

# A Survey: Sales Analysis to Understanding the Customer behavior, and Importance of Data Mining

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*Abstract*— The ultimate aim of the data mining process is to generate the information and to discover the pattern based on the organization data. This data is help to the organization to plan some business strategy and plan for some marketing strategy to growth the business and to make profit. Sales data mining and analysis is used by most of the organization to analysis the sales and their customer. The analysis may be performed monthly, quarterly or yearly based on the requirement of organization. The sales analysis is also performed to understand the customers behavior based on their previous transaction. It helps to placing the right product, after analyzing the behavior of customer. The efficiency of analysis is depend on the size of data and the applied methodologies.

**Key words:** Data Mining, Sales analysis

## I. INTRODUCTION

Data mining techniques plot the method and processes of mining the knowledge or extracting useful information from large repository or data warehouse. The data mining is usually referred to as Knowledge extraction or information extraction or pattern discovery from data. The data mining is not limited to particular organization. The range of data mining is very broad. There are many different area of data mining like medical data mining, spatial data mining, sensor data mining, weather forecast data mining and many more.

The Sales analysis is also the part of the data mining process. It helps to increase the revenue of organization. There are different area of sales data mining like vehicle sales analysis to promote the special type of vehicle or to plan market strategy, product rating based analysis, frequent itemset searching or association rule mining for a transaction to put the related product based on frequent purchased together. The sales analysis performed by the all the organization, increasing the revenue based on previous transactions.

In any organization, learning relationships with customers is general process and it forms a good understanding between customer and organization. The organizations learn their customer's behavior through personal relationships with each of them (Adeleye, Olakunle, Folasade, Olasunkanmi, & Patience, 2014). All e-commerce site uses the sales analysis to perform certain kind of operation based on the previous sales and transactions. Every organization uses their own tools and techniques. The analysis is also depend on the organization and their products.

Sales analysis can be defined as gathering, classifying, comparing and studying sales data which helps to convert raw data from various sources in to actionable information. It also helps in non-marketing functions like production planning, cash management, inventory management etc. With the help of analysis report and

generated output, the organizations are able to decide and plan various crucial standards and figure out the procedure for further evaluation. Sales information systems use mathematical and statistical procedure to generate reports; the organization have to decide which information to use for what purpose. There are

## II. LITERATURE REVIEW

The author gives the methods to "sales analysis of e-commerce websites using data mining techniques" It help to analyze the customer behavior on e-commerce site (Anurag, 2016). The internet is one of the most revolutionary technology that changed the business style and strategy, the best example is e-commerce sites. The e-commerce industry is the one of the largest industry that deals world-wide. The data mining and the customer behavior analysis is performed by the all e-commerce site. This help to plan for the productive strategy based on the customer. It also helps to learning the buying habits and the relationship between the customer and the business. The ID3 algorithm is used to predict the customer behavior based on the product ratings, with using some classification rules.

To understand the customer behavior based on their buying habits, is one of most challenging part of sales analysis. It helps to relate the customer with the business organization. The author publish a paper to learn the relationships between the organization and the customers behavior (Adeleye, Olakunle, Folasade, Olasunkanmi, & Patience, 2014). When customer perform the online shopping or visit any e-commerce site they leave their important information about the product. On the basis of customer page and product searching the organization know the interest of the customer. There are many data mining methodologies are available to analyze the data like Artificial neural networks, Genetic algorithms, Decision trees, Nearest neighbor method and many others. The mining process is depend on the size of data and the complexity of data.

The author (Derya, 2011), RFM analysis for market strategy and planning. The RFM stands for Recency, Frequency and Monetary value. It is type analysis techniques to understand the customer behaviors. It performs the analysis like, how recently customer purchased any product called recency, How nay times customer purchase any product in specific duration called frequency and how much the customer can spend the money called monetary. The integration on this RFM tool with the data mining process or methodologies helps to understand the customer behaviors. The RFM tool integrate with any of the data mining techniques like clustering using RFM, association rule mining using RFM, Classification using the RFM. The author used the mentioned three techniques to analyze the customers behavior.

### III. NEED OF SALES ANALYSIS

As stated, the ultimate aim of the sales analysis is to understand the customer behavior and to plan the marketing strategy for the product to increase the business revenue. The sales analysis can be performed on the basis of product rating, customer age or profession, by using the visited e-commerce sites and viewed product. So to understand all this behavior of the customer there is need to perform an analysis based on the previously available data of the customer.

Frequent itemset searching from set of the transaction is mostly used techniques of the sales analysis. This helps the organization to know which product is frequently purchased together. Based on this analysis the e-commerce site plan a strategy to attract the customer.

Based on the previously visited pages and product also helps to understand the customer. With the using of this customer data the company will plan a strategy to advise the product to others web pages. The Product rating based analysis also helps the organization to understand the customer behavior. All e-commerce site used this techniques to attract the customers. There many other techniques are also available to understand the customer behavior.

### IV. CONCLUSION

Data mining and analysis tasks are performed by the every organization. It not limited to particular organization. The sales analysis it the part of the data mining, where the business organization try to understand the customers behavior. The behavior of customer can be analyzed by using what they product view or search, previous visited and on the basis of purchased product. To plan the marketing strategy is also the aim of the sale analysis based on previous data and plan.

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