DIGITAL LIBRARY MANAGEMENT SYSTEM

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INTRODUCTION

- This project implements a digital library system.

- It aims to make the use of library user friendly and easier.

- It aims to reduce the time consumed for finding book and the workload of the library employees.

ABSTRACT

➢ It has provisions for

1. User to search and preview books
2. Know availability of books
3. Search for a book
4. View their records

HARDWARE AND SOFTWARE SPECIFICATIONS

➢ Software used

1. Operating system   : Windows 10

2. Database   : MySQL

3. Programming Language : Python

HARDWARE USED

1. Processor   : Intel core i3

2. Memory size   : 8 GB of RAM

3. Input   : Mouse/Keyboard

SYSTEM STUDY

EXISTING SYSTEM

- Any information regarding book, its availability or ranking has to be recorder at the library.

- User have to browse the library manually to find a book with required content.

- In short the existing system has a lot of disadvantages.

- Limited knowledge.

- There is no record of books in PDF format.

- No implementation of GUI.

- Less interaction.

SYSTEM PROPOSED

The application can search for all the books by title, author and know if it is available or not .

This aims to overcome drawbacks of existing system and:

- Reduce time and effort to find books and members.

- Make the use of library user friendly and efficient.

- Improve efficiency and quality of service.

➢ This Application allows different features :

1. Book Details

2. Member Details

3. Transactions

4. Reports

BOOK DETAILS

- Add book
- Edit book
- Delete book
- Search book

MEMBER DETAILS

- Add Member
- Edit Member
- Delete Member
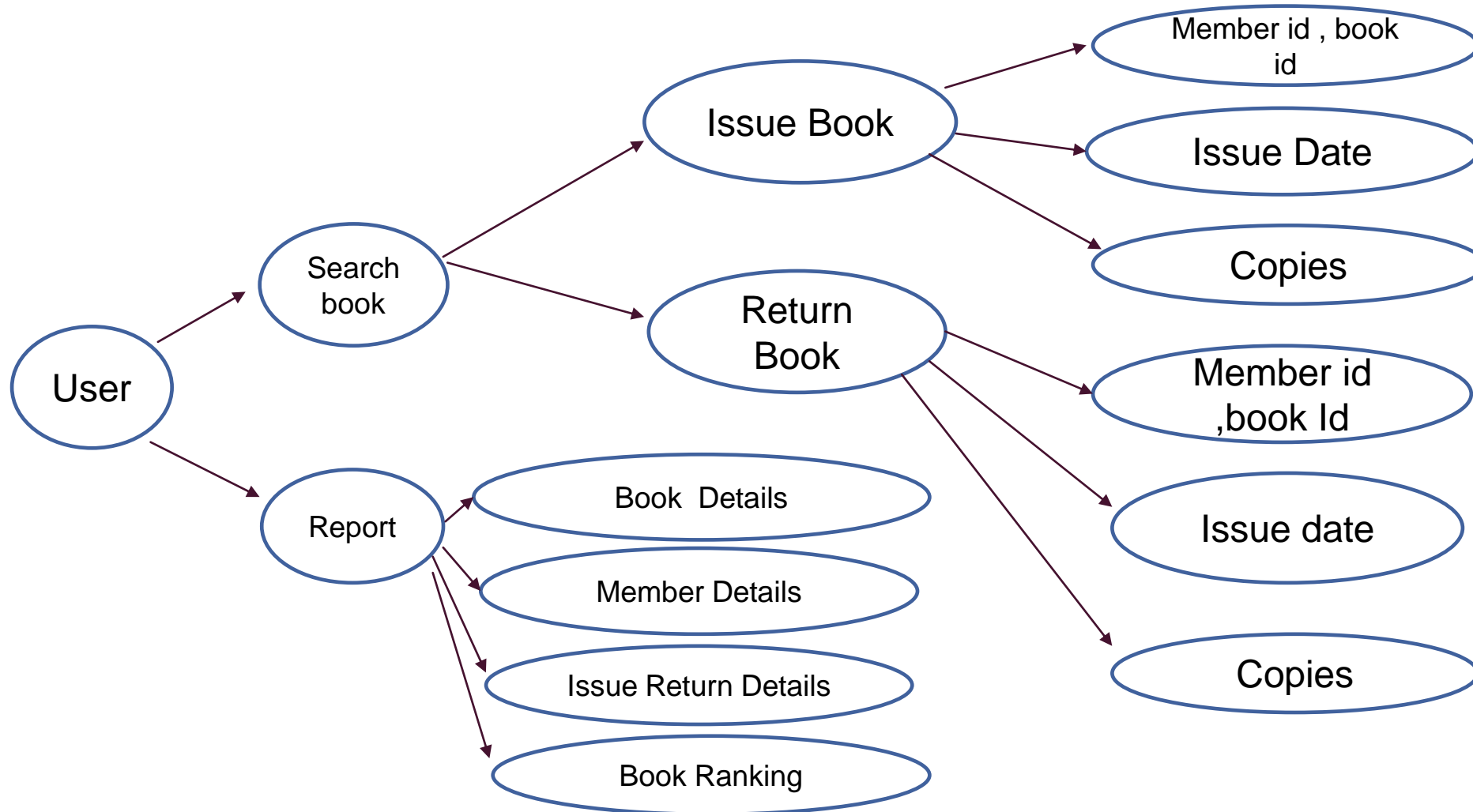- Search Member

TRANSACTIONS

- Issue book
- Return book

REPORT

- Show list of books
- Show list of members
- Book chart

DATA FLOW DIAGRAM

CONTEXT LEVEL

USER SIDE

MEMBER SIDE
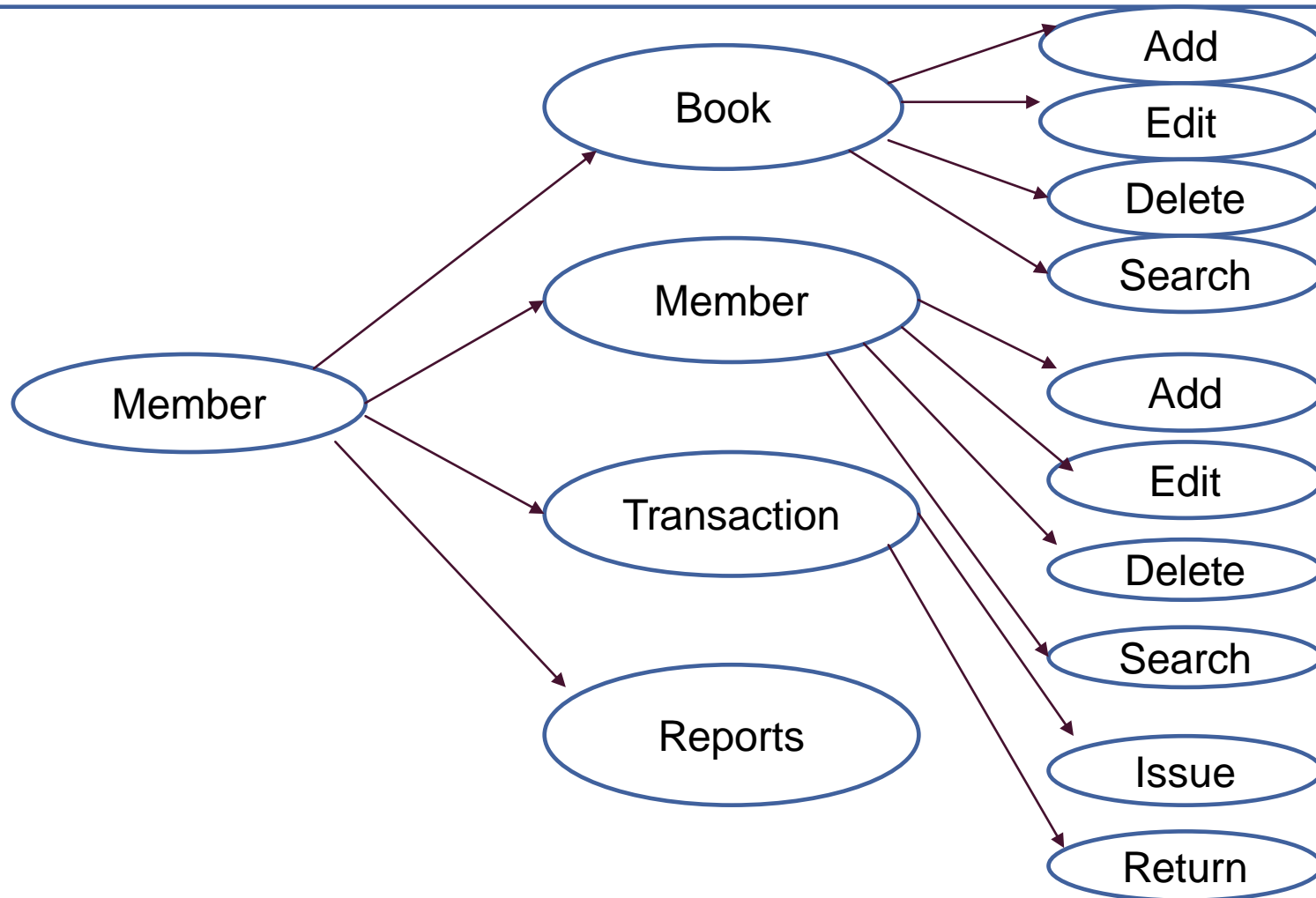
TABLE DESIGN

TABLES

- There are 4 tables used.

Book

bookId	int
bookName	varchar
authorName	varchar
bookPrice	float
copies	Int
remainingCopies	int

- Issue

issueId	int
issueDate	date
mamberId	int
bookId	int
copies	int

- members

memberId	int
memberName	varchar
memberAddress	varchar
phNo	char

- Returns

returnId	int
returnDate	date
memberId	int
bookId	int
copies	int

DATABASE SCREENSHOTS

TABLE SCREENSHORTS

Left window (MySQL 8.0 Command Line Client):

```
+----------------------------+
4 rows in set (0.16 sec)

mysql> desc book;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| bookId         | int         | NO   | PRI | NULL    |       |
| bookName       | varchar(30) | YES  |     | NULL    |       |
| authorName     | varchar(30) | YES  |     | NULL    |       |
| bookPrice      | float       | YES  |     | NULL    |       |
| copies         | int         | YES  |     | NULL    |       |
| remainingCopies| int         | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
6 rows in set (0.13 sec)

mysql> desc issue;
```

Right window (MySQL 8.0 Command Line Client):

```
| remainingCopies | int     |     YES  |      | NULL    |      |
+-----------------+---------+------+----+---------+------+
6 rows in set (0.13 sec)

mysql> desc issue;
+-----------+------+------+-----+---------+-------+
| Field     | Type | Null | Key | Default | Extra |
+-----------+------+------+-----+---------+-------+
| issueId   | int  | NO   | PRI | NULL    |       |
| issueDate | date | YES  |     | NULL    |       |
| memberId  | int  | YES  | MUL | NULL    |       |
| bookId    | int  | YES  | MUL | NULL    |       |
| copies    | int  | YES  |     | NULL    |       |
+-----------+------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc member;
```

CONSOLE SCREEN SORTS

```
1
Enter Member Id: 1
Enter Book Id: 1
Enter Issue Date: 2022-02-10
Enter No of Copies: 1
Book Issued Successfully...
                                              Enter Your Choice
                            1: Issue Book
                            2: Retun Book
                            3: Back to Home

2
Enter Member Id: 1
Enter Book Id: 1
Enter Return Date: 2022-02-23
Enter No of Copies: 1
Book Returned Successfully...
                                              Enter Your Choice
                            1: Issue Book
                            2: Retun Book
                            3: Back to Home

3
=================================================================================
                                    .....Welcome to Library Management System.....
=================================================================================
            HOME
                                              Enter Your Choice ....
                            1: Book Details     (Add, Edit, Delete)
                            2: Member Details   (Add, Edit, Delete,Search)
                            3: Transaction      (Issue , Return)
                            4: Report           (Show List Of books, Members  and Charts)
                            5: Exit

4
                                              Enter Your Choice
                            1: Book Details
                            2: Member Details
                            3: Issue Details
                            4: Return Details
```
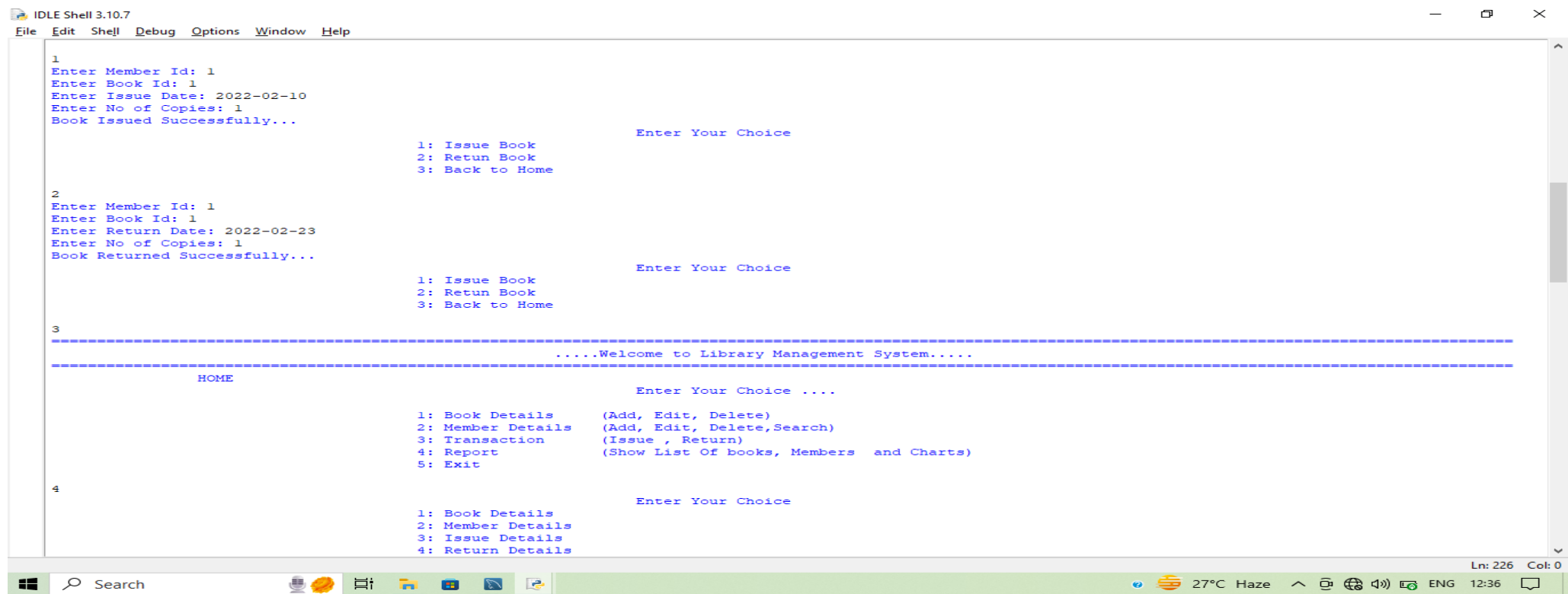
```
                          2: Member Details
                          3: Issue Details
                          4: Return Details
                          5: Book Ranking(CHART)
                          6: Back to Home

1

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 211
    df = pd.read_sql("select * from book",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+----------+----------+---------------+------------+--------+----------------+
|  bookId  | bookName |  authorName   |  bookPrice | copies | remainingCopies|
|----------+----------+---------------+------------+--------+----------------|
|        1 | java     | mk Nanda      |        220 |     10 |             10 |
|        2 | c        | Namekanti kar |        400 |     10 |             10 |
|        3 | python   | Aditya Kantekar|       355 |     10 |             10 |
|        4 | DBMS     | Dr. Rajjiv Chopra|    610 |     10 |             10 |
+----------+----------+---------------+------------+--------+----------------+
                          Enter Your Choice
                          1: Book Details
                          2: Member Details
                          3: Issue Details
                          4: Return Details
                          5: Book Ranking(CHART)
                          6: Back to Home

2

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 215
    df = pd.read_sql("select * from members",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+----------+----------+---------------------------+------------+
| memberId |memberName| memberAddress             |       phNo |
|----------+----------+---------------------------+------------|
|        1 | ajit     | pallahara                 | 8328537633 |
|        2 | Alok     | Solanda, Angul            | 6271650186 |
|        3 | Loknath  | Parasumal , Atthamallik ,Angul | 8327737620 |
```

```
                          6: Back to Home

2

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 215
    df = pd.read_sql("select * from members",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+----------+----------+---------------------------+------------+
| memberId |memberName| memberAddress             |       phNo |
|----------+----------+---------------------------+------------|
|        1 | ajit     | pallahara                 | 8328537633 |
|        2 | Alok     | Solanda, Angul            | 6271650186 |
|        3 | Loknath  | Parasumal , Atthamallik ,Angul | 8327737620 |
|        4 | Bapun Samal | Kamakhya Nagar, Dhenkanal | 8750697440 |
+----------+----------+---------------------------+------------+
                          Enter Your Choice
                          1: Book Details
                          2: Member Details
                          3: Issue Details
                          4: Return Details
                          5: Book Ranking(CHART)
                          6: Back to Home

3

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 223
    df = pd.read_sql("select * from issue",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+----------+-----------+----------+----------+--------+
| issueId  | issueDate | memberId |  bookId  | copies |
|----------+-----------+----------+----------+--------|
|        1 | 2022-04-11|        1 |        2 |      1 |
|        2 | 2022-06-15|        1 |        1 |      1 |
|        3 | 2022-02-10|        1 |        1 |      1 |
+----------+-----------+----------+----------+--------+
                          Enter Your Choice
                          1: Book Details
                          2: Member Details
```

Left window (IDLE Shell 3.10.7):

```
    df = pd.read_sql("select * from issue",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+-----------+------------+--------------+----------+----------+
|  issueId | issueDate  |   memberId |   bookId |   copies |
|-----------+------------+--------------+----------+----------|
|        1 | 2022-04-11 |          1 |        2 |        1 |
|        2 | 2022-06-15 |          1 |        1 |        1 |
|        3 | 2022-02-10 |          1 |        1 |        1 |
+-----------+------------+--------------+----------+----------+
                                    Enter Your Choice
                            1: Book Details
                            2: Member Details
                            3: Issue Details
                            4: Return Details
                            5: Book Ranking(CHART)
                            6: Back to Home
4

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 219
    df = pd.read_sql("select * from returns",con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
+-----------+------------+--------------+----------+----------+
|  returnId | returnDate |   memberId |   bookId |   copies |
|-----------+------------+--------------+----------+----------|
|        1 | 2022-09-17 |          1 |        2 |        1 |
|        2 | 2022-06-18 |          1 |        1 |        1 |
|        3 | 2022-02-23 |          1 |        1 |        1 |
+-----------+------------+--------------+----------+----------+
                                    Enter Your Choice
                            1: Book Details
                            2: Member Details
                            3: Issue Details
                            4: Return Details
                            5: Book Ranking(CHART)
                            6: Back to Home
5
```

Right window (IDLE Shell 3.10.7):

```
+-----------+--------------+--------------+----------+---------+
                                    Enter Your Choice
                            1: Book Details
                            2: Member Details
                            3: Issue Details
                            4: Return Details
                            5: Book Ranking(CHART)
                            6: Back to Home
5

Warning (from warnings module):
  File "F:\all coding\python.py\libmng\library management.py", line 230
    df = pd.read_sql(q,con)
UserWarning: pandas only supports SQLAlchemy connectable (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not test
ed. Please consider using SQLAlchemy.
   bookId  totalcopies
0       1            2
1       2            1
                                    Enter Your Choice
                            1: Book Details
                            2: Member Details
                            3: Issue Details
                            4: Return Details
                            5: Book Ranking(CHART)
                            6: Back to Home
6
========================================================================================
                          .....Welcome to Library Management System.....
========================================================================================
          HOME
                                    Enter Your Choice ....

                            1: Book Details     (Add, Edit, Delete)
                            2: Member Details   (Add, Edit, Delete,Search)
                            3: Transaction      (Issue , Return)
                            4: Report           (Show List Of books, Members  and Charts)
                            5: Exit
5
>>>
```
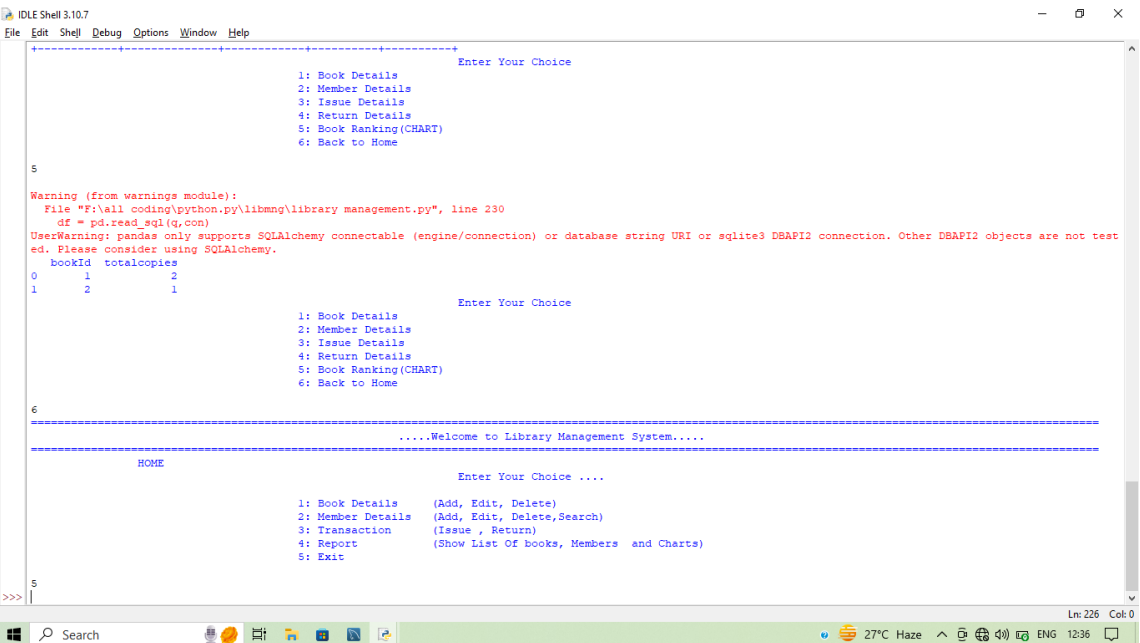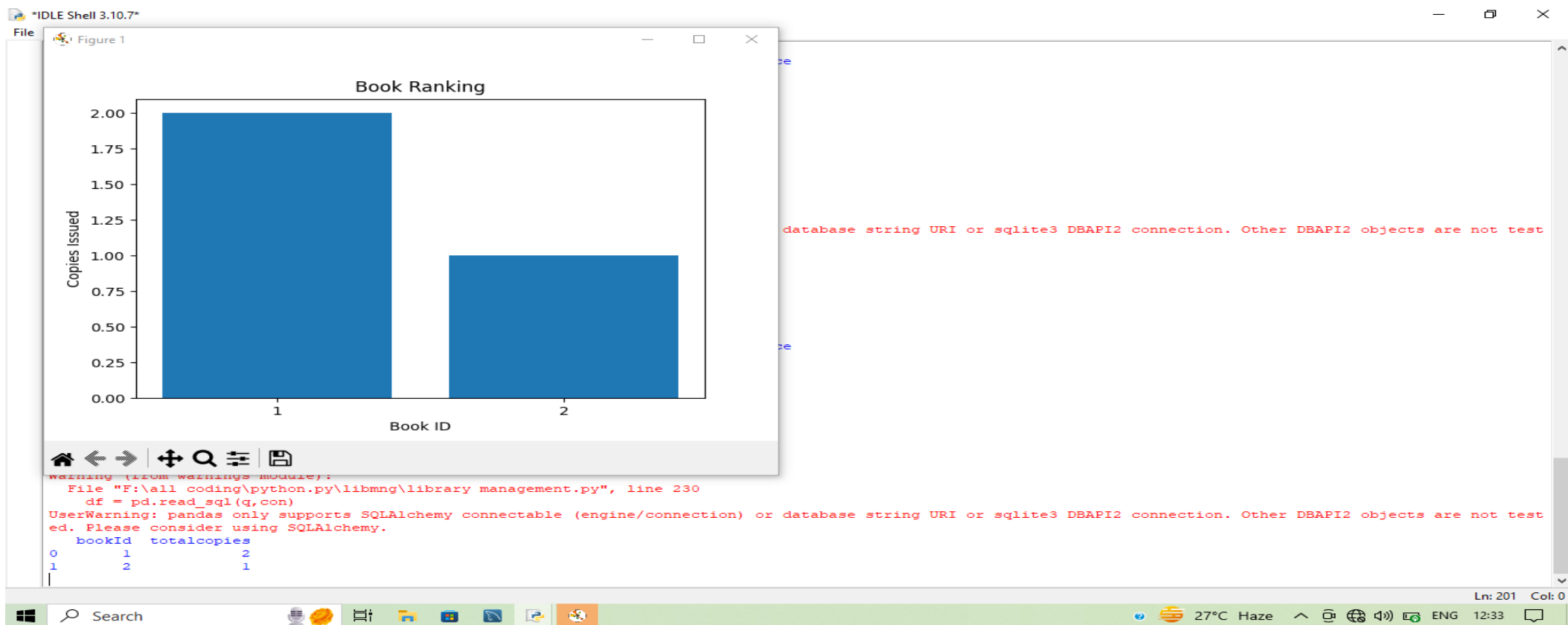
FUTURE USE

- This application could be modified and developed for future use.

- In the future this application can be extended to include processes like book reservation, how much time it will take for available a issued book, user authentication and member authentication .

- This software will be more reliable and user friendly by the help GUI technology.

CONCLUSION

- This project has been successfully completed and tested .

- In the long term , this project make the use of library more efficient , user friendly, easier and effective.

- It is a real improvement over the exciting manual system as it effectively overcome all the drawbacks of the existing system.

THANK YOU