Business Analytics

Data Visualization Project

Build a Data Dashboard Project

2015 Flight Delays and Cancellations

Dashboard 1

Link:
https://public.tableau.com/app/profile/najd2994/viz/ProjectFlight/Dashboard1-Originairportscancellationreasons

Summary #

This map shows the routes leaving from my nearest airport (DCA). I wanted to know what routes are cancelled, the reason and when did this occurred.
February has the largest recorded cancellation at twenty eight. Twenty three was caused by weather. January, February and March that has high cancellations as
 expected due to weather and June has the highest cancellation caused by Airline at seven.

Design #
Because this is a flight data, I wanted to visualize flights as origin to destination plus I'm curious to where I could fly direct =) I wanted the routes to pop out so I
chose a dark themed map and bright colors to show the routes and stacked bar chart for cancellations. I initially wanted to just color code the bars with the
cancellation reasons, but I decided to add additional information regarding the cancelled route, so I added in details about when the cancellation occur and what
route it was.

Map Build

I initially referred to this tutorial https://youtu.be/ckQNNhCfUW4 on how to build the map but I could not get it to work properly, plus I'm not really keen on the
straight paths. Then I found this tutorial https://www.theinformationlab.co.uk/2020/09/14/how-to-create-an-origin-destination-map-in-tableau/
I initially tried to do everything in tableau, but since I'm new to this and with a deadline, I decided to use excel to add the necessary latitude and longitude to both
origin and destination routes since this is not supplied in flights.csv file. The airports.csv file had three airports with missing values for latitude and longitude so I
had to supply those. Using lookups in excel I was able to add the the necessary latitudes and longitudes to origin and destination airports referencing the
airport.csv file. Then I followed the second tutorial to create the origin destination map.

Resources:

https://youtu.be/ckQNNhCfUW4
https://www.theinformationlab.co.uk/2020/09/14/how-to-create-an-origin-destination-map-in-tableau/

Dashboard 2

Link:
https://public.tableau.com/app/profile/najd2994/viz/ProjectFlight/Dashboard2-Routeswithmostflights

Summary

I wanted to know what are the busiest routes and I wanted to visualize it in the map.
Dashboard 2 shows that the busiest are CA, NY, IL, and TX. I was also curious which airlines have the largest operations in this flights. American Airlines and United Airlines are the two largest carriers in this routes. Despite Southwest having the most recorded flights in this dataset it comes fourth when filtered for the top ten most busiest route.

Design

I chose a route map and bar chart for the routes because I wanted to visualize the actual flights and how each routes compare to each other with bar charts. Tree maps for the airlines share of these busiest routes. I chose a light themed color to contrast the dark shade of blues with of the tree maps and bright flight paths to depict the routes.

Resources

Dashboard 3

Link:
https://public.tableau.com/app/profile/najd2994/viz/ProjectFlight/Dashboard3-Routeswithmorethananhourweatherdelay

Summary

Since weather is the leading cause of flight cancellations, I wanted to see if the flights was not cancelled how long were delays? What routes had the most delay? HDN to DFW had the worst delay at 243 mins. November, February and January has the worst delay for this routes.

Design

Origin to destination map color coded by minutes delayed, a bar chart and line graph to show the weather delays over months.

Resources
N/A

Dashboard 4

Link:
https://public.tableau.com/app/profile/najd2994/viz/ProjectFlight/Dashboard4-CancelationsbyState

Summary

This dashboard looks at the states with most cancellations. TX, IL and CA has the most cancellations followed by NY and FL. February has most cancelled flights while September has the lowest cancelled flights. December, February, March and June has the most cancelled flights.

Design

I chose a combination of bar chart and line chart to graph the cancellations over the months, color coded with the cancellation reasons. I kept styling to minimum.

Resources
N/A

Dashboard 5

Links:
https://public.tableau.com/app/profile/najd2994/viz/ProjectFlight/Dashboard5-OnTimeDelaysbyAirline

Summary

I wanted to know what percentage of on time and delayed flights each airlines has. The FAA considers it a delay if a flight arrived later than 15 mins compared to the scheduled arrival. For this I had to create a calculated field and percentage analysis of each airlines' flight. Hawaiian and Alaska are the top two but has smaller operations. Delta and American Airlines both scored high in on time flights while Frontier and Spirit are the last two in the list. Southwest having the biggest operations places eight in the list.

Design

A stacked bar chart to show the on time and delayed arrivals and a cross table to show the percentages. Styling was kept to a minimum. Highlighters provided to aid in viewing percentages in the table.

Resources
N/A