

Data Analysis on Aviation Incidents



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Business Problem

- How should we switch into the aviation space?
- Which aircrafts are least likely to be involved in destructive accidents?
- In the event of a destructive accident, which aircrafts reduce the chance of harm to the passengers?
 - When is the best time to fly?
- Which business structure will minimize risk?



Outline

- Data Overview
- Methods
- Results
- Recommendations



The Dataset

- National Transportation Safety Board
- Civil aviation incidents from 1962 to 2023



Dataset

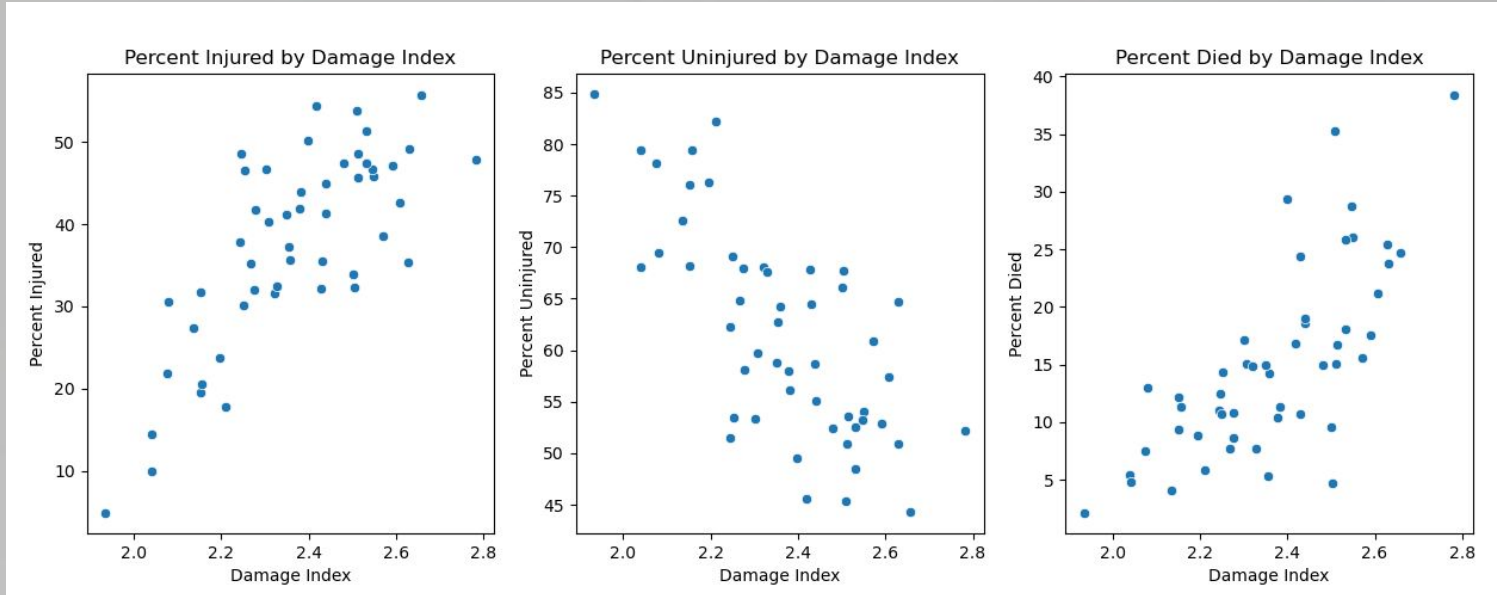
81,776 incidents from airplanes or helicopters

- Make and model of aircraft
- Degree of aircraft damage
- Percent of passengers uninjured
- Percent of passengers injured
- Percent of passengers died

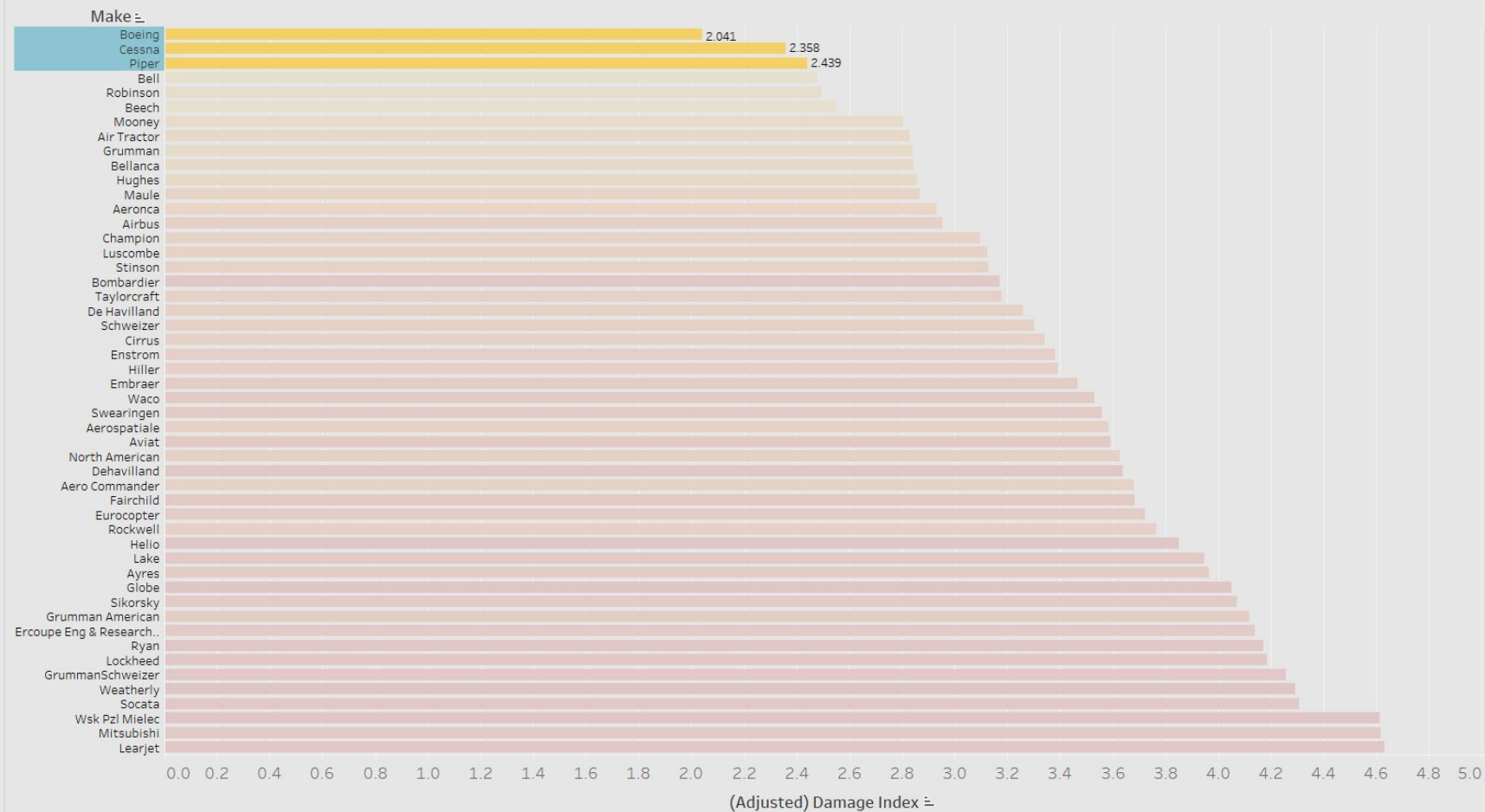


Damage Index

↑↑↑↑ Destroyed + ↑↑ Substantial + Minor



Damage Index per Make

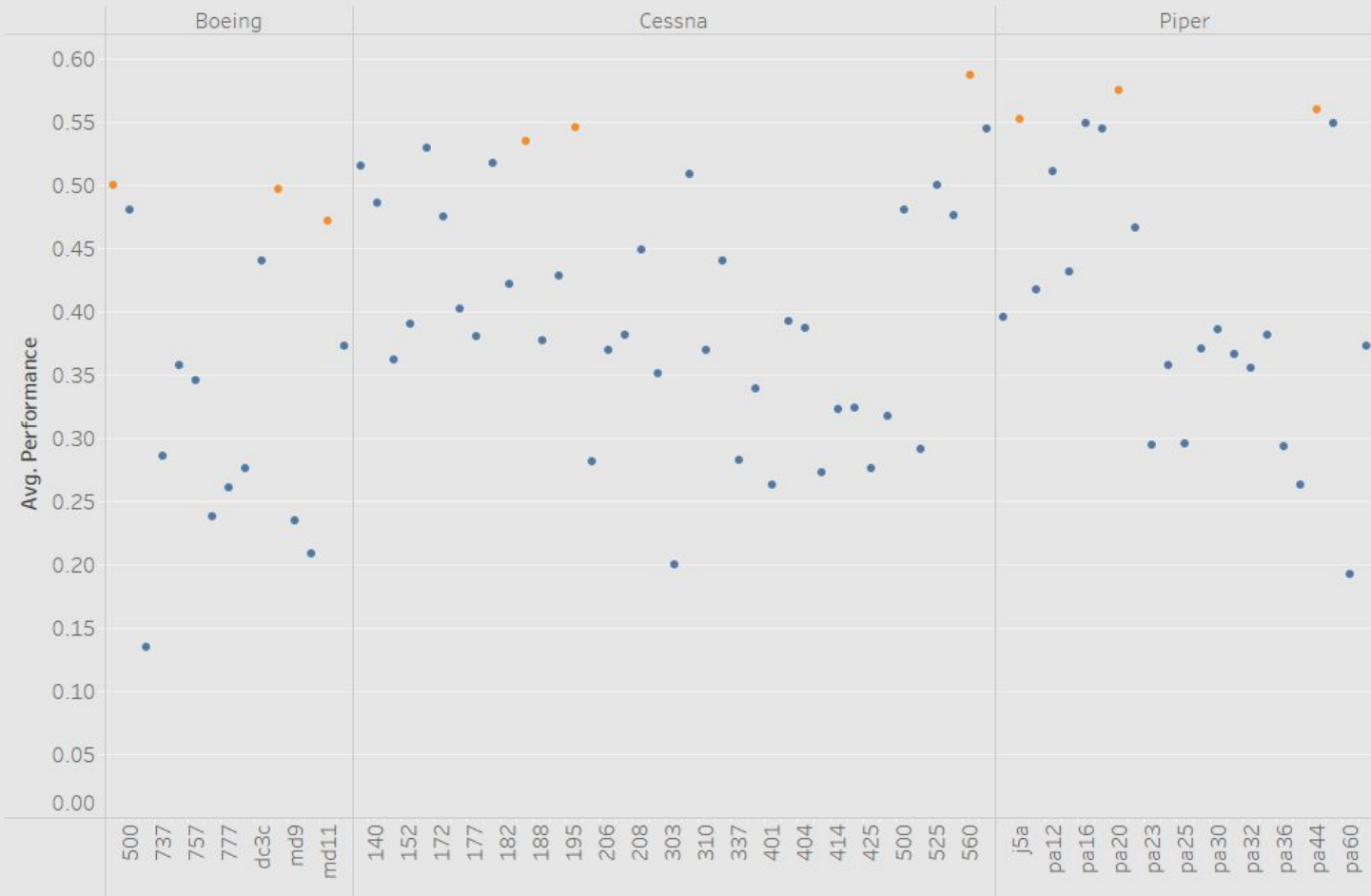


Performance During Aircraft Incidents



Destroyed + Substantial + Minor
Number of Accidents

Performance of Top Models



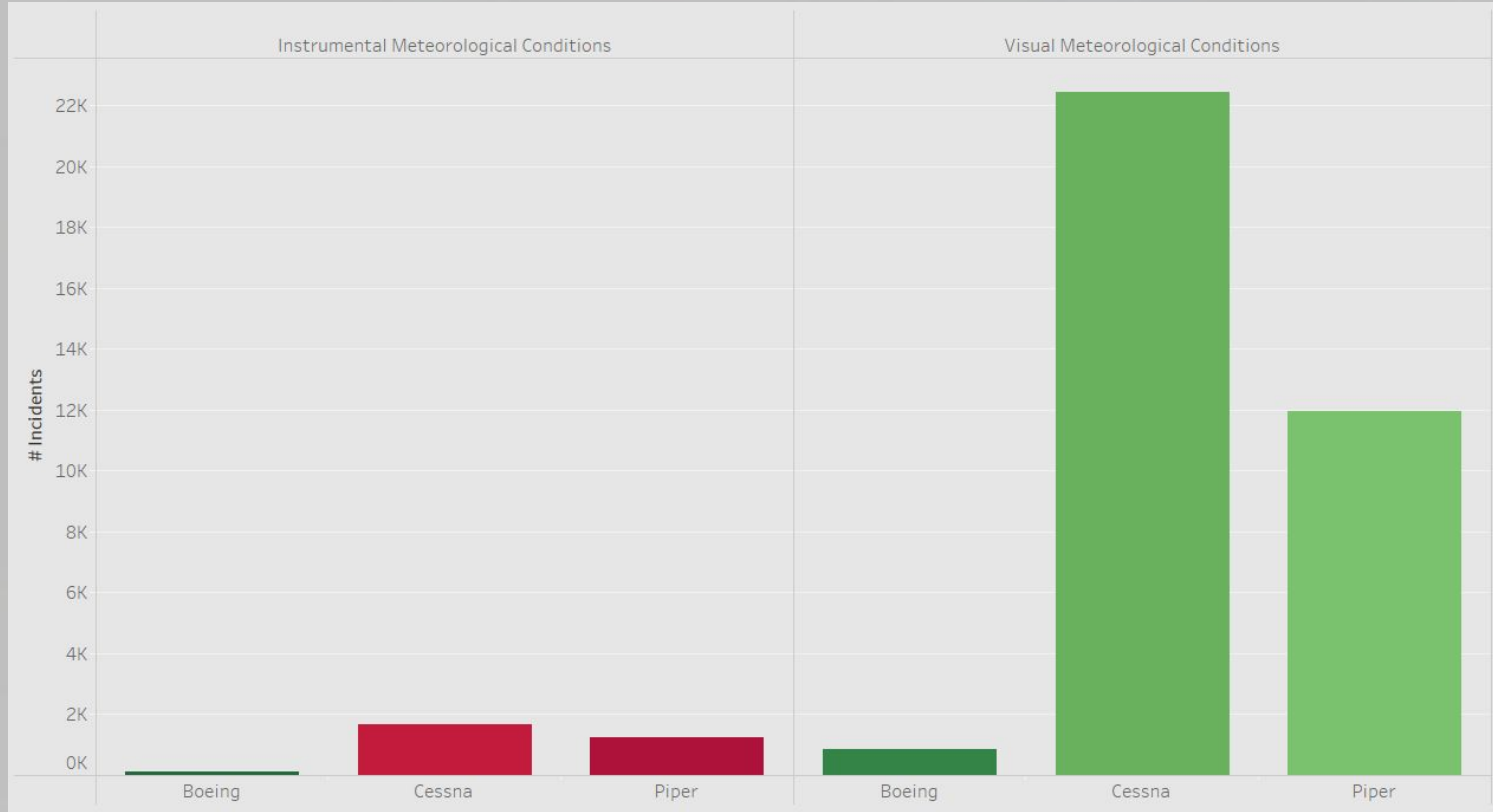
Performance of Top Models



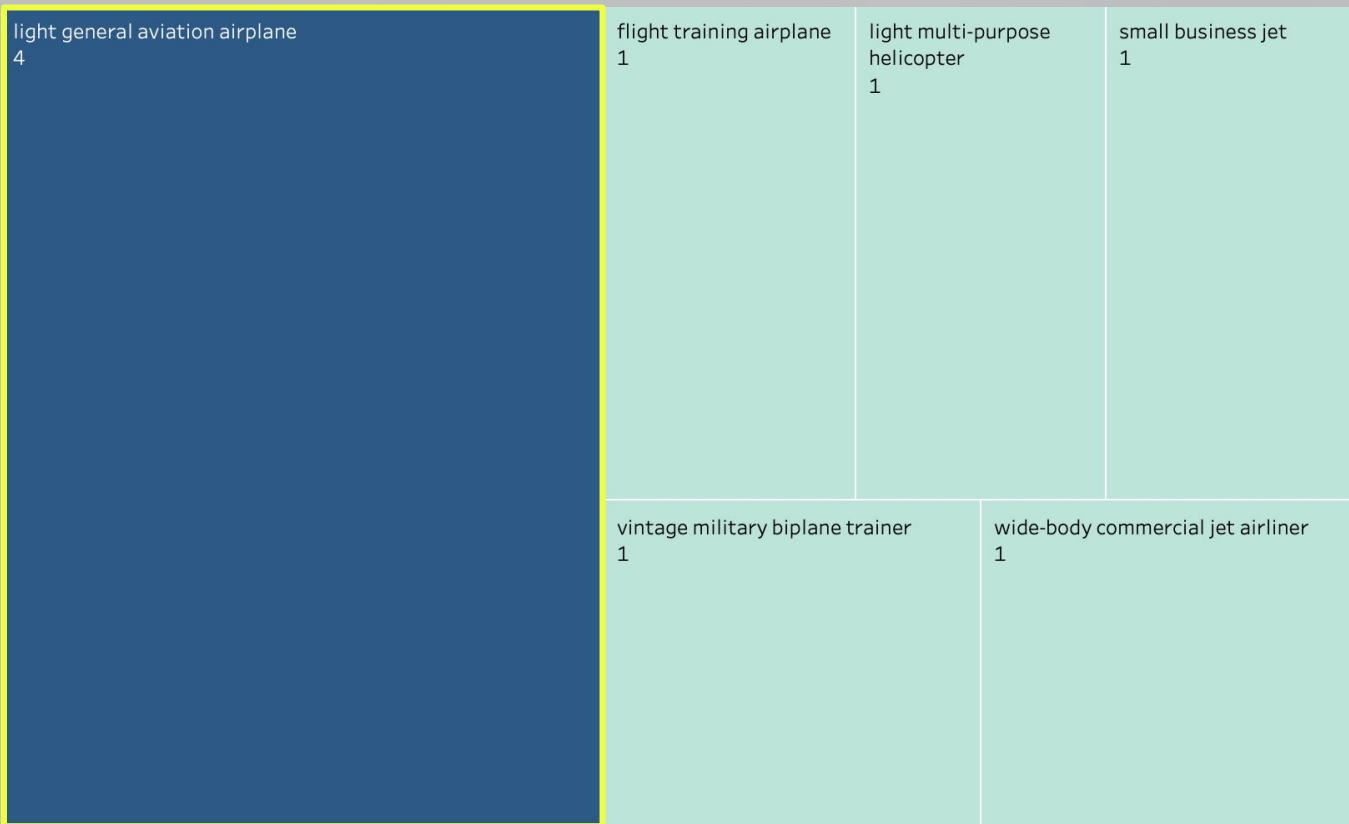
Data - Driven Recommendations



Incident & Injury Rate By Weather Condition



Aircraft Commonalities



Aircraft Commonalities



Business Model Recommendations



Touring

- Offer aerial sightseeing tours
- Offer charter services for tourists

Recreational Use

- Open a membership-based flight club
- Offer lessons for amateur pilots
- Rent planes for airshow enthusiasts

Private Use

- Offer personalized designs for private buyers
- Offer private flights.
- Airplane Renting.
- Provide aircraft maintenance

Overall Recommendations



1. Select Business Model:

Recreation

Touring

Private

2. Select Aircraft Model(s):

- Cessna 195
- Cessna 185
- Piper PA-20
- Piper PA-44
- Boeing 369E

- Cessna 195
- Piper PA-20
- Boeing Model 75

- Cessna 195
- Piper PA-20
- Piper PA-44

Next Steps



- Create a **financial analysis** based on chosen business model
- Analyze data on **all US flights** from 1962 to 2023 to account for performance during flights that did not have incidents
- Consider whether **number of engines** affects safety
- Consider whether **phase of the flight** affects safety
- Consider whether **location** affect affects safety



Questions?



Bonus

Top Model Features

