

Insight 1: Monthly Flight Cancellation Trends

Summary:

This line chart illustrates the Monthly Flight Cancellation Trends over the year, showcasing fluctuations in cancellation volumes. February witnessed the highest number of cancellations at 1,058 flights, indicating a potential correlation with adverse weather conditions or operational challenges during the winter season. Cancellation numbers dropped significantly in March and April, reaching a yearly low of 224 cancellations in April. Another slight surge is observed in June at 427 cancellations, potentially linked to increased summer travel activity. The trend bottoms out in September at 108 cancellations before showing a steady rise towards the year's end, peaking at 393 cancellations in December, likely influenced by holiday travel demand and winter weather conditions.

Design:

- **Line Chart**

Purpose: A line chart effectively represents temporal trends, making it ideal for tracking monthly fluctuations in flight cancellations over the year.

Data Points: Each data point is labeled to enhance clarity, allowing users to immediately grasp the magnitude of cancellations for each month.

- **Color Palette**

A single, consistent blue line was used to maintain simplicity and focus on the trend without introducing unnecessary visual distractions.

- **Title**

The title, "Monthly Flight Cancellation Trends", is clear and descriptive, providing context for the chart.

- **Axes**

The x-axis represents months, ensuring users can easily identify the timeframe, while the y-axis quantifies the cancellations, emphasizing scale.

Resources: N/A

Insight 2: Average airline delay per airline

Summary:

The bar chart displays the Average Airline Delay per Airline, comparing the delay durations (in minutes) across multiple airlines. Hawaiian Airlines Inc. experiences the highest average delay at 22.712 minutes, followed closely by Atlantic Southeast Airlines (21.939 minutes) and Delta Air Lines Inc. (21.642 minutes). At the other end, Virgin America stands out with the lowest average delay of 13.119 minutes, indicating superior punctuality.

Most airlines average delays between 15 and 22 minutes, reflecting potential issues such as operational inefficiencies or external factors like weather and air traffic.

Design:

Bar Chart

- **Purpose:** Highlight the average delays for each airline in a straightforward comparison.
- **Ordering:** Bars are arranged in descending order, making it easy to identify airlines with the most and least delays.

Color Scheme

- A single blue hue ensures a clean, professional design and directs focus to the data rather than aesthetics.

Title and Labels

- The title, "**Average Airline Delay per Airline**", clearly conveys the chart's purpose.
- Airline names on the x-axis and delay averages above each bar add clarity, making it easy to interpret.

Resources: N/A

Insight 3: Airline Performance & Weather Impact Analysis

Summary:

The dashboard presents an analysis of the airline industry's performance with a focus on market leaders, weather-related delays, and the top airports for departures in the U.S. The bar chart highlights the dominant airlines in terms of flight counts, revealing that Southwest Airlines leads the market with over 5,000 flights, followed by Delta and American Airlines. The line chart tracks monthly proportions of weather delays across the top 10 departure airports, uncovering significant delays during specific months, such as peaks in March and July. The map visualization shows the geographical distribution of the top 15 departure airports, emphasizing key hubs like Hartsfield-Jackson Atlanta International Airport and Chicago O'Hare International Airport. Together, these insights narrate the story of market dominance, seasonal weather challenges, and the central role of major airports in the U.S. airline network.

Design:

Bar Chart (Airline Flight Counts)

- **Purpose:** A bar chart was chosen for its clarity in comparing the market leaders' flight counts. It allows users to easily rank airlines by performance.
- **Color Palette:** A single color with a gradient is used to maintain focus on the magnitude of flights without overwhelming the viewer.

Line Chart (Weather Delays)

- **Purpose:** A line chart effectively displays trends over time, making it ideal for analyzing the seasonality of weather delays.
- **Color Palette:** Each line represents a different airport with distinct colors, ensuring users can differentiate trends briefly while maintaining consistency with Tableau's default colors.

Map Visualization (Top Airports)

- **Purpose:** A map was chosen to provide a spatial perspective on the data, helping users identify the location and relative importance of key airports.
- **Design:** Bubble sizes correspond to flight volumes, while different colors ensure better visibility of overlapping points.

Layout:

- The dashboard is divided into three sections: airlines, weather delays, and airport geography. This logical flow allows users to first understand the market, then seasonal challenges, and finally spatial hubs.

Resources: N/A