Aviation Risk Analysis: Non-Technical Presentation

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Project Overview

- Our company is diversifying into aviation.
- Goal: Identify the lowest-risk aircraft to purchase.
- Data: Aviation accident records (1962–2023) from the National Transportation Safety Board (NTSB).

Business Understanding

Key Questions:

- 1. Which aircraft models have the lowest accident rates?
- 2. What factors contribute most to severe accidents?
- 3. Are there specific conditions that lead to more accidents?

Data Understanding

- • Dataset includes over 90,000 aviation accidents.
- • Key features: Aircraft Type, Weather, Phase of Flight, Injury Severity, Flight Purpose.
- • Missing data was cleaned using dropna() and imputation.
- • Columns were renamed, transformed, and standardized for clarity.

Data Analysis

- • Aircraft types with fewest accidents were identified.
- • Visualizations explored severity, conditions, and trends.
- • Severe accidents are often linked with:

  - Bad weather

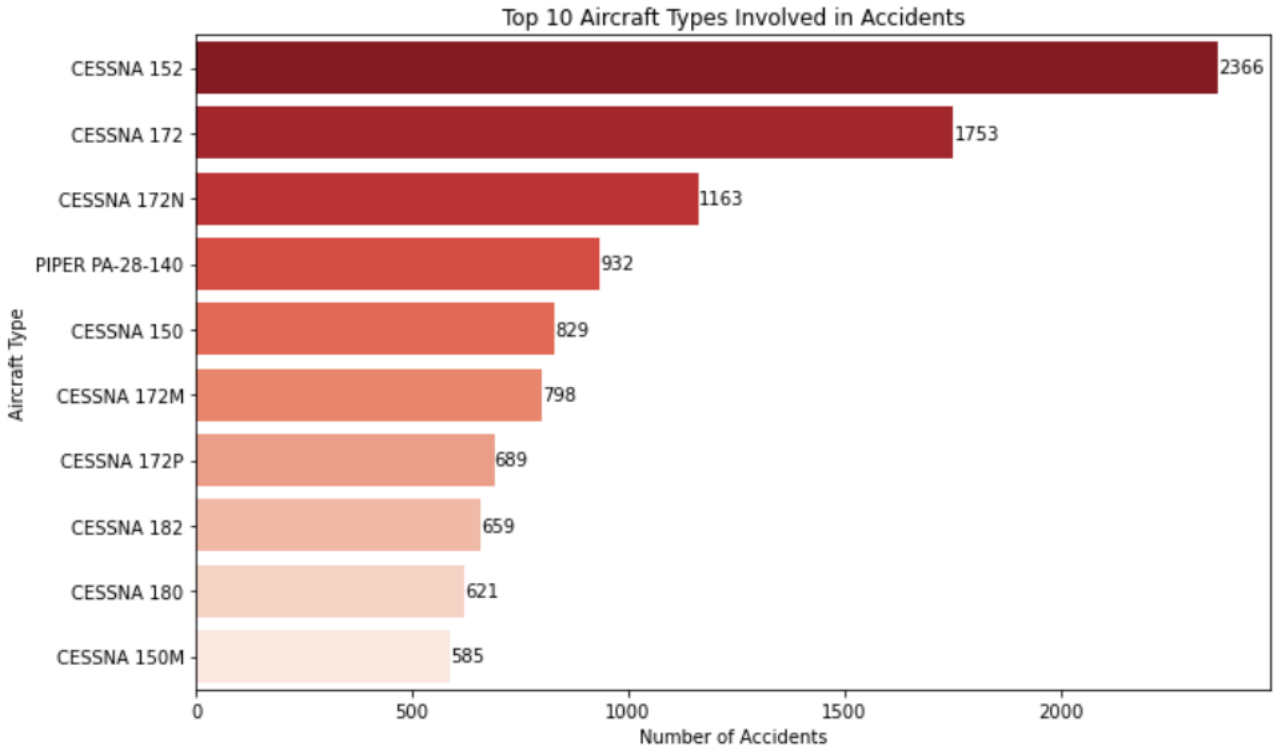
  - Personal/instructional flights

  - Substantial damage

- • Trend: Decrease in accidents over time.

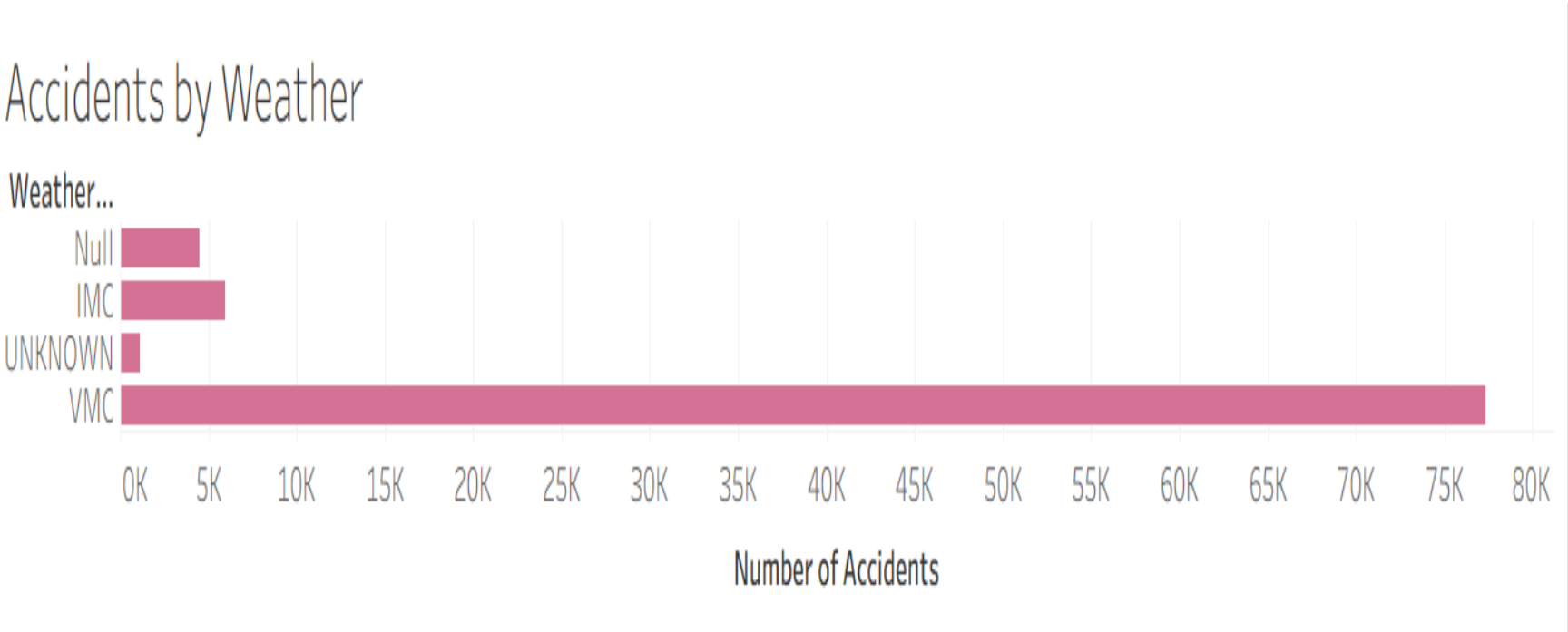
Business Recommendation 1

- • Invest in aircraft types with a strong safety record.
- • E.g., Aircraft Type **CESSNA 150M** showed the lowest rate of incidents.



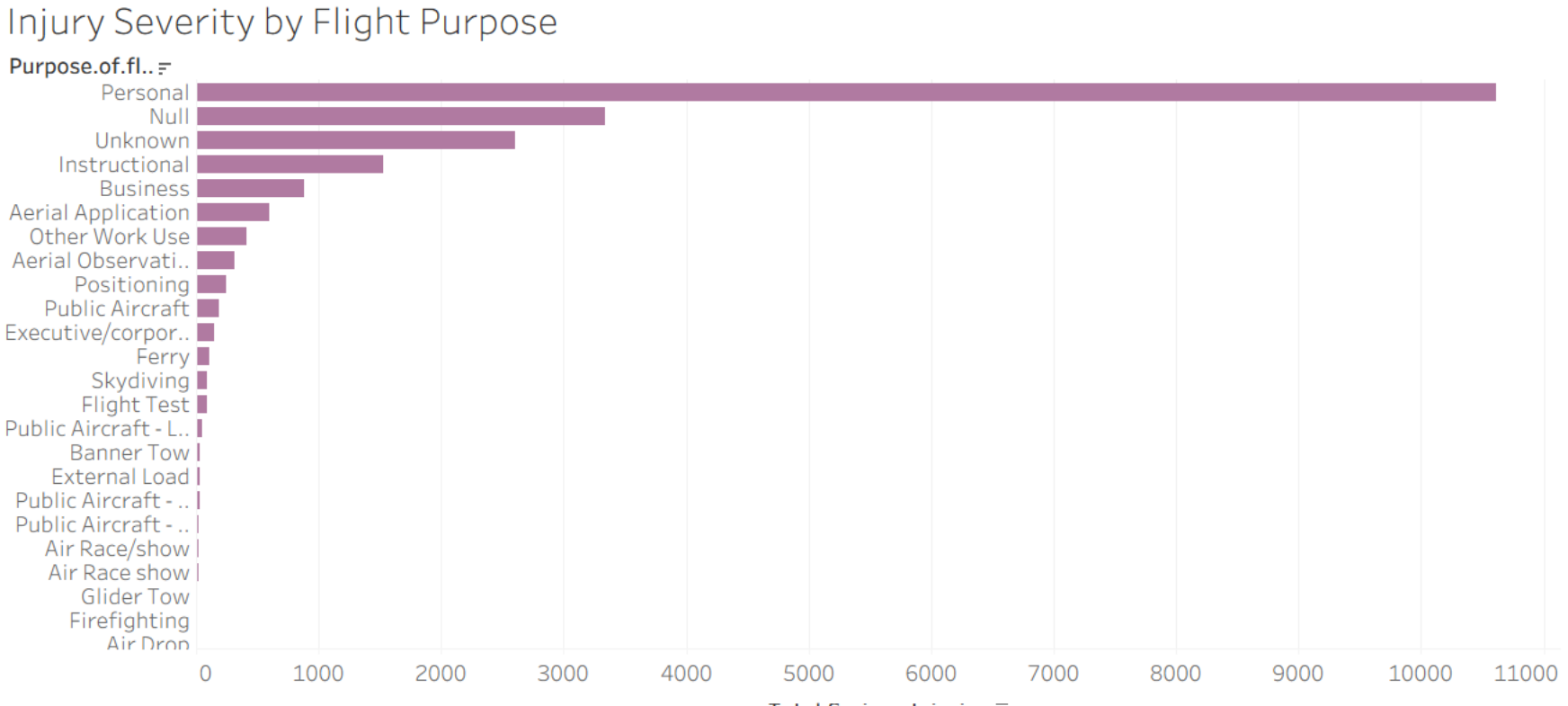
Business Recommendation 2

- • Avoid risky flying conditions.
- Poor weather increases the likelihood of severe accidents.



Business Recommendation 3

- • Focus on commercial/business aircraft.
- • Personal/instructional flights are riskier.



Next Steps

- • Build a Tableau dashboard for real-time insights.
- • Conduct deeper analysis on manufacturer-specific trends.
- • Assess maintenance and operator history in future phases.

Thank You

- Questions?
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