Aviation Accident Analysis (2005 - 2022)

Final Draft Phase 1 Project

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Overview

- This project explores aviation accident data between 2005 and 2022 to uncover trends, patterns, and insights through Exploratory Data Analysis (EDA) and visualizations. An interactive Tableau dashboard complements the findings.

Business Understanding

- Stakeholders:
- - Aviation safety regulators
- - Airlines and aircraft operators
- - Insurance and risk analysts
- - Researchers and policymakers

- Key Business Questions:
- 1. What factors are associated with higher accident frequencies?
- 2. How have accident trends evolved over time?
- 3. What insights can inform safety improvements?

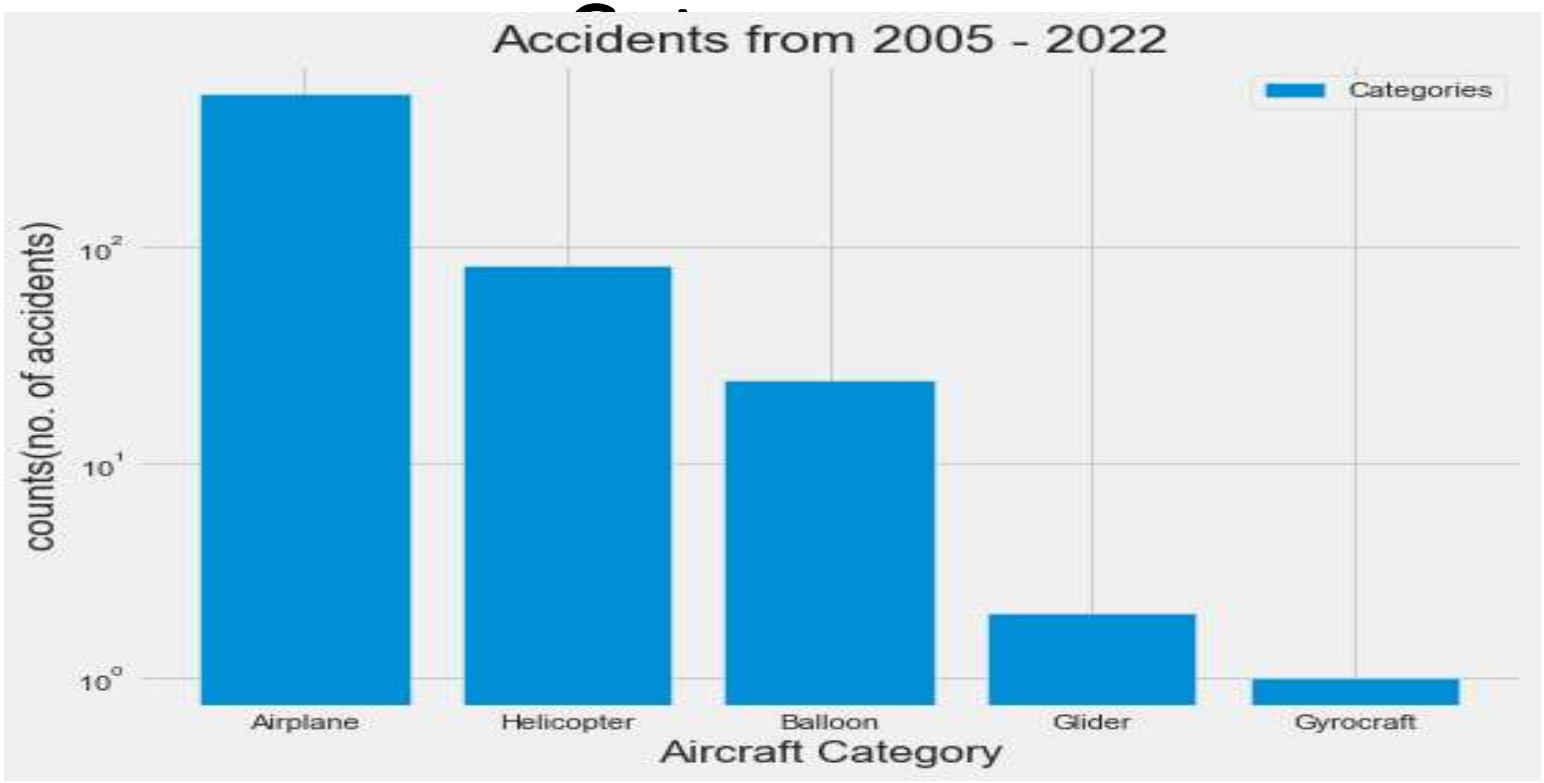
Data Understanding and Analysis

- Source: AviationData.csv and df_Accidents_Final.xlsx

- Description:
- - Contains data on accidents, aircraft type, location, and casualties.
- - Cleaned and standardized for consistency.

- Preprocessing steps:
- - Handled missing values
- - Standardized formats
- - Encoded categorical data

Accidents from 2005 - 2022 by Aircraft



The bar graph shows accident counts per category. Airplanes lead, followed by helicopters and balloons. However, category-level analysis can be misleading since each includes multiple subcategories by make and model. Further subcategory analysis is recommended.

Trend of Aircraft Accidents by Category (2005 - Present)

- **From the line plot, airplanes consistently show more accidents than other categories. Helicopter accidents exceed balloon incidents, though recent years show declining helicopter and balloon accidents. Airplane accidents have recently increased slightly**

Conclusion and Key Findings

- Findings:
- 1. Airplanes contribute the most to accident counts across years.
- 2. Accident trends for helicopters and balloons show gradual decline in recent years.
- 3. Subcategory-level insights are essential to understanding true risk distribution.

- Recommendations:
- - Conduct further analysis by aircraft make and model.
- - Enhance data granularity for better insights.
- - Strengthen safety and training measures for high-risk categories.

Interactive Dashboard

- Explore the Tableau Dashboard for interactive visuals and deeper insights:

- 🔗 https://public.tableau.com/app/profile/allan.jawuoro/viz/aviationassesmentdashboard/Dashboard1