Chapter 15
Mining Customers Behavior Based on RFM Model to Improve the Customer Satisfaction

Fatemeh Bagheri
K. N. Toosi University of Technology, Tehran, Iran

Mohammad J. Tarokh
K. N. Toosi University of Technology, Tehran, Iran

ABSTRACT

Organizations use data mining to improve their customer relationship management processes. Data mining is a new and well-known technique, which can be used to extract hidden knowledge and information about customers' behaviors. In this paper, a model is proposed to enhance the premium calculation policies in an automobile insurance company. This method is based on customer clustering. K-means algorithm is used for clustering based on RFM models. Customers of the insurance company are categorized into some groups, which are ranked based on the RFM model. A number of rules are proposed to calculate the premiums and insurance charges based on the insurance manner of customers. These rules can improve the customers' satisfaction and loyalty as well as the company profitability.

1. INTRODUCTION

Today, competitive privilege includes not only the products and services, but also contains the profitable customer identification and also creation of close and long relationships with customers (Lee & Park, 2005). These relationships are based on the mutual profit and trust. Under these conditions, companies must try to present particular and customized products and services from every possible channel (Payne & Frow, 2004). To obtain these positions, organizations transform the customer relationship management (CRM) into one of their most important business strategies. The organizations integrate some factors in different parts of businesses and relation points of customers and

then, conduct them into specific strategies (Lee & Park, 2005). The factors are thoughts, techniques, tools of sales, marketing, and services. Recently, most of well-known companies have utilized the ability of the CRM to develop their market and customers (Lin, Su, & Chien, 2006). This situation converts the CRM into a valuable business. Primitive goals of the CRM are: 1) creation of long and profitable relationships with the selected customers, 2) reducing distances to these customers in each step of the relationship, 3) maximizing the proportion of the company in customers' purses (Choya, Lee, & Lo, 2002).

From the operational point of view, CRM targets are: integration of customers' data and making thee data useful, offering these data to parts of the organization which need them, determining the value of customers, and also performing the required operations that increase the customers' loyalty (Helfert & Heinrich, 2003).

In other words, CRM helps the organizations to manage their customers' relationships in an organized manner. Briefly, CRM looks for finding, acquiring, and maintaining the customers. Many companies gather and store data about their customers, suppliers, and partners; but because of inability of these companies to discover hidden and valuable data, these data are not transformed into knowledge. Managers are interested in extracting hidden, reliable, and realizable information from their very big databases and also using this information to increase their profits.

Data mining is a new and powerful technique which can help companies to extract and mine patterns and trends in customers' data, and also improve the customers' relationships. Data mining is one of the well-known tools in the CRM field (Cheng & Chen, 2009). For most people, data mining is a tool to achieve interesting results. Data mining is very useful and meaningful in actual cases.

In recent years, data mining has been converted into a commercial activity. Many techniques in data mining can be divided into basic and rule-based techniques. Some basic techniques are classification, clustering, association rules, regression analysis, and sequence analysis. Rule based techniques are genetic algorithms, decision trees, fuzzy logic, inductive learning systems, statistical methods, and etc (Witten & Frank, 2005).

In this paper, new policies are proposed to calculate the insurance discounts based on the customers' values. The rest of the paper is organized as follows: Some previous works are briefly reviewed in Section 2. The proposed methodology to extract new insurance policies is discussed in Section 3. Finally, concluding remarks are given in Section 4.

2. RELATED WORKS

The first customer relationship management (CRM) software is launched with Siebel systems in 1998. The CRM has strongly grown in UK and USA (Das, 2009). Gartner defined the CRM as a business approach which maximizes the profitability, income, and loyalty of customers by organizing segments of customers, predicting the behaviors that satisfy customers, and implementation of customer-based processes (Bligh & Turk, 2004). CRM is the best approach in the business and information strategy with the aim of improving the relationship with customers and focusing on customers in organizations (Bull, 2003a, 2003b).

Companies are trying to execute models and build decision support tools to improve marketing activities (Gui & Wong, 2004).

Customers in various groups have different values. CRM decision support tools can help companies to differentiate between valuable and low-value customers. Companies want to maintain and spend recourses for valuable and profitable customers (Soopramanien & Juan, 2010). Organizations use the CRM for acquiring and retaining customers, increasing value, loyalty, and retention of customers, and also executing customer-based strategies. CRM can improve the relationship with

Related Content

Social Media Engagement: Reshaping the Consumption Patterns of Generation Y Caribbean and Latin American Consumers

Kathy-Ann P. Fletcherand Christiana M. Emmanuel-Stephen (2016). *Handbook of Research on Consumerism and Buying Behavior in Developing Nations (pp. 218-238).*

www.irma-international.org/chapter/social-media-engagement/154456

Lurk or De-Lurk?: The Role of Participation Type and Sport Fanaticism in Understanding the Link Between Brand Community Identification and Oppositional Brand Loyalty

Ali Ahmed Abdelkader (2022). *International Journal of Customer Relationship Marketing and Management (pp. 1-26).*

www.irma-international.org/article/lurk-or-de-lurk/306656

Factors That Influence Perceptions and Purchasing of Organic Produce by South African Consumers: A Literature Review

Geraldene Fynn-Green, Roger B. Masonand Andrea Giampiccoli (2019). *International Journal of Customer Relationship Marketing and Management (pp. 61-76).*

www.irma-international.org/article/factors-that-influence-perceptions-and-purchasing-of-organic-produce-by-south-african-consumers/221912

Nokia Mobile Phones' Development of Business Logistics and Customer Support

Markku Rajaniemi (2003). *Information Technology Enabled Global Customer Service (pp. 249-257).*

www.irma-international.org/chapter/nokia-mobile-phones-development-business/23764

A Mediation Architecture for Global Comparison Services

Hongwei Zhuand Stuart E. Madnick (2009). *Comparison-Shopping Services and Agent Designs (pp. 37-54).*

www.irma-international.org/chapter/mediation-architecture-global-comparison-services/6731