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Data Dashboard Project

Insight 1

Is there a correlation between the number of weather delays and arrival delays?
Link: Weather Delay Contributions to Arrival Delay | Tableau Public

The tree map illustrates the contribution of weather delays to arrival delays across different airlines. The squares represent the airlines and the size of the squares represents the sum of weather delays. Each square is shaded according to the sum of arrival delays. The larger the square, the higher the sum of weather delays and the darker or more intense the color of the square, the higher the sum of arrival delays. Tooltips were added that displays the airline name, the numerical sum of arrival delays, the numerical sum of weather delays, and the percentage of weather delays to arrival delays. Shades of blue were chosen for this map to help make the graph more legible, to reduce distractions from multiple colors, and is acceptable for most viewing audiences, including individuals with colorblindness. A month filter was added in order to be able to conduct analysis on either specified months or during the duration of the whole year. After investigating the tree map, I observed that a larger square size did not always produce a larger weather delay percentage. Some of the smaller squares had larger percentages then squares that were larger than that particular square. It could not be concluded if there were a correlation between the two delays.

I then decided to add a scatter plot with the trend line to obtain a better view to investigate if a correlation existed. For the year of 2015, a R-squared value of 0.273 and P-value of 0.552 was given. A R-squared value of 0.273, indicates that 27.3% of the variation in arrival delay can be explained by weather delay, meaning there are 72.7% other factors that are influencing arrival delays. However, the P-value of 0.552 suggests that this relationship is not statistically significant and the observed correlation could be due to random chance. The scatter plot indicates there is a moderate correlation between arrival delay and weather delay but other factors are influencing arrival delays other than weather delays.

Insight 2

Which states contains airports with the most cancelations?
Link: Cancelations By State | Tableau Public

This graph contains a map of the United States where each state is shaded according to the total number of flight cancellations. The darker or more intense colors represent states with higher cancellations, and the lighter colors represent states with lower cancellations. I decided to keep the auto-generated colors, blue and green, of the map because the color scheme is ideal for most viewing audiences, including those with color blindness. In addition, the color scheme allows for viewing the map without distractions from the colors, keeping the focus on the data. There are two filters available, month and airline. The month filter allows the viewer to specify what time period they would like to view while the airline filter allows the viewer to choose which particular airline/s they would like to view cancelation information.

From the map we can see that the top three states with the most cancelations for the year 2015 are Texas (661), Illinois (537), and California (411). Having the month filter is beneficial, because analysis can be conducted on different months to see how seasons and weather affect flight cancelations. While New York is fourth in overall total cancelations for the year, it is first during the month of January with 75 cancelations when snow is more prevalent in that region.

Insight 3

What is the average departure delay by airline?
Link: Average Departure Delays | Tableau Public

In this dashboard, there are two charts, a line chart and a bar chart. The line chart depicts the average departure delays per month for each airline. The airlines are portrayed by a different color line and the color palette color blind was used to make the lines distinguishable for most viewing parties. Hovering over a point on the line will reveal a tooltip with the name of the airline, the month the data point represents and the average departure delay for that particular month. The chart can be filtered by airline and can portray the average departure delays for either a single airline, all the airlines, or any combination of airlines to compare for analysis. Observing the line chart reveals that Spirit Air Lines had the highest monthly departure delays in June of 2015 with an average of 37.39 delays, followed by Frontier Airlines Inc with the average of 26.95 departure delays in the month of February.

In the bar chart, each bar represents an airline, and the height of each bar shows the average departure delay for that airline, with the average centered over each bar. The color blue was chosen for all of the bars to reduce distraction from the data. This visualization allows you to compare the performance of different airlines in terms of their departure delays. Filters have been added to allow the graph to depict departure delays for specific airports during a specified time frame based on months. Inspecting the graph reveals for the year of 2015, Spirit Air Lines lead the highest total average departure delays at 17.37, while Hawaiian Airlines Inc. had the lowest total average at 0.17 departure delays.