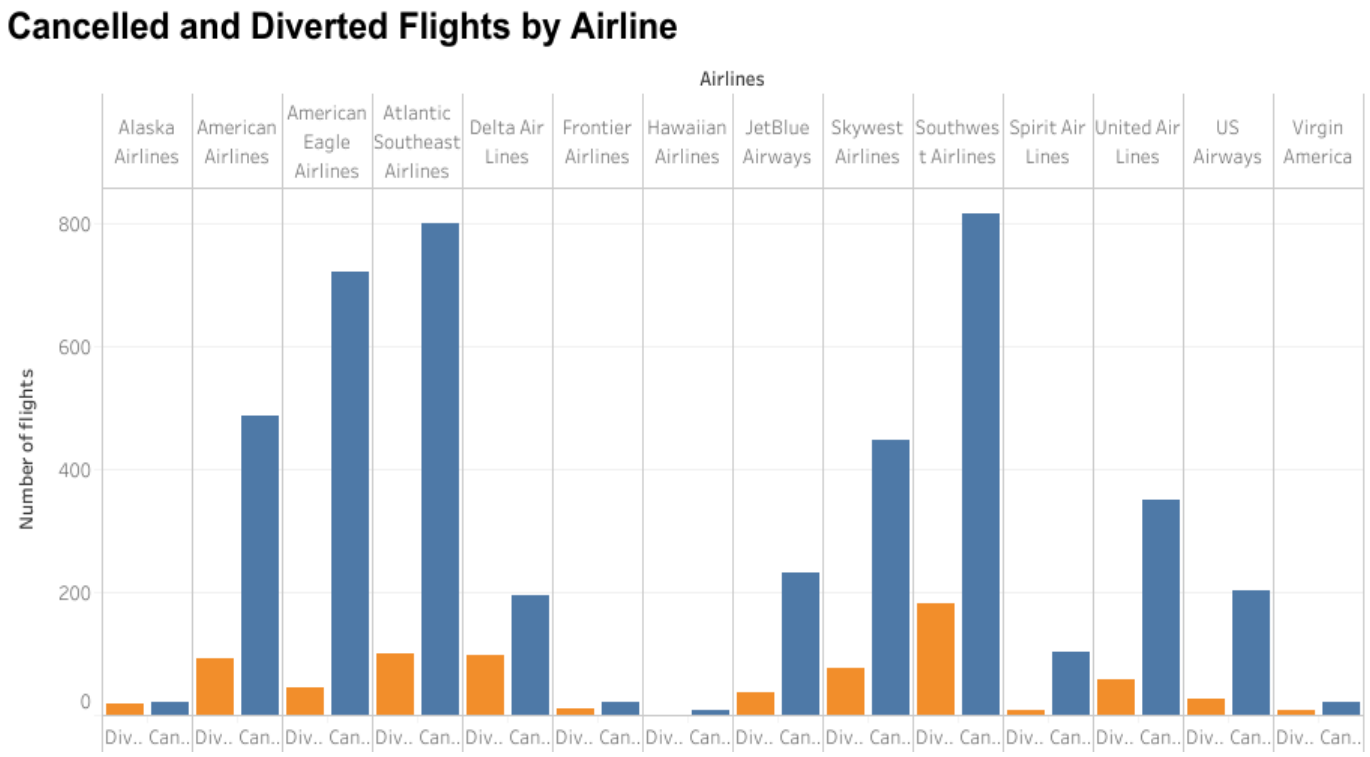
Project 4: Build Data Dashboards

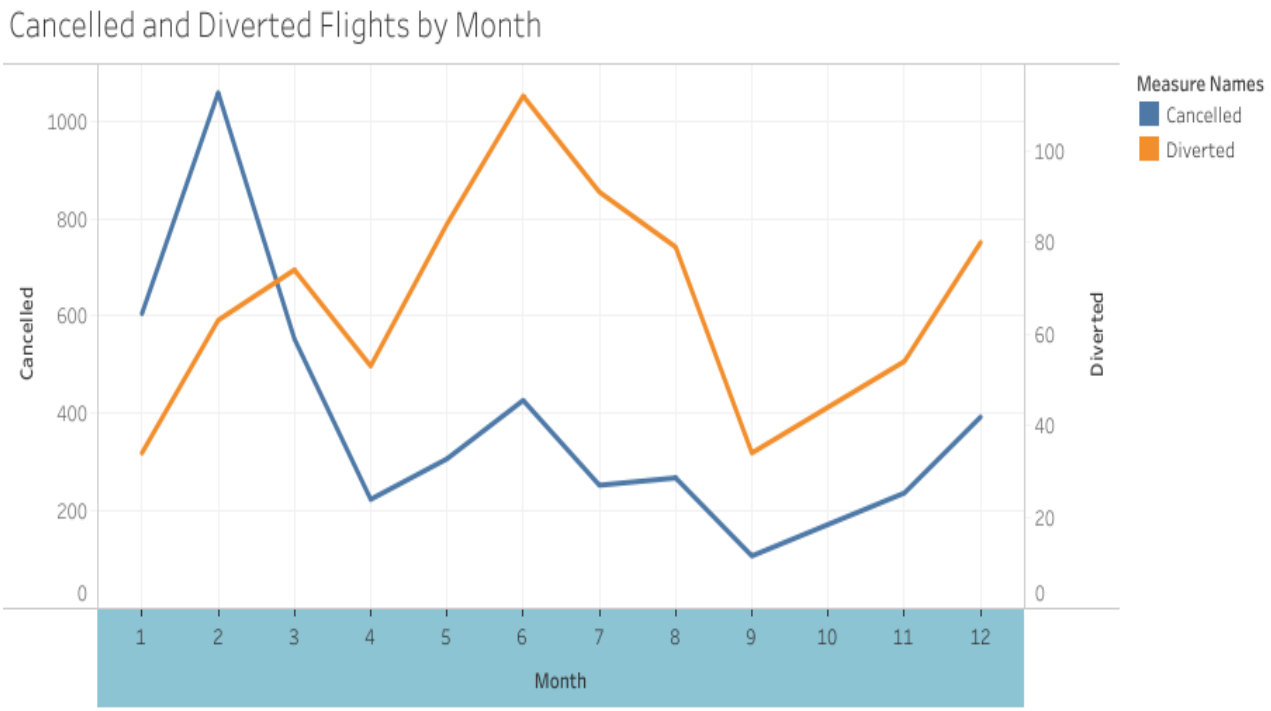
Insight 1: Cancelled and Diverted Flights by Airline



Summary: From the visualization, we can observe that for each airline company, there are two bars, the blue bar represent canceled flights and the orange bar represent diverted flights. From this bar chart, we can see the performance of the airline companies in terms of canceled and diverted flights.
It appears that Southwest Airlines is the carrier with high canceled (818 flights) and diverted (181 flights) flight numbers followed by Atlantic Southeast Airlines with 800 canceled flights and 99 diverted flights.
On the opposite side, Hawaiian Airlines (canceled: 8; diverted: 1), Virgin America(canceled: 22; diverted: 9), Frontier Airlines (canceled: 22; diverted: 10), Alaska Airlines(canceled: 22; diverted: 18) are the best airlines companies.

Design: For this visualization, I used the side-by-side bar chart to compare two dimensions for every Airline company (Cancelled and Diverted Flights) with different colors (blue and orange) to distinguish bars.

insight 2: Cancelled and Diverted Flights by Month



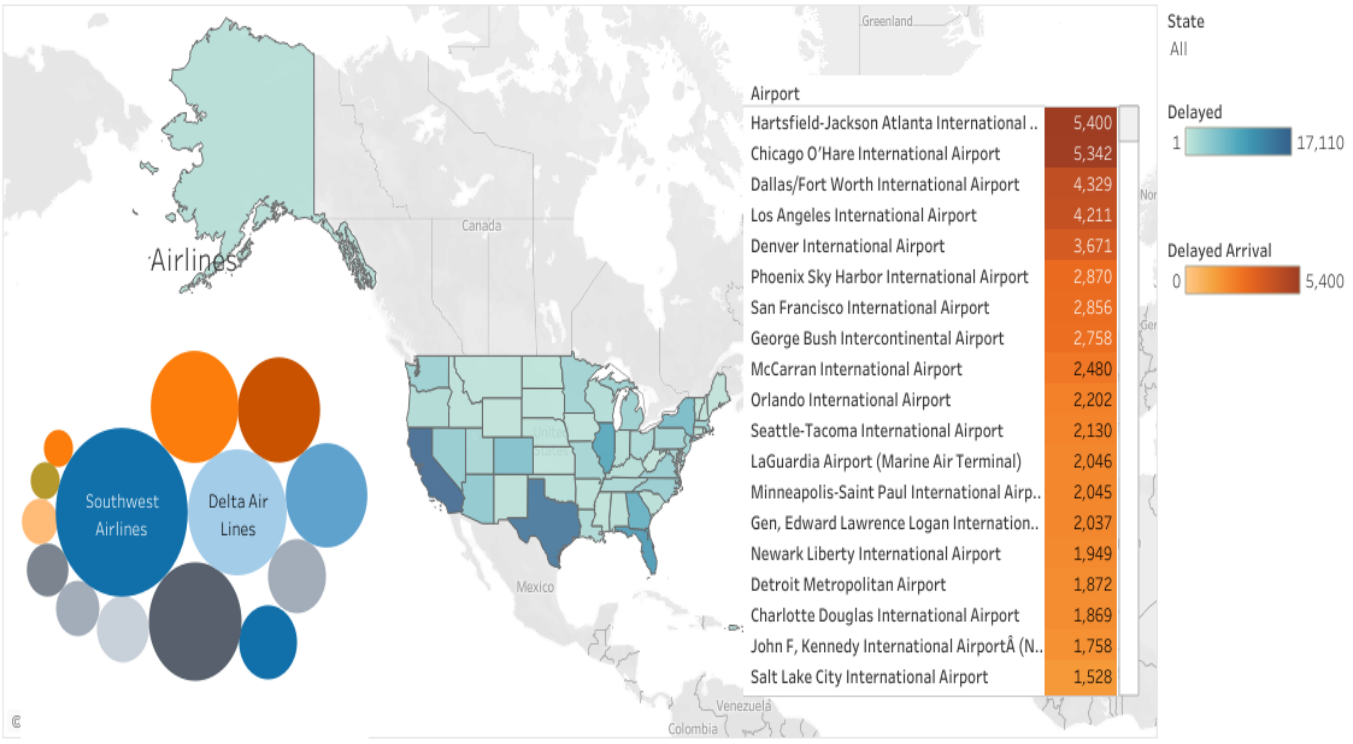
Summary: From this visualization, we can explore canceled and diverted flights by month of the year 2015 showed in line chart which the blue line represent canceled flights and the orange line represent diverted flights with two different y-axis ranges.
From the graph, we can observe a positive correlation between the two lines and that means the more diverted flights the more flights have been canceled, the opposite is also true.
It appears that the most canceled flights occur in February (1058) and the most diverted flights occur in June (112).

September is the best month where canceled and diverted flights have the lowest numbers with 108 canceled flights and 34 diverted flights.

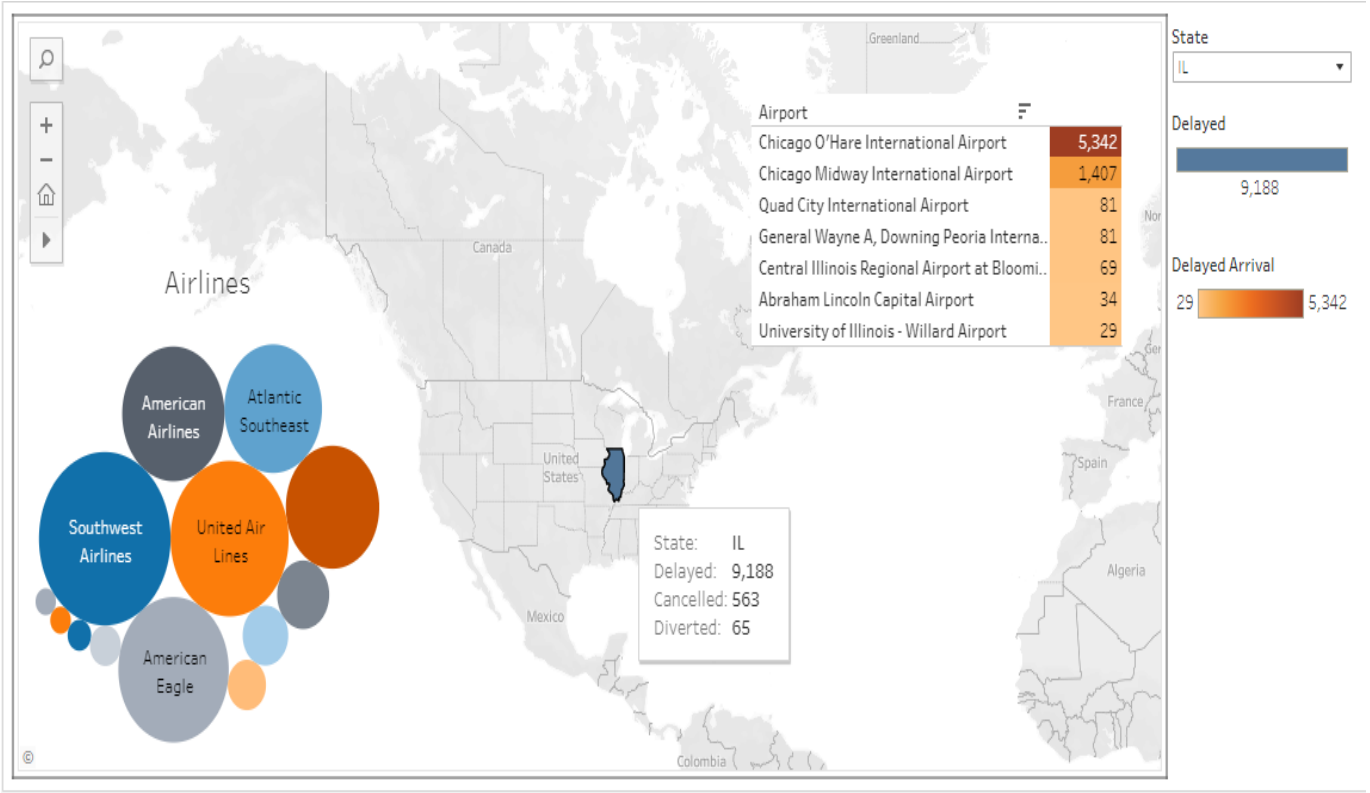
Design: For this visualization, I used a dual-line chart because It allows for more than one measure to be represented with two different axis ranges and also shows trends and how data has changed over time. For these reasons, this type of chart is perfect to present canceled and diverted flights month by month. I choose the same colors (orange and blue) as the precedent visualization. I didn’t feel any changes to the colors were needed.

Insight 3: The best and worst Airlines and Airports by State in terms of delays

Before Filter:



After Filter:



Summary: From the Dashboard, we can see 3 charts: a map, a packed bubble, and highlight tables.
From the map, it is clear that the most number of flights delayed in the state of California and Texas.
From the packed bubble, we can see that Southwest Airlines and Delta Airlines are the most companies with the highest number of delayed flights, and Virgin America, Hawaiian Airlines, and Frontier Airlines are with the lowest numbers of delayed flights in the whole country of America.
From the highlight tables, we can see a list of airports ordered from the highest to lowest numbers of delayed flights.
For instance, if we use the filter and choose the state of Illinois, the state will be highlighted on the map and if we put the cursor on it more information will show of canceled (563) and diverted (65) flights.
Changes also will happen to packed bubble and highlight tables graphs due to the filter.

From the packed bubble chart, we can observe the best and worst airlines by the state of Illinois, and from the highlight tables chart, we can see the best and worst airports in the state of Illinois in terms of delays and that is:
Alaska Airlines is the best carrier and Southwest Airlines is the worst with 47 and 1972 flight delays.
Chicago O'Hare International Airport is the worst airport in the state of Illinois and the University of Illinois - Willard Airport is the best with 5342 and 29 flight delays.

Design: For this Dashboard, I used 3 different charts.
For the first chart, I used a map because it is the best graph to visualize geographical data. I chose blue as a color, the darker the shade the higher the number of flights delayed, and that makes it easier to quickly spot which state has high/low delays. I added a state filter applied also to the other charts, and two tooltips that display information about the number of canceled and delayed flights for each state clicked on the map.
For the second chart, I used a packed bubble chart because it is perfect for airlines data in which the size of the bubble indicates the volume of data (number of delayed flights) and the color of the bubble indicates the airline company name and that enable deeper comparisons.
For the third chart, I used highlight tables because it allows comparing categorical data (airports) using color, the darker the shade the higher the number of delayed flights. I chose the orange color because it matches the color of the map (blue).

Resources:

https://www.youtube.com/watch?v=9xqHA732LMA