



DSC 640 Data Presentation & Visualization

Spring 2021 Semester

Milestone 1b: Design Methodology

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Design Choices

Using Power BI as the tool since I have been using the same with my other assignments and so find it easy to use. Could have used either Tableau or any other tool, however some learning would have been needed on the same.

Main Dataset

[Airline Safety](#), Aviation Safety Network - airline-safety.csv downloaded from Github (Mehta, 2018)

Supplemental Dataset

Car Crash Deaths and Rates downloaded from Injury Facts (Historical Fatality Trends, n.d.)

Downloaded the data table and adjusted file before saving as csv. This was to avoid the multiple header rows which made it easier to pull into Power BI and work with

Death Rate per Year (aircraft) downloaded from Bureau of Aircraft Accidents Archives (Death Rate per Year, n.d.)

Line Chart - Dual

Total Number of Fatalities by Motor Vehicles (1985-2014) and Air Fatalities (1985-2014). I felt like having continuous data for the years in this made sense to have a line chart and plot them together to show the difference. From the plot its evident how Air Fatalities are much lesser compared to the Motor Vehicle Fatalities.

Updated y-axis name as well as Title

Used Filters to limit the data by years 1985-2014 as that's what the original dataset follows and I want an equal comparison

Donut Chart

I also compared the Air Traffic Fatalities between the periods 1985-1999 and 2000-2014. This shows, how the air traffic has become more safer compared to how it was in the previous period.

Line Chart – Passenger & Revenue

I have tried showing the Passenger count as well as Revenue in two different line charts. Though the period ranges almost similar. This shows how the passengers and revenues have shown to grow over the period and air travel has become more and more popular.

I updated the y-axis name as well as Title

Did not used filters to limit the data rather showed both somewhat using the same timelines on X-axis. Could have filtered 2 years for the revenue part as they were missing in passenger count, however it would not have mattered much so left as it is.

Originally thought about combining this one and the one below, but because of one field being revenue and other count, it was not making sense from the perspective of Y scale, so I decided to split into two separate line charts one over the other.

Had to update sorting to be by year in ascending order

Updated y-axis to show numbers in billions

Horizontal Bar chart – Fatalities by Each Airline

Comparison of Total Fatalities by Year Grouping for Each Airline a. Originally had colors blue and red for bars since that is a colorblind friendly palette but decided to change the 1985-1999 to a grey color since we are really focused on more recent airline crashes. This makes the 2000-2014 timeframe pop more. (Shaffer, n.d.)

Kept text to a minimal as the coloring should display the point I want to get across, which is there were less fatalities in 2000-2014 than the earlier years except for Malaysia Airlines. Power BI automatically named axis and title, so I updated those names to make more sense instead of using the default column headers

Chose bar chart because I felt like the visual told the story the best. Tried line chart and it looked too much like a mountain range for me to get an immediate picture of what was going on, so changed to bar chart where I felt the spikes per airline were more focused.

Horizontal bar chart - Available Seat KM Flown Every Week (Billions) by Airline

I felt it was necessary to show the sheer volume airlines experienced on a weekly basis

Filtered on seat km flown per week to anything that was equal or greater than 1 billion as that would encompass many of the major airlines active today.

Made my axis colors darker and added data labels for easier consumption but made them in grey so they wouldn't be overwhelming.

Went with green for my bars to use a different color, since it's not combined with any other colors

Used the original dataset (Mehta, 2018)

References

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