

MACHINE LEARNING BASED SYSTEM TO PREDICTING STOCK MARKET TRENDS VIA CONTINUES AND BINARY DATA

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Abstract: The main objective of this project is to find the best model to predict the value of the stock market. During the process of considering various techniques and variables that must be taken into account, We found out that techniques like random forest, support vector machine were not exploited fully. In, this project we are going to present and review a more feasible method to predict the stock movement with higher accuracy. The first thing we have taken into account is the dataset of the stock market prices from previous year. The dataset was preprocessed and tuned up for real analysis. Hence, our project will also focus on data pre-processing of the raw dataset. Secondly, after pre processing the data, we will review the use of random forest, support vector machine on the dataset and the outcomes it generates. In addition, the proposed project examines the use of the prediction system in real-world settings and issues associated with the accuracy of the overall values given. The project also presents a machine-learning model to predict the longevity of stock in a competitive market. The successful prediction of the stock will be a great asset for the stock market institutions and will provide real-life solutions to the problems that stock investors face.

Keywords: Stocks, Machine Learning, Processing, Dataset, Support Vector Machine, Database, Investor.

INTRODUCTION

The main objective of this project is to find the best model to predict the value of the stock market. During the process of considering various techniques and variables that must be taken into account, we found out that techniques like random forest, support vector machine were not exploited fully. The proposed project examines the use of the prediction system in real-world settings and issues associated with the accuracy of the overall values given. The project also presents a machine-learning model to predict the longevity of stock in a competitive market. Our approach predict the stock trend effectively in the really world market. Experiment results show that our proposed approach makes profits on the Indian stock market, especially in a long-term usage.

MOTIVATION

This project to implement an application stock marketing is basically an aggregation of various buyers and sellers of stock. Prediction system in real-world settings and issues associated with the accuracy of the overall values given. The project also presents a machine-learning model to predict the longevity of stock in a competitive market. Provide the affordable solution in market for normal people.

LITRATURE SURVEY

This chapter contains the existing and established theory and research in this report range. This will give a context for work which is to be done. This will explain the depth of the system. Review of literature gives a clearness and better understanding of the exploration/venture. A literature survey represents a study of previously existing material on the topic of the report. This literature survey will logically explain this system.

Price Trend Prediction of Stock Market Using Outlier Data Mining Algorithm In this paper we present a novel data mining approach to predict long term behavior of stock trend. Traditional techniques on stock trend prediction have shown their limitations when using time series algorithms or volatility modelling on price sequence. In our research, a novel outlier mining algorithm is proposed to detect anomalies on the basis of volume sequence of high frequency tick-by tick data of stock market. Such anomaly trades always inference with the stock price in the stock market. By using the cluster information of such anomalies, our approach predict the stock trend effectively in the really world market. Experiment results show that our proposed approach makes profits on the Chinese stock market, especially in a long term usage[1].

Short-term prediction for opening price of stock market based on self-adapting variant PSO-Elma neural Network. Stock price is one of intricate non-linear dynamic system. Typically, Elman neural network is a local recurrent neural network, having one context layer that memorizes the past states, which is quite fit for resolving time series issues. Given this, this paper takes Elman network to predict the opening price of stock market. Considering that Elman network is limited, this paper adopts self-adapting variant PSO algorithm to optimize the weights and thresholds of network. Afterwards, the optimized data, regarded as

initial weight and threshold value, is given to Elman network for training, accordingly the prediction model for opening price of stock market based on self-adapting variant PSO-Elman network is formed. Finally, this paper verifies that model by some stock prices, and compares with BP network and Elman network, so as to draw the result that shows the precision and stability of this prediction model both are superior to the traditional neural network [2].

Survey of stock market prediction using machine learning approach: Stock market is basically nonlinear in nature and the research on stock market is one of the most important issues in recent years. People invest in stock market based on some prediction. For predict, the stock market prices people search such methods and tools which will increase their profits, while minimize their risks. Prediction plays a very important role in stock market business which is very complicated and challenging process. Employing traditional methods like fundamental and technical analysis may not ensure the reliability of the prediction. To make predictions regression analysis is used mostly. In this paper we survey of well-known efficient regression approach to predict the stock market price from stock market data based. In future the results of multiple regression approach could be improved using more number of variables [3].

Stock market prediction using Hidden Markov Model: Stock market is the most popular investment scheme promising high returns albeit some risks. An intelligent stock prediction model would thus be desirable. So, this paper aims at surveying recent literature in the area of Neural Network, Hidden Markov Model and Support Vector Machine used to predict the stock market fluctuation. Neural networks and SVM are identified to be the leading machine learning techniques in stock market prediction area. Also, a model for predicting stock market using HMM is presented. Traditional techniques lack in covering stock price fluctuations and so new approaches have been developed for analysis of stock price variations. Markov Model is one such recent approach promising better results. In this paper a predicting method using Hidden Markov Model is proposed to provide better accuracy and a comparison of the existing techniques is also done.[4].

LIMITATION OF EXISTING SYSTEM

- Internet Connection
- Proper Dataset

EXPERIMENTAL SETUP

Android Studio is the official[7] integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.[8] It is available for download on Windows, macOS and Linux based operating systems or as a subscription-based service in 2020.[9][10] It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development. Android Studio was announced on May 16, 2013, at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.[11] The first stable build was released in December 2014, starting from version 1.0

MySQL 5.1: MySQL provides our small, medium and large enterprise customers with affordable, open access to their web data warehouses. MySQL allows us to offer our SystemAdministrator low cost, low maintenance database solution for applications without sacrificing power, performance or scalability. It seems to be developed iteratively, and the features are very stable when they ship them. It is a relational database. Over the past several years, this relational database management systems have become the most widely accepted way to manage data.

SCOPE:

This project is presenting by permitting healthy speculation of the traded securities, the stock exchange ensures demand and supply of securities and liquidity. Facilitates liquidity: The most important role of the stock exchange is in ensuring a ready platform for the sale and purchase of securities.

PROBLEM STATEMENT:

We are creating an application that allows user to stock marketing is basically an aggregation of various buyers and sellers of stock. A stock (also known as shares more commonly) in general represents ownership claims on business by a particular individual or a group of people. The attempt to determine the future value of the stock market is known as a stock market prediction. The prediction is expected to be robust, accurate and efficient. The system must work according to the real-life scenarios and should be well.

SYSTEM ARCHITECTURE:

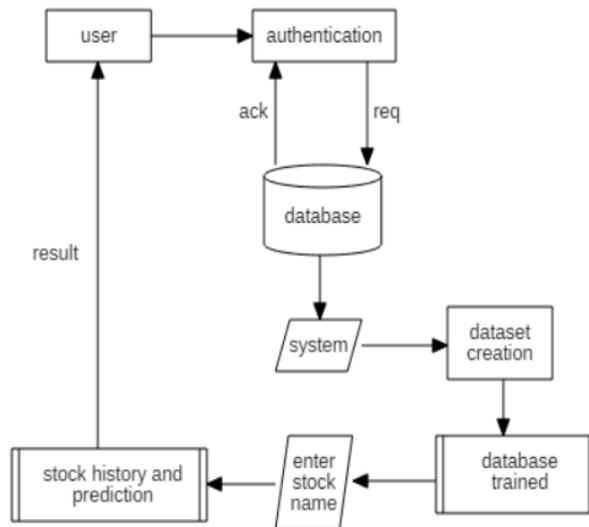


Fig -1: System Architecture Diagram

This System is to track down awesome model to foresee the worth of the securities exchange. During the interaction of considering different procedures and factors that should be considered, we discovered that strategies like irregular woodland, support vector machine were not taken advantage of completely. In, this project we will present and audit a more possible technique to anticipate the stock development with higher exactness. The first thing we have considered is the dataset of the stock market costs from earlier year. The dataset was pre-handled furthermore, adjusted for genuine examination. Subsequently, our project will likewise concentrate on information pre-processing of the crude dataset. Furthermore, in the wake of preprocessing the information, we will audit the utilization of irregular woods, support vector machine on the dataset and the results it produces. Likewise, the proposed paper looks at the utilization of the forecast framework in true settings and issues related with the exactness of the general qualities given. The project moreover presents an AI model to foresee the life span of stock in a cutthroat market.

MATHEMATICAL MODEL

S = (I,O,F)

Where,

S: System

I= {UL , SE } are set of Input

Where,

- UL : User Login
- SE : Stock Enter

F = {A, PU} are set of Function

Where,

- A: Authentication
- PU: Processing

O = {N, SR} are set of Output

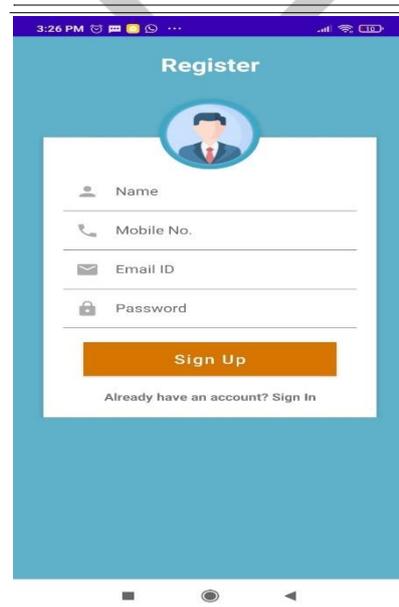
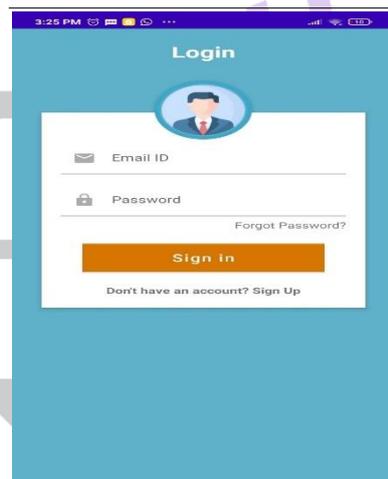
Where,

- N: Notification
- SR: Stock Report

Success Condition: Proper database, Valid Stock name.

Failure Condition: No Database, No Internet Connection.

Screenshots:





ADVANTAGES:

1. Predicting the stock price based historical data with 85-90
2. Security
3. Easy to use
4. High Performance

APPLICATION:

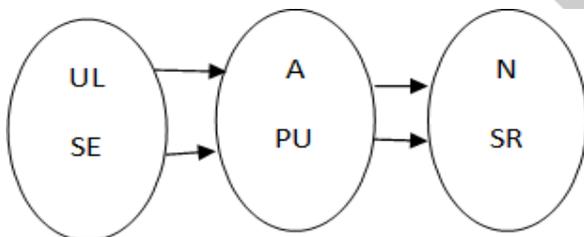
1. Finance Company
2. Banking.
3. IT/Technology
4. Infrastructure
5. Pharmaceuticals

METHODOLOGY

- The algorithm in which every operation is uniquely defined is called deterministic algorithms. The algorithm in which every operation may not have unique result, rather there can be specified set of possibilities for every operation, such algorithms are called Non deterministic algorithms. Non deterministic means no particular rule is followed to make guess.

Figure 2: Venn diagram

- **P Class:** This group consists of all algorithms whose computing times are polynomial time that is there computing time is



bounded by polynomials of small degree. Eg. Insertion sort, merge sort, quick sort have polynomial computing time.

- **NP Class:** This group consists of all algorithms whose computing time are non- deterministic polynomial time. Eg. Traveling salesman problem..

The NP class problem can be classified into two groups:

- a. **NP Hard Problems:** Normally optimization problems are NP-Hard problems. All NP complete problems are NP hard but some NP hard are not NP complete. A problem is NP hard if and only if its at least as hard as NP complete problem.

- b. NP complete problems:** Normally decision problems are NP-Complete problems. Non deterministic polynomial time complete problems. Decision Problems: Any problem having the answer either zero or one is called decision problem.

CONCLUSION:

By measuring the accuracy of the different algorithms, we found that the most suitable algorithm for predicting the market price of a stock based on various data points from the historical data is the random forest algorithm. The algorithm will be a great asset for brokers and investors for investing money in the stock market since it is trained on a huge collection of historical data and has been chosen after being tested on a sample data. The project demonstrates the machine learning model to predict the stock value with more accuracy as compared to previously implemented machine learning models

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