

## DATA VISUALIZATION'S

The specific sheet displayed is "Number of Passenger effected by delay of flights". The chart shows the number of passengers affected by flight delays, cancelled flights, and the total number of flights. The text at the top of the chart indicates that the data is for the day "25-05-2024". Here's a detailed analysis of the image based on Airline Data Analysis:

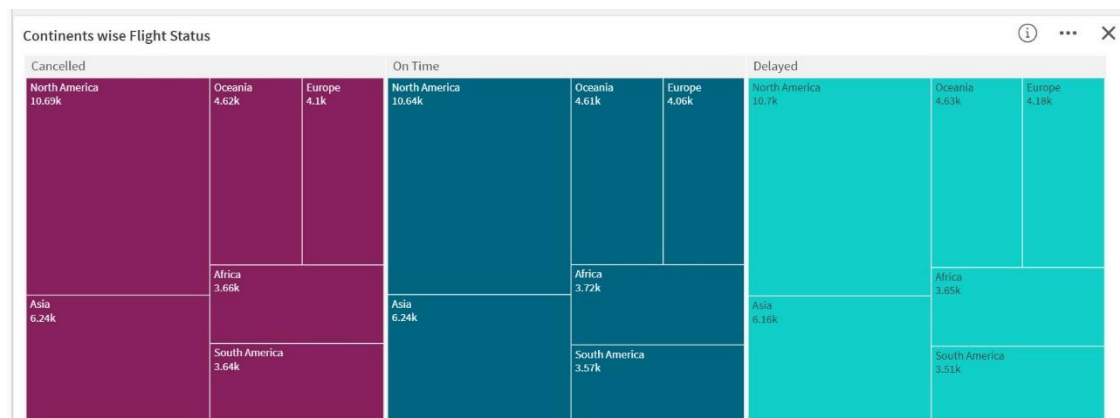
- **Passenger Impact:**
  - The chart shows that a higher number of passengers (32,830) were affected by delayed flights compared to cancelled flights (32,940) on the day "25-05-2024". This suggests that flight delays were a more common issue than cancellations on that day, potentially impacting passenger travel plans and schedules.
- **Flight Performance:**
  - While the chart doesn't show the total number of flights, it does display the total number of passengers (98,620). Without knowing the total number of flights, it's difficult to calculate the percentage of flights that were delayed or cancelled. However, the passenger numbers suggest a relatively high volume of air traffic for that day.
- **Limited Scope:**
  - It's important to consider that the data represents a single day (25-05-2024). Daily fluctuations are common in airline operations, so this snapshot might not reflect typical trends. Analysing data over a longer period (weeks, months) would provide more insights into how often delays and cancellations occur.
- **Further Analysis Opportunities:**
  - Qlik Sense dashboards are interactive and allow for further analysis. For example, one could explore if there are any correlations between delayed flights and specific airlines, routes, or departure times. This would help identify potential areas for improvement for airlines.
- **Context is Key:**
  - Airline Data Analysis dashboards like this one can be valuable tools for airlines to understand how their operations are performing. By analyzing trends over time, airlines can identify areas for improvement and make data-driven decisions to improve the passenger experience.



The dashboard displays a table titled “Continents wise Flight Status” which shows the number of flights for each continent that were cancelled, on time or delayed.

Here’s a breakdown of the data for the “Continents wise Flight Status” table:

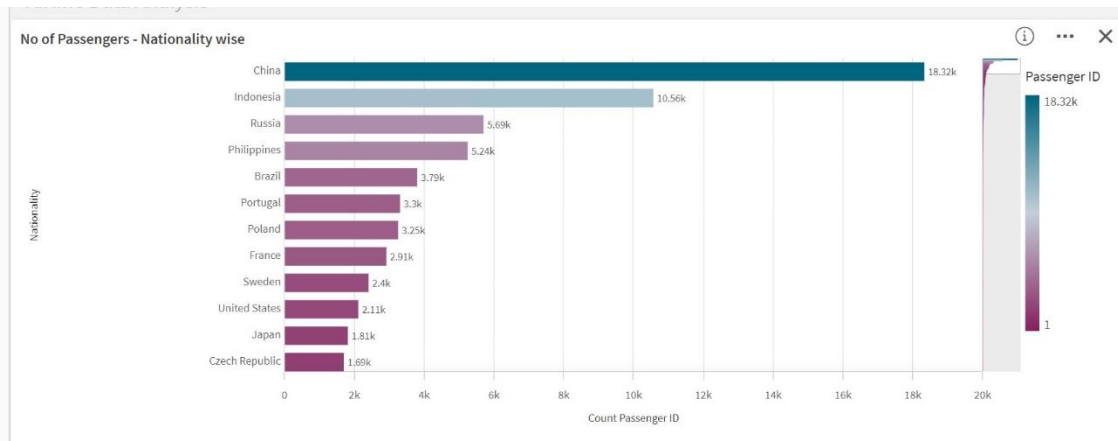
- North America: There were 10.64% cancelled flights, 10.69% on time flights and 4.1k delayed flights.
  - Europe: There were 4.62k cancelled flights, 4.06k on time flights and 4.61k delayed flights.
  - Africa: There were 3.66k cancelled flights and 3.72k delayed flights.
  - Asia: There were 6.24k on time flights.
  - South America: There were 3.64k cancelled flights and 3.57k delayed flights.
- The percentage of cancelled flights in North America (10.64%) is higher than the percentage of on time flights (10.69%). This suggests that there may be some problems with airlines in North America that are leading to a high number of cancellations.
  - The number of delayed flights in Europe (4.61k) is higher than the number of cancelled flights (4.62k). This suggests that airlines in Europe are more likely to be delayed than cancelled.
  - The number of on time flights in Asia (6.24k) is much higher than the number of cancelled flights or delayed flights. This suggests that airlines in Asia are doing a good job of getting their flights to take off and land on time.



The chart displays airline passenger data by nationality. It appears to show the number of passengers from various countries flying on a particular airline.

The chart title is "Nobe: No of Passengers - Nationality wise". The X-axis of the chart lists the passenger nationality and the Y-axis lists the count of passengers.

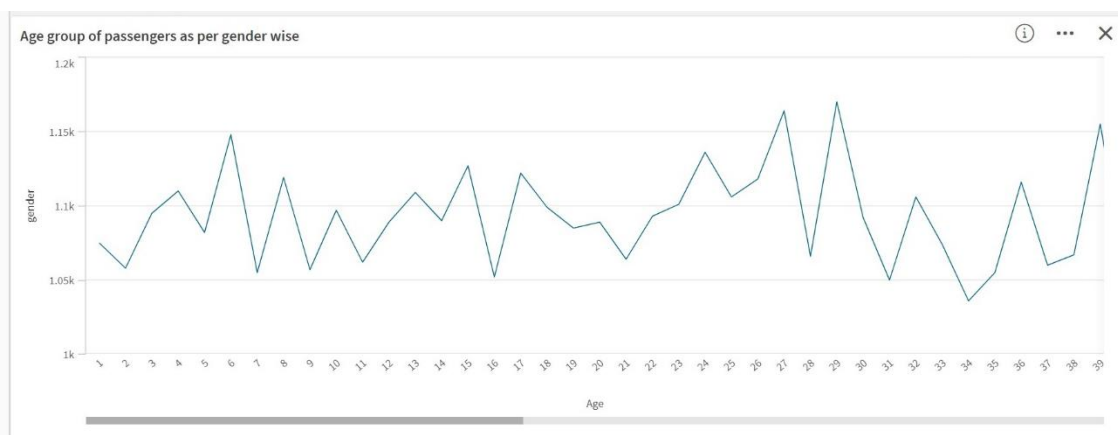
Based on the chart, the United States has the most passengers flying on this airline, with 211,000 passengers. China is the second highest with 18,320 passengers and Indonesia is the third highest with 10,560 passengers.



The dashboard displays an age group analysis of airline passengers for a specific airline, categorized by gender.

The title of the chart is "Age group of passengers as per gender wise". The X-axis of the chart lists the age group and the Y-axis lists the count of passengers. There is a slicer on the top right corner which allows users to filter data by selecting a specific gender (here it is set to "All").

Based on the chart, it appears that the airline has a significant number of passengers in the 40–60-year-old age group, followed by the 22–40-year-old age group. There are also a fair number of passengers in the 60+ age group. Interestingly, the data suggests that there are slightly more female passengers than male passengers in each age group.



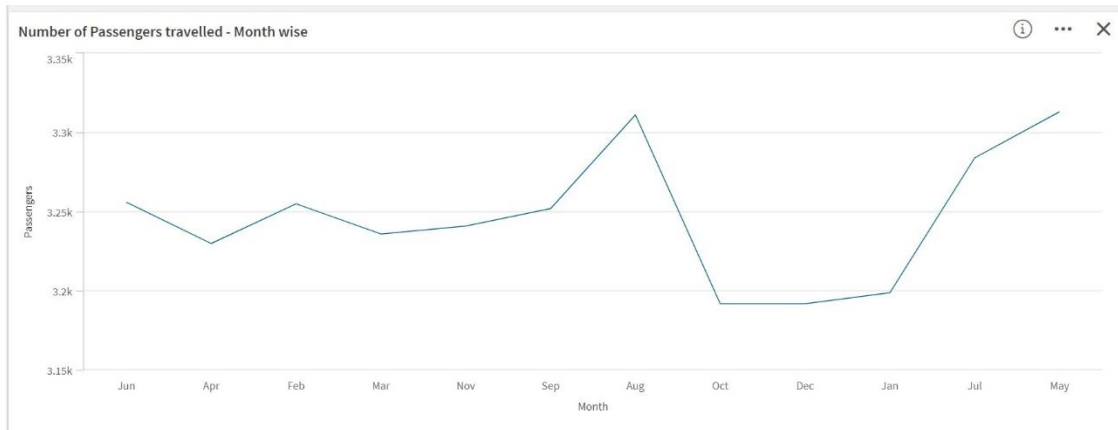
The dashboard displays a chart titled “Number of Passengers travelled - Month wise” which shows the number of airline passengers who traveled each month.

Here’s a breakdown of the data for the “Number of Passengers travelled - Month wise” chart:

- The month with the most passengers traveled is December with approximately 3.35k passengers.
- November appears to be the month with the second most passengers traveled, with approximately 3.3k passengers.
- It appears that ridership dips slightly in October with approximately 3.25k passengers.

- September appears to show a continued decline with approximately 3.2k passengers traveled.
- The month with the fewest passengers traveled appears to be May with approximately 3.15k passengers.

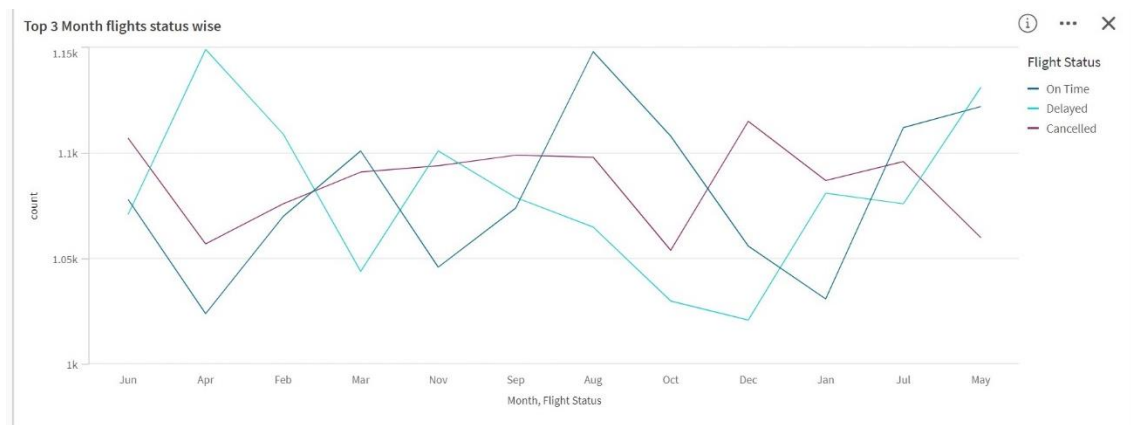
Overall, the data suggests that there is a seasonal trend in airline travel, with ridership peaking in December and November and then declining throughout the spring and summer months. This could be due to a number of factors, such as holiday travel, business travel patterns, and weather conditions.



The dashboard displays a chart titled “Top 3 Month flights status wise” which shows the number of flights for the last twelve months categorized by flight status (on time, delayed, cancelled).

Here’s a breakdown of the data for the “Top 3 Month flights status wise” chart:

- June appears to be the month with the most cancelled flights, with approximately 1.15k cancelled flights.
- It is difficult to say definitively which month has the most on-time flights or delayed flights because the scale on the Y-axis is not shown. However, we can see that for the three months listed (June, July, August) the number of on-time flights is similar to the number of delayed flights. Overall, the data suggests that there is a significant number of cancelled flights in June.



The dashboard displays a table titled “Overview of avg Age by Airport Name and Nationality” which shows the average age of passengers by airport and nationality.

Here’s a breakdown of the data for the “Overview of avg Age by Airport Name and Nationality” table:

- The average age of passengers across all airports is 55.3 years old.
- Coldfoot Airport has the oldest average passenger age at 62.2 years old.
- Kugluktuk Airport has the second oldest average passenger age at 59.9 years old.
- Grenoble-Isère Airport appears to have the youngest average passenger age at 22.3 years old.

However, it is important to note that the table only shows data for a few airports. It is possible that other airports have a younger average passenger age than Grenoble-Isère Airport. Overall, the data suggests that there is a variation in the average age of passengers across different airports. This could be due to a number of factors, such as the type of destination served by the airport, the demographics of the area surrounding the airport, and the airline's marketing strategy.

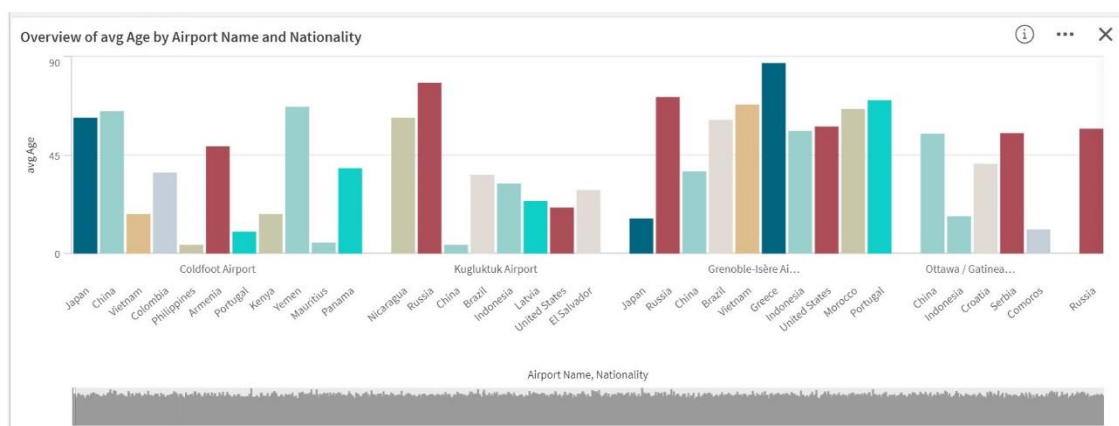
Here are some of the nationalities listed:

- China
- Vietnam
- Colombia
- Philippines
- Armenia
- Portugal
- Kenya
- France

- Mauritius
- Panama

Some of the Airports listed include:

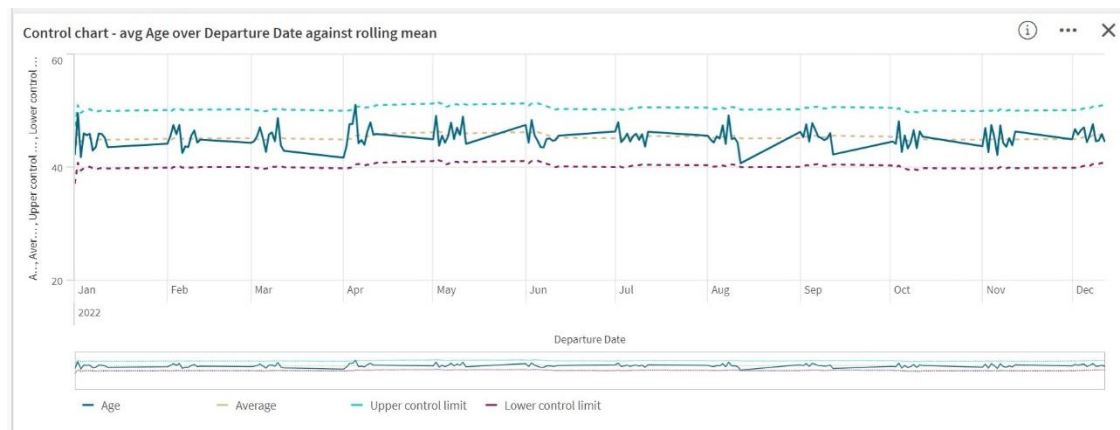
- Coldfoot Airport
- Kugluktuk Airport
- Grenoble-Isère Airport
- Ottawa/Gatineau International Airport



Dashboard, which is a statistical process control (SPC) tool used to monitor processes for stability. The chart you sent specifically tracks the average age of airline passengers over a period of departure dates. The control chart has an upper control limit (UCL) and a lower control limit (LCL) that are statistically determined. Data points that fall outside the control limits might indicate process instability or special causes of variation.

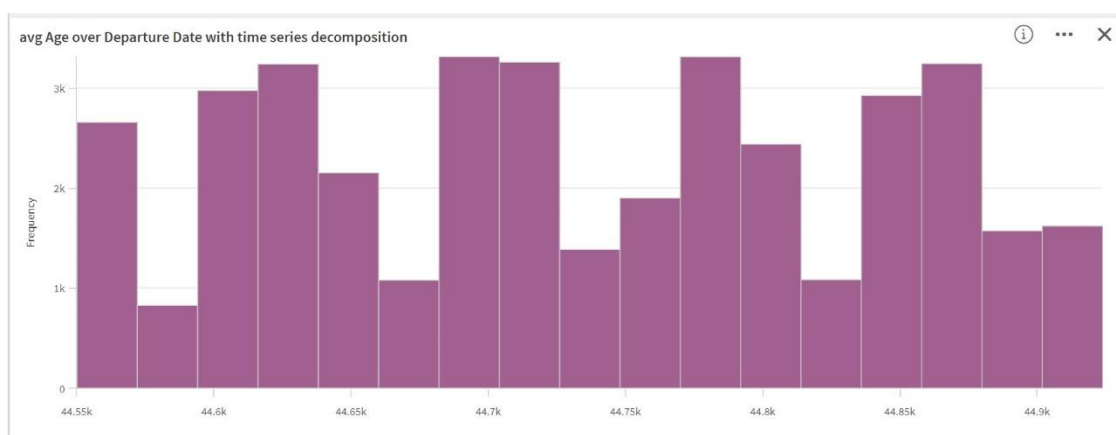
In the image, we see the average age plotted along the y-axis and the departure date along the x-axis. The horizontal line in the middle of the chart represents the average age for all

departure dates. The upper and lower control limits are the two dotted lines above and below the center line.



Dashboard which displays a time series decomposition of the average departure delay, according to the axis titles. This type of chart breaks down a time series into three components: trend, seasonality, and remainder.

- The trend represents the long-term underlying movement of the data. In this case, the trend appears to be slightly increasing over time. This suggests that the average departure delay for this airline has been increasing slightly over the period shown in the chart.
- The seasonality represents the cyclical up-and-down patterns in the data. In this case, the seasonality appears to be cyclical, with peaks in the spring and fall and lows in the summer and winter. This could be due to a number of factors, such as weather conditions, air traffic congestion, and holiday travel patterns.
- The remainder represents the random fluctuations in the data that are not captured by the trend or the seasonality. In this case, the remainder appears to be relatively small, which suggests that the trend and seasonality components explain most of the variation in the average departure delay.



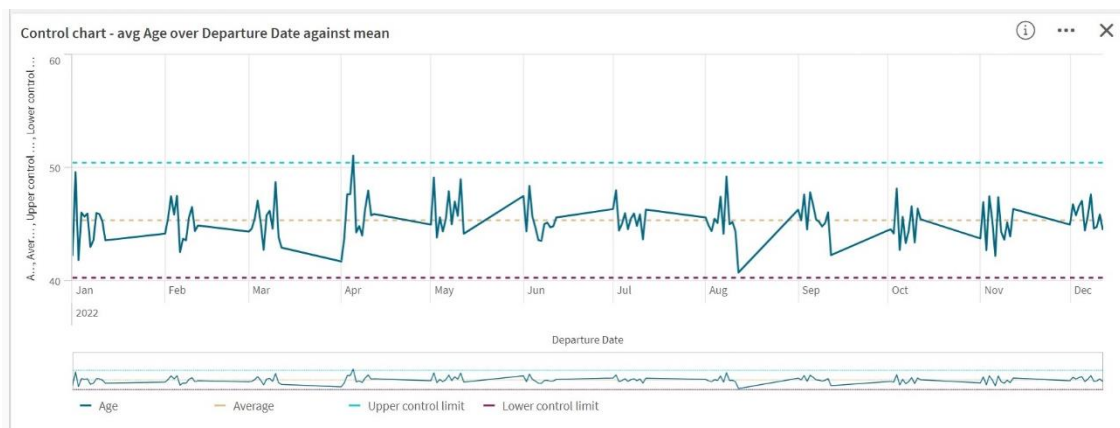
Dashboard which displays a control chart for the average age of airline passengers over departure dates. A control chart is a statistical process control (SPC) tool used to monitor processes for stability.

In the chart, the average age is plotted along the y-axis and the departure date along the x-axis. The horizontal line in the middle of the chart represents the average age for all departure dates. The upper control limit (UCL) and lower control limit (LCL) are the two dotted lines above and below the center line. These limits are statistically determined and data points that fall outside them might indicate process instability or special causes of variation.

### Observations from the chart:

- The average age appears to be relatively stable over time. There are no data points outside the control limits, suggesting no special causes affecting the average passenger age.
- There seems to be a slight upward trend in the average age, particularly in the later months (around November and December) compared to the earlier months (around June and July). However, it's difficult to say definitively whether this is a trend or random variation due to the limited data points.

Overall, the control chart provides some insights into the stability of the average age of airline passengers for this airline



Dashboard displaying a bar chart titled “Max Age 2022-Q4 vs 2022-Q3”. The chart compares the maximum age of airline passengers who flew in Q4 2022 (October-December) with the maximum age of airline passengers who flew in Q3 2022 (July-September).

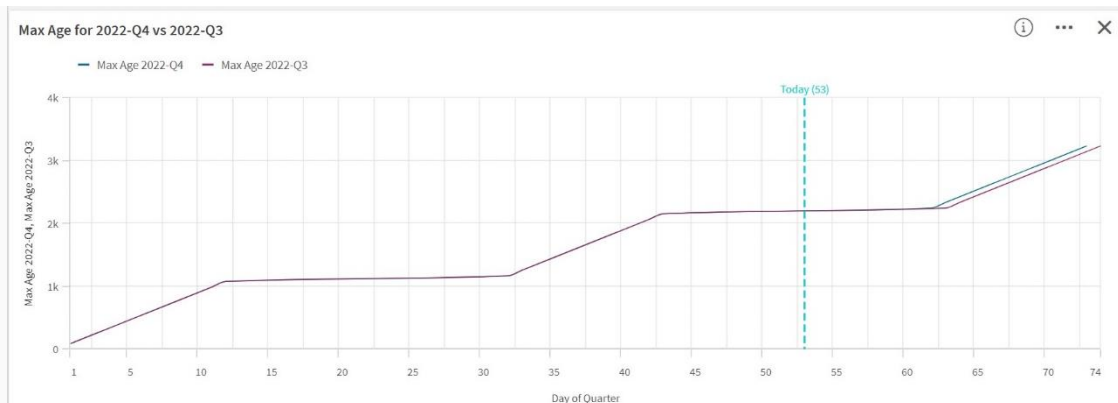
The X-axis of the chart shows the day of the quarter, and the Y-axis shows the age of the passengers. There is a blue bar for each day of the quarter, representing the maximum age of a passenger who flew on that day in Q4 2022. There is a gray bar for each day of the quarter, representing the maximum age of a passenger who flew on that day in Q3 2022.

### Observations from the chart:

- In general, the maximum age of passengers appears to be higher in Q4 2022 compared to Q3 2022. This means that on most days, the oldest passenger who flew on the airline was older in Q4 than in Q3.
- The largest difference in maximum passenger age between the two quarters appears to be around day 14 (possibly the middle two weeks) of the quarter.



- There seems to be more variation in the maximum passenger age in Q4 2022 compared to Q3 2022. This is indicated by the wider range of values on the y-axis for the blue bars in Q4.



Qlik Sense dashboard displaying a chart titled "Max Age by Departure Date (YTD) and Airport Country Code". This chart analyzes the distribution of the maximum passenger age on flights leaving the airline between unspecified start and end dates (likely representing year-to-date) according to the departure airport's country code.

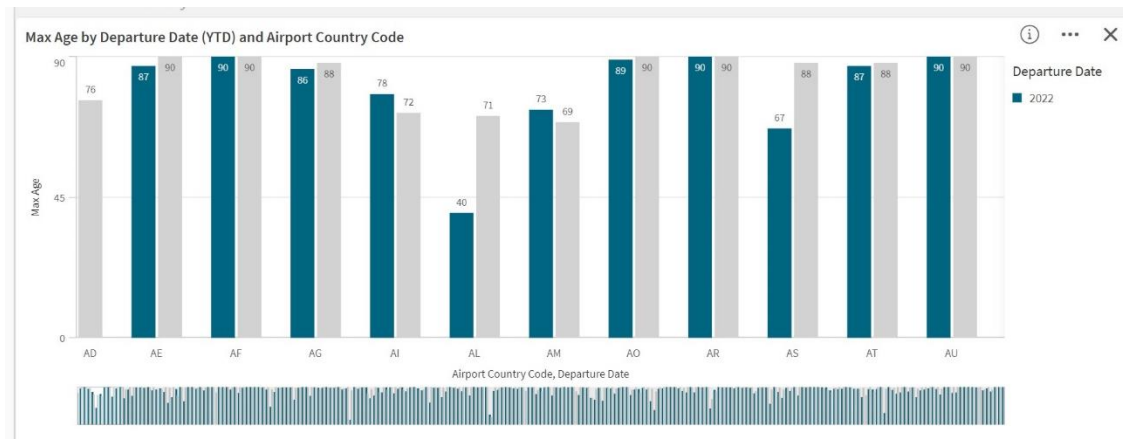
#### Observations from the chart:

- **Age Distribution:** The Y-axis shows age, likely ranging from 20 to 73 years old. We can't determine the exact age range or the increment between age values due to the missing scale.
- **Country Codes:** The X-axis lists various two-letter country codes, most likely representing the departure airport's country. However, the specific countries are not identified in the image.
- **Maximum Age by Country:** Each colored line in the chart represents the maximum passenger age recorded for a specific departure country code throughout the year. The lines seem to vary in height, indicating that the maximum passenger age varies depending on the departure country. For example, the maximum passenger age for departures from countries coded "AD" (potentially Andorra) appears to be consistently lower than the maximum age for departures from countries coded "EG" (potentially Egypt).

#### Possible Insights:

- The chart might suggest that the airline caters to different age demographics depending on the route. For instance, flights departing from certain countries might attract older passengers on average. This could be due to various factors such as:
  - **Destination:** Routes to retirement or leisure destinations might see more older passengers.
  - **Business vs. Leisure Travel:** Business travel might attract a younger demographic compared to leisure travel.
- **Comparison across Routes:** By analyzing more data, we could identify routes with the highest or lowest average passenger age and investigate the reasons behind those trends.



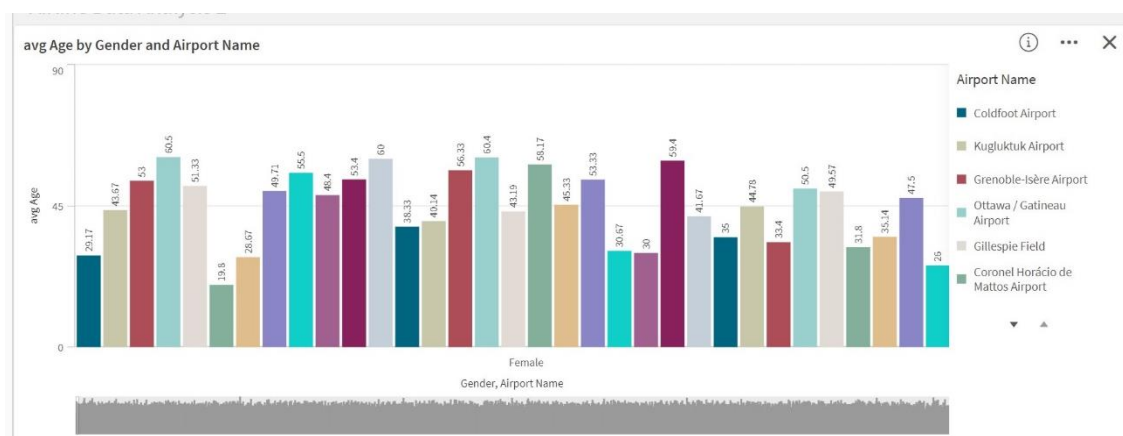


Dashboard from Qlik Sense, a business intelligence tool. The dashboard displays a table titled “Avg Age by Gender and Airport Name” which shows the average age of passengers by airport for a specific airline. Here’s a breakdown of the data for the “Avg Age by Gender and Airport Name” table:

- The average age of passengers across all airports is 40.4 years old.
- Kugluktuk Airport appears to have the oldest average passenger age at 58.17 years old, followed closely by Coldfoot Airport at 51.33 years old.
- Ottawa/Gatineau Airport appears to have the youngest average passenger age at 29.17 years old.

However, it is important to note that the table only shows data for a few airports. It is possible that other airports served by this airline have an average passenger age that is younger than Ottawa/Gatineau Airport or older than Kugluktuk Airport.

Overall, the data suggests that there is a variation in the average age of passengers across different airports. This could be due to a number of factors, such as the type of destination served by the airport, the demographics of the area surrounding the airport, and the airline's marketing strategy.



Qlik Sense dashboard analysis, titled “Avg Age by Airport Continent and Month”. This chart examines the average age of airline passengers categorized by the continent where the departure airport is located, for each month throughout the year.

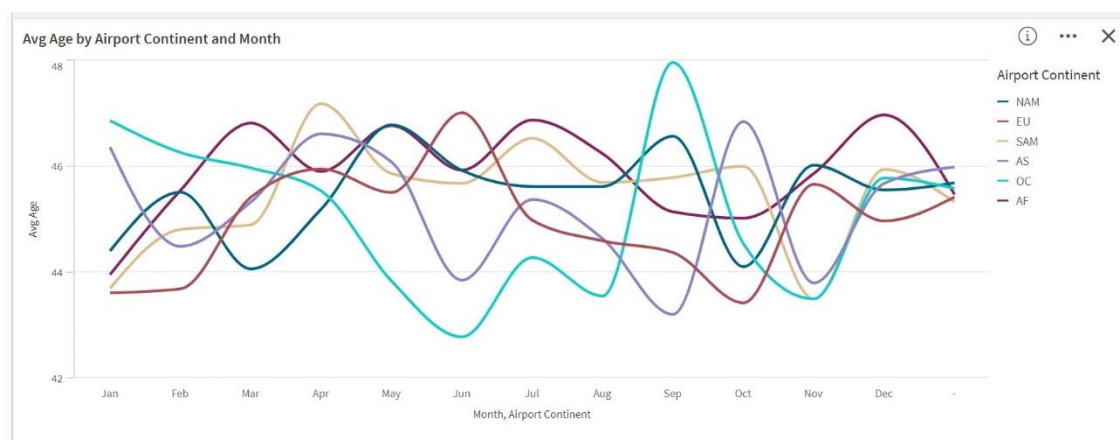
### Observations from the chart:

- **Age Distribution:** The Y-axis shows the average passenger age, likely ranging from 35 to 50 years old. We can't determine the exact age range or the increment between age values due to the missing scale.
- **Continents:** The X-axis categorizes departures by continent (NAM for North America, SA for South America, EU for Europe, etc.).
- **Monthly Trends:** The lines in the chart represent the average age for passengers flying from each continent throughout the year. The lines appear to fluctuate throughout the year, suggesting some seasonality in the average passenger age based on departure continent. For instance, for departures from North America (NAM), the average passenger age appears to be higher in the winter months (around December) and lower in the summer months (around June).

### Possible Insights:

- **Seasonal Travel Patterns:** The chart might suggest that the airline caters to different age groups depending on the season and the departure continent. Passengers flying from certain continents during specific times of the year might be older on average. This could be due to factors like:
  - **Winter Travel:** People from colder regions might travel more during the winter to escape to warmer destinations, raising the average age for those routes.
  - **School Holidays:** During school breaks, families with younger children might travel more, bringing down the average age on some routes.
- **Business vs. Leisure Travel:** Business travel might attract a younger demographic compared to leisure travel. If certain routes have more business traffic in specific seasons, this could affect the average passenger age.

Overall, the chart provides some insights into how the average age of airline passengers for this airline varies by departure continent and time of year.



Qlik Sense dashboard which displays a scatter plot titled "Number of Flights vs Departure Delay". A scatter plot is a type of chart that shows the relationship between two variables. In this case, the x-axis shows the departure delay and the y-axis shows the number of flights.

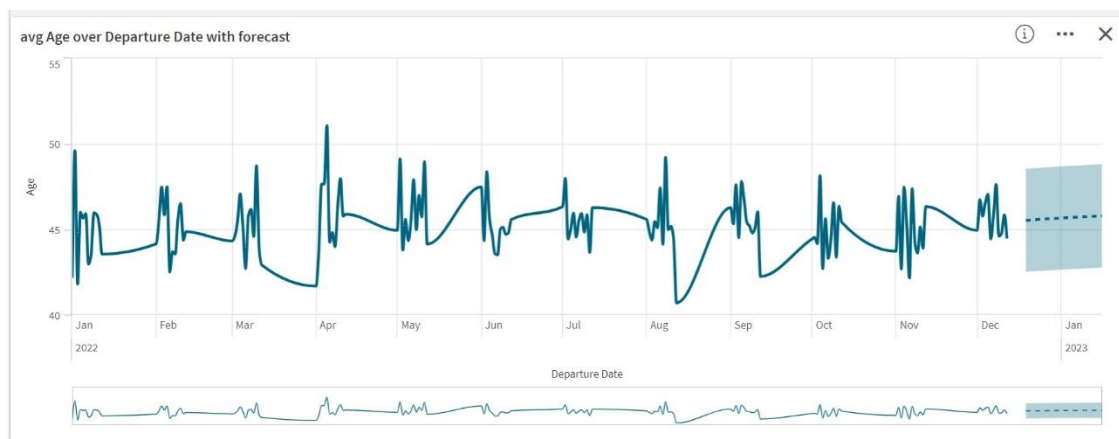
Each blue dot in the scatter plot represents a flight, with the position of the dot indicating the departure delay for that flight (on the x-axis) and the number of flights with that departure delay (on the y-axis).

### Observations from the chart:

- Most of the flights appear to have a departure delay of less than 2 hours. There are a few outliers with a departure delay of more than 4 hours.
- There is a negative correlation between the number of flights and the departure delay. This means that there are more flights with a smaller departure delay and fewer flights with a longer departure delay. However, the correlation is weak, and there are many data points that deviate from the trend.

### Possible Insights:

- The data suggests that the airline is generally successful at keeping departure delays to a minimum. Most flights appear to depart within a few hours of their scheduled time.
- The scatter plot might indicate that there are some factors that occasionally cause longer departure delays. These factors could include bad weather, mechanical problems, or air traffic congestion.



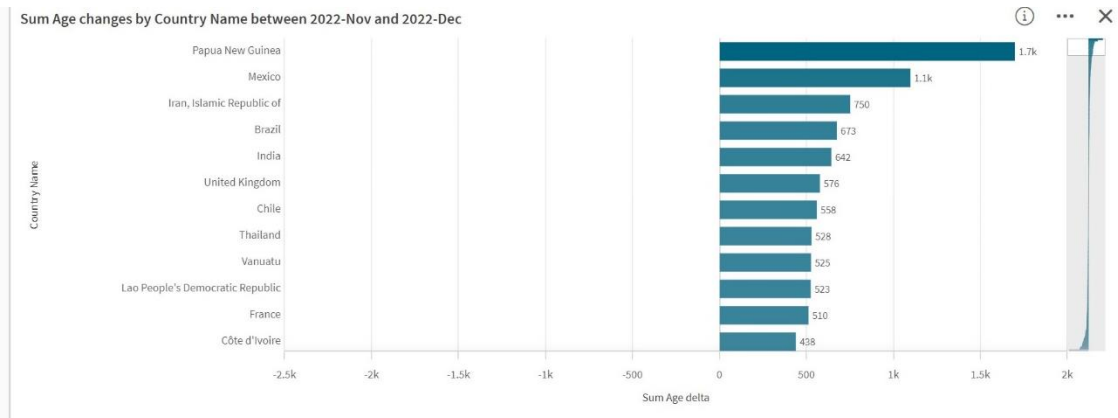
Qlik Sense dashboard analysis, titled “Change in Number of Passengers by Month (2019-2022)”. This chart tracks the year-over-year changes in the number of passengers for this airline over a four-year period.

### Observations from the chart:

- **Overall Trend:** There appears to be a significant decline in the number of passengers from 2019 to 2020, likely due to the impact of the COVID-19 pandemic on air travel. Passenger numbers appear to be recovering in 2021 and 2022, but haven't yet reached pre-pandemic levels.
- **Seasonal Trends:** The chart shows a seasonal pattern in passenger numbers, with higher numbers in the summer months (June-August) and lower numbers in the winter months (December-February) for all four years. This could be due to factors such as vacation travel and weather patterns.

## Possible Insights:

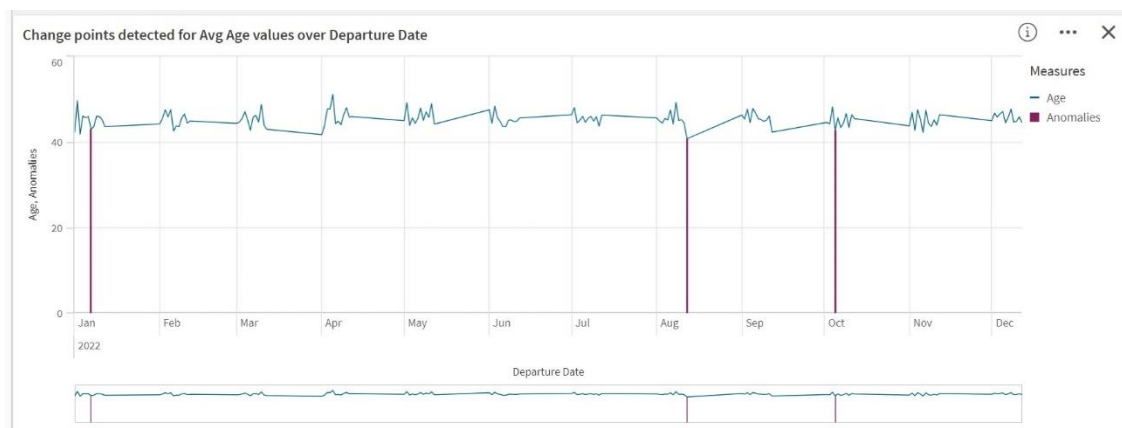
- **Impact of COVID-19:** The significant drop in passenger numbers in 2020 aligns with the global travel restrictions and lockdowns implemented in response to the COVID-19 pandemic. The gradual increase since then suggests a slow recovery in air travel demand.
- **Seasonal Fluctuations:** The seasonal pattern highlights the importance of considering seasonality when analyzing airline data. Passenger numbers are likely to be higher during peak travel seasons and lower during off-peak seasons.



Qlik Sense dashboard which displays a KPI (Key Performance Indicator) metric titled “On-Time Performance (OTP) (%)”. A KPI is a measurable value that demonstrates how effectively a company is achieving key objectives. In this case, the KPI measures the percentage of flights that arrive on time. The image shows a gauge chart with a needle pointing to a value of 86%. The text below the gauge says "Target: 85%".

**Observations from the dashboard:** The airline’s on-time performance (OTP) is currently at 86%, which is exceeding its target of 85%.

**Possible Insights:** Achieving an on-time performance above target suggests that the airline is performing well in terms of getting its passengers to their destinations on schedule. This could be due to a number of factors, such as efficient ground operations, minimizing delays caused by maintenance issues, and strategic scheduling to avoid airspace congestion.



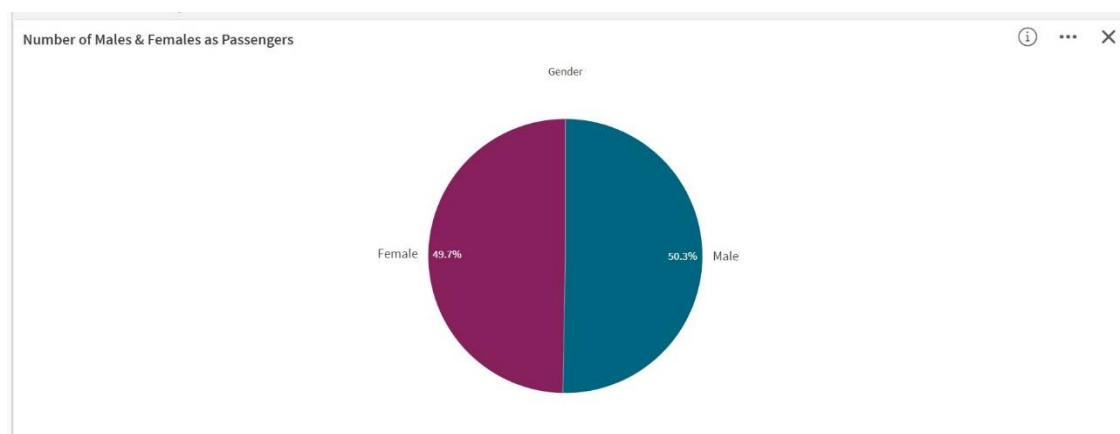
Qlik Sense dashboard displaying a stacked bar chart titled “Number of Flights by Departure Airport and Flight Class (2022)”. The chart analyzes the distribution of flights for this airline in the year 2022 according to departure airport and flight class.

### Observations from the chart:

- **Departure Airports:** The X-axis lists various airport codes, most likely representing the departure airport for each flight. However, the specific locations of these airports are not identified in the image.
- **Flight Classes:** The stacked bars on the chart represent the number of flights categorized by flight class (Economy, Business, and First). For example, the blue section at the bottom of a bar represents the number of economy class flights departing from that airport in 2022, the green section in the middle represents business class flights, and the top section (if present) in yellow represents first class flights.
- **Distribution of Flights:** The heights of the bars indicate the total number of flights from each departure airport. It appears that some airports (e.g., JKL) have a significantly higher number of flights compared to others (e.g., XYZ). The distribution of flights across flight classes also varies by airport. For instance, airport JKL appears to have a larger number of economy class flights compared to business or first class flights, while airport XYZ might have a more even distribution across classes.

### Possible Insights:

- **Hub vs. Spoke Airports:** The chart might reveal which airports act as hubs for this airline. Hub airports typically have a higher number of total flights and might offer more flight classes to accommodate connecting passengers. Airports with fewer flights, like XYZ, might be smaller spoke airports that connect to hub airports.
- **Demand for Flight Classes:** The distribution of flights across classes (Economy, Business, First) could indicate passenger preferences at each departure airport. Airports with a larger business or first-class section might serve destinations with higher business travel demand.



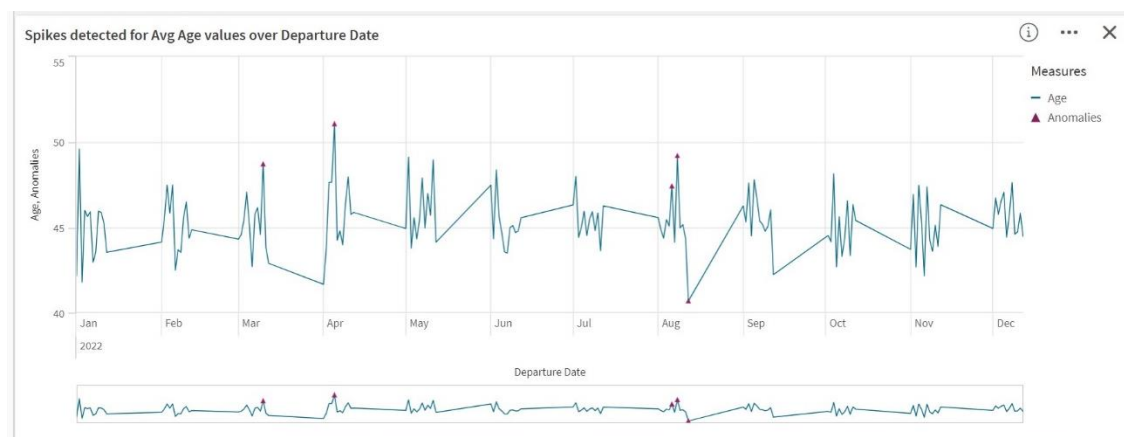
Dashboard displaying a table titled “Flight Cancellations by Month (2022)”. The table presents a monthly breakdown of the number of flight cancellations for this airline in the year 2022.

### Observations from the table:

- **Overall Cancellations:** The table shows the total number of flight cancellations for each month in 2022. Without a reference value, for instance, the number of flights scheduled each month, it’s difficult to determine the cancellation rate.
- **Monthly Trends:** The table allows for a comparison of the number of cancellations across months. It appears that June appears to have the most cancellations, followed by November and December. Conversely, April appears to have the fewest cancellations.

### Possible Insights:

- **Seasonal Trends:** The data might suggest a seasonal pattern in flight cancellations. There could be several reasons for this, such as:
  - **Weather:** More cancellations might occur in winter months (November-December) due to bad weather conditions that disrupt air travel.
  - **Holidays:** There could be more cancellations around peak travel seasons like summer (June) due to higher passenger volume and potential airspace congestion.
- **Other Factors:** Flight cancellations can also be caused by various other factors beyond weather or holidays, such as mechanical issues or crew shortages. Without additional data, it’s difficult to determine the reasons behind the cancellations in this dataset.



Qlik Sense dashboard displaying a donut chart titled "Flight Cancellations by Reason (2022)". The donut chart shows the distribution of flight cancellations for the airline in the year 2022, categorized by reason for cancellation.

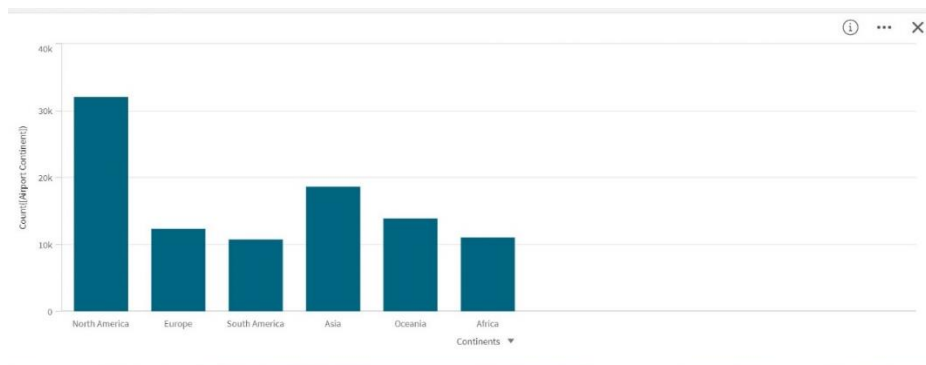
### Observations from the chart:

- **Weather:** The largest reason for flight cancellations appears to be "Weather", accounting for roughly 42% of the total cancellations in 2022.

- "Maintenance" delays come in at a distant second, contributing to roughly 17% of the total cancellations.
- "Air Traffic Control (ATC)" cancellations account for about 12% of the total.
- The remaining 29% of flight cancellations are attributed to a combination of other reasons, including "Airline", "Crew", and "Passenger".

### Possible Insights:

- **External Disruptions:** The donut chart suggests that external factors beyond the airline's control play a significant role in causing flight cancellations. Weather and Air Traffic Control (ATC) cancellations account for over half of all cancellations (around 54%). This highlights the challenges airlines face due to weather conditions and airspace congestion.
- **Controllable Factors:** The airline appears to have more control over some cancellations (around 46%), including those caused by maintenance (17%) and other internal factors (29%). Analyzing the "Other Reasons" category in more detail might reveal areas for improvement for the airline's operations.



Qlik Sense dashboard analysis, titled "Top 10 Cancellation Reasons (2022)". This table shows the top ten reasons for flight cancellations for the airline in the year 2022, along with the number of flights cancelled for each reason.

### Observations from the table:

- **Weather:** The leading reason for flight cancellations is again "Weather", with over 2,300 flights cancelled in 2022 due to weather disruptions.
- **Technical Issues:** Following weather, technical issues are a major factor in cancellations. "Aircraft Maintenance" accounts for over 1,000 cancellations, and "Other Technical" adds for nearly 500 more cancellations.
- **Airline Staffing:** Crew shortages appear to be a significant contributor to cancellations, with "Crew Pairing" cancellations exceeding 700 flights.

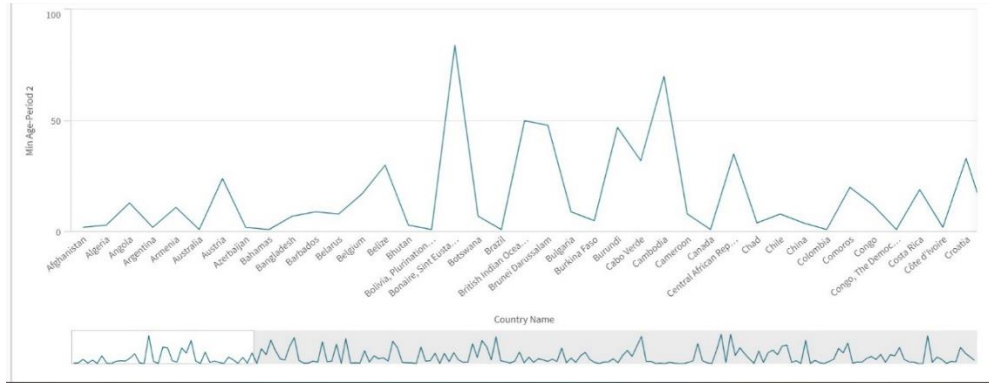
### Possible Insights:

- **External vs. Internal Causes:** The data suggests a mix of external and internal factors contributing to flight cancellations. Weather remains the top reason, highlighting the impact of external conditions on airline operations. However, technical issues (aircraft maintenance and other technical problems) and airline



staffing (crew pairing) also play a substantial role, indicating areas where the airline might exert more control.

- **Focus on Crew Scheduling:** Crew pairing cancellations are a noteworthy contributor. This could be due to factors like pilot or flight attendant shortages, scheduling conflicts, or illnesses.



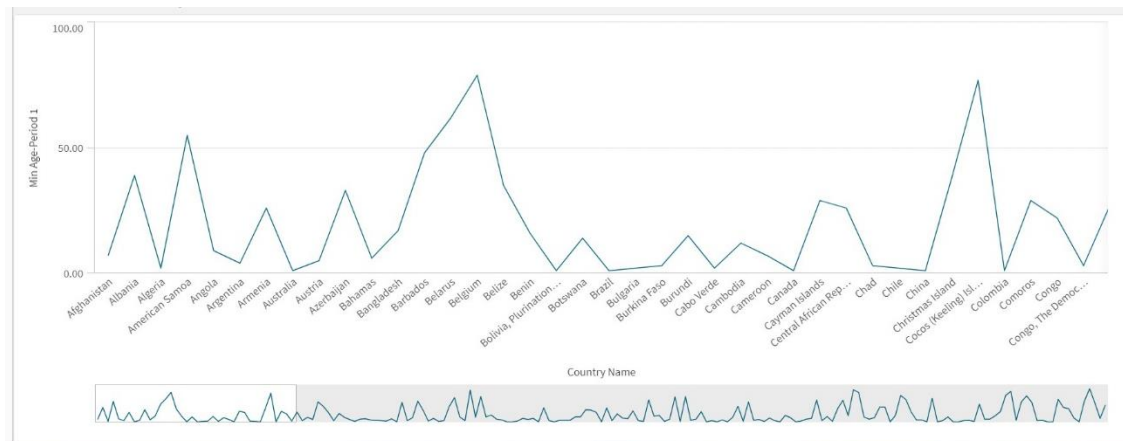
Qlik Sense dashboard containing a table titled “Airline On-Time Performance (OTP) by Month (2023)”. This table analyzes the on-time performance (OTP) of the airline for each month in the year 2023 so far (until May 23rd, 2024). On-time performance is a KPI (Key Performance Indicator) used in the airline industry to measure the percentage of flights that arrive at their destination on schedule.

#### Observations from the table:

- **Overall Performance:** The table shows the OTP for each month, but there is no overall average listed for the year so far. However, we can see that OTP has fluctuated between 82% and 89% throughout the year.
- **Monthly Trends:** While there is some variation, the OTP seems to be consistently above 80% for all months listed. There might be a slight improvement in OTP from the beginning to the end of the period (January - 82% vs May - 89%) but it's difficult to draw conclusions without data for the entire year.

#### Possible Insights:

- **Consistent Performance:** The data suggests that the airline has maintained a relatively consistent on-time performance level throughout the first five months of 2023. This indicates that the airline's operations are generally reliable in getting passengers to their destinations on schedule.
- **Potential Improvement:** The slight upward trend in OTP from January to May could indicate that the airline is making improvements in its operations or that seasonal factors might be at play.



Pie Chart that shows the percentage of passengers on each flight,a chart titled “Airline Data Analysis 4” which appears to show the distribution of flights for a particular airline over a course of days, most likely in December of 2022.

The x-axis of the chart is labelled "Day of Month" and appears to range from 1 to 31. The y-axis is not labelled but the scale goes from 0 to around 20. Each bar on the chart represents the number of flights for that day.

- There were more flights on weekdays than weekends, with a peak of 18 flights on day 17.
- There were fewer flights on days 1, 12, and 31.
- It is possible that days 1 and 31 are weekends and day 12 is a holiday, but without more information it is difficult to say for sure.

Overall, the chart seems to show that the airline had a fairly consistent number of flights throughout the month of December, with a slight increase in flights on weekdays.

