Aviation Data Analysis

Aircraft Recommendations Depending For Business Flights

Summary

- Provide data-driven recommendations for aircraft acquisition by the new Aviation Division.

- Focus on identifying the safest aircraft models for business and private enterprise operations.

- Analysis reveals significant safety differences across aircraft types.

OUTLINE

- Business Problem

- Data

- Method

- Results

- Conclusions

Business Problem

- The company is entering the aviation industry, targeting commercial and private operations.

- It lacks prior knowledge of aircraft-related risks.

- Our objective is to Identify aircraft models with the lowest risk level for business use.

Data

- Source: Cleaned aviation accident dataset from the National Transportation Safety Board (NTSB), retrieved via Kaggle.
- Key Features:
1. Aircraft make and model
2. Total fatal injuries
3. Total uninjured passengers
4. Flight purpose
5. Accident location
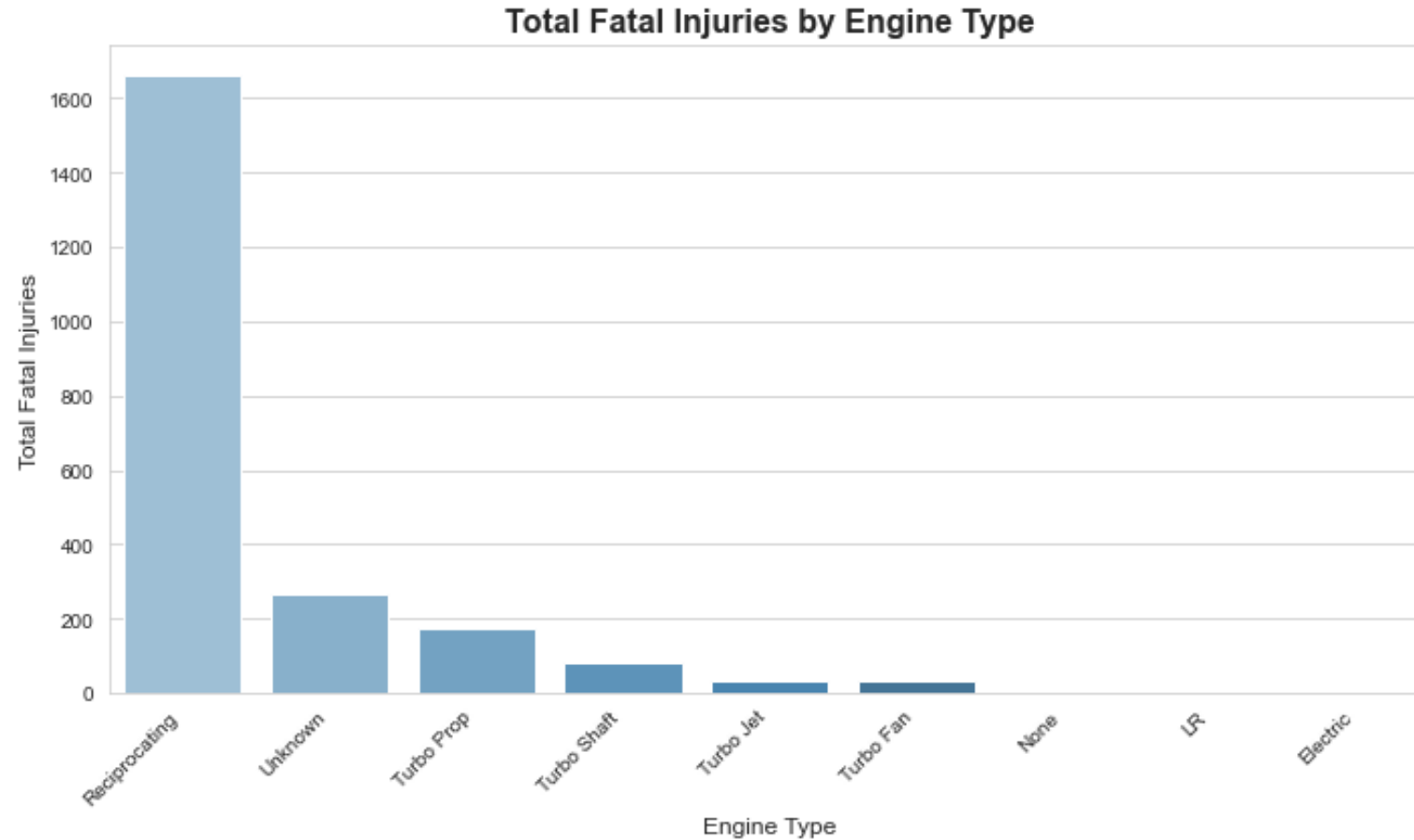6. Number of engines
7. Engine type

Methods

- Data cleaning and analysis performed using pandas.
- Visualizations created using matplotlib.pyplot and seaborn.
- A cleaned dataset was prepared for future use.

Results

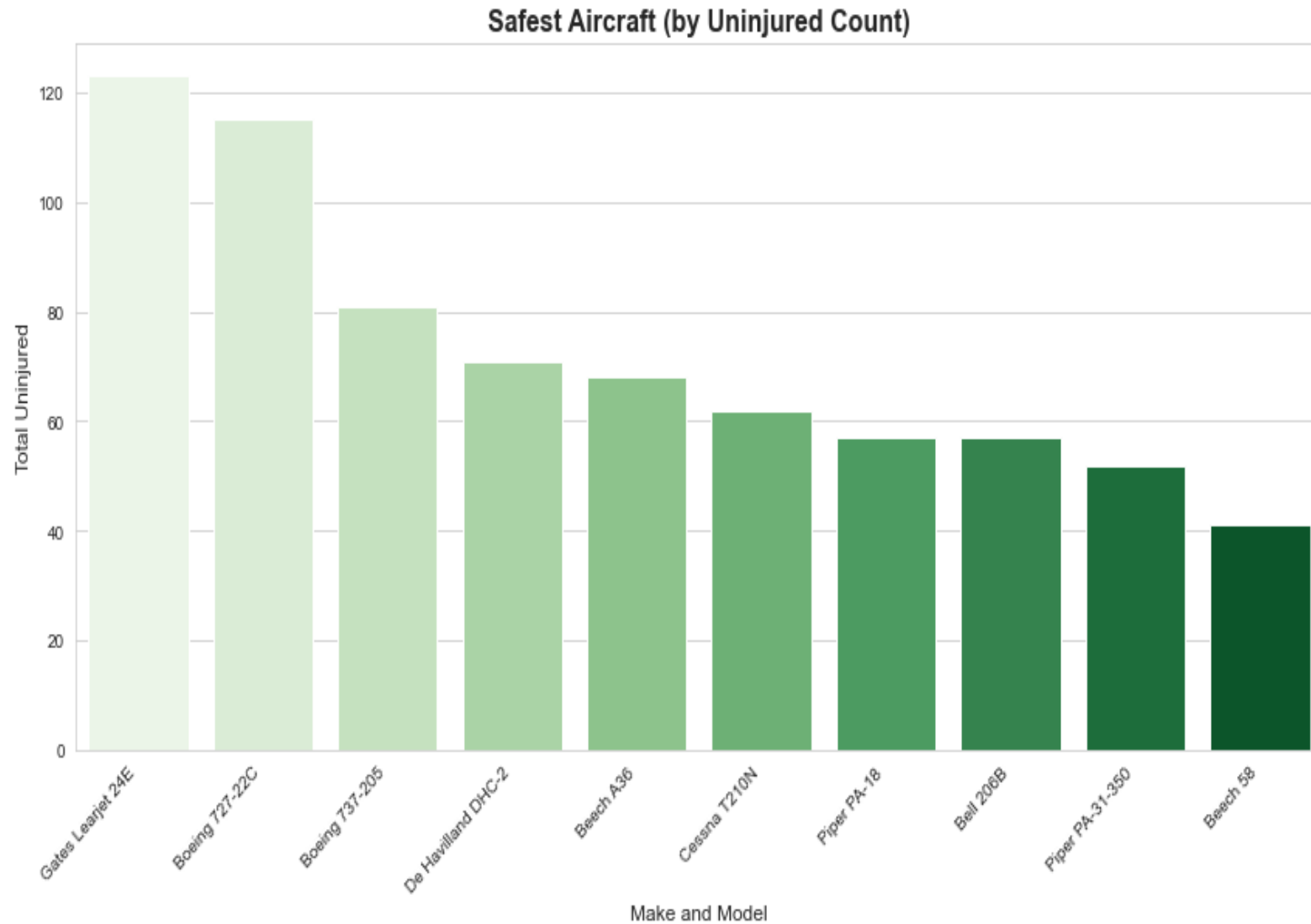From the analysis, a number of visualizations were generated.

Fatal Injuries by engine type

Aircraft with reciprocating engines show the highest fatality rates.
Turbo fan, LR, and electric engines are associated with significantly fewer fatalities.

Uninjured passengers by model within make

Safest Aircraft (by Uninjured Count)

The Gates Learjet,24E is the safest option for business flights

Aircraft Damage by Model

aircraft damage severity by top aircraft models
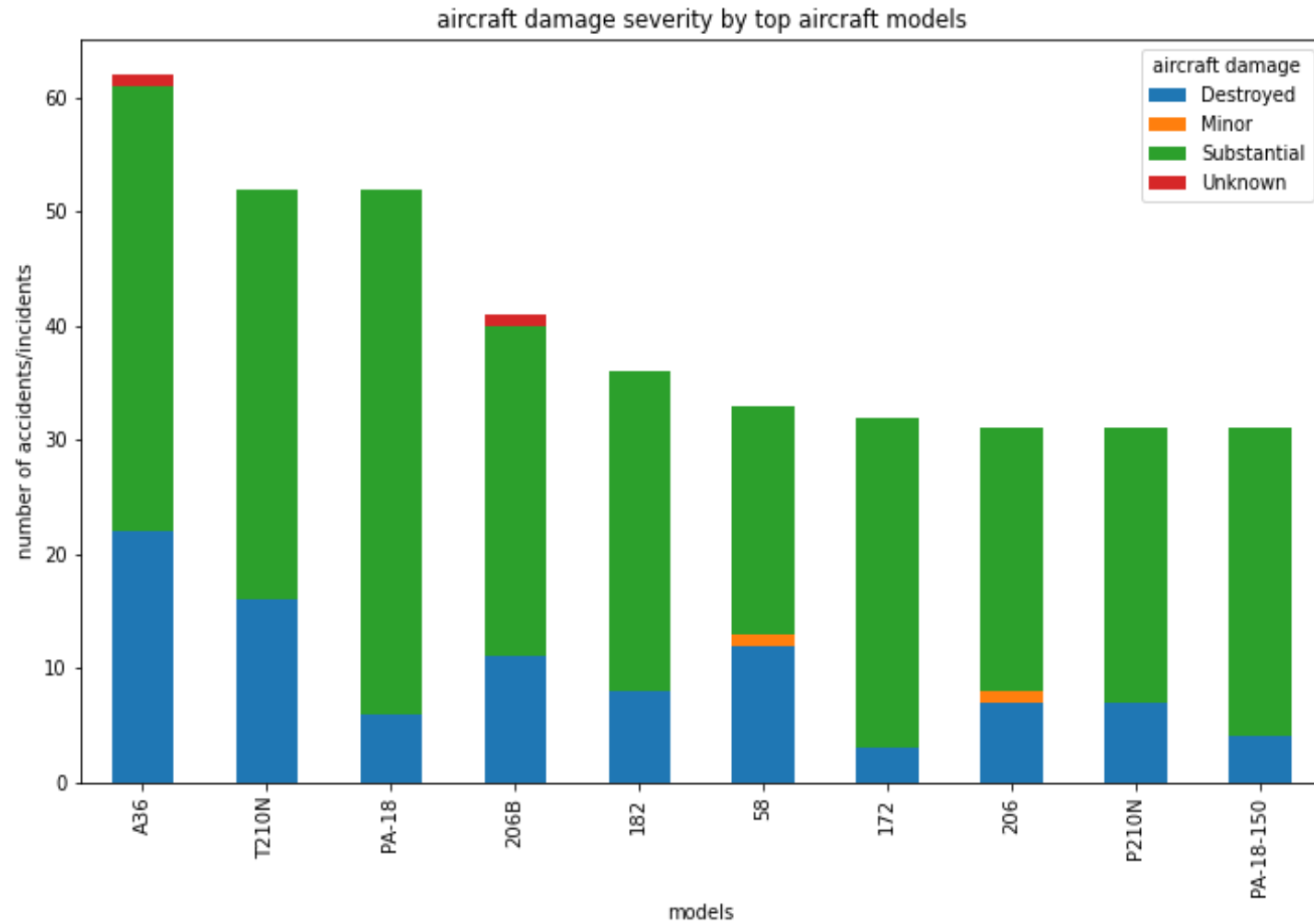
The A36 model is identified as the least robust based on damage data.

Fatal Injuries by Aircraft Category

Total Fatal Injuries by Aircraft Category
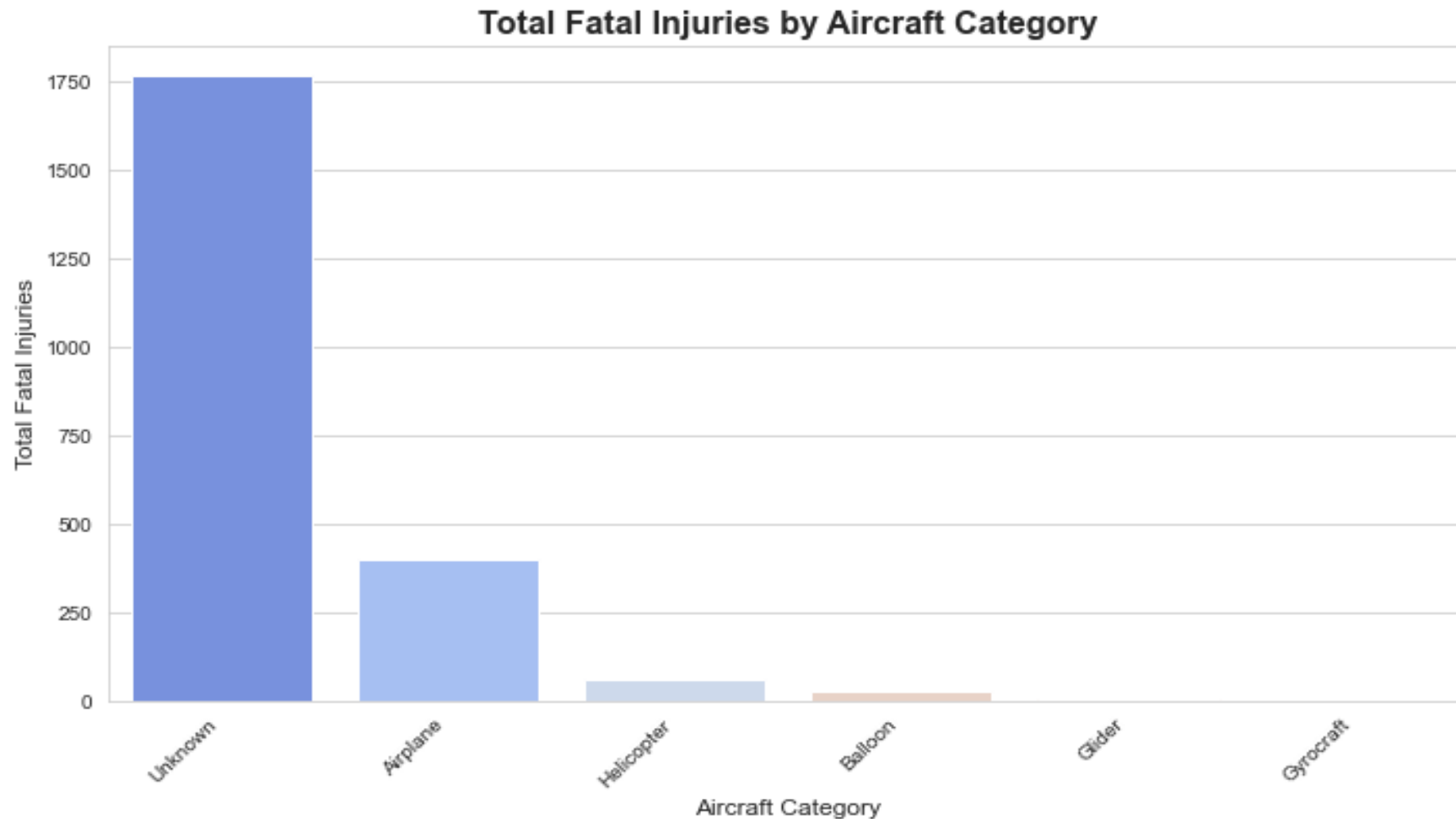
Helicopters are shown to be among those associated with the lowest fatalities.

Conclusions

- Prioritize aircraft with electric, LR, or turbo fan engines for safety.
- Recommend purchasing the Gates Learjet 24E for business operations.
- Consider helicopters for their favorable safety standards.
- Future analyses should group aircraft by make and model to refine recommendations further.

THANK YOU

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