Report on Library Management System using the object-oriented concept in Python

Introduction:

This report outlines the design choices, challenges faced, and solutions implemented during the creation of Library Management System(LMS) development using object-oriented programming class concepts in Python. Here, LMS is designed to provide a solution for managing books and users within the library system.

Design Choices:

There are two class that is implemented in the LMS. The Book Class was designed with attribute title, author, ISBN, and availability status, with methods borrow_book() and return_book(). Where User Class contains attributes like user_id, name, borrowed_books, and methods like borrow_book() and return_book(). There are other methods which are add_book(), remove_book(), display_book() and main().

Challenges Faced and Solution:

There are different challenges faced during the creation of LMS but the main ones that I got stuck with are return_book() and borrow_book method. The return_book() method involves updating the user list of borrowed books and making the book available. But while running the code it shows there is not a single data in the borrowed book part. To overcome this challenge, I designed the return_book() like implementing book_index where it will compare to the length of borrowed books and display the list of borrowed books. So, that I can choose the books in the list of borrowed books to return.

Conclusion:

The challenges encountered during the implementation of the borrow_book() and return_book() methods were successfully addressed through careful design choices and thoughtful solutions. The system ensures data consistency and provides a reliable experience for users.