AVIATION SAFETY ANALYSIS:

DATA-DRIVEN INSIGHTS FOR FLEET ACQUISITION

INTRODUCTION:

- **Objective:**
  - *"Help the company make informed, risk-aware decisions on aircraft purchases by analyzing historical accident data."*
- **Key Questions:**
  - Which aircraft models have the fewest accidents?
  - What conditions lead to higher accident rates?
- **Data Source:** NTSB (U.S. civil aviation accidents, 1948-2023).

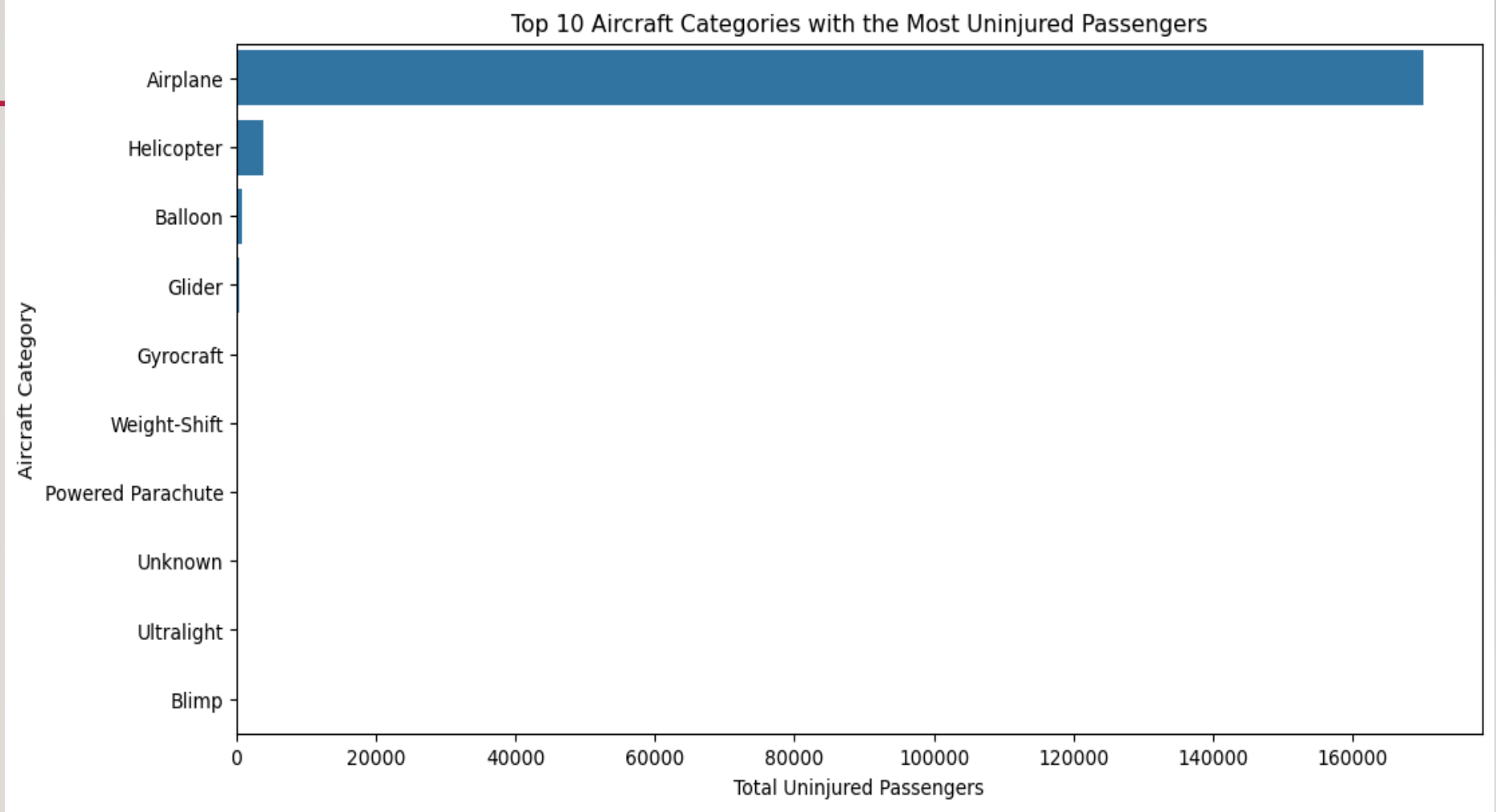
3. METHODOLOGY:

- **Approach:**
  - **Data Cleaning:** Handled missing values, standardized text, filtered irrelevant columns.
  - **Exploratory Analysis:** Identified patterns in accidents by aircraft make, category, and engine type.
  - **Visualization:** Created clear charts to highlight safety trends.

TOP SAFEST AIRCRAFT CATEGORIES

A. Top Safest Aircraft Categories

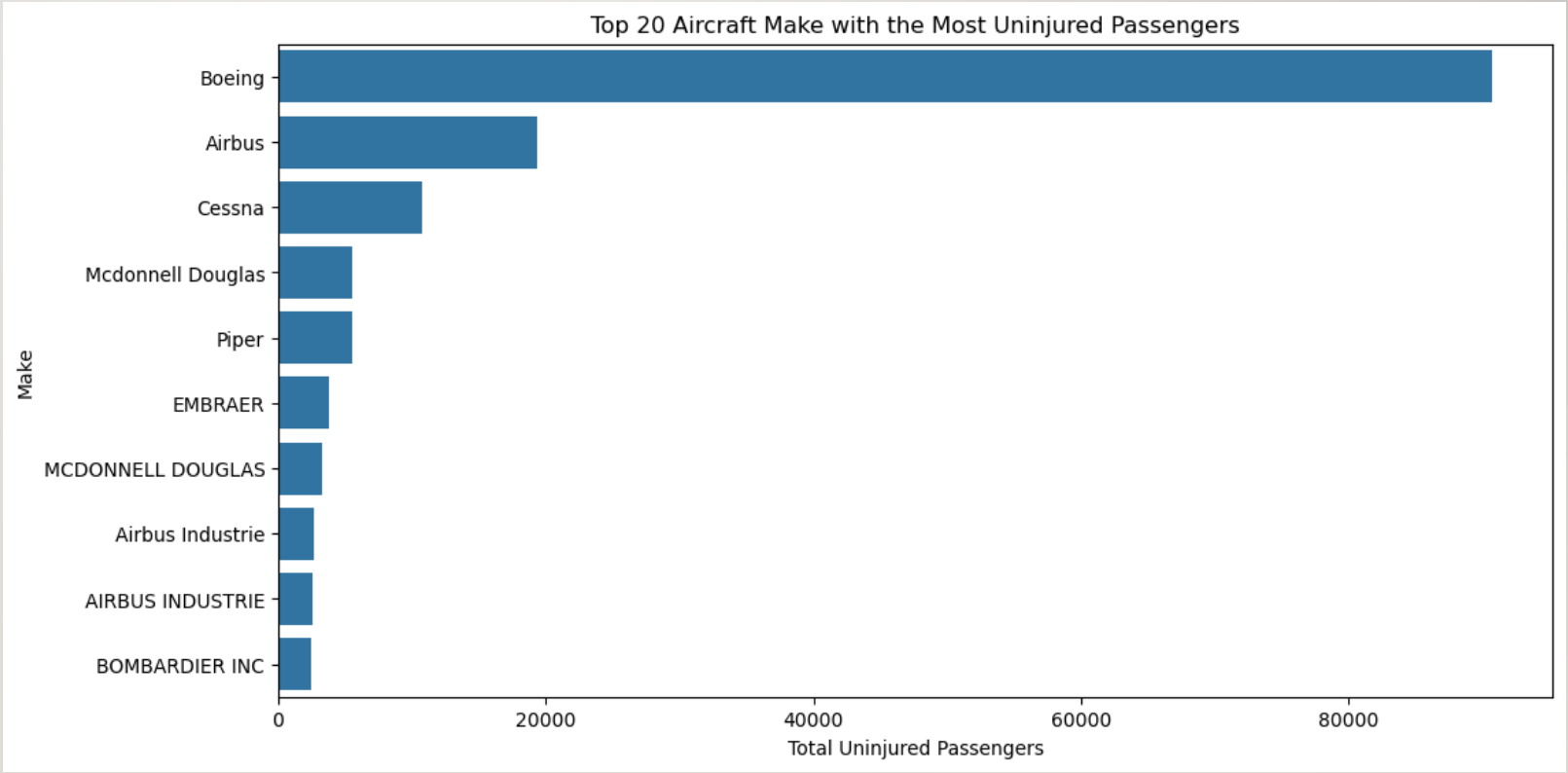
- **Bar Chart:** *Top 10 Aircraft Categories by Uninjured Passengers*
  - **Key Insight:** Airplanes and helicopters had the highest survival rates.
  - **Recommendation:** Prioritize these categories for fleet acquisition.



SAFEST AIRCRAFT MANUFACTURERS

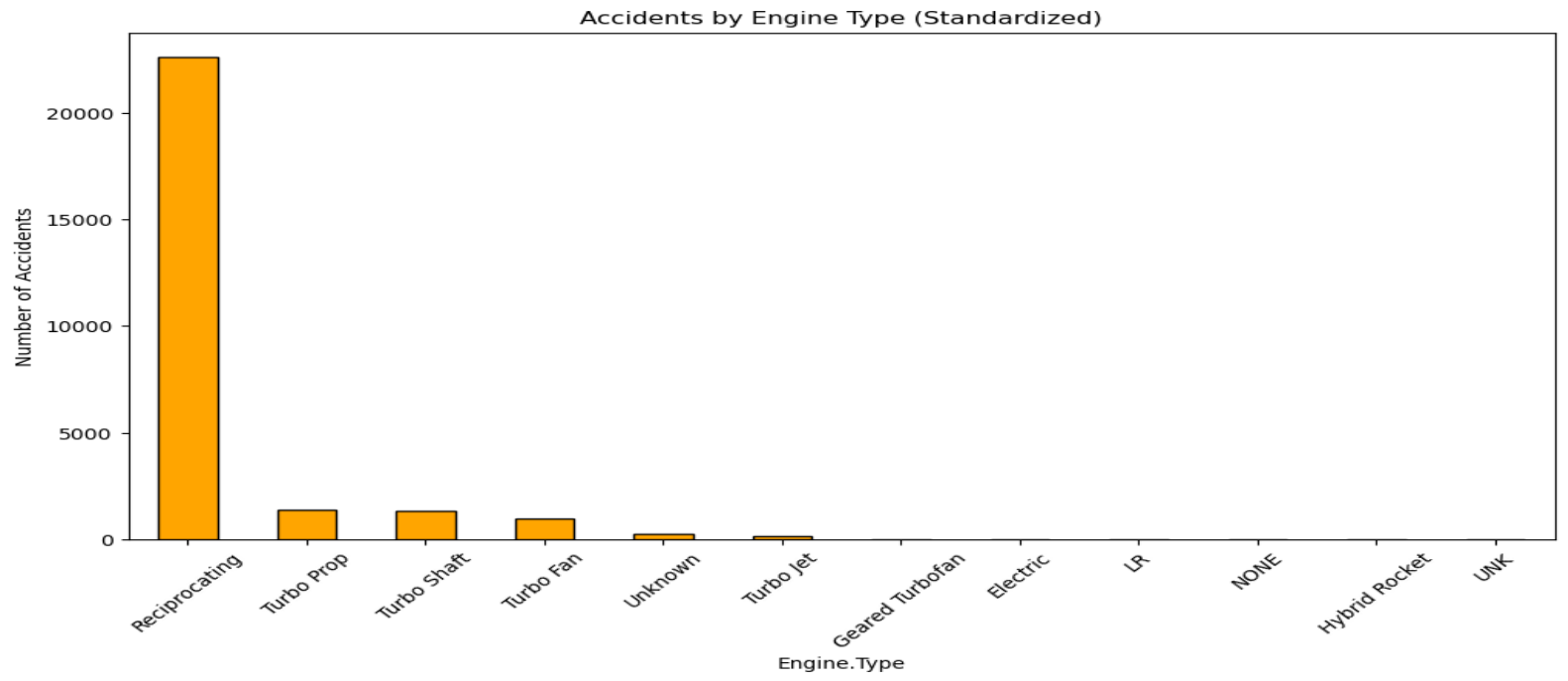
. **Safest Aircraft Manufacturers**

- **Bar Chart:** *Top 10 Aircraft Makes by Uninjured Passengers*
  - **Key Insight:** Boeing, Airbus, and Cessna had the highest uninjured counts.



ENGINE TYPE VS. ACCIDENT SEVERITY

- **Key Insight:** Recip rocating engines had the most accidents; turbofans had the lowest severe damage rates.



RECOMMENDATIONS SLIDE

6Prioritize Aircraft with:

1. Turbofan/turboprop engines (lower severe damage rates).
2. Proven safety records (Boeing, Airbus, Cessna).
3. Older aircraft with reciprocating engines.

CONCLUSION

- **Summary:**
  - Data reveals clear trends in aircraft safety by make, category, and engine type