

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANASANGAMA, BELAGAVI – 590018**



**Mini Project Report
On**

LIBRARY MANAGEMENT SYSTEM

Submitted in partial fulfillment for the award of degree of

**Bachelor of Engineering
In
Computer Science and Engineering**

Submitted by

**PRAKSHI SINGH
1BG19CS072**



Vidyaya Amrutam Ashnuto

B.N.M Institute of Technology

Approved by AICTE, Affiliated to VTU, Accredited as grade A Institution by NAAC.

All UG branches – CSE, ECE, EEE, ISE & Mech.E accredited by NBA for academic years 2018-19 to 2020-21 & valid upto 30.06.2021

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2021-22

B.N.M. Institute of Technology

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CERTIFICATE

Certified that the Mini Project entitled Bus Reservation System by **Ms.PRAKSHI SINGH USN 1BG19CS072** a bonafide student of V Semester B.E., B.N.M Institute of Technology in partial fulfillment for the Bachelor of Engineering in **COMPUTER SCIENCE AND ENGINEERING of the Visvesvaraya Technological** University, Belagavi during the year 2020-21. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated in the report. The Project report has been approved as it satisfies the academic requirements in respect of Database Management System with Mini Project Laboratory prescribed for the said Degree.

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ABSTRACT

A library management system keeps track of the books present in the library. It is an important piece of software which is a must at schools and colleges. Institutions can then keep a constant eye on the books they issue and return, as well as the transaction records. If this operation is completed manually, it will be time-consuming and is prone to errors.

Enabling this system to maintain track of information including the date of borrowing, the date or book return, and even detailed book information eliminates the manual recording of this information and most importantly it reduces the risk of errors.

It would provide facilities like adding a new book or delete a book from the catalogue, view details regarding a specific book, issuing a book etc.

As a result, this method greatly lowers manual effort and allows for a seamless flow of library activities by eliminating the possibility of errors in the details.

ACKNOWLEDGEMENT

The completion of this project brings with a sense of satisfaction, but it is never complete without thanking the persons responsible for its successful completion.

I take this opportunity to express our profound gratitude to Shri. Narayan Rao R Maanay, Secretary, BNMIT, Bengaluru for his constant support and encouragement.

I would like to express my special thanks to Prof. T. J. Rama Murthy, director, BNMIT, Bengaluru and S Y Kulkarni, director, BNMIT, Bengaluru for their constant guidance towards our goals and professions.

I extend my deep sense of sincere gratitude to Dr. Krishnamurthy G.N, Principal, BNMIT, Bengaluru, for providing us the facilities required for the project.

I would also like to thank Prof Eishwar Maanay, Dean Administration, BNMIT, Bengaluru, for providing us useful suggestions required for the project.

I express my in-depth, heartfelt, sincere gratitude to Dr. Sahana D. Gowda, Professor and H.O.D, Department of Computer Science and Engineering, BNMIT, Bengaluru, for her valuable suggestions and support.

I extend my heartfelt, sincere gratitude to Prof. Kavya D N, Assistant Professor, Department of Computer Science and Engineering, BNMIT, Bengaluru, for completion of the project.

Finally, I would like to thank all the faculty members of Department of Computer Science and Engineering, BNMIT, Bengaluru, for their support. I would like to thank our family and friends for their unfailing moral support and encouragement.

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TABLE OF CONTENTS

CONTENTS	Page No
ABSTRACT	I
ACKNOWLEDGEMENT	II
1. INTRODUCTION	
1.1 Overview of Database Management Systems	1
1.2 Problem statement	2
1.3 Objectives	2
1.4 Dataset Description	2
2. SYSTEM REQUIREMENTS	
2.1 Software & Hardware	4
3. SYSTEM DESIGN	
3.1 E R Diagram	5
3.2 Schema Diagram	6
3.3 Overview of GUI	7
4. IMPLEMENTATION	
4.1 Table creation	8
4.2 Description of Table	10
4.3 Populated Tables	12
4.4 SQL Triggers	15
4.5 Database connectivity	16
4.6 Modules	17
5. RESULTS	18
6. CONCLUSION & FUTURE ENHANCEMENTS	32

Chapter 1

INTRODUCTION

1.1 Overview of Database Management System

A Database is a collection of related data organized in a way that data can be easily accessed, managed and updated. Any piece of information can be a data, for example name of your school. Database is actually a place where related piece of information is stored and various operations can be performed on it. A DBMS is a software that allows creation, definition and manipulation of database. DBMS is actually a tool used to perform any kind of operation on data in database. DBMS also provides protection and security to database. It maintains data consistency in case of multiple users. Here are some examples of popular DBMS, Sql, Oracle, Sybase, Microsoft Access and IBM DB2.

The database system can be divided into four components:

- The database system can be divided into System developer and End users.
- Database application: Database application may be Personal, Departmental, Enterprise and Internal
- DBMS: Software that allow users to define, create and manages database access, Ex: Sql, Oracle etc.
- Database: Collection of logical data.

Functions of database management system:

- Provides Recovery services
- Provides utility
- Provides data Independence
- Provides a clear and logical view of the process that manipulates data.

Advantages of DBMS:

- Segregation of application program
- Minimal data duplicity
- Reduced development time and maintenance need
- Easy retrieval of data

1.2 Problem statement

Libraries play a critical role in the Education industry. It is considered as the brain of any education institute, be it small or large schools, colleges or universities. Today education institutes understand the importance of the library with the increase in education standards. With the development of digital management system, it becomes more important to manage the catalogue of educational information with a scalable and reliable Library Management System that will support the general requirement of the library. It helps in maintaining data of books issued to learners and books available in the library, as well as keep records of the users. It simplifies that for staff by keeping records of every log, book details, student information in a highly effective way.

1.3 Objective

The objective of this project is to

- Provide an automated system for handling the library.
- Help the librarians to carry out their job with the right information and see to it that no wrong information is conveyed to the users.
- Make an easy-to-use environment for our users.
- Help automated library management system in order to meet everyone's educational requirements.
- Help the librarians to make faster search operations as most of the data about catalogue is stored systematically in the database.

1.4 Dataset Description

Library Management System allows the users to look for options and also issue required books hassle-free. The staff can register or login to the website. They can go to the catalogue and check for book availability for issuing it to a certain reader, check which book is issued on a particular user id, and register a new user by selecting appropriate options. The changes made by the staff in the catalogue are reflected in the system's catalogue, he/she can add a book or delete a particular book.

The user can request for a book, and staff can perform search operation and check availability accordingly and issue if the book is available, or suggest the user to issue some other book which belongs to the same category. The staff has access to all the information present in the catalogue.

The modules used in this system are: Authentication, Staff, Readers, Books, Return , Publisher.

The Authentication module: This module is for staff who are given login id and respective passwords to log into the database.

The Staff module: This module is for staff who can access the database and library catalogue.

The Readers module: This module is for registering a new reader who has taken a membership for the library, he/she can enter their respective information into the database for further querying.

The Books module: This module is for adding a new book to the catalogue by entering appropriate information about the book.

The Return module: This module is used when a book is issued to a particular reader, every book which is issued, is given a registration id.

The Publisher module: This module keeps record of the publication information related to a particular book which is present in the database.

The tables along with their attributes are:

1. Authentication(login_id,password)
2. Staff(staff_id,name,login_id)
3. Readers(user_id,email,name,phone_no,address,staff_id)
4. Books(isbn,title,auth_name,edition,category,price,user_id,staff_id)
5. Return(reserve_id,issue_date,return_date,user_id,isbn)
6. Publisher(publisher_id,pub_year,name,isbn)

Chapter 2

SYSTEM REQUIREMENTS

2.1 Software and Hardware

Software Configuration:

Operating system: Windows 10 ,64 bit

Front end: Python

GUI : Tkinter

Back end: MySql

Web server: Apache

Browser: Chrome

Application software: XAMPP

Hardware Configuration:

Processor: Intel Core i5

RAM: 8 GB

Hard disk: 500GB

Chapter 3

SYSTEM DESIGN

3.1 E-R Diagram

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD contains different symbols and connectors that visualize two important information: The major entities within the system scope and the inter relationships among these entities.

At first look, an ER diagram looks very similar to the flowchart. However, ER Diagram includes many specialized symbols, and its meanings make this model unique. The purpose of ER Diagram is to represent the entity framework infrastructure.

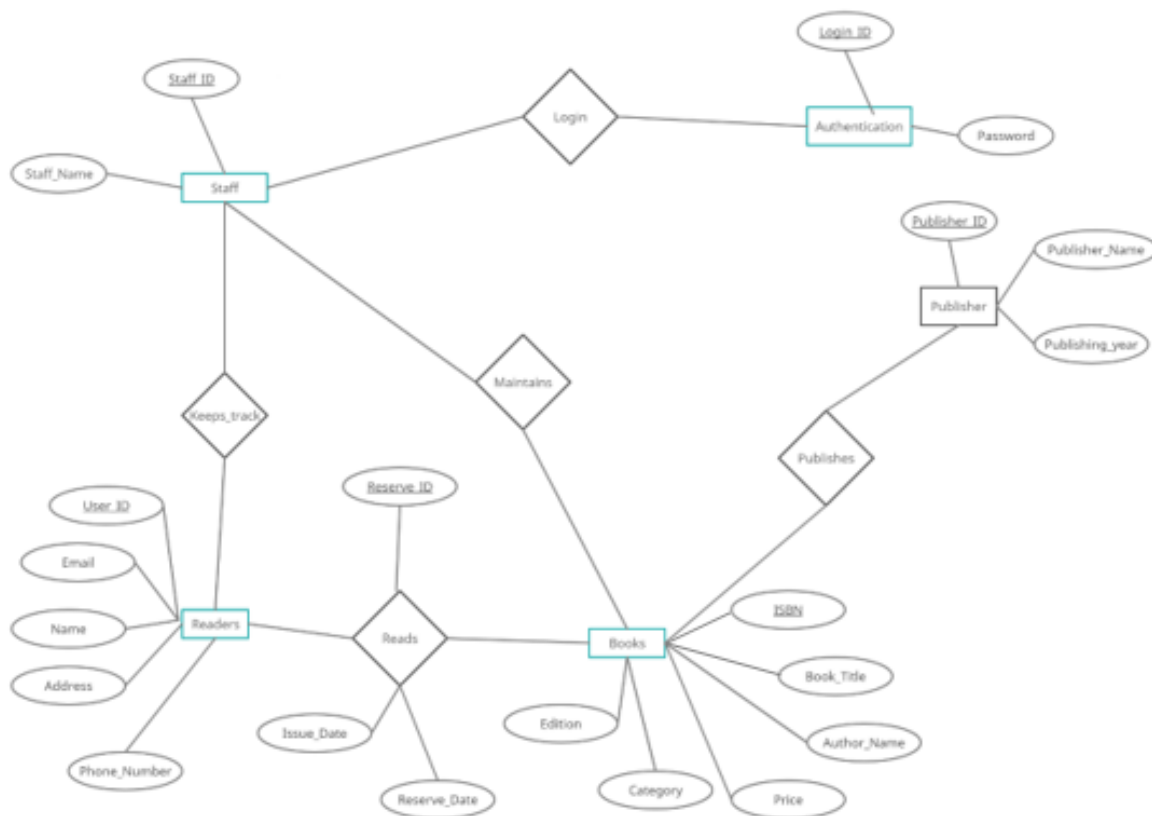


Fig 3.1 E-R Diagram of Library Management System

The above diagram illustrates the ERD of Library Management System.

The entities are :Authentication, Staff, Readers, Books, Publisher.

3.2 Schema Diagram

A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and the relations among them are associated. It formulates all the constraints that are to be applied on data. A database schema defines its entities and relationship among them. It contains a descriptive detail of the database, which can be depicted by means of schema diagrams.

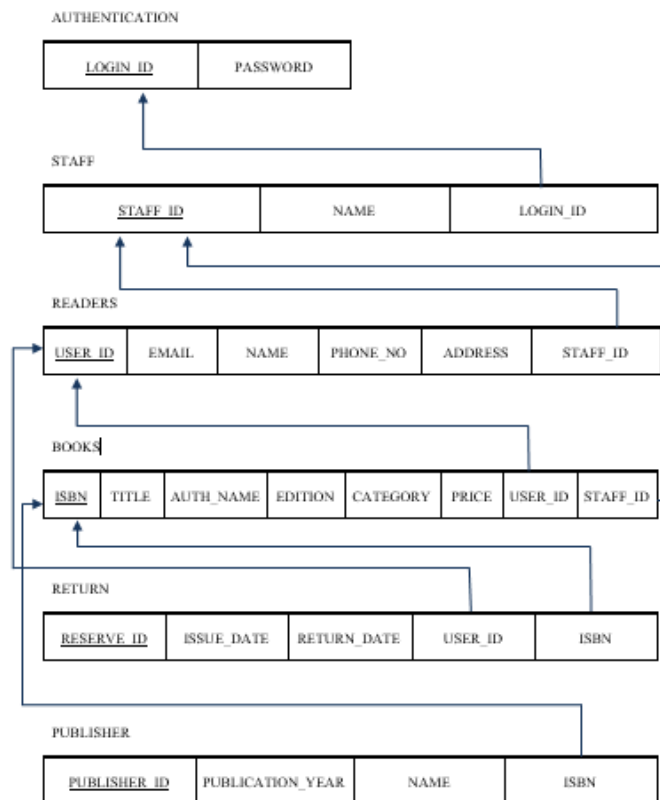


Fig 3.2 Schema Diagram

The above diagram depicts the Schema diagram of Library Management System. It shows the various relations, references between entities.

3.3 Overview of GUI

GUI is a program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages. On the other hand, many users find that they work more effectively with a command-driven interface, especially if they already know the command language.

Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit. Tkinter provides various controls, such as buttons, labels and text boxes used in a GUI application. These controls are commonly called widgets. There are currently 15 types of widgets in Tkinter.

Chapter 4

IMPLEMENTATION

4.1 Table Creation

Create table authentication

```
(  
    login_id integer primary key,  
    password varchar(30)  
);
```

Create table staff

```
(  
    staff_id integer primary key,  
    name varchar(30),  
    login_id references authentication(login_id)  
);
```

Create table readers

```
(  
    user_id integer primary key,  
    email varchar(30),  
    name varchar(50),  
    phone_no integer(20),  
    address varchar(100),  
    staff_id references staff(staff_id)  
);
```

Create table books

```
(  
    isbn integer primary key,  
    title varchar(30),  
    auth_name varchar(20),  
    edition integer,  
    category varchar(20),  
    price integer,  
    user_id references readers(user_id)  
    staff_id references staff(staff_id)  
);
```

Create table return_b

```
(  
    reserve_id integer primary key,  
    issue_date date,  
    return_date date,  
    user_id references readers(user_id)  
    staff_id references staff(staff_id)  
    isbn references books(isbn)  
);
```

Create table publisher

```
(  
    publisher_id integer primary key,  
    publication_year integer,  
    name varchar(30),  
    isbn references books(isbn)  
);
```

4.2 Description of Table

Desc authentication;







#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	login_id	 int(11)			No	None			 Change  Drop  More
2	password	varchar(30)	latin1_swedish_ci		No	None			 Change  Drop  More

Fig 4.2.1 Description of authentication table

Desc staff;











#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	staff_id	 int(11)			No	None		AUTO_INCREMENT	 Change  Drop  More
2	name	varchar(50)	utf8mb4_general_ci		No	None			 Change  Drop  More
3	login_id	int(11)			No	None			 Change  Drop  More

Fig 4.2.2 Description of staff table

Desc readers;




















#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	user_id	 int(11)			No	None		AUTO_INCREMENT	 Change  Drop  More
2	email	varchar(30)	utf8mb4_general_ci		No	None			 Change  Drop  More
3	name	varchar(50)	utf8mb4_general_ci		No	None			 Change  Drop  More
4	phone_no	varchar(20)	utf8mb4_general_ci		No	None			 Change  Drop  More
5	address	varchar(200)	utf8mb4_general_ci		No	None			 Change  Drop  More
6	staff_id	int(11)			No	None			 Change  Drop  More

Fig 4.2.3 Description of readers table

Desc books;


























#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	isbn 	int(11)			No	None		AUTO_INCREMENT	 Change  Drop  More
2	title	varchar(100)	utf8mb4_general_ci		No	None			 Change  Drop  More
3	auth_name	varchar(100)	utf8mb4_general_ci		No	None			 Change  Drop  More
4	edition	int(11)			No	None			 Change  Drop  More
5	category	varchar(100)	utf8mb4_general_ci		No	None			 Change  Drop  More
6	price	int(11)			No	None			 Change  Drop  More
7	user_id	int(11)			No	None			 Change  Drop  More
8	staff_id	int(11)			No	None			 Change  Drop  More

Fig 4.2.4 Description of books table

Desc return_b;




















#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	reserve_id 	int(11)			No	None		AUTO_INCREMENT	 Change  Drop  More
2	issue_date	date			Yes	NULL			 Change  Drop  More
3	return_date	date			Yes	NULL			 Change  Drop  More
4	user_id	int(11)			No	None			 Change  Drop  More
5	staff_id	int(11)			No	None			 Change  Drop  More
6	isbn	int(11)			No	None			 Change  Drop  More

Fig 4.2.5 Description of return_b table

Desc publisher;














#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	publisher_id 	int(11)			No	None		AUTO_INCREMENT	 Change  Drop  More
2	pub_year	int(11)			No	None			 Change  Drop  More
3	name	varchar(100)	utf8mb4_general_ci		No	None			 Change  Drop  More
4	isbn	int(11)			No	None			 Change  Drop  More

Fig 4.2.6 Description of publisher table

4.3 Populated Tables

Select * from authentication;













				login_id	password
<input type="checkbox"/>		Edit	 Copy	 Delete	7001 bob@123
<input type="checkbox"/>		Edit	 Copy	 Delete	7002 abc@0202
<input type="checkbox"/>		Edit	 Copy	 Delete	7003 pam@0202
<input type="checkbox"/>		Edit	 Copy	 Delete	7004 xyz@0202

Fig 4.3.1 Values of authentication table

Select * from staff;













<div><div>←T→</div><div></div></div>				staff_id	name	login_id
<input type="checkbox"/>		Edit	 Copy  Delete	201	Rohan Kashyap	7001
<input type="checkbox"/>		Edit	 Copy  Delete	202	Robin Yadav	7002
<input type="checkbox"/>		Edit	 Copy  Delete	203	Rupal Desai	7003
<input type="checkbox"/>		Edit	 Copy  Delete	204	Sonam Kapoor	7004

Fig 4.3.2 Values of staff table

Select * from readers;

<div><div>←</div><div>→</div></div>		<div>▼</div>	user_id	email	name	phone_no	address	staff_id
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		501	robin123@gmail.com	Robin Kashyap	9765456734	101-102, Sita Niwas, Plot 49, Road 1, Liberty Gard...	0
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		502	riya12chauhan@gmail.com	Riya Chauhan	9856745345	416, 8th Main Road, 50 Feet Road, Hanumantha nagar...	201
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		503	atharv2pandya@gmail.com	Atharv Pandya	9678956745	16, Vinayaka Electronic Plaza, 1 1, S P Road ,Bang...	0
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		504	loyal_mitra04@gmail.com	Mitra Loyal	9876345678	18/2, Ds Lane, Chickpet, Bangalore, Karnataka	202
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		505	manjusha@gmail.com	Manjusha Bahri	9845678934	5,2chunnalinehidayathngrkblr-45, Hidayath Nagar, ...	202
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		506	amkit_078@gmail.com	Ankit Narayanan	9845321456	2/1, 1 Main, Palace Guttahalli ,Bangalore ,Karnata...	204
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		507	kalinda_ray345@gmail.com	Kalinda Ray	9844567234	Pos nagar, Abvcooljnt,bl-11, Jayanagar, Bangalore,...	202
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		508	chetan_987@gmail.com	Chetan Sule	9567894354	1276, 1276, 14th Cross, 2nd Stage, Indiranagar, Ba...	0
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		509	mohan02_ranya@gmail.com	Ranya Mohan	9543235678	280/432,laxman.ngr.res.clg.blr-91, Laxman Nagar, B...	204
<input type="checkbox"/>	<div><div><div><div></div></div><div>Edit</div></div><div><div><div></div></div><div>Copy</div></div><div><div><div></div></div><div>Delete</div></div></div>		510	nitya_098@gmail.com	Nitya Mitra	876598765	44,no 215, M H Plaza, 2nd Flr, Mamulpet, Bangalor...	0

Fig 4.3.3 Values of readers table

Select * from books;

	isbn	title	auth_name	edition	category	price	user_id	staff_id
<input type="checkbox"/> Edit Copy Delete	1001	Database management systems	Ramakrishnan and Gehrke	3	Database Management System	9000	0	0
<input type="checkbox"/> Edit Copy Delete	1002	Fundamentals of Database Systems	Ramez Elmasri and Shamkant B. Navathe	7	Database Management System	8000	502	201
<input type="checkbox"/> Edit Copy Delete	1003	Database System Concepts	Silberschatz Korth and Sudharshan	6	Database Management System	6000	0	0
<input type="checkbox"/> Edit Copy Delete	1004	Computer Networking: A Top-Down Approach	James F Kurose and Keith W Ross	6	Computer Networks and Security	6000	0	0
<input type="checkbox"/> Edit Copy Delete	1005	Computer and Communication Networks	Nader F Mir	2	Computer Networks and Security	9000	0	0
<input type="checkbox"/> Edit Copy Delete	1006	Data and Communications and Networking	Behrouz A Forouzan	5	Computer Networks and Security	10000	509	203
<input type="checkbox"/> Edit Copy Delete	1007	Automata, Computability and Complexity	Elaine Rich	1	Automata Theory and Computability	89000	0	0
<input type="checkbox"/> Edit Copy Delete	1008	Theory of Computer Science	K L P Mishra, N Chandrasekaran	3	Automata Theory and Computability	45000	0	0
<input type="checkbox"/> Edit Copy Delete	1009	An Introduction to Formal Languages and Automata	Peter Linz	3	Automata Theory and Computability	55000	506	204
<input type="checkbox"/> Edit Copy Delete	1010	Automate the Boring Stuff with Python	Al Sweigart	1	Application Development Using Python	7600	507	202
<input type="checkbox"/> Edit Copy Delete	1011	Think Python: How to Think Like a Computer Scienti...	Allen B. Downey	2	Application Development Using Python	8600	0	0

Fig 4.3.4 Values of books table

Select * from return_b;

	reserve_id	issue_date	return_date	user_id	staff_id	isbn
<input type="checkbox"/> Edit Copy Delete	1	2022-01-12	NULL	502	201	1002
<input type="checkbox"/> Edit Copy Delete	2	2022-01-28	NULL	509	203	1006
<input type="checkbox"/> Edit Copy Delete	3	2021-12-23	2022-01-28	505	202	1005
<input type="checkbox"/> Edit Copy Delete	4	2022-01-19	2022-01-28	509	204	1004
<input type="checkbox"/> Edit Copy Delete	5	2022-01-28	2022-01-29	203	203	1001
<input type="checkbox"/> Edit Copy Delete	6	2022-01-28	NULL	506	204	1009
<input type="checkbox"/> Edit Copy Delete	7	2022-01-12	2022-01-28	504	204	1005
<input type="checkbox"/> Edit Copy Delete	8	2022-01-05	2022-01-28	504	202	1008
<input type="checkbox"/> Edit Copy Delete	9	2022-01-28	NULL	507	202	1010
<input type="checkbox"/> Edit Copy Delete	10	2022-01-29	2022-01-29	204	204	1001

Fig 4.3.4 Values of return_b table

Select * from publisher;


































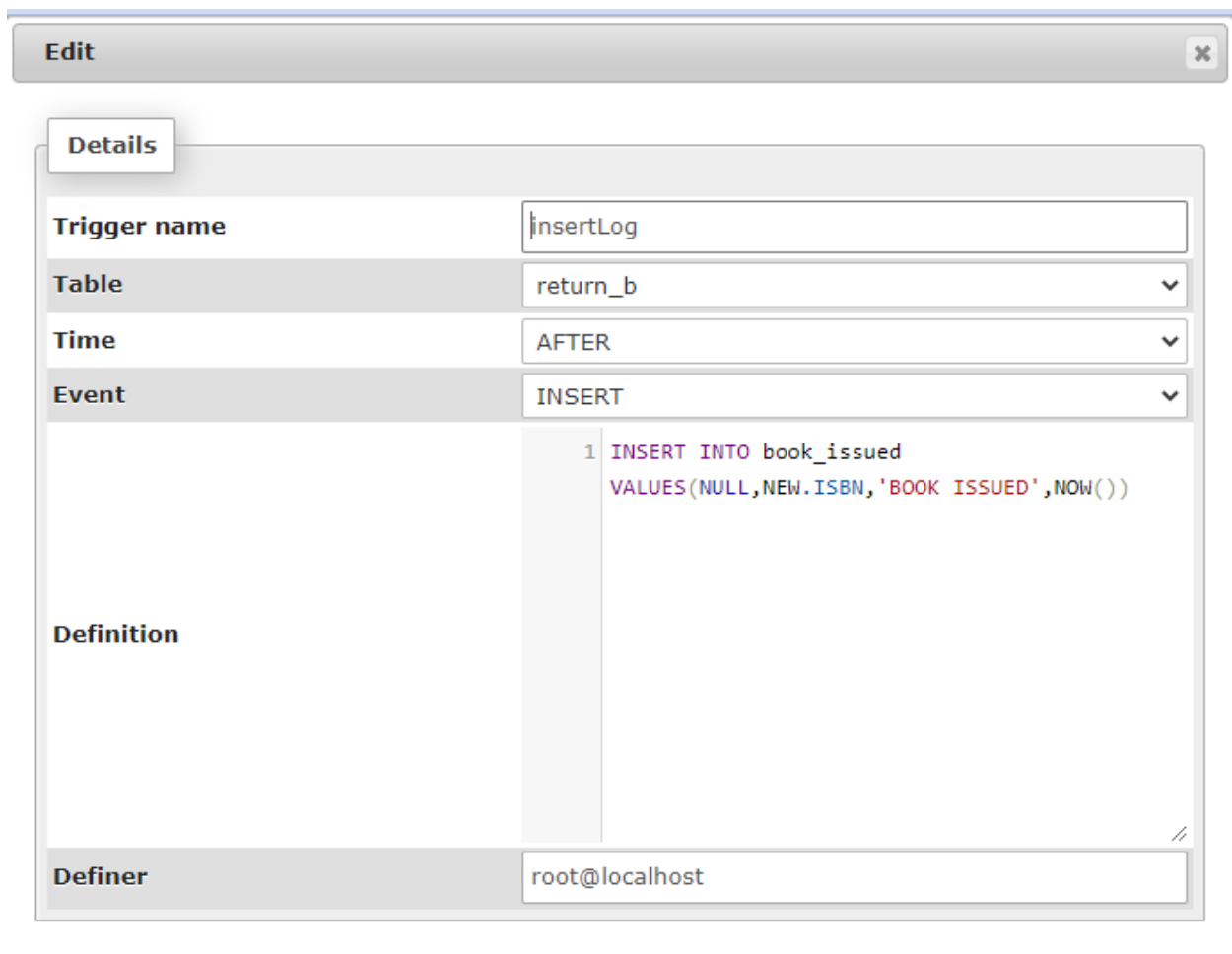
<div><div><div></div><div></div><div></div></div></div>				publisher_id	pub_year	name	isbn
<input type="checkbox"/>	 Edit	 Copy	 Delete	901	2014	McGraw Hill	1001
<input type="checkbox"/>	 Edit	 Copy	 Delete	902	2017	Pearson	1002
<input type="checkbox"/>	 Edit	 Copy	 Delete	903	2013	Mc-GrawHill	1003
<input type="checkbox"/>	 Edit	 Copy	 Delete	904	2017	Pearson	1004
<input type="checkbox"/>	 Edit	 Copy	 Delete	905	2014	Pearson	1005
<input type="checkbox"/>	 Edit	 Copy	 Delete	906	2017	McGraw Hill	1006
<input type="checkbox"/>	 Edit	 Copy	 Delete	907	2012	Pearson education	1007
<input type="checkbox"/>	 Edit	 Copy	 Delete	908	2012	Phl	1008
<input type="checkbox"/>	 Edit	 Copy	 Delete	909	1998	Narosa Publishers	1009
<input type="checkbox"/>	 Edit	 Copy	 Delete	910	2015	No Starch Press	1010
<input type="checkbox"/>	 Edit	 Copy	 Delete	911	2015	Green Tea Press	1011

Fig 4.3.5 Values of publisher table

4.4 SQL Triggers

A database trigger is procedural code that is automatically executed in response to certain events on a particular table or view in a database. The trigger is mostly used for maintaining the integrity of the information on the database. Triggers execute when a user tries to modify data through a data manipulation language (DML) event. DML events are INSERT, UPDATE, or DELETE statements on a table or view.



The screenshot shows a window titled "Edit" with a close button in the top right corner. Below the title bar is a tab labeled "Details". The main area contains several fields for configuring a trigger:

- Trigger name:** insertLog
- Table:** return_b (with a dropdown arrow)
- Time:** AFTER (with a dropdown arrow)
- Event:** INSERT (with a dropdown arrow)
- Definition:** 1 INSERT INTO book_issued
VALUES(NULL,NEW.ISBN, 'BOOK ISSUED',NOW())
- Definer:** root@localhost

Fig 4.1 Screen capture of trigger

In the above trigger, we are making sure that after issuing a book, and displaying “BOOK ISSUED” with specific book ID.

4.5 Database Connectivity

A Database connection is a facility in computer science that allows client software to talk to database server software, whether on the same machine or not. A connection is required to send commands and receive answers, usually in the form of a result set. Python has a pretty straight forward method to working with MySQL databases.

There are the following steps to connect a python application to our database.

1. Import mysql.connector module
2. Create the connection object.
3. Create the cursor object.
4. Execute the query.

//1.Import mysql connector module

```
import mysql.connector
```

//2.Create connection object

```
conn = mysql.connector.connect(host='localhost',  
                               database='library',  
                               user='root',  
                               password="")
```

//3.Create cursor object

```
cursor = conn.cursor()
```

//4.Execute the query

```
login_id = self.user_text.get()
```

```
password = self.pass_text.get()
```

```
cursor.execute('Select * from authentication where login_id= %s AND password =%s' ,  
(login_id,password,))
```

//fetching the query result

```
pc = cursor.fetchone()
```

4.6 Modules

The main modules used in this system are: Authentication, Staff, Readers, Books, Return, Publisher.

The Authentication module: This module is for staff who are given login id and respective passwords to log into the database.

The Staff module: This module is for staff who can access the database and library catalogue.

The Readers module: This module is for registering a new reader who has taken a membership for the library, he/she can give their respective information into the database for further operations.

The Books module: This module is for adding a new book to the catalogue by entering appropriate information about the book.

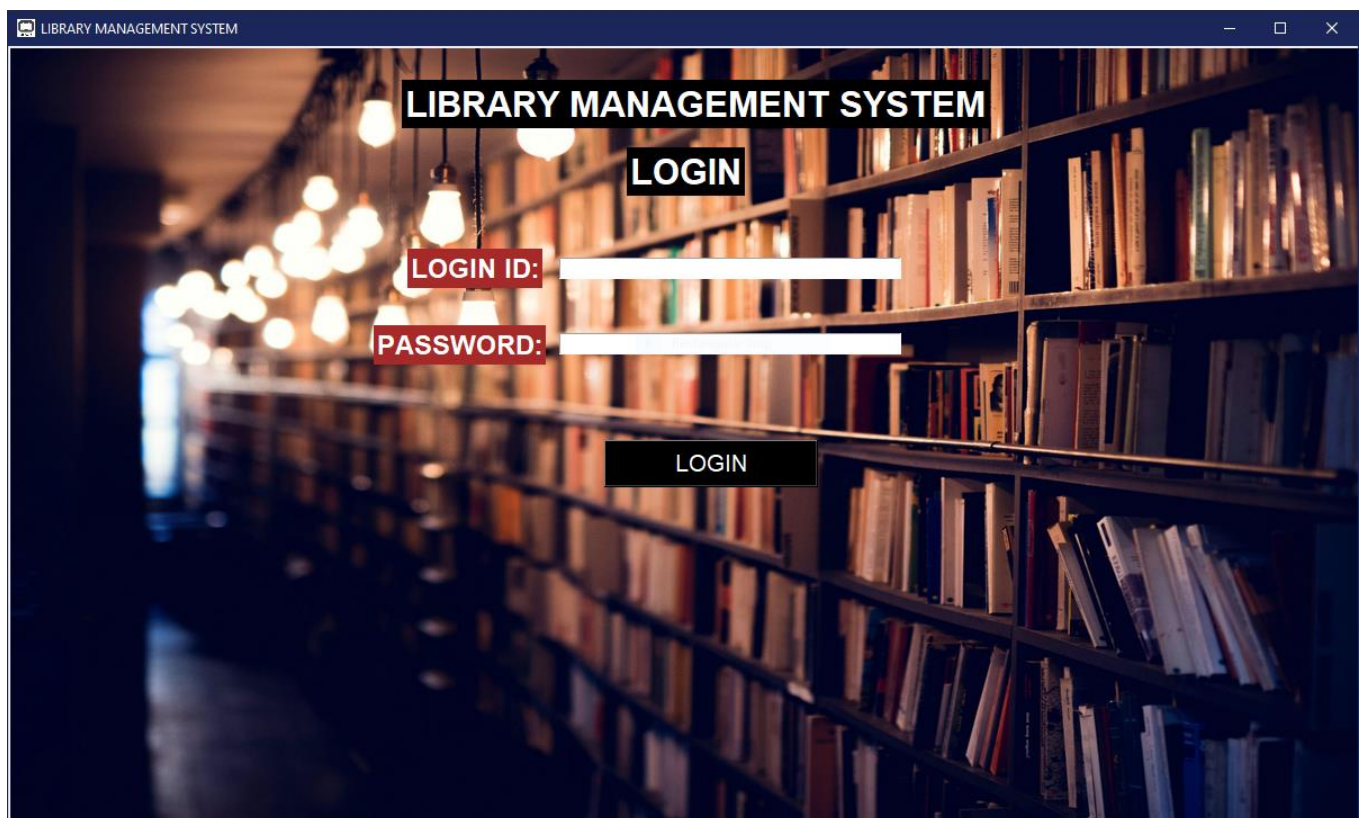
The Return module: This module is used when a book is issued to a particular reader, every book which is issued, is given a registration id.

The Publisher module: This module keeps record of the publication information related to a particular book which is logged in the database.

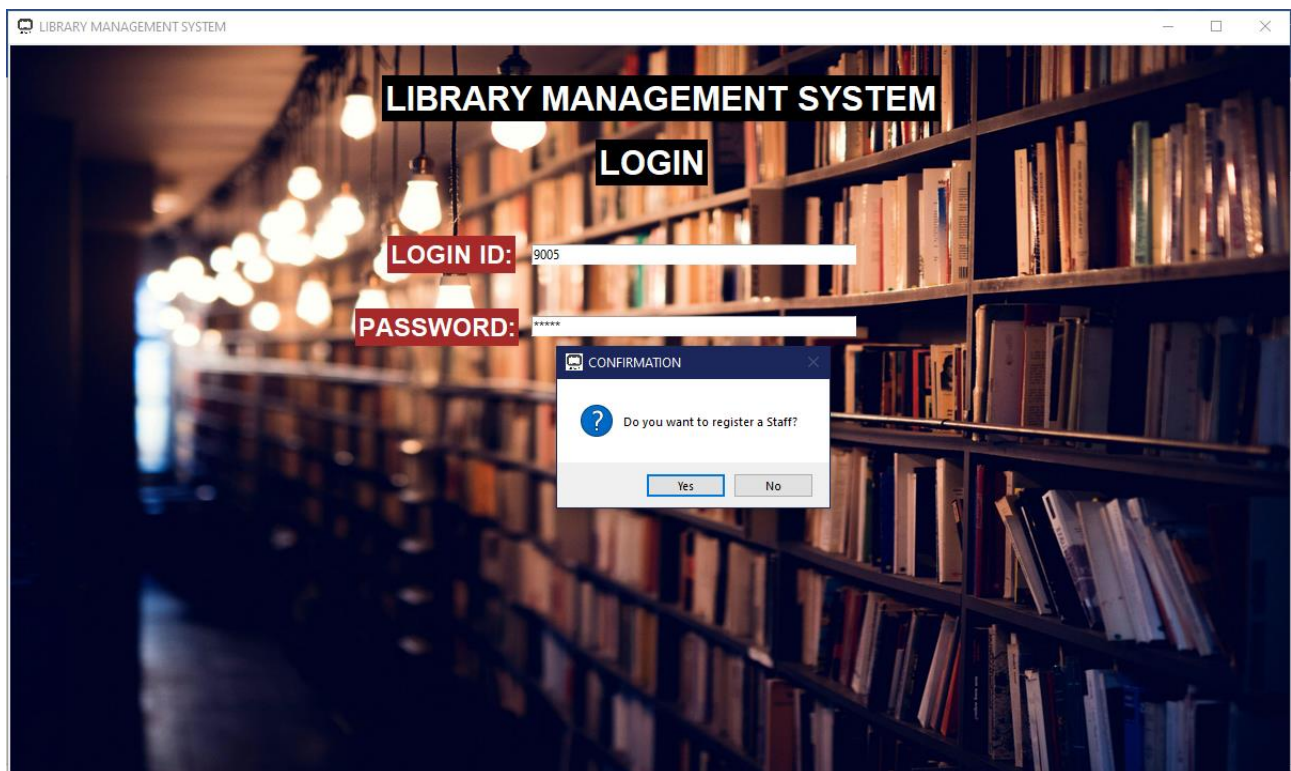
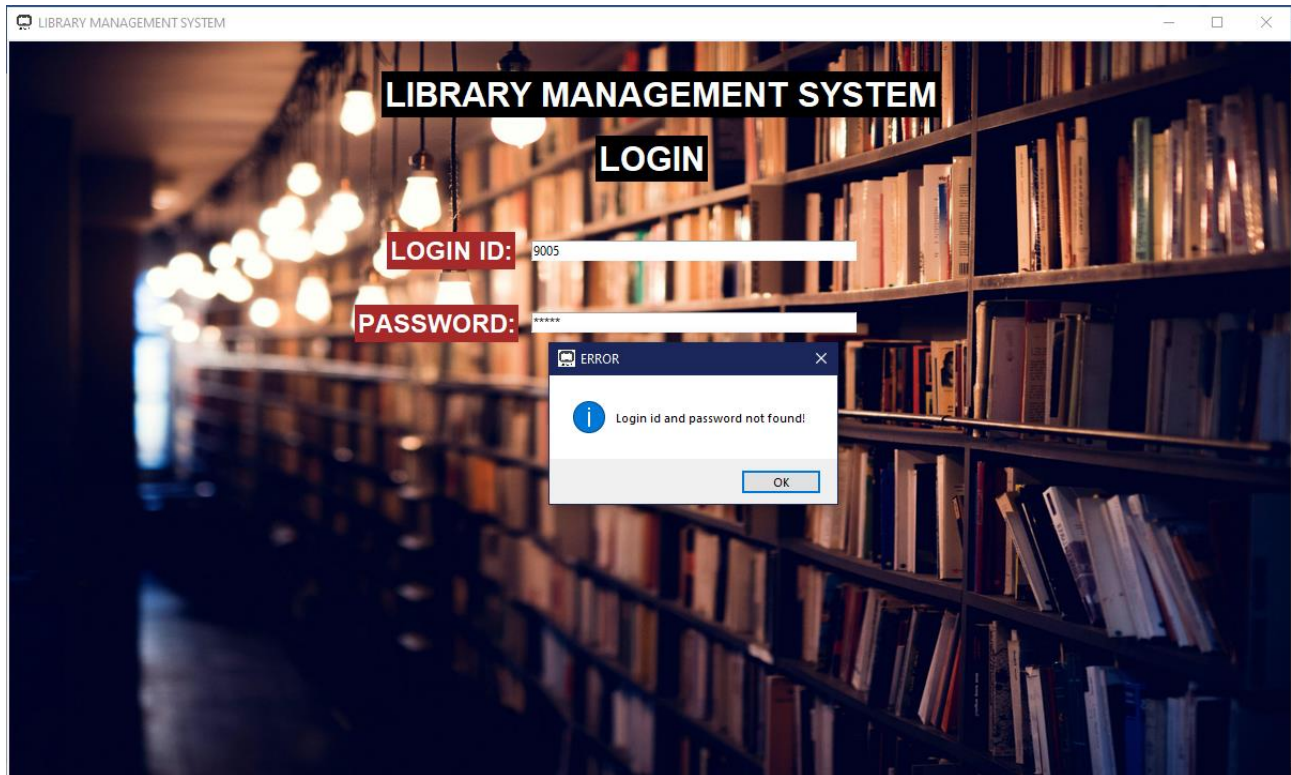
Chapter 5

RESULT

Login page:



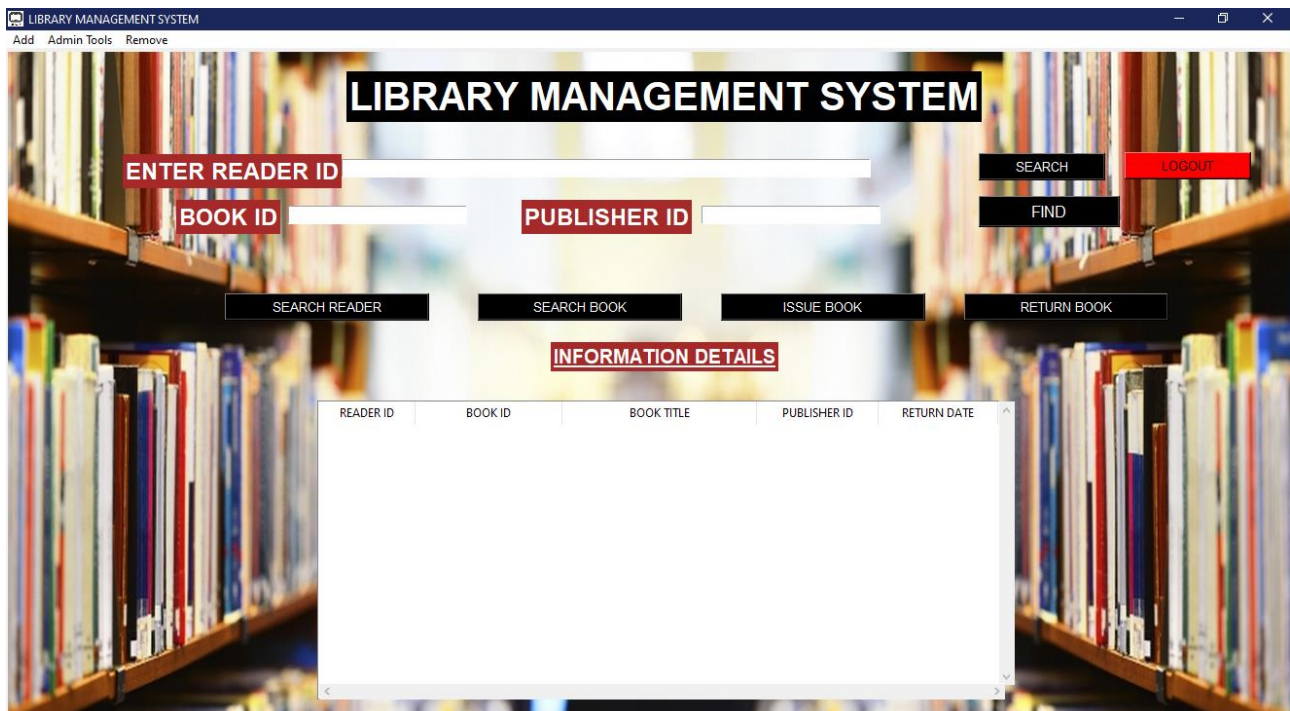
If the login credentials are not correct, it gives an error and asks if we want to register a staff.



By giving correct credentials, the staff can successfully login.



Operation window: This window shows the various functions that a staff/librarian can perform.



The staff can check which registered user has issued the book and not returned yet, he can get this information by either providing reader id of that user or book ID and publisher ID of that particular book.

The screenshot shows the Library Management System interface. The title bar reads "LIBRARY MANAGEMENT SYSTEM" with menu options "Add", "Admin Tools", and "Remove". The main header is "LIBRARY MANAGEMENT SYSTEM". Below it, there are input fields for "ENTER READER ID" (containing "502"), "BOOK ID", and "PUBLISHER ID". To the right are buttons for "SEARCH", "FIND", and "LOGOUT". Below these are buttons for "SEARCH READER", "SEARCH BOOK", "ISSUE BOOK", and "RETURN BOOK". A section titled "INFORMATION DETAILS" contains a table with the following data:

READER ID	BOOK ID	BOOK TITLE	PUBLISHER ID	RETURN DATE
502	1002	Fundamentals of Database Systems	902	None

The screenshot shows the Library Management System interface. The title bar reads "LIBRARY MANAGEMENT SYSTEM" with menu options "Add", "Admin Tools", and "Remove". The main header is "LIBRARY MANAGEMENT SYSTEM". Below it, there are input fields for "ENTER READER ID", "BOOK ID" (containing "1002"), and "PUBLISHER ID" (containing "902"). To the right are buttons for "SEARCH", "FIND", and "LOGOUT". Below these are buttons for "SEARCH READER", "SEARCH BOOK", "ISSUE BOOK", and "RETURN BOOK". A section titled "INFORMATION DETAILS" contains a table with the following data:

READER ID	BOOK ID	BOOK TITLE	PUBLISHER ID	RETURN DATE
502	1002	Fundamentals of Database Systems	902	None

Adding new book window: Staff can add a new book to the catalogue.

ADD NEW BOOK

BOOK DETAILS

BOOK ID:	1012
BOOK TITLE:	Unix and shell Programming
BOOK AUTHOR:	M.G. Venkatesh Murthy
BOOK EDITION:	2
BOOK CATEGORY:	Unix Programming
BOOK PRICE:	9700
PUBLISHER ID:	912
PUBLISHER NAME:	Pearson Education
PUBLICATION YEAR:	2014

INFORMATION

Successfully Added!

OK

SUBMIT

After successfully adding a book, It asks if another book has to be added.

ADD NEW BOOK

BOOK DETAILS

BOOK ID:	1012
BOOK TITLE:	Unix and shell Programming
BOOK AUTHOR:	M.G. Venkatesh Murthy
BOOK EDITION:	2
BOOK CATEGORY:	Unix Pr
BOOK PRICE:	9700
PUBLISHER ID:	912
PUBLISHER NAME:	Pearson Education
PUBLICATION YEAR:	2014

CONFIRMATION

Do you want to add another book?

Yes No

SUBMIT

Adding new reader window: Staff can register a new reader who can issue books.

ADD NEW READER

READER DETAILS

EMAIL ID: rohith02@gmail.com

NAME: Rohith Sharma

PHONE NUMBER: 9876354423

ADDRESS: 34/7 Venkat Flats, Cubbon Park, Karnataka

SUBMIT

DONE

Reader Inserted Successfully!

OK

After successfully registering a reader, It asks if another reader has to be added.

ADD NEW READER

READER DETAILS

EMAIL ID: rohith02@gmail.com

NAME: Rohith Sharma

PHONE NUMBER: 9876354423

ADDRESS: 34/7 Venkat Flats, Cubbon Park, Karnataka

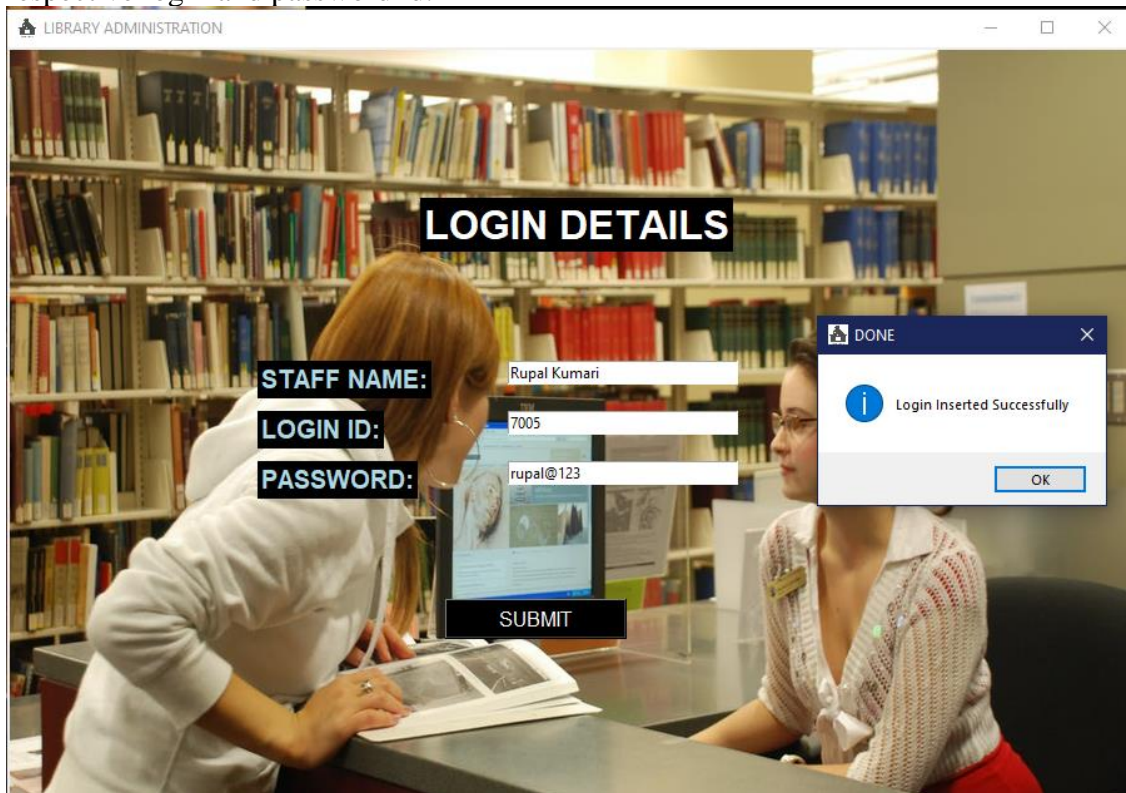
SUBMIT

CONFIRMATION

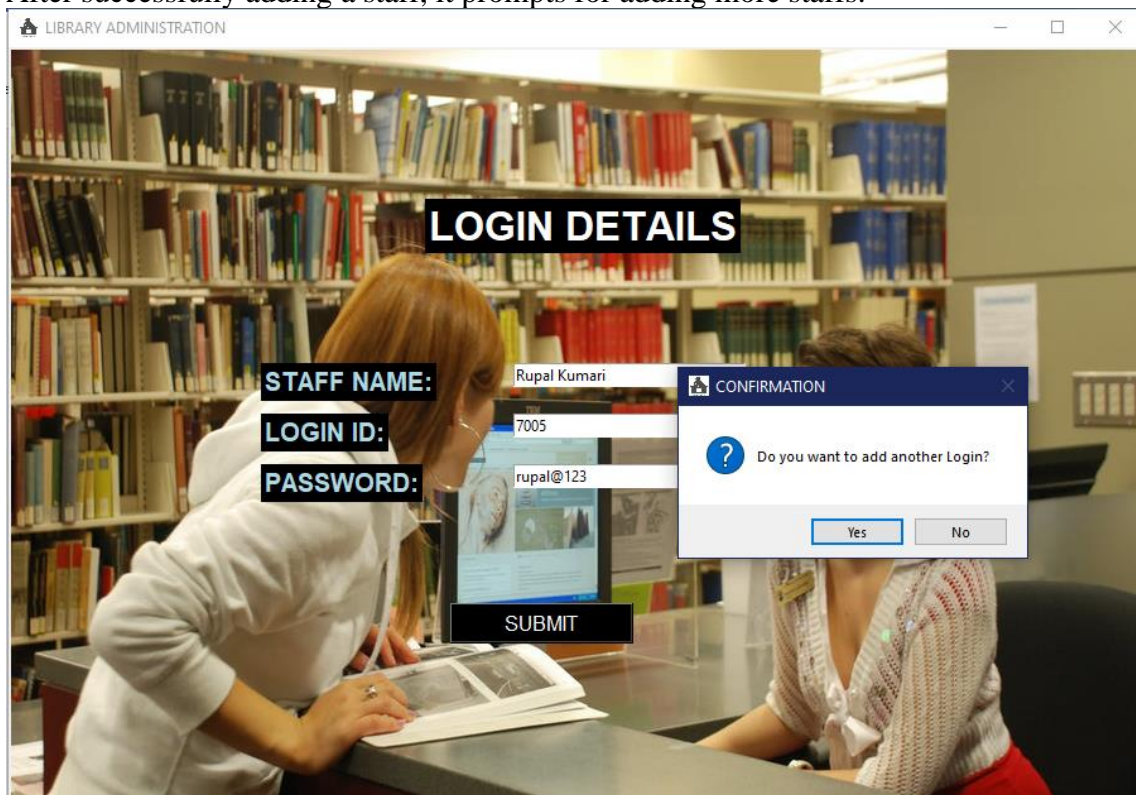
Do you want to add another reader?

Yes No

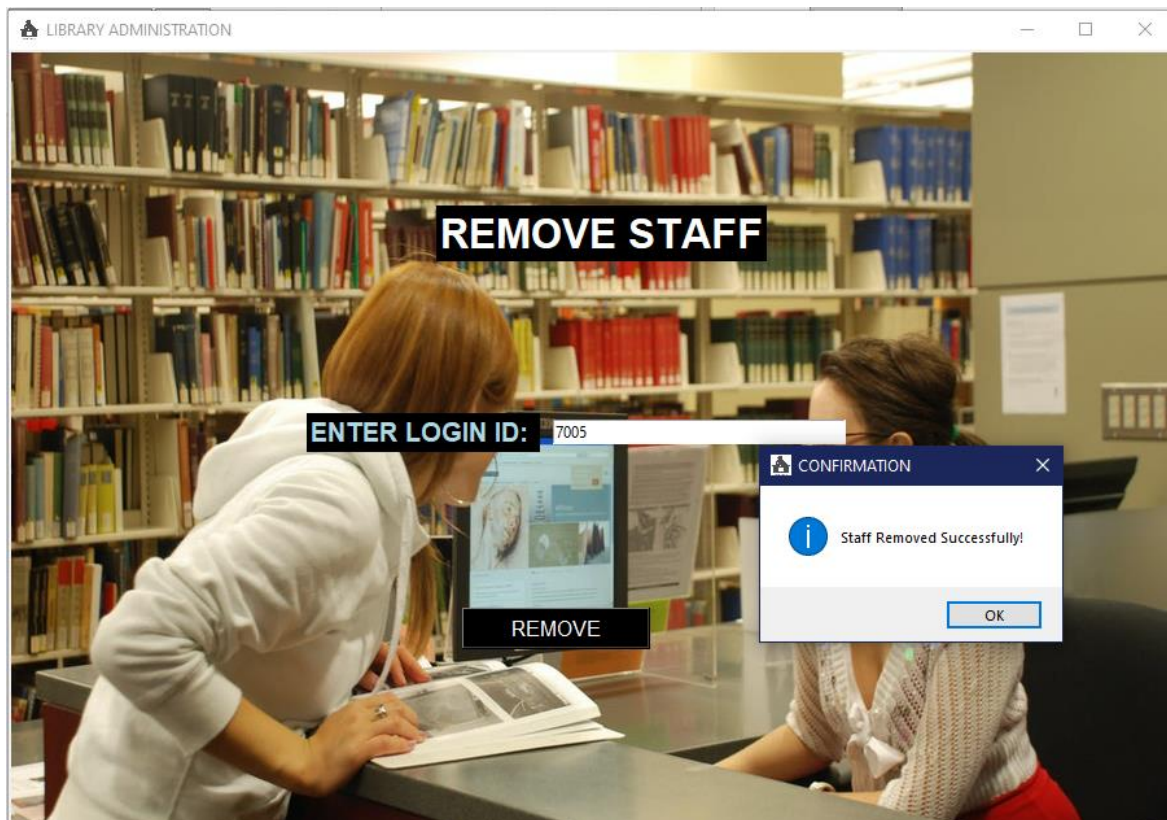
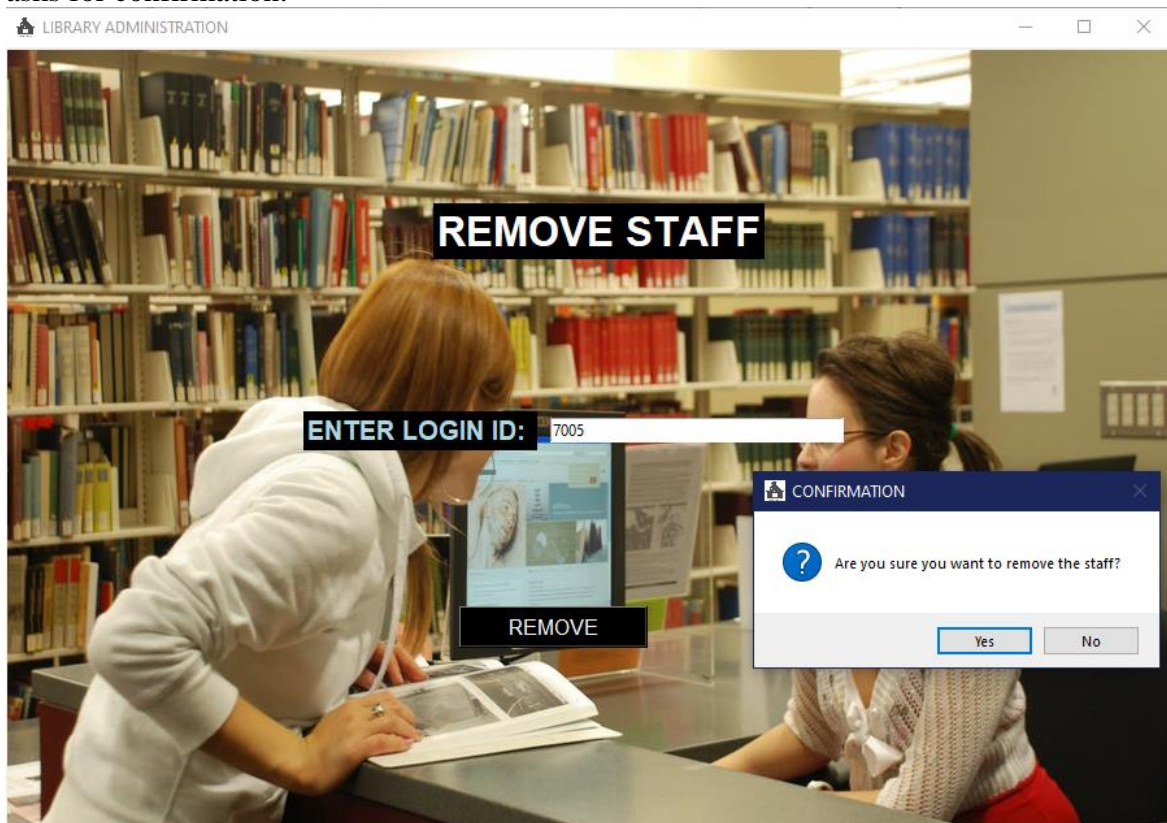
Adding new Staff: Staff can add information about another staff, who has his/her own respective login and password id.



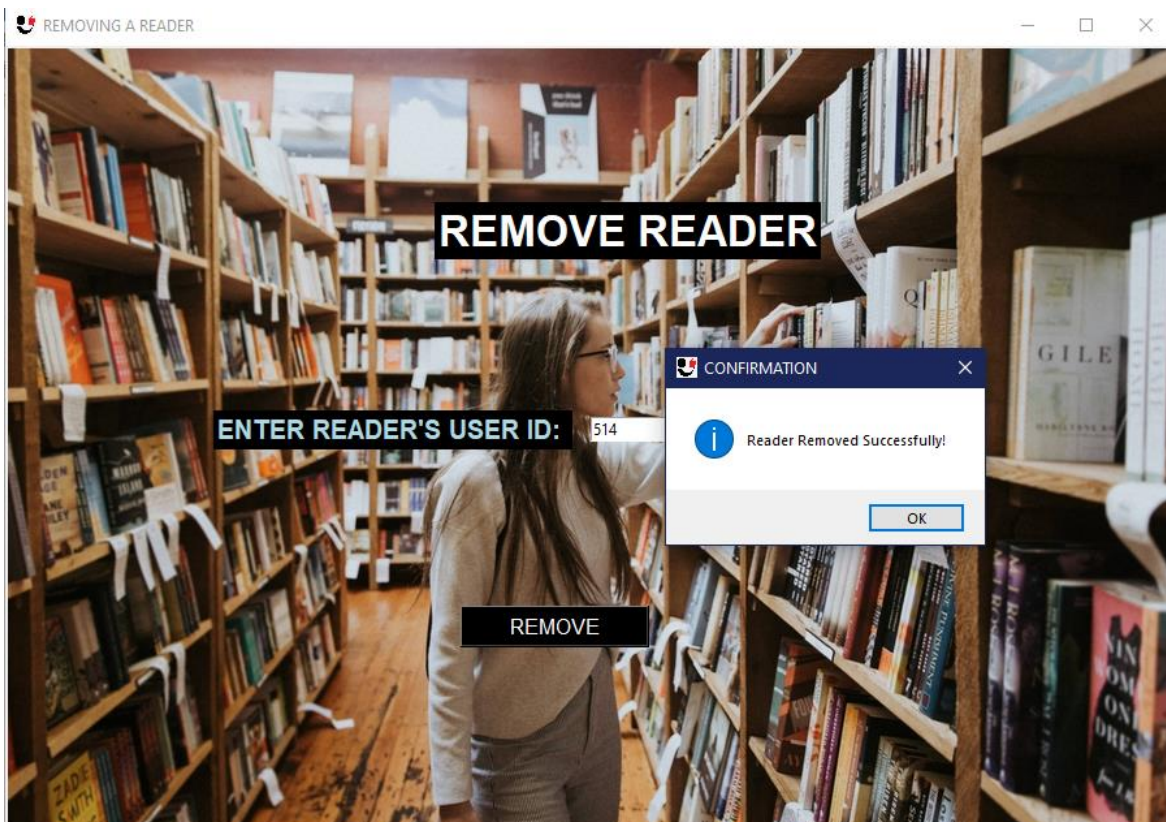
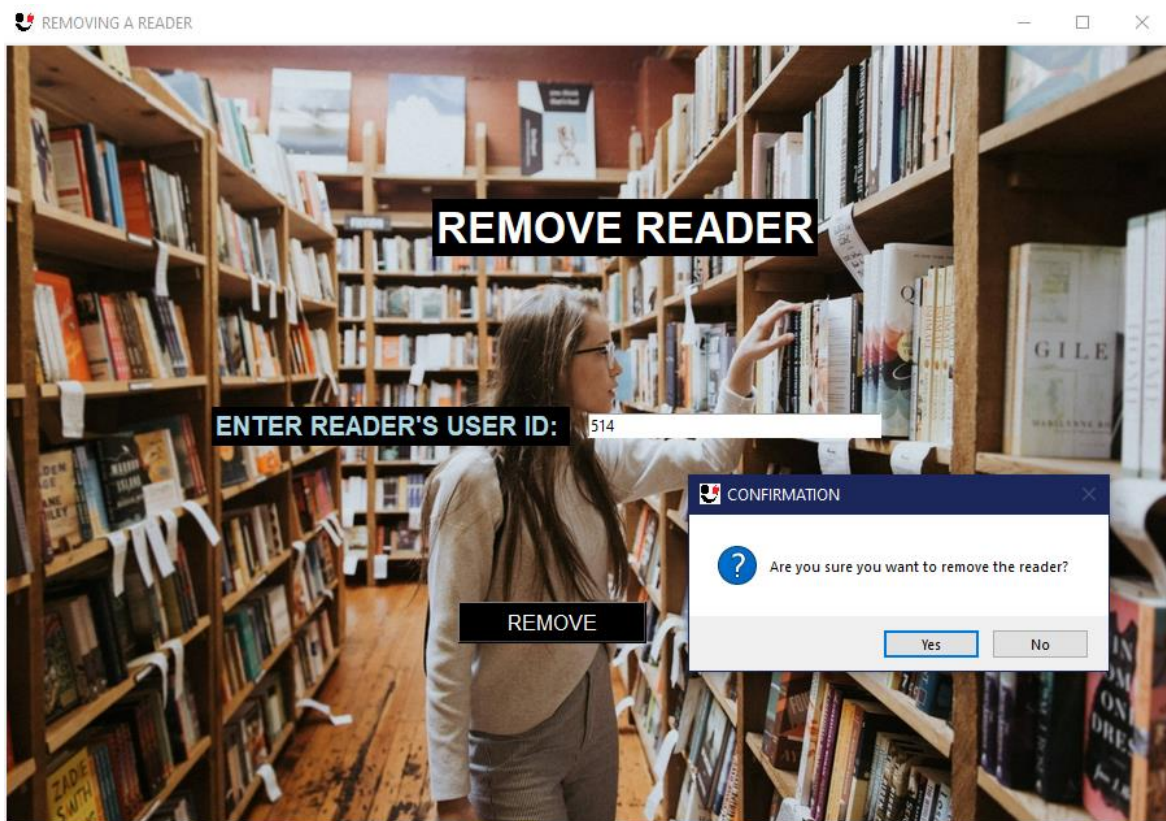
After successfully adding a staff, it prompts for adding more staffs.



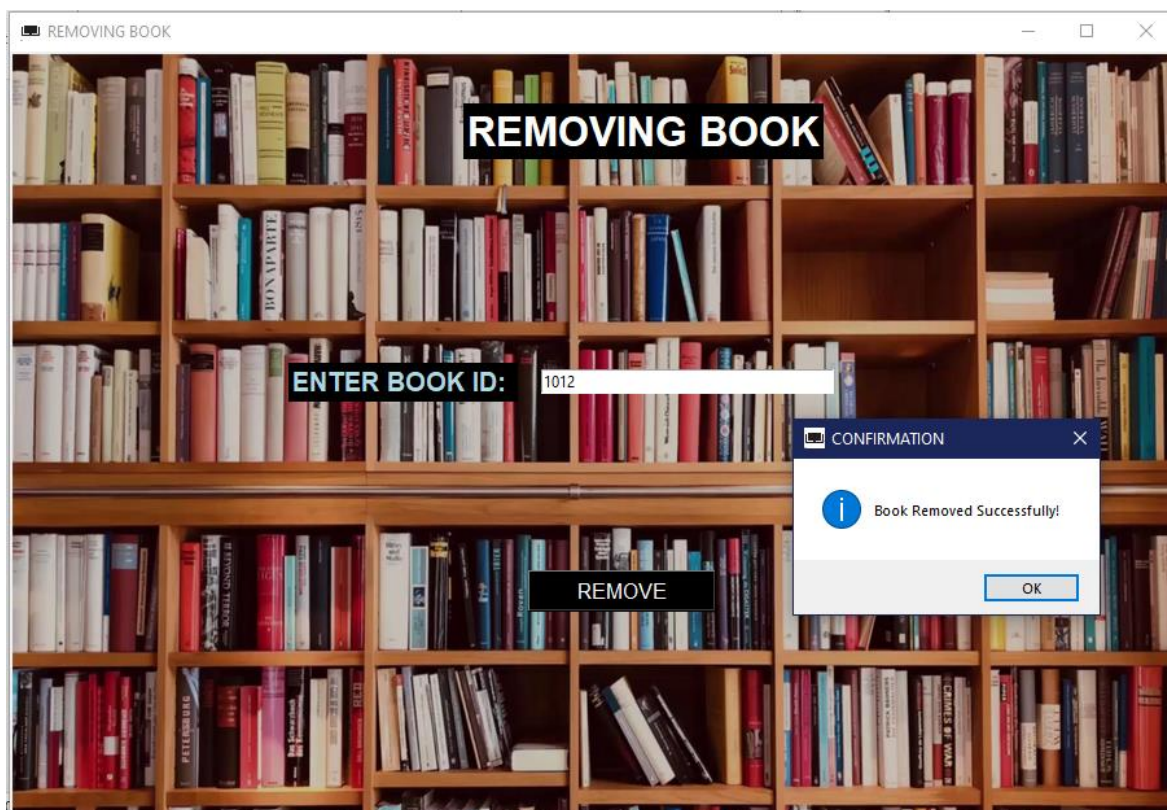
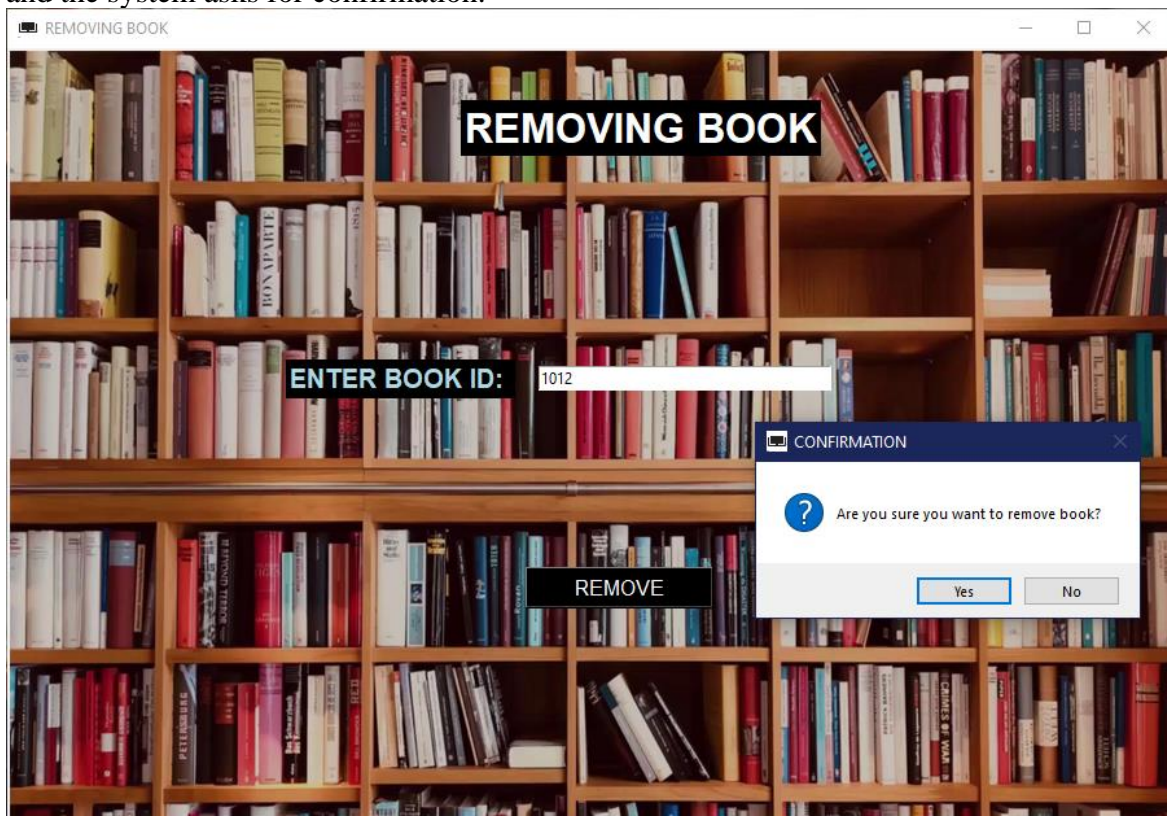
Removing a staff window: Staff can remove a staff by providing his/her respective staff id and asks for confirmation.



Removing a reader window: Staff can remove an existing reader by providing his/her user id and asks for confirmation.



Removing a book window: Staff can remove a book from the catalogue by providing its book id and the system asks for confirmation.



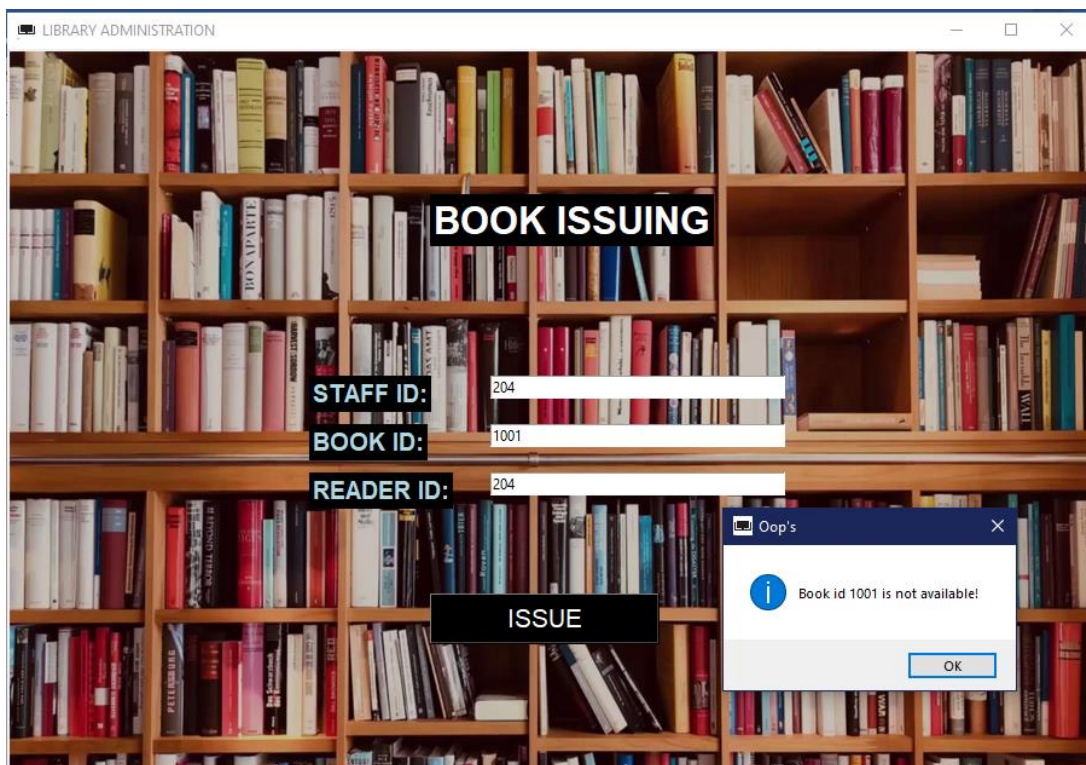
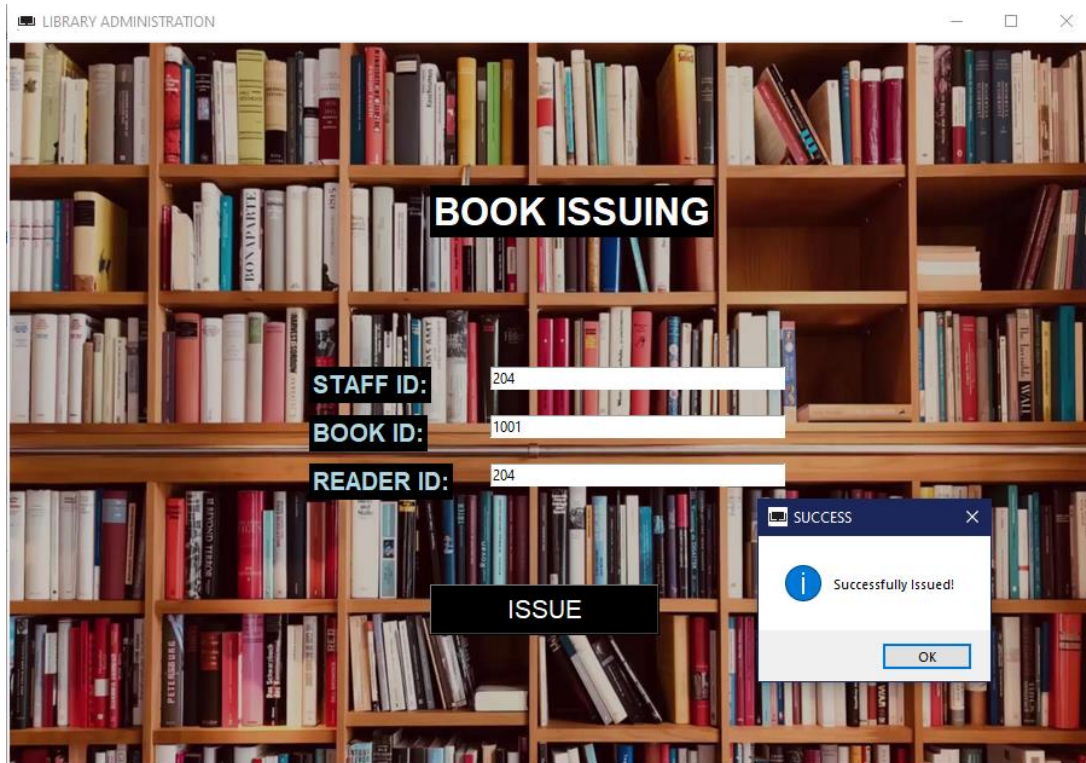
Searching a reader's information window: Staff can search a reader choosing any one parameter and providing its values.

READER ID	EMAIL	NAME	PHONE NUMBER	ADDRESS
501	robin123@gmail.com	Robin Kashyap	9765456734	101-102, Sita Niwas, Plot 49, I

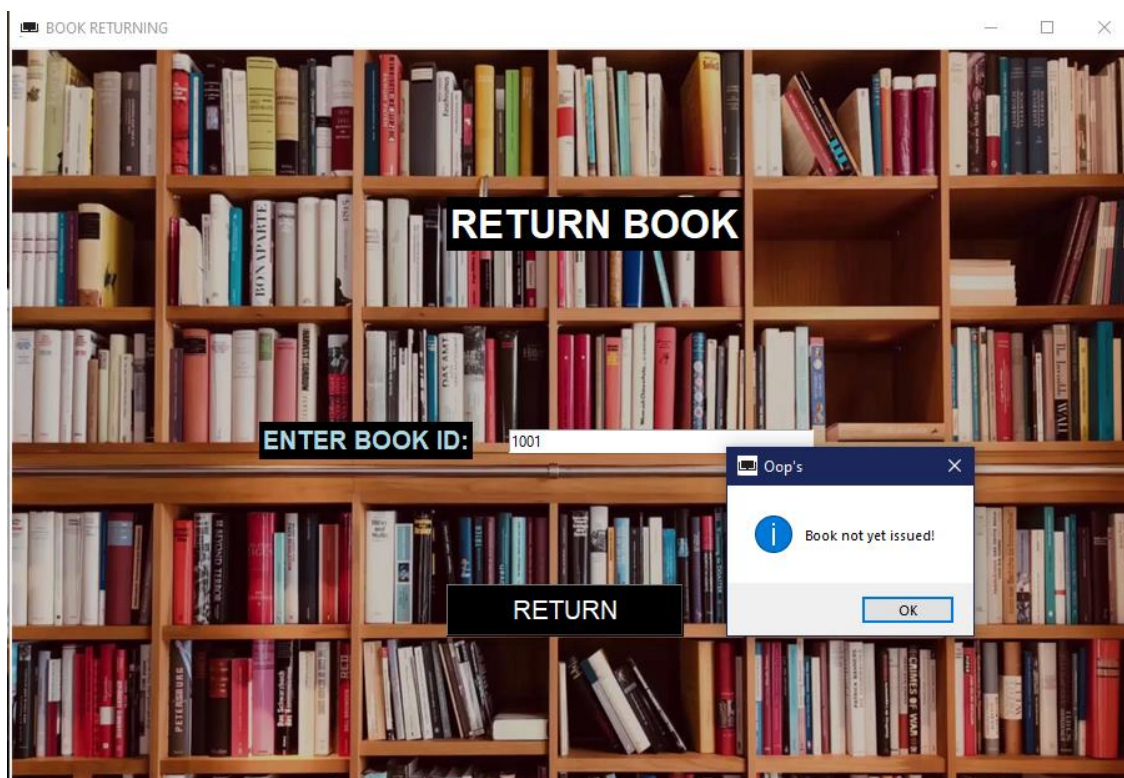
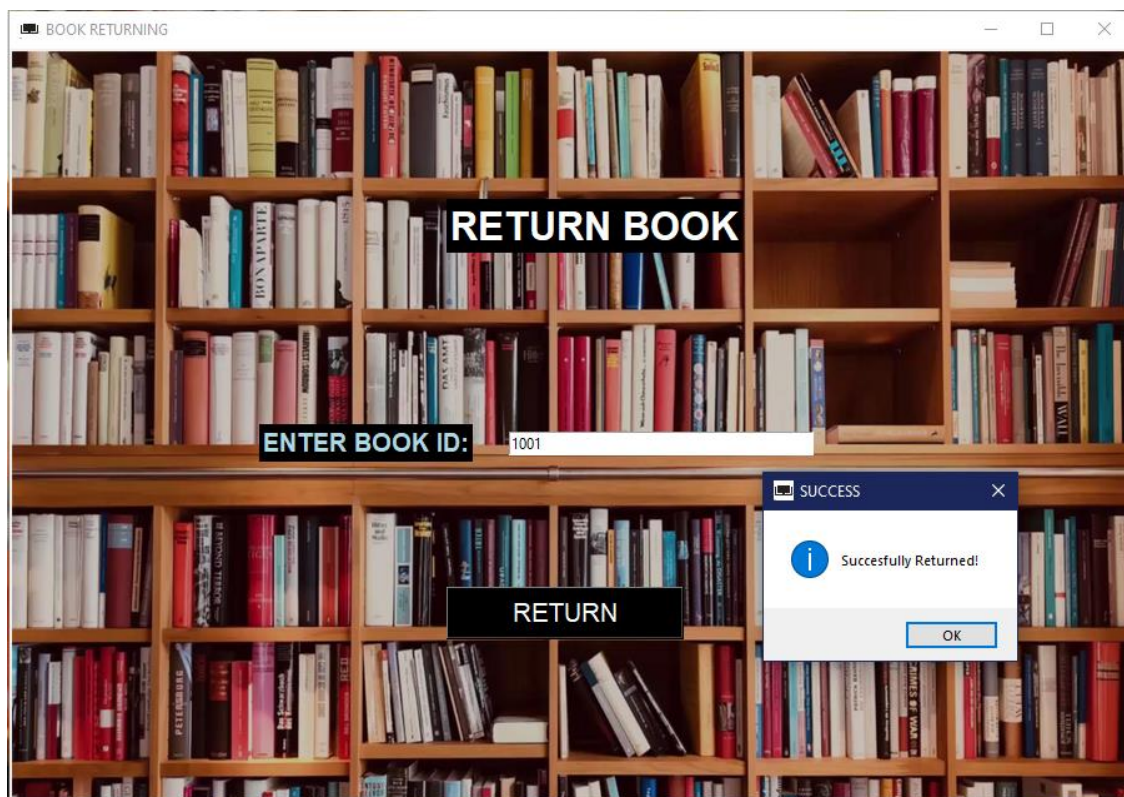
Staff can search a book by choosing any parameter and providing its values.

BOOK ID	BOOK NAME	BOOK AUTHOR	EDITION	CATEGORY	PRICE
1001	Database management systems	Ramakrishnan and Gehrke	3	Database Management Sy	9000
1002	Fundamentals of Database Systems	Ramez Elmasri and Shamka	7	Database Management Sy	8000
1003	Database System Concepts	Silberschatz Korth and Suc	6	Database Management Sy	6000

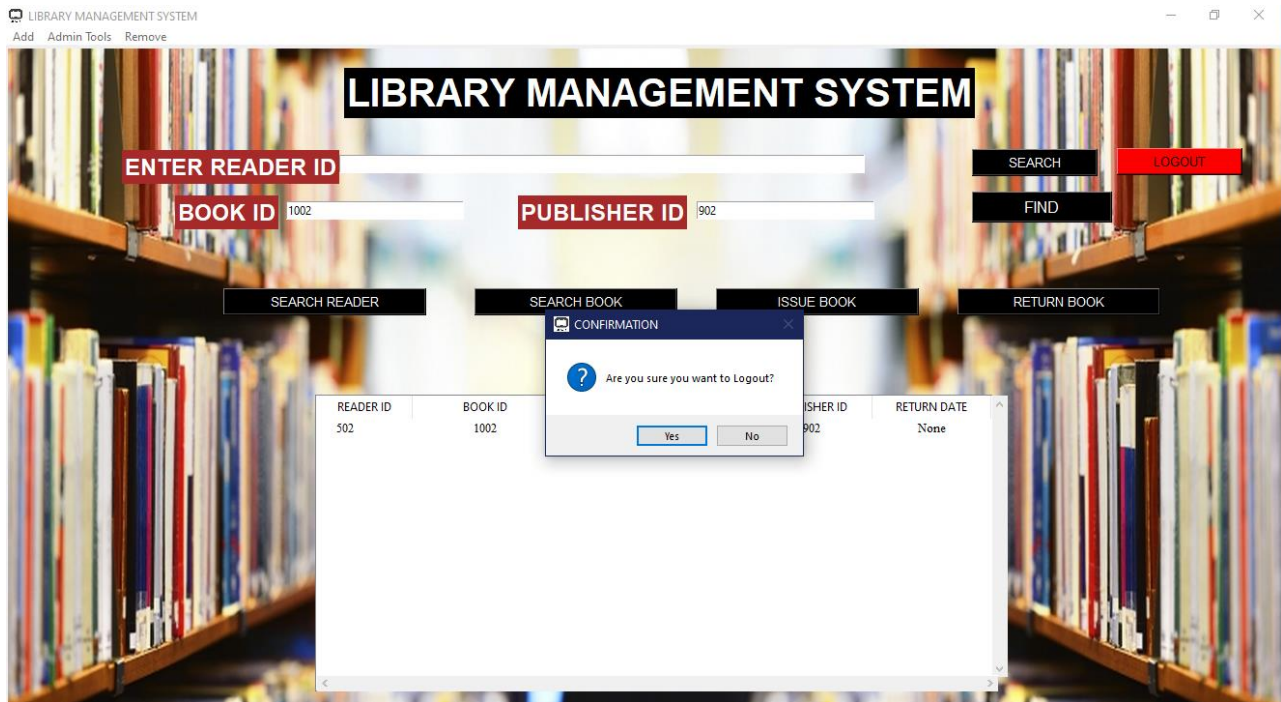
Book Issuing window: A book can be issued by providing staff id of that particular staff, and book id of the required book, as well as the reader id of the reader who wants to issue the book, if the book is available, it is issued.



Returning a book window: A book can be returned by giving book id, if that book is issued and not returned, then the book is returned or an error is prompted.



Log out window : Staff can log out by selecting the log out button, and he/she will be prompted.



Chapter 6

CONCLUSION AND FUTURE ENHANCEMENTS

6.1 Conclusion

The proposed library management system provides a user-friendly platform for librarians or staff to keep track of books . It makes searching for books and reader information easier. The system will help the librarian to manage the details of other staff, books, readers , publishers and enable to track each stage of issuing from initial issuing made by them to the returning of the book.

It will be easier to store, process, manage and track all the data related to the books issued. Using a platform to organize all the book details allows for easy tracking of every book. This is also a more trustable and accurate way of handling data as there is a high risk of data loss or data corruption in keeping offline records.

Thus, we can say our project is a very trustable and accurate type of data management for library management and will be very helpful in the real world.

The project teaches us the essential skills like:

- Understanding the database handling and query processing.
- Implement, analyze and evaluate the project developed for an application.
- Demonstrate the working of different concepts of DBMS.

6.2 Future Enhancements

The system is designed in such a way that provisions can be given for further enhanced without affecting the system presently developed. The enhancements that can be incorporated are:

- Fine can be generated for those readers who don't return book after a specific period of time.
- A feedback module can be incorporated in order to improve and make right the services offered.