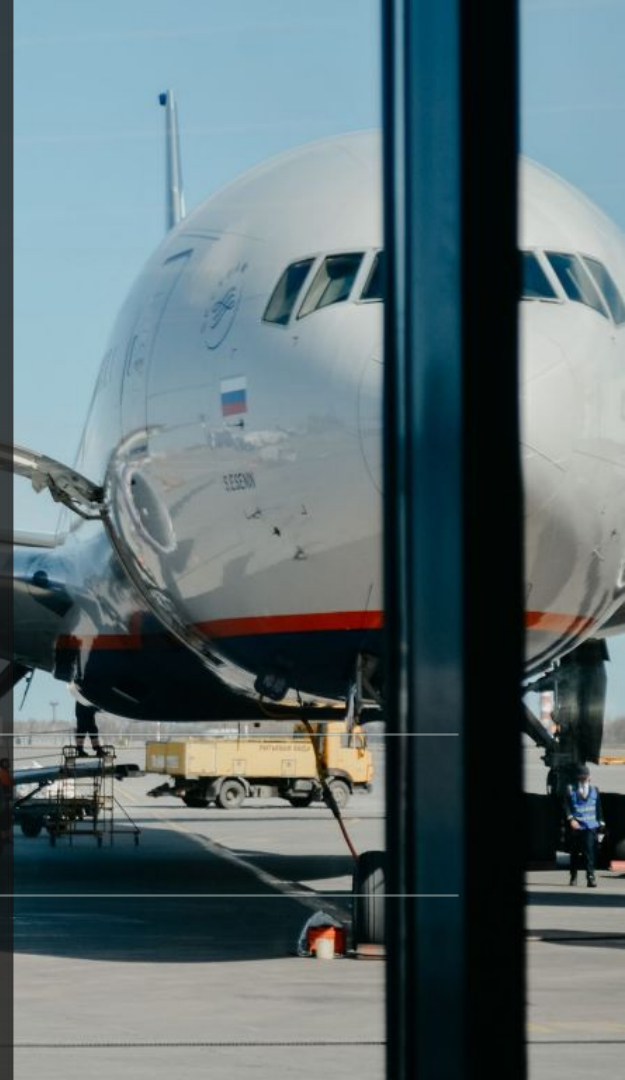


PRESENTED BY: MATT GRACER & ALI HIJAZY

Analysis of **AVIATION DATA**



Overview

This project involves comprehensive tasks: cleansing, analyzing, and visually interpreting insights extracted from the aviation dataset. Our end goal is to provide the company with actionable recommendations, guiding their potential entry into the aviation sector by suggesting specific specifications or brands worthy of investment.

Business Questions

To guide our approach, below are our key business questions:

- What are the aircraft characteristics that would increase the risks, and how can these risks be effectively mitigated?
- Which type of aviation present the lowest inherent risks, considering their safety records?
- How can we translate our findings into tangible recommendations that the head of the new aviation division can utilize to make well-informed decisions on aircraft procurement?

Aviation Data

The data we worked with is the NTSB aviation accident database which 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.

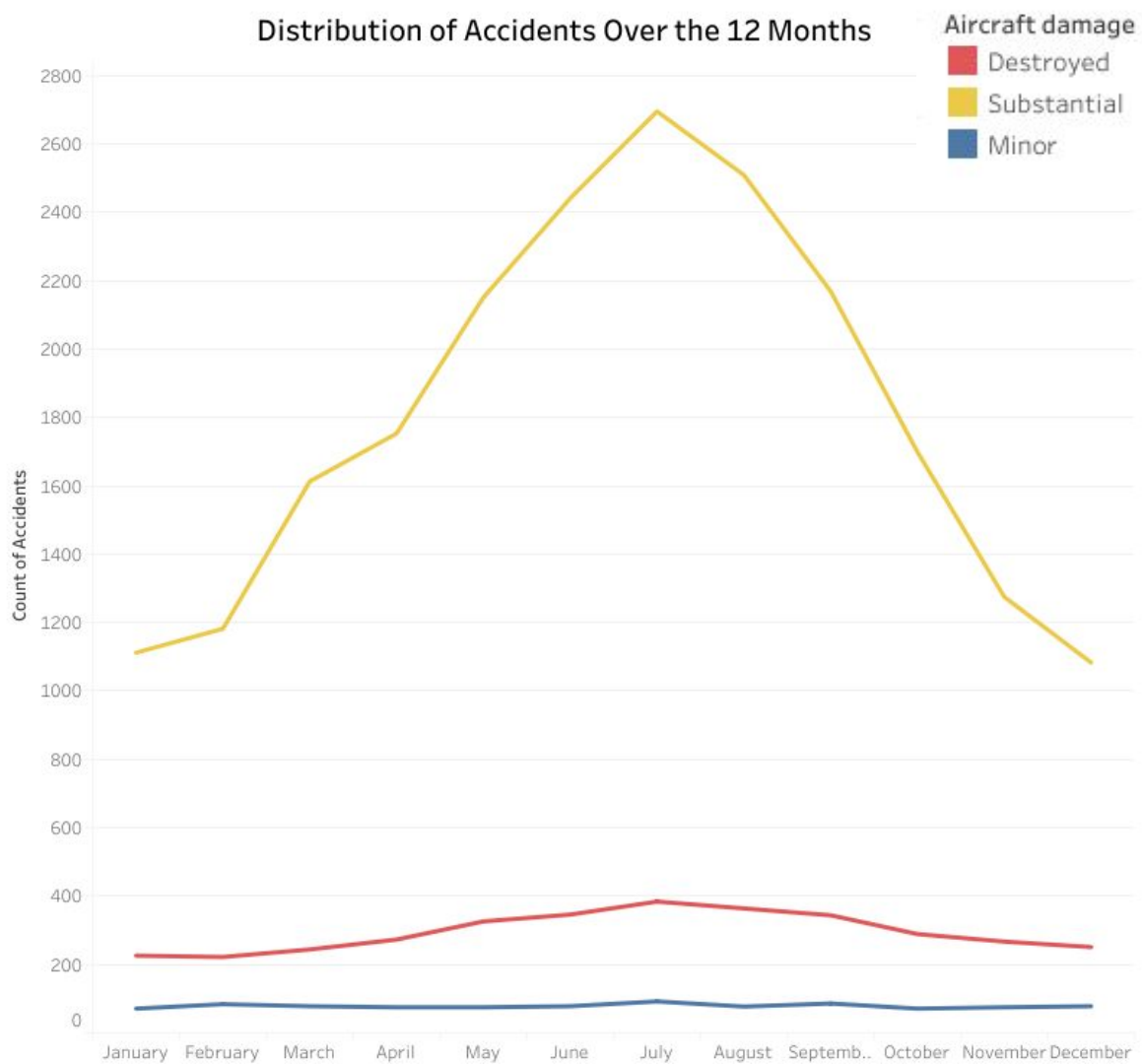
The key fields that were used in our analysis are:

- Event date
- Aircraft damage
- Aircraft category
- Make (manufacturer)
- Model
- Number of Engines
- Engine Type
- Survivals, deaths, and injuries in each accident

Data Analysis

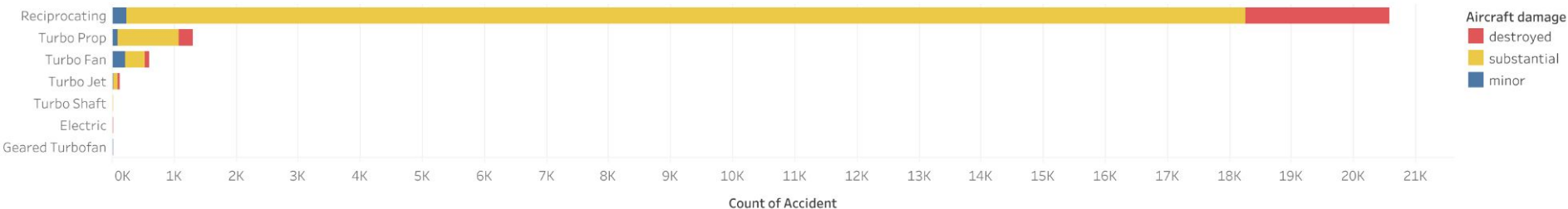
This line graph shows the distribution of accidents over the months.

July has the biggest portion since it is the peak of the high season.



Data Analysis

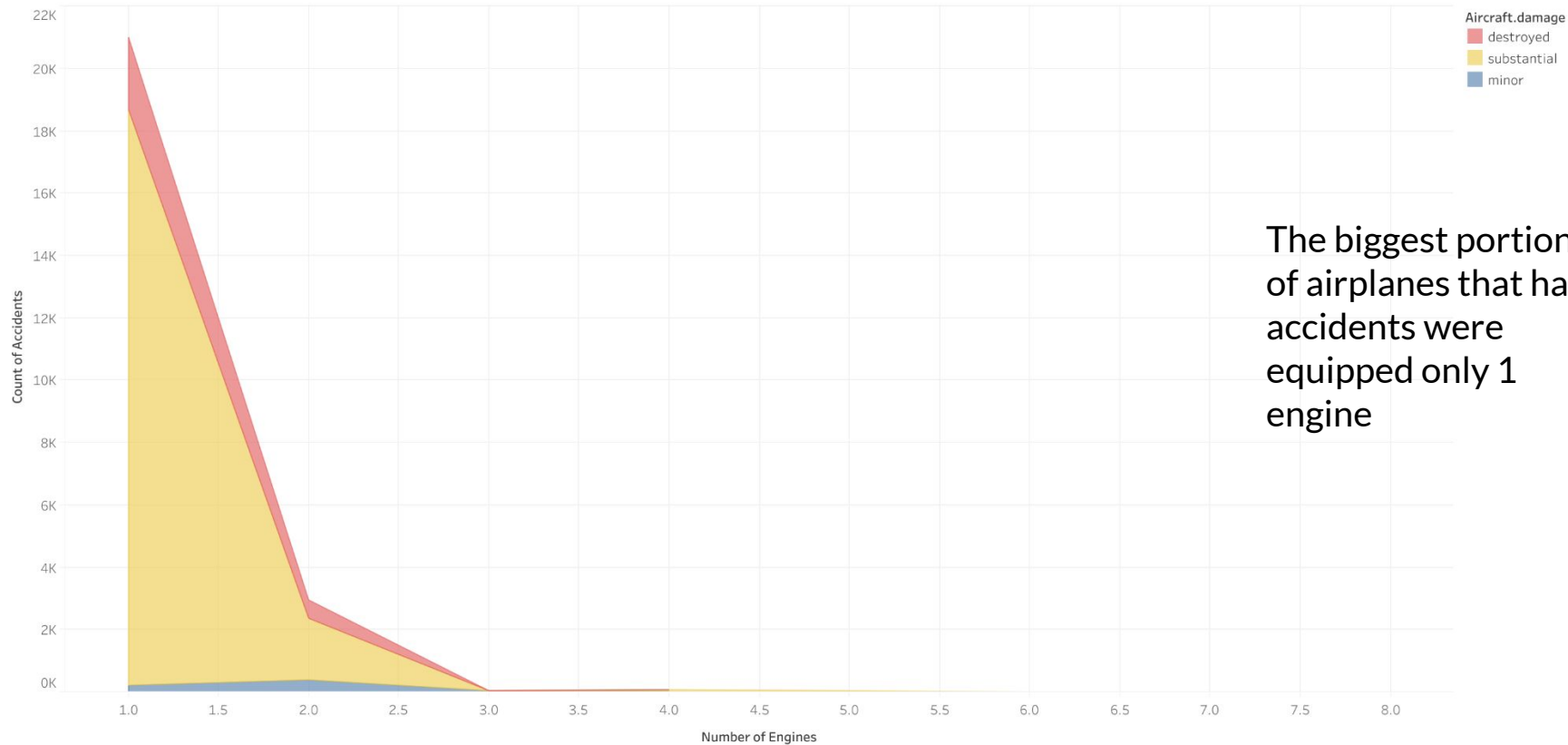
Accidents per Type of Engine



The biggest portion of airplanes that had accidents were equipped with Reciprocating, Turbo Prop, and Turbo fan engines.

Data Analysis

Number of Accidents by Number of Engines

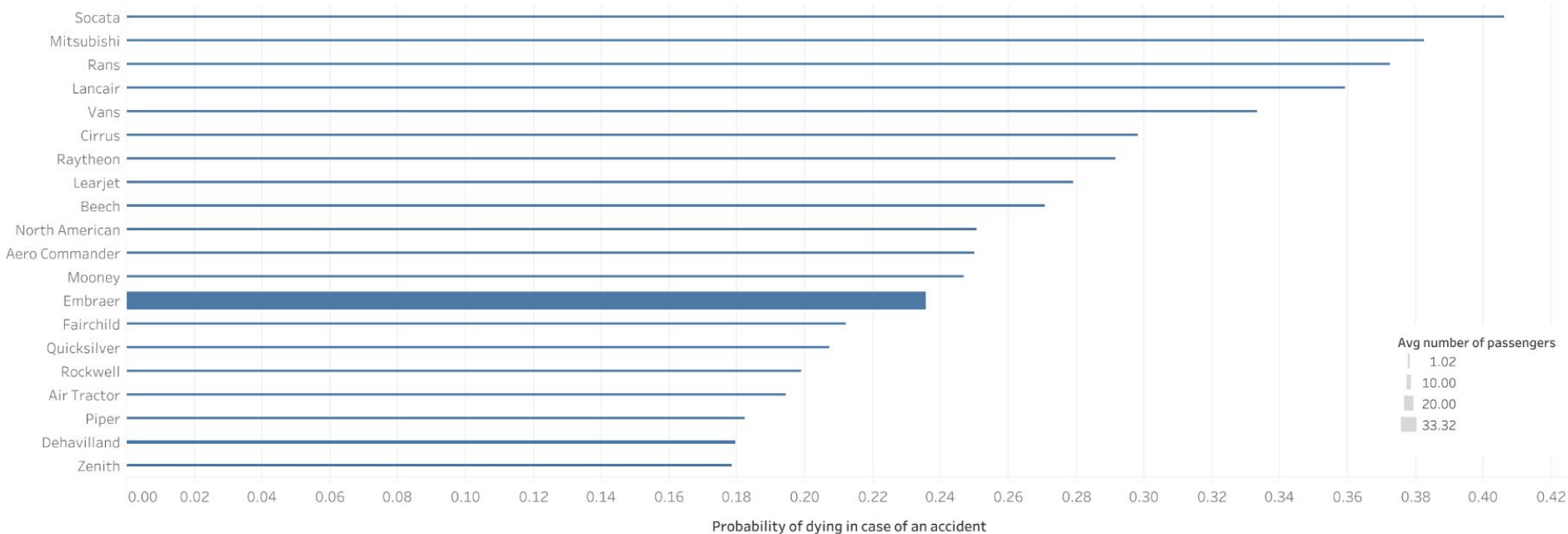


The biggest portion of airplanes that had accidents were equipped only 1 engine

Data Analysis

This graph shows the average percentage of deaths in the accidents of each manufacturer.

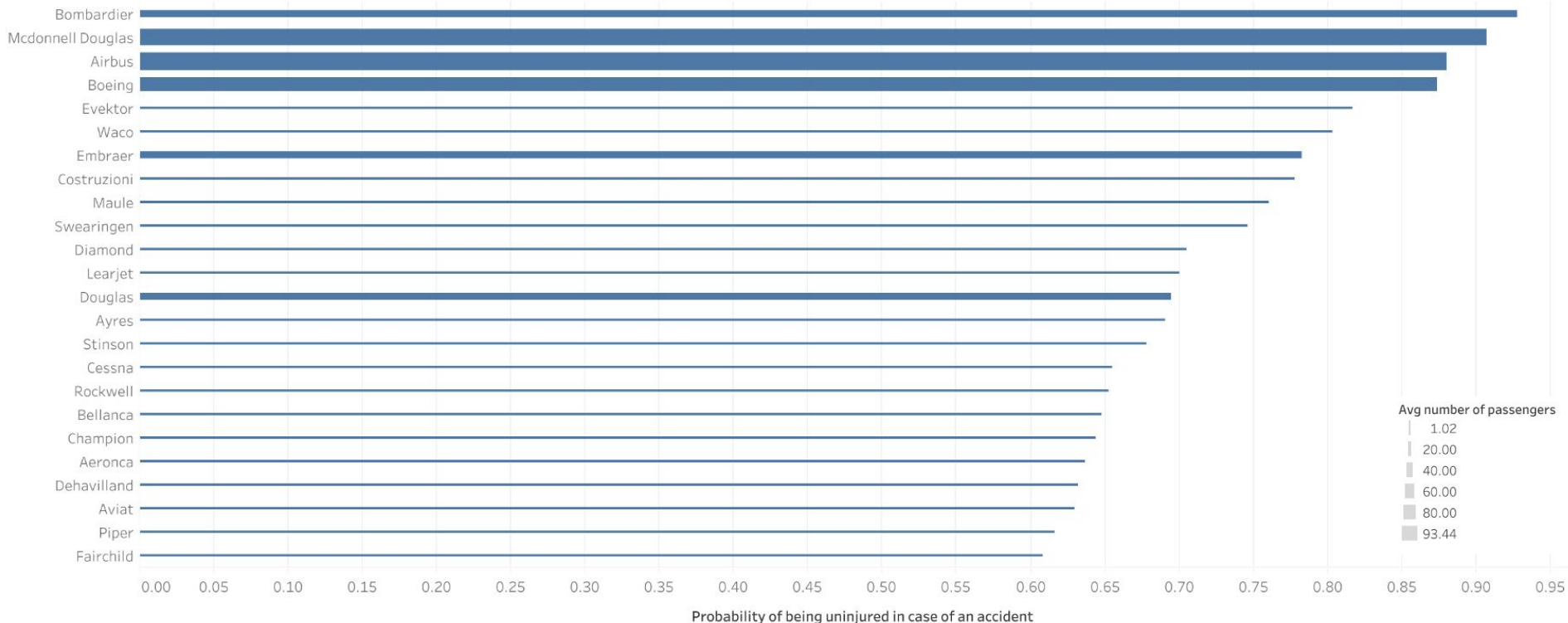
Average Fatality Rate per Manufacturer



Data Analysis

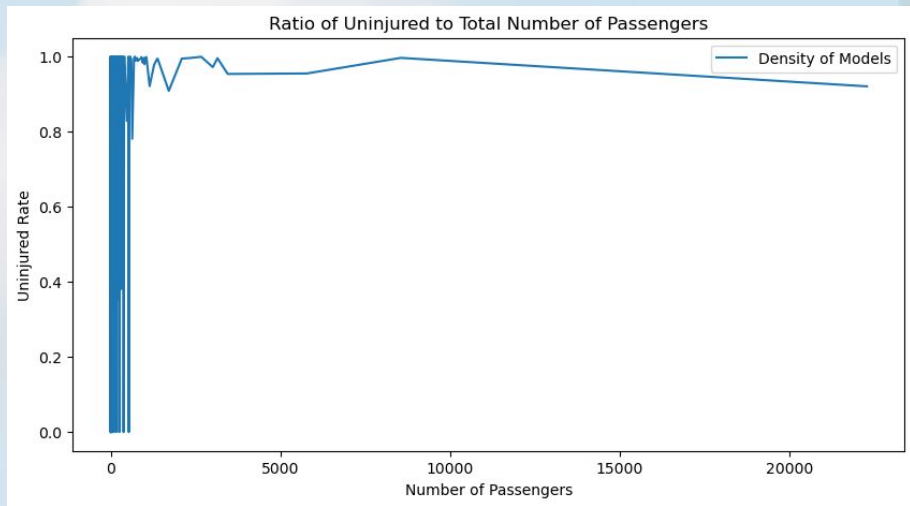
This Graph shows the average percentage of uninjured passengers in the accidents of each manufacturer

Average Uninjured Rate per Make

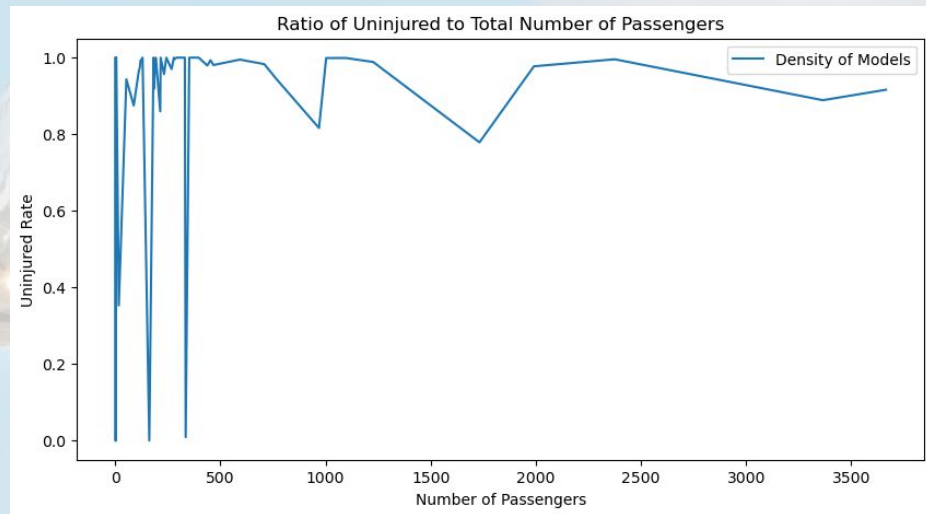


Data Analysis

Scatter Plot for Boeing & Airbus: Rate of Uninjured to Total Number of Passengers



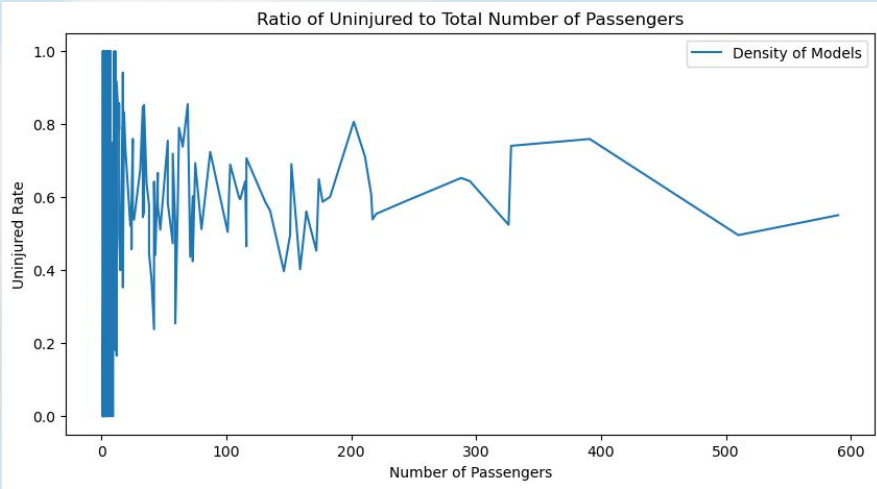
254 Observations



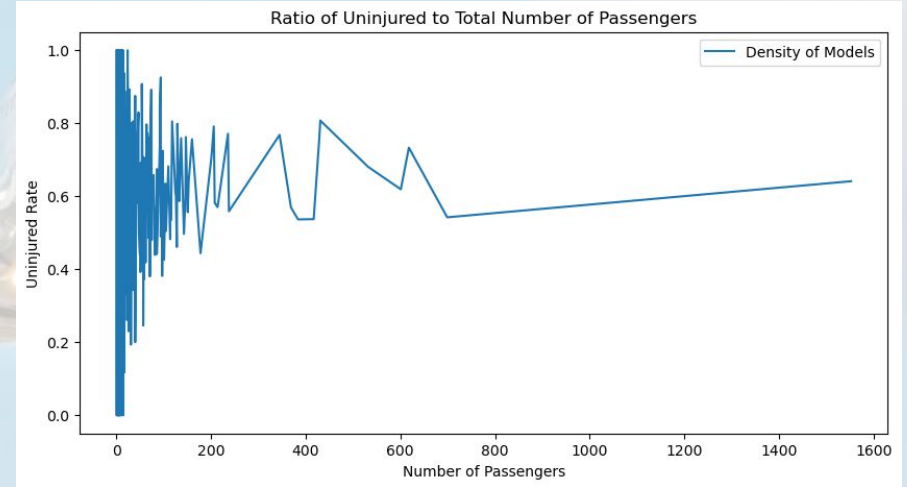
54 Observations

Data Analysis

Scatterplot for Piper and Cessna: Rate of Uninjured to Total Number of Passengers



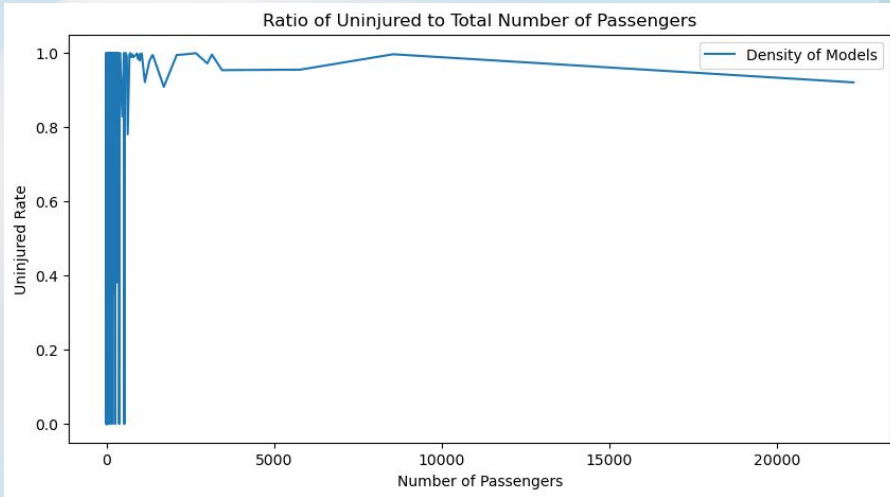
227 Observations



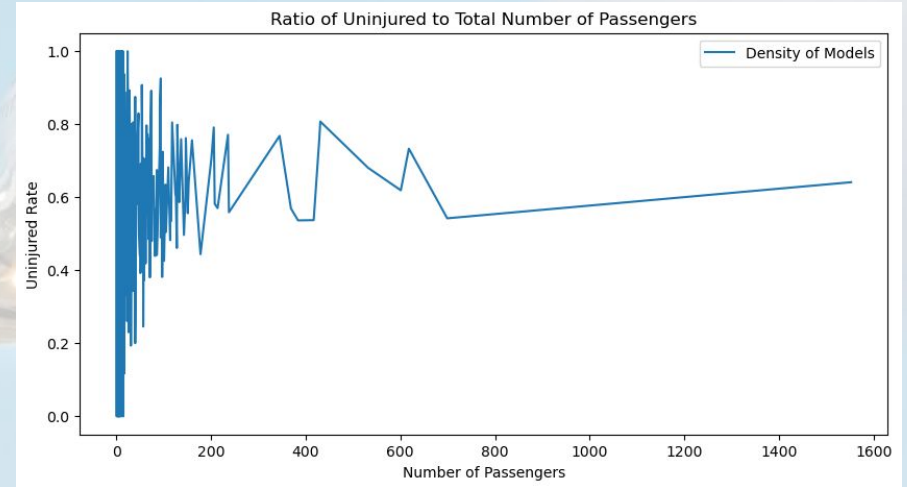
374 Observations

Data Analysis

Scatterplot for Piper and Cessna: Rate of Uninjured to Total Number of Passengers



227 Observations



374 Observations

Recommendations

- Airplanes with more than one engine have less risk of accidents. 2 engines is good, but three is ideal
- The safest engine types are Geared Turbofan, then Electric, turbo shaft and turbo jet.
- Bombardier, McDonnell Douglas, Airbus, and Boeing have the highest uninjured passenger rates so passengers are likely to survive an accident.
- Socata, Mitsubishi, Rans, and Lancair have the highest fatality rates so passengers are more likely to die in an accident.
- Boeing and Airbus have the highest uninjured to number of passenger ratios with most values being above 0.75 on a scale of 0.0-1.0.
- The results for Piper and Cessna are more distributed for their ratios with values varying between 0.0 and 1.0. The Sum of the Number of passengers is also lower.
- I would recommend that the Aviation Company focus on Boeing and Airbus. These Airline makes have the highest uninjured per number of passenger ratio.

Based on these findings, we recommend commercial and cargo aviation, since these types require big airplanes with multiple engines, with McDonnell Douglas, Airbus and Boeing as manufacturers to be considered.

A large commercial airplane is shown on a tarmac under a clear sky. The aircraft's wing and a large engine are prominent. The word "QUESTIONS?" is overlaid in large, bold, cyan capital letters across the center of the image. The background is a dark, semi-transparent overlay of the tarmac scene.

QUESTIONS?

