Aviation Data Analysis

PHASE 1 PROJECT

THE // FLATIRON SCHOOL

Overview

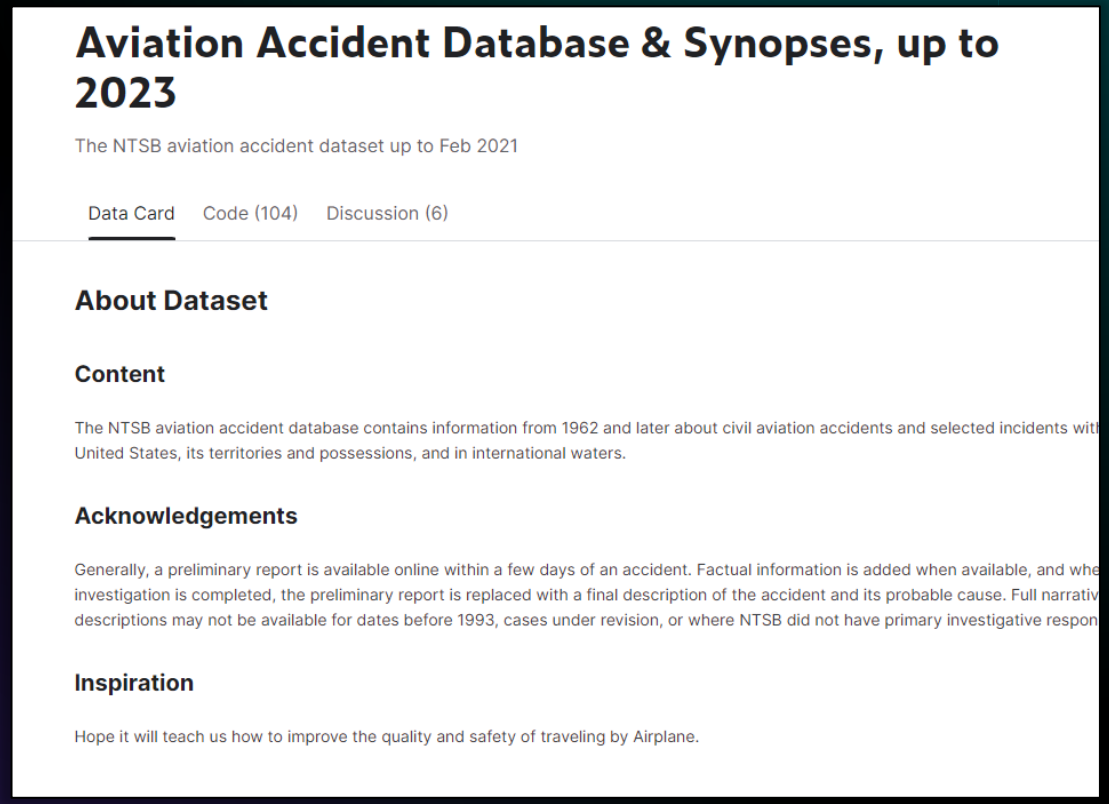
Project Prompt

- Your company is expanding into 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.

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



Aviation Accident Database & Synopses, up to 2023

The NTSB aviation accident dataset up to Feb 2021

Data Card | Code (104) | Discussion (6)

About Dataset

Content

The NTSB aviation accident database contains information from 1962 and later about civil aviation accidents and selected incidents wit
United States, its territories and possessions, and in international waters.

Acknowledgements

Generally, a preliminary report is available online within a few days of an accident. Factual information is added when available, and whe
investigation is completed, the preliminary report is replaced with a final description of the accident and its probable cause. Full narrativ
descriptions may not be available for dates before 1993, cases under revision, or where NTSB did not have primary investigative respon

Inspiration

Hope it will teach us how to improve the quality and safety of traveling by Airplane.

Database Overview

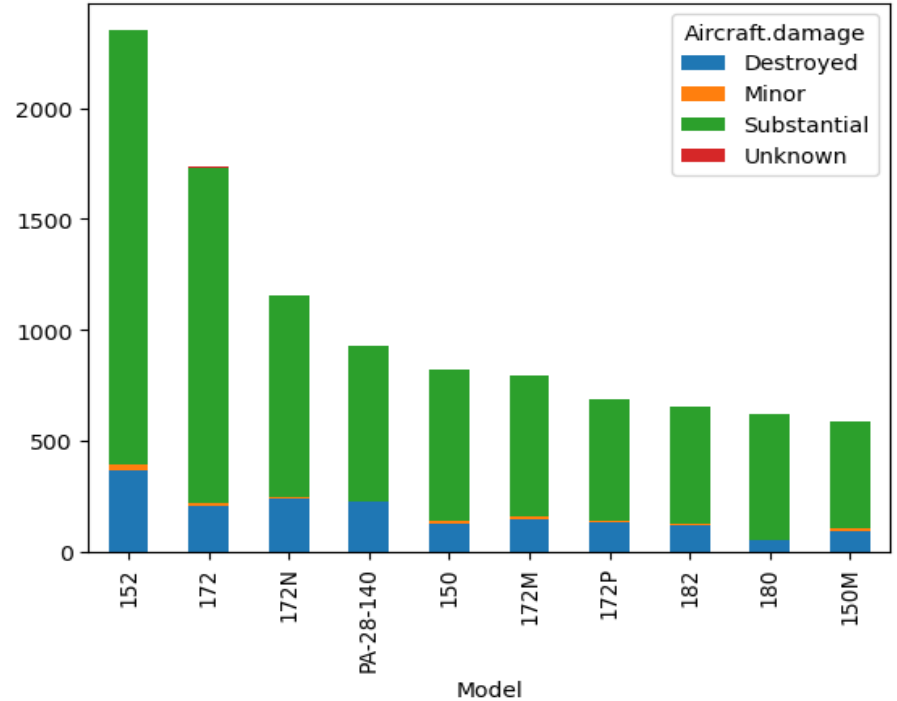
- The NTSB aviation accident database contains information **from 1962 and later about civil aviation accidents and selected incidents within the United States, its territories and possessions, and in international waters.**

Data Understanding

Key Data Fields	Data Contained	Business Questions
Aircraft.Damage	The severity of damage to the aircraft: • Destroyed / Substantial / Minor / Unknown	• Which aircrafts 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 Injuries • Total Serious Injuries • Total Minor Injuries • Total Uninjured	How many passengers were injured and how serious were there injuries	
Weather.Condition	Weather conditions during time of the flight	• Is there a correlation between weather and the severity of the accident?

Aircraft Damage by Model

Aircraft Damage by Model



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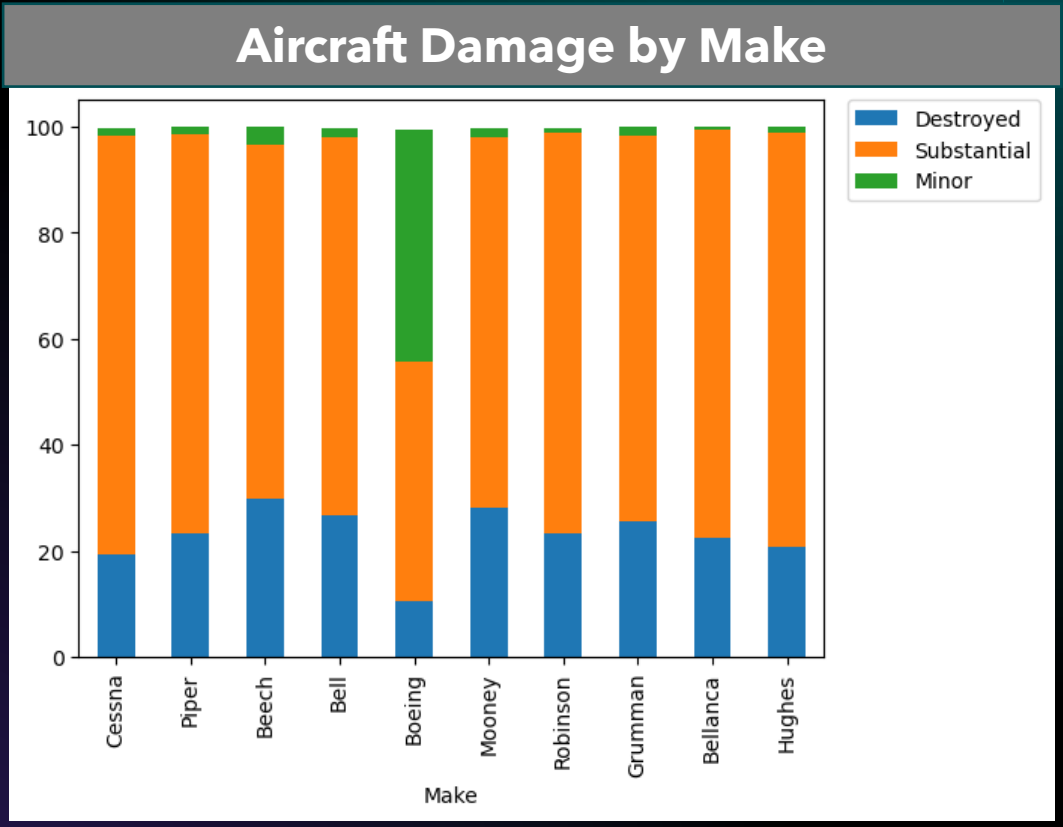
Aircraft Damage by Make

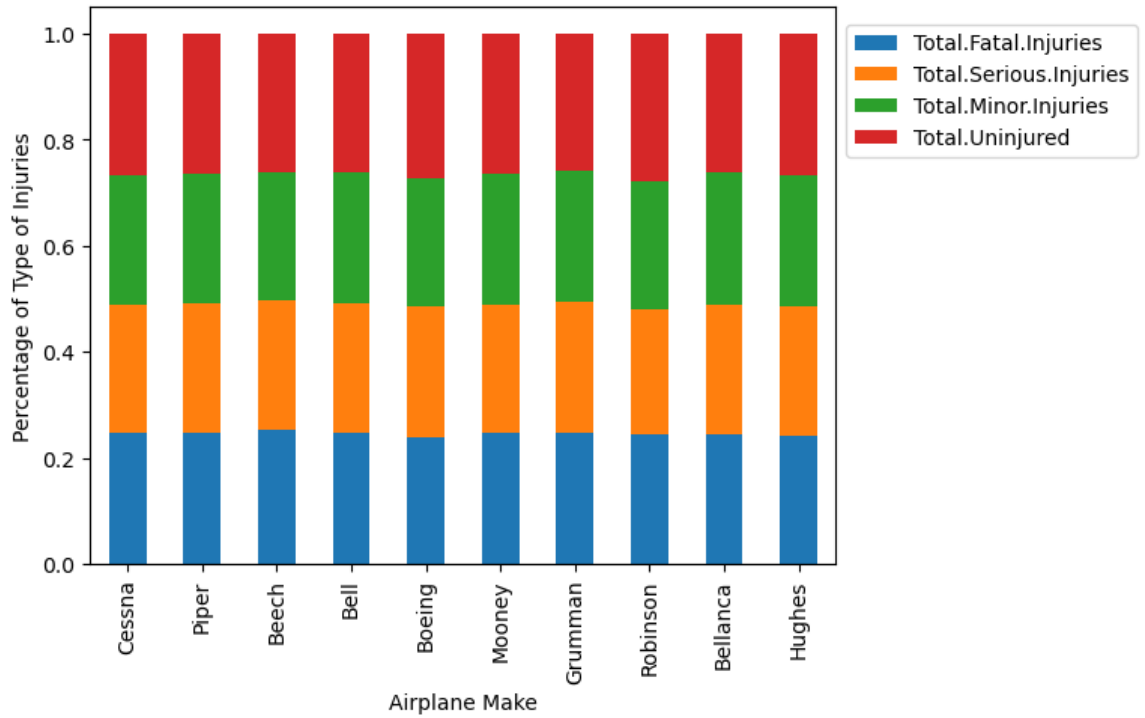


Key Insights

- **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

Aircraft Injuries by Make

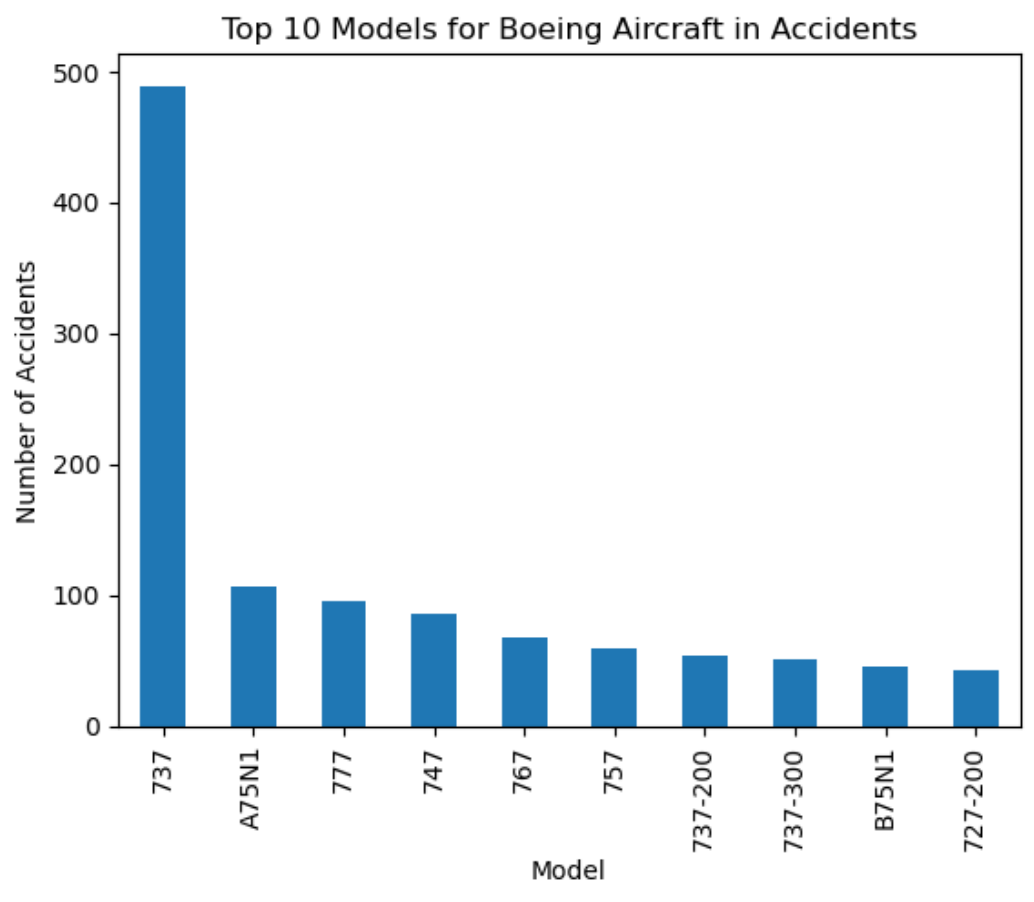
Aircraft Injuries by Model



Key Insights

- There is little difference in percentage of types of injuries across models

Exploring Boeing Deeper



Key Insights

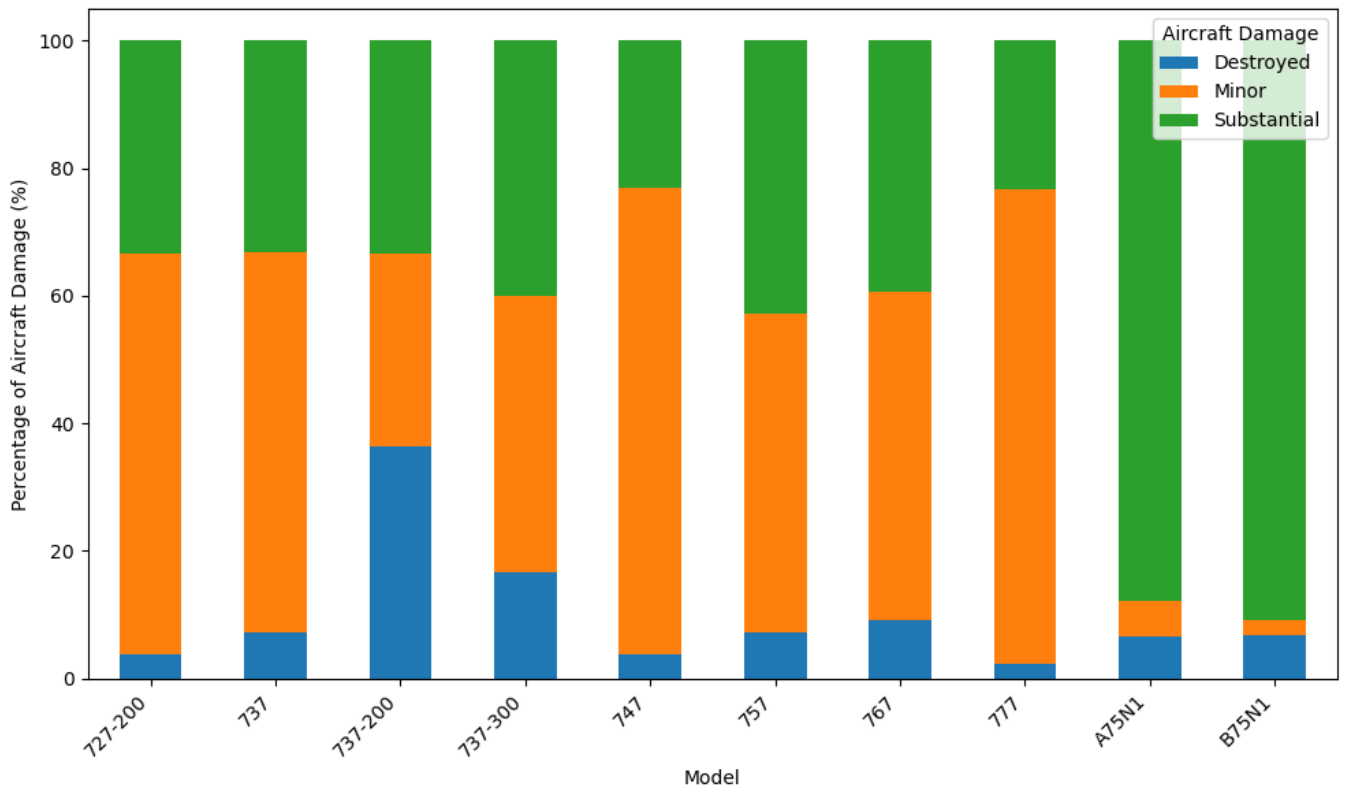
- The 737 is the most popular and commonly used Boeing plane

Boeing Model Value Counts Table

Aircraft.damage	Destroyed	Minor	Substantial
Model			
727-200	1	17	9
737	15	124	69
737-200	12	10	11
737-300	5	13	12
747	2	38	12
757	2	14	12
767	3	17	13
777	1	32	10
A75N1	7	6	94
B75N1	3	1	40

Boeing Analysis

Boeing Aircraft Damage % By Model



Key Insights

- The 777 model has the highest % of minor damage
- A75N1 model has the highest substantial damage %
- The 737-200 model has the highest destroyed %

Recommendations

Recommendation: Based on the data we recommend using Boeing 777 and 747 models for this venture. Due to Boeing having the safest and most durable planes we believe it is the safest bet.

Supporting Data:

- Boeing has the lowest percentage of destroyed aircrafts when compared to other Makes.
- The 777 and 747 models have the lowest destroyed percentage out of all Boeing models.