

Share Market Application Using Machine Learning

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Abstract - Speculating on stock market fluctuations is a well-known problem of interest. Social media does an excellent job of capturing public mood and opinion regarding recent developments in the stock market. An intriguing area of study has been stock market forecasting using Parallel Dots' natural language processing API. This project's goal is to assess how successfully stock price fluctuations for a firm are being tracked. The increases and decreases are tied to how the general public feels about the firm as reported in the news. Here, I've used the Parallel Dots Natural Language Processing API and sentiment analysis.

Keywords: Stock Market, Parallel Dots API, Sentiment Analysis.

1.Introduction

Sentimental analysis is becoming more and more common in information technology as a way to ascertain sentiments, emotions, and views. It offers details about public opinions of that specific business. An increase in social networking sites has led to a tremendous increase in user reviews, comments, and opinions. Intelligent systems are being developed to assess these details. They categorize the reviews and comments into predetermined sentiment categories like neutral, positive, or negative opinion. Text mining or categorization is an important method for processing textual data. Models have generally classified emotions as either positive or negative, good or bad, joyful or sad. I will make advantage of the Parallel Dots Machine Learning API to put this concept into practise. Since the stock market is a non-parametric, non-linear system, it is very challenging to represent it accurately. Investors have been looking for a technique to identify the best stocks to purchase or sell, as well as the best times to do so. In the stock market, a return on investment is anticipated. As a result, the stock price may be accurately and intelligently forecast. Most people think that using basic analysis is a useful strategy only in the long run. However, fundamental analysis is not appropriate for medium- and short-term speculations. Artificial intelligence and machine learning approaches have recently been used in this field.

2. Literature Survey

According to Xi Zhang et al. [1], stock market forecasting has grown in importance over recent years. One technique is technical analysis, however these techniques don't always produce reliable findings. Therefore, it's crucial to create techniques for a more precise forecast. Investments are frequently made utilizing forecasts derived from stock price by taking into account all potential influences. Regression analysis was the method used in this case. A significant quantity of data must be analyzed before a forecast can be produced due to the massive volumes of data that the stock markets generate at any given moment.

Each method under "regression habits" has benefits and drawbacks compared to its competitors. Linear regression was one of the significant methods that was highlighted. The way that linear regression models works is that they may be fitted in a variety of ways, such as by reducing the "lack of fit" in another norm or by reducing a modified form of the least squares loss function. On the other hand, nonlinear models may be fitted using the least squares method.

According to Loke Kar Seng [2], there is a growing tendency toward the use of artificial intelligence and machine learning to forecast stock values. Every day, more and more academics devote effort to developing methods that will enable them to raise the stock prediction model's level of accuracy.

There are many different approaches to predicting the price of a stock since there are so many possibilities available, but they don't all function in the same way. Despite using the same data set for each approach, the results vary. The stock price prediction in the given study was done using the random forest method, which forecasts the stock price based on financial statistics from the preceding quarter. This is simply one way to address the issue using a predictive model, employing the random forest to extrapolate the stock's future price from past data.

However, there are always more elements that affect the price of the stock, such as investor attitudes, public perceptions of the firm, news from different sites, and even occasions that generate fluctuations throughout the whole stock market. The accuracy of the stock price prediction model may be improved by utilizing a model that can accurately evaluate feelings together with the financial ratio.

Siddhartha Vadlamudis [3], According to him, the stock market is the location where buyers and sellers go in order to purchase and sell shares of a corporation. More and more individuals are becoming interested in the stock market as time goes on. This subject is more crucial for the research because of the growing interest of the public. Different prediction methods are offered by machine learning, which might be quite useful in this field.

Machine learning is being used by several industries to enhance. With the use of machine learning, computers can learn independently of any outside software. These machine learning methods are initially taught using a data set. The training data set is what is known as. The algorithm then generates the forecasts in accordance with the guidelines provided by the training data set.

3.Objective

1. The objective of the project is to provide the clear and accurate prediction

to the user about buying or selling the stocks.

2. It assists a company to comprehend how the public feels about its branding, goods, and services.

4.Methodology

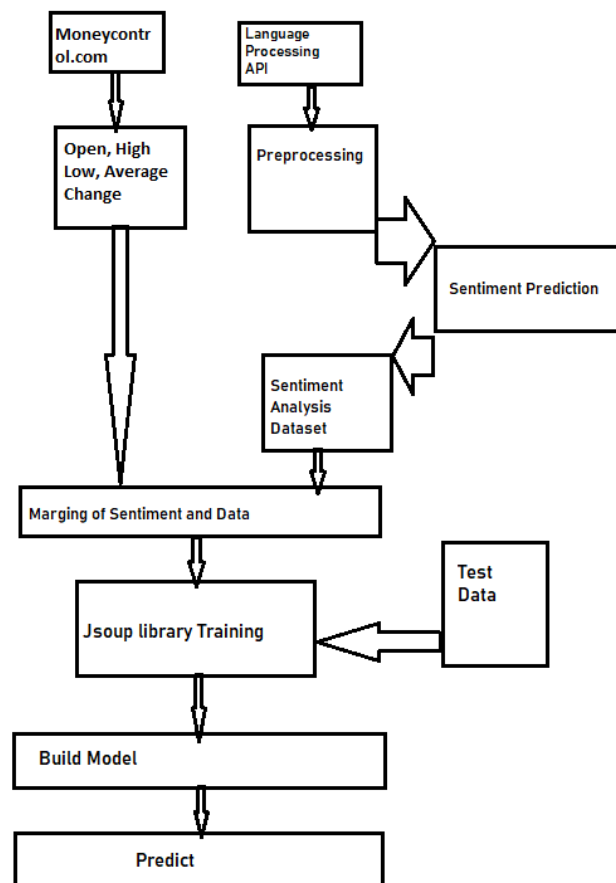


Fig1.System Architecture

A conceptual model known as a system architecture describes the behaviour, structure, and numerous viewpoints of a system. A formal description and representation of a system

that facilitates inferences about its behaviour and structure is called an architectural description.

This is the project's approach, which consists of created components and subsystems that work together to execute the system.

5. Proposed Algorithm

Sentimental analysis, to put it simply, determines if the text under consideration is positive, negative, or neutral. To recognize and extract opinion from the text, a system integrates machine learning and natural language processing algorithms.

Modern technology is used by Parallel Dots Sentiment Analysis API to deliver a precise analysis of the overall sentiment of the textual data combined from many sources, including comments, surveys, reviews, etc. It divides a text's sentiment into three categories: positive, neutral, and negative using Long Short Term Memory (LSTM) algorithms.

• Data Flow Diagram

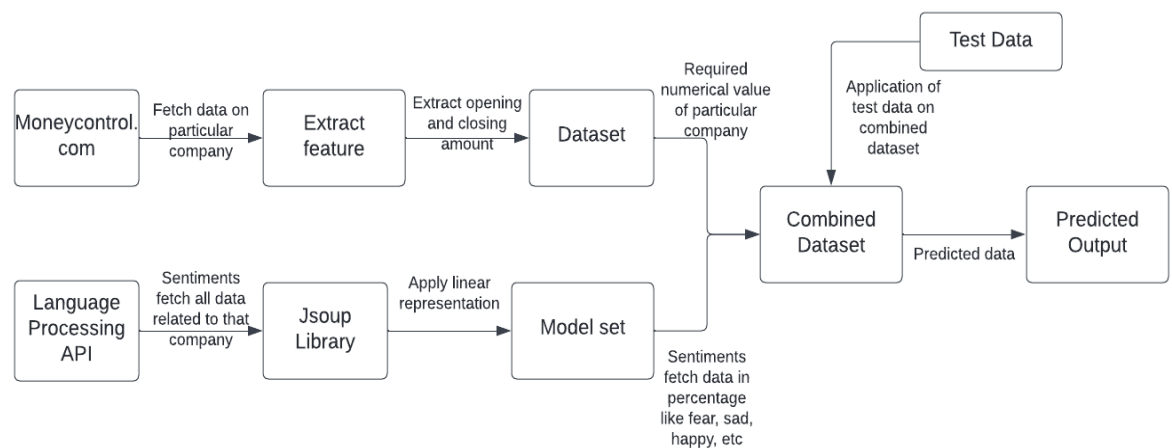
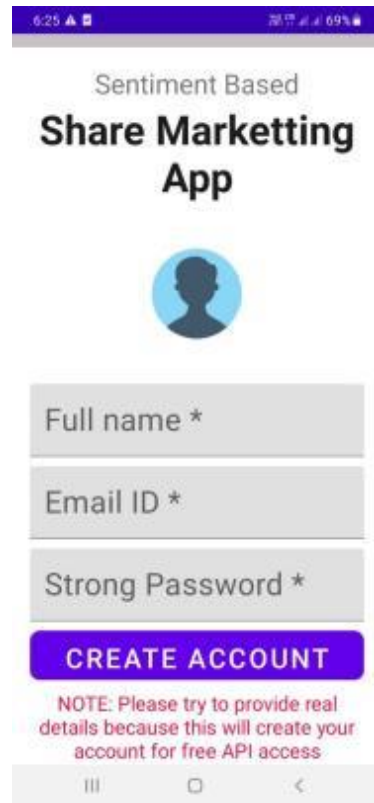


Fig 2. Data Flow Diagram

The project's operation is explained by the data flow diagram. The information was obtained from Moneycontrol.com. Following the feature extraction, the dataset needed for training is produced. Preprocessing is carried out on this data. The model is prepared by using the Jsoup Libraries. The two sets of data are then integrated. Prediction is made using this dataset to produce reliable results. The model is applied to test data, and predictions are made.

6. Implementation

Create Account Page:



The screenshot shows a mobile app interface for creating an account. At the top, the status bar displays the time 6:25, signal strength, and 69% battery. The app title 'Sentiment Based Share Marketting App' is centered, with 'Share Marketting App' in a larger, bold font. Below the title is a blue circular profile icon. The registration form consists of three text input fields: 'Full name *', 'Email ID *', and 'Strong Password *'. A prominent blue button labeled 'CREATE ACCOUNT' is positioned below the fields. A red text note states: 'NOTE: Please try to provide real details because this will create your account for free API access'. The bottom of the screen features a standard Android navigation bar with three icons: a home button, a square task manager button, and a back arrow button.

Fig 3. Create Account Page

This is the create account page where user requires registration. For registration, Full Name, EmailID and Strong Password is required. Once registration is completed then by using EmailID and Password user can login in this app.

Home Page :

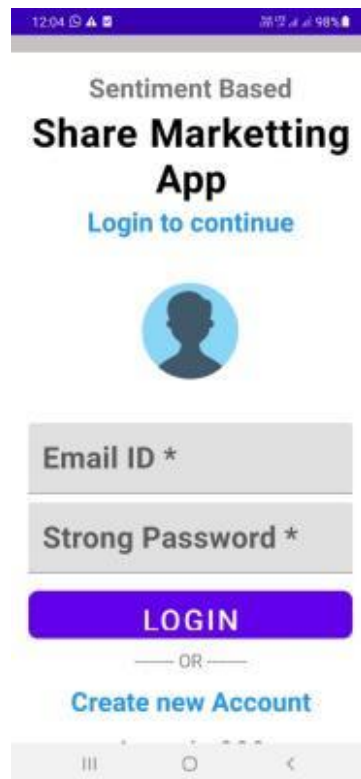


Fig 4. Home Page

This is the home page of our sentiment based share marketing app. You have to Login to the app using EmailID and Password.If you have not created the account, then click on Create new Account, enter details and register.

Company Search Page :

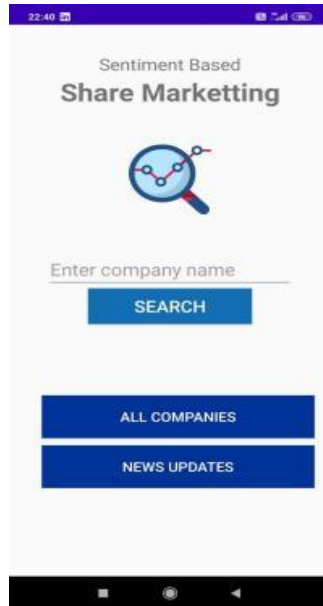


Fig.5 Company Search Page

After login to homepage we get redirected to this page. Here, we can search for the shares of different companies which we want. After clicking on search button it shows the list of various companies. According company share user can invest their money in good company.

Company List :



Fig.6 Company List

Shows all companies which are added in the app. Users can see different companies here.

They can click on any company and get the information about that companies.

Sentimental Analysis :

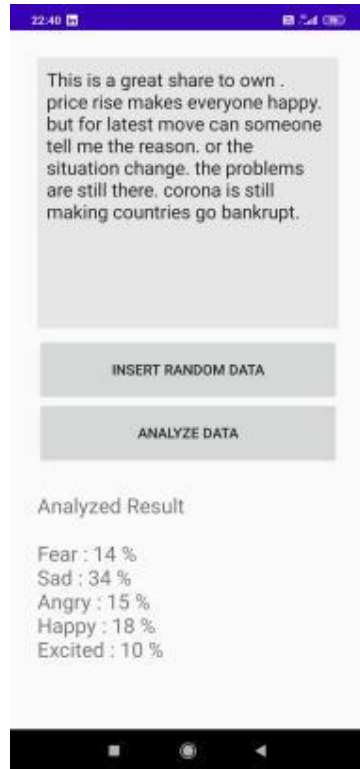


Fig.7 Sentimental Analysis

Sentimental Analysis using Machine Learning. Percentage shows that investors should buy or not the share of that company.

News Update :



Fig.8 News Update

News Update page also added so investors can see updates in the App only.

7. Conclusion

I discovered that the random forest algorithm is the most effective algorithm for predicting the stock price of a firm based on historical data and testing the accuracy of the various algorithms. However, I'll be using Parallel Dots, a machine learning API, in my project. Long Short Term Memory (LSTM) algorithms, a recurrent neural network (RNN) method to deep learning, are used in Parallel Dots. This project provides an analysis of user comments that are presented as text and expressed as percentages, such as fear, sadness, anger, happiness, and excitement.

8. References

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