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DSC640 – 2.3 Project Task 1: Dashboard

Project Dashboard – Accompanying Write-Up

Overview:

**Scenario/Business Problem:**
Due to recent unfortunate airline crashes, the media has been promoting statistics stating air is no longer a safe way to travel. The news and media outlets have been bombarding the public with reports and figures about the trends of airline safety and that things are not looking good. What was previously thought as the safest way to travel, especially when compared to automobiles, is now being presented as one of the most dangerous to the public. But are any of these claims based on facts?

You work for an airline on the data science team as a data analyst and are a resident data visualization expert. You have been tasked with helping multiple groups in the organization combat this negative publicity and help tell the airline's side of the story. There is a fear internally about what this type of media coverage will do to airline sales and how it could impact the future of the company. Not only do they need you to help create some internal communications, but you will also be tasked with what is published to the public and the media.

**Write-Up Task:**

A 250-word paper summarizing what you did and why you made the decisions you did – why did you choose the visualizations you did? How do you plan to present to your internal team? What were your findings? Ethically what do you need to consider? This paper is for the instructor to understand your thought process and justification of design.

## Brief Summary - Dashboard:

For this project dashboard, I elected to stick with the professor's proposed topic/business problem regarding airline crashes.

Firstly, with respect to color, I elected for a blue-focused color scheme because: 1) many airlines already use blue in their logos/marketing materials and 2) blue is generally a color we think of when we think of the "skies."

Secondly, I chose a variety of visualizations to portray the data to stakeholders. These visualizations, what they display, findings, and my choice justifications are outlined below:

- Stacked bar chart: showcasing all fatal airplane crashes, with the "stacking" showing fatalities by commercial airlines, corporate jets, and hijackings. I felt showing this was

important for highlighting the different types of airline fatalities, and that most are concentrated within the commercial vein.

- Bar chart: showcasing all fatal vehicle crashes for approximately the same time period as the airline crashes. I thought this was important to show as a comparison for airline crashes – comparatively speaking, when assessing the y-axes (unscaled), we can see that airline crashes are merely a small portion of automobile crashes.
- Line graphs/charts:
    - Automobile fatalities and total aircraft fatalities from 1985-2014
        - These are a "drill-down" comparison of the bar charts, as well as another format (trend line over time).
        - Axes are scaled on these visuals.
    - Total airline operation revenue from 2000-2020: this showcases that overall, airline revenue has been up in the past 20 or so years, and only during COVID did it take a dive.
    - Line charts are best for showing trends across time, as the trajectory of a line is easy to follow (as well as any "hills or valleys.").
- Tree map: this illustrates which continental areas possess the most crashes.
    - This is easier for humans to assess as far as proportions (angles) go than a pie chart (or donut chart).
- Scatterplot: this outlines the overall fatalities per ASK.
    - ASK is available seat kilometers, a measure of passenger carrying capacity.
    - Scatterplots are good for showcasing the relationship between two variables, so it was fitting for this visualization – not many crashes actually occur per ASK.

Overall, I felt that my dashboard encompassed a healthy variety of perspectives related to this topic – comparison with automobiles, revenue numbers, trends across time, geography, relationships, etc.

From an ethics standpoint, it would be important to consider that some of my data is sourced from different places, and that due to this, some data may not align perfectly. Additionally, while airline crashes are, in fact, rarer, it is imperative not to downplay them or the traumatizing effect they can leave on the human psyche.