

Application Research of Computer Data Mining Technology in the Field of Electronic Commerce

Ren Xingxue^{1,2}, Wang Qianqian¹

¹Henan Vocational University of Science and Technology, Zhoukou, Henan, China

²Henan Inland Port Logistics Information Engineering Technology Research Center, Zhoukou, Henan, China

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Abstract: With the continuous development of modern science and technology and the wide application of Internet science and technology, People's Daily life and work have begun to become more convenient. In addition, the era of big data has also created reform opportunities for the development of e-commerce. From the perspective of the development of e-commerce enterprises, the application of computer data mining technology is mainly to extract valuable information from the existing data and conduct an in-depth analysis of it. Nowadays, the main problem facing the field of e-commerce is how to use computer data mining technology to improve the transaction rate of e-commerce enterprises and explore the potential hidden value of data resources. In order to make e-commerce enterprises experience customized services, it is necessary to clarify the specific development direction and development advantages of e-commerce, and use computer data tile and mining technology to promote the technological innovation of enterprises, so as to accurately predict the future development prospects. In this paper, we will analyze the connotation of the computer data mining technology and its application mode in the field of e-commerce, and put forward the specific application of the data mining technology.

Influenced by the network information age, the position of e-commerce in economic life is becoming more and more prominent. At the same time, the rise of e-commerce based on network technology is also changing the business model of different industries, which requires relevant enterprises to reposition their own development and consider the future service mode. Computer data mining originates from the knowledge discovery in the database, and is one of the hot spots in the development of computer technology. This technology deeply excavates the large amount of historical data, and can understand the laws and forms of data concealment, so as to provide favorable help for later decision-making. However, these rules and specific forms cannot be obtained through simple data query, but need the identification of professionals and be applied in the field of customer-centered decision analysis and management. As one of the important technologies in the field of e-commerce, data mining technology can provide reliable guarantee for the decision-making in the field of e-commerce, which is also an indispensable part in the field of e-commerce.

1. Connotation Analysis Of Data Mining Technology

1.1 Data Mining Technology

In recent years, in the field of science and technology research, data mining technology is a very hot research topic. By downloading and using the data in the network platform, this technology can create convenient conditions for the query work, which is conducive to the dissemination and sharing of data and information, so that the data can better serve the public. The data generated in the process of website browsing is characterized by a large quantity and randomness, and valuable information can be found from these random data through data mining technology. Therefore, for the field of e-commerce, the use of these information data can develop more new customers, so that big data can provide high-quality services for e-commerce enterprises and achieve stable improvement of economic benefits. At the same time, computer data mining technology can also analyze a huge user group, according to their actual needs for reasonable optimization and innovation, and then can provide users with more high-quality products and services. In addition, the data mining technology can conduct the analysis of abnormal events^[1]. Can maximize the control of the economic loss of the enterprise.

In addition to the field of e-commerce, many industries in the society will involve computer data mining technology, which also brings a certain impact on the traditional industries. The application advantages of data mining technology in the field of e-commerce are more obvious, which can not only provide accurate and humanized services, but also promote the continuous improvement of the development quality in the field of e-commerce.

1.2 Data Mining Technology Comparison with Web Data Mining

The traditional data processing mode mainly includes data query, report presentation and data online application. By comparing the existing data, we can know that the table processing method and processing volume are large, and effective analysis cannot be realized in a short time. When users browse the data and sites, they can conduct a comprehensive analysis of the data, and these data are random. Therefore, the use of computer data mining technology is to sort out these fragmentary information and data, and analyze the data at the objective level, so as to excavate valuable information resources. Computer data mining is a new form of data mining technology, which can implement a unified collation of the data within the site, and can find the potential value behind the data. In addition, data mining can also obtain more potential customer information. On the basis of mining the main information, the data can be comprehensively processed and analyzed, and finally the value of the information can be deeply understood. In addition, the application of computer data mining technology can establish an important practice between users and network data sites, the previous data mining technology and user needs can be fully utilized, and ultimately can improve the quality and quality of products and services.

2. Common Application Methods Of Data Mining Technology In The Field Of e-Commerce

2.1 The Sequence Model

Everything needs to undergo a chronological change during its formation. Data mining technology is mainly used to combine existing data to predict the subsequent visits visited by users. This data analysis mode can guide e-commerce processing matters according to the chronological order, judge users' access habits and access patterns, and then provide more diverse services^[2]. In addition, decision trees will be built according to the characteristics of the data to point out the right

direction for e-commerce decision-making management, and carry out decision-making work according to specific data, so as to formulate users to carry out fixed business transactions. This type of user can also be referred to as target users and can implement separate specific services for different users.

In addition, the important application in the sequence pattern mining is the website optimization. E-commerce sites are usually built based on past experience, the site organization structure cannot fully meet the daily habits of visitors, so visitors sometimes cannot find the web page they want to browse. At this point, if the website organization structure meets the user access habits, then it will attract more users. The sequence pattern mining technology can obtain the access habits of different users. According to the mode adopted by most users, the structure of e-commerce websites can be adjusted according to the characteristics of the pattern. For other modes, personalized service technology can also be adopted to provide different user groups with organizational forms that meet the characteristics of the access mode. But computer data mining technology is far more complex than that. The application of technology in the field of e-commerce can not only analyze the dynamics of competitors, but also respond to relevant actions in time, design more reasonable goods transportation and distribution strategies, minimize commercial costs, and improve the level of personalized service.

2.2 Association Law

The association between things is mainly divided into two forms: direct association and brief association. After understanding the development law and significance of e-commerce, a complete network correlation structure can be built through computer data mining, and a lot of invalid user information can be screened, so that the web page design work can be better completed and the retrieval burden of users can be reduced. In addition, the data obtained by computer data mining can also be applied in the site optimization. On the basis of the analysis of related data, the structure of e-commerce sites can be reasonably optimized to ensure that users browse goods and similar goods can be placed in the designated position, to ensure that the sales of electronic goods can be steadily improved.

2.3 Anomaly Detection

The vast network data contains data records different from other data, which are called anomalies. Data anomalies generally contain very important information, and through the analysis of these data anomalies, more valuable data can be obtained^[3]. For example, in the field of e-commerce, fraud can be judged by data detection, which is also an important value of computer data mining technology in a specific field.

3. Computer Data Mining Process For e-Commerce

3.1 Data Preparation

In the process of e-commerce data mining, it is usually not to mine the original data, but to preprocess the data in advance, and realize the synchronous merger processing of multiple files or multiple data. At the same time, it is also necessary to select and extract the data set suitable for analysis, filter or eliminate the irrelevant records, and convert the image files or multimedia files into a format conducive to data mining.

3.2 Interpretation and Analysis Model

In this process, it is necessary to use technical methods to analyze the acquisition mode of data, so as to obtain more meaningful conclusions^[4]. Common technical methods include: association rules, classification, clustering and sequence patterns. Among them, the association rules mainly analyze the intrinsic associations between the data. Classification is mainly the description of the public attributes of specific categories, assigning new records in the categories defined in advance. Clustering is based on the principle of minimum similarity between classes, for data implementation classes, which is generally reflected in customer groups and web pages. In addition, the sequence mode focuses on comparing the mining data in time order, and judging its development trend and future access mode.

3.3 Discovery Patterns

For different data mining projects, different mining methods can be selected, so as to obtain more meaningful data patterns. Data mining modes mainly include statistical analysis and knowledge mining methods. Statistical analysis methods are generally used to test the data rules, and then use the data models to explain these rules. The commonly used statistical methods include nonlinear analysis and factor molecules. Knowledge mining originates from artificial intelligence, finding laws through the data patterns in the process of data search. The visualization method can clearly reflect the relationship between multiple variables, and the data mining ability will be further strengthened^[5].

4. Specific Application of Computer Data Mining Technology In The Field Of e-Commerce

4.1 Application in the Web Platform

From a merchant's perspective, there are two main web browsing groups: one is those with clear consumption goals, who go straight into the theme in the search engine. The other is that there is no clear shopping purpose, just randomly to the interested page. This kind of user group number is very large, has a certain purchase potential. By recording the scattered information of users and using data mining technology algorithms to analyze their preferences, I can provide the basis for businesses to adjust their sales strategies, which is conducive to improving the pertinences of e-commerce. Such e-commerce will be significantly improved in terms of efficiency and quality. Therefore, the application of data mining technology in the field of e-commerce can fully develop the potential of customers and has very obvious commercial advantages.

4.2 Application in Marketing

Nowadays, computer data mining technology is widely used in e-commerce marketing. The principle of marketing segmentation can be taken as the basis, and the subsequent tendency of consumer groups can be clarified through collection and processing, and targeted marketing can be carried out on this basis. Compared with traditional marketing methods, this can save a lot of cost and efficiency, and enterprises will also get more profits. At the same time, commercial consumption information generally comes from various channels in the market. These information can be processed efficiently through the computer neuron network and the modeled algorithm, so that it can be applied in specific consumer groups to achieve targeted marketing decisions^[6]. In addition, the marketing activities carried out through data mining technology can also provide relevant marketing materials for consumers, which is conducive to improving the competitive

advantage of enterprises in the market environment.

4.3 Application in Customer Relationship Management

Customer relationship management can help enterprises create a large information database, from which data mining technology can dig out more valuable information, so as to help enterprises manage all stages, and then can retain more old customers, and provide them with targeted services. From the perspective of customer acquisition, the previous access channels mainly included telemarketing, advertising marketing and so on. But computer data mining technology can improve this problem, and customer advertising will get a better response rate. For example, data mining technology can be used to find out whether the customer consumer groups are male or female, the specific income situation and occupation, etc. Data mining technology can also prove their association based on the final data mining results. The cross-selling model can facilitate enterprises to obtain the information of old customers and plays an important role in improving the accuracy of data mining. The customer information mastered by the enterprise may contain relevant information about the subsequent customer purchasing behavior. At this time, the advantages of data mining technology can be fully played to help the enterprises explore the determinant factors that affect the customers' purchasing behavior.

4.4 Application in Commercial Credit Evaluation

In the field of e-commerce finance, managers can analyze the repayment ability and credit of users, so as to carry out classification and evaluation of customers, so as to effectively reduce the numbness of lending and improve the overall utilization efficiency of funds. At the same time, the corresponding financial policies can be formulated by exploring the leading factors that play a decisive role in the repayment period. It effectively avoids the impact of commercial criminal activities and low credit on commercial order, and clearly identifies the relationship between normal behavior and fraud^[7]. When you understand some of the characteristics of fraud, you can warn the decision makers based on a business characteristic. In addition, in order to achieve high-quality development of e-commerce, it must have a good credit level. Through deviation analysis, the difference between enterprise statistical data and historical standards can be monitored, so as to effectively prevent credit risks. The credit evaluation model based on data mining can mine the previous transaction records of e-commerce, so as to clearly understand the characteristics and credit level of customer transaction data, and thus can effectively resolve the credit risk problem, and improve the credit screening ability and risk control ability of e-commerce enterprises.

4.5 Applications in Personalized Marketing

Personalized marketing mainly aims to regard customers as a whole customer group and give full play to the effect of sales activities. In order to meet the personalized needs of customers in the new era and strengthen the market competitiveness of e-commerce products, it is necessary to carry out personalized marketing. The most obvious feature of personalized marketing is that it is directly to customers, but it does not guarantee orders like the traditional marketing model, so it is not suitable for a large amount of inventory^[8]. And e-commerce marketing can apply modern electronic information technology and network technology, so as to better cope with the fierce market competition, e-commerce data can also achieve fine collection and sorting, to ensure that enterprises can survive in the fierce market environment competition. In addition, in the e-commerce environment, personalized marketing can use personalized websites and network marketing tools to establish a close and friendly relationship with customers, and provide personalized products and

services according to customers' preferences and purchase mode. In addition, on the basis of analyzing customers' attributes and capital ability, the dynamic characteristics related to customer transactions can also be extracted, so as to implement separate personalized marketing services for customers and improve the service innovation ability of e-commerce enterprises.

5. Conclusion

To sum up, the development of computer data mining technology is very important in the field of e-commerce, and the prediction and analysis of data can provide users with active intelligent services. At the same time, the data mining technology can also fully understand the needs of users, which is conducive to the development of more new users, not only with diversified trading modes, but also can innovate the way of purchasing goods. Nowadays, the field of e-commerce is actively making use of information technologies such as data warehouse and data mining. However, its unique advantages have been given full play, and it can effectively deal with the problems such as information data explosion and information poverty. Therefore, relevant enterprises must pay attention to the application of computer data mining technology in the field of e-commerce, so that the development of e-commerce is always in a dominant position.

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