

Aviation Analysis (1962–2023)

Using NTSB Data to Support Aircraft
Investment Decisions

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Business Context

- Company plans to enter the aviation industry.
- Limitations:
 - No prior aviation operating experience
 - Aircraft selection impacts safety, insurance, and reputation





Business Problem



Unknown aircraft
safety and risk
profiles.



Risk of high accident
rates and insurance
costs.



Need for data-
driven aircraft
acquisition
decisions



Data Overview



Source: National
Transportation Safety
Board (NTSB)



Timeframe: 1962–2023



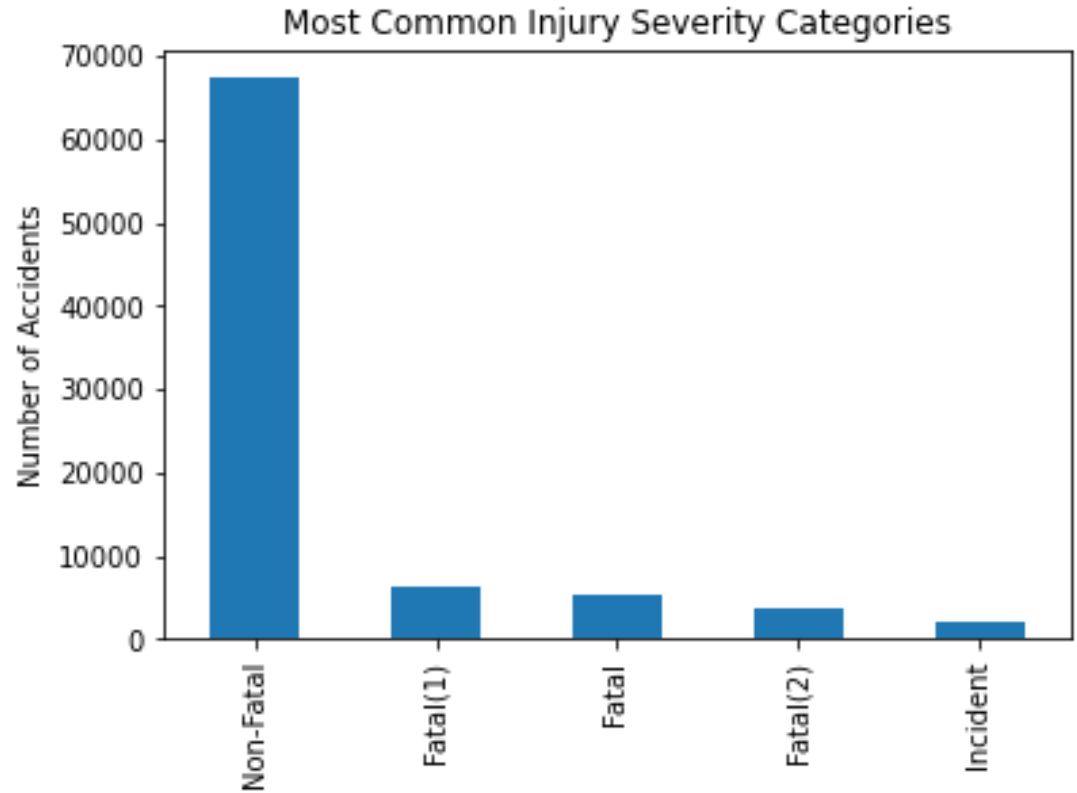
88,777 cleaned accident
records



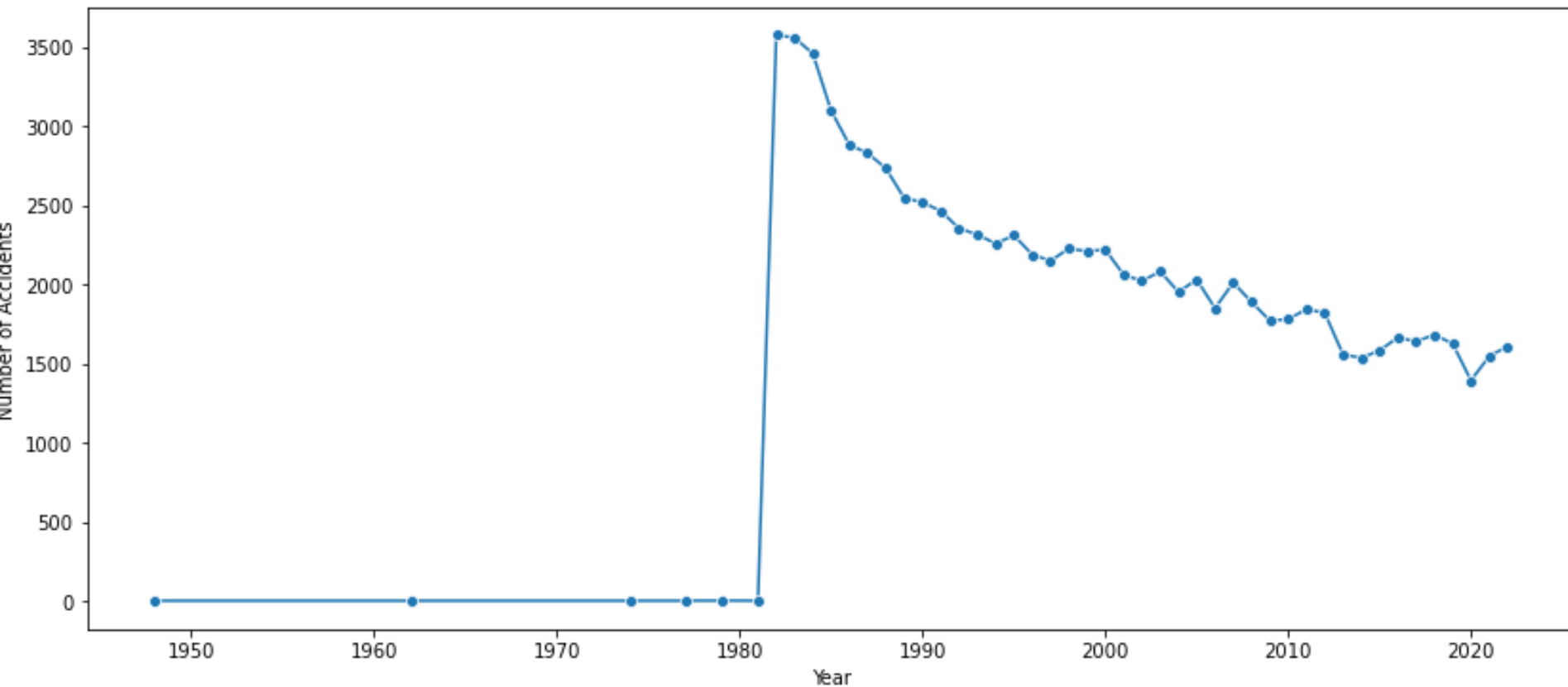
Focus on aircraft type and
injury severity

Injury Severity Distribution

- Injury Severity Categories graph
- Key Insight:
- Most accidents are non-fatal, indicating improved aviation safety over time.



Number of Aviation Accidents Over Time



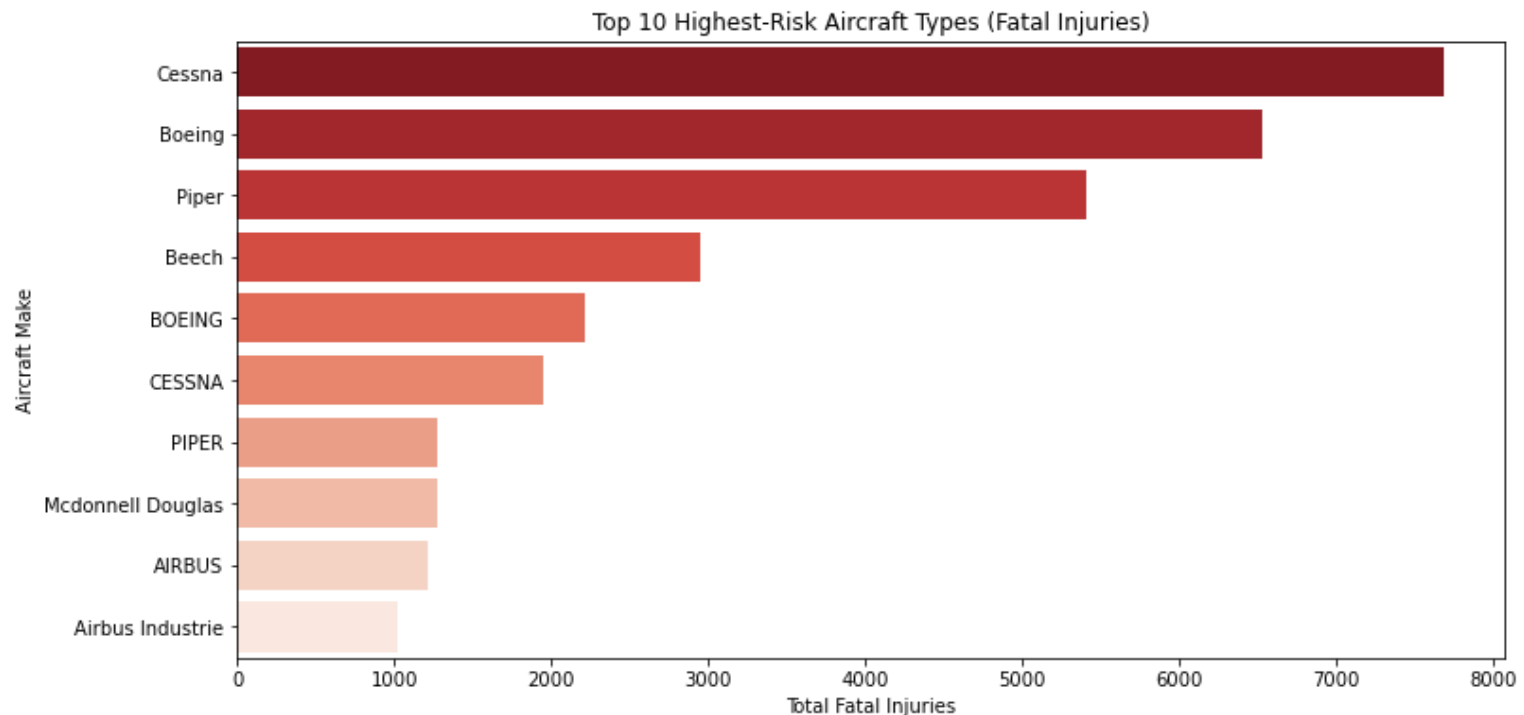
- Number of Accidents over the Years, line graph.

Aviation Accidents Over Time

- Key Insight:
- Long-term decline in accidents reflects better regulations and technology.

Aircraft Risk Comparison

- Bar chart: Fatal Injuries by Aircraft Make
- Key Insight:
- Some aircraft types are associated with higher fatal injury totals.



Lower-Risk Aircraft (Recommended)

- Cessna 172
- Cessna 152
- Piper PA-28 (Cherokee)
- Lower operating speed and simpler design
- Lower insurance and maintenance costs





Higher-Risk Aircraft (Manage Carefully)

- Beechcraft King Air
- Beechcraft Bonanza
- Cessna 208 Caravan
- Piper PA-31 Navajo
- Require advanced training and higher insurance budgets

Final Recommendation

- Start operations with low-risk training and personal aircraft
- Expand cautiously into complex aircraft categories
- Use historical safety data to guide every purchase decision

