

A Deep Learning Model for Stock Price Prediction

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Abstract - Stock market prediction is an act of predicting future stock prices of any company. In this model I am going to introduce a new Deep learning model for stock market price prediction. It provides more accurate and precise result. Accurate prediction maximizes the profit of investor. This model uses Recurrent Neural Networks to predict future price. The model is prepared to analyze NIFTY 50 companies. The maximum accuracy I achieved is 99%.

Key Words: Stock Market, Deep Learning, LSTM, Neural Networks, Recurrent Neural Networks.

1. INTRODUCTION

Stock market prediction is very useful for investors for being protected from loss and gaining maximum profit. There are several Machine Learning models are present to predict stock market prices so I am introducing a Deep Learning model that uses Long Short Term Memory (LSTM) cells to predict future prices. In general Deep Learning gives better accuracy than machine learning same thing applied here, here we get accuracy up to 99%. Here I used several parameters but main parameter is number of trend repetition days.

1.1 Idea behind Model

The main idea is catching the number of days when trend repeats. For example E – Commerce companies reaches to peak in festival seasons, so if we invest before festival, we can gain maximum profit. Same idea is used in this model.

2. METHODOLOGY

In order to achieve higher accuracy, first we need to catch the number of days in which trend repeats itself.

Building of any Deep Learning model required following steps



Fig -1: Steps of Model Building

2.1. Data Collection

Data of collected from yahoo finance web portal.

2.2. Data Preparation

From yahoo finance we get normalized data the only thing we have to do is prepare the data for algorithm. Steps of preparation is mentioned in figure 2.

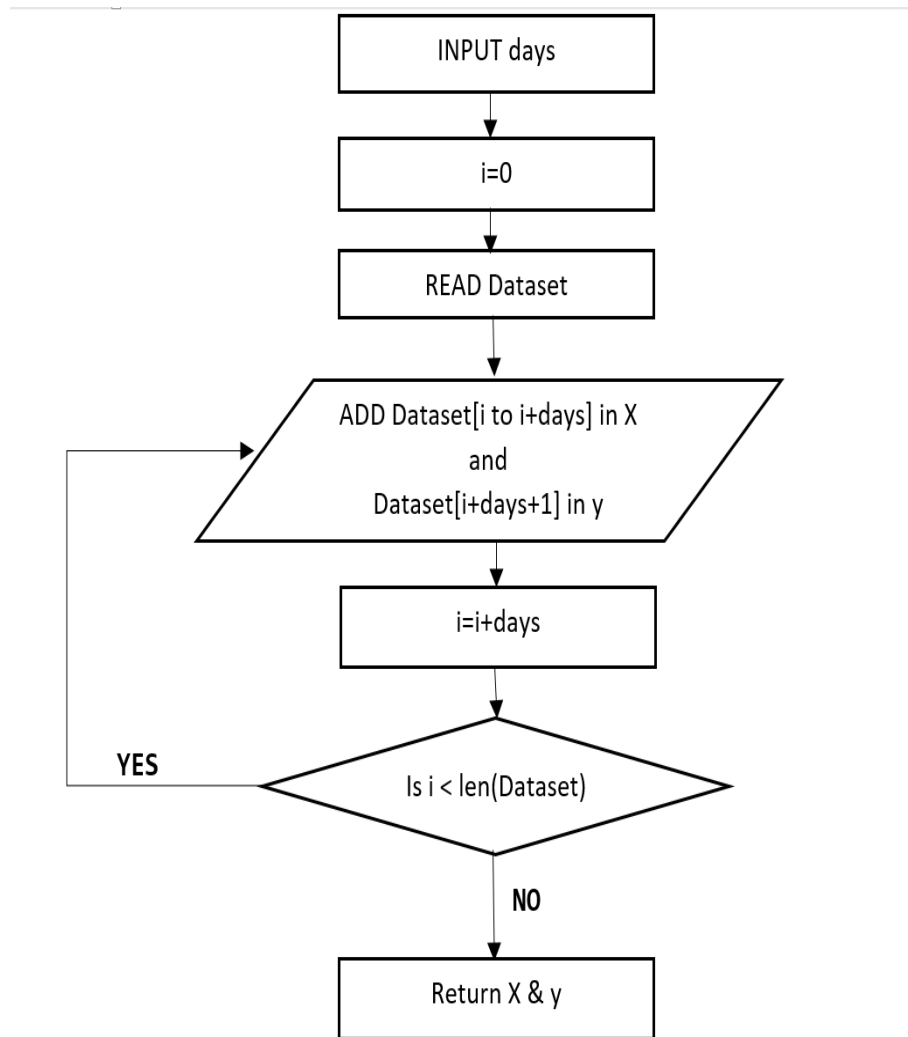


Fig -2: Flow chart for data preparation

2.3. Choosing a model

Table -1: Model Summary

Model Summary		
Layer	Output Shape	# Param
CuDNNLSTM	(None, 60, 50)	10600
Dropout	(None, 60, 50)	0
CuDNNLSTM	(None, 60, 50)	20400
Dropout	(None, 60, 50)	0
CuDNNLSTM	(None, 60, 50)	20400
Dropout	(None, 60, 50)	0
CuDNNLSTM	(None, 50)	20400
Dropout	(None, 50)	0
Dense	(None, 1)	51

2.4. Evaluation

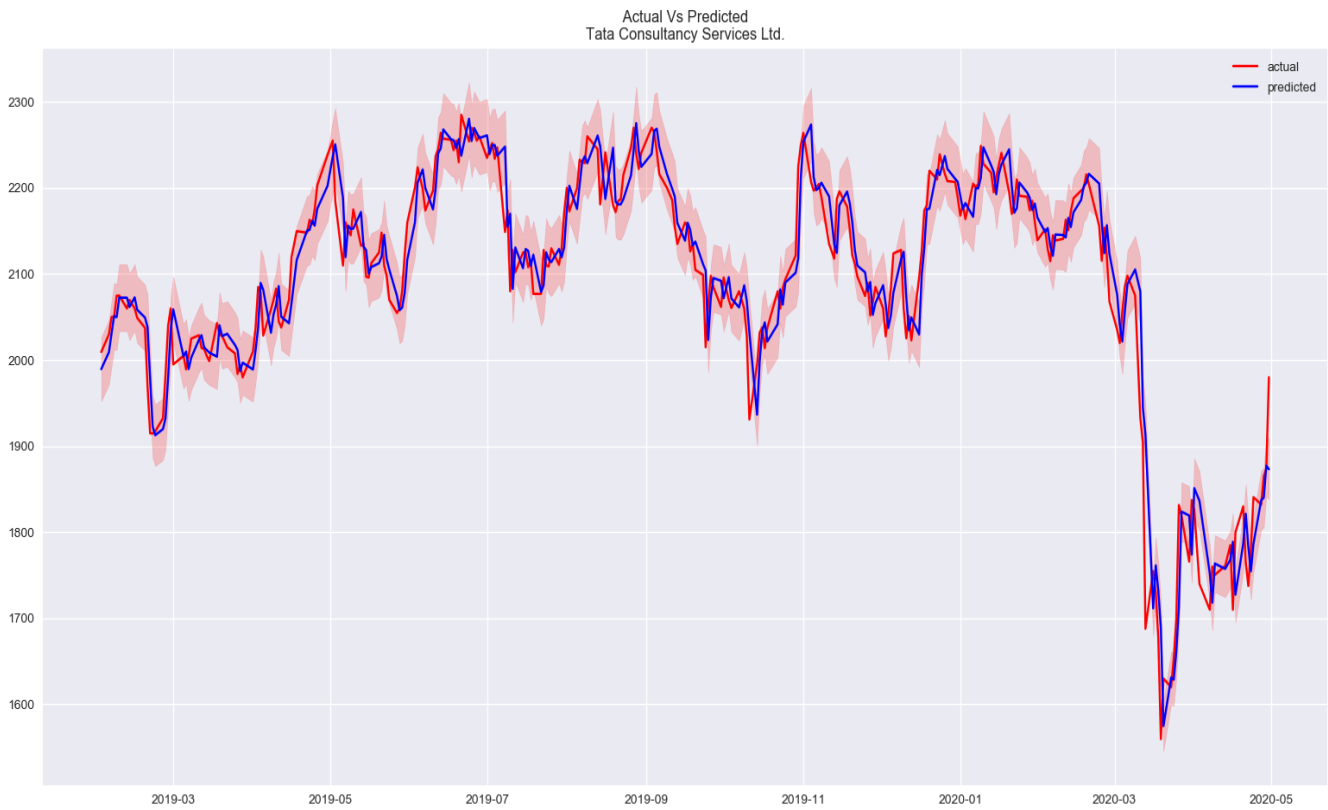


Fig -3: Real Vs Prediction [TCS]



Fig -4: Real Vs Prediction [CIPLA]



Fig -5: Real Vs Prediction [Coal India Ltd]

3. CONCLUSION

The model is designed in such a way wherein investor can predict precise and accurate prices for next 60 days.

Proposed system can be used for predicting nifty 50 companies as well as any international company. The only thing required is large data. This model can maximize the profit of investor and it can also be used to catch trend.

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