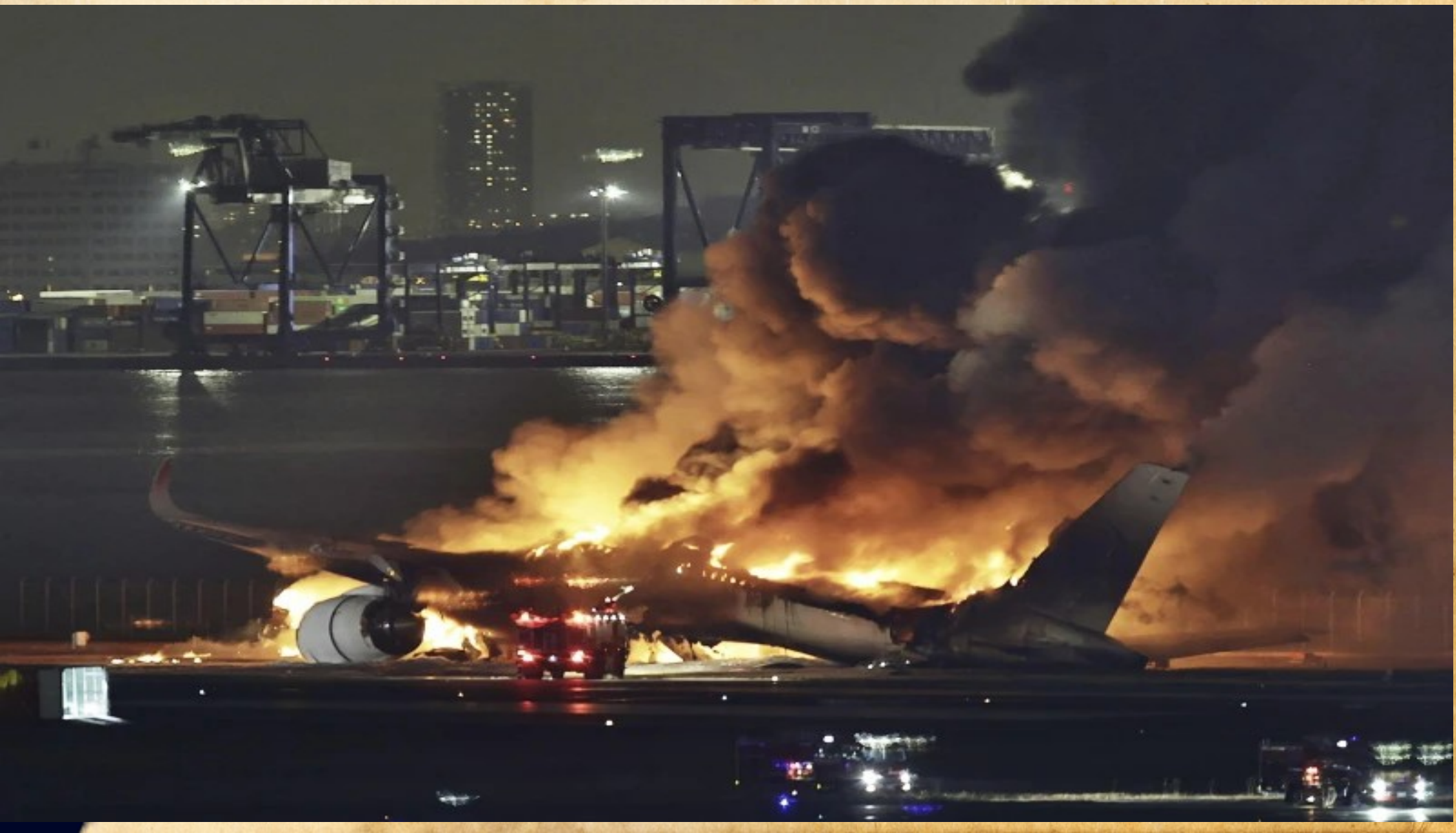
Aircraft Risk Assessment for Aircraft Purchase

Identifying the Lowest-Risk Aircraft for Purchase



Introduction

- **Business Context:**
  - Our company is expanding into the aviation industry.
- **Goal:**
  - Purchase and operate aircraft for commercial and private enterprises.
- **Key Challenge:**
  - Identifying the lowest-risk aircraft to ensure safe and reliable operations.

Objective

- To provide actionable insights to determine:
- Which aircraft are the safest and most reliable.
- Which aircraft models minimize risk to the company.

Key Questions

-
- Safety First: Which aircraft models have the lowest fatality rate and highest uninjured survival rate?
- Durability: Which aircraft have fewer cases of "Destroyed" in accident reports?
- Reliable Engine Type: Which engines have lower failure rates?
- Weather Performance: Which aircraft have higher accident rates in poor weather conditions (IMC)?
- Accident Phase Matters: Which planes crash more during takeoff or landing, indicating potential design/handling issues?

.

Safety First

- **Focus:**

  - Aircraft models with low fatality rates and high survival rates.

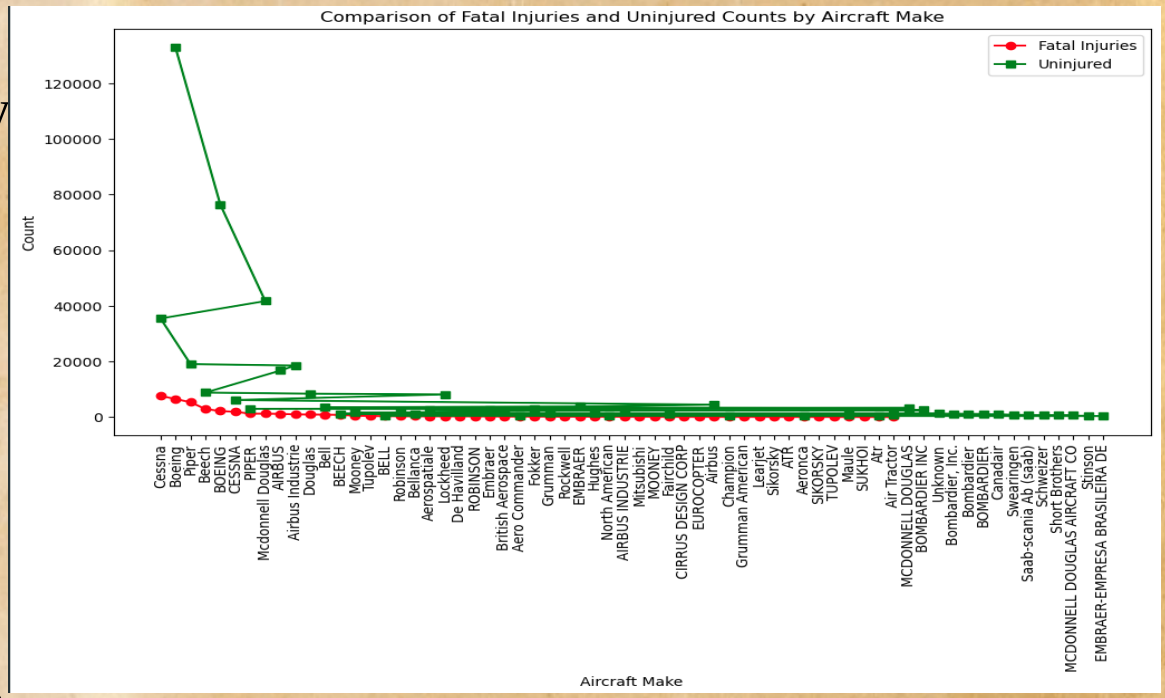
- **Approach:**

  - Analyze accident reports by model.

  - Calculate fatality and survival rates.

- Outcome:

  - Boeing is the best aircraft due to its high uninjured number compared to fatal injured



Durability

- **Focus:**

  - Aircraft durability in accidents.

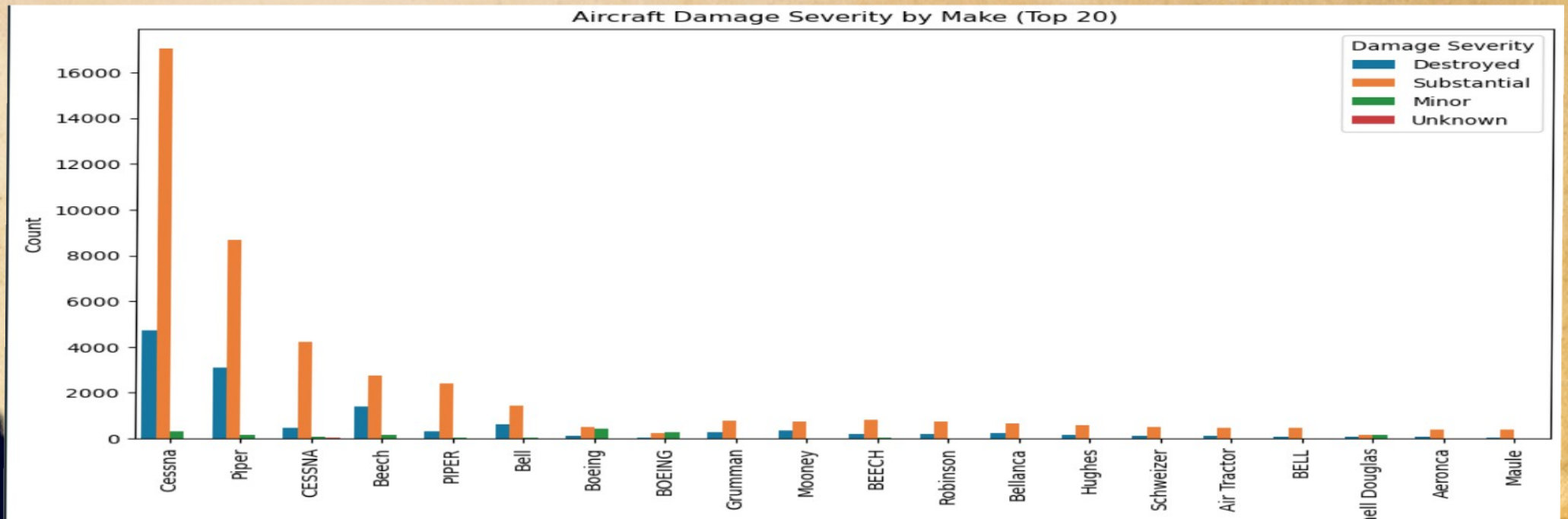
- **Approach:**

  - Count incidents resulting in "Destroyed" status for each aircraft make.

  - Evaluate durability in various accident scenarios.

- **Outcome:**

  - Cessna seems to be the best when it comes to air craft durability due to it having a large substantial



Reliable Engine Type

Focus:

- Engine reliability and failure rates.

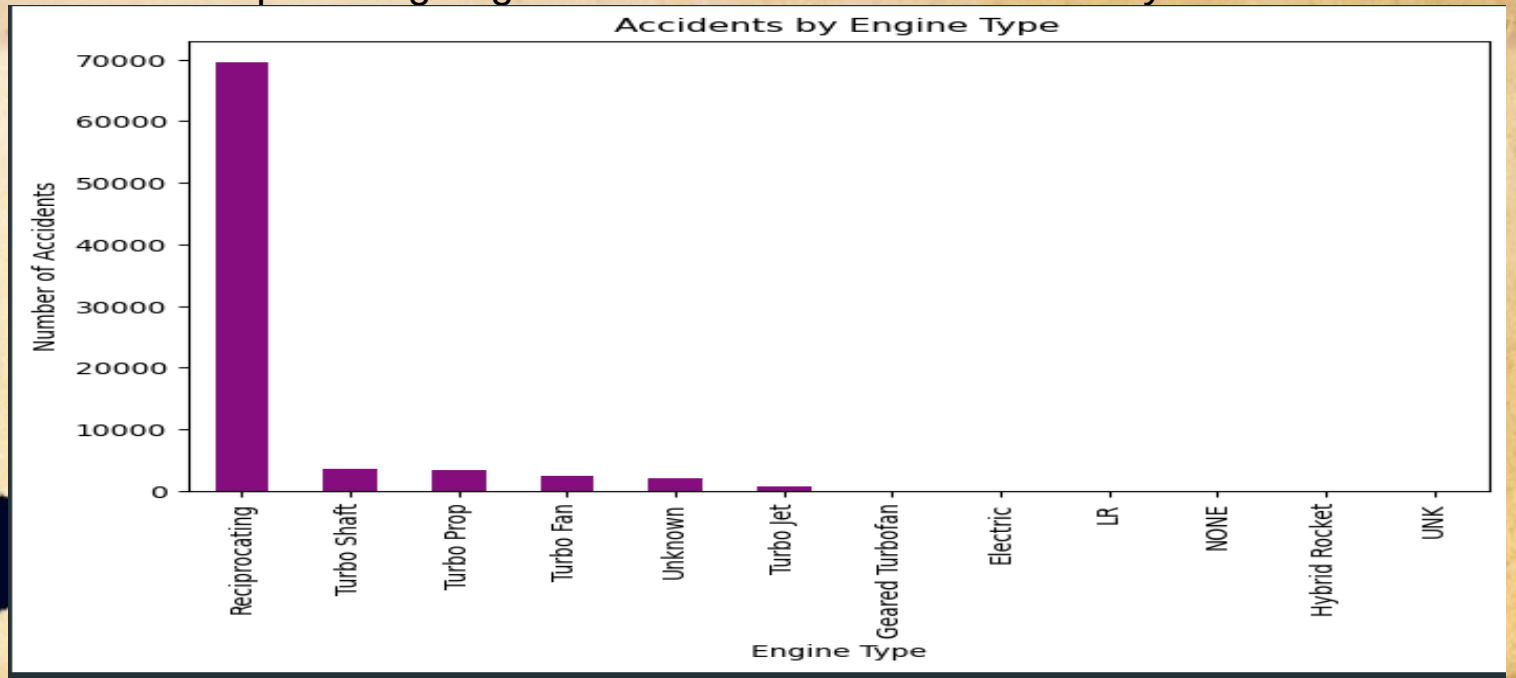
Approach:

- Classify accidents by engine type.

- Calculate engine failure rates.

Outcome:

-Aircraft with reciprocating engine seem to be worse due to many accidents it has had over time.



Weather Performance

Focus:

- Aircraft performance in poor weather (VMC).

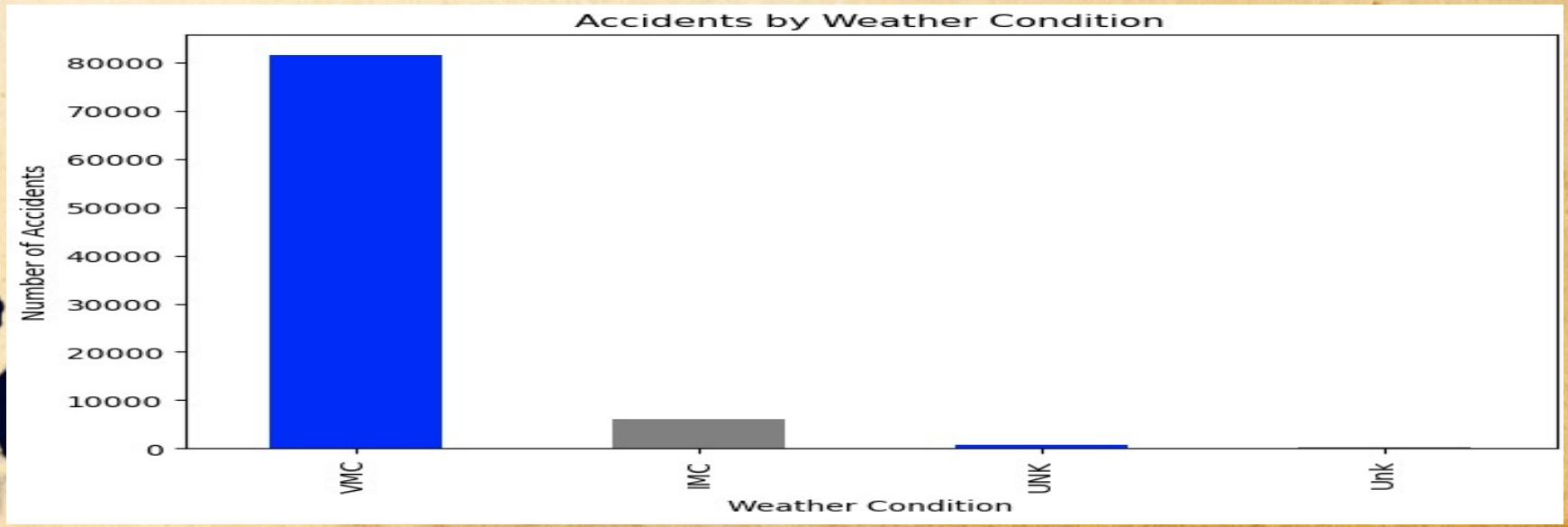
Approach:

- Filter accidents occurring in poor weather.

- Identifying models disproportionately involved in weather-related incidents.

Outcome:

- Most planes have accidents during VMC hence choosing a aircraft that has a lower accident number during vmc can be a best approach



Accident Phase Matters

- **Focus:**

  - Accident frequency during each phase

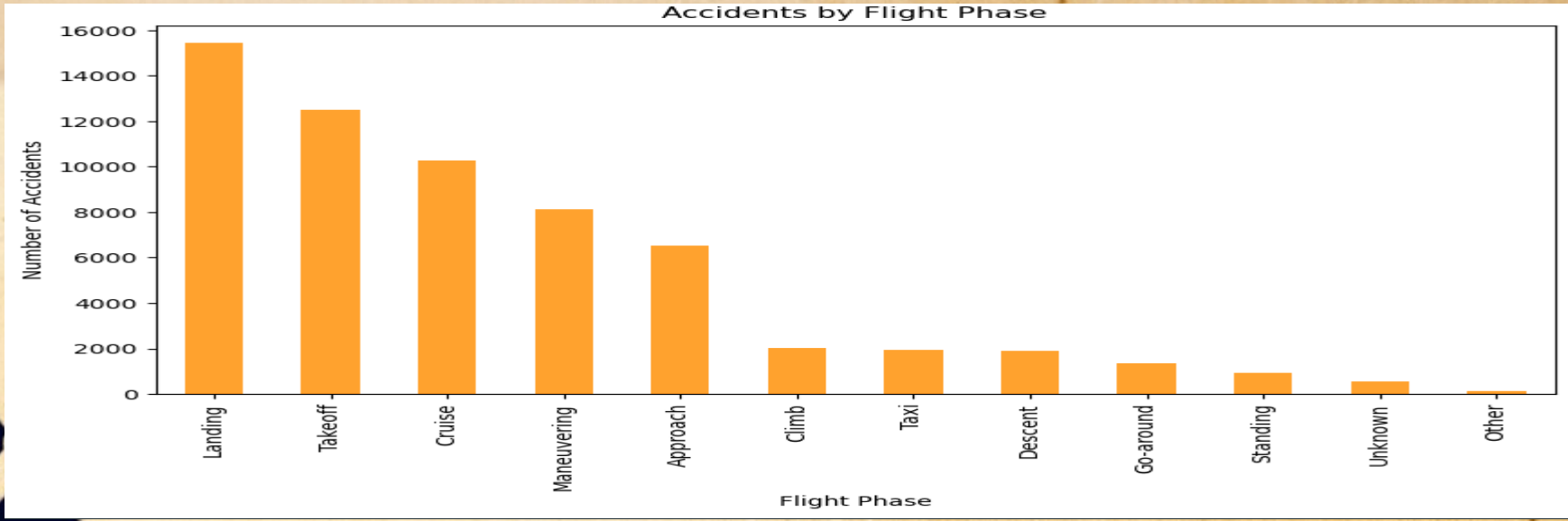
- **Approach:**

  - Analyze accidents by phase of flight.

  - Identifying aircraft with higher rates of incidents in these phases.

- **Outcome:**

  - Many planes have accidents during the landing phase hence this could be caused by design issue



Next Steps

- Share finalized analysis and insights with stakeholders.
- Highlight aircraft models that meet safety and reliability criteria.
- Provide a comprehensive recommendation report for purchase decisions.
- Offer ongoing support for implementation and further risk assessments.