Simple Networked Library System

There are five "tables" in my system (implemented by Array List), each table comes with several data that will be initialized when the server is started.

User Table		
userId	username	password
0	zhibo@carleton.ca	zhibo
1	yu@carleton.ca	Yu
2	michelle@carleton.ca	Michelle
3	kevin@carleton.ca	Kevin
4	sun@carleton.ca	sun

Constrains:
1. To maintain consistency, the userId is assigned by the system when the user is successfully created.
2. Username has to be a unique email address, which means "@" is required for the input of user creation.

Title Table	
ISBN	booktitle
9781442668584	By the grace of God
9781442616899	Dante's lyric poetry
9781442667181	Courtesy lost
9781611687910	Writing for justice
9781317594277	The act in context

Constrains:
1. ISBN is a unique 13-digit number (read from Wikipedia).

Item Table		
itemId	ISBN	copynumber
0	9781442668584	1
1	9781442616899	1
2	9781442667181	1
3	9781611687910	1

Constrains:
1. To maintain consistency, the itemId is assigned by the system when the item is successfully created.

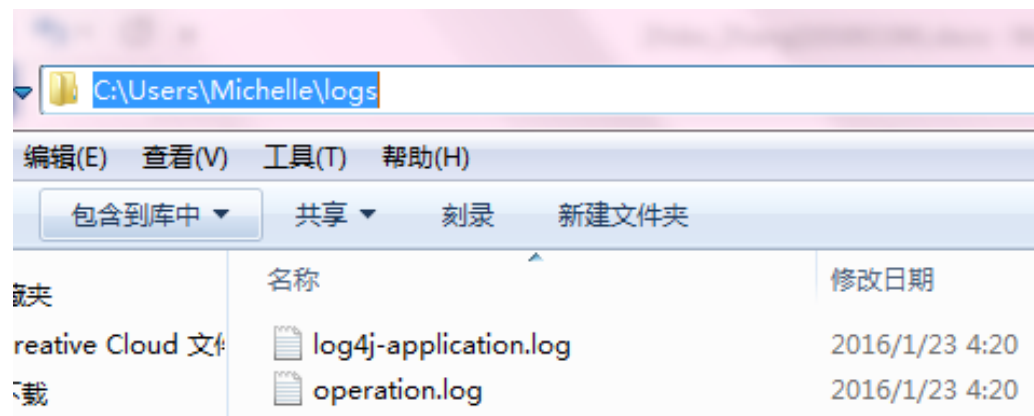| Loan Table				
userId	ISBN	copynumber	date	renewed
0	9781442668584	1	new date()	0

Constrains:
1. Date information will be initialized when the server is started.
2. The column "renewed" indicates how many times this specific loan is renewed. (Due to the business logic, it should be either 0 or 1, 0 means never renewed, 1 means has been renewed once.)
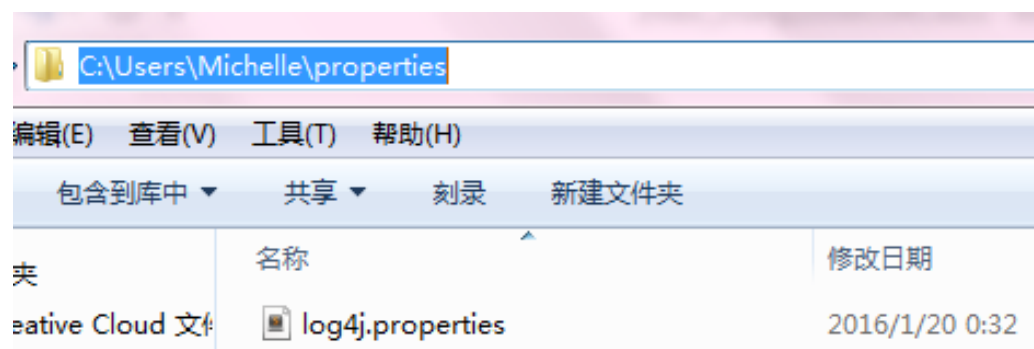
Fee Table	
userId	fee
0	5

SYSTEM INSTALLATION

The system has been exported as two runnable JAR file. They can be run from the cmd line. Pay attention to the logs before running: you need to add the log files in your working directory (where you are going to run the cmd). I have attached the log folder and the properties folder in the demo.zip file.
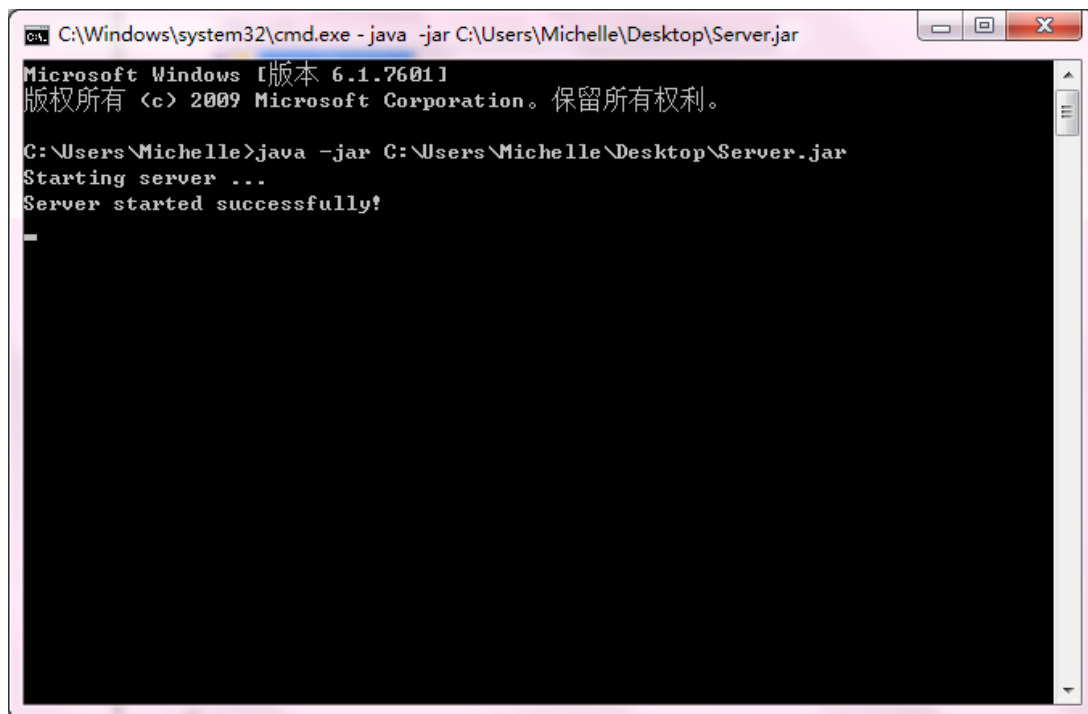
1. Add the log files in your working directory.

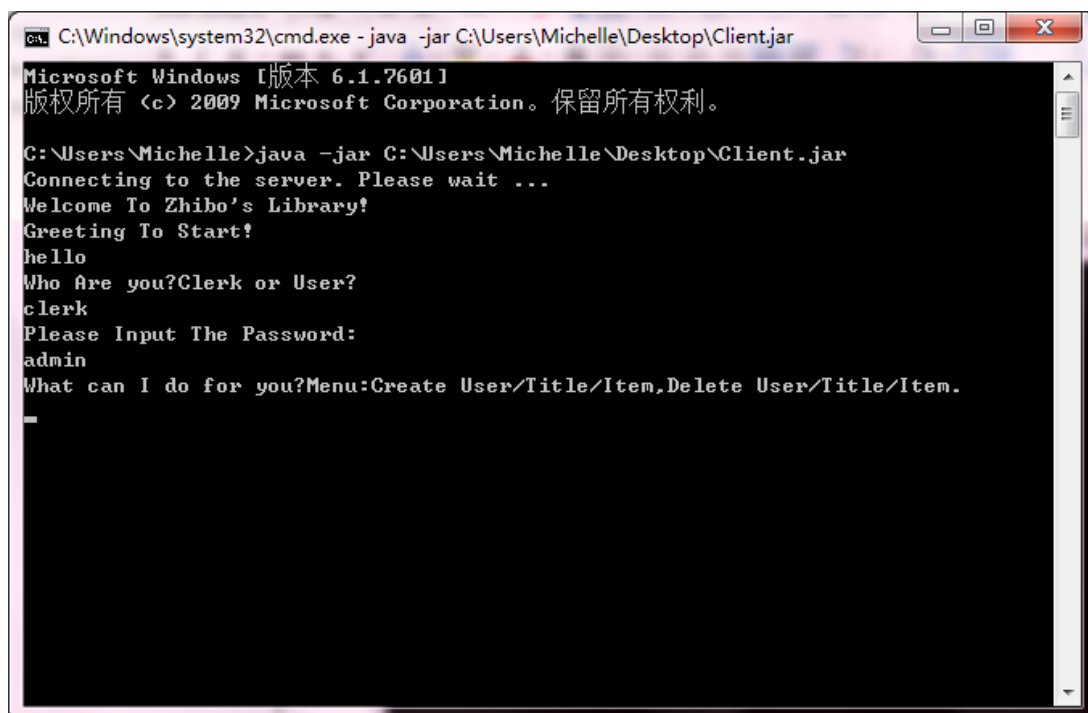2. Add the log4j properties file in your work directory.

3. Run Server.jar in cmd to start the server.

4. Run Client.jar in cmd to start the client.

HOW TO USE

First start the server and start the client as shown above. You can open several terminals and play several roles at the same time, up to 5 clients. Then follow instructions of the system.

1. Input "hello" to start.
2. Choose the role that you want to take: "clerk" or "user".

3. The password for a "clerk" client to log in is "admin".
4. The user needs to login with valid username and password (see table on page 1).
5. The main menu will show up following a successful login.
6. Keywords for clerk: create user, create title, create item, delete user, delete item, delete title
   Keywords for user: borrow, renew, return, pay fine.
7. After choosing from the menu, follow the instructions of the system.
   There are formats for the input: if the system encounters an invalid input format, it will give show the valid format.
8. You are free to do operations in any order.
9. You can use keywords:
   - "main menu" for showing the main menu for the current role,
   - "log out" for logging out from the system,
   - "Exit" to exit from the system and shutdown the current connection.