

1. Flight Delays and Cancellations

Insight 1:

Link:

https://public.tableau.com/app/profile/amulya3270/viz/FlightDelaysandCancellations_1_16654800824290/FlightDelaysandCancellations_1?publish=yes

Description: This Visualization describes the Flight delays and Airlines across the US.

- In the **first** dashboard, the map shows the number of distinct Airlines operating in each state and the number of Flights travelled across the state. The colour of the map gradients from light to dark colour based on the number of flights travelled across that state. The most distinct Airlines are in states **CA** and **NY** with **14** distinct Airlines and the least number is **1** operating in **AS** and **GU** states. The most number of flights travelled across each state is **33,331** flights i.e in **CA**. The least number of flights in the state is **2** in **AS** state. So the **CA** has the **most** number of Airlines(**14**) and the most number of flights(**33,331**) operating across the state. Also, **AS** state has the **least** number of Airlines(**1**) operating the least number of flights(**2**) across the state. This can also be filtered by **Month**.
- The **second** dashboard shows two charts in which the first chart describes the different types of delays at each airport in the city. You can filter to see the particular city for delays in the city. This chart, it describes **air system delays, airline delays, arrival delays, departure delays, late aircraft delays, security delays, and weather delays** across different airports in cities. The second chart shows the Total delay across each Destination city. The **most** Total delay is in **Marquette** city in airport **Sawyer International Airport** with **638.2** minutes. The **least** total delay is in **Toledo** city at **Toledo Express Airport** with **42** minutes. The Average Total delay ranges from **42 minutes to 638.2 minutes**. The treemap gradient colour ranges from light to dark to show the intensity of the total delay. You can use **treemap as a filter** to see the respective delays in each city which shows the above-described different types of delays
- The **third** dashboard shows the airlines and total delays with respect to each month. The Airline with the **most** total delay is **UA** in the month of **December** with **272.2 minutes** of delay. The Airline with the **least** total delay is **HA** in the month of **April** with **56.6 minutes** of total delay. This shows how the **month** or holidays **influence the total delays**.

Design: This visualization shows the following:

- **Map:** shows the details of the state with Airlines operating and the number of flights(first dashboard)
- **Side-by-side bars:** shows the different types of delays in each airport and city(second dashboard)
- **Treemap:** Shows the most number of total delays in minutes to the least total delays in minutes(second dashboard)

- **Line chart:** Shows how the month influences the total delays caused by Airlines(Third dashboard)

The colours used are also suitable for colour-blind people.

Resources: N/A

Insight2:

Link:

https://public.tableau.com/app/profile/amulya3270/viz/CityDelays/FlightDelaysandCancellations_2?publish=yes

Description: This visualization consists of two dashboards that describe the Delays of Airlines in the US.

- The **first** dashboard describes different **delays of Airlines**. The first stacked bar chart describes the delays consisting of Arrival delays, Departure Delays, Late Aircraft delays, Weather delays etc. When we consider **Weather delays**, the **most** occurred in **American Eagle Airlines** with 5.97. The **most arrival delay** is in **Spirit Airlines** with 15.73. The **most departure delay** is in **Spirit Airlines** with 17.37. The highest **Late Aircraft delay** is in **Skywest Airlines** with 27.13. The highest **Airline delay** is in **HawaaianAirlines** with 22.71. The Highest **Air System Delay** is in **Spirit Airlines** with 25.55. The second chart with the treemap describes the Arrival delays with respect to Airlines. The most Arrival delay is in Spirit Airlines with 15.73 and the lowest in Delta Airlines with 0.53. The gradient colour from light to dark describes the low and most Airlines with delays. The third chart with the treemap describes the Departure delays on different Airlines. The most Departure delay is in Spirit Airlines with 17.37 and the lowest in Hawaiian Airlines with 0.17. You can also **filter** each chart by **month**.
- The second dashboard consists of two charts. The first line chart describes the total delays caused by all Airlines in each month. The **highest total delay** is in **June** with **185.37 minutes** and the **lowest** is in **April** with **159.11 minutes**. The second chart is the pie chart which describes the share of Airplanes in total delays in percentage. The **most** in **Southwest Airlines** with **20.37%** share and the **least** in **Hawaiian Airlines** with **0.45%** share of the total. To see the percentage share of each Airline you can also **filter by month**.

Mostly, the delays occurred in **Late Aircraft, Airline, and Air systems delays**. Considering on the whole **Spirit Airlines** has the **most** delays and **Hawaiian Airlines** has the **least** delays. Also, the month of **April** has the **least delays** on the whole.

Design: The story consists of the following:

- **Stacked bar chart:** Shows different delays of Airlines.(first dashboard)
- **Treemap:** Shows most to least Arrival and Departure delays with colour gradients.(first dashboard)
- **Line chart:** Shows the effect of the total delays on each month.(second dashboard)

- **Pie chart:** Shows the share of each Airline in the total delays caused. (second dashboard)

The colours represented in the visualization are suitable for colour-blind people.

Resources: N/A

Insight 3: Where do the most cancellations occur? Does it vary with the influence of the Day or Month of the year?

Link:

https://public.tableau.com/app/profile/amulya3270/viz/1_Insight3/FlightsDelaysandCancelled_3?publish=yes

Description: The visualization consists of three dashboards that described the cancelled flights with respect to each state and Airline.

- The **first** dashboard consists of a map that shows the number of flights cancelled with a reason in each state. The colour gradient in the map from light to dark colour shows the number of flights cancelled in the state from the lowest to the highest. The **most** number of **flights** that are **cancelled** for a reason is **TX** with **668 flights**. The **lowest** number of flights that are cancelled for a reason is **AS, DE and GU** with **0 flights**.
- The **second** dashboard consists of two charts that describe the flights cancelled with respect to the Airlines for a reason. The first stacked area chart describes the number of flights cancelled in a month by a distinct Airline. The **highest** number of flights cancelled is in **February** with **203 flights** in **American Eagle Airlines**. The **lowest** number of flights cancelled in **September** by **Hawaiian Airlines** with **3 flights**. The second scatter plot shows the relation between the Airline and the total number of flights cancelled. The **lowest** flight cancelled Airline is **Hawaiian Airlines** with **8 flights** and the **highest** flight cancelled Airline is **Southwest Airlines** with **818 flights**.
- The **third** dashboard consists of two charts that describe the cancellation reason with respect to airlines and each cancellation reason share percentage. The first chart is a Pie chart that shows the share of each cancellation reason. Cancellation **reason A** has a share of **28.42%** whereas cancellation **reason B** has a share of **54.07%** and cancellation **reason C** has a share of **17.51%**. The second chart is a stacked bar chart that shows the Airlines with each cancellation reason. The airline that cancelled flights with **reason A** is **Southwest Airlines** with **309 cancellations**. The airline that has the most **reason B** cancelled flights is **American Eagle Airlines** with **448 cancellations**. The Airline that has the most cancellations because of **reason C** is **Atlantic Southeast Airlines** with **335 cancellations**.

Design: The story consists of the following charts:

- **Map:** Shows the number of cancellations respective to the state. (first dashboard)
- **Stacked Area chart:** This shows the relation between month and number of cancellations and the comparison between each airline. (second dashboard)

- **Scatter plot:** Shows the relation between a total number of cancellations in the year with Airlines. (second dashboard)
- **Pie chart:** Shows the share of each reason for the cancellation of flights. (third dashboard)
- **Stacked bar chart:** Shows the number of flights cancelled by each Airline for reasons A, B, C. (third dashboard)

The colours represented in the visualization are suitable for colour-blind people.

Resources: N/A