AVIATION INDUSTRY RISK ASSESMENT REPORT

BACKGROUND

The company is expanding into new industries to diversify its portfolio. Specifically, they are interested in purchasing and operating airplanes for commercial and private enterprises, but do not know anything about the potential risks of aircraft.

There is need to determine which aircrafts are the lowest risk for the company to start this new business endeavor.

As a result, the head of the new aviation divisions needs to acquire information to enable decision making on which aircraft to purchase. The Data and Analytics team is tasked to acquire recorded historical data and derive findings that translate into actionable insights.

For this particular analysis, we focused on USA as it had majority of the records within the dataset.

OBJECTIVES AND GOALS

- The biggest risk in the aviation industry is safety which might result to serious damages to a business and even more for a new venture. The above may lead to brand damage and heavy financial implications.
- To enable the business to make key decisions, our focus will be as below:

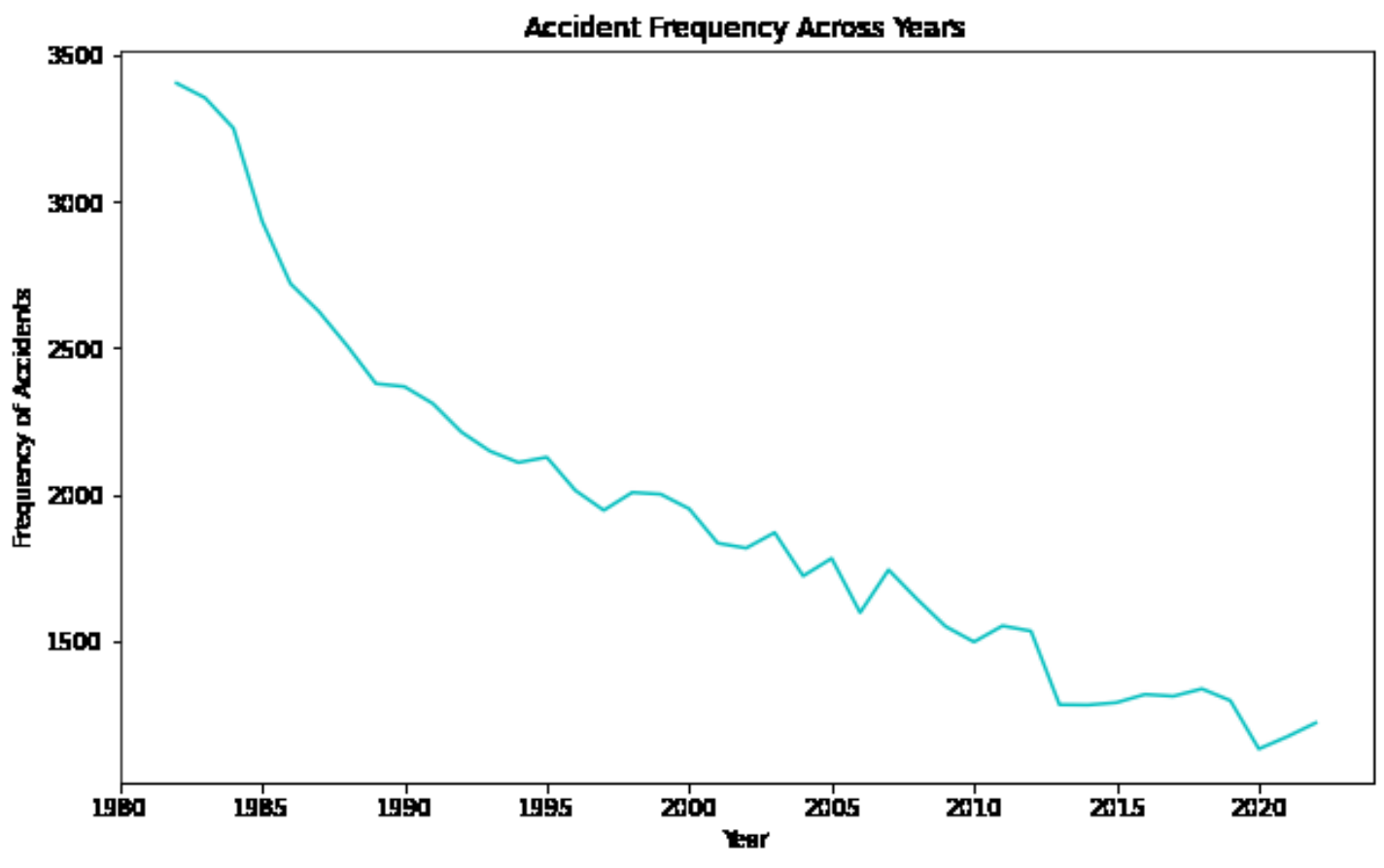
Main objectives:

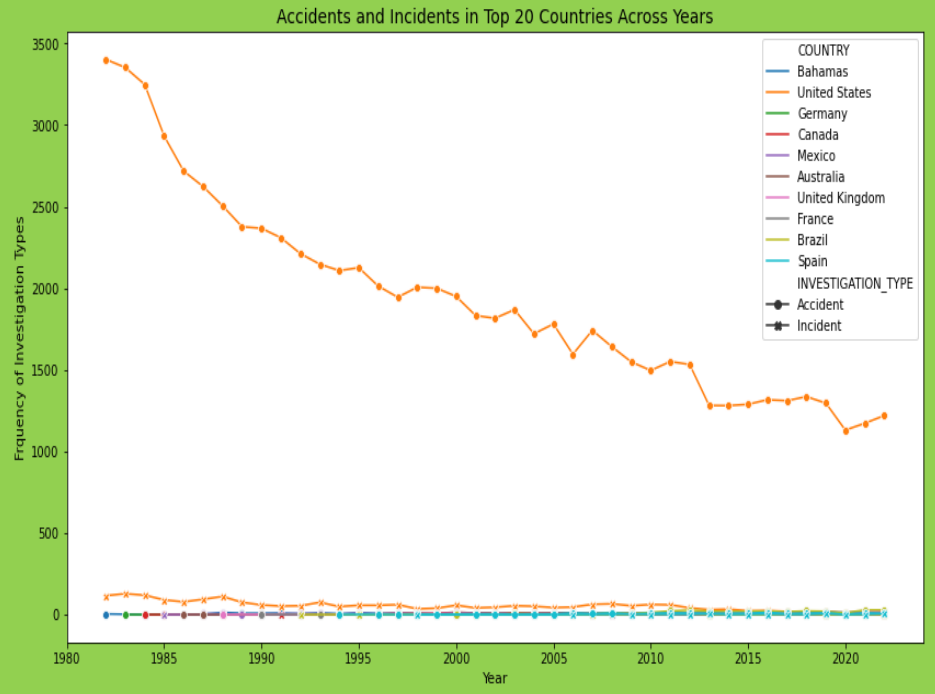
- Determine low risk aircraft model to purchase
- Determine between business and commercial flights which is the lowest risk

Key Variables of focus

- Historical Trends in aircraft safety
- Aircraft Make and Model
- Aircraft Purpose

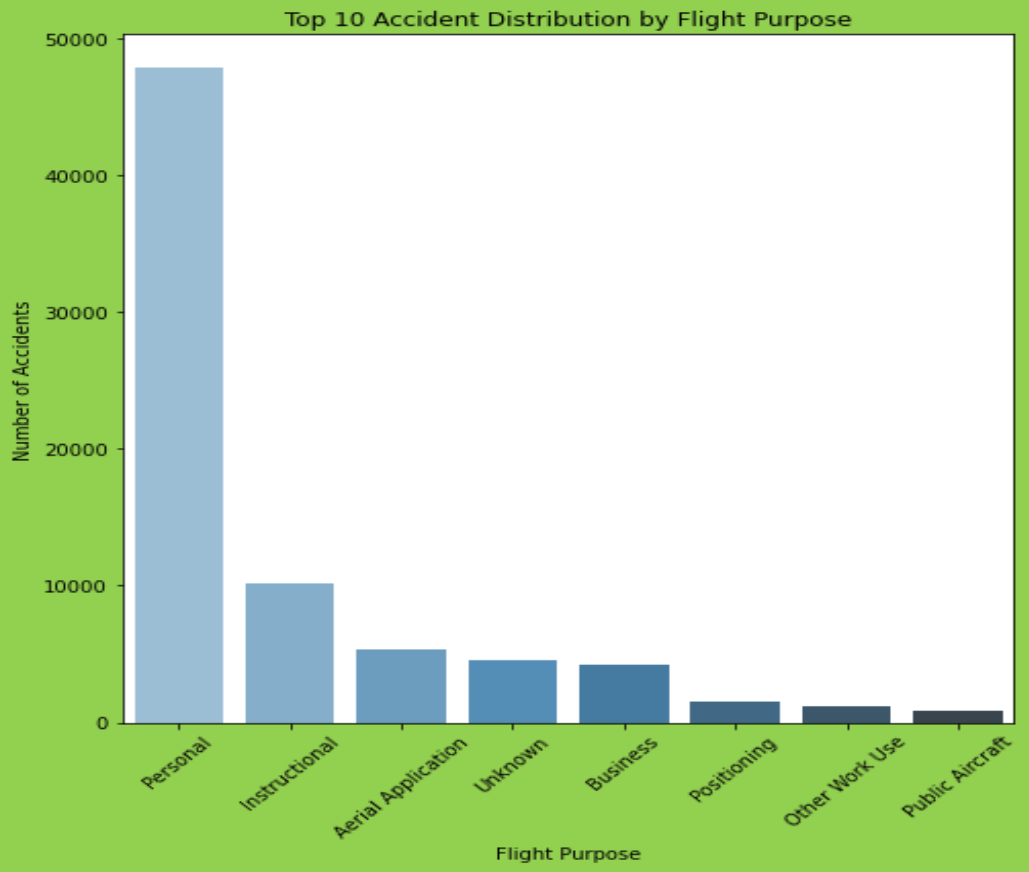
HISTORICAL SAFETY TRENDS IN AVIATION INDUSTRY

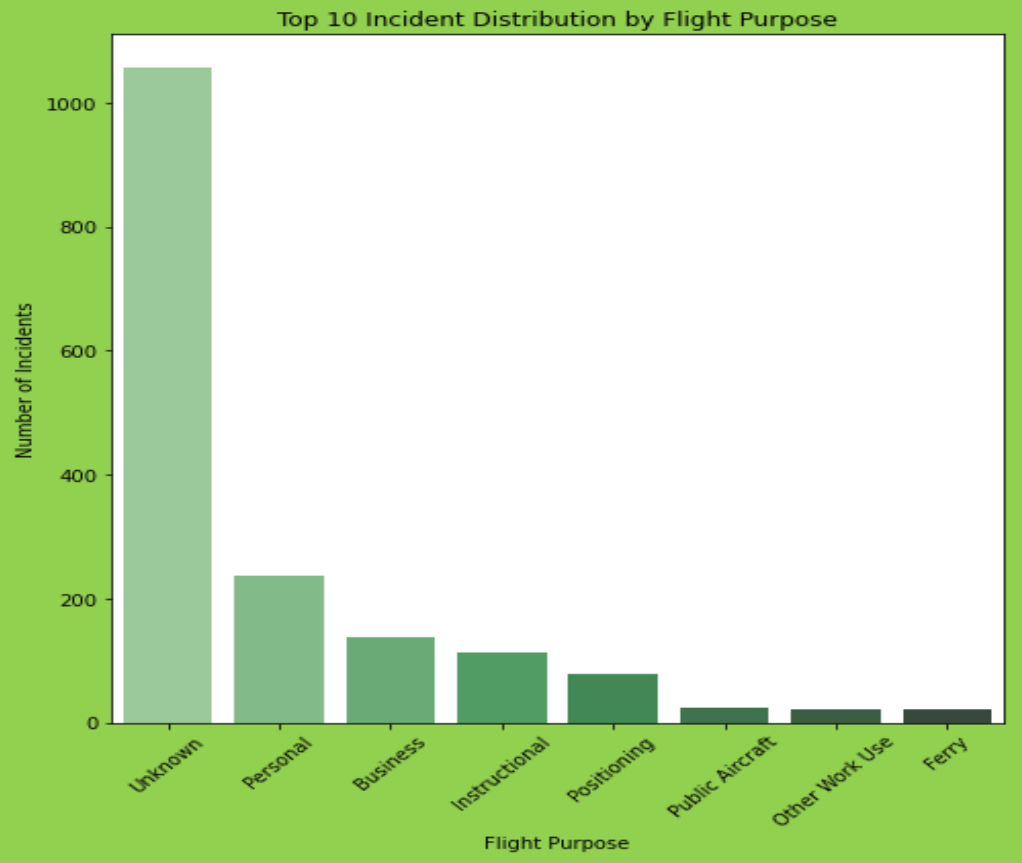




- A general decrease in accidents is observed over the years
- Grouping accidents by country also shows a decrease heavily depicted by USA which had the most records available within the data used for analysis

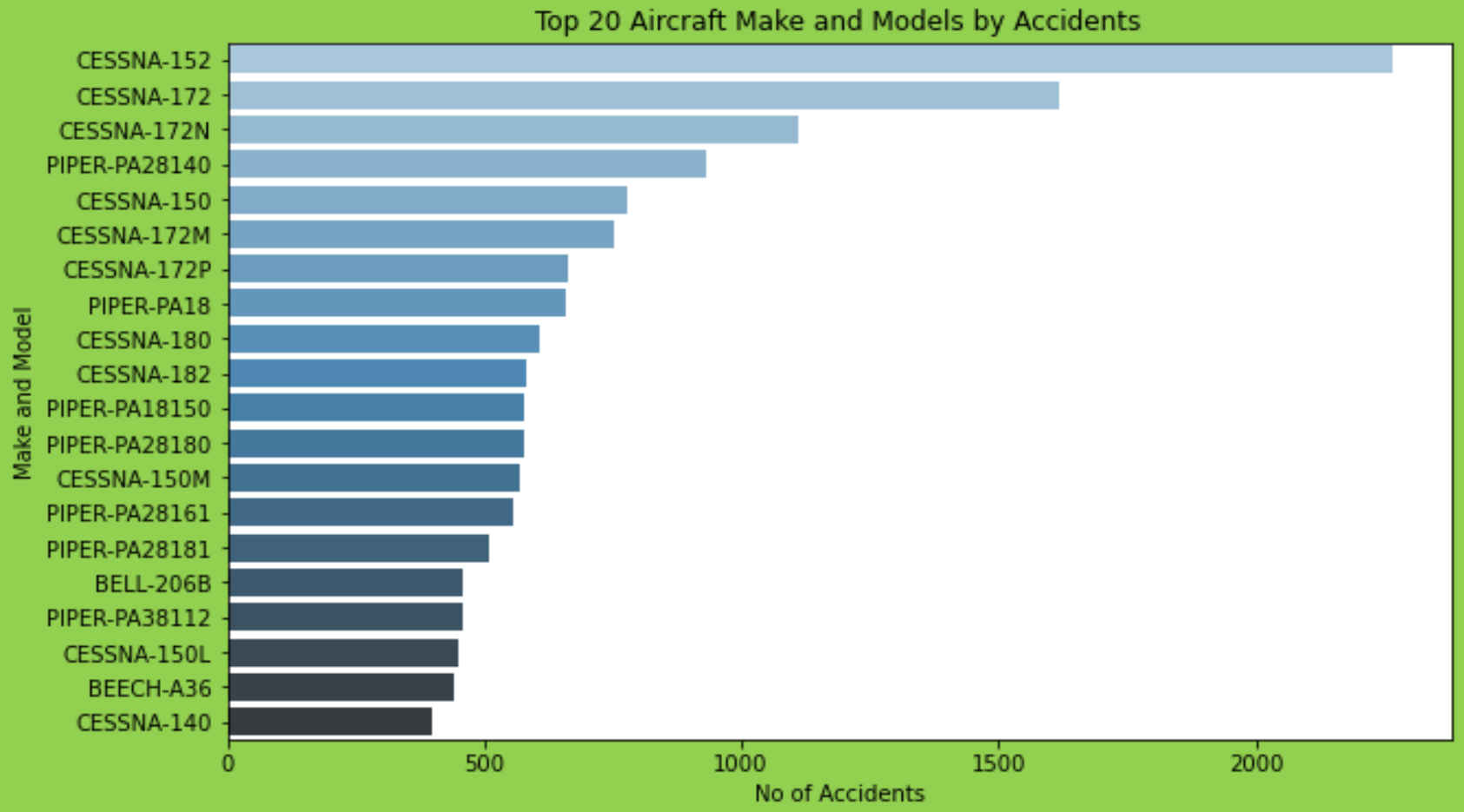
ACCIDENTS & INCIDENTS BY FLIGHT PURPOSE





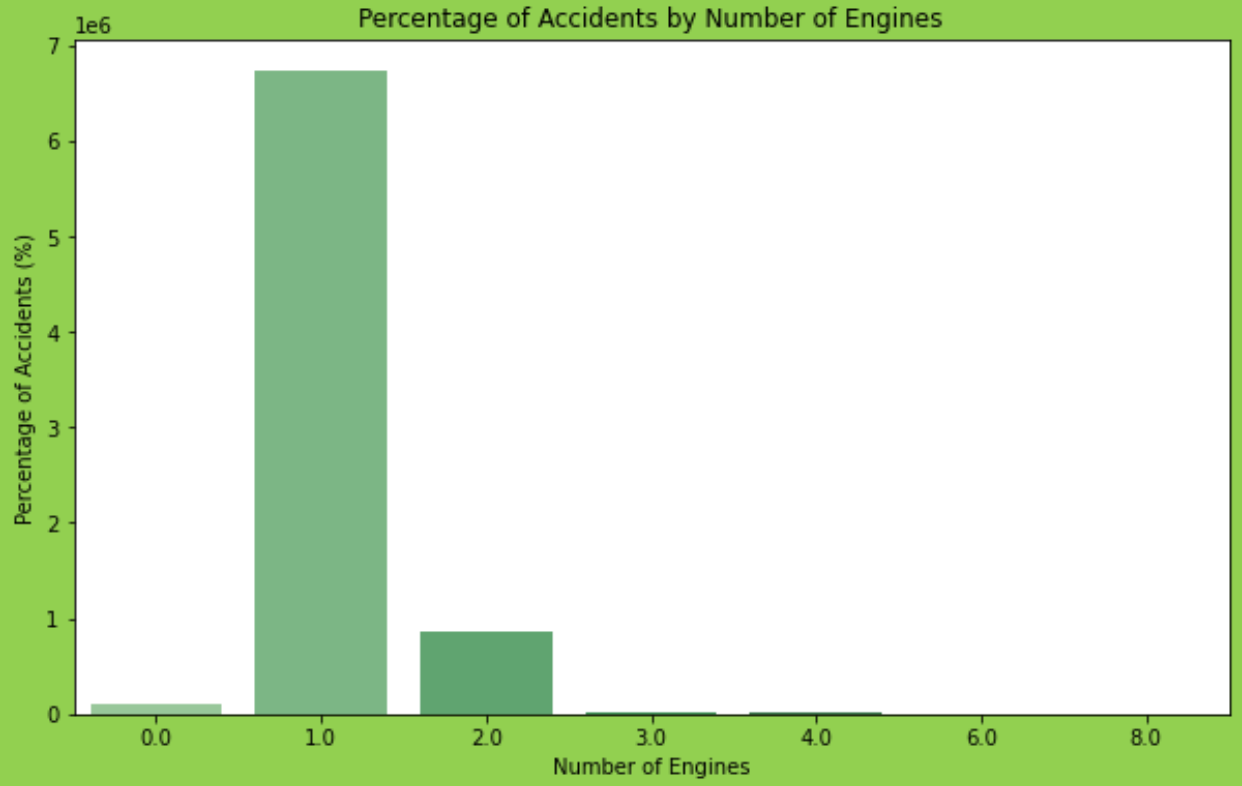
- Aircrafts for private enterprises results to more incidents and accidents when compared to business enterprises.

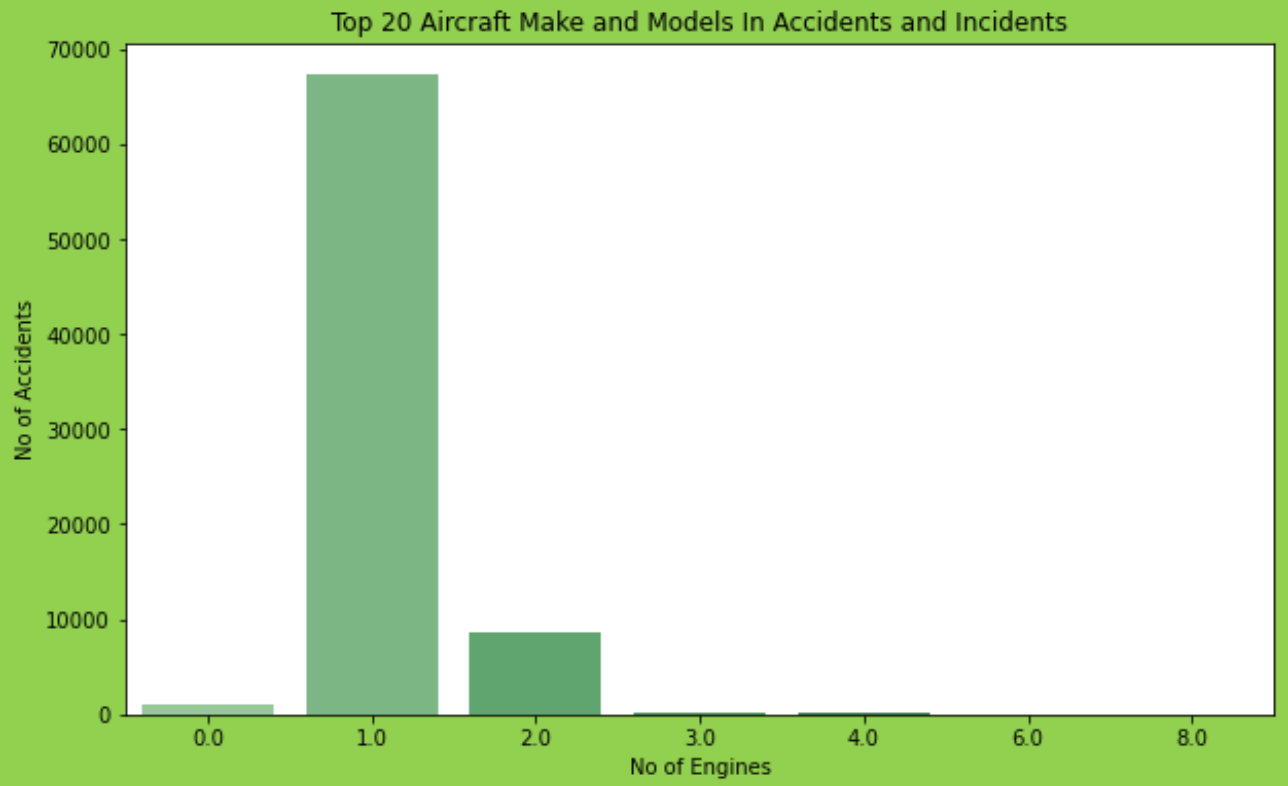
ACCIDENTS BY AIRCRAFT MAKE & MODEL



- CESSNA aircraft make had the highest total accidents, however we cannot conclude that the problem is the make but it might be that CESSNA is the most purchased aircraft when compared to other makes.
- Another possibility, is the flight purpose which might also affect whether the plane results to other accidents or not

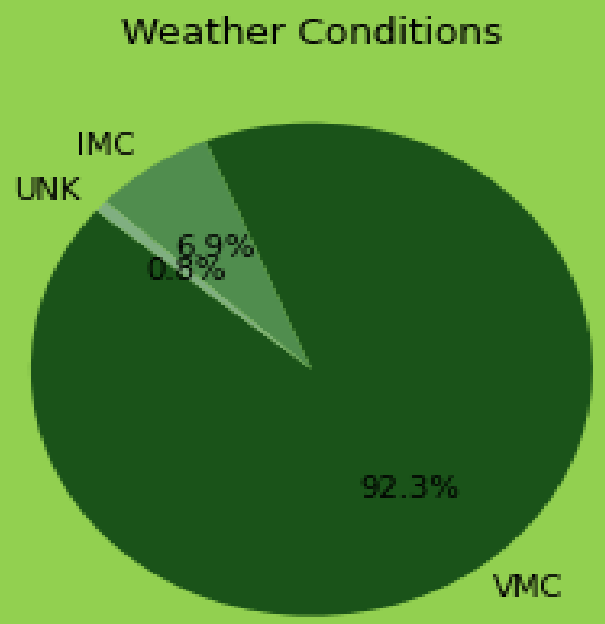
ACCIDENTS BY NUMBER OF AIRCRAFT ENGINE

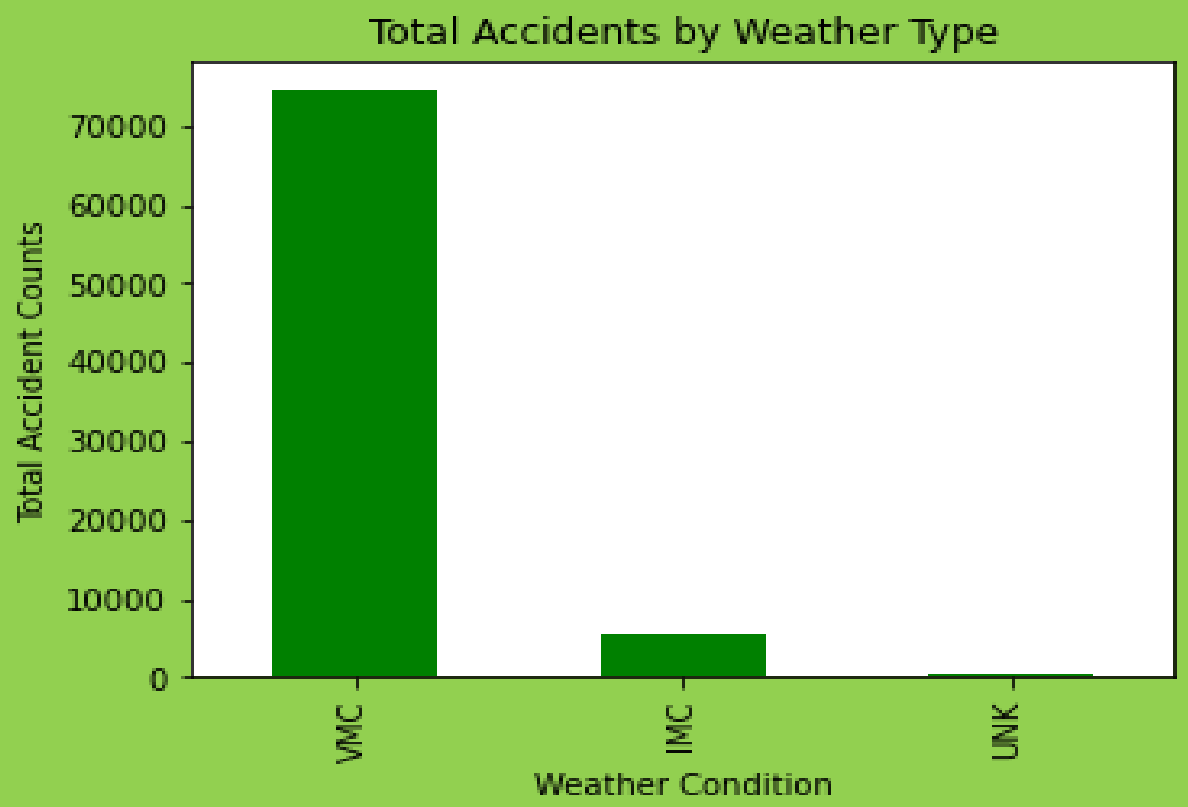




- It is noted that some aircrafts had 0 engines. This may be because they were glider planes often used for sporting activities such as paragliding
- However, for most flights we note that the lesser the number engines the higher the accident rates

ACCIDENTS BY WEATHER





- 92% of accidents take place at VMC(Visual Meteorological Conditions) weather condition, yet it is the most appropriate weather for flying.

CONCLUSION

- From the analysis, commercial aircrafts have a lower risk when compared to private aircrafts.
- we learn that number of engines poses a risk to the aircraft getting an accident or incident but does not necessarily correlate to injury or no injuries when the events occur.
- 92% of the accidents take place at Visual Meteorological Conditions, the most ideal conditions for flying.
- The purpose of flight may be one of the factors attributing to accidents and incidents, however additional factors such as make and model may also influence depending on what aircraft is purchase for what purpose and the safety mechanism during the engineering process which we have not delved in.

RECOMMENDATION

- **Company can consider venturing into the aviation industry:**
  - Based on safety trends there has been a general decrease of accidents and incidents overtime. This may be attributed to improvement in aircraft designs, safety protocol and procedures which has generally improved safety posing low risks.
- **Company should venture into business enterprise over private:**
  - Business possess lower risks in terms accidents occurring, which will be beneficial to the new aviation unit as a brand which customers associate by
  - Cost implication of accidents/incidents maybe minimized due to less accidents occurring.
- **Company should purchase aircrafts with 3 engines and above:**
  - Recommended engines have lower accident rates as compared to 2engines which has highest accidents
- **Further accident causal factors to be investigated to determine which Make of aircraft is best, as this is not really clear. However, from the different makes we can clearly pick which models to venture into.**
- **Before making further decisions, company should also check the financial implications of the above to ensure maximization of profits for the Business.**