A Conceptual Study of Consumer Behavior Analysis in Super Bazaar using Knowledge Mining

Mr. D.R. Vidhate
Asst. Prof, College of Computer Application for Women, Satara, India
vidhatedhananjay@rediffmail.com

***Abstract* — This Retail is final stage of any economical activity in India. There are different formats of retail and one of the formats of retail is super bazaar. A super bazaar is self service shop. A consumer play important role in super bazaar. Behavior of consumer in super bazaar business is important for business growth. Customer behavior study is based on consumer buying behavior. Consumer behavior is difficult to predict. Knowledge mining is the study and analysis of complex data for efficient functioning in super bazaar industry. Knowledge mining helps model and identify the traits of profitable customers and reveal the "hidden" relationship that have not already found. The main aim of this research work is to know what are the observations of different experts and researchers regarding development in super bazaar with its impact on consumer response, economic development as well as competitive changes that have taken place in marketing processes of different super bazaars. It is also used to know how knowledge mining is linked to consumer buying behavior analysis for effective decision making in super bazaars.**

***Keywords* — Super Bazaar, Consumer Behavior, Knowledge Mining, Retail Sector, Decision Making.**

I. INTRODUCTION

A super bazaar is large form of traditional grocery store. It is self service shop offering a wide variety of food and household products organized in aisles. It is larger in size and has wider selection than traditional grocery store. Understanding consumer behavior is important to success of super bazaar business. Consumers make many buying decisions every day. So analysis of consumer behavior has become necessary to extract the knowledge that helps to take efficient decisions and to improve the profitability. Accurate prediction and an understanding of customer behavior can help super bazaar keep customers, improve sales, and extend the relationship with their customers.

Knowledge mining can encourage the right purchase behavior. Knowledge mining is used to identifying valid, potentially useful and unknown patterns from a large amount of data. Knowledge mining is one in which numerous technique are available. The usage of knowledge mining concept helps to explore the enormous data and making it possible in reaching the ultimate goal of complex data analysis. To stay competitive, super bazaars must understand not only current consumer behavior, but must also be able to predict future consumer behavior. So, researcher intends to concentrate on doing literature review on "A Consumer Behavior Analysis in Super Bazaar using Knowledge Mining".

II. PURPOSE OF REVIEW

1. To understand the general trend in the super bazaar industry around the world.
2. To identify the causes of development of super bazaar industry at large and its relation with consumers behavior.
3. To find out the components of knowledge mining technologies to study the super bazaar business.
4. To find out how the consumers have changed their perception about super bazaar industry and how the consumers are responding to the techniques adopted by super bazaar management.
5. To know what are the observations of different marketers, expert and researchers regarding development in super bazaar and its impact on consumer response, economic development as well as competitive changes that have taken place in marketing processes of different super bazaars.

From this point of view the researcher has made this review comprising of the review of various books regarding subject and research material at national and international level.

III. OBJECTIVES OF REVIEW

1. To understand the trends and changes noticed by different authors and researchers in the field of super bazaar industry.
2. To find out new growth patterns in super bazaar industry as noticed by different authors.
3. To examine the trends and changes in the field super bazaar as studied by different experts.
4. To find out opinions and views of experts at national and international level regarding development in super bazaar business at global level.

IV. RREVIEW OF BOOKS AT NATIONAL AND INTERNATIONAL SCENARIO

Margaret H. Dunham, S. Sridhar [1] in his book "Data Mining Introductory and advanced topics" mentioned that, database is growing at phenomenal rate. The users are expecting more sophisticated information from database. Simple structured query language queries are not adequate to support the increased demands for information. Data mining is used to solve this problem by finding hidden information in a database.

T V Suresh Kumar, B Eswara Reddy, Jagdish S Kallimani [2]in his book "Data Mining principles and applications" highlighted that, keeping in mind the changeable and complicated needs of business environment, it is necessary to examine the need of evolution in the traditional decision support techniques. The aim is to intensify the need for integrated performance measurement and management, which are currently based on historical data. Because of the nature of challenges and trends in the retail industry, it is considered to be an appropriate scenario.

Andrew Newmen & Peter Cullen [3] in their book 'Retailing: Environment & Operations' have focused on various aspects of Retailing as a Business. They have considered retailing as a important part of our changing society and major source of employment. The retailing is closely tied to the changing moods of the consumers and new ways of business, spread on by the impressive development in Technology and Management Theory. The book provided importance to retailing, including Logistics and Distribution, Merchandising, Store Layout and design, pricing and location strategy. Retail services and out of store retailing have been included as new areas. This book tried to find out the different market structures that are required for retail operations. This helps the readers to understand different facets, challenges and changes that are happening in the retailing environment.

Gibson Vidamani in his book 'Retail Management' tried to identify the importance of retailing in the Modern Marketing practices. Retailing is not only the format, but it is a method of promotion, distribution, marketing and buying which is being influenced. Retailing has transformed the economic aspect of marketing. In order to understand the phenomenon of the new changes that has been taking place in retailing so that the marketers can understand the perception, visualization and responses of consumer. It is necessary that one should understand how retail marketers are introducing new strategy. It is important to understand different retail strategies, their implications especially in social economy and cultural terms as well as how the stores are planned & designed and what are the new dimensions of different layouts. The economics of retailing is influenced by not only the demand and supply equation but also the psychological consideration of the buyers in a given competitive environment where taste, choice, fashions and cultural values have been extremely important.

V. REVIEW OF RESEARCH PAPERS AT NATIONAL AND INTERNATIONAL JOURNALS

Shu-Hsien Liao, Pei-Hui Chu, Pei-Yuan Hsiao [4] reviews data mining techniques and their applications and development, through a survey of literature and the classification of articles, from 2000 to 2011. Keyword indices and article abstracts were used to identify 216 articles concerning DMT applications, from 159 academic journals, this paper surveys and classifies DMT, with respect to the following three areas: knowledge types, analysis types, and architecture types, together with their applications in different research and practical domains. A discussion deals with the direction of any future developments in DMT methodologies and applications.

E.W.T. Ngai, Li Xiu, D.C.K. Chaun [5] mentioned that, It is an academic database of literature between the periods of 2000–2006 covering 24 journals and proposes a classification scheme to classify the articles. Nine hundred articles were identified and reviewed for their direct relevance to applying data mining techniques to CRM. Eighty-seven articles were subsequently selected, reviewed and classified. Each of the 87 selected papers was categorized on four CRM dimensions and seven data mining functions. Findings of this paper indicate that the research area of customer retention received most research attention.

Abdullah Al-Mudimigh, Farrukh Saleem, Zahid Ullah [6] stated that, evaluating the performance of any organization is an essential part for overcoming their weaknesses. Customer is always on prior for finding and assessing the company's performance. In this paper Customer Relationship Management (CRM) is examined especially customer behavior and customer profiling. The main purpose of this paper is how data mining techniques can extract respectable knowledge from the large customer's database and how to analyze customer behavior to improve business performance. So authors proposed a model for CRM with the efficient implementation of data mining for improving customer behavior.

Chitla, Arathi [7] suggested that, Consumer is the most essential source of revenue for business organizations therefore his behavior is of significant importance for achieving market survival and financial prosperity. Consumer buying behavior is comprised of a bundle of decision making processes, economic determinants and market stimuli. This paper outlines the upcoming trends and challenges in data mining and identifies a technique to predict consumer purchase patterns.

Hokey Min [8] mentioned that, To stay competitive, supermarkets need to develop a viable customer retention strategy. Since a key to the successful development of such a strategy rests with customer relationship management, supermarkets should identify the most profitable ways to build and maintain a loyal customer relationship. In an effort to help supermarkets understand their customers shopping behavior and the ways to retain valued customers, data mining techniques are proposed. This paper illustrates the usefulness of the proposed data mining techniques for examining

customer grocery shopping behavior and developing the profiles of loyal patrons.

Joan Anderson, Antigone Kotsiopoulos [9] has pointed out that, As the economy has tightened, retailers have been challenged in recent years to be more strategic in their planning. With the exponential growth in the amount of data being collected, improvements in technology, and research in machine learning, retailers are now able to reduce the ever growing difficult and complex decision making process by recruiting the efforts of data mining. The purpose of this study is to critique data mining technology in comparison with more familiar analytical tools for strategic decision making by small to medium size retailers.

Katsutoshi Yada, Hiroshi Motoda, Takashi Washio, Asuka Miyawaki [10] mentioned that, we discussed how graph mining system is applied to sales transaction data so as to understand consumer behavior. First, existing research of consumer behavior analysis for sequential purchase pattern is reviewed. The complicated customer purchase behavior is proposed by a directed graph retaining temporal information in a purchase sequence and apply a graph mining technique to analyze the frequent occurring patterns. In this paper, author demonstrated through the case of healthy cooking oil analysis how graph mining technology helps us understand complex purchase behavior.

Zhang, Jiang Lanling, Song Ping [11] says that, Data Mining (DM) is a knowledge discovery process by using statistical theory and artificial intelligence algorithms, the application in business and other areas have started. This article focuses on the general DM technology and its application in the operations of supermarket, especially discusses the specific use of DM in the process of customer relationship management (CRM).

Mohammed Ali. Shaik [12] shows that, tremendous amount of data streams are often generated by dynamic environments such as stock's and bond's price indices, telecommunications data, audio and video data, Network traffic and data related to various Shopping malls. A time series database consists of various sequences of values that are obtained over a stipulated period of time. The function is to mine all the transactional data which describes the behavior of various transactions. The algorithms like Apriori and FP Growth are used to mine the frequent patterns of a item set.

Ibrahim Cil [13] discussed that, the success of retail business is influenced by its fast response and its ability in understanding consumers' behaviors. Author proposed a methodological framework for the use of the knowledge discovery process and its visualization to improve store layout. This study examines the layout strategy in relation to supermarket retail stores and assists managers in developing better layout for supermarkets.This framework is useful for both academia and retail industry. The model is useful for industry professionals and retailers.

Jae Kwon Bae, Jinhwa Kim [14] presented that, many enterprises have been devoting a significant portion of their budget to product development in order to distinguish their products from those of their competitors and to make them better fit the needs and wants of customers. This paper investigates the different research issues in the development of new digital camera products. To investigate these research issues, the *Apriori* and *C5.0* algorithms are methodologies of association rules and decision trees for data mining, which is implemented to mine customer's needs.

Hyea Kyeong Kim, Jae Kyeong Kim, Qiu Yi Chen [15] narrated that, This study proposed a product network analysis which focuses on extended network-leveled point of view of the relation between all products. Two networks market basket networks and co-purchased product networks are comparatively evaluated to analyze the topological characteristics and the structure of those networks. The extended use of market basket analysis, network-leveled analysis are expected to be more effectively and efficiently used in personalized services, such as cross selling, up selling, and personalized product display utilizing the deep relation between products.

Dimitris Papakkiriak [16] illustrated that, product availability is an important component to maintain consumer satisfaction and secure revenue streams for the retailer and the product supplier. One of the challenges is to identify products missing from the shelf on a daily base without conducting physical store audit. The validation results indicate that it is possible to deliver accurate predictions regarding which products are 'out-of-shelf' for a selected retail store on a daily base. However, the predictions could not identify a significant number of the products missing from the shelf.

Ahmet Selman Bozkir, Ebru Akcapinar Sezer [17] has opined that fluctuations and unpredictability in food demand generally cause problems in economic point of view in public food courts. In this study, to overcome this problem and predict actual consumption demand for a specified menu in a selected date, three decision tree methods (CART, CHAID and Microsoft Decision Trees) are utilized. As a result, prediction accuracies up to 0.83 in R^2 are achieved. By this study, it's shown that decision tree methodology is suitable for food consumption prediction.

Yen-Liang Chen, Jen-Ming Chen, Ching-Wen Tung [18] says that, recent marketing research has suggested that in-store environmental stimuli, such as shelf-space allocation and product display, has a great influence upon consumer buying behavior and may induce substantial demand. The purpose of the developed mining scheme is to identify and classify the effects of such relationships. This paper proposes a novel representation scheme and develops a robust algorithm based on association analysis.

Bernd Vindevogel, Dirk Van den Poel, Geert Wets [19] shows that, In text books as well as in the business literature, market basket analysis is often promoted as a means to obtain product associations to base a retailer's promotion strategy on. They argue that associated products with a high lift/interest can be promoted effectively by only discounting just one of the two products. Therefore, market basket analysis cannot be used to build a promotion expert system for retailers. This research is conducted using scanner data of a large European retailer. Multivariate time-series techniques are used to

identify both short-run as well as long-run effects of promotions.

Rajagopal [20] has made a discussion that, shopping malls contribute to business more significantly than traditional markets, which are viewed as a simple convergence of supply and demand. Shopping malls attract buyers and sellers, and attract customers, providing enough time to make choices as well as a recreational means of shopping. This study examines the impact of growing congestion of shopping malls in urban areas on shopping convenience and shopping behavior. The study analyses the cognitive attributes of the shoppers towards attractiveness of shopping malls and intensity of shopping.

Watada and Yamashiro [21] reflects that, various studies on consumer purchasing behaviors have been presented and used in real problems. Data mining techniques are expected to be a more effective tool for analyzing consumer behaviors. Therefore, it is important to select appropriate techniques to mine databases. The objective of this paper is to improve conventional data mining analysis by applying several methods including fuzzy clustering, principal component analysis, and discriminate analysis. Many defects included in the conventional methods are improved in the paper.

In-Chul Jung, Young S. Kwon [22] highlighted that, knowing about the customer behavior in a grocery has been a long-standing issue in the retailing industry. Most of the previous studies used the traditional statistical clustering technique to find the major characteristics of customer behavior, especially shopping path. To alleviate this problem, author proposed a new approach to spatial pattern clustering based on the longest common subsequence. Experimental results using real data obtained from a grocery confirm the good performance of the proposed method in finding the hot spot, dead spot and major path patterns of customer movements.

Sangeeta Goele, Nisha Chanana [23] are of the views that, data and Information or Knowledge has a significant role on human activities. Data mining is the knowledge discovery process by analyzing the large volumes of data from various perspectives and summarizing it into useful information. Hence, this paper discusses the various improvements in the field of data mining from past to the present and explores the future trends.

Chad West, Stephanie MacDonald, Pawan Lingras, Greg Adams[24] mentioned that, loyalty of customers to a supermarket can be measured in a variety of ways. Regular visitors and spenders are more likely to be loyal to the supermarket. This paper describes results of experiments that attempted to identify customer loyalty using these two sets of criteria separately. The experiments were based on transactional data obtained from a supermarket data collection program.

A.N.Pathak, Manu Sehgal, Divya Christopher [25] discussed that, data mining is a field of database application that searches for unknown patterns in data that can be used to predict future behavior. Data mining is a technique not to change the presentation but to discover unknown relationships between the data. Data mining is termed as software, which is used to describe data in a new way, which is not true.

V.L. Miguéis, A.S. Camanho, João Falcão e Cunha [26] stressed that, A good relationship between companies and customers is a crucial factor of competitiveness. Market segmentation is a key issue for companies to develop and maintain loyal relationships with customers as well as to promote the increase of company sales. This paper proposes a method for market segmentation in retailing based on customers' lifestyle, supported by information extracted from a large transactional database. This study is done in collaboration with an European retailing company.

Mahendra Tiwari, Manu Bhai Jha, OmPrakash Yadav [27] identified that, the retail industry collects vast amounts of data on sales, customer buying history, goods, and service with ease of use of modern computing technology. This paper elaborates the use of data mining technique to help retailers to identify customer profile for a retail store and behaviors, improve better customer satisfaction and retention. The aim is to judge the accuracy of different data mining algorithms on various data sets.

Chris Rygielski, Jyun-Cheng Wang, David C. Yen [28] throws a light on advancements in technology have made relationship marketing a reality in recent years. Technologies such as data warehousing, data mining, and campaign management software have made customer relationship management a new area where firms can gain a competitive advantage. While differing approaches abound in the realm of data mining, the use of some type of data mining is necessary to accomplish the goals of today's customer relationship management philosophy.

Dr. M. Dhanabhakyam, Dr. M. Punithavalli [29] assessed that, association rule mining identifies the remarkable association or relationship between a large set of data items. A typical example of association rule mining is market basket analysis. This method examines customer buying patterns by identifying associations among various items that customers place in their shopping baskets. This paper presents a survey about the existing data mining algorithm for market basket analysis.

Venkatadri.M, Dr. Lokanatha C. Reddy [30] says that, data and Information or Knowledge has a significant role on human activities. Data mining is the knowledge discovery process by analyzing the large volumes of data from various perspectives and summarizing it into useful information. Due to the importance of extracting knowledge/information from the large data repositories, data mining has become an essential component in various fields of human life. This paper discusses the various improvements in the field of data mining from past to the present and explores the future trends.

M. Hameed Unissa [31] has written that, consumer psychology is a specialty area that studies the thoughts, beliefs, feelings and perceptions influence how people buy and relate to goods and services. The Retail Sector is the largest sector in India after agriculture. This sector was un-organized in the initial stage, now it is growing as supermarket and hypermarket. According to consumer, a supermarket is:

put what into your trolley and go through the check – out. The paper will mention the impact of organized retailing on unorganized sector. The study will indicate about the consumer psychology towards super markets.

Sharmin Jahan, Farhana Noor [32] emphasized that, this paper investigates the factors that are responsible in determining the marketing activities of super stores in Bangladesh. The study reveals that Meena Meena Bazaar promotes their products at premium price in order to maintain quality and their promotional programs have significant influence toward consumers' response. The findings of this study suggest that Meena bazaar should try to hold this performance level and take more large scale promotional efforts which will help them to achieve leadership position among the superstores in Bangladesh.

A.M. Khattak, A. M. Khan, Sungyoung Lee, Young-Koo Lee[33] stressed that, in the era of intense competition among organizations, retaining a customer is a collaborative process. The clustering technique is also used for different advantages like; recognizing class of most sold products, classifying customers based on their buying behavior and their power of purchase. This paper has compared the results of Apriori and K-Mean algorithms against their implementation in Weka and XLMiner. Researcher have analyzed the data for hidden knowledge and the results showed some very interesting patterns in user buying behavior and buying timings.

Gurpreet Singh Chahal [34] narrated that, most of the established companies have accumulated masses of data from their customers for decades. With the e-commerce applications growing rapidly, the companies will have a significant amount of data in months not in years. A technique "Market Basket Analysis" is used for finding association rules. The aim of market basket analysis is to analyses millions of transactions. Data Mining, also known as Knowledge Discovery in Databases (KDD), is to find trends, patterns, correlations, anomalies in these databases which can help us to make accurate future decisions.

VI. CONCLUSIONS BASED ON REVIEW

The above review helps in drawing following conclusions:

1. At global scenario, there is a growing awareness regarding growth of super bazaar industry.
2. Most of the authors are concentrating on understanding consumer responses to different retail formats and marketing strategies.
3. The researchers are trying to identify the factors that are responsible for changes in approaches of super bazaar towards consumers and advancement in developing countries.
4. In India, researches are being conducted to know about super bazaar industry and its impact on consumer behavior.
5. Many researchers are trying to find out the use of knowledge mining techniques to understand consumer buying behavior in super bazaars.

VII. REFERENCES

1. Margaret H. Dunham, S. Sridhar (2006) Data Mining Introductory and advanced topics, 1st Edition, Dorling Kindersley(India) Pvt. Ltd.
2. T V Suresh Kumar, B Eswara Reddy, Jagdish S Kallimani (2013), Elsevier Publication.
3. Newmen Andrew & Cullen Peter (2002), Retailing: Environment & Operations, Cengage Learning.
4. Shu-Hsien Liao, Pei-Hui Chu, Pei-Yuan Hsiao, "Data mining techniques and applications – A decade review from 2000 to 2011", Expert Systems with Applications Volume 39, Issue 12, Pages 11303 – 11311, 15 September 2012.
5. E.W.T. Ngai, Li Xiu, D.C.K. Chau, "Application of data mining techniques in customer relationship management: A literature review and classification", Expert Systems with Applications 36 (2009) 2592–2602.
6. Abdullah Al- Mudimigh, Farrukh Saleem, Zahid Ullah,"Efficient Implementation of Data Mining: Improve customers Behavior", Computer Systems and Applications, 2009. AICCSA 2009.
7. Chitla, Arathi, "Predicting Consumer Buying Behavior Using Data Mining Technique", International Journal of Research in Computer Application & Management; Vol. 2 Issue 6, p108, Jun2012.
8. Hokey Min, "Developing the Profiles of Super-Market Customers through Data Mining", Service Industries Journal (Impact Factor: 2.58). 10/2006; 26:747-763.
9. Joan Anderson, Antigone Kotsiopulos, "Enhanced Decision Making using Data Mining: Applications for Retailers", Journal of Textile and Apparel, Technology and Management, Volume 2, Issue 3, Summer 2002.
10. Katsutoshi Yada, Hiroshi Motoda, Takashi Washio, Asuka Miyawaki",Consumer Behavior Analysis by Graph Mining Technique", New Mathematics and Natural Computation, Volume 02, Issue 01, March 2006.
11. Zhang Aiguo, ShenYang, Shenyang, Jiang Lanling, Song Ping, "Application of Data Mining in supermarket" Consumer Electronics, Communications and Networks (CECNet), 2011, 1082 – 1085.
12. Mohammed Ali. Shaik, "A Survey of Time Series Data Prediction On Shopping Mall", Indian Journal of Computer Science and Engineering (IJCSE), Vol. 4 No.2 Apr-May 2013.
13. Ibrahim Cil, "Consumption universes based supermarket layout through association rule mining and multidimensional scaling", Expert Systems with Applications, Volume 39, Issue 10, Pages 8611– 8625, August 2012.
14. Jae Kwon Bae, Jinhwa Kim, "Product development with data mining techniques: A case on design of digital camera", Expert Systems with Applications, Volume 38, Issue 8, Pages 9274–9280, August 2011.
15. Hyea Kyeong Kim, Jae Kyeong Kim, Qiu Yi Chen ,"A product network analysis for extending the market basket analysis", Expert Systems with Applications, Volume 39, Issue 8, 15, Pages 7403– 7410, June 2012.
16. Dimitris Papakkiriak, "Predict on-shelf product availability in grocery retailing with classification methods", Expert Systems

with Applications, Volume 39, Issue 4, Pages 4473–4482, March 2012.
17. Ahmet Selman Bozkir, Ebru Akcapinar Sezer, "Predicting food demand in food courts by decision tree approaches", Procedia Computer Science, Volume 3, Pages 759–763, 2011.
18. Yen-Liang Chen, Jen-Ming Chen, Ching-Wen Tung, "A data mining approach for retail knowledge discovery with consideration of the effect of shelf- space adjacency on sales", Decision Support Systems, Volume 42, Issue 3, Pages 1503–1520, December 2006.
19. Bernd Vindevogel, Dirk Van den Poel, Geert Wets, "Why promotion strategies based on market basket analysis do not work", Expert Systems with Applications, Volume 28, Issue 3, Pages 583–590, April 2005.
20. Rajagopal, "Growing shopping malls and behavior of urban shoppers", Journal of Retail & Leisure Property (2009) 8, 99–118.
21. Watada, Yamashiro, K,"A Data Mining Approach to consumer Behavior", Innovative Computing, Information and Control, Page(s):652 – 655, 2006.
22. In-Chul Jung, Young S. Kwon, "Grocery Customer Behavior Analysis using RFID-based Shopping Path Data", World Academy of Science, Engineering and Technology 59, 2011.
23. Sangeeta Goele, Nisha Chanana, "Data Mining Trends in Past, Current and Future", International Journal of Computing & Business Research, ISSN (Online): 2229 - 6166.
24. Chad West, Stephanie MacDonald, Pawan Lingras, Greg Adams, "Relationship between Product Based Loyalty and clustering based on Supermarket Visit and Spending Patterns", International Journal of Computer Science & Applications, Vol. II, No. II, pp. 85 -100.
25. A.N.Pathak, Manu Sehgal, Divya Christopher, "A Study on Selective Data Mining Algorithms", IJCSI International Journal of Computer Science Issues, Vol. 8, Issue 2, March 2011.
26. V.L. Miguéis, A.S. Camanho, João Falcão e Cunha, "Customer data mining for lifestyle segmentation", Expert Systems with Applications 39 (2012).
27. Mahendra Tiwari, Manu Bhai Jha, OmPrakash Yadav, "Performance analysis of Data Mining algorithms in Weka", IOSR Journal of Computer Engineering, Volume 6, Issue 3, PP 32-41, Sep-Oct. 2012.
28. Chris Rygielski, Jyun-Cheng Wang, David C. Yen,"Data mining techniques for customer relationship management",Technology in Society 24,483–502, 2002.
29. M. Dhanabhakyam, M. Punithavalli, "A Survey on Data Mining Algorithm for Market Basket Analysis", Global Journal of Computer Science and Technology, Volume 11 Issue 11 Version 1.0 July 2011.
30. Venkatadri.M, Lokanatha C. Reddy, "A Review on Data mining from Past to the Future", International Journal of Computer Applications (0975 – 8887), Volume 15– No.7, February 2011.
31. M. Hameed Unissa, "onsumer Psychology towards Supermarkets", Indian Journal of Applied Research, Volume: 3, Issue: 10, Oct 2013.
32. Sharmin Jahan, Farhana Noor, "Consumers' Responsiveness toward Marketing Mix of Super Stores in Bangladesh: A Case study on Meena Bazaar", Daffodil International University Journal of Business and Economics, Vol. 6, No. 1 & 2, December, 2012.
33. A.M. Khattak, A. M. Khan, Sungyoung Lee, Young- Koo Lee, "Analyzing Association Rule Mining and Clustering on Sales Day Data with XLMiner and Weka", International Journal of Database Theory and Application, Vol. 3, No. 1, March, 2010.
34. Gurpreet Singh Chahal, "Analytical Study of Data Mining Through Market Basket Analysis", Contemporary Research in India: Vol: 2, Issue: 2, June, 2012.