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 allows for a seamless flow of library activities by eliminating the possibility of errors in the details.

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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 madeby 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.

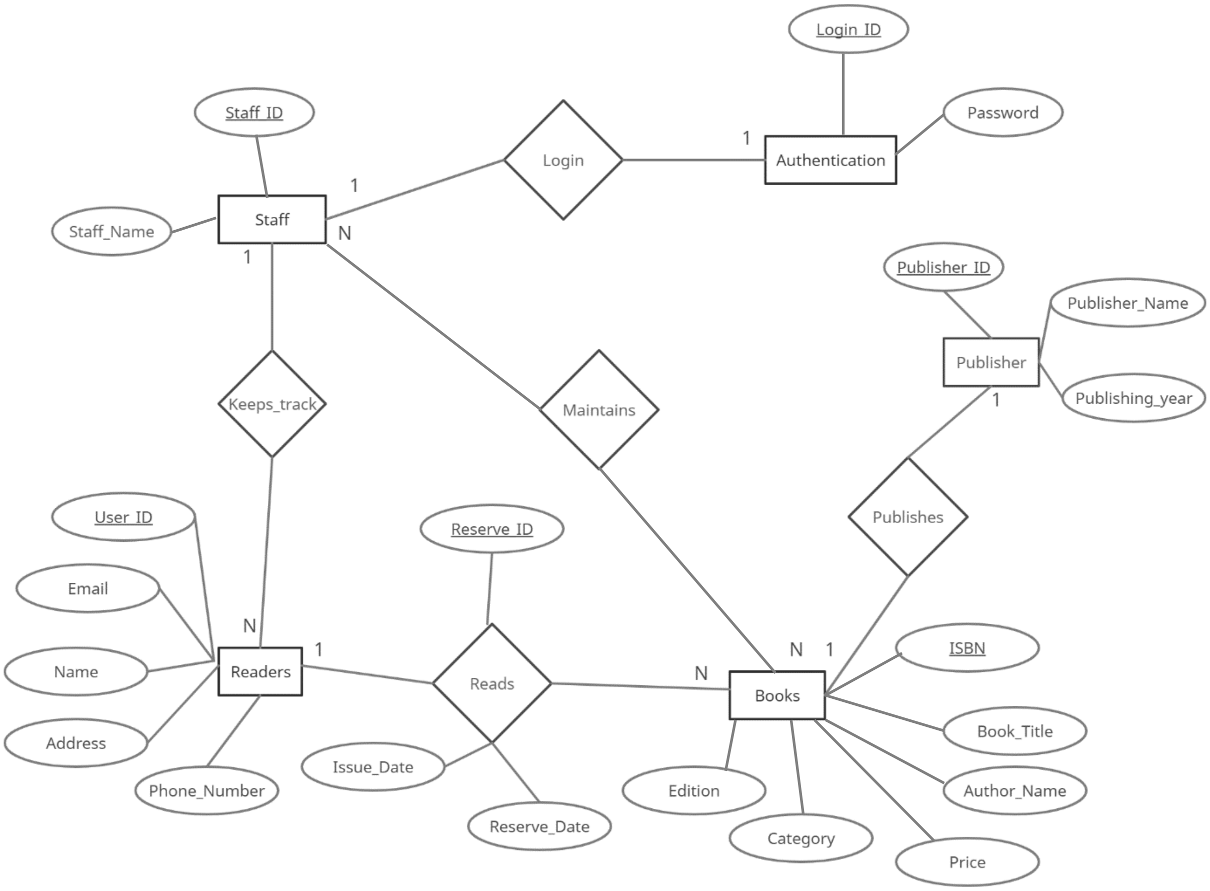


Fig 3.1: E-R Diagram of Library Management System

The above figure illustrates the Entity Relationship Diagram 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.

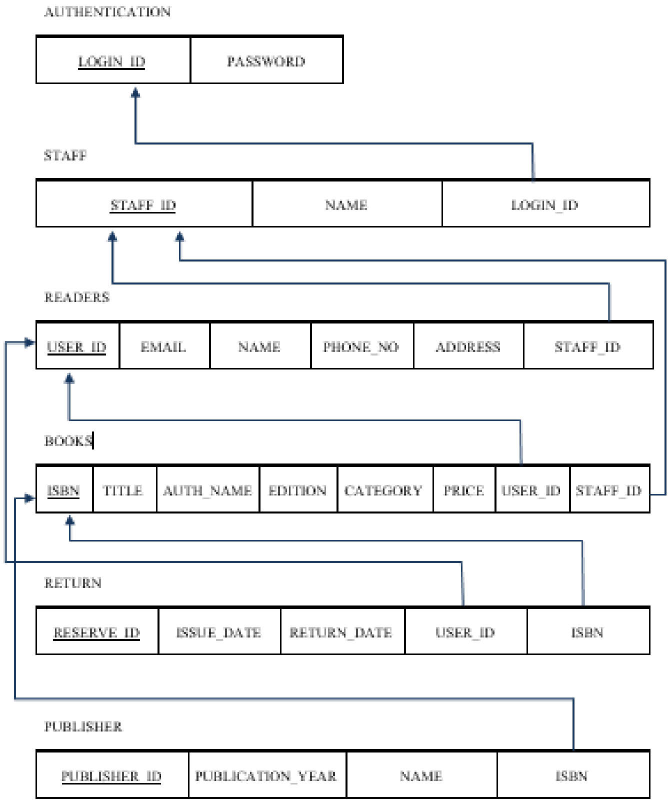


Fig 3.2: Schema Diagram

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)
);
```

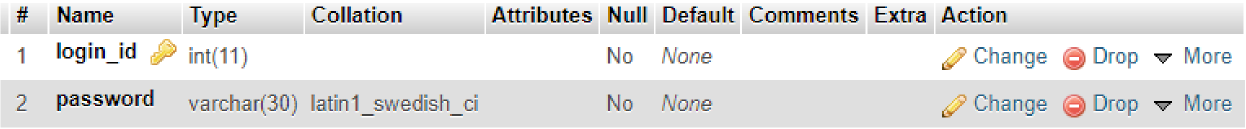
```
Create table return_b
(
        reserve_id integer primary key,
        issue_date date,
        return_date date,
        user_id references readers(user_id)
        staff_id references staff(staff_id)
        isbn references books(isbn)
);

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

4.2 Description of Table

In sql we can use the command “desc table_name” or “describe table_name” to describe the list of column definitions for the specified table. We obtain information such as column name, whether the column allows NULL or not and the datatype of the column. The following figures show the description of all the tables used in this system.

Desc authentication;

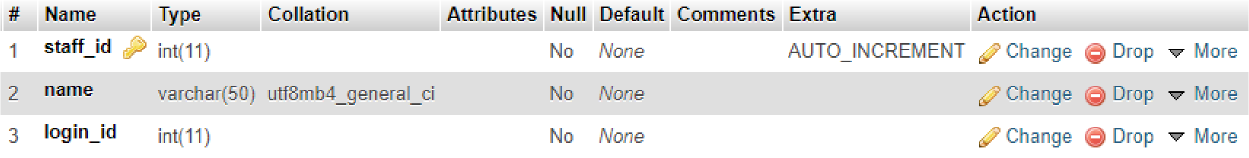


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	login_id 🔑	int(11)			No	*None*			Change Drop More
2	password	varchar(30)	latin1_swedish_ci		No	*None*			Change Drop More

Fig 4.2.1: Description of authentication table

The above figure:4.2.1 shows all the attributes of the table authentication and their respective ids and passwords . All the login listed in this table have access to the database.

Desc staff;

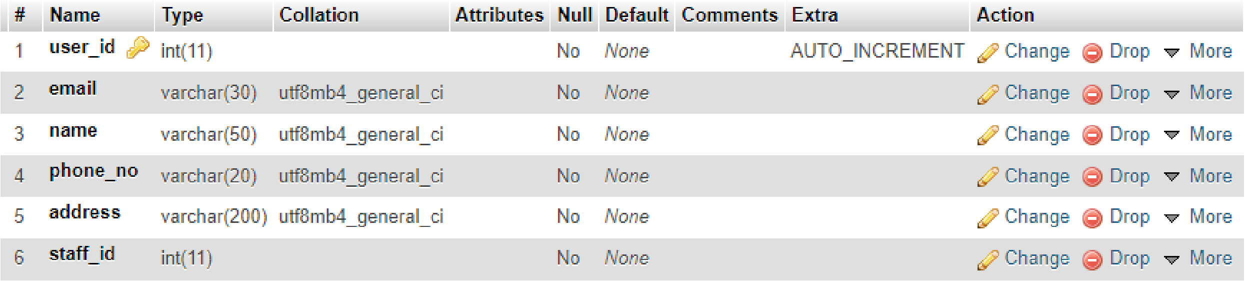


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	staff_id 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	name	varchar(50)	utf8mb4_general_ci		No	*None*			Change Drop More
3	login_id	int(11)			No	*None*			Change Drop More

Fig 4.2.2: Description of staff table

The above figure:4.2.2 shows all the attributes of the table staff and their respective ids and names . All the staff listed in this table have access to the database.

Desc readers;

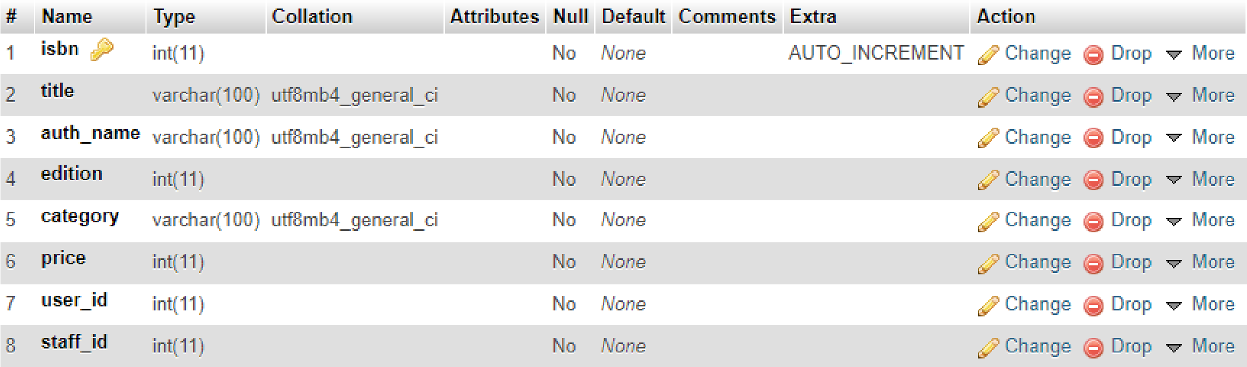


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	user_id 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	email	varchar(30)	utf8mb4_general_ci		No	*None*			Change Drop More
3	name	varchar(50)	utf8mb4_general_ci		No	*None*			Change Drop More
4	phone_no	varchar(20)	utf8mb4_general_ci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

The above figure:4.2.3 shows all the attributes of the table readers and their personal information . All the readers listed in this table can issue a book from the database.

Desc books;

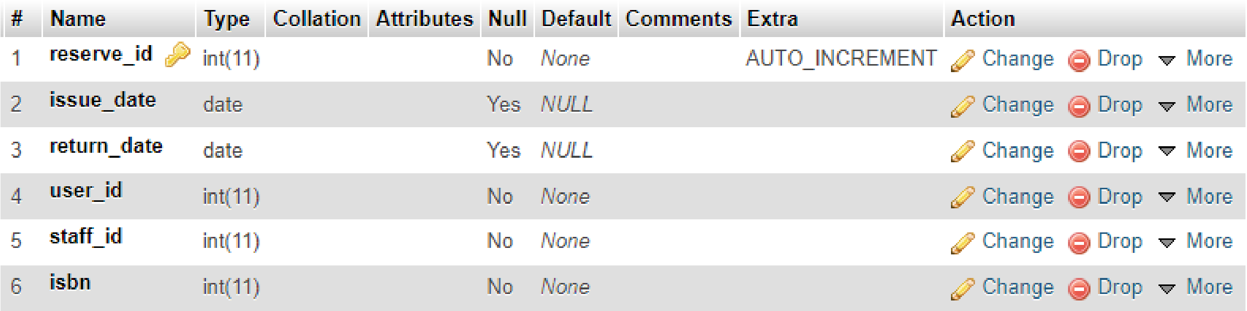


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	isbn 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	title	varchar(100)	utf8mb4_general_ci		No	*None*			Change Drop More
3	auth_name	varchar(100)	utf8mb4_general_ci		No	*None*			Change Drop More
4	edition	int(11)			No	*None*			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

The above figure:4.2.4 shows all the attributes of the table books and their respective information . if a reader issues a particular book, their user id and that staff's staff id are updated in this table until that reader returns that book.

Desc return_b;

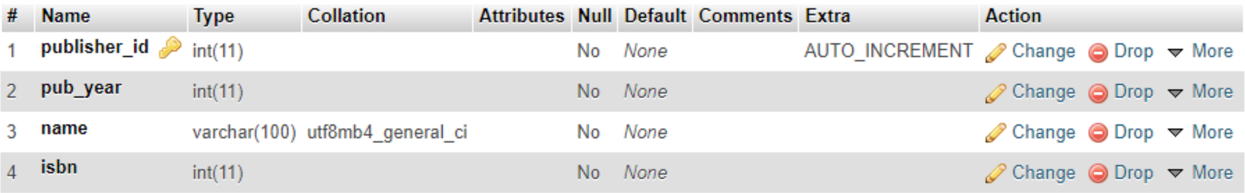


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	reserve_id 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	issue_date	date			Yes	*NULL*			Change Drop More
3	return_date	date			Yes	*NULL*			Change Drop More
4	user_id	int(11)			No	*None*			Change Drop More
5	staff_id	int(11)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

Fig 4.2.5: Description of return_b table

The above figure:4.2.5 shows all the attributes of the table return_b. When a reader issues a book, his/her user id and the particular staff's staff id is stored here with issue date set as the current date.

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

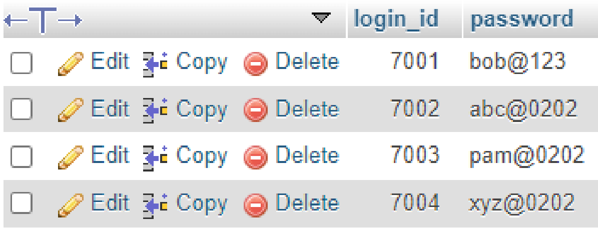
Fig 4.2.6: Description of publisher table

The above figure:4.2.6 shows all the attributes of the table publisher. This table contains all information about publication of a particular book.

4.3 Populated Tables

The SELECT statement is used to select data from a database. The data returned is stored in a result table, called the result-set. We can use the command “select * from table_name” to obtain all the values of the table. The following figures show the values of each table.

Select * from authentication;

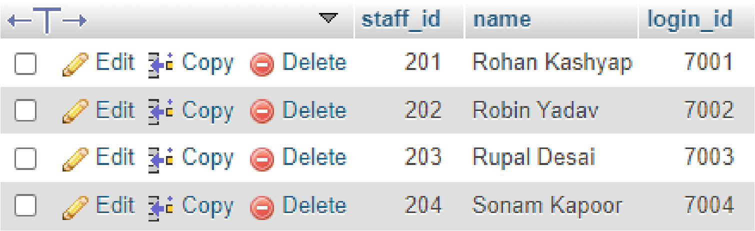


←T→	login_id	password
□ Edit Copy Delete	7001	bob@123
□ Edit Copy Delete	7002	abc@0202
□ Edit Copy Delete	7003	pam@0202
□ Edit Copy Delete	7004	xyz@0202

Fig 4.3.1: Values of authentication table

The above figure:4.3.1 lists the populated table authentication with the list of all logins.

Select * from staff;

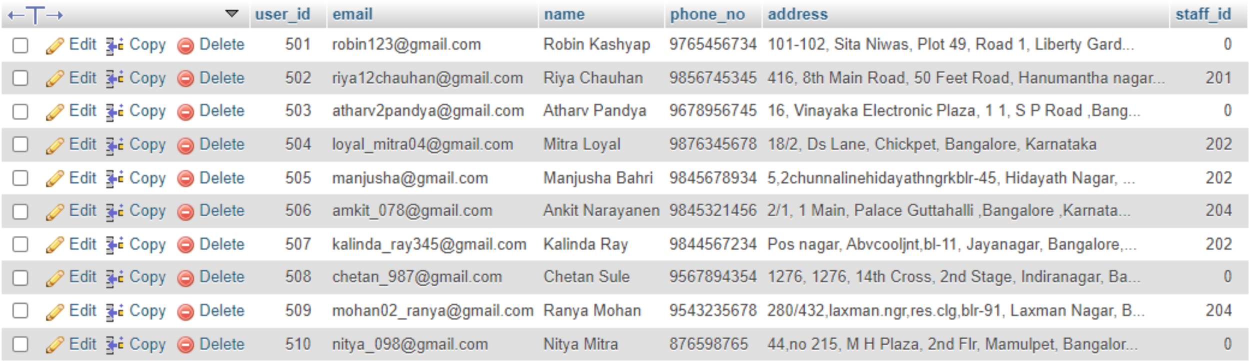


←T→	staff_id	name	login_id
□ Edit Copy Delete	201	Rohan Kashyap	7001
□ Edit Copy Delete	202	Robin Yadav	7002
□ Edit Copy Delete	203	Rupal Desai	7003
□ Edit Copy Delete	204	Sonam Kapoor	7004

Fig 4.3.2: Values of staff table

The above figure:4.3.2 lists the populated table staff with the list of all staffs.

Select * from readers;

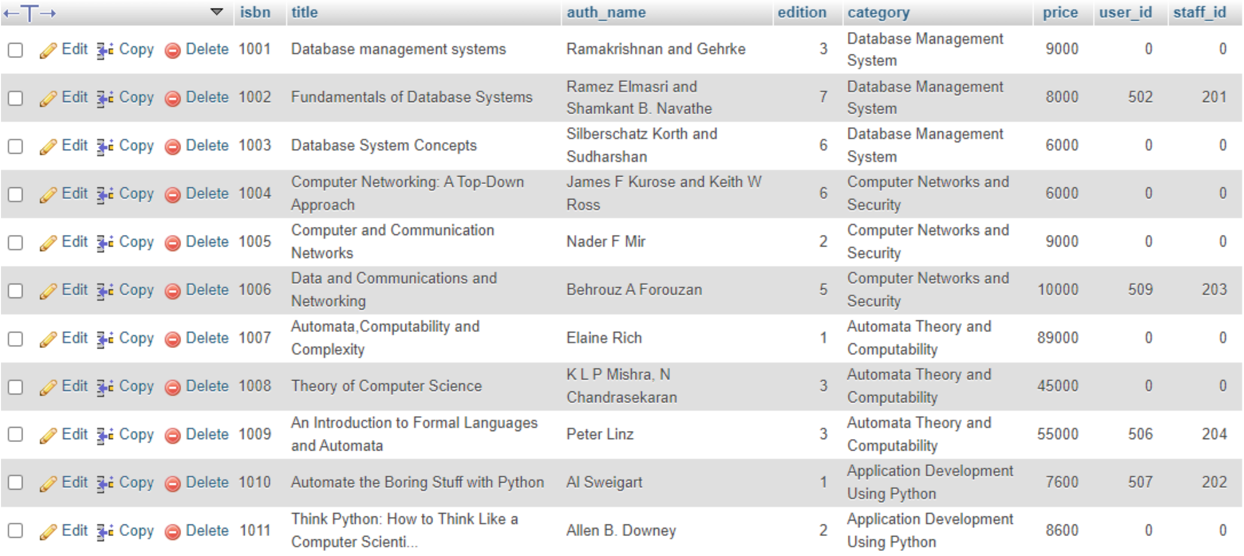


←T→	user_id	email	name	phone_no	address	staff_id
□ Edit Copy Delete	501	robin123@gmail.com	Robin Kashyap	9765456734	101-102, Sita Niwas, Plot 49, Road 1, Liberty Gard...	0
□ Edit Copy Delete	502	riya12chauhan@gmail.com	Riya Chauhan	9856745345	416, 8th Main Road, 50 Feet Road, Hanumantha nagar...	201
□ Edit Copy Delete	503	atharv2pandya@gmail.com	Atharv Pandya	9678956745	16, Vinayaka Electronic Plaza, 1 1, S P Road ,Bang...	0
□ Edit Copy Delete	504	loyal_mitra04@gmail.com	Mitra Loyal	9876345678	18/2, Ds Lane, Chickpet, Bangalore, Karnataka	202
□ Edit Copy Delete	505	manjusha@gmail.com	Manjusha Bahri	9845678934	5,2chunnalinehidayathngrkblr-45, Hidayath Nagar, ...	202
□ Edit Copy Delete	506	amkit_078@gmail.com	Ankit Narayanen	9845321456	2/1, 1 Main, Palace Guttahalli ,Bangalore ,Karnata...	204
□ Edit Copy Delete	507	kalinda_ray345@gmail.com	Kalinda Ray	9844567234	Pos nagar, Abvcooljnt,bl-11, Jayanagar, Bangalore,...	202
□ Edit Copy Delete	508	chetan_987@gmail.com	Chetan Sule	9567894354	1276, 1276, 14th Cross, 2nd Stage, Indiranagar, Ba...	0
□ Edit Copy Delete	509	mohan02_ranya@gmail.com	Ranya Mohan	9543235678	280/432,laxman.ngr,res.clg,blr-91, Laxman Nagar, B...	204
□ Edit Copy Delete	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

The above figure:4.3.3 lists the populated table readers with the list of all registered readers.

Select * from books;

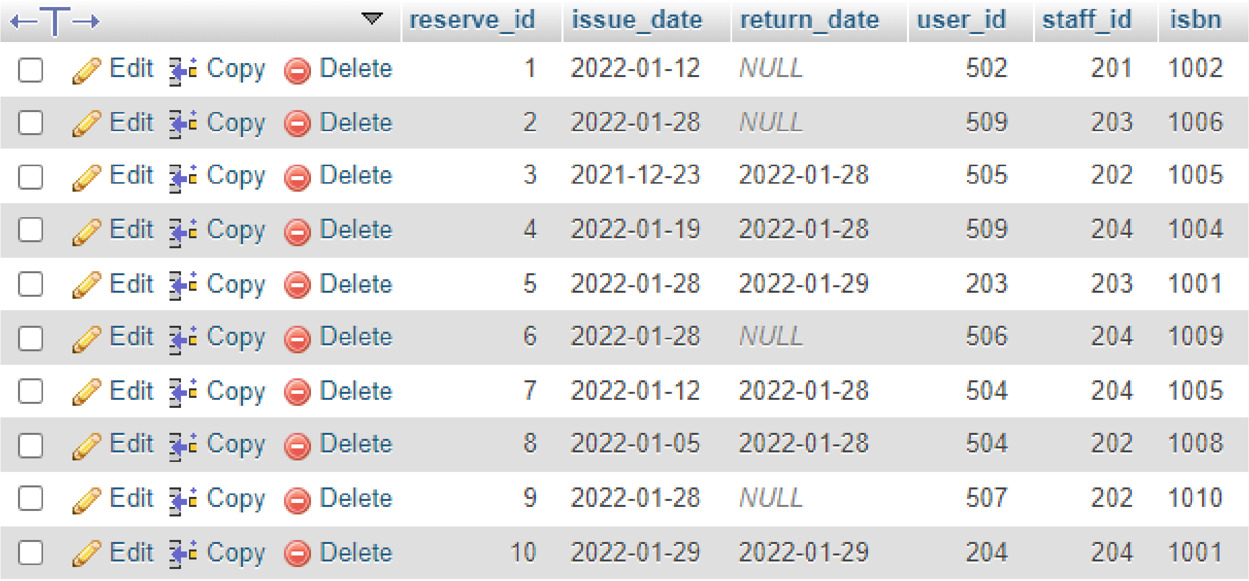


←T→	isbn	title	auth_name	edition	category	price	user_id	staff_id
□ Edit Copy Delete	1001	Database management systems	Ramakrishnan and Gehrke	3	Database Management System	9000	0	0
□ Edit Copy Delete	1002	Fundamentals of Database Systems	Ramez Elmasri and Shamkant B. Navathe	7	Database Management System	8000	502	201
□ Edit Copy Delete	1003	Database System Concepts	Silberschatz Korth and Sudharshan	6	Database Management System	6000	0	0
□ 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
□ Edit Copy Delete	1005	Computer and Communication Networks	Nader F Mir	2	Computer Networks and Security	9000	0	0
□ Edit Copy Delete	1006	Data and Communications and Networking	Behrouz A Forouzan	5	Computer Networks and Security	10000	509	203
□ Edit Copy Delete	1007	Automata,Computability and Complexity	Elaine Rich	1	Automata Theory and Computability	89000	0	0
□ Edit Copy Delete	1008	Theory of Computer Science	K L P Mishra, N Chandrasekaran	3	Automata Theory and Computability	45000	0	0
□ Edit Copy Delete	1009	An Introduction to Formal Languages and Automata	Peter Linz	3	Automata Theory and Computability	55000	506	204
□ Edit Copy Delete	1010	Automate the Boring Stuff with Python	Al Sweigart	1	Application Development Using Python	7600	507	202
□ 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

The above figure:4.3.4 lists the populated table books with the list of all available books present in the catalogue.

Select * from return_b;

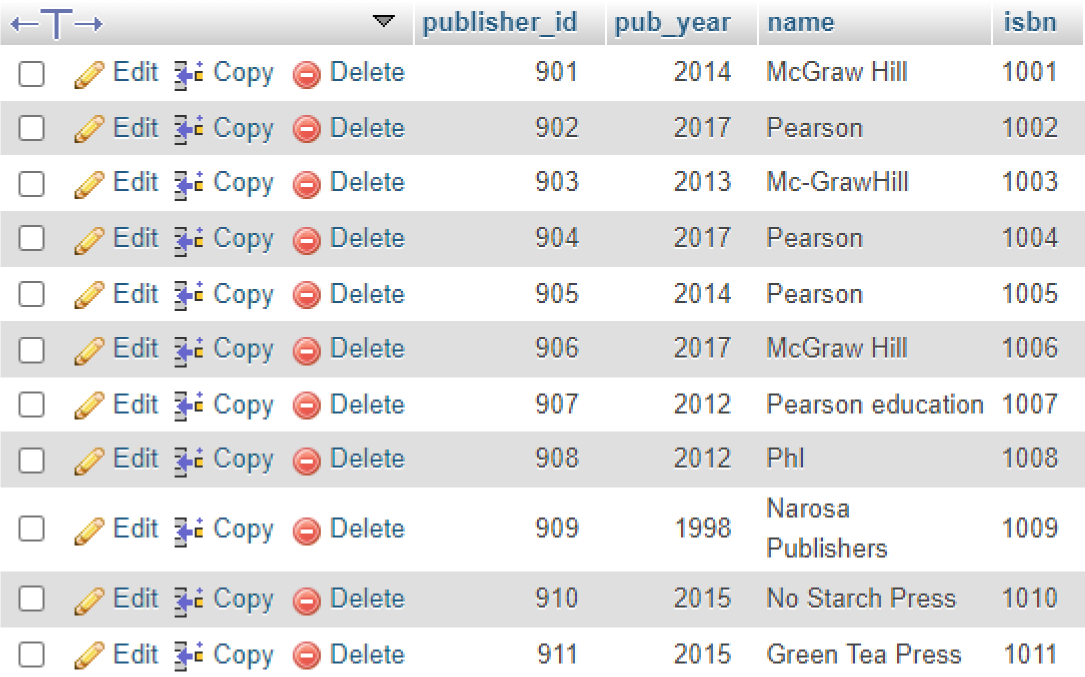


←T→	reserve_id	issue_date	return_date	user_id	staff_id	isbn
□ Edit Copy Delete	1	2022-01-12	NULL	502	201	1002
□ Edit Copy Delete	2	2022-01-28	NULL	509	203	1006
□ Edit Copy Delete	3	2021-12-23	2022-01-28	505	202	1005
□ Edit Copy Delete	4	2022-01-19	2022-01-28	509	204	1004
□ Edit Copy Delete	5	2022-01-28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

Fig 4.3.5: Values of return_b table

The above figure:4.3.5 lists the populated table return_b with the list of all available books that are issued to a particular reader and on which date.

Select * from publisher;



←T→			▼	publisher_id	pub_year	name	isbn
□	Edit	Copy	Delete	901	2014	McGraw Hill	1001
□	Edit	Copy	Delete	902	2017	Pearson	1002
□	Edit	Copy	Delete	903	2013	Mc-GrawHill	1003
□	Edit	Copy	Delete	904	2017	Pearson	1004
□	Edit	Copy	Delete	905	2014	Pearson	1005
□	Edit	Copy	Delete	906	2017	McGraw Hill	1006
□	Edit	Copy	Delete	907	2012	Pearson education	1007
□	Edit	Copy	Delete	908	2012	Phl	1008
□	Edit	Copy	Delete	909	1998	Narosa Publishers	1009
□	Edit	Copy	Delete	910	2015	No Starch Press	1010
□	Edit	Copy	Delete	911	2015	Green Tea Press	1011

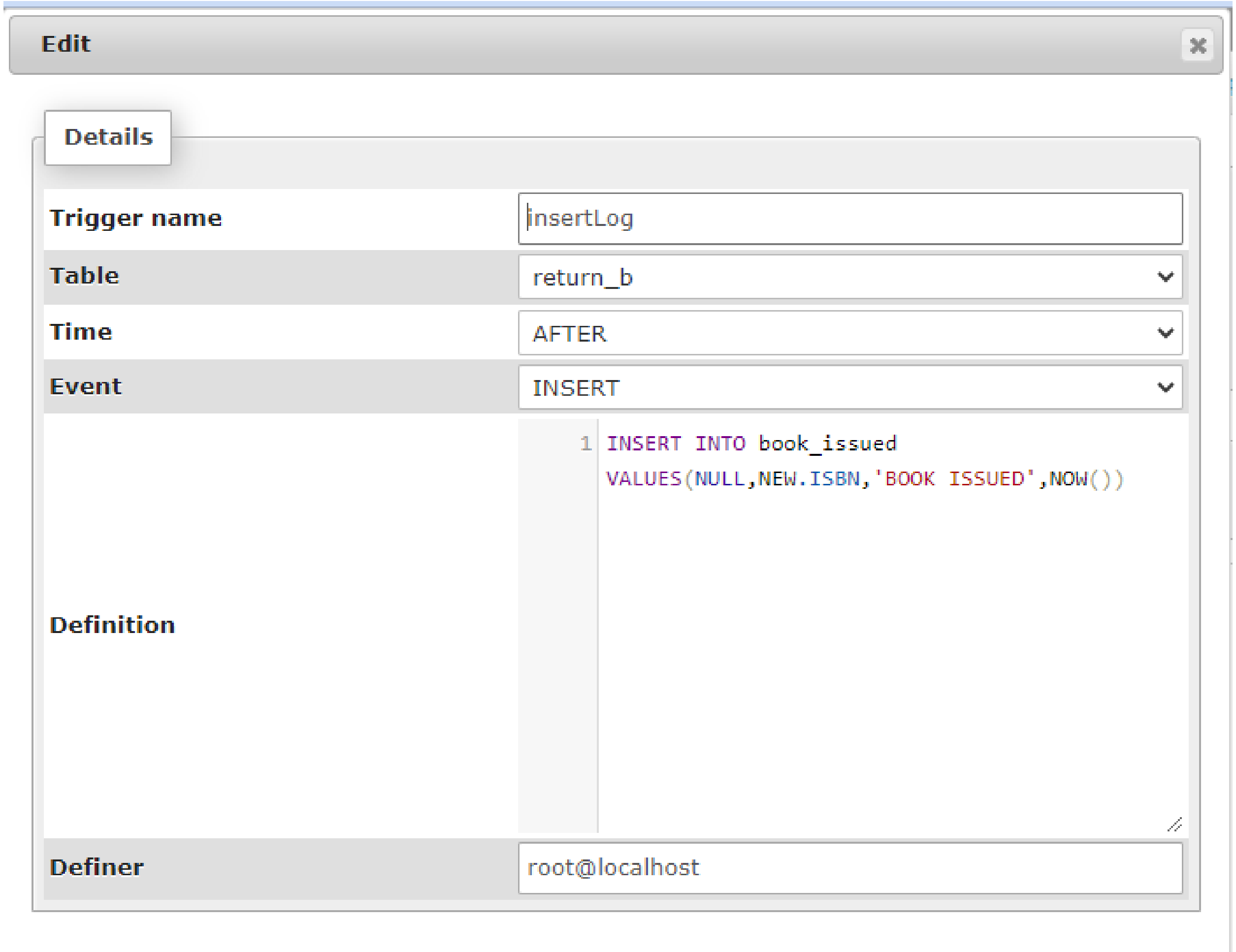
Fig 4.3.6: Values of publisher table

The above figure:4.3.6 lists the populated table publisher with the list of all information regarding publication about that particular book.

4.4 SQL Triggers and Stored Procedures

4.4.1 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.



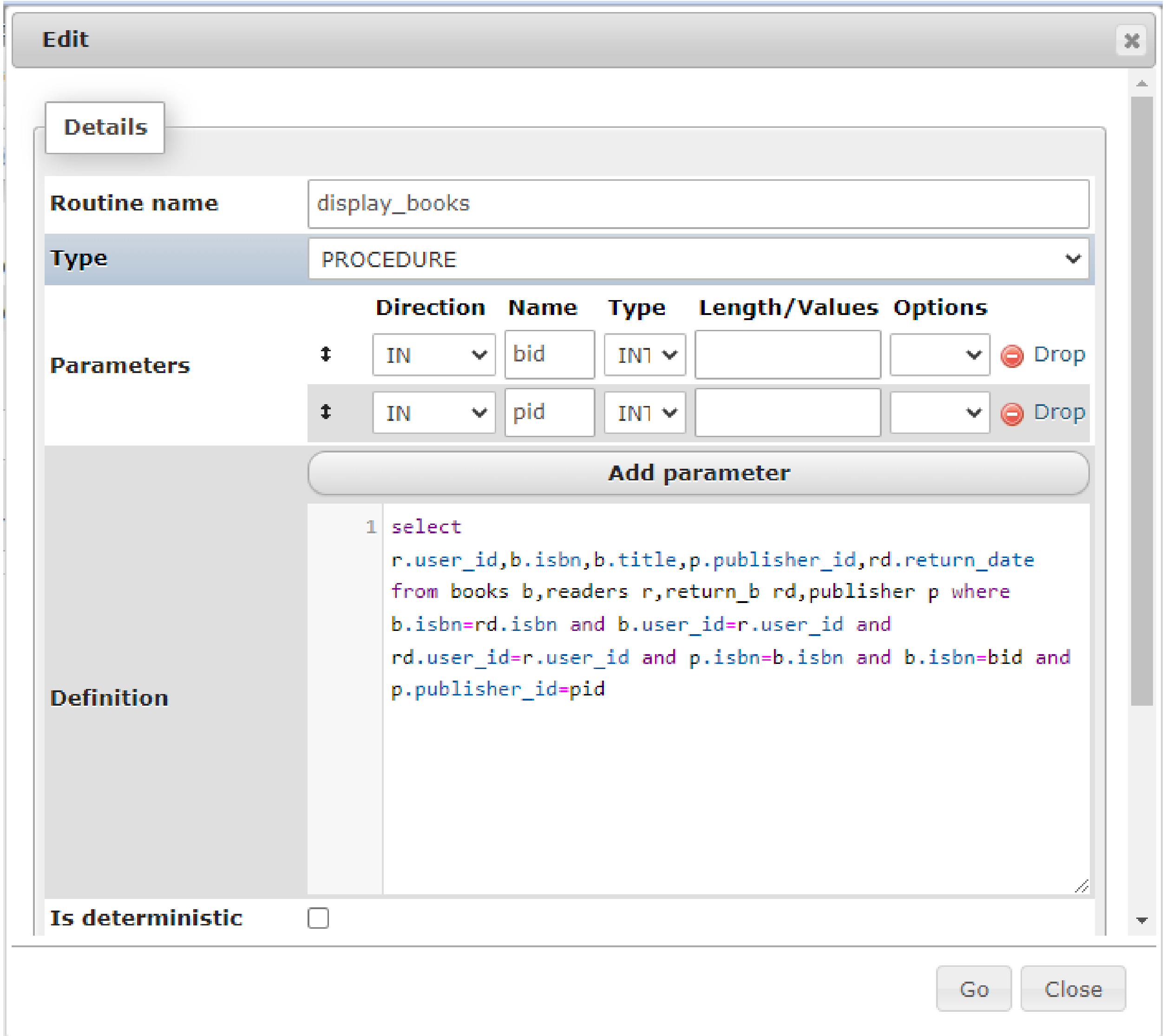
Trigger name	insertLog
Table	return_b
Time	AFTER
Event	INSERT
Definition	`INSERT INTO book_issued VALUES(NULL,NEW.ISBN,'BOOK ISSUED',NOW())`
Definer	root@localhost

Fig 4.4.1: 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.

4.4.2 Stored Procedures

A stored procedure is a set of Structured Query Language (SQL) statements with an assigned name, which are stored in a relational database management system as a group. So if a query has to be written over and over again, instead of having to write that query each time, it can be saved as a stored product and can be executed just by calling the procedure. In addition, parameters can also be passed to the stored procedure. So depending on the need, the stored procedure can act accordingly.



Routine name: display_books

Type: PROCEDURE

Parameters

Direction	Name	Type	Length/Values	Options
IN	bid	INT		
IN	pid	INT		

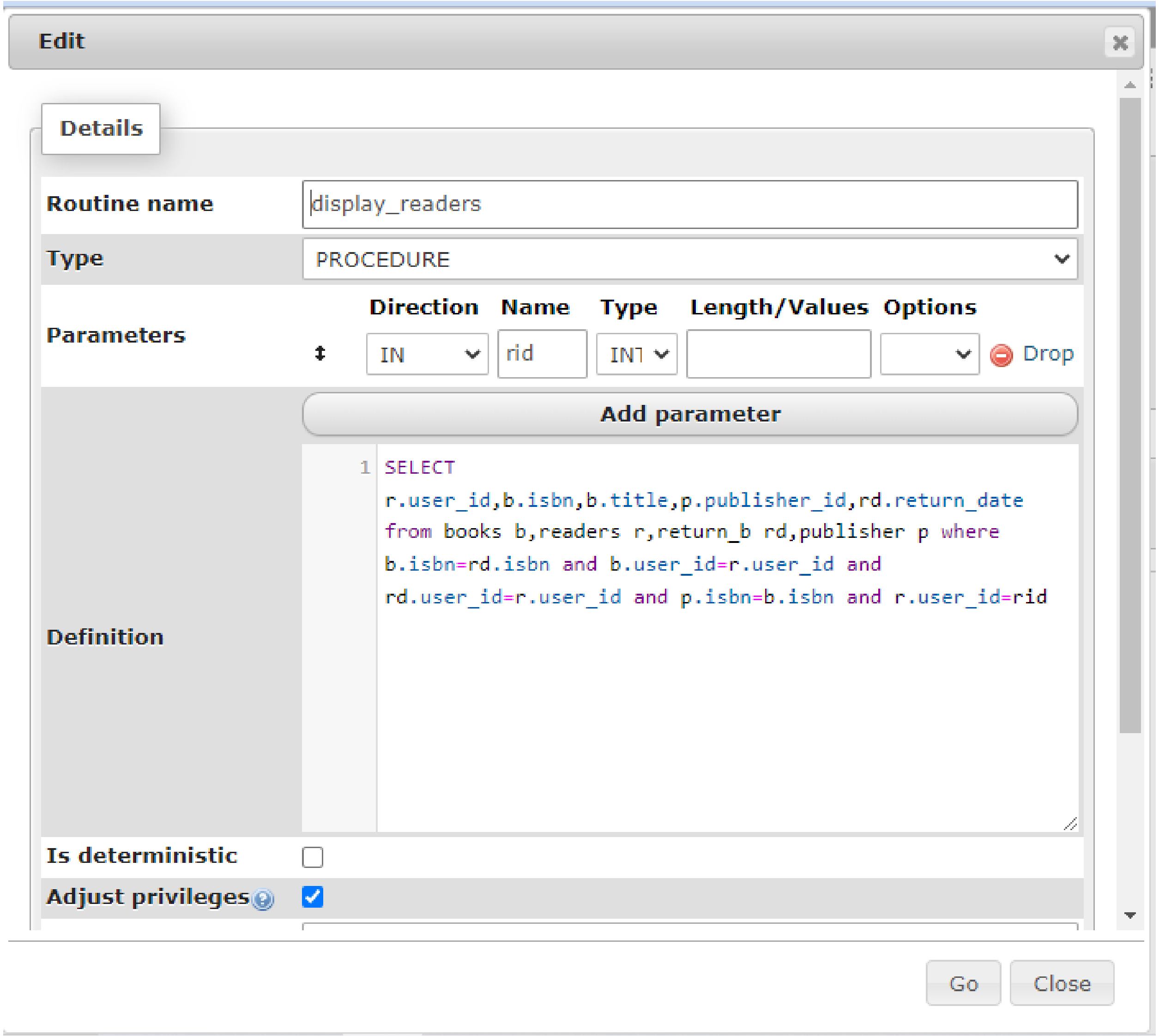
Definition

```
select
r.user_id,b.isbn,b.title,p.publisher_id,rd.return_date
from books b,readers r,return_b rd,publisher p where
b.isbn=rd.isbn and b.user_id=r.user_id and
rd.user_id=r.user_id and p.isbn=b.isbn and b.isbn=bid and
p.publisher_id=pid
```

Is deterministic ☐

Fig 4.4.2: Screen capture of stored procedure 1

The above stored procedure is for displaying book information for a particular book id and publisher id.



Routine name: display_readers

Type: PROCEDURE

Parameters:

Direction	Name	Type	Length/Values	Options
IN	rid	INT		

Definition:

```
SELECT
r.user_id,b.isbn,b.title,p.publisher_id,rd.return_date
from books b,readers r,return_b rd,publisher p where
b.isbn=rd.isbn and b.user_id=r.user_id and
rd.user_id=r.user_id and p.isbn=b.isbn and r.user_id=rid
```

Is deterministic ☐

Adjust privileges ☑

Fig 4.4.3: Screen capture of stored procedure 2

The above stored procedure is for displaying book information for a particular user or reader 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 below flowchart explains how the system runs in the real world. The system can be easily implemented under various situations. Reusability is possible as and when required in this application. There is flexibility in all the modules which makes the task of the user easier.

Staff can login into the system with their respective login ids, then the staff can look for issued , but not yet returned books, or books that are issued by a particular reader. They can search details about the registered readers. They can search details about books based on book name, author, or of a particular category , depending on which book is required.

A staff can issue a book to a reader, only if the book is present in the catalogue, that is, been returned by the previous reader.

When a reader returns a book that he issued, the staff can then issue these books to other readers.

When a new staff joins, his details are added in the system, so that he can also access the different functionality.

For registering a new reader, his details are entered into the database and stored. New books can be added in the database, by giving information like, title, edition, category etc.

The staff can then log out of the system, if his shift is over, and other staff can login using his credentials that he provided while registering for the first time.

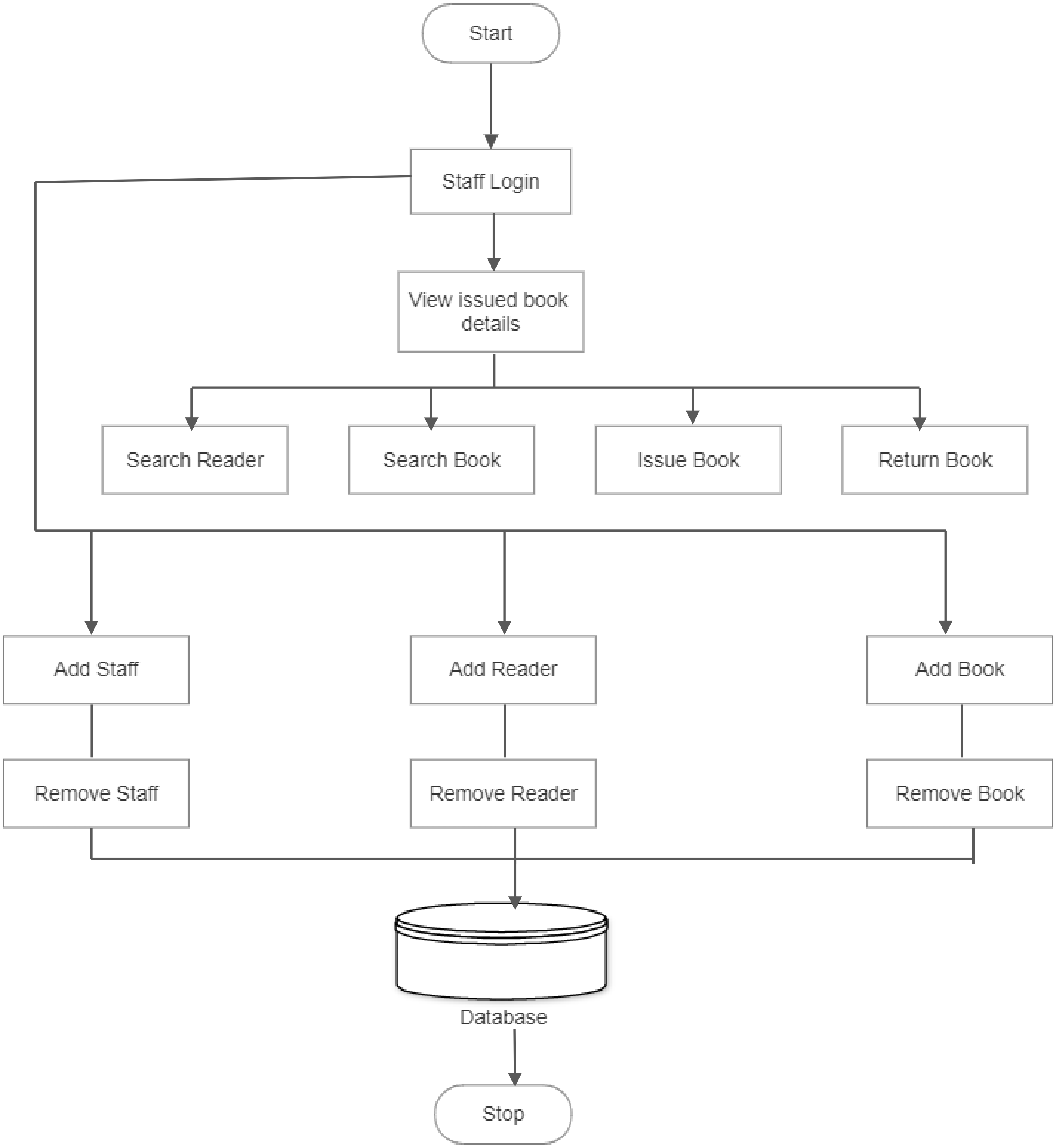


Fig 4.6.1: Modules of Library Management System

Chapter 5

RESULT

This chapter contains screenshots of final results of the application and it’s various modules.

Login window:

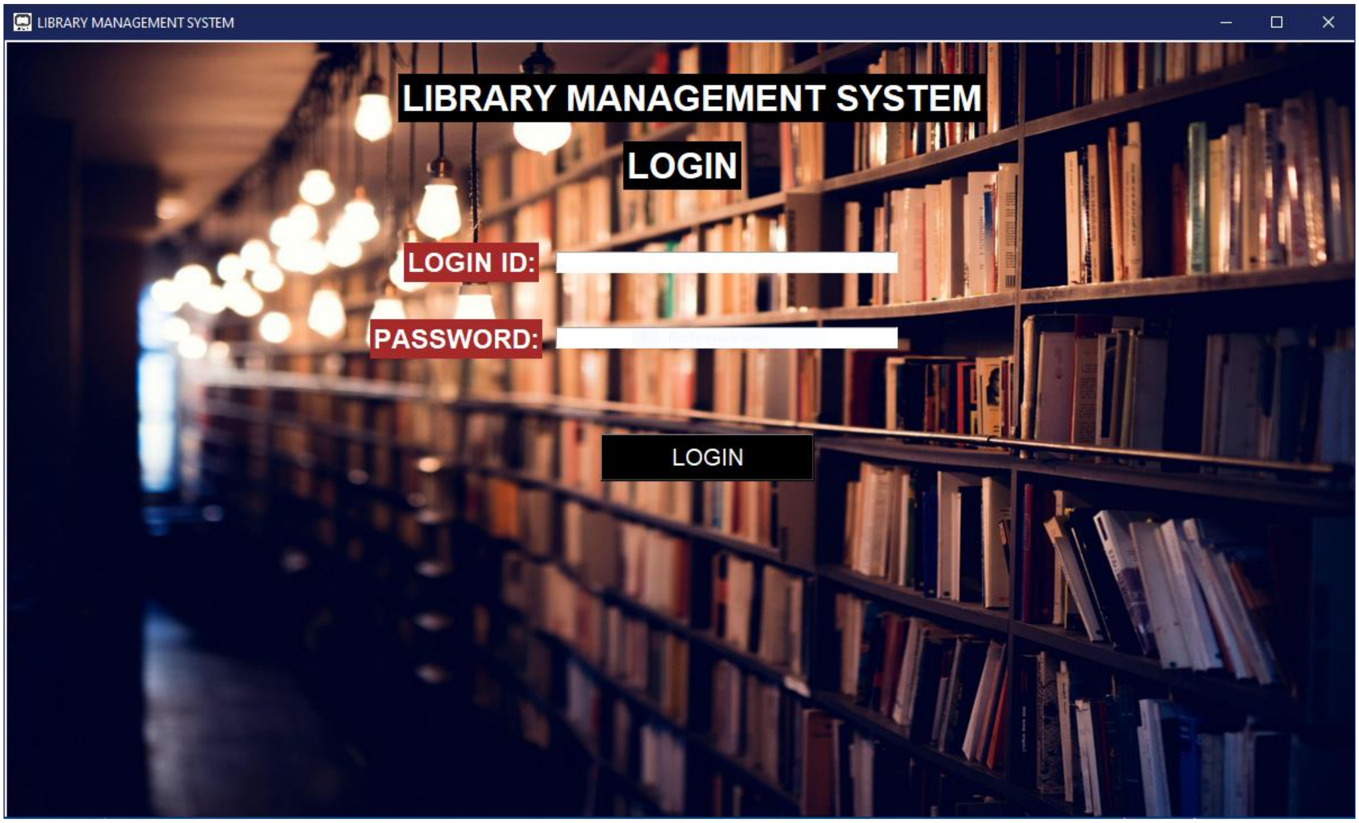
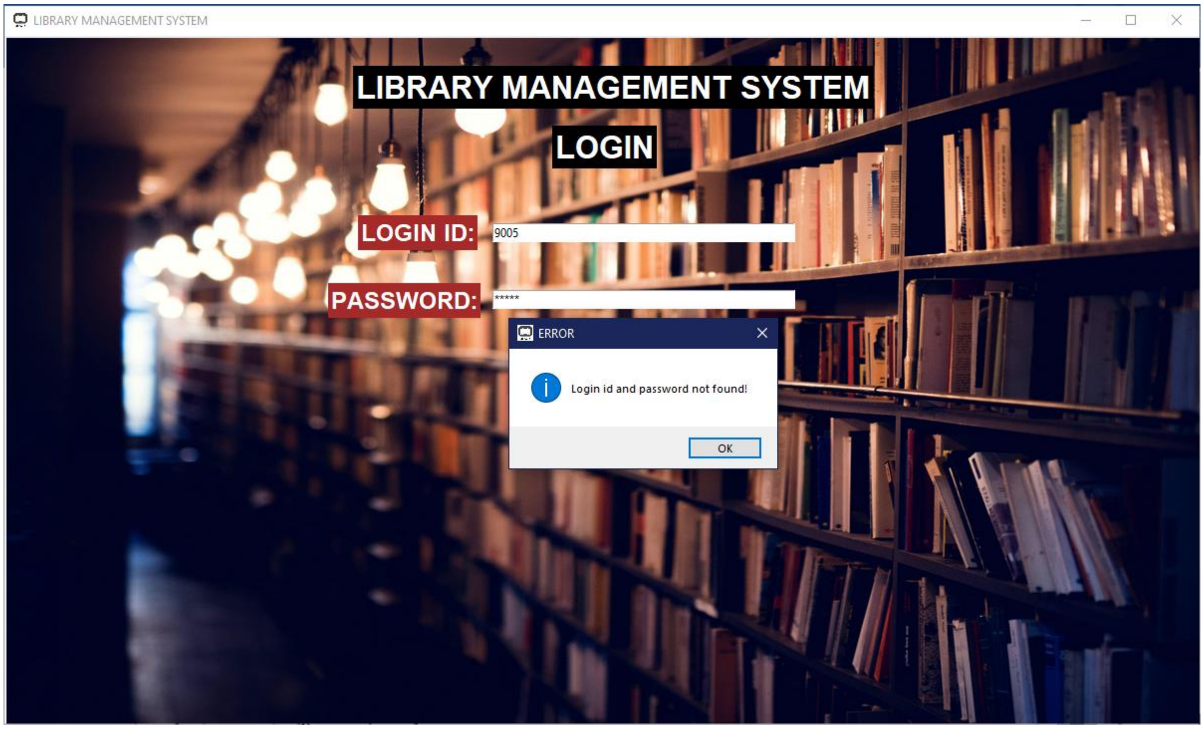


Fig 5.1: Screen capture of login window

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

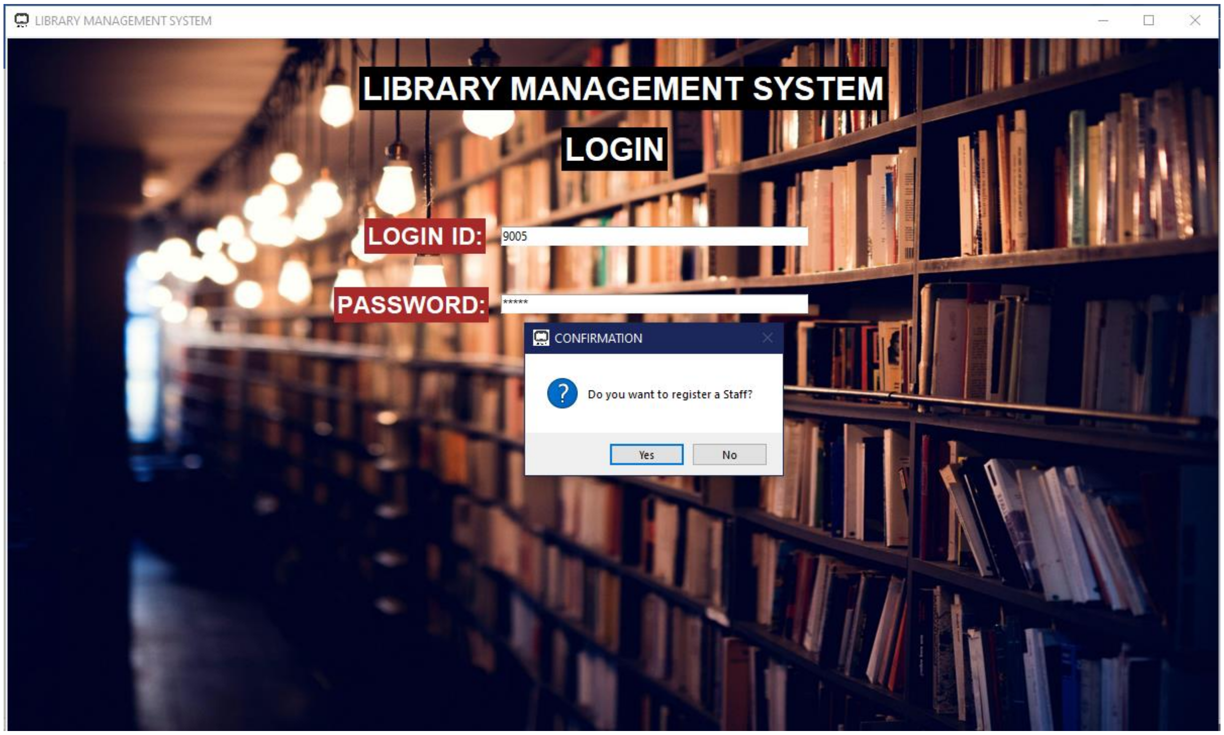


LOGIN ID: 9005

PASSWORD: *****

Login id and password not found!

Fig 5.2: Screen capture of invalid login



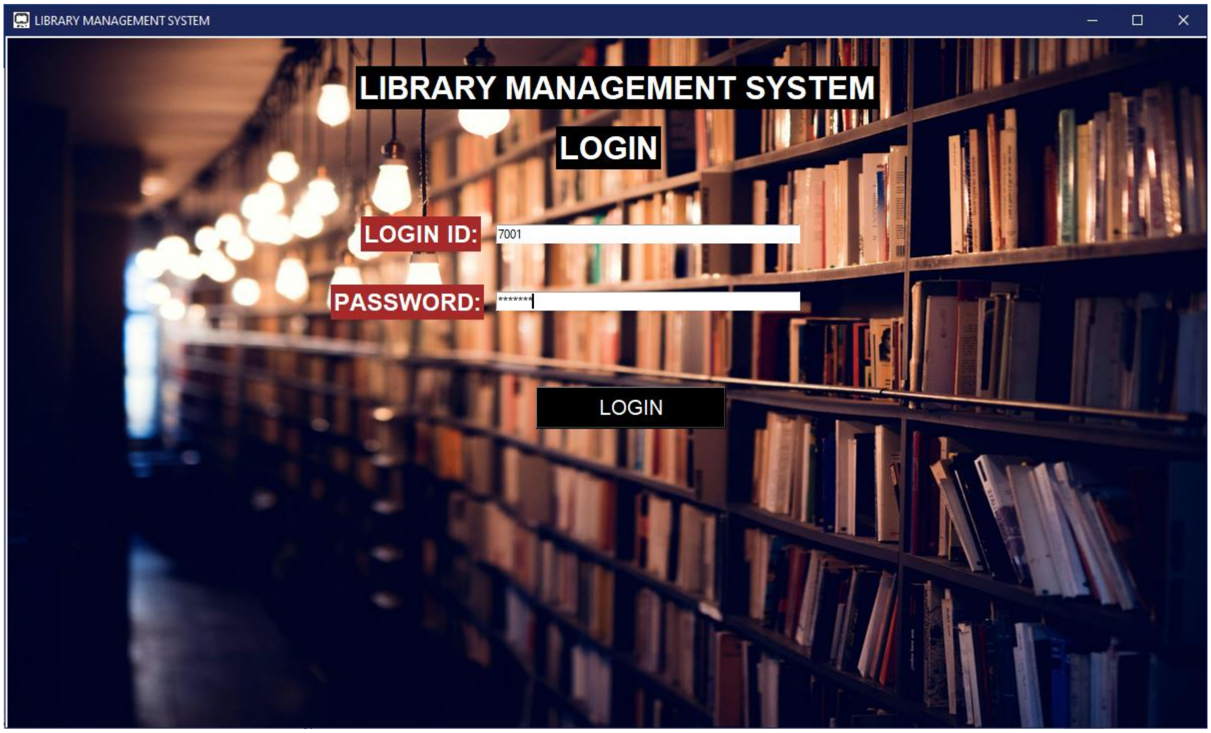
LOGIN ID: 9005

PASSWORD: *****

Do you want to register a Staff?

Fig 5.3: Screen capture of invalid login

By giving correct credentials, the staff can successfully login.

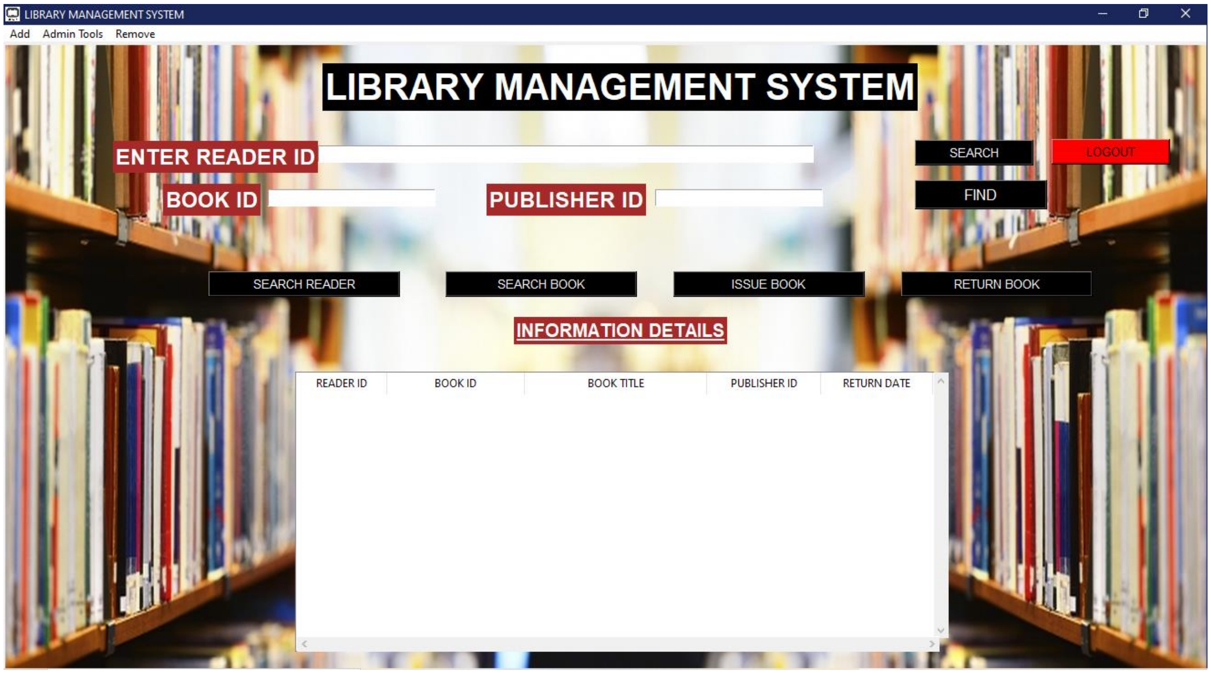


LOGIN ID: 7001

PASSWORD: *******

Fig 5.3: Screen capture of Authentication window

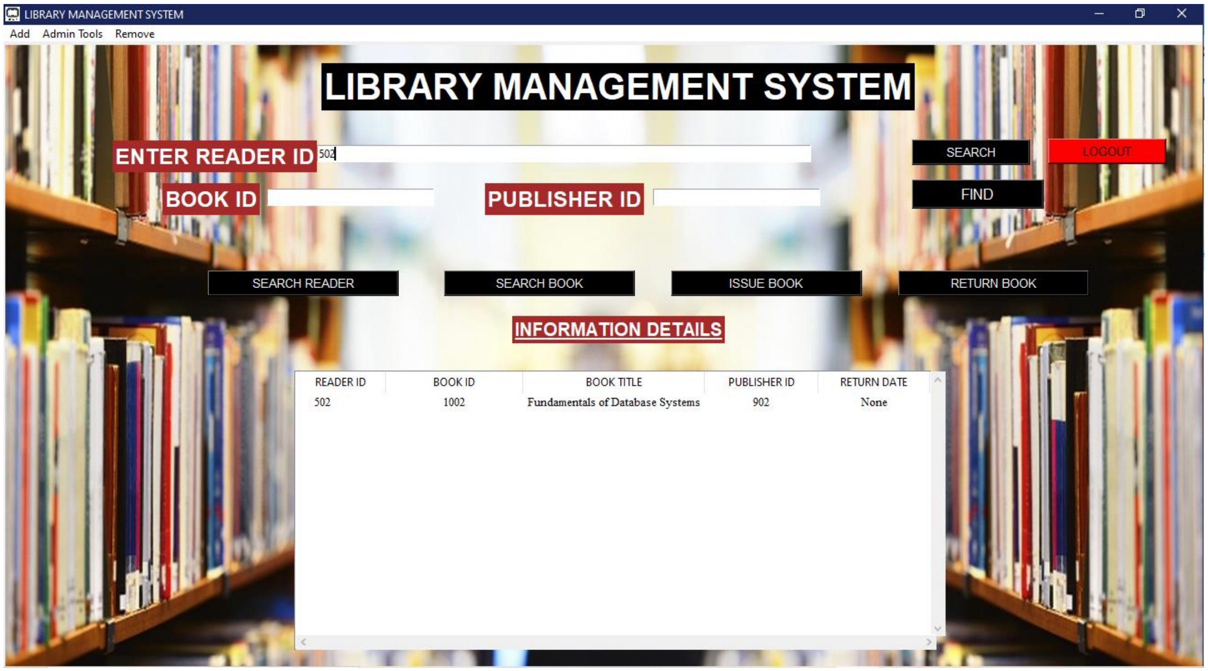
Operation window: This window shows the various functions that a staff/librarian can perform.



READER ID	BOOK ID	BOOK TITLE	PUBLISHER ID	RETURN DATE

Fig 5.4: Screen capture of operation window

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.



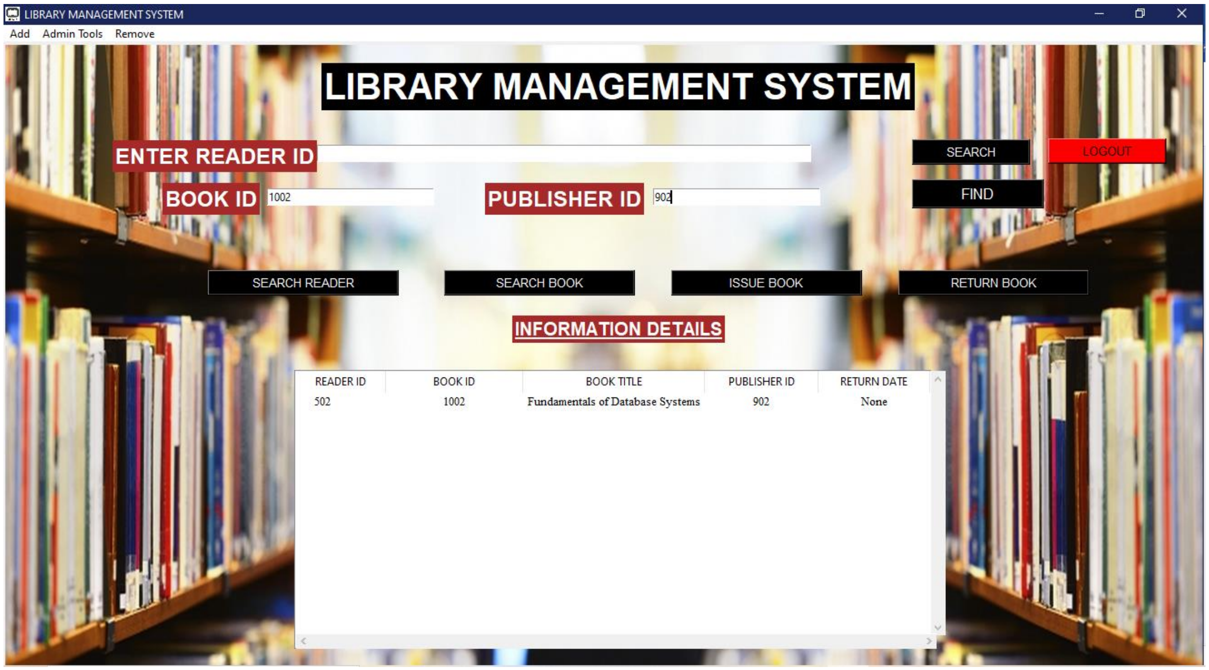
ENTER READER ID 502

BOOK ID

PUBLISHER ID

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

Fig 5.5: Screen capture of books issued by particular reader window



ENTER READER ID

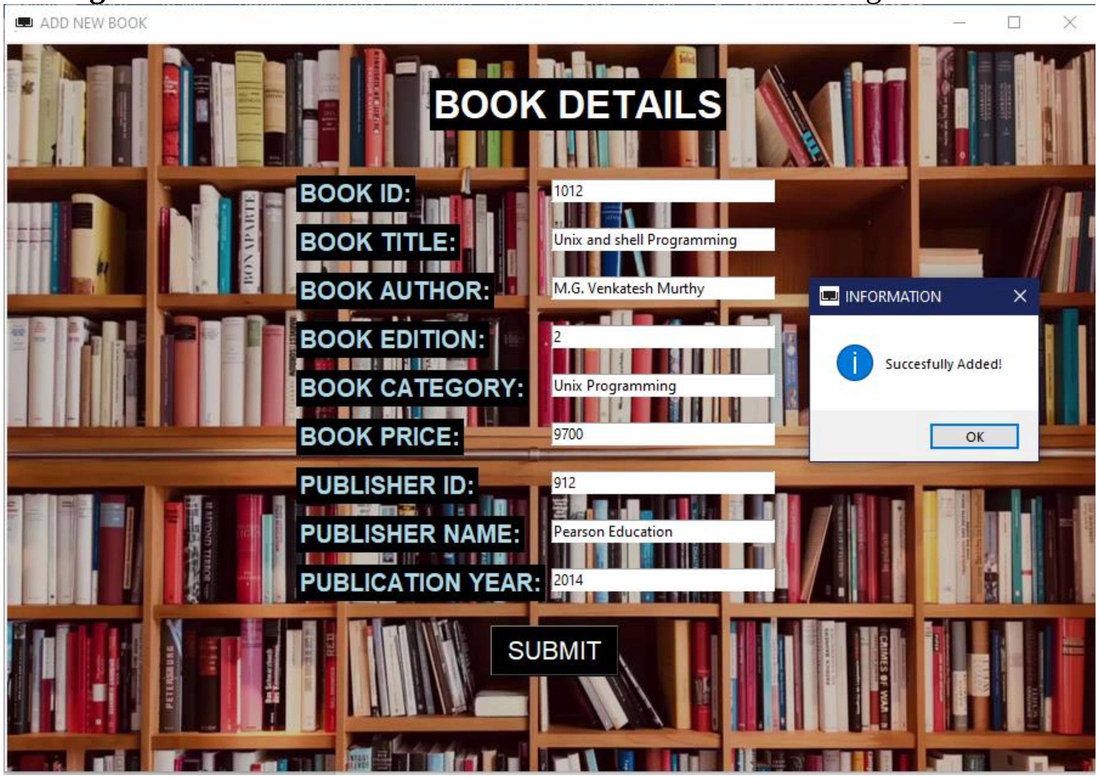
BOOK ID 1002

PUBLISHER ID 902

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

Fig 5.6: Screen capture of book issued window

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



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

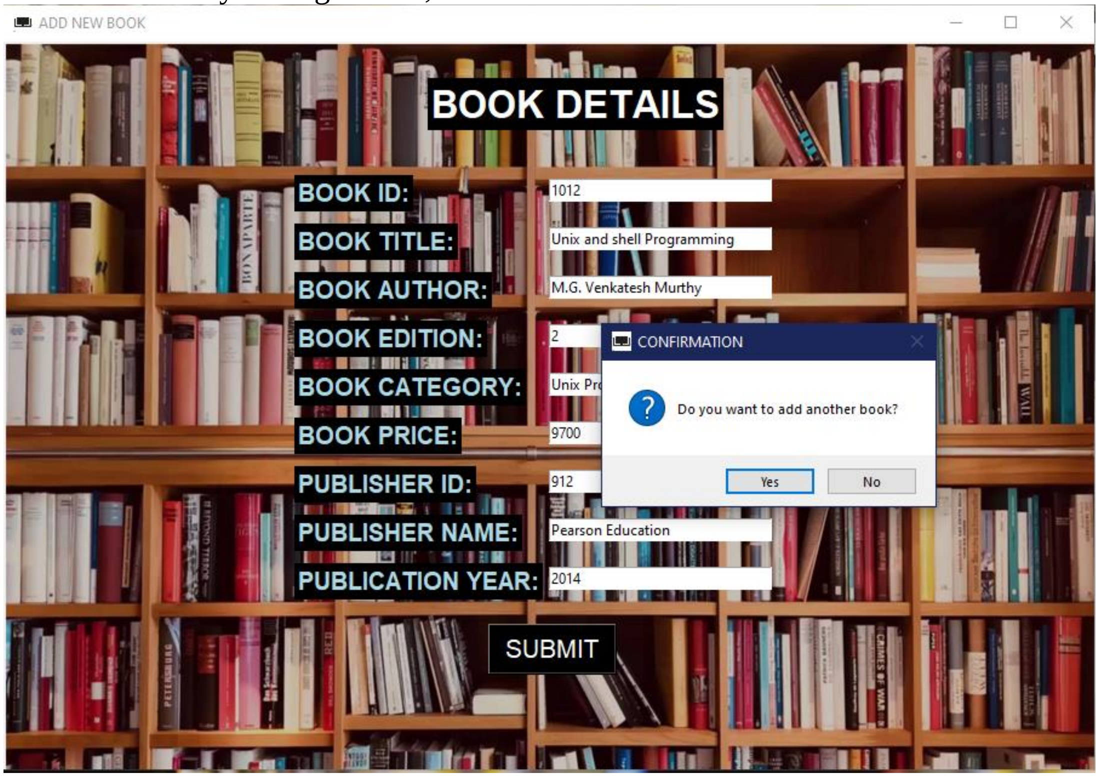
PUBLICATION YEAR: 2014

INFORMATION

Succesfully Added!

Fig 5.7: Screen capture of adding a book window

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



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

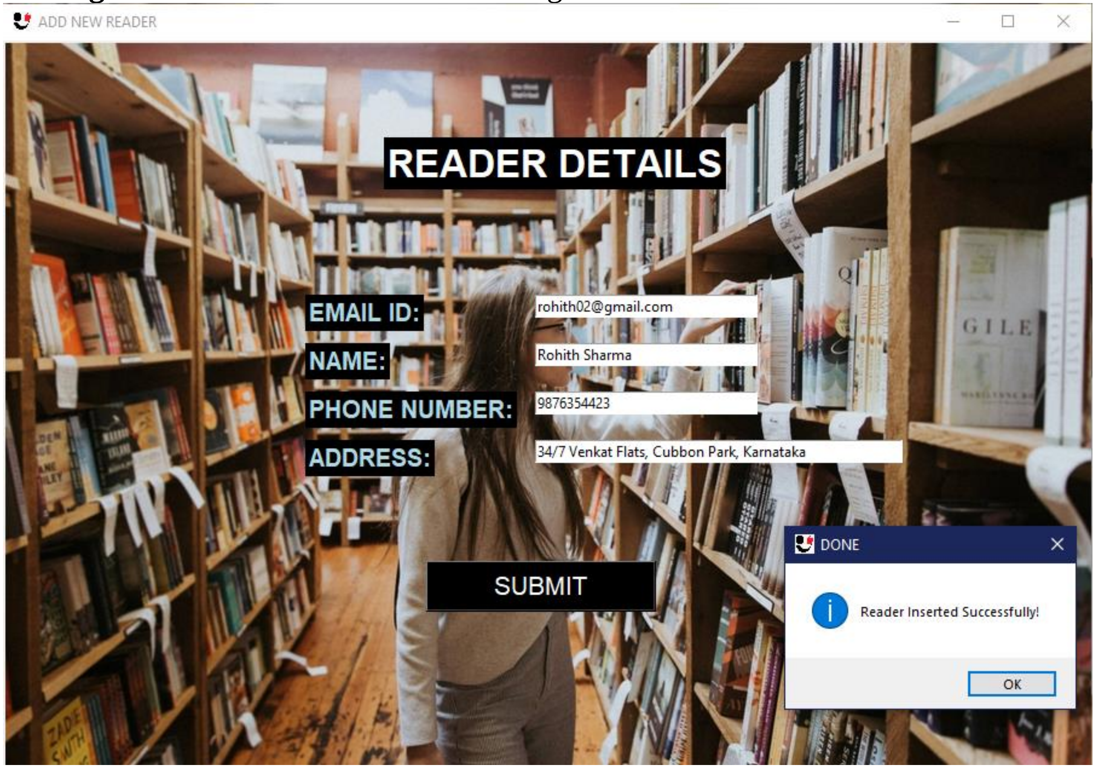
PUBLICATION YEAR: 2014

CONFIRMATION

Do you want to add another book?

Fig 5.8: Screen capture of successful book addition window

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



rohith02@gmail.com

Rohith Sharma

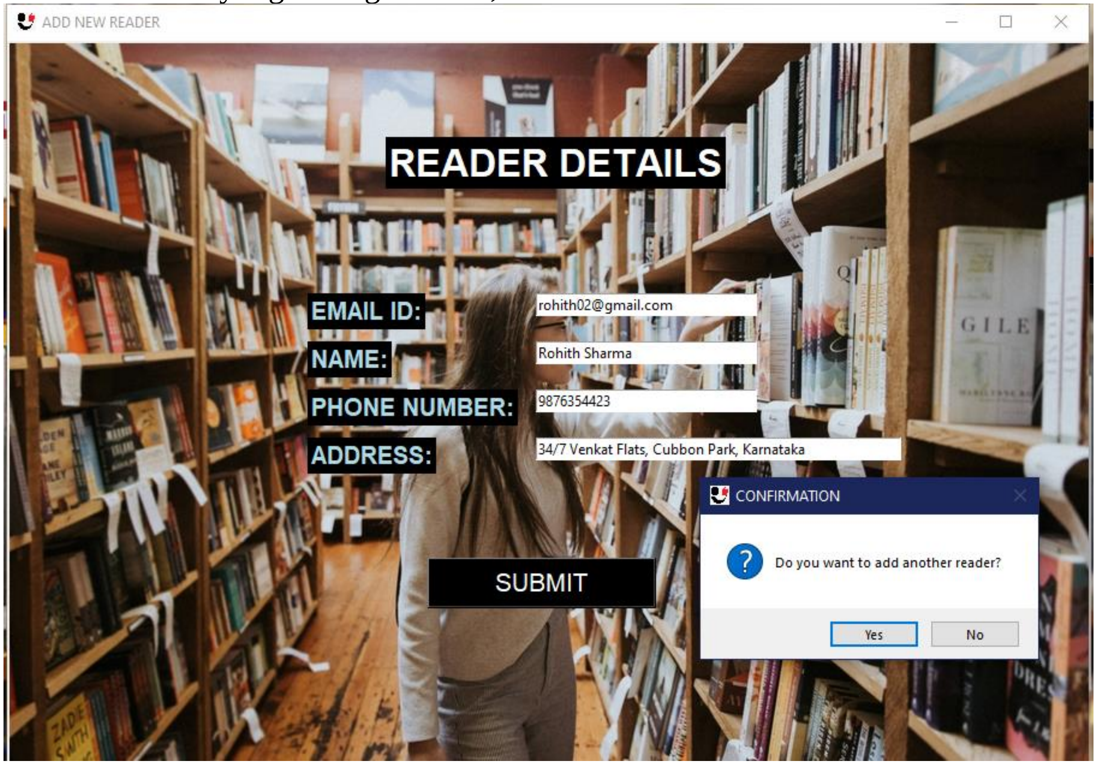
9876354423

34/7 Venkat Flats, Cubbon Park, Karnataka

Reader Inserted Successfully!

Fig 5.9: Screen capture of adding a reader window

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



rohith02@gmail.com

Rohith Sharma

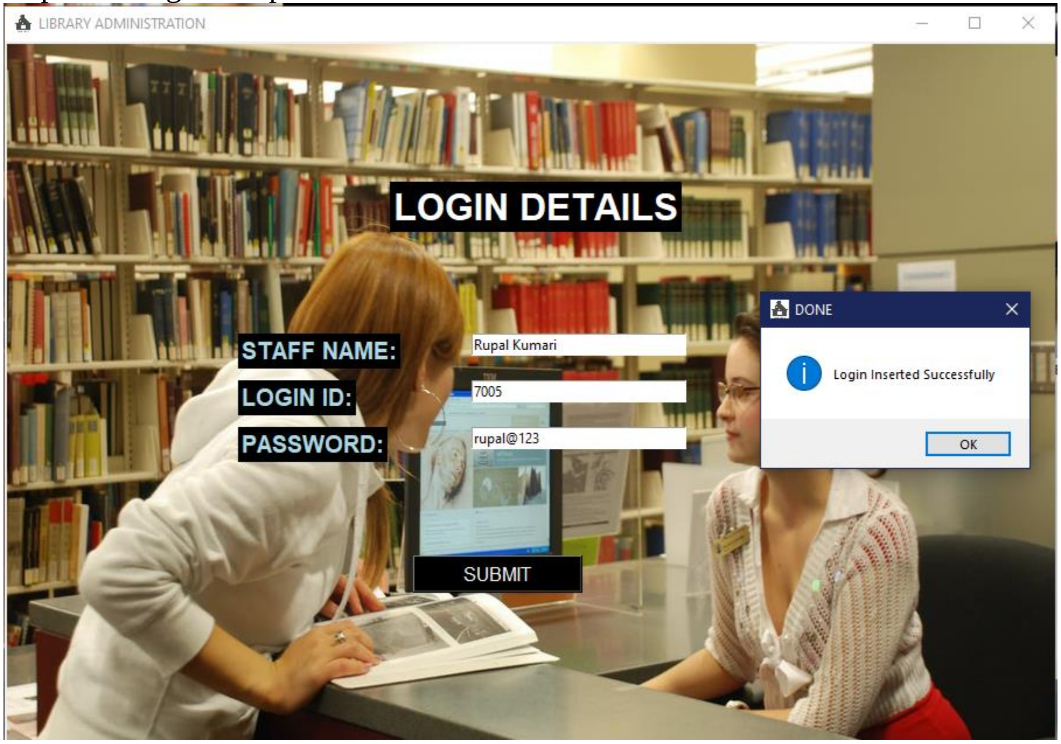
9876354423

34/7 Venkat Flats, Cubbon Park, Karnataka

Do you want to add another reader?

Fig 5.10: Screen capture of successful reader addition window

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



Rupal Kumari

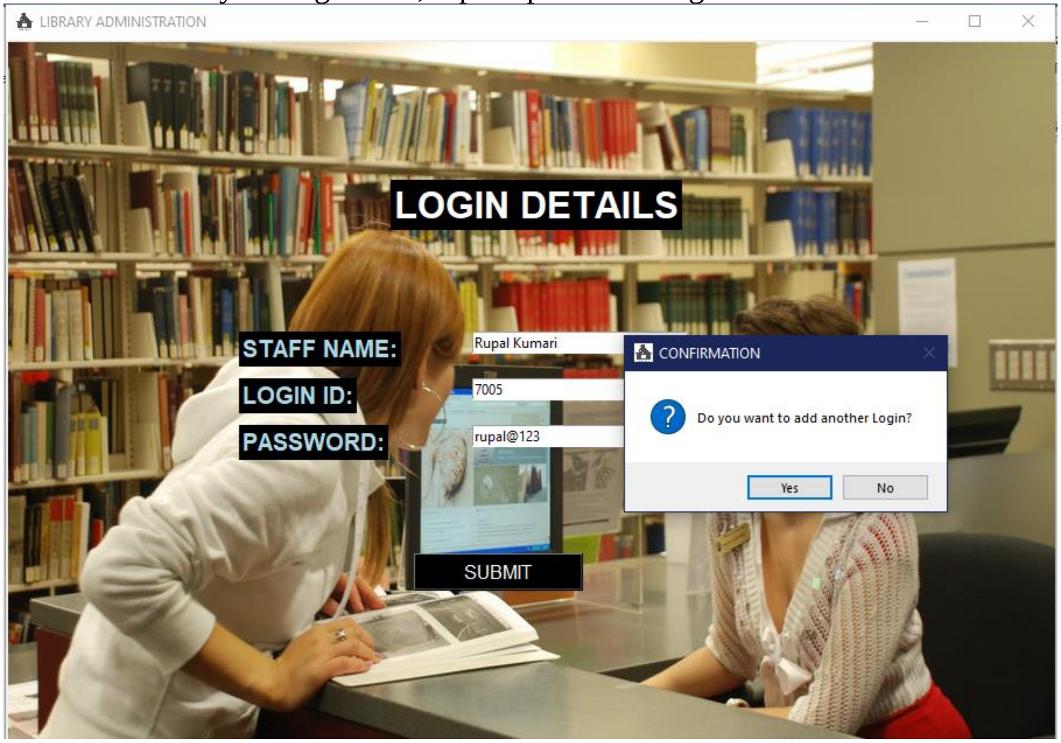
7005

rupal@123

Login Inserted Successfully

Fig 5.11: Screen capture of adding a staff window

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



Rupal Kumari

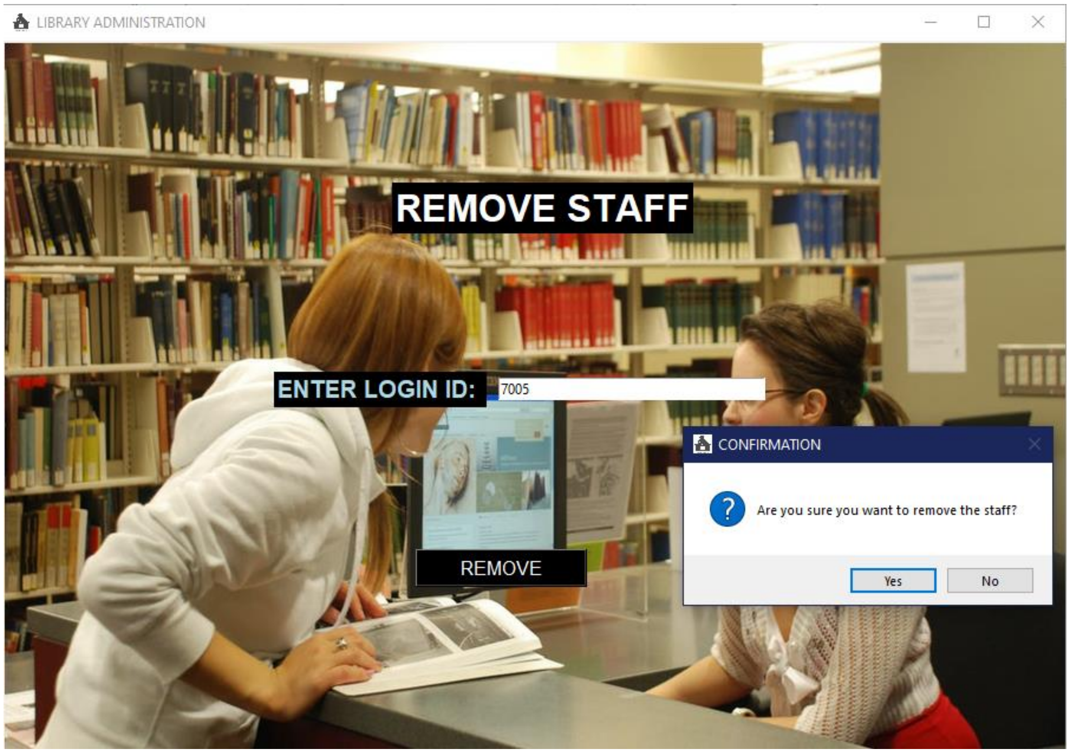
7005

rupal@123

Do you want to add another Login?

Fig 5.12: Screen capture of successful staff addition window

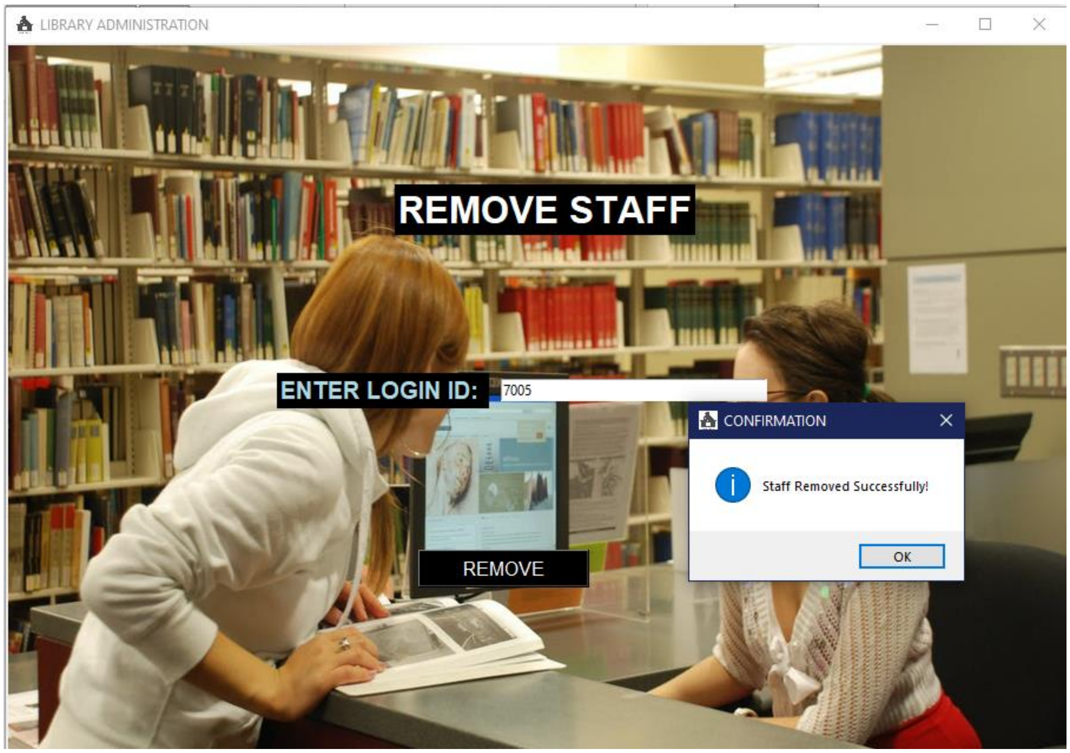
Removing a staff window: Staff can remove a staff by providing his/her respective staff id and asks for confirmation.



ENTER LOGIN ID: 7005

Are you sure you want to remove the staff?

Fig 5.13: Screen capture of removing staff window

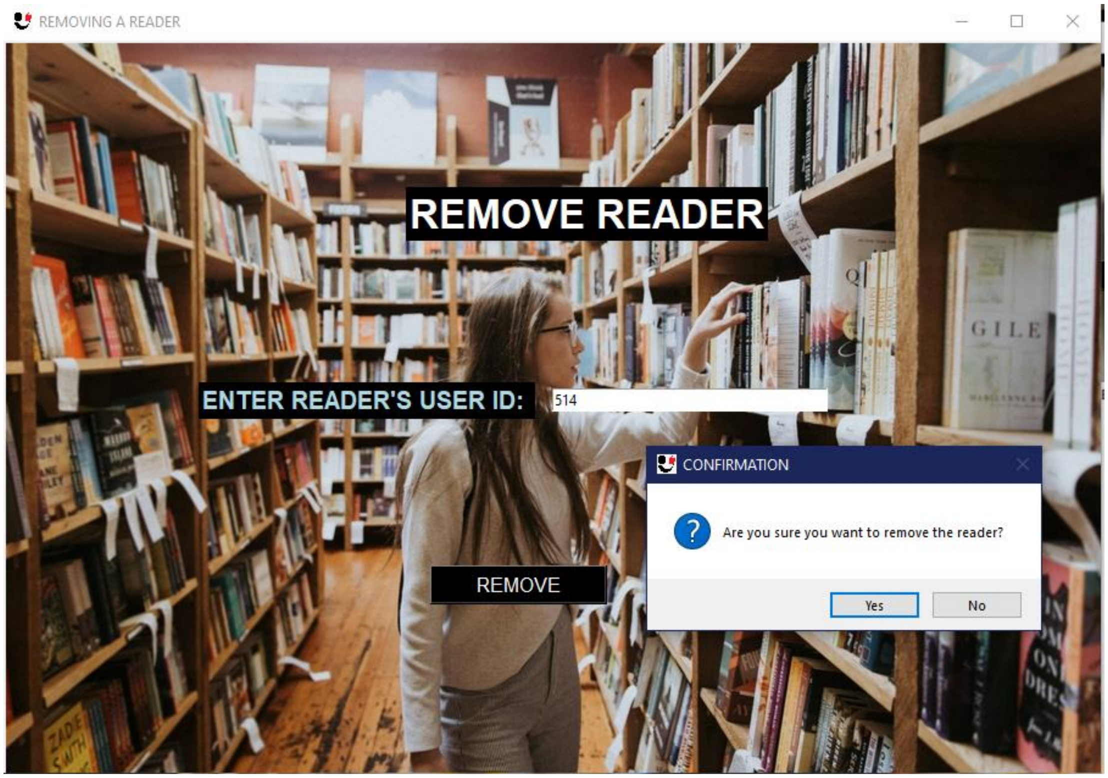


ENTER LOGIN ID: 7005

Staff Removed Successfully!

Fig 5.14: Screen capture of successful removal of staff window

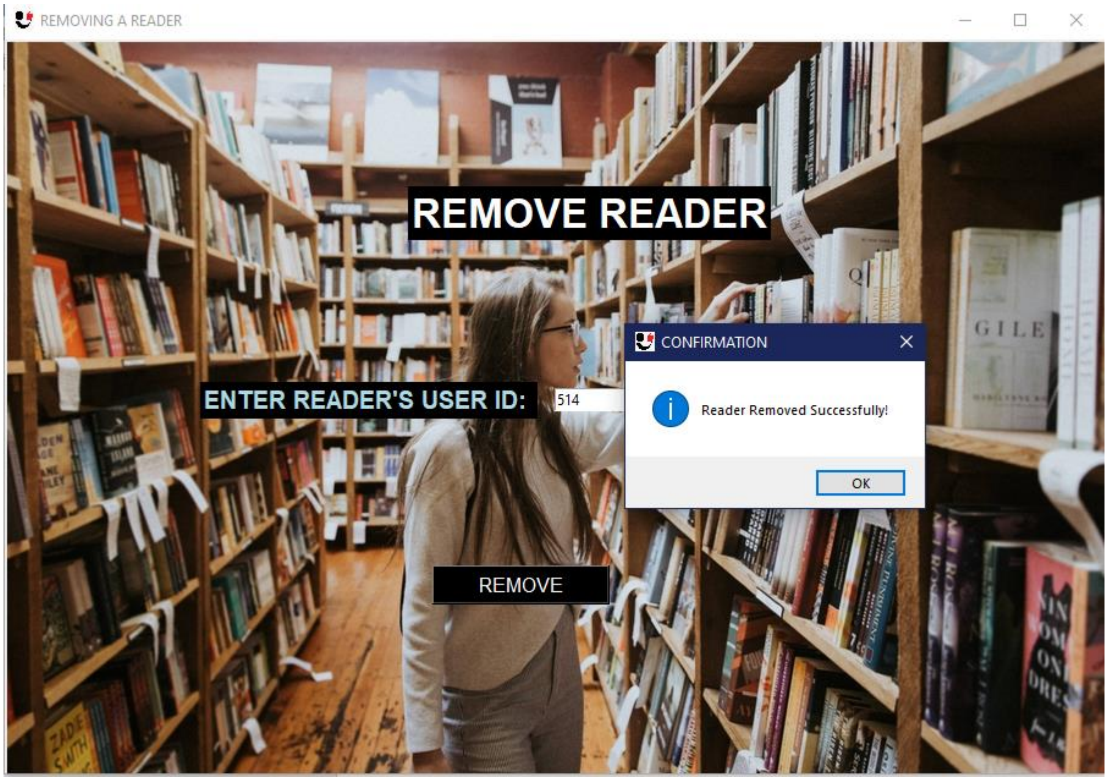
Removing a reader window: Staff can remove an existing reader by providing his/her user id and asks for confirmation.



ENTER READER'S USER ID: 514

Are you sure you want to remove the reader?

Fig 5.15: Screen capture of removing reader window

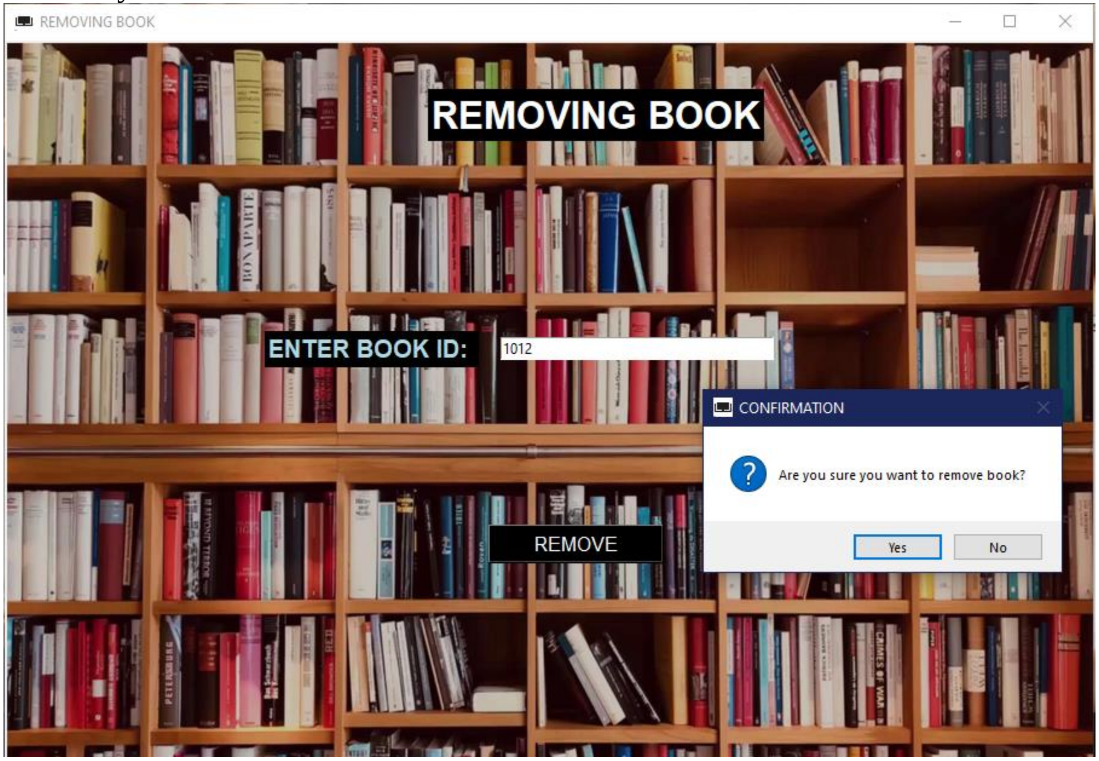


ENTER READER'S USER ID: 514

Reader Removed Successfully!

Fig 5.16: Screen capture of successful removal of reader window

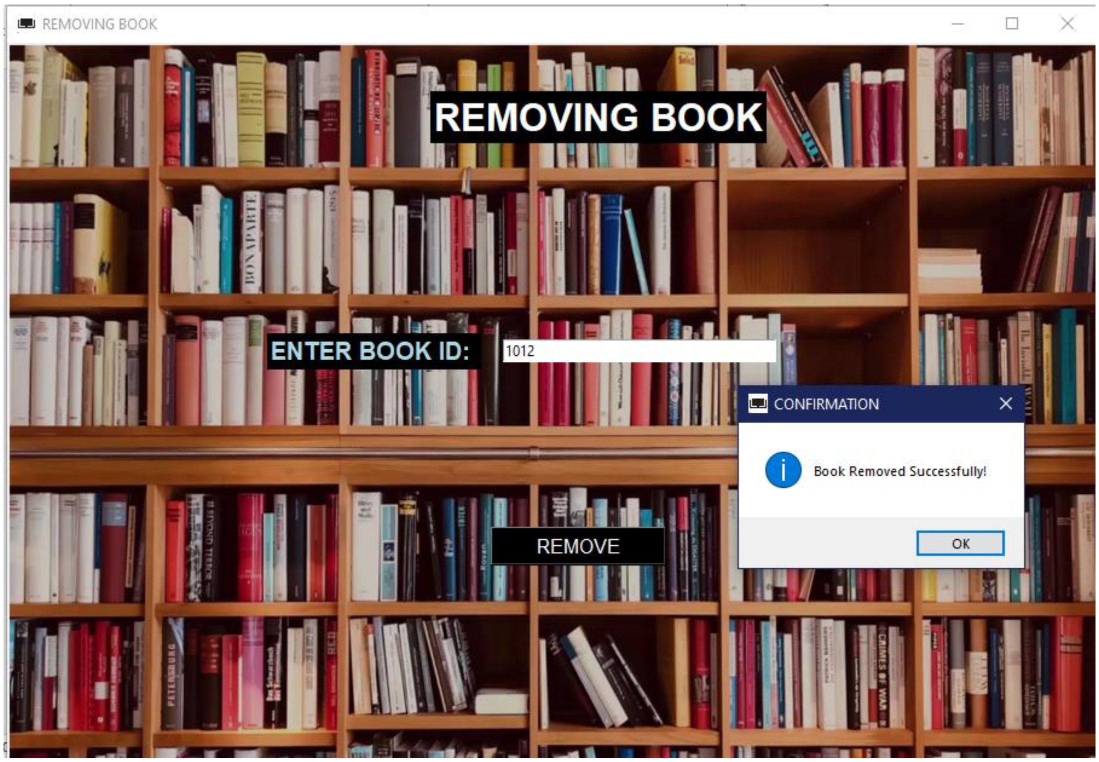
Removing a book window: Staff can remove a book from the catalogue by providing its book id and the system asks for confirmation.



1012

Are you sure you want to remove book?

Fig 5.17: Screen capture of removing book window

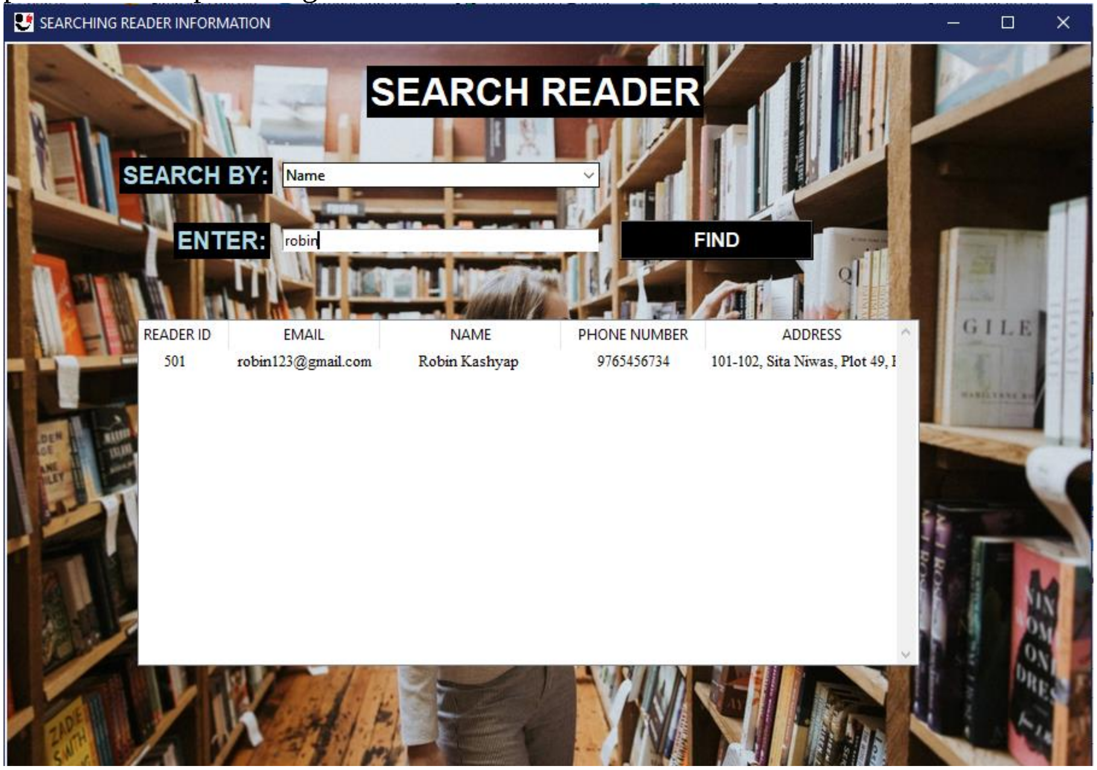


1012

Book Removed Successfully!

Fig 5.18: Screen capture of successful removal of reader window

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



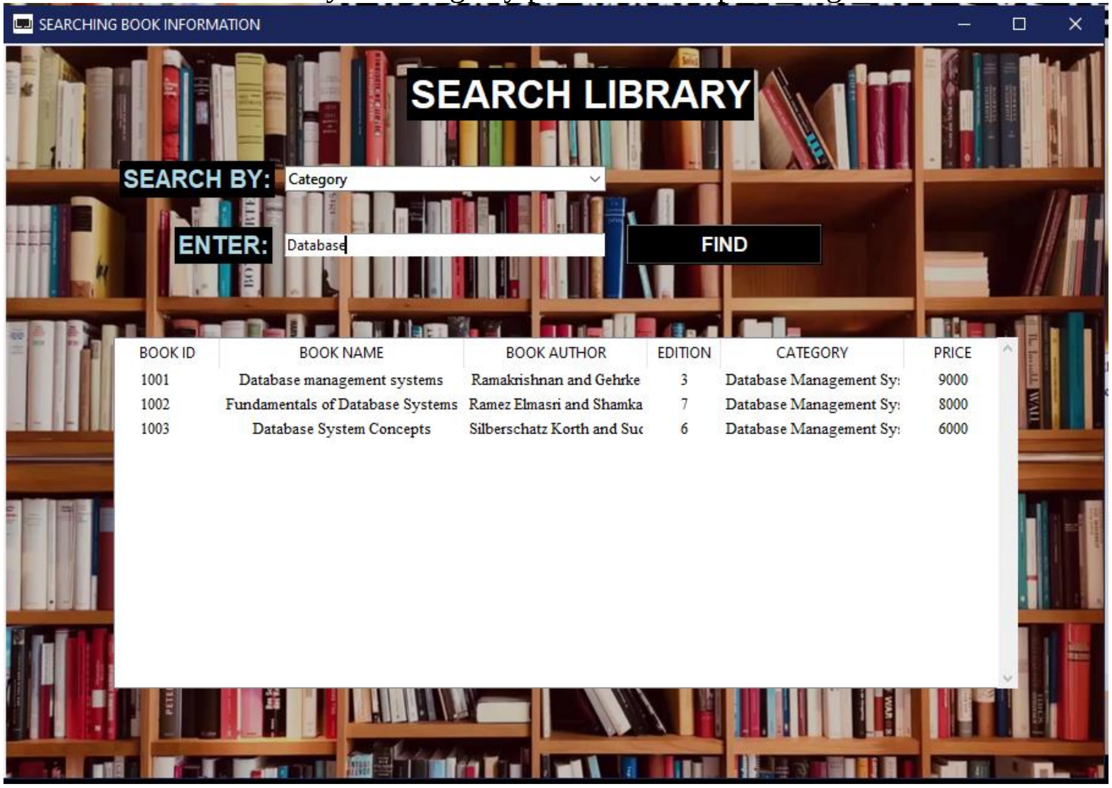
SEARCH BY: Name

ENTER: robin

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

Fig 5.19: Screen capture of searching reader details window

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



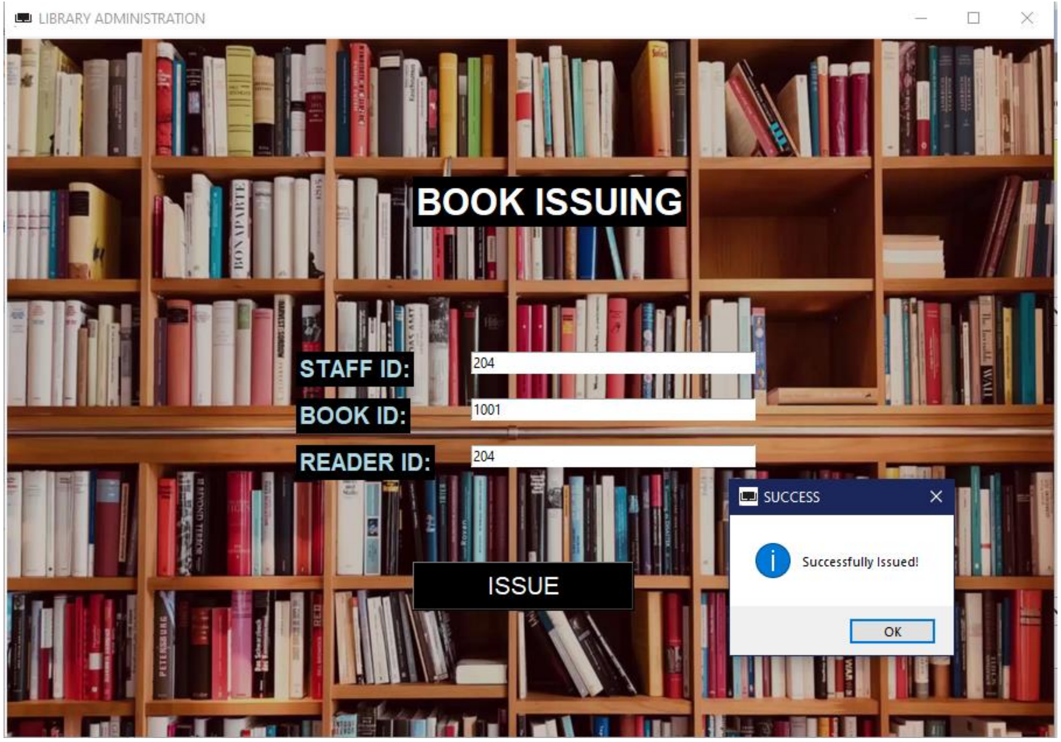
SEARCH BY: Category

ENTER: Database

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

Fig 5.20: Screen capture of searching book details window

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.



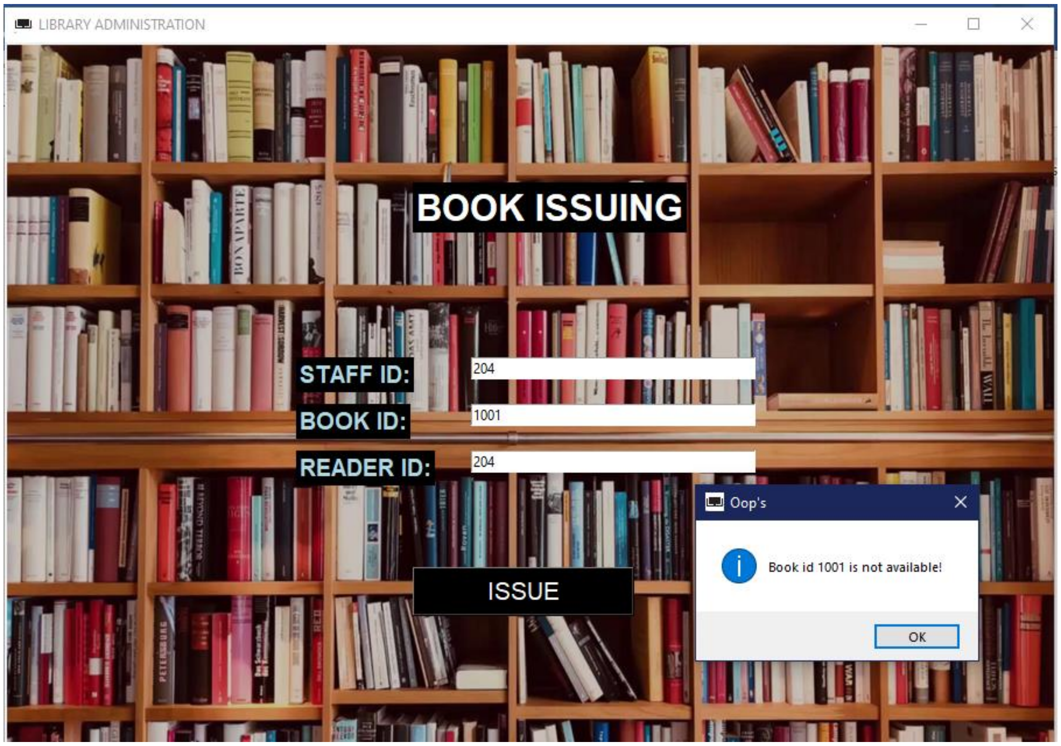
STAFF ID: 204

BOOK ID: 1001

READER ID: 204

Successfully Issued!

Fig 5.21: Screen capture of issuing a book window



STAFF ID: 204

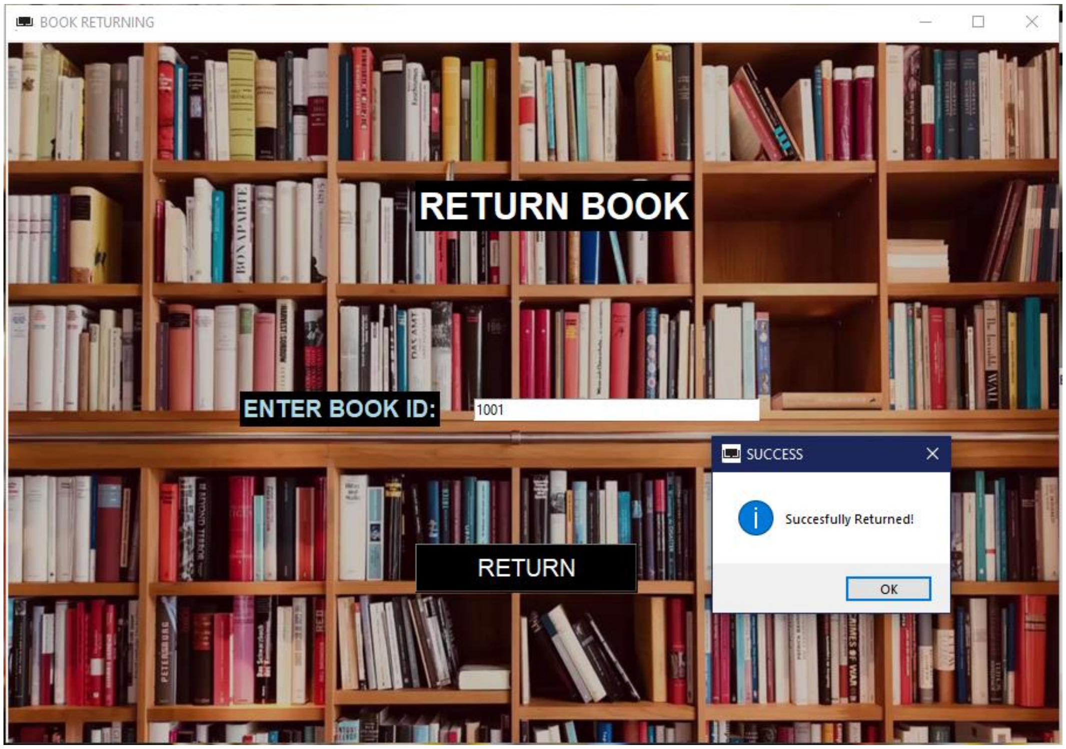
BOOK ID: 1001

READER ID: 204

Book id 1001 is not available!

Fig 5.22: Screen capture of book not issued window

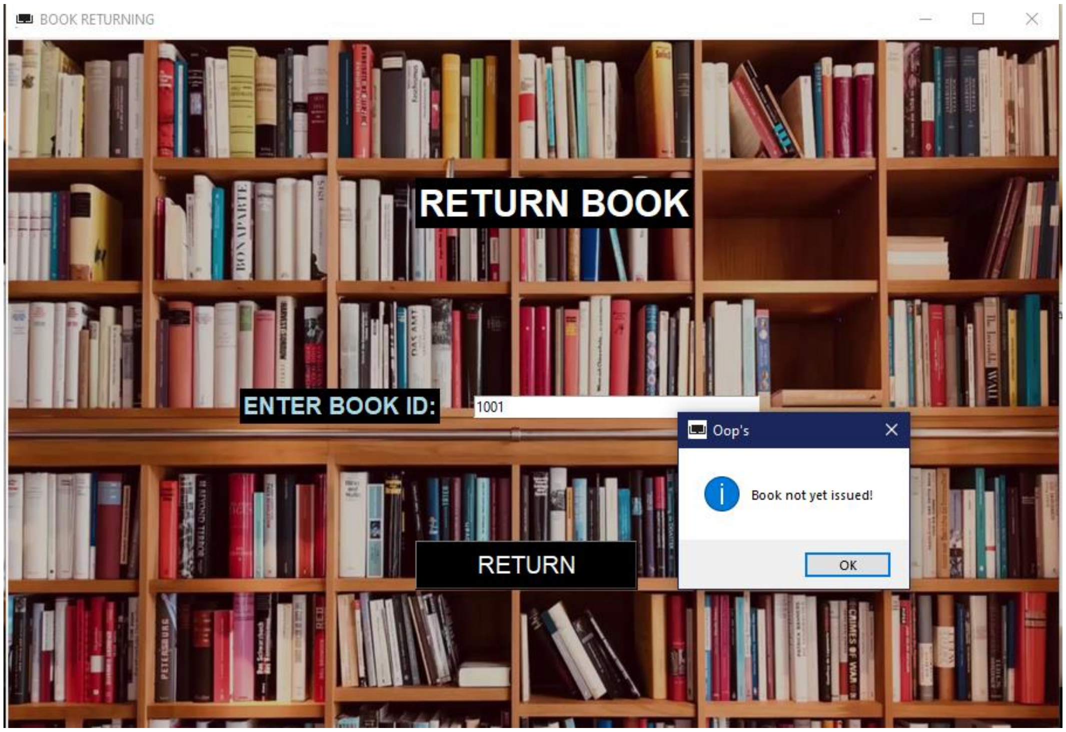
Returning a book window: A book can be returned by giving book id, if that book is issued and not returned, then the book is returned or an error is prompted.



1001

Succesfully Returned!

Fig 5.23: Screen capture of returning book window

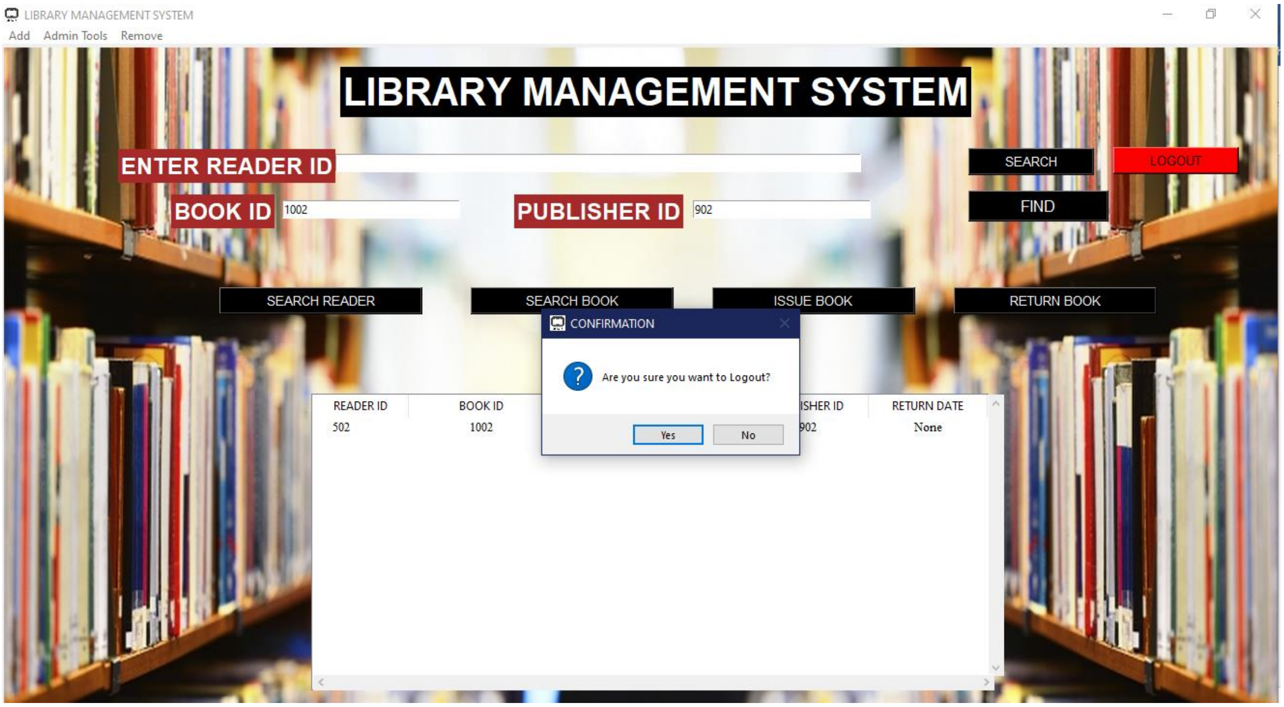


1001

Book not yet issued!

Fig 5.24: Screen capture of book not yet issued window

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



BOOK ID 1002

PUBLISHER ID 902

Are you sure you want to Logout?

READER ID	BOOK ID	ISHER ID	RETURN DATE
502	1002	902	None

Fig 5.25: Screen capture of log out window

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 informtaion 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 andmake right the services offered.