

PRACTICAL EXAMINATION

Subject code: PRO192 – FALL 2023

Duration : 90 minutes

Develop Library management OOP application with following components and requirements

1. Create MVC console application in NetBean:

- a. Define class **User** with following information: **(1 marks)**
 - Attributes: id, firstName, lastName, phoneNumber, balance
 - Methods: constructors, get/set, toString, equals
- b. Define class **Book** with following information: **(1 marks)**
 - Attributes: id, title, authorName, price, amount
 - Methods: constructors, get/set, toString, equals
- c. Define class **Order** with following information: **(1 marks)**
 - Attributes: orderID, userID, bookID, quantity
 - Methods: constructors, get/set
- d. Define class **UIView**, **BookView** and **OrderView** with following methods: **(1 marks)**
 - **UIView**: printUsers method to display information of all users **(0.25 mark)**
 - **BookView**: printBooks method to display information of all books **(0.25 mark)**
 - **OrderView**: printOrders method to display information of all orders **(0.5 mark)**
- e. Define class **UserController** extend **Menu** class with following information: **(1.5 marks)**
 - Attributes: userList
 - Methods: constructors, execute, addUser **(1 mark)**, displayUsers **(0.5 mark)**

Hint: Refer to the LibraryController class
- f. Define class **BookController** with following information: **(3 marks)**
 - Attributes: bookList
 - Methods: constructors, execute, addBook **(1 mark)**, displayBooks **(0.5 mark)**, importBooksFromFile **(1 mark)**, saveBooksToFile **(0.5 mark)**

Hint: Refer to the LibraryController class
- g. Define class **OrderController** with following information: **(1.5 marks)**
 - Attributes: orderList
 - Methods: constructors, execute, addOrder **(1 mark)**, displayOrders **(0.5 mark)**

2. Requirements:

- Create Application class in **default package**
- Create a **utils** package for the Inputter and Validation class.
- Create a **model** package for the User, Book and Order class.
- Create a **view** package for Menu, UIView, BookView and OrderView class.

- Create a **controller** package for LibraryController, UserController, BookController and OrderController class.
- Design the user interface based on the sample images below

```
Library Management System
1. User Management
2. Book Management
3. Order Management
4. Exit
Enter selection:
```

```
User Management
1. Add a new user
2. Display all
3. Exit
Enter selection:
```

```
Book Management
1. Add a new book
2. Display all
3. Load from file
4. Save to file
5. Exit
Enter selection:
```

```
Order Management
1. Add a new order
2. Display all
3. Exit
Enter selection:
```

Notice: Student must strictly follow all requirements as describe above for marking. Any modification the requirement detail is not allowed and will get no mark!