SPECIFICATION DOCUMENT

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- **System Overview**

  System Functions

  1. **Create User**
     Inputs:
     Username, Password
     Function:
     User Creation is performed using inputs.
  2. **User Authentication**
     Inputs:
     Username, Password
     Function:
     Respective user can login using unique username and password to perform user functions unto book database
  3. **Admin Authentication**
     Inputs:
     Admin Id, Admin password
     Function:
     Respective Admin can login using unique admin id and admin password to perform administrator functions onto database
  4. **User Management**
     Input:
     NIL
     Function:
     Modify username(User Module)
     Modify password(User module)
     Delete user(Admin module)
  5. **Create Books**
     Input:
     Bookid(auto-generated)
     Bookname
     Borrow_date
     Return_date
     Status(Borrowed/Returned)

     Function:
     Creates a new book entry to book table

6. **User Functions**
   Input:
   User Id
   Function:
   Borrow Book
   Return Book
   View Books

User Classes and Characteristics

Operating Environment

Language used: Python

- **Functional Requirements**

1. Admin Module
   - Features (add/update/delete books, manage users)
2. **User Module**
   Features:
   1. User Authentication

```
PS D:\Library_Management_> python -u "d:\Library_Management_\user_auth.py"
~~~ Welcome to Library Management System ~~~
1.Admin Authentication
2.User Authentication
3.Exit
Enter:2
----User Authentication:----
1.New User
2.Login
Enter:2
Enter Username:def_0
Enter password:def_0
def_0 has been given access to Library
Press ENTER
```

2. View all books

```
---USER LIBRARY---
1.View All Books
2.Borrow a book
3.Return Books
4.User Status
5.Exit
Enter:1
BOOK_ID ** BOOK_NAME ** AVAILABLE_BOOKS ** TOTAL_BOOKS
3000    book_0  2       3
3001    book_1  1       3
3002    book_2  3       3
3003    book_3  1       3
3004    book_4  2       3
Press Enter to go Back.
```

3. Borrow a book

```
---USER LIBRARY---
1.View All Books
2.Borrow a book
3.Return Books
4.User Status
5.Exit
Enter:2
BOOK_ID ** BOOK_NAME ** AVAILABLE_BOOKS ** TOTAL_BOOKS
3000    book_0  2       3
3001    book_1  1       3
3002    book_2  3       3
3003    book_3  1       3
3004    book_4  2       3
Do you wish to borrow books(y/n):y
You can borrow 3 books.
Enter Book id(press X to Exit):3000
Book Borrowed.
Enter Book id(press X to Exit):x
Number of books taken is 1
----Current User Status:----
Total number of books taken:1

BOOK_ID ** USER_ID ** BORROW_DATE ** DUE_DATE ** RETURN_DATE ** FINE ** STATUS
3000 ** def_0 ** 2024-07-02 ** 2024-07-12 ** None ** 0 ** B

Press Enter to return.
```

4. Return a book

```
---USER LIBRARY---
1.View All Books
2.Borrow a book
3.Return Books
4.User Status
5.Exit
Enter:3
---- Books with User:----
Number of books taken:1

BOOK_ID ** USER_ID ** BORROW_DATE ** DUE_DATE ** RETURN_DATE ** FINE ** STATUS
3000 ** def_0 ** 2024-07-02 ** 2024-07-12 ** None ** 0 ** B

Which Book would you like to return:(Book id)3000
Book 3000 is returned.
Fine:0
No fine pending
Press ENTER to exit
```

Features (search/view books, borrow/return books, user login/registration)

- **Database Design**
  - Schema
  - Tables and Relationships
- **Interface Design**
  - Admin Interface
  - User Interface
- **Appendices**
  - References:

    https://i.pinimg.com/originals/cb/7b/c5/cb7bc57d5f2a7471bcda3ec55df848f8.png
  - Abbreviations:
    B: Borrowed
    R: Returned