

Aircraft Recommendation

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Project Overview

The goal of this project is to find the least risky aircraft for private and commercial businesses.

In order to help the director of the new aviation division make informed decisions on aircraft purchases, the ultimate objective is to deliver three specific business recommendations.



Business Understanding

Our company is diversifying its portfolio by entering the aviation industry. However, the potential risks associated with different aircraft models are unknown. This project will determine the lowest risk aircraft to help mitigate potential operational risks and ensure a safe investment.



Data Understanding

The dataset used for this project comes from the NTSB and includes detailed information on civil aviation accidents and selected incidents within the United States and international waters. The dataset spans from 1962 to 2023 and includes various attributes related to each accident or incident.



Data Analysis

01

Trend of
accidents and
incidents over
the years

02

Injuries in
Accidents

03

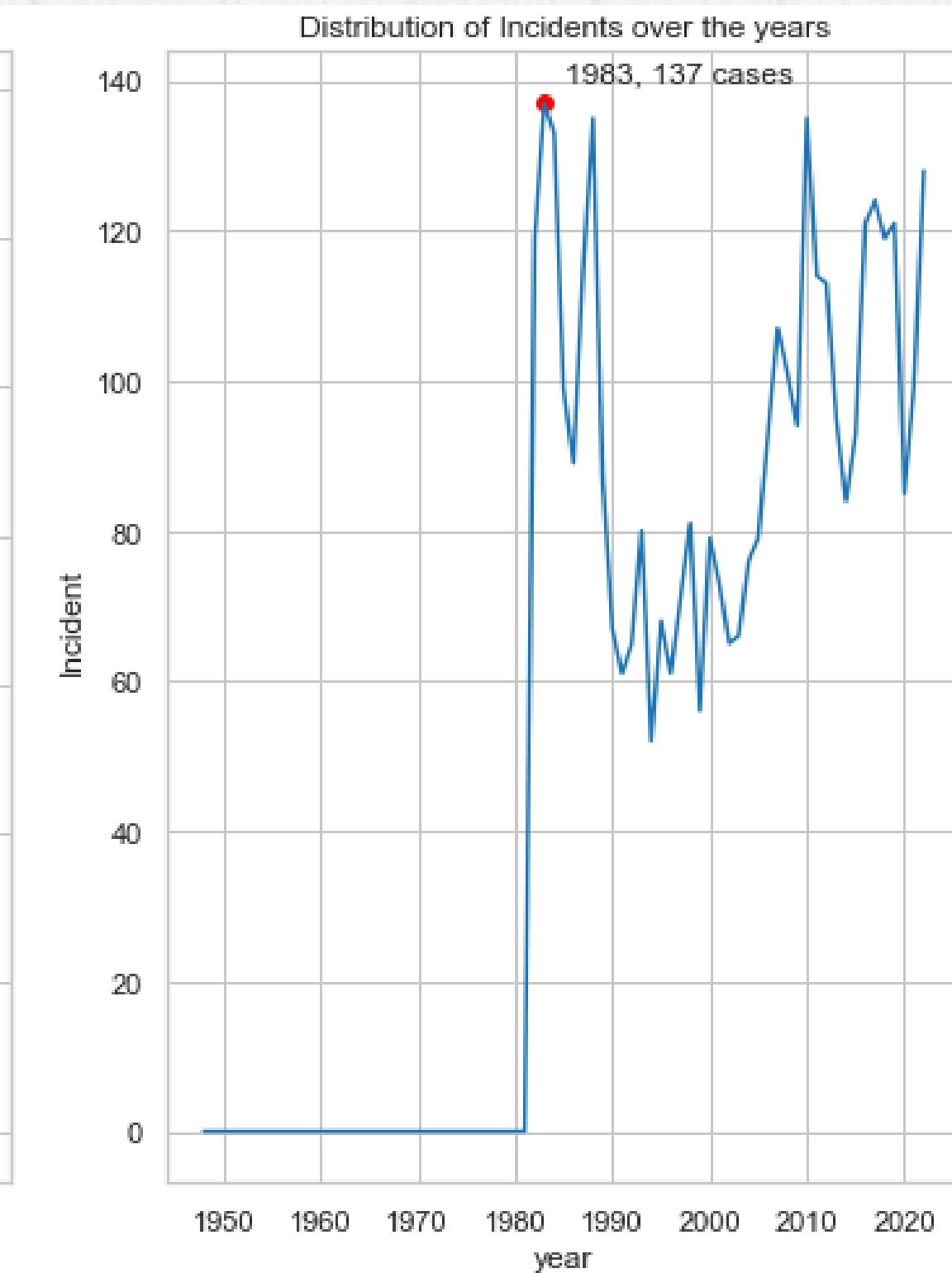
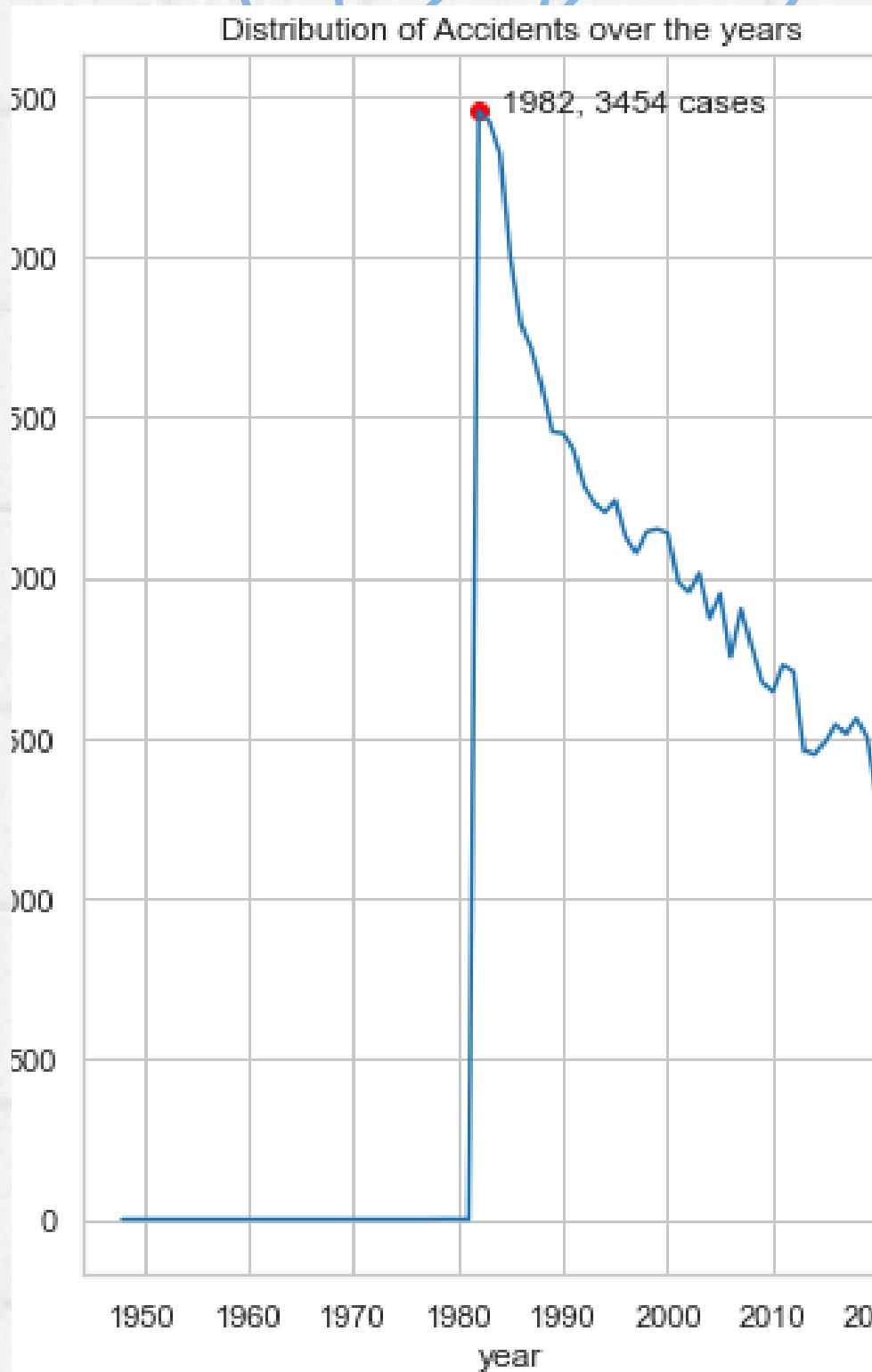
Injuries in
Incidents

04

Incident Cases
in different
engine types

Data Analysis

1

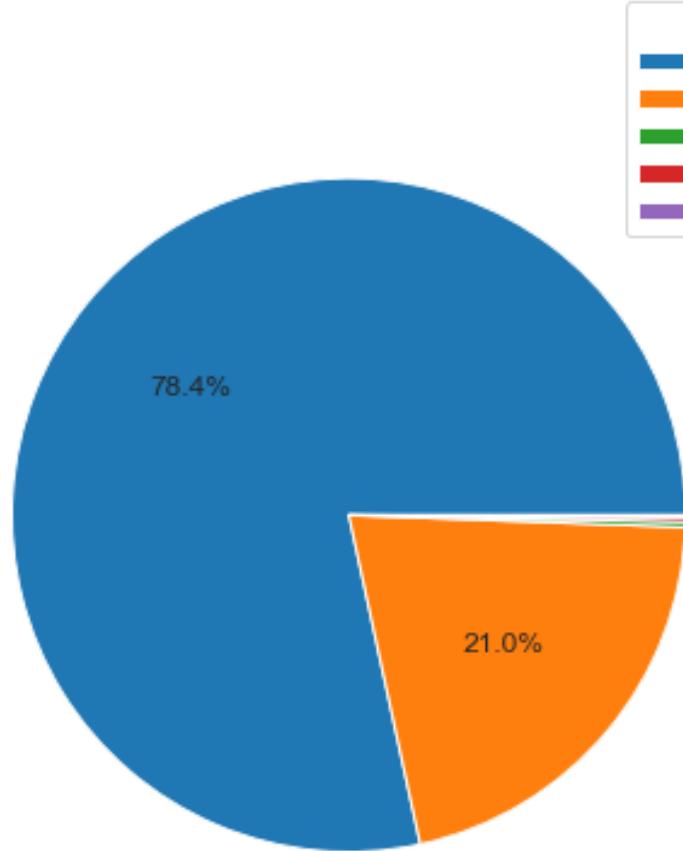


- Accident cases had a significant increase in 1982 but have been decreasing ever since
- For incident cases, there was a significant increase in 1983 and the cases seem to remain constant

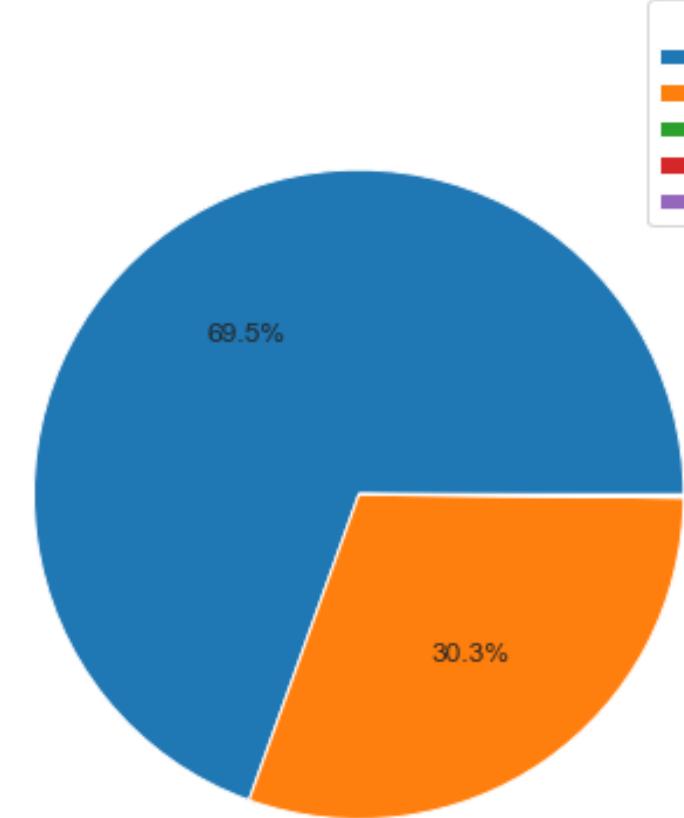
Data Analysis

2

Proportion of Injury severity in Accident cases



Proportion of Injury severity in Incident cases



Injuries in accidents

Most of the accident cases lead to either Non-Fatal or Fatal Injuries, so we avoid Aircrafts with Accident cases

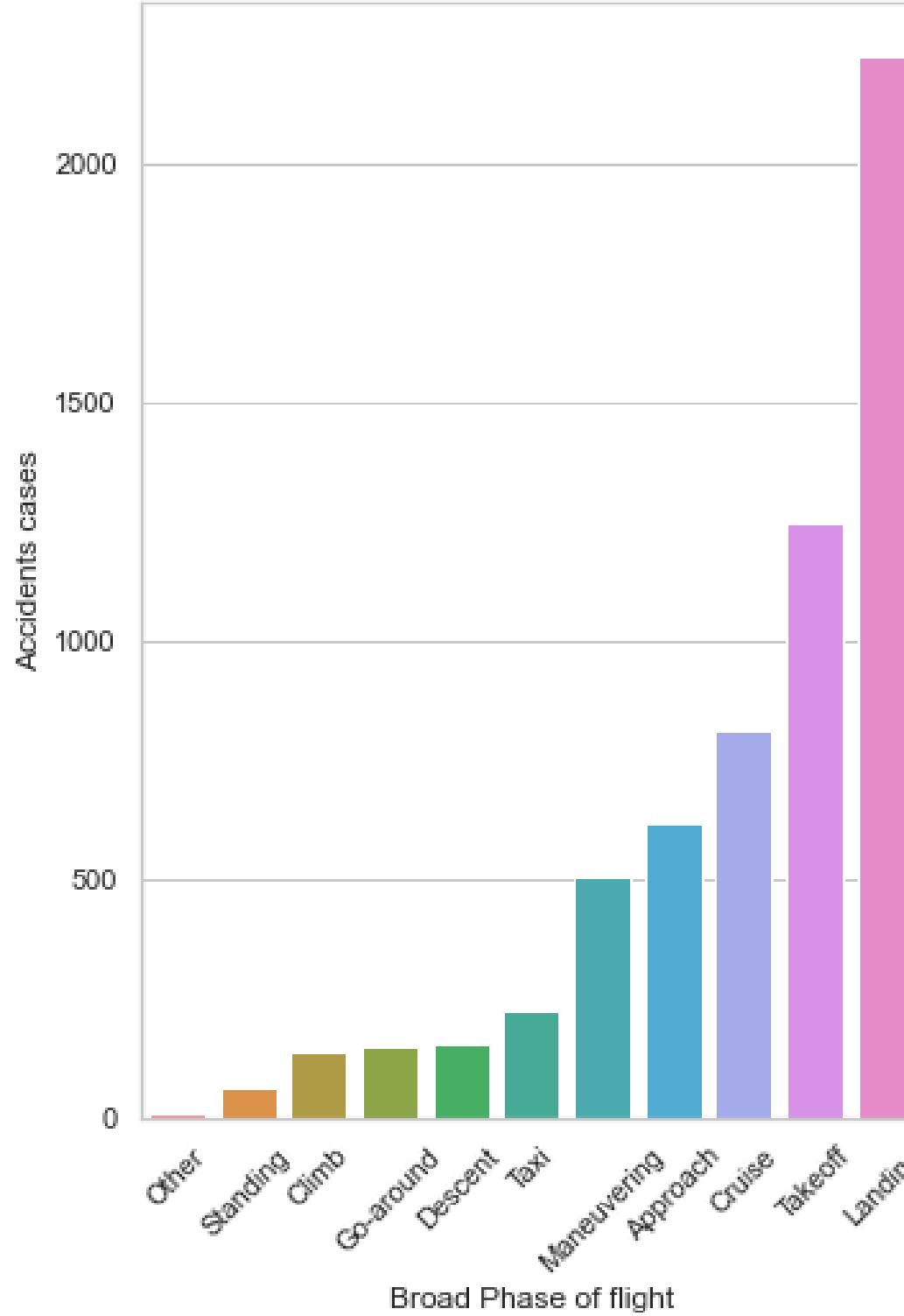
Injuries in Incidents

- Injuries in the Incident cases mostly fall in the 'Incident' category
- On further analysis we notice that the Incident category refers to cases with no or minor Injuries
- This is the lowest risk category

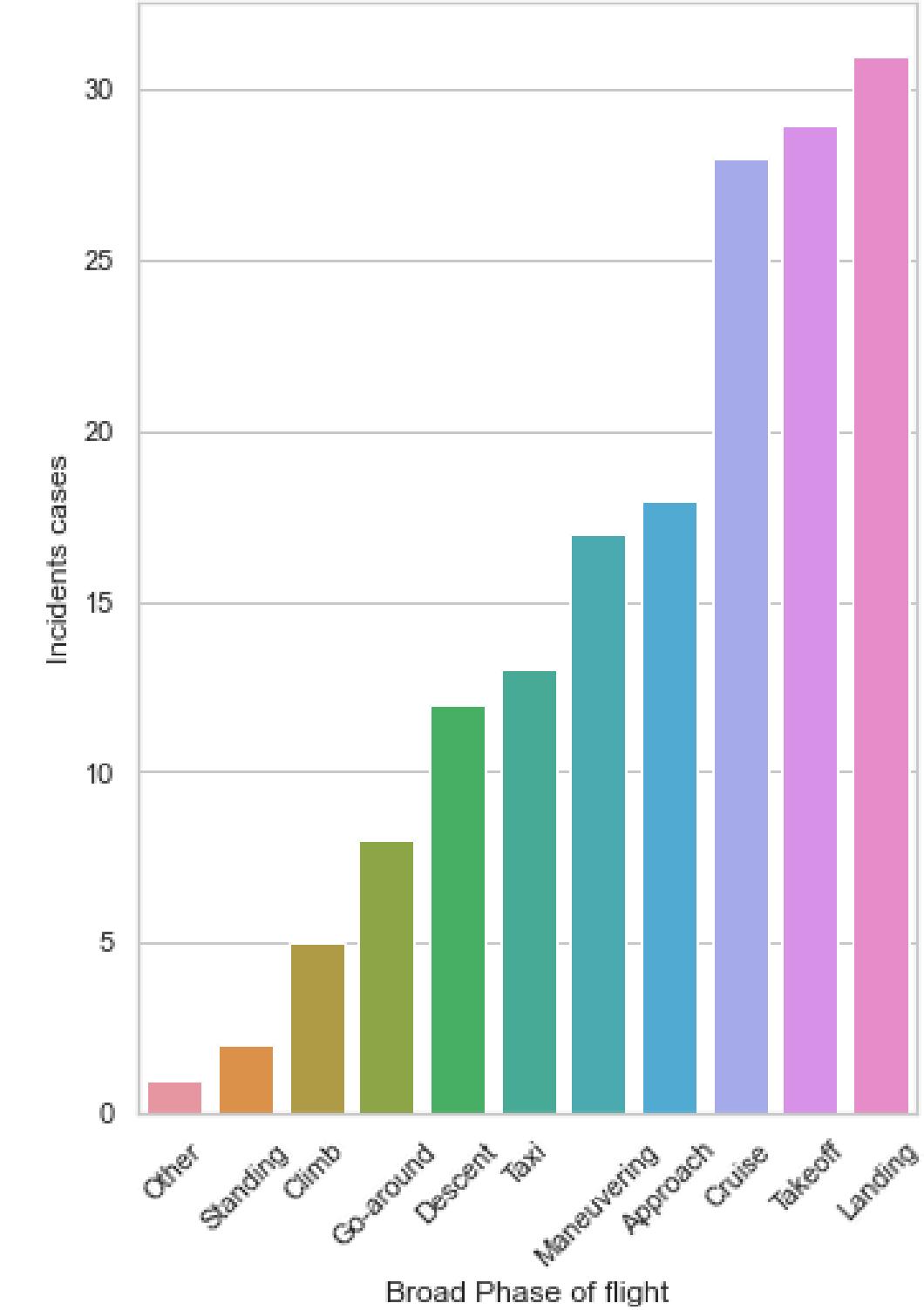
Data Analysis

3

Distribution of accidents by Broad phase of flight



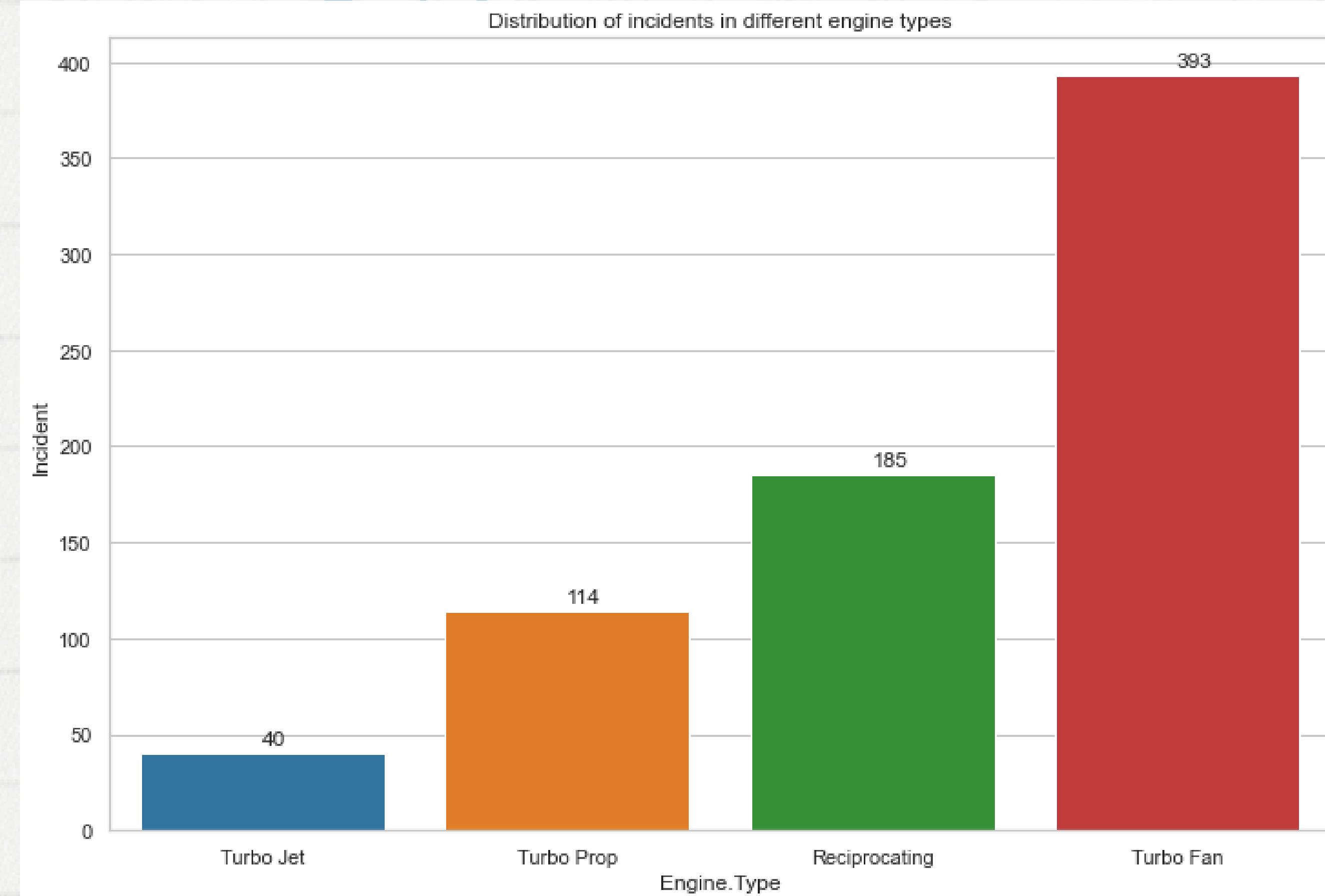
Distribution of incidents by Broad phase of flight



Most accidents and incidents occur during Landing, Takeoff and cruise

Data Analysis

4



Recommendation

01.

Prioritize Acquisition of Low-Risk Aircraft Models:

- Boeing B737-2H4 ,
- Rockwell NA-265-80

Based on our analysis we recommend this two for both safety of customers and minimal maintenance cost

02.

Enhance Safety Protocols for Critical Flight Phases:

- strict pre-flight checklists and sophisticated simulation training for takeoff
- precision landing technologies should be adopted
- improving in-flight monitoring and communication systems during cruising

03.

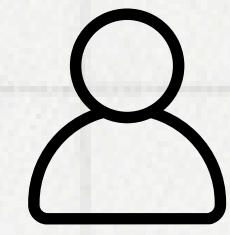
Leverage Advanced Analytics for Continuous Monitoring:

- Create a strong monitoring systems to track safety metrics and aircraft performance over time.

Next Steps

- Obtaining the designated low-risk aircraft
- Putting the suggested safety procedures into action as we proceed.
- Putting in place a monitoring framework
- Additional investigation, encompassing broader data gathering and sophisticated modeling
- Adherence to updated safety measures.
- Adopt new technology and stay up to date with industry advances.





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**Thank you
very much!**