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FINAL PROJECT DOCUMENTATION

CS121: ADVANCED COMPUTER PROGRAMMING

Submitted By:

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IT – 2102



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I. PROJECT OVERVIEW

BookKeep: Library manager is a system that will help libraries to manage the books inside it. It will ensure that libraries can efficiently manage the books being added, the books being borrowed, and keep records of the borrowed books.

The system has different functionalities, depending on the user. If the user is an admin, they can add newly added books into the database to ensure that the book is registered into the system. The admin can also remove books if needed. They can also view the borrowed books records throughout from the time the system was implemented until the present record, can view all the books recorded, and the books that are borrowed as of the moment. The system was made with the programming language python, using modules like Tkinter for the graphical user interface, and MySQL connector to connect and modify data using MySQL database. Some features that are not yet included but could be considered for updates are search functions for the users, for them to easily find the book they are searching for. The target users of the system will be newly started libraries or smaller scale libraries, because it can only cater limited functionalities.

The project aims to lessen the time of managing records of libraries, knowing that managing the books shelf by shelf could be a hassle for people, and it could consume so much time. If the system can reduce at least an hour of the librarian on managing the library, it could be a big help for them, for the time spared could be used for other works, like cleaning shelves and such.



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II. PYTHON CONCEPTS AND LIBRARIES

Python Tkinter

The module for Tkinter was imported into the program, used for the basic Graphical User Interface. Python Tkinter lets the programmer use different commands in order to create an interactive feature on the system, wherein users can see for themselves what the program does and can also manipulate the program by inputting some data and storing them.

MySQL Connector

This module will help the program to establish a connection between MySQL database and Python programming language. After connecting to a MySQL database, the program will have commands that can be used to manipulate and store data. The python program can also inherit MySQL commands, so that the system can be used and reused because there is a storage for data.

Pillow

Python Imaging Library or PIL is a python module that is used to add support for opening, manipulating and integrating different images into the program. This module can be used when the developer wants to insert images so that the GUI is visually appealing to the users.

III. SUSTAINABLE DEVELOPMENT GOALS

There are some SDGs from the 17 sustainable development goals are reflected in the system BooKeep: Library Manager. SDGs helps innovation to be helpful to the society and be sustainable. Some of these are the following:

- **Quality Education-** libraries are essential for students especially on higher forms of education, and helping libraries be more efficient can help its effectiveness and students can utilize the library more because it has a better system, which is a faster way for it to be utilized.



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- **Industry, Innovation, and Infrastructure-** systems like these could help on mobilizing industries because small scale changes on smaller systems could give big impact, like improving the library system, it can help not only students, but also people in the industry to research efficiently because it is less hassle for them to learn more through the books in the library.
- **Responsible Consumption and Production-** promoting libraries using systems like these helps people become responsible consumers because instead of buying books, reading it for once, and for it only to end up on their shelves because they're done reading it, they can just borrow books, and return it after reading. This way, we can lessen the production of books, because producing things that are used only for once could lead to other problems.



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IV. PROGRAM/SYSTEM INSTRUCTIONS

a. Home Page

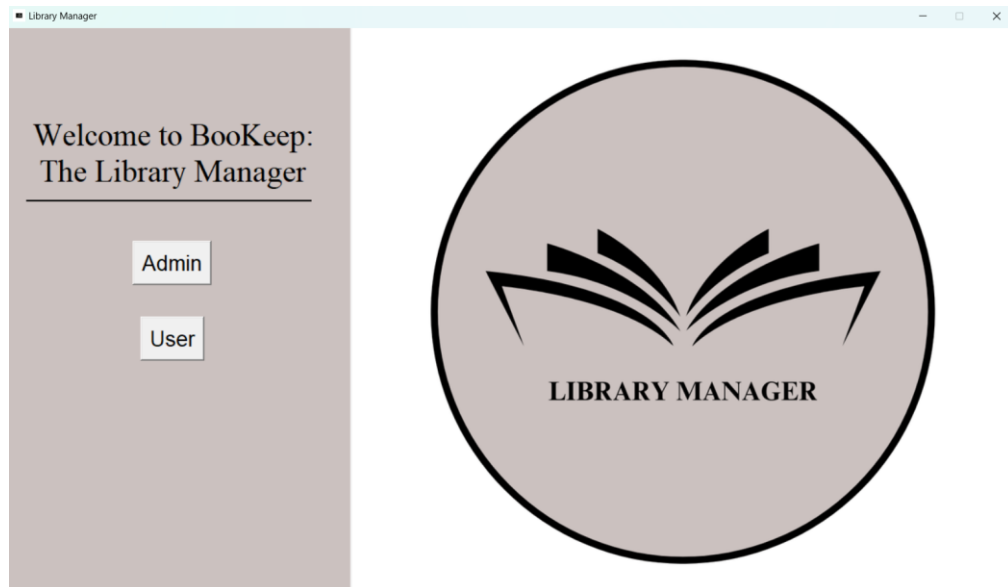


Figure 1.1

Figure 1.1 shows the homepage of BooKeep: Library Manager. The homepage includes the buttons of choices. The admin button will redirect you to a window wherein you'll need the password (as shown in **Figure 1.2**) for accessing the admin privileges and features. The default password is "123".

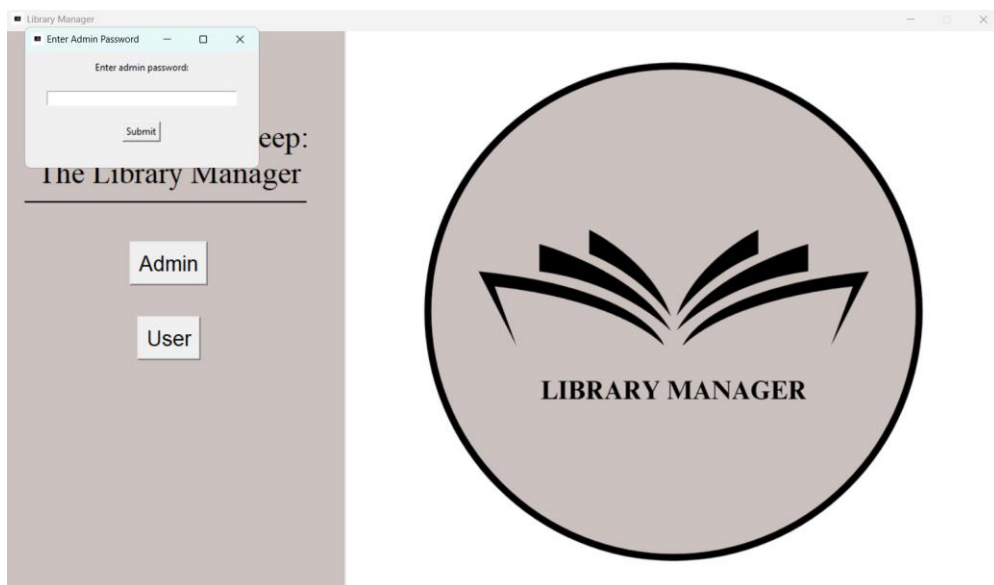


Figure 1.2



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b. Admin page

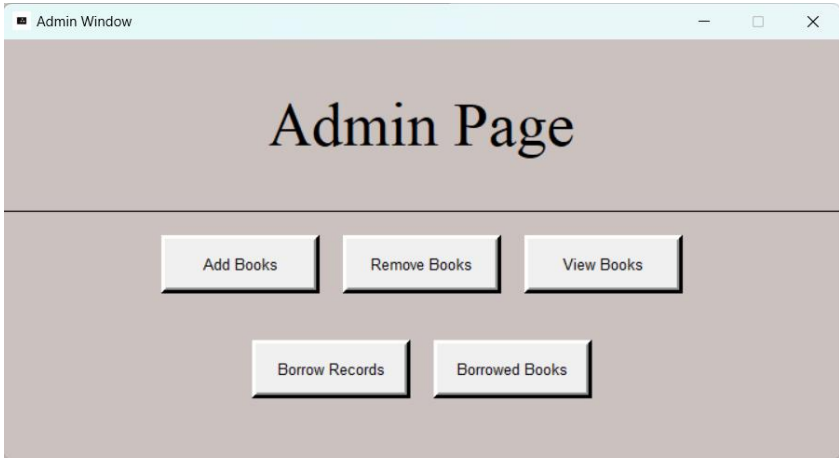


Figure 1.3

Figure 1.3 shows the admin page after accessing it with the default admin password. There are 5 features that the admin can access. The buttons add books, remove books, view books, borrow records, and borrowed books will lead you to these different features.



Figure 1.4

Registering books is one of the features of the admin. The admin can input the title, author, publisher, year published, and the DDC or the shelf number of the book to be registered. After clicking the submit book button, as shown in Figure 1.4, the newly registered book's data will be transferred to the database.



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Remove Books

Remove Books from the Library

Book ID:

Remove Book

Figure 1.5

The admin can also remove books from the database, wherein they will remove it using the specific ID for that specific book. The library may have the same book, but it won't be affected as the removal of the book from the database will rely on its unique ID.

View Books

Books in the Library

ID	Title	Author	Publisher	Publication Year	DDC
1	Pride and Prejudice	Jane Austen	N/A	1813	823
2	1984	George Orwell	Secker and Warburg	1949	823
3	Crime and Punishment	Fyodor Dostoevsky	Penguin Classics	1866	742
4	Hamlet	William Shakespeare	N/A	1623	822
5	One Hundred Years of Solitude	Gabriel Garcia Marquez	Editorial Sudamericana	1967	863
6	Anna Karenina	Leo Tolstoy	Macrae Smith Company	1919	891
7	The Odyssey	Homer	N/A	1488	883
8	The Stranger	Albert Camus	Vintage International	1989	843
9	The Brothers Karamazov	Fyodor Dostoevsky	Farrar, Straus and Giroux	2002	891
10	Great Expectations	Charles Dickens	Oxford University Press	1998	823

Figure 1.6

Upon clicking the view books in the admin window, Figure 1.6 will show up, where it will show all the books in the library that has been added into the system. This table will keep the records of the books added, and show the details such as the title, author, publisher, publication year, and DDC classification of the book.



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Borrower's Log					
ID	Borrower Name	Borrow Date	Return Date	Book ID	
1	Jiro Carag	2024-12-02	2024-12-04	4	4
2	Mira Balino	2024-12-01	2024-12-05	8	8

Figure 1.7

The borrower’s log window will show all the borrow records throughout the time that the system was implemented. The purpose of the table is to keep records in case of book damages, or loss. It will also help the librarian to track on who’s late for returning books.

Borrowed Books										
Book ID	Borrow ID	Title	Author	Publisher	Publication Year	DDC	Borrow Date	Return Date		
4	1	Hamlet	William Shakespeare	N/A	1623	822	2024-12-02	2024-12-04		
8	2	The Stranger	Albert Camus	Vintage International	1989	843	2024-12-01	2024-12-05		

Figure 1.8

The borrowed books window, on the other hand, will show the details of the borrowed books as of the moment. It could be used to track what book is out for the time being and will eventually be removed after it is returned.



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c. User page



Figure 1.9

The user page shown in Figure 1.9 allows users to choose between borrow books, return book, and view available books. The user window does not need any password to be accessed, unlike the admin page.

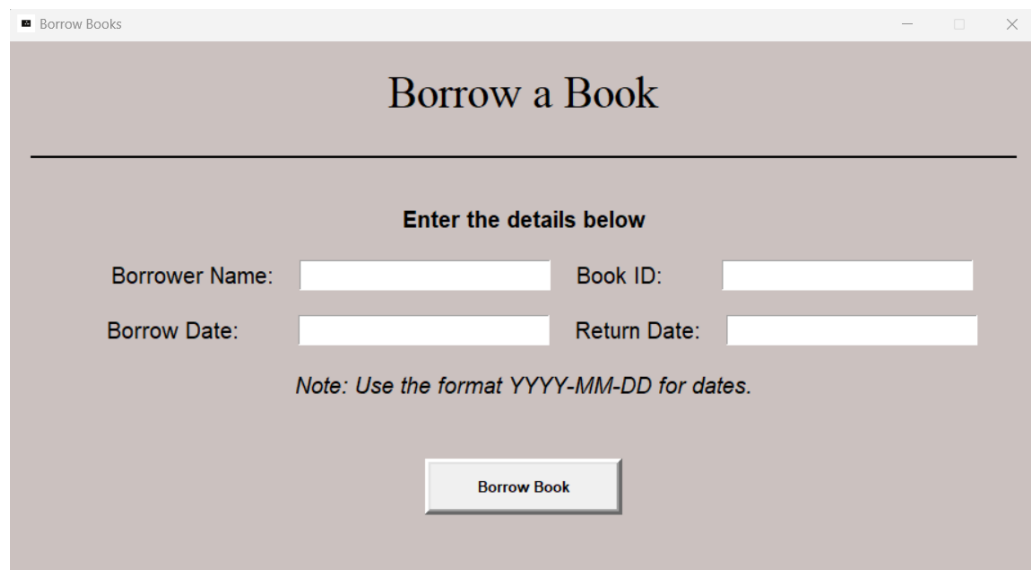


Figure 1.10

If the user wants to borrow a book, they'll click the Borrow Books button from the user window, and the borrow book window will pop-up. The user will then be required to fill-up the necessary details for them to borrow the book that they want.



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ID	Title	Author	Publisher	Publication Year	DDC
1	Pride and Prejudice	Jane Austen	N/A	1813	823
2	1984	George Orwell	Secker and Warburg	1949	823
3	Crime and Punishment	Fyodor Dostoevsky	Penguin Classics	1866	742
5	One Hundred Years of Solitude	Gabriel Garcia Marquez	Editorial Sudamericana	1967	863
6	Anna Karenina	Leo Tolstoy	Macrae Smith Company	1919	891
7	The Odyssey	Homer	N/A	1488	883
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10	Great Expectations	Charles Dickens	Oxford University Press	1998	823

Figure 1.11

The users can access a table where only the available books are shown. All the books borrowed as of the moment won't appear on the table. It is to help readers find books easily than to browse from all the books, including the borrowed ones.

Return the Book to the Library

Book ID:

Figure 1.12

The user can finally return a book using the book Id assigned to the book they borrowed. They will type the ID indicated on the book they borrowed and if they click return book, the book will be returned.