Artificial Intelligence

Fall 2020

LAB – 2

The objective of this lab is to: Revise Basic Programming Skills using Python

Course & Lab Instructor: *Dr. Mian Mubashir*

Instructions:

- Gossips are not allowed. So be gentle and do what you know. The lab is not to deduct your sessional marks but to prepare you to achieve good marks in quizzes, mids and finals and finally have good grades. So, try to perform all your tasks on time and on your own.
- Teacher assistants are for your help, so be nice with them.
- Raise your hands if you have some problem and need help from TA.
- Avoid calling them by raising your voice and disturbing the environment of the Lab.
- All tasks should be done in Python
- Good Programming practices should be followed

Task

You have been tasked with creating a library management system that can manage books, their authors, availability. Your system will be using object-oriented programming concepts.

Class Book:

- IBAN (must be a 5-character string)
- Name (string)
- Author (string)
- Issued (bool)

Class Methods:

- Paramterized constructor()
- issue_book(): This function should prompt the user to input the IBAN of a book they wish to issue. If the book is available, it can be issued otherwise not.
- return_book(): This function should prompt the user to input the IBAN of a book they wish to return. First check if the book was issued. If it is, then change the status of the book issued (yes or no).

Global Methods:

- add_book(): This function should prompt the user to input the book's IBAN, name, author. It should then create a Book object with these attributes and add it to a list of books in the library.
- search_book(): This function should prompt the user to input the name or author of a book. It should then search the list of books in the library for any matches and return them to the user.
- show_books(): This function should display all the books in the library along with their attributes.
- Note: You should check that the IBAN input by the user is exactly 5 characters long.

For simplicity, you can assume that there is only one copy of each book in the library.

Instructions for Labs

- First read each line of the file and store it in local variables.
- Pass these local variables in the constructor to create a book object.
- After creating an object, append it in the list.
- Create a Menu Driven Program:

1. Add a book.
2. Search a book.
3. Show all book present in the library.
4. Issue a book
5. Return a book
6. Exit

Upon exiting the list should be written in the file and it should be written in such a way that it can be read again and stored into the list. You are not required to create methods to write or read from file or use the instructions provided as long as your code works. The code must run without errors. Missing a function will cost you less penalty than your program crashing. You can use any built-in library you want.

Note:

Labs are for learning and practicing. You are allowed to look-up syntax on the internet but if you are found using AI tools such as GPT or Co-Pilot, you will be rewarded no marks. The AI model that you are using is trained on the same dataset as your classmate might be using. Plagiarism will result in an F.