CRUDE OIL PREDICTION:

Crude oil is amongst the most important resources in today's world, it is the chief fuel and its cost has a direct effect on the global habitat, our economy, and other activities. Prediction of oil prices has become the need of the hour, it is a boon to many large and small industries, individuals, the government. From the past few years, crude oil price fluctuates more than any other commodities prices. As the crude oil price depends on several external factors and there is high volatility predicting crude oil prices is very challenging. This Project mainly focuses on applying Neural Networks to predict the Crude Oil Price. This decision helps us to buy crude oil at the proper time. So we would be implementing RNN(Recurrent Neural Network) with LSTM(Long Short Term Memory) to achieve the task.

SOME OF THE EXISTING SOLUTIONS:

Prediction Using Deep Learning:

Long Short-Term Memory (LSTM) based on a recurrent neural network has shown better results in predicting prices that have high volatility. By utilizing this model, the significant crude oil price is evaluated and modelled. The exhibition of the proposed model is assessed by utilizing the valuable information in the WTI unrefined petroleum markets. The exploratory results show that the proposed model achieves increments in the expected precision of results.

Prediction Using Artificial Neural Networks:

The main approach of ANN is that it continuously captures the unstable pattern of the crude oil prices which have been incorporated by finding out the optimal lag and number of the delay effect that controls the prices of crude oil. Variation of lag in a period of time has been done for the most optimum and close results, we then have validated our results by evaluating the root mean square error and the results obtained using the proposed model have significantly outperformed.

Predication Using stream Learning:

In stream learning approach the prediction model can capture the changing pattern of oil prices since the model is continuously updated whenever new oil price data are available, with very small constant overhead. To evaluate the forecasting ability of our stream learning model, we compare it with three other popular oil price prediction models. The experiment results show that our stream learning model achieves the highest accuracy in terms of both mean squared

prediction error and directional accuracy ratio over a variety of forecast time horizons.

Prediction using Support Vector Regression (SVR) with grid search – cross validation algorithm:

The Algorithm to determine the optimal parameters in the model using the SVR is a grid search algorithm. This algorithm divides the range of parameters to be optimized into the grid and across all points to get the optimal parameters. In its application the grid search algorithm should be guided by a number of performance metrics, usually measured by cross-validation on the training data. Therefore, it is advisable to try some variations pair hyperplane parameters on SVR. Based on analysis calculation of accuracy and the prediction error using the training data generating R2 99.10868% while the value of MAPE by 1.789873%. The data testing generates R2 96.1639% while the value of MAPE by 1.942517%. This indicates to the data of testing using a linear kernel or accuracy of prediction accuracy results are quite large. Best model using the SVR has been formed can be used as a predictive model of crude oil prices

WTI oil price prediction modeling and forecasting:

This modelling and Forecasting examines two different Bayesian approaches to model short term oil price return for past decades and forecast it. We first built the multivariable linear regression model based on relevant explanatory variables. Then we build the univariate time series model using ARIMA models, followed by ARCH and GARCH models. Both methods are followed by required procedures and econometrics tests. The forecasting powers of time series approach perform better than linear regression and even structural models, yet linear approach is very relevant for knowing incapability of each variable to oil price.

Conclusion

One of the most important role of economic variables in today's world countries are the price and the change of the price of crude oil. Changes in the price of crude oil have a very critical role in terms of treasury and budget, both in company and state planning. For example, one may choose one of the energy or natural gas indexed energy production plans based on the trend of the crude oil price, for planning to meet the need for electricity next year. Accurate forecasting of the crude oil price and realization of the forecasts based on this forecast will provide

savings or gains in government and corporate economies, which can reach billions of dollars. There is a great need for this estimation in countries where crude oil production is low and heavily dependent on crude oil import.