GRAPHIC ERA DEEMED TO BE UNIVERSITY

MINI PROJECT REPORT

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PREPARED BY

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SECTION

AI & DS

UNIVERSITY ROLL NO

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Problem Statement

Machine learning model to predict " ***STOCK PRICE*** " using Python.
To predict the stock price of coming days

Introduction

Today, we all know how fascinating stock market is. I too thought that and got an idea if I some how manage to made a machine learning model which can predict the price of a stock for coming up days it will be very beneficial.

About the dataset

As this is a TIME SERIES ANALYSIS we have real time data which we get from "pandas_datareader" library of python.
It uses the API key to extract the data from the websites.

Tools and Libraries used

- **Numpy**

  Numpy is a python library used for working with arrays, linear algebra and matrices.

- **Pandas**

  Pandas is widely used for data analysis.

- **Matplotlib.pyplot**

  Matplotlib is a python library used for data visualization.

- **Train_test_split**

  It is a function in Sklearn model selection for splitting data into train and test subsets.

- **Scikit-Learn**
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  Scikit-learn (Sklearn) is the most useful and robust library for machine learning in Python. It provides a selection of efficient tools for machine learning and statistical modeling including classification, regression, clustering and dimensionality reduction via a consistence interface in Python.

  - Tenserflow

TensorFlow is a Python library for fast numerical computing created and released by Google. It is a foundation library that can be used to create Deep Learning models directly or by using wrapper libraries that simplify the process built on top of TensorFlow

➔ Neural Network

It is an attempt to simulate the network of neurons that make up a human brain so that the computer will be able to learn things and make decisions manner.

➔ LSTM

Long Short Term Memory Network is an advanced RNN, a sequential network, that allows information to persist.

➔ GOOGLE COLLAB

With Colab you can harness the full power of popular Python libraries to analyze and visualize data. The code cell below uses numpy to generate some random data, and uses matplotlib to visualize it.

➔ **KERAS**

Keras is a high-level, deep learning API developed by Google for implementing neural networks.

Methodology

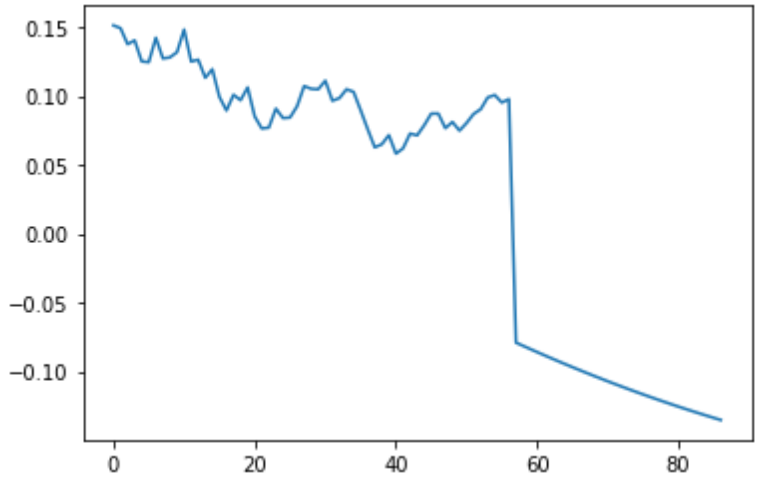
First we have taken the data with the help of Tiingo API in python using pandas_datareader library, which is prebuilt library in python.
With the help of API key of Tiingo website we can easily fetch any stock data from the website. In this project I have used the data of Apple stock from 2016 to till today.

Once the data is fetched the data is processed. It got scaled and splitted into train and test data to train and check and optimize the model as per our need.

As the data is processed it the time for the reality check now we have to predict the stock price for the future.
Here comes the role of LSTM. By using LSTM we can store some data and feed it back to the model to learn from the data and optimize the results and predictions

Now the model is trained based on previous trends and pattern. No I have predicted the stock price for the next 30 days.
Using a simple logic: based on previous 100 days prediction its output is added to the prediction and works as a input for the dataset and next figure is predicted. Using this simple method we can predict the price trend of coming days of any stock.

RESULT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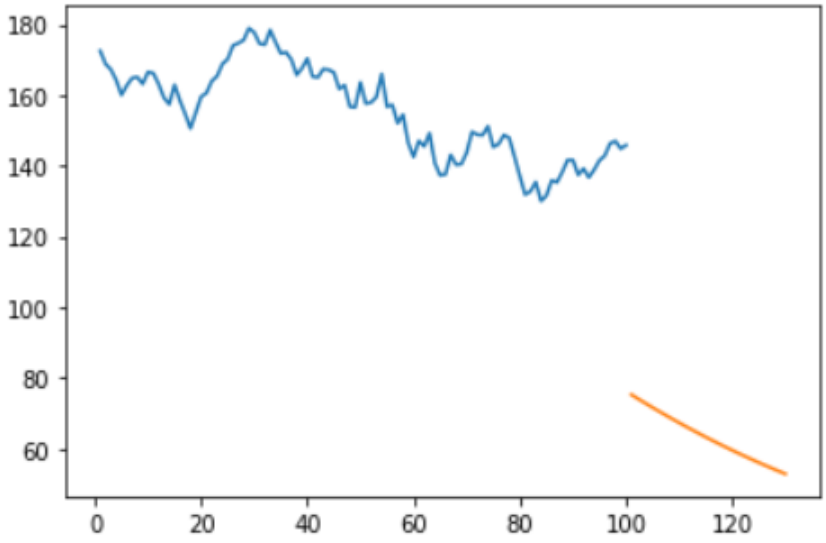
0.05
0.00
−0.05
−0.10
0
20
40
60
80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140
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60
0
20
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60
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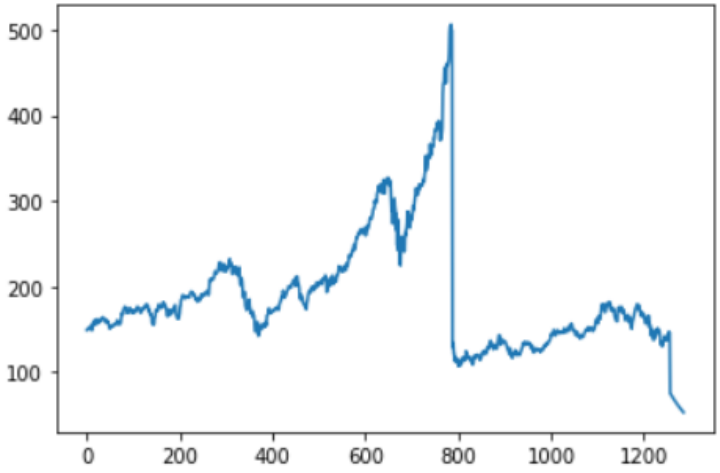
100
120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400
300
200
100
0
200
400
600
800
1000
1200

LINK FOR THE PROJECT

https://github.com/Sahilgupta4103/STOCK-PRICE-PREDICTION.git