Project Report

Submitted in partial fulfilment of the degree of

Electrical Engineering

TITLE: STOCK PRICE PREDICTION IN PYTHON LANGUAGE

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SILIGURI – 734009

FACULTY OF ELECTRICAL ENGINEERING DEPARTMENT

Certificate of Recommendation

This is to certify that “Abinab Nag, Tsheringma Tamang, Sonam Dargey Bhutia and Laden Ghising” has completed their project work titled Minor Project on “Stock price predicting by using Python programming”, under the direct supervision and guidance of “ Sir Ripum Kundu”. We are satisfied with his work, which is being presented for the partial fulfillment of the degree of bachelor of Electrical Engineering**.**

Sir Ripum kundu

_____ *(Name of Teacher in charge of Project)*

15-09-2022

Signature of TPO

Signature of director

Sir Arup Das

HOD EE Department

Siliguri Institute of Technology

15-09-2022

Maulana Abul Kalam Azad University of technology (MAKAUT),

FACULTY OF EE DEPARTMENT

Certificate of Approval *

The foregoing Minor project is hereby approved as a creditable study of Bachelor of ELECTRICAL ENGINEERING (EE) and presented in a manner satisfactory to warrant its acceptance as a pre-requisite to the degree for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or any statement made, opinion expressed or conclusion therein but approve this Minor project only for the purpose for which it is submitted.

Abinab Nag

Tsheringma Tamang

Sonam Dargey Bhutia

Laden Ghising

Signature of the Members

Final Examination for

Evaluation of the Project

Only in case the Minor project is approved

Abstract

The prediction of stock value is a complex task which needs a robust algorithm background in order to compute the longer term share prices. Stock prices are correlated within the nature of market; hence it will be difficult to predict the costs. The proposed algorithm using the market data to predict the share price using python language in that process weights are corrected for each data points using stochastic gradient descent. This system will provide accurate outcomes in comparison to currently available stock price predictor algorithms. The network is trained and evaluated with various sizes of input data to urge the graphical outcomes.

Researchers have been studying different methods to effectively predict the stock market price. Useful prediction systems allow traders to get better insights about data such as: future trends. Also, investors have a major benefit since the analysis give future conditions of the market. One such method is to use machine learning algorithms for forecasting. This project's objective is to improve the quality of output of stock market predicted by using stock value. A number of researchers have come up with various ways to solve this problem

ACKNOWLEGDEMENT

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We would like to express our sincere appreciation to our supervisors whose assistance was a milestone in completion of this project. “Sir Ripum kundu” persistently guided us in planning of work and. intelligently solved our queries. Without their support, a significant portion of project work was not possible in constrained time.

Thanking you,

Abinab Nag

Tsheringma Tamang

Sonam Dargey Bhutia

Laden Ghising

INTRODUCTION

The share market is a place where the shares of a public company are traded. The volatile nature of the stock market makes it an area which needs an abundance of analysis with the old data predicated. The previous stock trend prediction algorithms use the historic time series stock data. The typical scientific stock price forecasting procedures are focused on the statistical analysis of stock data. In the paper we will develop a stock data predictor program that uses previous stock prices and data will be treated as training sets for the program to predict the stock prices of a particular share this program develops a procedure.

Stock market prediction is the act of trying to determine the future value of company stock or other financial instruments traded on an exchange.

Due to the high profit of the stock market, it is one of the most popular investments. People investigated for methods and tools that would increase their gains while minimizing the risk, as the level of trading and investing grew. Two stock exchanges namely- the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE), which are the most of the trading in Indian Stock Market takes place. Sensex and Nifty are the two prominent Indian Market Indexes. Since the prices in the stock market are dynamic, the stock market prediction is complicated.

From gradually the very past years some forecasting models are developed for this kind of purpose and they had been applied to money market prediction.

Existing Work and Proposed Work

Overview of Existing Work Stock Price Prediction by PYTHON LANGUAGE present to estimate the stock future value and machine learning technique like LSTM for existing work. Is to perform the best predicting result of the stock future price. LSTM is capable to catching the modifications in the behaviour of the stock price for the indicated period in this proposed system. The dataset utilized for analysis was selected from Yahoo Finance. It consists of approximately 9 lakh records of the required Stock price and other relevant data. The data reflected the stock price at some time intervals for every day of the year. It contains various data like date, symbol, open price, close price, low price, high price and volume. Here, the data for only one company was considered. All the data was available in a file of CSV format which was first read and transformed into a data frame using the Pandas library in Python. The normalization of the data was performed through the library in Python and the data were divided into training and testing sets. The experiment set was kept as 20% of the available dataset. This paper focuses on two architecture Regression-based Model and LSTM. The Regression-based Model is employed for predicting unbroken values through some given autonomous values Regression uses a given linear function for predicting continuous values of the most important amongst them and made the predictions using these. LSTM architecture is able to identify the changes in trends which show evident from the result. LSTM is identified as the best model for the proposed methodology. This shows that the proposed system is capable of identifying some interrelation within the data. In the stock market, there may not always follow the same cycle or may not always be in a regular pattern for the changes that are occurred. The period of the existence will differ and the existence of the trend is based on the companies and the sectors. For investors, this type of analysis of trends and cycles will obtain more profit. We must use networks like LSTM as they rely on the current information to analyse various information.

Working of LSTM model:

LSTM Architecture Long Short Term Memory is a kind of recurrent neural network. In RNN output from the last step is fed as input within the present step. It tackled the matter of long-term dependencies of RNN within which the RNN will not predict the word hold on within the long term memory however can offer additional accurate forecasts from the recent info. Because the gap length will increases RNN does not offer an economical performance. LSTM will by default retain the knowledge for a long period of time. It is used for processing, predicting and classifying on the basis of time-series data. ¬ Structure of LSTM: ¬ LSTM has a chain organization that contains four neural networks and different memory blocks called cells. ¬ LSTM has a new structure called a memory cell. The memory cell makes the decisions about what information to store, and when to allow reading, writing and forgetting. ¬ A memory cell contains three main gates: o Input gate- a new value flows into the memory cell. o Forget gate- a value remains in the memory cell. o Output gate- value in the memory cell is used to compute the output.

Applications of stock price prediction

- Business
- Companies
- Insurance company
- Government Agency
- This application is helpful for stock investors, sellers, buyers, brokers, etc.

Objectives

A stock market prediction is described as an action of attempting to classify the future value of the company stock or other financial investment traded on the stock exchange. The forthcoming price of a stock of the successful estimation is called the Yield significant profit. This helps you to invest wisely for making good profits.

Motivation

The future price of a stock is the main motivation behind the stock price prediction. In various cases like business and industry, environmental science, finance and economics motivation can be useful. The future value of the company's stock can be determining.

Tool & Technologies

PYTHON

The language of select for this project was Python. This was a straightforward call for many reasons.

1. Python as a language has a vast community behind it. Any problems which may be faced is simply resolved with visit to Stack Overflow. Python is the foremost standard language on the positioning that makes it is very straight answer to any question.

2. Python is an abundance of powerful tools ready for scientific computing Packages. The packages like NumPy, Pandas and SciPy area unit freely available and well documented. These Packages will intensely scale back, and variation the code necessary to write a given program. This makes repetition fast.

3. Python is a language as forgiving and permits for the program that appear as if pseudo code. This can be helpful once pseudo code give in tutorial papers should be required and verified. Using python this step is sometimes fairly trivial. However, Python is [19] not without its errors. The python is dynamically written language and packages are area unit infamous for Duck writing. This may be frustrating once a package technique returns one thing that, for instance, looks like an array instead of being an actual array. Plus the standard Python documentation did not clearly state the return type of a method, this can't lead without a lot of trials and error testing otherwise happen in a powerfully written language. This is a problem that produces learning to use a replacement Python package or library more difficult than it otherwise may be.

NUMPY

Numpy is python package which provide scientific and higher level mathematical abstractions wrapped in python. It is the core library for scientific computing, that contains a provide tools for integrating C, strong n-dimensional array object, C++ etc. It is also useful in random number capability, linear algebra etc. Numpy's array type augments the Python language with an efficient data structure used for numerical work, e.g., manipulating matrices. Numpy additionally provides basic numerical routines, like tools for locating Eigenvectors.

TENSORFLOW

In the TensorFlow has an opensource software library for numerical computation using data flow graphs. Inside the graph nodes represent mathematical formulae, the edges of graph represent the multidimensional knowledge arrays (tensors) communicated between them. The versatile architecture permits to deploy the computation to at least one or many GPUs or CPUs in a desktop, mobile device, servers with a single API. TensorFlow was firstly developing by engineers and researchers acting on the Google Brain Team at intervals Google's Machine Intelligence analysis organization for the needs of conducting deep neural networks research and machine learning, but the system is generally enough to be appropriate in a wide range of alternate domains as well. Google Brain's second-generation system is TensorFlow. Whereas the reference implementation runs on single devices, TensorFlow can run on multiple GPUs and CPUs. TensorFlow is offered on Windows, macOS, 64-bit Linux and mobile computing platforms together with iOS and Android.

PANDAS

Pandas Package basically built on top of Numpy array. Pandas is a high performance library in Python that provides a comprehensive set of data structures for manipulating tabular data.

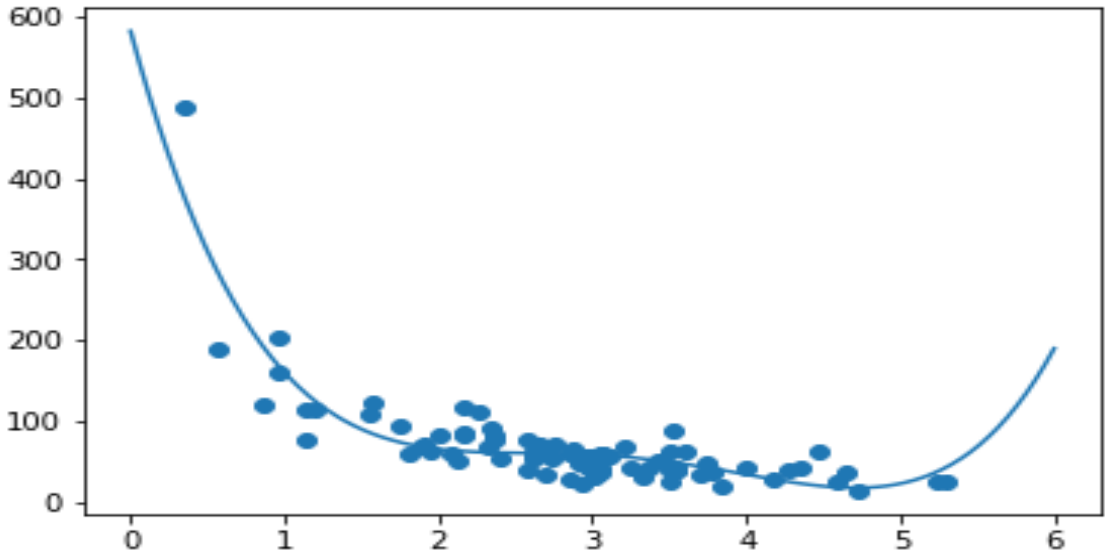
DATETIME

The datetime module supplies classes for manipulating dates and times. While date and time arithmetic is supported, the focus of the implementation is on efficient attribute extraction for output formatting and manipulation.

MATPLOTLIB

Matplotlib is an amazing visualization library in Python for 2D plots of arrays. Matplotlib is a multi-platform data visualization library built on NumPy arrays and designed to work with the broader SciPy stack. One of the greatest benefits of visualization is that it allows us visual access to huge amounts of data in easily digestible visuals. Matplotlib consists of several plots like line, bar, scatter, histogram etc.

Output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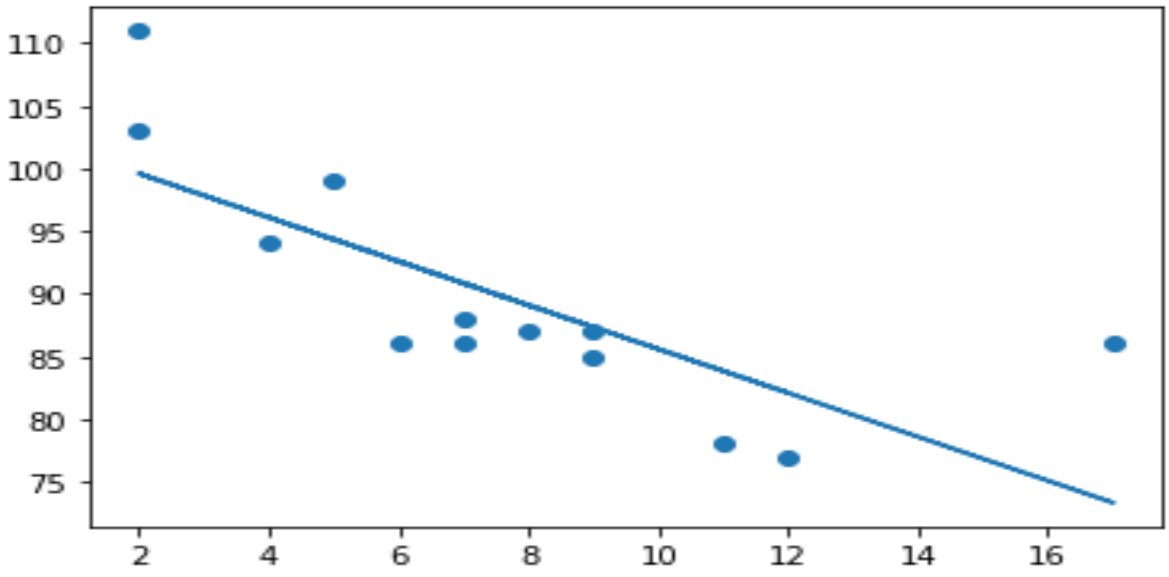
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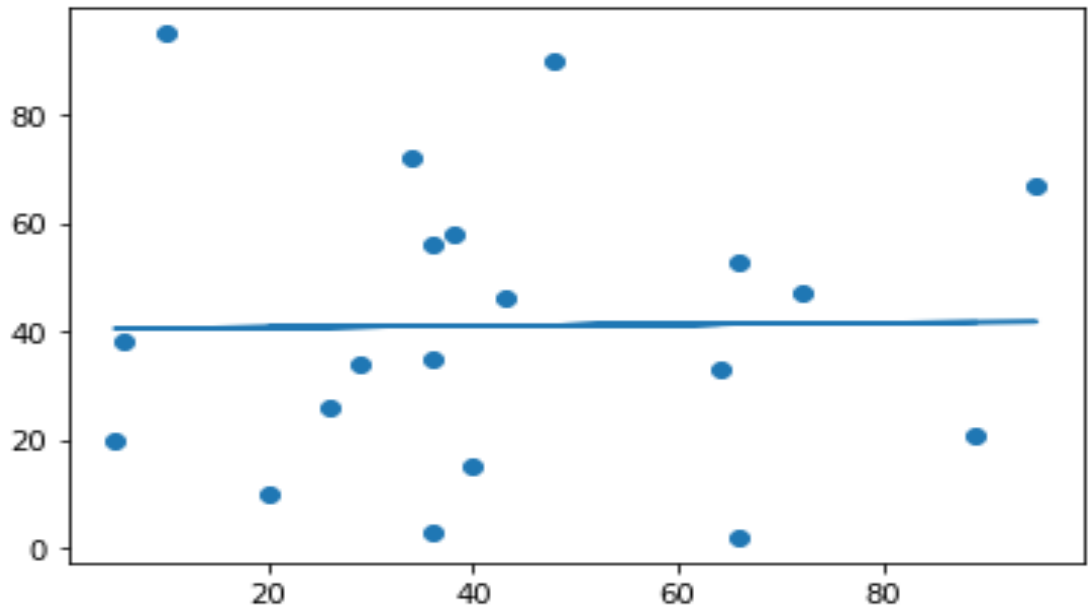
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CONCLUSION

From the above report on Stock price prediction we learned that it is the act of trying to determine the future value of company stock or other financial instruments traded on an exchange. The future price of a stock is the main motivation behind the stock price prediction. In various cases like business and industry, environmental science, finance and economics motivation can be useful. The future value of the company's stock can be determining.

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