

Analysis of E-commerce User Behavior based on Big Data

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Abstract: With the rapid development of computer technology, data analysis technology based on big data has become the main trend, which has changed people's lives. Through the analysis of e-commerce user behavior, we can better promote the healthy and sustainable development of e-commerce industry. Through e-commerce user behavior analysis, we can analyze whether users buy goods, which helps to understand the cost performance of line goods and consumer demand demands. Firstly, this paper analyzes the common methods of user behavior analysis. Then, this paper constructs the overall design of user behavior analysis system. Finally, this paper lists some examples of user behavior analysis.

1. Introduction

User behavior is a kind of law that users show when they use network resources, which can be obtained through user network resource data recording, statistics and analysis. User behavior can be divided into many areas, such as e-commerce, information query behavior, communication behavior, leisure and entertainment behavior. With the popularization of Internet technology, users will form a large number of data, which will gradually improve the quality of network service requirements. Therefore, we can gradually improve network services, which will gradually change to scientific service mode. Through the analysis of users' behavior, we can summarize the rules of users' behavior and market demand. This will be the main way of e-commerce push service. By integrating user behavior analysis and marketing, we can find problems in business services, which will further improve service quality and business strategy.

2. Common Methods of User Behavior Analysis

2.1 User behavior analysis methods

In the era of big data, user behavior analysis has become an important way of e-commerce, which will become the way of current marketing. Through a large number of academic papers, the academic community has divided user behavior analysis into two types: general analysis method and analysis topic summary, mainly as shown in Figure 1 and Figure 2.

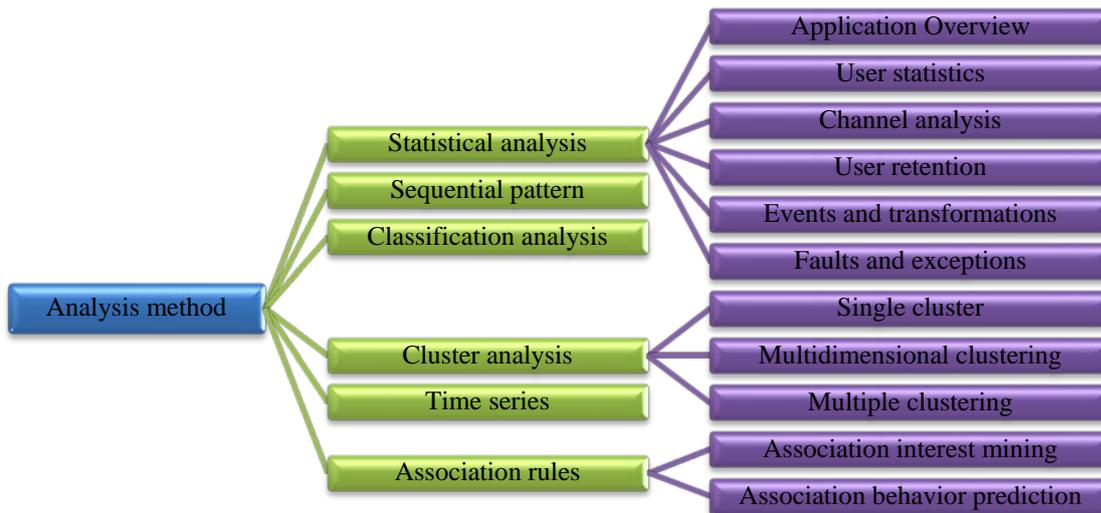


Figure 1: The general theme approach

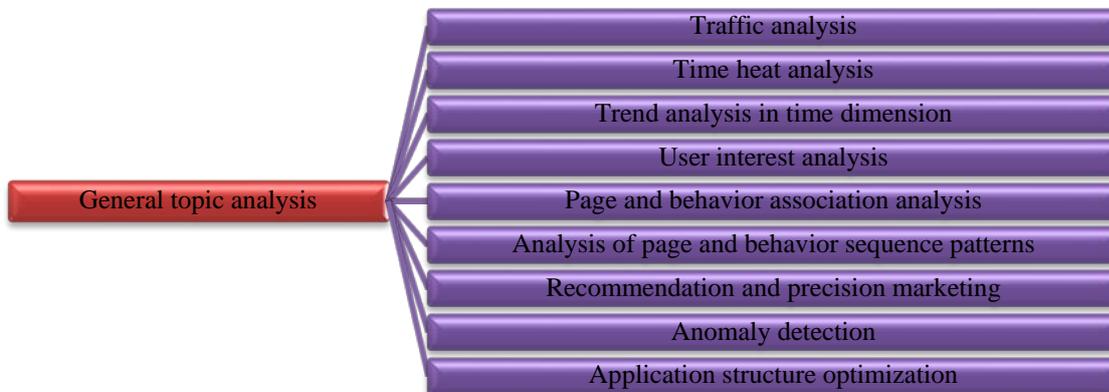


Figure 2: The general analysis topics

2.2 Classification and comparison of common methods

Through big data technology, we can analyze the user behavior of e-commerce platform, which has many methods. This paper mainly compares the following methods, which are mainly carried out from five aspects, and the details are shown in Table 1.

Table 1: Comparison of User Behavior Analysis Methods

Method	Operational difficulty	Accuracy of analysis	Is the result interpretable	Spend time	Depend on parameter or not
Statistical method	Simple	Low	Yes	Short	Yes
Decision tree method	commonly	Commonly	Yes	Long	Yes
Neural network	More difficult	High	No	Long	No
Cluster analysis	Simple	Higher	Yes	Short	Yes

It can be seen from table 1 that the statistical method is the most convenient, which only requires simple data processing. However, when dealing with complex data, the accuracy of statistical method is the lowest. Therefore, statistical method is the least used method. Decision tree algorithm is generally used to deal with simple data effect, which has a strong dependence on data parameters. Neural network method can well express the complex nonlinear relationship of data, which is widely used in the classification model reflecting the nonlinear relationship. However, the operation of neural network method is complex and cost consuming. Clustering analysis has its own characteristics, such as simple operation, fast speed, interpretability and so on, which has a strong dependence on parameters.

3. Overall Framework Design of User Behavior Analysis System

This paper designs the overall framework of e-commerce user behavior analysis system, as shown in Figure 3. The system framework mainly includes four modules, which are acquisition / preprocessing module, business fine identification module, business statistical analysis module and application management module. First of all, the system can complete data acquisition and preprocessing through the acquisition / decoding module, which is the most important. After preprocessing, we can carry out business refinement and business statistical analysis. Finally, the data we get will be presented by the application management module.

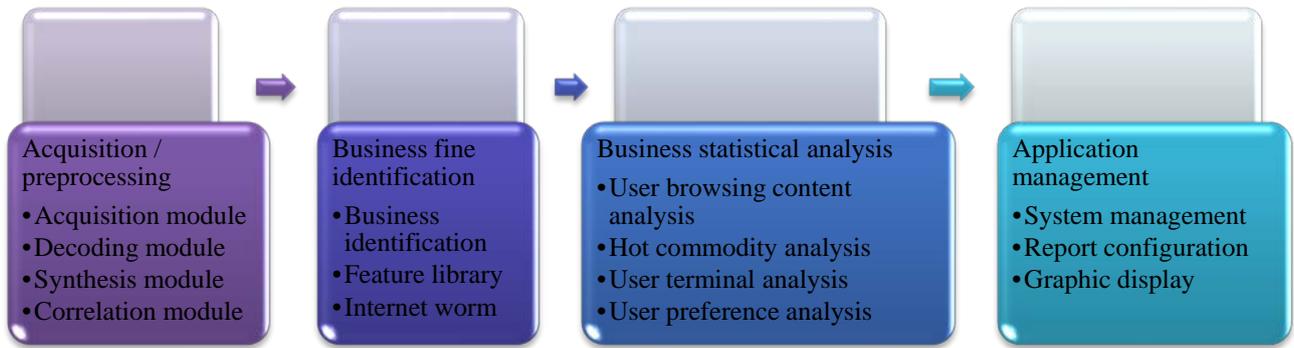


Figure 3: Overall framework design of user behavior analysis system

4. Example Flow of User Behavior Analysis

4.1 User browsing content analysis flow

The purpose of user browsing content analysis is to analyze the detailed information of user browsing content. The whole process takes the product information result table as the data source, and the analysis process is shown in Figure 4.

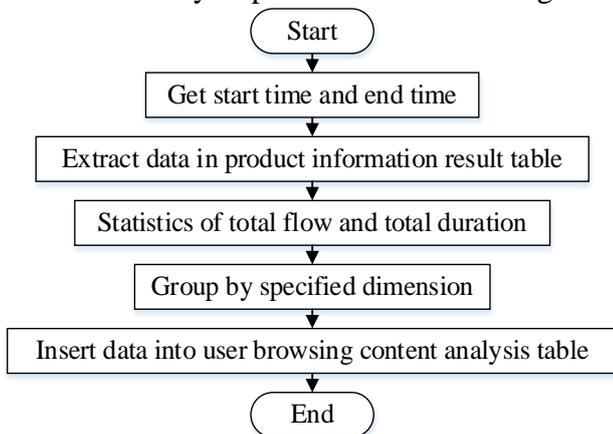


Figure 4: user browsing content analysis flow

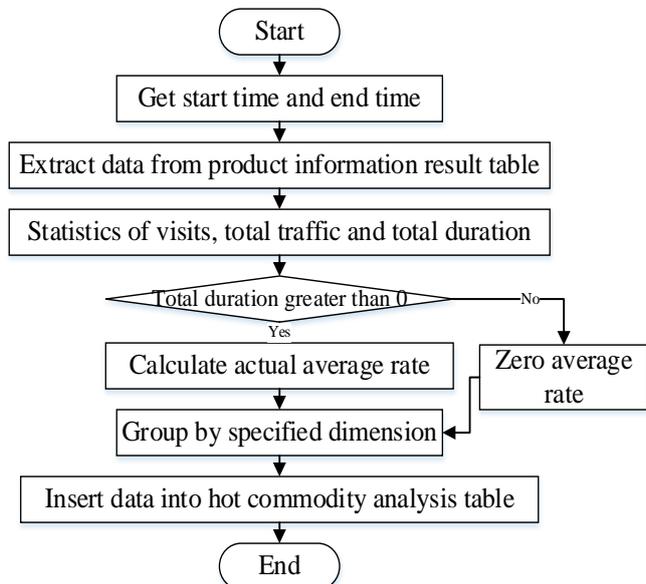


Figure 5: user browsing content analysis flow

4.2 Hot commodity analysis flow

Hot goods analysis can be used to count the products that users pay more attention to in a certain period of time, which can rank the click data of recent hot goods, as shown in Figure 5.

4.3 User preference analysis

E-commerce user preference refers to the user's interest preferences for different e-commerce applications, as shown in Figure 6.

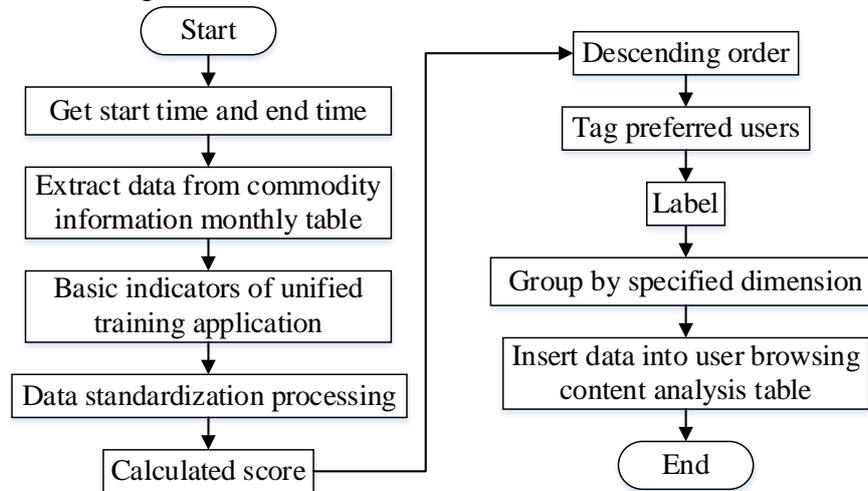


Figure 6: user preference analysis

Conclusions

With the close integration of big data technology and Internet user behavior analysis, the traditional marketing and management has been completely changed. The role of big data will be increasingly prominent, which will benefit e-commerce enterprises more. By facing up to the role of big data, we can make corresponding application examples, which will better get the sales plan. Therefore, when e-commerce platform marketing goods online, first of all, we must ensure that the goods have a better cost performance, which will improve the satisfaction of users. Therefore, we should analyze the behavior of e-commerce users from multiple channels and dimensions, which is a strong foundation for the sustainable development of e-commerce.

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