AIRCRAFT RISKS ANALYSIS PROJECT

PRESENTATION

CALMAR ISOE

OVERVIEW

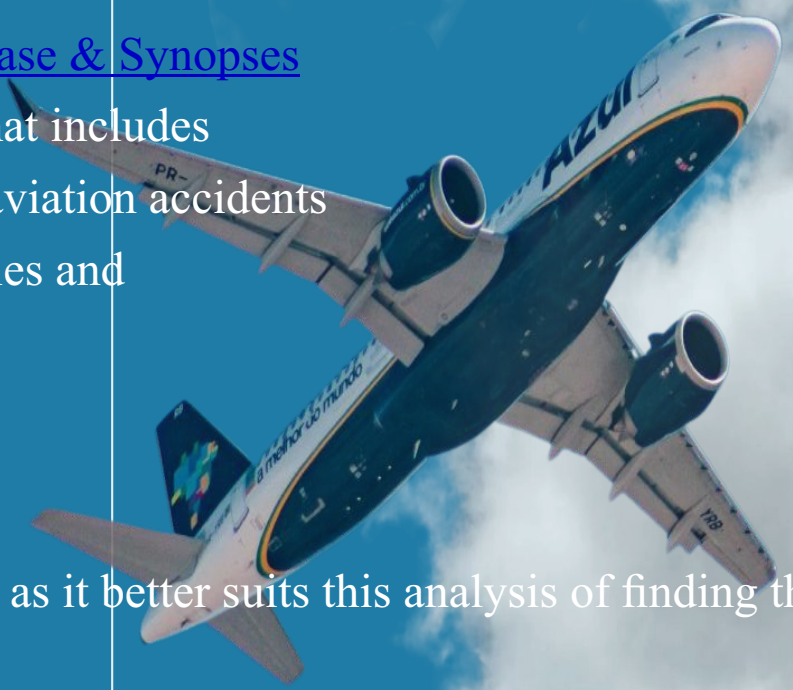
This project, identifies and analyzes critical risk factors within the aviation industry to support stakeholders in making informed decisions before entering the market. The insights derived from this project will guide the business in minimizing risks, ensuring safety, and selecting the most reliable aircraft for future operations, ultimately helping the company venture confidently into the aviation sector.

BUSINESS PROBLEM

The company is interested in purchasing and operating airplanes for commercial and private enterprises, but does not know anything about the potential risks of aircraft. This analysis needs to determine which aircraft are the lowest risk for the company to start this new business endeavor.

DATA UNDERSTANDING

This project made use of the Aviation Accident Database & Synopses data from the National Transportation Safety Board that includes aviation accident data from 1962 to 2023 about civil aviation accidents and selected incidents in the United States, its territories and possessions, and international waters.



From the dataset, I worked with the AviationData csv, as it better suits this analysis of finding the lowest risk aircraft for the company.

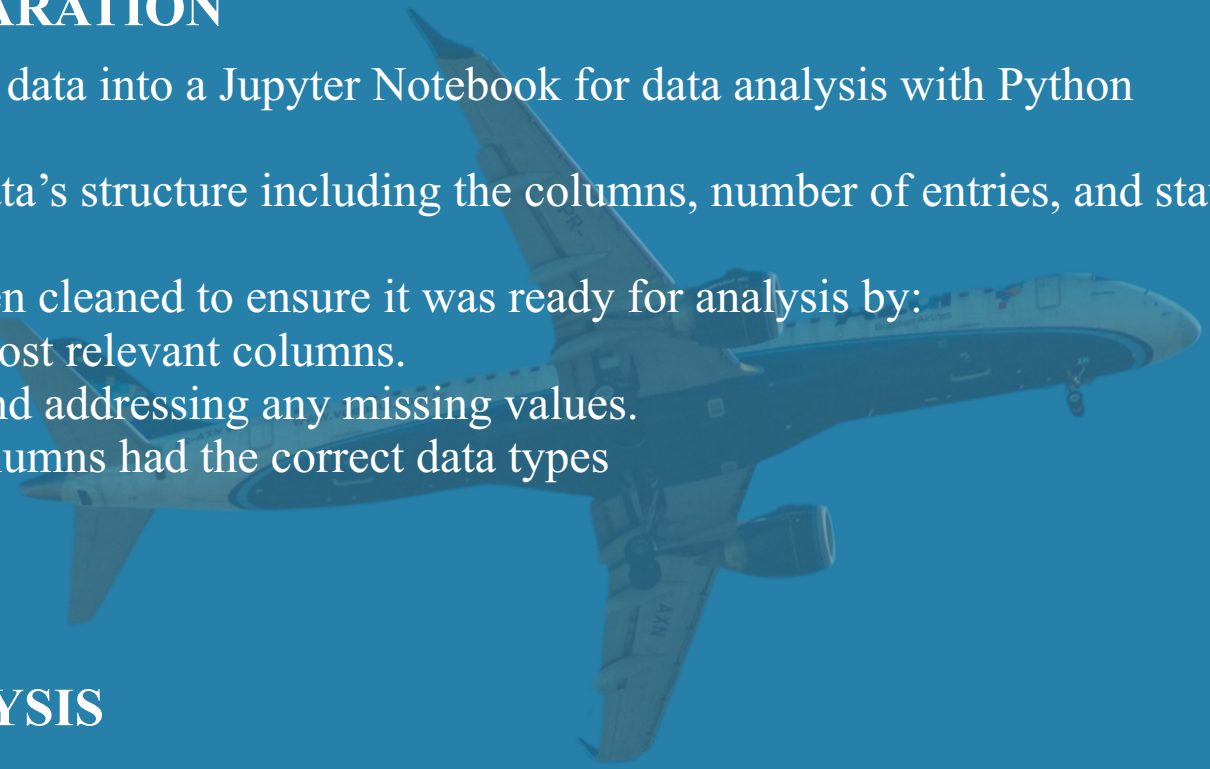
DATA PREPARATION & ANALYSIS

DATA PREPARATION

- Downloaded the data into a Jupyter Notebook for data analysis with Python

- Examined the data's structure including the columns, number of entries, and statistical summary.

- The data was then cleaned to ensure it was ready for analysis by:
- Selecting the most relevant columns.
- Checking for and addressing any missing values.
- Ensuring all columns had the correct data types

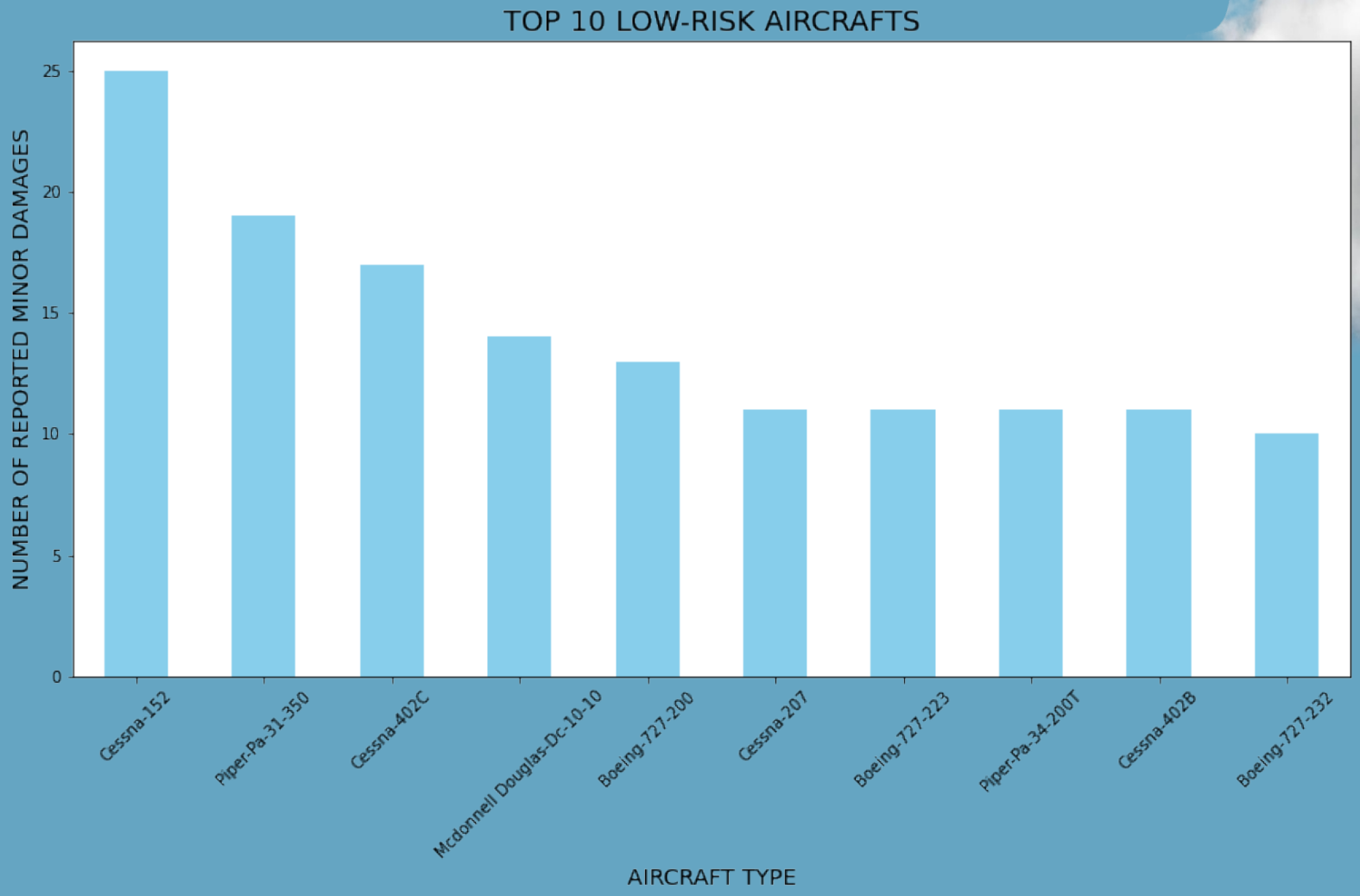


DATA ANALYSIS

The key analysis was creating visualizations that answered key questions, guiding stakeholders in making informed decisions.

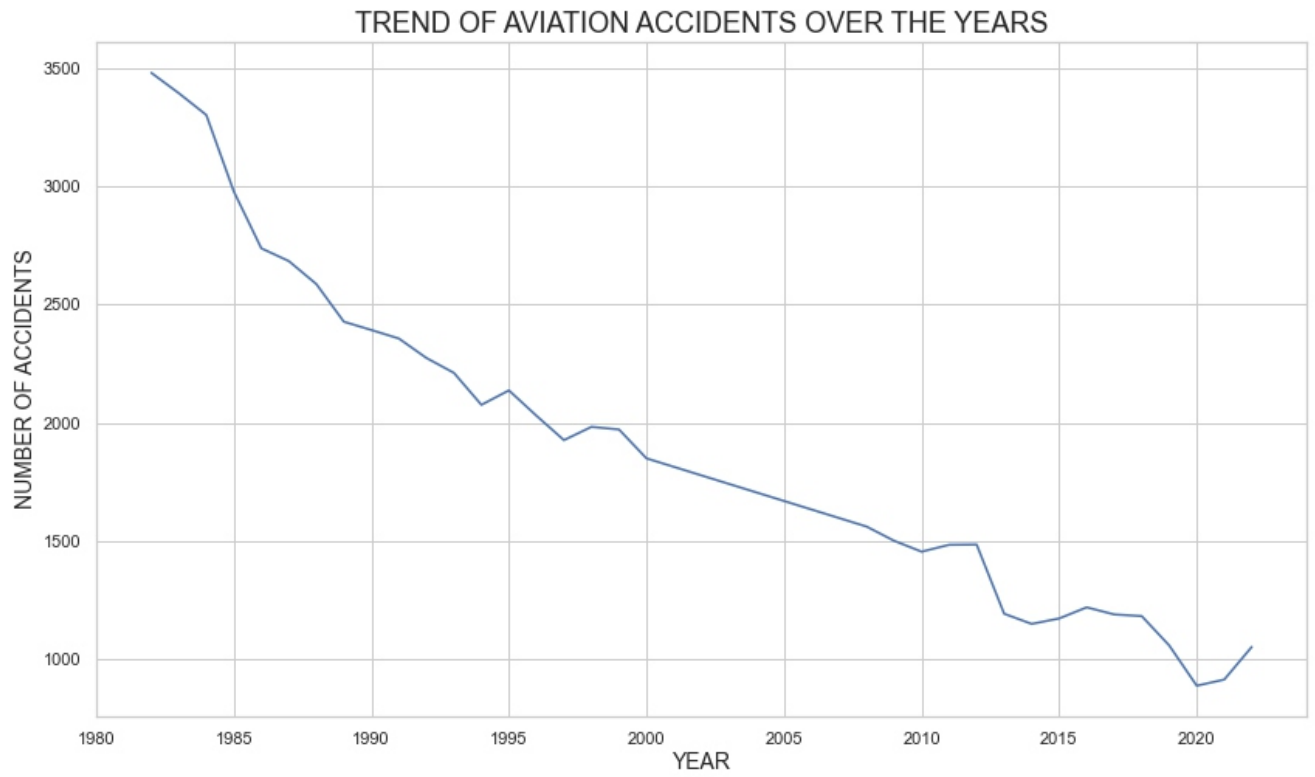
KEY ANALYSIS RESULTS

LOW-RISK AIRCRAFTS



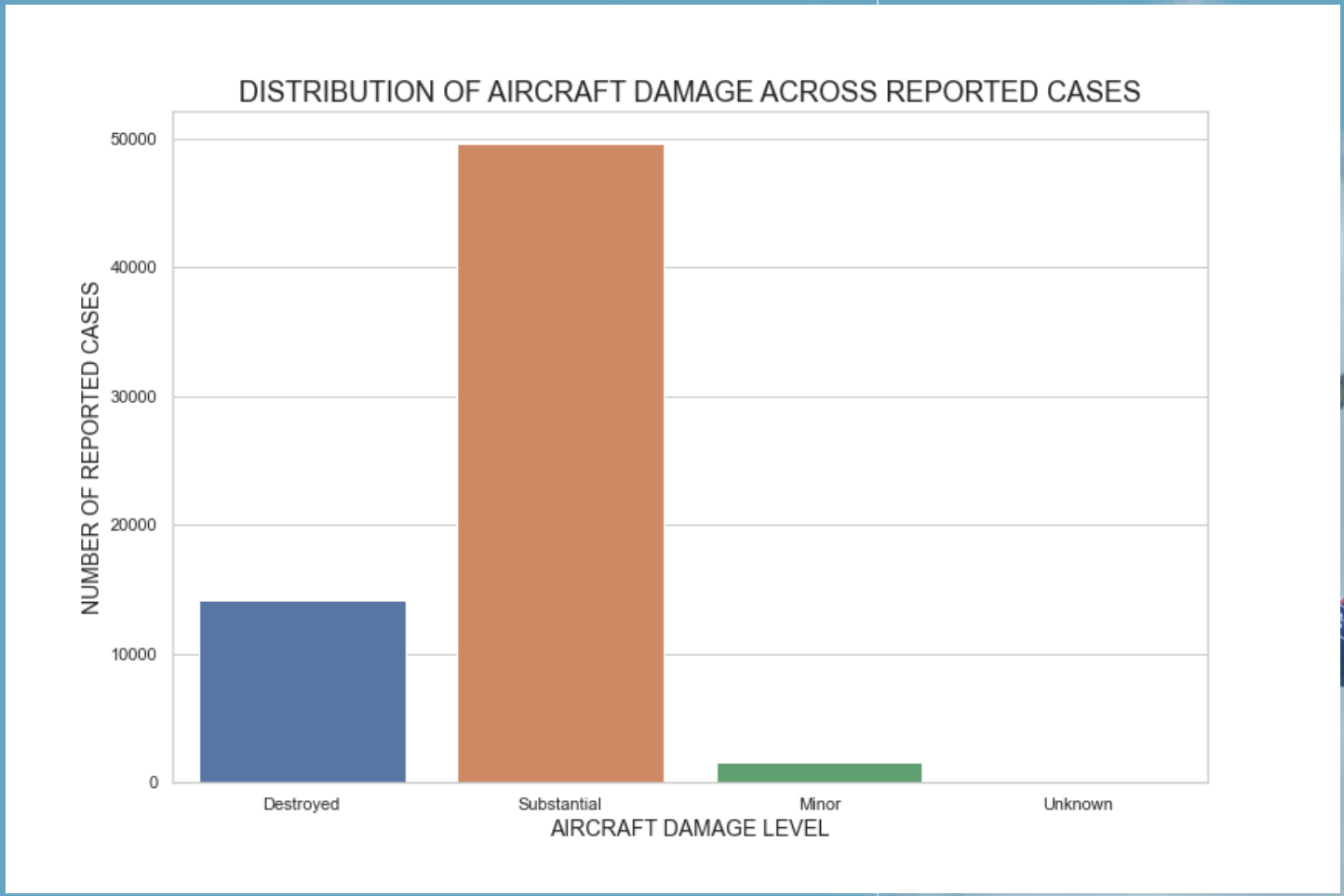
KEY ANALYSIS RESULTS

TREND OF AVIATION ACCIDENTS OVER THE YEARS



KEY ANALYSIS RESULTS

DISTRIBUTION OF AIRCRAFT DAMAGE ACROSS REPORTED CASES



RECOMMENDATIONS

1. Consider purchasing and operating low-risk aircraft models, as they have consistently lower accident rates. This approach will not only minimize operational risks but will also enhance the company's reputation for safety.

2. Take advantage of the downward trend in aviation accidents. With the steady decline in aviation accidents over the years, you can capitalize this during marketing to attract investors as well as customers.

3. Invest in aircrafts suitable for flight purposes with a low risk profile. Cautiously evaluate whether to enter a specific segment before purchasing aircrafts suitable for that sector. For instance, sectors like ferry, aerial observation, and public flying record lower incident rates and may be a safer and more favorable investment opportunity.

NEXT STEPS

To conduct a deeper analysis on the root causes behind accidents and incidents in certain aircraft make and models. Explore further to determine which manufacturers produce the most incident-prone models, to aid in informed procurement decisions.

To conduct further analysis to understand frequency vs. risk, especially for models like Cessna which appear in both low-risk aircrafts and in aircrafts with the most recorderd cases. Find out and prove if this paradox is indeed simply because these models are flown more frequently compared to other models and not due to inherent safety flaws.

THANK YOU

Thank you all for your attention and participation!

QUESTIONS??

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