CSC 242

Lab 1

Develop a **Library** class that can manage the books and patrons from **Exercise 1**. This class should include methods for adding, removing, and finding books and patrons: **addBook**, **addPatron**, **removeBook**, **removePatron**, **findBook**, and **findPatron**, respectively for each. There should also be methods for borrowing and returning a book: **borrowBook** and **returnBook**, respectively. If you have yet to add a data member to keep track of the list of books a patron has borrowed, now would be a good time to do so.

Now, write a driver program to test all of these methods.

Here is an example driver program:

```python
from library import Library
from book import Book
from patron import Patron

def main():
    book1 = Book("Of Mice and Men", "Steinbeck")
    book2 = Book("The Great Gatsby", "Fitzgerald")
    book3 = Book("1984", "Orwell")
    book4 = Book("One Flew Over the Cuckoo's Nest", "Kesey")

    libraryBooks = []
    libraryBooks.append(book1)
    libraryBooks.append(book2)
    libraryBooks.append(book3)
    libraryBooks.append(book4)

    patron1 = Patron("Ivan")
    patron2 = Patron("Jimmy")
    patron3 = Patron("Bob")

    myLibrary = Library(libraryBooks)
    myLibrary.addPatron(patron1)
    myLibrary.addPatron(patron2)
    myLibrary.addPatron(patron3)

    myLibrary.borrowBook(book1, patron2)
    myLibrary.borrowBook(book1, patron3)

    print(str(myLibrary))

    myLibrary.returnBook(book1)

    print(str(myLibrary))


if __name__ == '__main__':
    main()
```

and, the associated output:

Books:
Of Mice and Men, Steinbeck in care of: Jimmy has 1 books.
Waiting:
1. Bob has 0 books.

The Great Gatsby, Fitzgerald and has not been borrowed.
Waiting:

1984, Orwell and has not been borrowed.
Waiting:

One Flew Over the Cuckoo's Nest, Kesey and has not been borrowed.
Waiting:

Patrons:
Ivan has 0 books.
Jimmy has 1 books.
Bob has 0 books.

Returned: Of Mice and Men, Steinbeck in care of: Jimmy has 0 books.
Waiting:
1. Bob has 0 books.

Books:
Of Mice and Men, Steinbeck and has not been borrowed.
Waiting:
1. Bob has 0 books.

The Great Gatsby, Fitzgerald and has not been borrowed.
Waiting:

1984, Orwell and has not been borrowed.
Waiting:

One Flew Over the Cuckoo's Nest, Kesey and has not been borrowed.
Waiting:

Patrons:
Ivan has 0 books.
Jimmy has 0 books.
Bob has 0 books.