



1. Business Understanding

Project Goal

To analyze 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. To determine which aircraft are the lowest risk for the company, translate the findings into actionable insights that the head of the new aviation division can use to help decide which aircraft to purchase.

Data source

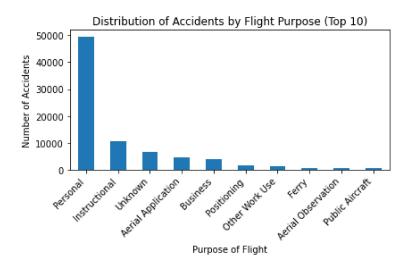
The NTSB aviation accident database contains information from 1962 and later about civil aviation accidents and selected incidents within the United States, its territories and possessions, and in international waters

Key Questions:

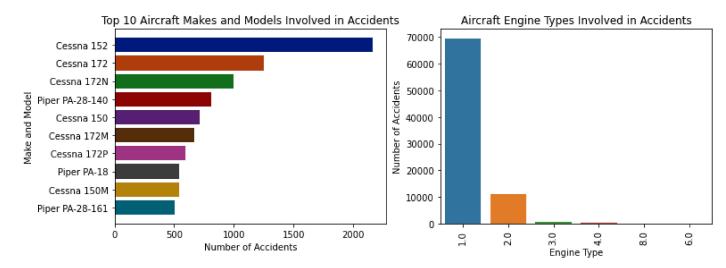
- 1. Which aircraft type have the lowest accident rates?
- 2. Are there specific manufacturers associated with higher safety standards?
- 3. How do accident severities vary across aircraft types and manufacturers?
- 4. Are there specific times, places, or circimstances under which the risk is heightened for certain aircraft types?

2. Data Understanding and Analysis

Purpose of flights involved in accidents



Make, Model and engine type involved in more accidents



Distribution of accidents by months and seasons

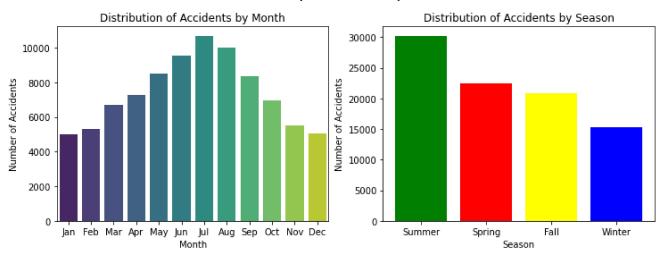


Tableau Link for Risk Assessment of Aircraft for Commercial & Private Operation

 $(\underline{https://public.tableau.com/views/RiskAssesmentofAircraftforCommercial and PrivateOperations_17323507905150/RiskAssesmentofAircraftforCommercial and PrivateOperations?: language=en-US\&publish=yes\&: sid=\&: redirect=auth\&: display_count=n\&: origin=viz_share_link)$

3. Recommendations & Observations

Personal flights are responsible for a high percentage of aviation accidents. In the area of personal flights, detailed education and training courses should be encouraged for pilots. The safety-first culture has to be nourished within the community of personal aviation. Minimizing the occurrence of accidents in personal flights depends on how safety is considered the priority in every personal flying activity. Whichever the weather condition, pilots must be very prepared and informed of the possible risks to be taken in personal aviation.

Most accidents occur in summer. In good weather, pilots may become overly confident and feel there is less risk than in poor weather conditions. This can result in a casual approach toward safety procedures and / or unsafe behavior, like flying low, going too fast, or using aerobatics, which raise the accident risk. The remedy is to encourage responsible flying practices and avoid taking unnecessary risks by proper training and awareness. It is also a re-emphasis on flying inside the safety envelope to avert accidents.

Aircraft makes and models, and engine types, in accidents. The Cessna 152 is the highest aircraft model in the number of accidents, followed by the Cessna 172. The opposite is observed in the case of the type of engine: the "1.0" type is dominant, while all others have much lower