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Git Repository: <https://github.com/adanque/DSC640/tree/master/Task2-ExecutiveSummary>

Fictious Airways Executive Summary

Fictious Airways is a prominent airline whose customer facing view is under siege due to a growing trend of historical fatalities per aircraft crashes. The growing trends of fatalities is creating a sense of fear in its customers. A fear of unsafe air travel. Our goal in this presentation is to convey a solution to remediate this fear and strengthen our customer relationship to build a commitment to safety for our new and old clients.

In air travel, there is no guarantee that prevents an unforeseeable incident resulting in death. Aircraft maintenance will be of utmost importance to ensure all aircraft are reviewed and serviced for any needed repairs. However, in addition to ensuring optimal recurring maintenance, Fictious Airways will need to aggressively act to improve their image so to brand a sense of safety in the air. We have geared our analysis to understand the survival rates of the many aircraft that Fictious Airways owns and operates. It is in this analysis that we have identified 3 candidate aircraft that should be immediately removed from service to increase air travel survival rates and therefore help build new trust with new and old clients of Fictious Airways.

Enclosed in this presentation are the visual analyses used to review and support our findings. Our visual analysis includes the following:

Slides 1, Cover Slide - contains Executive Summary cover slide and company logo.

Slide 2, "Executive Summary" –notes the customer churn problem our analysis is geared to help solve. The slide also preludes our solution and our recommendation to help build customer trust in Fictious Airways. Since the Fictious Airways uses blue in their logo, we decided to use variations of blue in most of our visuals.

Slide 3, "Fictious Airways – Current Survival Rate Score Card" contains a table listing the lists of unique model aircraft owned by Fictious Airways noting the average survival rate of each of these model planes. It also displays a score card survival rate tally per all the planes listed.

Slide 4, "Fictious Airways – Aircraft Involved Crash Counts" contains a donut chart conveying the comparative number of crashes per each model plane. Here the number of crashes is conveyed by the size of the arch per section of the donut followed with a number and a percentage broken down for each plane.

Slide 5, “Fictious Airways – Total fatalities by Year and Aircraft Model” contains a line chart representing the comparison of the amount of fatalities by aircraft model. This chart helps to highlight the high number of fatalities for the Boeing models, “737-200 blue, 757-200 gold and KC-137 Statotanker light blue”.

Slide 6, “Fictious Airways - Survivor vs Total fatalities by Aircraft Model” contains a stacked bar graph comparing the number of survivors’ vs total number of fatalities. It notes the large amount held of survivors and lesser fatality counts held by Boeing 737-200. The number is high as this model is involved in many crashes as noted in the donut chart on slide 4. Since it has many survivors, this model plane increases the survival rate.

Slide 7, “Fictious Airways – Fatality Counts Variability by Aircraft Model” contains a box plot displaying the variability of fatality counts per each model plane indicating possible fluctuations in fatalities per crash by aircraft.

Slide 8, “Fictious Airways – Survival Rate by Aircraft Model” contains a bar graph meter gauge with an inner bar to indicate the survival rate percentage per plane measured in sections metered by below 30% as critical, between 30% and 60% as bad and over 60% as better in blue.

Slide 9, “Fictious Airways – Crew and Passenger Fatalities” contains a set of 4 area graphs that display the comparison of the 3 aircrafts recommended to be removed from service. It details the break down of fatalities between the crew and the passengers involved in the crashes.

Slide 9, “Fictious Airways – Current Survival Rate Score Card” contains the score card displaying the expected improvement in survival rate after decommissioning the recommended aircraft.

Slide 9, “Conclusion” revisits the problem statement and the goal targeted by our solution to help improve the brand of Fictious Airways.

To prepare the data used for this analysis project, I created four python scripts. One to web scrape the Bureau of Aircraft Accidents Archives per the preliminary crash data pages to a preliminary relation table on MS SQL Server. A second python script to read the preliminary relational table to dynamically create and web scrape the 26970 URL pages listing all individual crash detail to load to a separate relational database table. A third python script to export the relational table to csv. And a fourth python script to perform the EDA analysis reports. All data wrangling steps were completed on the MS SQL relation database and within PowerBi. Within the data wrangling phases, I cleaned and removed the fields: YOM (year of manufacture using the majority of rows that had the same model plane), flight date corrected the format as some rows were different, and operator as some rows contained a unique identifier in the names enclosed in parenthesis. In addition to cleaning up rows, I SQL to create the following fields: PlaneAge derived from the YOM and the flightdate. Using PowerBi, I added the following fields: [Number on Board] derived from the [Crew on Board] and [Pax on Board], [Survivor Count] derived from [Number on Board] minus the [Total Fatalities], [Survival Rate] derived from [Survivor Count] divided by [Number on Board].

Data Sources:

[Accidents and Fatalities Pery Year](#)

https://docs.google.com/spreadsheets/d/1SDp7p1y6m7N5xD5_fpOkYOrJvd68V7iy6etXy2cetb8/edit#gid=1448957446

Supplemental Data Source:

[Bureau of Aircraft Accidents Archives](#)

<http://www.baaa-acro.com/statistics>

<http://www.baaa-acro.com/crash/>