

Business Understanding

A company is expanding in to new industries to diversify its portfolio. Specifically, they are interested in purchasing and operating airplanes for commercial and private enterprises, but do not know anything about the potential risks of aircraft. You are charged with determining which aircraft are the lowest risk for the company to start this new business endeavor. You must then translate your findings into actionable insights that the head of the new aviation division can use to help decide which aircraft to purchase.

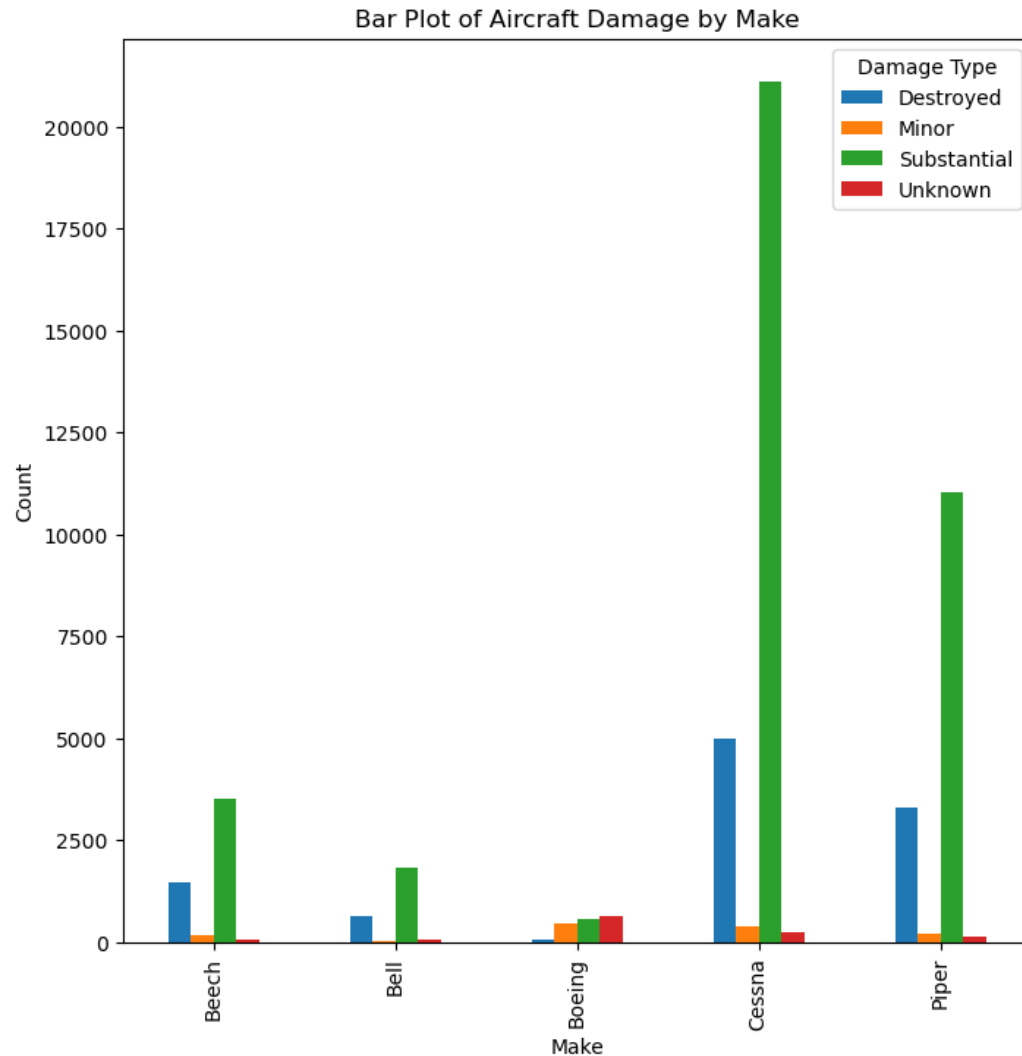
Data Understanding

In the data folder is a datasetLinks to an external site <https://www.kaggle.com/datasets/khsamaha/aviation-accident-database-synopses>. from the National Transportation Safety Board that includes aviation accident data from 1962 to 2023 about civil aviation accidents and selected incidents in the United States and international waters.

Questions to consider

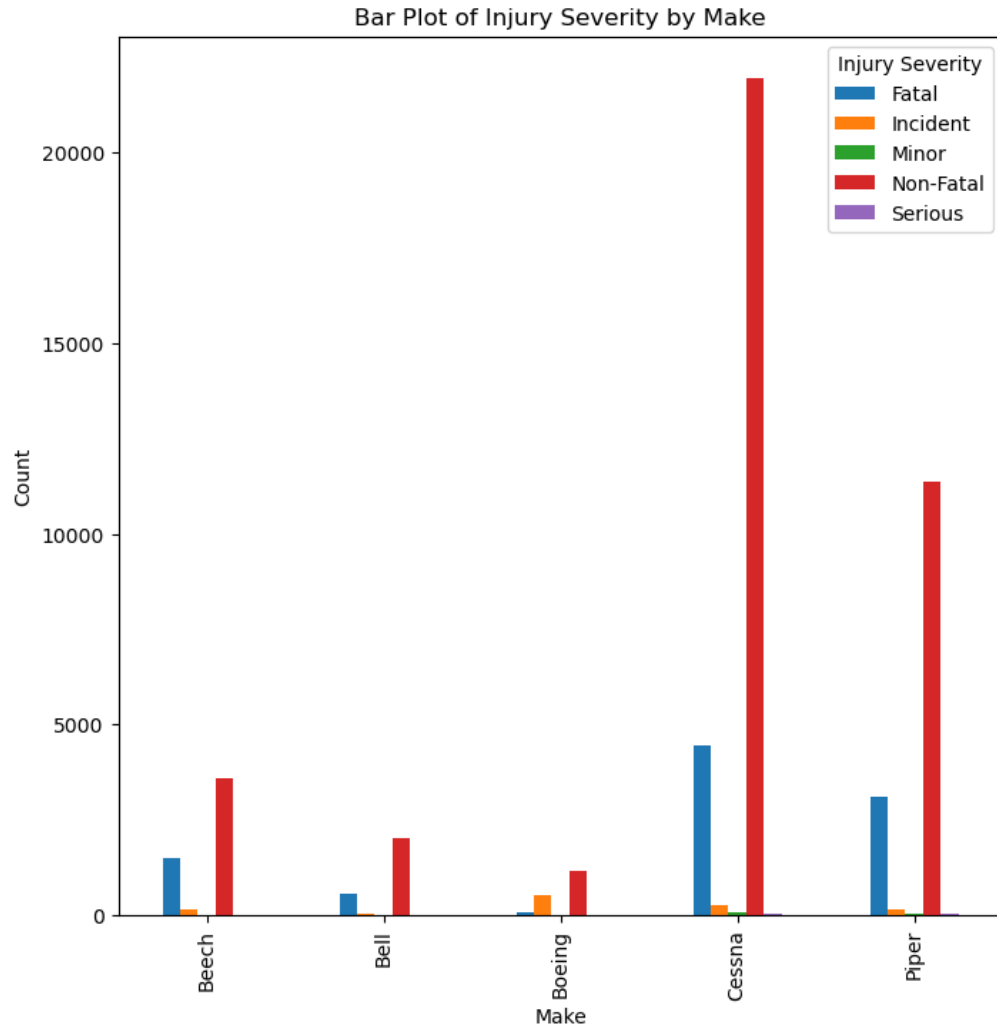
- ▶ (a) Which aircraft makes have the highest number of accidents
- ▶ (b) How does the aircraft makes relate to injury severity, aircraft damage categories to establish which one has a lower risk
- ▶ (c) What is the purpose of flight for the aircraft makes
- ▶ (d) What is the relationship between aircraft make, total injury and total uninjured

Visualizations-Aircraft Damage by Make



Observation: All makes reported high substantial & destroyed damages except for Boeing

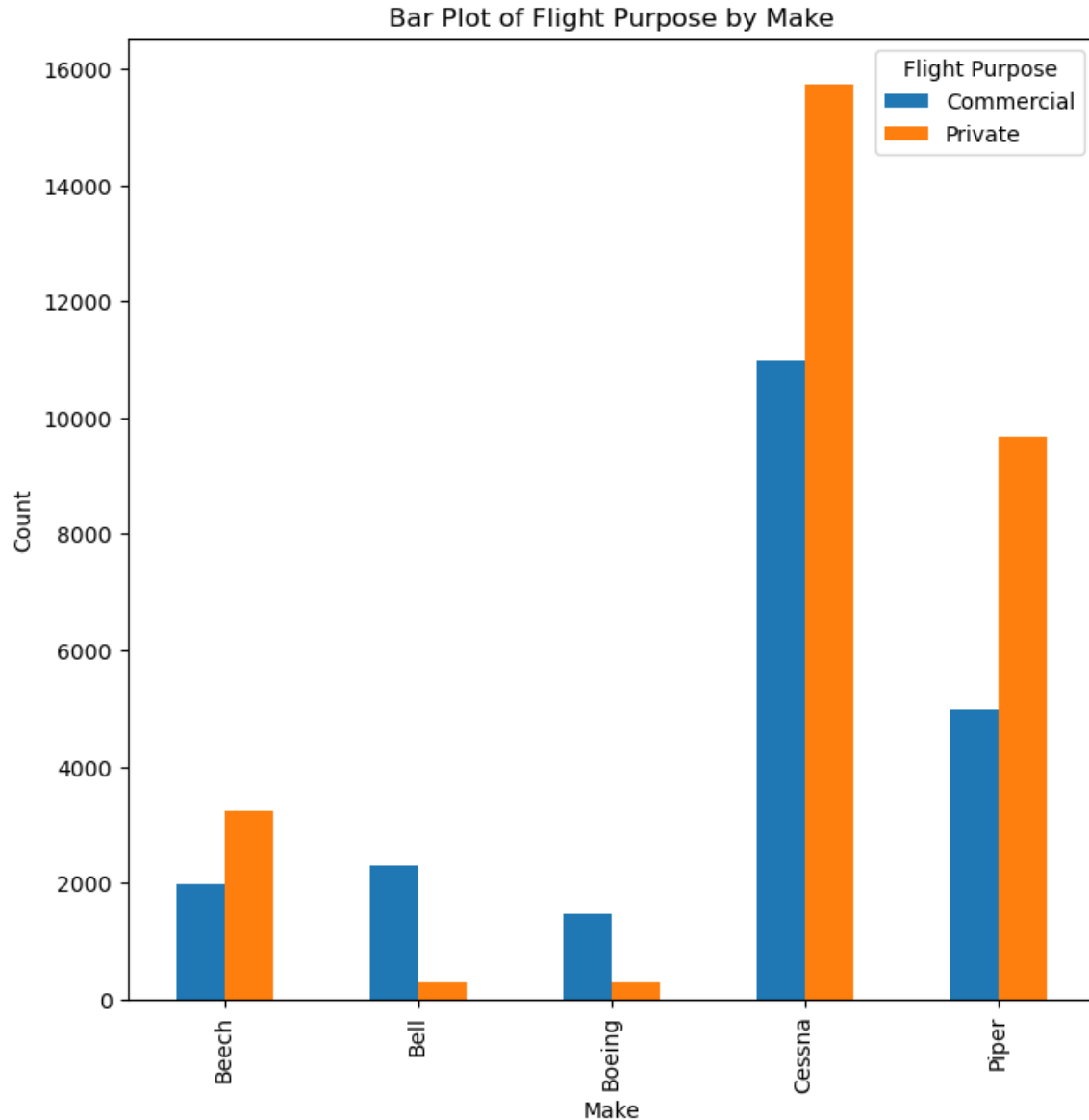
Visualizations-Injury Severity by Make



Observation: the injury severity - Non-fatal was highest for all the makes followed by Fatal.

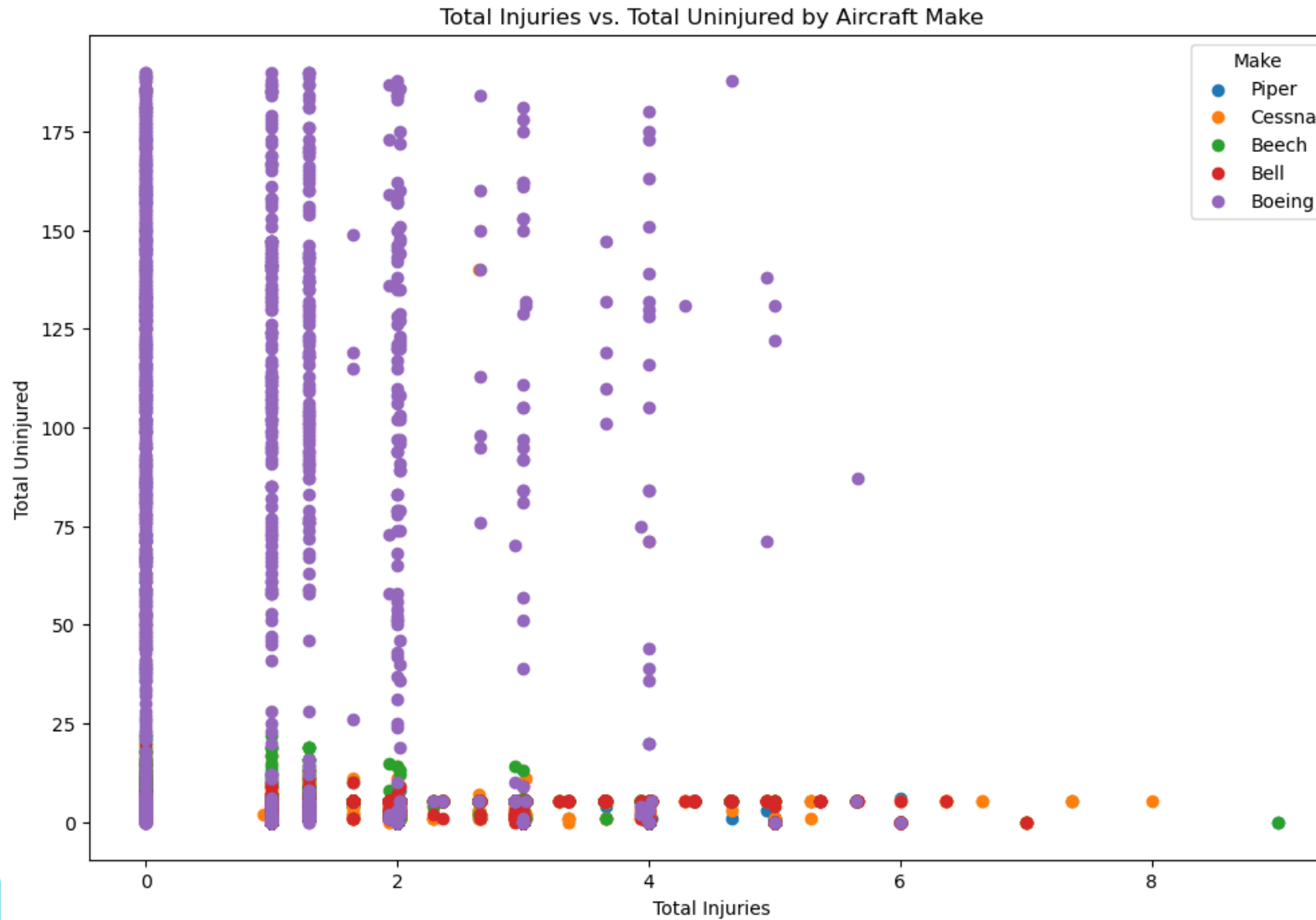
Cessna which a higher accident rate has relatively lower Fatal rates when compared to Piper

Visualizations-Flight Purpose by Make



Observation: Cessna, Piper and Beech makes were mainly used for private purposes while Bell and Boeing were mainly used for commercial purpose

Visualizations-Total Injury vs Total Uninjured by Make



Observation: Boeing has the lowest total injuries and highest total for uninjured Cessna, Piper, Bell and Beach makes have high total injuries and low numbers for total uninjured.

Conclusion

Based on the above observations I would recommend purchase of Boeing aircraft. We have that Boeing has registered low total injuries, high totals for uninjured, the injury severity and aircraft damage was relatively low for all categories when compared to other makes.