



The Application of Data Mining Technology in Electronic Commerce

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Abstract : Data mining technology is widely used in different industries, especially in recent years, the continuous development of Internet technology, through the use of data mining technology can help enterprises accurate marketing activities, more reasonable design website platform, fully explore the real needs of potential customers, better to maintain the relationship between customers, so as to effectively improve the economic benefits of the enterprise. Based on this, this paper studies the application of data mining technology in e-commerce, summarizes the relevant concept of data mining, discusses the application of data mining technology in e-commerce website design, mainly from improving the website design, customized personalized interface, to judge the efficiency of the Web site, which will have a certain role in promoting the healthy and stable development of e-commerce.

Key words: Data mining technology; e-commerce; data analysis

Received 17 Dec, 2021; Revised 29 Dec, 2021; Accepted 31 Dec, 2021 © The author(s) 2021.

Published with open access at www.questjournals.org

I. INTRODUCTION

With the development of the information age, the level of science and technology has been significantly improved. The application of the Internet has been popularized in all walks of life, and the Internet has begun to penetrate into different industries. At present, people cannot leave the Internet in their work. Network data all the time update, data and information are also accelerating growth rate, if only unilaterally relying on human go to collect and organize data, it is almost impossible to do, so it is necessary to use some techniques, such as data mining technology to deal with a large amount of data, data mining can be thought of as, To process data in a more rational way. At present, e-commerce application of data mining technology examples are very many, such as customer information collection, analysis of user preferences, in e-commerce another good use of data mining technology, will have a very good role in promoting. In today's social environment, the development of data mining technology is very fast, the current development is becoming more mature, the workload of e-commerce is also constantly increasing, which means that data mining technology in this field has a very large development prospect. Based on this research on the application of data mining technology in e-commerce, it will be able to better help e-commerce enterprises to analyze customer information, provide customers with personalized service, improve their own service level, make data mining technology better develop advantages, so as to promote the development of e-commerce.

II. DEFINING RELEVANT THEORETICAL KNOWLEDGE

2.1 Data mining technology

2.1.1 Concept of data mining

Data mining technology refers to a technology that mines and analyzes a large amount of data, mainly by extracting key data for secondary transformation, constructing data models according to specific requirements, and excavating valuable data from the models. Data mining technology is a kind of high-level data analysis, with certain intelligent characteristics, can be combined with the actual needs of the industry to carry out data mining, so as to better improve work efficiency.

2.1.2 Process of data mining

Before data mining starts, it is necessary to consider where the demand is, define the problem, and then carry out data collection, extraction and data processing. Under normal circumstances, the main process of data mining is shown in Figure 1.

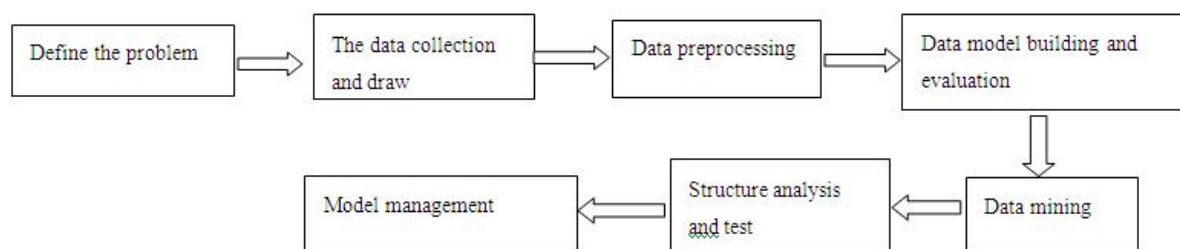


Figure 1 Data mining step diagram

2.2 Definition of e-commerce

E-commerce refers to a kind of shopping activity that transactions are conducted through websites. Both merchants and customers can operate through the Internet. Instead of face-to-face transactions, the two parties mainly complete education through the website in the way of a third party keeping accounts, which is quite popular in recent years. There are many patterns in the development of e-commerce, including B2B, B2C and so on. The most common pattern in China is B2B. Retailers would want to increase the economic benefit of their own, you will need to need to increase its traffic, only in this way can make more customers to understand their own shops, need a certain amount of promotion, mining potential customers, make it a real consumer, you will need to adopt a certain method, such as customer interactions can be page beautification, In order to attract customers better, the operation process will also need to continue to simplify, more convenient for customers to operate, so as to get more customers. In addition, businesses need to constantly make structural adjustments to their own products, to achieve good quality and low price, develop a reasonable marketing strategy, so as to better meet their own needs, better manage their own shop.

III. APPLICATION ANALYSIS OF DATA MINING TECHNOLOGY IN E-COMMERCE

With the continuous transformation of the current economic model, no longer limited to the physical stores in the past, began to pay attention to the development of online stores, which will change the relationship between businesses and customers. At present, there is a large amount of online customer traffic, which focuses on the value of goods rather than the brand and geographical factors of goods as in the past. Therefore, for enterprises, the biggest challenge is to understand customer preferences and value orientation, so as to ensure their competitiveness in the market. The birth of data mining technology is just to make up for the shortage of this point, the number of e-commerce websites can be mined through this technology, analysis of relevant effective data, better to help enterprises have a comprehensive understanding of customer information, effectively improve the efficiency of the site. In this paper, the application of data mining technology in e-commerce, especially from the e-commerce business website design to make a simple discussion.

3.1 Design of e-commerce website

E-commerce sites set up on the Internet, is set up in order to implement e-commerce, e-commerce represents the image of Internet companies, for the enterprise the main platform to release information on the Internet, enables the enterprise to have certain network communication, so as to better keep in touch with customers, establish business relationship with potential clients. It can be considered that e-commerce websites are stores started by enterprises on the network, which requires website design.

Online consumers will not shop on corporate Web sites if they are not satisfied with them. Consumers are only interested in a few sites, and these sites are their core sites from which they can feel comfortable shopping. Website design needs to take the website as the core of consumers, improve the frequency of consumers to visit the website, so this requires the website to provide personalized services for consumers. Customizing pages for familiar sites will help build customer loyalty. In addition, it is necessary to set up virtual communities, so as to better facilitate the communication between customers and professionals and enhance customers' loyalty to the website. However, in order to provide personalized service, it needs to be completed by data mining technology, which can provide design basis for website designers.

3.2 Data mining technology in e-commerce website design methods

Data mining technology in e-commerce application scope is in the use of Web record mining, the main mining object for the site log files and related data, which will help to better discover the visitor's access mode,

can better realize the structure of the Web site adjustment, improve the quality of the site in the service. For Web logs, sequential pattern analysis is the main analysis method, so Web log data needs to be recorded according to the specific access time of customers.

3.2.1 Sequence pattern analysis

Sequence pattern is very beneficial for e-commerce organizers to predict customer visit pattern and provide personalized service for customers. The site manager needs to categorize each visitor in a sequence. What he needs to do on the page is to show the links that are commonly used by that sequence of visitors, and the rest of the content is by "more content..." To make instructions. When a visitor visits a page by browsing, the sequence pattern is checked and the most obvious position required is "other customers also visit.... Website "and some related pages.

3.2.2 Association analysis

The application of association analysis in e-commerce is to find out the specific relationship between customers' access to different documents on the website. Through association analysis, it can be seen that if customers visit page A in their access behavior, the next step is to visit page B. Through data mining on the Web, building association model, can better organize the site, so as to reduce the burden of users in filtering information.

3.2.3 Cluster analysis

E-commerce can cluster customers with similar browsing behaviors in a way that is more convenient for administrators to understand customers and provide customers with personalized services. For example, if some customers browse page A for A long time, they can be divided into A group through cluster analysis, and the commonness of this group of customers can be effectively mined. So, the Web automatically delivering products of interest to this group of customers, dynamically changing specific sites for this group of customers, and being able to better meet customer needs in a number of ways will benefit not only the customer, but also the seller.

3.3 Application of data mining in e-commerce website design

Policymakers need to stand in the multiple perspectives analysis customer visit, visit customers need to know the type, customers like site, access to the site situation, etc., the same customer data mining techniques to dig the above information, so as to optimize the site data, further effectively improve the quality of site on the visit.

3.3.1 Improve website design

Data mining technology can effectively improve e-commerce sites, so that to a certain extent, visitors stay longer to complete the purchase. Data mining technology by mining access patterns, website designers are able to make improvements to the website design through group access patterns, so that visitors feel adaptive, stay longer, complete the purchase. Enterprise managers by analyzing retail situation, for example, found that the conversion rate of the goods A was 100:5, you can think of 100 people see the goods after the five people to buy, and conversion rate for 100 of goods B, 30, the reasons for such problems are not problems in the design of the page, but A commodity on the price there is A certain problem. Enterprises need to make certain adjustments to their websites, such as displaying commodity A on every page or lowering the price of commodity A. For some goods that may be sold out, enterprises generally have to weaken the product on the web page and try their best to reduce the sales of such goods.

3.3.2 Customizing the Personalized Interface

Data mining personalization solutions require continuous page creation to better meet the needs of different visitors. Therefore, visitors' browsing history is a good indicator of their interest in these products, and the site will focus on optimizing the customer page for these products. Data mining technology can automatic arrangement about website custom rules, through the data mining technology to better record before you go to visit customers, make analysis to these data, found the customer focus, based on customer's dong tao institutions to the site to make reasonable adjustment, association makes client access file is a direct connection, Make it easier for customers to get to the page they want to visit. If there is such a convenient website, then it will provide customers with a different sense of experience, so as to greatly improve customer loyalty.

3.3.3 Determining Web site efficiency

Data mining technology can analyze the log files of the Web server, which will enable e-commerce to find the high and low purchase of goods on the site, and find which part of the page is more popular with

customers, so it will be able to judge the efficiency of the Web site to a certain extent.

IV. CONCLUSION

Today's society is the information age, the application of information technology has great value to the development of the enterprise, managers need to master enough data information, through the processing of target data mining, data mining technology can better to help managers to establish better decisions, can guarantee the healthy and stable development. In order to be able to get more useful data effectively, managers need to fully realize the importance of the data mining technology, especially the current e-commerce development is accepted by the public, if can use data mining technology for data mining on the website design and analysis, this will be bound to a better web page for the design of enterprise, meet customers personalized service, In this way, e-commerce business can achieve long-term and stable development.

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