Aviation Data Analysis

Introduction

Project Overview

- Aviation data set comprises detailed records of accidents.
- Sourced from the National Transportation Safety Board (NTSB).
- Key variables include: make/model, weather conditions, injury data, event date, location, and accident number.

Data Summary

Data Overview

- Data contains 90,348 rows and 31 columns.
- Key columns relevant to analysis:
  - Total fatal injuries.
  - Weather condition.
  - Model/Make.
  - Engine types.

Data Cleaning Process

Data Cleaning

- Removed unnecessary columns e.g latitude, longitude, etc.
- Handled missing values by replacing them using median in numeric columns.
- Remained with 90,348 rows and 23 columns for analysis.

Data Aggregation

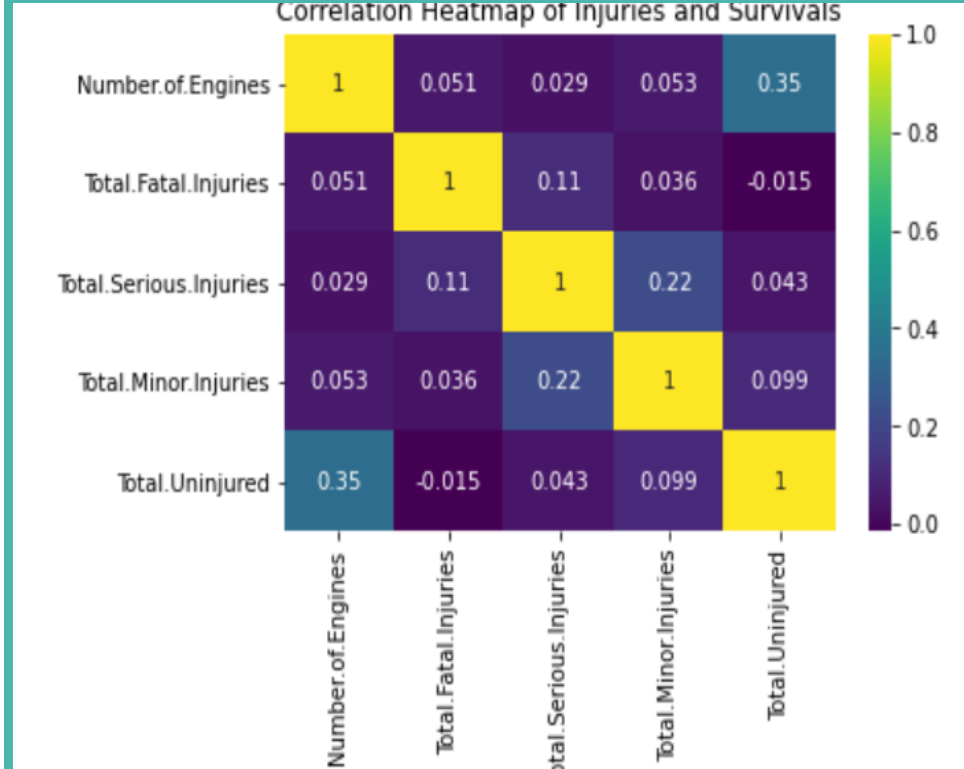
Aggregation by Weather Condition

- Grouped data by weather condition to find the average number of fatal and serious injuries.

Correlations Between Numerical Variables

Correlations of Injuries and Survivals

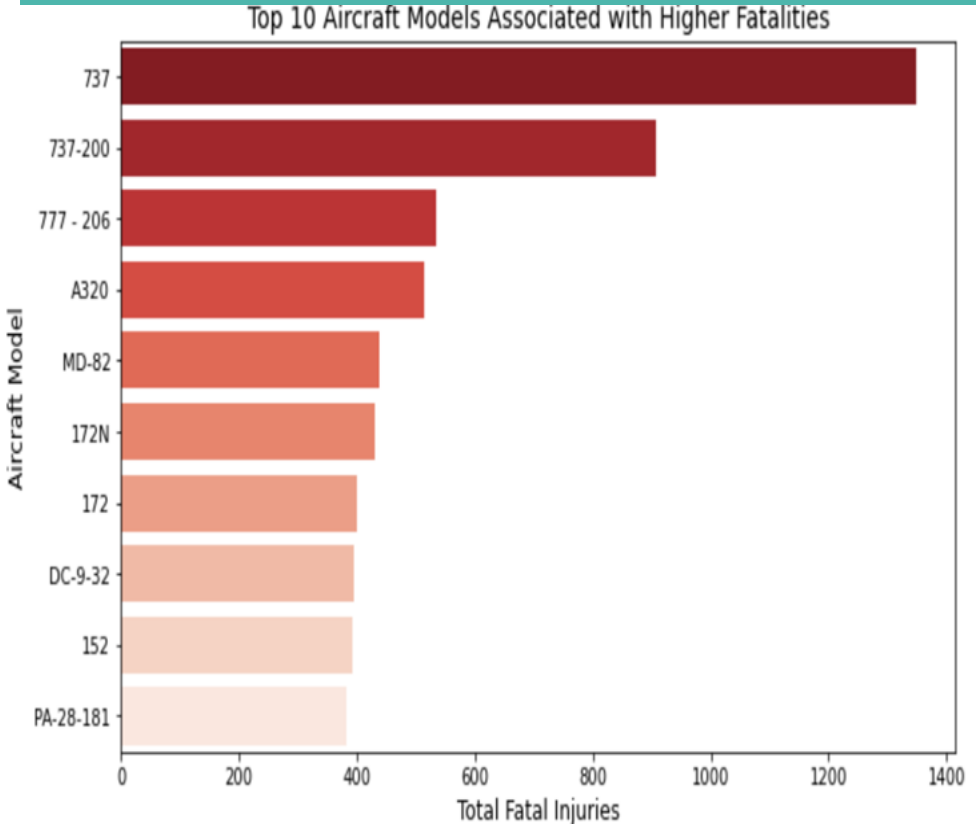
- Some variables shows weak positive correlation, negative correlations, and strong negative correlations.



Top Fatalities by Aircraft Model

Fatalities by Aircraft Model

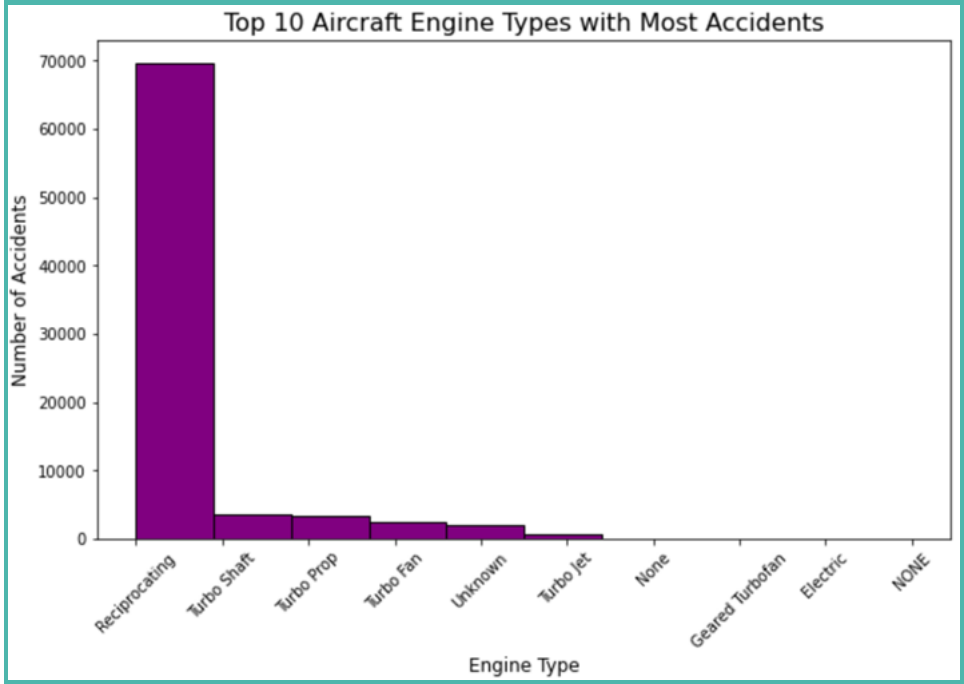
- Grouped data by model and summed total fatal injuries.



Top Fatalities by Aircraft Engine Type

Engine Type Fatalities

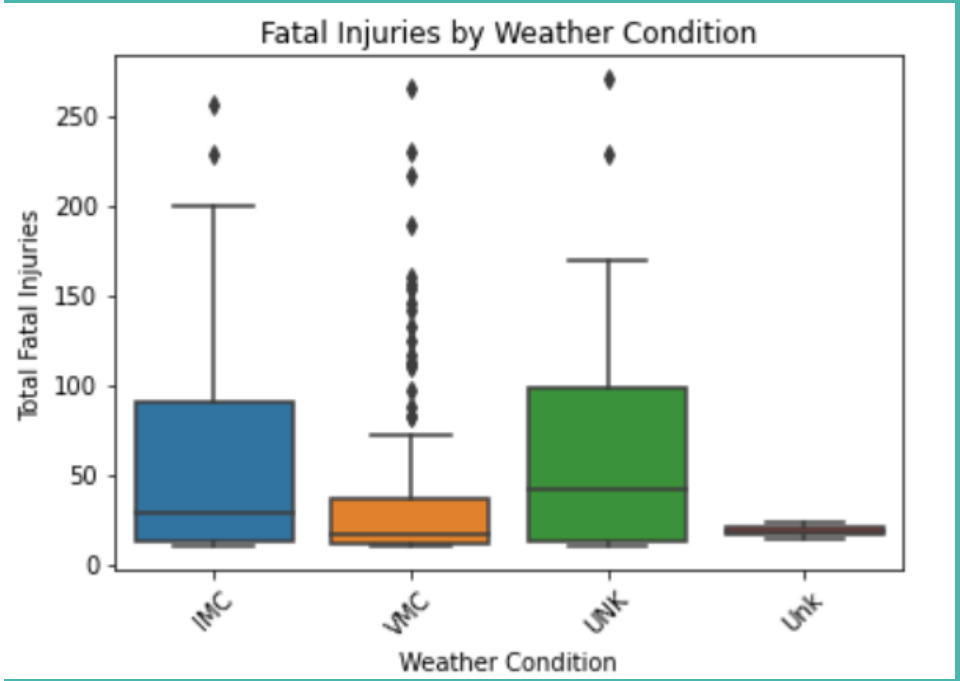
- Aircraft engine type also contribute to higher fatalities.



Top Fatalities by Weather Condition

Weather Condition Fatalities

- Weather conditions have shown to contribute a high fatality rate.



Recommendations

- Based on the data analysis and findings, stakeholders should:

  - focus on purchasing aircraft models with strong safety.
  - Improve weather-related safety accidents.
  - Upgrade weather monitoring systems.
  - Do regular aircraft maintenance especially the engines.

Next Steps

- Suggestion for future analysis:

  - Test and implement the recommendations.
  - Report and communicate the findings.
  - Integrate the feedback and and iterate.
  - Initiate long-term study on safety trends.

Thank You!