

Smart Incremental Model for Stock with Mail Communication among Customers

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Abstract—In the growing technology using the data mining technique, to improve the e-commerce world with their products by promoting them to outside the world. The data mining helps to mine the products based on the sold products details. The corporate will start promoting their products through mails and messages. If every user starts using their products, the company will start promoting it more by sending ads to every mail users. The data mining helps to do analysis on the products sold out and products with respect to users and plotting the graphs with respect to ups and downs of the product price. The company person will promote internal products to other person and the same person will promote the same product to other person this way the network communication will increase. The data mining algorithm and techniques are employed to mine the mails and the messages. This work discovers the interesting, statically significant and association relationship in the data. In this paper we are trying to discover the percentile of the stock increasing based on analysis.

Keywords— Data mining; Mailing; SMS; Network communication; Stock increase

I. INTRODUCTION

The data mining is the process of mining the large amount of data acquisition with less time of processing time. The data mining [1] is mainly used for predicting the knowledge in data there are various in methods for analyzing large datasets they are: Classification [2-4]: classifying the large dataset. Estimation: Based on the classification with estimated results in the form of numerical or floating outputs. Clustering [5]: grouping similar type of dataset. Associations: finding the association relationship in data. Visualization: facilitating human discovery. Application of data mining are Customer relationship management, Healthcare, Profiling tax cheater, Industry.

The main objective of the data mining is to discover the knowledge in the data and the process of identifying novel, valid, potentially useful and finally understandable patterns in data. Many data mining techniques are used to detect the stock price variation in marketing about the products. The cost prediction depends on the customer requirements. Based on product quality the customer is buying the products. The satisfaction of a customer with a related products may purchased and motivate other customer to buy those product there by resulting in an increased sales of the product..

By this type of communication network through mails and SMS to promote more products based on user requirement. From derived relative data the stock prices are increased or may decreased it's purely based on data mining analysis. In

Technical analysis, it is believed that market timing is key [6].Technicians utilize charts and modeling techniques to identify trends in price and volume. These later individuals rely on historical data in order to increase the stock.

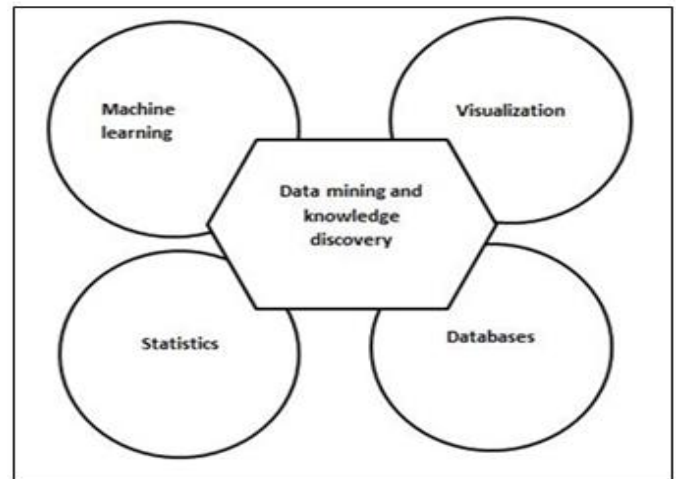


Figure 1: Data mining cycle

Stock is a group of products details which the company people are going to sell in the market. Proposed an innovative approach for stock increase with internal mass mails communication by communicating their product through emails and SMS and promoting our products, which helps to increase the stock in the market. Initially extract the dataset it may be an imbalanced data or may exist in impurities in the data. After cleaning the data should be analyzed based on the stock increase variation using previous data. After analyzing the stock up and downs classify the products whether the stock got increased or decreased. If the stock price got decreased then the company should increase their promotion through SMS and mails. And even the communication network should also increase to promote their products. Based on this scenario the stock may increase in every month or a day or week.

Dataset can be fetched and then select the stock invoice numbers and customer ID using algorithms. The attributes that's present in the project is as followed voice number, stock code, description of product ,quantity of product, invoice date, unit price of the product, customer ID, country, Selecting the source product to communicate with destination to analyze how many times the customers are communicated about that particular product. After communicating from source to destination will get details of customer id, email id and product name. Finally the accurate

results are plotted in graphs based on the product communication.

The rest of the paper is arranged as follows: Section II covering the related work. Section III presents the proposed method. Section IV provides the evaluation of results. And finally the paper is concluded in Section V.

II. RELATED WORK

LI Bing et al [7] employ a NLP technique to define the public opinion. Based on tweeted comments analyze and predict the stock price with accuracy 76.12% for particular company. Only public tweeted data are not able to predict the stock price movements in the market so in our work we taking previous historical data and doing analysis and increase the stock.

D. J.Barrett [8] is mainly concentrated on the employee’s communication network. The communication skills required for the employee to promote their products in the market. So the employee should have the good promoting and marketing skills to improve their stock price and products in the market. Previously they are concentrating on employee communication network the product stock price movement not depends

G.Miller [9] considered twitter is a good way for advertising product and takes feedback based on the tweeted comments. Product promotion and communication can be done but they are not going to predict the stock and not discovered the stock increase

Gahirwal et al [10] implemented only classification of data and prediction of relative data using decision tree and association mining technique.

W. Duan et al [11] they discussed about online reviews for movies. Based on the user feedback they going to rate the movie and increase box-office. We are also trying to predict the user visited websites and products so the employees can promote their products through SMS and mails by send their effective product details to public users. So by doing these automatically stock increased.

III. PROPOSED METHOD

In this section initially analyze the previous dataset and extract it. After extracting the data need to cleaned and analyzing it. After analysis process, the data should be integrated. The integrated data is stored in data warehouse. Block diagram for proposed system is shown in Figure 2. Proposed method has been discussed in the following steps:

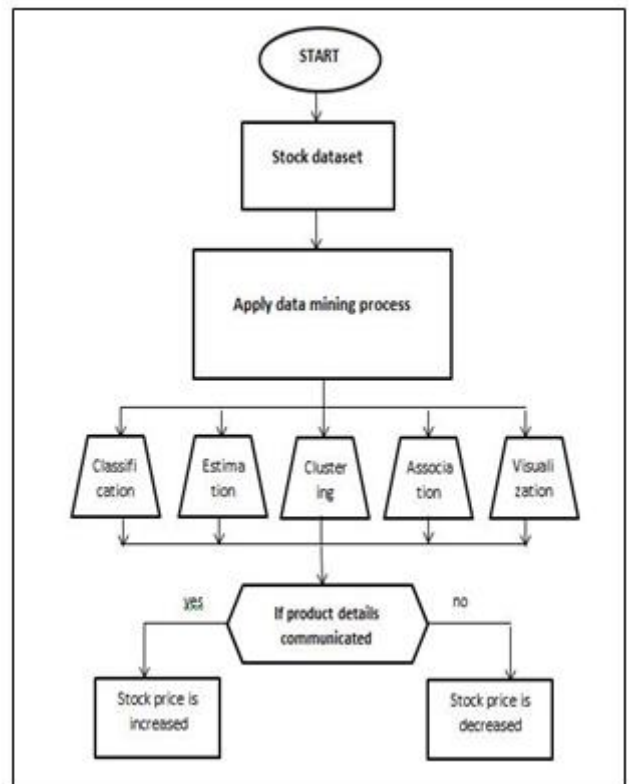


Figure 2: Proposed Method

i. stock dataset:

In stock dataset, the attributes namely: invoice number, stock code, description, quantity, invoice date, unit price, customers, country, email ID, product name. There are more than five hundred customer and product details of the company. The data set is stored in the excel sheet with all the details it also saves the associated emails and product of the customers they are communicated through mails. In the data set there many products details and also it contains how many customers are purchased a particular product.

ii. Data mining process:

Each process explained has follows

Classification of the internal products is totally depends on the tags. The tags are the classified labels and under that all products will be clustered. Based on the threshold price and the popularity of the internal products, will be gathered from the various internal communities in the organization. These communities will keep sending the broadcast emails about the products and their past history of importance so that other communities or other vendor will be purchased and so gradually the stock price will be increased so that the product impact will raised. This will change the organization’s growth drastically and over all communities will be increased and also the communities will exchange to external customers so that all the products will come to the normal state with respect to stock. So this leads to stock growth and will be attracted to other customers to raise their purchase of products which will lead the stock level.

iii. Product communication:

Selected customer id frequently communicated through mails about the products. Each customer have interest in different products so, considering customer visited websites and products based on that promote their products through SMS and mails by send their effective product details. So by doing these can attract the customer to show their interest on products and stock increased.

iv. Stock increased or decreased:

Based on the product communication decide the stock has increased or not. Plotted the graphs analysis on based on the frequency of product communication

This model will be having the rapid growth with the mail and sms communications among the anonymous customers and their pre associations. And once the communication keeps growing the associations with respect to communities will be taken part in the dashboard. So various communities with various internal and external customers will be set to communities neutrally associated with the existing products and sales will keep growing which can lead stock and shares growth level incremental.

The algorithm shows how each and individual steps works in the proposed method. First fetch the data from the dataset then select the customer id using data dividing algorithm to form association relation[12] this creates the network community. Using data mining techniques analyze the data and increase the stock.

15291.0
13448.0
15311.0
17850.0
16250.0
15513.0
15100.0
13767.0
16098.0
13748.0
14688.0
14688.0
17850.0
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18074.0
13408.0
17850.0

Figure 4: Selected Customer ID.

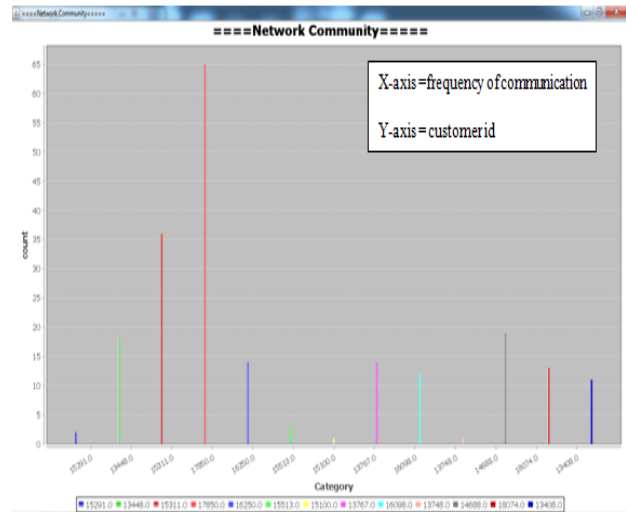


Figure 5: Network Community.

Network community detection is that ultimately provides to identify contextual community from the e commerce UCI machine learning repository database .an algorithm have been proposed and implemented for analyzing the context key for monitoring user graphs.

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Algorithm:
START
Ri = Select (DATA)
Ci = Read (Ri)
Apply data mining process to Ci
1. Classification (Ci)
2. Estimation (Ci)
3. Clustering (Ci)
4. Association (Ci)
5. Vi = Visualization (Ci)
If the predicted data stock is increased then
Display (Vi)
If not
Display (Ci)
STOP
    
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Figure 3: Pseudo code for increasing the stock

IV. RESULT ANALYSIS

Performance evaluation of stock increase with respect to product communication carried out using data mining techniques. Figure 4 shows selected customer id and data can be selected using dividing Algorithm for total frequency. The frequency of communication with respect to customers frames the network community as shown in Figure 5. Communication takes place through emails to promote their products. Here there is source and destination to communicate about their products. After the communication happened it will alert with message saying that communication done in Figure 6.



Figure 6: Product Communication through mails.

In product communication through mails content is often very similar to that of mail marketing campaigns, but the segmentation and delivery is more targeted. Because messages

and communications are more targeted, and delivered directly to the user device, engagement rates are often much higher than email marketing.

communication increased the accuracy results in the stock automatically increased

V. CONCLUSION

Stock increased by promoting the best product to customer through SMS, mails and communication network. Data dividing method applied for selecting customers to form network community. Product classification can be done by using decision tree algorithm and product communication through mails. Based on communication results comparison can be done for different products.

In the future we can also train the data and use machine trained algorithm to improve stock price and also to predicting it. Machine algorithm may give best result for the predicting the data and also for cleaning imbalanced data.

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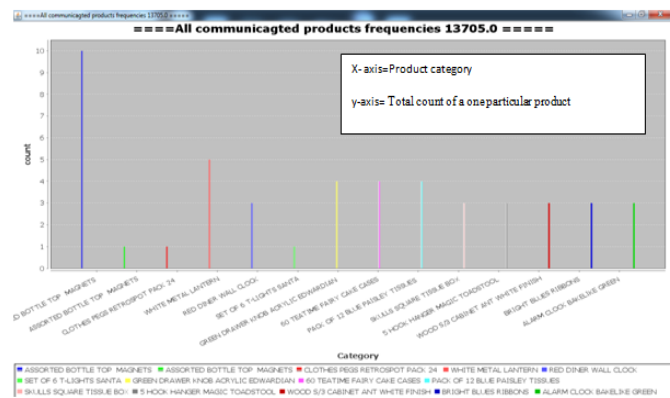


Figure 7: Product Classification.

The product classification can be done based on communication with respect to particular product in Figure 7. The total products are supporting to raise the community with respect to emails. After communication got accuracy of the stock that is for ASSORTED BOTTLE TOP MAGNET accuracy is 12.5%, WHITE METAL LANTERN accuracy is 80.0%, GREEN DRAWER KNOB ACRYLIC EDWARDIAN accuracy is 75.0%.

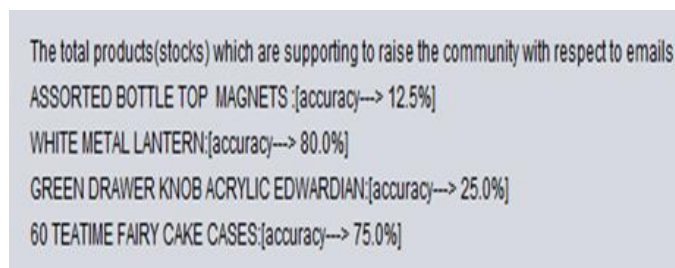


Figure 8: Accuracy Comparison.

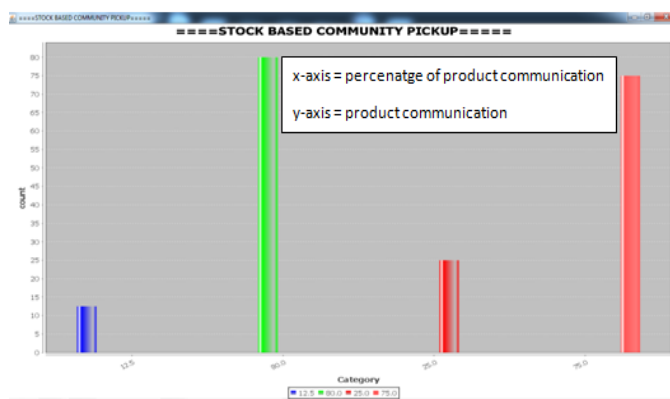


Figure 9: Accuracy Comparison graph for different Products.

All the products accuracy is calculated which have been communicated more that particular one product gives the highest accuracy and frequency shown in Figure 9. If

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