Web Engineering

Fall 2020

Lab-03

Date: April 19, 2023.

The objective of this lab is to

1. Practice basic python programming concepts.
2. Utilize built-in python data structures like *lists, tuples, and dictionaries.*
3. Practice DRY (don't repeat yourself) via functions.

Instructions!

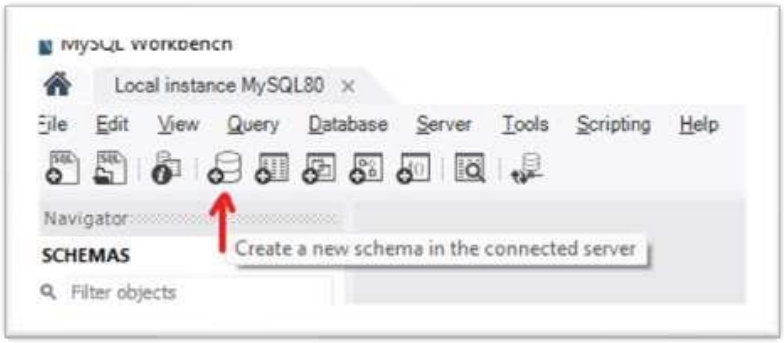
1. This is an individual lab, you are strictly **NOT** allowed to discuss your solutions with your fellow colleagues, even not allowed to ask how is he/she is doing, it may result to**zero marks**.
2. You can **ONLY** discuss this with TAs or Ma'am.
3. Save your work frequently. Make a habit of pressing CTRL+S after every line of code you write.
4. Follow proper coding conventions and put comments where needed.

Task 01

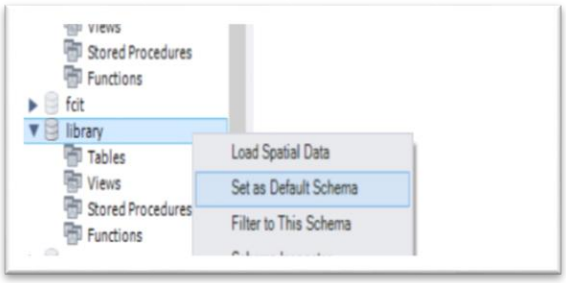
Database creation in MySQL workbench

In this task, you'll learn to create and manipulate a simple database in MySQL workbench. For this

- Create a database named 'library'.
  Once you have installed and connected to the local server of the database, you can do so by clicking on this icon.



Once the schema is created, refresh and right-click on the newly created DB to set and use it as default.



Create the following tables given data attributes in the DB.

- Librarian
  - id <unique, not null, auto-increment>
  - username <unique, not null >
  - password<not null>
- Book
  - id <unique, not null, auto-increment>
  - bookTitle <not null >
  - price<not null>
  - author<not null>
  - EAN<not null>
  - group <not null >
  - publisher<not null>
  - title<not null>
  - checkDigit<not null>

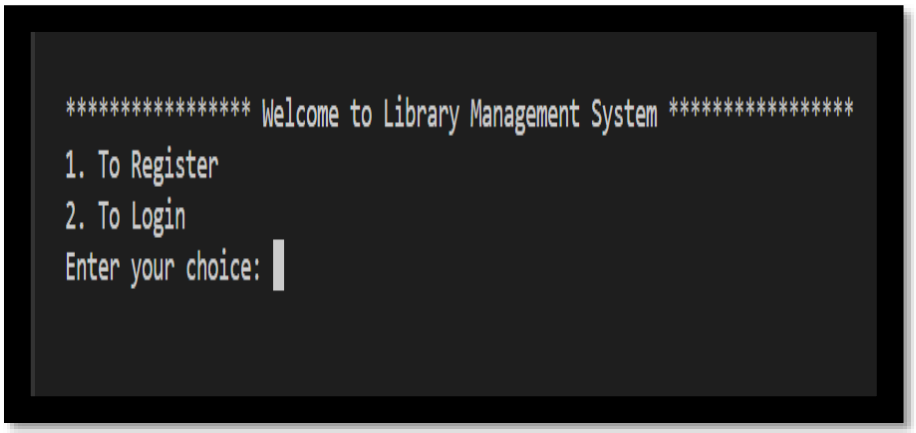
Task 02

A Library Management System

Now you've DB, with the required tables and their data. In this task, you'll create a menu-based program to handle this data with python (using PyMySQL).

Scenario: A menu-based program that'll let the Librarian to register or login into his account
and perform simple operations.

i. Register
ii. Login
iii. Add Book
iv. Update Book Details
v. Delete Book
vi. Search Book



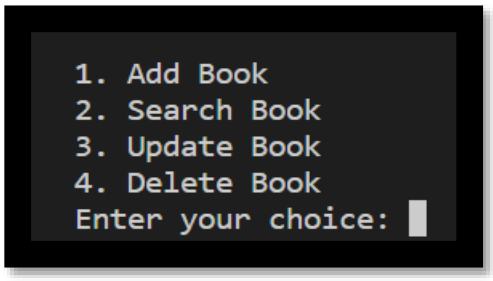
Signup:
Librarian will enter username and password information to sign up to your system.

- Password should be greater than 8 characters.

Login:
o Librarian will enter username and password to login to his account.

- You should properly report the invalid credentials entry to the user.

When Librarian login with the correct details, the following menu will appear.

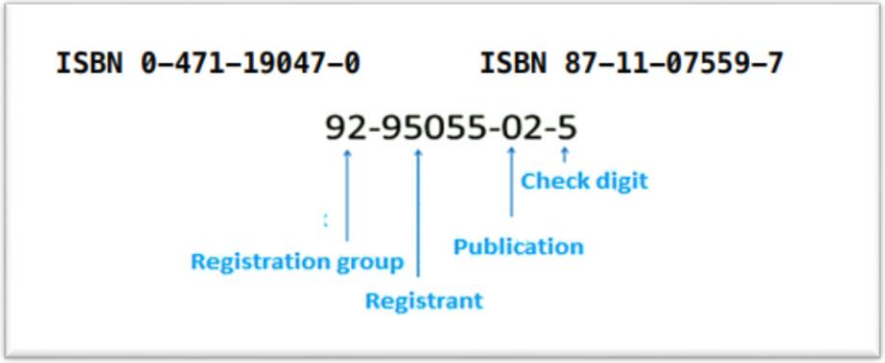


- **Add Book:**
  o When the Librarian select the add book option, the following details will be asked from him.

```
Enter book title: Harry Potter and the Half Blood Prince
Enter author name: J.K. Rowling
Enter price: 2500
Enter ISBN13 number: 978-0-7475-8110-9
```

It is to be noted that the ISBN is 10-digits long if assigned before 2007, and 13-digits long if assigned on or after 1 January 2007.

An ISBN is a 13 digit **"structured"** number – different parts of the number have different meanings (similar to the ZIP codes). The parts of the number are separated by spaces or hyphens (hyphens are preferred, but not required). The ISBN is broken up into four parts, the sizes of the first three parts are variable but the total number of digits used in these parts must add up to nine. The last digit is a check digit which is calculated from the previous nine digits. The ISBN's are usually printed on the back cover of a book and look like these examples:



For 13-digit ISBN, a 3-digit prefix (978 or 979) is added before 10-digit code. This 3-digit prefix offers more to the book industry. ISBN-13 also conforms with the European Article Number (EAN) barcode format found on most commercial merchandise. ISBN-13 looks like the following example:

Now, it's time to define some validations regarding ISBN13 when adding a book.

- EAN should be 978 or 979.
- The total number of digits used in group, publisher and title must add up to nine.
- There should be one digit in checkdigit.

Search Book:

After searching the book, the data should be presented in the following format.

Title	Author	Price	ISBN13
Harry Potter and the Half Blood Prince	J.K. Rowling	2500	978-0-7475-8110-9

- If the book doesn't exist, your program should return to the menu by display a proper message to the librarian.

"The Book with such information doesn't exist"

Delete Book:

- If the book doesn't exist, your program should return to the menu by display a proper message to the librarian.

"The Book with such information doesn't exist"

Update Book:

- When librarian will update the book info, the above mentioned validations should be followed.

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File Structure of your submission:

1. *Book.py*
2. *Librarian.py*
3. *Main.py*
4. *TablesScreenshoot.pdf*

Book.py:

- You'll implement the book class, with the same attributes as in the database tables.

Librarian.py:

- You'll implement the librarian class, with the same attributes as in the database tables.

Main.py:

- In this file, you'll implement the basic functionality of the program, the menu-based system. If you've done everything so far perfectly, in this file, you'll just need to manage the user input and call a relevant method.

TablesScreenshoot.pdf:

- In this file, you'll attach screenshots of your database table.

Some rules regarding lab.

- Zip all files. The format of Zip file name must be **'yourROLL#_L03'.**
- **As you know, it is an online lab. Anyone caught in an act of plagiarism would be awarded an "F" grade in this Lab course.**

Marking Scheme

DB Tables	**15**
Add+ISBN13 Validation	**5,5**
Update	**5**
Delete	**5**
Search	**5**
Bonus Task (for following all the mentioned output formats)	**10**