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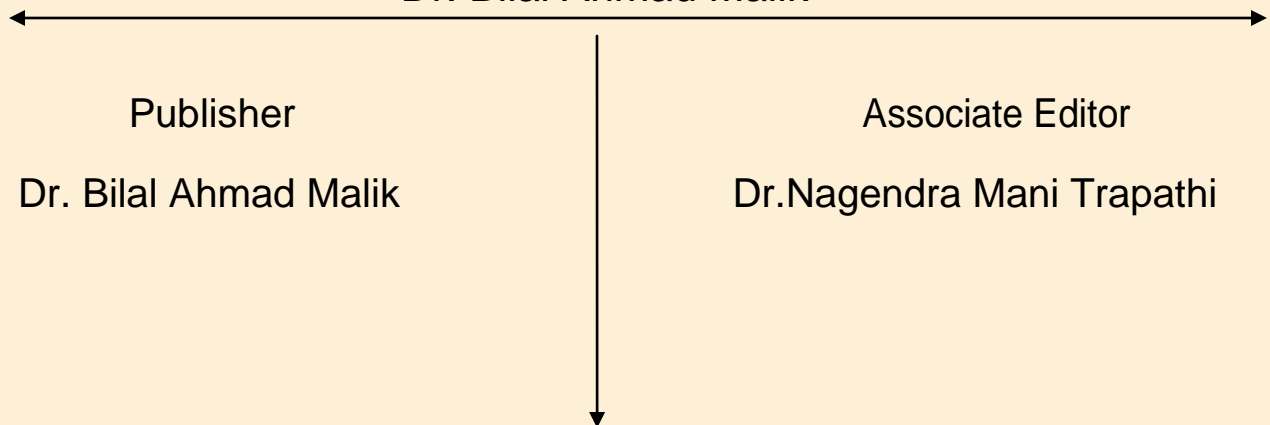
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# STOCK MARKET CLOSING VALUE PREDICTION USING BUSINESS INTELLIGENCE

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*Abstract— Economy is the backbone of any developing country such as India. Financial & stock market are backbone of this economy .Stock market prices are frequently changes several time during trading day .This change in stock market can be due to internal as well as external factors .Many studies have predicted the closing values of market using internal factors but external factors are also responsible for market fluctuation .In this project we will analyze the market closing value with the help of external factors. So that investors can predict & plan their future investment opportunities.*

*Two methods are used in this which are supervised and unsupervised study. The results obtained have shown that the model can predict the closing price using the classification algorithm and regression algorithms with accuracy greater than 91% and that the regression algorithm used in predicting the stock prices with a correlation coefficient equal to 0.865*

*Keywords— Big data, Business Intelligence, Natural Language Processing, Regression Analysis, Voting Feature Intervals, Genetic Algorithm Comparison Survey Security and Reliability, dividend yield.*

## 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. EASE OF USE

### 2.1 Background Implementation

It is easy efficient and easy to run system to have hands on market data analysis .it provides good market stability knowledge. Stock market prediction. Stock market prediction is the act of trying to determine the future value of a company stock or other financial instrument traded on an exchange. The successful prediction of a stock's future price could yield significant profit. One can easily use this tool to forecast rise and fall in market values based on current event which will affect the market system. Researchers of various fields have always been interested in devising a fault-proof method for the prediction of stock market. Extensive research has been done using Machine Learning Algorithms like SVM, to

successfully predict the stock activity in the market using machine learning algorithms main Support Vector Machine (SVM). Stock market assets return volatility forecasting and possibilistic fuzzy modeling. A recursive possibilistic fuzzy modeling (rPFM) approach is suggested to deal with the identification of systems affected by outliers and noisy data due to the use of memberships and typicalities to cluster data. Since financial markets are affected by news, expectations and investors psychology, the development of robust methodologies such as rPFM is essential for market participants. 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.

### 2.2 Motivation

In this fast forward world of technology everyone is running behind time. Thus the main motivation of our project is to produce a time efficient product. motivation to develop such a stock market prediction system is nowadays almost 70 % peoples are investing money in share market and they did not get a positive result from it they did not get proper benefits from it as they are studying only historical market values this project is based on the current issues which also impact on share value like demonstration of money also affects the share value. So to help investors to study market easily and help

them to invest money stock market prediction system is developed.

### 3. SYSTEM ARCHITECTURE

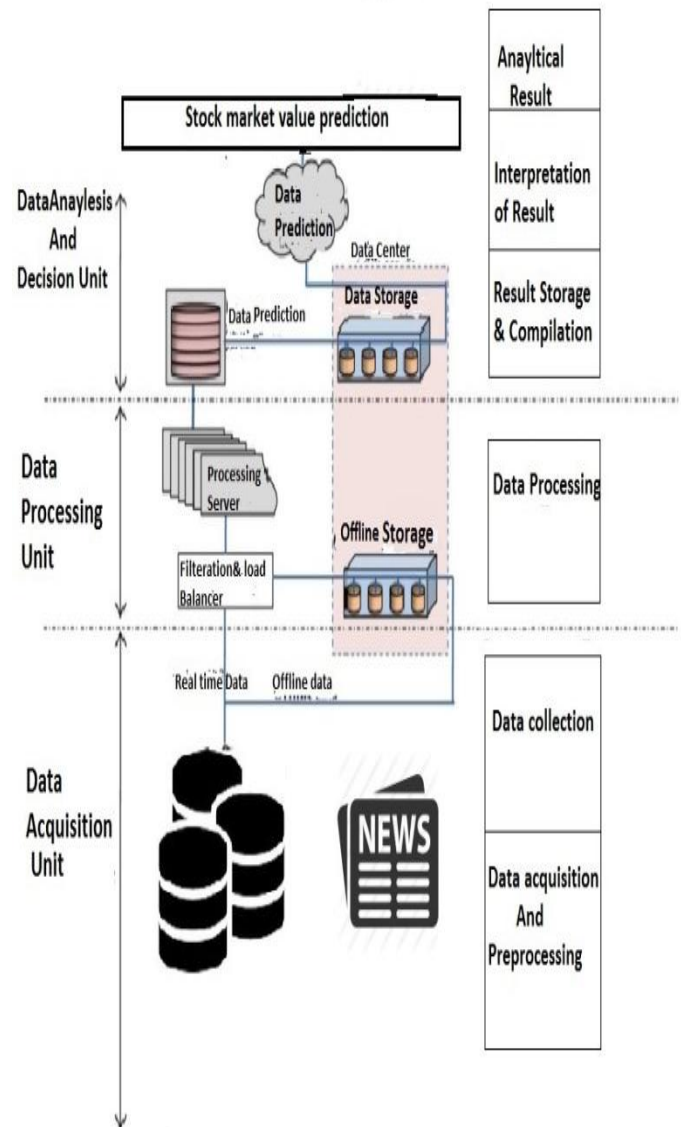


Figure1. System Architecture

#### 4. DESIGN OF SYSTEM

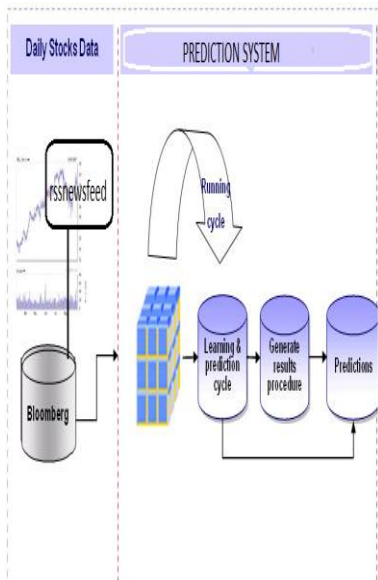


Figure2. Design of system

#### 5. PROPOSED DESIGN

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.

#### 6. IMPLEMENTATION DETAILS

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.

Calculation of impact factor on the basis of the averaging logic and high low values of market data is applied to impact factor calculated from newsfeeds.



## 7. ALGORITHM

### 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 processed 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 the this for all the live feed.
3. persist the data into data store and forward it.

## 8. TECHNOLOGY OVERVIEW

### PuTTY

Is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. It can also connect to a serial port. The name "PuTTY" has no definitive meaning.

PuTTY was originally written for Microsoft Windows, but it has been ported to various other operating systems. Official ports are available for some Unix-like platforms, with work-in-progress ports to Classic Mac OS and macOS, and unofficial ports have been contributed to platforms such as Symbian,<sup>[5][6]</sup> Windows Mobile and Windows Phone.

PuTTY was written and is maintained primarily by Simon Tatham and is currently beta software.

## Python

Is a widely used high-level programming language for general-purpose programming. Python features a dynamic type system and automatic memory management and supports multiple programming paradigms, including object oriented, imperative, functional programming, and procedural styles. It has a large and comprehensive standard library.

## Mongodb

MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemas.

## 9. MATHEMATICAL MODEL

- Input :

Let 'S' be the

$S = \{D1, D2\}$

Where,

D1: {Set of historical market data}

D2: {Set of news}

- Output:

$O = \{D, L, A\}$

$D = \{\text{Closing price of nifty}\}$

$L = \{\text{log files}\}$

$A = \{\text{alerts}\}$

- Functions

$S = \{F1, F2, F3, F4\}$

F1= {Data collection}

F2= {Analysis}

F3= {Prediction}

F4= {Storing}

- Success Conditions : Prediction value matched correctly

- Failure conditions : prediction value does not match.

## 10. RESULT

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.



```

root@parvez:~/RSSFEED11MARCH# python Result.py
Total feed read
139
Market value on date 2017-03-16 is around
-0.09712230215827339
root@parvez:~/RSSFEED11MARCH#
    
```

```

root@parvez:~/RSSFEED11MARCH# python Result.py
Total feed read
139
Market value on date 2017-03-16 is around
-0.09712230215827339
root@parvez:~/RSSFEED11MARCH#
    
```

## 11. APPLICATIONS

- E-commerce.
- Banking.
- Defining company policy.
- Product design policy.
- Enrich the value prediction method.
- Access to all users.
- Financial budget .

## 12. CONCLUSION

The system acts as stock market value predictor. This study involves analyzing the market data closing process using two types of data mining analysis techniques, which are supervised classification algorithms and unsupervised regression algorithms. This study builds a model for predicting the closing stock prices for the companies . In addition, this study assists investors in predicting the closing pricing in the future.

This proposal is still open for future work to improve the prediction accuracy; that might be achieved by continuous data sampling, monthly or daily, and testing the data against the model accuracy might also be enhanced by using more classifiers in the classification algorithm.

```

root@parvez:~/RSSFEED11MARCH# cat Result.py
feed = FeedParser.parse(url)
posts = []
posts_to_print = []

for post in feed.entries:
    title = post.title
    url = post.url
    posts_to_print.append(title)

amount = 1
collection = 1
count = count + 1
collection = collection + str(count) # this will create different collection folders

print(count)
for title in posts_to_print:
    # amount = 1
    # count = 1
    post["collection"] = title
    post["title"] = title
    post["url"] = url
    post["date"] = post.published

    # use to serialize dict to JSON string
    # post is a dictionary object
    collection.update(json_post, True) # this code is use to prevent duplicate record
    amount = 1

print("Data")

root@parvez:~/RSSFEED11MARCH# cat Result.py
import sys
import os
import json
import urllib2
import time

url = "http://api.mexagroup.com/entirement-2.1"

headers = {'Content-type': 'application/x-www-form-urlencoded'}

def feedparser(url):
    client = MongoClient('localhost', 27017)
    db = client['feed']
    collection = db['collection']
    collection.create_index('date')

    feed_iterator = collection.find({'date': '$now'})
    amount = 0
    count = 0

    while True:
        count = 0
        data = {}
        data['collection'] = feedparser(url)
        data['title'] = feedparser(url)
        post = urllib2.urlopen(url).read()
        response = json.loads(post)
        # print(response)
        data['url'] = response['url']
        data['date'] = response['date']
        json_post = json.loads(response)

        collection.update(json_post, True)
        print("Data Process")
        time.sleep(1)
    
```

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