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LIBRARY INFORMATION MANAGEMENT SYSTEM USING KIOSK

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ABSTRACT

Library Information Management System is a system which maintains the information about the books present in the library, their authors, the members of library to whom (students or faculty) books are issued, how many books are under issue and how many are remaining. Maintenance of all this information manually is a very complex task. Owing to the advancement of technology, organization of a library management using kiosk becomes much simple. It has been designed to computerize and automate the operations performed over the information about the members, book issues and returns and all other operations. This computerization of library helps in many instances of its maintenances. It reduces the workload of management as most of the manual work done is reduced. Along with that it uses fingerprint while login, which provides more security.

KEYWORDS: *Library Management System, Computerization, Automated Library Management System, Kiosk, Fingerprint.*

1. INTRODUCTION

The library is regarded as the brain of an educational institution. So, it is necessary to computerize those libraries at any cost. The project titled Library Information Management System using Kiosk is a library management software which is used for monitoring and controlling the transactions in a library. The project is developed in a .NET platform using the C# programming language. It mainly focuses on basic operations in a library like adding new members, new books, updating information about books and users, searching for books, issue of books to users, collecting fines, and many more. “Library Management System” is a desktop application designed and developed to help users and organize a library. Our application is a user-friendly environment which means anyone can access it easily. And also, it has an attractive user interface.

2. METHODOLOGY

Library Information Management System is a library management software which is used for monitoring and controlling the transactions in a library. The project is developed in a .NET platform using the C# programming language. It mainly focuses on basic operations in a library like adding new members, new books, updating information about books and users, searching for books, issues of books to users, collecting fines, and many more. It is a desktop application so it is more helpful to the users and librarian for managing the library. Our application is a user-friendly environment which means anyone can access it easily. And also, it has an attractive user interface.

Our project contains mainly three modules. They are

- ❖ User Module
- ❖ Book Info Module
- ❖ Admin Module

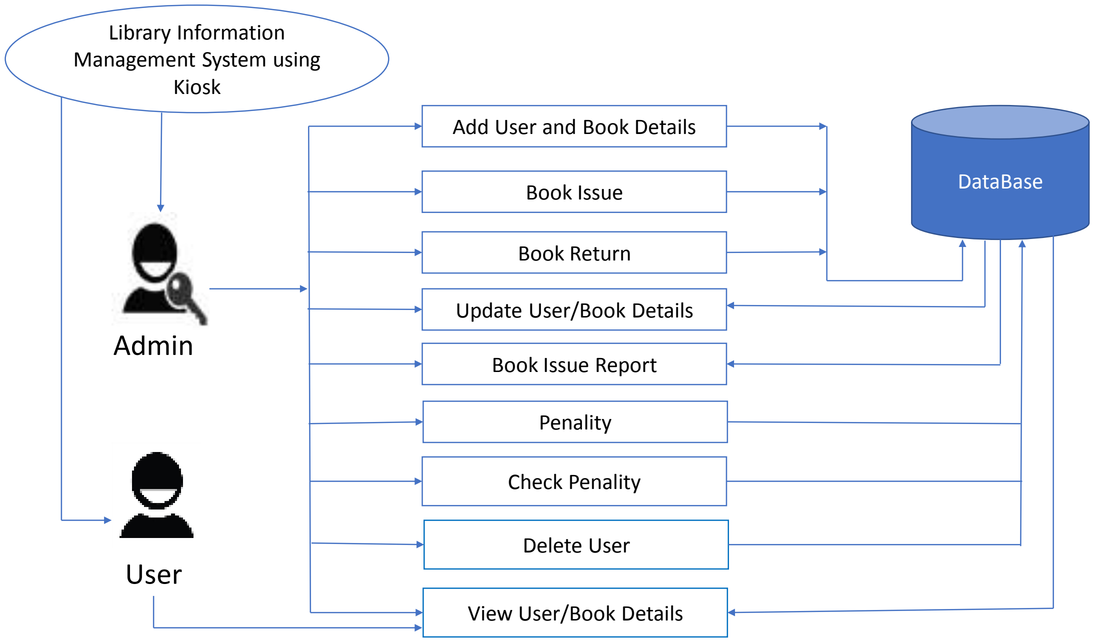


Fig 1: "Block Diagram of Developed Model"

Fig 1 Shows the block diagram of the proposed Library Information Management system. The LMS contains an Admin and user module where it demonstrates the activates of the admin and the user. Admin is considered as the authorized person to access the LMS system.

USER MODULE

Students and Faculty comes under users. In this Student or faculty can login with their credentials, after login they can do the following operations. They can see their profile, change password, book issue report and penalty.

Profile: In this sub-module, user can see their details

Change Password: In this sub-module, user can update or change their password.

Book Issue Report: In this sub-module, user can check or see the details of a book which he took from library.

Penalty: In this sub-module, user can check if they have penalty to pay. If any book is not returned to library with in the deadline, then the user has penalty, per day it charges five rupees.

Logout: The user logged out by clicking this module.

BOOK INFO MODULE

Book Info Module means Book Information Module, the name itself says that it contains the information of books. In this module there are no sub-modules. In this one can see the information of a book i.e., total number of books are present at that time in library, how many books are under issued, how many books are remaining in library. Along with these we had another operation which is the best one to save our time is **search** operation. In this we can search for availability of a particular book or the book we want. We can search by entering the Book Name and Author Name. If book is available then it shows how many are available. Otherwise, it shows "Book Not Available" message.

ADMIN MODULE

Admin Module is for the administration of library that is the librarian, who have the following operations. They are Add Student, Add Faculty, Add Book, Issue Book, Return Book, Issue Report, Book Report, Return Report, Penalty, Paying Penalty, Profile.

Add Student: In this sub-module admin can add new student members and give access to their logins.

Add Faculty: In this sub-module, admin can add new faculty members and give access to their logins.

Add Book: In this sub-module, admin can add new book details that contains book name, author name, publication, cost, quantity, date of the book when it comes to the library.

Issue Book: In this sub-module, admin can issue book for faculty and student. For both the users the issue forms are different and update the status in database.

Return Book: In this sub-module, admin can take the book from user which he returns and update the status in database.

Issue Report: In this sub-module, admin have a report that contains from and to dates, by this admin can check from this date to this date, these books are issued for faculty and students.

Book Report: In this sub-module, admin have a report that the details of each book in library.

Return Report: In this sub-module, admin have a report that contains from and to dates, by this admin can check from this date to this date, these books are returned by users if and only user does not have penalty otherwise book not returned without paying penalty.

Penalty Report: In this sub-module, admin have a report of the users who has penalty and those are yet to pay.

Pay Penalty: In this sub-module, admin can collect penalty from users and book returned by user.

Paid Report: In this sub-module, admin have a report of when and who paid how much penalty.

Profile: In this sub-module, admin can check their profile and if he wants, he can change their password.

Logout: The admin logged out by clicking this module.

3. EXPERIMENTAL SETUP

SQL SERVER

SQL SERVER is one of the leading database management systems (DBMS) because it is the only database that meets the uncompromising requirements of today's most demanding information systems. SQL SERVER is a truly portable, distributed, and open DBMS that delivers unmatched performance, continuous operation and support for every database. SQL SERVER RDBMS is high performance fault tolerant DBMS which is specially designed for online transactions processing and for handling large database application.

Microsoft .NET Framework

The Microsoft .NET Framework is a software technology that is available with several Microsoft Windows operating systems. It includes a large library of pre-coded solutions to common programming problems and a virtual machine that manages the execution of programs written specifically for the framework. The .NET Framework is a key Microsoft offering and is intended to be used by most of the new applications created for the Windows platform.

LANGUAGE SUPPORT

The Microsoft .NET Platform currently offers built-in support for three languages: C#, Visual Basic, and Java Script.

C# .NET

C# is an object-oriented programming language developed by Microsoft as part of the .NET .Anders Hejlsberg leads development of the C# language, which has a procedural, object-oriented syntax based on C++ and includes influences from aspects of several other programming languages with a particular emphasis on simplification.

SERVER APPLICATION DEVELOPMNET

Server-side applications in the managed world are implemented through runtime hosts. Unmanaged applications host the common language runtime, which allows your custom managed code to control the behavior of the server. This model provides you with all the features of the common language runtime and class library while gaining the performance and scalability of the host server.

SERVER-SIDE MANAGED CODE

ASP.NET is the hosting environment that enables developers to use the .NET Framework to target Web-based applications. However, ASP.NET is more than just a runtime host; it is a complete architecture for developing Web sites and Internet-distributed objects using managed code. Both Web Forms and XML Web services use IIS and ASP.NET as the publishing mechanism for applications, and both have a collection of supporting classes in the .NET Framework.

4. IMPLEMENTATION

The "Library Information Management System" main intention is to provide a wide range of comfort to the students and the faculty who take books from the library by introducing this application. It reduces manual work. The Library Information Management System using Kiosk is to overcome the drawbacks of the existing system by using .NET

Library Information Management System is a library management software which is used for monitoring and controlling the transactions in a library. The project is developed in a .NET platform using the C# programming language. It mainly focuses on basic operations in a library like adding new members, new books, updating information about books and users, searching for books, issues of books to users, collecting fines, and many more. It is a desktop application so it is more helpful to the users and librarian for managing the library. Our application is a user-friendly environment which means anyone can access it easily. And also, it has an attractive user interface

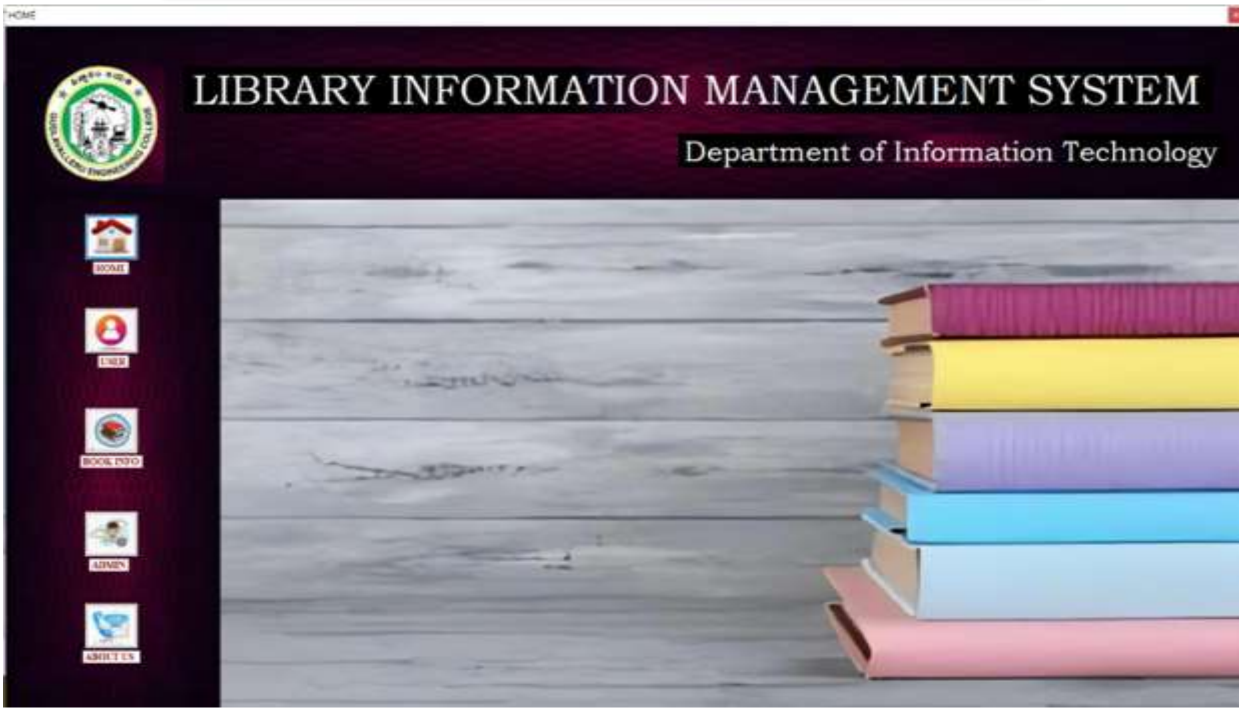
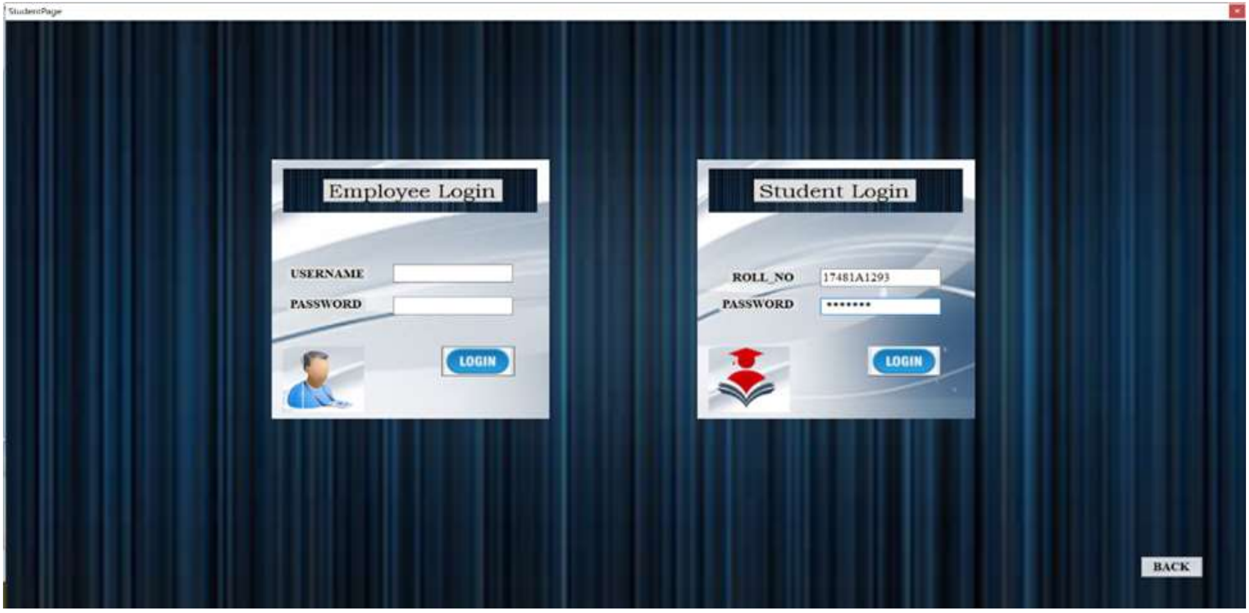

HOME
LIBRARY INFORMATION MANAGEMENT SYSTEM
Department of Information Technology
HOME
USER
BOOK INFO
ADMIN
ABOUT US

Fig 2: HOME PAGE

Fig 2 Refers the Home Page of our developed model. This home page contains the icons as HOME, USER, BOOK INFO, ADMIN, ABOUT US. The Home Page will help the users to navigate for other fields of the model.



ROLL_NO 17481A1293
PASSWORD •••••••

Fig 3: USERS LOGIN PAGE

Fig 3 refers the Users Login Page. This page consists employee and student login. By entering valid credentials, the users can login to their accounts.

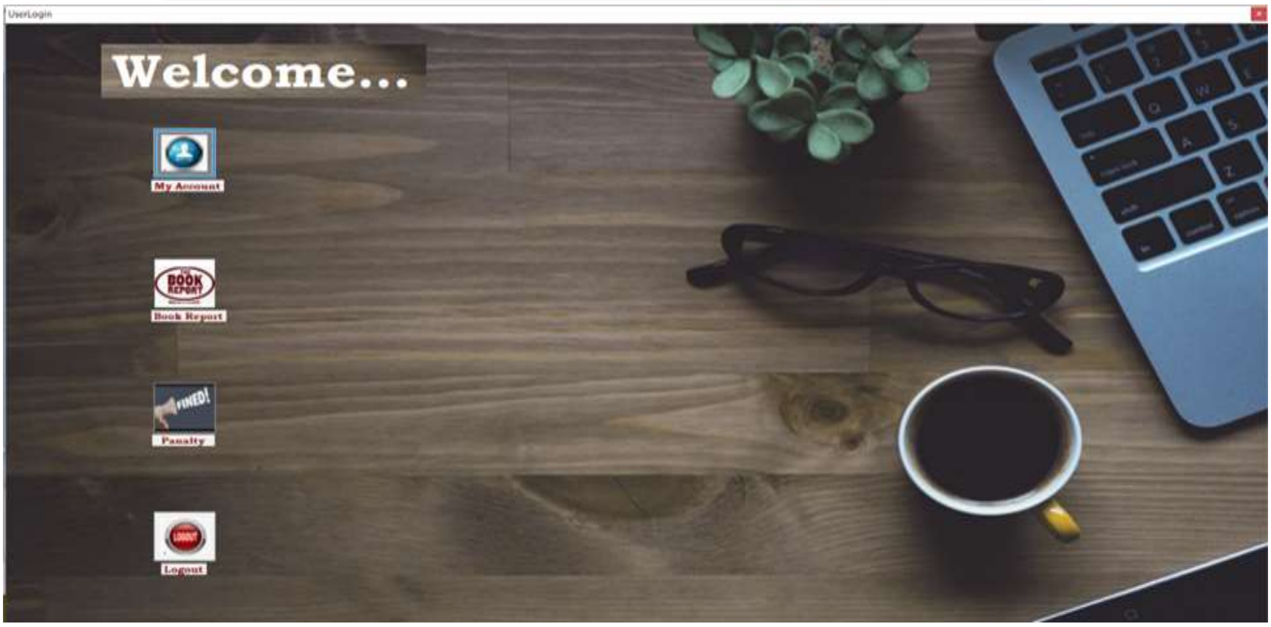
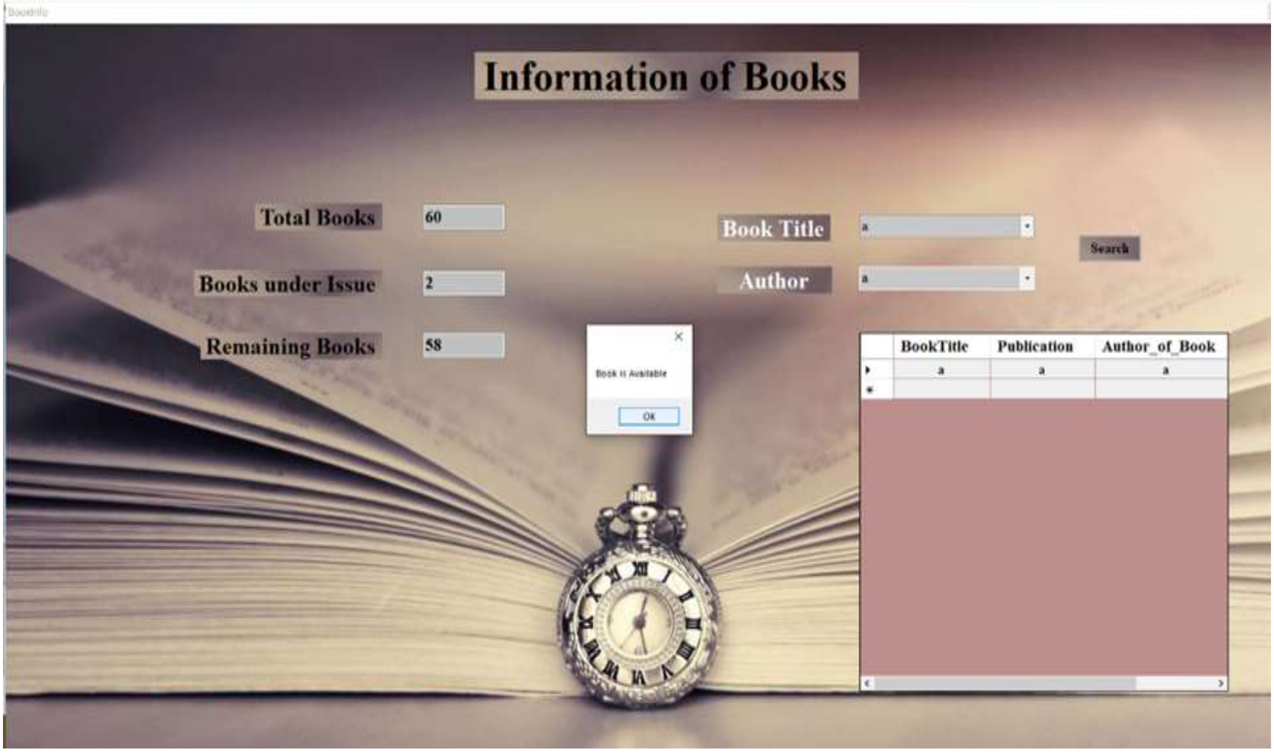


Fig 4: USERS PAGE

Fig 4 refers the Users Page. The user page for both the student and employee are similar. This page consists the icons as My Account, Book Report, Penalty. My Account consists the personal details of the user. The Book Report contains the history of issued books to the user. By using the penalty option the user can easily get the penalty amount.



Total Books 60

Books under Issue 2

Remaining Books 58

Book Title a

Author a

Book is Available

	BookTitle	Publication	Author_of_Book
▸	a	a	a
*			

Fig 5: BOOK INFO

Fig 5 refers the Book Info module. This module consists the entire information related to the book. It shows the count of the total books, books that are under issue and remaining books. We can also search the availability of a particular book by entering book title and author.

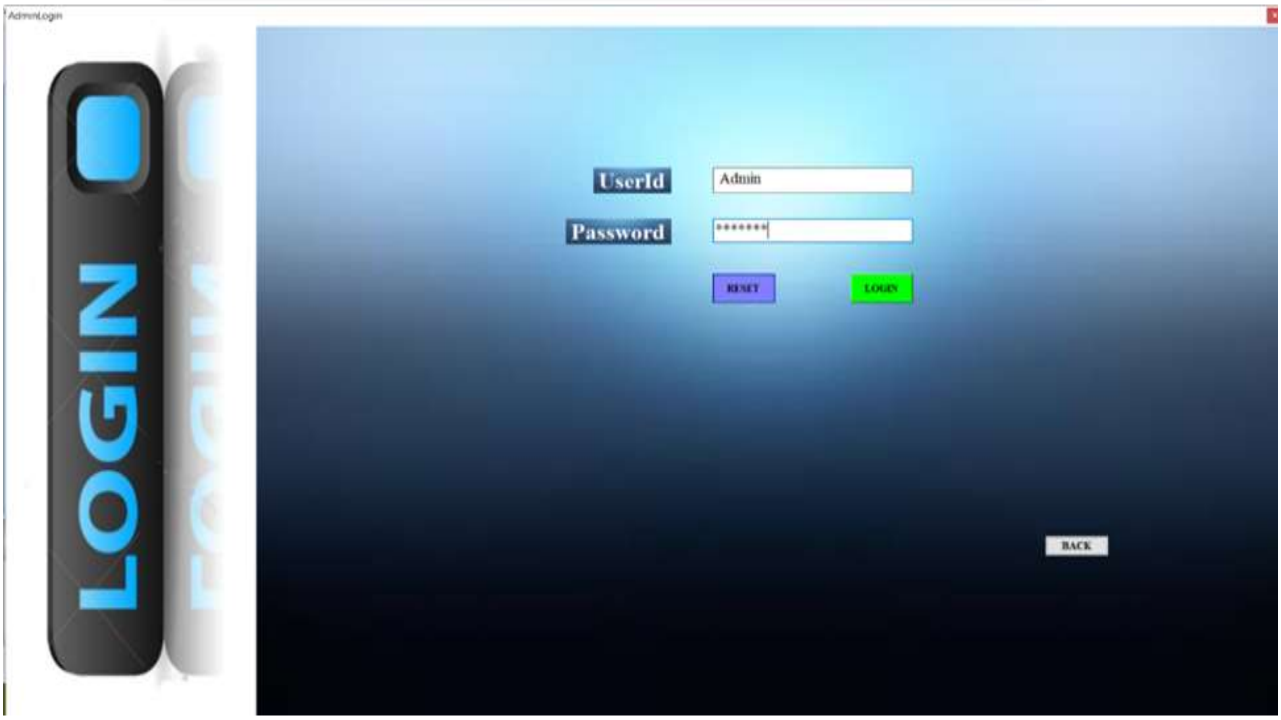


Fig 6: ADMIN LOGIN PAGE

Fig 6 refers the Admin Login Page. This page allows the admin to login to the system. The system allows the single admin to control the operations. The admin can solely monitor the system with high efficiency.

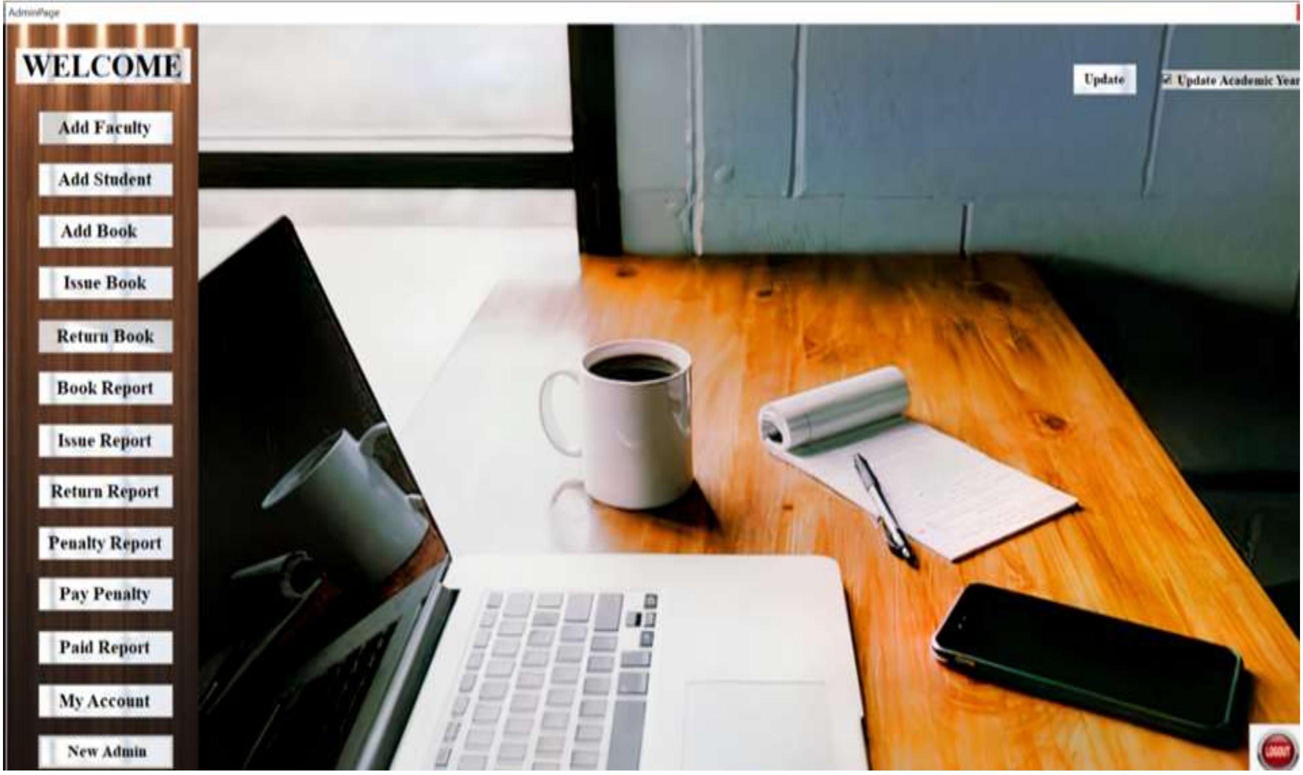


Fig 7: ADMIN PAGE

Fig 7 refers the Admin Page**.** Admin is the Primary person who interacts with the system**.** Admin can perform operations like add faculty, add student, add book, issue book, return book, book report, penalty report. Admin has the facility to add a new admin also.

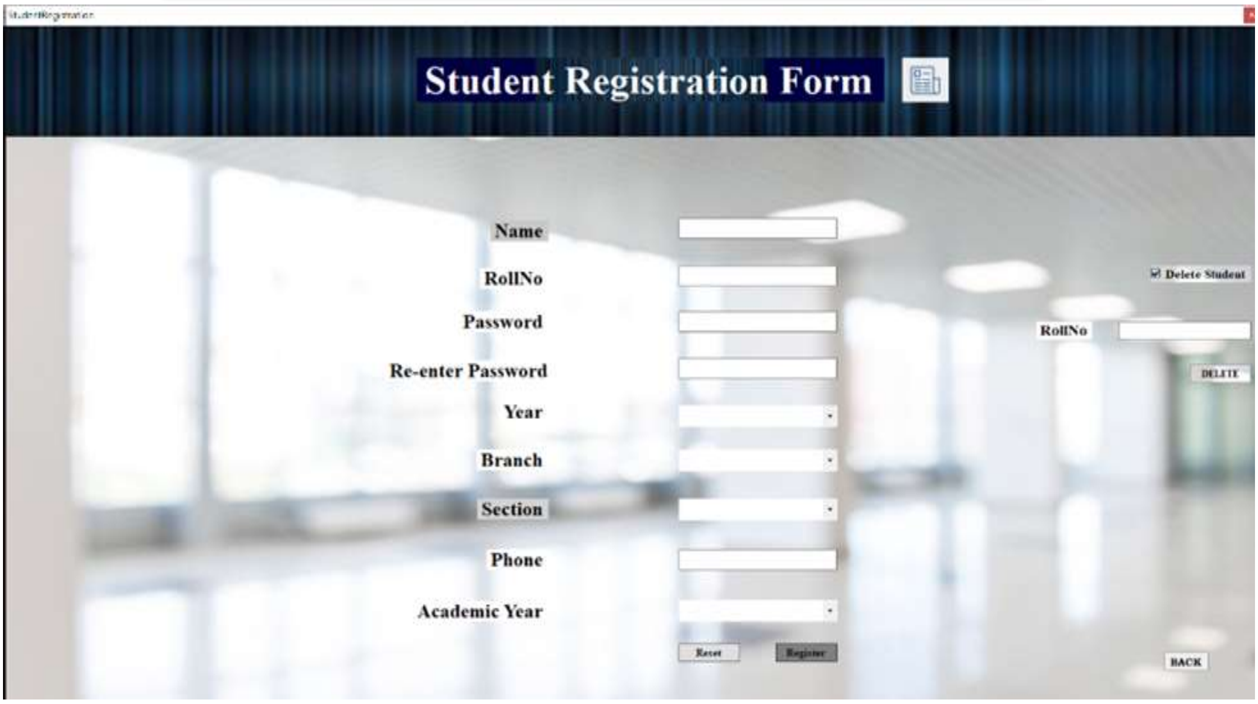


Fig 8: STUDENT REGISTRATION FORM

Fig 8 refers the Student Registration Form. By using this feature the admin can register the user by entering the details of user like name, roll number, year of study, branch, section, phone and academic year. Admin can also delete the users by entering roll number. This delete option can remove the data of passed out students.

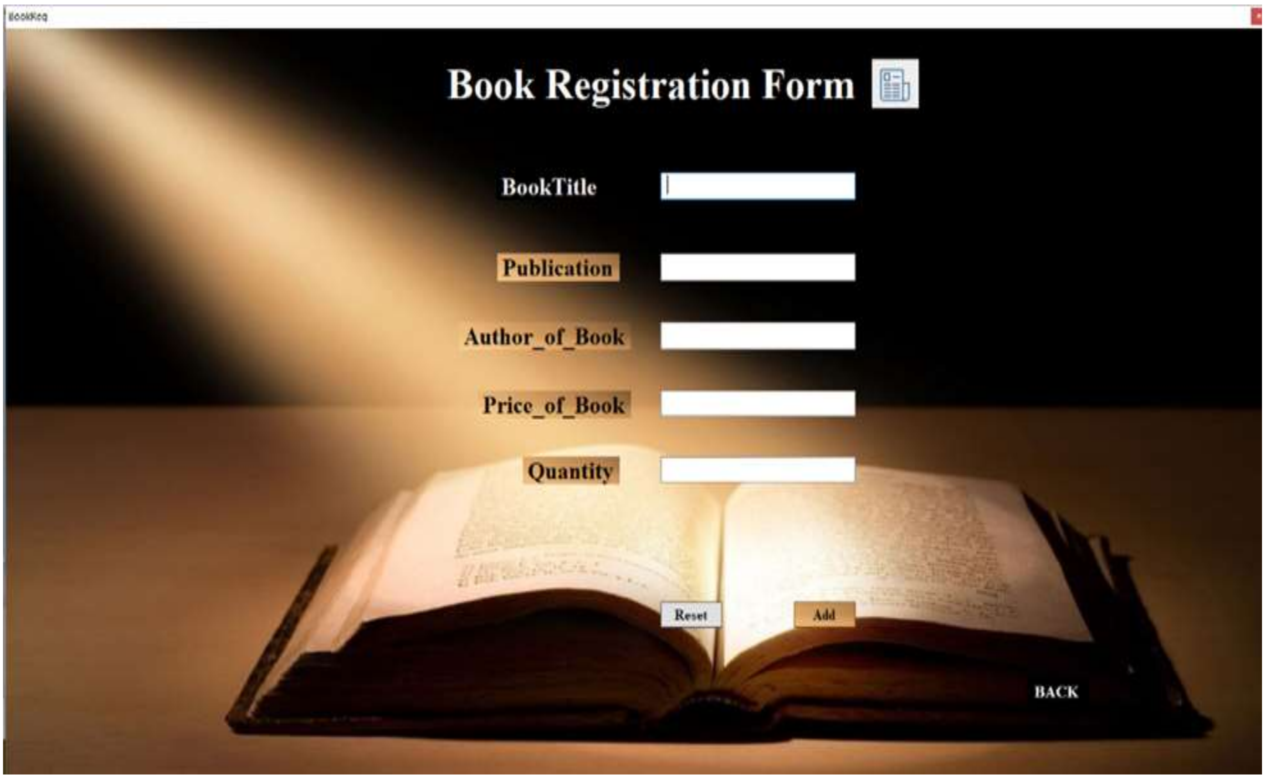


Fig 9: BOOK REGISTRATION FORM

Fig 9 refers the Book Registration Form. The admin can add the new book to the library by entering the fields like book title, publication, author of book, price of book and quantity.

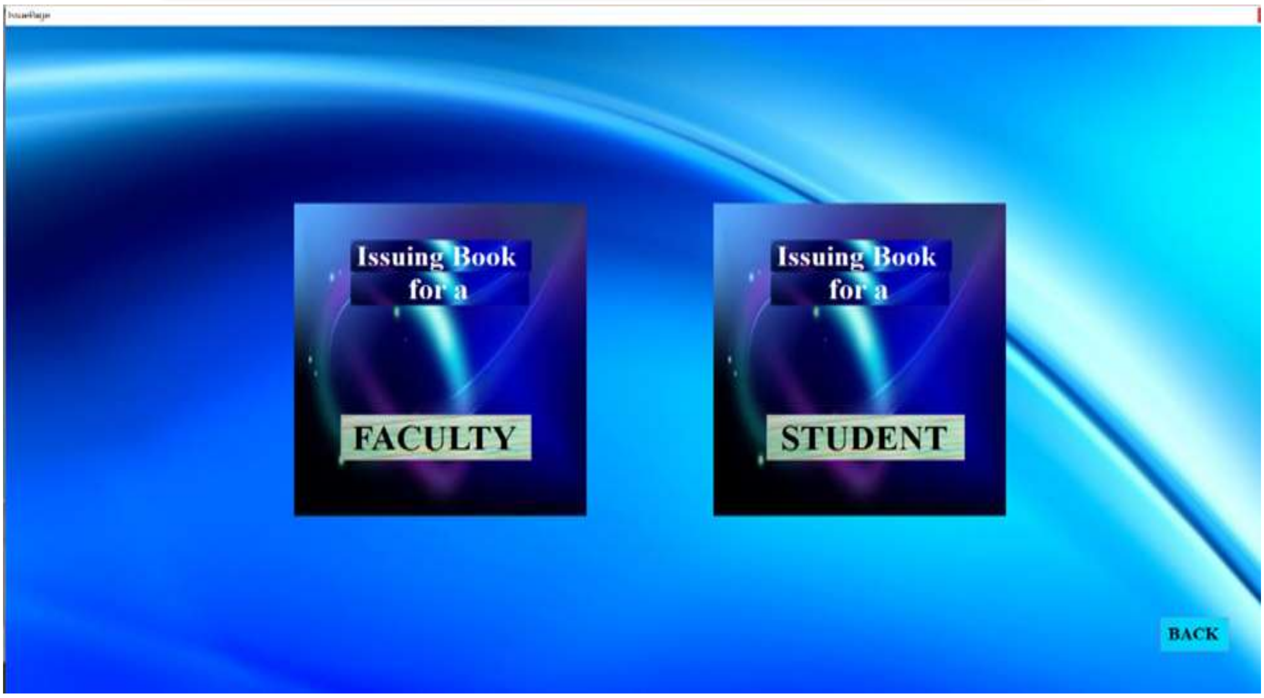
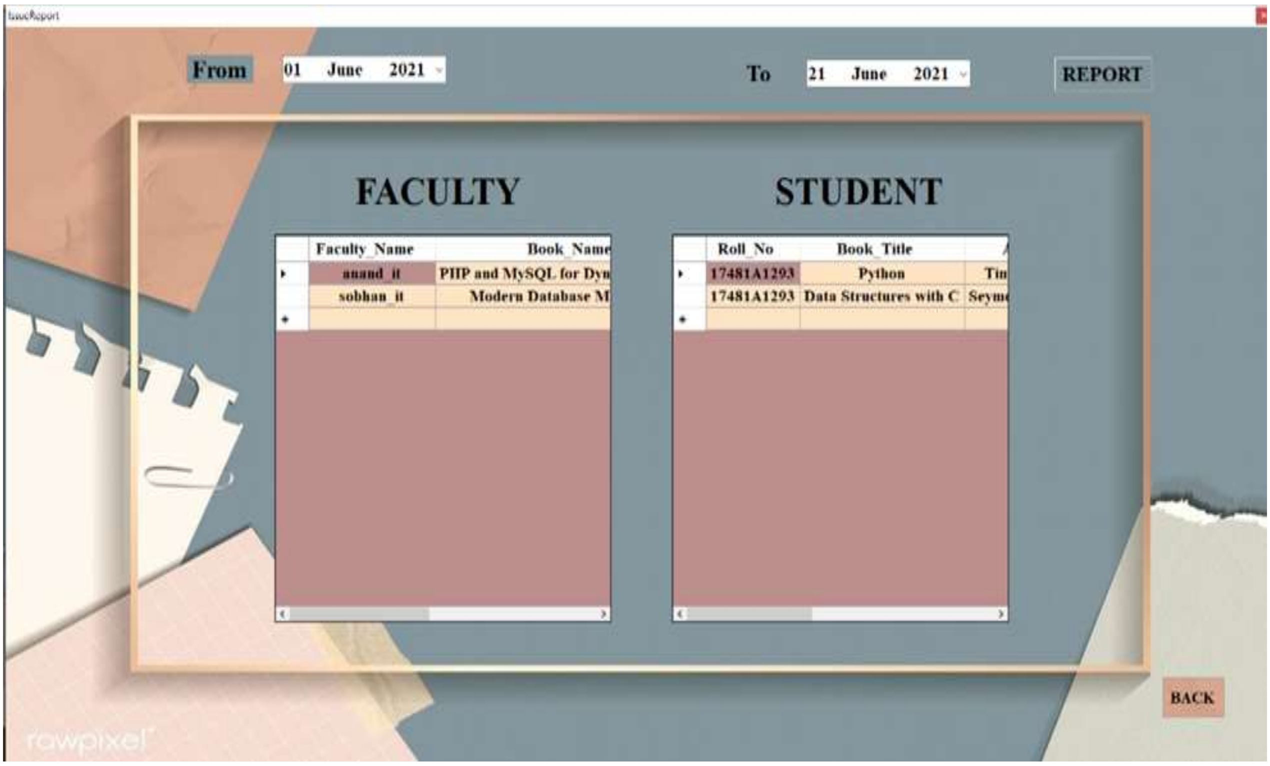


Fig 10: ISSUING BOOK FOR USERS

Fig 10 refers the Issuing Books for User. This module was handled by the admin. The admin can issue books to the users.



FACULTY

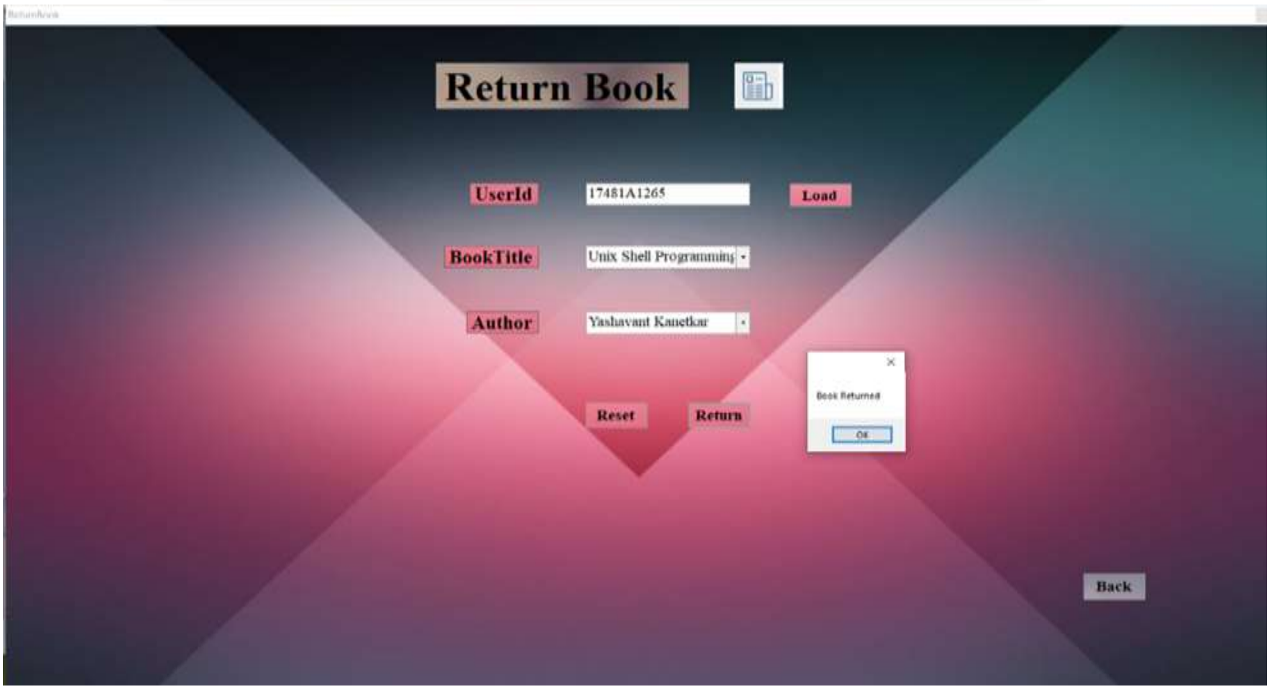
	Faculty_Name	Book_Name
▸	anand_it	PHP and MySQL for Dyn
	sobhan_it	Modern Database M
✱		

STUDENT

	Roll_No	Book_Title	A
▸	17481A1293	Python	Tin
	17481A1293	Data Structures with C	Seym
✱			

Fig 11: ISSUE REPORT

Fig 11 refers the Issue Report. Upon issue of every book, the user can retrieve the issue report from the database. This issue report contains the history of book issues for both faculty and student. This report contains the fields like user name, Book name, Author name and date of issue.



Return Book

UserId: 17481A1265

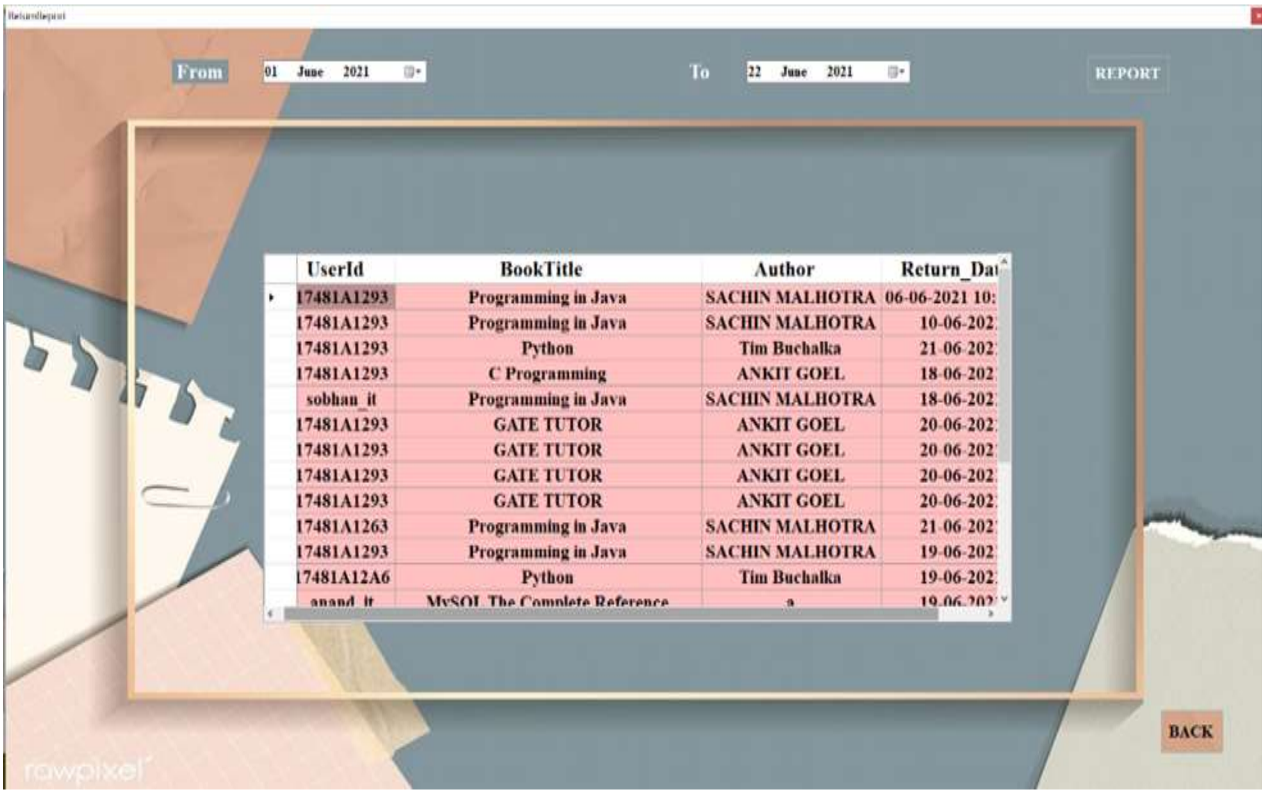
BookTitle: Unix Shell Programming

Author: Yashavant Kanetkar

Book Returned

Fig 12: RETURN BOOK

Fig 12 refers the Return Book module. Whenever the user returned the book, the admin immediately add that returned book details in this module.

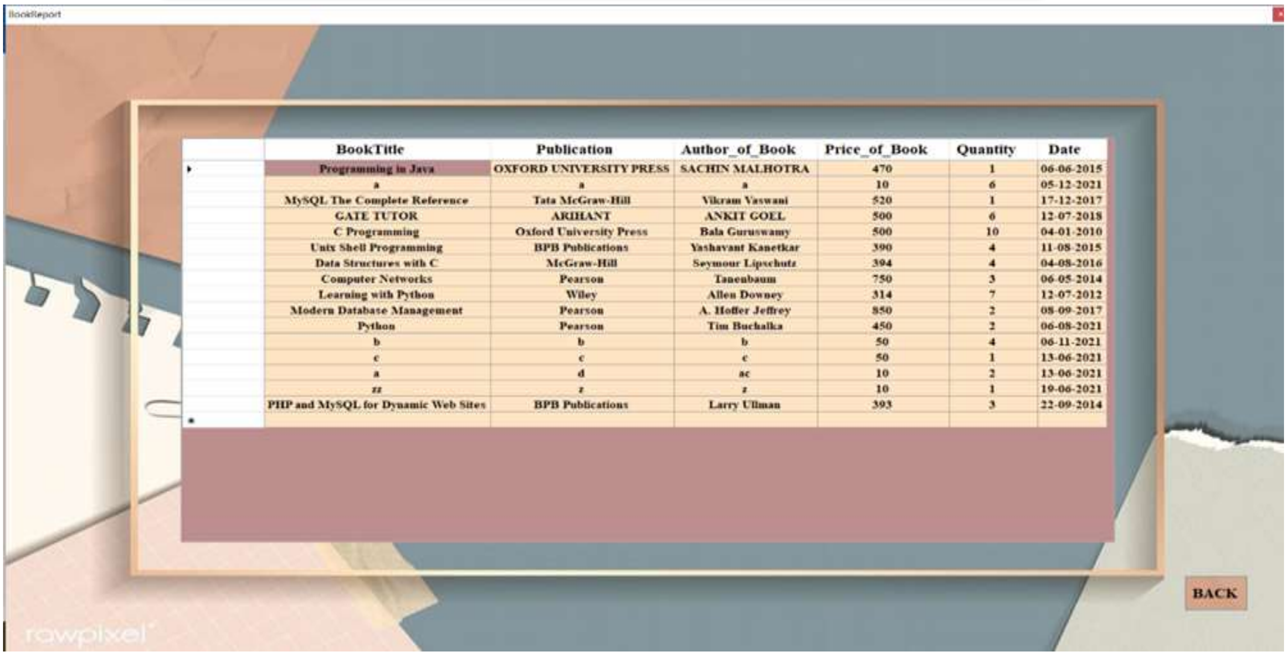


From 01 June 2021 To 22 June 2021

UserId	BookTitle	Author	Return_Dat
17481A1293	Programming in Java	SACHIN MALHOTRA	06-06-2021 10:
17481A1293	Programming in Java	SACHIN MALHOTRA	10-06-202
17481A1293	Python	Tim Buchalka	21-06-202
17481A1293	C Programming	ANKIT GOEL	18-06-202
sobhan_it	Programming in Java	SACHIN MALHOTRA	18-06-202
17481A1293	GATE TUTOR	ANKIT GOEL	20-06-202
17481A1293	GATE TUTOR	ANKIT GOEL	20-06-202
17481A1293	GATE TUTOR	ANKIT GOEL	20-06-202
17481A1293	GATE TUTOR	ANKIT GOEL	20-06-202
17481A1263	Programming in Java	SACHIN MALHOTRA	21-06-202
17481A1293	Programming in Java	SACHIN MALHOTRA	19-06-202
17481A12A6	Python	Tim Buchalka	19-06-202
anand_it	MySQL The Complete Reference	a	19-06-202

Fig 13: RETURN BOOK REPORT

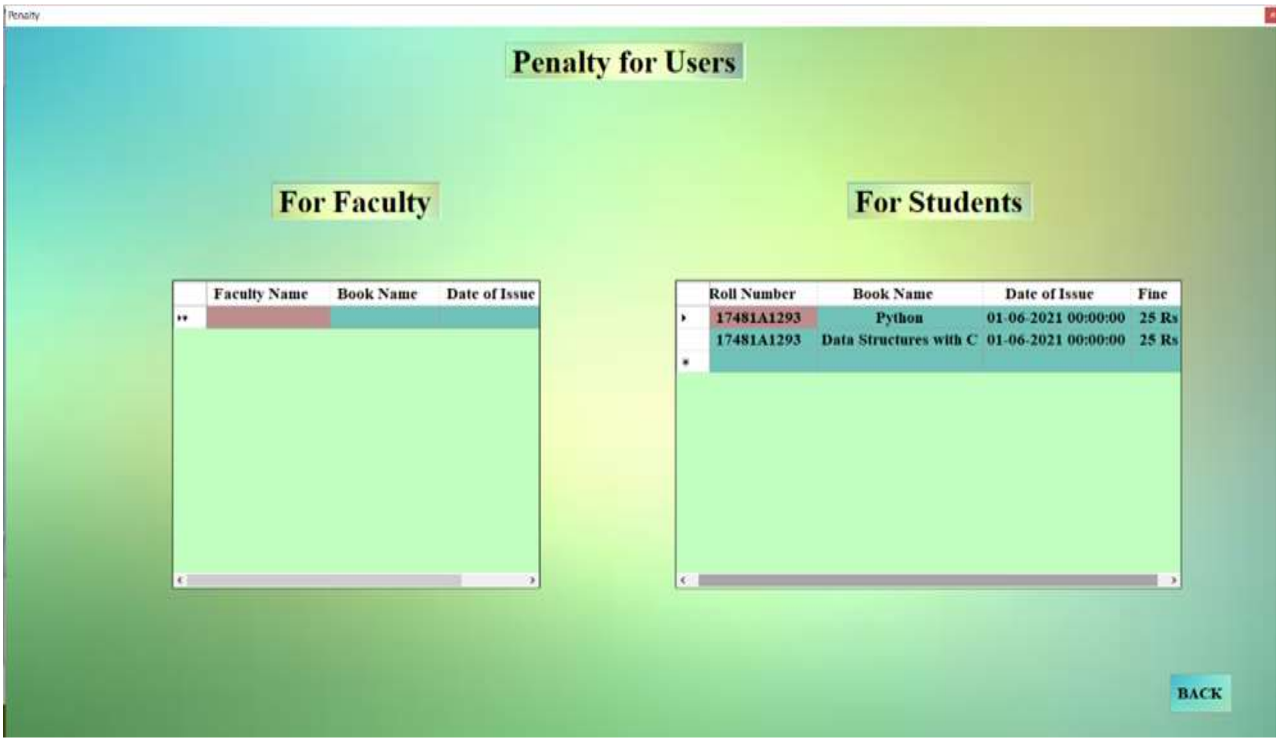
Fig 13 refers the Return Book Report. The admin can get the report of returned books by the users from the database. This report contains the fields like user id, book title, author, return date.



	BookTitle	Publication	Author_of_Book	Price_of_Book	Quantity	Date
▸	Programming in Java	OXFORD UNIVERSITY PRESS	SACHIN MALHOTRA	470	1	06-06-2015
	a	a	a	10	6	05-12-2021
	MySQL The Complete Reference	Tata McGraw-Hill	Vikram Vaswani	520	1	17-12-2017
	GATE TUTOR	ARIHANT	ANKIT GOEL	500	6	12-07-2018
	C Programming	Oxford University Press	Bala Guruswamy	500	10	04-01-2010
	Unix Shell Programming	BPB Publications	Yashavant Kanetkar	390	4	11-08-2015
	Data Structures with C	McGraw-Hill	Seymour Lipschutz	394	4	04-08-2016
	Computer Networks	Pearson	Tanenbaum	750	3	06-05-2014
	Learning with Python	Wiley	Allen Downey	314	7	12-07-2012
	Modern Database Management	Pearson	A. Hoffer Jeffrey	850	2	08-09-2017
	Python	Pearson	Tim Buchalka	450	2	06-08-2021
	b	b	b	50	4	06-11-2021
	c	c	c	50	1	13-06-2021
	a	d	ac	10	2	13-06-2021
	zz	z	z	10	1	19-06-2021
	PHP and MySQL for Dynamic Web Sites	BPB Publications	Larry Ullman	393	3	22-09-2014
*						

Fig 14: BOOK REPORT

Fig 14 refers the Book Report. By using this report the admin can get a overall snapshot of the available book data. This module contains the fields like book title, publications, author of book, price of book, quantity and date.



Penalty for Users

For Faculty

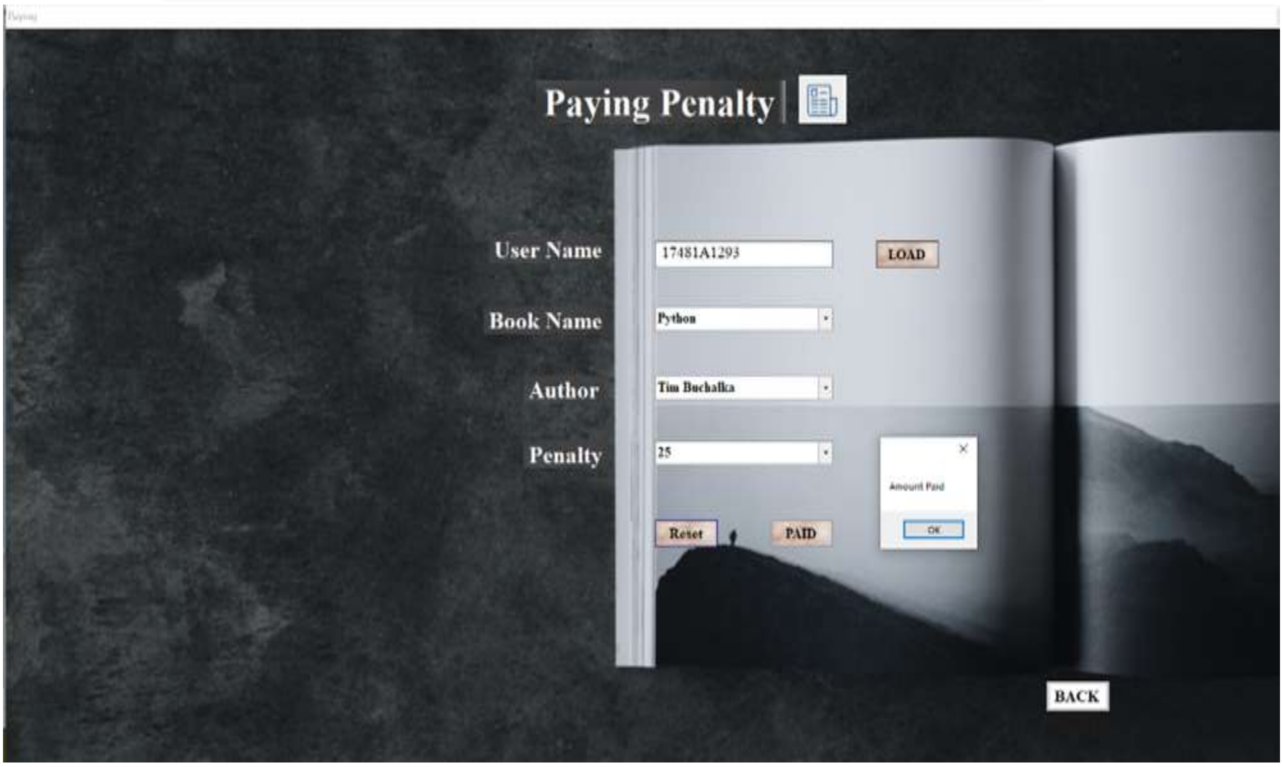
	Faculty Name	Book Name	Date of Issue
▸*			

For Students

	Roll Number	Book Name	Date of Issue	Fine
▸	17481A1293	Python	01-06-2021 00:00:00	25 Rs
	17481A1293	Data Structures with C	01-06-2021 00:00:00	25 Rs
*				

Fig 15: PENALTY REPORT

Fig 15 refers the Penalty Report. By using this module admin can check the fines for the users. For faculty the fine was not applicable. So fine was calculated for students only. This fine will depend on the date of issue. If the due date was extended, the fine is applied.



Paying Penalty

User Name: 17481A1293

Book Name: Python

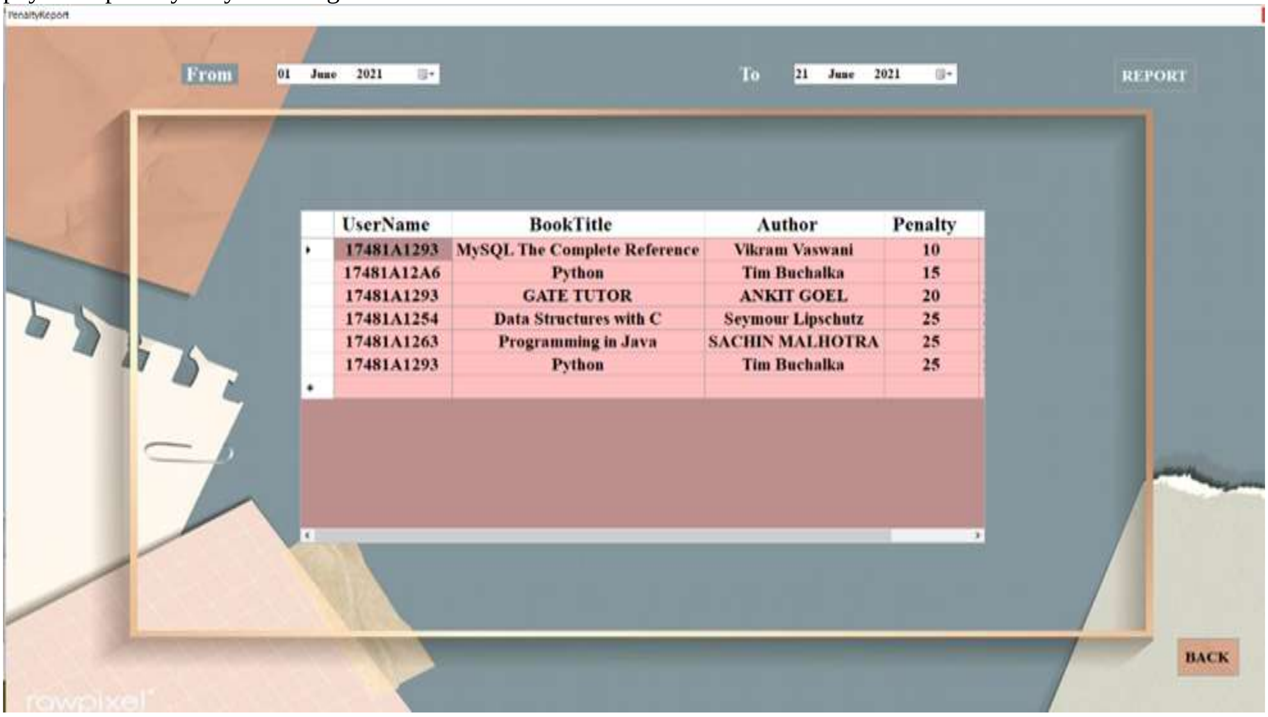
Author: Tim Buchalka

Penalty: 25

Amount Paid

Fig 16: PAY PENALTY

Fig 16 refers the Pay Penalty module. Upon calculating the fine amount, now the student has to pay the penalty. By entering the fields like user name, book name, author, penalty. Upon entering all these fields, the user penalty was paid.

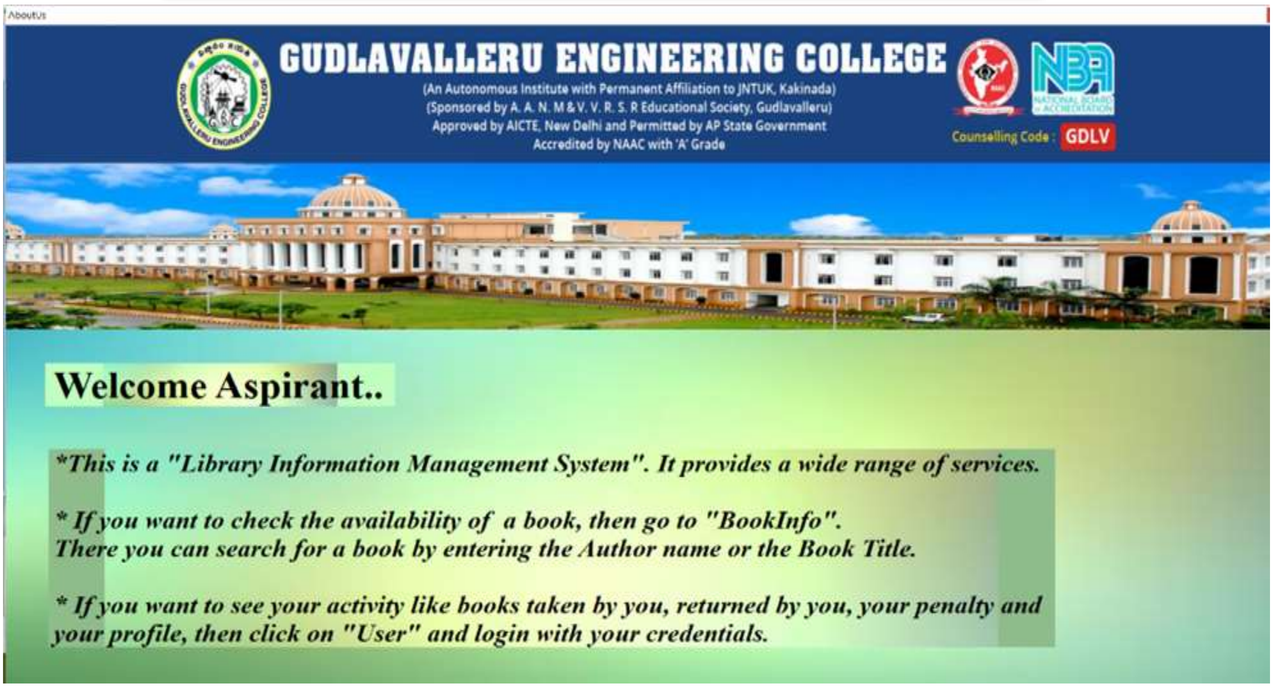


From: 01 June 2021 To: 21 June 2021

UserName	BookTitle	Author	Penalty
17481A1293	MySQL The Complete Reference	Vikram Vaswani	10
17481A12A6	Python	Tim Buchalka	15
17481A1293	GATE TUTOR	ANKIT GOEL	20
17481A1254	Data Structures with C	Seymour Lipschutz	25
17481A1263	Programming in Java	SACHIN MALHOTRA	25
17481A1293	Python	Tim Buchalka	25

Fig 17: PENALTY PAID REPORT

Fig 17 refers the Paid Penalty Report. This report was based on the penalty paid by the student. The admin can get this report from the database which depicts the overall history of penalty paid by the students.


AboutUs

GUDLAVALLERU ENGINEERING COLLEGE

(An Autonomous Institute with Permanent Affiliation to JNTUK, Kakinada)
(Sponsored by A. A. N. M & V. V. R. S. R Educational Society, Gudlavalleru)
Approved by AICTE, New Delhi and Permitted by AP State Government
Accredited by NAAC with 'A' Grade

Counselling Code : GDLV

Welcome Aspirant..

*This is a "Library Information Management System". It provides a wide range of services.

* If you want to check the availability of a book, then go to "BookInfo".
There you can search for a book by entering the Author name or the Book Title.

* If you want to see your activity like books taken by you, returned by you, your penalty and your profile, then click on "User" and login with your credentials.

Fig 18: ABOUT US

Fig 18 refers the page ABOUT US. It depicts the information about the application and directs the user on how to use this application

4. CONCLUSION

The "LIBRARY INFORMATION MANAGEMENT SYSTEM USING KIOSK" is a windows application. This project will provide a computerized version of a library information management system that will benefit the students, faculty and staff of the library. It makes the entire process online where an Admin can register students and faculty, add book information, issue books to users and also retrieve the reports generated on book issues, due dates, book info and penalty. With the help of these generated reports from the database the admin can easily manage the library transactions without errors. The admin can also check the penalty for the students and update the users details by performing add and delete operations on user data. Students and faculty can search books and also get the books. In this application physical work is replaced with a window-based system by avoiding the drawbacks of an existing system and it provides more help and satisfies every user and interaction with the library increases. We can say that the usage of kiosk is another advantage. With the help of this the user can easily access the accurate data within the less time. It can be safely concluded that the developed system is an efficient, cost effective, platform independent and security conscious Library Information Management System. The system is flexible and can be easily modified to accommodate any modifications.

5. FUTURE ENHANCEMENT

Our proposed system can also be implemented furtherly, by connecting a bar code scanner. And for every book there is a unique bar code is labeled. By using bar code scanner, scan the book and scan identity card of user by this, book issue is done. Our proposed system can also be implemented furtherly, by making an android application using cross platform.

6. REFERENCES

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3. *Using Finger Print scanner https://www.researchgate.net/publication/247773759_Fingerprint_Recognition_System_Design_Analysis*
4. *Online Library Management System https://www.engpaper.net/library.html*
5. *Library Management System-IRJET https://www.irjet.net/archives/V7/i3/IRJET-V7I3109.pdf*
6. *Library Management System-Research Gate https://www.researchgate.net/publication/347245735_Library_Management_System*