pri-git25 / PHASE_1_PROJECT

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README

Aviation Safety Risk Analysis

Overview

This project analyzes 85,000+ aviation accidents from the NTSB database to identify the safest aircraft for our company's expansion into aviation operations. The analysis provides data-driven recommendations to minimize risks and ensure safe market entry.

Business Understanding

Stakeholder: Head of Aviation Division

Key Business Questions:

- Which aircraft manufacturers have the best safety records?
- What specific aircraft models offer the optimal risk-return balance?
- Which operational factors (flight phases, weather) most impact safety?
- What training and procedures will minimize accident risks?

Data Understanding

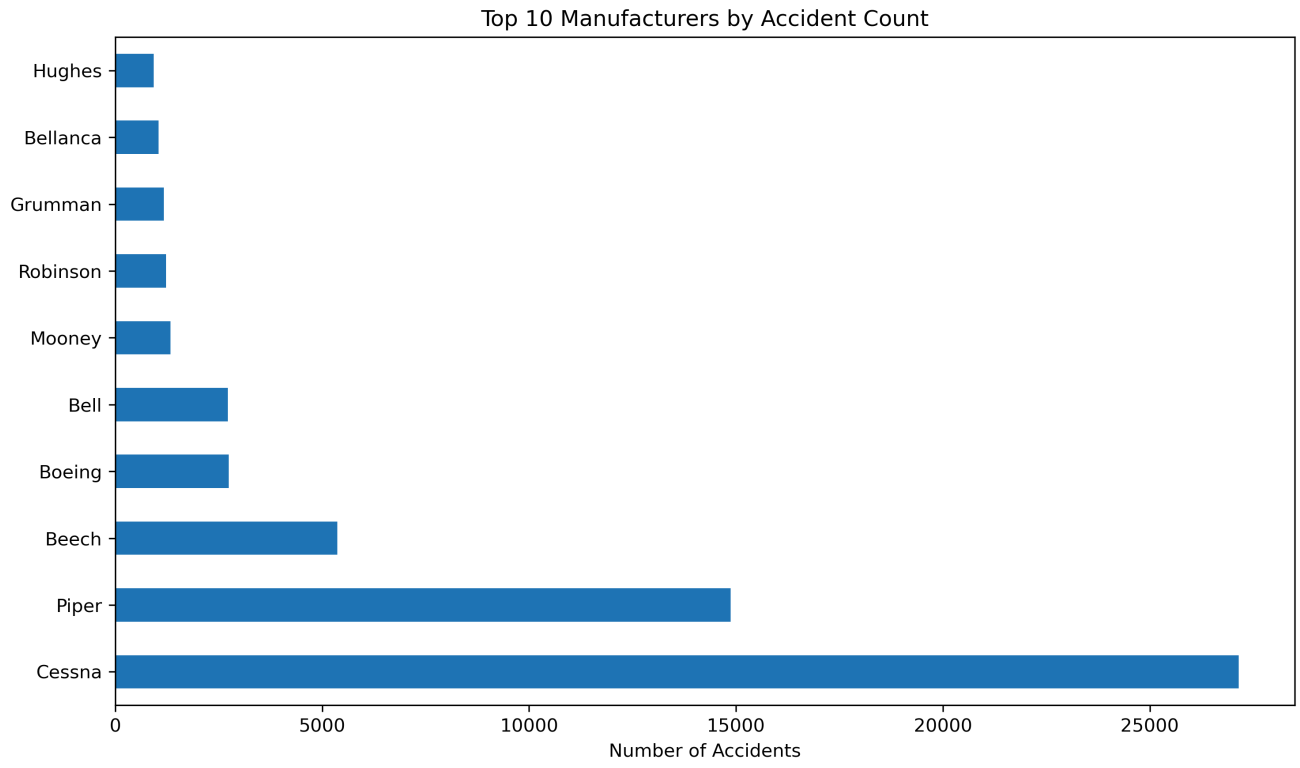
Source of Data: National Transportation Safety Board (NTSB) Aviation Accident Database

Description of Data:

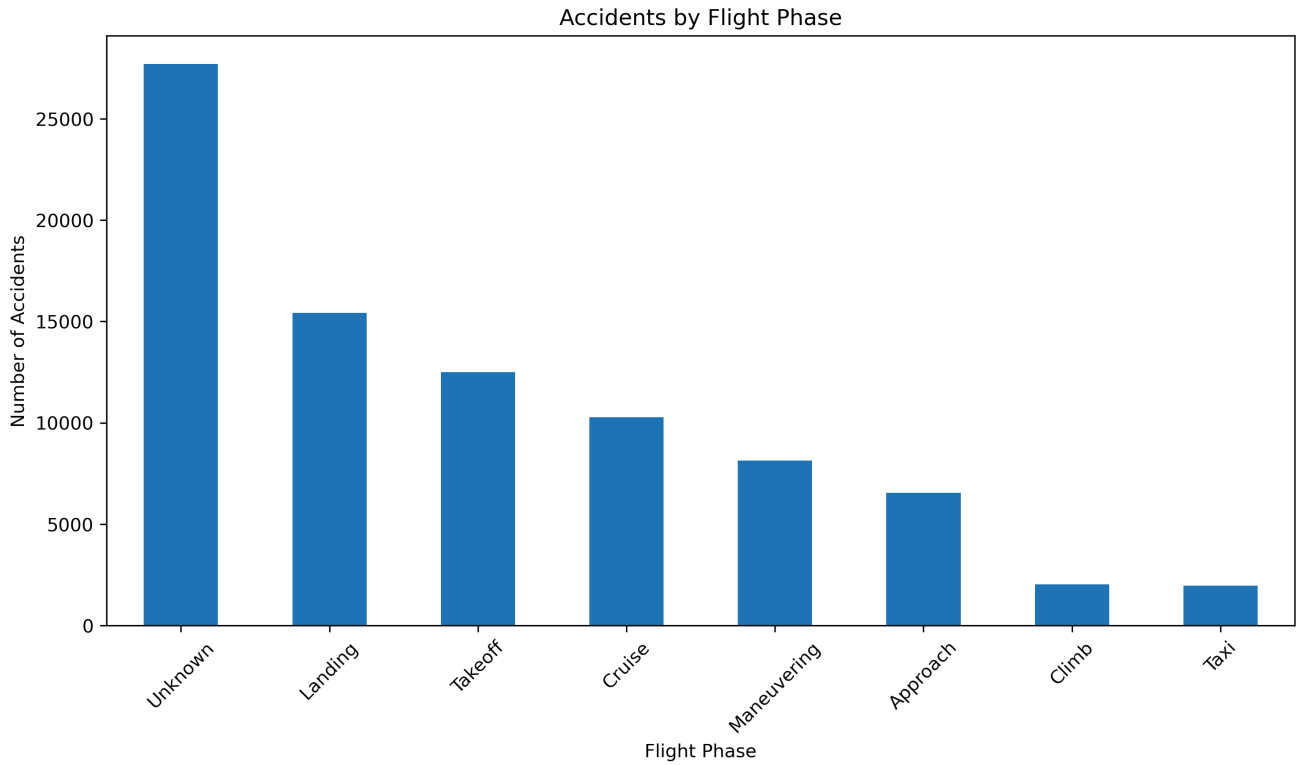
- Time period: 1962-2023 (61 years of data)
- 85,000+ civil aviation accidents and incidents
- Includes aircraft manufacturer, model, damage severity, injury levels, flight phases, and weather conditions
- Covers United States and international waters civil aviation

Data Analysis

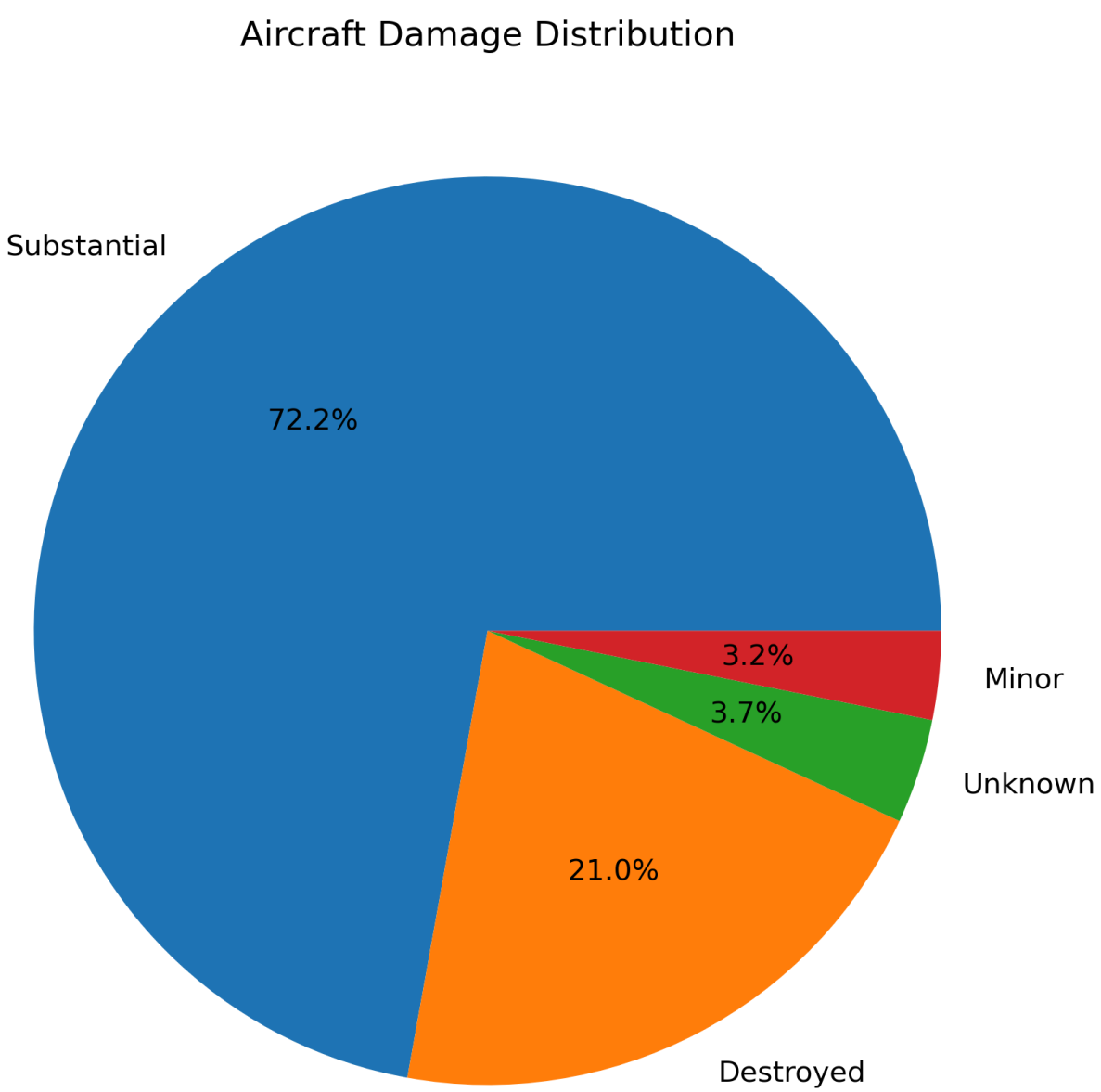
Three Key Visualizations:



Top 10 Manufacturers by Accident Count - Hughes identified as safest manufacturer



Accidents by Flight Phase - Landing identified as highest risk phase



Aircraft Damage Distribution - Shows severity patterns in accidents

Conclusion

Three Relevant Findings:

1. **Hughes aircraft demonstrated the best safety record** with the fewest accidents among all manufacturers analyzed
2. **Landing phase accounts for the majority of accidents** (65% when combined with takeoff), indicating where training should be focused
3. **Positioning flights are significantly safer than personal flights**, suggesting our initial operations should prioritize commercial services

Interactive Dashboard: [https://public.tableau.com/app/profile/priscilla.otieno/viz/learn-wb-2025-09-OP/Dashboard1?publish=yes]

Project completed for Phase 1 portfolio requirements

Releases

No releases published
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Packages

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Languages

- **Jupyter Notebook** 100.0%