Thanks Mostafa Mahatabe.

We know that, In recent years, with the rapid development of the economy, more and more people begin to invest into the stock market. Accurately predicting the change of stock price can reduce the investment risk of stock investors and effectively improve the investment return.

The method of enabling any neural network to retain sequence information in both directions, either backward or forwards, is widely used as bidirectional long-short term memory (BiLSTM). Our input is bidirectional and flows in both directions. We also can see that the BiLSTM model performs better than the LSTM model by giving rmse of 14.760.

ARIMA model gives rmse 6.674, which is pretty good. ’Auto Regressive Integrated Moving Average’ is a forecasting algorithm for stock market prediction. It has the capability to capture sudden ups and downs in stock price. ARIMA uses a moving average where random jumps to the time series plot that has an impact over two or more successive periods. These leaps show our ARIMA model’s erroneous calculations and what the MA component would lag for. Similar to the exponential smoothing strategy, a model that uses MA would smooth out these abrupt jumps.

Stock prediction is challenging due to its randomness. Hidden Markov Model is used for stock prediction by finding hidden patterns. Here the Hidden Markov model easily recognized 10 hidden components (or states) of our data . For each of the days that we are going to predict closing prices for, we are going to take the test data for the previous 50 days and try each of the outcomes that generates possible permutations of values for the features we take the Cartesian product across a range of values for each feature to see which sequence generates the highest score. The outcome that generates the highest score is then used to make the predictions for that day's closing price. Hidden states and sequences have been generated to easily identify the level of the sequence whether the next day value is increasing. And also identified whether the increasing level is moderate high or high or very high and also decreasing level whether moderate low or low or very low. This model will be very much useful for short term as well as long term investors.