

### Technologies Used:

- **Frontend:** Angular (HTML, SCSS, TypeScript)
- **Backend:** Spring-boot (Java)
- **Database:** MySQL

**Project GitHub Link:** [https://github.com/Kishan-Kumar-Zalavadia/FDB\\_Assignment-2](https://github.com/Kishan-Kumar-Zalavadia/FDB_Assignment-2)

### Database requirements:

1. **Books 5 points**
  - Each book has a unique ISBN, title, author, genre, and publication year.
  - Books can have multiple copies with different serial numbers.
  - The system should keep track of the availability status of each book copy.

Field	Type	Null	Key	Default	Extra
isbn	bigint	NO	PRI	NULL	
author	varchar(255)	YES		NULL	
available	bit(1)	NO		NULL	
genre	varchar(255)	YES		NULL	
publication_year	int	NO		NULL	
title	varchar(255)	YES		NULL	

isbn	author	available	genre	publication_ye...	title
9780143039439	Harper Lee	1	Fiction	1960	To Kill a Mockingbird
9780307248435	Markus Zusak	1	Historical Fiction	2005	The Book Thief
9780307271326	Napoleon Hill	1	Motivation	1937	Think and Grow Rich
9780307271327	Napoleon Hill	1	Motivation	1937	Think and Grow Rich
9780307271328	Napoleon Hill	1	Motivation	1937	Think and Grow Rich
9780307271329	Napoleon Hill	1	Motivation	1937	Think and Grow Rich
9780307271342	Erin Morgenstern	1	Fantasy	2011	The Night Circus
9780385341672	Paula Hawkins	1	Thriller	2015	The Girl on the Train
9780385504201	Khaled Hosseini	1	Historical Fiction	2007	A Thousand Splendid Suns
9780670030553	Donna Tartt	1	Fiction	2013	The Goldfinch
9780735219090	Delia Owens	1	Mystery	2018	Where the Crawdads Sing
9780739341163	Kathryn Stockett	1	Historical Fiction	2009	The Help
9781400033416	Khaled Hosseini	1	Historical Fiction	2003	The Kite Runner
9781594634024	Anthony Doerr	1	Historical Fiction	2014	All the Light We Cannot See
NULL	NULL	NULL	NULL	NULL	NULL

## 2. Borrowers 5 points

- Each borrower has a unique ID, name, email, and contact number.
- The system should maintain a record of the borrowing history for each borrower.

Field	Type	Null	Key	Default	Extra
userid	bigint	NO	PRI	NULL	auto_increment
contact_number	varchar(255)	YES		NULL	
emailid	varchar(255)	YES		NULL	
is_admin	bit(1)	NO		NULL	
password	varchar(255)	YES		NULL	
user_name	varchar(255)	YES		NULL	

userid	contact_number	emailid	is_admin	password	user_name
1	+1 (123) 456-7890	admin@example.com	1	123	Admin
2	+1 (234) 567-8901	bob@example.com	0	password456	Bob Johnson
3	+1 (345) 678-9012	charlie@example.com	0	password789	Charlie Brown
4	+1 (456) 789-0123	david@example.com	0	passwordabc	David Wilson
5	+1 (567) 890-1234	emily@example.com	0	passworddef	Emily Davis
6	+1 (678) 901-2345	frank@example.com	0	passwordghi	Frank Miller
7	+1 (789) 012-3456	grace@example.com	0	passwordjkl	Grace Taylor
8	+1 (890) 123-4567	henry@example.com	0	passwordmno	Henry Clark
9	+1 (901) 234-5678	isabel@example.com	0	passwordpqr	Isabel Martinez
10	+1 (012) 345-6789	jack@example.com	0	passwordstu	Jack Robinson
NULL	NULL	NULL	NULL	NULL	NULL

## 3. Borrowing Transactions 5 points

- Each borrowing transaction should have a unique ID, borrower ID, book ISBN, and borrowing date.
- The system should track the return date for each borrowed book.

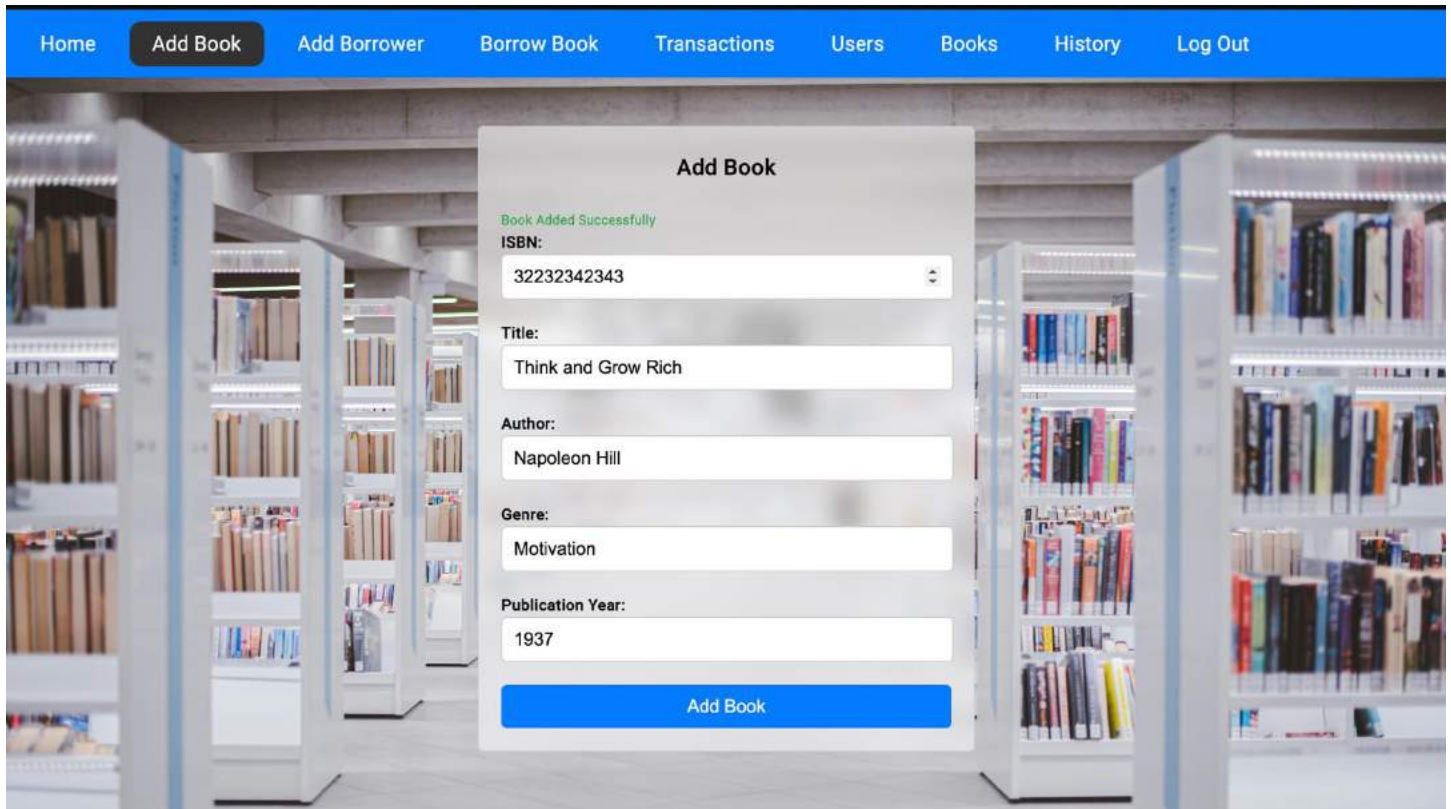
Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
borrowing_date	date	YES		NULL	
return_date	date	YES		NULL	
book_isbn	bigint	YES	MUL	NULL	
user_id	bigint	YES	MUL	NULL	

id	borrowing_date	return_date	book_isbn	user_id
1	2024-03-01	2024-03-08	9780307248435	2
2	2024-03-02	2024-03-09	9780307271329	3
3	2024-03-06	2024-03-10	9780385341672	5
4	2024-03-08	NULL	9780739341163	6
5	2024-03-09	2024-03-11	9780307248435	3
6	2024-03-21	NULL	9781594634024	5
NULL	NULL	NULL	NULL	NULL

## Functionalities (implemented using a programming language):

### 1. Add Book 10 points

- Librarians should be able to add new books to the system, specifying details such as ISBN, title, author, genre, and publication year.
- They should also be able to add multiple copies of the same book with different serial numbers.



The screenshot shows a web application interface for a library management system. At the top, there is a blue navigation bar with the following links: Home, Add Book, Add Borrower, Borrow Book, Transactions, Users, Books, History, and Log Out. The 'Add Book' link is highlighted. Below the navigation bar, the main content area displays a modal form titled 'Add Book'. The form is set against a background image of a library with bookshelves. The form contains the following fields and values:

- ISBN:** 32232342343
- Title:** Think and Grow Rich
- Author:** Napoleon Hill
- Genre:** Motivation
- Publication Year:** 1937

At the bottom of the form is a blue button labeled 'Add Book'. Above the ISBN field, a green message states 'Book Added Successfully'.

- The librarian can add books and it displays the message 'Book Added Successfully' when the book is added.

Home Add Book Add Borrower Borrow Book Transactions Users Books History Log Out

### Add Book

Book already exists

ISBN: 32232342343

Title: Think And Grow Rich

Author: Napoleon Hill

Genre: Motivation

Publication Year: 1973

Add Book

- Since the librarian is trying to add a book with the same ISBN that already exists, there is a message saying 'Book already exists'. Because the ISBN number is the primary key, it should be unique.
2. **Add Borrower 10 points**
- Librarians should be able to add new borrowers to the system, providing details like name, email, and contact number.



Home Add Book **Add Borrower** Borrow Book Transactions Users Books History Log Out

### Add Borrower

Email:

User Name:

Password:

Contact Number:

**Add Borrower**

- The librarian can add borrowers by giving their details.
- All the details must be included to add the borrower.

Home Books History Log Out

### Add Borrower

Borrower Added Successfully

Email:

User Name:

Password:

Contact Number:

**Add Borrower**

- Once the borrower is added it displays a message saying 'Borrower Added Successfully'

Home Books History Log Out

### Add Borrower

Borrower Already Exists

Email:  
premail@gmail.com

User Name:  
Prem 2

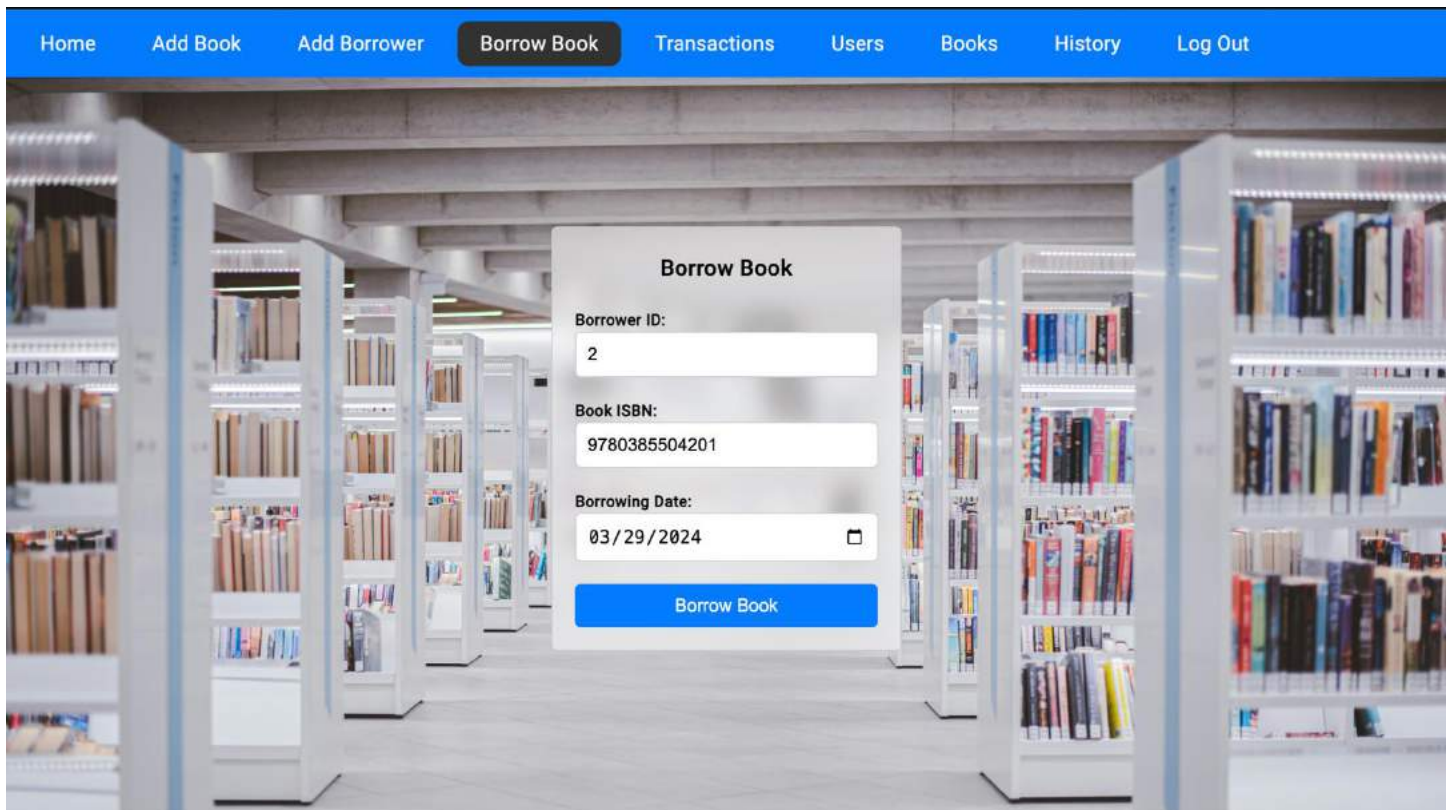
Password:  
\*\*\*

Contact Number:  
9384738473

Add Borrower

- If the borrower already exists, it displays an error message. Saying 'Borrower already Exists'
3. **Borrow Book 15 points**
- Librarians should be able to process borrowing transactions, recording the borrower ID, book ISBN, and borrowing date.
  - The system should update the availability status of the book copy accordingly.





Home Add Book Add Borrower **Borrow Book** Transactions Users Books History Log Out

### Borrow Book

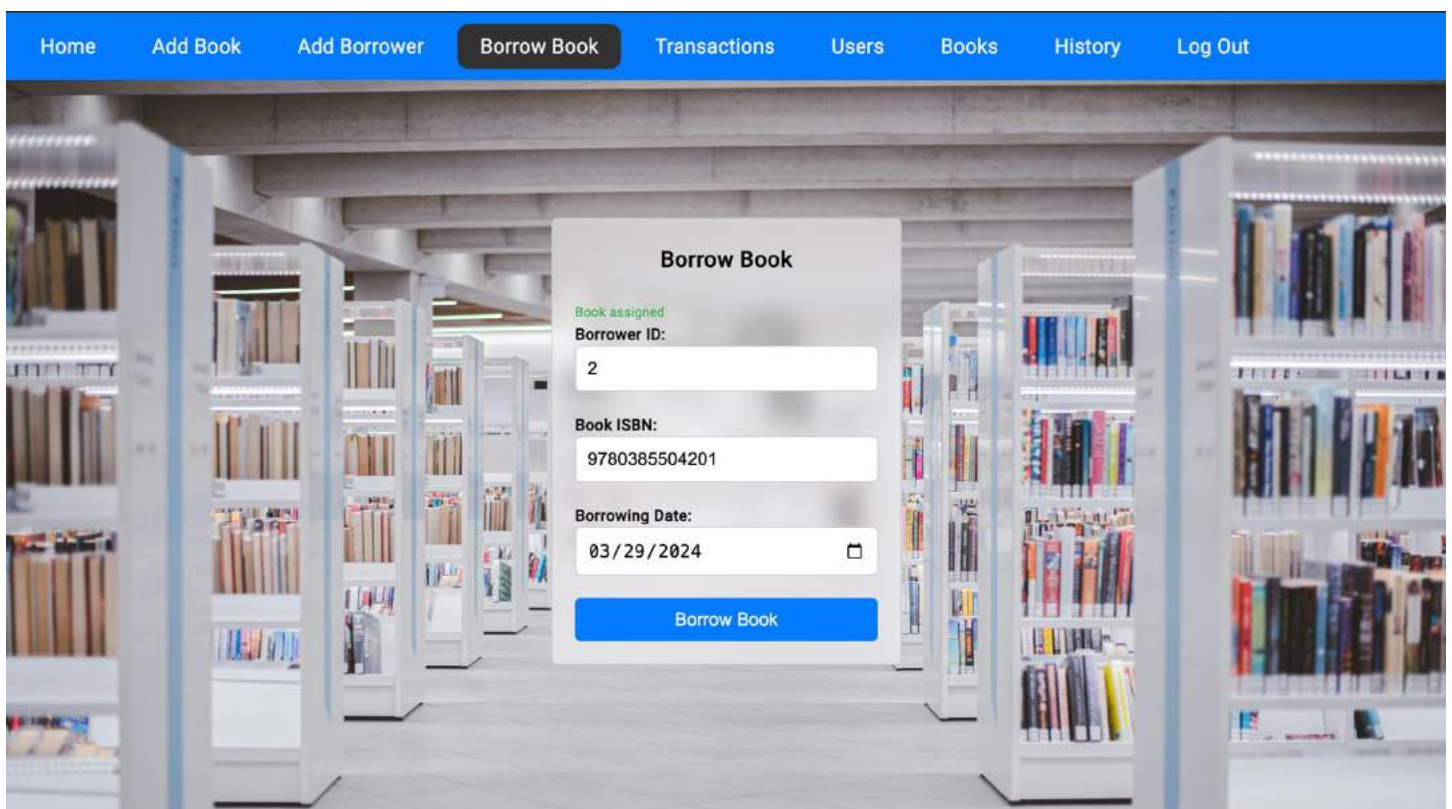
Borrower ID:  
2

Book ISBN:  
9780385504201

Borrowing Date:  
03/29/2024

Borrow Book

- The librarian can add a transaction, the above transaction means borrower 2 is borrowing a book with ISBN 9780385504201 on 03/29/2024.



Home Add Book Add Borrower **Borrow Book** Transactions Users Books History Log Out

### Borrow Book

Book assigned

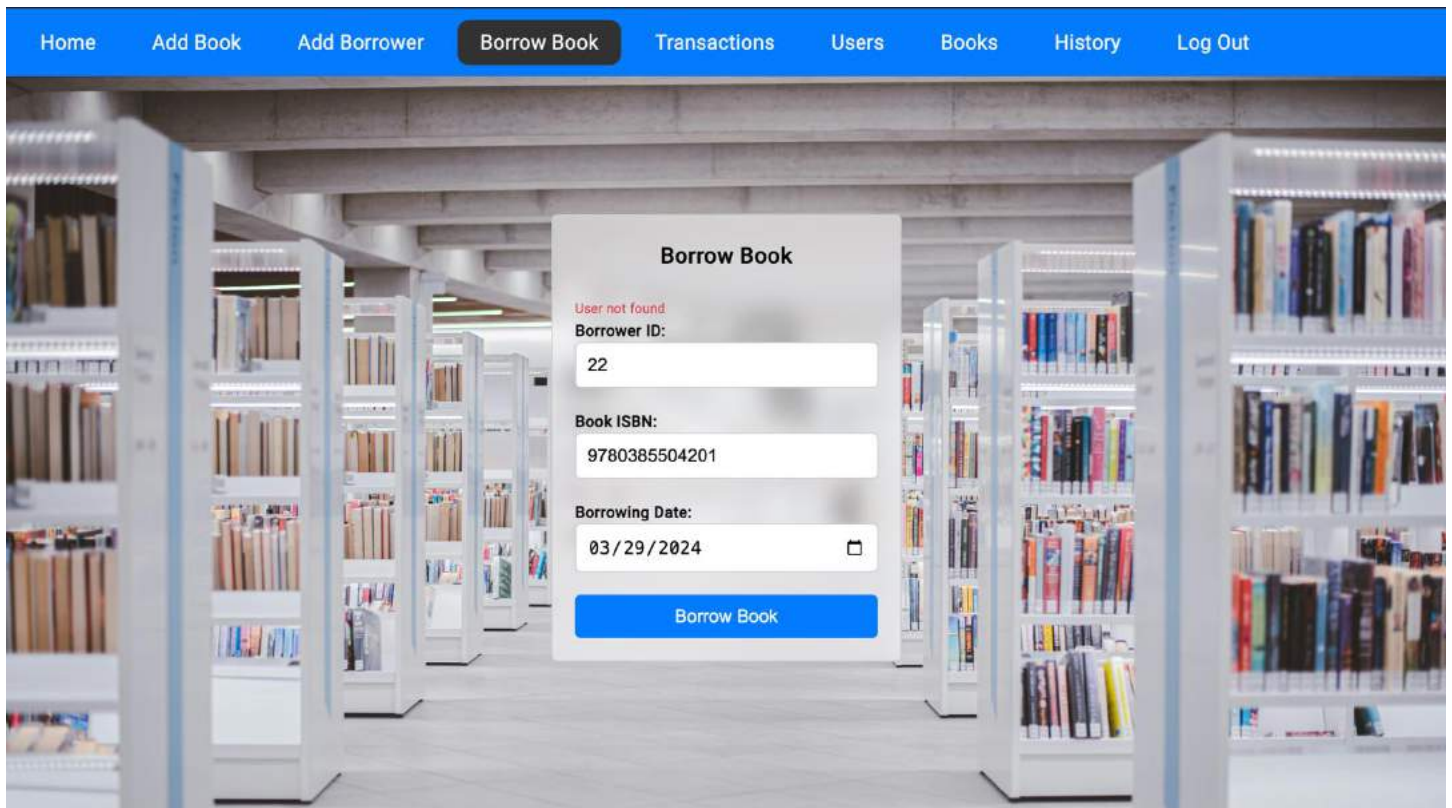
Borrower ID:  
2

Book ISBN:  
9780385504201

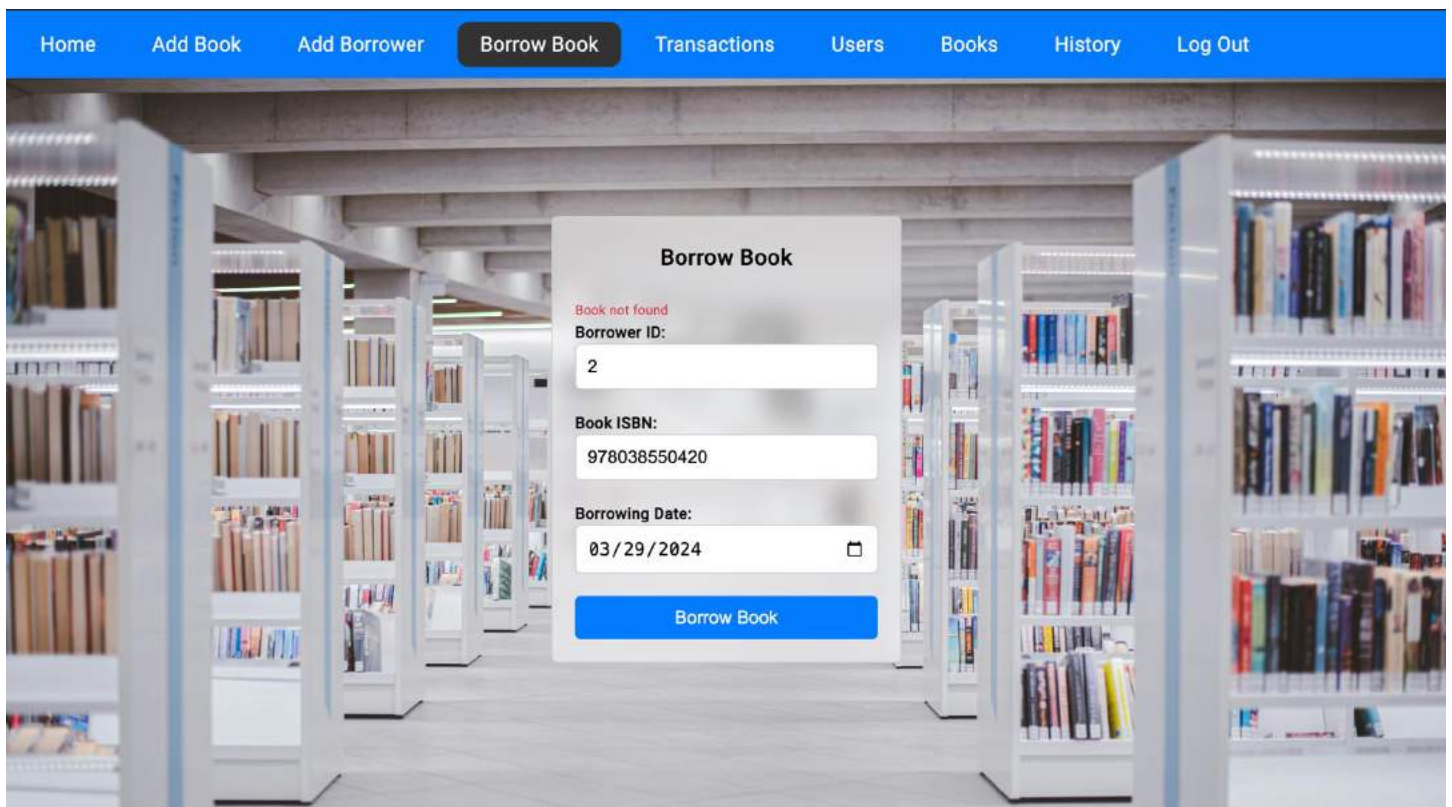
Borrowing Date:  
03/29/2024

Borrow Book

- Once the transaction is successful, it shows a message 'Book assigned',



- If the borrower does not exist, it gives an error saying 'User not found'



- If the book ISBN is not found then it gives an error message saying 'Book not found'



Home
Add Book
Add Borrower
Borrow Book
Transactions
Users
Books
History
Log Out

### Borrow Book

Book not available

Borrower ID:

2

Book ISBN:

9780385504201

Borrowing Date:

03/29/2024

Borrow Book

- If the book is already borrowed by some other user, then it gives an error saying, 'Book not available'.

Title: Think and Grow Rich Author: Napoleon Hill Genre: Motivation Publication Year: 1937 Availability: Available	Title: The Night Circus Author: Erin Morgenstern Genre: Fantasy Publication Year: 2011 Availability: Available	Title: Think and Grow Rich Author: Napoleon Hill Genre: Motivation Publication Year: 1937 Availability: Available
ISBN: 9780385341672 Title: The Girl on the Train Author: Paula Hawkins Genre: Thriller Publication Year: 2015 Availability: Available	ISBN: 9780385504201 Title: A Thousand Splendid Suns Author: Khaled Hosseini Genre: Historical Fiction Publication Year: 2007 Availability: Not Available	ISBN: 9780670030553 Title: The Goldfinch Author: Donna Tartt Genre: Fiction Publication Year: 2013 Availability: Available
ISBN: 9780735219090 Title: Where the Crawdads Sing Author: Delia Owens Genre: Mystery Publication Year: 2018 Availability: Available	ISBN: 9780739341163 Title: The Help Author: Kathryn Stockett Genre: Historical Fiction Publication Year: 2009 Availability: Not Available	ISBN: 9781400033416 Title: The Kite Runner Author: Khaled Hosseini Genre: Historical Fiction Publication Year: 2003 Availability: Available
ISBN: 9781594634024 Title: All the Light We Cannot See Author: Anthony Doerr Genre: Historical Fiction Publication Year: 2014 Availability: Not Available		

- Once the book I assigned to a borrower, the status of the book changed from 'Available' to 'Not Available'.

#### 4. Return Book 15 points

- Librarians should be able to process return transactions, updating the return date for the borrowed book.
- The availability status of the book copy should be updated accordingly.

The screenshot shows the 'Transactions' page of a library management system. The page has a blue header with navigation links: Home, Add Book, Add Borrower, Borrow Book, Transactions (active), Users, Books, History, and Log Out. Below the header, there are six transaction cards arranged in a 2x3 grid. Each card displays the following information:

- Transaction ID:** (e.g., 1, 2, 3, 4, 5, 6)
- Borrowing Date:** (e.g., Mar 1, 2024, Mar 2, 2024, Mar 6, 2024, Mar 8, 2024, Mar 9, 2024, Mar 21, 2024)
- User ID:** (e.g., 2, 3, 5, 6, 3, 5)
- Book ISBN:** (e.g., 9780307248435, 9780307271329, 9780385341672, 9780739341163, 9780307248435, 9781594634024)
- Return Date:** (e.g., Mar 8, 2024, Mar 9, 2024, Mar 10, 2024, Mar 11, 2024)
- Buttons:** 'View User' (blue), 'View Book' (blue), and 'Return Book' (green).

Transaction 4 also includes a 'Select return date' dropdown menu with the format 'mm/dd/yyyy'.

- The librarian can add a return date and take the book back from the borrower.

The screenshot shows the 'Books' page of a library management system. The page displays a grid of book cards with the following information:

- Title:** (e.g., Think and Grow Rich, The Night Circus, The Girl on the Train, A Thousand Splendid Suns, The Goldfinch, Where the Crawdads Sing, The Help, The Kite Runner, All the Light We Cannot See)
- Author:** (e.g., Napoleon Hill, Erin Morgenstern, Paula Hawkins, Khaled Hosseini, Donna Tartt, Delia Owens, Kathryn Stockett, Khaled Hosseini, Anthony Doerr)
- Genre:** (e.g., Motivation, Fantasy, Thriller, Historical Fiction, Fiction, Mystery, Historical Fiction)
- Publication Year:** (e.g., 1937, 2011, 2015, 2007, 2013, 2018, 2009, 2003, 2014)
- Availability:** (e.g., Available, Not Available)

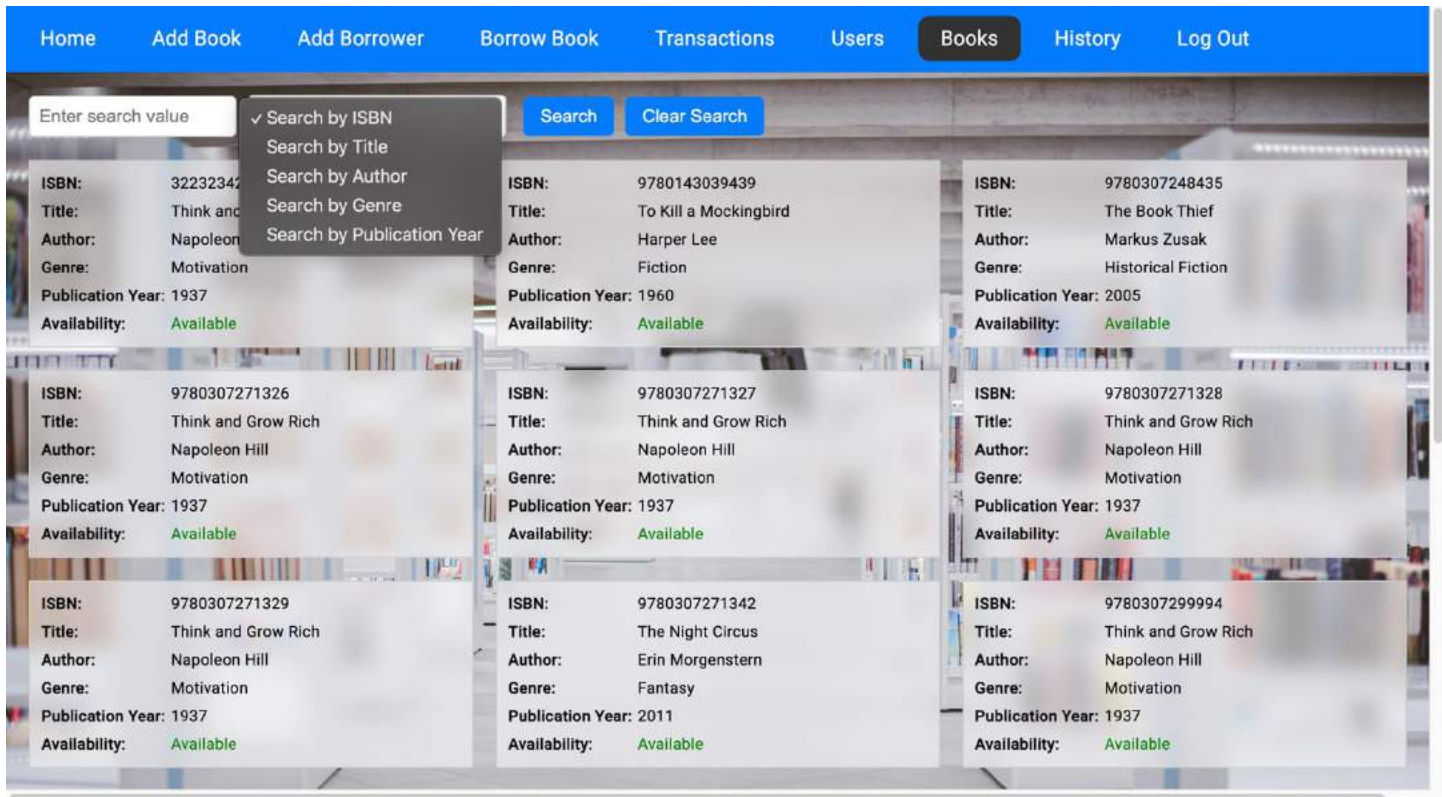
The availability status is color-coded: green for 'Available' and red for 'Not Available'.



- Once the book is returned, the booking status gets updated from 'Not Available' to 'Available'.

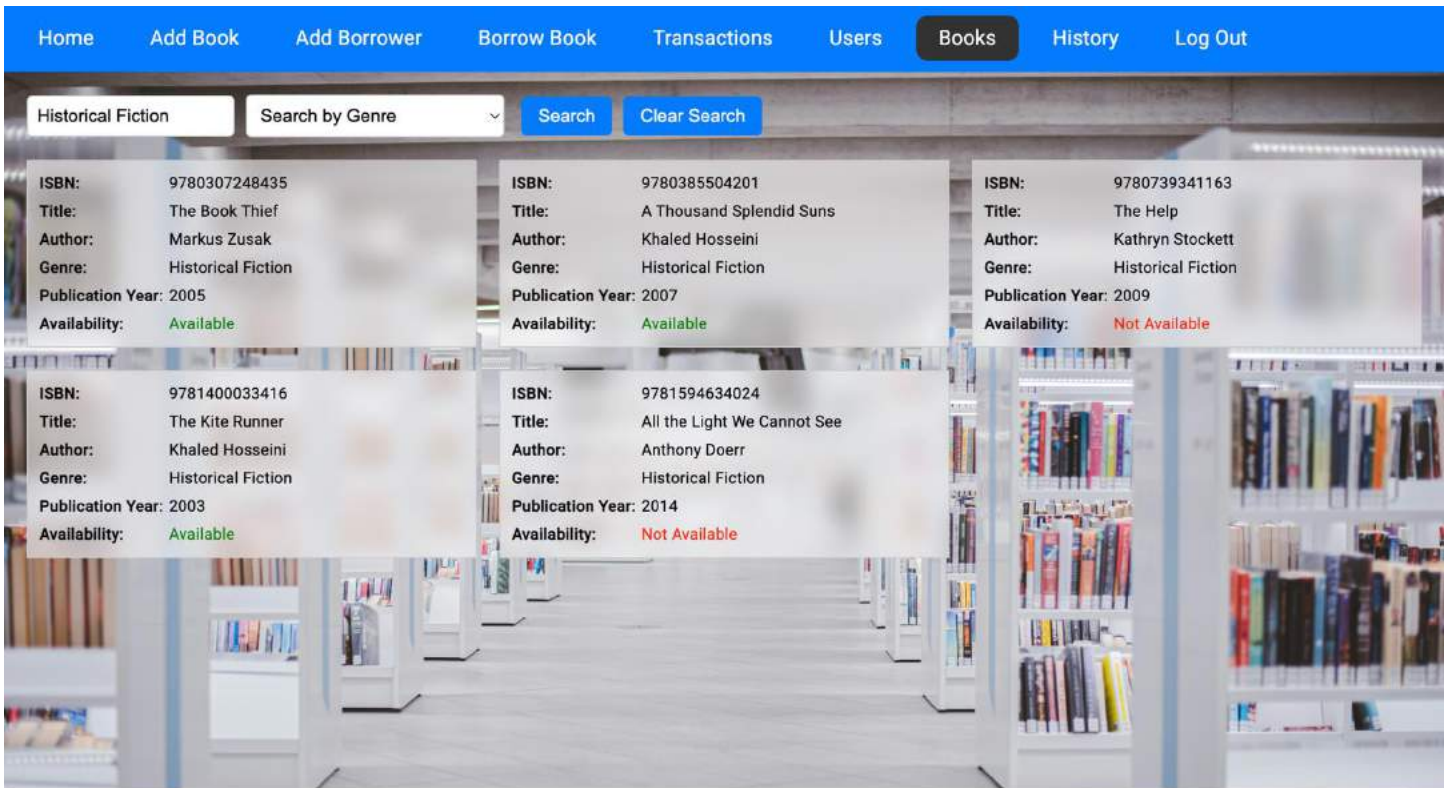
## 5. Search Books 15 points

- Users should be able to search for books by ISBN, title, author, genre, or publication year.
- The system should display all copies of the book along with their availability status.



- Users and librarians can search books with various attributes like ISBN, Title, Author, Genre, and Publication Year.

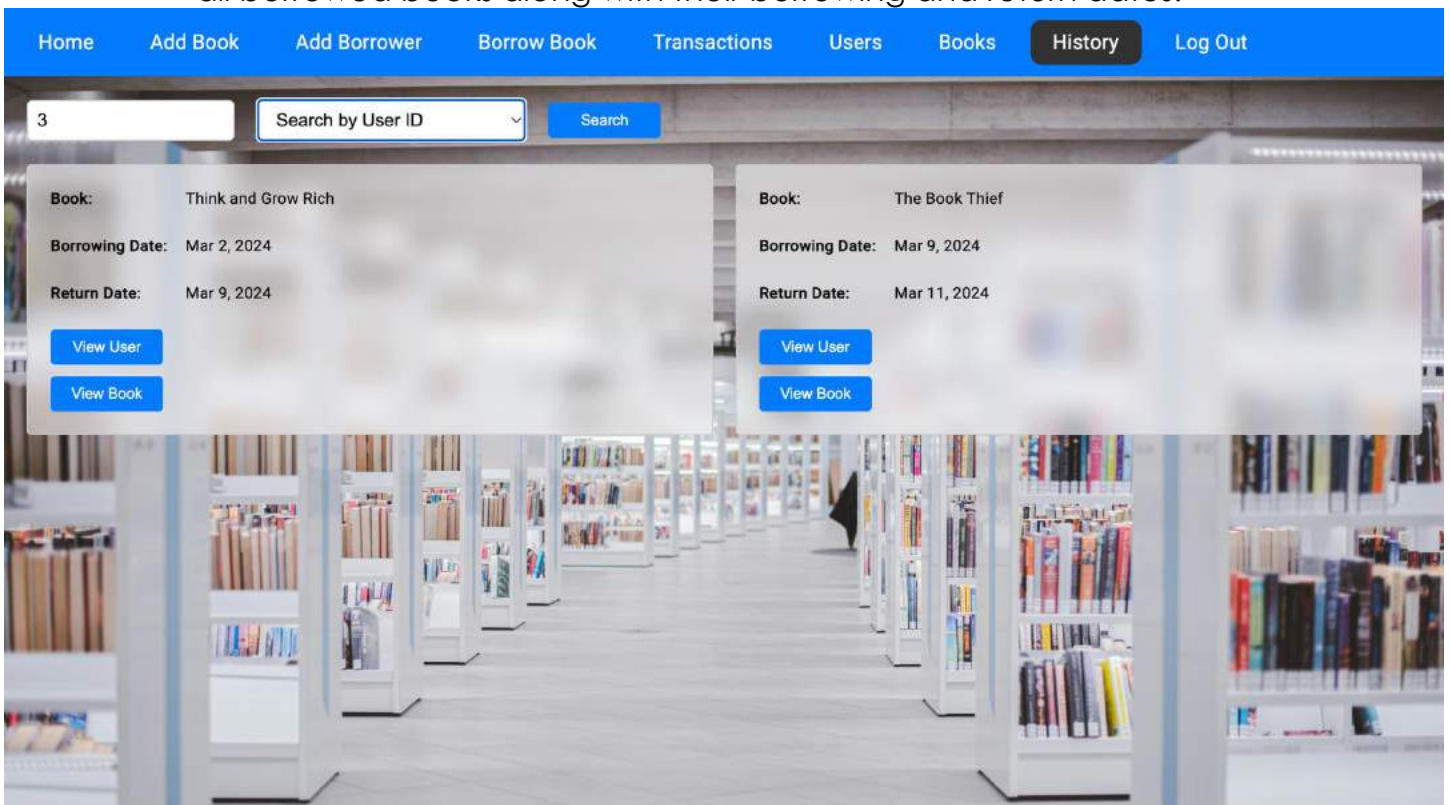




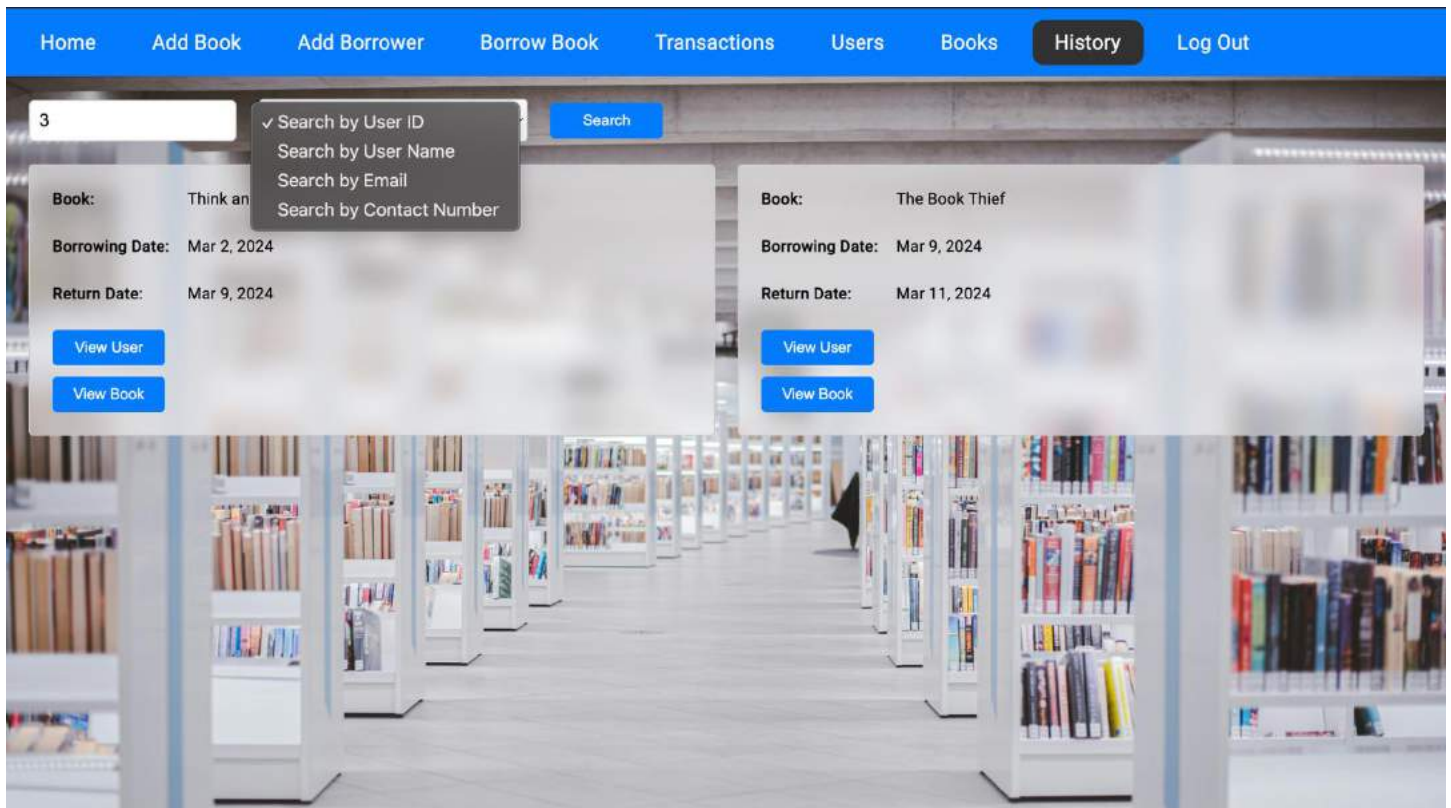
- It also displays the availability status of the book.

#### 6. View Borrowing History 5 points

- Users should be able to view the borrowing history of a specific borrower, listing all borrowed books along with their borrowing and return dates.

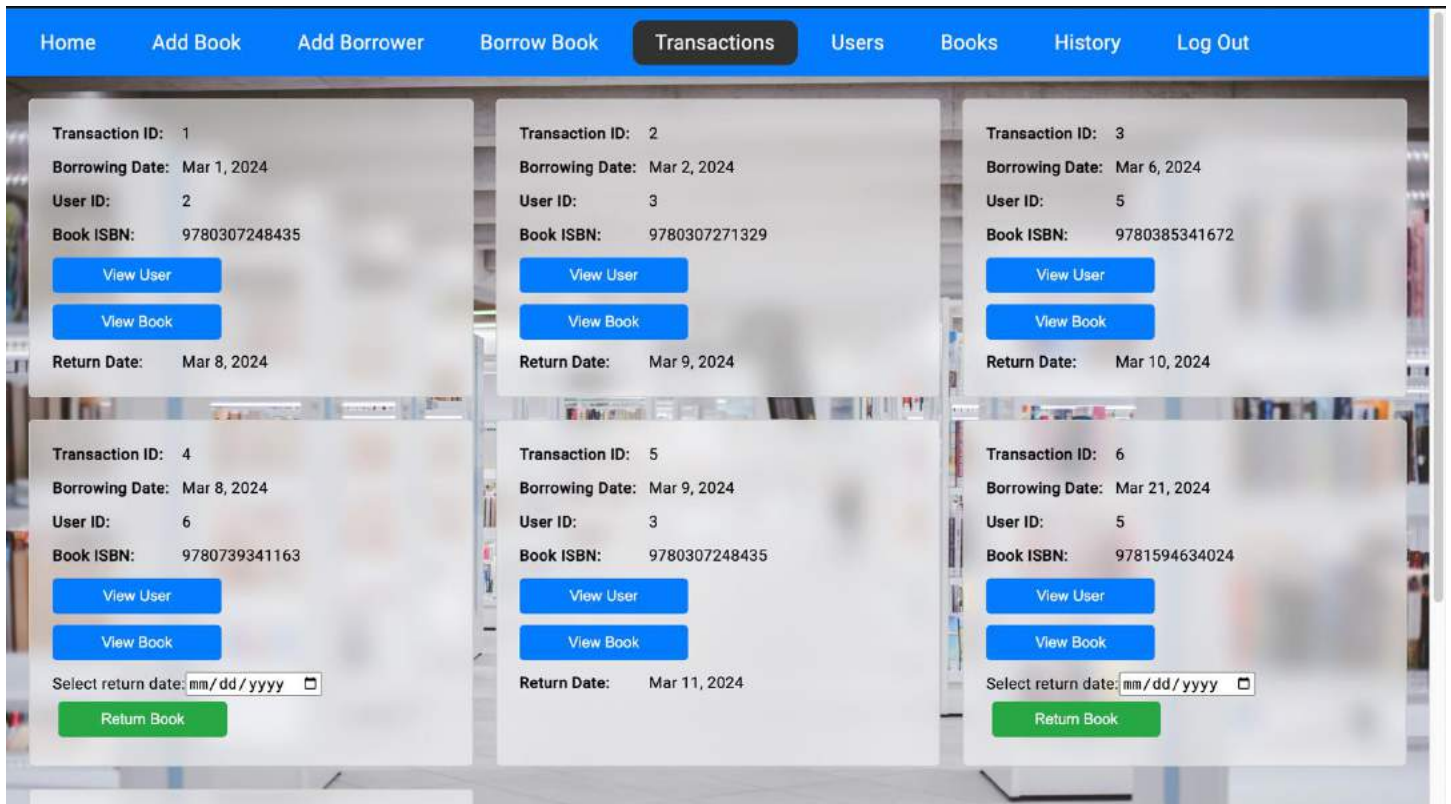


- Users and librarians can view the borrowing history of a specific borrower.



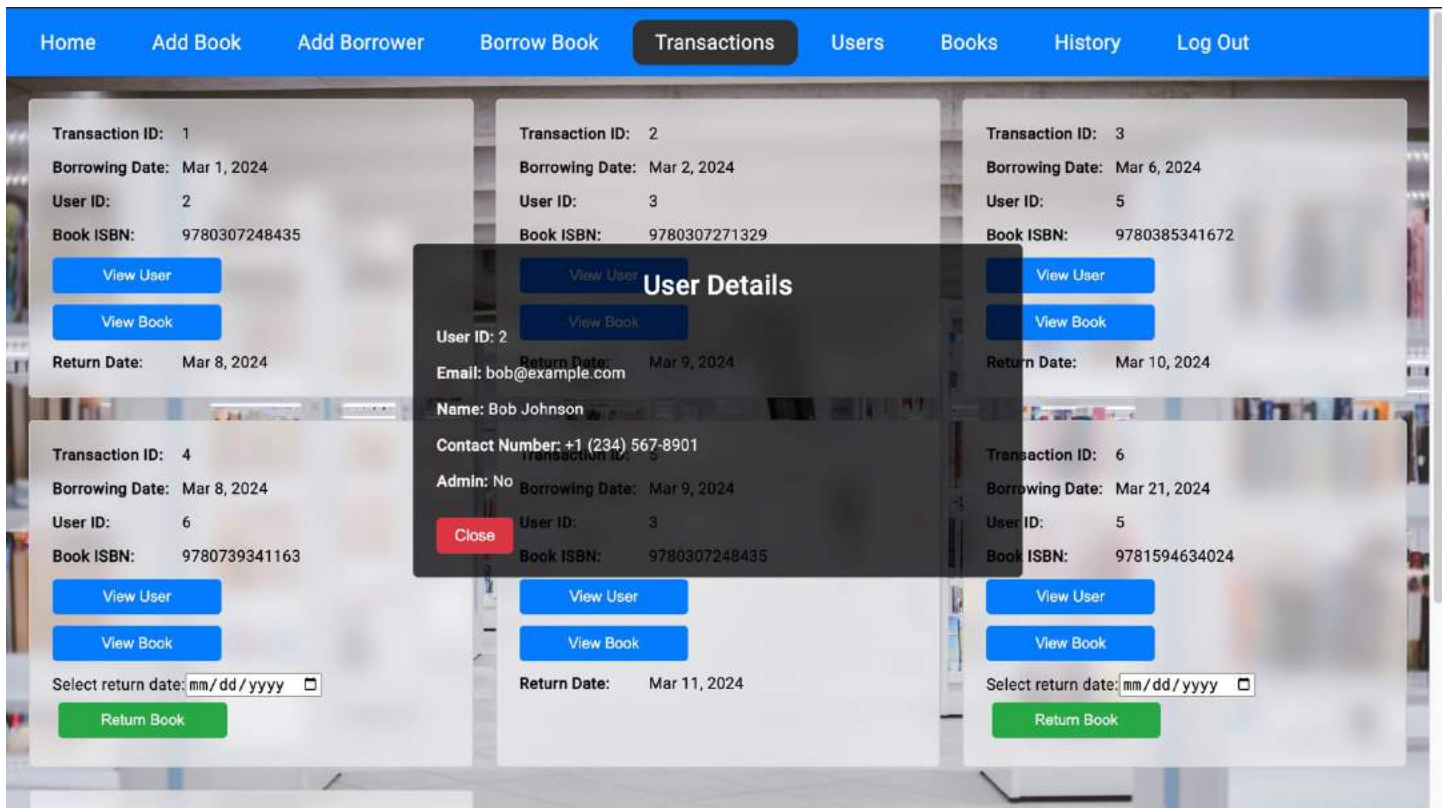
- The borrowing history can be checked by different attributes like user ID, User name, email, and Contact number.

## 7. Additional:

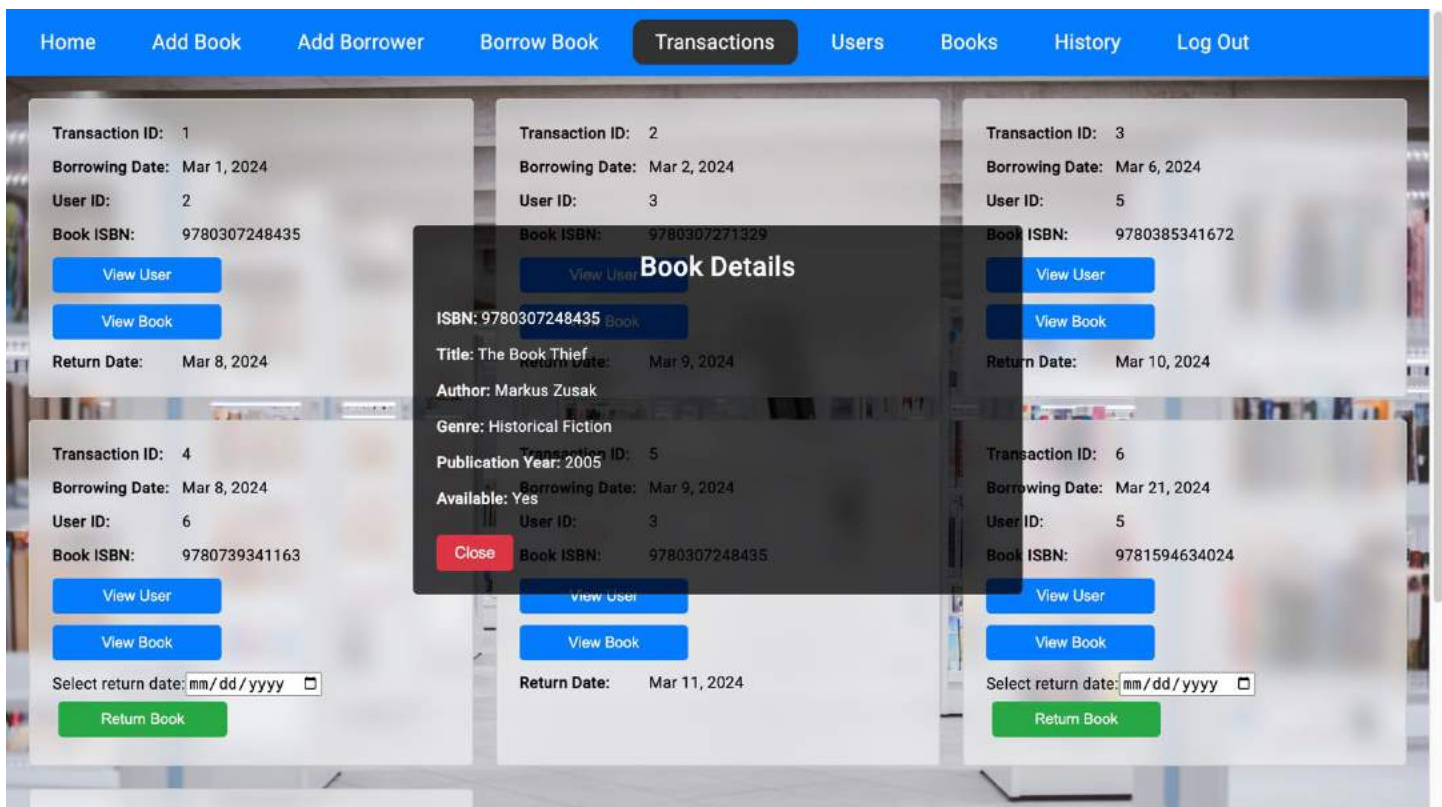


- Librarians can see all the transactions.



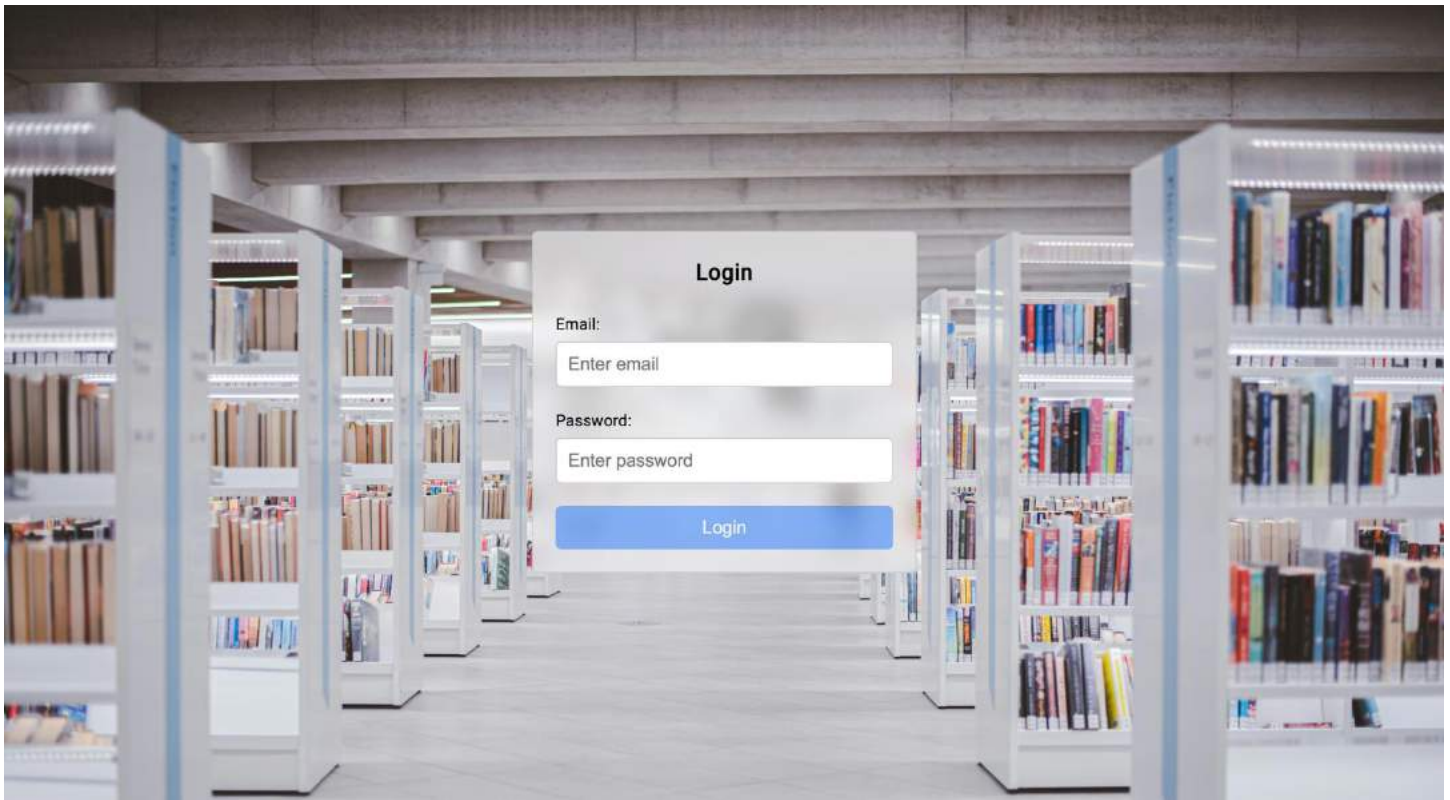


- The librarian can also see the user details for that particular transaction.



- The librarian can also see the book details for that particular transaction.





- The librarian and borrowers can log in using their email ID and password which were created by the librarian.



- The librarian can see all the various options like 'Add Book', 'Add Borrower', 'Borrow Book', 'Transactions', 'Users', 'Books', 'History', and 'Logout'.

# Welcome to Library Management System

## Developer Information:

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- The borrower has access to limited stuff like 'Books' (See all books), 'History' (Check the history of each user), And 'Logout'.