NOVEMBER 2019

UDACITY

BUSINESS ANALYTICS NANODEGREE

02

PROJECT:
BUILD DATA DASHBOARDS

In this project, built interactive dashboards with Tableau and used them to discover and communicate insights from data. Used a data-set of flight delays in the US to visualize the quality of airlines and airports, find the best times to fly, and more.

PROJECT DESCRIPTION:

Create visualizations to reveal insights from a data set. Create data visualizations that tell a story or highlight patterns in the data set. Work should be a reflection of the theory and practice of data visualization, such as visual encodings, design principles, and effective communication. There are 3 different data sets you can choose from:

- Flight Delays and Cancellations
- US Census Demographic Data
- Youtube Data from the US

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FLIGHT DELAYS AND CANCELLATIONS

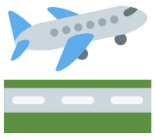
This data comes from a Kaggle dataset, it tracks the on-time performance of US domestic flights operated by large air carriers in 2015.

The base file used in creating the data visualizations is the 'flights.csv' file. The other two provided files are used in conjunction with the 'flights.csv' file.

SCHEDULED_DEPARTURE
planned departure time

DEPARTURE_TIME
WHEEL_OFF - TAXI_OUT

DEPARTURE_DELAY
total delay on departure



TAXI_OUT
airport gate to WHEELS_OFF

WHEELS_OFF
wheels leave the ground

SCHEDULED_TIME
time needed for trip

AIR_TIME
b/w WHEELS_ON and WHEELS_OFF

ELAPSED_TIME
TAXI_OUT + AIR_TIME + TAXI_IN

WHEELS_ON
wheels touch the ground

TAXI_IN
WHEELS_ON to airport gate

SCHEDULED_ARRIVAL
planned arrival time

ARRIVAL_TIME
WHEEL_ON - TAXI_IN

ARRIVAL_DELAY
ARRIVAL_TIME - SCHEDULE_ARRIVAL

DELAYS!

AIR_SYSTEM_DELAY	: delay caused by air system	: SCHEDULE_TIME - AIR_TIME (flight duration delay)
SECURITY_DELAY	: delay caused by security	:
AIRLINE_DELAY	: delay caused by the airline	: Part 1 of ARRIVAL_DELAY
LATE_AIRCRAFT_DELAY	: delay caused by the aircraft	: Part 2 of ARRIVAL_DELAY
WEATHER_DELAY	: delay caused by weather	:

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INSIGHT 1:

What is the best month to travel in the flight?

Weather played a prominent role in flight cancellations. This can be observed in the dashboard in a more granular level. However weather was most stable in October month/say has no flight cancellations during this month. Hence October is the best choice to travel in flights. A simple bar chart is used only for easy comparison between monthly cancellation of the flights. However as per data model guidelines, line chart is used to represent the monthly timeline.

INSIGHT 1:

https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-1-best-month-to-travel-in-flight/Story1

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INSIGHT 2:

How to tackle the flight cancellations?

As weather cannot be controlled, it was excluded. Since airline cancellations portray a similar graph to total cancellations, which denotes a direct proportion relationship to total cancellations. Hence priority is given to reduce the airline cancellations by understanding the underlying reasons for the airline cancellations.

Hence Airlines with are analyzed based on arrival delays and departure delays which affect the airline cancellations. However a peculiar behavior is observed in relation to airline cancellations which proved another factor is at play in in conjunction with the above delays, which is the airline delay.

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INSIGHT 2:

CONTINUATION

Hence in order to decrease the airline cancellations, airline delay has to maintained minimal while keeping arrival delay and departure delay in check.

A scatter plot is used to indicate the relation between more than one quantitative fields while leveraging the size and color mark fields to add more detailed comparisions.

INSIGHT 2:

https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-2-how-to-tackle-the-flight-cancellations/Story1

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INSIGHT 3:

What are the bad airports to avoid flight cancellations?

Airports with more than 50 flight cancellations has been categorized in to a data set. This set contains more than 50% of cancellations. The list of respective airports has a bad track record of cancellations and it is adviced to avoid them. Instead of visual charts, priority is given to display the list of airports for easy sharing and print out.

INSIGHT 3:

https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-3-bad-airports-to-avoid/Story1

08 Public profile for all tableau files related to project

https://public.tableau.com/profile/vamshi.krishna.prime#!/

LINKS:

INSIGHT 1: https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-1-best-month-to-travel-in-flight/Story1

INSIGHT 2: https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-2-how-to-tackle-the-flight-cancellations/Story1

INSIGHT 3: https://public.tableau.com/profile/vamshi.krishna.prime#!/vizhome/Insight-3-bad-airports-to-avoid/Story1

Resources used: N/A