

## Design of Automatic Pushing System for Library Borrowing and Returning Information in University Library

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**Abstract:** In the process of digital library construction, users will face the ocean of digital information resources. Moreover, university library has abundant collection resources, strong specialty, numerous teachers and students, and a large amount of borrowing. How to make better use of the Internet without geographical restriction, humanistic restriction and time restriction for university library management has become the primary development goal of each university for library management. Therefore, the author studies the design of the automatic transfer system for the library loan information in college libraries. The study found that at this stage, university libraries also need to vigorously improve the service system, develop an efficient library management information system, maximize resource sharing, and provide personalized services to readers. This is a key requirement for the continuous development of libraries.

### 1. Introduction

With the rapid development of information technology and networks, rich information resources have broadened people's horizons. However, due to the scattered information and complex structure of Internet information, information overload has become a social problem that hinders the use of the Internet [1]. All walks of life are paying attention to, higher education is also advancing on the road of information transformation. The library is an indispensable institution for providing basic services for teachers and students in colleges and universities. Deeply excavating and using big data can serve readers and staff [2]. How to provide personalized bibliographic services for teachers and students in a timely and proactive manner is one of the requirements [3]. Therefore, for each university, how to build an effective library management website and increase the active push business has been paid more and more attention by the University [4]. Nowadays, with the rapid development of network technology and information technology, people will be surrounded by information resources unprecedentedly and fall into the ocean of information [5]. How to obtain the required information efficiently and comprehensively from the mass of information, improve the active information service ability of the network and meet the personalized information needs of users has become a hot topic [6]. The author hopes to provide ideas for the development and improvement of university library management system from two aspects of work demand and service demand from the perspective of system users through visits and surveys.

With the advent of the information age, people are increasingly demanding the effectiveness of information. How to continuously improve the service quality of University Libraries and better serve the vast number of teachers and students has become an urgent issue [7]. With the trend of traditional book management in the world and the advent of the Internet plus era, it is an indisputable fact that university library management is using the Internet to compete for new markets. [8] And most of the college library management has achieved very good returns in this regard. In order to further expand the income, it is necessary to introduce the form of active push. Active push technology has been widely used in the fields of retail, medical, education, telecommunications, etc., and has gradually become a research hot spot in library management [9]. Digital library information resources are collected and organized to meet various types of users, and thus are comprehensive, but for a particular user, his needs may be specific and limited to a certain range [10]. Through the

screen saver to actively push information, the latest information is vividly and visually transmitted to the readers in the form of pictures, which can not only greatly improve the efficiency of library information push. It can also save the cost of publicity for the library, which will become a new technology and a powerful tool to improve the personalized service level of the library. This personalized bibliographic push service embodies the two principles of “Library Five Principles” in “Library Five Principles” and “Save the reader's time”.

## 2. Information Push Technology and Its Service Mode

The Push technology was first proposed by Foreign Pointcast in 1996. The company was also the first company to publish information using Push technology on the Internet. Informatization management makes the service more humanized. The library adopts open-frame lending, and the reader can enter the library according to his own hobbies and needs, thus greatly improving the utilization rate and circulation rate of the book. According to the survey results of the needs of colleges and universities, in order to solve the readers in the library lending process, some do not know how to search for the books they need, or do not know how to choose the appropriate books for the results of the search, so provide readers with initiative Books of interest can effectively improve library services. In traditional web services, information is distributed in different levels of pages, and users have to go to different pages and different columns to find different information. This wastes a lot of time and energy of users. Information push service is a kind of Personalized Active Information Service realized by push technology. It can "push" new content to the client at the first time, greatly improving the effectiveness of information. The construction of library management system is a part of the intelligent campus plan. The reader information here can be obtained through the unified identity authentication management platform of the campus. When readers browse library resources, arranging relevant book recommendation for readers can help readers find their own documents faster, and readers can experience the whole borrowing process.

Develop test scenarios, including response time and access stability. Increase the number of page display response time tests, so that the shortest response time is normal, as shown in Table 1.

Table 1 Test result

Number of tests	Test interface	Average response time	Result
40	Readers landing	1	Normal
	Readers home page	0.7	
	Book classification	0.6	
	System push	0.5	
	Online consultation	0.7	
	Recommended books	0.8	
	Browsing New Books	0.6	
	School introduction	0.7	

Librarians can analyze readers' borrowing habits through readers' borrowing information and search information, and then excavate the relationship between readers and books. With the increase of users' searching library bibliographic system and the number of borrowing times. By extracting the concepts of user interest related fields and calculating the conceptual interest correlation degree, the weight of the concept's interest correlation degree is accumulated in the user interest model. In this way, after a period of time, the concept nodes with non-zero correlation degree of concept interest in user interest model gradually tend to be stable, that is, the user interest model gradually converges. Mainly refers to the reader information record and management. Every year there are a large number of freshmen and graduates in Colleges and universities. Therefore, it is necessary to establish a unified identity authentication. At present, the implementation of information push mainly includes three ways: message, proxy and channel. The message method is to send the information to the user by email or other message system according to the information demand submitted by the user. The proxy method is to push the result to the user by using the proxy

server to search the information content of the user's interest on the Internet periodically or according to the time interval specified by the user. In order to meet the user-specific personalized information needs and save the user's relevant judgment time, it is necessary for the library to organize and automatically push the personalized information required by the user according to the specific needs of the user to its personalized desktop. Realize active, interactive, and personalized services in the true sense.

### **3. Personalized Bibliographic Information Push Service of University Library**

The personalized information service of university libraries refers to different users (student or teacher), according to their personal information, adopt different service strategies and provide different service contents to meet their different needs of information. Since the book information is promoted, the reader can directly view it in the system. If the reader wants further information, the reader can sort through the designed navigation. The personalized bibliographic information push service is to provide targeted information that the user needs according to the characteristics of the user in the context of the personalized bibliographic information push system. At the same time, through the intelligent analysis of users' professional characteristics and research interests, it actively recommends the bibliographic information that users may need to meet the diversified needs of users' information needs and improve the service quality and service level of libraries. Designing library system for readers with simple game demonstration, animation interface and game nature are more acceptable to readers. In addition, the process of using various functions, common problems and solutions are embedded in the system to guide readers to learn how to make full use of the system. Through this channel, readers do not need to log on to the library homepage, nor need to come to the library. As long as they open the Internet computer, they can get all kinds of important information of the library in the near future vividly and in real time.

With the rapid development of science and technology revolution and information technology, an educational revolution has been triggered, that is, to break the traditional education mode fundamentally, to implement quality education, to realize the transformation from "teaching" as the center to "learning" as the center, and to give full play to the enthusiasm and initiative of students. Using modern network and multimedia equipment to publicize, the typical way is web page, which is not limited by time, space and region. At the same time, we can add multimedia technology such as voice, image and so on to the web page, which is lively and full of pictures and texts, and can receive good publicity effect. Under the new teaching mode, the ways of "teaching" and "learning" are changing. As the distribution center of information resources, the library collections are no longer limited to books and newspapers with paper as the carrier. And various electronic publications have become an important source of information for modern libraries. The updating of information materials has become a hot spot and focus of teachers and students. The library's staff responsible for borrowing books is still relatively large. The concept in which the conceptual interest relevance weight is higher indicates that it is more relevant to the user's interest. ADO is also an object-oriented operation, and its operation is the same as other interfaces provided by Microsoft. Global data access can be used to establish a unified access mechanism without using UDA to access existing databases. By mining, collecting, sorting, storing, and developing reading plans for subsequent developments, push relevant materials.

### **4. Conclusions**

The service mode of library should conform to the times, develop and innovate constantly to meet the needs of different readers. The overall structure and function of the system are described, and the component-based and object-oriented UML modeling method is used for system analysis and design. The library personalized push system model is established by using Rational Rose tool. The management system of university library is a very important part of the construction of University intelligent campus. It not only provides great convenience for the management of Library staff, but also provides a large number of personalized services for readers. We believe that

with the further advancement of informationization, networking and digitalization, personalized bibliographic information push system based on ontology will be widely valued and applied in University libraries. The "Library Management System" is too short, and there will be more or less a loophole, but it will continue to improve in the future maintenance process. For the design of the library management system, not only has a lot of content been learned in college library management and information push. At the same time, it also brings immeasurable effect to the development of university library management, mainly to establish a new library management platform and information push business for colleges and universities, and increase the viscosity of university book management. It enables readers to know the borrowing situation of their books in real time, get the latest news of the library in time, discover and read the books in the same field that they like, and promote personal development more humanely.

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