Tableau Project Report

1. What is the number of flights of each airlines company, which airlines / states have the worst records in terms of flight cancellations, and what are the causes for these cancellations?

Link:
https://public.tableau.com/app/profile/m5503/viz/AirlinesFlightsandCancelledFlights/FlightsCancelledFlights?publish=yes

Summary: The dashboard shows that Texas (TX) had the greatest cancellations with a total of (668), while Delaware (DE), Guam (GU), and the Virgin Islands (VI) had the lowest with zero cancellations. The pie chart shows the causes for cancellations, with weather cancellation in the lead by (2,397), airline/carrier cancellation (1,260), and lastly national air system cancellations (776).

The bar chart, on the other hand, displays the number of flights across the United States, with Southwest Airlines co. taking the lead with (59,437) flights and Virgin America with minimum number of (2,978) flights.

The dashboard also has two filters that may be used to determine the number of flights, total number of cancellations, and causes of cancellations in any state and/or airline by using either filter or a combination of both.

Design: the dashboard consists of a map (provides a visualization of a geographic region; in our case the states and cities of USA) shows cancelled flights distributed throughout all states (in the United States), a pie chart for comparing between limited number of categories; (in our case) the reasons of cancellation plus a bar chart that shows the total numbers of flights in USA distributed on the airline companies (best for comparing values between many categories) . All these three charts are connected together by the Airline filter and the state filter as well as a value indicator for the total cancelled flight and the range of state cancelled flights (maximum to minimum) for any chosen option on airline filter and state filter.

2. What are the main causes of flights delays, and which have the most impact? How these delays vary from one month to another (time of year).

Link:
https://public.tableau.com/app/profile/m5503/viz/CausesofDelays_16617200861370/AirlineandDelayTypes?publish=yes

Summary: this dashboard shows the causes of delays and how they change by the time of year (from month to month). Most delays come from departure delays with sum of (2,649,459) the least factor of these delays is of security reasons with only sum (4,702).

All these delays vary by time, in general; maximum delays occur on June as of (360,568) for departure delays, (248,586) for arrival delays and (119,651) airline delays. While minimum delays occur on September as of (114,342) for departure delays, and (-17,496) for arrival delays.

We may define any cause of delay in any airport or/and airlines by using one of the related filter or combination of both.

Design: a dashboard consists of two interrelated graphs, a bar graph for the causes of delays (sum of each cause of delay) plus a line chart for the changing in these causes by time (on different months of the year). Provided with two filters; one for Airport and the second for Airline companies. Selecting different combinations of Airports and airlines will show us the value of each cause of delays plus its changing by time.

3. Which is worse in terms of weather delays vs airline delays; which airline has the worst record in both; and how do they vary by day of the week?

Link:
https://public.tableau.com/app/profile/m5503/viz/WeatherDelaysvsAirlineDelays/WeathervsAirlineDelays?publish=yes

Summary: the bar line shows that the Southwest Airlines Co. has the worst record in airline delays with a maximum sum of (182,670) and Virgin America Airline has the best record with only (7,583); while the worst weather delays have been against Delta Airlines Inc with maximum (32,138) and the minimum weather delays have been against Hawaiian Airlines Inc. with only (412). It is obvious also that the Airline delays have a greater impact on flights delays than the weather. Both delays vary by day of week, and maximum delays occur on Sundays with (154,562) for airline delays and (31,225) for weather delays while minimal delays occur on Fridays with minimum airline delay (115,712) and weather delays (19,134).

We can also identify these two delays for any airline or / and any airport by utilizing the linked airline and airport filters.

Design: a dashboard with a line chart (showing the changes over time) and a bar chart comparing between two categories (weather delay vs Airline delay). there are also two filters for airline and airport for further details about these variables

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Resources: Udacity lessons and tutorials on the Tableau website and YouTube.