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Development of Comprehensive Archives Management Information System Based on B/S Structure

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Abstract*:* In this paper, the main purpose is to evelop a set of comprehensive file management information system applied to the Internet. By analyzing the advantages and disadvantages of the original file management system, combining B / S technology and Java programming language, through the analysis of the requirements of the information integrated file management system, the core functions of the system are obtained, and the main modules of the integrated file management system are designed and described. The test results show that the functions of the system meet the expected technical specifications, meet the design requirements, and have the characteristics of supporting cross-platform access and meeting the needs of different users.

Keywords High-speed Ethernet, Electromagnetic performance, Crosstalk

INTRODUCTION

With the development of science and technology, the information of human hunting is becoming more and more extensive, and more and more valuable data are generated.[Park, *et. al.*, 2016] The traditional archival recording mode can no longer meet the collection and query of archival information in this information age. Therefore, the management of archives has been paid attention to in various fields, and the digitization of archives is urgent. [Yara, *et. al*., 2015] Therefore, our central government has put forward a new requirement to the file management cause, and the Outline of the 13th Five-year Plan for the development of national archives has set the direction and goal of the development of the file cause: by 2020, the modernization of file management with information as the core is realized, and the information process of the file management is accelerated. [Andrade, *et. al.*, 2016] To promote the construction of the digital archives,50% of the country will start the digital archives construction project or build the digital archives.

The traditional file management model itself has serious problems, and it has not been able to meet the needs of the information construction. [McKenna, *et. al.*, 2018] These problems are mainly reflected in the following aspects, for example, the classification specification of the archives is not clear, the description standard is not uniform, the collection of the archives is large, the storage means are too single, easy to be damaged or the loss is serious, the maintenance is not easy, the query and utilization rate of the file information is low, and so on. [McArthur, *et. al.*, 2015] Considering the problems in the traditional file system, it is urgent to adopt an advanced, normative and adaptable software architecture to realize the digitization of the files. Using the current mainstream Web technology, a digital file management system based on Java EE B / S architecture is designed and implemented in this paper. Compared with the digital file management system of traditional C/S architecture, the system management has no platform limitation, supports multi-database, has the characteristics of centralized management and easy upgrade.

TECHNICAL METHODS AND MAIN TOOLS

B/S Structure

The B/ S structure is a network structure model that has emerged after the emergence of the web with the development of the Internet. This model unifies the client and allows the core business processing to be completed on the server side. You only need to install a browser on your own computer or hand, and you can interact with the database through the web server.

J2EE Program Design

Java EE architecture mainly includes presentation layer, control layer, business logic layer, data layer, domain object layer.

Presentation layer: this layer consists of a large number of JSP pages, PDF views or related pages, responsible for collecting user requests and rendering background processing results.

Control layer: this layer is composed of related controllers, which mainly intercept requests sent by users, and can call the methods of relevant business logic modules to process all kinds of requests from users. Finally, the processed results are returned to the corresponding presentation layer according to different conditions.

Business logic layer: this layer is composed of related business logic objects, which are the concrete

implementation of the logic methods needed by the whole system.

Data layer: also known as DAO (Data Access Object), this layer is mainly for database creation, increase, delete, change and other operations.

Domain object layer: this layer is mainly provided to the data layer by some common, traditional Java objects.

Spring Framework

Spring is a lightweight development framework based on J2EE platform, which is mainly based on IOC mechanism and tangent-oriented transaction management mechanism. at the same time, it supports a variety of persistence layer technologies. Spring design framework is widely used. The whole Spring framework mainly consists of more than 20 modules, and each module is divided into several categories: core container, data access set, Web, AOP, tool, message, test, as shown in figure 1.

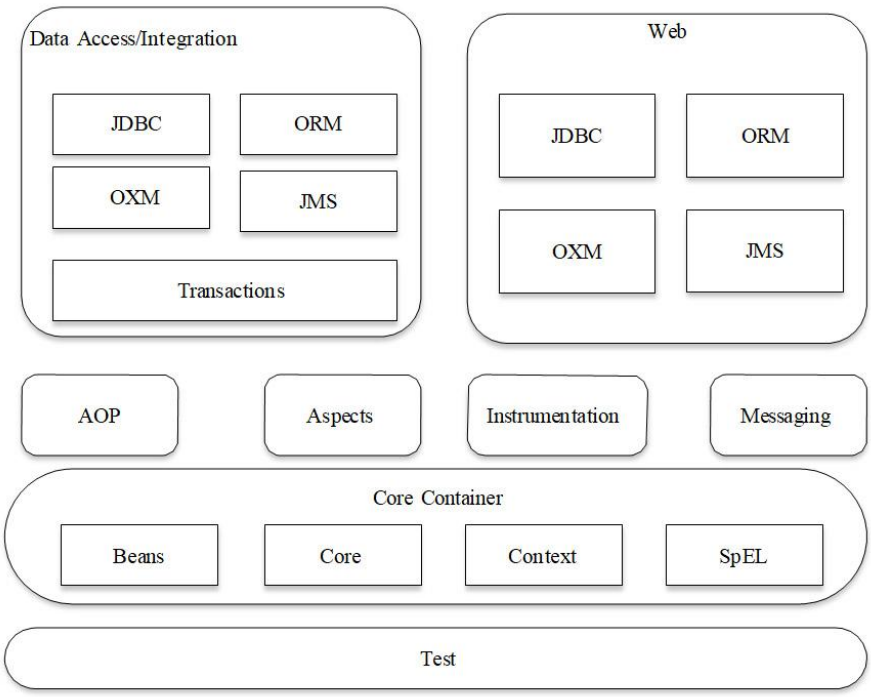

Figure 1 Spring Framework for Integrated Archives Management Information system

Lucene Toolkit

Lucene is an important open source project in the Apache Jakarta family, and is also one of the most popular full-text search kits[11]. The main features of Lucene are as follows:

(1) A text tool that has to be searched according to a keyword;

(2) The data is stored on the hard disk, and the data is binary text, which can not be opened directly;

(3) There is no need to install the Lucene program;

(4) No other tools need to be installed, just import the relevant jar package of Lucene to your web project;

(5) No database, no table concept, only data;

(6) No memory consumption, at most some of the hard disk space;

(7) Access speed is high;

(8) Java can access data in the Lucene index library.

Because of these characteristics of Lucene, the search function of many current applications is based on Lucene. The most familiar example is the search function of Eclipseundefineds help system. Lucene has the features of indexing text-type data, so Lucene can index and search its documentfor all of the documents that can convert data to text[12][13][14]. For example, a PDF or HTML document can be converted into text format, and its contents can be indexed, and then the corresponding index file can be stored on memory or disk, and then can be searched according to the input conditions. The Lucene and search applications are shown in figure 2.

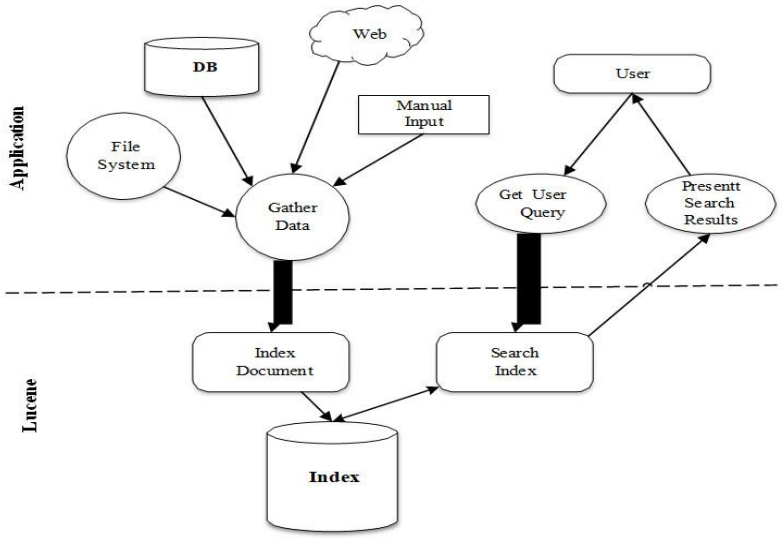

Figure 2. Lucerne and Search Application Block Diagram

THE REALIZATION OF THE SYSTEM

Design of Archives Management Module

The archive management module in this system is mainly for the archive management personnel to manage the archived documents, and the archive management module in the current system mainly includes data management and file statistics.

(1) Data management. It is mainly used to add, find, delete and modify archived documents. The archivists can rerecord archived files in this module. If you need to go in-depth with a file or file, you can choose to go back to the integration library, and then re-adjust and re-organize the archive operation in the integrated library as required.

(2) Archives statistics. In the digital file management system, the module manages the file data according to the requirements. The system is mainly displayed in the form of tables.

Design of Information Retrieval Module

The search content involved in the current digital file management system information retrieval module mainly includes the file entry information and the electronic file content information which have been filed. Therefore, the information retrieval module in the system mainly establishes index information for the entry information of the archive file and the content of the electronic file.

Due to the difference of the corresponding file types and the customizability of the file types, the data structure corresponding to the information content of different items is different, so the corresponding table fields stored in the database are changed. In the file type customization of the file setting sub-module, the file type required by the system is added by adding the function, and the file type is flexibly customized by adding or modifying the field. The database structure involved here is shown in Table 1 and Table 2 below.

Table 1 Basic Information Table of File Types

Field meaning	Field name	Field type	Empty or not
ID	SYSCODE	VARCHAR2(32)	N
Code	LIBCODE	VARCHAR2(16)	N
Name	CHNAME	VARCHAR2(250)	N
Type	ATYPE	VARCHAR2(32)	N
Display sequence	SNO	INTEGER	Y
Situation	STATUS	INTEGER	N

Table 2 Field Definition Basic Property Information Table

Field definition	Field name	Field type	Empty or not
Name of data form	FIELDTBLNAME	VARCHAR2(32)	N
ID	SYSCODE	VARCHAR2(32)	N
Number	SNO	INTEGER	N
English name	FIELDNAME	VARCHAR2(32)	N
Chinese name	CHNAME	VARCHAR2(64)	N
Field type	FIELDTYPE	INTEGER	N
Field length	FIELDLENGTH	INTEGER	Y
Field category	FCATTR	INTEGER	N

In the file type customization module, the basic data of each newly added file type is stored in the above two tables. Then the corresponding file type is configured to the corresponding whole family through the system setting function, and the file type corresponding to the root of the database will be generated into four tables. For example: U_EFILE1_0001, U_FILE1_0001, U Vol 1 < 001, U ⩽ PRJ 1 ⩽ 001, the field name, type and length in each table are generated according to the field of FIELDNAME,FIELDTYPE,FIELDLENGTH of SYS_FIELD. The whole information retrieval module is to index the first three tables in the above four tables.

CONCLUSION

After efforts, the major modules of the system have been completed, through the test of each function has achieved the desired goals. The system has the following advantages with respect to the currently available file management system solution. 1) The B/ S architecture of the system is cost-effective and is suitable for tidal current development. 2) The system supports multiple databases, users can configure the corresponding database according to their own needs.3) The automatic processing of the customized workflow of the system improves the

level of the automatic office of the digital file management system.

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