

Data Driven Recommendations: Aviation Business

Overview

- We want to identify the aircraft that is associated with the lowest accident rates and has the highest safety record.
- In order to do that we need to assess factors like make, category, Engine types by the number of accidents.
- Our analysis will be done using historical data on aircraft accidents
- The source of the Analysis data is the National Transportation Safety Board
- we will come up with actionable insights for the company to select the safest aircraft and give effective risk management.

Technologies used

- pandas - for manipulation and analysis.
- numpy - for numerical operations and calculations.
- matplotlib - for interactive visuals.
- seaborn - Data visualizations

The analysis will cover the following features

- loading the aviation data set and getting the required information.
- Data cleaning.
- Exploratory data analysis(visualizations).

What the analysis will cover

- The model and make that is involved in least number of accidents/injuries
- The Engine number that is least involved
- The phases of flight that most accidents/injuries happen and the phase which least accidents/injuries happen
- The aircraft category involved in least number of accidents/injuries
- The weather conditions which least accidents/injuries happen

1. Loading dataset and getting the required information.

- Descriptive statistics – Mean, count, standard deviation, frequency, percentile, minimum and maximum.
- Statement of the problem
- Metrics of success

2. Data cleaning

- Dropping unnecessary columns
- Dropping duplicates
- Filling and dropping null values
- Removing outliers

3. Exploratory Data Analysis

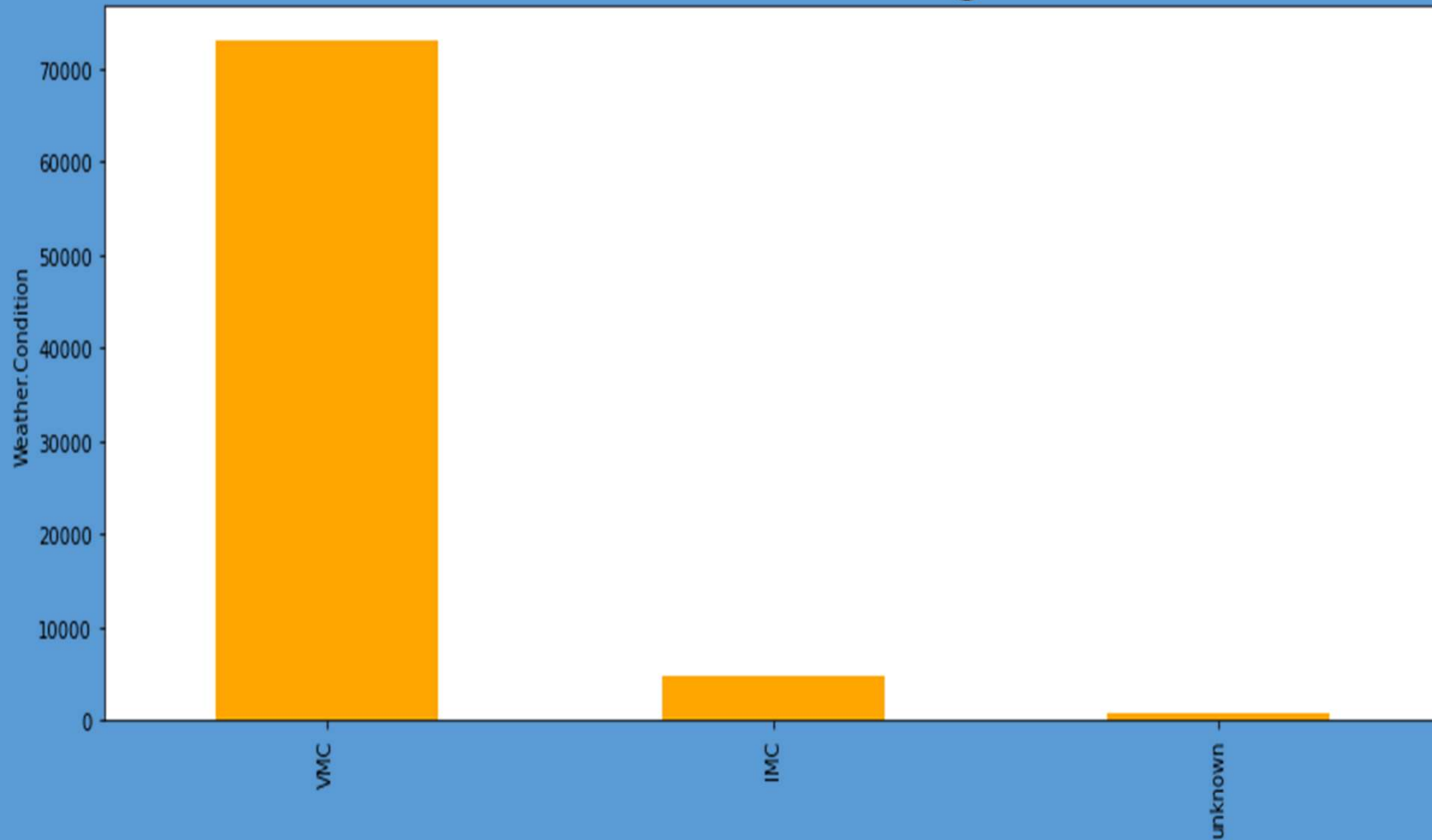
3.1 Univariate Analysis.

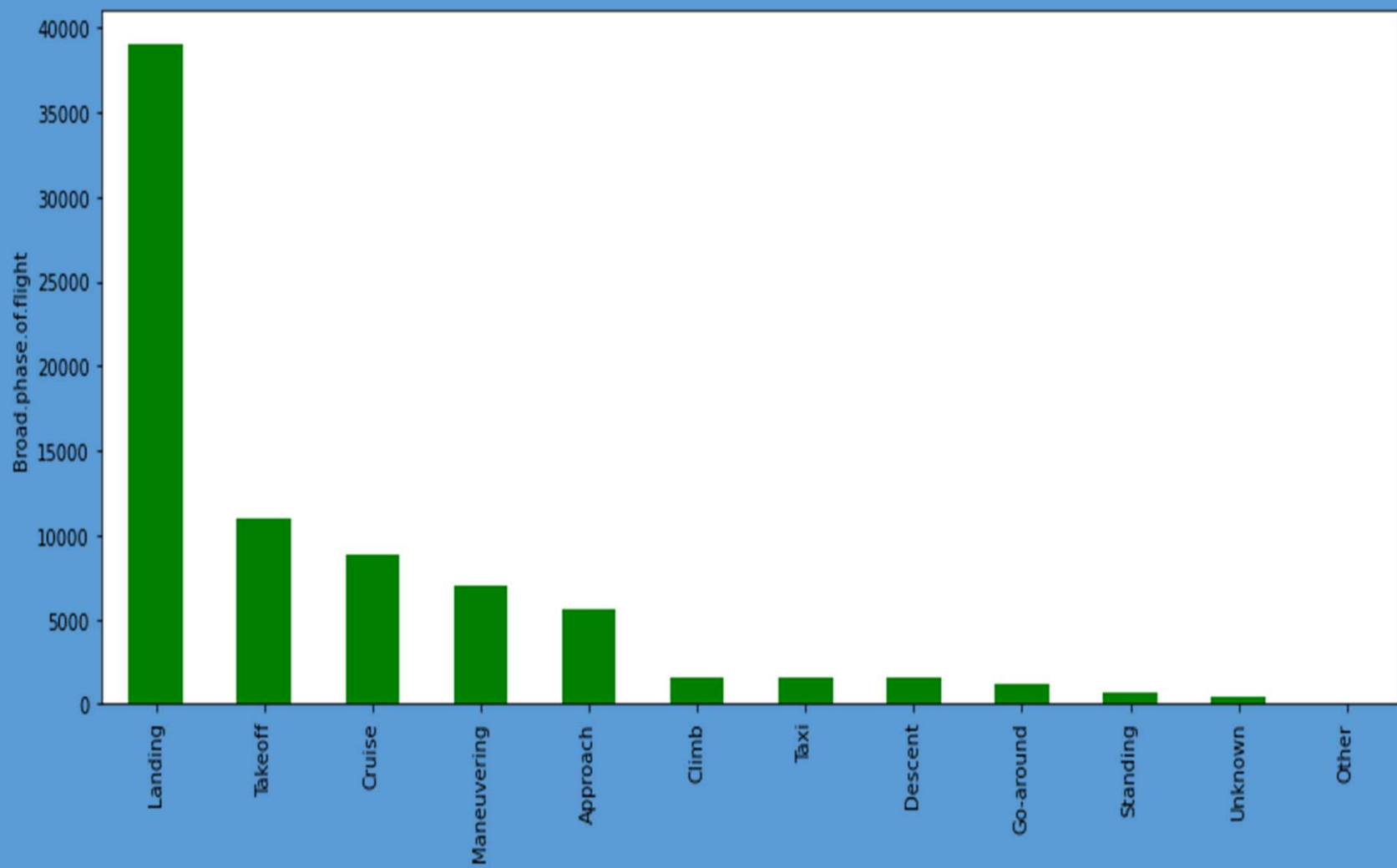
3.2 Bivariate.

3.3 Multivariate.

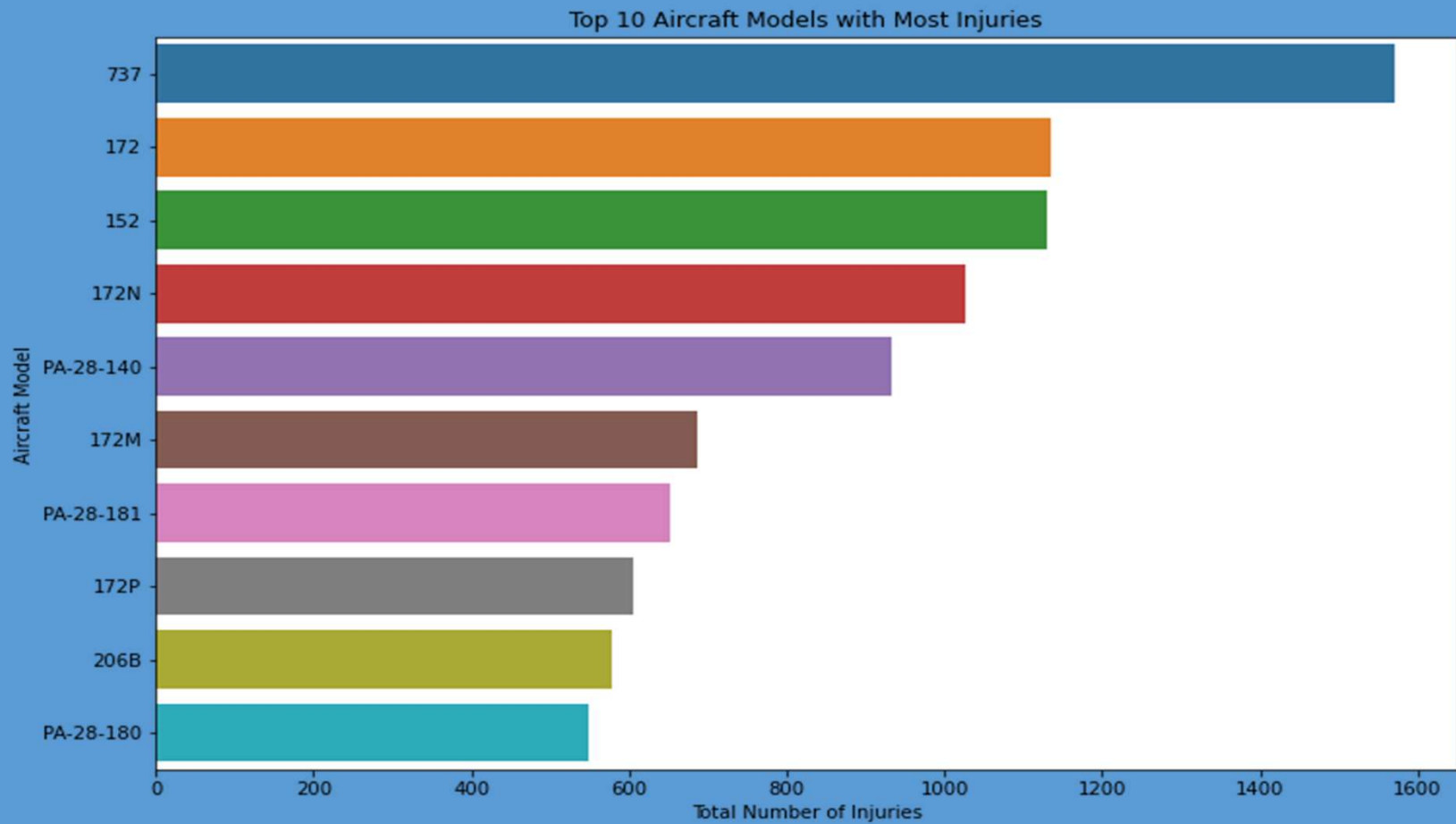
3.1 Univariate

Weather condition with the highest accident rates.

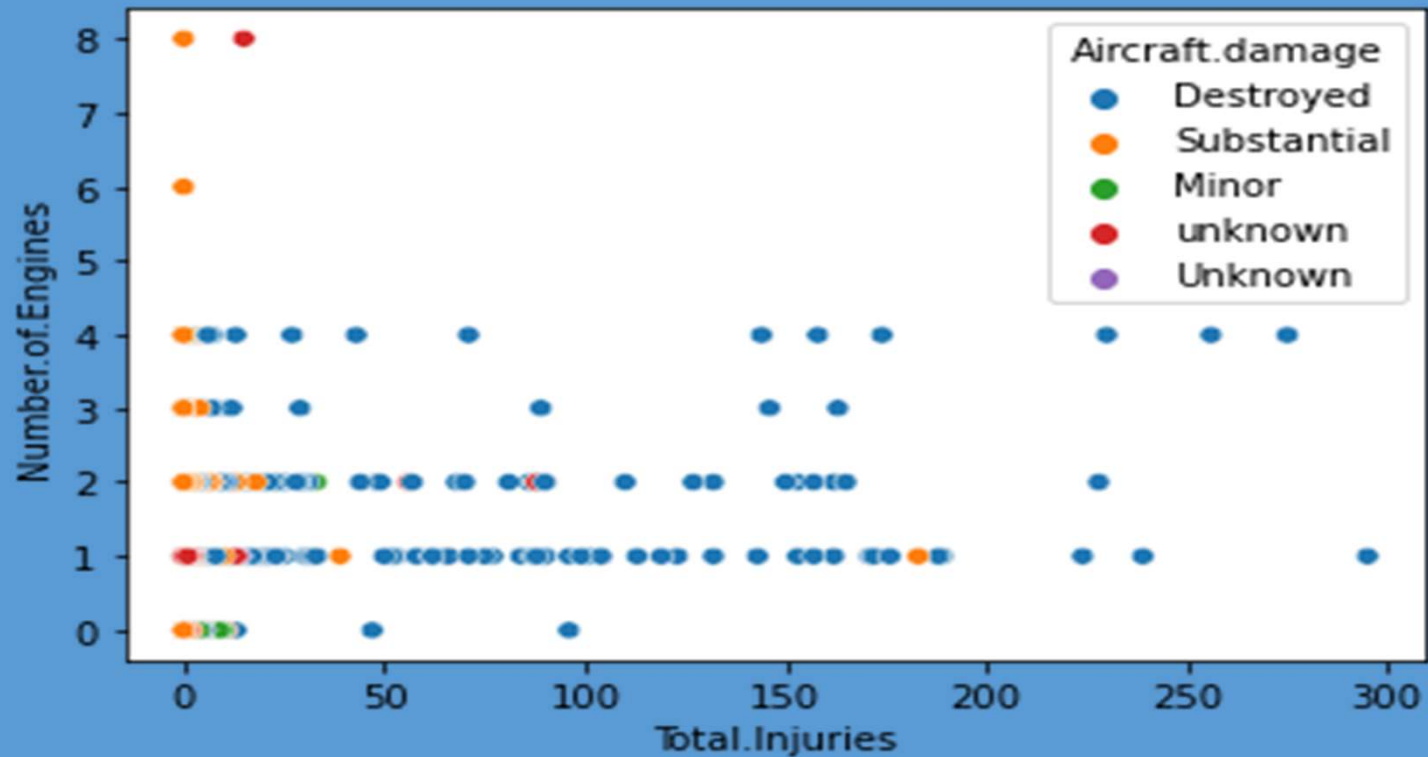


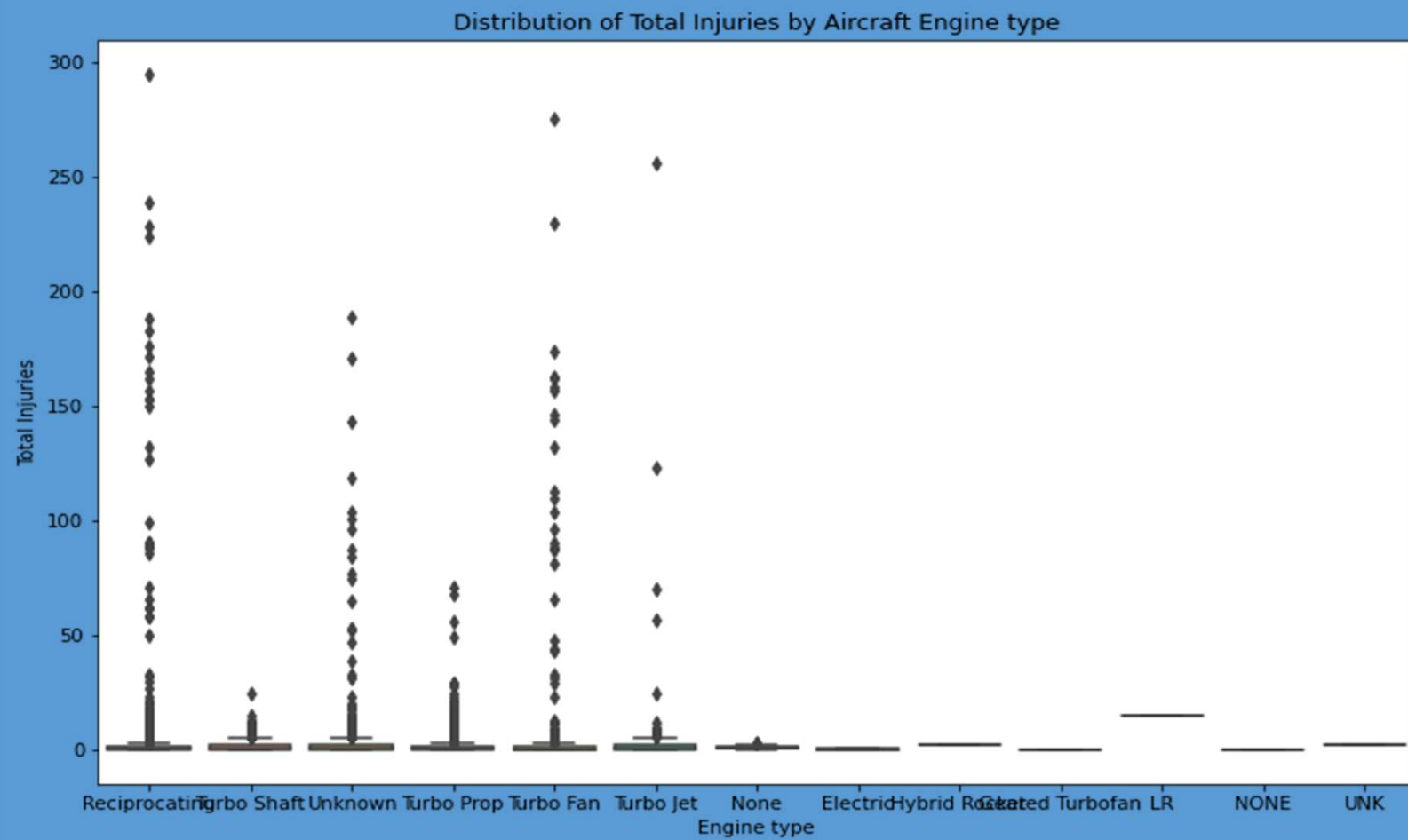


3.2 Bivariate

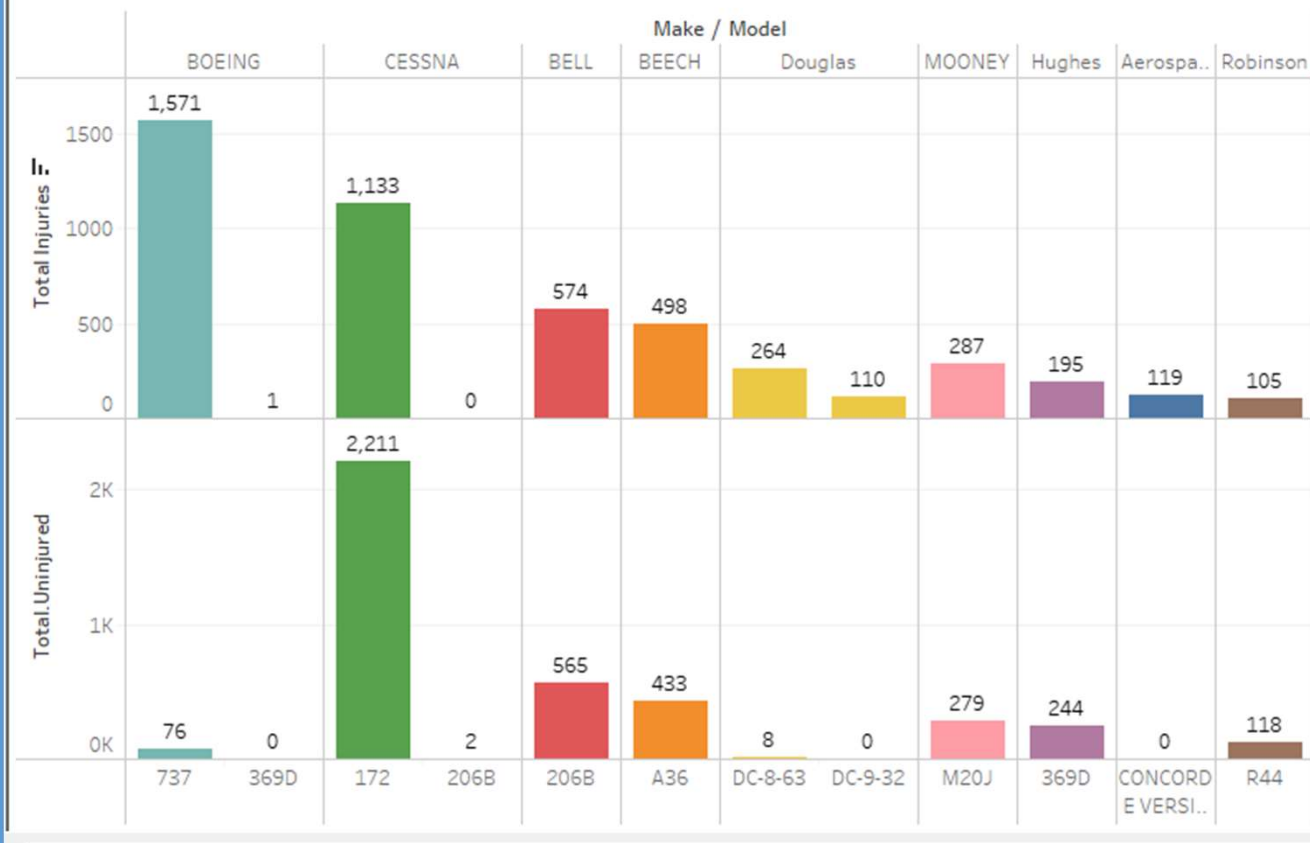


3.3 Multivariate





Number of people involved in aircraft accidents by Make/ Model



Conclusions

- From the above analysis, we can be able to conclude that;
- Boeing 369D, and Cessna 206B are least involved in Accidents and injuries
- The least aircraft category involved in injury incidences is the powerd-Lift
- LR(Long range) Engine type carries the least number of injuries

Recommendations

- While purchasing Aircraft, the company should consider the following;
- Multi- engine aircrafts should be prioritized. As observed, aircrafts with fewer engines tend to cause most accidents and injury incidences as well
- LR(Long Range) engines should also be considered into the fleet. LR engines have shown to have caused the least number of injury incidences probably due to their reliability
- Power- Lift, Boeing 369D, and Cessna 206B should also be given the first priority as they have shown to cause less injury incidences
- If the company plans to include Cessna, safety measures and training of pilots on handling Cessna aircraft should be prioritized.
- For the case of weather conditions and landing. The company should invest in advanced weather detection systems and also give pilots advanced training on VMC weather conditions and how to handle aircrafts during landing phase.

THANK YOU!