1DT903 Assignment 3. Database programming using Python and MySQL

Contact persons: Alisa Lincke (alisa.lincke@lnu.se) and TAs. For questions, please use the forum on moodle course page or Slack.

Description
This assignment can be done *individually or in groups* (max two students in a group) where you will write a Python (version 3.6 or above) program in Visual Studio Code IDE, which interacts with a MySQL database Server.

Prerequisites: Installed MySQL Server, and MySQL Connector/Python.

Study Materials: Lecture 6

Task 1 Use MySQL Workbench to create and configure the Book Store database (30 points)

1.1 Open MySQL Workbench and connect to MySQL Server

1.2 Create schema with name (**book_store**) for the Book Store database following the Relation Diagram shown in Figure 1.

The database consists of five tables:

Books: This table records information about the books on sale in the book store. Each book is classified under a "subject" to enable subject searches.

Members: This table records information about members of the application. Each member chooses their own user id and password at the time of registration.

Orders: This table records information about orders placed by members place orders. The orders may contain one or more books, and the details of the order are kept in a separate table. A unique order number is generated by the system.

OrderDetails: This table records information about each order, including the *isbn* and quantity of books in the order.

Cart: This table contains *isbn* and quantity of each book placed in the shopping cart of a member. Once a member checks out, the shopping cart is emptied and an order is created.

The MySQLWorkbench symbols notations will be useful for this task:

1.3 Use the provided *books.sql* script to populate the book table.

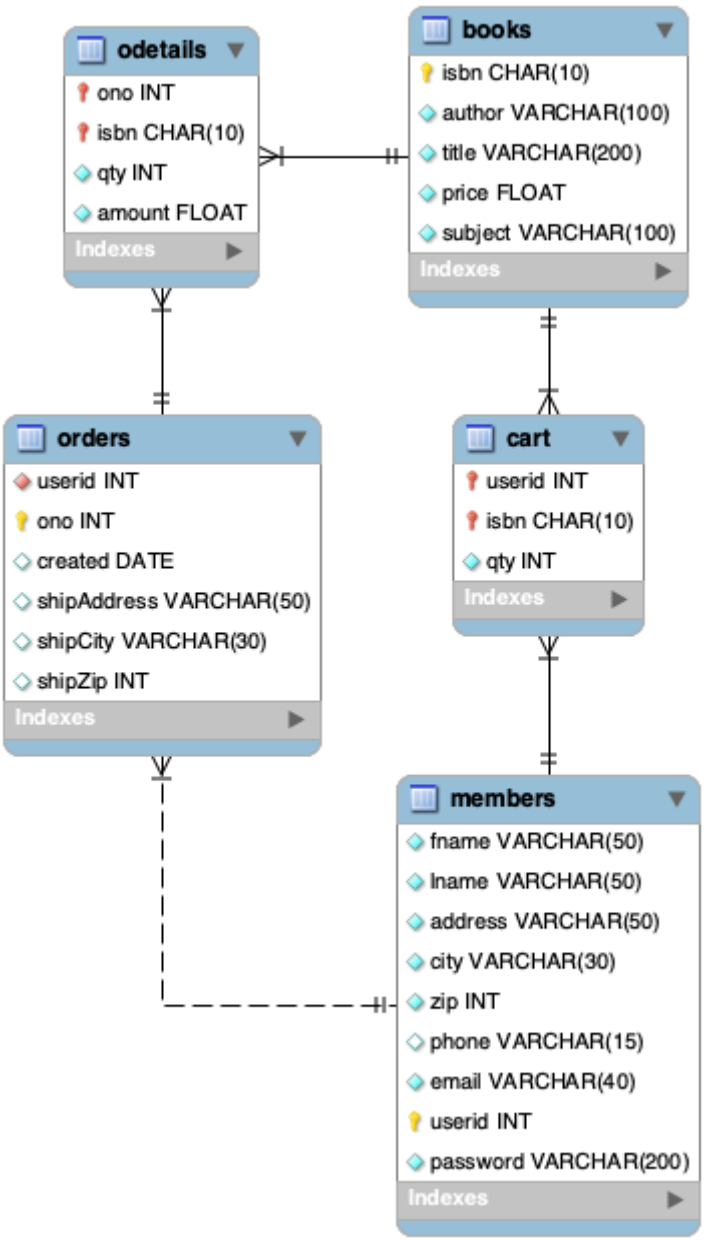

Figure 1. Relation Model Diagram for Book Store Database

Task 2 The BookStore application should be developed as a terminal application in Python language (70 points):

(a) implement the member registration and member login functions, which look like in the image below (**20 points**)

```
**********************************************************************
***                                                                ***
***             Welcome to the Online Book Store                   ***
***                                                                ***
**********************************************************************
                        1. Member Login

                        2. New Member Registration

                        q. Quit

Type in your option: 2

Welcome to the Online Book Store
    New Member Registration

Enter first name: Raj
Enter last name: Sunderraman
Enter street address: 123 Main Street
Enter city: Atlanta
Enter state: GA
Enter zip: 30303
Enter phone: 555-1212
Enter email address: raj@cs.gsu.edu
```

After this, the user should see the message about successfully creating a member. The new member is stored in the database in the member table.

```
You have registered successfully!
Press Enter to go back to Menu
```

The user goes back to the main Menu and selects option 1.

```
**********************************************************************
***                                                                ***
***             Welcome to the Online Book Store                   ***
***                                                                ***
**********************************************************************
                        1. Member Login

                        2. New Member Registration

                        q. Quit
Type in your option: 1

Enter email: raj@cs.gsu.edu
Enter password: raj
```

The user enters the email and password and sees the following options:

```
Enter password: idj
**********************************************************************
***                                                                ***
***                      Welcome to Online Book Store              ***
***                           Member Menu                          ***
***                                                                ***
**********************************************************************

                    1 Browse by Subject

                    2 Check Out

                    3  Logout
```

1. Browse by Subject (30 points): This option should first list all subjects alphabetically; It then allows the user to choose one subject; Upon choosing a subject, the program displays book details (2 books at a time on a screen);

The option allows the user to:

(a) enter isbn to put in the cart;
(b) press ENTER to return to the main menu
(c) press n ENTER to continue browsing

Example:

```
Type in your option: 1

1. Cooking
2. Jokes
3. Sports

Enter your choice: 3

5 books available on this Subject

Author: Dom Parker
Title:  1,001 Baseball Questions Your Friends Can't Answer
ISBN:   0451191323
Price:   22.46
Subject Sports

Author: Timothy Jacobs
Title:  100 Atheletes Who Shaped Sports History
ISBN:   0912517131
Price:   32.56
Subject Sports


Enter ISBN to add to Cart or
n Enter to browse or
ENTER to go back to menu:
0451191323
Enter quantity: 2
```

The information about books added to the cart should be saved in ‘cart’ table.

2 Check Out (20 points)
This option should display an invoice (book information, quantity, and total price); use user's current address for shipping. Finally, an invoice should be printed.

User Interface example:

```
Current Cart Contents:

ISBN        Title                                                    $ Qty   Total
-------------------------------------------------------------------------------
0696201887  Better Homes and Gardens New Cook Book             21.95  2   43.91
-------------------------------------------------------------------------------
Total                                                                    $43.91
-------------------------------------------------------------------------------

 Proceed to check out (Y/N)?: y
```

The order is saved to the Order table with a received date (current date), shipment date (is generated date one week in a head), with shipment address corresponding the member's address provided at registration. And to 'odetails' table save the books (isbn), their quantity, and amount (quantity * book price).

The following order is displayed to the user:

```
                    Invoice for Order no.118

     Shipping Address
     Name:     Raj Sunderraman
     Address:  123 Main Street
               Atlanta
               GA 33333

-------------------------------------------------------------------------------
ISBN        Title                                                  $  Qty   Total
-------------------------------------------------------------------------------
0696201887  Better Homes and Gardens New Cook Book             21.95  2   43.91
-------------------------------------------------------------------------------
Total =                                                                  $43.91
-------------------------------------------------------------------------------

Press enter to go back to Menu
```

Add also information about **estimated delivery date.**

3 Logout
Back to the first menu (Login and registration menu)
4 Quit
Exit the program

Note. Upon receiving incorrect input, the program should provide the user with an appropriate message to correct the input. The code should be well-structured and clean, with appropriate comments. Please **do not make any changes** to the provided database schema. The program interface does not need to be exactly as it is shown in the assignment, it can have a different look but contain the same information.

Submission

Your submission should include solutions to all the tasks above. If you do it in groups, please specify both names in the assignment (in the code comments, or in the console print such as this assignment is done in group by student1@email.address and student2@email.address.
Submit your **python file/files** in moodle.