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Application of Data Mining Technique in Stock Market : An Analysis

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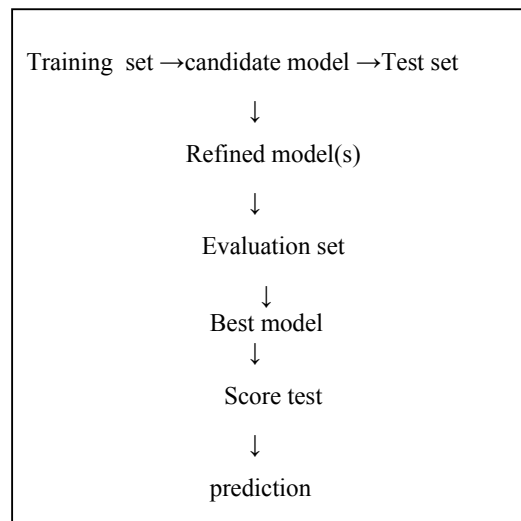
Abstract -Stock market prediction with data mining technique is one of the most important issues to be investigated and it is one of the fascinating issues of stock market research over the past decade. Many attempts have been made to predict stock market data using statistical and traditional methods, but these methods are no longer adequate for analyzing this huge amount of data. Data mining is one of most important powerful information technology tool in today's competitive business world, it is able to uncover hidden patterns and predict future trends and behavior in stock market. This paper also highlights the application of association rule in stock market and their future movement direction.

Keywords - Stock market, data mining, association rules.

I. INTRODUCTION

Data mining, the science and technology of exploring data in order to discover unknown Patterns, is a part of the overall process of knowledge discovery in databases (KDD) [1]. In today's computer driven world, these databases contain quantities of information, exploration of this information makes data mining a matter a considerable importance and necessity. Stock market produces huge datasets that deals enormously complex and dynamic problems with data mining tool. Potential significant benefits of solving these problems motivated extensive research for years [2]. The research in data mining has gained a high attraction due to the importance of its applications and increasing generated information. A stock market or equity market is a private or public market for the trading of company stock and derivatives of company stock at an agreed price; there are securities listed on a stock exchange as well as those only traded privately [4]. The expression "stock market" refers to the market that enables the trading of company stocks collective shares, other securities and derivatives. These stocks are listed and traded on stock exchanges which are entities a corporation or mutual organization specialized in the business of bringing buyers and sellers of stocks and securities together [5]. Generally, data mining (some times called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relation databases [6]. Predicting the market behavior from stock database is very difficult and challenging because stock prices

are dynamic. There are various steps are used for building the predictive model.They are:-



II. CHALLENGES OF STOCK MARKET

Data mining is the emerging methodology used in stock market, finding efficient ways to summarize and visualize the stock market data to give individuals or institutions useful information about the market behavior for investment decision [7]. The enormous amount of valuable data generated by stock market has attracted researchers to explore this problem domain using different methodologies. Stock market contains various challenges which are:

1. Scientific research that relates to creation of knowledge from stock market data set.

2. Better Stock price prediction that concerns with the purchasing and sale of the items.
3. To develop feasible and efficient methods for finding the useful patterns and future trends.
4. To utilize the capital resources of the investors.
5. To boost the economy.
6. To create the interests in the favor of the stock market.
7. To protect investors and investment.
8. To maintain market stability.
9. To check out the all fraud and illegal trade practices like Harshad Mehta share scandal, Satyam scandal etc.

III. APPLICATION OF ASSOCIATION RULES IN STOCK MARKETS

As stated in Agrawal (1993) discovering association rules is an important data mining problem and there has been considerable research on using association rules in the field of data mining problem. The association's rules algorithm is used mainly to determine the relationships between items or features that occur synchronously in the database. For instance, if people who buy item x also buy item y and this information is useful for decision makers. Therefore, the main purpose of implementing the association rules algorithm is to find synchronous relationships by analyzing the random data and to use these relationships as a reference during decision making [7]. One of the most important problems in modern finance is finding efficient ways to summarize and visualize the stock market data to give individuals or institutions useful information about the market behaviors for investment decision [8]. The enormous amount of valuable data generated by the stock market has attracted researcher to explore this problem using different methodologies [3]. Aurangzeb Khan (2009) investigated stock market investment issues on Taiwan stock market data using a two stage data mining approach. The first stage apriori algorithm is used to mine knowledge and illustrate patterns and rules in order to propose stock category association and possible stock category investment collections. Then second stage k-means clustering algorithm is used to explore the stock cluster in order to mine stock category clusters for investment information [9].

IV. CONCLUSION AND FUTURE WORKS

With the increase of economic globalization and evolution of information technology, financial data are being generated and accumulated at an unprecedented pace. As a result, there has been a critical need for

automated approaches to effective and efficient utilization of massive amount of financial data to support companies and individuals in strategic planning and investment decisions making. Data mining have been used to uncover hidden patterns and predict future trends and behaviors in financial markets. This paper we have employed the data mining and its application in stock market. Next time it is hoped that more interesting results will follow further exploration of stock data.

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