Phase1ProjectDSAviation Phase1ProjectDSAviation # Aviation-Incidents ### Author: Jeremiah Rubin # Overview

This project conducts a thorough analysis of aviation incidents, focusing on identifying airplane models with minimal incidents and understanding the correlation with engine counts. The goal is to provide actionable insights to aid in selecting safer airplane models for aviation operations.

Business Understanding

360_F_566300223_2QnbdmtdKelL8FFeEY5YiWC8ZqfV0lHF

360_F_566300223_2QnbdmtdKelL8FFeEY5YiWC8ZqfV0lHF

To support the aviation division in selecting low-risk airplane models, thereby enhancing safety and supporting strategic growth within the aviation sector. # Data Understanding The dataset includes records of aviation incidents, detailing airplane models, engine counts, and injury severity. ## Data Preparations - *Data Cleaning*: Handling missing values, correcting inconsistencies. - *Feature Engineering*: Extracting relevant features for analysis. Screenshot 2024-07-17 123400

Exploratory Data Analysis

- *Descriptive Statistics*: Summarizing the main characteristics of the dataset.
- *Visualizations*: Bar graphs and other charts to visualize trends and patterns. Modeling: Analyzing the relationship between engine count and incident frequency. Screenshot 2024-07-06 113458,Screenshot 2024-07-06 113335

Conclusion

- This analysis leads with the model of plane with the least amount incidents with the ideal amount of number of engines:
- Number of Engines. On average each plane with the least amount of incidents had only one engine.
- Model of plane. DC-9 model plane has the most engines with the least amount of incidents
- Injury Severity. all injury incidents were non-fatal for the planes that fit the companies risk free decision. ## Limitations
- The data set lacks the know how. In the data set doesn't show you how a plane had an incident, knowing that would help narrow down malfunctions or weather.
- Cost of each plane. The lack of cost for each individual plane and how much it would cost to repair them/salvage them. ## Recommendations

- The planes with the least amount of incidents. The company should go with the plane with non-fatal injuries for safety precautions.
- Saving money based on how many engines there is. The plane that has less engines and low incident reports will cost less in the future.
- Every year evaluation. Every year the company can expand their aviation side to gather more planes for business projects/improvements. ## Next Steps Further analyses could yield additional insights to further improve choice of model plane:
- Better predictions for model plane based off repairing cost. This modeling could already use avaialable data such as how bad the crash was.
- Predicting undesirable outcomes. Knowing that the weather is really bad should delay the flight until further notice ## Repository Structure
- data/: Contains the dataset used for analysis.
- images/: Contains images in the project
- README.md/: Contains summary of project
- Aviation_Incidents_Presentation.pdf/: Google slides Presentation
- Aviation-Incidents.ipynb/: Jupyter Notebook