Analysis of Aviation Accident Data (1962–2023)

Identifying Trends and Insights for Improved Safety

Summary

This is a data from 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 water

Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions

Business Problem

- Aviation incidents pose risks to passengers, crew, and operations.
- Need to identify trends and high-risk factors in aviation safety.
- Goal: Reduce incidents and improve safety protocols using data-driven insights.

Data Understanding

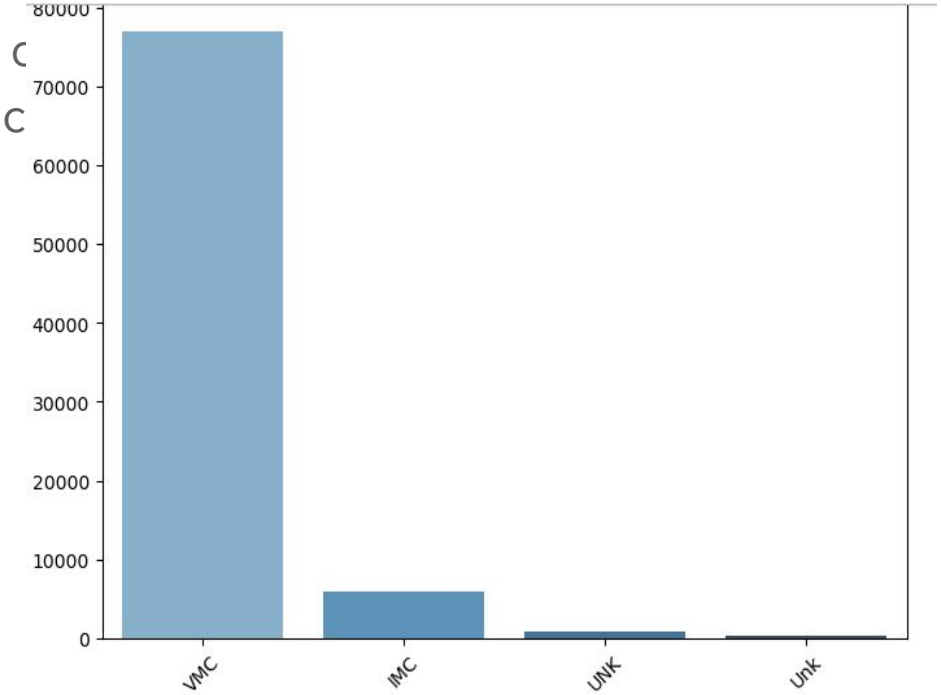
- Source: National Transportation Safety Board dataset.
- Scope: 88,889 records (1962–2023).
- Key Features:
  - Accident date, location, weather, aircraft type.
  - Fatalities and injuries.

Data Analysis

- Descriptive analysis was used to explore trends, regional risks, and the impact of weather conditions on aviation incidents.
- **Key Insights:**
  a. Trends in incidents over time
  b. Country-specific incident frequency
  c. Impact of adverse weather on incident severity
  d. Aircraft type correlation with damage severity
- These insights provide a foundation for identifying risks and opportunities for improvement.

Visualization(Weather Conditions and Incidents)

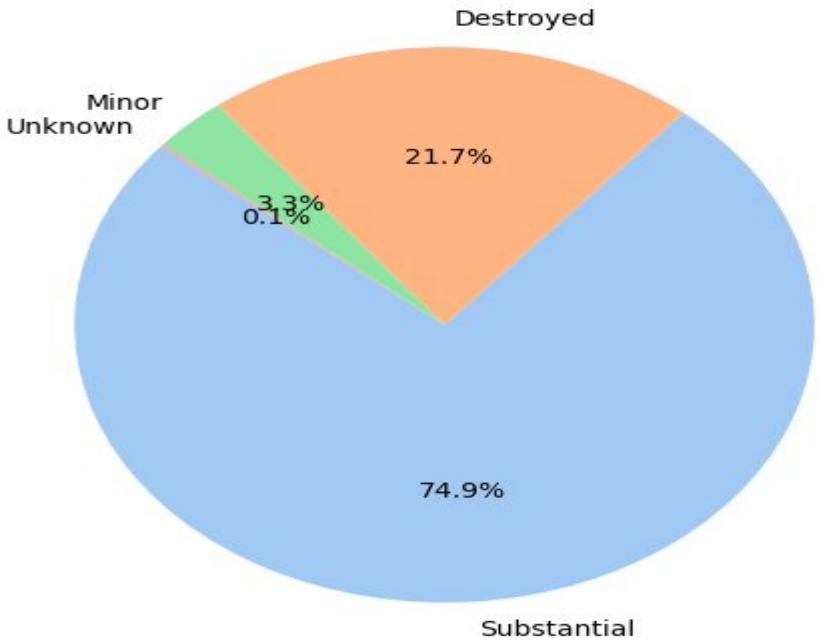
- This visualization demonstrates the c
  (e.g., fog, rain) and incident frequenc
  for adverse weather conditions.



Incident Severity By Aircraft Damage Type

- This pie chart shows the severity

  Of damage by Aircraft



Results

- **Trends**:
  - Yearly accidents peaked in the 1970s but declined due to safety improvements.
- **Severity Analysis**:
  - Most accidents resulted in low severity; weather-related conditions were often linked to high severity.
- **Geographic Insights**:
  - Accidents were concentrated near high-traffic hubs.

Conclusions

- **Recommendations**:
  - Invest in advanced weather forecasting tools.
  - Enhance pilot training for adverse weather.
  - Prioritize safety programs for frequently involved aircraft types.
- **Limitations**:
  - Missing data and reliance on historical records.
- **Future Improvements**:
  - Incorporate real-time data and predictive modeling.

Thank You!

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