

Plane crash prediction

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Introduction

About 40 percent of the general population reports some fear of flying. Post COVID 19 pandemic, air traffic has started to get back to normal. Over the decades there have been new laws and regulations implemented to make flying safer. Our goal of this project was to find out how safe it is to fly in airplanes nowadays. And try to create a model that predicts plane crashes.

Data

For our project we used a dataset from Kaggle “Airplane Crashes Since 1908”. Dataset contains data about 4268 airplane crashes from 1908 up to 2009. Every airplane crash is described by 13 attributes (Date, Time, Location, Operator, Flight, Rout, Type, Registration, Construction or serial number, Aboard, Fatalities, Ground fatalities, Summary). The dataset has a lot of data missing from earlier times.

<https://www.kaggle.com/datasets/saurograndi/airplane-crashes-since-1908>

Model training and prediction results

We were able to put together a DecisionTreeClassifier model that predicts airplane crashes with an accuracy score of 0.63. Second best accuracy score we got with RandomForestRegressor was 0.61. We had to drop most of the columns and some rows since our data contained many missing values. For finding the best parameter we used RandomizedSearchCV. Best parameters: "Date", "Location", "Operator", "Route", "Type", "Aboard". Model predictions might have been better if we would have cleaned up our data more.

Conclusion

- The analysis revealed the well-known fact that the most common cause of airplane crashes is poor weather. It is the one fact that is hard to control, but it can be avoided by constant weather monitoring.
- But also some quite interesting facts came into our attention: the number of airplane crashes has been decreasing and also the number of fatalities meaning you have a bigger chance of surviving a airplane crash from 10% to 35%.
- In conclusion it's possible to say that there has been a decrease in airplane crashes over the last half a century. Also the fatality rate has been decreasing but it is around 65% meaning you have a 35% chance of surviving an airplane crash nowadays when it happens.

