A

Synopsis

On

**STOCK MARKET PREDICTION**

Submitted in partial fulfillment of the requirement for the VI semester

**Bachelor of Technology**

By

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**…**

**Under the Guidance of**

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A picture containing text, gambling house, room, clipart

Description automatically generated

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**GRAPHIC ERA HILL UNIVERSITY, BHIMTAL CAMPUS**

**2021 – 2022**

**STUDENT’S DECLARATION**

We, Harshita Mehra, Mamta Mehta & Kritika Goel, hereby declare the work, which is being presented in the project, entitled “Stock Market Prediction “in partial fulfillment of the requirement for the award of the degree (B.Tech) in the session **2021-2022**, is an authentic record of my own work carried out under the supervision of Graphic Era Hill University, Bhimtal in the session 2021-2022

The matter embodied in this project has not been submitted by me for the award of any other degree.

Date: 02-07-2022 Harshita Mehra

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**CERTIFICATE**

**The project report entitled “Stock Market Prediction” being submitted by Harshita Mehra(1961063), Mamta Mehta(1961086) & Kritika Goel(1961088) to Graphic Era Hill University Bhimtal Campus for the award of bonafide work carried out by them. They have worked under my guidance and supervision and fulfilled the requirement for the submission of report.**

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**Table Of Contents**

1. Introduction…………………………………………………………..………..6
2. Background And Motivations……………………………………………….…7
3. Problem Statement ……………………………………………………………8
4. Objectives And Research Methodology ….9
5. Project Organization …..10
6. S/W And H/W Requirements (Up To Fullest Extent) …..11
7. Er Diagram…………………………………………..…………………………12
8. Enhancements…………………………………………………………………13
9. References………………………………………………………………………14

**INTRODUCTION**

Stock market is trading platform where different investors sale and purchase shares according to stock availability. Stock market ups and downs effects the profit of stakeholders. If market prices going up with available stock then stakeholders get profit with their purchased stocks. In other case, if market going down with available stock prices then stakeholders have to face losses. Buyers buy stocks with low prices and sell stocks at high prices and try to get huge profit. Similarly, sellers sell their products at high prices for profit purpose. Stock market (SM) work as trusty platform among sellers and buyers. Advances in Deep learning supporting a lot in each field of life with its intelligent features. Several algorithms present in ML that performing their role in future predictions.

If stakeholders get future predictions then investment can lead him toward profit. Predictions can be 50% correct and 50% wrong as it is risk of business. Risks facing capability in business filed can lead toward success. In any field of life, we take risks for success. Similarly, we rely on ML predictions about future prices of stock. Before working on the actual problem SMP, a complete understanding of ML algorithm’s role in prediction is also necessary. Several Machine learning algorithms can be used for stock market prediction but in this research, we used few algorithms like Linear regression, Long Short Term Memory (LSTM) which is a deep learning algorithm and if we further consider many other algorithms can also be used for Stock Market Prediction(SMP).

**Background and Motivations**

Businesses primarily run over customer’s satisfaction, customer reviews about their products. Shifts in sentiment on social media have been shown to correlate with shifts in stock markets. Identifying customer grievances thereby resolving them leads to customer satisfaction as well as trustworthiness of an organization. Hence there is a necessity of an unbiased automated system to classify customer reviews regarding any problem. In today’s environment where we’re justifiably suffering from data overload (although this does not mean better or deeper insights), companies might have mountains of customer feedback collected; but for mere humans, it’s still impossible to analyze it manually without any sort of error or bias. You know you need insights to inform your decision making and you know that you’re lacking them, but don’t know how best to get them. Sentiment analysis provides some answers into what the most important issues are, from the perspective of customers, at least. Because sentiment analysis can be automated, decisions can be made based on a significant amount of data rather than plain intuition.

The motivating idea is that, if we know all information about today’s stock trading (of all specific traders), the price is predictable. Thus, if we can obtain just a piece of partial information, we can expect to improve the current prediction lot. With the growth of the Internet, social networks, and online social interactions, getting daily user predictions is a feasible job. Thus, our motivation is to design a public service incorporating historical data and users’ predictions to make a stronger model that will benefit everyone.

**Problem Statement**

The challenge of this project is to accurately predict the future closing value of a given stock across a given period of time in the future. For this project we used a Long Short Term Memory network – usually just called “LSTMs” to predict the closing price of the 1 S&P 500 using a dataset of past prices

**Objectives and Research Methodology**

If stock market trend predicted then we can avoid wastage of money. SMP is a process of predicting future on the base of past data. Prediction decreases the risk level to investors and increases the confidence level for investment. If they predicted goals before reach then they can avoid loss of money. All these consideration work as SMP. On the basis of historical data trends, we guess future trend is called SMP.

**Understanding Stock Market**

**Shares:**

A stock or an equity is a security that represents the ownership of a fraction of a corporation. It entitles the owner of the stock to a proportion of the corporation's assets and profits equal to how much stock they own. These units of stock are called "shares."

**Market:**

The stock market is the collection of markets. and exchanges where regular activities of buying, selling, and issuance of shares of publicly held companies take place.

**Trades on Stock Market**

The trades on the stock market happen between two time intervals.

Example: The Trading Session for New york stock exchange is between 9:30am and 4pm. The stock price at 9:30am is called Open and price at 4:00pm is called Close. As company’s stock is openly traded, it's up to people’s sentiment to drive it High or Low.

**Adjusted Close**

The adjusted closing price amends a stock's closing price to reflect that stock's value after accounting for any corporate actions. Splitting doesn’t affect the market evaluation company, but it has a quite a lot of psychological impact on new buyers to own the stock. In this case all the previous closing values are divided by 100, to get the adjusted closing price.

**Volume**

Trading volume is a measure of how much of a given financial asset has traded in a period of time. For stocks, volume is measured in the number of shares traded.

Volume determines the market interest and liquidity of a particular stock

**S/W AND H/W REQUIREMENTS**

**Software requirements**

**1)Python**

The language of selection for this project was Python. **Google Colab** is used for data pre-processing, model training and prediction. This was a straightforward call for many reasons. Python as a language has a vast community behind it. Any problems which may be faced are simply resolved with a visit to Stack Overflow. Python is the foremost standard language on positioning makes it a very straight answer to any question. Python is an abundance of powerful tools ready for scientific computing Packages. The packages like NumPy, Pandas, and data reader are freely available and well documented. Many packages or library used in this project

1. **Numpy:** You can do basic mathematical operations without any special Python packages. However, if you’re going to do any kind of complex math, the NumPy package will make your coding life much easier. NumPy provides tools to help build multi-dimensional arrays and perform calculations on the data stored in them. You can solve algebraic formulas, perform common statistical operations, and much more. While NumPy is a valuable Python package for a variety of general-purpose programming tasks, it’s particularly important if you want to do machine learning, since it provides part of the foundation for libraries like [TensorFlow](https://www.activestate.com/blog/neural-network-showdown-tensorflow-vs-pytorch/).
2. [**Pandas**](https://pandas.pydata.org/): If you work with tabular, time series, or matrix data, pandas is your go-to Python package. It is known as a fast, efficient, and easy-to-use tool for data analysis and manipulation. It works with data frame objects; a data frame is a dedicated structure for two-dimensional data. Data frames have rows and columns just like database tables or Excel spreadsheets.
3. [**Matplotlib**](https://matplotlib.org/): Matplotlib is the most common data exploration and visualization library. You can use it to create basic graphs like line plots, histograms, scatter plots, bar charts, and pie charts. You can also create animated and interactive visualizations with this library. Matplotlib is the foundation of every other visualization library. The library offers a great deal of flexibility with regards to formatting and styling plots. You can freely choose how to display labels, grids, legends, etc. However, to create complex and visually appealing plots, you'll need to write quite a lot of code.
4. **Pandas DataReader:** Pandas DataReader is a Python package that allows us to create a pandas Data Frame by using some popular data sources available on the internet including **Yahoo Finance**
5. **Keras:** Keras is a high-level, deep learning API developed by Google for implementing neural networks. It is written in Python and is used to make the implementation of neural networks easy. It also supports multiple backend neural network computation. Keras is relatively easy to learn and work with because it provides a python frontend with a high level of abstraction while having the option of multiple back-ends for computation purposes. This makes Keras slower than other deep learning frameworks, but extremely beginner-friendly.

**Hardware Requirements:**

• RAM: 4 GB

• Storage: 500 GB

• CPU: 2 GHz or faster

• Architecture: 32-bit or 64-bit

**ER DIAGRAM**

PRE PROCESSING

BULID LSTM & MODEL TRAINING

PREDICTED RESULT

DATA SPLITING

DATASET

**ENHANCEMENTS**

* Scarping more indictors
* Market research
* Changing problem-solving strategy

**References**

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