Research Article

Construction and Promotion of Reading Service Platform of University Library Based on Computer Network Cloud Platform

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1. Introduction

With the advent of the network information age, the carrier of information is no longer limited to paper books but is constantly extending to digitalization [1]. Reading is not only an important way to extend human knowledge, but also an important way for individuals to seek self-development. Despite the scientific and technological progress, human beings cannot get information without reading [2]. Reading can guarantee not only the fairness of information and promote learning, but also an important way to improve people’s quality. Reading can broaden one’s horizons and improve oneself from the inside out [3]. At present, China is working hard to build a learning society for all people to read, and reading promotion has received unprecedented attention. Reading promotion, as its name implies, is the general term of the work of libraries or other organizations in order to cultivate readers’ reading habits, improve reading interest, and improve the reading level of readers, so as to promote people’s reading [4]. As an important literature collection center and research center, university library plays an important role in reading promotion activities. In recent years, libraries have developed rapidly, and massive information data are stored in the library management system [5]. However, a large number of data resources and information make information overload and redundancy more and more serious, and it is difficult for users to obtain the information resources they really need and are interested in. The traditional information service mode of digital library has been challenged. The utilization environment of information resources in digital library has gradually changed from physical space to virtual space, and the existing mode of information resources has also gradually changed from analog state to digital state [6]. Therefore, under the environment of the development of computer network and cloud platform, the construction and promotion of reading service platform in university library is a significant research topic.

Reading is the basic means for us to acquire information and knowledge from the outside world and improve ourselves, and the basic way for us to spread and preserve...
It is an important base for talent training in colleges and universities. Encouraging students to read and making them realize the value of deep reading is an important part of university education and teaching practice, and it is also the focus of university library [8]. The main function of traditional library is to collect, store, process, retrieve, and spread literature information and provide information resource services for the society [9]. In recent years, with the digital construction of university libraries, the promotion of digital reading in university libraries has become a very popular way of promotion [10]. Moreover, due to the rapid development of computer information technologies such as digitalization, multimedia and cloud computing, and the comprehensive popularity of networks and mobile terminals, digital reading has become an important reading method for contemporary college students [11]. Using the appropriate promotion mode for reading promotion is the premise for university libraries to attract readers to participate in activities. With the increasing variety of reading promotion modes, university libraries need to pay more attention to the optimization and innovation of reading promotion forms while pursuing the deepening of reading promotion contents and themes [12]. Cloud service platform is a customer service platform based on cloud computing. Based on the computer network cloud platform, this paper studies the construction and promotion of reading service platform in university library.

Cloud computing is a service usage model [13]. In the cloud computing mode, the task processing process is distributed on distributed computers, and the data center runs in the mode of providing services through the Internet [14]. According to the information needs of users, information service organizations can conveniently switch the resources needed by users to suitable applications [15]. Facing some problems existing in traditional digital libraries, this study applies cloud computing to the construction and promotion of digital libraries to effectively alleviate these problems. Based on the current situation of digital library, cloud computing and information service, this paper studies and finds out the problems and bottlenecks that hinder the development of digital library’s information service and promotion at present. Based on cloud computing, this paper focuses on the concept, characteristics, and construction methods of digital library service platform based on cloud computing technology. With the support of related theories and technologies of digital library service platform, the model of university library reading service platform based on computer network cloud platform is constructed. The key technologies of cloud computing, such as virtualization, distributed data storage, massive data processing, and cloud platform, are applied to build personalized information service cloud platform of digital library, and cloud services are deployed on this platform.

2. Related Work

Literature [16] holds that reading promotion is a new and intervening library service. Its target group is all citizens, with emphasis on special groups, and its main features are mobilization and fragmentation. Its main purpose is to make people who do not like reading fall in love with reading, make people who cannot read learn to read, and make people who have difficulty in reading cross the reading barrier. Literature [17] holds that reading promotion refers to the related activities carried out by individuals or social organizations to promote people’s reading, that is, to promote reading activities that are beneficial to individuals and society. Literature [18] analyzes and compares the traditional methods of building digital library models. Literature [19] holds that reading promotion is to promote everyone to read. With the strategic goal of improving the cultural quality of human beings, enhancing the soft power of all ethnic groups, and accelerating the process of national prosperity and rejuvenation, the activities carried out by institutions and individuals of various countries are aimed at cultivating people’s reading interest, reading habits and improving people’s reading quality, reading ability and reading effect. Literature [20] has built a personalized embedded reading promotion model with users as the center. Literature [21] mentioned that, under the cloud computing environment, the data center has the characteristics of huge resource organization structure, high efficiency of virtualized resource management, on-demand distribution of cloud resources, safe and reliable services, and easy expansion. Literature [22] summarizes the research status, development status, and problems of digital library, personalized information service of digital library and cloud computing. In literature [23], by summarizing the types, characteristics, components, and evaluation influencing factors of reading promotion modes in university libraries from the perspective of new media, the evaluation index system is designed. Constructing the hierarchal evaluation model of reading promotion mode in university library from the perspective of new media, literature [24] points out that when constructing the reading promotion service model, university libraries should emphasize the main body of students and faculty members, comprehensively analyze the reading promotion service demand according to the usage status of students and faculty members, and form a clear reading promotion service direction.

Based on the research of previous literature, this paper puts forward the framework model of reading service platform of university library under cloud environment. The model is divided into infrastructure layer, middle management layer, and application service layer, which, respectively, correspond to the infrastructure service layer, platform as service layer, and software as service layer of cloud computing. It also combines the reading promotion theory and the traditional reading promotion model, summarizes the disadvantages of the traditional model, and then summarizes the new model, analyzing the construction of the new mode in detail to realize the operation of the new mode. The functional modules of personalized information service are designed, and finally, a feasible scheme to realize personalized information service cloud portal is put forward. The evaluation index system is constructed from four dimensions: reading promotion content, reading promotion effect, user experience, and promotion cost. The entropy
weight method is used to obtain weights, and the analytic hierarchy process (AHP) is used to construct the AHP evaluation model, and the standardized empirical research is carried out through data analysis of the survey results and suggestions based on the evaluation results. The research shows that the platform constructed in this paper has certain feasibility and practical significance.

3. Methodology

3.1. Cloud Computing and Digital Library Information Service. Cloud computing mainly refers to the resources and services obtained through the Internet and the software and hardware infrastructure that provides these services on the data information platform [25]. With the deepening and development of cloud computing technology, it is likely that only one laptop or one smart mobile terminal will be needed in the future, and even tasks like supercomputing can be carried out through the Internet.

The architecture of library user information mining technology based on cloud computing is divided into three levels. They are data layer, cloud computing layer, and application layer. The database layer uses database virtualization technology and middleware technology to uniformly schedule and allocate database resources in the node cloud library [26]. The role of data layer is to obtain the data of user information, mainly searching user information based on library management system and open public query catalogue, and using open database interconnection or other database interfaces to obtain library user information [27].

Based on computing resources and storage resources, the cloud computing layer uses data mining algorithms such as decision tree, association rules, neural network, clustering, Bayesian classification, and regression to complete the library user information mining. This layer provides the portal website of digital library cloud service platform, and users can log into the homepage of the website and connect to the cloud service platform to obtain the required services. According to the results of user information mining in the library, the application layer performs related management such as personalized recommendation, subject service, layout, and construction of collection resources. The functional structure diagram of digital library information service is shown in Figure 1.

In cloud computing, data is usually stored in the database in columns. This column storage mode can effectively ensure the storage and processing of massive data [28]. Cloud service platform builds a shareable cloud service architecture through cloud computing and realizes the integration and management of IT resources, services, and applications of the whole cloud system. The cloud service platform of digital library collects the information resources of each node platform by the method of on-demand retrieval. The information resources scattered in each node platform need not be centralized. The cloud service platform provides a collection mechanism of digital resources. What users see is the unified retrieval interface of cloud service platform. The library can directly deliver the reading information to users only by building the integrated management with the resources of cloud service platform. Users download cloud service software through mobile terminals such as mobile phones, tablets, and notebooks and get reading content directly on the cloud service platform.

Mobile reading has become the norm of daily life and learning, and it is imperative to build a cloud service platform to serve the promotion of digital reading in university libraries. There are some problems in traditional digital library, for example, ① massive data processing, which requires large-capacity storage equipment and high-performance server equipment; ② how to realize seamless connection of data resources between different libraries to realize resource sharing and utilization; ③ how to ensure that security mainly includes user information security and resource security in digital library. The core of “cloud” service is to make it easier and more convenient for users to access literature resources, and abundant online resources become the basis of digital reading promotion. The “cloud” service platform integrates and manages the electronic library resources of university libraries with its powerful storage and operation functions and provides users with huge electronic information resources. Therefore, the construction of cloud service platform will greatly promote the digital reading service and promotion of university libraries.

In library management, user management and user service are always the core contents of management. Library user information mining can study the characteristics and relationships of library user groups, enhance the attraction of libraries to library users, and improve the efficiency of library management, which is one of the foundations of high-quality user management and user service. Cloud computing platform provides a good platform for data feature analysis and mining of library users' information under the big data environment. It has the functions of efficient layout of dynamic resources, real-time calculation, and storage according to users’ needs, and so on.

3.2. Construction of Reading Service Platform in University Library. Every layer of the digital reading promotion cloud service platform of university library can be constructed by using the corresponding cloud service, and the function of the digital reading promotion cloud service platform can be maximized. From the process of library management, it can be found that some users have a high demand for library borrowing, while some users have no demand for library borrowing. Using service-oriented architecture component model and data analysis results, the resources and services of digital reading cloud platform are designed and adjusted instantly to meet the needs of readers’ reading or activities. In the design of platform interface, the main idea is to be friendly, convenient, intelligent, functional, and diversified while integrating rich resources and services.

The innovation of the promotion mode of recommending intelligent digital reading content has broken the traditional passive service of the library and turned into an active service mode of obtaining readers’ needs and actively catering to them. It improves the accuracy and matching degree of personalized service and is more attractive to
readers. The cloud service platform of digital library is a complex system, and the establishment of corresponding mechanisms can greatly reduce or avoid its unstable factors in the process of operation and promote the operation of the cloud service platform of digital library to be in a harmonious and stable state. To ensure the real establishment of cloud service platform of digital library, a set of coordinated, suitable, and efficient operation mechanism must be established. According to the borrowing situation of library users, the library users are divided into different groups by clustering algorithm. Within a group, the classification of books borrowed by users is generally the same, and the classification difference of books borrowed by users among different groups is significant.

To define the similarity of users, based on the Euclidean distance, the user multiattribute similarity is defined as

\[
sim(V_i, V_j) = \frac{1}{1 + \sum_{k=0}^{N} q_k(a_{ik} - a_{jk})^2}.
\]  

(1)

In the formula, each user has \(N\) attributes, and \(q_k\) is the weight of the \(k\)-th attribute. \(a_{ik}, a_{jk}\) are the \(k\)th attribute values of users \(i\) and \(j\). The larger the \(\sim(V_i, V_j)\), the more similar the attributes of the two users. In the K-means algorithm, the closer the distance is, the more likely it is to be divided into a community. Therefore, the greater the user similarity, the higher the link weight, and the smaller the abstract distance. The abstract distances \(D_s\) and \(D_d\) are defined as

\[
D_s = \frac{1}{\sim(V_i, V_j)}
\]

\[
D_d = \frac{1}{q_{ij}}
\]  

(2)

In the formula, \(q_{ij}\) represents the link weight between user \(i\) and \(j\), \(q_{ij} \in [0, 1]\).

The digital library cloud service platform includes hardware and software infrastructure and applications necessary for the library to provide services. The process of clustering mining according to readers’ interest types is as follows: collecting user information such as user ID, user category and academy to which users belong in the data layer; When clustering user information, the \(K\) value is repeatedly adjusted, and the optimal number of clusters is several categories. Reliability refers to the degree of consistency of the results when the same thing is repeatedly measured, and it is an index to reflect the consistency and stability of the questionnaire. If the reliability is low, the validity will be low. If the reliability is high, the validity may not be high. For validity, the reliability is a necessary but insufficient condition.

If there are two sets of changing vectors \((x_1, x_2, \ldots, x_n)\) and \((y_1, y_2, \ldots, y_n)\), calculate these two groups of values, and the averages obtained are \(\overline{X}\) and \(\overline{Y}\), respectively, and then, the sum of squares of the variables of these two groups is mainly \(S_x\) and \(S_y\); then, the Pearson correlation coefficient calculation formula is

\[
r = \frac{1}{n-1} \sum_{i=1}^{n} \left( \frac{X_i - \overline{X}}{S_x} \right) \cdot \left( \frac{Y_i - \overline{Y}}{S_y} \right).
\]  

(3)

Assuming that the two users \(i\) and \(j\) themselves both evaluate and score the user \(u\), then the similar values existing in them are represented by \(I_{ij}\) and \(I_{ji} = I_{ij}\), and then, the similarity between the two users \(ij\) is used \(\sim(i, j)\) is expressed and then calculated by Pearson’s formula:

\[
\sim(i, j) = \frac{\sum_{d=1}^{n}(R_{id} - \overline{R}_d)(R_{jd} - \overline{R}_j)}{\sum_{d=1}^{n}(R_{id} - \overline{R}_d)^2 \sum_{d=1}^{n}(R_{jd} - \overline{R}_j)^2}.
\]  

(4)

Figure 1: Functional structure diagram of digital library information service.
In the formula, the item \( d \) is evaluated and scored for the customer \( i \), and the average evaluation scores calculated after all the scoring are completed are represented by \( R_i \) and \( R_j \).

Using ant colony rule mining algorithm to mine association rules of library user information to construct a path, in the process of path selection, ants build a library user information rule base based on an empty rule. During the process of building, each $ term is a path selected by ants. The next added term is the next choice path for ants, and ants keep adding terms in the rule base. The calculation problem of AHP can be summed up as the problem of calculating the largest eigenvalue and its eigenvector of the judgment matrix.

The ant chooses the next path according to the heuristic function of the current path and the pheromone value on the path. The probability that a term \( m_{ij} \) is selected as the current rule is

\[
W_{ij} = \frac{\delta_{ij}(t) \cdot \theta_{ij} \cdot H}{\sum \delta_{ij}(t) \cdot \theta_{ij}}.
\]

In the formula, \( \theta_{ij} \) and \( \delta_{ij}(t) \) represent the heuristic function value of term \( i \) and the pheromone value on term \( m_n \), respectively. \( a \) represents a number of attributes applied to attribute \( i \); \( b_i \) represents the number of attributes \( j \). \( H \) represents the overall attribute number of attribute \( i \); \( T \) represents the category constraint parameter. When user \( T_{ij} \) selects a book, the user information mining result \( O_{T_{ij}} \) expression is as follows:

\[
O_{T_{ij}} = \sum_{w=1}^{H} \left( \frac{freq^{ TW}_{ij} \cdot \log_2 \left( \frac{freq^{ TW}_{ij}}{|T_{ij}|} \right)}{|T_{ij}|} \right).
\]

In the formula, \( freq^{ TW}_{ij} \) and \(|T_{ij}|\) represent the amount of user information whose protection category is \( w \) and the amount of user information of user \( T_{ij} \) in the library, respectively. Taking the amount of information as the starting point of measuring information, the acquisition of information is the process of eliminating uncertainty, so the amount of information is the central concept of information theory, and the size of uncertainty can be expressed by a probability distribution function:

\[
H = -k \sum_{i=1}^{n} \rho_i \log P_i,
\]

where \( H \) is information entropy, and \( P \) is the probability of random events.

According to the different borrowing information, library users are divided into different categories, and the borrowing information of users in the same category is similar. On the basis of the clustering results of user information, detailed book borrowing information in various categories is obtained. According to this divided user borrowing information, association mining technology is adopted to obtain association rules and form rule base, so as to complete the related management of library resources layout and construction and provide personalized recommendation services to readers.

When cloud computing is applied to the practice of personalized information service in digital library, the common way is to use technical means to realize real-time interaction between users and digital library. This way can effectively reduce the cost of users to obtain information, including time cost and network cost. Cloud computing rapid deployment and service implementation mode can reduce the distance between users and digital library and enable users to feel the “zero distance” real-time information interaction with digital library. At present, university libraries have set up WeChat official account service platform to help libraries carry out digital reading promotion activities. Colleges and universities should apply WeChat in the construction of digital reading promotion service platform and regularly publish some news information and dynamic resource database through WeChat platform.

4. Reading Promotion Mode

The academic definition of reading promotion has not been found in periodical papers and professional dictionaries. Library reading promotion is also called “reading marketing” in China. In fact, promotion is also an important part of marketing. With the immature theory of reading promotion, reading promotion activities will stagnate and be in a state of chaos for a long time, which makes it difficult to embark on the track of scientific system. The information service or potential service provided by the library for users and readers is not a passive service form. In essence, it is a purposeful service model, which aims to provide targeted information to meet users’ needs. And in the process of providing services, it will involve the service products provided by the library, necessary service costs, and appropriate marketing skills.

The reading promotion mode, as its name implies, is the basic operation standard adopted by university libraries in reading promotion activities. If there is no mature explanation for the reading promotion model, the reading promotion activities will be in the stage of lack of organization and old-fashioned activities for a long time, and it is difficult to make the reading promotion activities embark on an orderly and novel scientific development path. The traditional reading promotion service mode of university libraries is mainly based on published books, and in the reading promotion activities, famous lectures, book promotion, excellent book exhibition, reading prize-winning knowledge contest, and famous movies and television appreciation are adopted. The reading promotion mode is mainly used as a process specification for promoting reading activities beneficial to individuals or organizations. Through this process, the organization of reading promotion activities is more standardized, which plays a positive role in the development of reading activities.

From the perspective of new media, the reading promotion mode of university library refers to relying on the new technology support system, showing the comprehensive processing of text, sound, images, and videos by media forms, carrying out the unique creativity of library reading activities such as publicity, promotion, and memory.
retention, and forming a reading promotion mode with information technology as the core. The mode of reading promotion activities in university libraries mainly relies on standardized procedures and extensive publicity to improve students’ reading interest, comfortable space, and good atmosphere to help students develop reading habits, and rich collections to expand readers’ reading effect. Figure 2 shows the operation mode of cloud service platform for digital reading promotion service in university library.

At present, new media reading has gradually become an important way for university library users to obtain book resources and information retrieval, and an effective tool for college students to broaden their horizons and build knowledge systems. In the process of reading promotion, new media technologies are often fully used for reading promotion, promotion and information storage, forming various and colorful reading promotion modes with new media technologies as the core. As the distribution center of internal information resources in colleges and universities, university libraries serve all readers in colleges and universities, including but not limited to students and faculty. When carrying out reading promotion in university libraries, different reading promotion services should be launched based on different groups of people.

Based on cloud superiority technology, university libraries can expand more innovative space in digital reading promotion mode. In order to improve library services and provide multiple modes for reading promotion, in terms of collection resources construction, the library should build a scientific, reasonable, and all-round collection resources system based on the requirements of readers and the discipline construction of colleges and universities, so as to provide effective guarantee for the selection of reading promotion modes and the development of reading promotion activities. Mobile library refers to a service mode of accessing library resources, reading, and business inquiry through mobile terminal equipment. The mobile library pays attention to the promotion of digital content. The mobile library can integrate different platforms, break the bottleneck of content, provide inexhaustible resources, and truly make reading ubiquitous. In the process of establishing personalized reading promotion services, the main observation points of university libraries are student readers and other readers. According to the needs of student readers and other readers, the work contents of various reading promotion services should be reasonably set to actively improve the service quality.

Social network site-based applications are called social media. Strictly speaking, the social media promotion model has not yet formed a fixed model. At present, Weibo is one of the most popular media. It has the characteristics of convenient use, fast information dissemination, high user participation, and strong grassroots content. The most prominent social networking sites are interpersonal communication. Many social networking sites are in real-name registration system. University libraries can quickly find readers and users of their own schools by using such social networking sites. Therefore, social media has recently been widely used in reading promotion in university libraries.

Based on data statistical mining technology of cloud platform, according to resource usage, service application, readers’ subject background, visiting habits, and historical behavior, mining analysis is carried out to establish individual interest model. Recommend targeted high-quality characteristic data to readers that meet their reading habits and changing needs. When selecting topics for reading promotion activities in colleges and universities, based on the young mentality of students and readers, libraries will choose new or advanced scientific and technological achievements as the promotion theme, so technical services also have a great influence on the selection of reading promotion modes. University libraries should pay attention to the development of new technologies while updating daily technologies.

5. Result Analysis and Discussion

In the process of building a cloud service platform, cloud clients and cloud portals can also be built. In the construction of digital reading promotion cloud service platform, the realization of each layer of functions comes from one or more cloud computing providers, and the software and hardware infrastructure of the cloud service platform can be increased or decreased at any time. Under the cloud computing environment, the complexity of library reader cloud service platform structure and the uncertainty of cloud service mode development determine that the security of cloud service platform and service mode will be more prominent, which is the key factor related to cloud platform construction and cloud service security and efficiency.

Self-built private clouds require certain funds, resources, and technical support, so only some large libraries can build their own private clouds based on public cloud service platform. In its own private cloud service platform, the
A library can provide digital reading promotion services for teachers and students. The experiment is to verify the algorithm performance of reading service platform of university library based on cloud computing in the computer network environment studied in this paper. Taking a university library as the experimental object, this paper uses the mining technology to mine the user information of the experimental object from three aspects: the mining results of association rules of library user interest types, the mining results of user group information, and the results of time series information. Figure 3 is a comparison of MAE values among particle swarm optimization algorithm, collaborative filtering algorithm and this algorithm. Figure 4 is a line chart of the accuracy of three algorithms.

It can be seen from Figure 3 that the MAE values of particle swarm optimization algorithm and collaborative filtering algorithm are slightly lower than those of this method. Under the condition that only a few neighbor users can be obtained when the data is sparse, the other two methods cannot accurately describe the similarity between users and target users and cannot distinguish the users who are really valuable to the prediction results in the existing neighbor sets, so that they cannot assign appropriate weights in the prediction. In this paper, the accuracy of the prediction results can be improved by introducing the modified overlap factor, adding the analysis of users' score variance and calculating the local similarity. At the same time, the comparison chart of accuracy in Figure 4 also shows that this method can obviously improve the accuracy of recommendation results.

Under the cloud computing environment, the complexity of library reader cloud service platform structure and the uncertainty of cloud service mode development determine that the security of cloud service platform and service mode will be more prominent, which is the key factor related to cloud platform construction and cloud service security and efficiency. This paper uses the technology to mine the association rules in the clustering results of user interest types of experimental objects. According to the mining results of association rules, this technology can effectively mine the types of library users' interests, and according to the current users' data borrowing information, it can mine books that meet users' interests and preferences and realize personalized recommendation function. Figure 5 shows the results of user time series information mining.

From the analysis, it can be seen that there are common features in book borrowing information of users in different disciplines. Generally speaking, the beginning of school is the peak period of book lending, and the holiday period is the low period of book lending. The results show that the time series information of the experimental object users mined by this technology corresponds to the actual situation, which verifies the accuracy of mining library user information by this technology.

The questionnaire is designed by asking the stars. The purpose of designing the questionnaire is to get the rating of the respondents on the system. Based on the massive data warehouse provided by the cloud platform, it provides readers with the integrated article-level retrieval of main Chinese and foreign electronic resources and paper resources in the library. Readers can realize one-stop literature resource retrieval and comprehensively retrieve the contents of paper and electronic literature data, which greatly improves the retrieval and reading efficiency of readers and
reduces the learning cost. When mining user information of university library, the level of professional quality is one of the main factors that affect users’ borrowing. Usually, the type and quantity of books borrowed by users are significantly influenced by users’ professional quality and educational level. According to the current teaching system structure, college students can be divided into teachers, postgraduates, and undergraduates according to their academic qualifications. For these three groups, the user information of experimental objects is mined. In this paper, according to readers’ feedback on the system push information, the “precision” of push resources is calculated to evaluate the system service quality. The experimental results are shown in Figure 6.

The experimental results show that the average precision rate of recommended books for undergraduates, postgraduates, and teachers has good push quality. Further analysis of the borrowing situation of each group, clustering them according to the borrowing times, and counting the information push quality of different systems to different types of readers respectively. The experimental results are shown in Figure 7.

It can be seen that the recommendation effect of each system gradually improves with the increase of readers’ borrowing times. In the experiment, this system has certain advantages in precision, and its precision is high. Even if the data borrowed by users is sparse, the system has good recommendation quality.

The validity, correctness, and accuracy of the judgment scale are mainly expressed by validity; that is, various measuring tools can be used to accurately measure the degree of things to be measured. The resources obtained through the collection mechanism are scheduled, distributed, and managed and are responsible for the security management and user management of digital resources. The mechanisms of digital library cloud service platform are interactive and interrelated. Based on the unified resource retrieval service, it supports the docking with the library service alliance to realize the expansion of resources and the scope of full-text document acquisition.

The purpose of empirical evaluation is to verify the reading service platform of university library constructed in the previous article and analyze the data of each index according to the results of empirical research, so as to provide reference for the reading service and promotion mode of university library in the future. The results show that the comprehensive performance of this algorithm is good, and it has certain advantages. Using this system, users can realize one-stop service access and access, which is user-friendly and easy to use. Both users and digital library managers can realize fast access and intelligent access through a unified portal platform. And users can customize the service according to their own needs, which is user-friendly and highly scalable. The experimental results show that this method can effectively mine user group information and time series information and provide an effective means for library user information feature mining, which has a good application prospect.

6. Conclusions

The construction of cloud service platform for digital reading promotion in university libraries is a long-term and complicated task. We need to accurately grasp the development direction of cloud computing technology and standards and closely contact readers’ cloud reading activities and user satisfaction standards. Starting from improving the support capability of library cloud service platform and the effectiveness of cloud service mode, and taking the market demand and comprehensive competitiveness of readers’ cloud services as the evaluation criteria, we will provide readers with satisfactory personalized cloud reading services, adopt scientific concepts and advanced technology to improve the mode, method, and service efficiency of library cloud service, and continuously reduce the cost of construction, management, service and maintenance. We believe that, with the development and practice of cloud computing, the construction of digital reading promotion cloud service platform in university libraries will be better and better.
This paper studies the construction and promotion of reading service platform of university library based on cloud computing under the complex network environment and constructs the technical structure system of library user information mining. This paper discusses the construction, application, development, and innovation of cloud service platform. Based on the analysis of the problems faced by digital library information service at present, this paper puts forward the necessity of providing personalized information service by digital library and gives the improvement and application of virtualization storage technology and massive data processing technology in key technologies of cloud computing to personalized information service. K-means clustering algorithm is used to divide library user groups. Based on the clustering results, ant colony rule mining algorithm is used to mine library user information association rules. The entropy weight method is applied to the weight calculation of the evaluation index system of reading promotion mode in university libraries, which effectively makes up for the shortcomings existing in the previous evaluation by subjective weighting method and reflects the objectivity and scientifi city of the evaluation index weighting. The results of user information mining show that this technology can effectively mine library user information and realize personalized recommendation function. This study is conducive to promoting the standardized management of library information services and the rational allocation of resources. However, in view of our limited ability and knowledge, although this study has achieved certain results, there are still some shortcomings. Building a more concise and practical evaluation needs further exploration.

Data Availability

The data used to support the findings of this study are included in the article.1

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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