AVIATION PROJECT ANALYSIS

BRIAN KIMATHI M
machingabrian@gmail.com

Overview

- This project evaluates aviation accident data to identify risk patterns
- Focus: Help stakeholders decide which aircraft types are safest to invest in

Business Understanding

- **Problem:** Company is expanding into aviation but lacks risk visibility
- **Goal:** Identify low-risk aircraft types and risky flying conditions

Business Questions

1.Which aircraft types are most involved in fatal accidents?

2.Which flight phases pose higher risks?

3.How does weather and time affect accident severity?

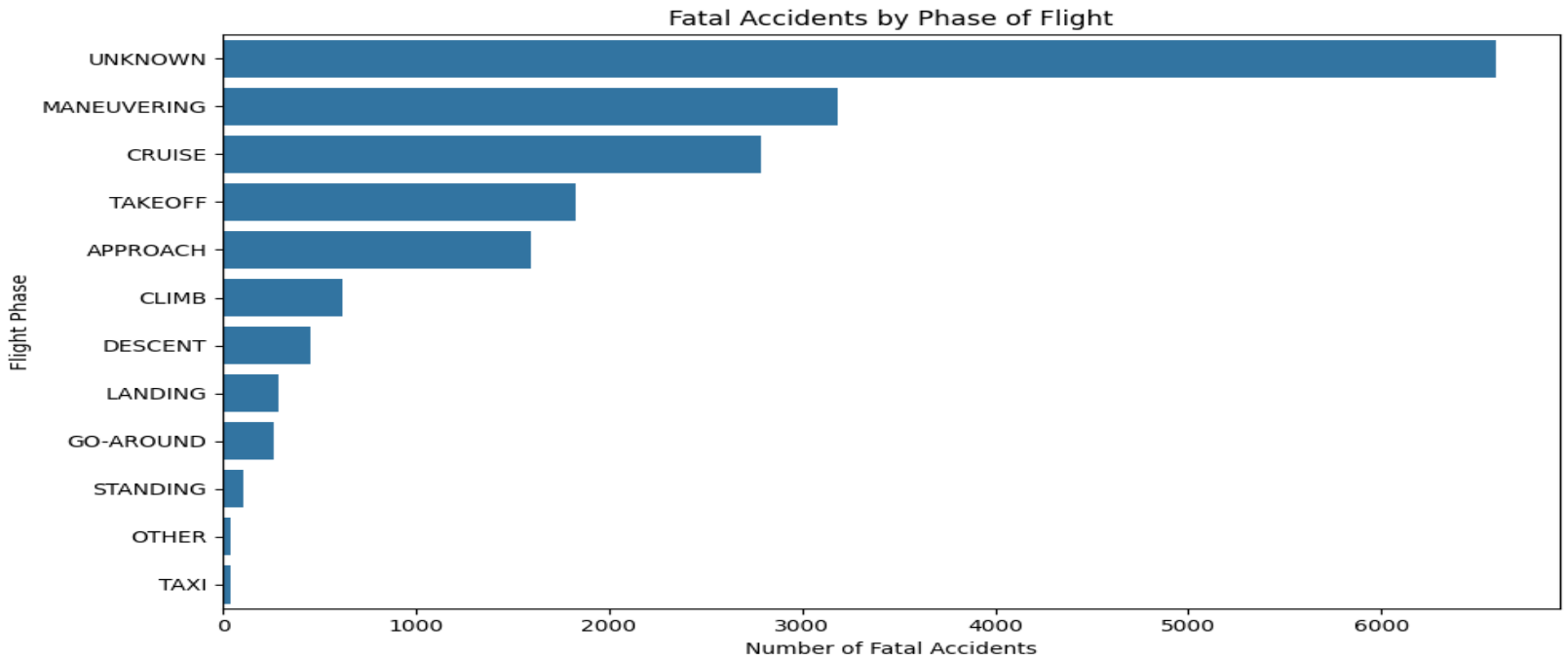
Data Understanding

- The data used 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.

Data Analysis

- The data as cleaned (i.e.; the columns were standardized , rows with null values(empty) were removed and duplicate values were removed)
- The data analysis made use of python(pandas, seaborn, matplotlib)
- Visualizations to represent the data

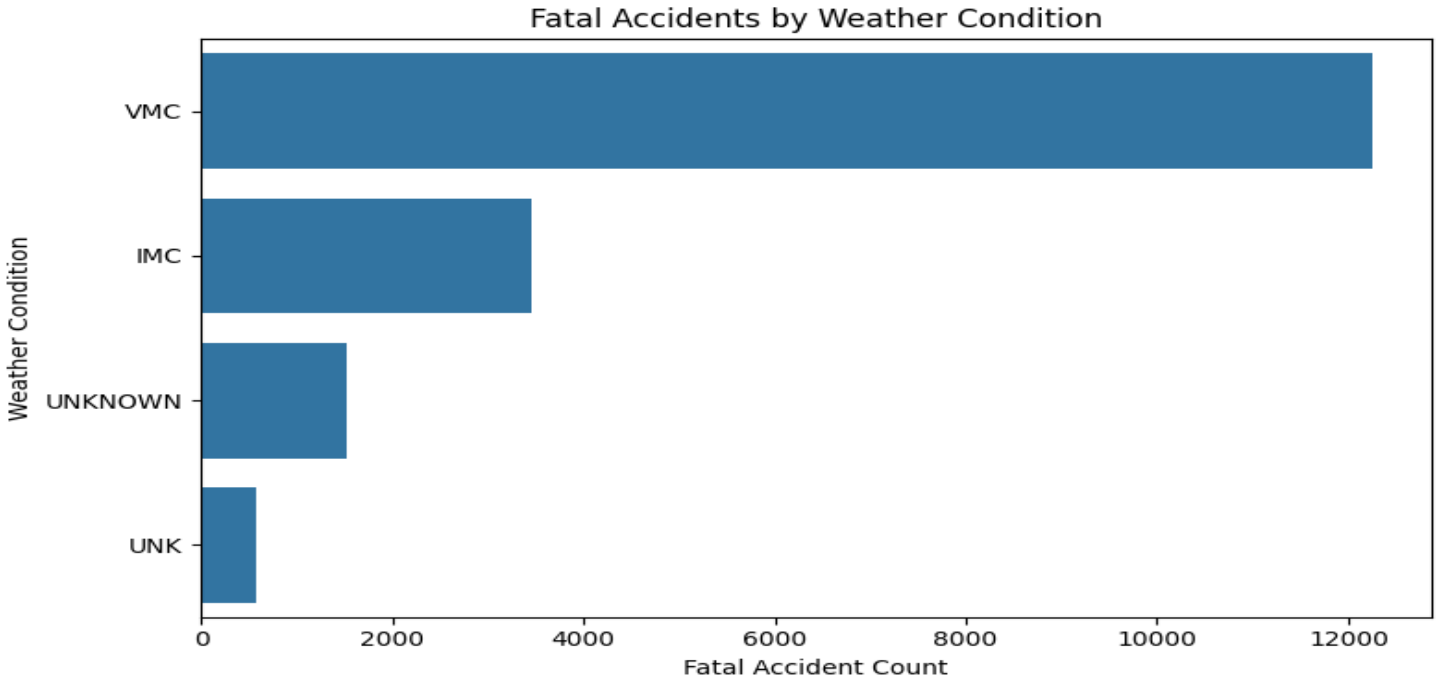
Fatal Accidents by Phase of Flight



Insights:

- UNKNOWN phase dominates — data quality issue
- MANEUVERING has the most known fatal accidents
- CRUISE and TAKEOFF also show high fatality rates

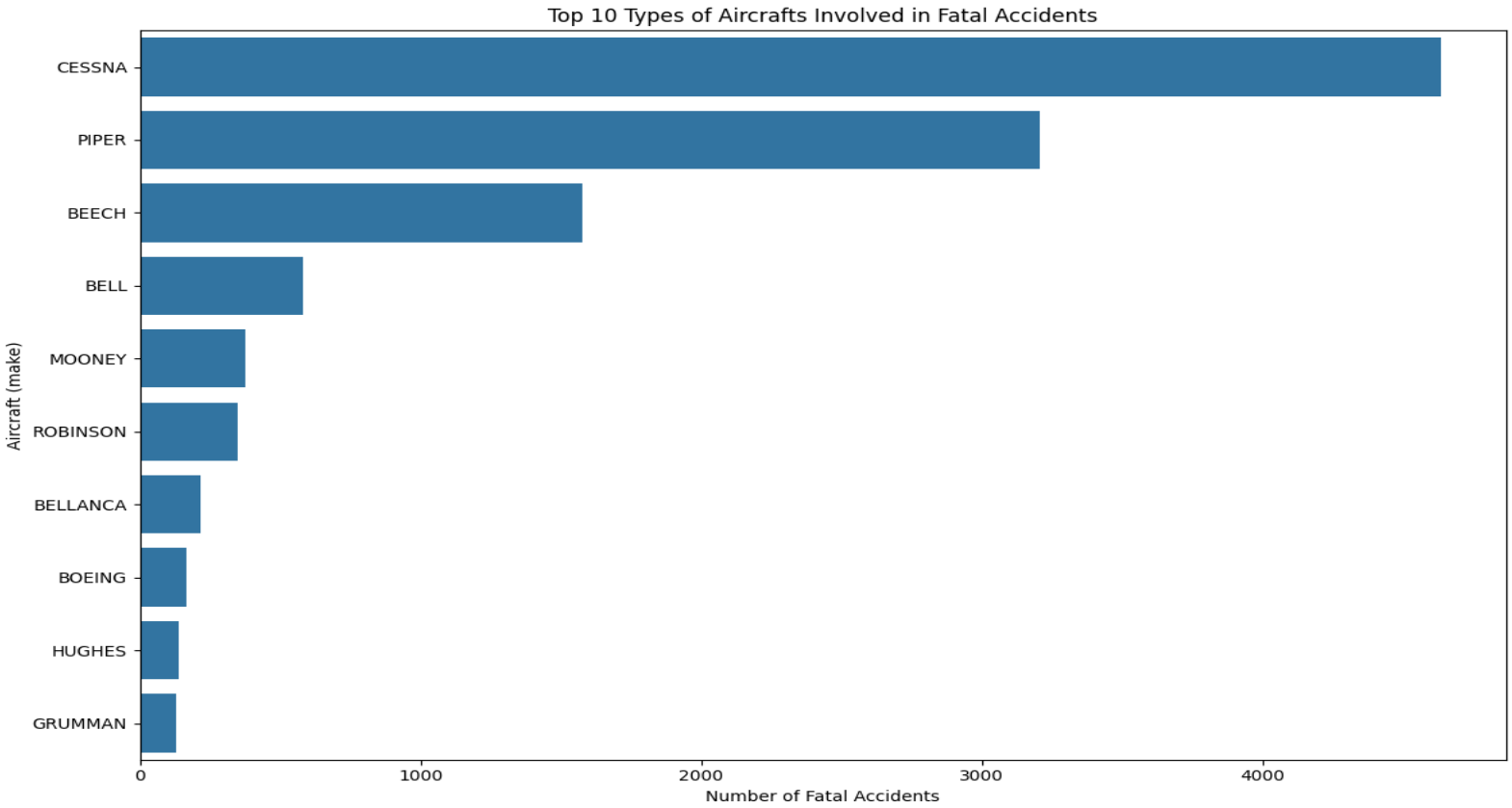
Fatal Accidents by Weather Condition



Insights:

- Most fatal accidents occur in VMC (clear weather)
- IMC also poses significant risk
- UNKNOWN weather data is still present

Top Aircraft Types in Fatal Accidents



Insights:

- CESSNA, PIPER, and BEECH dominate fatal accident counts
- These are common general aviation makes
- Commercial makes like BOEING appear less

Business Recommendations

- Acquire new planes therefore avoiding high usage frequency planes prone to accidents
- Pilot training programmes to be given more attention as it affects their decision-making skills in both good and bad conditions
- Invest highly in safety measures of the new airline business as this has played a key role in reducing accidents occurrence over the years

THANK YOU!

- Any question is welcomed..