(Which) Wings to Fly?

A strategic guide for the Aviation Division (Avionics Incorporated)

Who are we?

Who am I?

My name is Tim Musungu, resident Data Scientist at **Avionics Incorporated**.

This guide is prepared for the new Aviation Division as they consider investment options for the new fleet of aircraft.

Business Overview

- **Avionics Inc.** is looking to expand into new industries as it seeks to diversify its portfolio
- A ***strategic opportunity*** has been identified in the airline industry, specifically in aircraft for commercial and private enterprises
- Avionic Inc. wants to ***build a fleet of the best-in-class aircraft*** in order to compete as a new entrant in this sector
- **Safety** is the number one priority

Business Understanding

- The most important consideration in making this decision is **aircraft safety** - finding the aircraft with the best record in safety over the period of review
- A new division has been established in the company to spearhead this endeavor and the Division Head will be responsible for making the final decision on the constitution of our new fleet of aircraft.
- The business needs an effective guide that can assist in finding the right wings for our company to fly and soar.

Working with our Data

Data Understanding

- **Data Set description:** Aviation accident data sourced from the National Transportation and Safety Board (NTSB)
- **Data Set Range:** from **1962** to **2022**
- **Data coverage:** Civil aviation accidents, Selected incidents in the US and International Waters
- **Key terms:**
  - ***Aircraft Category:*** describes the type of aircraft (Airplane, Helicopter, Glider)
  - ***Aircraft Make:*** describes the manufacturer of the aircraft (Boeing, Airbus)
  - ***Accident:*** an event during aircraft operation that causes serious injury, death, or destruction.
  - ***Incident:*** any operating event that compromises safety but does not progress to an aviation accident.

Data Analysis

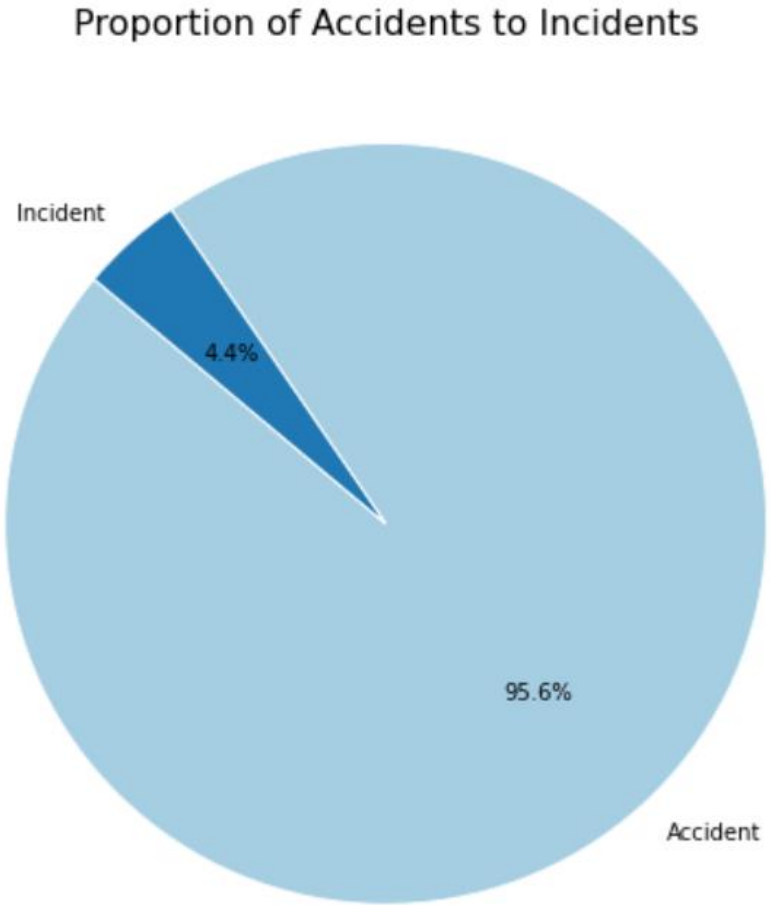
Our analysis will seek to answer the following questions:

- *What is the proportion of Accidents to Incidents in the dataset?*
- *Top 5 Aircraft Categories that are the lowest risk?*
- *Top 5 Aircraft Makes that are the lowest risk?*

In answering these questions, our analysis shall track ***average injury and casualty rates*** across Aircraft Categories and Makes

Accidents vs Incidents

- The data shows that Accidents form the majority of all reports in the database (95%)

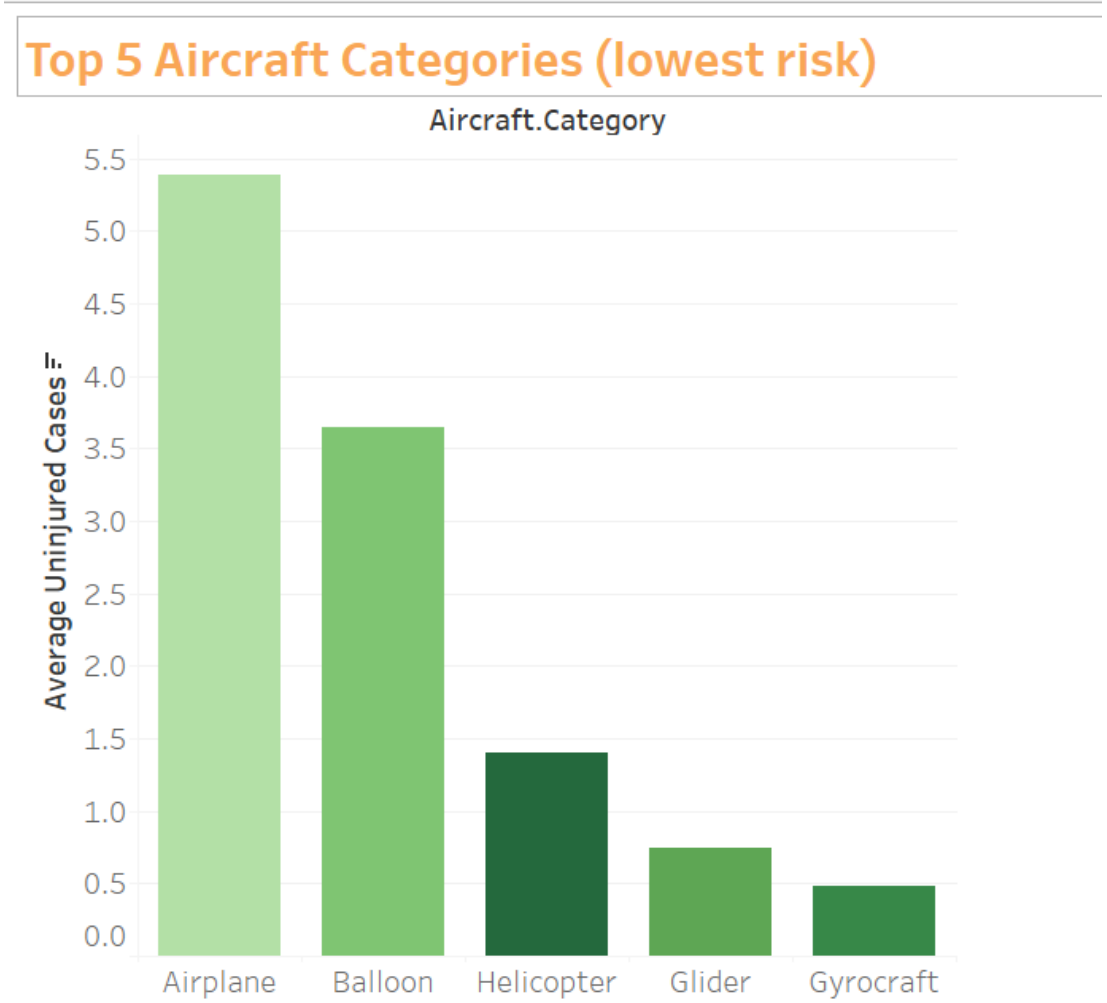


Safest Aircraft Categories?

The safest aircraft categories are those with the **highest average uninjured cases** per accident.

Of all aircraft categories, the following are the safest:

1. Airplanes
2. Balloons
3. Helicopters
4. Gliders
5. Gyrocrafts

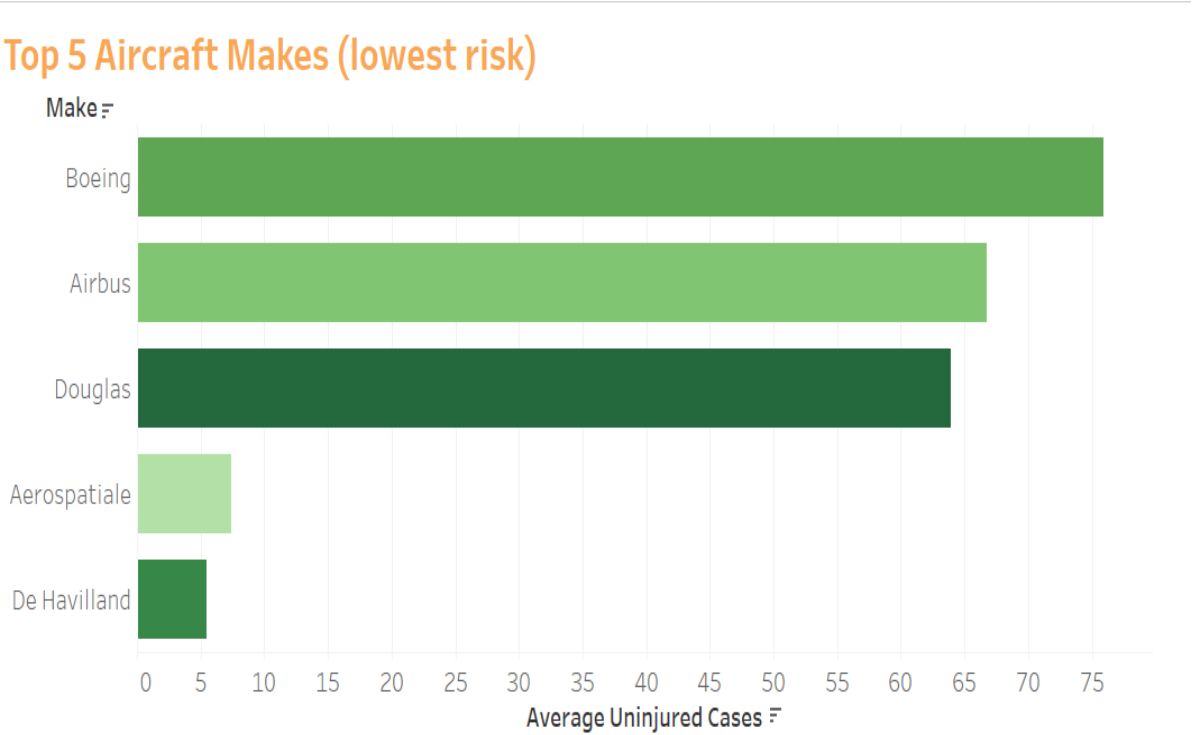


Safest Aircraft Makes?

The safest aircraft makes are those with the **highest average uninjured cases** per accident

Of all aircraft makes, the following are the safest:

1. Boeing
2. Airbus
3. Douglas
4. Aerospatiale
5. De Havilland



What now?

Airplane + Boeing

Statistically, this is the combination of Aircraft **Category** and **Make** that will build us one of the safest fleets in the business!

Final point

Fly Boeing Airplanes and you'll never go wrong!

“Always better to be on the ground wishing you were in the air, than in the air wishing you were on the ground”

- From Flight Safety Experts

Thanks!

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