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PREDICTION OF CLOSING PRICE OF NIFTY IN THE INDIAN FINANCIAL MARKET

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ABSTRACT: Stock and securities prices frequently change in stock markets. Closing prices of the financial stock market change daily at the end of each session. The recent economic situation has witnessed immense highs and lows including some unfortunate happenings related to stock market. There are no perfect system which shows the exact fluctuation of prices. This study attempts to approximately predict closing price of NIFTY by applying a data mining approach and investigate and identify the most influential factors of Indian Financial Stock Market prices. The main objective of this study is to help investors plan their future investment opportunities well. The results obtained have shown that the model can predict the closing price using the classification algorithm.

Keywords: [Data Mining, Data, Set, Business Intelligence, Classification Method, RSS Feed, Stream Processing]

1. INTRODUCTION

Financial and stock market are a great push to the economic growth and stability as they majorly contribute to the flow of resources which leads to great investment opportunities. At significant times of the year, it is very common to notice that the stock prices are frequently appreciated in the morning, which may also take place several times during the day for certain stocks. Whereas there also can be cases of sudden fall of stock prices at the end of the day. This shows that various factors affect stock prices be it internal or external, direct or indirect. There is no perfect system which shows the exact fluctuation of their prices. The factors behind this unevenness can also be due to changing market behavior. Several studies have tried to establish relation between stock prices and their effect due to internal and external factors. It is very difficult to take into account one factor which is responsible for the rise or fall of stock prices. The main factors which comprise of data quality are accuracy, completeness, consistency, timeliness, interpretability. Inaccurate, incomplete, inconsistent data are common-place properties of financial data. There a general belief that the internal factors influencing stock prices could be due to company's good or bad performance, change in ownership or management, earnings, dividends, etc. While on the other hand external factors can include a pool of activities like change in government policies, natural calamities, world affairs, economic stability, forex, GDP, inflation, oil/gas/gold prices. All these factors could have a direct link with production of companies which could indirectly affect market stock prices. Lot of techniques have been used for predicting stock prices, ranging from traditional models to data mining. Most of the past literature related to predicting stock prices revolve around traditional models, such as linear programming, artificial neural networks, Genetic algorithms, etc. It was proposed that historical data too can be used

for accurate predictions of stock price trends. However these models or predictions based on historic data lack predictive accuracy. Therefore data mining had found its way into financial market. Various classifiers, regression algorithms are used to improve predictive accuracy. The motivation behind this project is to assist the investors in Indian Financial Market regarding the closing price of NIFTY and when to buy or sell stocks based on stock predictions taking into account external factors. We are focusing on the external factors because they are highly dynamic they are the lynchpin towards the fluctuating rates of NIFTY. Thus to summarize, external factors have a greater impact on NIFTY stock prices than internal factors and hence we would majorly be focusing on these external factors as a whole.

2. LITERATURE SURVEY

Studies of capital market efficiency are important because they infer that there are predictable properties of the time series of prices of traded securities on organized markets [2]. It presents a new investment strategy for optimal gains on investments in the stock market. The proposed NN-based frame work relies on historical data and provides investors investing strategies for optimal trading. Training data is extracted from historical weekly data [3]. Closing prices of the financial stock market change daily at the end of each session. These changes happen because of many factors that affect the prices of the stocks. This study attempts to accurately predict closing prices by applying a data mining approach and investigate and identify the most influential factors of Dubai Financial Stock Market prices [1]. The main objective of this study is to help investors plan their future investment opportunities well. Two methods are used in this study: supervised and unsupervised algorithms. The results obtained have shown that the model can predict the closing price using the classification algorithm with accuracy greater than 92% and that the regression algorithm succeeded in predicting the stock prices with a correlation coefficient equal to 0.8889[5].

3. PROPOSED SYSTEM

The purpose behind this system is to assist the investors in Indian Financial Market regarding the closing price of NIFTY and when to buy or sell stocks based on stock predictions taking into account external factors. We are focusing on the external factors because they are highly dynamic they are the lynchpin towards the fluctuating rates of NIFTY. Let us take the take the example of the Nintendo stock (NTDOF) rise due to the popularity of a game. Pokémon Go, an augmented reality game based on catching the fictional Pokémon, took the world by storm on 6th July, 2016. The highly addictive game was so popular that Nintendo's stock rose by about 120% in a single day. Everybody thought the game being built by Nintendo as they own the Pokémon franchise. But in reality the game was developed by Niantic Inc., a software development company in USA. After this reality check given by Nintendo itself, their stock dipped about 18% which was the steepest in company history. This example tells us about the effects of external factors, like in this case the release of a popular game, on an organization's stock price.

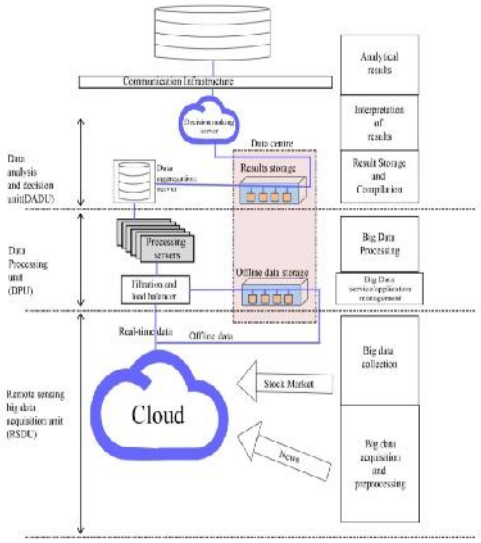

Figure 1- System Architecture

4. IMPLEMENTATION

A) Algorithm I. Data Acquisition and Filtration Algorithm Input: Live Data Feed process data set Output: filtered data in key value pair and send this to processing Mechanism Steps:

1. Filter related data i.e. processed data. All other unnecessary data will be discarded.
2. Divide the Data into Appropriate Key Value Pair.
3. Transmit Unprocessed data directly to aggregation step without processing.
4. Assign and transmit each distinct data block of processed data to various processing steps in Data Processing Unit.

Description: This algorithm takes live RSS Feed Data and then filters and divides them into segments and performs approximation algorithm.

In step 1, related details filtered out.

In step 2, filtered data are the association of different key value pairs and each pair is different numbers of sample, which results in forming a data block. In Next steps, these blocks are forwarded to process by Data Processing Unit.

Algorithm II. Processing and Calculation Algorithm

Input: Filtered Data

Output: Normalized News data into Numerical comparable form Along with Historical Values.

Steps:

1. For each event data, relevant Historical Data is extracted.
2. Normalize this for all the live feed.
3. Persist the data into data store and forward it.

5. EXPECTED RESUL

This project builds a model for predicting the closing stock prices for the companies listed in the Indian Stock Market. In addition, this study assists investors in predicting the closing pricing in the future. It can also be used by brokers, traders & various other such individuals for trading stock of any particular company or in general. It also helps analysts to evaluate the Indian Stock Market & to form statistics and predicates for the future growth. It helps in monitoring the status of the market to prevent any crash or depreciation.

CONCLUSION

The developed system can seems to work acceptable. our Experiments will try to show that obtained forecasts could have about 70% accuracy – this result can be seen as satisfying for such difficult task. Majorities of the “wrong” forecasts can obtained only because changes on the Stock Exchange are too slow, taking into account defined criteria, but the directions of changes are adequate. It is very significant feature of the system, because ‘quite wrong’ forecast can cause big financial loss for potential users. In all experiments, only 14% forecasts are quite wrong, that means, they bring potential investors losses.The system has big possibilities to analyze and to present obtained results. The program will be ready for use by potential investors, but the authors have not invested in the Stock Exchange and do not take responsibility for profits and losses of potential users.

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