

Web Programming Languages

CS 6314.001

Project Report: Library Management System

Due on Wednesday December 6, 2017 at 11:59pm

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1 Website name

Sierra

2 Project Description

This is an online library management system. The basic operations include:

- books CRUD
- book borrow & return
- book like and dislike
- book search
- user sign-up, sign-out, profile

3 Assumptions

- All users can see all books in library on home page, before and after login.
- Only admin user can manage book CRUD, borrow and return.

4 Database

```
1 'User'{
2   id: { type: 'string'},
3   name: { type: 'string' },
4   password: { type: 'string' },
5   avatar: { type: 'string' },
6   gender: { type: 'string', enum: ['m', 'f', 'x'] },
7   bio: { type: 'string' },
8   isAdmin: { type: 'boolean'}
9 }
```

```
1 'Library', {
2   admin: {
3     type: Mongolass.Types.ObjectId
4   },
5   name: {
6     type: 'string'
7 },
```

```
8     location: {
9         type: 'string'
10    },
11    author: {
12        type: 'string'
13    },
14    press: {
15        type: 'string'
16    },
17    inventory: {
18        type: 'number'
19    },
20    date: {
21        type: 'string'
22    },
23    score: {
24        type: 'number'
25    },
26    cover: {
27        type: 'string'
28    },
29    introduction: {
30        type: 'string'
31    },
32    pv: {
33        type: 'number'
34    },
35    show: {
36        type: 'boolean'
37    }
38 }
```

```
1 'BorrowBook', {
2     userId: {
3         type: Mongolass.Types.ObjectId,
4     },
5     bookId: {
6         type: Mongolass.Types.ObjectId
7     },
8     bool: {
9         type: 'boolean'
10    },
11    return_time: {
12        type: 'string'
13    }
14 }
```

```
1 'Favorite', {
2     userId: {
3         type: Mongolass.Types.ObjectId,
```

```

4     },
5     bookId: {
6       type: Mongolass.Types.ObjectId
7     },
8     favorite: {
9       type: 'boolean'
10    }
11 }

```

5 Languages & Framework

- Database: MongoDB
- Front-end: HTML5, CSS, Bootstrap, AJAX, JQuery, JavaScript
- Back-end: Node.js, Express.js

6 Screenshots for main functionalities

Figure 1: Sign in

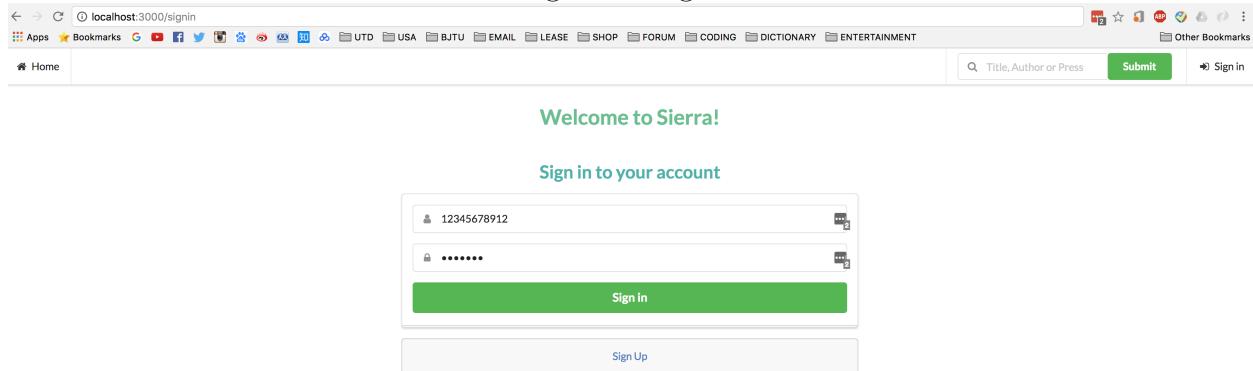


Figure 2: Sign up

The screenshot shows a web browser window with the URL `localhost:3000/signup`. The title bar says "Welcome to Sierra!". The page contains a form for user registration with the following fields:

- Student ID *: Input field containing "12345678912"
- Username *: Input field containing "Your Username"
- Password *: Input field containing "*****"
- Repeat Password *: Input field containing "Repeat your password"
- Gender *: Dropdown menu showing "Male"
- Avatar: Input field with "Choose File" button and "No file chosen" message
- Self Introduction: Text area
- Sign up: Green button at the bottom

The browser toolbar includes links for Apps, Bookmarks, and various websites like UTD, USA, BJTU, EMAIL, LEASE, SHOP, FORUM, CODING, DICTIONARY, and ENTERTAINMENT.

Figure 3: Add book

The screenshot shows a web browser window with the URL `localhost:3000/library`. The title bar says "Add Book". The page contains a form for adding a new book with the following fields:

- Name *: Input field
- Location *: Input field
- Author *: Input field
- Press *: Input field
- Inventory *: Input field
- Published Date *: Input field
- Score *: Input field
- Cover: Input field with "Choose File" button and "No file chosen" message
- Cover Url: Input field
- Introduction *: Text area
- Cancel: Button
- Submit: Green button

The browser toolbar includes links for Apps, Bookmarks, and various websites like UTD, USA, BJTU, EMAIL, LEASE, SHOP, FORUM, CODING, DICTIONARY, and ENTERTAINMENT. At the bottom, there is a navigation bar with links for cover, lizhong, Ethan Brown, O'REILLY, 2011, a star rating (3 stars), Has lent 0 books, 3, View, Edit, and Delete.

Figure 4: Delete book

The screenshot shows a list of books in the Sierra library system. A modal dialog box is centered over the second book in the list, titled "Delete your book". The dialog contains the question "Are you sure you want to delete your books?" with two buttons: "No" (red) and "Yes" (green, checked). The book details visible in the list are:

Cover	Name	Author	Press	Published Date	Score	Borrowed	Inventory	Introduction	Operating
	Web Development with Node.js & Express	Ethan Brown	O'REILLY	2011	★★★★★	Has lent 1 books to 1 person	4	View	Edit Delete
	C++ Primer	Stanley B. Lippman	Addison Wesley	2007	★★★★★	Has lent 0 books	4	View	Edit Delete
	Computer Graphics	Zhang Kang	USA	2002	★★★★★	Has lent 0 books	3	View	Edit Delete
cover	lizhong	Ethan Brown	O'REILLY	2011	★★★★★	Has lent 0 books	3	View	Edit Delete

Figure 5: Edit book

The screenshot shows an "Edit Book" form overlaid on the library list. The form fields are as follows:

- Name*: Web Development with Node.js & Express
- Author*: Ethan Brown
- Press*: O'REILLY
- Inventory*: 4
- Published Date*: 2011
- Score*: 5
- Introduction*: Textbook

At the bottom right of the form are "Cancel" and "Submit" buttons. The underlying library list shows the same four books as Figure 4, with the fourth book's details:

Cover	Name	Author	Press	Published Date	Score	Borrowed	Inventory	Introduction	Operating
cover	lizhong	Ethan Brown	O'REILLY	2011	★★★★★	Has lent 0 books	3	View	Edit Delete

Figure 6: Book information

The screenshot shows a web browser window with the URL `localhost:3000/library/5a24510fa86ddb0613b4a40d`. The page title is "Welcome to Sierra!". Below it, the book title "Web Development with Node and Express" is displayed. To the left is the book cover, which features two birds on a branch. To the right of the title are several details: Book ID: 5a24510fa86ddb0613b4a40d, Location: Tx, Author: Ethan Brown, Press: O'REILLY, Published Date: 2011, Score: ★★★★☆, Inventory: 4, and Pv: 17. A blue button labeled "Borrow One" is visible on the right. At the bottom, there's a section titled "Brief Introduction" with the text "Textbook".

Figure 7: Borrow & Return

The screenshot shows a web browser window with the URL `localhost:3000/quick_borrow`. The page title is "Welcome to Sierra!". Below it, the heading "Quick Borrow & Return" is centered. There are two input fields: one for "Book ID" with a book icon and another for "Reader ID" with a user icon. Below these fields are two buttons: "Return" (gray) and "Borrow" (green). The background of the form area has a light gray gradient.

Figure 8: Home

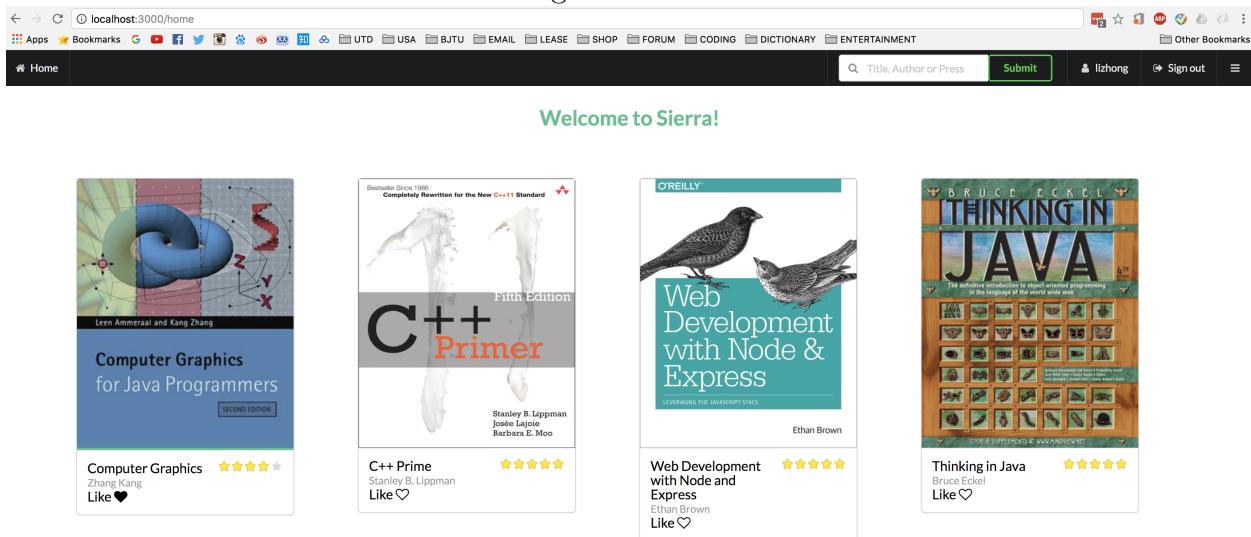


Figure 9: Search

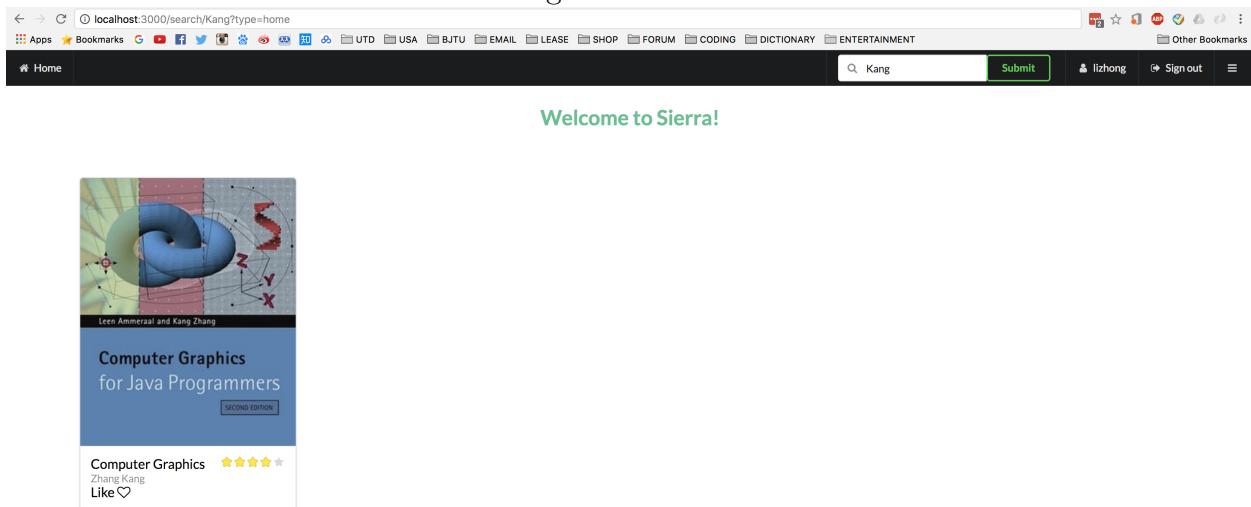


Figure 10: User profile

The screenshot shows a user profile page for 'lizhong'. At the top, there's a navigation bar with links like 'Home', 'Submit', 'Sign out', and 'Other Bookmarks'. Below the navigation is a search bar with placeholder text 'Title, Author or Press' and a 'Submit' button. The main content area starts with a welcome message 'Welcome to Sierra!'. Below it, the user's name 'lizhong' is displayed. A small profile picture of a movie poster is shown next to the text: 'Id: 12345678912', 'Gender: male', and 'Introduction:'. There's also a section for 'Borrowed books' which lists two items: 'Thinking in Java' by Bruce Eckel and 'Web Development with Node & Express' by Ethan Brown.

Figure 11: Library management

The screenshot shows a library management system interface for 'Sierra'. At the top, there's a navigation bar with links like 'Home', 'Submit', 'Sign out', and 'Other Bookmarks'. Below the navigation is a search bar with placeholder text 'Title, Author or Press' and a 'Submit' button. The main content area is a table titled 'Operating' showing a list of books. The columns include 'Cover', 'Name', 'Author', 'Press', 'Published Date', 'Score', 'Borrowed', 'Inventory', 'Introduction', and 'Operating'. The first book listed is 'Web Development with Node & Express' by Ethan Brown, published in 2011, with a score of 5 stars and 4 in inventory. The second book is 'C++ Primer' by Stanley B. Lippman, published in 2009, with a score of 5 stars and 4 in inventory. The third book is 'Computer Graphics for Java Programmers' by Zhang Kang, published in 2002, with a score of 4 stars and 3 in inventory. Each row has 'View', 'Edit', and 'Delete' buttons.

7 Team

- Name: Lizhong Zhang
Net-ID: lxz160730
- Name: Maoming Tang
Net-ID: mxt162330
- Name: Nana Xu
Net-ID: nxx160030

8 Work division

Every team member is actively involved in every step of the project development (database design, client-side and server side scripting) and work is equally divided between team members.

- Lizhong focuses on Back-end route part.
- Maoming focuses on Front-end.
- Nana focuses on Back-end model part and database part.