MSIS 670 MINI PROJECT #2

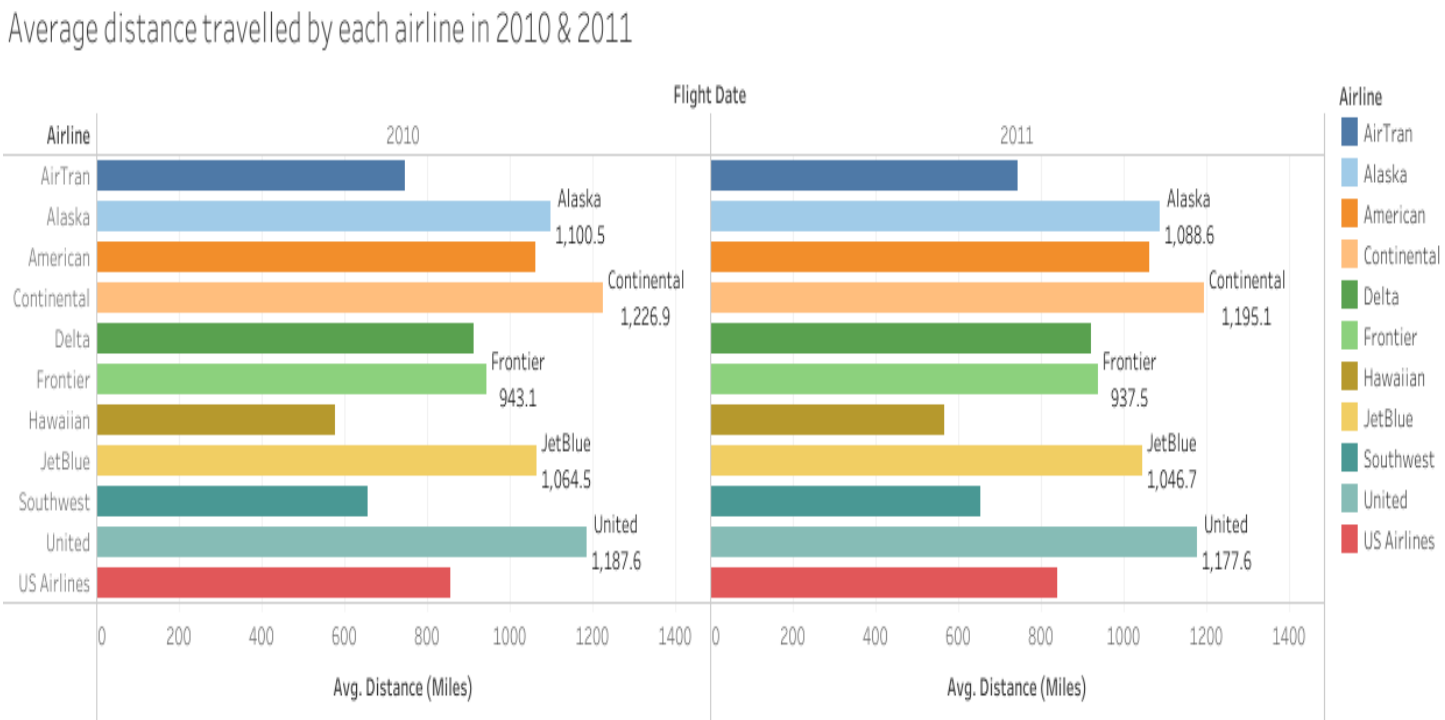
Memo: Analysis of U.S. Domestic Airline Flights (December 2010 - January 2011):

Dear Esteemed Airline Executives,
I am pleased to present the findings derived from a comprehensive analysis of U.S. domestic airline flights spanning December 2010 to January 2011. This analysis aimed to provide valuable insights into various aspects of airline operations, performance metrics, and potential areas for strategic enhancement.

Objectives and Questions Explored in our analysis revolved around addressing pivotal questions within the industry, such as:

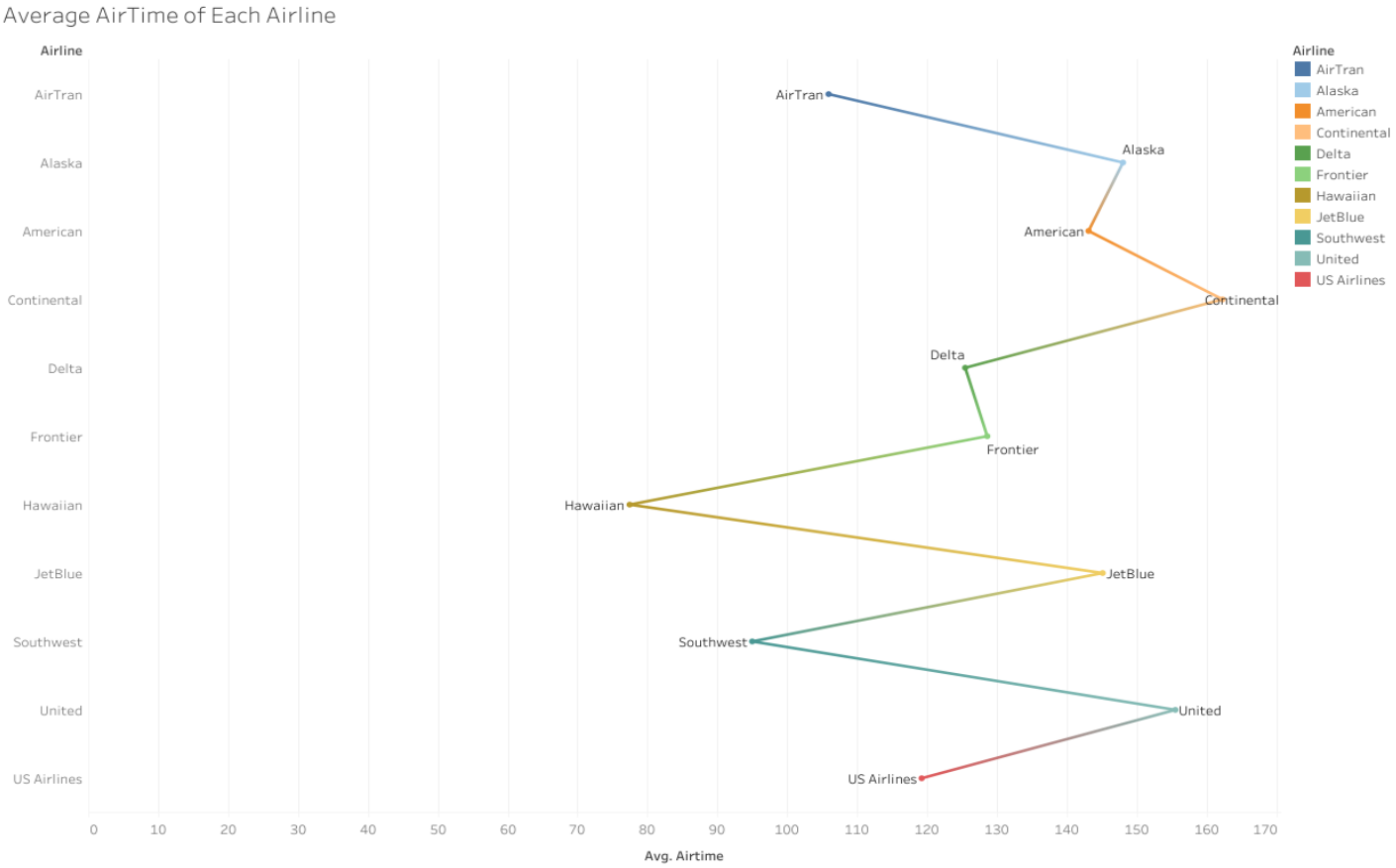
1. Average distance travelled by each airline in 2010 & 2011
2. Average Airtime of Each Airline
3. Average of Departure Delays of each airline of following states
4. Average Airtime of Each Airline from each State

VISUAL 1 : BAR GRAPH OF AVERAGE DISTANCE TRAVELLED BY EACH AIRLINE IN 2010 AND 2011



In this I've compared the average distance travelled by each airline. We can see each color represents each airline in the image. In the results we can see the Continental airlines has travelled the maximum distance in both the years when compared to other airlines and least by Hawaiian in both the years.

VISUAL 2 : LINE GRAPH OF AVERAGE AIRTIME OF EACH AIRLINE

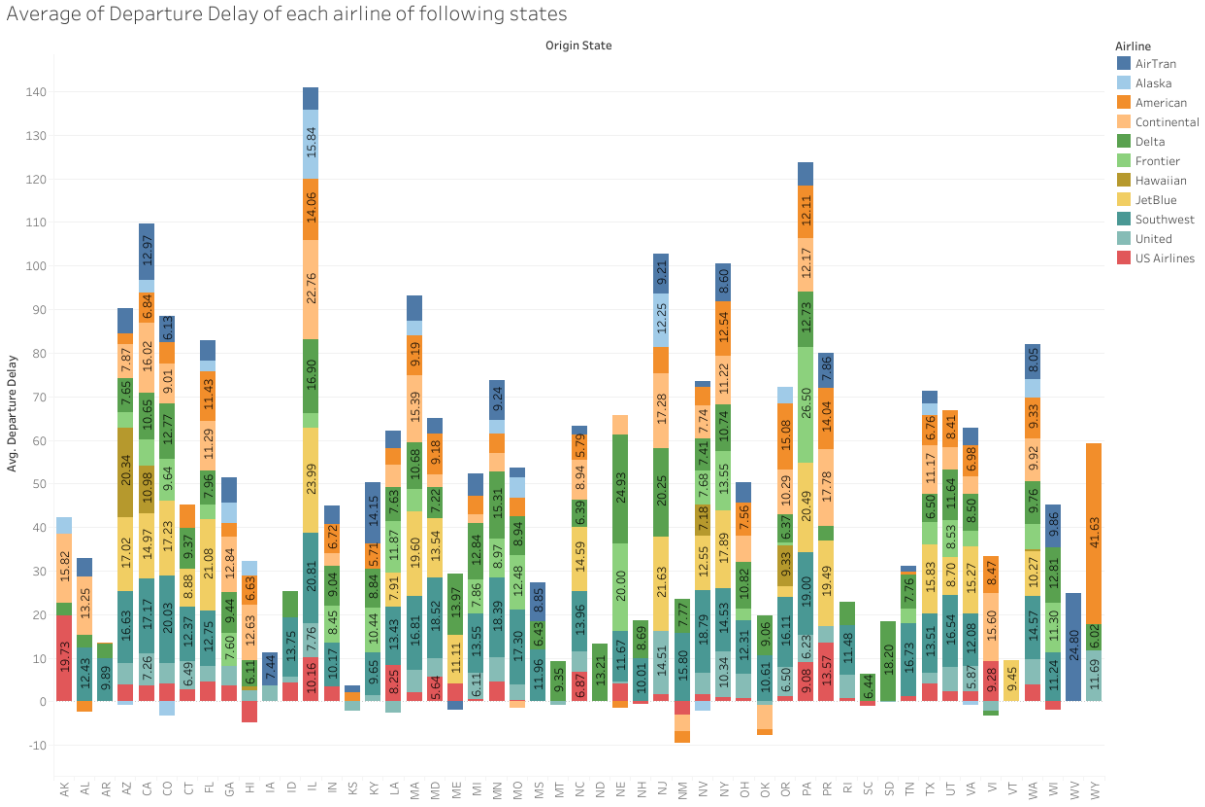


Continental Airlines: Emerged as the leader with the highest average airtime among all airlines. This signifies prolonged durations in the air per flight, suggesting longer distances covered or potentially more extensive routes serviced.

Alaska, JetBlue, and United Airlines: Showed a marginal difference in the second-highest average airtime. While not reaching the extent of Continental Airlines, these airlines demonstrated a consistently high average airtime, indicating substantial flight durations.

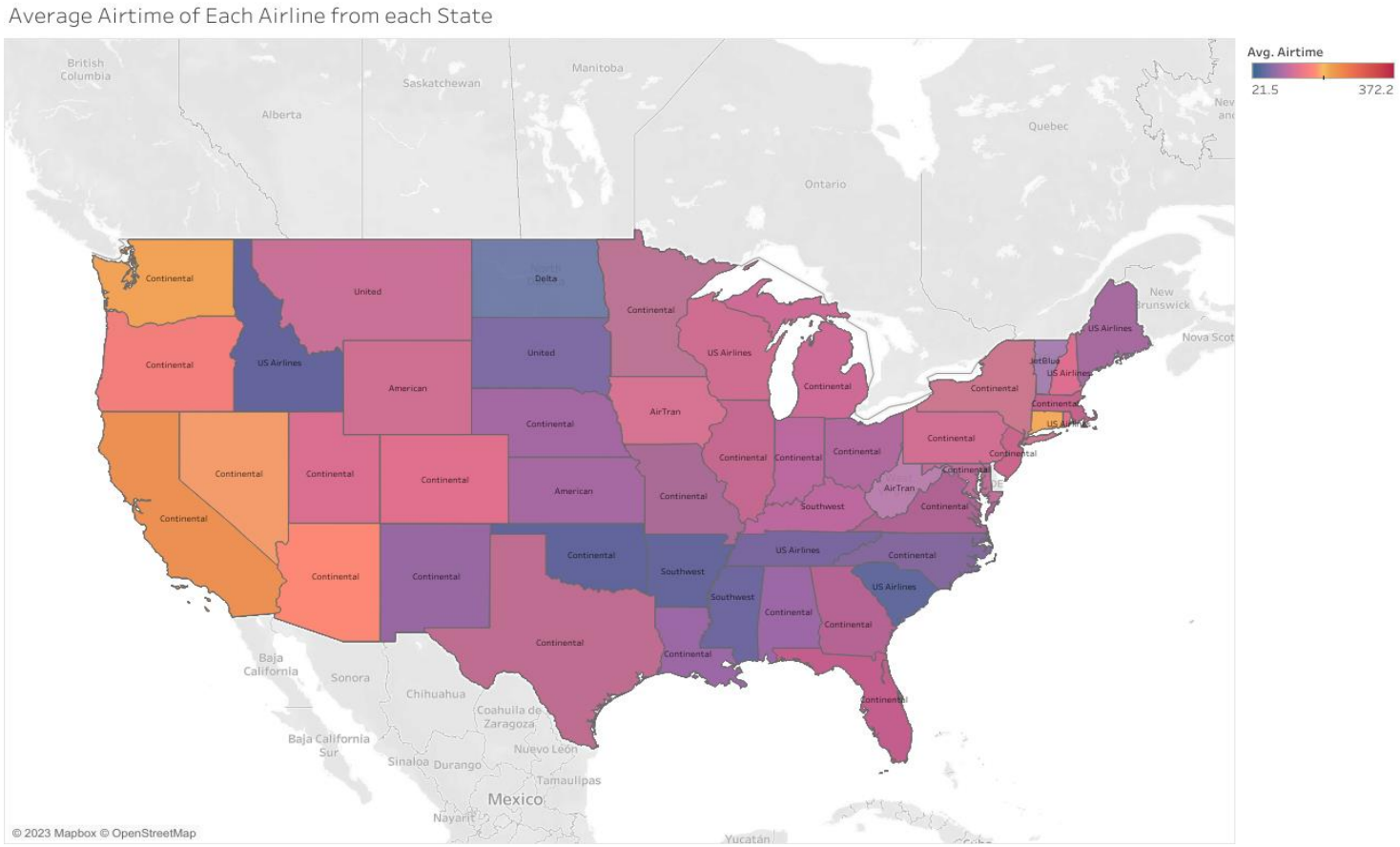
Hawaiian Airlines: Recorded the lowest average airtime among the airlines analyzed. This suggests comparatively shorter flight durations or potentially focusing on shorter routes within the domestic landscape.

VISUAL 3 : STACKED BARGRAPH OF AVERAGE DEPARTURE DELAY OF EACH AIRLINE IN EACH STATE



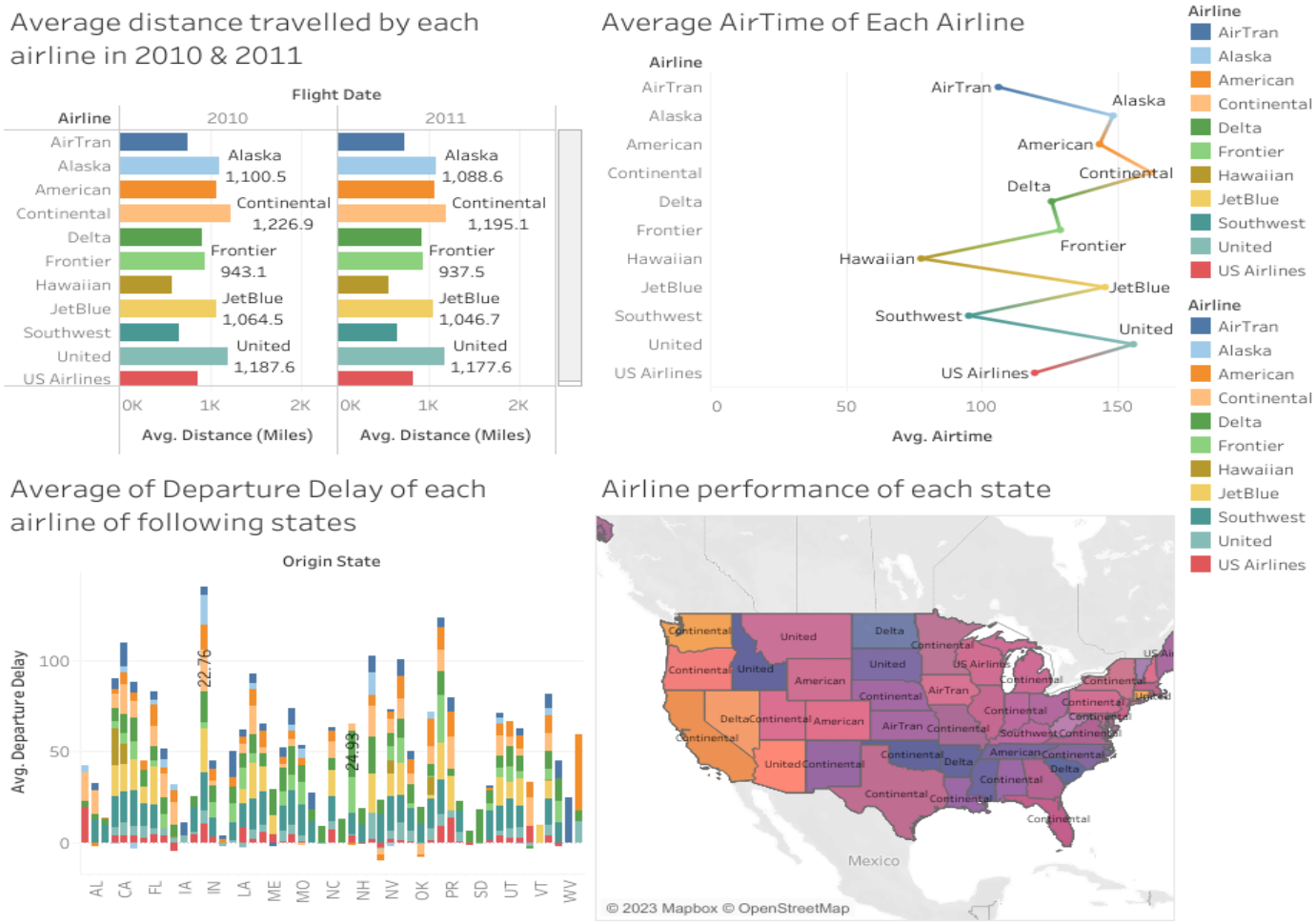
- In this visual, I've decided to know the departure delay of each airline of all the states.
- The numbering label on the graph represents the average of departure delay and each color represents each airline
- Each state has different airlines with maximum departure delays. But when compared with overall states we can see that 'American' Airline from 'Wyoming' state has the highest average of delays.

VISUAL 4 : FILLED MAP OF OVERALL AIRLINE PERFORMANCE



In this symbol map I've considered the entire data we have in the dataset related to each airline and when we place the cursor on a particular state we get the information of airline name, its average of delay , average distance, average airtime of each state along with the name of each state.

DASHBOARD OF ALL THE FINDINGS:



- This Dashboard is the collection of all the 4 visualizations I've created so far. In this dashboard, I've also added few actions to make it more interactive and to give even better idea about my findings to the audience/user.
- I've added the filter option on "Airline Performance of each state" with "**select**" criteria which means if the user clicks on a specific state, it will trigger an action that affects other visualizations on the same dashboard. It displays the information related to that state in the overall dashboard which helps the user to understand the entire information in just one click.
- I've also added highlight option on "Average departure delays of each airline of following states" with "**Hover**" criteria. This action is similar to that of "select" but in this when we simply move our cursor on a specific point, the overall dashboard displays the information about that specific point.

- I’ve added this hovering action to hover it on the stacked bar graph and get overall information about the specific airline. When we place a cursor on “American” airline, we can see the details related to that airline in the dashboard.

For better understanding I’ve provided the link for my tableau workbook in which you can have a look at my findings.

TABLEAU WORKBOOK LINK : https://prod-useast-b.online.tableau.com/#/site/msis670fall2023/workbooks/1037771

Conclusion:
In reviewing the average airtime among U.S. domestic airlines for December 2010 to January 2011, it's evident that each airline has its own distinct patterns and operational approaches. These differences in airtime duration signify potential areas for strategic optimization within the industry.

Thank you,
Meghana Aravala.