AVIATION INDUSTRY DATA

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OVERVIEW

Our company is expanding into the aviation industry, with plans to purchase and operate aircraft for both commercial and private use. To mitigate potential risks, we need to identify which aircraft types present the lowest risk for this new venture.

This analysis will guide the decision-making process by providing data-driven insights into the safety records of various aircraft. Our findings will be translated into actionable business recommendations, ensuring that the company makes informed decisions in entering this new market.

Business
Understanding

The company is entering the aviation industry, which involves significant risk management, especially in terms of aircraft safety.

The main goal is to identify low-risk aircraft models that are safe for both commercial and private operations. To achieve this, data-driven insights are essential to understand the historical safety performance of different aircraft types, models, and manufacturers.

Business Goals

The business goal of this presentation is to identify:

- Which aircraft models have been involved in the highest number of accidents and incidents? This helps identify which aircraft should be avoided due to their poor safety record.

- Which aircraft have the highest number of fatalities or injuries? Fatalities and injuries are critical indicators of risk severity.

- What is the trend in accident frequency over time? Understanding whether accident rates for particular aircraft are improving or worsening can help assess future risks.

- What are the common causes of accidents for each aircraft model? This can provide insights into whether issues are manufacturer-related, maintenance-related, or due to pilot error, helping to focus on avoidable risks.

- Are there any aircraft with a consistently low number of accidents over time? This identifies potential "safe" aircraft to focus on for purchase consideration.

- How does the number of engines or engine type affect the risk? Some types of engines or engine configurations might be more prone to failure or accidents.

Data Understanding
And Analysis

Data source: National Transportation Safety Board. Downloaded from Kaggle.com

Data Description: It includes aviation accident data from 1962 to 2023 about civil aviation accidents and selected incidents in the United States and international waters.

Analysis

## Aircraft Risk Analysis by Accident Percentage

The table below shows top ten Riskiest Aircrafts by Accident Percentage. This is to provide an indication of what type of planes to be cautious about while making a business decision.

Top 10 Riskiest Aircraft by Accident Percentage
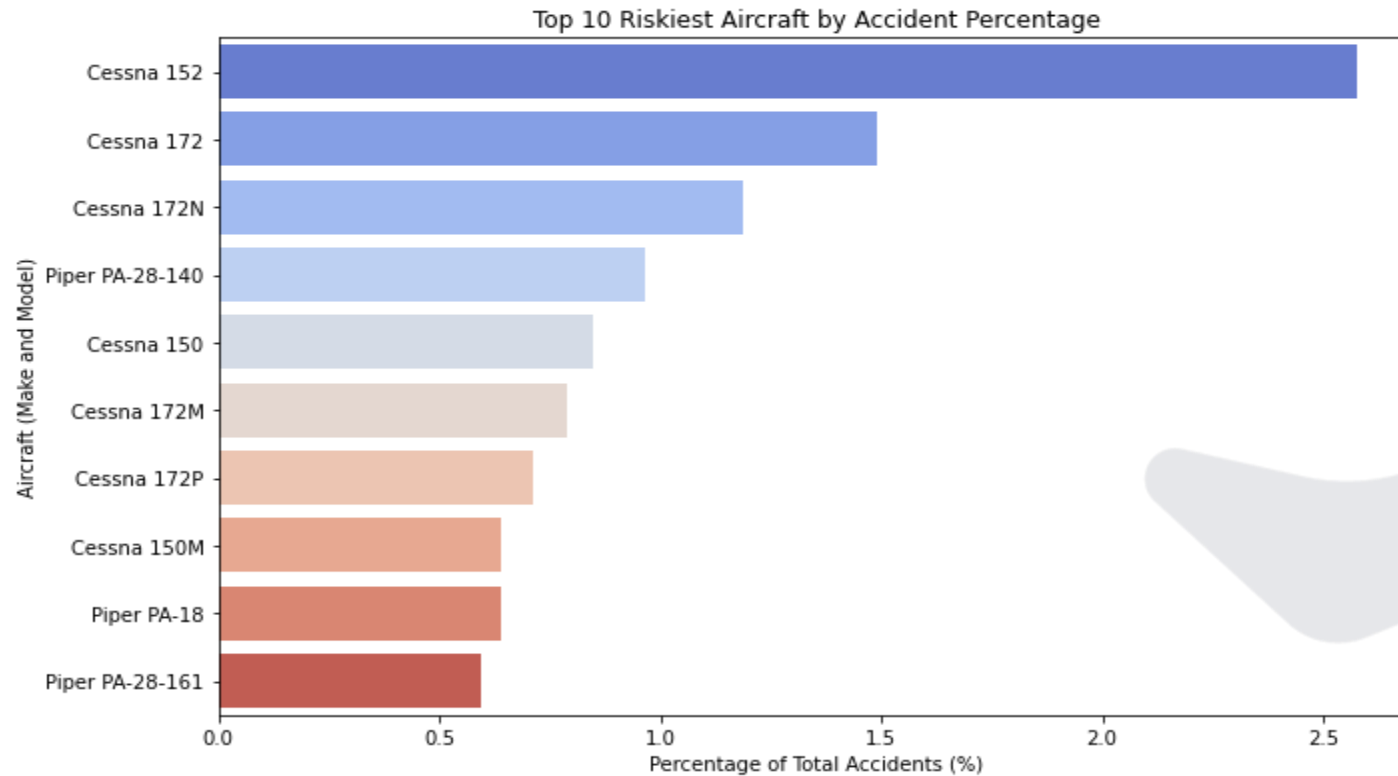
Analysis

Aircraft Accident & Incident Trend

The graph below indicates the less risky aircraft by engine type and total injuries
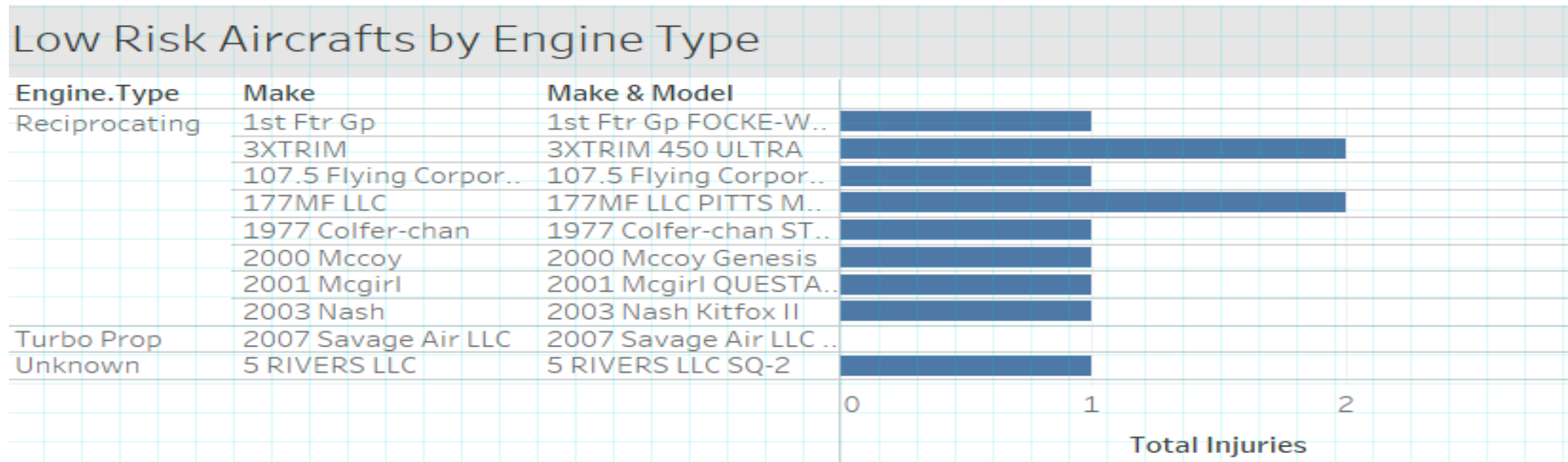
Conclusion

I conducted an in-depth analysis of aircraft accident data to identify which types of aircraft are associated with the lowest risks, focusing on accident rates across different engine types. `

Based on the analysis,

- It is important to avoid high-risk aircraft with a history of frequent accidents and high fatality rates.

- I recommend aircraft with a strong safety record and a low number of incidents for purchase.

- Consider the engine type and number of engines when making purchasing decisions, as they might contribute to operational risks.

- These insights will enable the head of the new aviation division to make an informed decision, minimize potential risks, and ensure the company makes a profitable and safe entry into the aviation market.