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Udacity Tableau Data Visualization Project

Link to my first Tableau Viz:

https://public.tableau.com/views/FlightCancellationDashboard_16803198802880/Dashboard1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Summary:

This is a tableau dashboard that shows the total number of cancelled U.S. flights in 2015 by state and territory via a map, bar chart, and highlight table. The highlight table also shows a further breakdown of flight cancellations originating at airports within each state/territory. Montana had the fewest cancellations at just 3, while Texas had the most at 668.

Design:

This dashboard contains an interactive shaded map that can be used as a filter to view airport cancellation information via a neighboring highlight table. Conversely, the highlight table also acts as a filter to isolate the state/territory on the map to provide clarity for those not knowing geographic locations. I also included a solid-colored bar chart that includes states and territories ordered from highest number of cancellations to lowest, only including those states and territories with data of at least one cancelled flight. I added a tooltip to the bar chart that also displays the cancellation percentage of flights originating in each state/territory. For the shaded map and highlight table, I chose the color-blind palette to assist those affected by Color Vision Deficiency (CVD).

Resources: N/A

Link to my second Tableau Viz:

https://public.tableau.com/views/CausesofU_S_FlightCancellations/CausesofU_S_FlightCancellations?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Summary:

The “Causes of U.S. Flight Cancellations” tableau story presents an analysis of flight cancellations in the U.S. from the year 2015. I decided to answer the question “What is the main cause of U.S. flight cancellations?” with the first chart. This chart illustrates that more than half of all cancellations are due to weather. Another chart shows flight cancellations by carrier, with Southwest Airlines having the most cancellations at 818, and Hawaiian Airlines having the fewest cancellations at just 8. This is likely due to the popularity of each airline, and not necessarily an indictment of Southwest Airlines. Continuing on, a table presents total cancellations by month and day of the week (not calendar dates) and interestingly shows that nearly 8% of all cancelled flights in the year occurred on Sundays in February. The analysis shows that most cancellations happen in the winter months, aiding in the analysis that inclement weather is the largest cause of flight cancellations. Side-by-side maps show the total number of flights for each U.S. state/territory in 2015 followed by the percentage of flights cancelled in each state/territory. This is to show that the number of flights in each state doesn’t directly correlate with

cancellation rates. The map illustrates that states in New England and the Midwest have higher percentages of weather-caused cancellations. Oddly, states like Minnesota and South Dakota, despite their notorious cold temperatures and snowy conditions, have low cancellation percentages as a result of weather.

Design:

Throughout this story, I continued to use CVD-friendly color choices. I effectively used a pie chart to show the distribution of reasons for flight cancellations. I used a bubble chart to represent total number of flight cancellations per airline by bubble size. A highlight table cross-referenced the months of the year with days of the week to show the average cancellation percentage of a particular day in a particular month. For example, Sundays in February had the highest average flight cancellation rate. I also included the grand totals for each row and column. I used this to determine February was the worst month for cancellations, and Sundays were the worst day. I then used interactive shaded maps to display the total number of flights per state as well as the cancellation percentage per state. I chose to split this information between two maps place side-by-side for quick reference. A highlight table and slider that display the total number of flights per state was added as filters for these maps. Finally, I included another shaded map that displays the states' and territories' average weather cancellations as colors. I added a tooltip that shows the average weather delay percentage per state, as well. To the side is a filter by state, a slider to filter by weather cancellation percentage, and a slider that filters by weather delay percentage.

Resources: N/A

Link to my third Tableau Viz:

https://public.tableau.com/views/CausesofU_S_FlightDelays/CausesofU_S_FlightDelays?:language=en-US&:display_count=n&:origin=viz_share_link

Summary:

The "Causes of U.S. Flight Delays" tableau story analyzes flight delay data from 2015 and reveals interesting insights about airline performance. Specifically, the story examines the average departure and arrival delays by day of the week and filterable by carrier. While the arrival and departure delays show similar patterns, the data indicates that arrival delays tend to be lower. This could be due to a number of possible factors, including but not limited to pilot efficiency or even the airlines overestimating arrival times intentionally. When looking at the breakdown of the different types of departure delays, Hawaiian Airlines Inc. stands out with a notable spike in security delays on Wednesdays, which is likely due to a single incident but not verifiable with the data provided. The story also highlights the main goal of this analysis that delays caused by airlines themselves are the primary cause of flight delays in the U.S., with Hawaiian Airlines Inc. having the highest percentage of self-imposed airline delays. A treemap further illustrates the percentage breakdown of self-imposed airline delays, intriguingly showing that low-budget carriers have the lowest percentage of such delays.

Design:

I again used CVD-friendly color choices for every visualization in this story. I used several line plots for sequences, specifically displaying average flight delay times per day in minutes over the span of a week.

I then used bar charts for the categorical variables of departure type delay percentages. I then used a treemap to represent the airline delay type by carrier and included a filter for airline delay percentage.

Resources: N/A