



P1

PHASE ONE PROJECT

Aviation Safety Analysis

Business Understanding



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Business Objectives

TWO MAIN OBJECTIVES

- Determine which aircraft makes and models are associated with the fewest accidents.
- Identify safety trends across time, category, and injury severity.

Dataset Overview

****airline_accidents.csv file**** and explore its structure.

- ****Key Questions:****
- 1. Which aircraft makes have the lowest accident rates?
- 2. What are the most common causes or conditions associated with accidents?
- 3. How have accident trends changed over time?

Data Analysis and Visualization

Data exploration summary

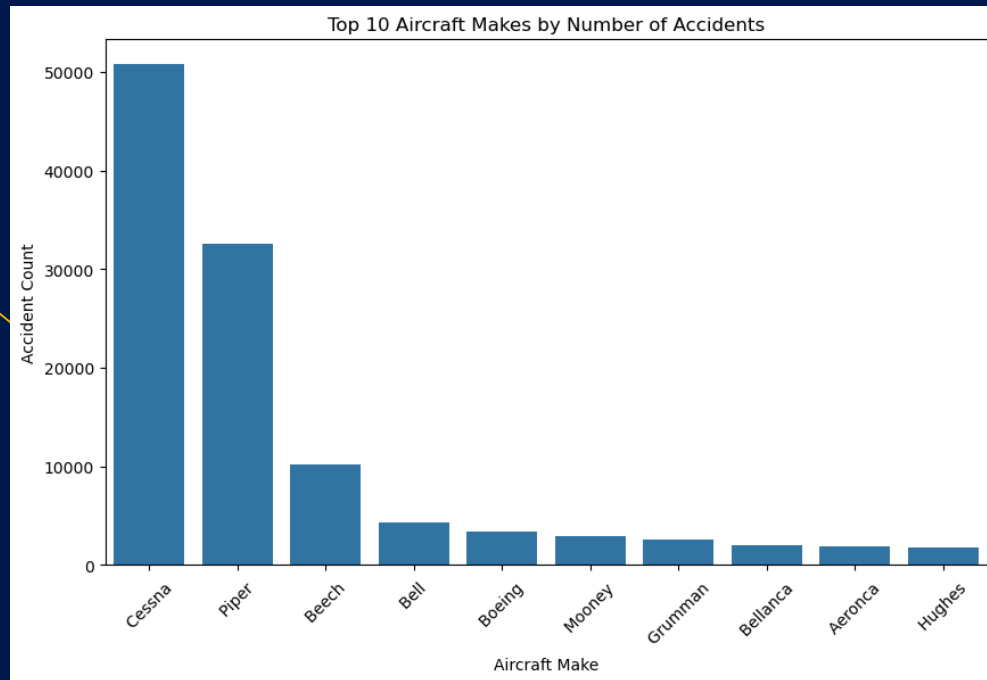
1. Top Aircraft Makes by Accident Count
2. Aviation Accidents Over Time
3. Distribution of Injury Severity

Chart and Explanation

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1. Top Aircraft Makes by Accident Count

Top 10 Aircraft Makes by Accident Count



Observation and interpretation

- Observation: Cessna and Piper dominate the number of recorded accidents, followed by Beech, Bell, and Boeing.

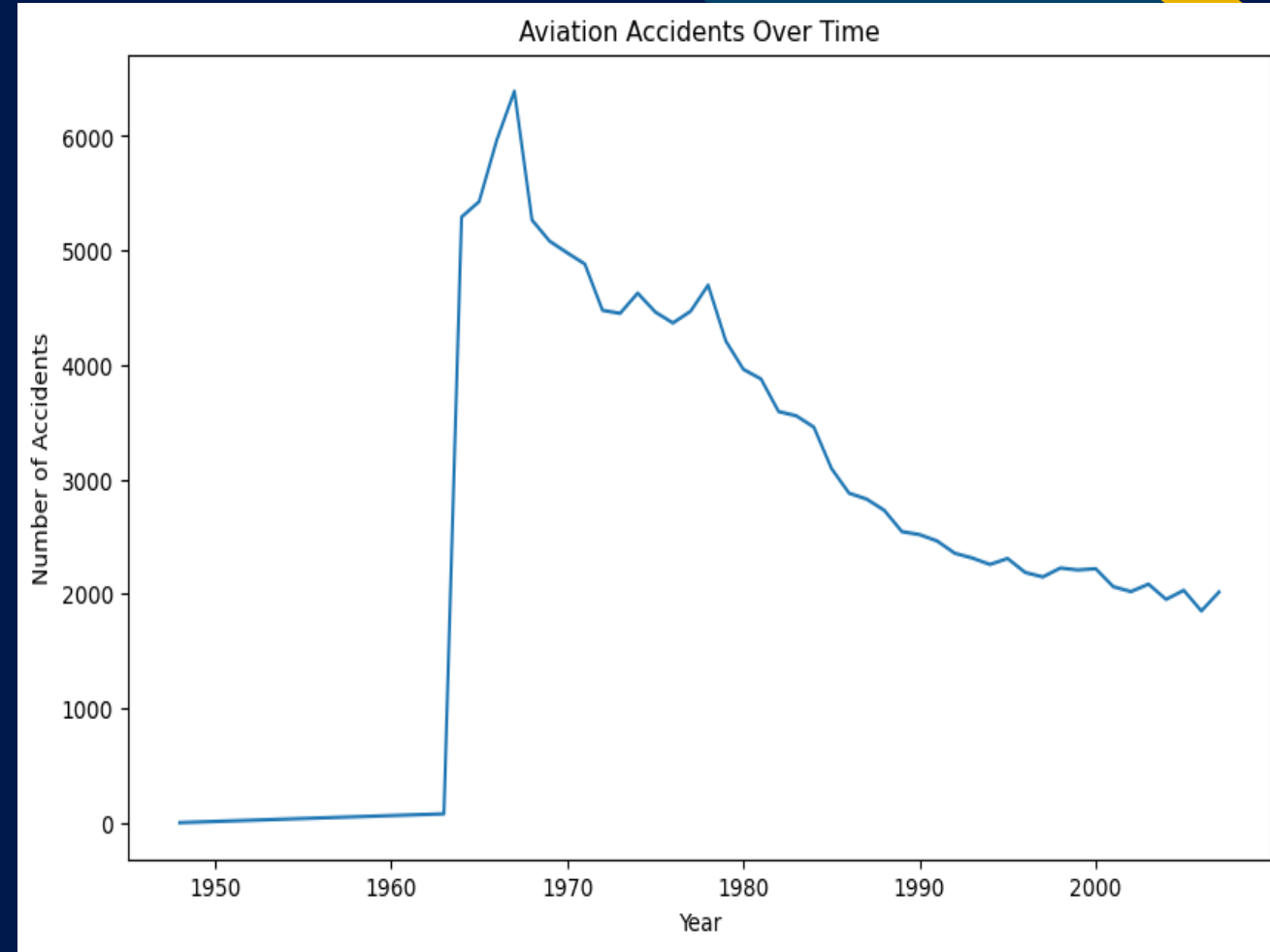
• Interpretation: These brands have high accident counts primarily because they manufacture large fleets of small general aviation aircraft. This doesn't necessarily mean they are unsafe — rather, they are the most widely used.

2. Aviation Accidents Over Time

Observation and interpretation

Observation: Accident rates peaked in the late 1960s–1970s, followed by a steady decline.

Interpretation: This trend aligns with technological advances, better training, and stricter safety regulations.



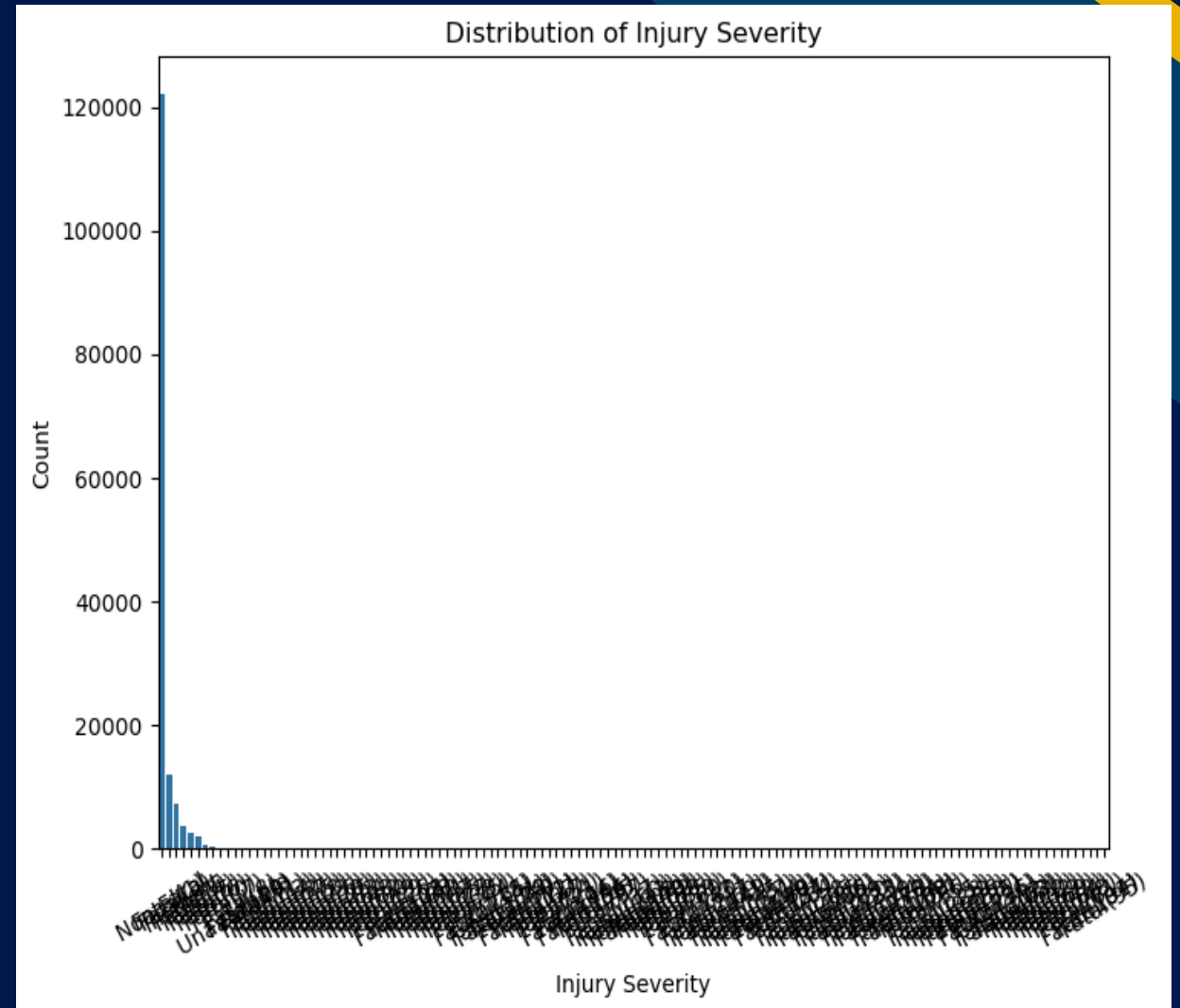
3. Distribution of Injury Severity

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Observation and Interpretation

Observation: Most reported cases fall into “No Injury” or “Minor Injury” categories.

Interpretation: While accidents occur, fatal outcomes are relatively rare, emphasizing improved aircraft safety designs and response systems.



Business Insights

The aviation industry has become significantly safer over time, suggesting that modern aircraft models are much lower-risk.

Business Recommendations

Invest in newer aircraft models — Data indicates accident frequency and severity have declined significantly in recent years.

Avoid older or overused aircraft types, especially small private planes (like older Cessna and Piper models) until condition and maintenance history are verified.

Partner with manufacturers that emphasize safety and maintenance — brands with strong safety records (modern Boeing, Airbus) are lower-risk investments

Thank You.



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