Aviation Data Project

"And Don't Call Me Shirley"

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Business Problem

- Which aircraft should we purchase?
  - Improve chance of success of aviation business by:
    - Mitigating risk of injury
    - Mitigating risk of expensive aircraft damage

Data

Snapshot:

- NTSB Aviation Accident Database
- 1962 - 2022
- Includes incidents from unexpected turbulence to mid-air collision
- Includes data for planes, helicopters, gliders, even hot air balloons

Number of Records

90K

Unique Aircraft Models

12K

Total Deaths Included

50K

Methods

Dropped Irrelevant Properties

We cut irrelevant columns to make our dataframe a bit easier to work with

Step 1

Filled in Null Values

We used our existing data to build dictionaries that we then used to fill in a significant number of empty values

Step 2

Sliced and Diced

We cut down our data set to less than 10k records from 90k, replacing or dropping more empty values along the way

Step 3

Filtered for the Top Manufacturers

We narrowed down our dataset with a list of the most commonly found planes in the U.S. fleet. We then filtered out those without enough data to do a statistically significant analysis

Step 4

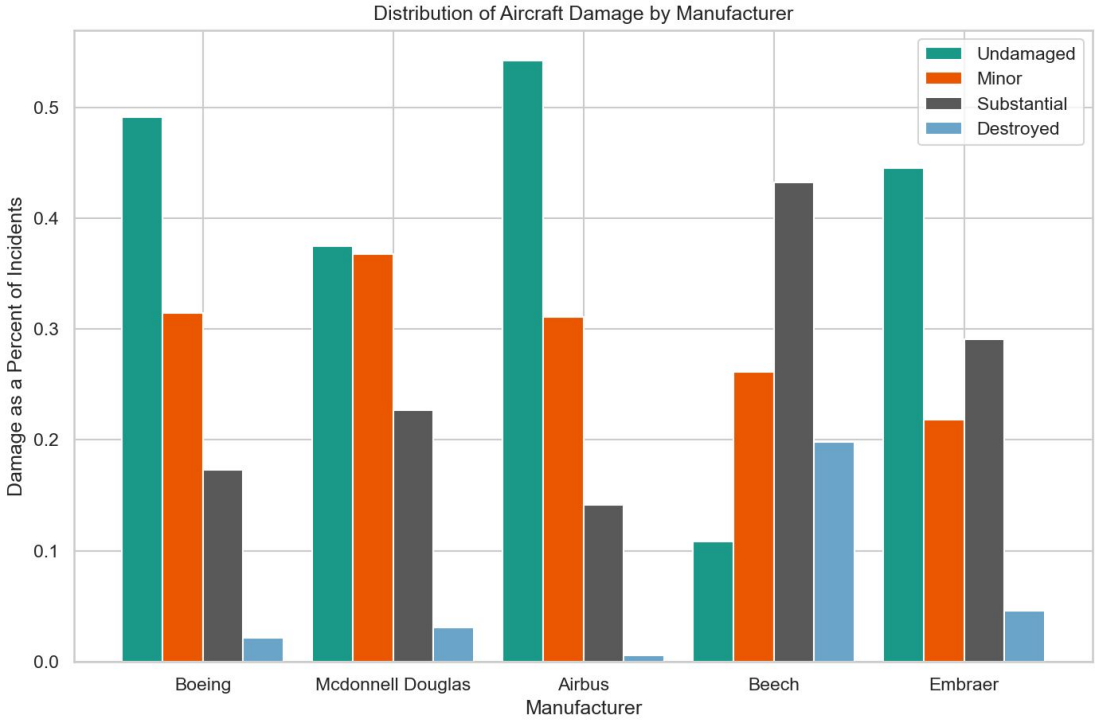
Looked at Injury Severity and Aircraft Damage Severity by Manufacturer

We wanted to know which manufacturers' planes were more likely to cause severe injury or death in an accident, as well as which were more likely to result in costly damage

Step 5

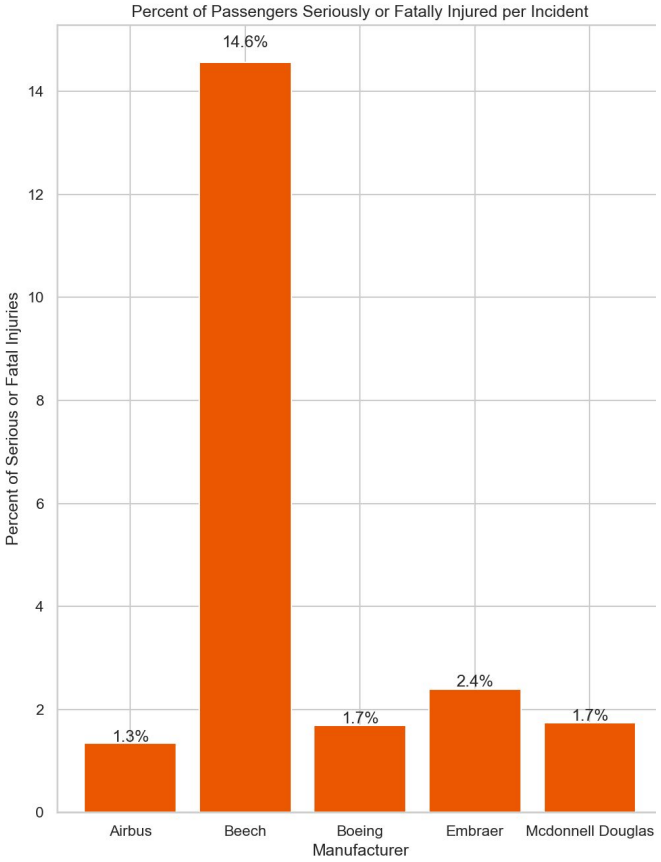
Results

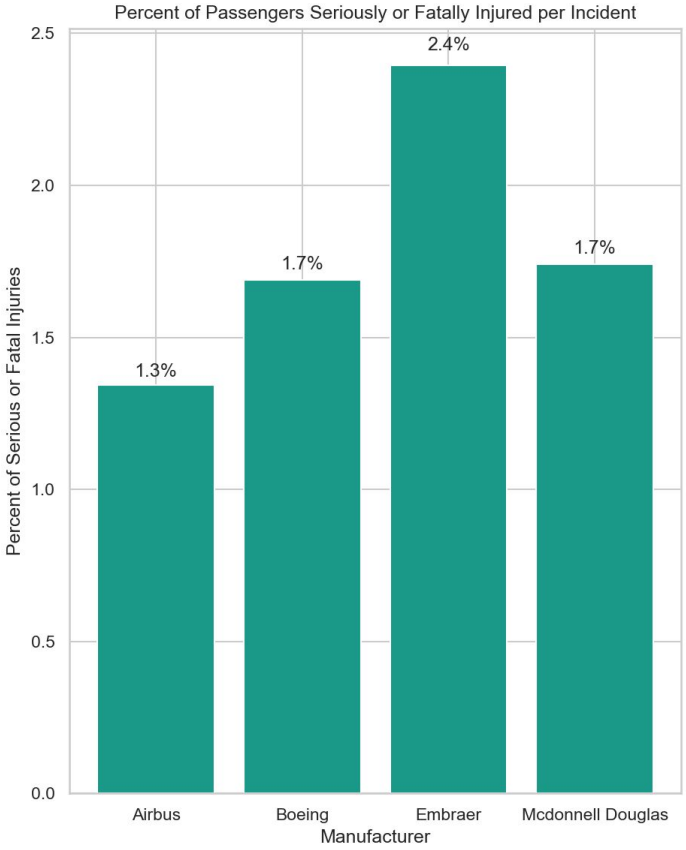
- Beech planes are more likely to sustain heavy damage in the event of a crash
- Airbus planes are most often undamaged and least often destroyed



Results

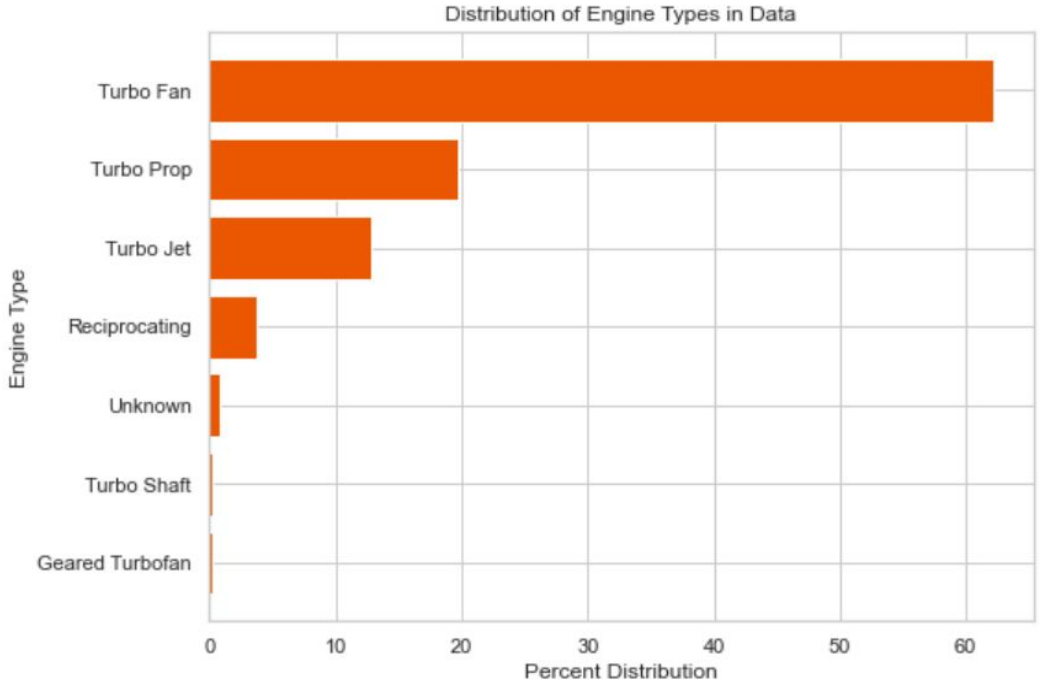
- There is a 14% chance of sustaining a serious or fatal injury if a there is an incident on a Beech plane
- Airbus has the lowest percentage of serious or fatal injuries

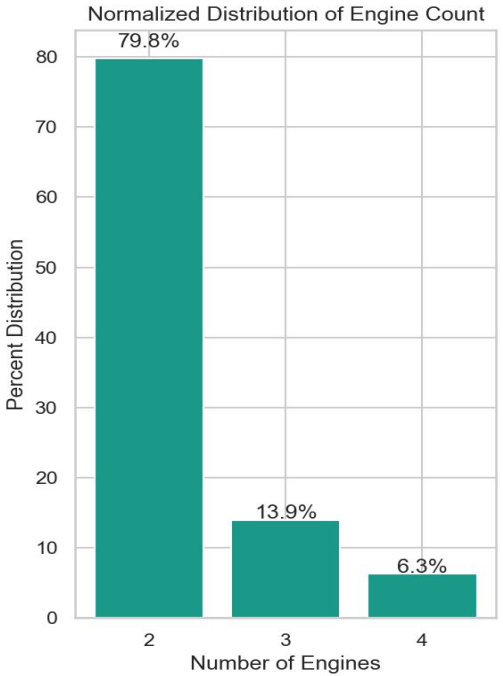




Results

Most planes in the dataset have twin turbo fan engines





Conclusions

Here are our recommendations to the division head:

01 | Buy Airbus planes.

02 | Don’t buy Beech planes.

03 | Stick with a twin engine turbo fan.

Next Steps

01 | Compare the data to successful flights to determine how common accidents are.

02 | Find the most profitable airplane to operate.

03 | Look further into why twin engines are so common.

Thank You!

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