Aviation Data Analysis

PHASE 1 PROJECT

THE // FLATIRON SCHOOL

Overview and Recommendation

Project Prompt

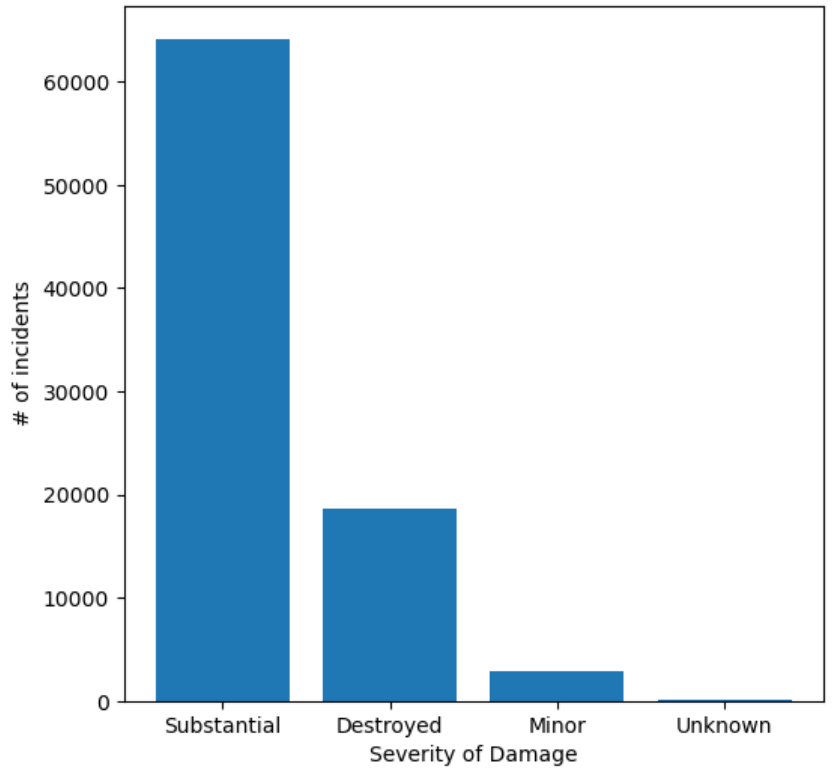
- Your company is interested in **purchasing and operating airplanes for commercial and private enterprises**, but **do not know anything about the potential risks of aircrafts**
- You are charged with **determining which aircraft are the lowest risk for the company** to start this new business endeavor.

Goal

- **Translate your findings into actionable insights** that the head of the new aviation division can use to **help decide which aircraft to purchase**.

Datasets Utilized

Aircraft Damage Distribution



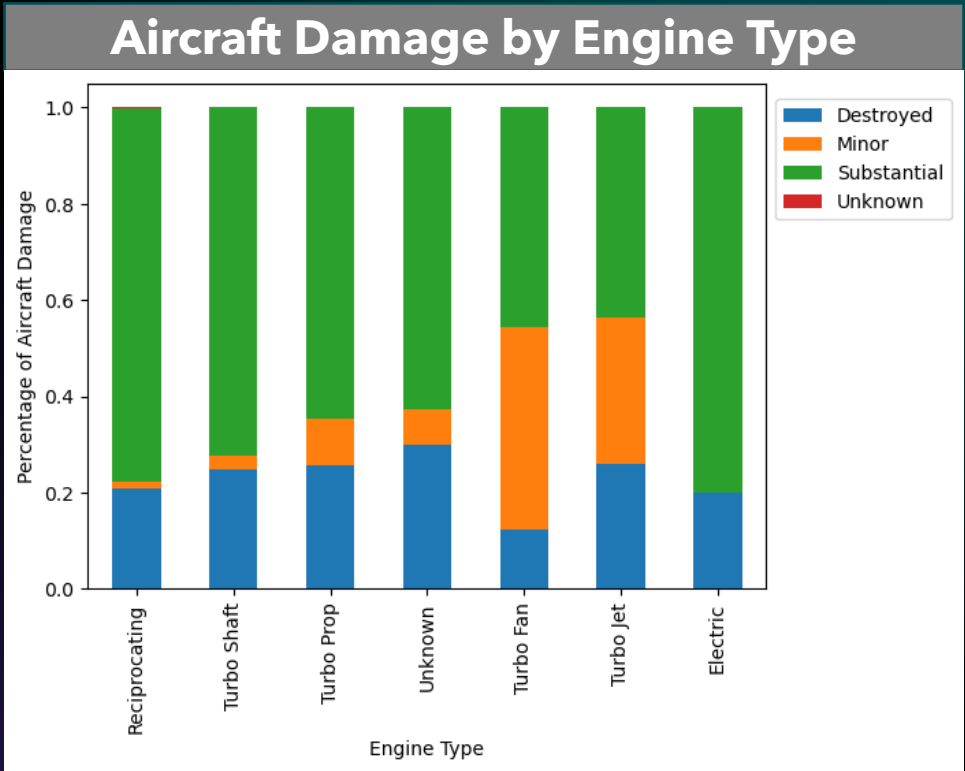
Database Overview

- **Data from 1962 – 2022**
- **~90,000 rows**
- **Dependent variable: Severity of damage represents**
- **Independent Variables: Engine type, # of engines, and aircraft make / model**

Data Understanding

Key Data Fields	Business Questions
Aircraft.Damage	• Which aircrafts are the most durable?
Make	• Which manufacturer makes the safest planes?
Model	• Which model is the safest?
Engine.Type	• Is there a correlation between engine type and severity of the accident?
Num.of.Engines	• Is there a correlation between the # of engines and severity of the accident?

Aircraft Damage by Engine Type

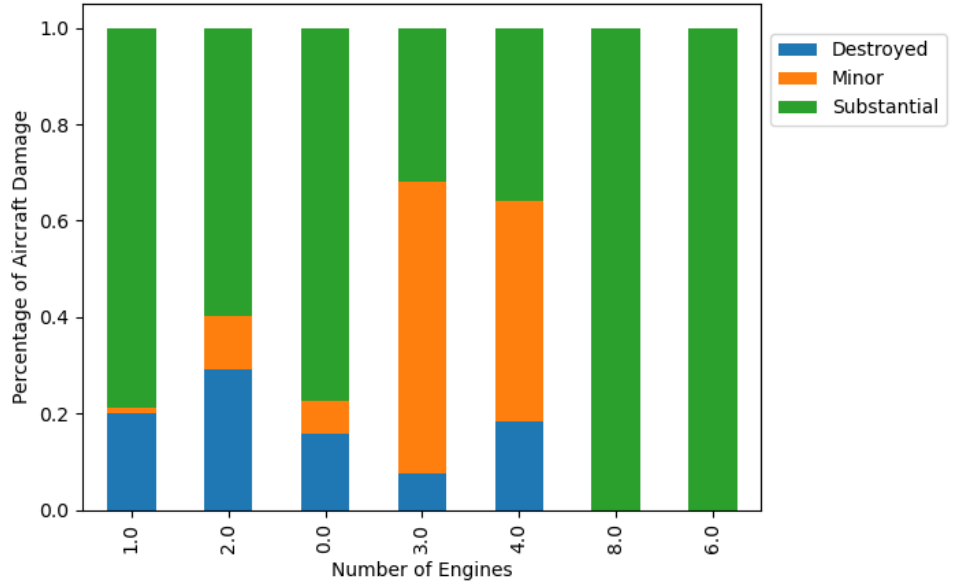


Key Insights

- **Turbo Fan** and **Turbo Jet** have by far the **highest percentage of minor aircraft damage**
- **Electric engines** seem **the most dangerous** with the **highest percentage of substantial damage**

Aircraft Damage by # of Engines

Aircraft Damage by # of Engines

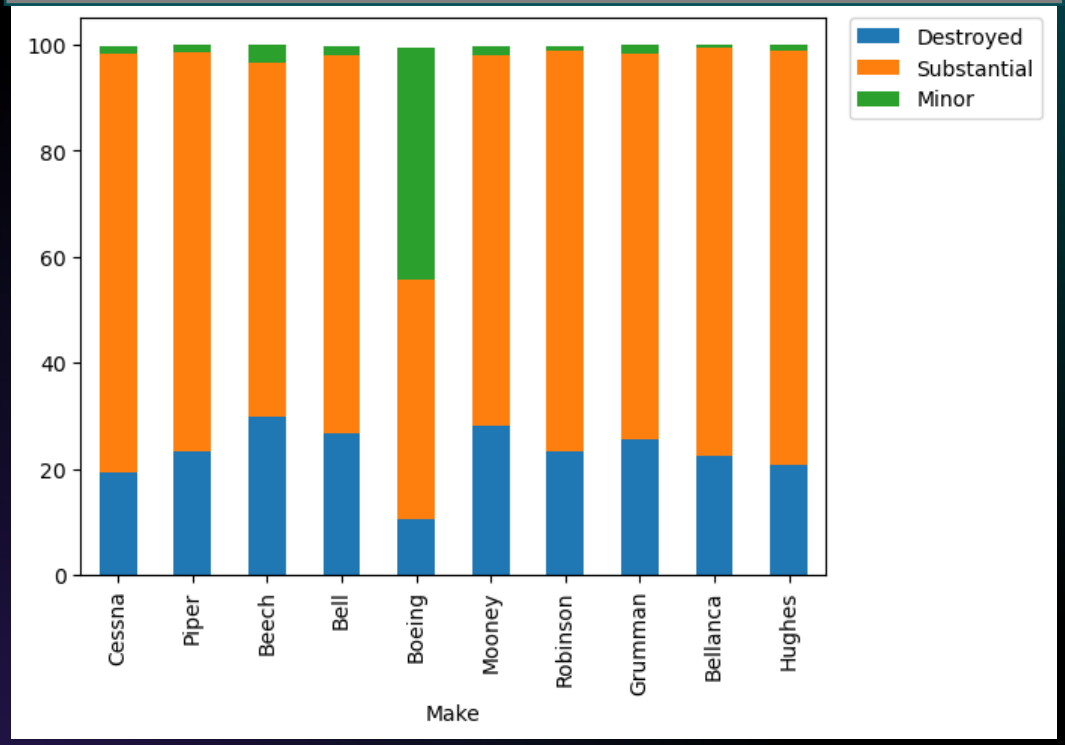


Key Insights

- **Planes with 3 or 4 engines are the safest** with the highest % of minor damage
- **Aircrafts with 6 or 8 engines are the most dangerous**

Aircraft Damage by Make

Aircraft Damage by Make

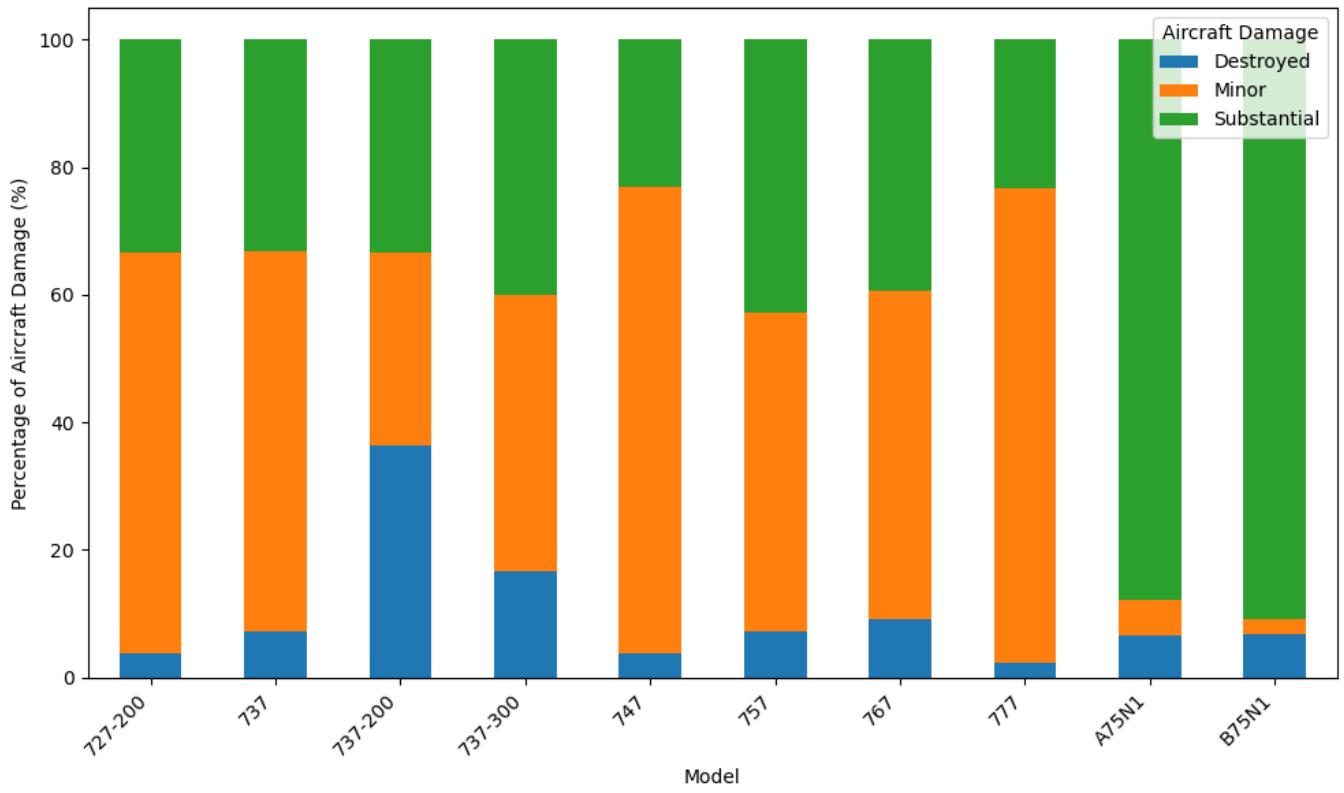


Key Insights

- **Bell** has the **highest % of destroyed and substantial damage**
- Beech has the highest % of destroyed aircrafts
- Boeing has the safest planes with by far the highest % of minor damage

Exploring Boeing Deeper

Boeing Aircraft Damage % By Model



Key Insights

- The 777 model has the highest % of minor damage
- The 747 model has the 2nd highest % of minor damage
- The 737-200 model has the highest destroyed %

Recommendations

Recommendation:

- **Make: Boeing airplanes**
- **Model: 777 and 747 models**
- **Engine Type: Turbo Fan or Turbo Jet engine**
- **# of Engines: 3 or 4 engines**

Supporting Data:

1. Boeing has the lowest percentage of destroyed aircrafts
2. The 777 and 747 models have the lowest destroyed percentage
3. Turbo Fan and Jet engines have the lowest destroyed percentage damage
4. Planes with 3-4 engines have the lowest percentage of destroyed / substantial damage

Next Steps & Limitations

Next Steps

- **Engage Boeing in discussions on the planes needed**
- **Determine pricing for planes**

Limitations

- **Limited flight data for certain Boeing models**

Conclusion / Q&A

- Contact Me
  - LinkedIn: https://www.linkedin.com/in/alec-schonfeld-018b20121/
  - Discord: abslbj1523