

Phase 1 Project

**Aviation Accident Database Analysis
for Risk Assessment**

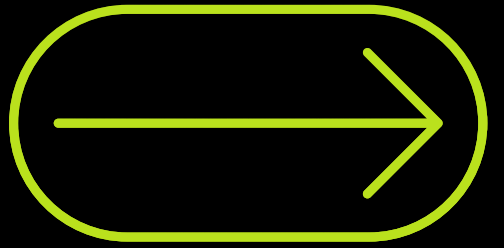
**Moringa School
Data Science**

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**Aviation Accident
Database
Analysis for Risk
Assessment**

INTRODUCTION



To analyze aviation accident data to determine the lowest-risk aircraft for a new aviation business venture.



which aircraft make causes most accidents?



which type of aircraft should the company invest in?



DATA SOURCE



Aviation Accident Database Synopses (Kaggle)

Link: Aviation Accident Database
on Kaggle

This dataset contains records of aviation accidents and incidents including details like event date, aircraft make, injury severity, and more.

Data Overview

*Number of
Records: 88889
accidents*

Relevant Columns:

Event Date, Location, Country

Aircraft Make, Model, Injury Severity

Total Injuries (Fatal, Serious, Minor, Uninjured)

**Weather Condition, Purpose of Flight. Amateur Built ,
Number Of Engines ,Engine Type**

Data Cleaning and Preparation

Steps Taken:

Standardizing the column names

Removed missing and irrelevant data

Imputed missing values where necessary (e.g., Total fatal accidents)

Converted date and numerical columns to correct data types

Tools Used: Python (Pandas), Jupyter Notebook

Data Analysis Approach

Key Analyses Performed:

Accident count by aircraft make

Severity analysis by injury type (fatal, serious, minor)

Correlation between weather conditions and accident outcomes

Trend analysis by year and purpose of flight

**Visualizations: Bar charts
and line graphs for key
insights**

Key Findings

Aircraft Makes with Lowest Accidents Risks]:

[hughes and boeing]

Aircraft Makes with Highest Accident Risks:

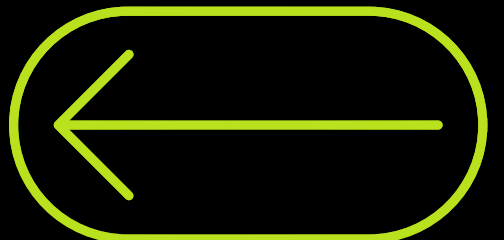
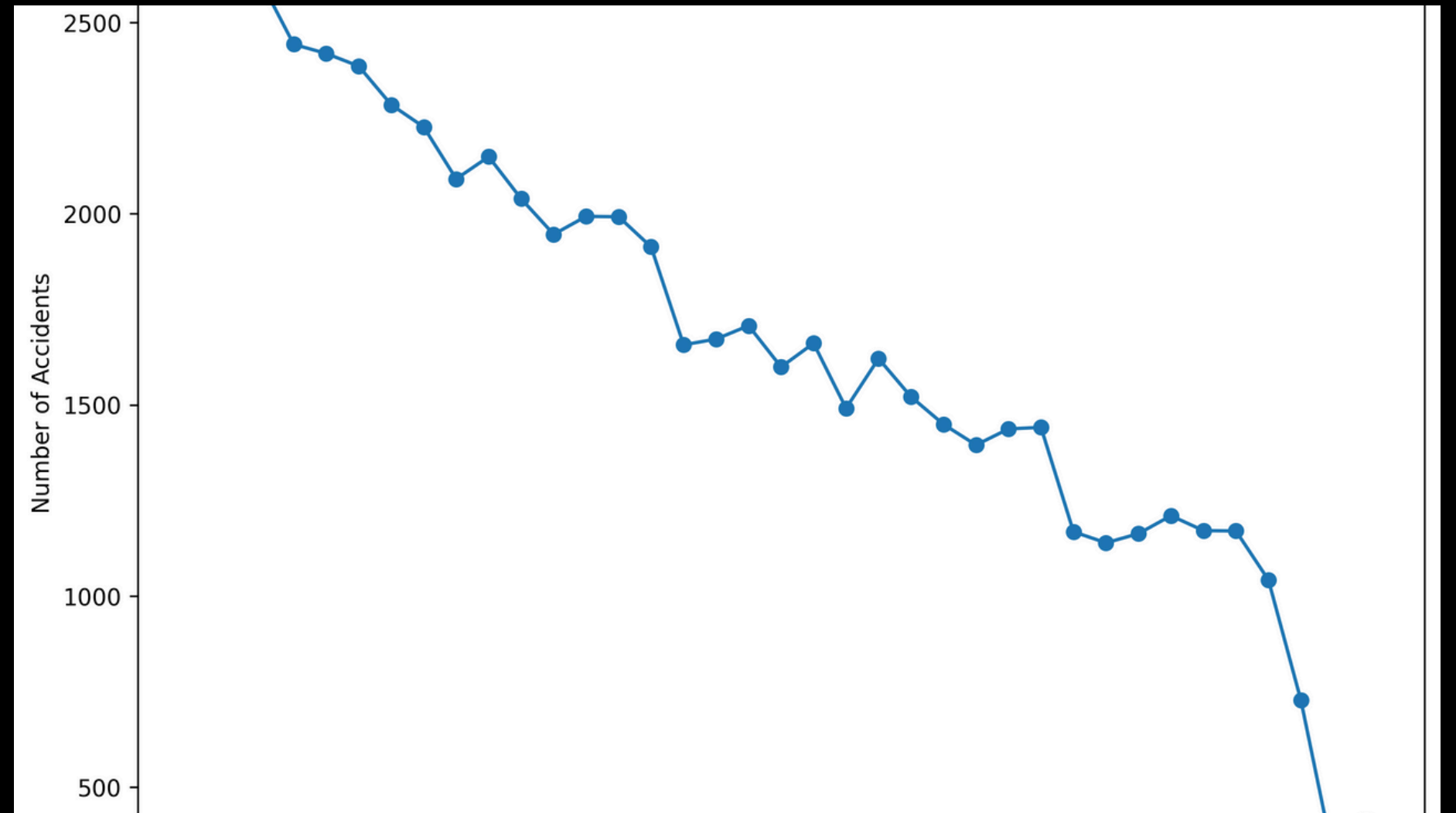
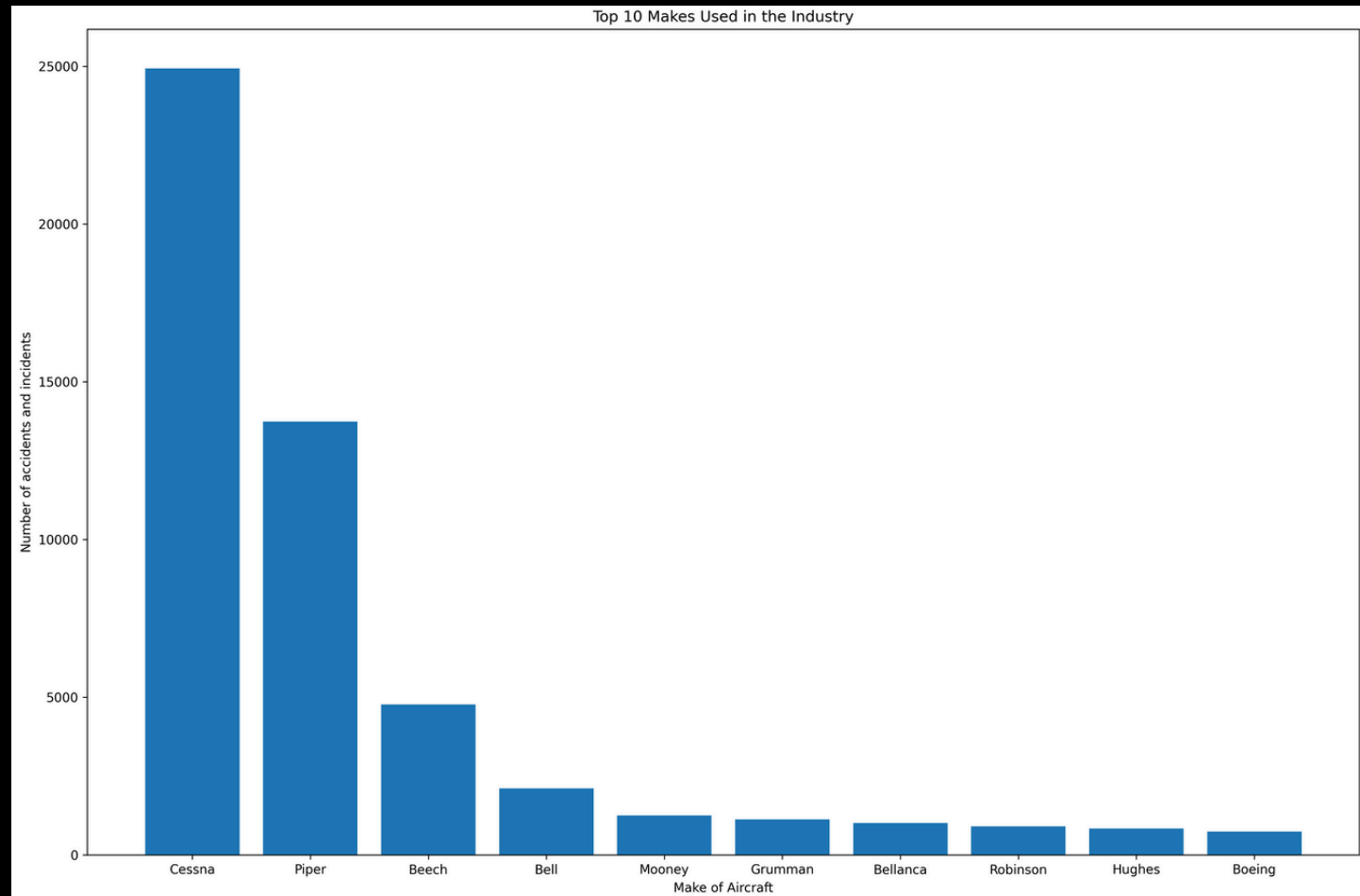
[cessna and piper]

Key Factors Contributing to Accidents:

Weather (e.g., adverse conditions)

Purpose of flight (e.g., personal flights had higher risk)

Visualizations



Business Implications

Recommendation: Based on the analysis, it is suggested that the company focus on Boeing Aircraft due to their lower accident rates.

Risk Factors:

Consider aircraft makes associated with higher risks and how operational safety procedures can mitigate potential issues.

Weather-related accidents and their impact on aviation operations.

Conclusion

Summary of Insights:

Aircraft make and model are significant indicators of accident risk.
Weather conditions and flight purpose play critical roles in accidents outcome

Next Steps:

Further data collection and monitoring as the business expands into the aviation industry.

Implementing safety protocols for identified high-risk areas.

Thanks

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