Overview

- The project aims at determining aircrafts with lower risks for the aviation business
- -It provides actionable insights for accurate decision making in Aircraft Purchase
- The Dataset used was ‘AviationData.csv’ that comprises a detailed and comprehensive accident related report
- -Example of information in the dataset included location of accident, date, the weather conditions and general statistics of fatalities

Business Understanding

- The company is expanding into new industries to diversify its portfolio.
- Specifically, it is considering the acquisition and operation of aircraft for both commercial and private enterprises.
- However, it lacks knowledge about the potential risks associated with aircraft.
- The task assigned is to identify which aircraft present the lowest risk for the company as it ventures into this new business sector.
- The findings must then be translated into actionable insights that will assist the head of the new aviation division in making informed decisions regarding aircraft purchases.

Data Understanding

- The Dataset contains 31 columns and 88,889 rows .
- It provides information about the aircraft accidents.
- This dataset includes some of the details of the aircraft and aircraft accidents such as;

> factors contributing to accidents for example weather
> specifications of the aircrafts
> Make and Model
>accident histories and phase of flight during the accident

Therefore, our goal is to explore this data to identify patterns that indicate the safest aircraft for the company’s new aviation venture

Project Objectives

1. **Access the risk factor in aviation operations**

Determine the factors that may lead to risks during operations such the weather conditions

2. Identify low-risk Aircraft, Make and Model Type

Understand which aircraft model and make have the lowest accidents and fatalities so as to get insights on which type of aircrafts to purchase

3. Access which phase of flight is prone to more accidents

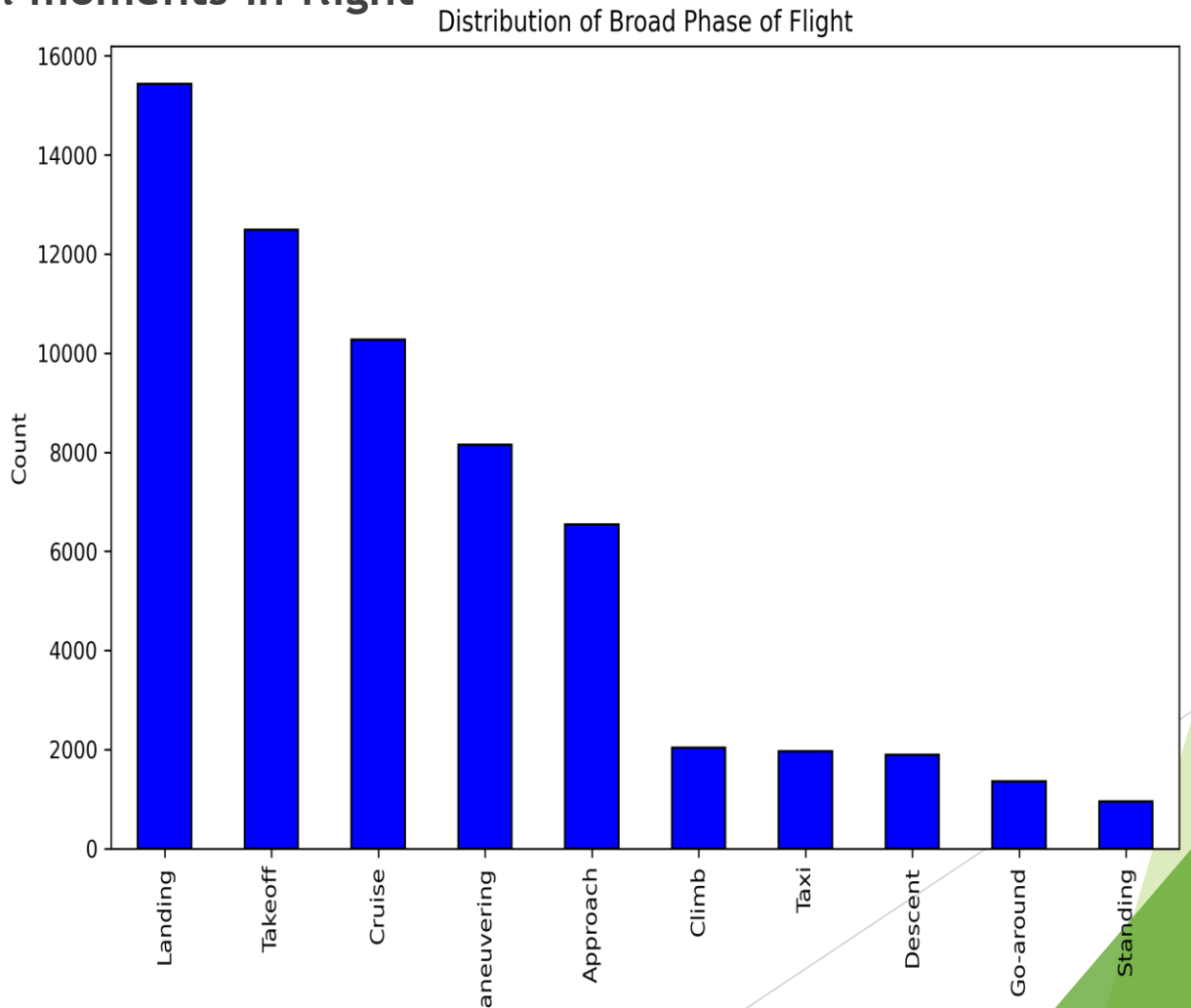
Determine at which broad phase flight do accidents occur more. For example, establish if landing or cruise or takeoff attract accidents

4. Provide data driven Recommendations that will aid the aircraft purchase

Broad phase of flight that had More Accidents

- -During the landing and takeoff stage is when most accidents occur.
- -These flight's phase are critical moments in flight
- since the aircraft are
- operating close to the ground.

- - Few accidents are witnessed
- in Taxing level and Standing
- -In these phases , pilots have a
- larger margin to rectify errors
- hence less prone to accident

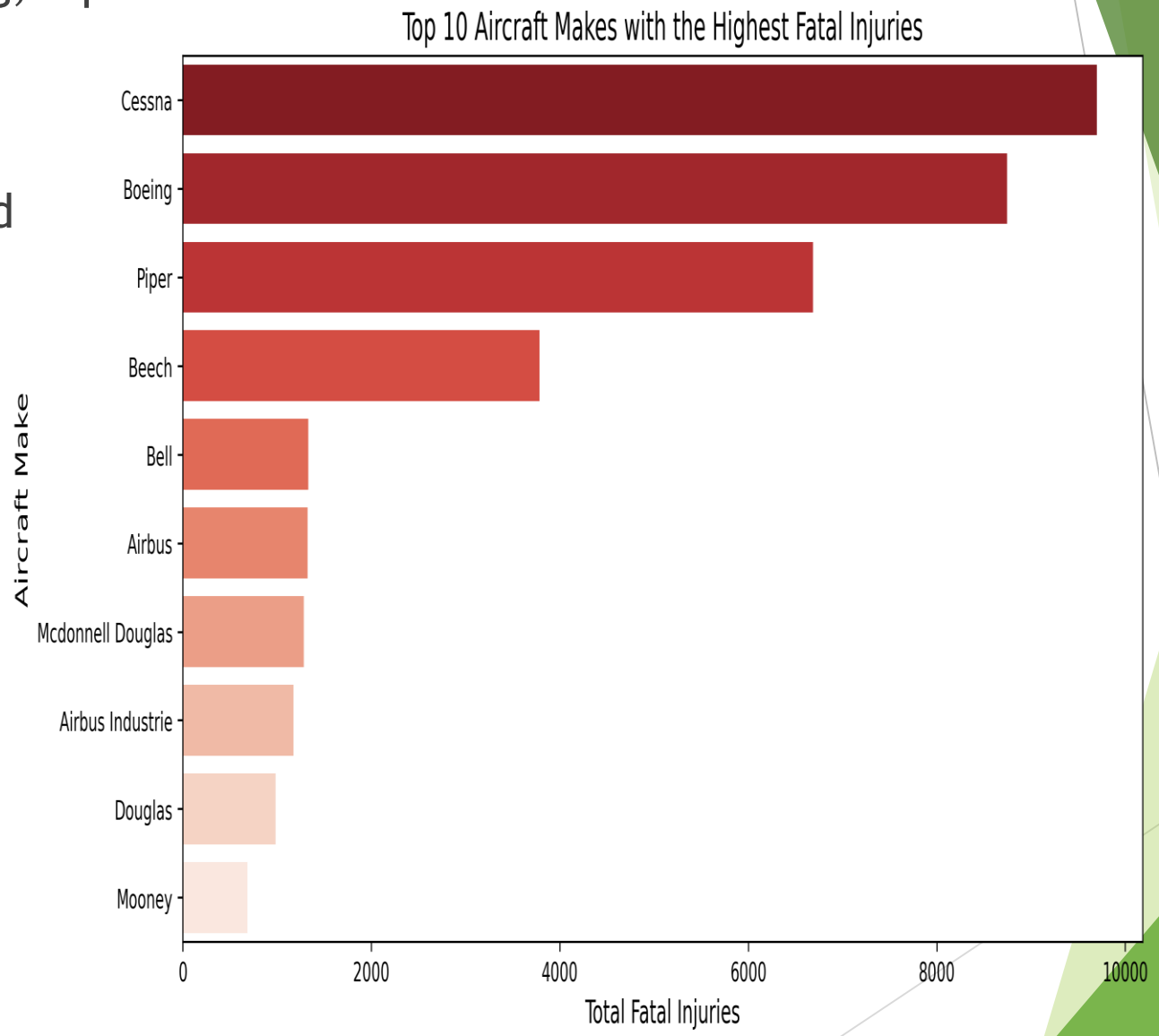


Make Vs Total Fatal Injuries

- **From the graph** Cessna, Boeing, Piper and Beech Aircraft Make Have Significantly More Fatalities

- Commercial airliners Airbus and Mcdonnell Douglas generally have low fatality-per-accident. They have advanced autopilot functions to prevent catastrophic failures

- Mooney and Douglas Aircraft have low fatalities
These might be because of their small capacity.



Number of Engine and Make Vs Total fatal Injuries

-Cessna, Boeing, Piper and Beech Aircraft Make Have Significantly More Fatalities

However, this could be because they are among the most common in aviation

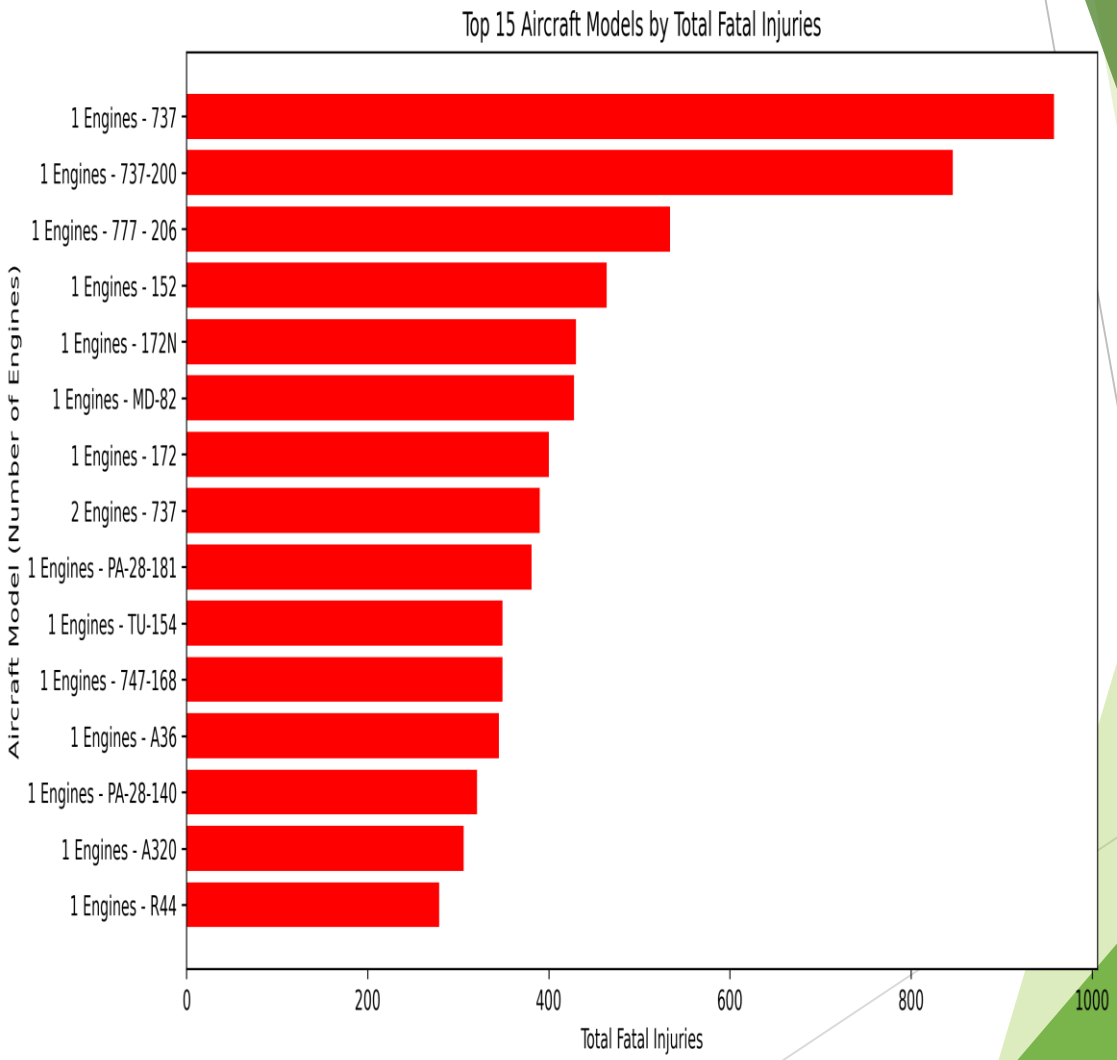
-Commercial airliners Airbus and Mcdonnell Douglas generally have low fatality-per-accident

We examine from the graph that

Number of engines have

Significant low effect on Total

Fatal Injuries



Recommendations

1. The Company should focus on modern, well-equipped aircraft with proven safety records for example Airbus A320 series

The Aircraft above has lower fatalities, modern and advanced autopilot functions to prevent catastrophic failures.
If targeting private aviation, choose safe, well-maintained models with advanced safety features for example **Turbo Jet** and **Geared Turbofan**.

2. Risk Mitigation Strategies should focus on landing and takeoff safety

Pilot training programs should focus on Landing, Takeoff, Cruise, Maneuverings and Approach since it was examined that they record higher number of accidents and high fatal injuries

3. Evaluate the Manufacturer's Safety Track Record

Consider the Make of the aircraft since it plays a big role in saftey measures. For Example Airbus 320 and Mcdonnell Douglas are highly recommended. Commercial above commercial airliners generally have low fatality-per-accident.

ANY QUESTIONS?

THANK YOU