Aviation Risk Analysis

Project overview

- Company expanding into aviation.
- Need to identify low-risk aircraft for initial operations.
- Analysis focused on accident data, injury severity, aircraft type and make.
- Goal: Recommend safest aircraft for purchase.
- Methodology: Data cleaning, exploration, risk analysis by aircraft type and manufacturer

Data Cleaning and preparation

01

- Standardized categorical fields

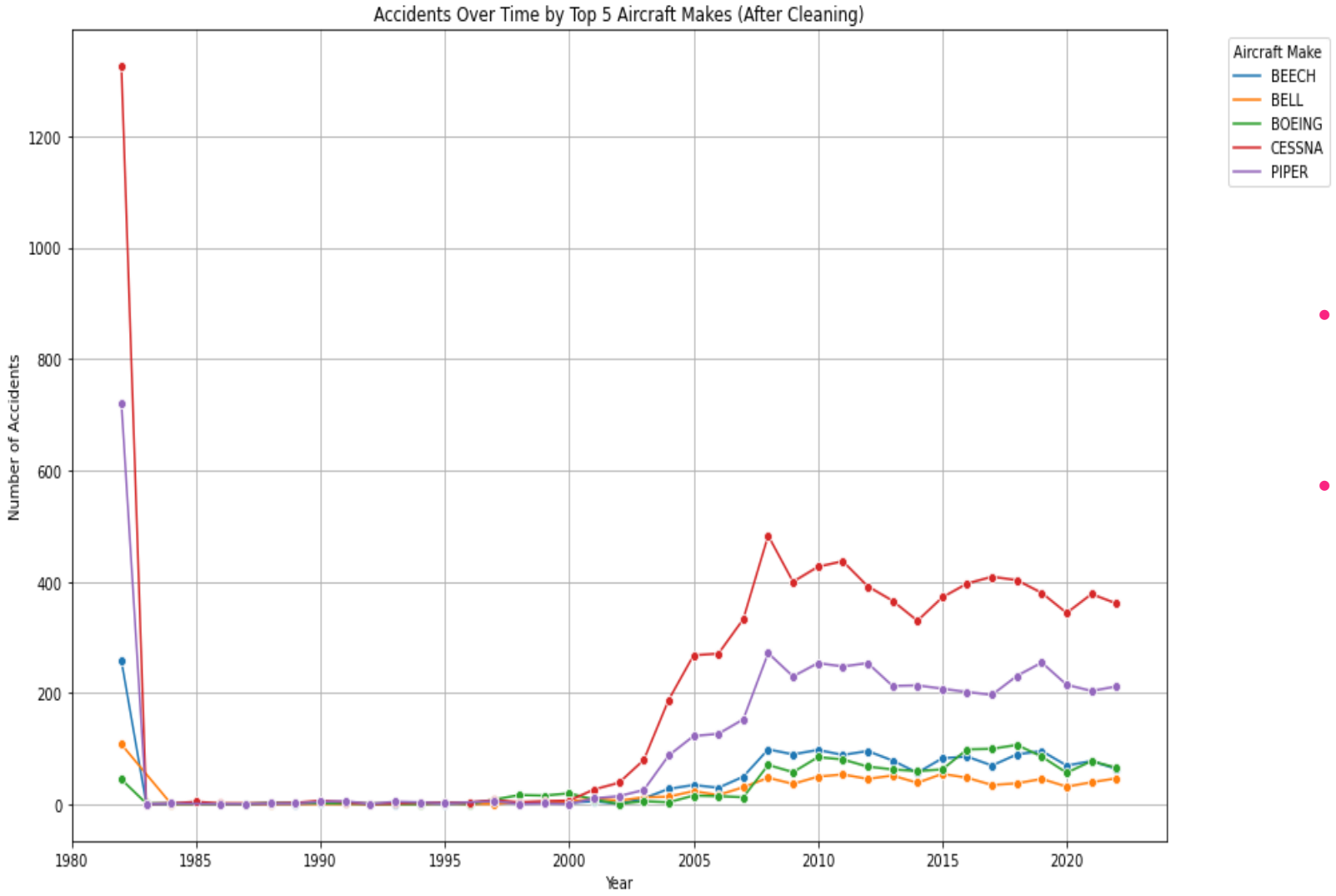
02

•Created key features like Total Injuries

03

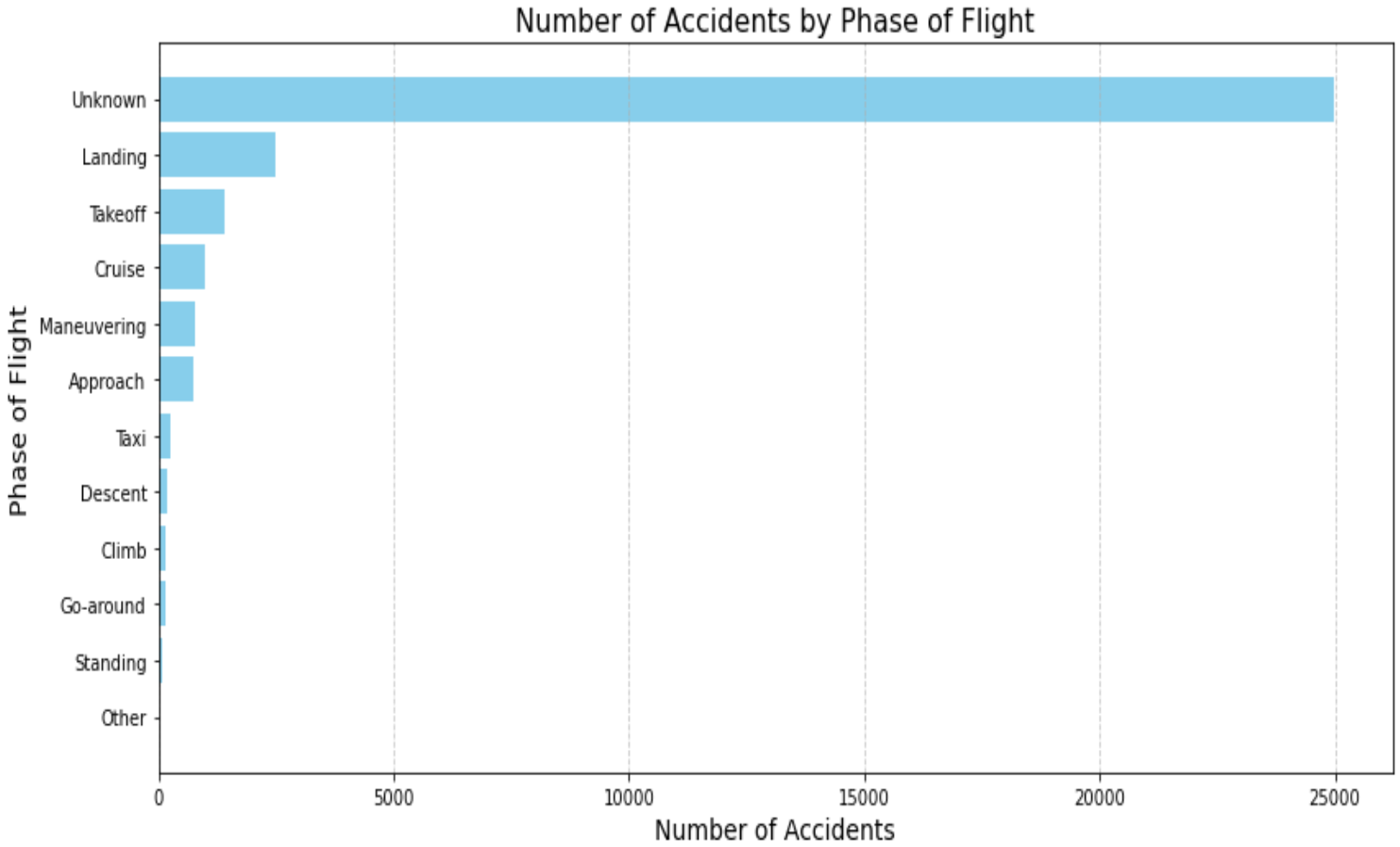
- Handled missing and invalid values

Number of Accidents per make that occurred over time



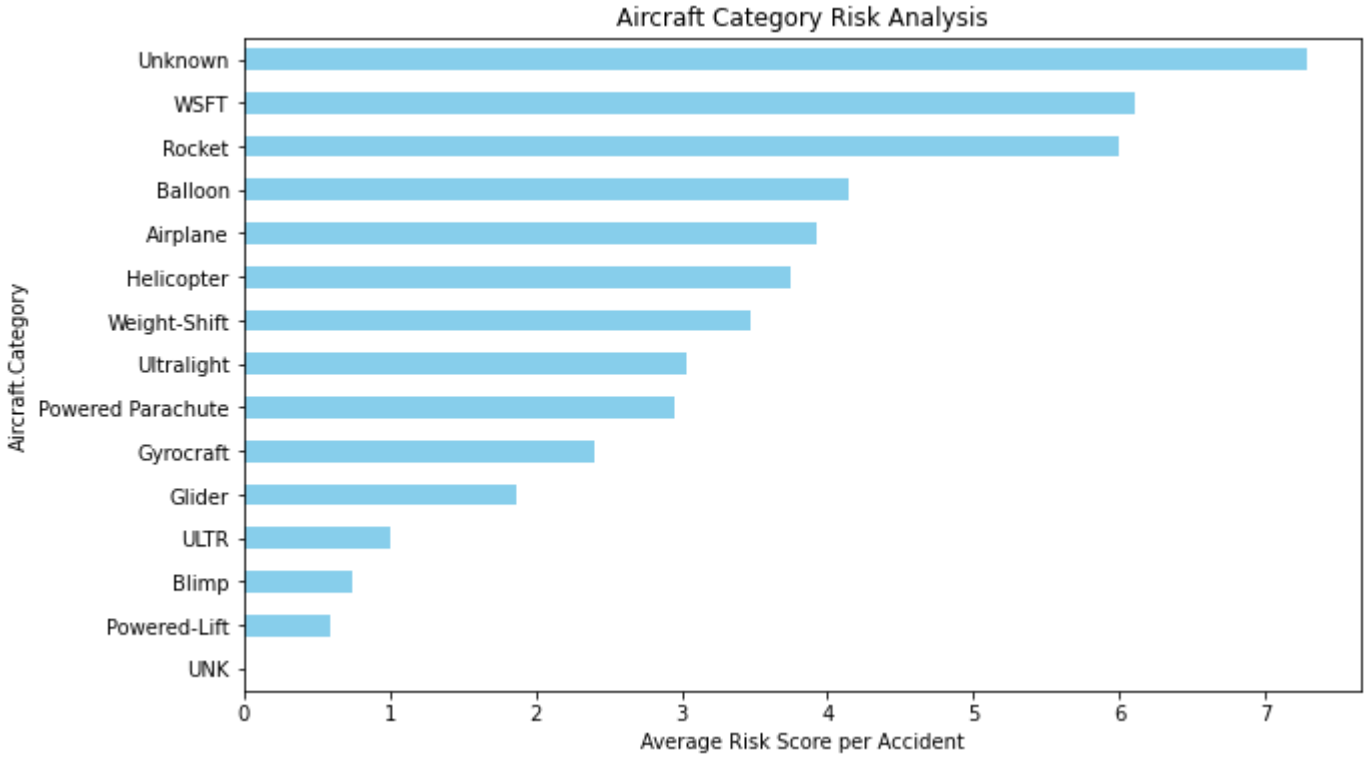
- Accident trends over time show that BELL aircraft consistently have lower accident counts compared to the rest.
- Visual: Line chart showing number of accidents over time by make.

Number of Accidents per Broad phase of flight



- Highest risk phases: Approach, Landing, Takeoff .
- Climb phase shows lowest fatality proportion.

Average Risk Score by Aircraft Category



Key insights.

- **Aircraft with missing category (UNK) excluded due to incomplete data.**

- **Airplane" is the primary, fully documented category for risk assessment.**

- **After conducting a thorough analysis, I observed that airplanes not only represent the majority of the data in terms of total flights recorded, but also provide the most complete and reliable information across all variables. This makes the *airplane* category the most statistically significant for risk analysis and comparison.**

Recommendation

01

Based on accident trend analysis, BELL aircraft demonstrate the lowest operational risks.

02

Recommend prioritizing BELL aircraft for acquisition.

03

Expected benefits: lower accident rates, stronger safety record, enhanced client trust.

Strategic Next Steps

- Acquire recommended aircraft models.
- Set up internal safety tracking and reporting systems.
- Collect operational risk data during flights.
- Plan gradual expansion into more complex aircraft types (e.g., helicopters) after gaining initial experience.

Thank You

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