SDAIA
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Saudi Data & AI Authority

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Mini Project

Project Members and Roles:
Ziyad Bin Tuwaim: Choosing a real dataset, loading it in the notebook, doing the preprocessing and ARIMA model. **Nada Alkharji**: GRU model and the project report. **Suliman Alotaibi**: LSTM model and the project presentation.

Project Title:	**Time Series for the Number of Accidents**

Description

Project Overview:

The project aims to forecast the number of accidents from the UK Accidents 10-year history dataset. By applying time series analysis techniques.

Dataset: UK Accidents 10 years history with many variables Dataset from Kaggel.

Dataset Link: https://www.kaggle.com/datasets/benoit72/uk-accidents-10-years-history-with-many-variables

Tasks:

1. **Problem Identification and Data Gathering:**

- Forecast the number of accidents.
- Choosing a UK Accidents 10-year history dataset.

2. **Exploratory Data Analysis (EDA):**

- Preprocessed the data by loading and preparing the data, aggregating it on a daily basis, filtering it for specific years, and visualizing the number of accidents over time.

3. **Model Development and Training:**

- Building and training the GRU, LSTM, and ARIMA models.

4. **Model Evaluation and Selection:**

- Evaluating the model's performance using the mean squared error function.

Conclusion

The project presents an analysis of the UK Accidents 10-year history dataset to forecast the frequency of accidents using time series techniques.