

## CASE SUMMARY

# LIBRARY SYSTEM BY JAVA SERVLET AND JSP

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### Keywords

library system , web based system, Java Servlet, JSP

### Abstract

Today, the management of books by computer systems has been popularized in many libraries in cities, offices, and schools. However, there are still many management systems constructed by Microsoft Excel or Access in many libraries. In this case, administrators feel difficult and troublesome to insert new data or update information of books because they need to modify data of books directly. The performance of the machines will decrease when we handle enormous size of data. Moreover, it is hard to publish information on the web and cause inconvenience for users because they aren't able to search and reserve books they want anytime,anywhere.

Therefore we constructed the library system by Java Servlet and JSP. The system provides functions of management for books to administrators, and also equips functions of retrieving and reserving books to users.

## INTRODUCTION

The system has two large functions for both users and administrators. One is retrieving and reserving books easily on the web pages, and the other is administrating books in libraries on the web pages through them.



Figure 1. System for users

Basically, this system is divided into two main functions. One is “System for users” as shown in the figure 1. This system provides its functions of retrieve and reserving books for users. The other is “System for administrators” as shown in the figure 2. This system provides its functions of management of books and users, and daily transactions like lending and returning books.

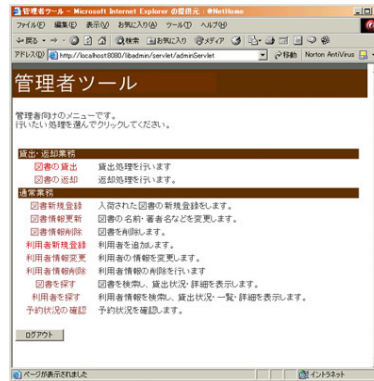


Figure 2. System for administrators

## SYSTEM SPECIFICATION

The interface of “System for users” is web pages written by JSP and HTML. The users handle it through only the web browsers. The System for users provides functions of searching books, reserving books, and confirming what users are borrowing. The System for administrators provides functions that contains lending and returning transaction, books management, users management, and checking status of reservation of books.

In case users retrieve books with System for users, they have only to input words related to books they want, as shown in the figure 3. When users reserve books, users need to input an user ID and a password for authentication that will be created by this system and given by administrators when users are registered.

The interface of “System for administrators” is also attained through web pages. For instance, if administrators want to insert information of books to the database, all they have to do is to input some required information as the book’s name, author, and so on. Figure 4 shows registration of new books.

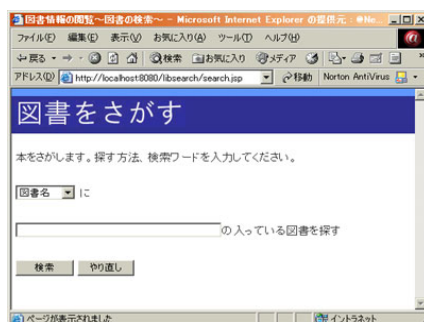


Figure 3. Retrieving Books



Figure 4. Registering new books

## SYSTEM CONFIGURATION AND IMPLEMENTATION

This system was built with Java Servlet and JSP (Java Server Pages), and operated on the windows 2000 server and Tomcat 3.2.1 as a web server. We adopt MySQL as a database engine because MySQL is easier to be introduced on Windows environment, and runs as quick as other database engines on the market.

There are three reasons that we selected Java Servlet and JSP. First, the Java Servlet technology is more stable than CGI on the multitasking environment. Second, Servlet has the function of “session” that is used for keeping the status of connections from users or administrators in the system. Third, easiness of development and serviceability will increase because the program codes are divided into the “Model-View-Control” model, Java Beans as “Model” that execute database transactions, JSPs as “View” that provide looks and feels to users and administrators, and Servlet classes as “Control” that keep connections’ information and instruct JSPs and Java Beans to do their functions.

The system is, as shown in figure 5, oriented to “Model-View-Control” as we mentioned above. First, users and administrators send requests to the web server through web browser. For example, administrators are about to modify some books’ information. Once Servlet on the web server receives the request, Servlet indicates Java Classes to execute transaction logics. After MySQL server adopts modification on the database, Servlet commands JSPs to show web pages with data that Java Classes obtained from the database.

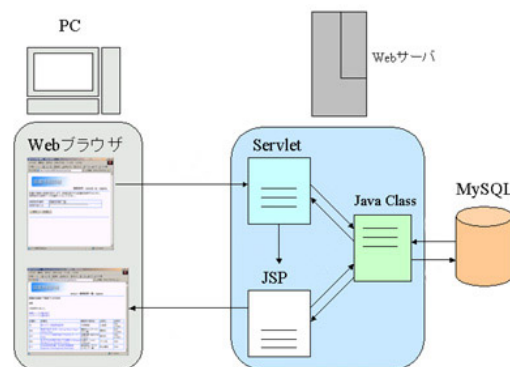


Figure 5. System implementation

## EVALUATION

The members of our seminar and some students performed the evaluation of this system. The system was highly evaluated on the point that users and administrators can operate the system visually and it equips a function of authentication.

But there are some problems on this system. In order to better its usability, we have to improve two points. One is implementation of a bar code reader. The other is extension of functions that are more useful for administrators. For example, the system sends e-mails for warning automatically to borrowers who don't return books until the date.

## **CONCLUSION**

Introduction of this system enables users to search and reserve books of libraries through the web browser visually. Administrators also come to be able to manage books and execute transactions of lending and returning books with it, too. Using web browser interface raises usability for users and administrators, and constructing the system as a web application provides superior accessibility through WWW.

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