**Project Task 1: Dashboard**

Your first task is to create an internal dashboard for your peers and data science management team that outlines the facts – what are the stats and what are the trends? Is there any supplemental data that you can use to support that air travel is still in fact the safest? Is there anything politically going on that would cause this type of media attention to be at a peak – remember, this is for an internal review by your peers and management – and will likely spark a lot of discussion for how you approach the next level of discussion with your executive leadership team. Is there anything to show sales are down or are headed that way? Do the safety incidents appear to be in a specific geographic area or by a specific airline every time? Do some analysis of the data you have and look for other sources to see what you can find to help inform your internal team. This project is the first of many building on top of the information you find and will present internally and then externally.

The following must be subitted to the assignment link:

* Your dashboard (created either in PowerBI, Tableau, or another tool that puts multiple metrics on 1 page). Make sure to export to PDF prior to submission.
  + Your dashboard should have at least 6 visualizations on it.
  + Make sure you follow a design methodology that you can defend (colors, labels, chart types, etc.).
  + Must use at least 1 supplemental dataset of your choice.
* 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.

**Dashboard:**

The sole purpose of the dashboard is to visualize the right side behind the negative publicity on air travel through historical facts and relevances. From a design perspective, colorblind safe pallet has been used and simple high impact chart types have been used to maintain clarity.

1. **Fatalities by Airlines**

This scatter plot plots fatalities by airlines (color coded) for the two time periods (1985-1999, 2000-2014). The intention is to find correlation between the fatalities across the two periods.

There is no predictable nature of the number of incidents for the airlines between the two periods. Air Kenya had no fatalities in ’85-’99 period but has very high rate in the other period (’00-’14). Avianca on the other hand had high fatality during ’85-’99 but got better in the second half. China and Pakistan airlines has high rate in both halves. But basically, there is no pattern.

1. **Incidents by Airlines**

The intention is to find correlation between the incidents across the two periods.

We can see that there is a modest correlation between the two periods.

The two major outliers in the chart are Pakistan International Airlines and Ethiopian Airlines, which have had a persistently high rate of incidents. A third outlier, Russia’s Aeroflot, had an extraordinarily high number of reported incidents in ’85-’99. But many of these incidents are attempted hijackings around the time of the breakup of the Soviet Union. Contrastingly it has relatively low number in the ’00-’14 period. Even if we exclude these the outliers, there is still a positive correlation.

The statistical inference from this chart is, some airlines are slightly safer to fly than others.

1. **Top 5 airlines by Total Incidents**

This horizontal bar chart lists the top 5 airlines in terms of overall incidents. Noticeably, none of the 5 airlines are from the first world countries. Therefore, safety measure and technical deficit could be a reason behind the incidents.

The takeaway from this graph is, it cannot be generalized that air travel is unsafe. It might very well have a relationship between airlines and country of operations.

1. **Fatalities Trend: First World vs Rest**

This clustered graph compares the count of fatalities between first world countries and the rest of countries over the two periods. Although in both cases, the overall count decreased in ’00-’14 compared to ’85-’99, first world numbers are considerably lower than the rest in both cases. This chart re-established the fact that there is stark difference between air travel quality of countries. Air travel is not at all unsafe for some countries.

1. **Incidents Trend: First World vs Rest**

This chart is almost identical to the prior graph. The inference is also very similar. The only noteworthy point is, first world countries did not improve much in terms of incidents. The high air traffic could be a reason behind the high number of incidents in first world countries. But in comparison with the rest, the numbers are still pretty low.

1. **Motor Vehicle Deaths (US) vs Airlines Deaths (First World)**

This visual use supplemental data of auto fatalities in the USA for the same two periods (

’85 - ’99, ’00 - ‘14). The airlines fatalities are filtered for US airlines and compared to the

Auto numbers. Although there are decreasing trend of incidents in both travels, auto

casualties are consistently far greater than air travel. If the facts in the data is to be

considered as truth then this visual clearly shows that just by considering number of

fatalities, travelling by road is far more dangerous than travelling by air.

Reference : Data Set

1. <https://docs.google.com/spreadsheets/d/1SDp7p1y6m7N5xD5_fpOkYOrJvd68V7iy6etXy2cetb8/edit#gid=1448957446>
2. <https://aviation-safety.net/>
3. FiveThirtyEight, Airline Safety, Retrieved from

<https://github.com/fivethirtyeight/data/tree/master/airline-safety>

1. Motor vehicle fatality rate in U.S. by year, Retrieved from

<https://en.wikipedia.org/wiki/Motor_vehicle_fatality_rate_in_U.S._by_year>