Insight 1

https://public.tableau.com/app/profile/maimoona.munir8295/viz/CancellationsDashboard_16698523327060/Dashboardcancelation

Summary:

The Dashboard shows the flight cancellation insights in USA's States. The data can be filtered by month and days of week. The dashboard shows the overall count of most cancelled flights from California about 7k flights however Guam is at minimum with 2 cancellations. On weekends California is again on top with 2749 cancellations. West Virginia and American Samoa have zero cancellations. During the holiday season of Christmas and new year (Dec -Jan) California, Illinois and New York are the top 3 with 1705, 1212, 983 cancellations. However In summer (Jun - Aug) we have California state with highest cancellation count 2425 and Illinois 276 cancellations stands second.

Design:

Here I have the data from the US Domestic flights which I presented into the first visualization using the sequential blue color. The darker the intensity the higher the count of delays in the respective state. Which aids us to quickly spot the high/low cancellation counts. The Second visualization is a Treemap which is aiding the high/low Cancellations per state and puts the maximum on top left and the lower cancellations at the bottom right.

The third visualization is Bar chart which sorts the data and puts the highest cancellation states on the left and the count is decreasing as we move towards the right. The fourth visualization is a text table showing just the top 8 states for high Canceled count, additional insight to the diverted flights is also shown. The Dashboard is controlled via two filters namely month and day of week which can be used to draw further insights; I used it to dig deep into the Summer and Holiday season.

Insight 2

https://public.tableau.com/app/profile/maimoona.munir8295/viz/DelaysDashboard_16692730842110/CancellationReasons?publish=yes

Summary:

The Dashboard shows some insights into the cancellation reasons (Airline/carrier, National Air system, Security, Weather) are provided. Reasons vs Airlines is shown the most affected airline is Southwest Airline and Skywest Airline and least affected are Hawaiian Airline and Virgin America.

During Summer Season (Jun - Aug) the Southwest Airline has cancelled around 2k flights due to Airline/carrier, 473 due to National Air System, 2 due to Security and 1K due to Weather reasons. On Weekends 680 Airline/Carrier, 331 due to the National Air System and 662 flights are cancelled due to Weather. During Holiday Season (Dec-Jan) Southwest Airline is again on top with 1K cancellations due to Airline/carrier, 149 due to National Air System and 2K due to Weather. However during the weekends only 337 flights are cancelled due to Airline/carrier, 60 due to National Air System and 1K due to Weather.

Let's look at Virgin America airline which is least affected by the cancellations. During Summer Season (Jun - Aug) 12 flights are cancelled due to Airline/carrier, 3 due to National Air System and 2 due to Weather reasons. During the Weekends 12 due to Airline/carrier, 3 due to National Air System and 2 due to Weather conditions. During the Holiday Season (Dec-Jan) 16 flights are cancelled due to Airline/carrier reasons, 106 due to the National Air System, and just 2 due to Weather conditions. During the weekends 6 flights due to Airline/carrier, 37 due to National Air System, just 2 due to Weather conditions and none due to security reasons.

Design:

The Dashboard Reasons for cancellation is giving us the count of cancellation reasons due to the four categories named Airline/carrier, Weather, National Air system and security. The first visualization is a side by side bar chart which shows the cancellations per Airline and the stacked bars are divided per category for each Airline. This graph helps us know immediately the cumulative cancellations of the airline. Since they are sorted by the Airline which has the most cancellation count we can see it on top. The color palette is set to color blinded to make it more inclusive. The second visualization is supporting the first by putting numbers into the text table which shows the count of cancellations per category. The third chart is a pie diagram and it shows the breakdown of total count of cancellations. The visualization has two filters by month and by day of week. Which I used to take further analysis during Summer and Winter holidays.

Insight 3

https://public.tableau.com/app/profile/maimoona.munir8295/viz/DelaysDashboard_16692730842110/DelayDashboard?publish=yes

Summary:

The Dashboard is showing the delay minutes for each airline. The major reason is departure delays and security delays have contributed the least.

The first visualization shows that on average Spirit Airline and Frontier Airline are mostly affected airlines as they have a higher average delay minutes score of approximately cumulative score of above 90 mins. An Airline which is performing better is Hawaiian Airline with a cumulative delay of almost 45 minutes.

Spirit Airline can improve their operations by reducing their air system delays which are contributing the most in cumulative average with 27.6 minutes while Frontier Airline can better perform if it improves on two categories: system delays and late aircraft delays, which are contributing an average of 24.66 minutes and 26.90 mins respectively.
Most airlines on average are affected by late aircraft delay, however Hawaien airline has a higher average of Airline delay of 22.79 mins. Alaskan airlines have a negative average of 0.98 which means they are arriving earlier than scheduled time.
The Summer and Holiday season are the most important times of the year where a lot of passengers are traveling and any delays can affect masses. Let's look into the stats of summer and holiday season. During the Summer season Spirit airline has a higher average of cumulative delay minutes of approx. 120 mins and In christmas holiday season Frontier airline is not performing well during weekends with cumulative delay min of 110 mins.

Design:

The Delays dashboard is designed to show the average delay minute from the categories; departure, arrival, Late Aircraft, Airline, Air system, Weather and Security delays for all Airlines. The color palette is color blind and thus inclusive. The first visualization is a stacked bar chart where all the categories are plotted with Airlines and we spot the performance efficiency of the Airline On the basis of cumulative average delay minutes. The second visualization is the text table delays count which is showing the counts of delays per category for all the airlines which shows that Airlines are mostly affected by departure delays and least affected by security delays. The third visualization is a text table for cancelled and diverted flights. The dashboard’s information can be filtered by month and day of week and can be used to draw further insights.

Resources: Udacity Lectures.