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DS 4002 Prototyping

Despite air travel being one of the safest forms of transportation, in early 2025, there was a cluster of aviation accidents that raised national red flags. The media flooded with stories regarding this “surge” in crashes, leading many to question: Is flying actually getting more dangerous? Or are a few isolated accidents being blown out of proportion in the news?

In this case study, you will act as a data analyst to answer this question using US civil aviation accident data from 2015 to 2024. You will analyze past trends using time series tools and then predict the number of aviation accidents for the next year. As I mentioned, you will use time series forecasting techniques, such as ARIMA modeling and regression analysis to explore which factors — like weather conditions, aircraft type or operational purpose — are most correlated with aviation accidents.

The project goal is to analyze the aviation accident trends over the past decade using a predictive model that will forecast the next year of aviation accident data.

You will work with a cleaned dataset of civil aviation accidents, starter code to help build models, and exploratory and statistical tools to support your analysis findings.

GitHub Repository:

https://github.com/annagirerd/CaseStudy

This project challenges you to apply core data science skills like building forecasting models, and interpreting results to a critical real-world problem: **keeping aviation safe.**

References:
Time series information:
https://medium.com/swlh/time-series-analysis-7006ea1c3326

Autocorrelation explained:
https://online.stat.psu.edu/stat462/node/188/

Recent Uptick in Aviation Accidents:
https://www.panish.law/aviation_accident_statistics.html