Assessing Aircraft Risk Factors for Strategic Acquisition

Actionable Insights for Low Risk aircraft Selection

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Objectives:

- 1. To identify low-risk aircraft models that meet the company's needs for safety and operation
- 2. Understand why some aircraft models are riskier than others
- 3. Provide the best suggestions on which aircrafts the company should consider buying

Key Risk Factors In Aircraft Operations

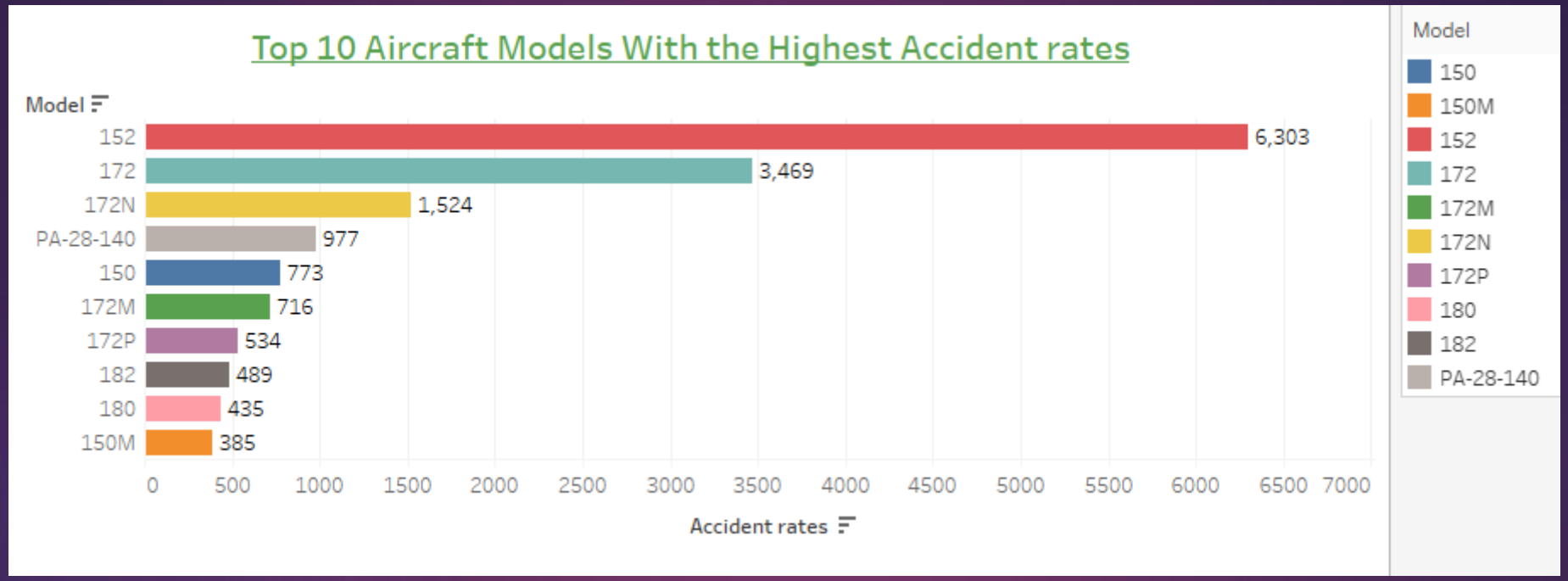
1. Component Failure – such as the engines and if not detected early it may lead to accidents

2. Weather Conditions which may cause poor visibility leading to accidents

3.Human Factors such as pilots making errors may also be a mojor contributor

Data Visualization

1.Top 10 Aircraft Models With The Highest Accident rates

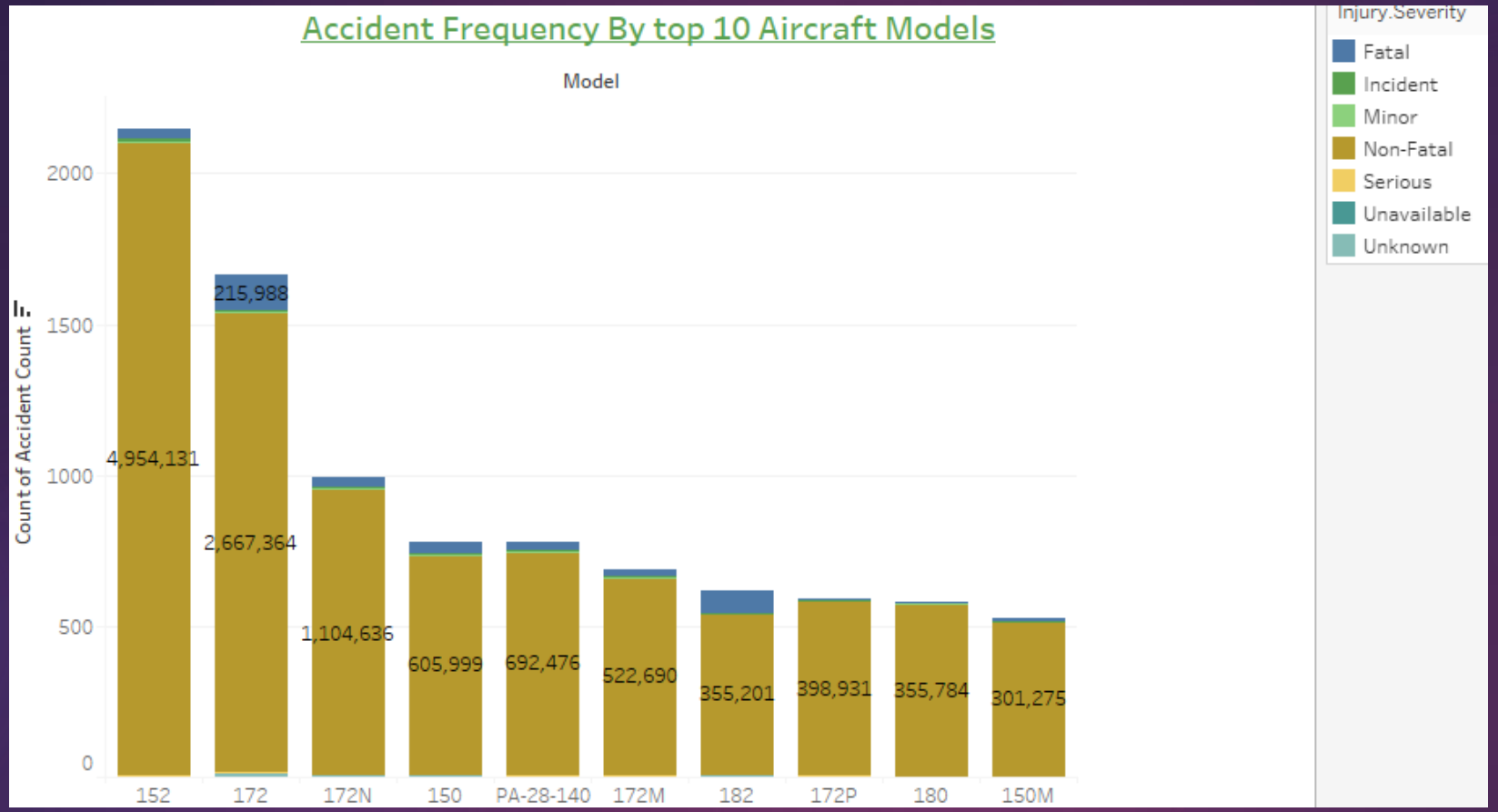


- From the above Visual we can conclude that:

    1. Model 152 has the highest accident rates with a count of 6,303 thus unsuitable for purchase

    2. Model 150 M has the Lowest accident rate with a count of 385 which might be considered for purchase

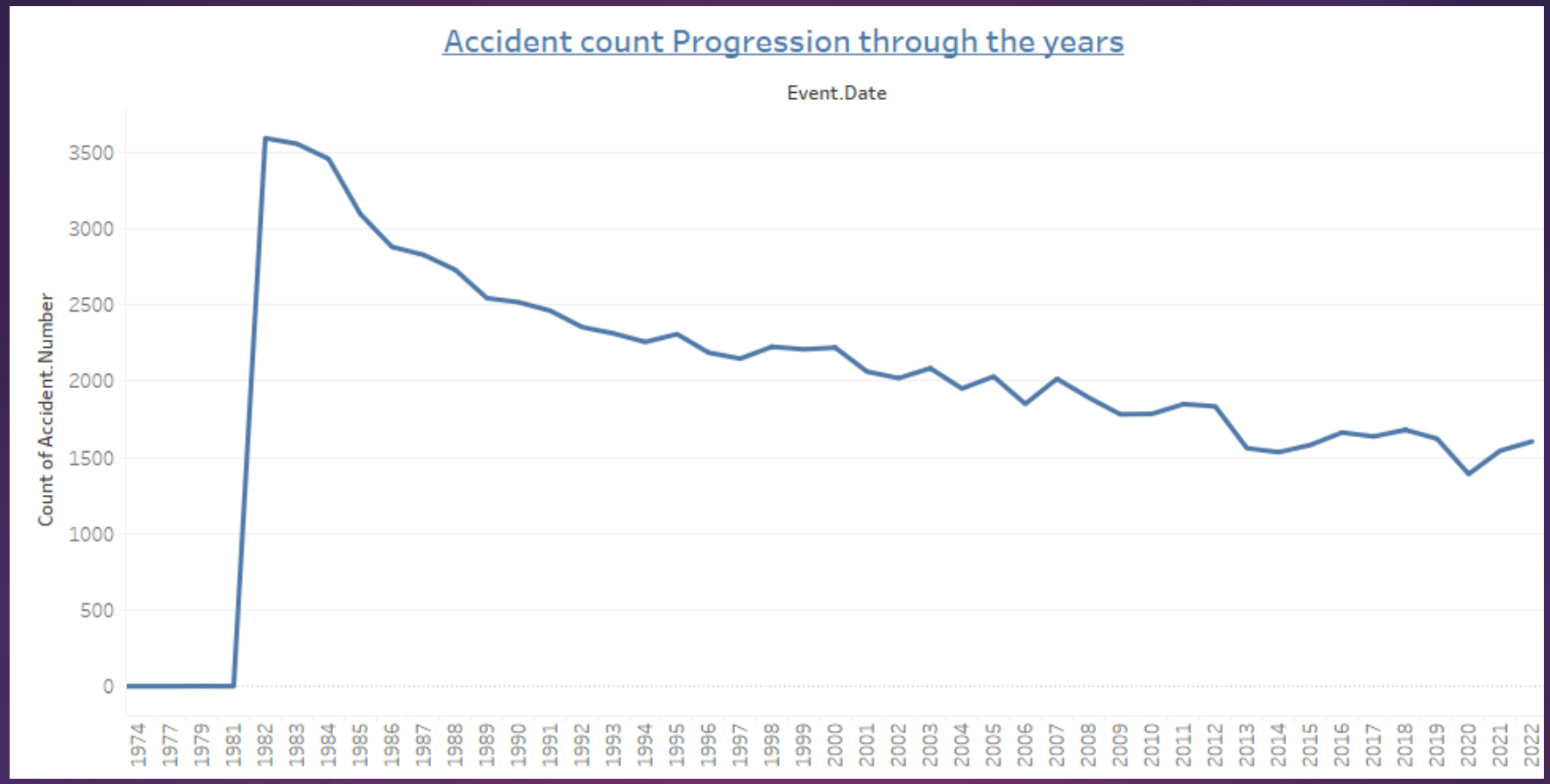
2. Accident Frequency by Top 10 Aircraft Models



- From the Above Visual we can draw the conclusion that:

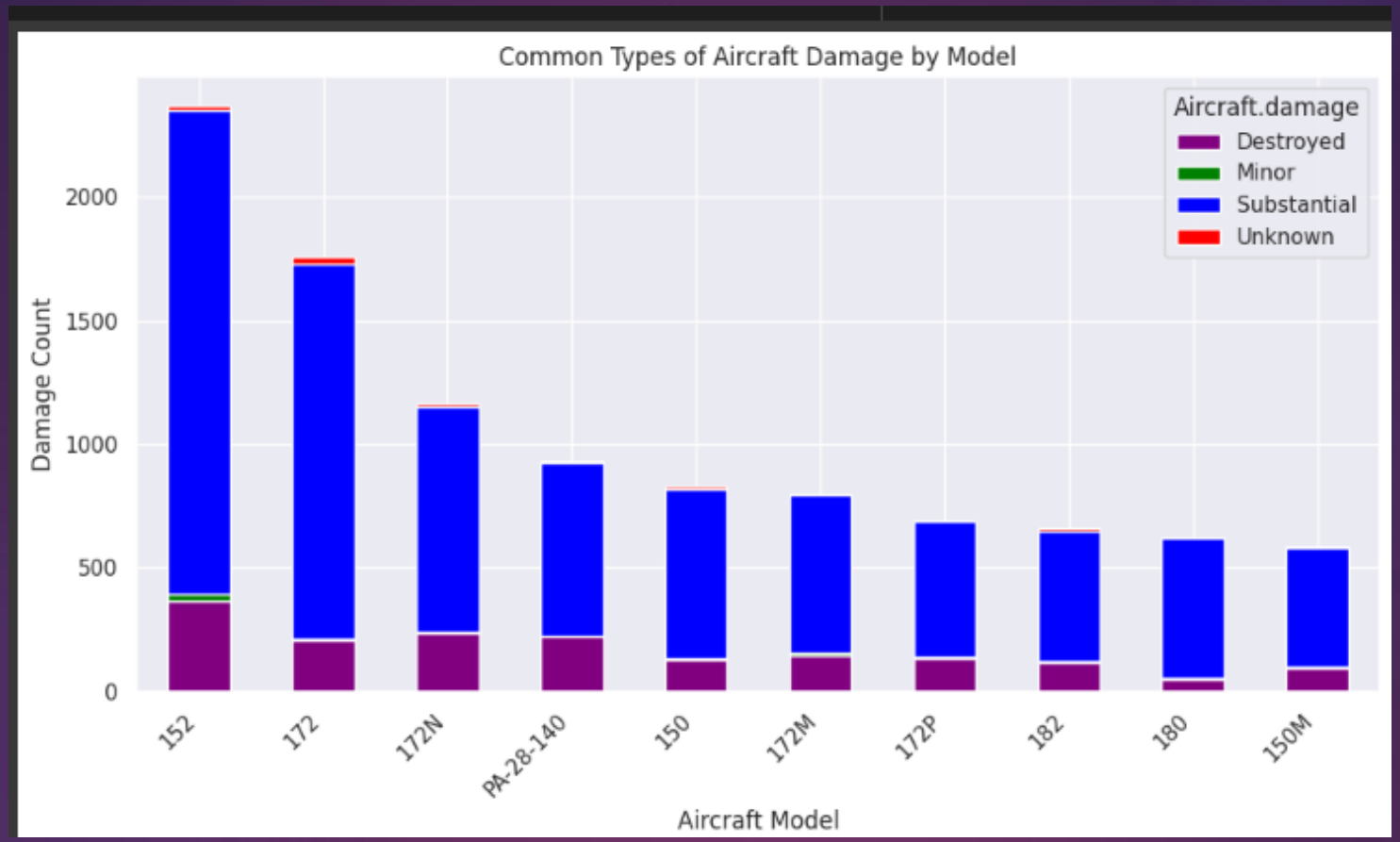
1. Model 172 and 182 have the Highest Fatal Injuries meaning the Aircrafts would be a liability if considered for commercial use.
2. Although Model 152 Had the Highest accident count the injury severity was non fatal and still registered the highest non fatal injuries

3.Accident Count Progression through the years



- From the Above Line graph we can see that:
    1. From the previous years till 1981 the accident count was so low however from the year 1982 it sky-rocketed then started declining again towards the year 2022

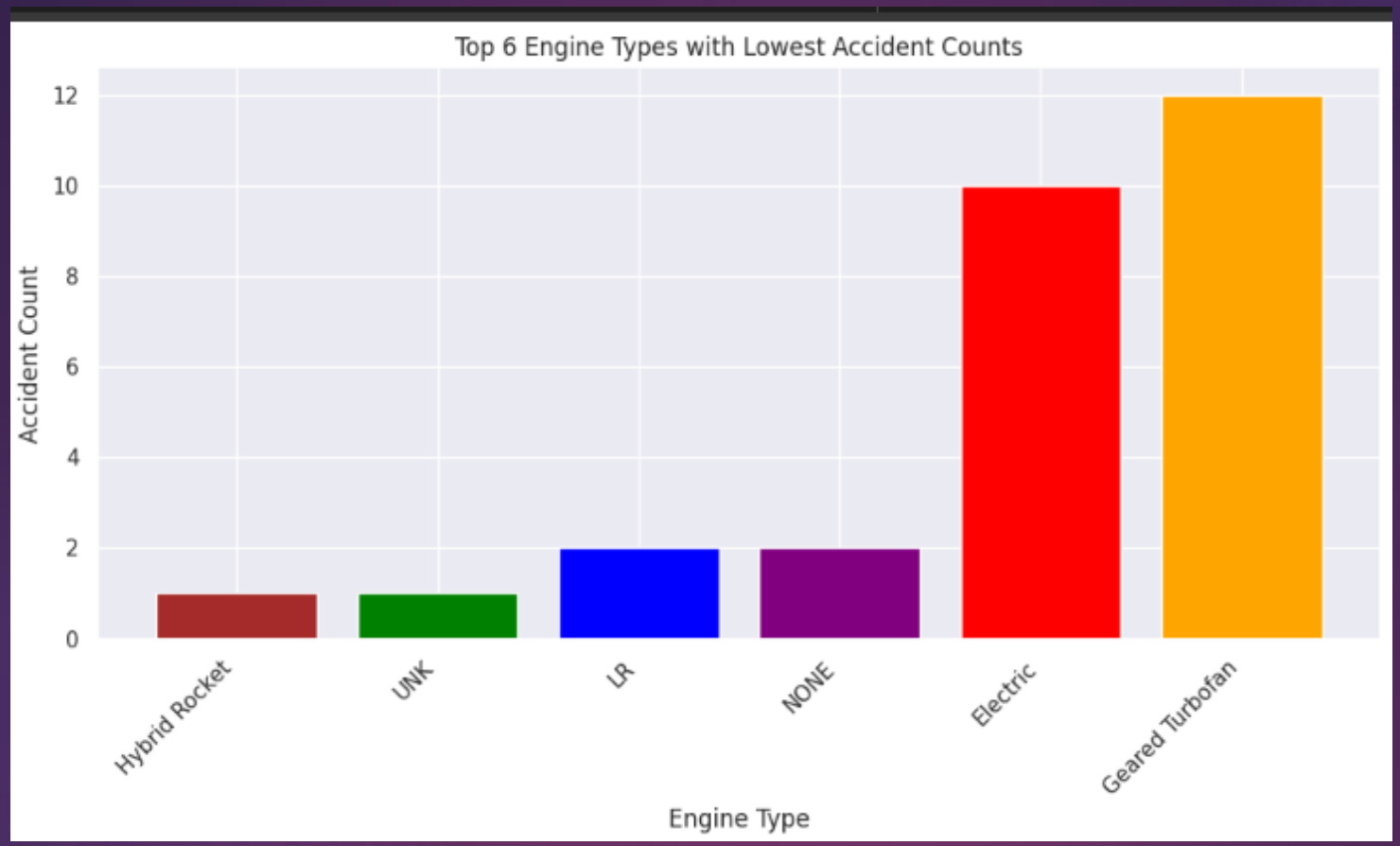
4.Common Types of Aircraft Damage by Model



- From the Above bar graph we see that Most Air craft Models had Substantial Aircraft damage while very few were completely destroyed.

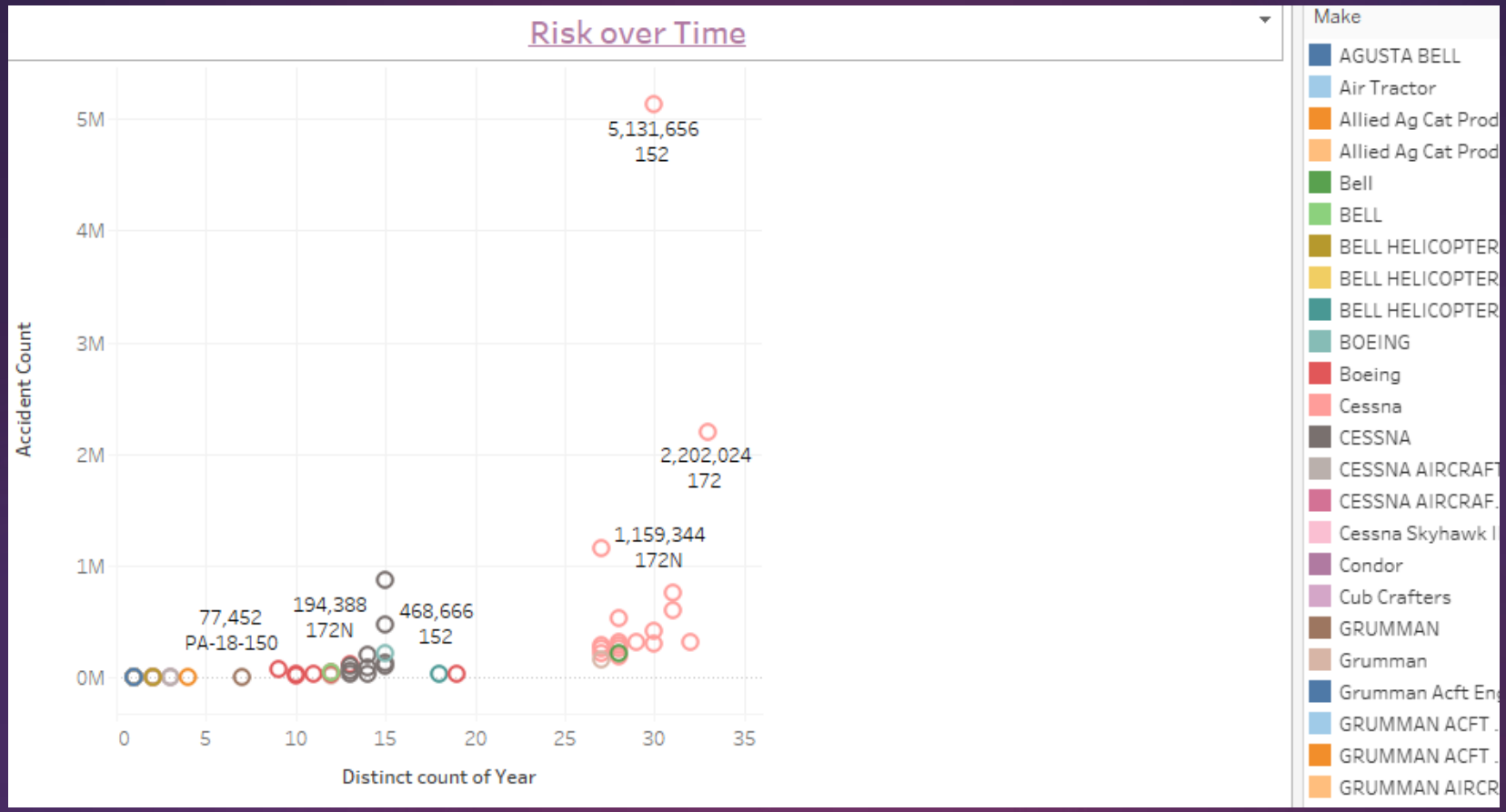
- Model 152 still registers the highest number of destroyed Aircraft showing that Purchasing that Model would be a risk to the business

5.Engine Types with Lowest Accident Count



- We get to see how different engines in the Aircraft Models related with Accident count
- Geared Turbofan engine Aircrafts had the Highest Accident count though with substantial damage
- Hybrid Rocket engine Aircrafts had the lowest Accident count though upon having an accident they were completely destroyed

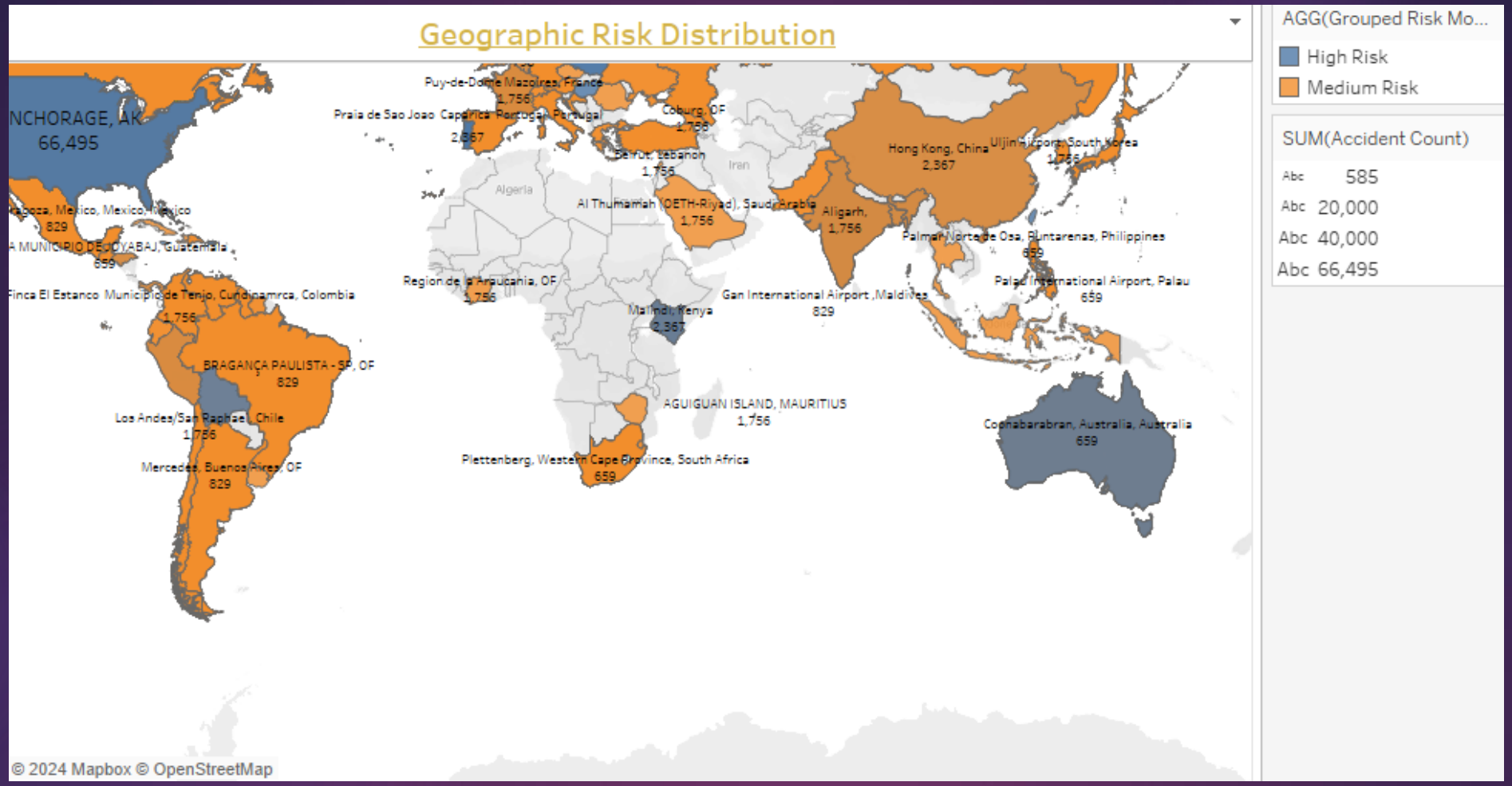
6. A scatter plot showing Risk Over Time



- From the Scatter Plot we see that those Aircraft Models that have been operational for a longer period (**Higher distinct count)** have a higher accident count.

- Certain Models such as the 172N displays varying accident totals across different years which suggests higher risk.

7.Geographic Risk Distribution



- From the Geographic Distribution we note that areas such as the U.S have a higher risk distribution.
- Areas such as Europe have Medium Risk distribution

Conclusion and Recommendation

Conclusion and Aircraft Purchase Recommendation

- - Based on Risk Analysis we can conclude that Aircraft Model 152 and 172 are associated with higher accident count, conversely, 180 and 150M appear safer

- - For the geographic Risk regions with higher accident counts such as the U.S may require additional investigation or cautious operations . The higher accident count might e due to bad weather

- - I would recommend that we prioritize purchasing and operating aircraft models with the lowest accident rates such as the 180 model

- - Focus on regions with lower historical risks such as the European Regions

- - Update Risk assessment with Newer datasets or operational insights

- - Older Engine type Aircrafts are a bit risky and require more maintenance hence unsuitable for Purchase

Q&A SESSION


Thank You
Q&A