Checkpoint 4

CS564

The user starts at a login page, which allows them to either login to the application or register a new account:

A screenshot of a computer

AI-generated content may be incorrect.

If the user registers, that calls a stored procedure to add a tuple to the reader table. If the user is logging in, a stored procedure is called to determine whether their username and password match an existing tuple in the reader table.

2. The user is then taken to a navigation page with several options to navigate.

A screenshot of a computer

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If the user clicks on the option to browse bought books, we call a stored procedure that returns all the books that they have bought from the bookstore and stores them in a table:

A screenshot of a computer

AI-generated content may be incorrect.

The user will also be able to buy books from tables with a radio button for “Buy”:

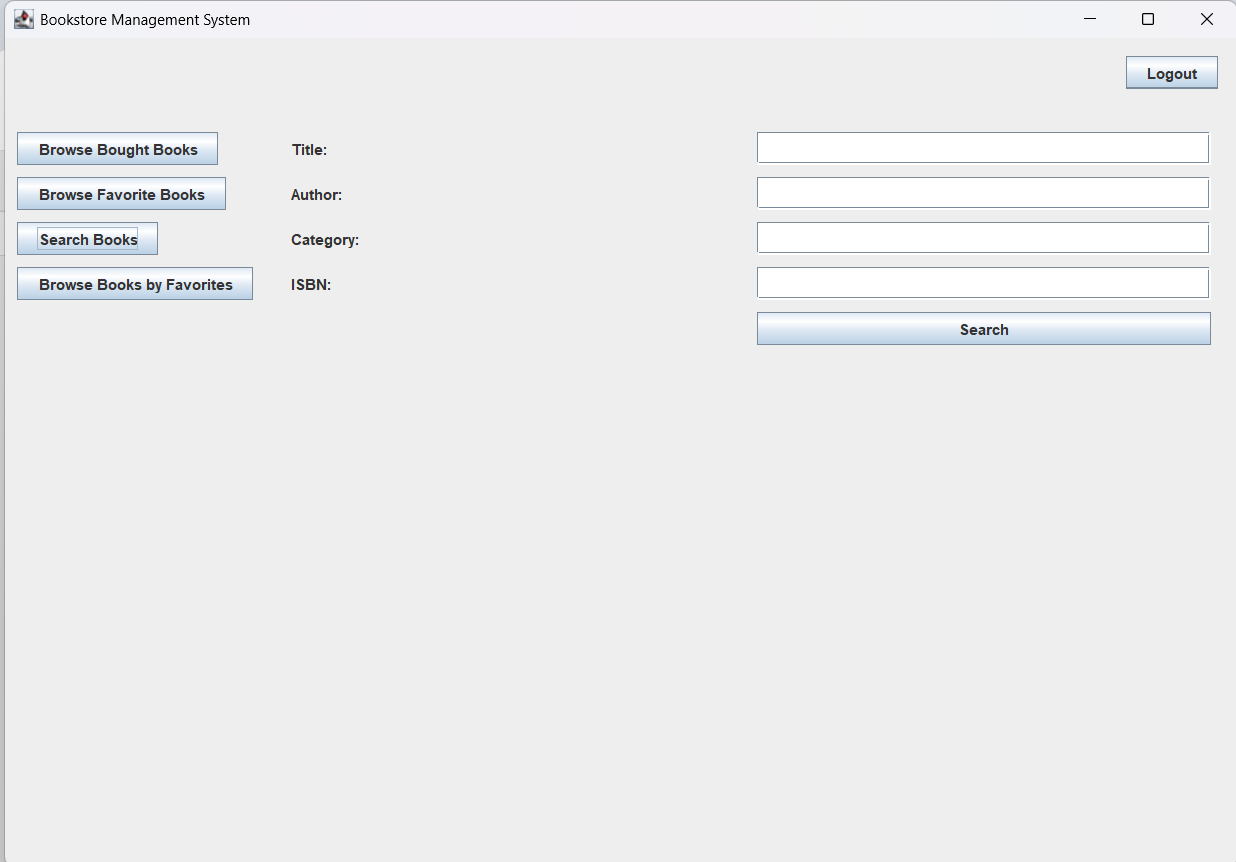
A screenshot of a computer

AI-generated content may be incorrect.

This will be written back to the database and enter the book in our “buys” table. It will also write back an indication to the database that the book was bought to prevent others from buying it. We’ll plan to add UI handling to disable the buy button if the book is flagged as sold.

We plan for a similar screen to allow users to mark books as a favorite.

The above UI will allow the user to search various criteria for books to view by entering strings that are passed to a SQL query on the database.



Objectives and Test Cases

1. Allow the user to find books quickly by searching in the application.
   1. First, test searching by the primary key for books, the isbn\_13. To do that, the user will login, click Search Books, and then enter a known isbn that is in the database. Because that’s the primary key, one and only one tuple will be returned.
   2. With the same workflow, test searching by an isbn\_13 that isn’t in the database. Verify that no books are returned.
   3. Next, test searching by a different row. To do that, the user will login, click Search Books, and then enter a title of a book in the database. The user should be presented with a list showing that book.
   4. Next, test searching by two fields at once. Enter a known title and its isbn\_13. Verify that we return that book.
   5. Next, test searching by two fields but with one of the fields not matching any tuple. For example, a real isbn\_13 with a different title. Verify that we don’t return any tuples as it doesn’t match both criteria.
   6. Attempt a partial match with the isbn\_13 and other fields to verify that we return all tuples that match with the provided information.
2. Allow the user to create an account to track bought and sold books.
   1. Register a new account by entering a new username and password and clicking register. Verify that a new tuple was created in the reader table with the corresponding information and that the user is presented with the initial UI.
   2. Verify that the user is able to login with the same username and password combination that they registered with.
   3. When logged in as a user, click “buy” for one of the books. Verify that a tuple is created in the buys table to represent the transaction and that the button was “buy” button was disabled. Logout and log back in to verify that the button stays disabled between sessions.
   4. Test the favorite button. Verify that a book now appears when browsing by favorites after the book is favorited and that the button is disabled after clicking it. Verify a tuple is created in the favoriteOf table.
3. Provide error recovery and test for stability and performance.
   1. Verify that if the stored procedure doesn’t exist on the database, we show an error message to the user describing the problem. This can be done by deleting the stored procedure directly in MySQL.
   2. Test query performance by searching for a term that will return a large number of results, such as titles containing “the” and clock the response time and make sure it’s within reasonable bounds
   3. Verify that the database connection is closed when the “Exit” button is clicked or the window is closed by calling SHOW PROCESSLIST; in MySQL.
   4. Attempt to create tuples with duplicate primary keys and verify that it’s not allowed. For example, attempt to register the same username multiple times and to favorite or buy the same book multiple times.
   5. Test concurrent access by having multiple application windows open and verify that all test cases still pass when multiple users are logged in.