AVIATION DATA

PHASE 1 PROJECT

BUSINESS PROBLEM

Your company is expanding in to new industries to diversify its portfolio. Specifically, they are interested in purchasing and operating airplanes for commercial and private enterprises, but do not know anything about the potential risks of aircraft. You are charged with determining which aircraft are the lowest risk for the company to start this new business endeavor. You must then translate your findings into actionable insights that the head of the new aviation division can use to help decide which aircraft to purchase.

DATASET USED

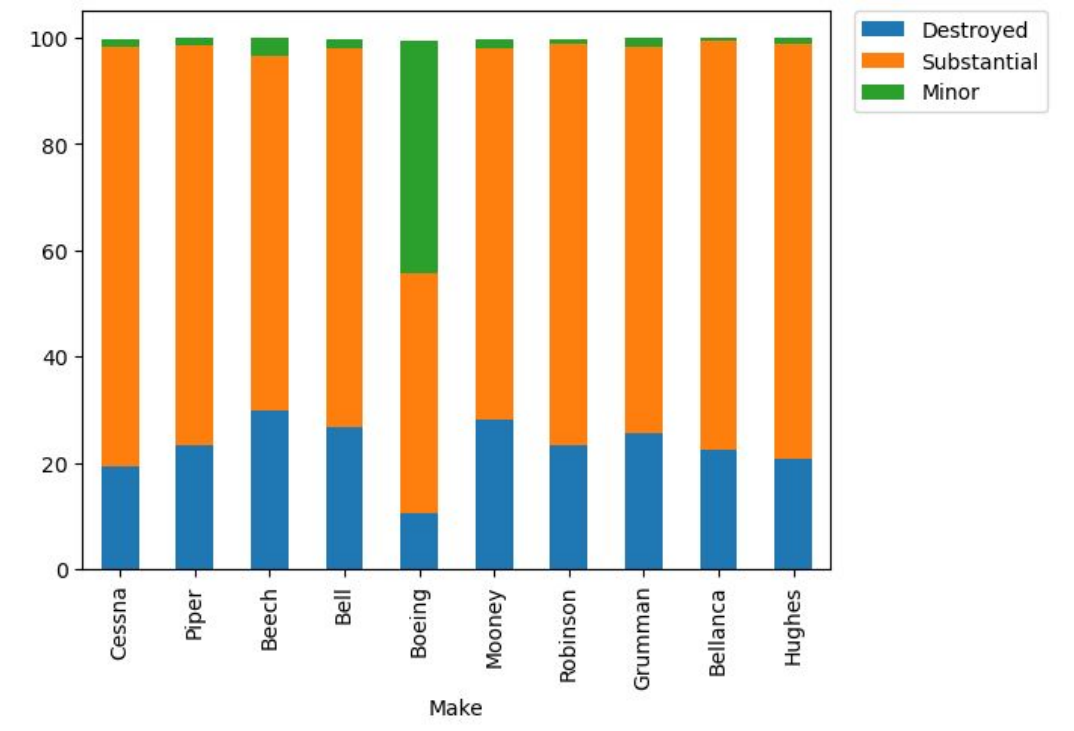
Aviation Accident Database

www.kaggle.com

DATA UNDERSTANDING

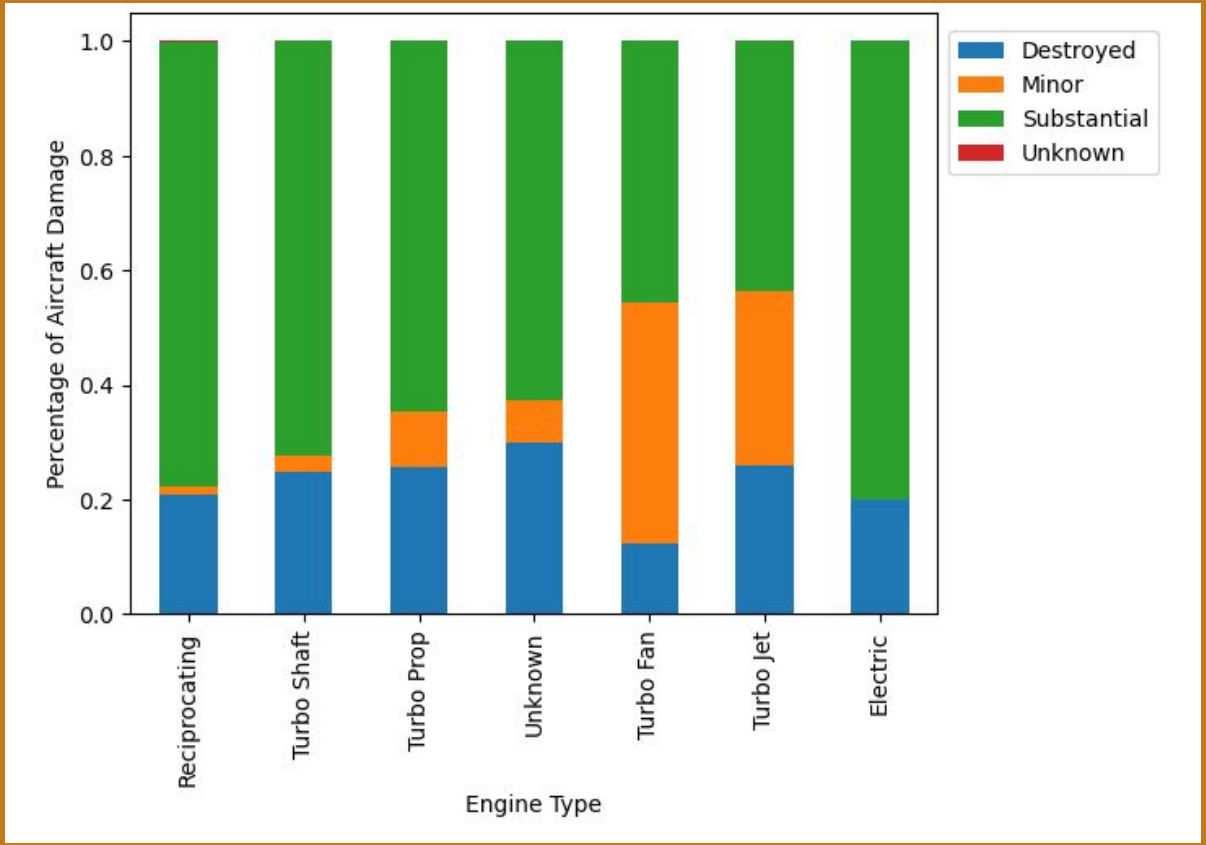
Key Data Fields	Data Contained	Business Questions
Aircraft.Damage	The severity of damage to the aircraft: Destroyed / Substantial / Minor	Which aircraft are the most durable?
Make	The manufacturer of the aircraft	Which manufacturer makes the safest planes?
Model	The model of the aircraft	Which model is the safest?
Injury Columns	Total Fatal / Serious / Minor Injuries	How many passengers were injured and how serious were their injuries?
Engine.Type	The type of engine used in the aircraft	Is there a correlation between engine type and severity of the accident?
Num.of.Engines	The number of engines on the aircraft	Is there a correlation between the number of engines and severity of the accident?

DAMAGE BY MAKE



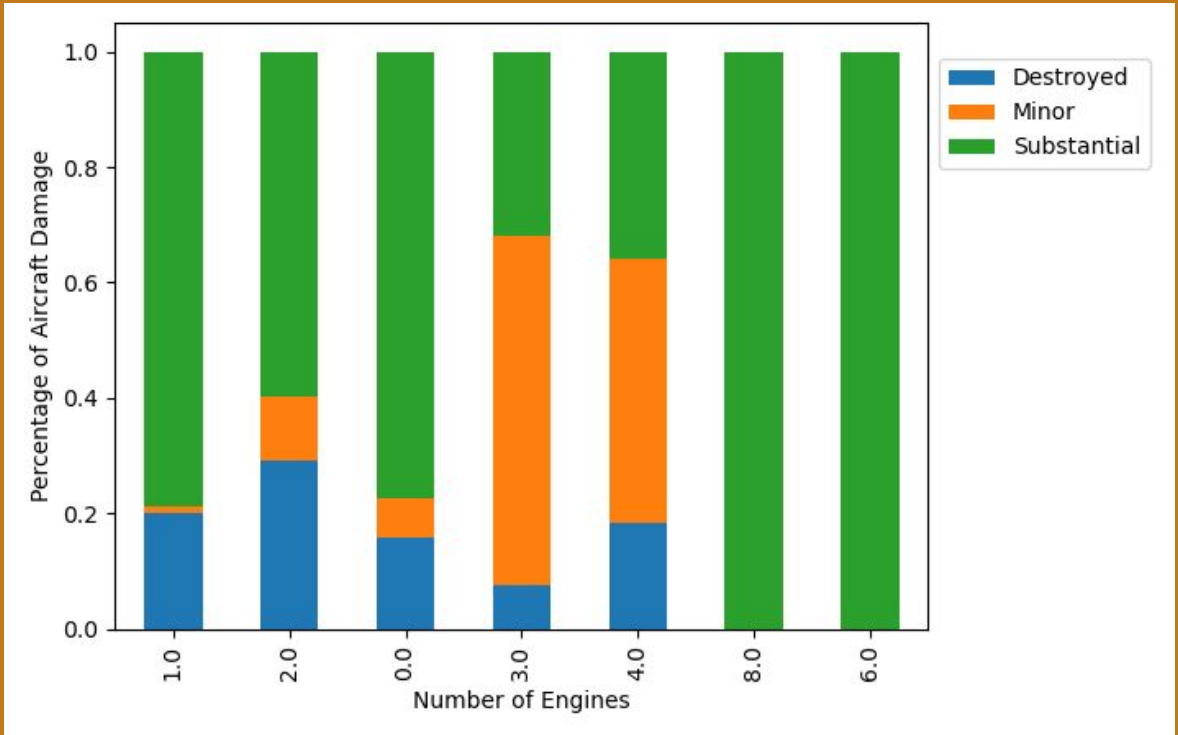
- Beech has the highest % of destroyed aircrafts
- Bell has the highest % of substantially damaged aircrafts
- Boeing seems to have the safest planes with the highest % of minor damage

DAMAGE BY ENGINE TYPE



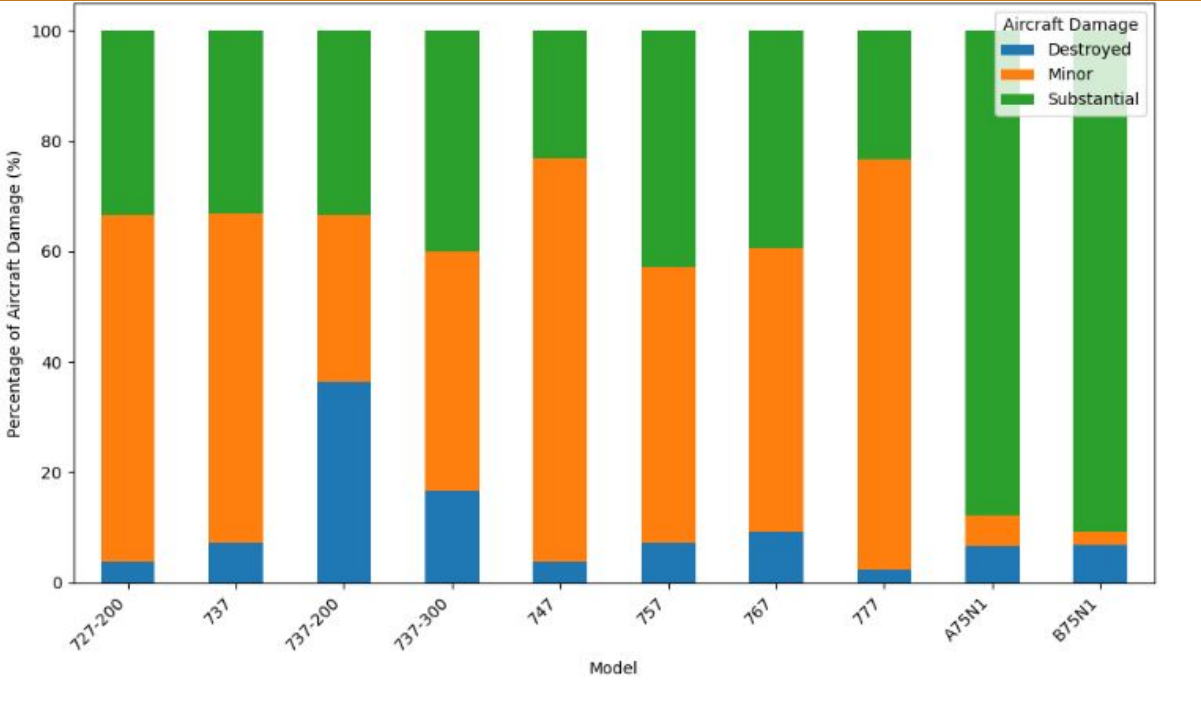
- Turbo Fan and Turbo Jet have by far the highest percentage of minor aircraft damage
- Electric Engine seems the most dangerous with the highest percentage of substantial damage

DAMAGE BY NUMBER OF ENGINE



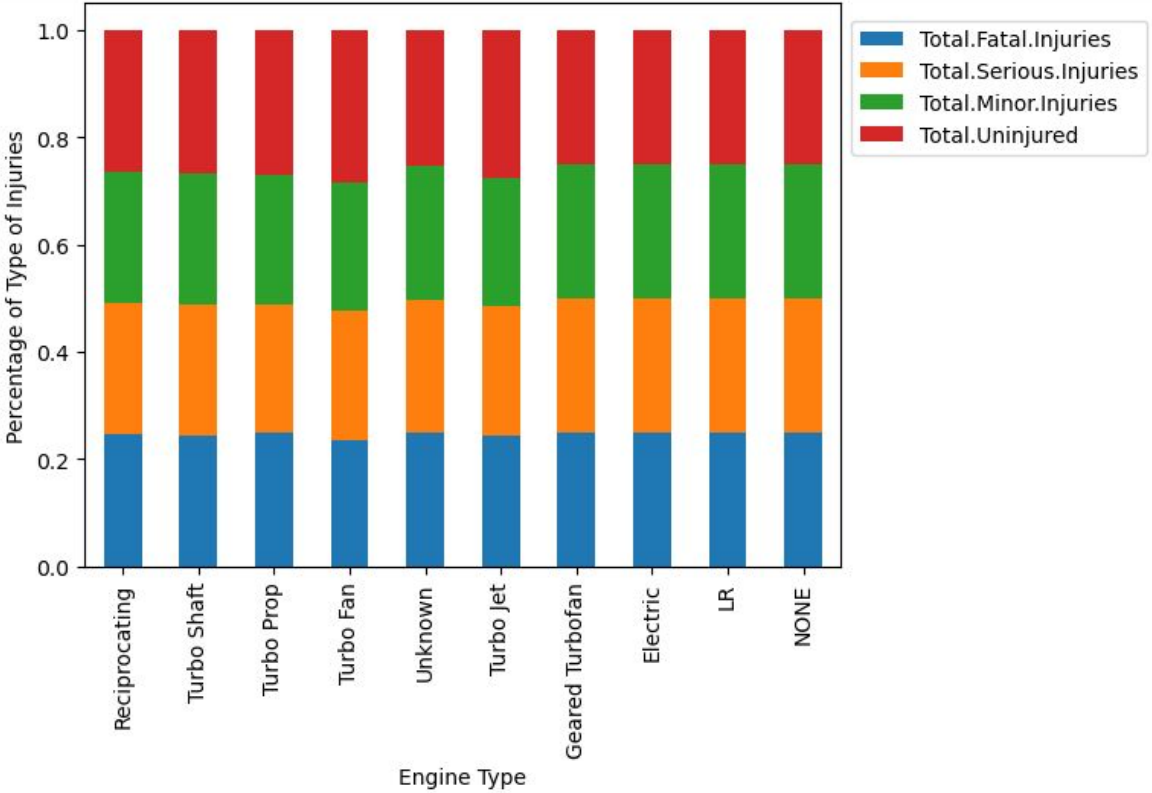
- Turbo Fan and Turbo Jet have by far the highest percentage of minor aircraft damage
- Reciprocating seem the most dangerous with the highest percentage of substantial damage

Diving Deeper Into Boeing



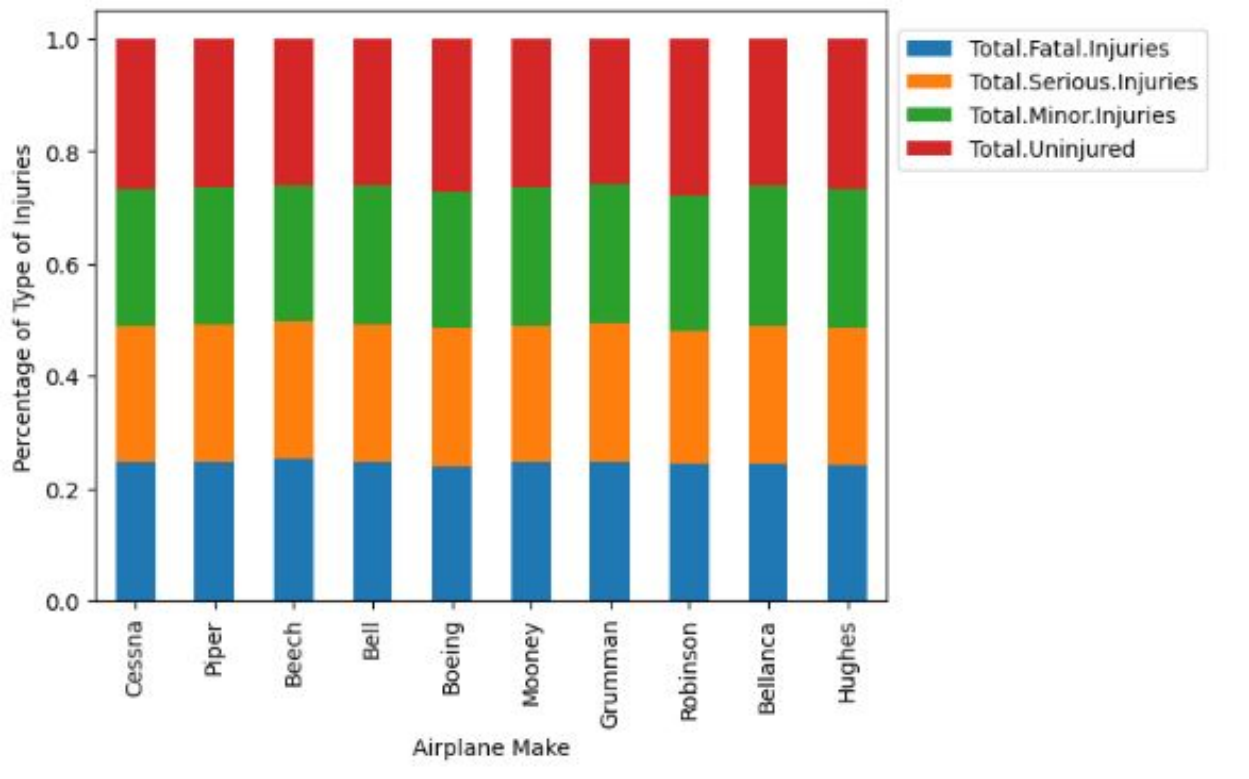
- The 777 model has the highest % of minor damage
- The 747 model has the 2nd highest % of minor damage
- The 737-200 model has the highest destroyed %

EXPLORING CORRELATION BETWEEN ENGINE TYPES AND SEVERITY OF ACCIDENT



- There seems to be little difference in the % of injuries sustained across Engine Type

INJURIES COMPARED TO AIRCRAFT MAKE



- There seems to be little difference in the % of injuries sustained across airplane makes

RECOMMENDATION

I recommend focusing on Boeing aircraft, specifically the 777 models, equipped with Turbo Fan and Turbo Jet engines, and featuring 3-4 engines. This recommendation is based on four key findings from our analysis:

1. Boeing aircraft have the lowest percentage of destroyed aircraft compared to other manufacturers.

2. The 777 models exhibit the lowest percentage of destroyed and substantially damaged aircraft among Boeing models.

3. Turbo Fan and Turbo Jet engines show the lowest percentage of destroyed aircraft.

4. Planes with 3-4 engines have the lowest percentage of destroyed or substantially damaged aircraft.