Aviation Risk Analysis

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Summary

Descriptive analysis of Aviation Accident data reveals potential risks of purchasing and operating airplanes for commercial and private enterprises:

- Purchase of Cessna, Piper, Beech, Boeing and Mooney airplanes accounts for an average accident of 88.2%.
- Operation of airplanes during IMC weather condition accounts for a risk score of 43.5% while in VMC condition it 16.8%.
- The average risk has been reducing over the years.

Outline

- Business Understanding
- Data Understanding
- Data Analysis
- Recommendations
- Next
- Thank You

Business Problem

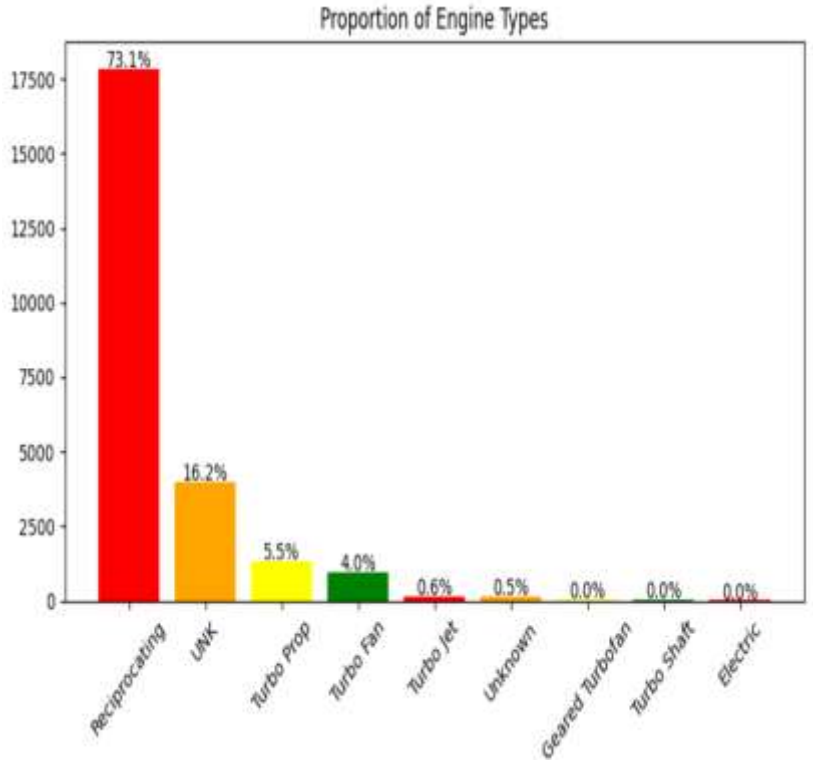
- Make and Model to Purchase
- Best Operational Conditions
- Risk trend over the years

AVIATION

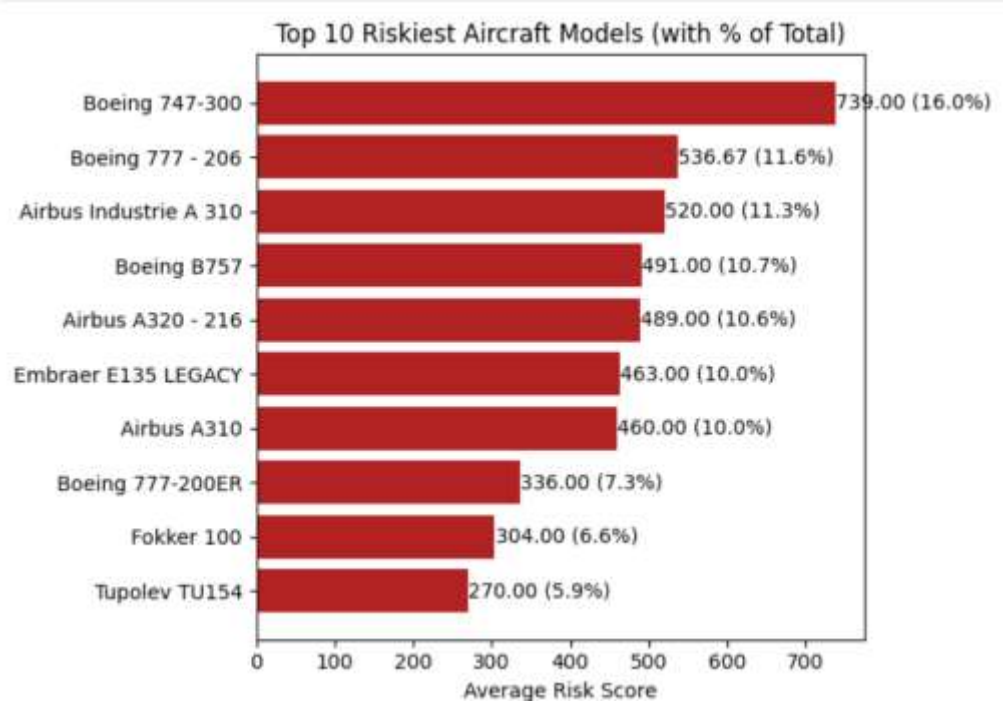
Data & Methods

- The dataset comprises 90,348 entries reduced to 32,287 entries after filtering out non-airplane categories and non-amateur values from 1962 to 2023.

- Includes accident details with a description of the airplanes such as make, model, weather condition, engine type ….

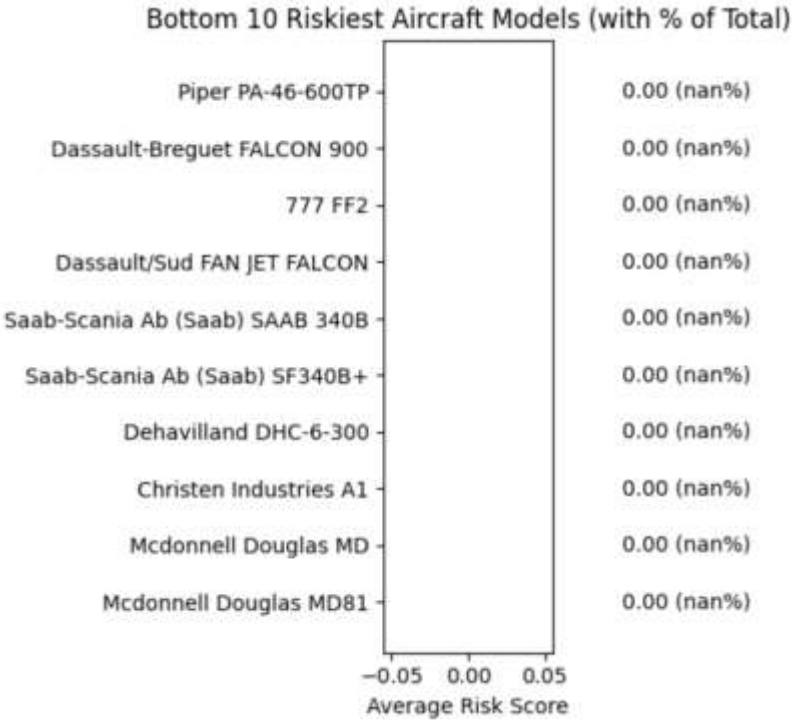


Results



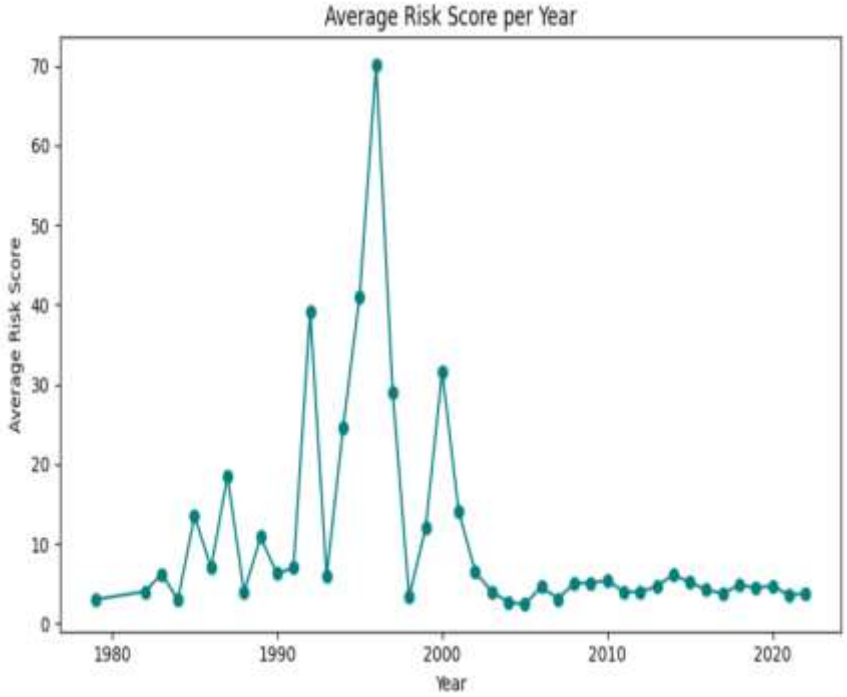
- Riskiest make/model is Boeing 747-300, with an average risk of 16%.

Results



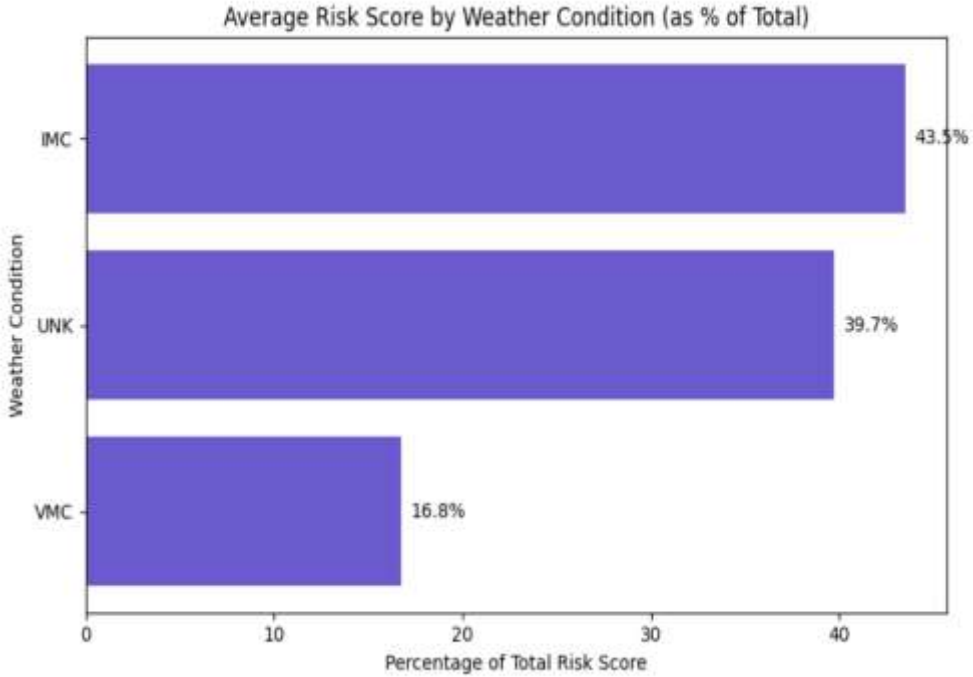
- Recommended models are as shown, with Piper, Dassault, Saab-Scania Ab (Saab), Mcdonnell Douglas being safer.

Results



- Investment in aviation industry now makes more sense than in the years before because of the advancement in technology and a relatively declining trend.

Results



- VMC weather condition is the best for operations compared to IMC with a risk score of 16.8%

Conclusions

- Purchase the make and models with the least risk score to minimize risk.
- Purchase of airplanes with reciprocating engines is largely discouraged, with a whooping risk score of 73%
- Encouraged operations are during the VMC weather condition.

Next steps:

- Incorporate number of flights to get:

1. The ratio of accidents to the number of flights
2. Understand the most preferred airplane and why

Questions

- Any Questions?

Thank You!

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