FINAL PROJECT

DATA SCIENCE PART TIME

PHASE 1

INTRODUCTION

In this presentation I show my findings from the analysis of aviation accidents to determine the flight that poses low risk for the company.

Factors that lead to the overall safety of an aircraft are analysed and the insights generated shared.

PROBLEM STATEMENT

My company is interested in purchasing an airplane to diversify into this industry for commercial and business purposes. The aviation industry has experienced tragic accidents over time. With the dataset given, I will explore the factors to consider to ensure low risk when buying an airplane for the company. The task is to find the factors to consider to purchace an aircraft such that the risk to accidents is low.

SOLUTION

From my analysis I was able to find good insights:

1. Boeing and Cessna were the top airplanes to consider for the company.
2. An aircraft with 2 engines was less risky for the company.
3. An aircraft with Turbo fan engine type would be the best for the company.
4. An aircraft built by professionals was the less risky for the company.

DATA AND TOOLS USED

The data used was the AviationData.csv which is data collected by National Transportation Safety Board. The data includes aviation accidents.

The tools used for my analysis are:

Python for the programming language, version 3.8.5

Packages used are Matplotlib, Seaborn and Numpy.

GOALS

My client

My company, seeks to purchase an aircraft that has low risk to the company.

The goal

To figure out the aircraft with that has low risk. This will be achieved by analysing factors that are related to the aircraft.

DATA DESCRIPTION

The data used for analysis had 81,961 rows and 17 columns.

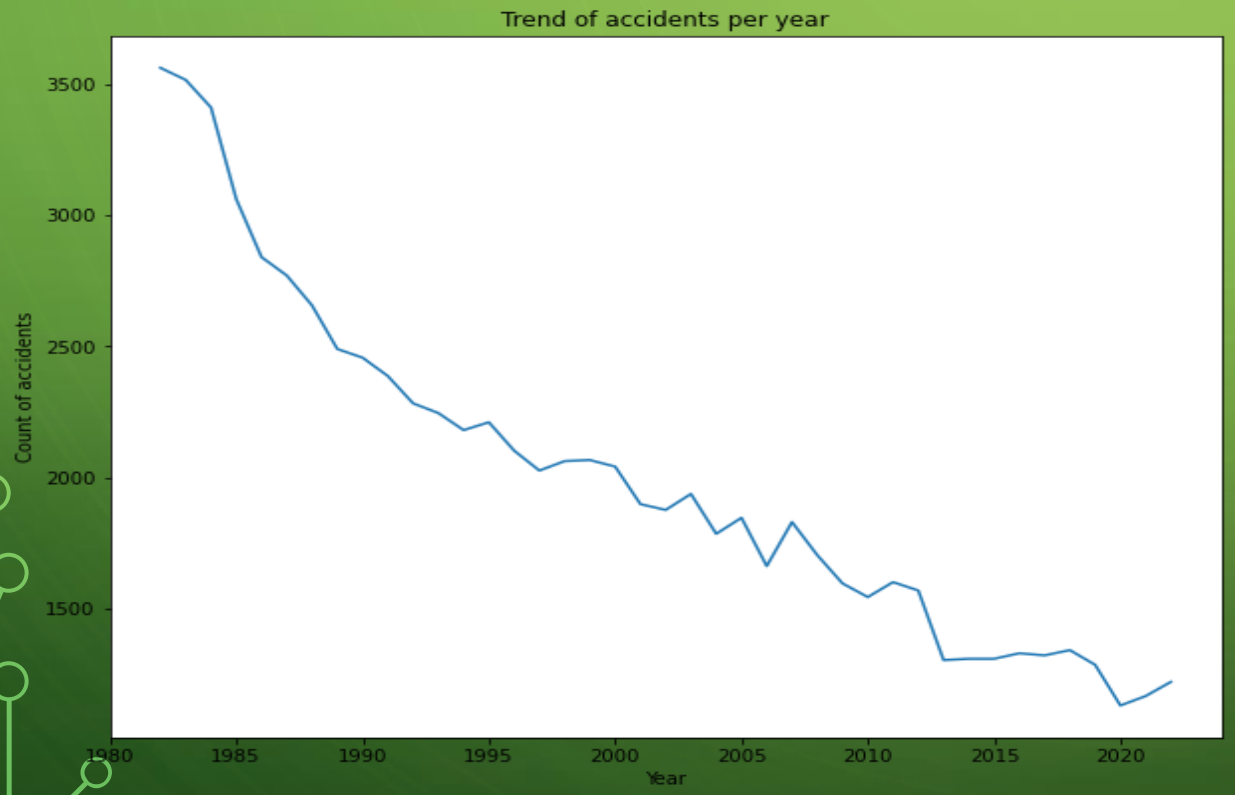
The key variables used were:

- Number of engines
- Type of engine
- Make of the aircraft
- Built of the aircraft
- Injuries and survival rate

The approach for my analysis was mainly descriptive and inferential statistics.

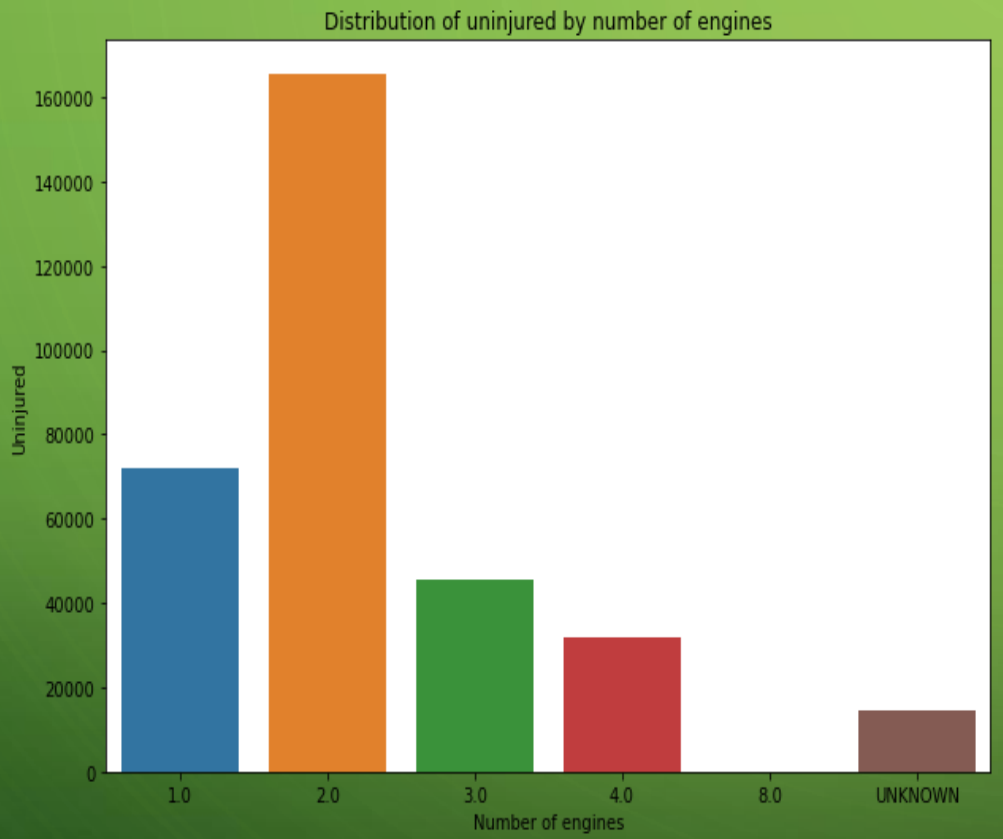
FINDINGS

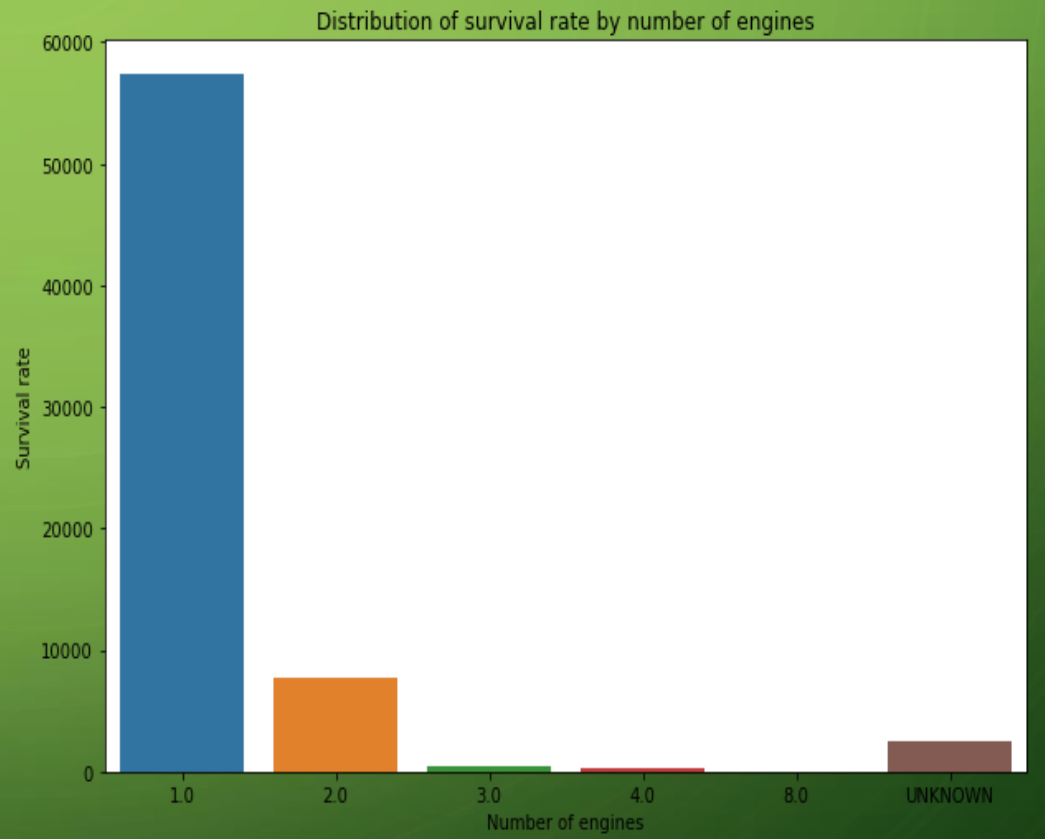
What is the general risk of owning an airplane ?



The trend of accidents tend to decrease. This can be attributed due to improvement in technology and more measures put in place to increase safety. Due to this buying an airplane would ensure general safety for the company.

HOW MANY ENGINES SHOULD THE AIRPLANE HAVE ?

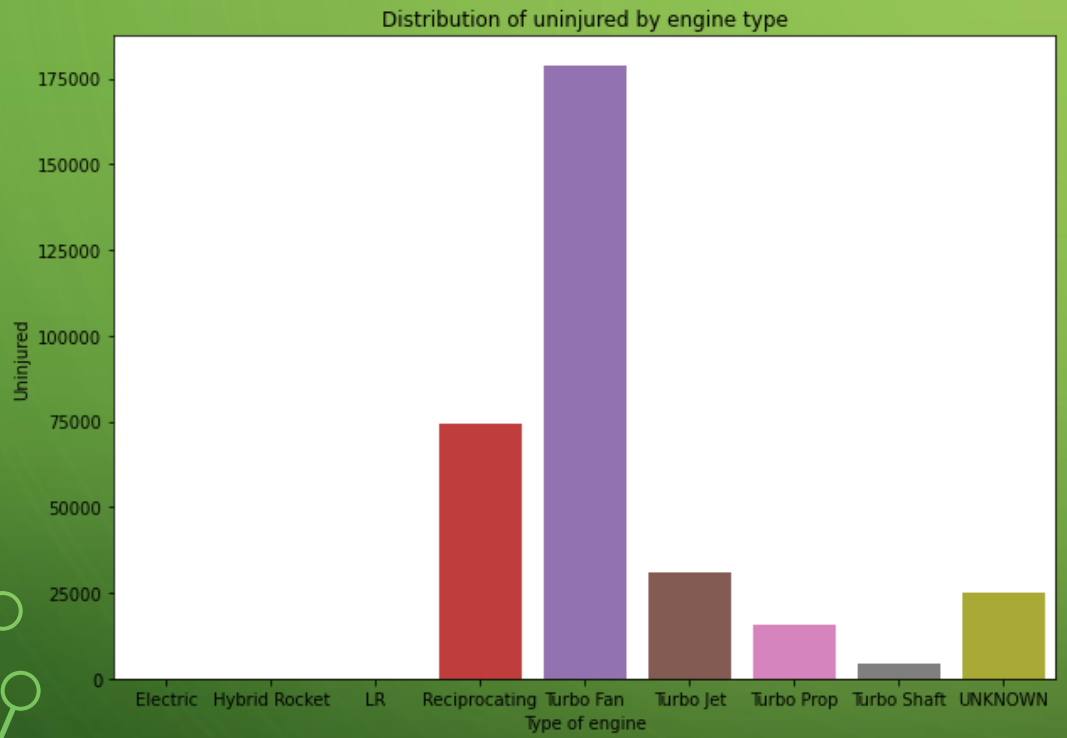


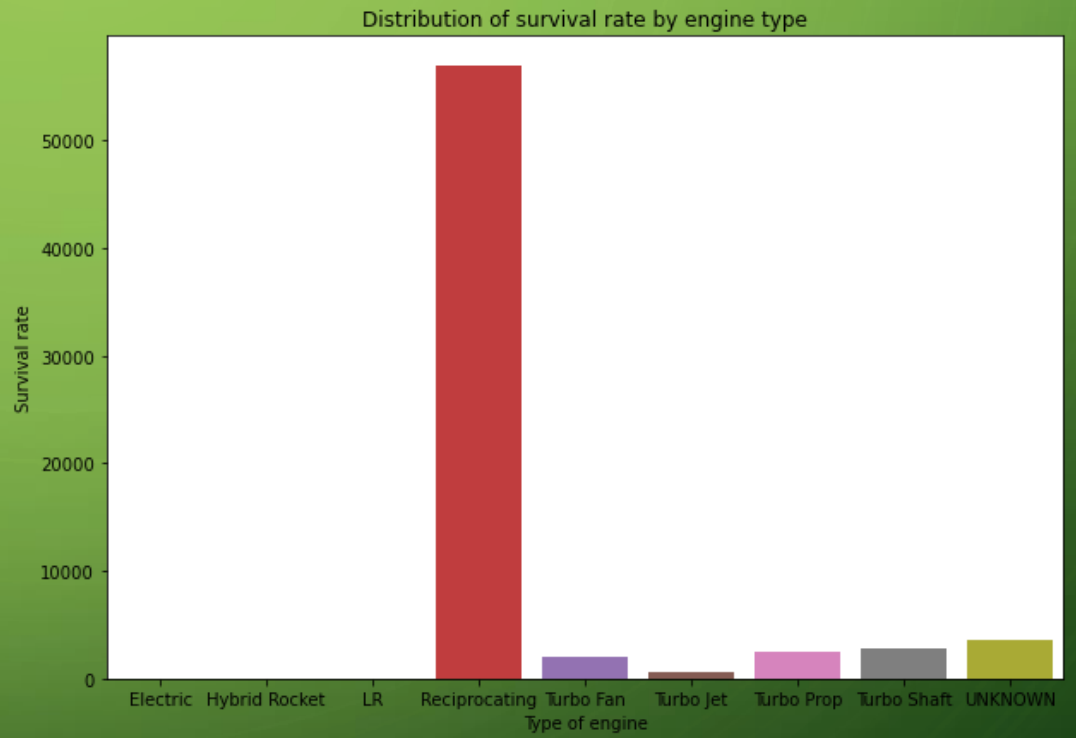


DESCRIPTION

Despite having a high survival rate, 1 engine would pose many risks for the company's airplane. A plane with two engines has the most number of uninjured persons and it also has a slightly higher survival rate. This would pose low risk for the company. Thus, the company should consider buying a plane with two engines.

WHICH ENGINE TYPE WOULD BE THE BEST FOR THE COMPANY'S AIRPLANE ?

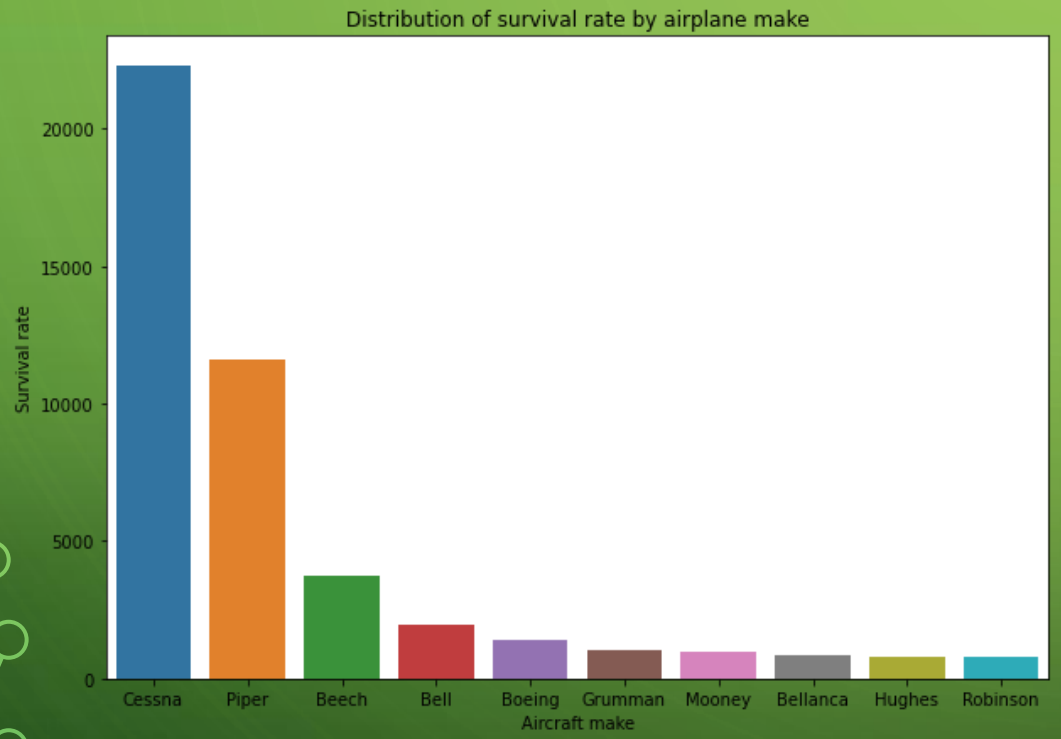


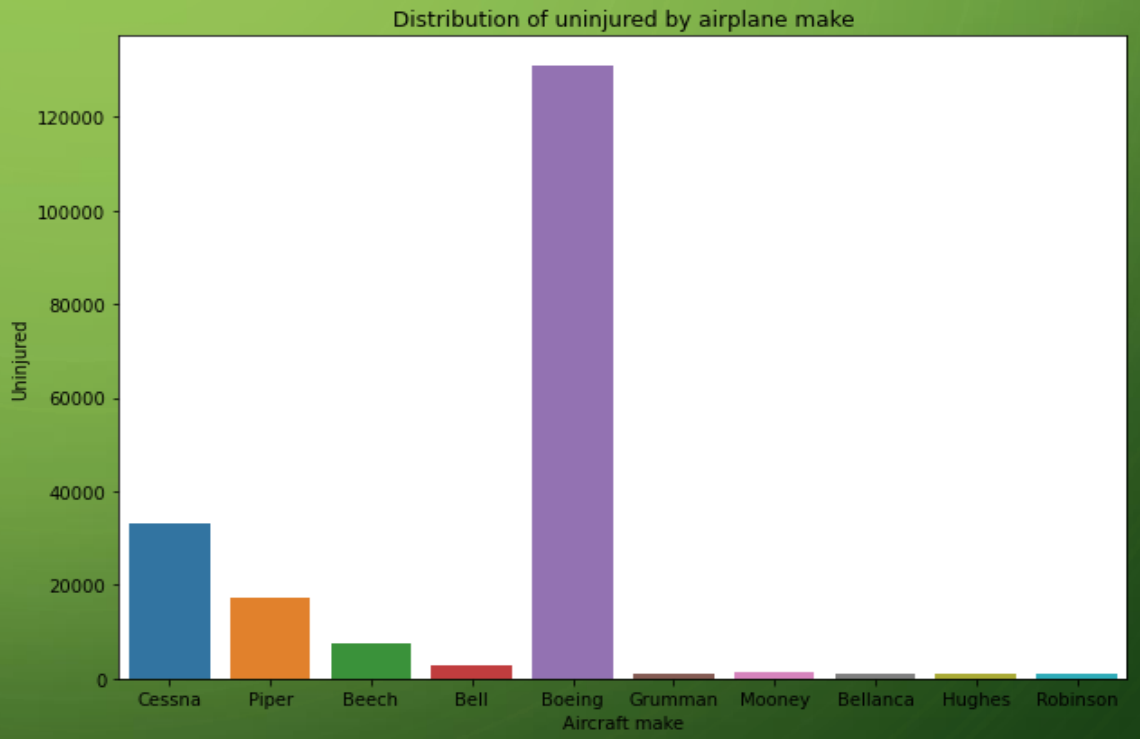


DESCRIPTION

Turbo fan has the high number of uninjured followed by reciprocating. The company can consider buying an aeroplane with a turbo fan engine as it is the most common for commercial and private jets. Reciprocating has the highest survival rate and this may be a good choice for the company if it plans on buying a small aircraft.

WHICH MAKE SHOULD THE COMPANY CONSIDER BUYING ?

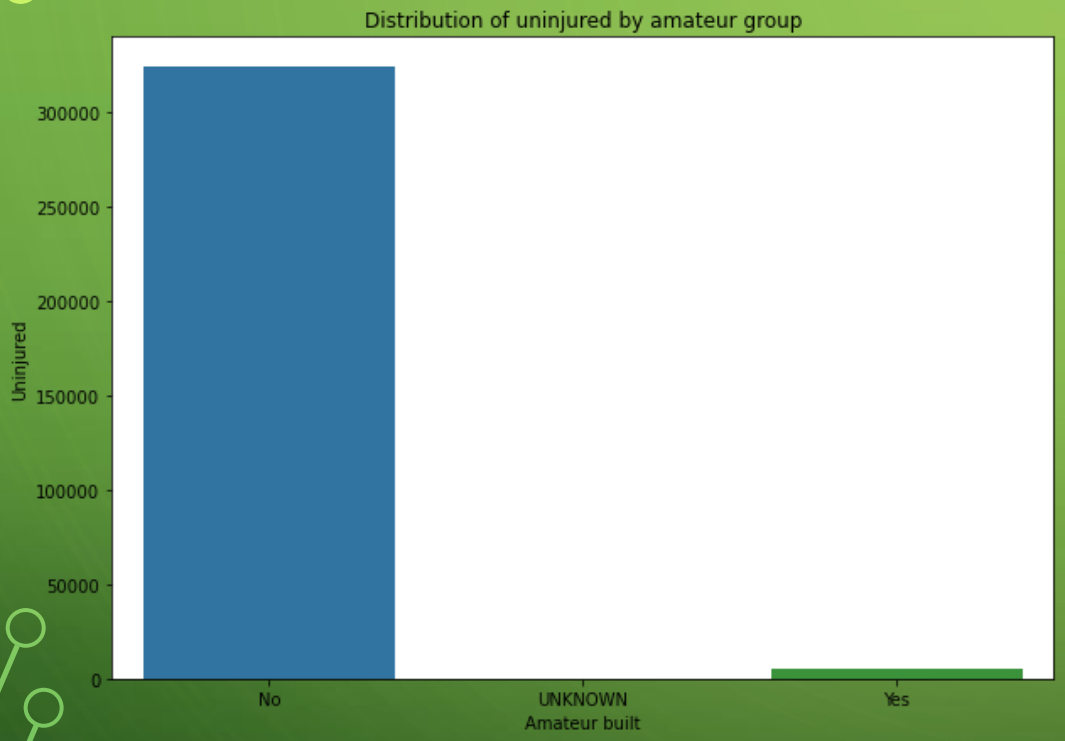


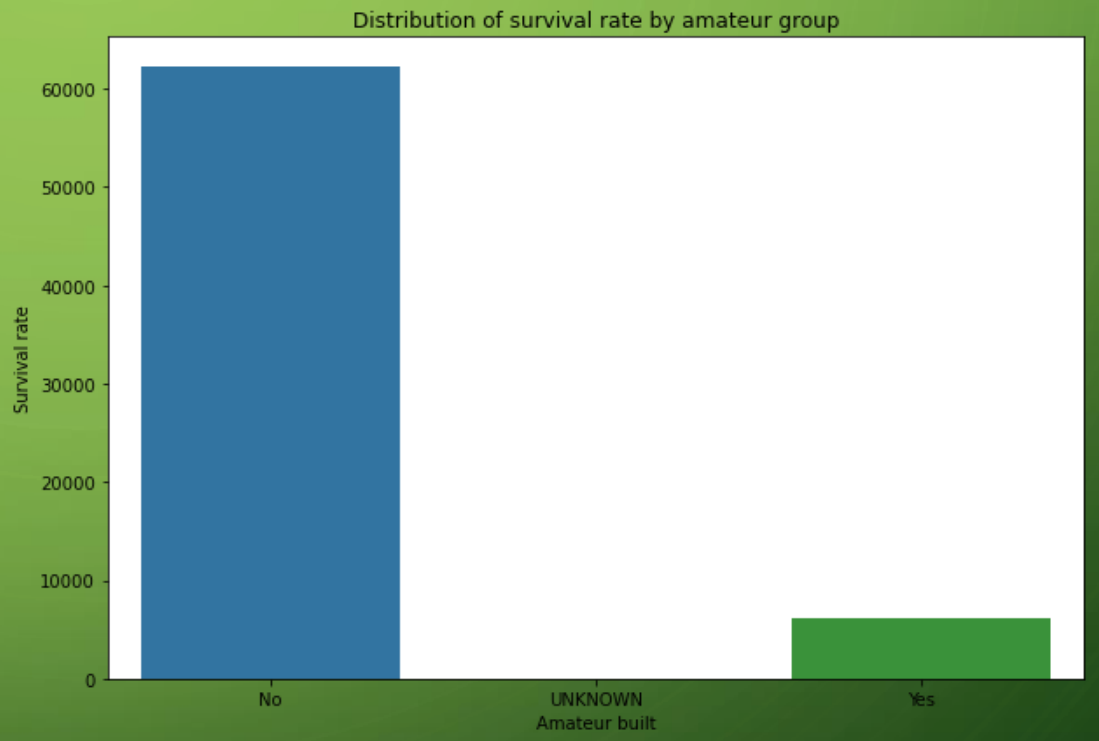


DESCRIPTION

Cessna has a higher survival rate despite having high number of fatal injuries. Boeing has the highest number of uninjured people. The company would consider buying a Boeing due to its high number of uninjured or a Cessna due to its high survival rate.

SHOULD THE COMPANY CONSIDER BUYING AN AIRPLANE BUILT BY AMATEURS ?





DESCRIPTION

Planes not built by amateurs have the highest number of uninjured people and also the survival rate. The company should consider buying an airplane that is not built by amateurs.

CONCLUSION

I have managed to analyse the dataset and managed to answer the business questions.

Generally, buying the right airplane for the company would pose little risk to the company. Below I have provided some recommendations for the company to consider in buying an airplane.

RECOMMENDATIONS

1. With the decrease in the number of airplane accidents over the years, there is less general risk in owning an airplane. This can be attributed to increased regulations to maintain safety and also due to the advancement in technology.

2. The company should consider buying an airplane with 2 engines. A plane with 2 engines has a high number of uninjured people and also a slightly higher survival rate.

3. The company should consider buying an airplane with the turbo fan engine type. Turbo fan has the high number of uninjured followed by reciprocating engine type. Turbo fan engine is also the most common for commercial and private jets. Reciprocating has the highest survival rate and this may be a good choice for the company if it plans on buying a small aircraft.

4. Cessna has a higher survival rate despite having high number of fatal injuries. Boeing has the highest number of uninjured people. The company would consider buying a boeing due to its high number of uninjured or a Cessna due to its high survival rate.

5. Airplanes not built by amateurs have the highest number of uninjured people and also the survival rate. The company should consider buying an airplane that is not built by amateurs.

FUTURE IMPROVEMENT IDEAS

The company should ensure all rules regarding aircrafts are adhered to so as to lower the risk for accidents.

Maintenance of the aircraft should be improved.

The pilot of the aircraft should follow all rules during flights.

Analysing human factors and technical factors that lead to aviation accidents to identify ways to reduce risk.