

AIRCRAFT RISK ANALYSIS

PRESENTATION
DAVID AMOS MNENE

OVERVIEW

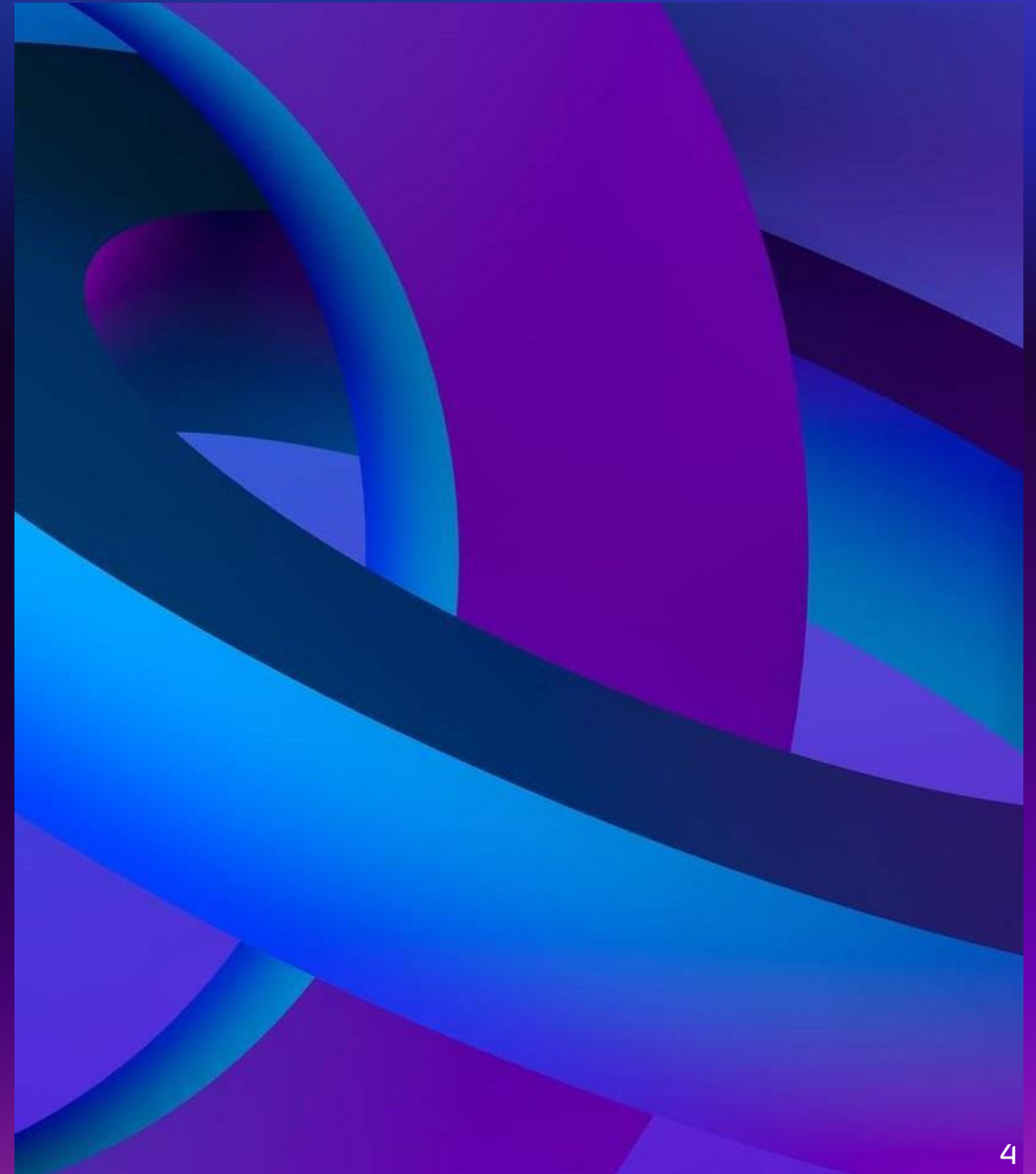
- This project investigates aircraft accident data to determine the lowest-risk aircraft models for a company looking to expand into the aviation industry.
- The analysis aims to support data-driven decision-making when purchasing aircraft for commercial and private operations.

UNDERSTANDING THE DATA

- THE DATASET IS FROM THE NATIONAL TRANSPORTATION SAFETY BOARD THAT INCLUDES AVIATION ACCIDENT DATA FROM 1962 TO 2023 ABOUT CIVIL AVIATION ACCIDENTS AND SELECTED INCIDENTS IN THE UNITED STATES AND INTERNATIONAL WATERS.
- I SHALL ANALYZE AND USE THE DATA TO MAKE ACTIONABLE INSIGHTS TO AID IN THE AIRCRAFT PURCHASE DECISION

DESCRIPTION OF THE DATA

- ORIGINAL DATASET:
90,348 ROWS AND 31 COLUMNS.
- CONTAINS
INFORMATION ON
ACCIDENT DATE,
AIRCRAFT
MAKE/MODEL,
PURPOSE OF FLIGHT,
INJURY SEVERITY,
WEATHER CONDITIONS,
AND MORE.



KEY BUSINESS ANALYSIS QUESTIONS

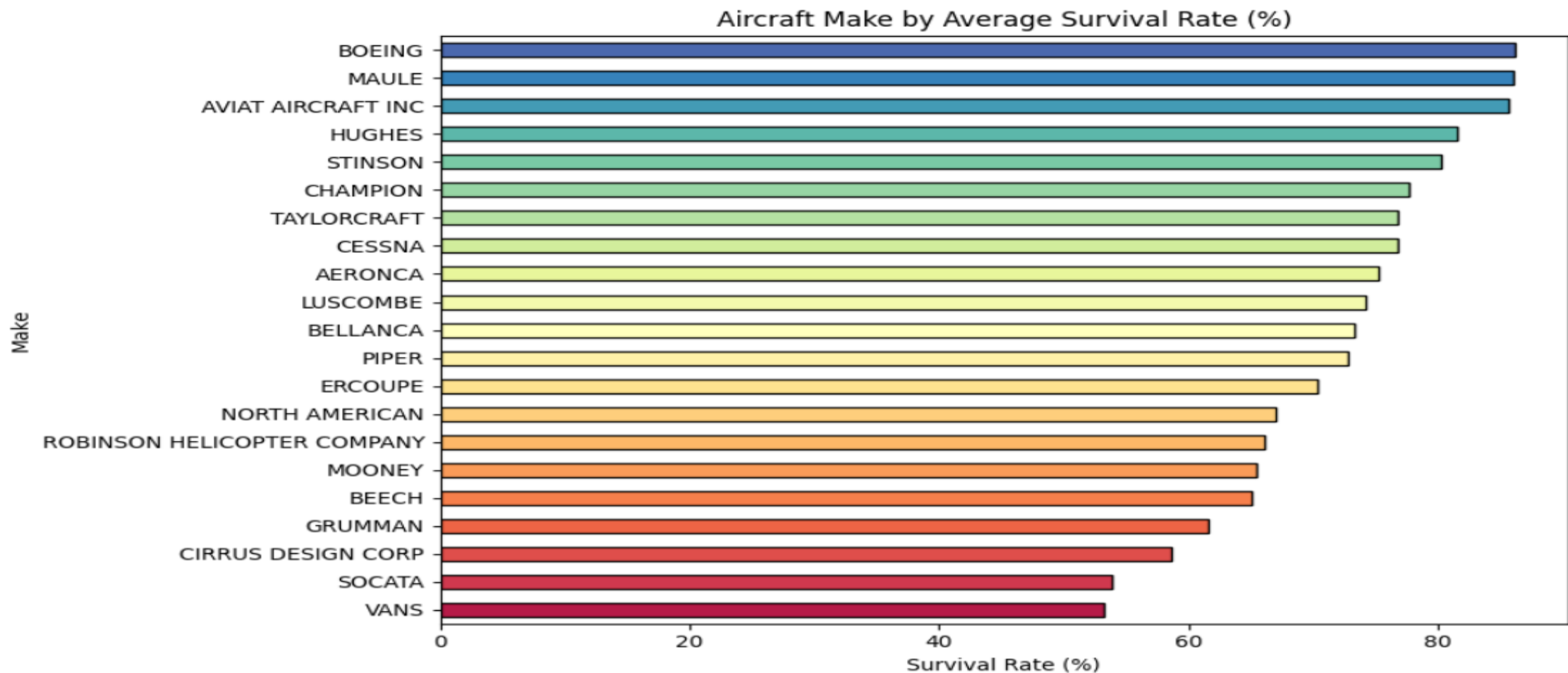
- What aircraft make and models have a low risk?
- What aircraft category and flight purpose have a low risk?
- What environmental or conditions are correlated with less risk?

ANALYSIS METHOD

- Focused on the columns: Total Fatal Injuries, Total Serious Injuries, Total Minor Injuries, Total Uninjured, Injury Severity, Survival rate and Damage rate.
- The above columns were used determine a safety score through a method called composite indicator development by normalizing a scale metric to combine the several metrics needed to determine if an aircraft has lower risk or not.

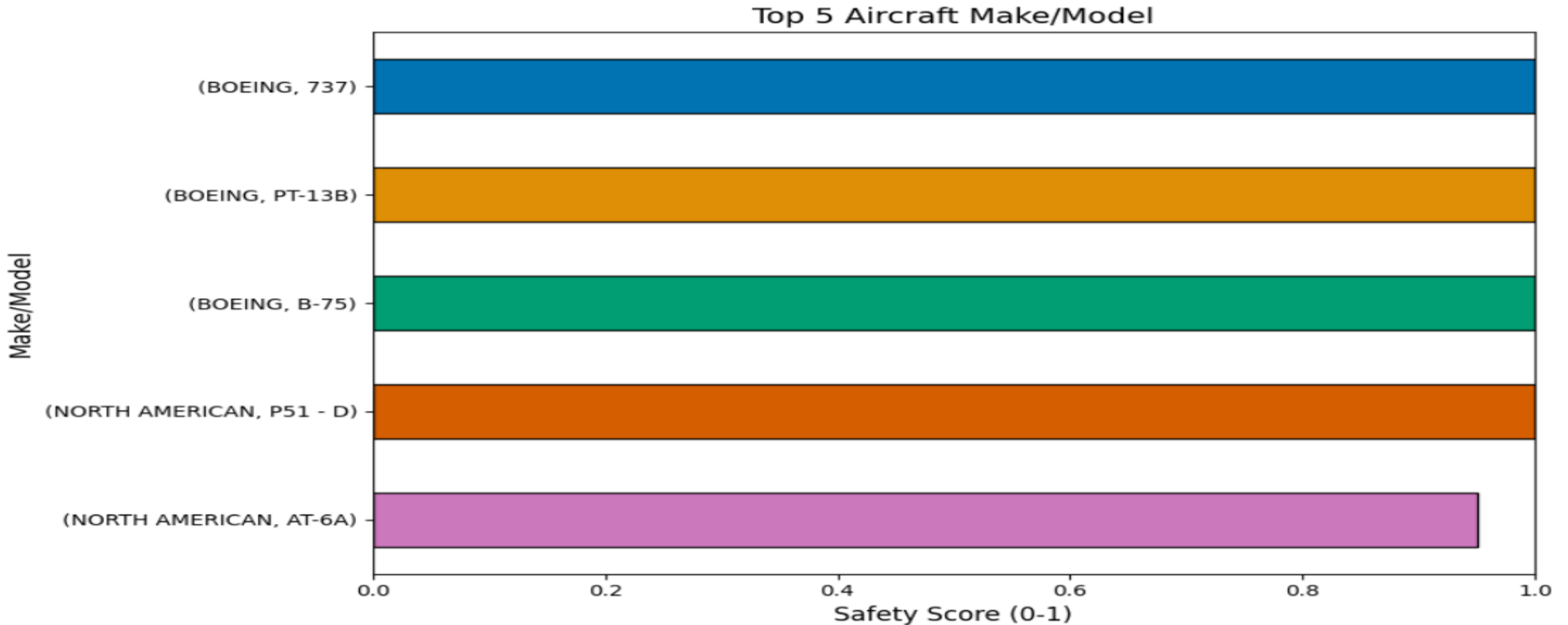
AIRCRAFT MAKE SURVIVAL RATE

A BAR CHART SHOWING THE AIRCRAFT MAKE CATEGORIZED BY THE CALCULATED SURVIVAL RATE.



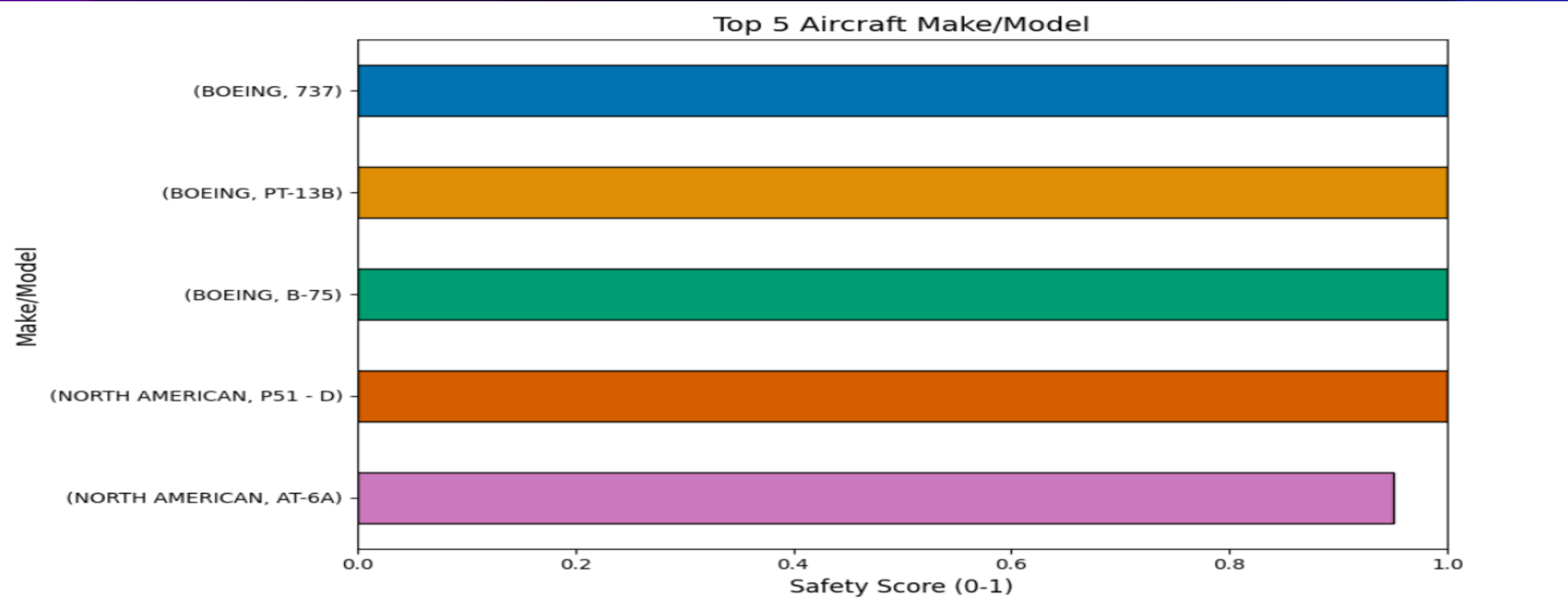
TOP FIVE AIRCRAFT MAKES MODEL

A HORIZONTAL BAR CHART IDENTIFYING MAKE/MODEL WITH THE HIGHEST
NUMBER OF SAFETY SCORE.



TOP FIVE AIRCRAFT CATEGORY/PURPOSE

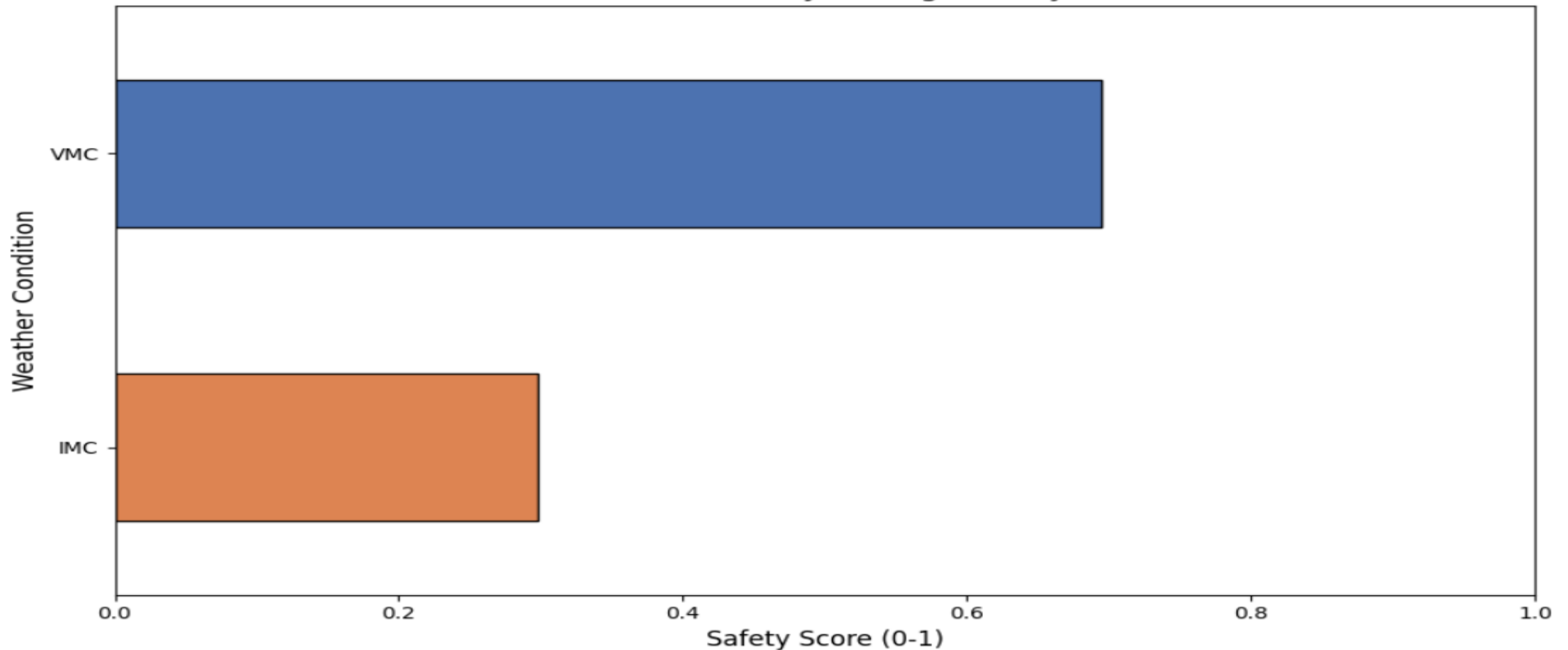
A HORIZONTAL BAR CHART IDENTIFYING CATEGORY/PURPOSE WITH THE HIGHEST
NUMBER OF SAFETY SCORE.



WEATHER CONDITION IMPACT

A HORIZONTAL BAR GRAPH OF THE SAFETY SCORE RELATION TO THE TWO WEATHER CONDITIONS, VMC (VISUAL METEOROLOGICAL CONDITIONS) VS IMC (INSTRUMENT METEOROLOGICAL CONDITIONS).

Weather Condition by Average Safety Score



RECOMMENDATIONS

- Low Risk Aircraft Makes: Certain makes (e.g., Boeing and Aviat Aircraft Inc) have a higher safety score, hence lower risk.
- Top Aircraft Category/Purpose of flight: Airplane categories and personal/business purpose of flights has the highest safety score, hence lower risk.
- Weather Impact: Most accidents occurred in VMC conditions, indicating pilot error or mechanical failure may be greater contributors than weather alone.

THANK YOU

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QUESTIONS AND ANSWERS ARE WELCOMED