2013

Introduction to Database Systems (Final Project)

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Section I: INTRODUCTION

1.1 Team Members and their Responsibilities

Team Members: Aly-Shah Jamal 3110300115, 恩梦 3110300116，曹珊3110100638

Responsibilities (Proposal):
All: General project design includes designing what tables are going to be necessary in the database, their relationships, requirements as far as what will be enforced and data types and the reports will be generated.

Planning Phase: Job delegation and time frames
All: Create tables in database, add data to database, update entity relationship model, update object model, update schema, update data dictionary, update use case diagram, and statements, normalization diagrams, implementation narrative, features summary table. Uses of a login interface.

Implementation Phase:
Login Interface in PHP – Aly-Shah Jamal & 恩梦
Database Interface and website design in PHP and HTML -曹珊
Project Report – Aly-Shah Jamal

1.2 Problem Statement & Requirements Definition

We decided to create a database that can help organize a library. Definitions of tables can be seen in Section 3: Statements.

1.3 Objectives & Purpose

The objective of the project is to prepare a database and a website depicting a library with a administration login page. This project allows us to identify and implement the uses of ODBC, MySQL Server along with a serving-side scripting language designed for web development.

1.4 Project Description (Plan)

The project plan is, fundamentally, to create a library complete with an administrator login page using PHP scripting which will be connected to MySQL.

1.5 Instruments & Materials

- MySQL
- PHP
- HTML
- UI from Bootstrap.com

Section II: MODULES

2.1 Modules

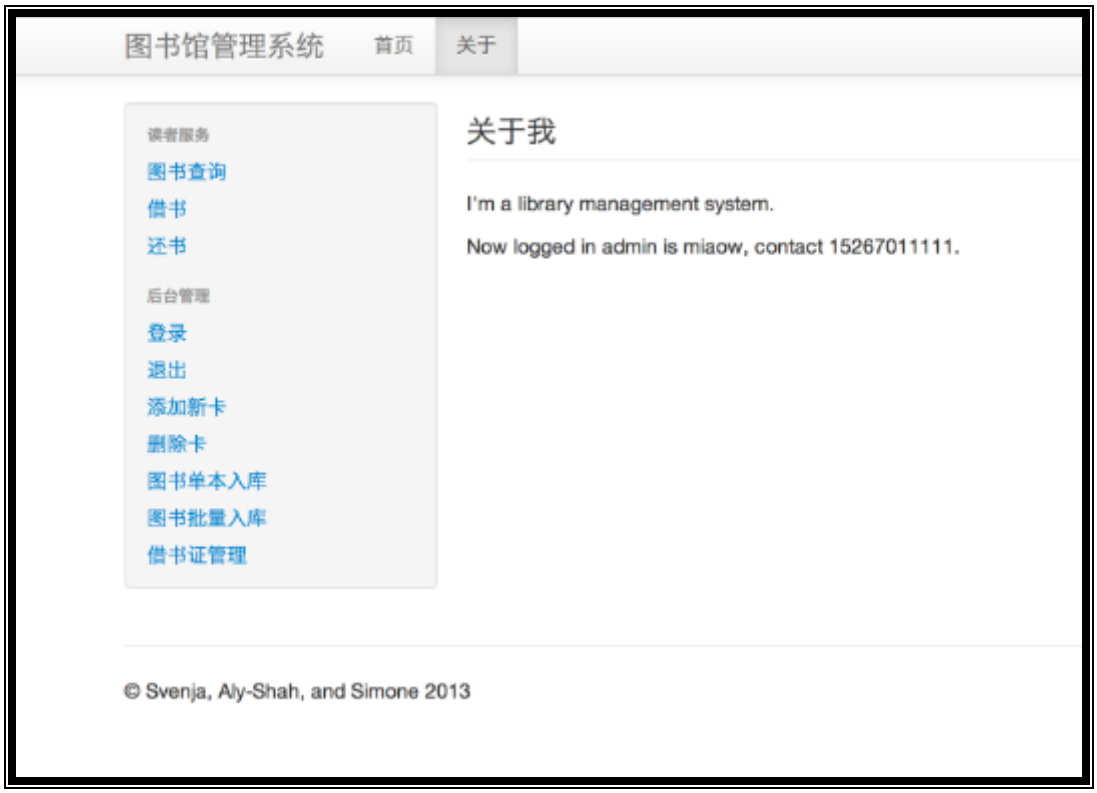


Figure 3.1 Main Page

In this project, we made use of 6 distinguishable modules that allowed the administrative the ability to carry out the following actions:

-Add/Change books
-Search for a book
-Borrow a book
-Return a book

Also, a login/logout user interface was also implemented, allowing for a more secure database library system.

I. Add/Change Book Module

The purpose of this module was to allow the administrative user the ability to add or change books to the database list. The Administrator can choose to add a single or set of books. In order to add this information into the database system, one needs to type in the information of the book. No information regard any specific type of book should be omitted. However, to change the details of a books, one needs only to type in an already existing book_id, click on the "edit" tab, input the new information, click enter and the system will be updated.

Figure 3.2: add batch book

Figure 3.3: add single book

II. Search Book Module

The purpose of this module was to allow the administrative user the ability to search for a specific title or a specific range of books, such as fiction, non-fiction, science, medicine, and so on in the database list. On our website, the user can type in any information into the search engine that will allow one to search for the book. Any blank input will be ignored.

Figure 3.4 Search Book

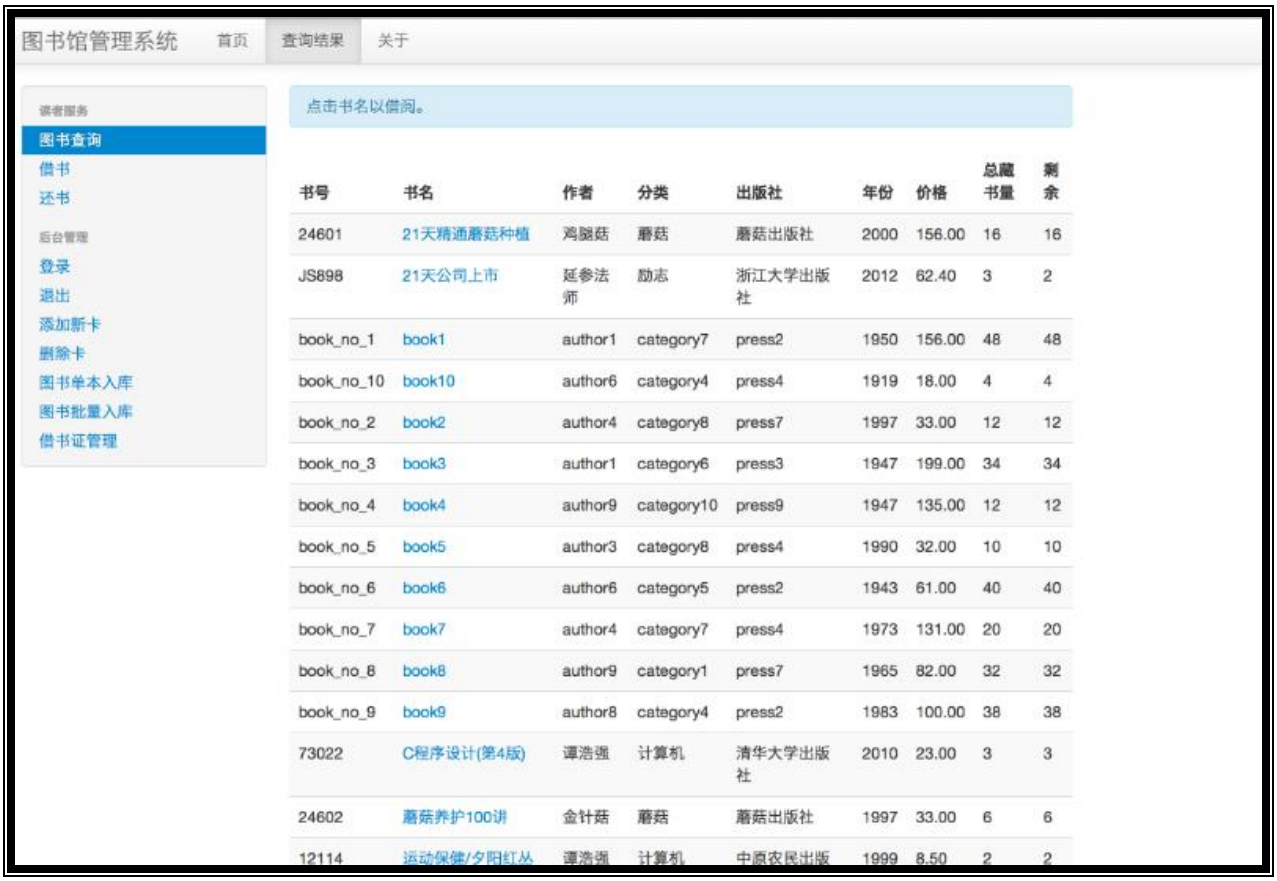


Figure 3.5 Search Book Result

III. Borrow Book Module

The purpose of this module was to allow the administrative user the ability to borrow a specific title or titles and return a list of the borrowed titles. This is available to the Administrator only. In order to borrow a book, one needs have a registered card, then they are able to click the title of the book in the search page or input the title's book_id then click enter in order to complete the "borrow" module. If the book is unavailable, the system will show an alert message regarding the most recent borrow and return dates – so that the future customers will be able to see when the book is available to be borrowed again. The borrower can choose how long they wish to keep the book by means of entering a date (number of days).

Figure 3.6: borrow book

IV. Return Book Module

The purpose of this module was to allow the administrative user the ability to return a specific title or titles and return a list of the returned titles. This is available to the Administrator only. After the confirmation of the card_id and book_id, the book will be returned successfully. Otherwise the user will be prompted to verify the book_id and card_id credentials.

Figure 3.7 Return Book

V. Login/Logout Module

The purpose of this module was to allow the administrative user the ability to have security when using the database library system.

Figure 3.8: login

VI. Card Management Module

The purpose of this module was to allow the administrative user to create, manage and delete their library cards. The user can add or delete a new card and old card respectively. However, an existing card cannot be deleted if there's are any book assigned to this card that have not yet been returned.

Figure 3.9: card management

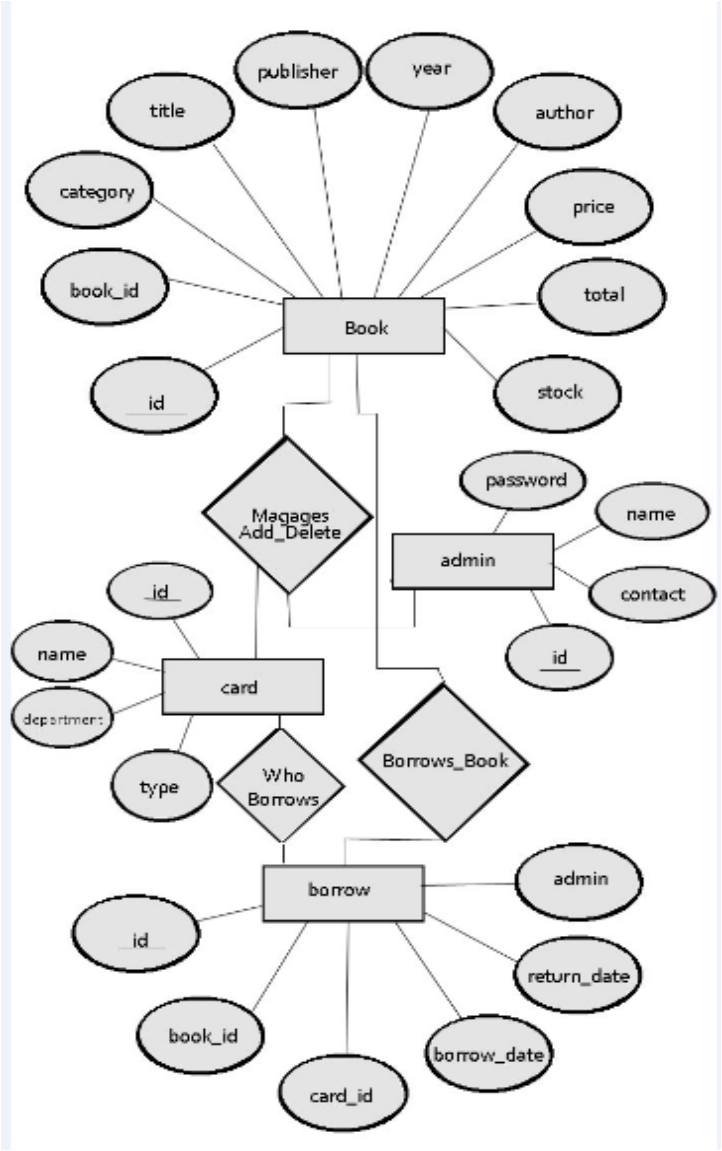
Figure 3.10: add card

Figure 3.11: delete card

2.2 Relational Schema:

book(id, book_id, category, title, publisher, year, author, price, total, stock)
card(id, name, department, type)
admin(id, password, name, contact)
borrow(id, book_id, card_id, borrow_date, limit_date, admin)

2.3 E-R Diagram:



Section IV: Discussion

The purpose and principle of this project was to design a library using information, steps and guides described in lecture and lab experiments. For example, in the last several weeks, in our laboratory experiments, we have been learning the fundamental aspects and usages of SQL Server, ODBC and programming into a database system using another programming language, such as C, C++ and so on. The above information found in the "Modules" section, describes and puts together all the processes, steps and procedures used sequentially in our laboratory experiments.

Using MySQL, PHP, HTML, our team was able to carry out the dictated project instruction. We carried out numerous test cases, processing, we examined the results and were able to further the concept and uses of database. The definitions and respective codes can be found under the heading of Experiment Content and Steps beginning on page 3 of this project report.

Using the reference information guides from texts and online resources, our team was able to implement the specified project design. This was very interesting as we were able to implement the knowledge gained from previous examples, notes and experiments.

Overall, we found this **Database Project** very interesting as we further explored the fundamentals uses of the MySQL and explored how to use of interlacing multiple script languages together in generating a fully working database/webpage service system.

Section V: DECLARATIONS

Final Remarks:
Any additional details about our project that has not been addressed in prior sections (special features or implementations, problems, ideas, future enhancements, etc).

Declaration:
We hereby declare that all the work done in this project titled "Introduction to Database (Final Project)" is of our independent effort as a group.