Assignment -2

Modeling Exercise

1. **Who is your stakeholder?**

Ans: My stakeholders are fuel trading companies who buy and sell fuel In Italy.

1. **What is the problem they are trying to solve?**

Ans: They are trying to predict fuel prices using historical data, to better prepare for future business.

1. **Where your dataset is from (link to it or include it in your submission)**

Ans: Government website of Italy: https://dgsaie.mise.gov.it/open-data

1. **What models did you try, and why did you choose those models?**

Ans: I chose ARIMA model for forecasting, as the data is time series data and for time series data, we use models such as ARIMA, LSTM, etc.

1. **What features did you select/engineer? How did you choose those?**

Ans: I did a log transformation of the dataset to convert the non-stationary data to stationary, and since it’s a time series data we only use data as index and price as values.

1. **How did you evaluate the model? What evaluation metrics did you use? Why?**

Ans: I used RMSE to evaluate the model, I used RMSE because it tells us the mean difference between the predicted and expected values, as the time series has lots of shocks, this rmse helps in visualizing the mean difference.

1. **What would you do differently next time or given more time what would your future work be?**

Ans: Next time I will try to understand more about time series data analysis as this time, my knowledge was very low compared to the task that I took over, and next time I will use multiple models instead of only using ARIMA.

1. **Do you recommend your client use this model? Is the precision/recall good enough for the intended use case?**

Ans: I would not recommend the client to use this model as the prediction is very general, but I can ask the client to see the trend shown in the prediction, as the prediction trend matches with actual trend of the data.