

Artificial Intelligence Project Report



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Dataset

I am using last 7 years real time date of TATAMOTORS company stocks.

Analysis

First, I have installed required libraries to load data and then I am using LSTM for Stock price prediction. I am using last 7 years real time date of TATAMOTORS company stocks.

Loading All Files

In this data is called from the yahoo finance site using the below API. Data from 2015 to 2022 March is collected using <https://query1.finance.yahoo.com/v7/finance/download/API>.

This data contains 1839 days of data and visualizing the everyday close price of the stock using plt.figure. After then Splitting the sequential data into training and testing data We will use the fist 80% days of data for training and last 20% days of data for testing. Creating a function for shaping the data into X and Y for the LSTM model. For the model building I have imported the tensor flow and Kersas libraries for the LSTM model.

Algorithms Used and their Implementation

Predicting stock prices with an LSTM.

Tensor flow be used as a backend for LSTM model, and API will be used to fetch the historical stock data.

7 years of historical prices of TATA MOTORS from 2015 to 2022. So, I need to set the start and end dates and pass these parameters to the function for fetching the data.

The LSTM Recurrent Neural Network can be added more LSTM layers and possible to adjust the dropout for improving the accuracy of the model.

After all these steps, we can use matplotlib to visualize the result of our predicted stock price and the actual stock price.

Conclusion

LSTM model is trained and tested on last 7 years daily close price. Performance of the model is Split as testing and training, While the exact price points from my predicted price were always close to the actual price, this model did still indicate overall trends such as going up or down. This project teaches the LSTMs can be effective in times series forecasting.

However, there are certain flaws in the model. It solely evaluates the impact of stock price data on closing prices, for example, and ignores emotive aspects like news and national policy in its forecast. Our future research will primarily focus on improving sentiment analysis of stock-related news and national policies in order to ensure stock forecast accuracy.