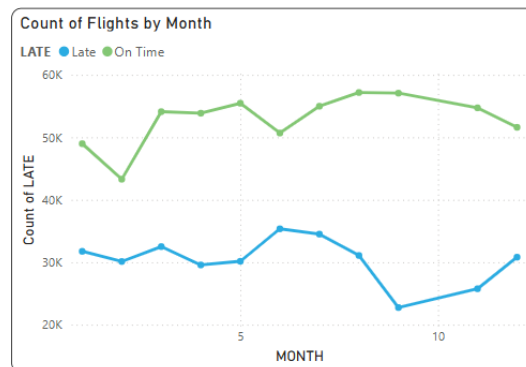




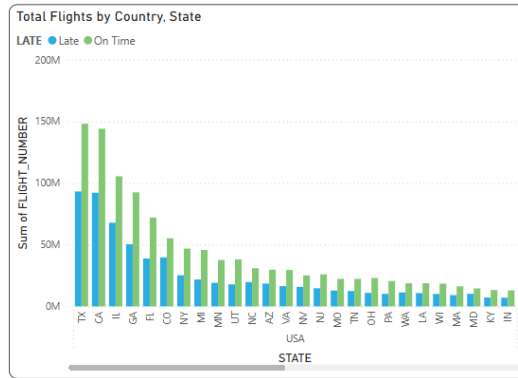
# Flight Delay Analysis

Melissa Harrison

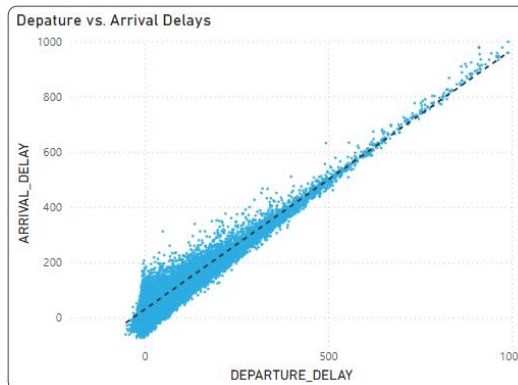
This Flight Analysis Dashboard was designed to provide an overview of flight delays, allowing us to easily visualize key performance metrics, identify trends, and make data-driven decisions. This analysis aims to enhance Cloud Nine's efficiency and optimize how to best use resources by utilizing historical flight data. By visualizing delay patterns across airlines, we can start to see which factors have significant impact on delay and begin the process of pinpointing problem areas and how to proactively create solutions. This report explores the functionality of the dashboard, detailing how it supports strategic decision-making in the aviation industry.



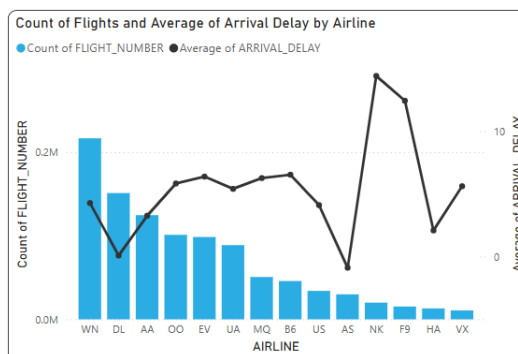
This chart shows the count of flights for each month divided into late and on time flights. With this we can see that there tends to be a dip in flights being late from September to November which is different than we'd expect for weather conditions and holidays. This chart also includes drill-down, so we can look deeper into each month, so we could look at trends around holidays, or see where the most flights on time fall.



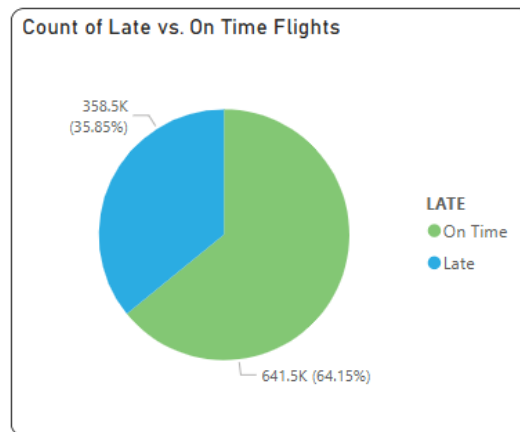
This chart shows the different counts of flights that are late or on time, based on country, or state. The x axis has been sorted in descending to show the most to least flights left to right. Since this chart enables drill down, we can go down from Country to state, and from there select a specific state to see the cities the flights originated from.



This scatter plot shows us the trend of departure vs arrival delays with a trendline to highlight the correlation between the two. We can see that there is approximately a 1 to 1 ratio where the delay in departure is almost equal to the arrival. However, we can see that for shorter delays there may be some longer arrival delays.



This is a combination chart with the bars showing the total number of flights on the left y axis and the line showing the average arrival delay on the right. We can see that even the airlines with the highest number of total flights do not automatically have the highest average arrival delay. Southwestern has the most flights but only about 4.5-minute delay vs Spirit airlines with one of the lowest flight counts has the highest average delay of over 14 minutes.



This pie chart shows the percentages and counts of each flight divided by whether the flight was late or on time. From this we can see that over 64% of the dataset was on time and 35% late. While this chart does not have drill-down, we can use slicers to gain further insights with this chart.

The slicers in this dashboard include distance and airline. With the distance slicer, you can click and choose the minimum and maximum distance you would like to see, like only selecting long distance flights, or a specific range. For instance, if we drill down to only Utah, we can see that all flight over 1,000 miles is from SLC airport, rather than smaller ones like St. George. The other slicer lets you select one or multiple airlines to filter the data down to, or if nothing is selected then it shows all airlines.

From this data, we can conclude a few things. First of all, of the flights recorded, 35% are late, however if an airline has more flights, it does not automatically mean that there is a correlation of more late flights. Yet, there is a solid correlation between departure and arrival delays. We can also see the trends of the ratio of late to on time flights over time, and we notice an interesting dip in late flights from September to November. Overall, from this dashboard there are many ways to drill down in the data to find insights on delays for specific airlines, months, states, and cities, and it is a nice way to visualize the trends that may require further investigation.