

# Safety Risks in Airplanes Analysis

By Jesse Moore



# Summary

Descriptive Analysis of the NTSB's Airplane Safety Data to reduce the risk of accidents and costs.

- Amateur Built planes are on average safer than non-Amateur Built planes.
- Weather Conditions cause the most total fatal injuries in June and October.
- The type of engine and number of engines can have an effect on a plane's average number of fatalities.
- The Airbus A380 can be classified as the 'Safest' plane with our research.

# Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions



## Business Problem

- Determine the safest airplanes to purchase.
- Protect companies investment and from litigation.
- Protect human life and safety

## Data

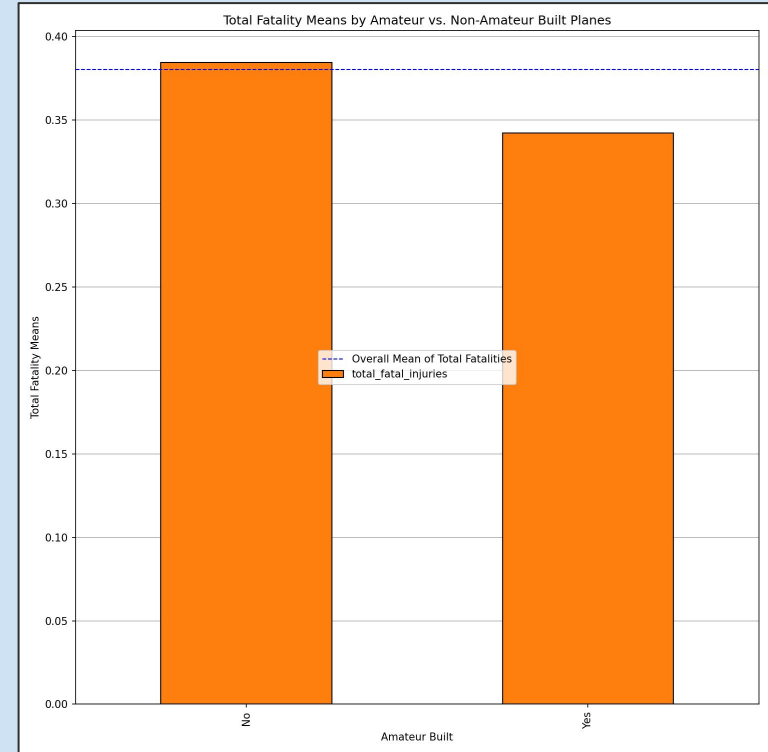
- Data on over 88,000 airplane accidents from 1962 to 2023
- Includes the make and model of the airplane as well as the total number of fatal injuries.

# Methods

- Data was analyzed by various conditions (weather, amateur built, engine type) relationship to the total fatal injury average.
- Data was filtered and grouped by airplane make and model
- Functions were created to further filter the data to determine if the airplane's average injuries were lower than the standard deviation and if the number of uninjured passengers was higher than the standard deviation.
- This dataframe was filtered again to show us the safest possible planes.

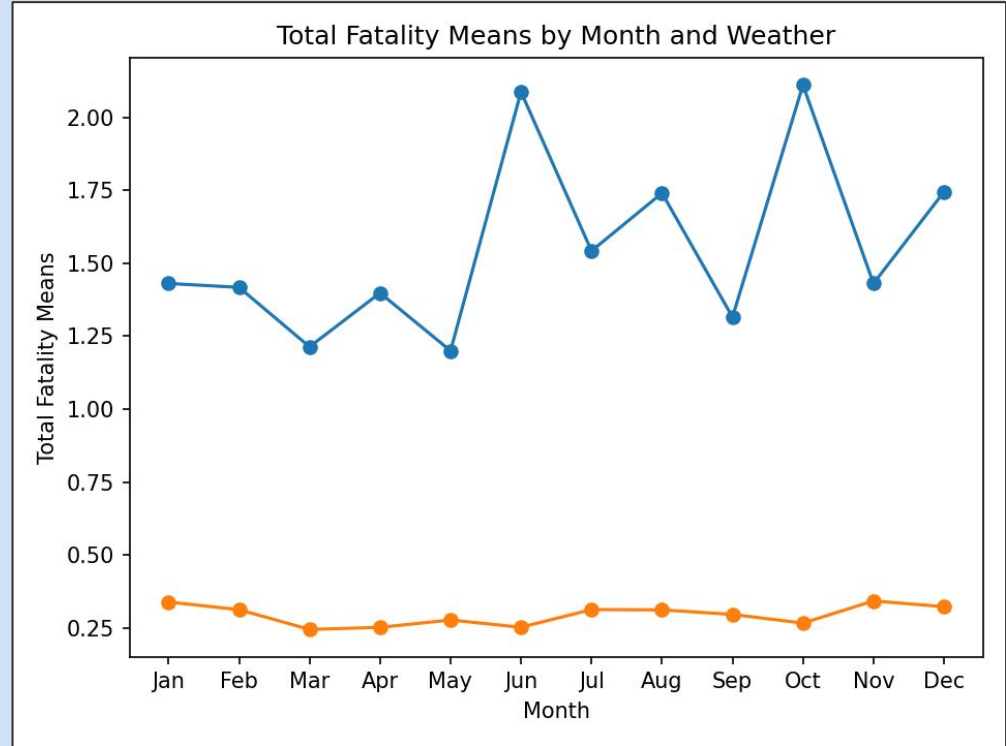
# Results

- Amateur Built planes have on average less total fatal injuries than non-amateur built planes.



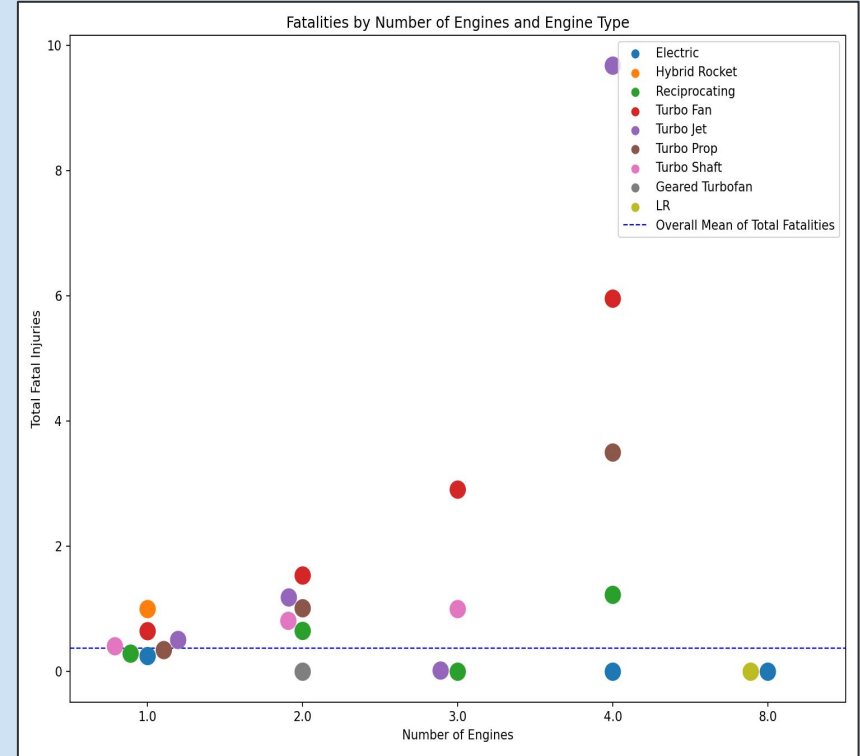
# Results

- Weather factors play a role in increasing the total fatal injuries. The months of June and October having the highest average fatal injuries.



# Results

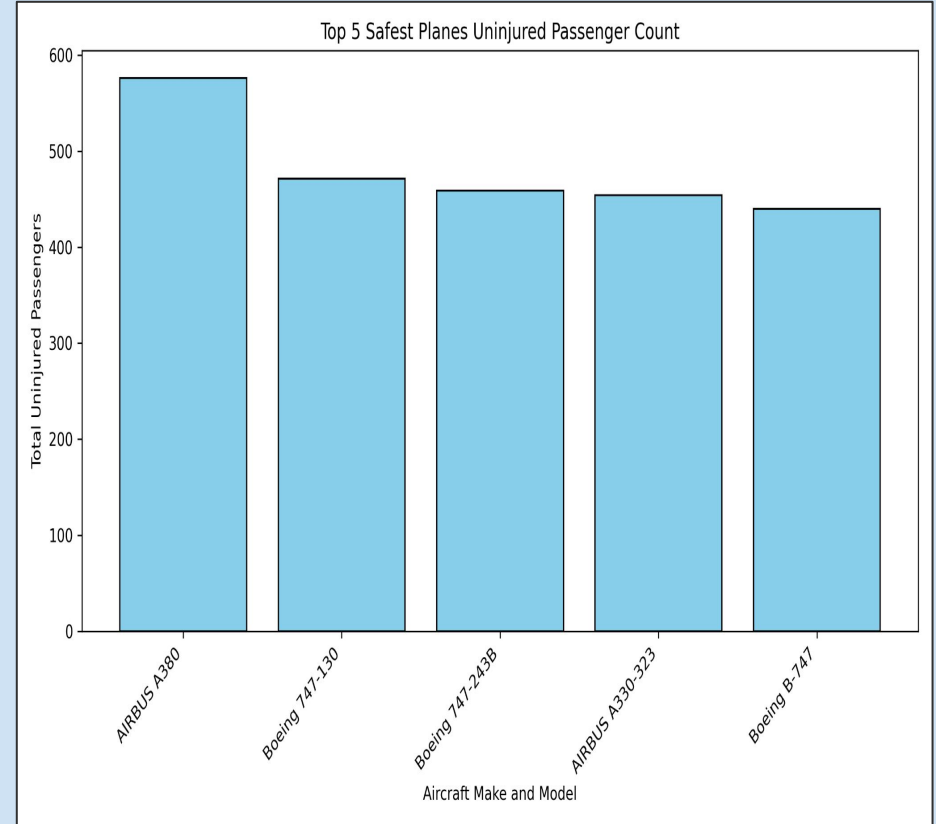
- The type of engine correlates to the number of total fatal injuries. In the case of the 'Turbo Fan' engine, as the number of engines increases, the number of average total fatal injuries also increases.





# Results

- The Airbus A380 is the safest plane on average as determined by having the highest number of uninjured passengers with a low average number of total fatalities per accident.



# Conclusions

- The Airbus A380 is provides the lowest risk of fatality versus the highest number of total uninjured passengers.
- Avoid using planes with 'Turbo Fan' engine, especially with higher numbers of engines.
- The months of June and October are the lease safe months to fly.
- Amateur Built planes are often safer than non-Amatuer Built planes.

## Next Steps:

- Research the frequency of flights, plane age, and human error in accidents.
- Determine the safest and most dangerous states to fly in.

# Thank You!

**Email:** [essejroom@gmail.com](mailto:essejroom@gmail.com)

**GitHub:** [@JesseMooreDS](https://github.com/JesseMooreDS)

**LinkedIn:** [linkedin.com/in/jesse-moore-datascience/](https://www.linkedin.com/in/jesse-moore-datascience/)