BAND

Project 4:
Build a data visualization

Flight Delays and Cancellations

By: Ibtisam Alzahrani

1/ Which airlines or airports have the worst delays?

- **Link:**
  https://public.tableau.com/app/profile/ibtisam.z/viz/DashboardFlightdelays/DashboardFlightdelays

- **Summary & Design:**
  I created this dashboard containing two visualizations, to determine top US airports and airlines with the worst delays and cancellations in the year 2015. I chose a bar chart to present the data as it's best suited for comparing numeric values against subgroups of data. I chose a proper coloring for the visualization as well to make it visually appealing.

  When we hover on the charts, we can see the airline/airport name with the corresponding delay/cancellation count. Airlines such as "Southeast Airlines", "Atlantic Southeast Airlines" and "American Eagle Airlines" have frequent delays and cancellations amongst other airlines. Wherars airlines like "Alaska airlines" and "Hawaiian Airlines" have very few delays and cancellations. We also see how flight delays in some months are fewer than others. Months like "January" and "February" are the highest in delays of all.

  As to airports, we focused on comparing delay/cancellation incidents with the origin airport. Airports such as "Chicago O'Hare International Airport" and "Dallas/Fort Worth International Airport" have more delayed/canceled flights as the chart suggests, and it also varies based on months or days of week.

- **Resource:**
  How to find the top N within a category in Tableau

2/ What causes delays?

- **Link:**
  https://public.tableau.com/app/profile/ibtisam.z/viz/StoryFlightsdelaysreasons/StoryFlightsdelaysreasonsperstate

- **Summary & Design:**
  I created a story to answer this question, which contains two story points to convey the insights. In the first chart I chose a pie chart to showcase different groups and how much they differ in terms of count. For the second chart, I chose a map to convey each state with its relevant data. I also chose a proper coloring for both charts to make sure they stand out and be understandable.

  By looking at the first chart in the first story point, we can see 3 reasons for delays/cancellations. We can tell that “Weather” conditions have a much larger impact on flight delays. Especially in seasons such as “Winter”.

  As to the second story point, we see each delay reason per state. It’s interesting how states like “Texas” and “Illinois” have been the most affected by the weather, especially when it’s winter. Additionally, “National Air system” is the least occurring delay reason, which indicates that most delays happen either due to weather conditions or airline/carrier delays.

- **Resource:**
  N/A

3/ What is the average departure delay, and how does it vary based on different factors?

- **Link:**
  https://public.tableau.com/app/profile/ibtisam.z/viz/DashboardAvgdeparturedelay/DashboardAvgdeparturedelay

- **Summary & Design:**
  In this dashboard, I created two charts to explain how average departure time differs for different given factors. I chose to visualize with a bar chart and a line chart to convey the average time difference for each airline. The two charts have a proper coloring and are visually appealing and easy to understand.

  The first bar chart shows each airline with its average departure delay time, along with a filter for delay reasons. Naturally, average departure delay time is the highest when the delay reason is "Weather", and the least when it's "National air system". The chart also suggests that flights that have been delayed/canceled due to weather, are delayed for an average of 4.7 hours.

  In the second line chart, we're comparing the average departure delay time against months of the year. Mostly "June" has the highest average of departure delay time, whereas "September" has the least average delay time. It's important to note that there isn't much flight data in "September", so this might not be as accurate as it seems.

- **Resource:**
  How to Tableau: Remove Unwanted Values (Nulls) From Filters