

The Design and Research of Archives Management System in Colleges and Universities

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Abstract. With the development of the information age, archival information management has become an important research subject of archives management in the new era. The lag of the management of archives information management in colleges and universities has become an obstacle to the progress of archives work in universities. To ensure the healthy development of university archives is an important foundation for the development of colleges and universities, and the construction of archival information is an important cornerstone of archival management. Of this article emphatically analyzes the current situation of the development of university archives informatization construction, the actual demand of shandong traffic institute archives informatization, adopt the method of software engineering, object oriented method, the study and design of the archives management system, based on the J2EE framework, using the Oracle database system, combined with the other application technology, the application system suited to the characteristics of the archives management of colleges and universities.

Introduction

Development in today's world of technology is also in progress at the same time, with the functions of the modern computer is more and more powerful, especially with the rapid development of network function, the combination of computer technology and network technology, the work of human life in the direction of the modernization, the earth-shaking change. The role of information in social life is becoming more and more obvious. In this information society, informatization is the inevitable trend of the development of all trades and professions, and it is the development theme of this era.

File work of colleges and universities is an important basic work of the development in colleges and universities, the archives for the school history, inheriting the important role of school culture, archives work is one of the important standards of the management level in colleges and universities. Along with the progress of the technology, the traditional way of archives work has changed a lot, in colleges and universities, the development of the informationization construction and the application and implementation of the integrated office service system in colleges and universities archives management work has entered into a new era of development. The application of computer and network technology has made archival management work out of the traditional tedious manual operation, and also put forward more demands on archival management. With diversified information construction work in college and universities, the information management process brings a large number of electronic documents, collection of archives digitization also produced a large number of electronic files, the electronic archives resources for effective integration, studying, in order to provide reference for school development decision-making, is one of the major responsibilities of the archives (room). How to manage and utilize these important information resources in a timely and effective manner is an important goal of the research of archival information in the Internet era. The informationization, networking and digitization of archives management in colleges and universities will be one of the important cornerstones for colleges and universities to become more modern management.

This paper combines the actual conditions of our university records management work business requirements, using the method of software engineering in the college archives management system

to carry on the design of the study, in order to achieve an accord with the actual job requirements of archives management application system.

System Requirement Analysis

At present, most of the university archives have adopted the traditional "files" for archival management. File "as the unit of management, but at present, in the form of" file "as a unit for management is a development trend of archives management work, this way of management may be more suitable for modern computer file management. Specific ways you choose need to combined with the actual management mode of the unit, should consider to file of the existing management mode of library, also want to consider the future development of change, so the archives management system, the design should consider compatible with the two different management approaches, and future possible paradigm shift.

Colleges and universities have many of the archive department with information management systems, many need to archive the files directly arising from the information system, the system of electronic document archiving directly, can greatly improve the work efficiency, also can effectively reduce the errors and omissions caused by manual operation, so the desired file management system need to have a high commonality of electronic filing interface. A standardized archiving interface, uniform archiving interface specification, and other application systems are required to follow this uniform standard.

General executive department archives filing work of colleges and universities, the part-time archivists archive department is responsible for the archive collection, inspection, sorting, group work and so on, but as a result of each department personnel mobility, part-time archivists is no guarantee that a longtime by fixed personnel, so the part-time archivists business knowledge and skill levels is usually limited, in this case, the process of sorting files and file group volume, will need to be done by archives professional archivists targeted business guidance.

Main service object of college archives is the internal institutions and staff in colleges and universities, the file using the effective control is an important part of the archives work, and the traditional way is to use paper file using the form, the process is very tedious, sometimes at archives staff sometimes need endorsement from several departments, in order to improve the efficiency of archives utilization and save relevant personnel of time spending, you need to implement using online library and online applications for examination and approval of archives, there for the original electronic files, also can realize electronic library and archives for examination and approval. Through a comprehensive analysis of the results of business research in various aspects, the business framework of archival management system is shown in figure 1.

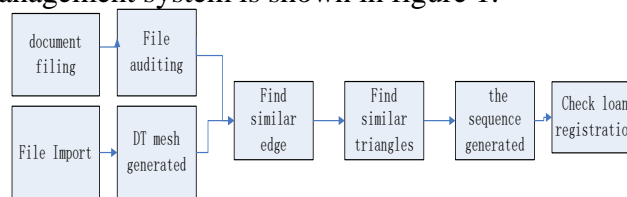


Figure 1. Archive management business processes

All kinds of the books in the library preservation archive information, provide search service to users, to full text search the archive file retrieval (such as archive provides electronic full-text), can also be title and statement of the file, the file size combination conditions such as content retrieval. Retrieved file content based on user permissions, can view, download, such as operation, the user can also apply for check to borrow, can not directly see the download file application for electronic check borrowing or entities borrow, library application of archives management department (archive or the file department) for examination and approval, the user can file for electronic check borrowing (see download), can also go to the archive file entity to borrow.

For electronic check entity's borrowing, lending and file to check lending registration, check the entity library need to refer to (view, extract and copy) was recorded separately by interview together with borrowing (borrow), including lending registration borrowing period. For inventory file details and the use of archives, statistical analysis can be carried out and various reports can be generated.

The Overall Design of the System

Through analyzing the demand of the system, determine the overall architecture of software, start on the system function module design, after classifying the functional requirements planning, the system is divided into five major functional modules: my space, filing, file management, retrieval, use and system management, continue to under five big function module is divided into 16 secondary function module. The main function module partition structure is shown in figure 2.

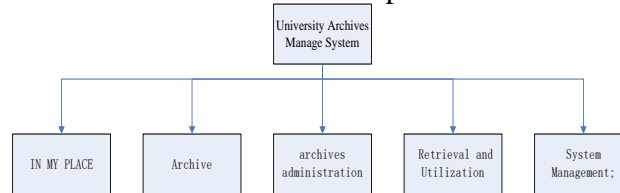


Figure 2. The overall structure of the system function modules

"My space" module is mainly used to record the operations related to user accounts, such as to-do items, self-service items, and message notifications, so that users can process and view the business. The to-do list is mainly used for the user's application, approval, timely and accurate feedback of relevant business, and maintain the normal operation of the system. Modules mainly include to-do categories, add items, and transaction processing. Already backlog items mainly used for the operation of the user has to record, convenient management, mainly including lending and history of two parts, divided into entity library, electronic library, hand over and accept history. Message notification is primarily a notification of a business-related workflow, as well as a quick operation of the relevant business.

To-do function module, first click on the system by the user interface to determine the type of to-do list, and then call the background control class processing category information, continue to pursue item information object storage class reads the details information, and return the item information to the user interface display.

Has dealt a function module, determine the type of item, first click on the system by the user interface control class and then call the background processing category information, continue to pursue item information object storage class reads the user has been transferred to the specific item of information, and return the item information to the user interface display.

Notification module, after entering the interface first call the backend system to read the user's information, all notifications and returns to the system interface, the user clicks on a specific message notice items, background control system according to the specific content, news items generated jump links back to the user interface, the user interface to invoke jump links, transferred to the corresponding page.

File archiving module is the main part of file management system. The functional structure is shown in figure 3. The document archiving module mainly deals with the collection, sorting, group volume and warehousing of the archiving documents. Collect information source has two aspects, one is the description of directly by the user, the second is through the archive interface to get the other application systems of archive information, enter the file system file information, in the form of a workflow, in the ordinary users full-time, part-time archivists, archivists, department heads and other transfer flow between different roles, final set of steps, such as volume, inspect and audit the implementation file archive full process control.

(1) receiving documents: through access to archive data interface, with the file system and other application systems set up between the library in the middle of the form, accept the other application systems to archive, choose to archive file operation, the presentation file into the general process;

(2) archive file maintenance: adding, modifying, deleting, viewing details and uploading of attached electronic files to the entry information of the archive files;

(3) group volume management: combining several archived file items into new files, adding new document items to the files, or existing documents, splitting, assembling, canceling, etc.;

(4) maintenance of the files: add, modify, delete, view details and documents of the text of the text;

(5) the archive process control: the whole process control archive in the form of workflow, including the file or files according to the predefined process flow to the next operation link, or return on a link, and view in the flow process of flow record.

File module is mainly for archives which are stored in the file management system, including the file flow link to view, unfinished treatment the books in the library, archive files management, and so on. The functional structure is shown in figure 3.

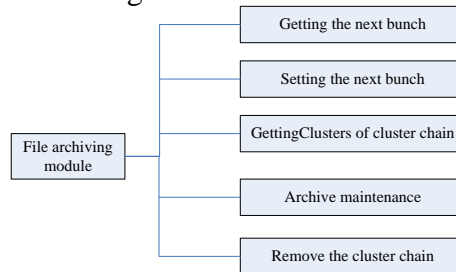


Figure 3. Document archiving module structure diagram

In the process of filing finishing group volume, documents collection, sorting, group volume, writing of the books information work, part-time archivists is mainly responsible for the complete, and in the process of the professional archivists need to track the details of the file work monitoring, so as to find the problems in the archive work, in a timely manner including the books review, grouping and group view.

File management module module mainly used by professional archivists, be responsible for maintenance and management, the official archives, including the existing in the archive files or file entry records to add, modify, delete and upload the electronic file, including the file to add, modify, delete and upload the original archives. Professional archivists to refer to the entity records, duplicate records, loan, and so on and so forth, and lend the file return to return borrowed record logo, and monitor the file out, return borrow registration, including file, file secure operation. The archival statistics module mainly manages the archival files stored in the archives management system, including the statistics of the collection files and the archival rate of archival files, so as to facilitate management. The identification and destruction functions are mainly used to identify the files to be destroyed, and the identification results are in accordance with the records of the destruction conditions.

Lending management module to register operation, the first thing to enter borrower information in the interface, and then inform the background system of borrower borrowing situation of examination and approval, to find related lending approval information system database, find after returned to the user interface, prompt the user to continue lending registration, user input borrowing detailed information, submitted to the backend system for registration, the system will borrow information save to borrow in the registration form, return to the interface and more

New Lending Management View.

To file statistics, the user first choose a statistics on interface, and input statistics, the scope of the condition and then submitted to the backend system, the background system, according to the given conditions, with predefined statistics, statistical query the database objects, the query results returned to the user interface, and update the interface view shows statistical results.

Search module is the main entrance to the user query archives and the archives library, users can use the home page to file for a simple search and advanced search, and the fuzzy query and full-text retrieval. Retrieved the files or file as a result, in addition to direct view its details, for there is not enough permission to view the content, may directly file library application, then fill out the borrow application form and open up a lending process.

System Management

Workflow definition refers to archive the files the flow sequence of normal regulation, convenient and standardized management, definition can also be used in the process of manage graphical interface, eventually can be used to activate, also includes modifying, and deleting of workflow. The

system administrator manages the system user and increases the user or user's permission, including user and role additions, modifications, deletions, and change management of role permissions.

Organization management is a department of links to file management system management module, as a result of changes in the institutions, integration and the resulting agency operation permission to change are within the scope of its operation, such as specific include add and remove institutions, institutional evolution and the classification of the file. To the operation of the system is done by different roles, such as full-time administrator and part-time administrator, but can have different levels of administrator permissions cannot be the same, otherwise it will do great harm to archive the files storage security, and control of the administrator privileges is through the access control of its role has implemented, the specific will contain the user control and role control two parts. Log view is mainly a record of operation of the administrator to facilitate the understanding of the current situation of the files in the system, and also provide the log export service.

The workflow definition, you click on add link function, the user to enter link Settings page, the link Settings page, users can set the link, the flow of data, link to participate in the name of the personnel, and other details, and then the new link to save information submitted to the background system, the background system table insert this information into the working process, save after a successful return to the user interface, and refresh the link list.

Using user management module, modify the user information system administrator to open the user management interface, submit a request to the backend system first, get the user list, the system reads the user information from the user information table, the user information list returned to the client interface, and refresh the user list view, when a system administrator choose to modify a user's information, will enter the user information editing interface, enter the user information, submitted to the backend system, the system will be modified information update to the user information table, modify after successful return, to update the user list view again.

The Realization of University Archives Management System

Overall system adopts B/S mode, the browser using HTML + CSS + JavaScript dynamic web technology, using AJAX technology and to communicate with the server, dynamic web page technology can have more than the traditional static page can be interactive, AJAX communication consuming less network traffic, the body after the page loads, the entire page is no longer whole refresh, only the local data and to change the refresh the page elements, so that the user interaction with the system response is more fast, more friendly interface.

System main interface using tabbed window mode, the user can open multiple business module, at the same time free to switch between the different business module, the module of users switch will not interrupt the current business operation process, the design can meet the functional requirements of work in complex cases users. When the user log into the system, due to the characteristics of the archives work to serve as the ultimate goal, most systems use, person that use is archives query so the system default to provide users with the initial page is to use the home page, the user through the home page can be used to directly file retrieval operation.

When the data grid control after successful completion of the initialization, the use of the automatically initialization time provide a URL, call server-side Servlet, the Servlet will call business logic object access data persistence layer, and returns the message data fill the grid.

Here is the Servlet configuration information for the server:

```
<servlet>
<display.name>SelfMessage< / display•-name>
<servlet name>SelfMessage< / servlet name>
<servlet-class>ams.servlet.SelfMessageServlet< / servlet-class>
< / servlet>
<servlet-mapping>
<servlet name>SelfMessage< / servlet name>
<url.pattern> / SelfMessage< / url•-pattern>
< / servlet-mapping>
```


The Servlet class invokes the business logic method in BusinessManager, which is handled by the business manager, and returns the processing results.

The data persistence of the archive management system is done using the Hibernate framework. Hibernate is a widely used object relational mapping (ORM) solution, it was carried out on the JDBC encapsulation, allows developers to operate with object oriented database, and don't need to care about the implementation details of the database operation, makes developers don't have to write the JDBC code, can focus on the processing of object relationships, very suitable for object oriented software development, and can easily transplant between different database system, as long as change the attributes of the database in the configuration of description.

When the software to complete the final design unit, each function module assembling, integrate them into a complete software system, need to integrate the whole unit, module, function test, check the interfaces between the components and connections can work properly. The system function, workflow, data change and business rules of the test software meet the user's expected requirements, as well as whether the software operation process, interface design and so on are reasonable and consistent.

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