



# Airplane & Geo Analysis:

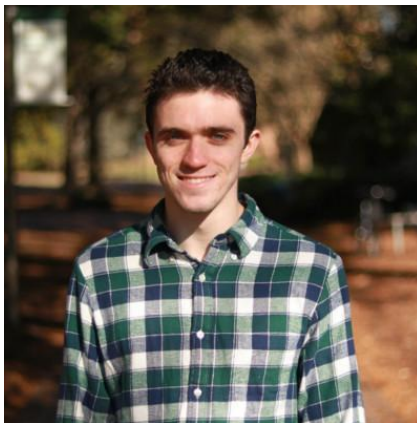
## Recommendations For Peanut Butter, Inc.

June 2, 2023

## Our Team



Stuart Clark  
Tech Lead  
[LinkedIn](#) / [GitHub](#)

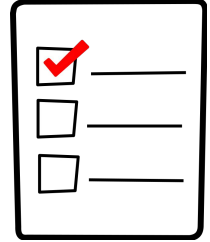


Jimmy McLaughlin  
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# Agenda



1

Overview +  
Business Problem

2

Data Overview

3

Analysis

4

Recommendation

5

Future Steps

## Business Problem / Overview



**Commercial Plane**

- Starting at \$89 million
- Can hold 200-850 passengers

VS



**Private Plane**

- Starting at \$400,000
- Under 20 passengers

## Bottom Line



“ How to expand into the private and commercial aviation industry while:

1. **Maximizing** human safety
2. **Minimizing** aircraft damage.”





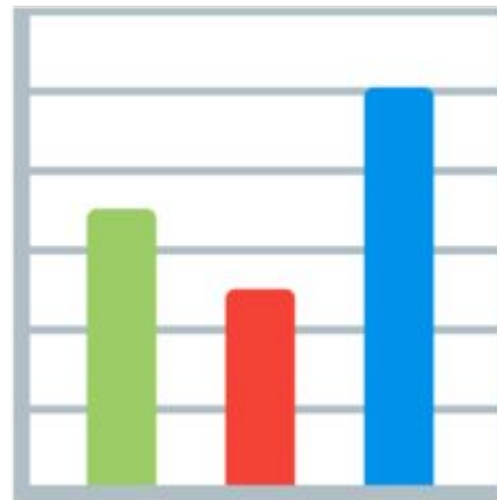
# Data Overview

Original Data (from the National Transportation Safety Board that includes):

- Civil aviation accidents data from 1962 to 2023
- United States as well as international waters

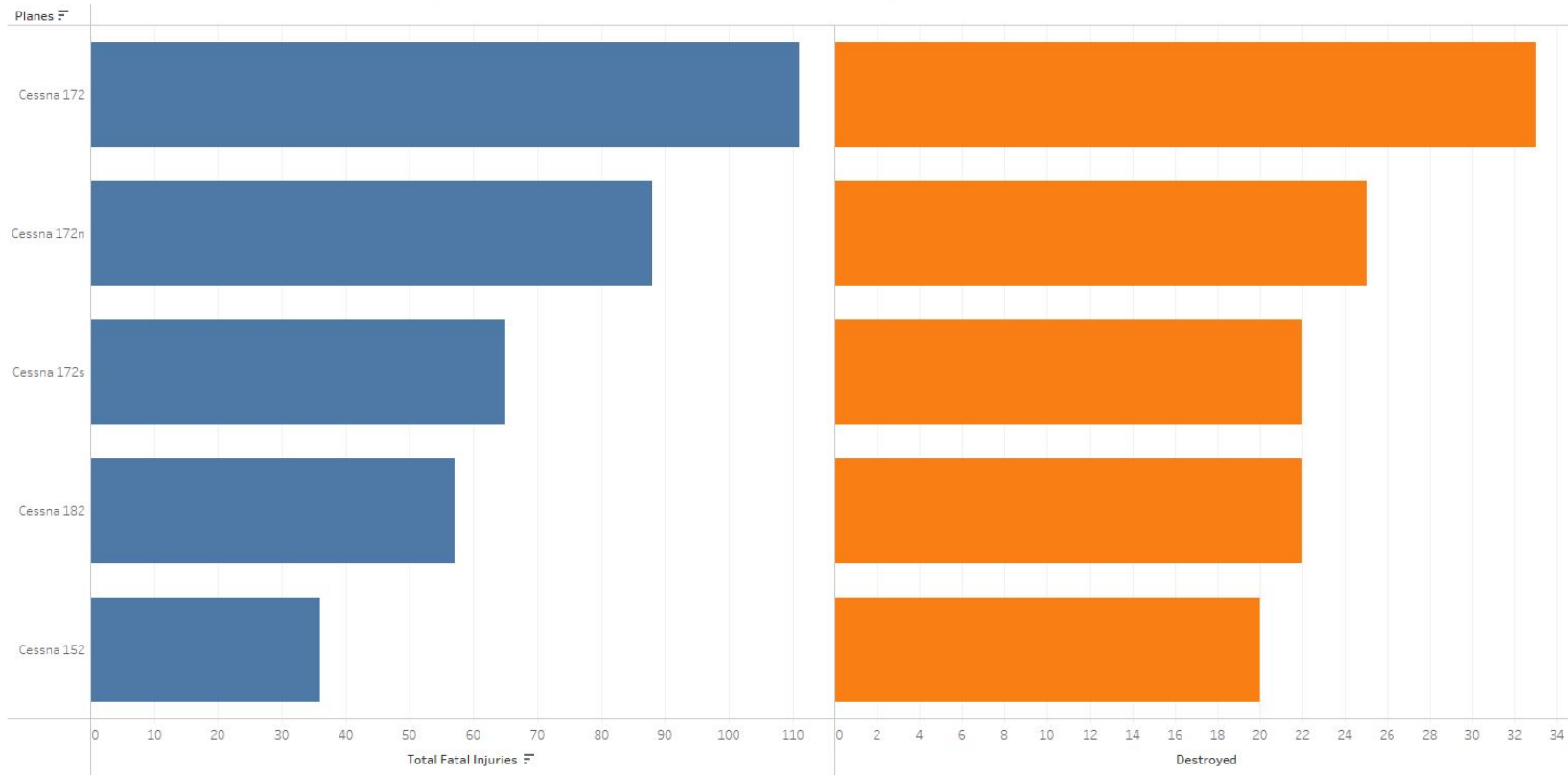
Filtered Data:

- United States
- After the TSA was created in 2001 - 2023
- Airplanes only

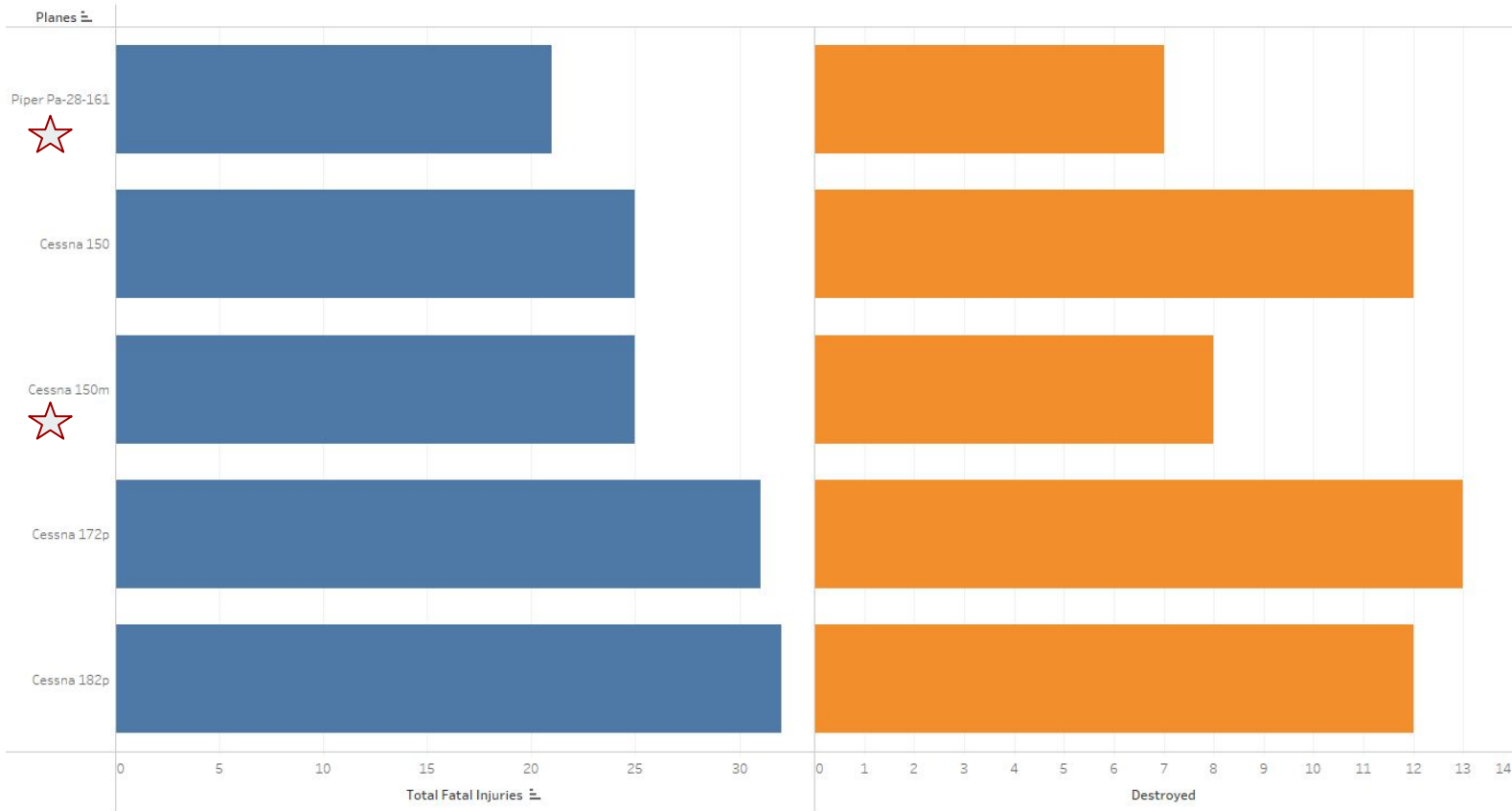


# Private Plane Analysis

Models with the highest amounts of passenger fatalities and destroyed planes.



## Models with the lowest amounts of passenger fatalities and destruction

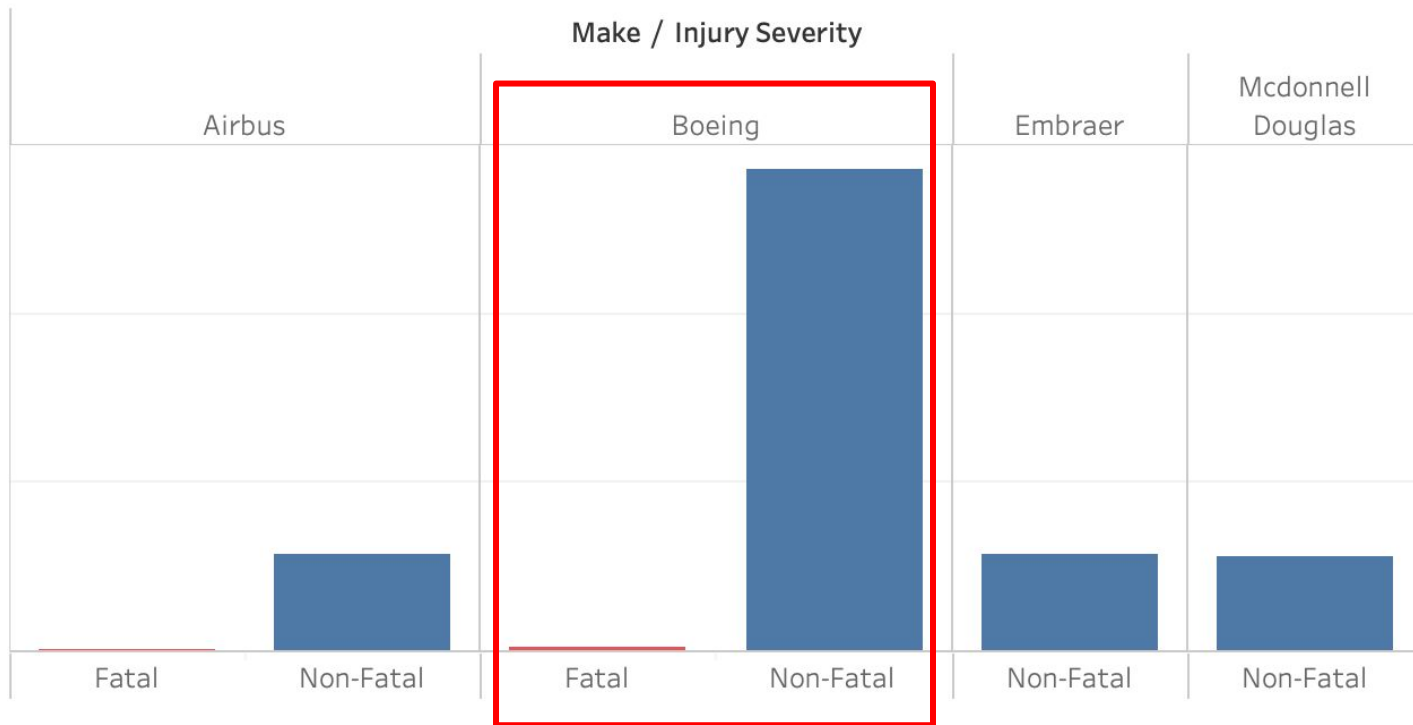


# Private Plane Analysis

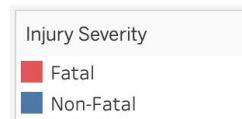




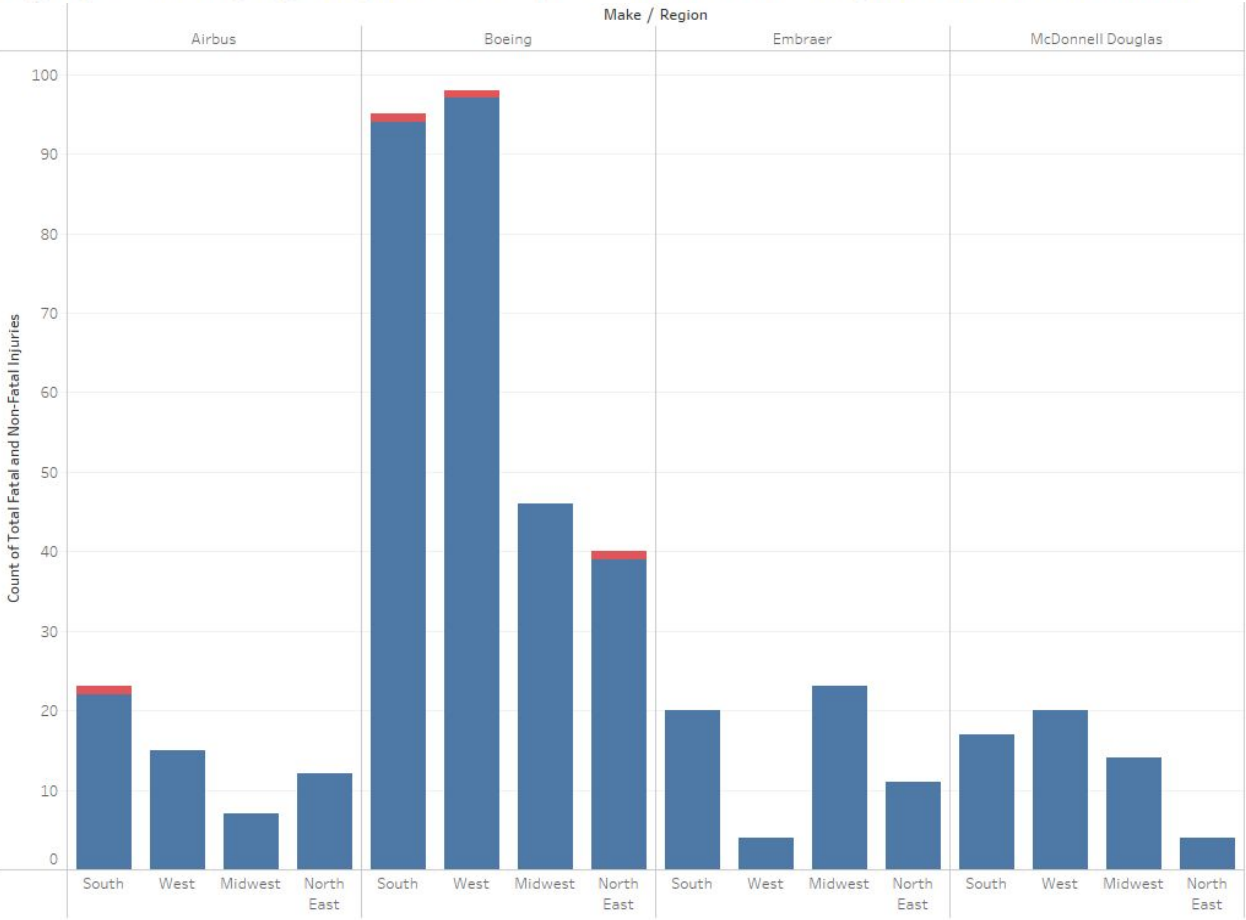
## Makes with Fatal vs Non-Fatal



## Commercial Plane Analysis



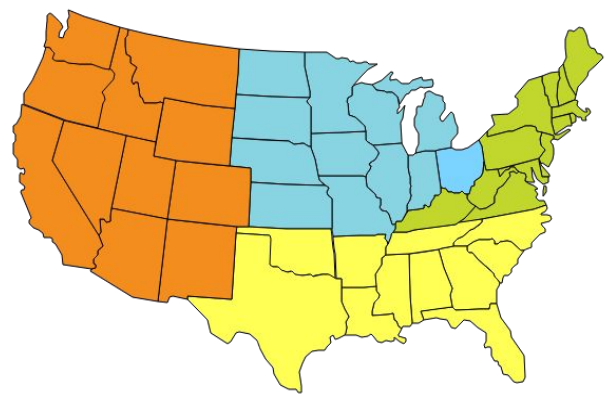
# Injury Severity by Region for Top 4 Commercial Airplane Manufacturers



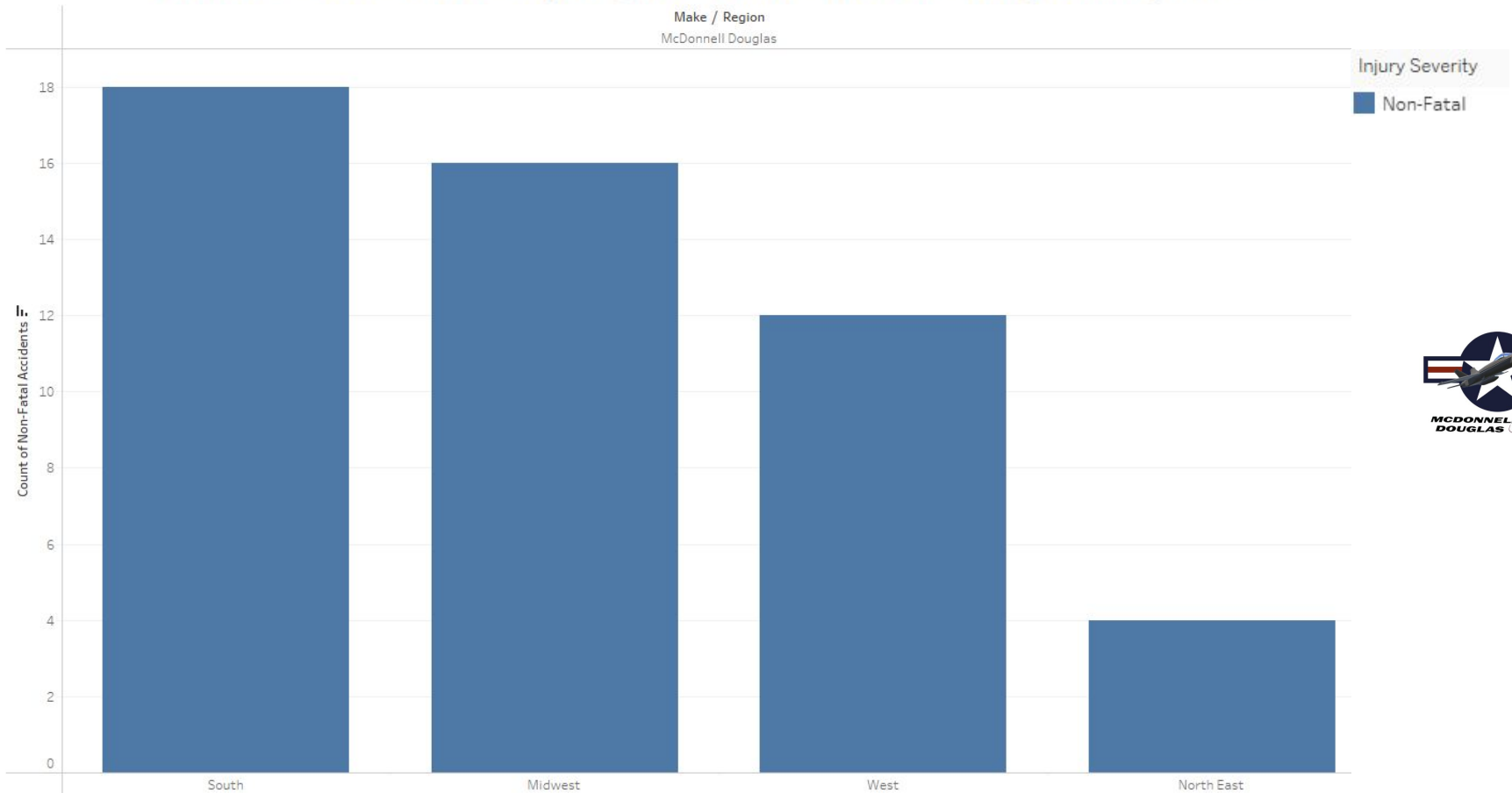
# Location Analysis

Injury Severity

- Fatal
- Non-Fatal



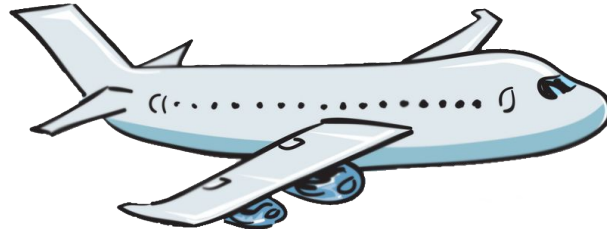
# Number of Accidents by Region for McDonnell Douglas Airplanes



# Analysis



1. Least risky Private Planes
2. Least risky Commercial Planes
3. Least risky Location (USA)





# Recommendation -Fly Commercial

1. In general, commercial flights are safer than private planes regardless of the commercial manufacturer.
  2. The only commercial plane we DON'T recommend is the boeing 737 7h4 due to metal fatigue in the engine.
  3. If the company chooses to go private, recommend Cessna 150m or Piper pa-28-161 as safest models.
- Supplementary research showed importance of pilot training: over 80% of crashes occur due to pilot error.



# Future Steps

Examine data on flights that did not crash for comparison.

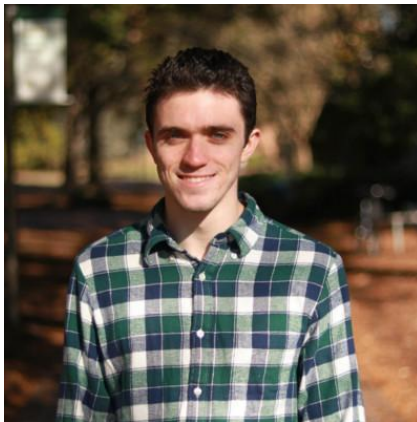
Conduct further analysis on how engine type and number of engines affects safety.

Analyze report status column to see what percentage of accidents in the dataset were due to pilot error.

# Questions?



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Thank you

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Out[38]: 'Thank you'
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# Sources

[https://www.psbr.law/aviation\\_accident\\_statistics.html](https://www.psbr.law/aviation_accident_statistics.html) -What percent of flights are caused by human error?

<https://www.tsa.gov/timeline#:~:text=Jackson%2C%20who%20was%20the%20Deputy,Bush%20on%20November%2019%2C%202001> - When was the TSA created?

<https://www.internationaljet.com/how-many-passengers-can-a-private-jet-hold.html> -How many passengers can a private flight hold?

<https://www.skytough.com/post/how-much-does-a-commercial-plane-cost> -How much do commercial planes cost?

<https://www.skytough.com/post/cost-to-own-a-private-plane> -How much do private planes cost?

[https://en.wikipedia.org/wiki/Wide-body\\_aircraft#:~:text=In%20the%20typical%20wide%2Dbody,abreast%20in%20high%2Ddensity%20configurat](https://en.wikipedia.org/wiki/Wide-body_aircraft#:~:text=In%20the%20typical%20wide%2Dbody,abreast%20in%20high%2Ddensity%20configurat)  
[ions](#) -How many passengers do commercial planes hold?

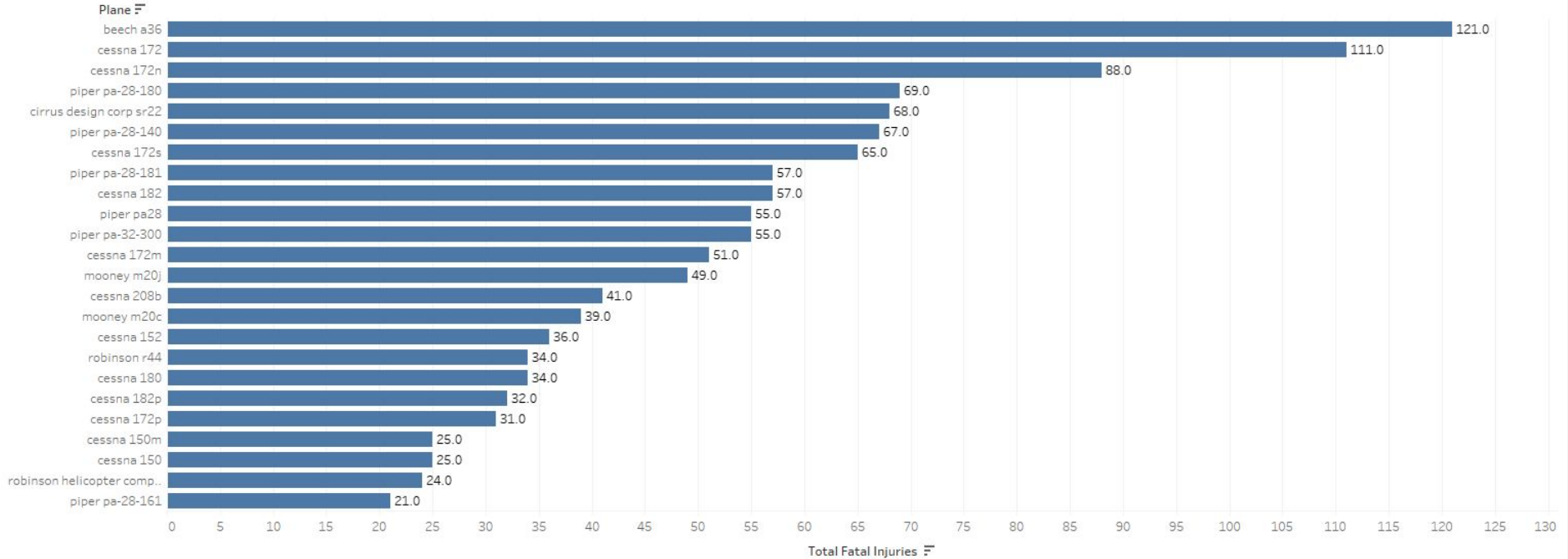
<https://www.sciencedirect.com/science/article/pii/S1057521920301125#:~:text=Similarly%2C%20Barrett%2C%20Heuson%2C%20Kolb,firm%20a>  
[nd%20the%20accident%20itself](#) \_How does a plane crash affect market?



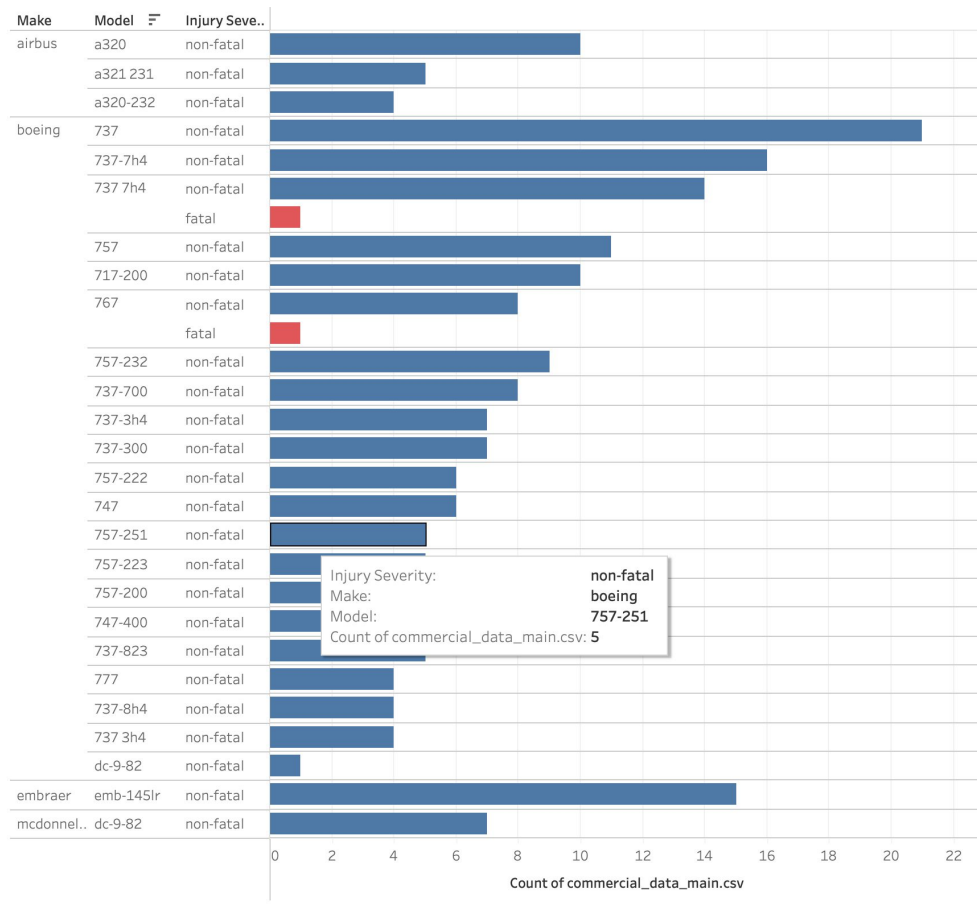
# Appendix

# Private Plane Analysis

Private Plane Fatalities



## Planes with Fatal vs Non-Fatal



# Commercial Plane Analysis

Injury Severity

non-fatal

fatal

Injury Severity:  
non-fatal  
Make:  
boeing  
Model:  
757-251  
Count of commercial\_data\_main.csv: 5

# Location Analysis

Private Airplane Damage by Region

