**ACKNOWLEDGEMENT**

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### Name of the student

|  |  |
| --- | --- |
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## LITERATURE SURVEY

Xu Zhang and his team worked on stock market prediction by deep learning model using Long-Short term memory (LSTM).They would gather the data from 2018 to 2020.And the results are measured by three evaluation metrics. This experiment shows that the single factor group is better than the prediction results of Multiple factor group In prediction of stock market rise and fall.

SHILE CHEN and CHANGJUN ZHOU proposed the model on the China construction bank dataset and the CSI 300 stock dataset demonstrate that the GA-LSTM model can out perform all baseline models for time series prediction. They used LSTM to perform this model analysis . They successfully build the model they got that the large number of stock factors are selected.

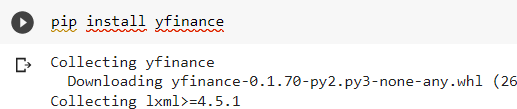
HONGBING OUYANG and his team predict stock index patterns through analysis of multivariate time series. Their motivation is based on the notion that financial planning guided by pattern discovery and prediction of stock index prices maybe more realistic and effective than traditional approaches. They used to proposed three stage by using architecture of TICC, TPA-LSTM, Multivariate LSTM-FCNs. And they got the result the portfolio based on the proposed three-stage architecture presents better performance than the market-based portfolio.

Hiransha Gopalakrishnan and Vijay Krishna Menon and soman together publish a journal in science directive .In this journal they used stock market Prediction using Deep learning Models .They used MLP and RNN and LSTM and CNN with stock price of Maruti from NSE stock Market .And they conclude that DL models are outperforming ARIMA model. CNN has performed better than other

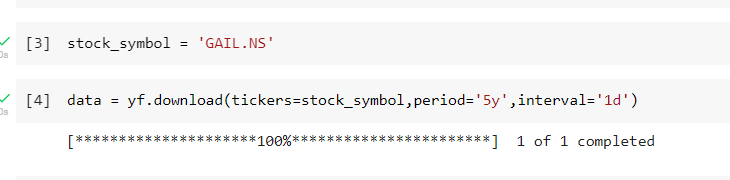
three networks as it is capable of capturing the abrupt changes in the system. And their model is 85% accurate.

## Model building

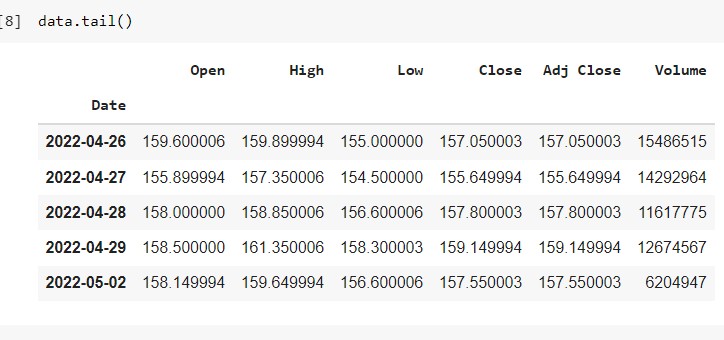
Based on the literature survey, I have done the project by taking the data from the yahoo finance



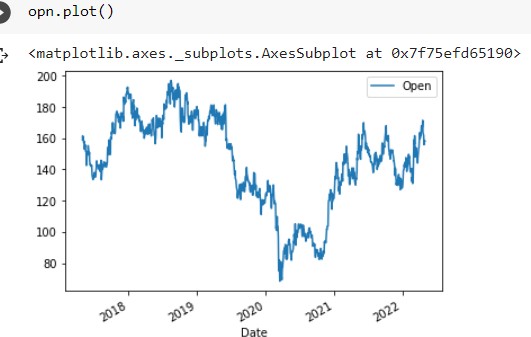
Then we will fetch Gail stock data by using the API We can take 5 years of data using 1 day interval



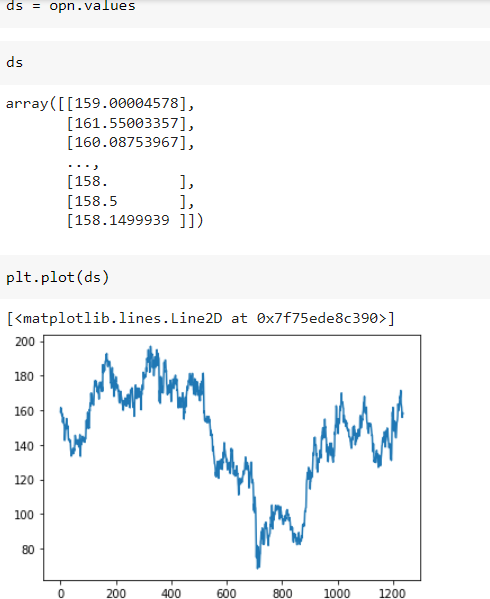
Then we can check the data



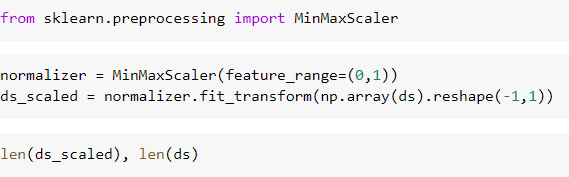
Then I will take the open price of the data and predict it.



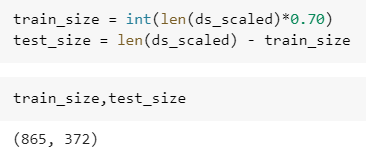
We can see that the open price of the stock data will successfully predicted Then I will convert It into array and again I will plot the data



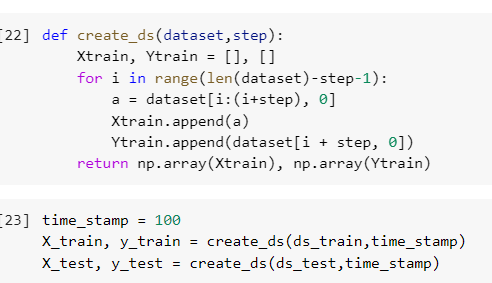
Then I will use min max scaler in order to give values



Then will train and test the data

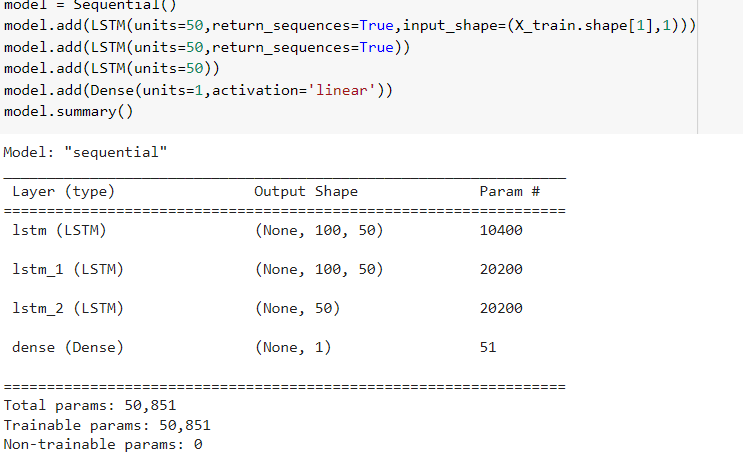


Creating and training the data sets in the lstm model

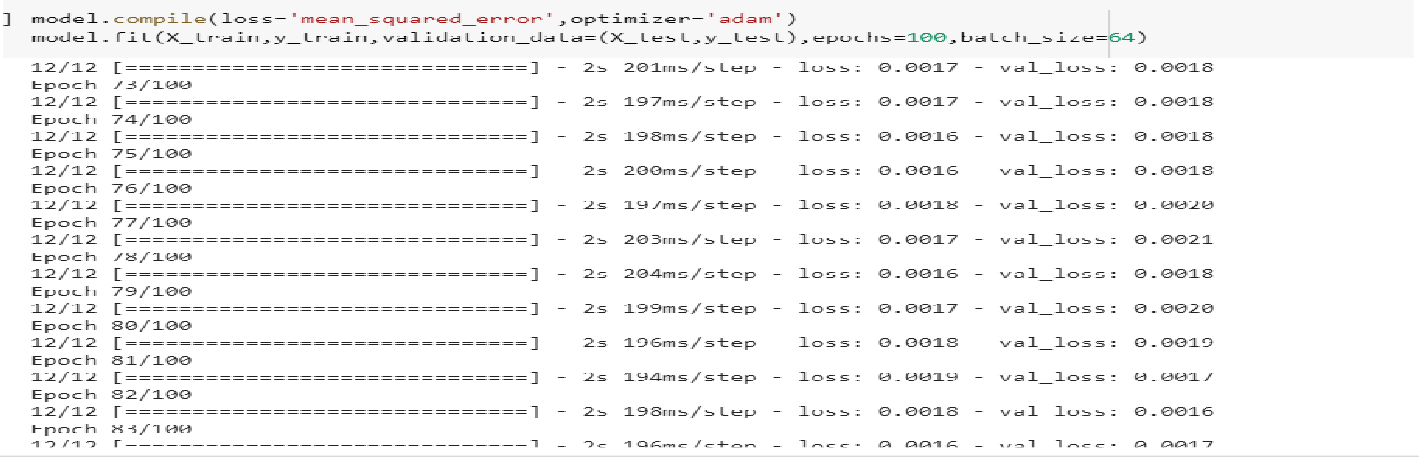


And then we can take 100 values as input in order to predict future values

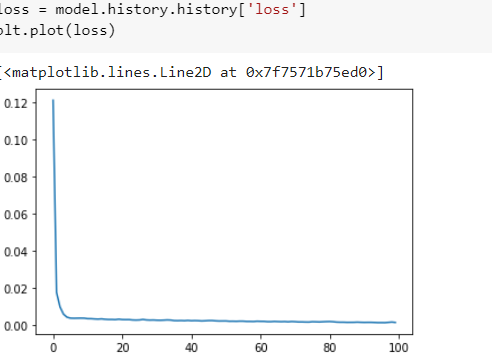
And then we can reshape and we can create the lstm model using keras



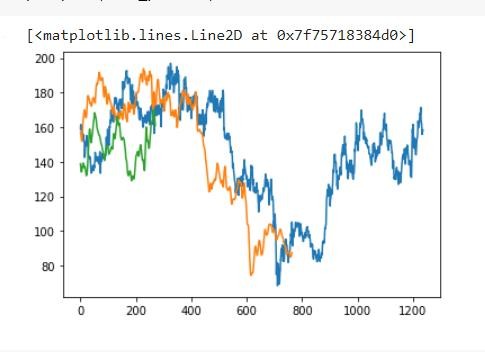
And then train the model with mean square optimizer function



Then we can predict the loss



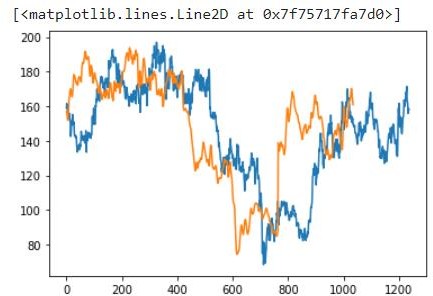
Then we will train and test and predict the data set and we will inverse transform the data set inorder to get actual values of the data set



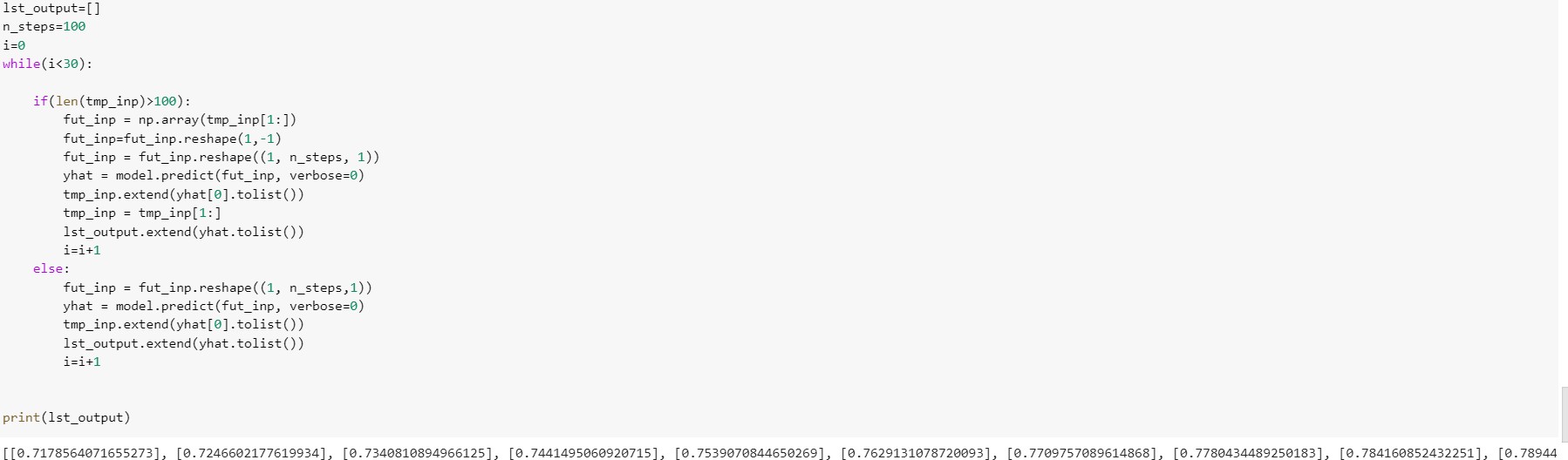
Yearly Stock

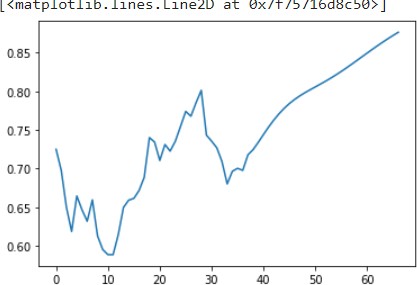
## Here we can see that orange colour is the actual value and the blue colour will be predicted value of the data set and green will be test data predicted value

Then we will predict both actual and the predicted values in a graph the graph will Will be like this

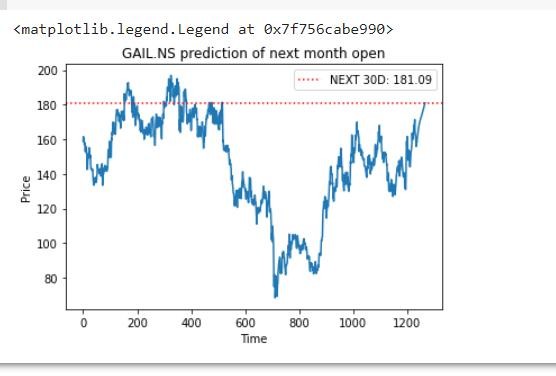


Then will will forecast for the next 30 days now by using the below algorithm





This is the graph for the next 30 days if we see the graph with whole graph then the graph will be :-



## Conclusion:

In this work I have used Gail stock market data and predict the next 30 days open price of the stock successfully by using lstm. It is quite good when compared to RNN .

These predictions can be extremely useful for those wishing to gain some insight into the future price movement of a stock even though predicting the future isn’t possible.

## Future Scope:

LSTM takes lots of time and more memory allocation to run we can use other models than lstm In order to solve that time consuming problem.

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