

ITEC 4261 JAVA Programming

2022 Spring

Project: Book Reservation System

(Due date: May 3, 23:59pm EST)

This programming project is to develop a simple Book Reservation System for a library that rents and returns books to its registered customers. The system needs to keep track of its rental information (books and customers) and computes rental late fees collected from books rented out to customers.

A library has a variety of books and many customers. Each customer is allowed to rent the maximum of seven books at any time. Upon returning books, the library assistant shall compute the total late return fees if necessary. The maximum rental period of a book is one week. The customer must pay a late return fee of \$3.00 per day for returning each book later than due date.

This Book Reservation System should be developed with **JAVA programming language**.

Your program must provide the following functions to manage the book rental operations:

- a. Add Customer (10 points)
Add new customer information (1. Name, 2. Address, 3. Phone number, 4. Registered date) into the customer list.
- b. Delete Customer (10 points)
Delete an existing customer from the customer list. A customer can only be deleted from the list if a customer has returned all borrowed books or does not borrow any book.
- c. Add Book (10 points)
Add new Book information (1. Title, 2. Author, 3. Publisher, 4. Release date) into the book list.
- d. Rent Book (10 points)
Rent books by a customer. Keep a customer who borrows books under the respective record of Book item, and the availability flag of the Book item must be set to be unavailable. Keep a book which is borrowed by a customer under the respective record of Customer item.
- e. Return Book (20 points)
When a customer shall return borrowed books to the library, the program shall compute the late return fee of books if necessary. The program shall display detailed report for a customer. (For example)

Customer Name: Eugene

Book Title	Number of days Borrowed	No of Days Overdue	Late Fee
Harry Potter	5	0	\$0.00
House of Cards	10	3	\$9.00
Total Late Fee: \$9.00			

- f. Report current books information (20 points)

The program shall display the list of all books rented out to the customers as the following format (or a better format you design).

(For example)

Title	Borrowed by	Availability
MAD MAN	Eugine	No
House of Cards	Eugine	No
Harry Potter	Jonathan	No
Diary of a Wimpy Kid	-	Yes

- g. Report current customers information (20 points)

The program shall display the list of all customers as well as the list of books rented by each of them as the following format (or a better format you design).

(For example)

Customer	Books Borrowed	Due date
Eugine	MAD MAN	1/25/2022
Eugine	House of Cards	1/25/2022
Jonathan	Harry Potter	2/3/2022

- h. (Bonus points) You are encouraged to use your own imagination and ideas to add functionalities to make your program as functional and user-friendly as possible.

Please add the following header before anything else in your program.

```

/*****
* Student Name:
* Date Due:
* Date Submitted:
* Program Name:
* Program Description:
*****/

```

Submission

You should submit **a document and source codes** about your program in D2L. Explain for each function and **show the program results** in the document. If you **don't submit source codes**, your submitted work **will NOT be graded**.