Aircraft Risk Evaluation

# Overview

This project analyzed aviation accident data to identify aircraft models with the lowest risk, supporting informed decision-making for a new airline venture. The analysis focused on incidents, injuries, and fatalities to evaluate and rank aircraft models by their safety performance over time.

# Key Insights

• The safest aircraft models — each with a single reported incident and zero accidents — include: Glastar, Aventura II, EA-300L, Eagle 2, and RV6.

• The riskiest aircraft in the dataset is the Boeing 767-366-ER, with 2,170 recorded accidents.

• The year 1981 recorded the highest number of investigations and injured passengers.

• From 1950 to 1980, no injuries were reported, and injury rates have steadily declined since 1982 — indicating improvements in aviation safety.

• Six-engine aircrafts had the lowest risk, followed by single-engine models.

# Data Source

National Transportation Safety Board (NTSB) Accident Records  
A historical dataset detailing aviation incidents, injuries, and fatalities across decades and various aircraft types.

# Recommendations

Based on the analysis, the following aircraft models are recommended for acquisition due to their exceptional safety records:

1. Joby Aero INC JAS4-2 – the only six-engine aircraft, with zero accidents or injuries.

2. Jeffs J-Bird

3. Jenkins Pitts S-1

4. Janks Skybolt

5. Jenning Pietenpol Aircamper

Why these?  
- Each has had zero accidents, no fatalities or injuries, and only one recorded incident.  
- Their consistent safety history makes them ideal for a risk-conscious fleet strategy.

# Tools Used

This project was conducted using Python with the following libraries:  
- pandas – for loading and cleaning aviation data  
- matplotlib.pyplot & seaborn – for visualizing trends and comparisons