

# AVIATION ACCIDENTS ANALYSIS

NON-TECHNICAL PRESENTATION ON DATA-DRIVEN  
INSIGHT FOR INFORMED DECISION-MAKING ON  
MATTERS,BEST LOW-RISK AIRCRAFT TO  
PURCHASE.



# ■ INTRODUCTION

## Project overview

- This project aims to analyze aviation accident data to find low-risk aircraft models to use in commercial and private company endeavours. Comparing aircraft manufacturers, models, accident patterns, and safety-influencing factors based on past accident data, we recommend stakeholders on the safest aircraft to purchase .
- This project focuses on identifying the safest aircraft models for our company's operations.
- An analysis was done using data provided by the National Transport Safety Board(NTSB) on aviation accidents from 1962 to 2023 covering civil aviation accidents and related incidents
- **Objective:** Find low-risk aircraft based on accident data.
- **Key Questions:**
  - Which aircraft models and Makes have the Highest and lowest accident rates?
  - What is the trend in aviation accidents over the years?
  - How does the number of engines impact safety?

# ■ BUSINESS UNDERSTANDING

- **Business requirement:** To find a low risk aircrafts that the company can purchase for commercial and private enterprises
- The **main matter at hand** is selecting an aircraft with a **proven safety record** while balancing cost and efficiency.

## **How to go about it:**

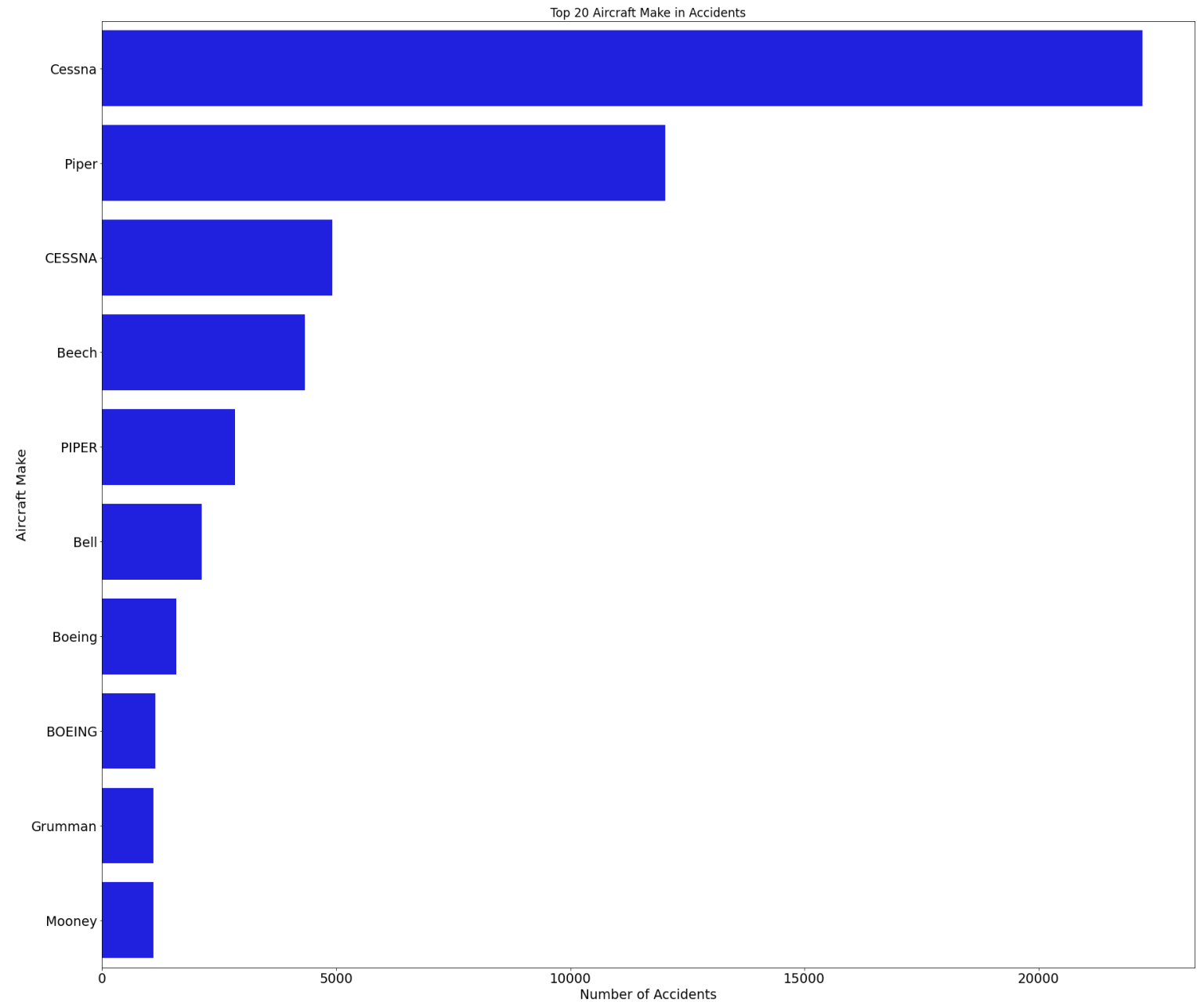
1. Check past accidents records with the intention of finding the least risky aircraft
2. Breakdown other factors that may contribute to overall aircraft safety i.e Number of engines
3. Understand aviation accidents trends over the years(could be a potential indicator if aviation safety is improving or not)

# ■ DATA UNDERSTANDING

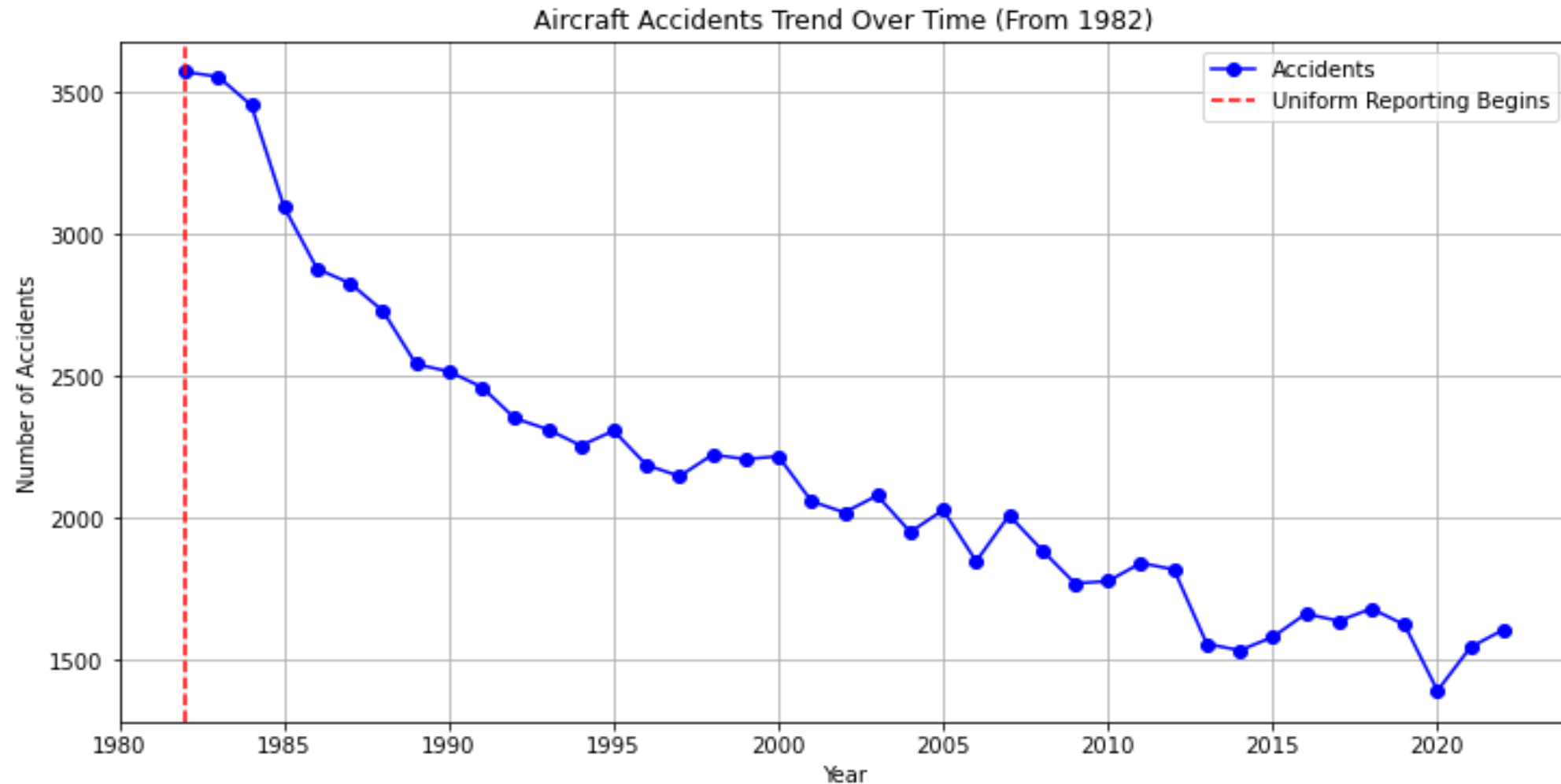
- **Data Source** : The data was sourced from the National Transport Safety Board(NTSB) on aviation accidents from 1962 to 2023 covering civil aviation accidents and related incidents.
- **Key Data components:**
  1. Aircraft Model
  2. Aircraft Manufacturer
  3. Event Date
  4. Injury Severity
  5. Aircraft Category
  6. Number of Engines
  7. Engine type
  8. Purpose of flight
  9. Total number of fatal/non-fatal injuries
  10. Phase of flight
- The are above mentioned are the key components of the data used in this analysis.

# DATA ANALYSIS

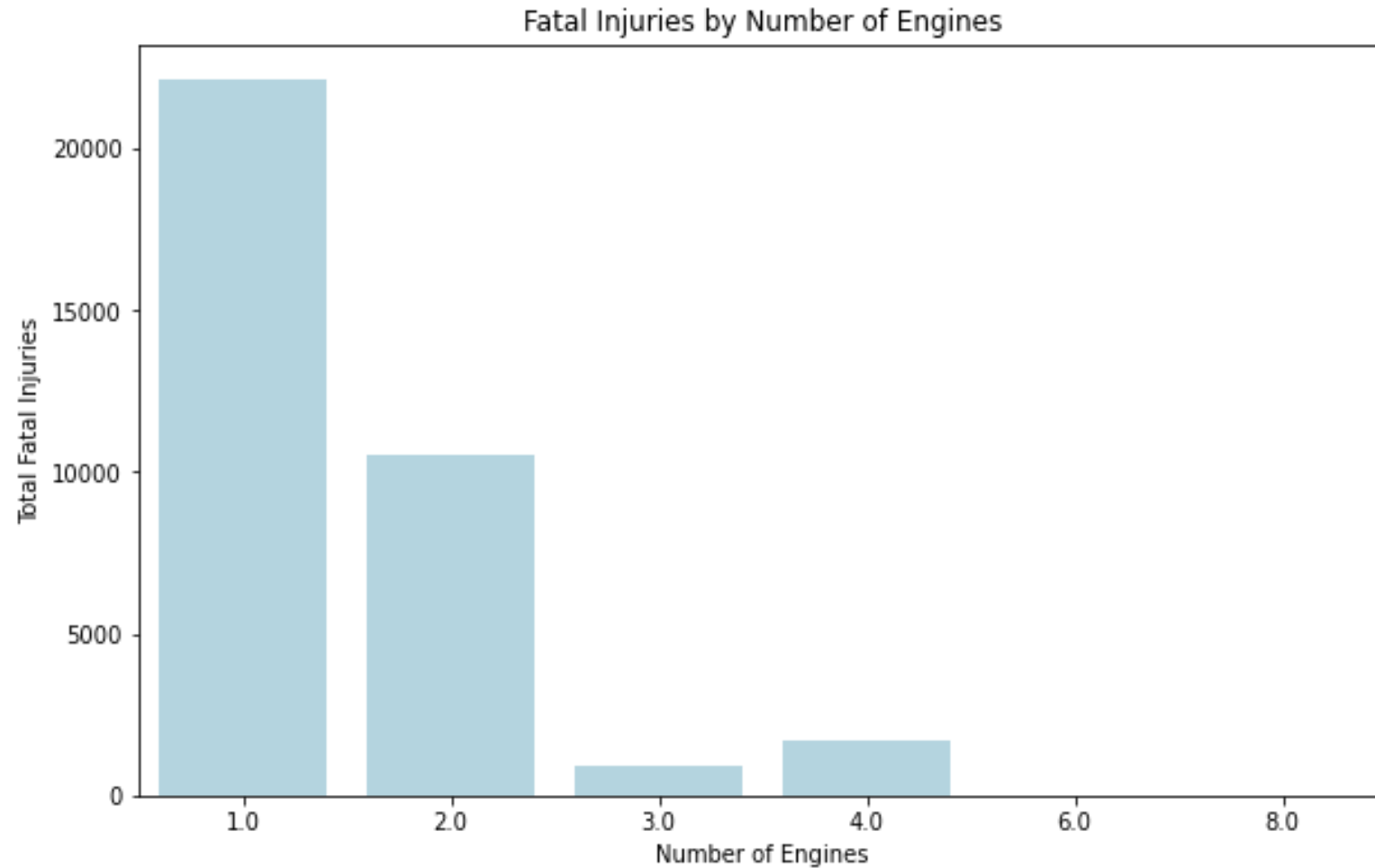
## 1. AIRCRAFT MAKE VS ACCIDENTS



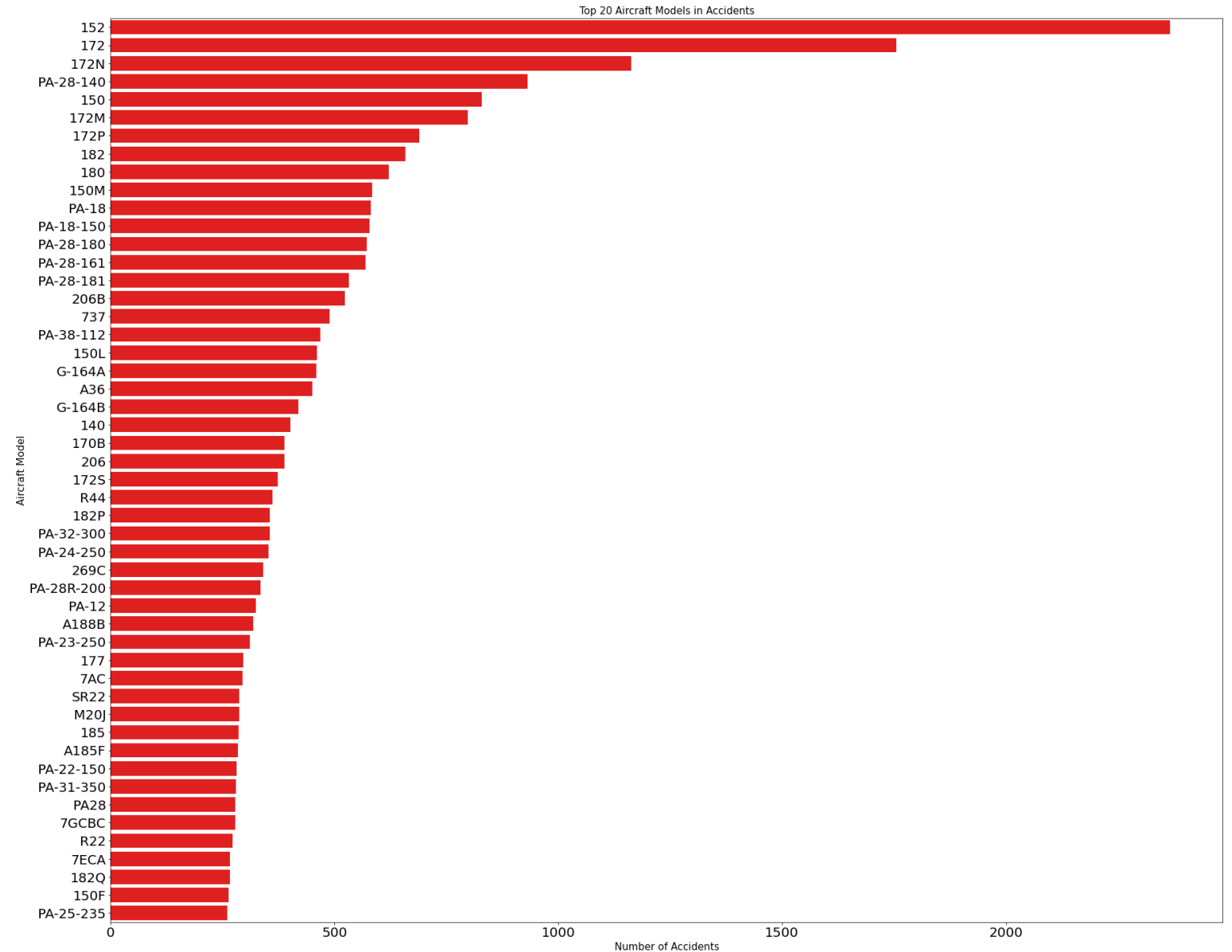
## 2.ACCIDENTS TRENDS OVER TIME.



# 3.NUMBER OF ENGINES VS NUMBER OF FATAL ACCIDENTS



# 4.TOP 50 MODELS INVOLVED IN ACCIDENTS





- # Recommendations

- Based on my analysis,I would recommend:

1. Purchasing models with less aviation accidents recorded and avoiding the shown top aircraft models involved in plenty of accidents.

2. It is clear as day that multi-engine aircrafts are safer compared to single- engine aircrafts and a good example is the **Beechcraft King Air 200 and Citation CJ3** which are multi-engine aircrafts with a good safety record and are quite reliable.

3. Investing in pilot training and pyschological sessions, as it is important that the individuals flying the planes to be in their best form to ensure safety.

4. Investing in maintainance of aircraft is also very important.

# ■ NEXT STEPS

- Further research on **operational costs, fuel efficiency, and maintenance records** is needed this is **key** for the company to be able to operate the aviation sector successfully .
- Conducting a **real-world safety assessment** of shortlisted aircrafts is recommended, this is key as sometimes data used may not always be trusted.
- Schedule test flights and evaluations for the shortlisted aircrafts and compile report if they meet the company's standards and need.



# THANK YOU

IF YOU HAVE ANY QUESTIONS FEEL FREE TO REACH OUT : )

LinkedIn: Judah Samuel

Email: [judahsamuel.19@gmail.com](mailto:judahsamuel.19@gmail.com)