Aircraft Safety Analysis

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Overview

This project aims at:

1. Identifying potential risks of aircraft.

2. Determining aircraft with lowest risk for a company.

3. Giving insights on purchasing and operating commercial and private enterprises, for a company aspiring to expand into the aviation industry.

Business Understanding

Our company seeks to expand into the aviation industry, and I am tasked to ensure a successful entry by identifying the lowest-risk aircraft options for both commercial and private operations.

I need to delve into and analyze the potential risks associated with aircraft ownership and operation, and provide actionable insights to guide the head of the new aviation division in making informed decisions about aircraft purchases.

Data Understanding

- The data being used is from the National Transportation Safety Board (NTSB) aviation accident database.

- It contains information from 1962 to 2023 about civil aviation accidents within the United States, its territories and possessions, and in international waters.

The key variable used include:

1. Make (Aircraft)
2. Total Fatal Injuries
3. Number of Engines

Data Preparation

Data Selection

Here I decided the data which I will use in the analysis.

Data Cleaning

Missing values where handled and irrelevant columns were removed.

Data Formatting

Modified the data without changing its meaning.

Recommendations

Here are the key recommendations for the company based on the analysis made:

- ✓ The company should consider purchasing aircrafts manufactured by Embraer because they were not involved in as many fatal injuries in accidents compared to other aircraft makes.
  Additionally, they are fuel-efficient, versatile, and well-suited for regional and short-haul operations.

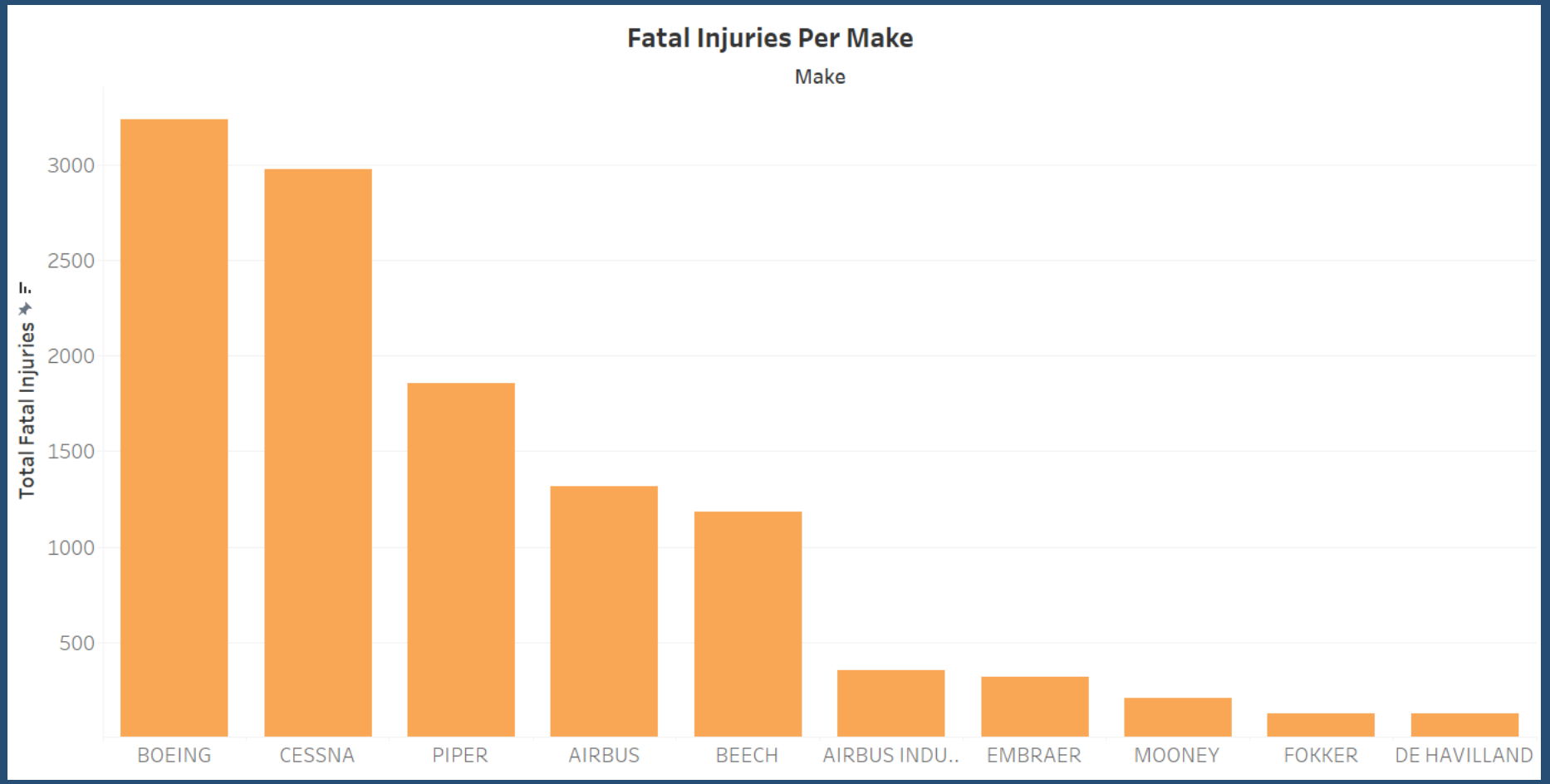
- ✓ The company should also consider purchasing aircrafts manufactured by Airbus as they did not suffered fewer accidents leading to fatal injuries compared to other aircraft makes.
  Moreover, they are renowned for reliability, fuel-efficiency, and short-haul commercial flights.

- ✓ The company should consider purchasing twin-engine or quad-engine aircraft as they did not suffer as many accidents as single-engine aircraft, and they are commonly used today.

- ✓ The twin-engine aircraft is the most appropriate pick as advances in their designs have reduced the demand for quad-engine aircraft due to their better fuel efficiency.

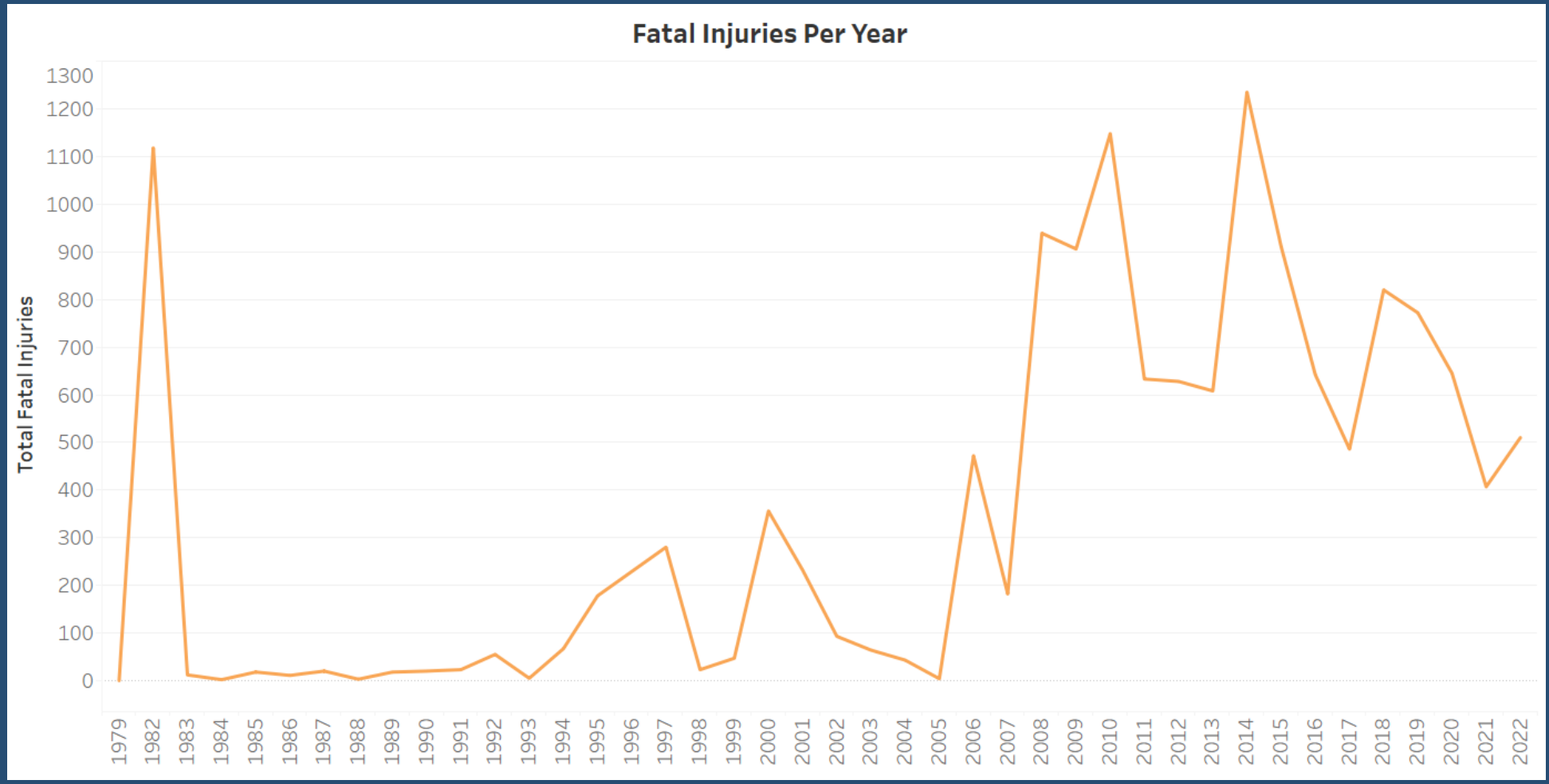
Total Fatal Injuries By Aircraft Make

The visualization shows the number of fatal injuries suffered per aircraft make



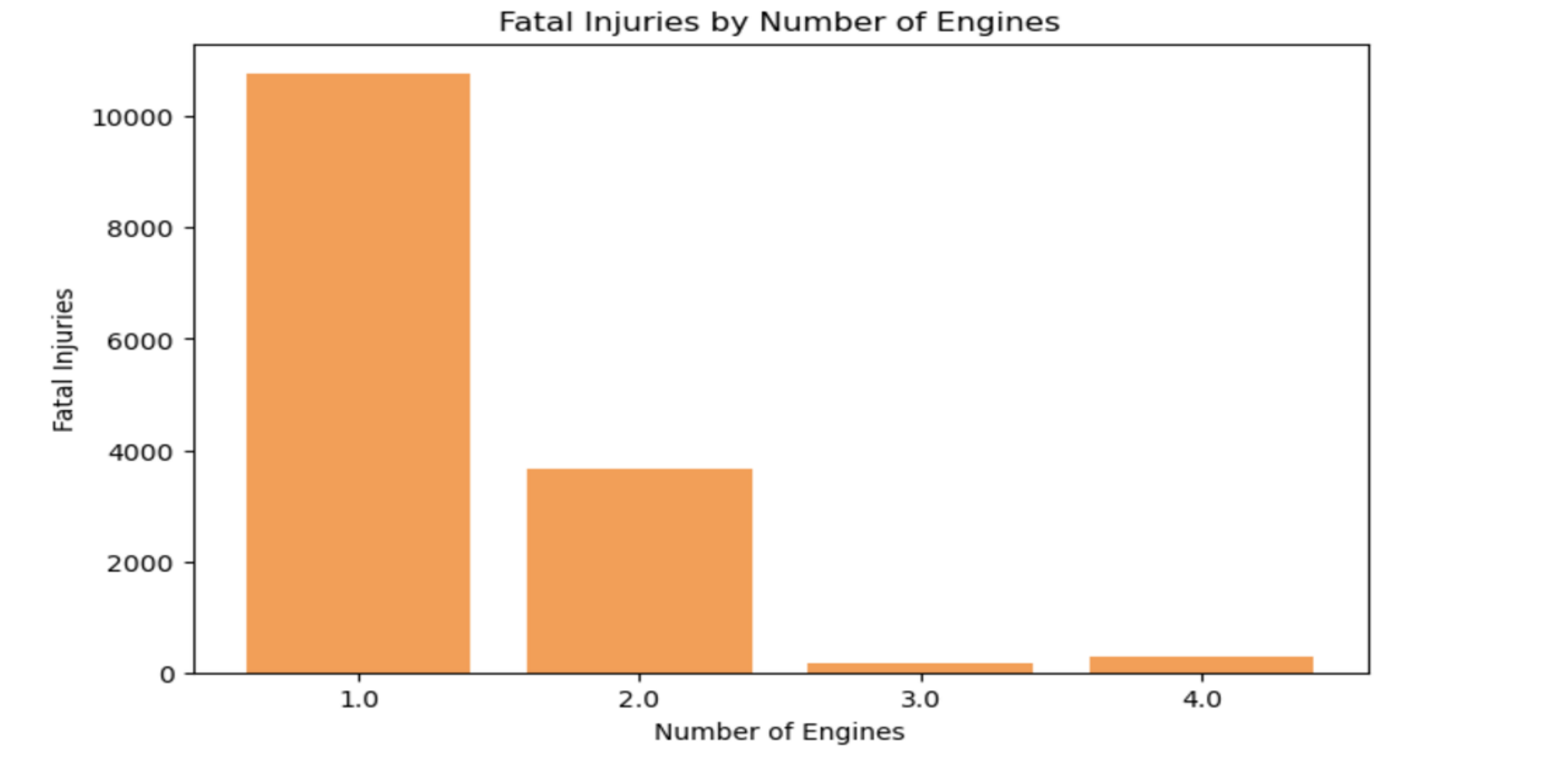
Total Fatal Injuries By Year

The visualization shows the number of fatal injuries suffered per year



Total Fatal Injuries By Number of Engines

The visualization shows the number of fatal injuries suffered per the number of engines in an aircraft



Evaluation and Future Improvement Ideas

Key risk mitigation factors

- Thorough Due Diligence
- Robust Risk Management Strategies
- Regulatory Compliance
- Continuous Aircraft Monitoring

Thank You!

Feel free to reach out if you need any further information