Project 3

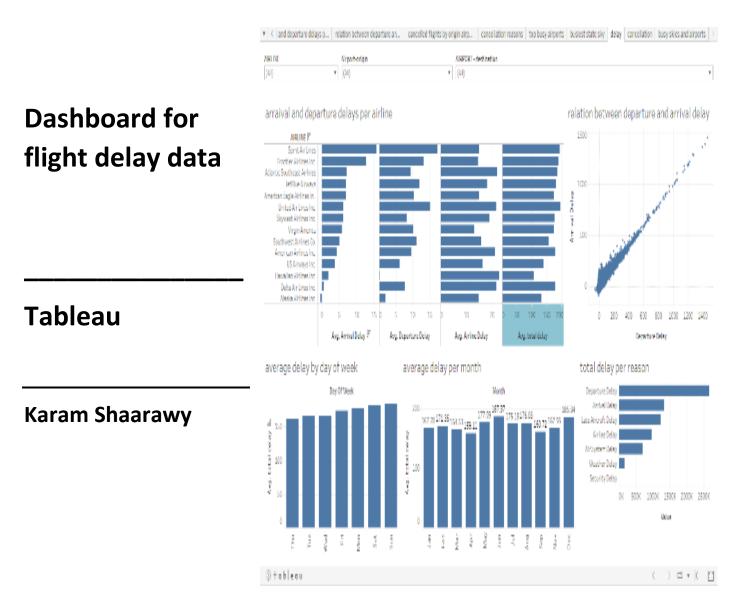**Dashboard for flight delay data**

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Tableau

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Project available on Tableau Public:
https://public.tableau.com/app/profile/karam.shaarawy/viz/flights-udacityproject/delay

Links to dashboards:

Dashboard 1: flights - udacity project | Tableau Public

Dashboard 2: flights - udacity project | Tableau Public

Dashboard 3: flights - udacity project | Tableau Public

Summary:

This project looks at a variety of data in order to identify the best and worst airlines regarding arrival, departure and airline delays and investigate these delays over days of weeks and months. Then we move to another criteria to investigate which is flight cancellation and reasons for that. Finally we look at state and airports to find out which are busiest - in airports and over the sky.

Design Choices:

The choices for this design were primarily made to keep things simple and easy to use. Since the dominant data type in this project is categorical, bar chart will be the dominant chart. When available, the Tableau palette specifically designed to be colorblind friendly has been utilized. Providing filters for Airline, Origin Airport and Destination Airport in the first dashboard seemed to be very beneficial in case user wants to reach a quick insight for specific values for any of them (single value drop list filter). To make dashboard more interactive interactive filters were provided in the main chart in every dashboard to provide more details.

Resources:

1. Data_Analysis_AirlineFlights | Tableau Public
2. Flight Delays | Gene Yampolsky | Tableau Public
3. Tableau KPI Dashboard for Business to Analyze Airport Travel Data [Complete Tutorial] - YouTube
4. https://www.youtube.com/watch?v=BkQDd6gAqcI&t=432s

Dashboard 1:

In this dashboard we want to investigate average delays (departure, arrival, airline and total) from different point of views. Here we provide charts for average delays (departure, arrival, airline and total) per airline. Average total delays over days of weeks and months are also provided. We can use filters provided if we want to determine only specific origin and destination air ports. To provide insight for specific airline, we can click on the airline name in the delays per airline chart. Scatter plot is provided to show the correlation between departure and arrival delay. To determine which airline is best and worst regarding delay types, we can use sort option.

	Arrival delay	
Best 2 airlines	Alaska Airlines inc.	Delta Air Lines inc.
worst 2 airlines	Spirit Airlines	Frontier Airlines inc.
	Departure delay	
Best 2 airlines	Hawaiian Airlines inc.	Alaska Airlines inc.
worst 2 airlines	Spirit Airlines	United Airline inc.
	Airline delay	
Best 2 airlines	Virgin America	Frontier Airlines inc.
worst 2 airlines	Hawaiian Airlines inc.	Atlantic Southeast Airlines
	Total delay	
Best 2 airlines	Hawaiian Airlines inc.	Alaska Airlines inc.
worst 2 airlines	United Airline inc.	Spirit Airlines

Dashboard 2:

Here we provide an insight for number of flights cancelled per origin airports. Bar chart was chosen to represent an airport and the number of cancelled flights. A pie chart represent the percentage of the cancellation reason.

Top 3 cancellation airports and their reasons

Airport	No. of cancellations	Percentage of reasons		
		Airline/carrier	National air system	weather
Chicago O'Hare International Airport	405	18.52	27.90	53.58
Dallas/Fort Worth International Airport	311	23.79	1.93	74.28
LaGuardia Airport (Marine Air Terminal)	221	26.24	25.79	47.96

For the entire dataset, the percentage of reasons for cancellation are divided as follow:

Airline/carrier: 28.42%

National air system: 17.51%

Weather: 54.07%

Dashboard 3: [flights - udacity project | Tableau Public](#)

In this dashboard we provide a map chart and a bar chart to provide data for the busiest airports and skies by counting the number of tail numbers and count of origin airport provided in the dataset and categorizing it by city and state. The map chart is interactive that clicking a state provides a treemap chart for busyness of every airport in this state.

Top 3 busiest states are: CA, TX and IL

Top 3 busiest airports: Hartsfield-Jackson Atlanta International Airport, Chicago O'Hare International Airport and Dallas/Fort Worth International Airport.