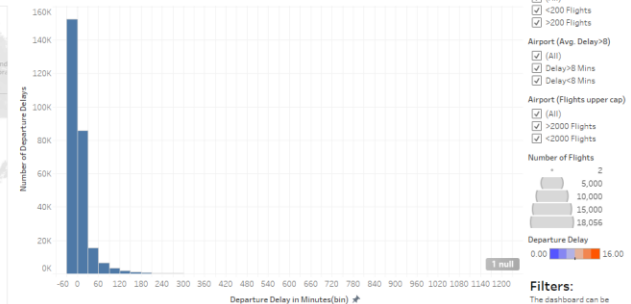
Resources: N/A

2) Which is the airport with the largest volume of flights departing? What is the major cause of delays exceeding 30 minutes at that airport?

Map: Avg. Delays by Airports



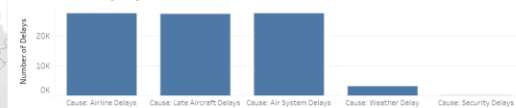
Distribution of Departure Delays



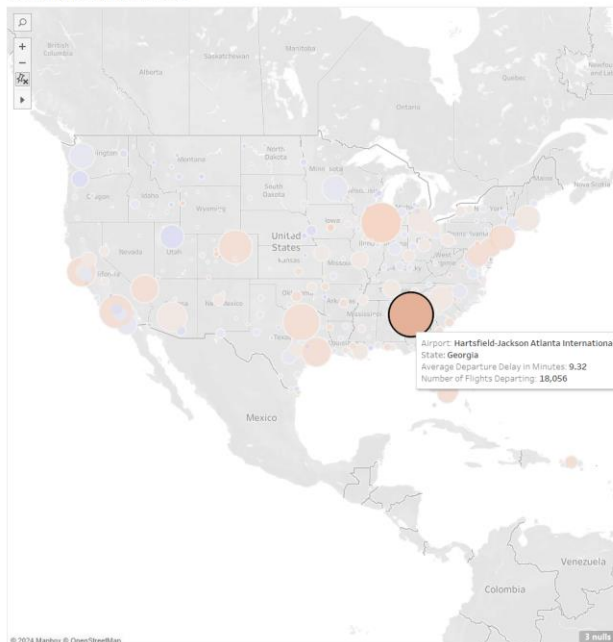
No. of Delays By Airlines



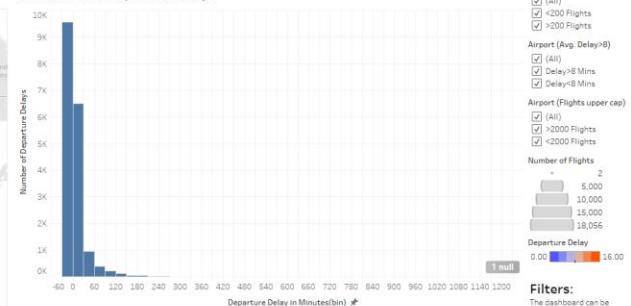
Number of Delays By Cause



Map: Avg. Delays by Airports



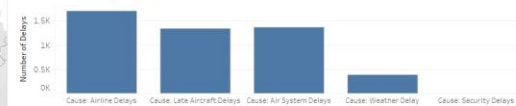
Distribution of Departure Delays



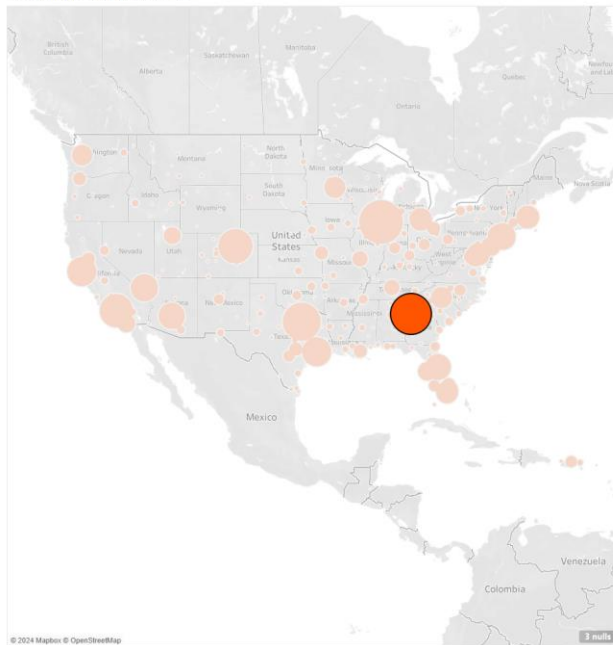
No. of Delays By Airlines



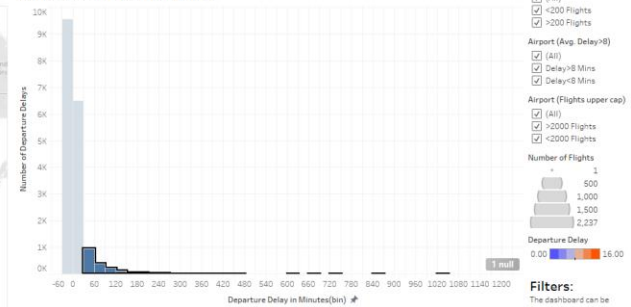
Number of Delays By Cause



Map: Avg. Delays by Airports



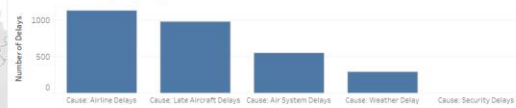
Distribution of Departure Delays



No. of Delays By Airlines



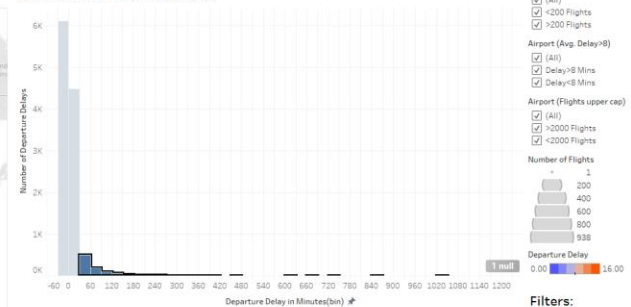
Number of Delays By Cause



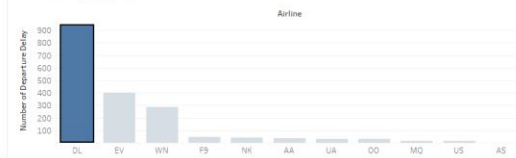
Map: Avg. Delays by Airports



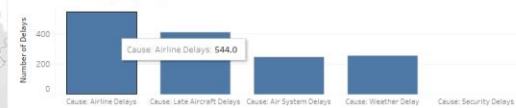
Distribution of Departure Delays



No. of Delays By Airlines



Number of Delays By Cause



[View Dashboard](#)

This dashboard features:

- **Map Visual** plotting all airports across the US.
- **Histogram** featuring the distribution of departure delays.
- **Bar plot** displaying the number of delays caused by airlines.

- **Bar plot** showing the causes of delay along with the number of delays caused.

Summary

The Map Visual plots all airports across the US. We are currently looking at the delays caused at Hartsfield-Jackson Atlanta International Airport which has the highest volume of flights departing.

We have ruled out the flights with less than 30 minutes delay using the departure delay histogram.

Airline Delays are the leading cause of delays at this airport, causing more than 1128 delays in total at the airport. It is closely followed by Late Aircraft Delays causing 982 total delays.

The airline **DL** is experiencing the highest number of delays. DL represents Delta Airlines Inc. as indicated by the tool tip. Out of the 938 delays experienced by the airline, 544 are caused by the airline itself.

Design

1) Symbol Map:

A map visual gives us a geographic overview of our data and is easier to interact with if the user is familiar with the map of the United States.

The airports are plotted on the map using circles. The map visual also allows us to represent other information using size and color.

- The number of flights is marked by the size of the symbol, making the popular airports pop out on the map.
- Color encoding is used to denote the average flight delay time at every airport. Green represents lower average departure delays, while red represents higher departure delays.
- These markings make it easy to spot our points of interest in the data.

2) Histogram (Distribution of Departure Delays)

- **x-axis:** Departure times of individual flights binned into 30-minute intervals.
- **y-axis:** Count of flights falling into the respective bins.
- The filter set on the histogram affects all other visualizations on the dashboard, making it dynamic.

3) Bar plot (Total number of delays by airlines)

- **x-axis:** IATA codes of airlines.
- **y-axis:** Number of delays by the airline.
- Data labels are added to display the count of delays experienced by every airline.
- Tooltips include details like the airline name and the count of delays caused.
- The filter set on this bar plot affects all other visualizations on the dashboard.

4) Bar plot (Number of delays by cause)

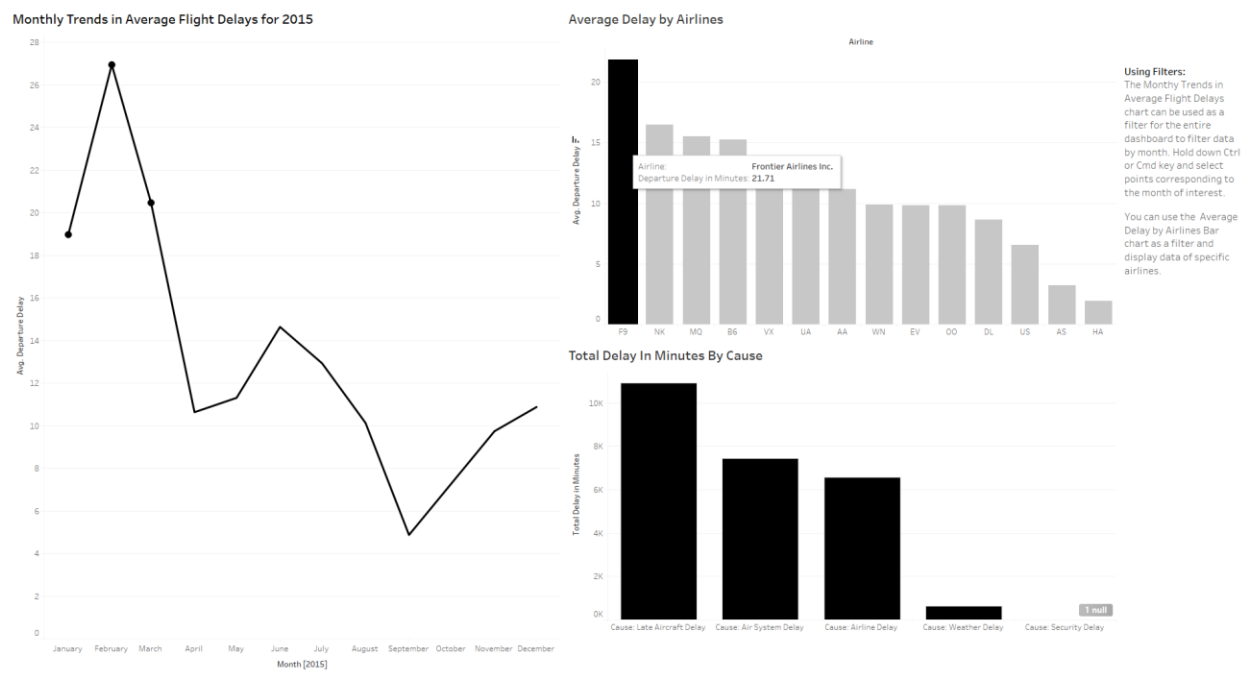
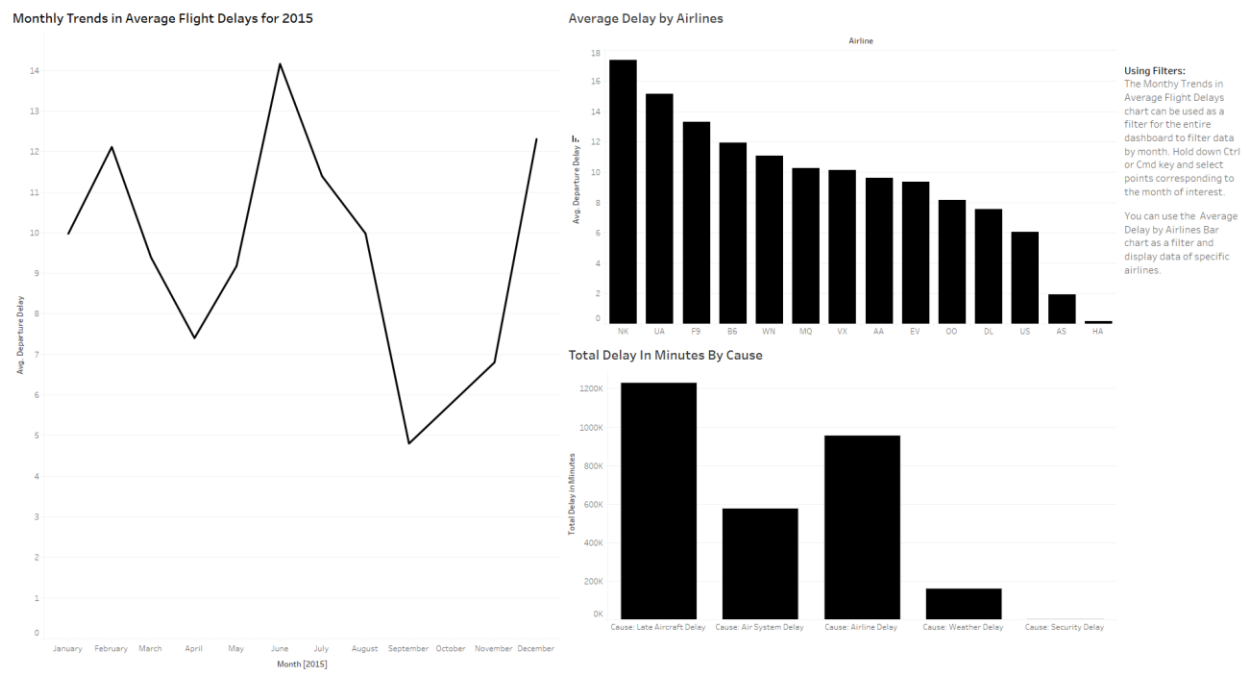
- **x-axis:** Cause of delay.
- **y-axis:** Number of delays caused.
- Displays the causes of delays along with the number of delays caused.
- This visualization is affected by the filters applied using the above visualizations.

5) Additional Filters:

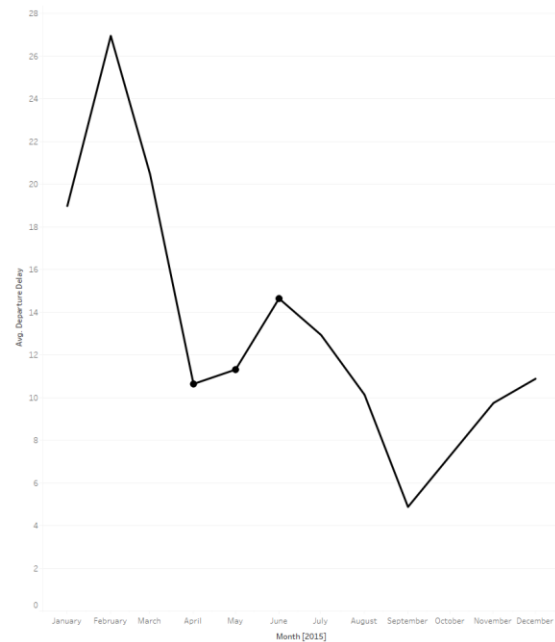
- **Lower Cap on Number of Flights:** Groups data into two groups, "<200 Flights" and ">200 Flights," allowing you to filter data accordingly.
- **Upper Cap on Number of Flights:** Groups data into two groups, "<2000 Flights" and ">2000 Flights," allowing you to filter data accordingly.
- **Avg Departure Delay Time:** Splits airports into two groups based on the average departure delay of 8 minutes. This allows the user to specifically focus on either airports with more than average delays or those with less than average delays.

Resources: N/A

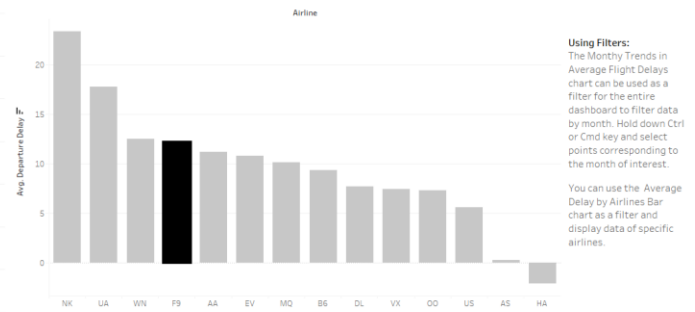
3) Which airline experiences the most delays in the first quarter of the year and track its progress until September?



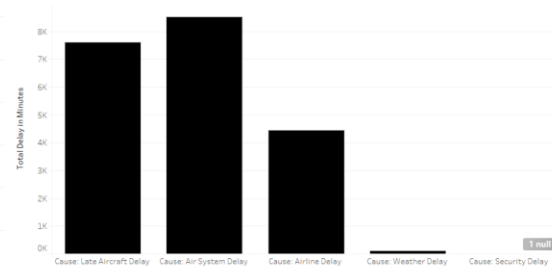
Monthly Trends in Average Flight Delays for 2015



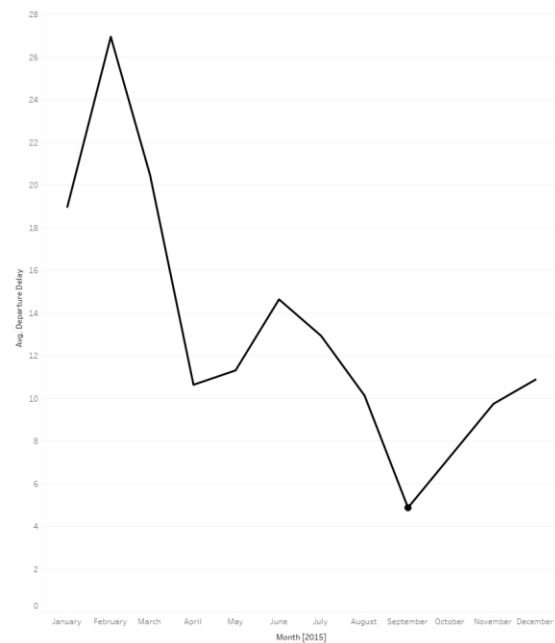
Average Delay by Airlines



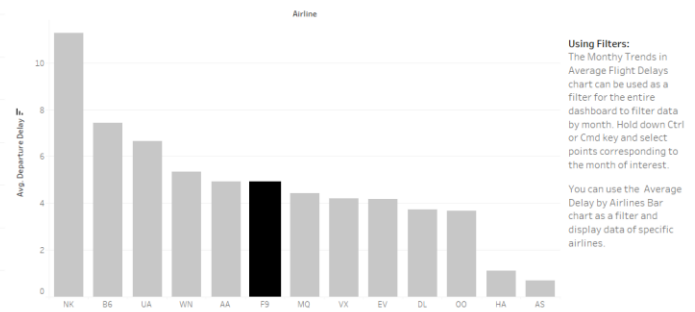
Total Delay In Minutes By Cause



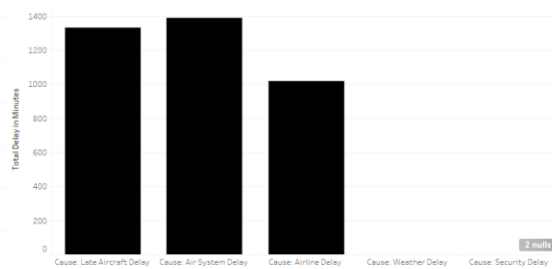
Monthly Trends in Average Flight Delays for 2015



Average Delay by Airlines



Total Delay In Minutes By Cause



[View Dashboard](#)

This Dashboard features:

- **Line plot** displaying monthly trends in average delay times.
- **Bar plot** displaying the airlines experiencing the delays and average departure delay time.
- **Bar plot** Depicting the causes of delays and the total delay time in minutes for all flights under consideration.

Summary

Selecting the first quarter of the year, we see that **F9** experienced the highest average delays. F9 represents Frontier Airlines Inc., as indicated in the tooltip. Selecting the F9 bar, we can see that Late Aircraft Delays are the leading cause of the total minutes delayed. Late Aircrafts caused a total delay of 10,910 minutes.

Selecting the second quarter of 2015, we can see that the performance of Frontier Airlines improved compared to other airlines. It now ranks 4th in terms of average departure delay. There is a drastic reduction in the total delay caused by Late Aircrafts, dropping to 7,609 minutes, which is a reduction of 30.26% from the first quarter.

As the trendline indicates, the airline continues to improve during the next quarter, reaching an average departure delay time of 4.87 minutes in September. This improvement is attributed to the reduction in Late Aircraft Delays, which caused a total delay of only 1,334 minutes in September.

Design

1. Line Plot (Monthly Trends in Average Flight Delays for 2015):

- The **line plot** is selected as it effectively displays trends in time-series data.
- The **x-axis** displays the months.
- The **y-axis** represents the average departure delay time.
- **Data labels** are added to make reading y-coordinates easier.
- The **filter** enabled on this line plot affects all other visualizations on the dashboard, allowing users to view data for a specific month or group of months as desired.

2. Bar Plot (Average Delay by Airlines):

- The **x-axis** displays the IATA codes of airlines.
- The **y-axis** represents the number of delays by the airline.
- **Data labels** are added to display the count of delays experienced by each airline.
- **Tooltips** include details such as the airline name and the count of delays caused.
- The **filter** set on this bar plot affects all other visualizations on the dashboard. Selecting an airline displays:
- The **filter** set on this bar plot affects all other visualizations on the dashboard. Selecting an airline displays the trend of average departure delay associated with the airline on the line plot and the total time delayed by cause on the bar plot.

3. Bar Plot (Total Delay in Minutes by Cause):

- The **x-axis** displays the causes of departure delays.

- The **y-axis** represents the total departure delay time across all flights in consideration, measured in minutes.
- **Data labels** are added to easily identify the total departure delay time for individual causes.
- **Filters** applied on the previous two plots allow users to drill down into specific total delay times and their corresponding causes.

Resources: N/A