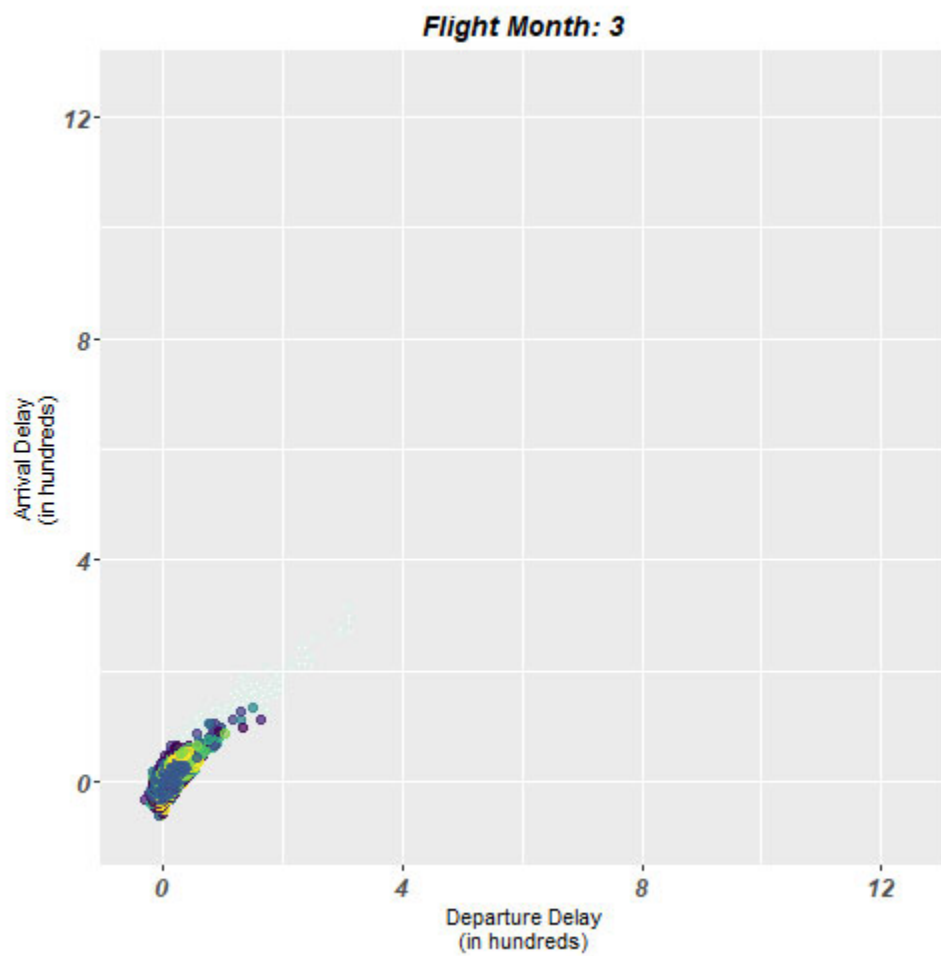


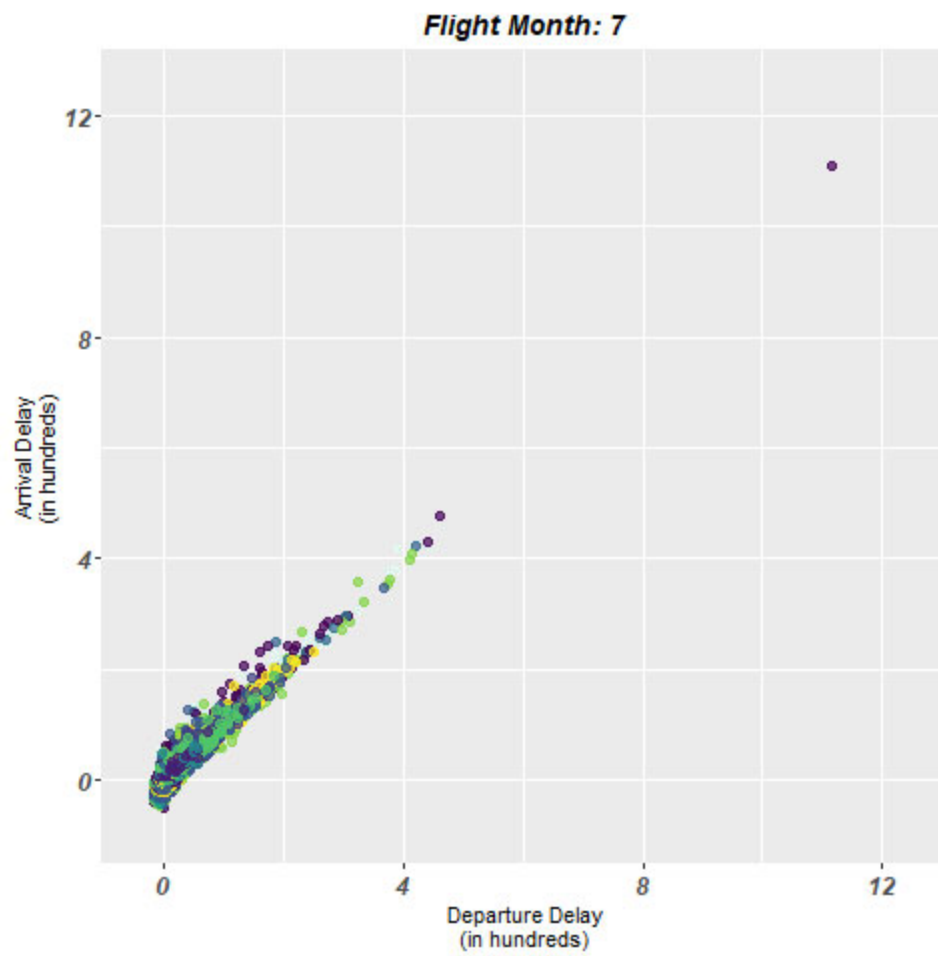
Name: Ronaldlee Ejalu

Student Number: 2020637

#### Homework Assignment 4

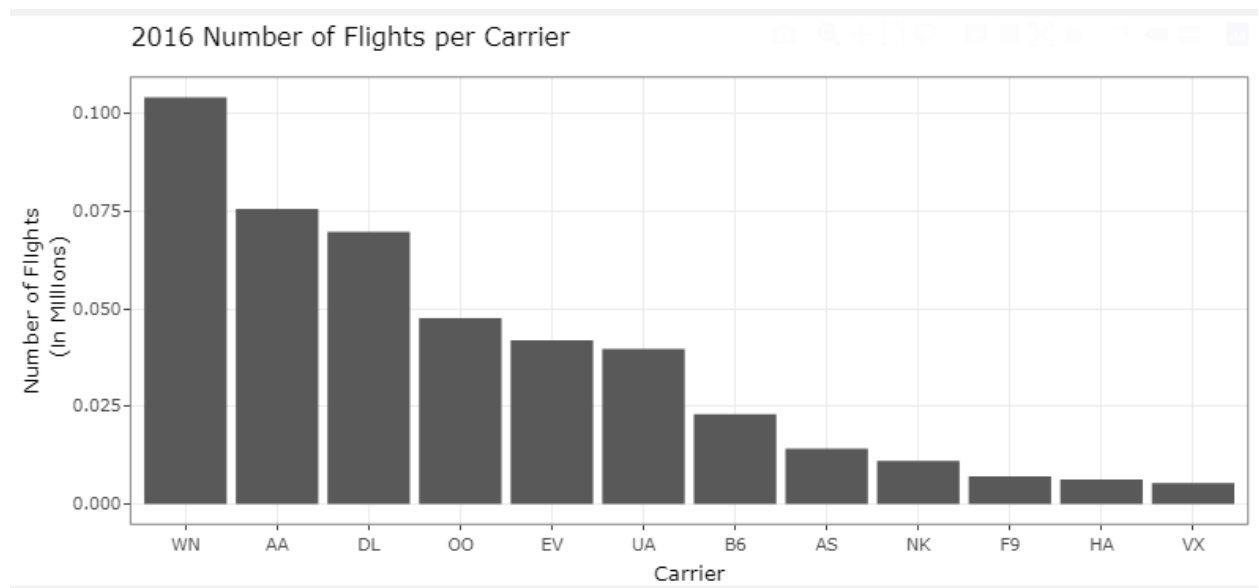
1. Using `ggplot`, I created an animated scatter plot, which shows a strong relationship between Arrival Delay and Departure Delay.





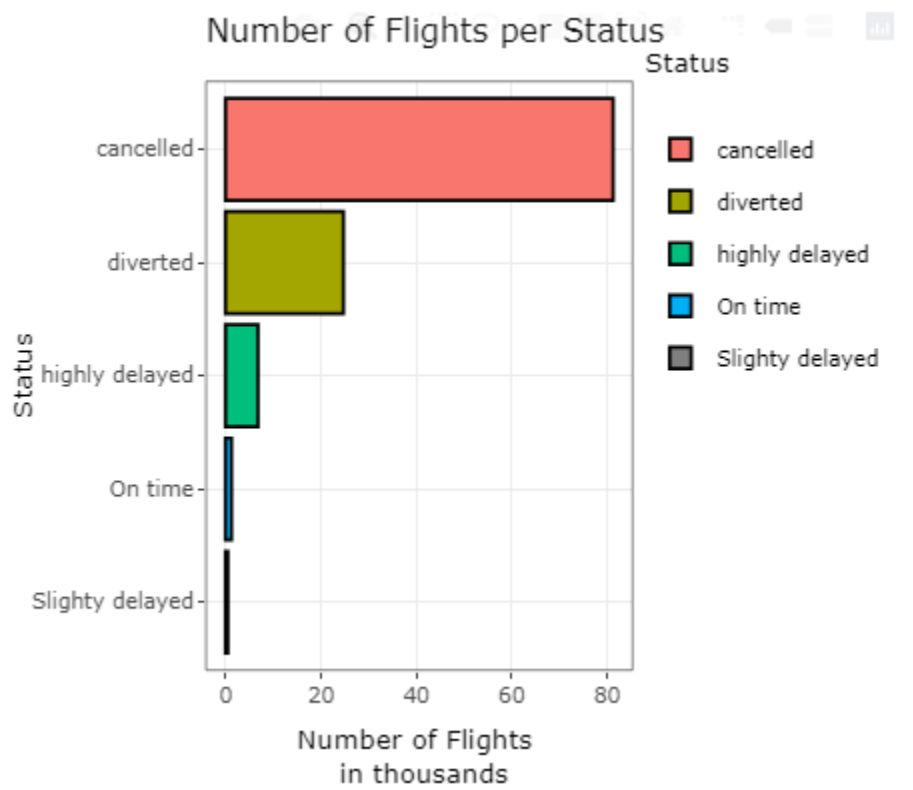
2. I also implemented several bar charts:

- 2016 Number of flights per Carrier



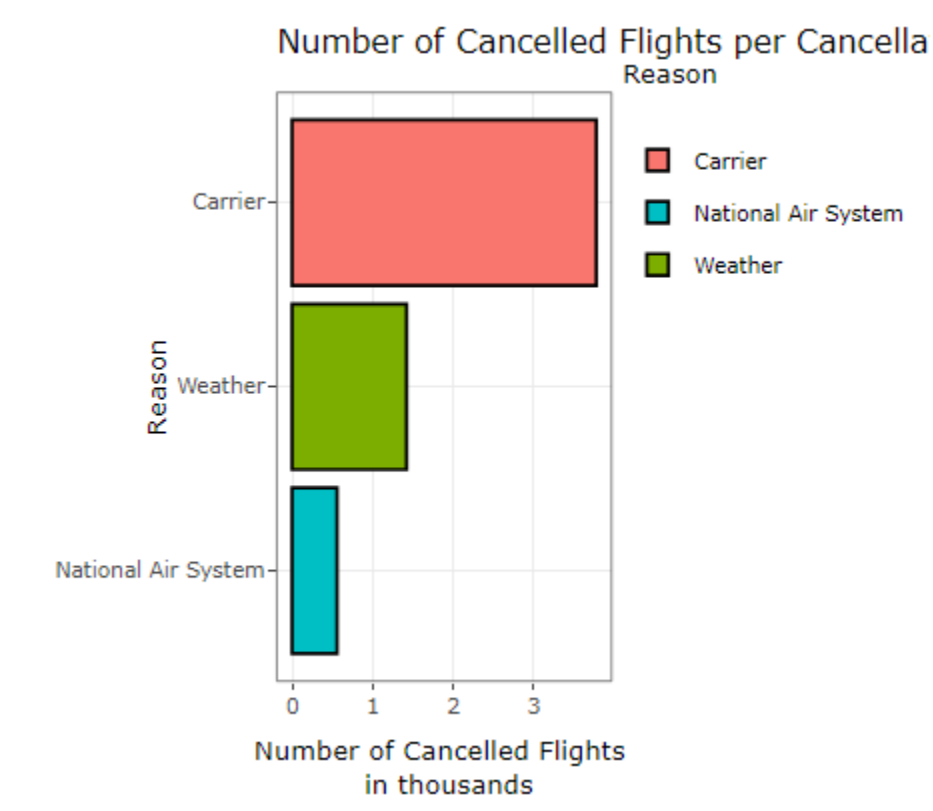
The above bar chart shows the number of flights per carrier in 2016. We learn that Virgin America (VX) had the lowest number of flights and South West Airlines Co. (WN) had the highest number of flights in 2016.

- Number of flights per status



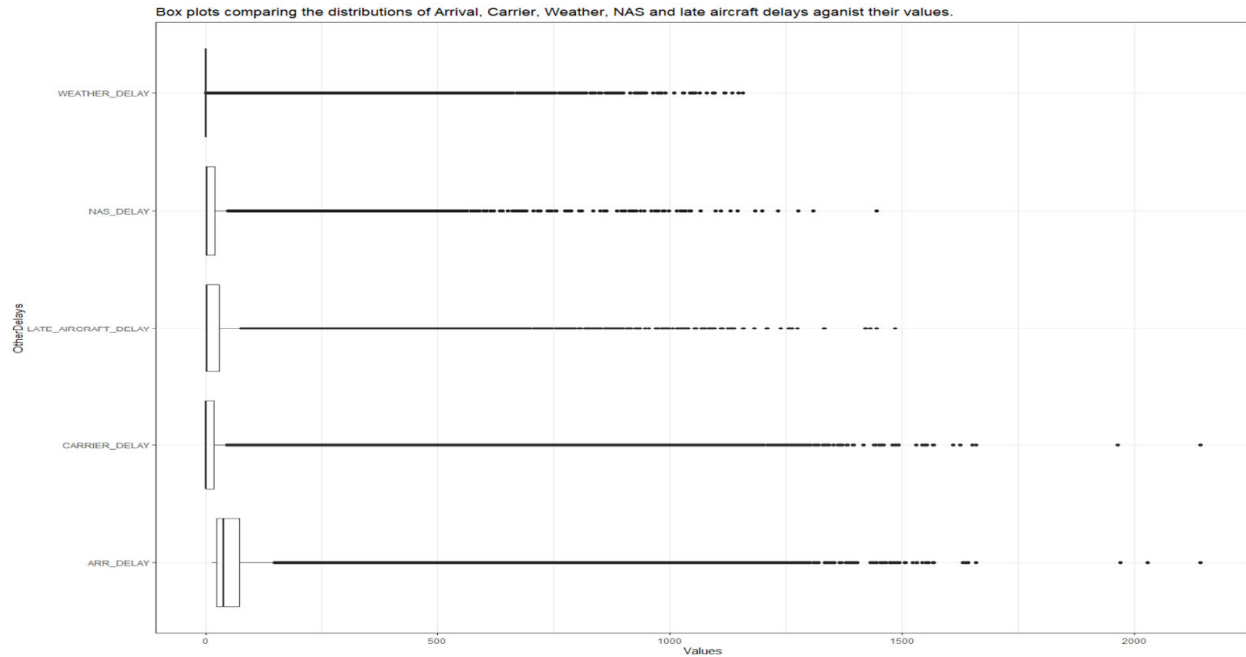
The bar graph indicates that a lot of flights were cancelled compared to those that were diverted.

Number of Cancelled Flights per Cancellation Reason:



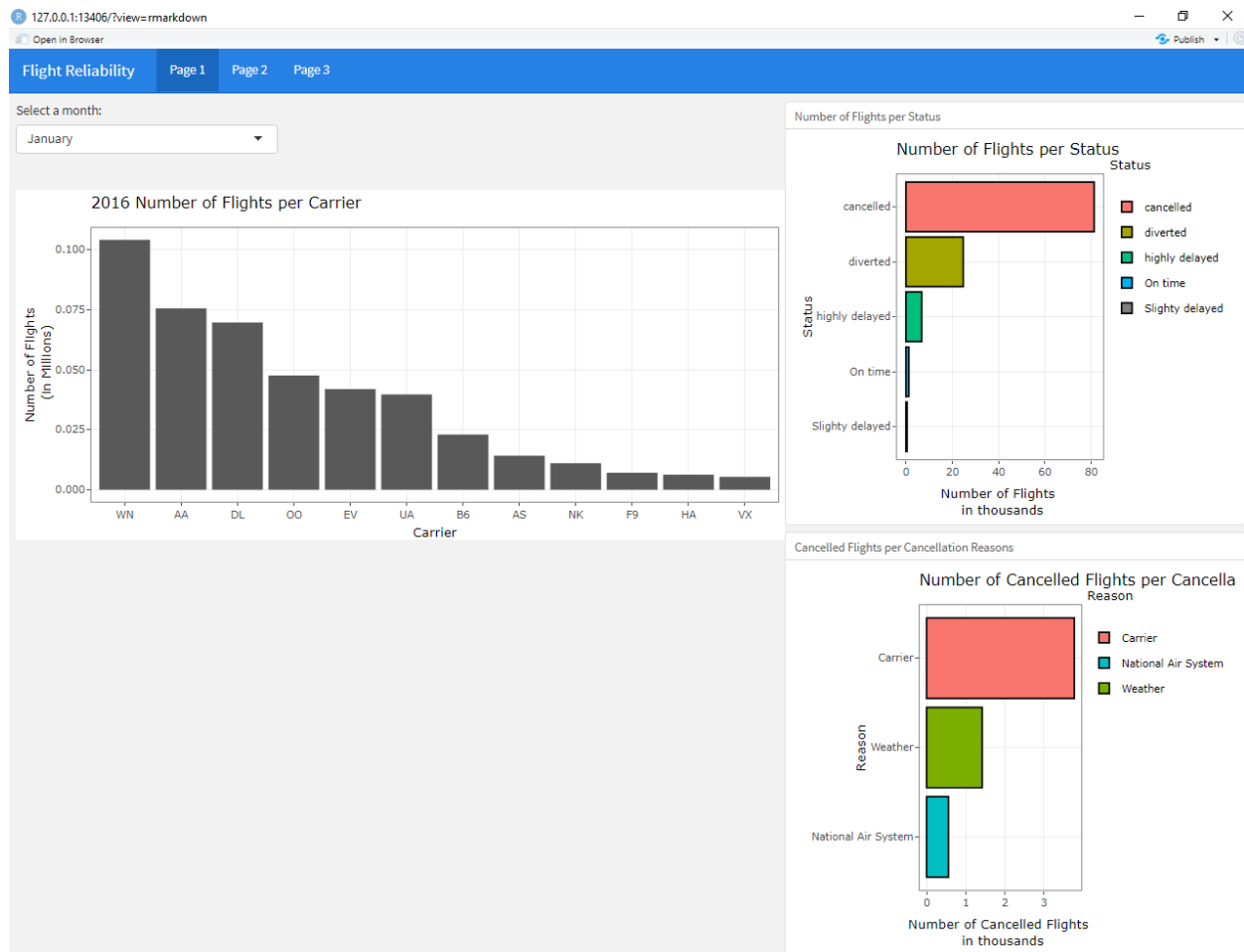
Amongst the cancelled flights we learn that carrier reason dominates amongst all the other reasons especially when the planes are experiencing technical difficulties then weather comes in the next position as one of the other reasons why flights were cancelled in 2016. We see that security takes a small percentage as one of the reasons why the flights were cancelled.

Last, I had a box plot comparing the distribution of Arrival, Carrier, Weather, NAS and late aircraft delays against their values:



We notice that they are potential outliers, which need to be investigated and removed amongst all the different delays.

So, using flex dashboard and shiny, I implemented an interactive dashboard where a user selects a given month from a drop down list, and this displays data for that time period and also once a user hovers around any points on the bar charts, they are able to see the given data point information.



The implemented dash board has three pages or tabs.

- The first page contains the bar charts
- The second page contains Box plots.
- The third page contains the animated scatter plot.