Data Visualization using Tableau Project

Dataset: 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

At first, I replaced the A, B, C and D characters with the reasons for the cancellation in the excel file.

Secondly, I aliased the states' abbreviations with the original name of them to avoid confusion about names of them in the insights. I used this website to get their names.

Insight1: Highest number of cancellation records by the state

- Link: Highest number of cancellation records for each state | Tableau Public

- Summary: From the dashboard, we can see that Texas has the highest record of cancellation which is 15.07% of the total cancellation of all states (668 cancellations).

- Design comments: The map chart is the best to show the state that has the most no. of cancellations with blue color (dark for most and light for least), the bar chart shows percentage of cancellation's records for each state in descending order (from most to least).

Insight 2: Arrival / Airline & airport Delay

1. **Arrival / Airline delay:**

- Link: Arrival/ Airline delay | Tableau Public
- Summary and Design: I used the bar chart to represent the arrival delay for each airline in ascending order, and from this we can see that Atlantic Southeast Airlines records the highest percentage which is 21.93% with 298.992 minutes.

2. **Arrival / Origin airport Delay**

- Link: Arrival/ Origin Airport delay | Tableau Public
- Summary and Design: I used the bar chart to represent the arrival delay for each airline in ascending order, and from this we can see that ORD airport has the highest record of delay which is 118.474 minutes.

3. **Arrival / Destination Delay**

- Link: Arrival/ Destination Airport delay | Tableau Public
- Summary and Design: I used the bar chart to represent the arrival delay for each airline in ascending order, and from this we can see that ORD airport has the highest record of destination airport's delay which is 98.900 minutes.

Insight 3: What causes cancellation?

- Link: cancellation reasons dashboard | Tableau Public
- Summary and Design:
    a. At first, I visualized the percentage of the reasons where we can find that the weather is the most recorded reason for cancellation with 54.07 of the total reasons and the least one is the national air system with a percentage of 17.51%.
        - The Pie Chart is a good visualization way to represent the percentage of different, low number of values like in this case.
    b. We can notice null in the reasons, so I think that there are other reasons that are not recorded like the distance, delay, and the airline itself!
    c. So, I used the Bar Chart to visualize the airports that have the highest departure delay, then visualize the airports that have the highest number of cancellations and finally, I found that they are the same airport.
    d. Then, I think about the longer the distance, the lower the number of cancellation records. I used the Scatter Plot here. I found that this is right.

Insight 4: which airport has the most cancellation's records, searching about the reason, the trend, and the improvement.

- Using this Bar chart, I found that the Chicago O'Hare International Airport has the most cancellation records'.
- And, This bar chart is another proof that the longer delay, the more number of cancellation records. Here, I found that the same airport also has the bigger minutes of total delay. [Total delay calculated here as [Arrival Delay] + [Departure Delay] + [Security Delay]].
- Then I used the Line chart for visualizing the total delay over time for the same airport (Chicago O'Hare International Airport). This is sometimes high and sometimes low, but I also can see that there are tryings to decrease minutes of delay.