

# Business Analysis of Risks in the Aviation Market



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# Overview

Our company is looking to grow by entering the aviation industry to diversify our business. This new venture means we need to understand the risks involved in choosing the right aircraft. To make smart decisions, we will analyze data to identify which aircraft models are safe, efficient, and meet regulatory standards.

By looking at past incidents and operational data, we aim to find aircraft that have a low risk of accidents. This analysis will help us create a solid strategy for entering the aviation market, ensuring we make informed choices that protect our investment and support our company's growth.

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# Business Understanding

## Objective

- To Identify the safest and most cost-effective aircraft models for commercial and private aviation operations.

## Key Questions

- Which aircraft models have the lowest accident rates?
- What are the cost implications and operational risks of different aircraft?

## Market Entry Strategy

- The company aims to enter the aviation market but lacks knowledge about potential risks.
- Data analysis will identify low-risk aircraft to inform purchasing decisions.

## What to consider

- Focus on aircraft safety and historical incident rates to mitigate risks.

# Data Understanding

## Data Source

This analysis uses a dataset from Kaggle that comes from the National Transportation Safety Board (NTSB). This database has information about civil aviation accidents and important incidents in the U.S. since 1962. It includes early reports of accidents that get updated as investigations continue. The purpose of this dataset is to make air travel safer by analyzing incidents.

## Shape and Size of the DataFrame

- The data consists of 31 columns which represent the attributes of an event and 88889 rows for each event.

## Data Types

- The data types listed represent the structure of the dataset related to aviation accidents. Each row corresponds to an individual accident, and the columns capture various attributes of these incidents.

# Data Understanding

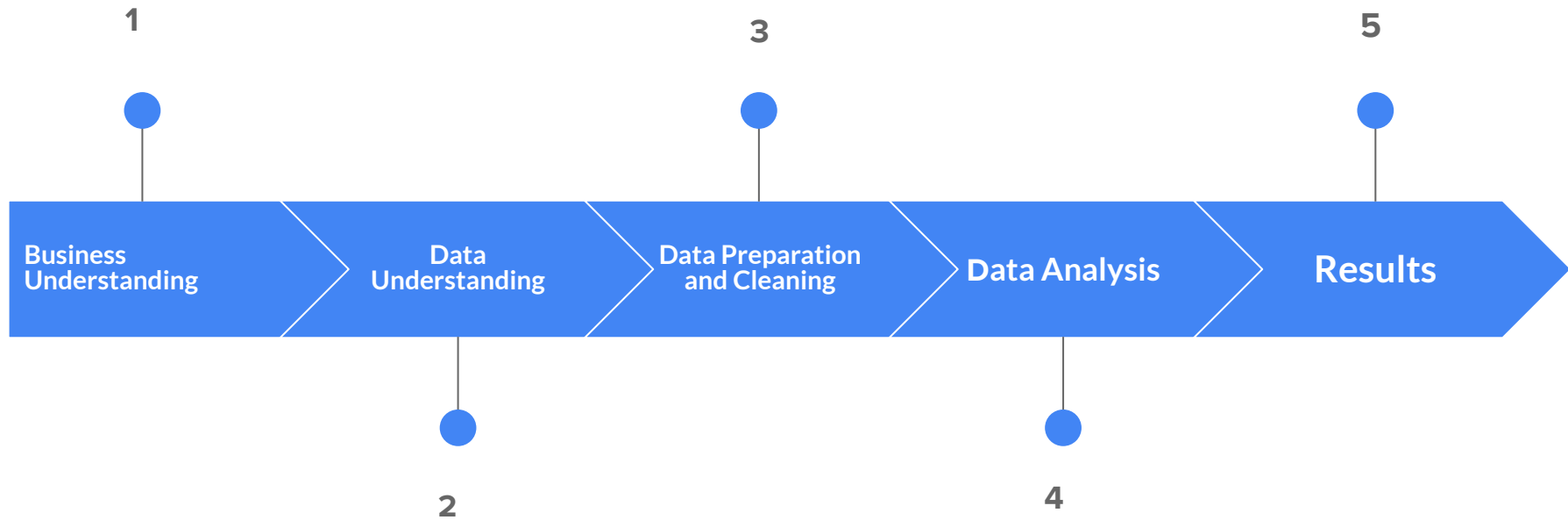
## Loading the data

- This involves importing the dataset into the environment where analysis will be done.

## Data Cleaning

- This involves checking for missing values and replacing them with place holders or mode

# Data Analysis

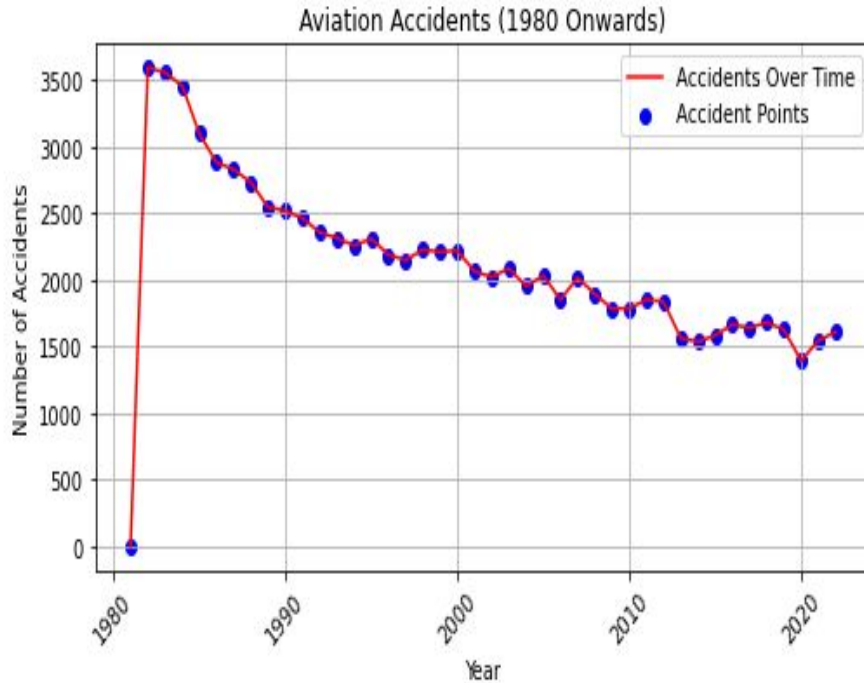


The data analysis will address three main questions:

- Identify aircraft makes with the highest and lowest accident rates and their severity.
- Determine which aircraft types handle poor weather conditions more effectively, especially for operations in areas with changing weather patterns.

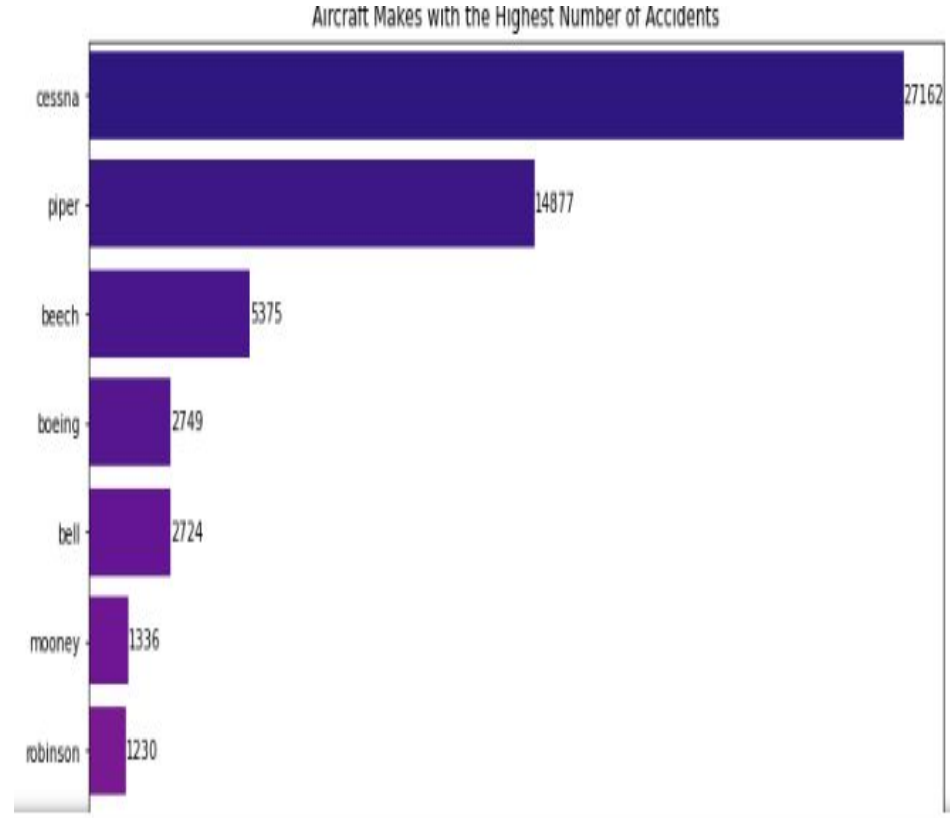
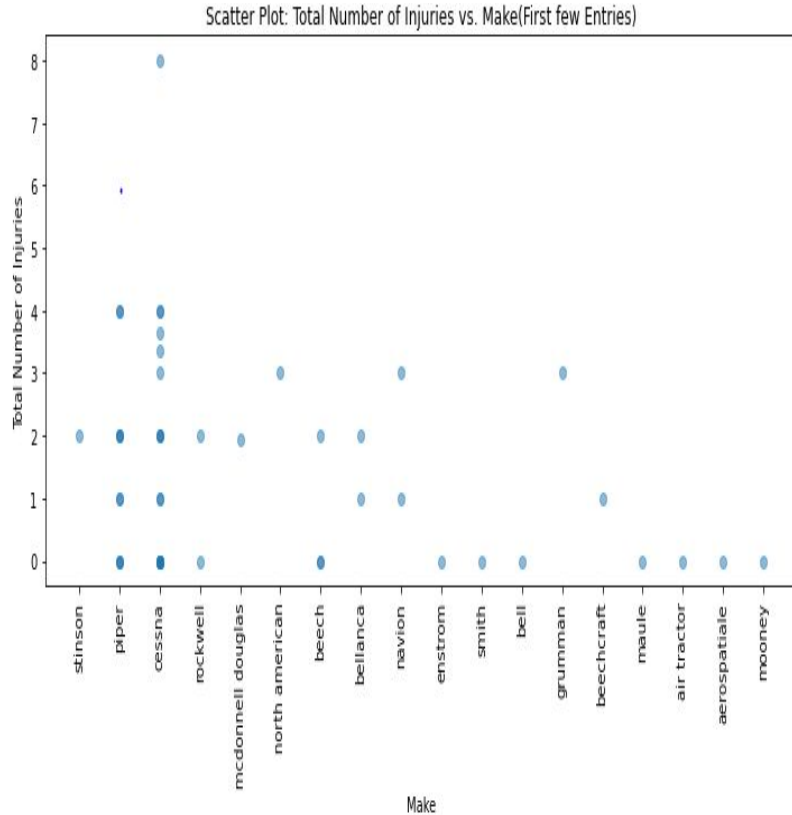


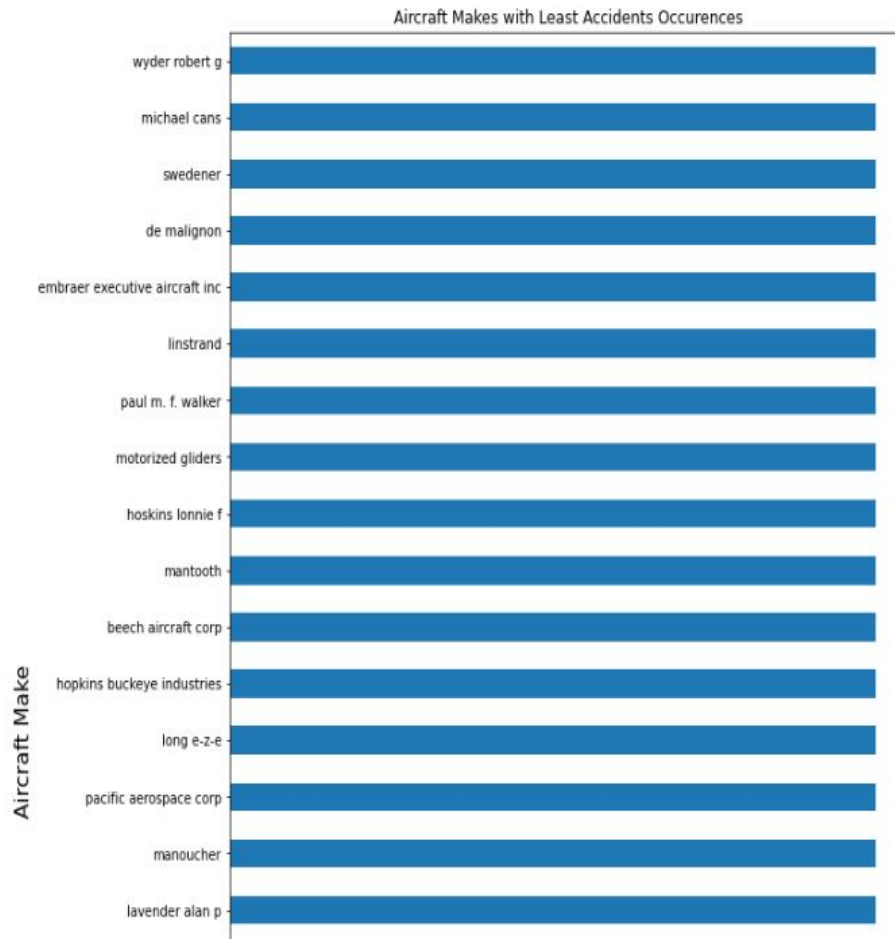
# Aviation Accidents



- As time progresses it is evident that the number of accidents related to aircrafts reduces. This can be attributed to evolving technologies.

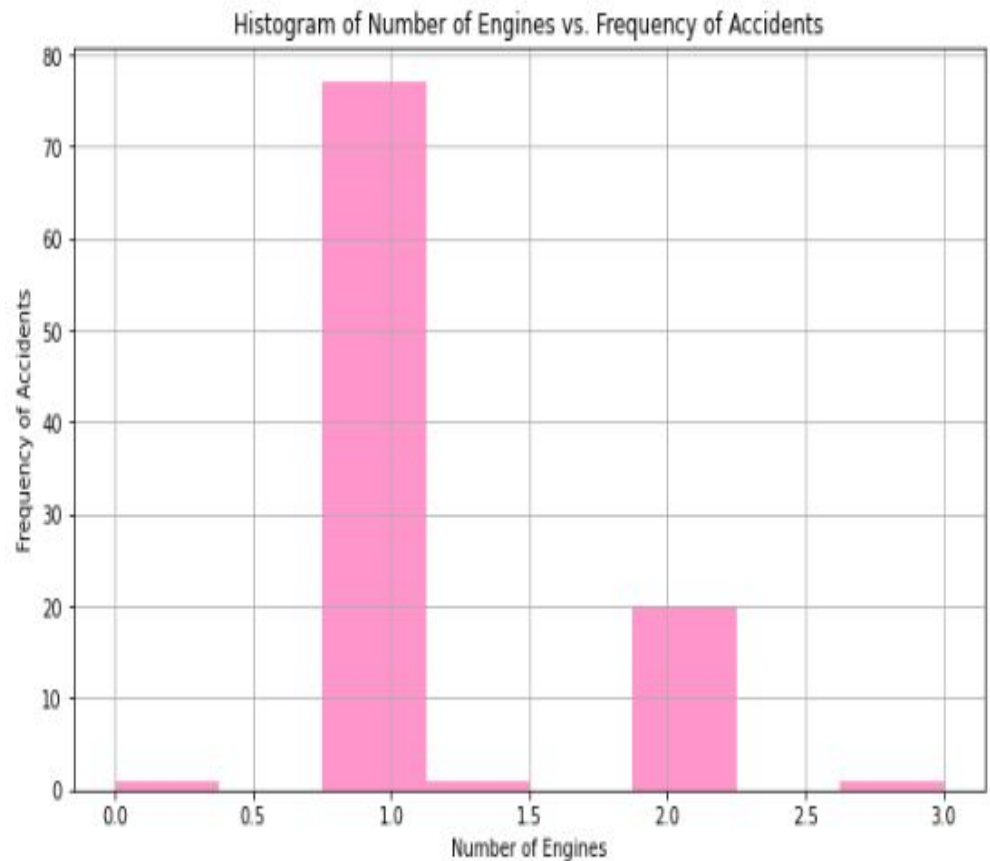
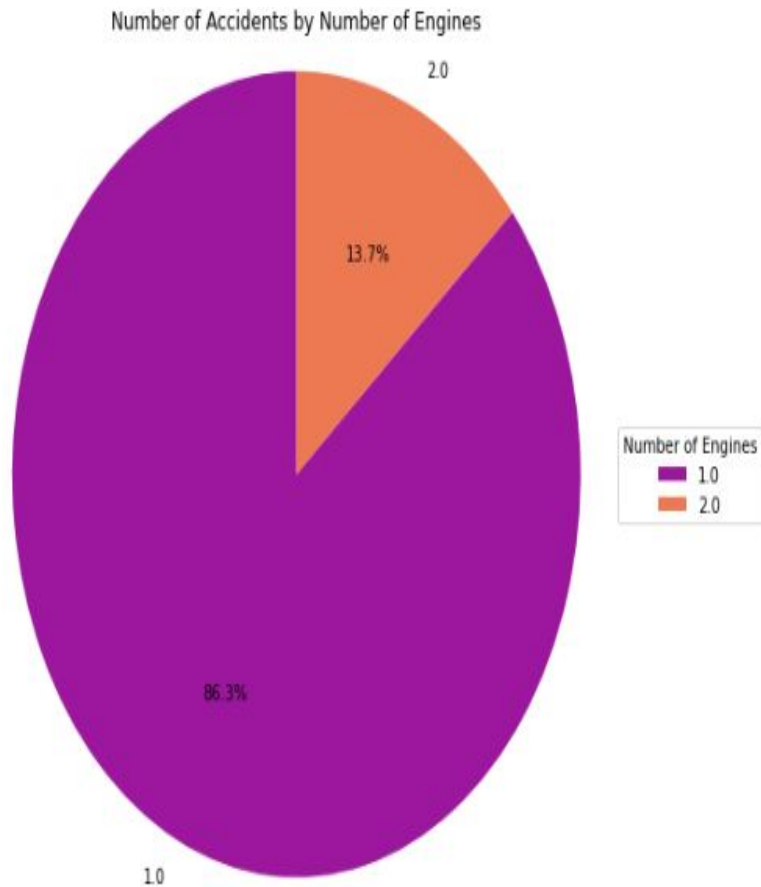
# Aircraft Makes as per the outcome of the accidents





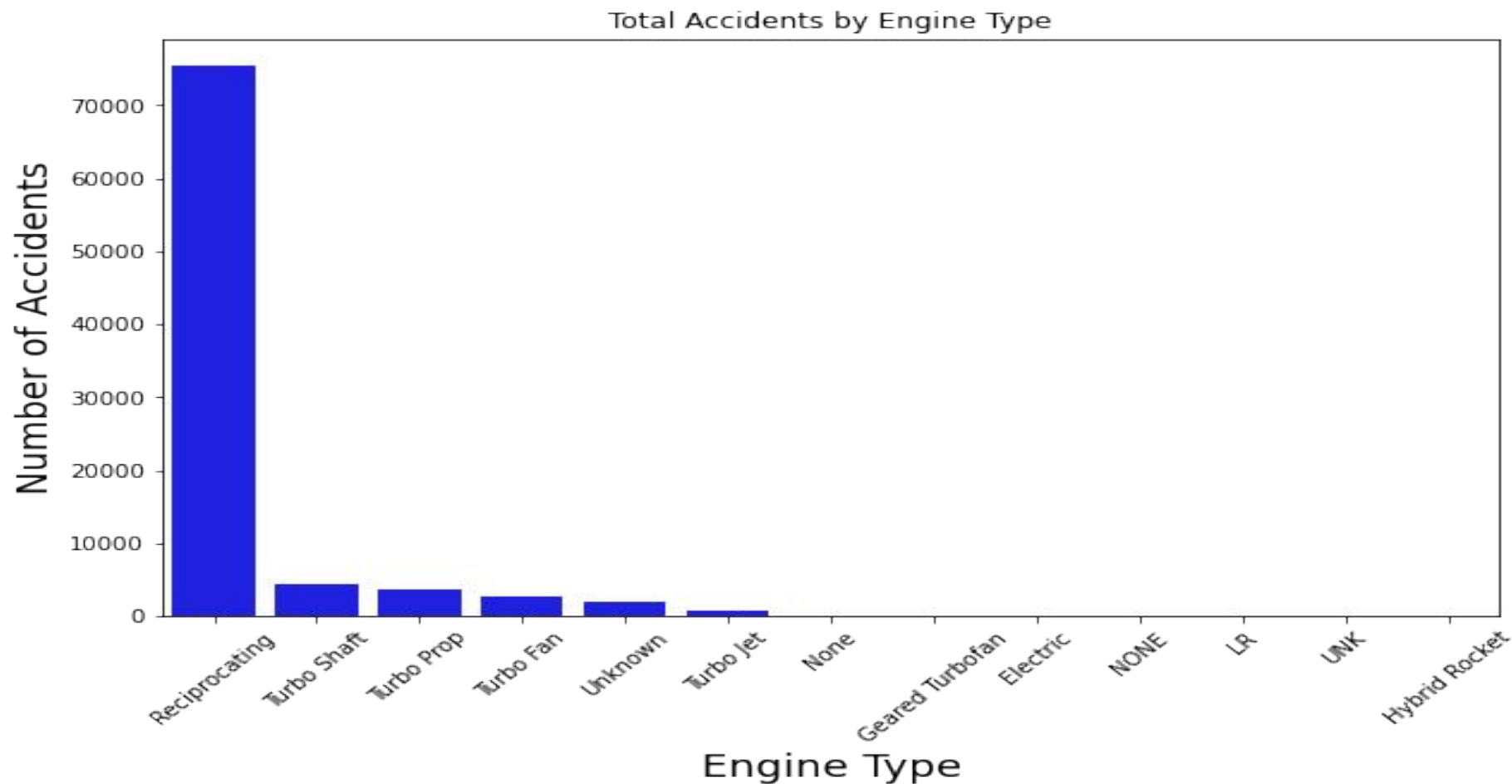
- The above plots provide an insight on the airplane make that pose the least risk and therefore one can make an informed decisions when purchasing the aircrafts by avoiding those with the highest number of accidents

# Accidents in relation to number of engines



- From the plots it is evident that single engines are accident causing making aircrafts with two to threes engines safer and therefore potentially reducing the risks involved.

# Accidents in relation to the engine type



- The graph above shows a list of engines relating to the number of accidents and this helps to make decisions on which types of engines to look out for and which to avoid in order to reduce the risks posed.

# Recommendations

- When choosing an aircraft, it's best to select models with the fewest accident records, as the data shows these models tend to have a lower accident rate.
- The Make of the aircraft also determines the risk of accidents which should also be considered when buying aircrafts for the business.
- Injuries become more severe as the extent of aircraft damage increases, highlighting the need to keep aircraft well-maintained to reduce injury severity in the event of an accident.



# THANK YOU

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