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Course: DSC640-T301 Data Presentation & Visualization

Assignment: Project Task 1 – Design Methodology

1. Overall design choices:
    a. Using Power BI as that is what my company is moving towards, so using it more now will help build my skillset to use later for work.
    b. Main dataset airline-safety.csv downloaded from Github (Mehta, 2018)
    c. Supplemental data used –
        i. Car Crash Deaths and Rates downloaded from Injury Facts (Historical Fatality Trends, n.d.)
            1. 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
        ii. Death Rate per Year (aircraft) downloaded from Bureau of Aircraft Accidents Archives (Death Rate per Year, n.d.)
2. Bar chart – 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're really focused on more recent airline crashes. This makes the 2000-2014 timeframe pop more. (Shaffer, n.d.)
    b. 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.
        i. Power BI automatically named axis and title, so I updated those names to make more sense instead of using the default column headers
    c. 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.
3. Line chart – Total Number of Fatalities by Motor Vehicles (1985-2014)
    a. I felt like having continuous data for the years in this made sense to have a line chart.
    b. Went with colorblind friendly palette and chose blue as the main color source since it doesn't have as much variation. (Cravit, 2019)
    c. Updated y-axis name as well as Title
    d. Used Filters to limit the data by years 1985-2014 as that's what the original dataset follows and I want an equal comparison
    e. Originally thought about combining this one and the one below, but because of the number of aircraft fatalities are significantly lower the spikes weren't easily visible so it looked like I was manipulating the data based on my assumptions, so I decided to split into two separate line charts.
4. Line chart – Total Aircraft Fatalities by Year (1985-2014)
    a. Again, continuous data made sense to use a line chart

    b. Went with colorblind friendly palette and chose blue as the main color source since it doesn't have as much variation. (Cravit, 2019)
    c. Updated y-axis and title
    d. Had to update filter to only show the year timeframe that the main data source covers
5. Horizontal bar chart – Available Seat KM Flown Every Week (Billions) by Airline
    a. I felt it was necessary to show the sheer volume airlines experienced on a weekly basis
    b. 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.
    c. Made my axis colors darker and added data labels for easier consumption but made them in grey so they wouldn't be overwhelming.
    d. Went with green for my bars to use a different color, but that is still colorblind friendly palette since it's not combined with any other colors
    e. Used the original dataset (Mehta, 2018)
6. Table – Total Operating Revenue and Passengers by Year
    a. Chose table because the values differentiated so much I couldn't put them into a graph without the data looking skewed.
7. Line chart – Total Airline Operation Revenue by Year (2000-2020)
    a. Put in red as it still qualifies as being colorblind friendly
    b. Kept separate from total passengers because totals were too different
    c. Had to update to sort by year in ascending
    d. Updating y-axis label
    e. Data came from (Operating Revenue (In Thousands of Dollars ($000), n.d.)
8. Line chart – Total Airline Passengers by Year (2000-2020)
    a. Data came from (Passengers All U.S. Carriers - All Airports, n.d.)
    b. Kept separate from operation revenue as passenger totals were in the billions while revenue was in millions
    c. Had to update sorting to be by year in ascending order
    d. Updated y-axis to show numbers in billions

References

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Mehta, D. (2018, February 9). *Airline Safety*. Retrieved from Github - fivethirtyeight: https://github.com/fivethirtyeight/data/tree/master/airline-safety

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Shaffer, J. (n.d.). *5 Tips on Designing Colorblind-friendly Visualizations*. Retrieved from Tableau: https://www.tableau.com/about/blog/2016/4/examining-data-viz-rules-dont-use-red-green-together-53463#:~:text=For%20example%2C%20blue%2Forange%20is,blue%20to%20someone%20with%20CVD.