

Aviation Accident Analysis

Diana Mayalo
March 26th, 2025



Summary.

This project aims to analyze aviation accident data to determine which aircraft are the safest, focusing on aspects such as damage distribution, fatalities, and uninjured passengers.

Outline

1. Business Problem
2. Data & Methods
3. Results
4. Conclusions

Business Problem

Aviation accidents pose significant risks to passengers, crew, and aircraft manufacturers. By analyzing historical accident data, I aim to:

1. Assess Aircraft damage distribution by manufacturer
2. Examine Fatalities by Phase of Flight
3. Evaluate Fatality Rates by Aircraft Model
4. Highlight Total Uninjured Persons by Aircraft Make.

Data & Methods

Data Source:

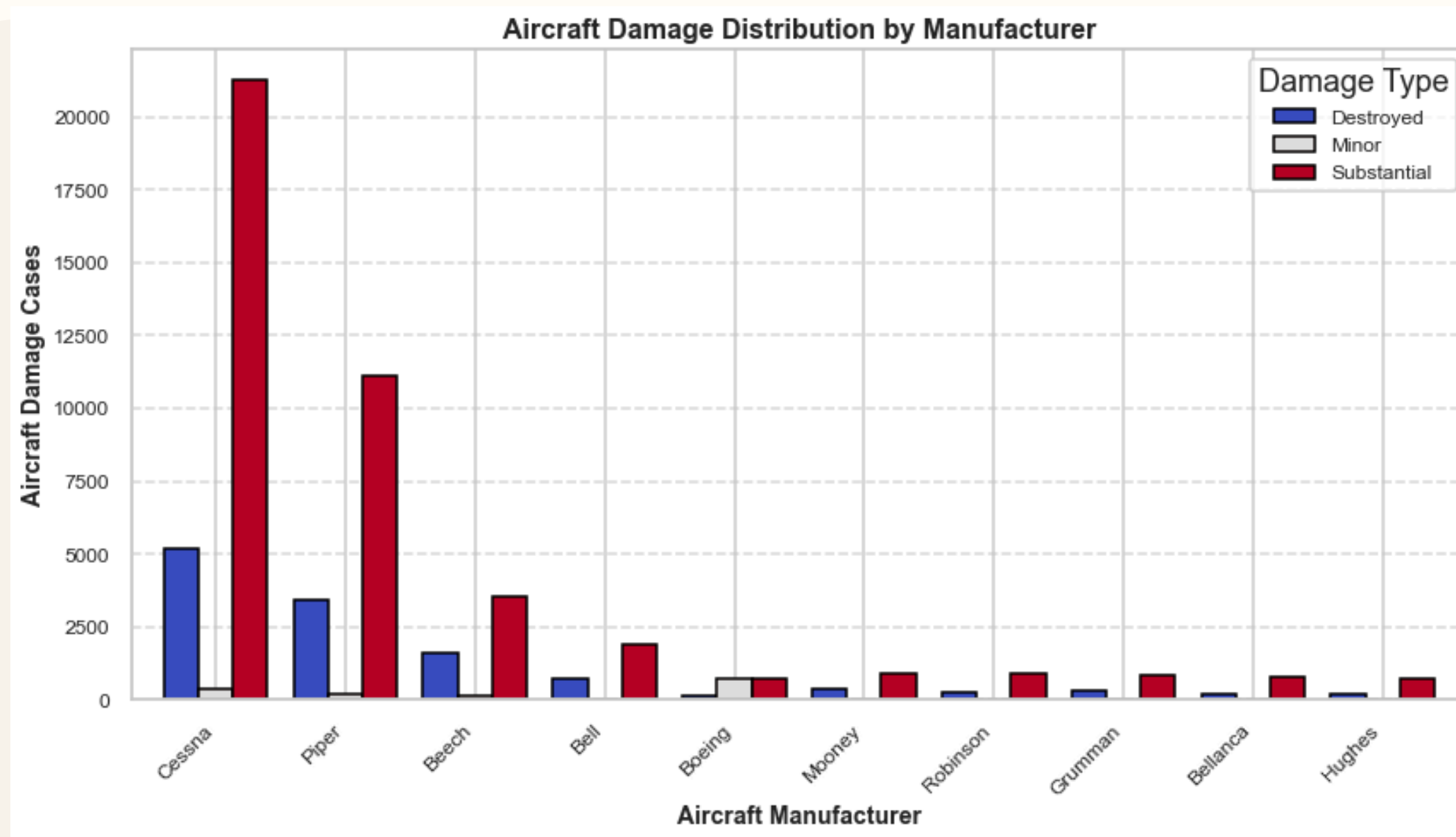
From the National Transportation Safety Board: [Access Dataset Here.](#)

Analysis Methods:

Pandas, Matplotlib and Seaborn.

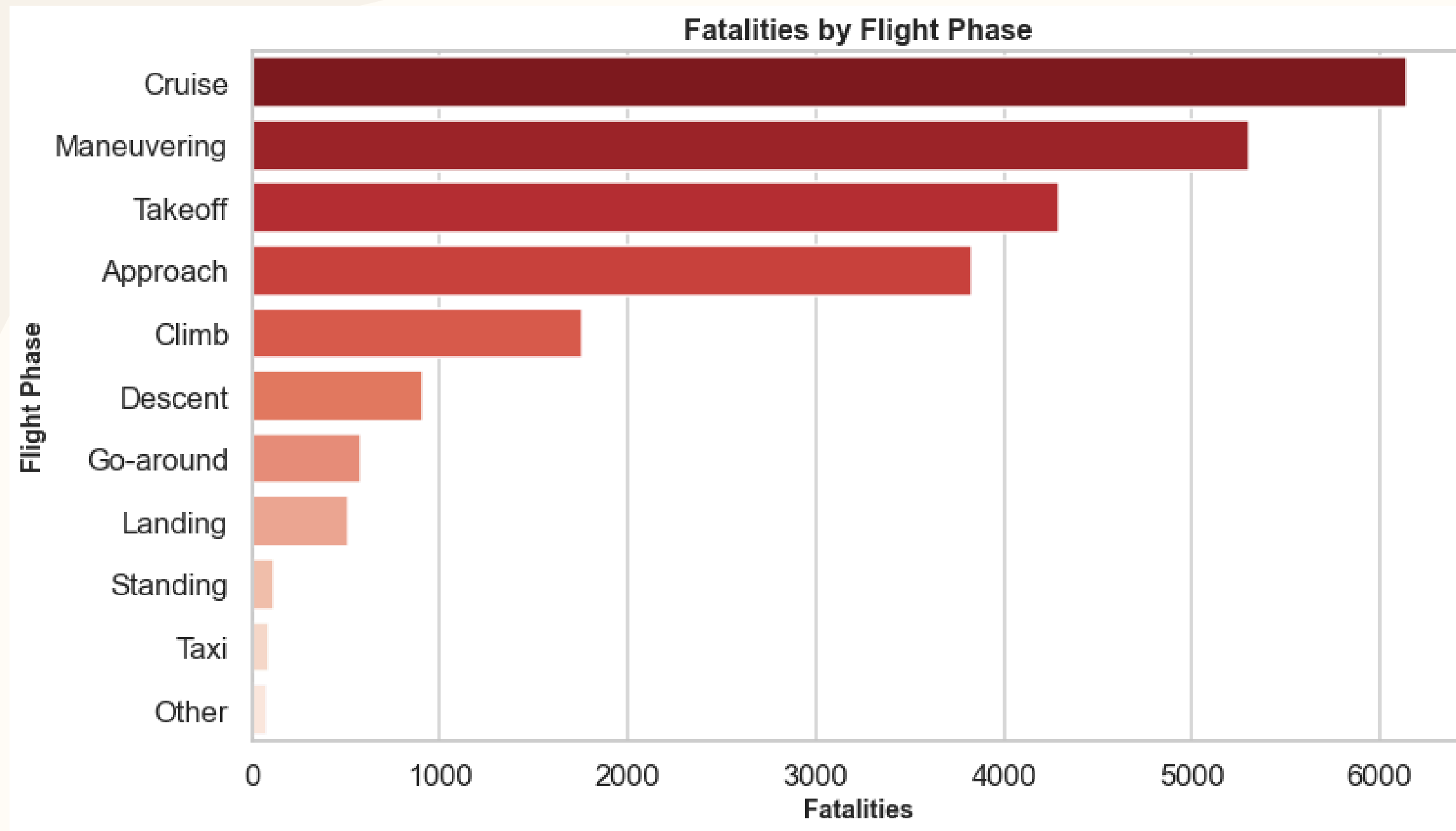
Results

Aircraft Damage Distribution by Manufacturer



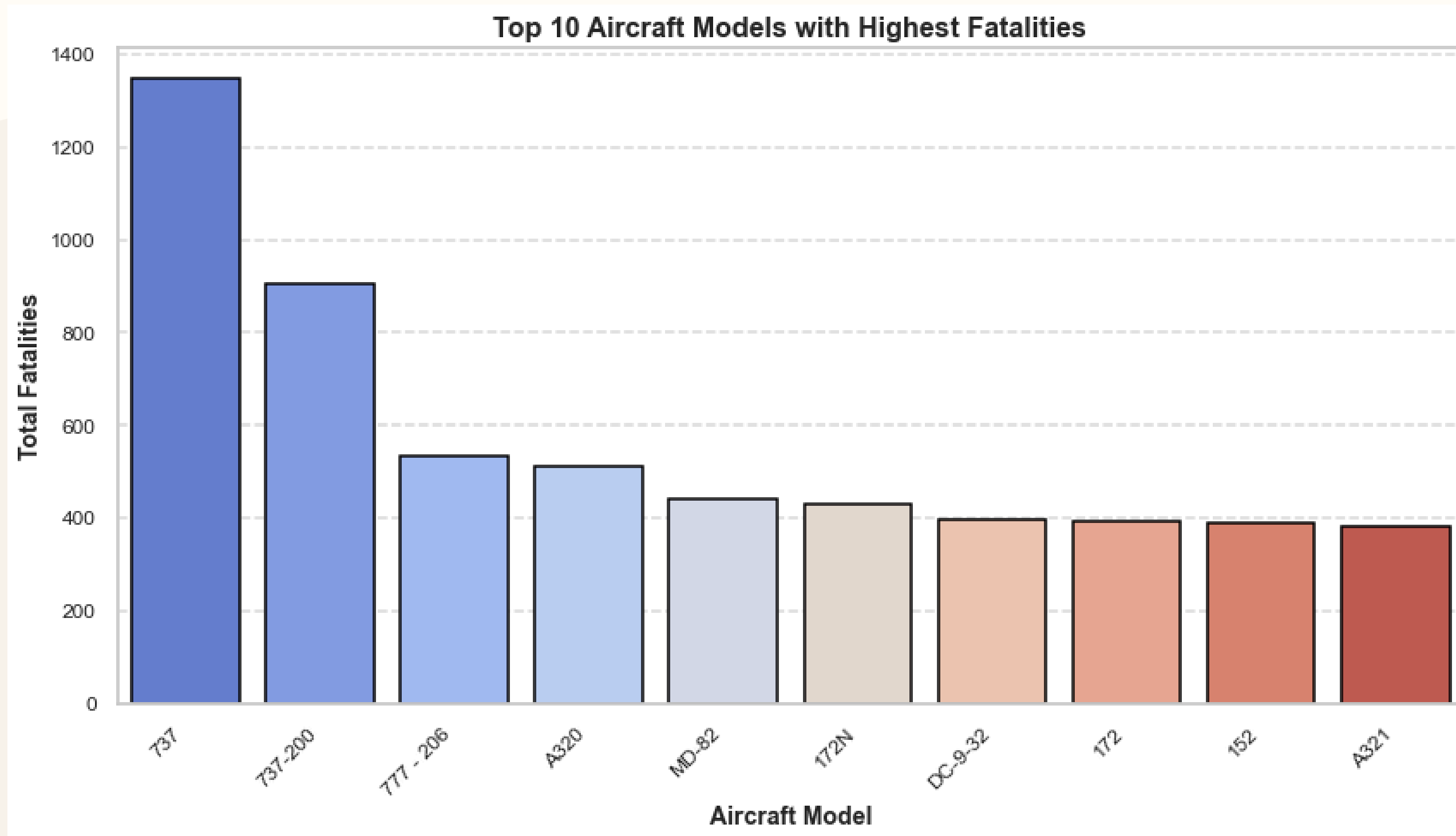
- Cessna and Piper show the highest number of aircraft damage cases, with a large portion destroyed and substantial damages.

Fatalities by Flight Phase



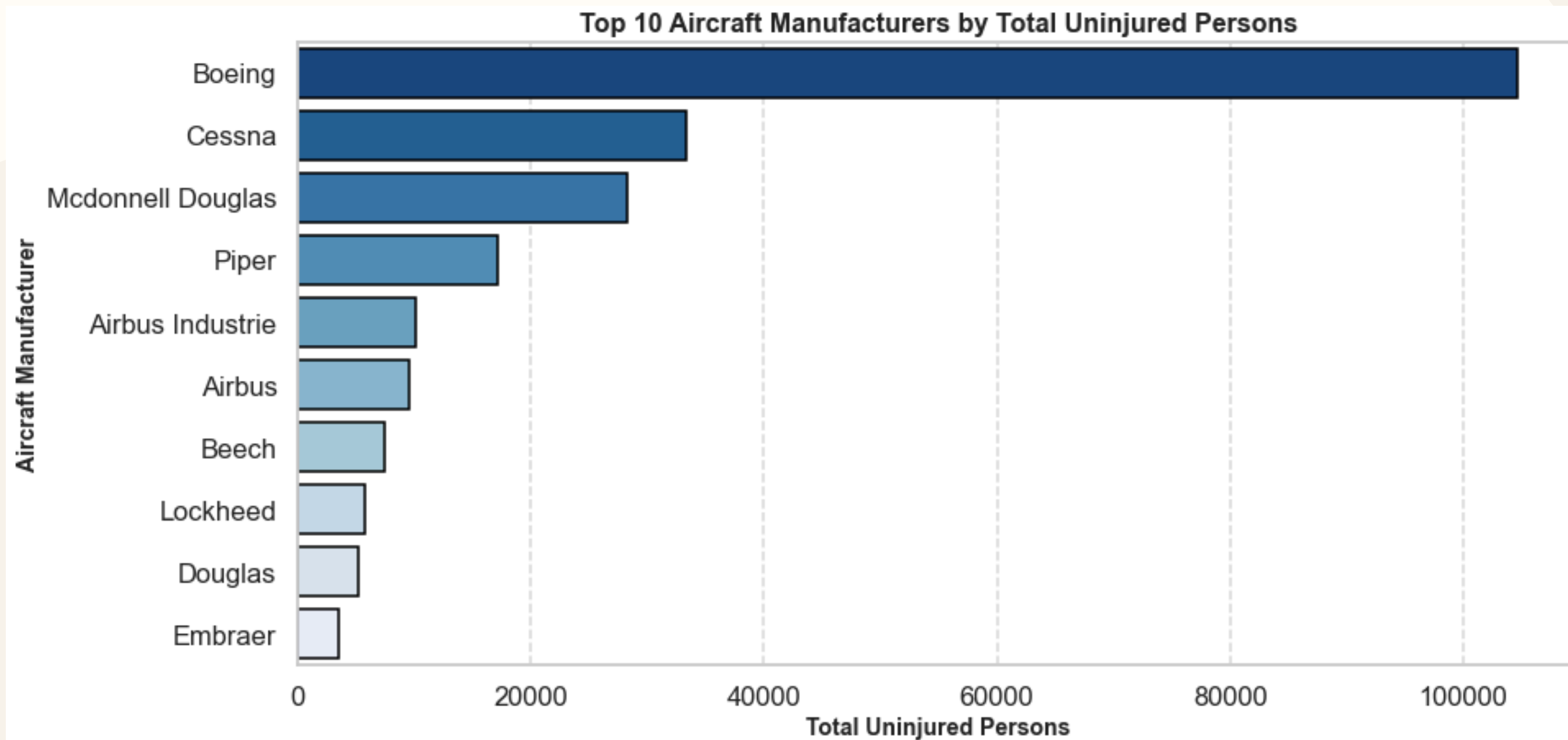
- The cruise phase has the highest fatalities (more than 6,000 cases).
- The maneuvering phase follows, with over 5,000 fatalities.

Fatality Rate by Aircraft Model



- Boeing 737 has the highest fatalities (approximately 1350 cases).

Total Uninjured Persons by Aircraft Make



- Boeing has the highest number of uninjured persons, exceeding 100,000

Conclusions

- Cessna and Piper aircraft experience the highest damage rates, showing that small aviation aircraft tend to sustain more significant damage in accidents.
- The cruise and maneuvering phases account for the most fatalities, showing critical phases where fatal incidents are more frequent.
- The Boeing 737 has the highest fatalities, potentially due to its widespread use, with older models also showing significant accident data.
- Boeing and Cessna record the highest number of uninjured passengers, reflecting better safety protocols in these aircraft makes.

Next Steps

- Investigate contributing factors to high damage rates in small aircrafts.
- Enhance safety protocols during critical flight phases.
- Focus on improving survivability for aircraft with lower uninjured rates.

Thank You

Any Questions



For more information:



+254 799249060



dianamayalo28@gmail.com