Application of Commercial Data Mining Model in Cloud Technology

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Abstract

In the new period of rapid network development, high and new technology is gradually applied to all walks of society, and cloud computing network technology gradually stands out. With the rapid development of science and technology, the development speed of cloud technology has become more and more rapid, and it is developing towards the direction of the cloud network of various computer software. In order to improve the clustering effect and quality of data, cloud technology is being actively used in both scientific research and commercial fields, and cloud technology is being integrated into the construction of data mining platform to improve its operation quality. This paper discusses the application of commercial data mining model based on SaaS and cloud technology. For the help of current cloud technology development for data mining technology, the purpose is to improve the work efficiency of commercial data mining model under cloud technology and provide complete data for the information age.

Keywords: *Cloud Technology, Data Analysis and Mining*

1.INTRODUCTION

Cloud computing is fundamentally different from traditional computing methods. Cloud computing can be regarded as a kind of super computing, which can effectively compute and automate the processing of massive and dense data. Traditional computing methods give priority to computing speed and have weak computing power, which cannot meet the requirements of timely and efficient calculation of data information in the era of big data. Cloud computing is the main product of the development of network technology and computer to a certain extent. It has strong computing capacity and can carry out more efficient and faster distributed computing through the network, so as to meet the requirements of data computing and processing in the era of big data.

Under the influence of network technology and distributed computing technology, cloud computing technology stands out. It can deeply study a large amount of data data and concentrate the data processing and related information in various servers. From the current situation, cloud computing technology has been applied to all walks of life, and involves a wide range of work, which makes the work efficiency has been greatly improved, and can provide you with accurate computing data. The low cost of operation allows ordinary users to manipulate their data through this technology [3]. At present, along with the development and progress of China's scientific data, cloud technology has also effectively promoted the development and progress of data computing work.

2.CLOUD COMPUTING WEB DATA MINING TECHNOLOGY PROCESS

Cloud computing Web data mining technology application process will appear some potential and valuable data, which involves various knowledge, including database technology, statistics, data acquisition technology, etc,with the progress and development of science, cloud computing Web data mining technology increasingly advanced, the main process is as follows: first need to find related resources. Mining various emails, e-documents, and newsgroups from pending documents. Data collection is the basis of Web data mining system. Its main object is Web log information, that is, the data information left by users after use, which is collected and stored in the relevant space. If there is a problem in the database, the collected data will also face the risk of loss. For the collected data, it can be screened and transformed in the first time under the operation of cloud computing technology,

G. Vilas Bhau et al. (Eds.): MSEA 2022, ACSR 101, pp. 314–319, 2023.
https://doi.org/10.2991/978-94-6463-042-8_46

converted into a semi-structured XML file, and stored in the distributed file system. This method can effectively solve the problem of data loss, and can also can avoid a series of problems caused by database failure. The second is to select and process the mined data information [2]. According to the instructions of data mining, find the useful data in the Web website, eliminate the irrelevant information, and automate the collation and analysis of the mined data. Finally, the cloud computing Web data mining technology for automated mode analysis.

Under this model, we can analyze the needs of network resources according to our actual needs and the data operation center, and some simple modules distributed in the LAN can be implemented with cloud technology, so as to save memory and improve processing efficiency.

Database is also known as data management system, database can be compared to an "electronic file warehouse", which is organized to store electronic files, users have "electronic file warehouse" some permissions, generally increase, delete, modify, query and other operations. Generally speaking, the data in the database has three basic characteristics: permanent storage, organization and sharing. Database development has gone through three stages. The first stage is the manual management stage, in which the data is not saved, not shared, and not independent. The second stage is the file system stage, can be saved to the computer, but poor sharing, data redundancy, poor independence. The third stage is the database management system stage, so that the system to the data processing data as the center to share the database as the center. Database Management System (DBMS) is the basic software in the computer, and the operating System, it is in a layer between the user and the operating System.

Typical applications of data mining are retail, banking, securities, energy, healthcare, communications, automotive and utilities [5]. The main purpose of retail application mining technology is precision marketing, one time to provide personalized services, in the user perspective to achieve the effect of "thousands of faces"; The main purpose of banking application is risk management, optimize customer service, precision marketing; The main purpose of its application in securities industry is quantitative trading, optimization strategy, risk warning, etc. The main purpose of its application in energy industry is to realize intelligent energy management; The main purpose of its application in the medical industry is to study clinical medical problems, etc. [7]; The main purpose of its application in the communication industry is to improve the quality of network service and understand the situation of customers [8]; The main purpose of its application in the automotive industry is to find potential customers, improve products, precision marketing; The main purpose of its application in public utilities is to improve governance efficiency and find loopholes.

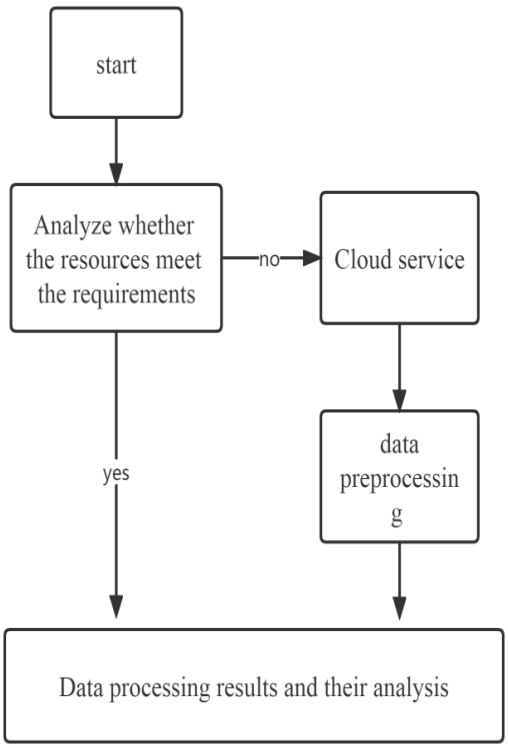

Figure 1: Data processing process

3.MODEL AND CONSTRUCTION

Experiments show that the distributed computing system can deeply excavate valuable information or information needed by business work in many data, and can effectively improve the quality and efficiency of data mining work. Specifically, distributed computing also has two different levels. Distributed storage structure and parallel storage structure parallel work is referred to as decibel, while the cloud computing platform can complete the specific requirements of the two functions, a variety of source holes appear in the two levels of work, the next specific analysis of the distributed file system combined fine calculation framework, requirements and value skills [1].

The intermediary file system can not only store and organize a large amount of information, but also clarify the location of information, reliability and security is very high. Currently, in the whole field of cloud computing, distributed file building system mainly contains two kinds, namely GFS file system and HDFS file system, such file system are built in accordance with the requirements of the file system, can integrate, analysis, research huge amounts of data, the file system is applied to the business field and academic research, can effectively improve work efficiency [7].

$$T(i) = a_0 + \sum_i^t \left(a_n \cos\frac{n\pi x}{L}\right) \quad (1)$$

Distributed parallel computing framework can deal with some details, meet the actual needs of users, and reduce maintenance and maintenance funds on the basis of improving the speed and quality of file system work. At present, the most commonly used distributed computing framework structure is MapReduce, often use MapReduce on pe computing framework, the framework structure can distribute data and task information integrated into a database, users can apply according to the relevant data, no data in parallel in the application process, work efficiency is very high. In addition, Pregel computing framework has also been applied to the actual work, the overall operation efficiency is very high, and only strong fault tolerance, can effectively like my details in distributed computing, the overall strong performance, development prospects are good [9].

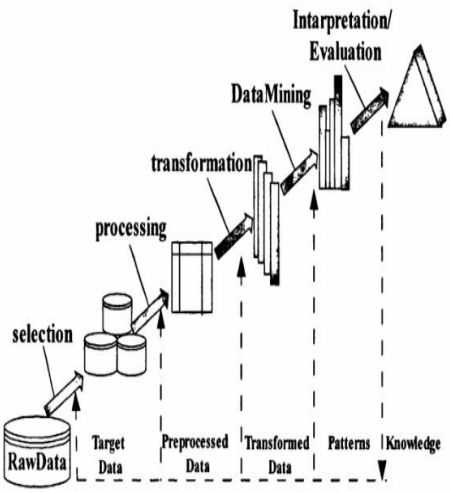

Figure 2: The KDD stage processing model diagram

3.1. Business data analysis and mining technical model construction

Enterprises will import production data, sales data, customer data, financial data and so on into the corresponding commercial data platform, store and manage, model and calculate various data, and then present charts to enterprises in need of data and make analysis, management and decision-making. As shown in the figure below:

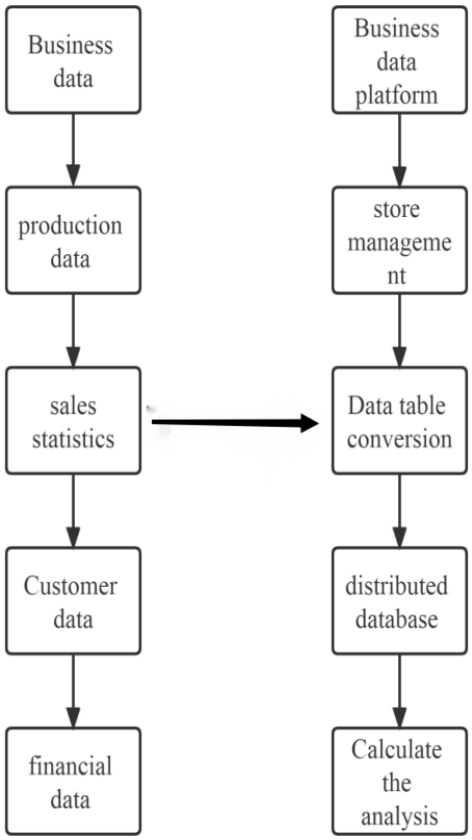

Figure 3: Business data analysis and mining model

3.2. Application of commercial data analysis and mining model

First need to collect customer needs, and then targeted extraction of customer data sources, the main information import into commercial data platform, followed by in the commercial data platform data analysis and mining model and design computing logic, platform automatic calculation, the platform will output visual chart and analysis results, so as to make strategic planning, and the corresponding management decisions. In this process, the core platform architecture of the solution is needed to integrate data, third-party platform data, member management system and ERP data, build a big data platform, conduct commodity analysis, business monitoring and analysis, sales forecast and so on.

privatebool EnableRequiredFieldValidator=false[Category("RequiredFieldValidator").

Browsable(true),

Description("RequiredFieldValidator Enable") DefaultValue(false)]

public bool EnableRequiredFieldValidator

{get {return this. EnableRequiredFieldValidator;} set{ this. EnableRequiredFieldValidator=value;}}

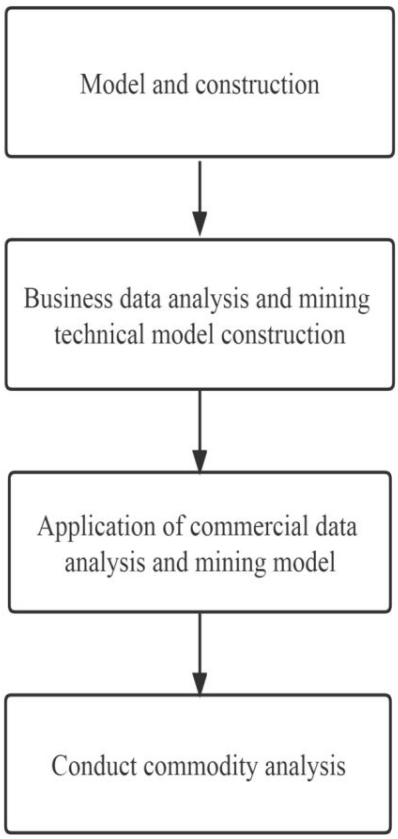

Figure 4: Model and construction

4.VALUE AND ROLE OF DATA MINING PLATFORM

The data mining platform built based on cloud computing belongs to the basic part of the whole data mining, and is also the indispensable part. In the complete data mining platform, the underlying cloud computing data mining platform can completely store the scattered information and data, so as to support the normal operation of the whole data mining platform. So as to provide users with the corresponding data information and reduce the problem of data loss. And it can use data processing technology to integrate and computer-related data data, to lay a good foundation for data mining work.

The middle part of data mining architecture is the data mining capability layer. The engineering structure belongs to the key link in the whole data mining work, which has very high requirements for basic capacity, which supports the operation of data mining [6]. At the same time, the applicant data extraction structure directly affects the operation effect of the whole cloud service platform, which is an important capability support part and an indispensable link in the data extraction work. Within the platform, it can not only effectively integrate and study the algorithm data, but also automatically schedule the work content and create a complete service management structure. Data mining capability layer can actually provide accurate algorithm program for data mining work, and use data mining technology to process and integrate relevant information and data.

$$\cos\alpha + \gamma = 2\cos(\varphi + \beta) \tag{2}$$

$$\epsilon_i^w = 1 \tag{3}$$

$$CF(A)=\epsilon W_i \times CF(A)*W_i \tag{4}$$

$$CF(B)=CF(B，A)*CF(A)$$

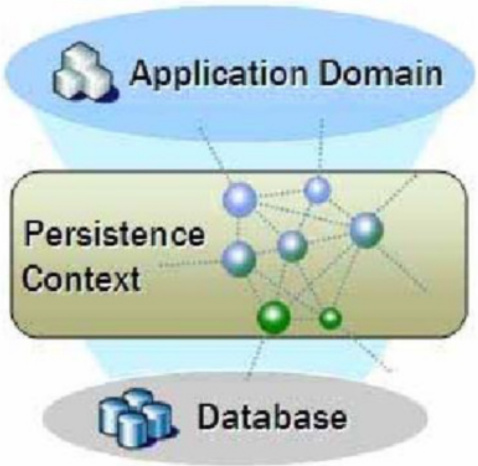

Figure5 Datebase chart

Data according to the upper layer of the cloud service layer data mining architecture, can provide the corresponding cloud services for the outside. Moreover, the data mining cloud service layer has a strict query statement function, and external users can use the lead and integration search mode to view relevant information when accessing the work. Save the user on the time [4]. At present, there are many structural styles of the data mining service layer, and the most commonly used ones are WebService and XML [11].

O	A	L	I	D
0.29547088	1.169225644	-0.602955118	0.725579897	1.052298868
0.29547088	0	-0.602955118	0.397937087	0.486731073
0.29547088	0	-1.228663258	-1.436862654	-1.398494913
-2.751572568	-0.584612822	-0.602955118	-0.453934222	-0.832927117
1.311152029	0	0.648461164	0.725579897	-0.45588192
-0.72021027	-0.584612822	0.022753023	0.922165584	1.052298868
0.29547088	0	0.022753023	1.315336957	0.675253671
-1.228050844	0.584612822	0.648461164	-0.322877097	-0.078836723
-2.751572568	-0.584612822	0.022753023	-0.847105594	-1.021449716
0.803311455	-1.169225644	0.648461164	0.266879962	0.486731073
0.29547088	-1.169225644	-0.602955118	-0.71604847	0.109685876
0.803311455	-1.169225644	0.022753023	0.660051335	0.109685876
-1.228050844	0.584612822	-1.228663258	-1.436862654	-0.832927117

Figure6. The data set

5.CONCLUSION

In recent years, big data, mobile Internet and other new technologies have been widely used, promoting the comprehensive development of cloud technology. For commercial data mining, cloud technology has also played a certain helping role. It not only lowers the threshold and undertaking of technology blessing ah, but also improves the efficiency and user experience of technology information services. Using cloud technology for big data analysis, dig out the behavior mode in the data, establish predictive model, through wisdom mining technology to find hidden business value, comprehensive and objective evaluation, implement the whole process of control, improve the preprocessing ability of the algorithm and the accuracy of data information analysis [10]. This has a good help effect for intelligent mining technology.

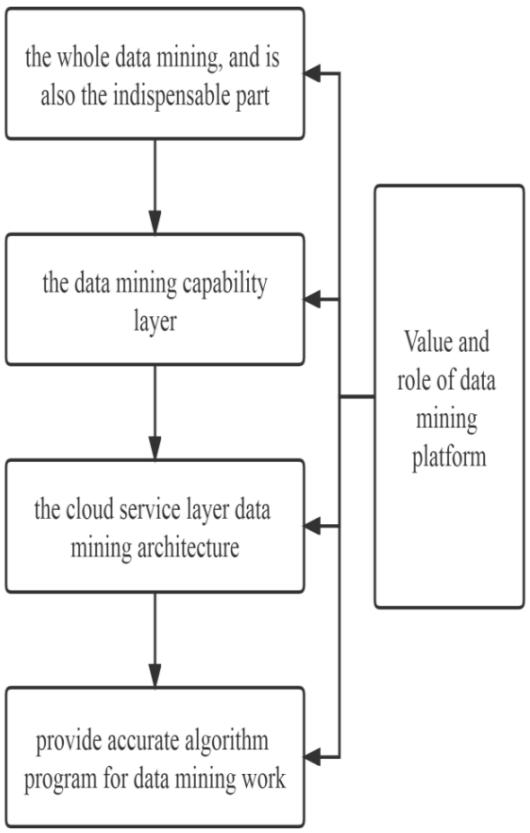

Figure 7. Value and role of data mining platform

ACKNOWLEDGEMENTS

Vocational education reform and innovation project of "science, innovation and education" of the Ministry of education of China

Project Name: Path Research and practice of the construction of mixed ownership secondary industrial college in Higher Vocational Colleges

Subject No.: HBKC212012

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