Aviation Risk Analysis & Recommendations

Project overview

- ✓ Finding low-risk aircraft models for a business looking to enter the aviation sector is the goal of this project. We looked at patterns, trends, and aircraft safety records by examining aviation accident data from 1962 to 2023. Our objective is to minimize risks and guarantee operational efficiency by offering data-driven insights and recommendations that will

Problem statement

- The corporation wants to engage in aviation, but in order to identify the safest aircraft types for both private and commercial use, a risk assessment is required.

✓ Goals:

- Examine trends in aircraft accidents.
- Determine which aircraft models are low risk.
- Make data-based investing suggestions.

✓ Interested parties

- Executives in business
- Leaders of the aviation division

Understanding data

- ✓ Source of Data
  - Understanding Civil aviation incidents from 1962 to 2023 are included in the dataset, which comes from the National Transportation Safety Board (NTSB).
- ✓ Important Features
  - Model of Aircraft: The kind of aircraft that is involved in mishaps.
  - Accident Severity : Sorting the results of accidents into three categories: minor, major, and fatal.
  - Fatalities: The quantity of people killed in each incidence.
  - Aviation safety is impacted by external risk variables, such as location and weather.
  - Flight Phase: At the time of the accident, the aircraft was either taking off, cruising, or landing.

Data cleaning

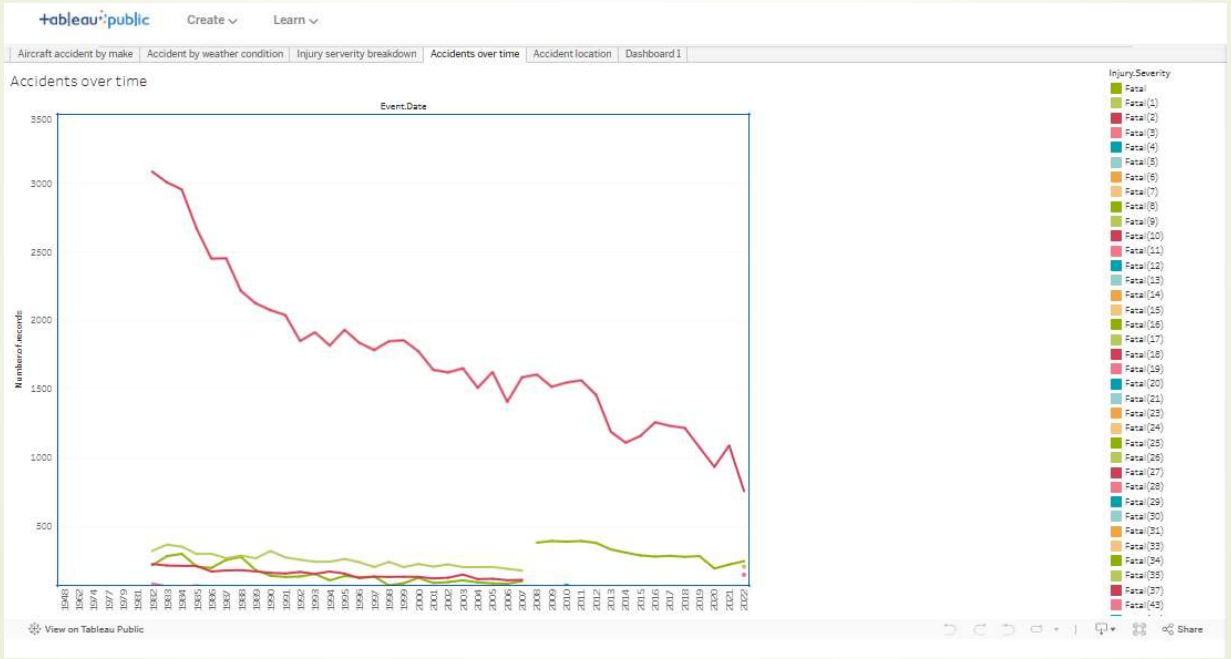
Missing data:
Incomplete columns were eliminated
Where feasible, missing values were removed.
Data formats that are standardized for uniformity.

Outliers:
Extreme values in accident records were located and dealt with.
Important Findings & Illustrations

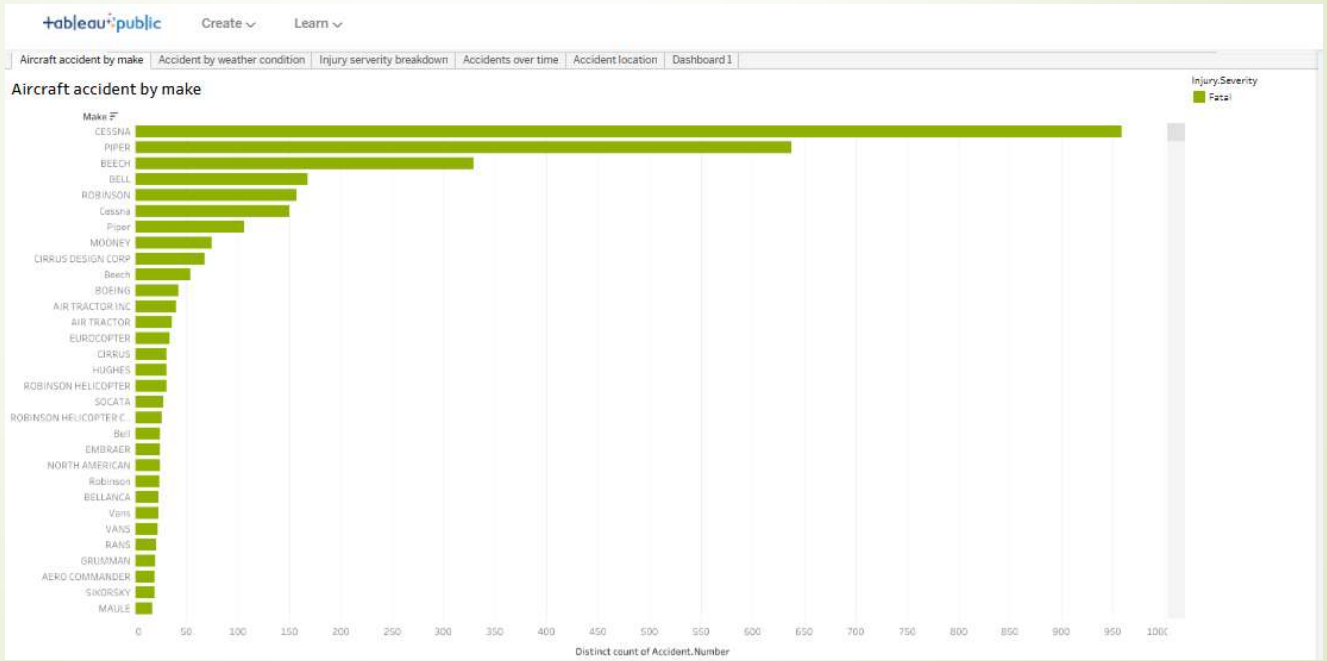
Data visualization

- **1. Accident Trends Over Time**
- **Visualization:** Line chart showing accident trends from 1962 to 2023.
- **Finding:** Aviation accidents peaked in certain decades but have declined over time.
- **Implication:** Safety regulations and technological advancements have improved aviation safety.

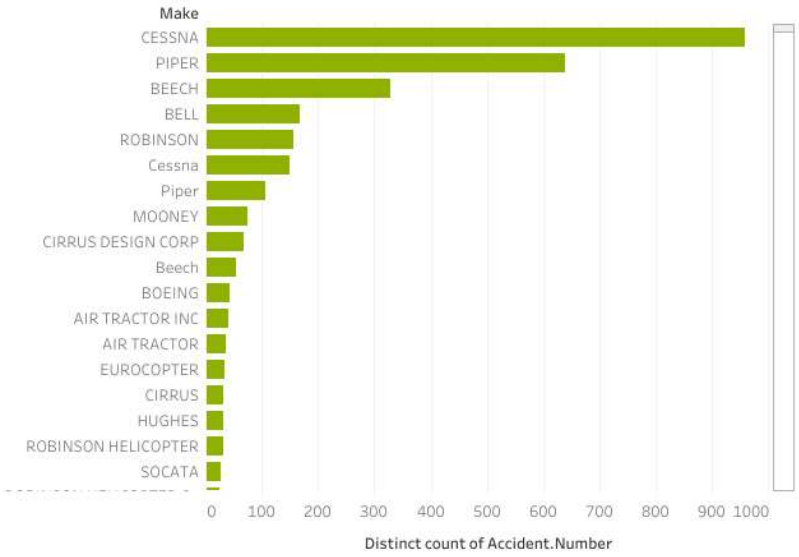
Accident over time



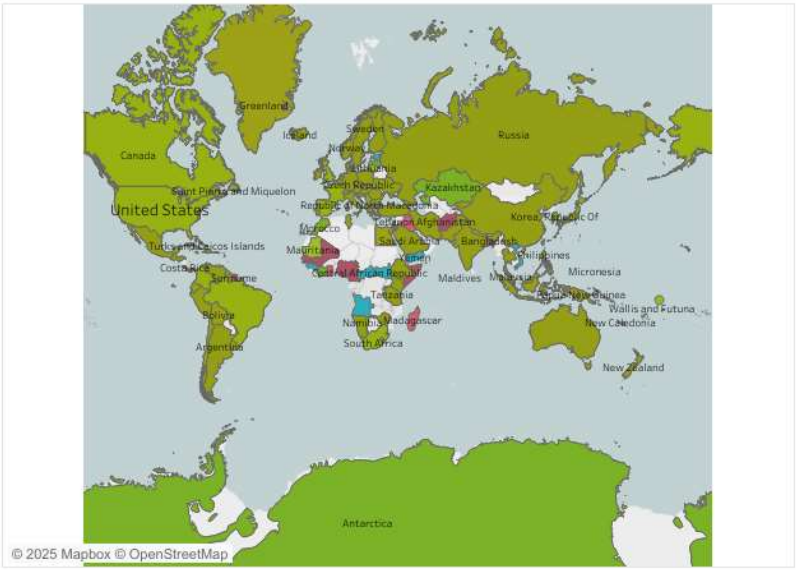
Aircraft accident by make



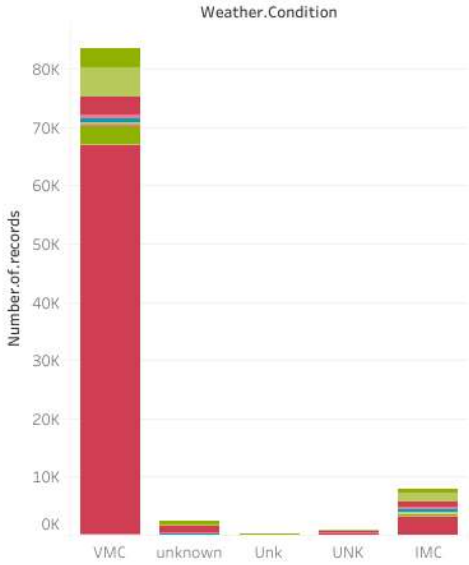
Aircraft accident by make



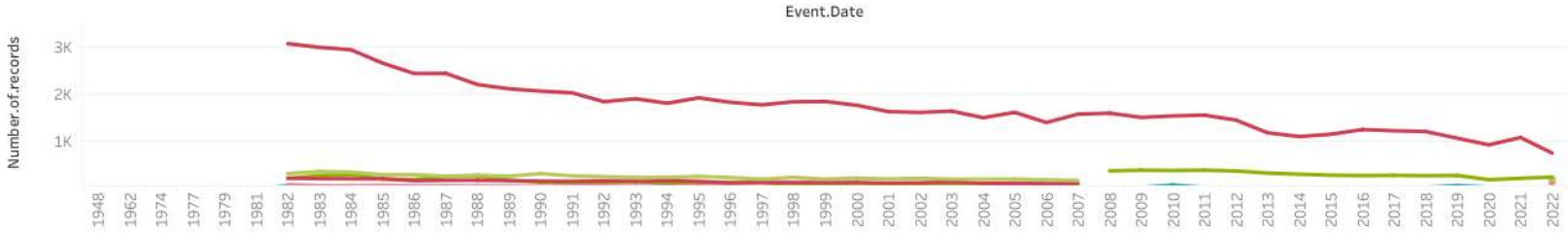
Accident location



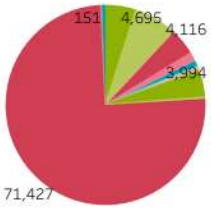
Accident by weather condition



Accidents over time



Injury serverity breakdown



Recommendations and findings

•Certain aircraft models have higher accident rates → Avoid purchasing them.
•Bad weather is a key risk factor → Improve pilot training for adverse weather.
•Accidents have **decreased over time** → Aviation safety has improved.

✓ **Actionable Insights for the Company**

•Invest in **low-risk aircraft models**
•Prioritize aircraft **with good safety records**
•Implement **pilot training for poor weather conditions**

THANK YOU

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