Aviation Accident Risk Analysis

Recommendation for Aircraft purchase

Name: Mary Njeri Kamithi
Github:github.com/marykamithi

Business Understanding

Goal: Help the company select the safest aircraft to enter the aviation market
Stakeholder: Head of the new aviation division
Key question: What types of aircraft and conditions are associated with higher accident risks

Dataset overview

SourceNational Transportation Safety Board (NTSB)

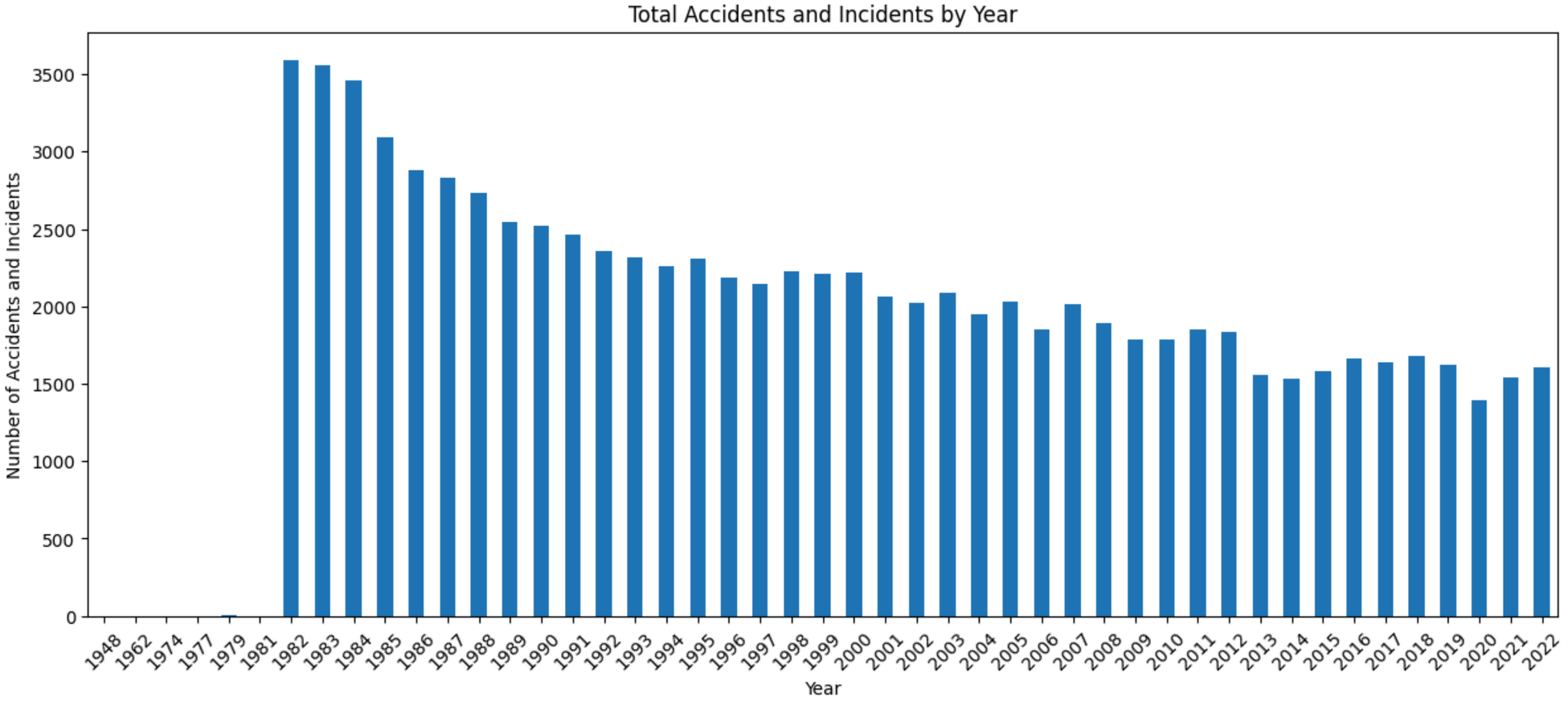
Time span: 1962-2022

Initial record count: The raw data had 5 rows and 31 columns

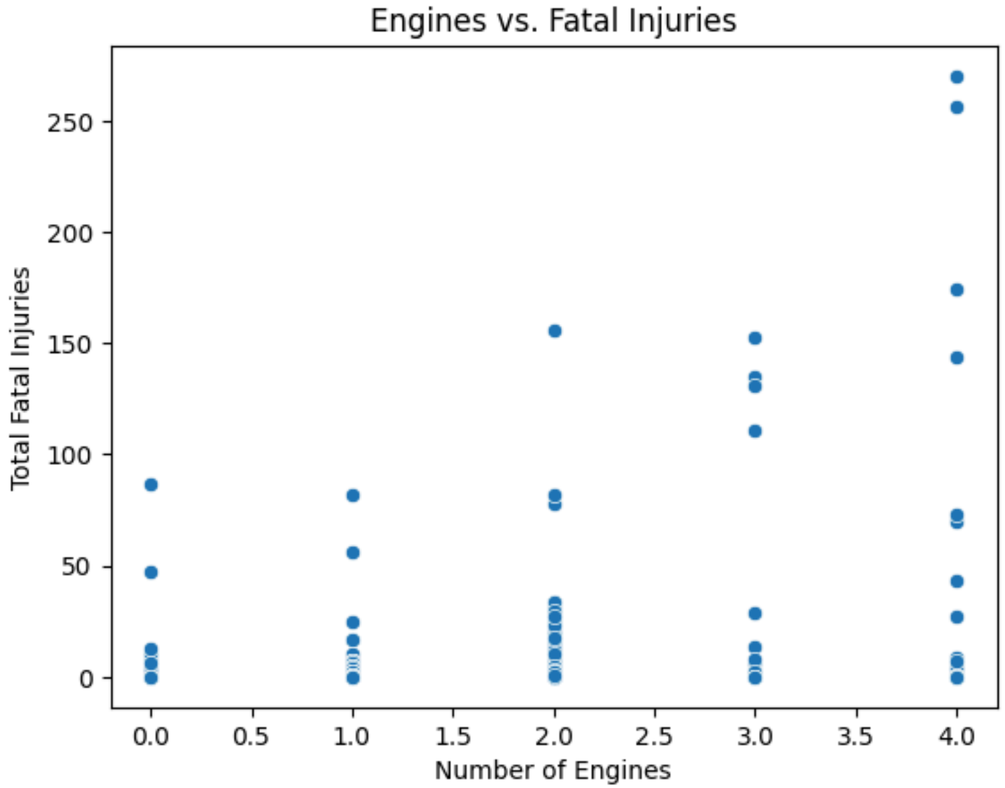
Data Cleaning

- Removed nulls in critical fields (e.g. aircraft damage, phase of flight)
- Created new column: is_fatal
- Filtered out records with unknown weather or missing dates

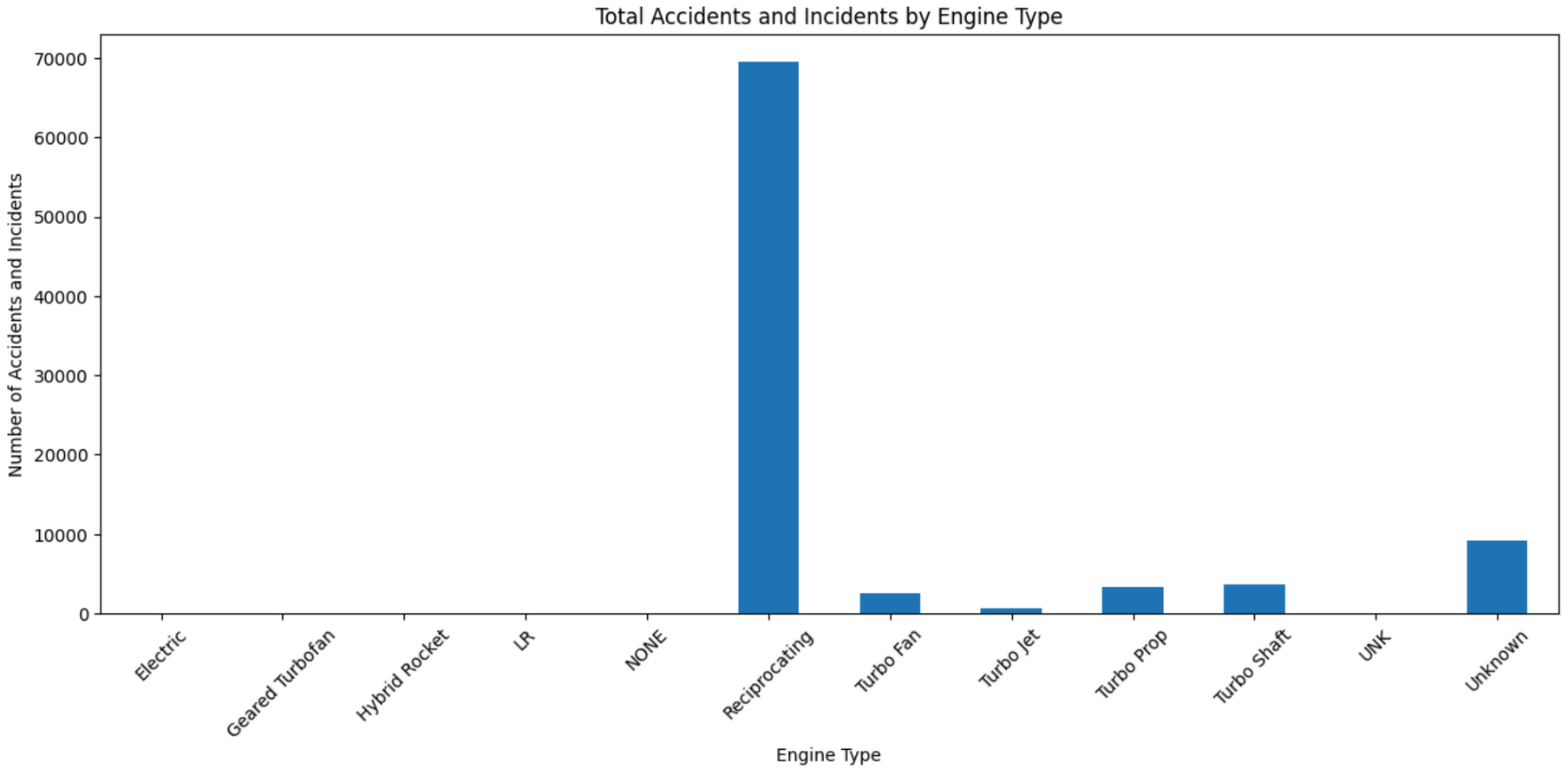
Total accidents and incidents by year



Engines vs fatal injuries

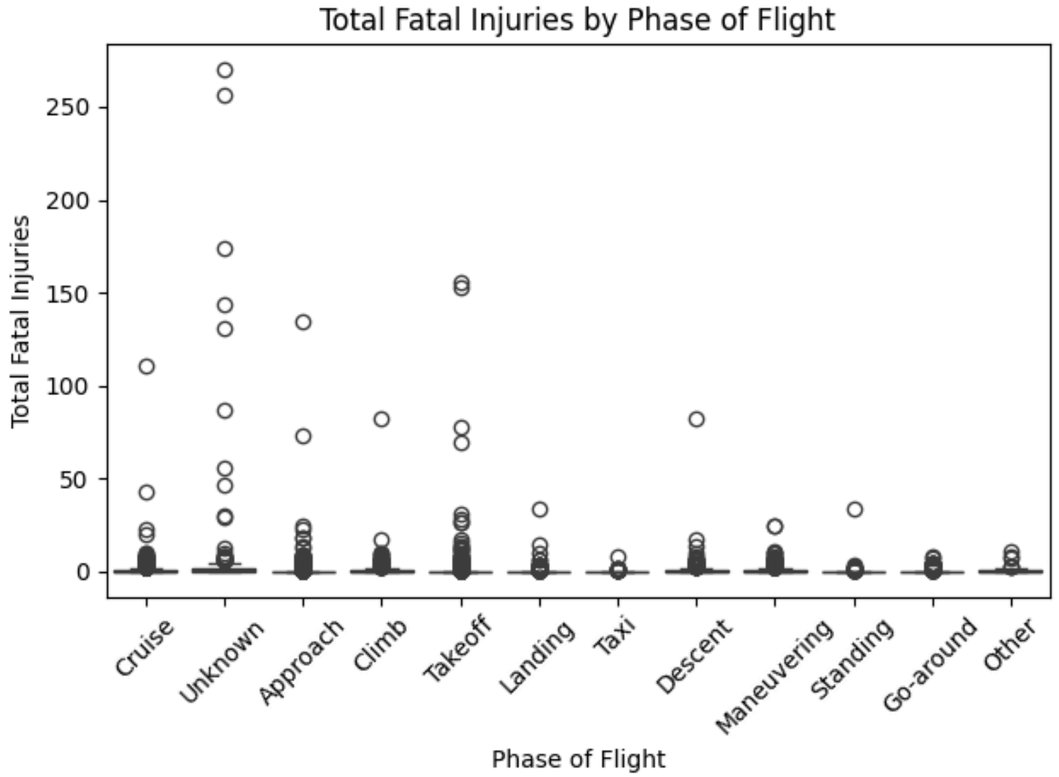


number of accidents and incidences by engine type

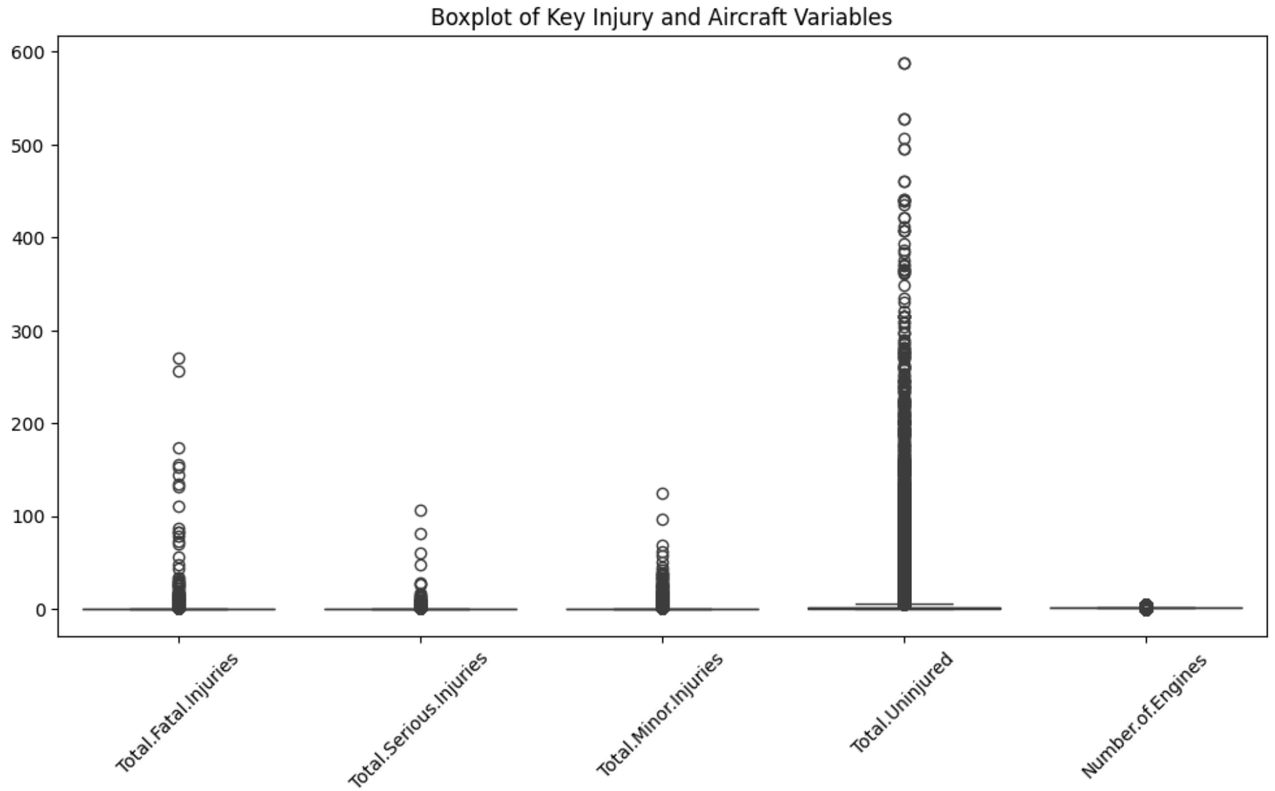


total fatal injuries by phase of flight

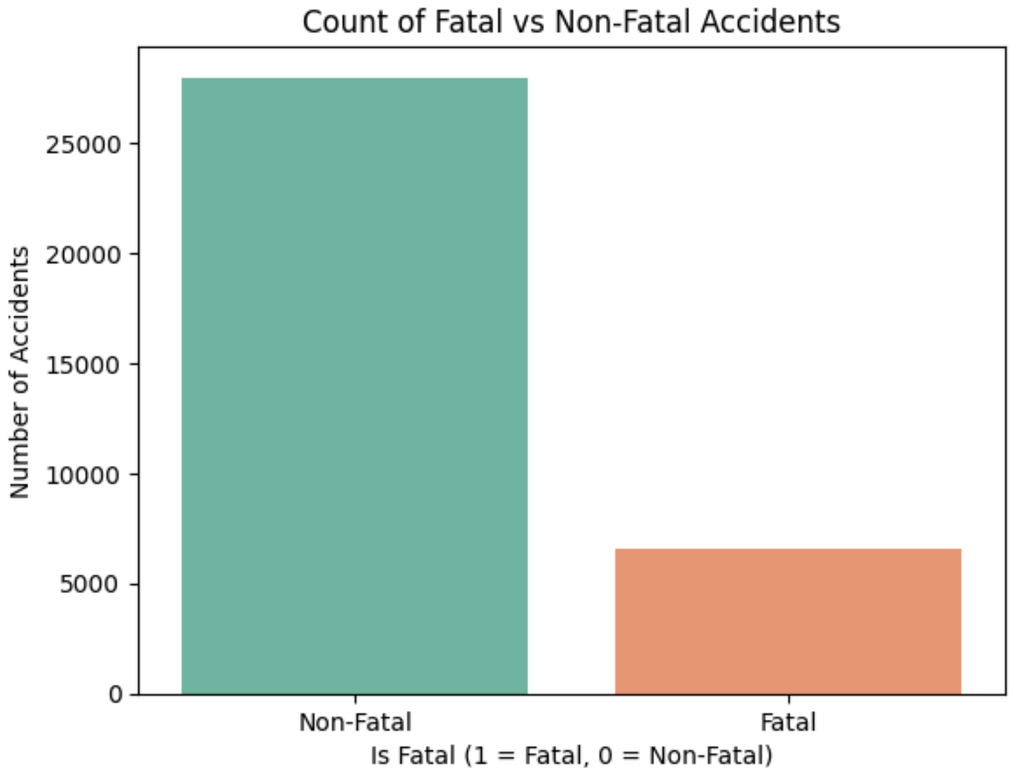
Certain phases like landing or takeoff have higher fatality rates



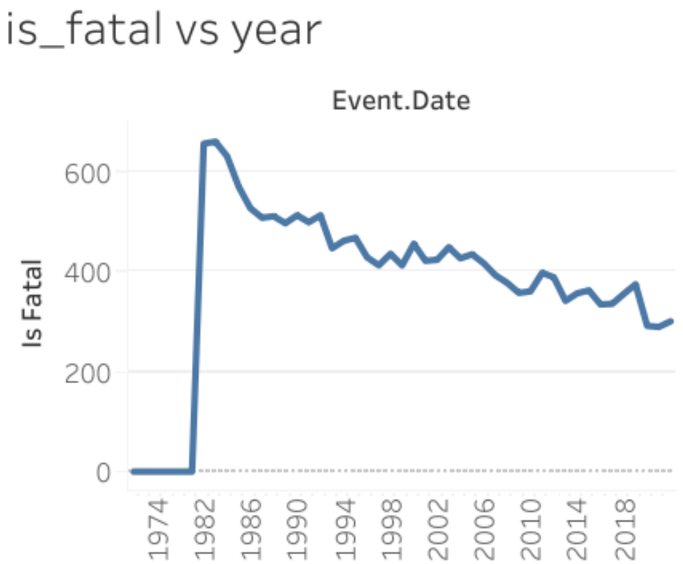
key injury and aircraft variables

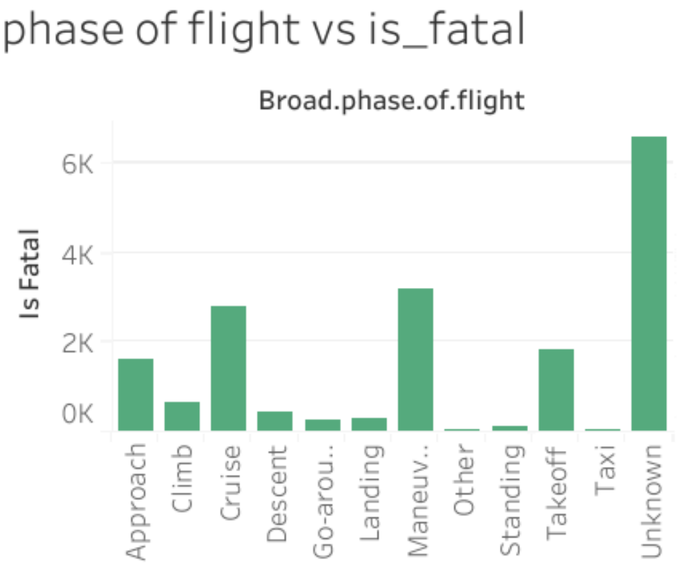


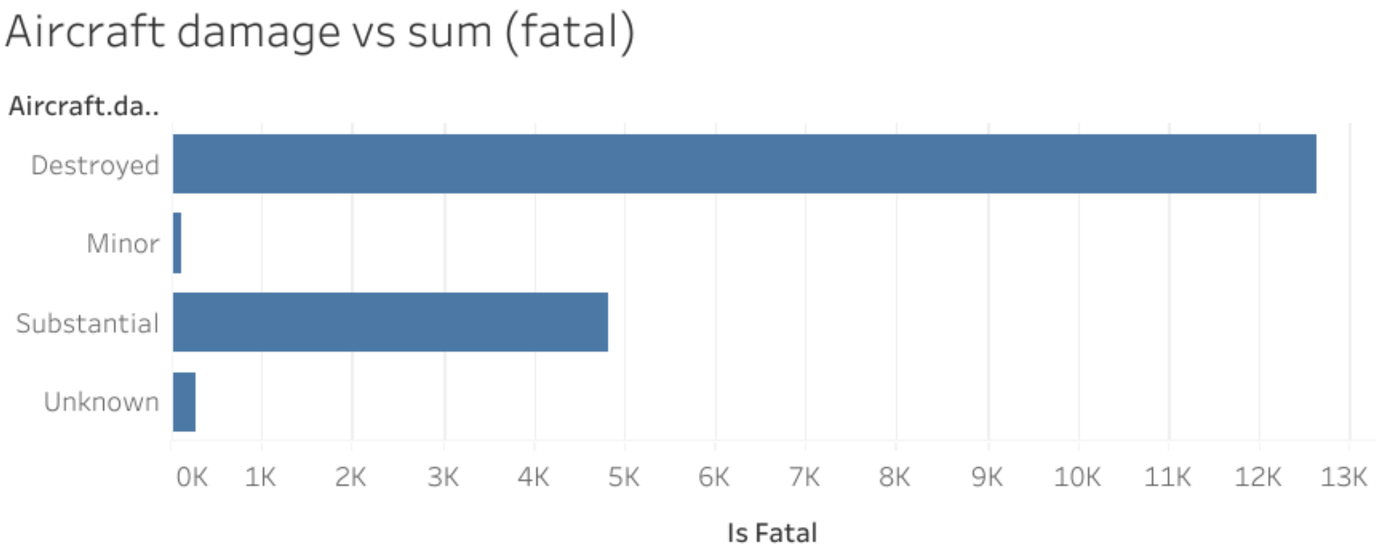
count of fatal vs non fatal accidents



Visualization created in Tableau







https://public.tableau.com/views/Aviationdata_17509279068140/Dashboard1?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Recommendations

- Avoid investing in aircraft that frequently incur substantial or destroyed damage.
- Prioritize flight phases where pilot control and aircraft condition are most critical.
- Continue monitoring aviation trends over time (fatality rates appear to be decreasing).

Thank you