BAN 5733 Exercise 4 (10 points)

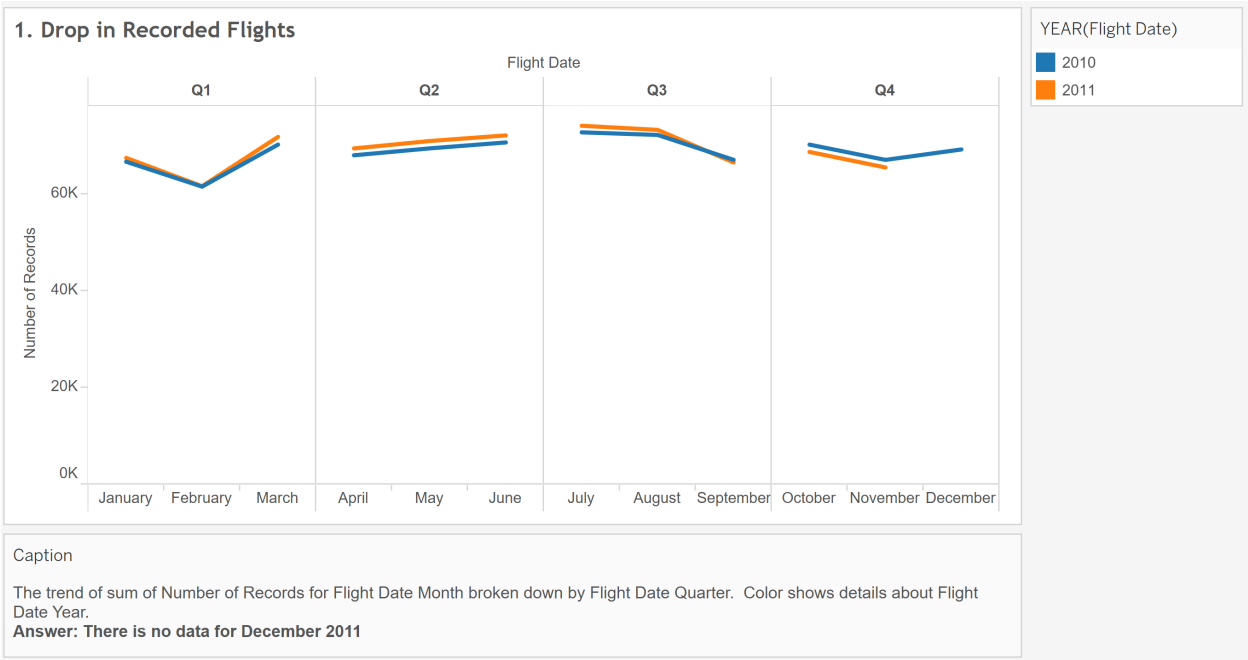
Instructions: Use the Flights_data.sas7bdat file and import it in Tableau for analysis. Create a single report for the FAA to answer the questions put forth in the exercise. The report should be no more than **7 pages long** with all supporting visualizations, tables, charts and graphs included in the appendix with references to the appendices in the main body of the report.

The Federal Aviation Administration (FAA) has asked you to examine a sample of their flights to determine why delays are occurring. They need to ensure staffing is in place for airport flight towers across the United States so staffing coverage is in place when needed. You are presented with information on a sample of U.S. airline flights from 2010 and 2011.

Here are some things they know and questions they would like you to answer.

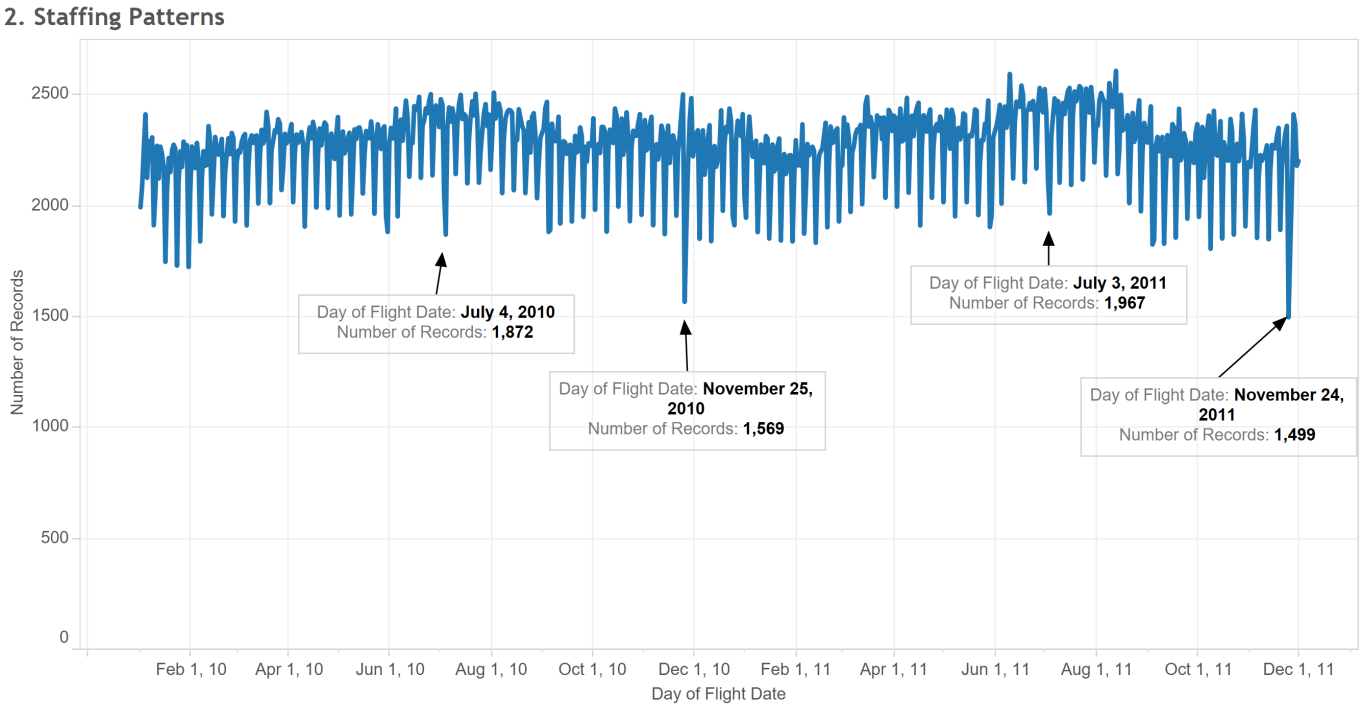
1. A flight report was generated from the same data set indicating there was a drop of more than 300,000 flights from 2010 to 2011. However, they know that flight activity did not drop so significantly between 2010 and 2011. They would like you to investigate flights over time in more detail to determine why these yearly numbers show such a large drop and to confirm the accuracy of the original report. How do cancellations, diversions, and delays affect these numbers? **(2 points)**

Solution: There is no data for December 2011.



2. Staffing patterns for any business must identify days that are particularly heavy and light so a company can ensure adequate coverage without wasting money. The FAA knows about some heavy patterns but would like to learn more. Should they overstaff on all holidays or just some? Are there particular holidays that seem to experience substantially lower numbers of flights? **(3 points)**

Solution: It seems that 4th of July and Thanksgiving are not as heavy flight days as other holidays like Christmas and non-holidays.

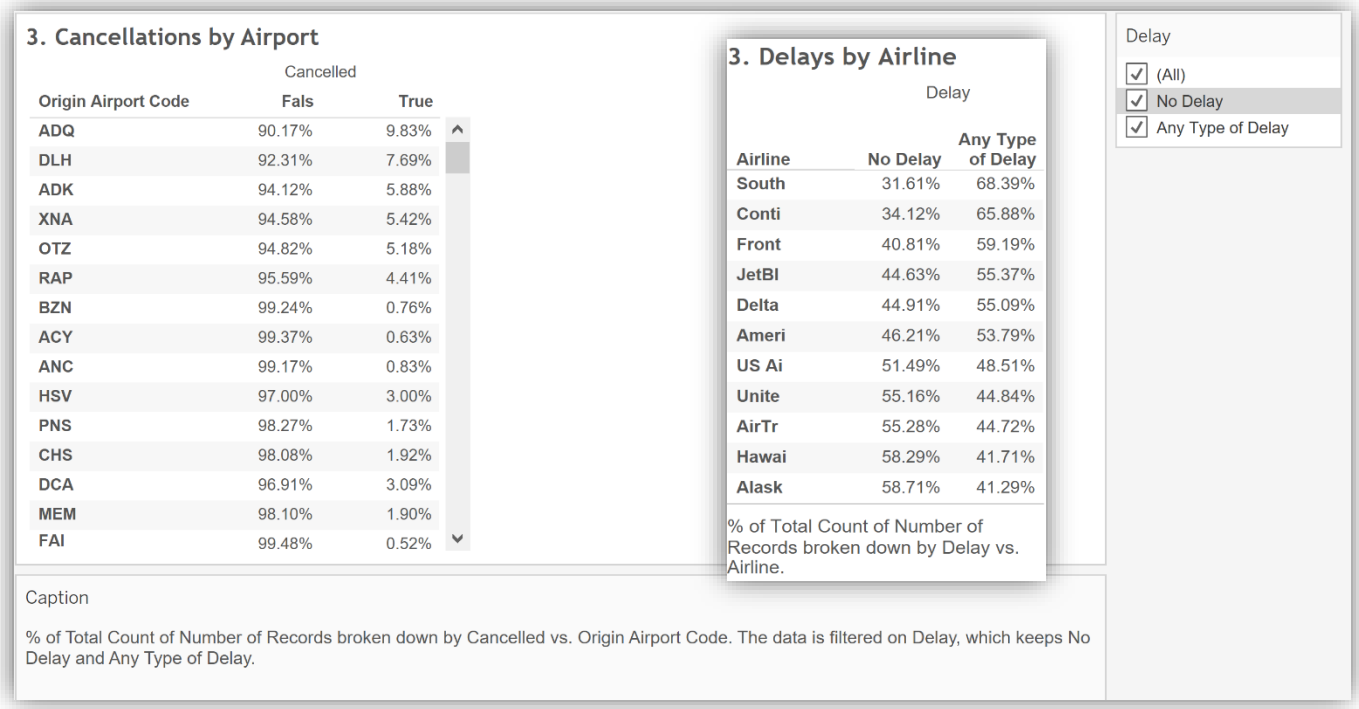


The trend of sum of Number of Records for Flight Date Day.

3. The FAA is not overly interested in who operates flights on a regular basis in this report. However, they would like to examine delayed flights more as they think delayed flights are the major cause of flight tower staffing problems. Explore the delayed flight information. Is there one airline or airport that seems to be the center of the delayed flights? Does departure and arrival location have an affect on delay? Is there a particular sequence that is more associated with delays than others? **(3 points)**

Solution: Southwest Airlines has more flights than any other airline at 435,818 flights and they had a larger proportion of flights experiencing any type of delay 68%.

The airport code ADQ has the largest percentage of cancelled flights – 9.8%.



3. Cancellations by Airport

Origin Airport Code	Cancelled: Fals	Cancelled: True
ADQ	90.17%	9.83%
DLH	92.31%	7.69%
ADK	94.12%	5.88%
XNA	94.58%	5.42%
OTZ	94.82%	5.18%
RAP	95.59%	4.41%
BZN	99.24%	0.76%
ACY	99.37%	0.63%
ANC	99.17%	0.83%
HSV	97.00%	3.00%
PNS	98.27%	1.73%
CHS	98.08%	1.92%
DCA	96.91%	3.09%
MEM	98.10%	1.90%
FAI	99.48%	0.52%

3. Delays by Airline

Airline	Delay: No Delay	Delay: Any Type of Delay
South	31.61%	68.39%
Conti	34.12%	65.88%
Front	40.81%	59.19%
JetBl	44.63%	55.37%
Delta	44.91%	55.09%
Ameri	46.21%	53.79%
US Ai	51.49%	48.51%
Unite	55.16%	44.84%
AirTr	55.28%	44.72%
Hawai	58.29%	41.71%
Alask	58.71%	41.29%

% of Total Count of Number of Records broken down by Delay vs. Airline.

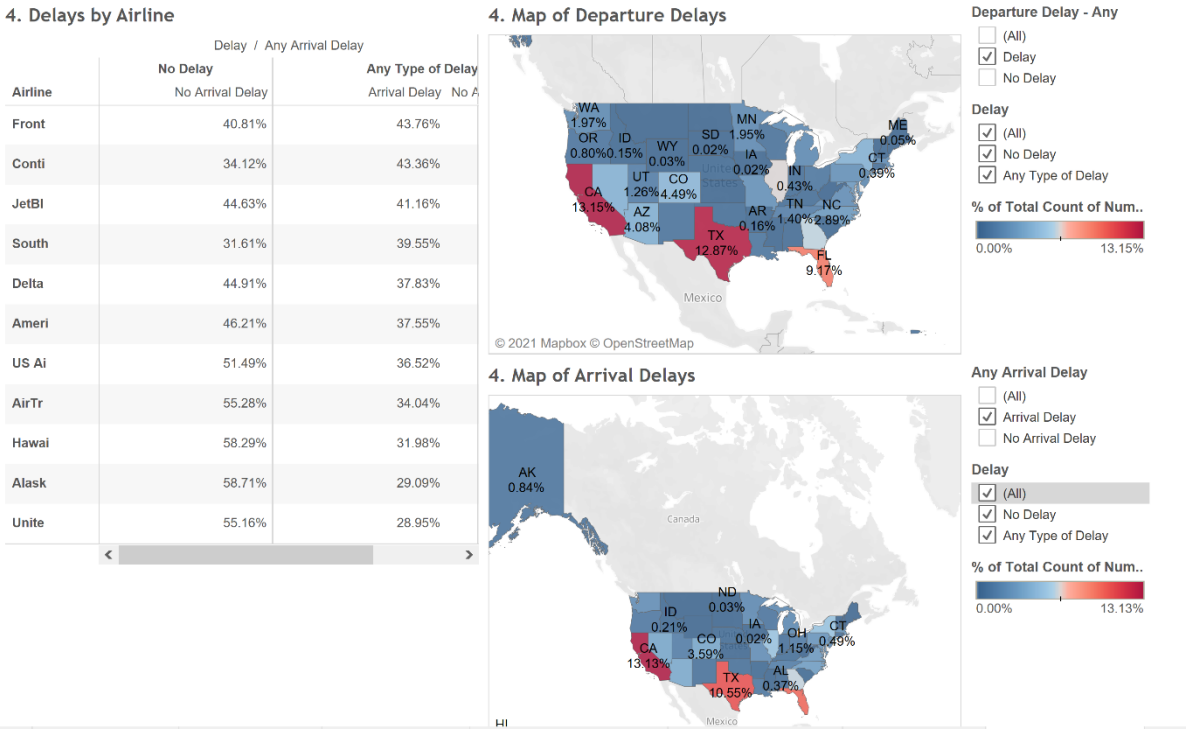
Delay
- (All)
- No Delay
- Any Type of Delay

Caption

% of Total Count of Number of Records broken down by Cancelled vs. Origin Airport Code. The data is filtered on Delay, which keeps No Delay and Any Type of Delay.

4. They would also like to know which states tend to experience the longest departure delays. **Create a map that visualizes the departure delay that you can expect in each origin state**. **Allow the user to filter by airline.** Colors should range from dark blue for states with short departure delays to dark red for states with long departure delays. **(2 points)**

Solution:



4. Delays by Airline

Airline	Delay / Any Arrival Delay: No Delay: No Arrival Delay	Delay / Any Arrival Delay: Any Type of Delay: Arrival Delay
Front	40.81%	43.76%
Conti	34.12%	43.36%
JetBl	44.63%	41.16%
South	31.61%	39.55%
Delta	44.91%	37.83%
Ameri	46.21%	37.55%
US Ai	51.49%	36.52%
AirTr	55.28%	34.04%
Hawai	58.29%	31.98%
Alask	58.71%	29.09%
Unite	55.16%	28.95%

4. Map of Departure Delays

Departure Delay - Any
- (All)
- Delay
- No Delay

Delay
- (All)
- No Delay
- Any Type of Delay

% of Total Count of Num..
0.00% 13.15%

4. Map of Arrival Delays

Any Arrival Delay
- (All)
- Arrival Delay
- No Arrival Delay

Delay
- (All)
- No Delay
- Any Type of Delay

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Deliverables:

- As you complete the exercise, create a report in Microsoft Word where you answer the questions in the exercise description.
- Copy and paste supporting visualizations/tables/diagrams as needed to an appendix to justify any of your answers.
- Make sure you *print your name, student ID#, student email on the cover page* of the report and turn-in the report as communicated by your instructor.
- Please also put a running *header/footer with your name, on each page of your exercise* solution report.
- Failure to follow these instructions will result in deduction of points