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PROJECT PROPOSAL ON

**“Stock Market Prediction using Data Mining Techniques”**

## By

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Under the Guidance of

Prof. Ms.

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**CERTIFICATE**

This is to certify that the Project Proposal entitled

**“Stock Market Prediction using Data Mining Techniques”**

Is successfully completed by **Rahul Baliram Patil**, Examination Seat Number under the guidance of **Prof. Ms.,** during the academic period of 10th June, 2017 to 28th Dec, 2017as per the Syllabus, and the fulfilment for the completion of the M.Sc.-II (Semester-III) in the Computer Science of **University of Mumbai**. It is also to certify that this is original work of the candidate done during academic year 2017-2018.

**Place:**

**Date:**

**Internal Examiner Head of Department**

**External Examiner**

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No project is ever completed without the guidance of those expert have already traded this past before and hence become and master of it and as a result, our leader. So I would like to take this opportunity to take all those individuals how have helped me in visualizing the project.

It is indeed a matter of great pleasure and proud privilege to be able to present this project proposal on “**Stock Market Prediction using Data Mining Techniques**”.

The completion of the project work is a milestone in student life and its execution is inevitable in the hands of guide. I express my deep gratitude to my project guide **Prof.**  for providing timely assist to my query and guidance that they give their experience in this field past many year. They had indeed been a lighthouse for us in this journey.

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**“STOCK MARKET PREDICTION USING DATA MINING TECHNIQUES”**

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**INTRODUCTION**

Today we live and breathe data. Forecasting the stock data is an important financial subject which involves an assumption that the fundamental information publicly available to the past predictive relationship for future stock return. Stock market prediction contain uncovering market trends, planning investment tactics, identifying the best time to purchase the stock and which stock to purchase. A stock exchange or business sector is a non-direct, non-parametric framework that difficult to model. It is mix speculators which need purchase or offer of hold a share at a specific time. Prediction will continue to be an exciting locale of research, making scientists in the analytics field always desiring to enhance the existing forecasting models. The motivation is that companies and individuals are empowered to make investment decision to develop viable system about their future endeavours.

Stock trend forecasting is considered as one of the most difficult tasks to achieve in money related gauging because of the difficulty to achieve in money related gauging because of the difficulty in the multifaceted world of stock market. Many investor in the stock market are finding a technique that could guarantee easy profiting by forecasting the stock trends and minimize the risk of investing. This motivates the researchers in the domain field to delve and develop new forecasting models. Time series data analysis techniques use verifiable information as the premise for evaluating future results. Time series data can be defined as numerical data collected in a particular sequence over a period of time at regular intervals. The time series data can include the values collected at the end of every week, month, quarter, or year etc. The intention is to find if there is any link between the data collected so far and in what way does the data changes. In order to reduce the risk of investment, exchange the securities between the seller and buyer are facilitated by the stock exchanges. A stock exchange is an organization or a place where the stock traders or investors can deal with stock. Some example of stock market organization S&P, NSE, BSE, NASDAQ etc.

R is a programming language and environment for statistical processing and graphics. The   
R is generally utilized among analysts the data and data excavators for statistical programming and data analysis. R language was created by Ross Ihka and Robbert Gentleman at the University of Auckland, New Zeland and is presently maintained by the R development core team. Amid the most recent decade, the energy originating from both scholarly world and industry has lifted the R programming dialect to turn into the most essential tool for computational insights, perception and data science. Around the world, a large number of analysts and information researchers use R language to take care of their most difficult issues in the fields going from computational science to quantitative promoting.

**RELATED WORK**

The objective of forecasting the stock returns, fundamental analysis and technical analysis are used by number of researchers. The stock trading rules are developed based on the information related to economics, ancient data of stock trading.

The most efficient way to forecast the future is to understand the present scenarios. The author Banerjee D [ 1] tried to develop an appropriate model that helps to forecast the unseen values of the Indian stock market, based on the information collected on the monthly closing stock indices. Based on the ARIMA model they predict the future stock indices which have the strong performance of the Indian economy.

The authors Li Bing [2] have extracted the ambiguous text through MLP techniques to get the real stock price movements and public sentiments. It has been said that public emotions may be co-related that has shown through Twitter. Data miming algorithms to mine Twitter data in order to forecast the stock trends using sentimental analysis which comes under fundamental analysis.

To forecast stock price trend the author Tao Xing [3 ] have introduced a method based on Hidden Markov Model. Hidden Markov Model proposed by Baum and Egon, which is a kind of Markov chain and is used for the pattern recognition technique. This paper finds the hidden relationship existing between the Hidden Markov Model and stock prices.

It is tedious task for the stock market financial specialists to guesstimate the pattern of the stock exchange costs as effectively as could be allowed to settle on the best exchanging choices. The Vishwanath [4] have proposed a system called APST, which performs the pre-processing of verifiable stock time arrangement in information produce the grouping of approximated values by utilizing multi-scale segment mean methodology. To locate the closet neighbour object they utilize the Euclidian separation way to recognize the comparative arrangement of articles.

The Ayodele [5] have used the ARIMA model to develop an extensive process of building stock price predictive model by obtaining data from NYSE and NSE. Artificial Neural Networks (ANNs) model is very popular due to its ability to learn pattern from data and infer solution from unknown data. Hybrid approaches also engaged to improve stock price predictive models by exploiting the unique strength of each them. The result obtained from real life data demonstrated the potential strength of ARIMA models to provide investor short- term prediction decision making process.

Stock exchange markets facilitate saving and investment that are beneficial to increase the effectiveness of national economy. The Li Zhe [7] has used the method of technical analysis which trading rules were established based on the ancient data of stock trading price and volume. Technical analysis uses various methods that aim to predict future stock price movements based on the assumption can be determine historical stock prices.

**OBJECTIVE**

1. To take an overview of the Indian stock market and encapsulate various investment avenues available.
2. To know various options available in the capital market to invest.
3. To study investment behaviour of investors and the factors that affect their investment decisions.
4. To know the satisfaction of investor regarding return of different investment avenues.
5. To know investor’s perception regarding investment of stock market.
6. To organize stock in a fair, transparent and competitive way.
7. To learn about trading of stock in stock exchanges.

**METHODOLOGY**

1. **FREQUENT ITEMSET USING DATAMINING**

Much research has been focused on finding efficient algorithm for mining large Itemset. In this work we will try to analyse the frequent Itemset using the algorithms of datamining like the Apriori algorithm, K-Apriori algorithm, and these algorithms are explained in detail below.

* 1. **APRIORI ALGORITHM**

Apriori [4] is an algorithm for frequent item set mining and association rule learning over transactional databases. It proceeds by identifying the frequent individual items in the database and extending them to larger and larger item sets as long as those item sets appear sufficiently often in the database. The frequent item sets determined by Apriori can be used to determine association rules which highlight general trends in the database: this has applications in domains such as market basket analysis.

Apriori algorithm for Frequent Itemset Mining

Cdn: Candidate itemset of size n

Ln: frequent itemset of size n

L1 = {frequent items};

For (n=1; Ln!= ; n++)

Do begin

Cdn+1 = candidates generated from Ln;

For each transaction T in database do

Increment the count of all candidates in Cdn+1 that are

contained in T

Ln+1= candidates in Cdn+1 with min\_support

End

Return Ln

1. **CLASSIFICATION**

In [classification](https://en.wikipedia.org/wiki/Statistical_classification), inputs are divided into two or more classes, and the learner must produce a model that assigns unseen inputs to one or more ([multi-label classification](https://en.wikipedia.org/wiki/Multi-label_classification)) of these classes. This is typically tackled in a supervised way.

Classification is used to classify each item in a set of data into one of predefined set of classes or groups. The data analysis task classification is where a model or classifier is constructed to predict categorical labels (the class label attributes). Classification is a data mining function that assigns items in a collection to target categories or classes. The goal of classification is to accurately predict the target class for each case in the data.

Classification is a model finding process that is used for partioning the data into different classes according to some constrains. In other words we can say that classification is process of generalizing the data according to different instances. Several major kinds of classification algorithms including C4.5, k-nearest neighbor classifier, Naive Bayes, SVM, Apriori, and AdaBoost, etc.

**Our** Analysis determines the Optimal Resource Organization to facilitate the Construction Services for Different Area or Sector including public and private or government for identification and evaluation of construction capability, applicability, and level of the uptake within the contract.

1. **CLUSTERING**

Clustering is the grouping of a particular set of objects based on their characteristics, aggregating them according to their similarities. Regarding to data mining, this methodology partitions the data implementing a specific join algorithm, most suitable for the desired information analysis of E-Tendering.

The personal data combined with shopping, location, interest, actions and an infinite number of indicators, can be analysed with this methodology, providing very important information and trends. Examples of this are the market research, marketing strategies, web analytics, and a lot of others.

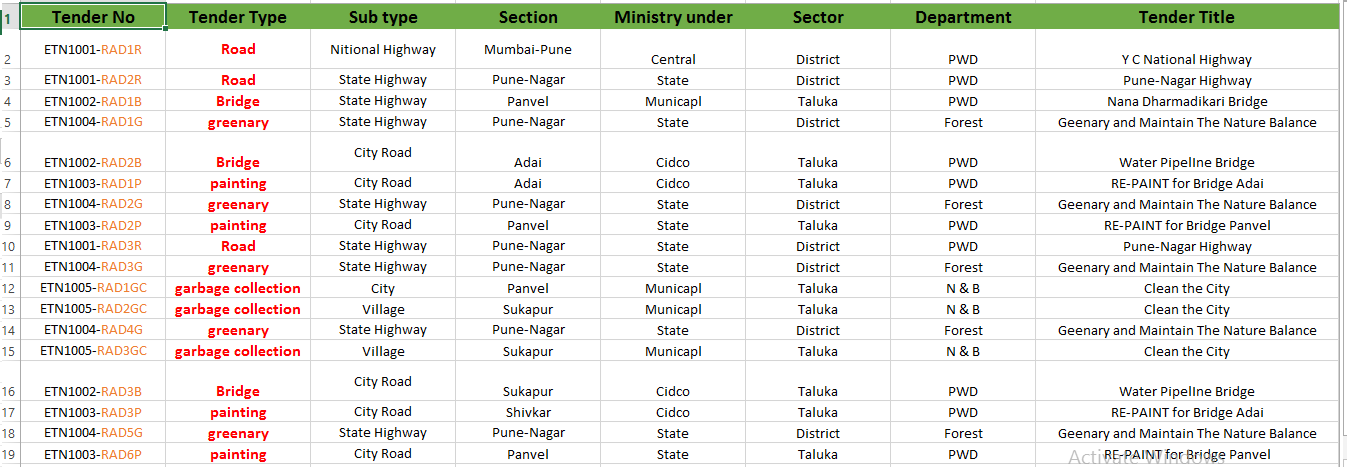
**3.1 K-means Clustering**

K-means is an iterative clustering algorithm in which items are moved among setsof clusters until the desired set is reached. This technique is used to classify thedata which have no previous knowledge about the data or the training set. Theparameter K denotes the amount of clusters required to partition the data. The ideaof this clustering technique is, given K number of clusters we can define Kcentres, one for each cluster based on all samples belonging to a cluster. Thesecentres must be placed far away from each other and then associate each sampleto the cluster that has the closest centroid.

**In our**E-Tendering Analysis**K-means Clustering**can be usedtoexamine the Organizations that provide Constructions Services in Particular area that enables in Public or Government Section Tenders of Construction Service.

1. **DATASET:**

The dataset used for this work can make us understand the algorithms more clearly.

The effects algorithm can be understood in much depth

1. **SYSTEM CONFIGURATION**

**H/W System Configuration:**

* System - Core-2-Due 2.4Ghz
* Speed - 2.4Ghz
* RAM - 4GB
* Hard Disk - 500GB
* Keyboard - Standard Windows Keyboard(Neosoft)
* Mouse - Standard Intex
* Monitor - 19” LED

**S/W System Configuration:**

* Operating system - Win 10
* Database - MySql/Excel
* Language - R/Weka/Python

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