PROBLEM: NATURAL GAS PRICE FORECASTING

It is required to forecast NATURAL GAS PRICE in international market for the period 2021 to 2026. The historical data is to be extracted programmatically from public websites (e.g. https://tradingeconomics.com/commodity/natural-gas) and models need to be built upon the data. The software to be developed should take data input in MS Excel (CSV) format and provide the output with time-stamp in MS Excel (CSV) format. The input and output should also be shown as charts and/or dashboards in various formats (like day, week, work-week, month, quarter, year, etc.). The trend may be analyzed vis-?á-vis similar commodities like CRUDE OIL, COAL, etc. It is required to develop at least 3 independent advanced forecasting models using time-series analysis like ARIMA, EXPONENTIAL SMOOTHING and NEURAL NETWORKS (LSTM, etc.). The models should be built from scratch with comprehensive explanation of data (using EDA), trend analysis, assumptions, data cleaning and validation, data augmentation (if required). Performance of various models need to be clearly evaluated and best model needs to be recommended based on some robust evaluation criteria e.g. AIC (Akaike information criterion), Accuracy, F1 score, Recall, Precision, etc. as may be relevant. Just using a formula or package or library (without explanation from ground-up) in R, Python, SAS, KNIME, Prophet, SPSS, etc. will not be considered a solution. The development of model should be done from scratch only in R or Python (using standard libraries) and other standard software tools (SAS, KNIME, Prophet, etc.) may be used for benchmarking or analysis as may be required.

Dataset link: <https://tradingeconomics.com/commodity/natural-gas>