



The
British University
in Dubai

Database Systems

Done By:

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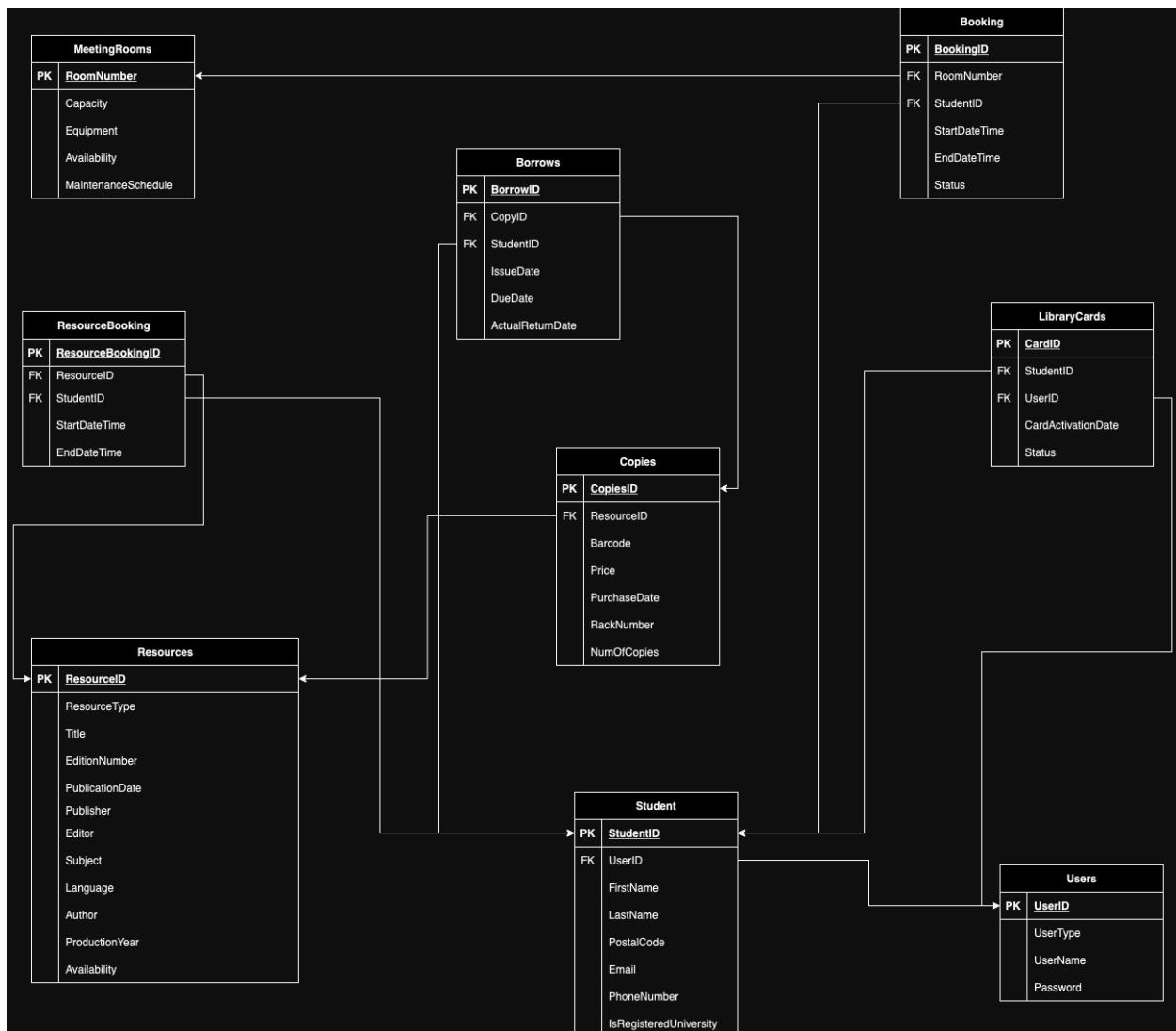
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Introduction

Our project is about designing and implementing a database system tailored for library management. It encompasses a thorough analysis of relational diagrams, schemas, and the relationships between various entities such as Students, LibraryCards, Resources, Copies, Borrows, MeetingRooms, Bookings, Users, and ResourceBookings. Through the detailed breakdown of each table and its attributes, this project illustrates the systematic approach to organizing, storing, and retrieving data within a library setting. The objective is to demonstrate how efficiently structured database systems can streamline library operations, enhancing data management and access in a digitally evolving landscape.

Relational Diagram:



Relational Schema:

1. MeetingRooms

RoomNumber (PK), Capacity, Equipment, MaintenanceSchedule, Availability

2. LibraryCards

CardID (PK), StudentID (FK), CardActivationDate, Status

3. Resources

ResourceID (PK), ResourceType, Title, EditionNumber, PublicationDate, Publisher, Editor, Subject, Language ,Author

4. Copies

CopiesID (PK), ResourceID (FK), Barcode, Price, PurchaseDate, RackNumber

5. Booking

BookingID (PK), RoomNumber (FK), StudentID (FK), StartDateTime, EndDateTime

6. UsersTable

UserID (PK), UserType, UserName, Password

7. Borrows

BorrowID (PK), CopyID (FK), StudentID (FK), IssueDate, DueDate

8. Student

StudentID (PK), FirstName, LastName, Email, PhoneNumber, IsRegisteredUni, UserID (FK)

9. ResourceBooking

BookingID (PK), ResourceID (FK), StudentID (FK), StartDateTime, EndDateTime

In the schema, (PK) indicates a Primary Key and (FK) indicates a Foreign Key.

Multiplicity:

1) Students to LibraryCards : 1: M

One student can have multiple library cards, while each library card is unique to one student.

2) Students to Borrows: 1: M

One student can have multiple borrow records, indicating that they can borrow many copies over time. Each borrow record is linked to one and only one student.

3) Students to Bookings: 1: M

One student can make multiple bookings for meeting rooms. Each booking is associated with one student.

4) Resources to Copies: 1:M

One resource (like a book title) can have multiple physical copies associated with it. Each copy is a physical instantiation of one resource.

5) Copies to Borrows: 1:M

One copy of a resource can be borrowed multiple times, but each borrow record pertains to one specific copy at a time.

6) MeetingRooms to Bookings:1:M

One meeting room can be booked multiple times (at different times/dates), with each booking referring to a single meeting room.

7) Resources to ResourceBookings: 1:M

One resource can have multiple bookings associated with it, representing different times or dates it is reserved. Each booking is linked to one resource.

1. Students Table:(ALIA)

- StudentID (Primary Key): INT
- FirstName: VARCHAR
- LastName VARCHAR
- PostalCode VARCHAR
- Email VARCHAR
- PhoneNumber VARCHAR
- IsRegisteredUniversity: Boolean indicating whether the student is registered at the university.
- UserID (FK)

2. LibraryCards Table: (ALIA)

- CardID (Primary Key) INT
- StudentID (Foreign Key): INT
- UserID (Foreign Key): INT
- CardActivationDate: DATE
- Status: VARCHAR

3. Resources Table: (Maryam)

- ResourceID (Primary Key) INT
- ResourceType: VARCHAR (examples: Books, Magazine, computer, Meeting Room)
- Title:VARCHAR
- EditionNumber: INT
- PublicationDate: DATE
- Publisher : VARCHAR
- Editor : VARCHAR
- ProductionYear : INT
- Availability : VARCHAR
- productionYear: INT
- Author: VARCHAR
- Subject: VARCHAR

4. Copies Table: (EMAN)

- CopyID (Primary Key): INT
- ResourceID (Foreign Key): INT
- Barcode: VARCHAR
- Price: DECIMAL
- PurchaseDate: DATE
- RackNumber: INT
- NumOfCopies: INT

5. Borrows Table: (Khawla)

- BorrowID (Primary Key): INT
- CopyID (Foreign Key): INT
- StudentID (Foreign Key): INT
- IssueDate: DATE
- DueDate: DATE
- ActualReturnDate: DATE

Student in the university = can borrow up to 5 books for 15 days

Student not in university = can borrow up to 1 book

6. MeetingRooms Table: (EMAN)

- roomNumber (Primary Key) INT
- Capacity INT
- Equipment VARCHAR
- MaintenanceSchedule VARCHAR
- Availability (Boolean)

7. Bookings Table: (Reem)

Tracks the booking details of meeting rooms.

- BookingID (Primary Key): Unique identifier for each booking. INT
- RoomNumber (Foreign Key): INT
- StudentID (Foreign Key, Optional): INT
- StartDateTime: DATE
- EndDateTime: DATE
- Status: VARCHAR

8. Users Table: Stores information about all types of users. (Reem)

- UserID (Primary Key): INT
- UserType: Type of the user (Librarian, Student, Administrator). VARCHAR
- UserName: VARCHAR
- Password: VARCHAR

Should be for multiple users (students, employees, and administrators)

9. ResourceBookings Table: (Khawla)

(Optional) If resources like books or computers can be booked in advance, this table tracks such bookings.

- BookingID (Primary Key): INT
- ResourceID (Foreign Key): INT
- StudentID (Foreign Key): INT
- StartDateTime: DATE
- EndDateTime: DATE

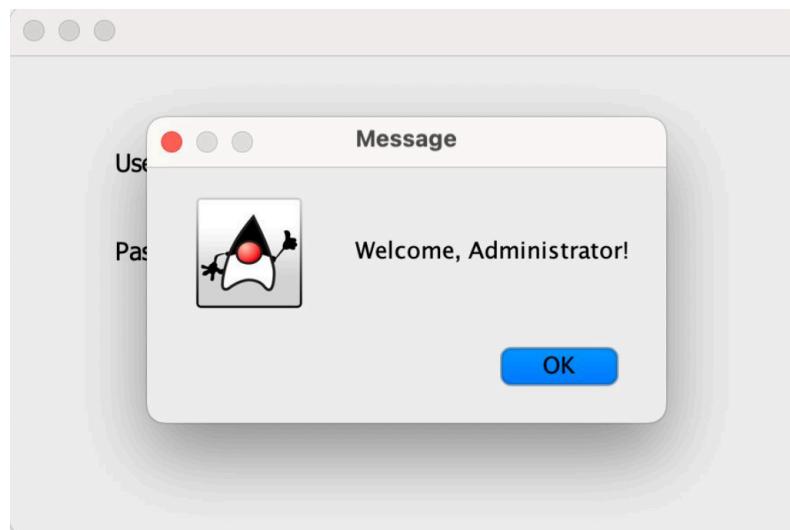
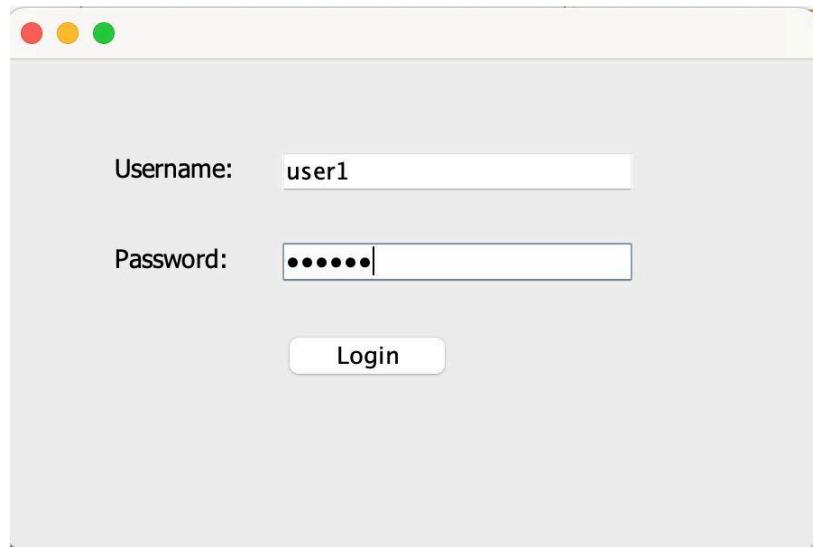
Within this document we will present to you the two graphical user interfaces made, one made by using java and the other with php. **Note:** However the SQL submitted on blackboard is according to the java GUI.

Note: in order for this to work please open the workbench and use the localhost and make a schema called testing, **the connections is called root** and **password is 20821362**

To open the project, please run the following SQL, and open the project in eclipse, and place the connector as well , watch this video to know how the connector works <https://youtu.be/iXWYjVvfmwc?si=cANW1FofbwRlwT3X> after running the login page place the username and password depending on which page you want to access. Running the login page is necessary or it wont work.

Java:

Login:



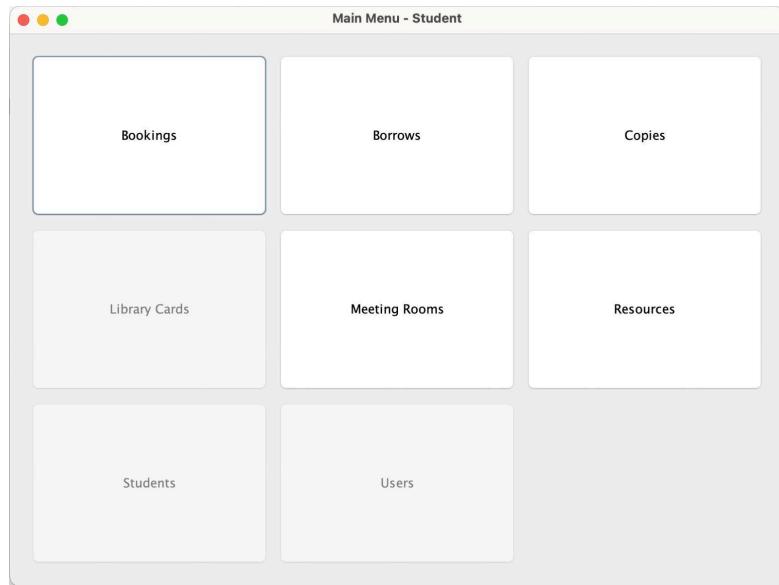
in the login page, you have the option to log in as an administrator, librarian, or student. Simply enter your username and password, and then select your user type. For example enter the following username and password to log in as the respective user.

- 1) Administrator: Username: user1 password: pass1
- 2) Student: Username: user3 password: pass3
- 3) Librarian: Username: user9 password: pass9

Administrator and Librarian's Page: Administrator and librarian Menu Page:



Students Menu Page:

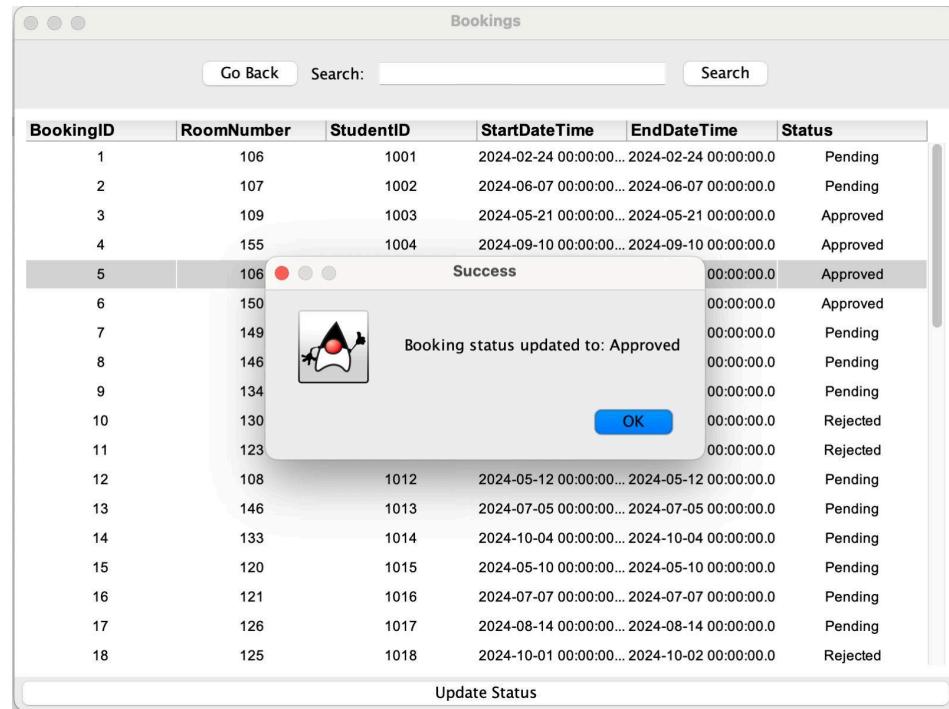


The students do not have access to the library cards, students, and users page.

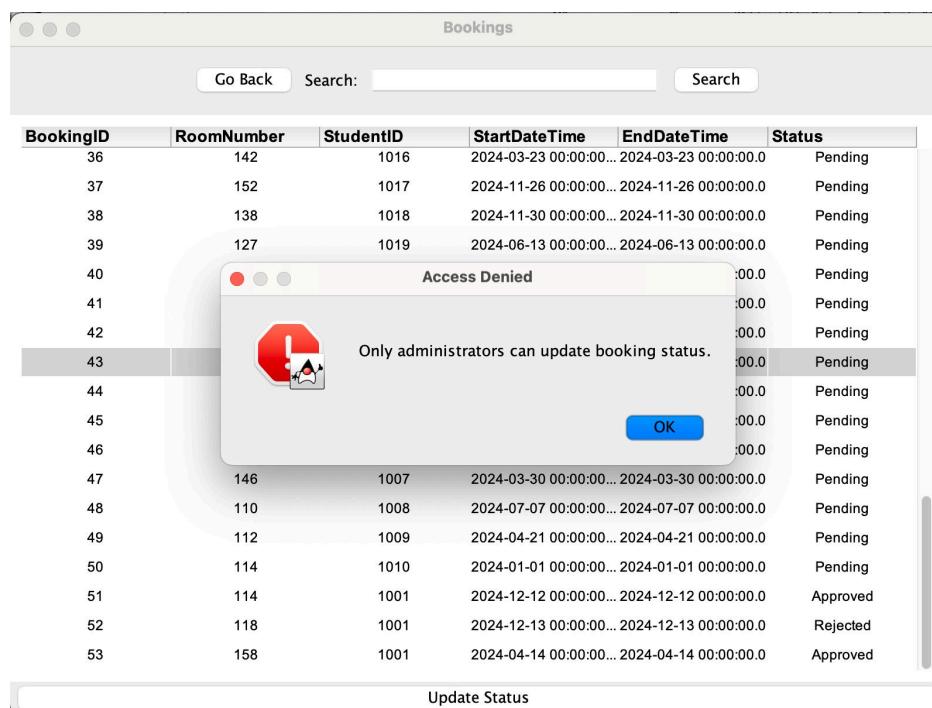
Bookings Page:

A screenshot of a Mac OS X-style application window titled "Bookings". The window has a light gray background and a dark gray header bar with three colored window control buttons (red, yellow, green) on the top-left. The title bar is centered. Below the title bar is a toolbar with three buttons: "Go Back", "Search:" (with a text input field), and "Search". The main area is a table with a light gray header row and white data rows. The header row contains the column names: "BookingID", "RoomNumber", "StudentID", "StartDateTime", "EndDateTime", and "Status". The data rows contain 18 entries, each with a unique BookingID from 1 to 18, a RoomNumber, a StudentID, a StartDateTime, an EndDateTime, and a Status (either Pending, Approved, or Rejected). At the bottom of the table is a horizontal button labeled "Update Status".

BookingID	RoomNumber	StudentID	StartDateTime	EndDateTime	Status
1	106	1001	2024-02-24 00:00:00	2024-02-24 00:00:00.0	Pending
2	107	1002	2024-06-07 00:00:00	2024-06-07 00:00:00.0	Pending
3	109	1003	2024-05-21 00:00:00	2024-05-21 00:00:00.0	Approved
4	155	1004	2024-09-10 00:00:00	2024-09-10 00:00:00.0	Approved
5	106	1005	2024-03-22 00:00:00	2024-03-22 00:00:00.0	Pending
6	150	1006	2024-06-21 00:00:00	2024-06-21 00:00:00.0	Approved
7	149	1007	2024-06-22 00:00:00	2024-06-22 00:00:00.0	Pending
8	146	1008	2024-11-04 00:00:00	2024-11-04 00:00:00.0	Pending
9	134	1009	2024-01-28 00:00:00	2024-01-28 00:00:00.0	Pending
10	130	1010	2024-08-28 00:00:00	2024-08-28 00:00:00.0	Rejected
11	123	1011	2024-04-20 00:00:00	2024-04-20 00:00:00.0	Rejected
12	108	1012	2024-05-12 00:00:00	2024-05-12 00:00:00.0	Pending
13	146	1013	2024-07-05 00:00:00	2024-07-05 00:00:00.0	Pending
14	133	1014	2024-10-04 00:00:00	2024-10-04 00:00:00.0	Pending
15	120	1015	2024-05-10 00:00:00	2024-05-10 00:00:00.0	Pending
16	121	1016	2024-07-07 00:00:00	2024-07-07 00:00:00.0	Pending
17	126	1017	2024-08-14 00:00:00	2024-08-14 00:00:00.0	Pending
18	125	1018	2024-10-01 00:00:00	2024-10-02 00:00:00.0	Rejected



The administrator can change the status of the booking from pending to approved/reject



This alert would show if the librarian or a student tried to change the status of the booking

Bookings

BookingID	RoomNumber	StudentID	StartDateTime	EndDateTime
10	130	1010	2024-08-28 00:00:00.0	2024-08-28 00:00:00.0

Update Status

You can search for the Bookings request by searching the BookingID

Borrows:

Borrowed Books button, after you click the button it will ask you for the studentID. its functionality is connected with the copies page, so whenever a student checks out a copy of a resource it shows in this table.

Borrows Table

BorrowID	StudentID	CopyID	IssueDate	DueDate	ActualReturnDate
3	1003	3	2024-04-03	2024-04-17	
4	1004	4	2024-04-04	2024-04-18	
5	1005	5	2024-04-05	2024-04-19	
6	1006	6	2024-04-06	2024-04-20	
7	1007	7	2024-04-07	2024-04-21	2024-03-12
8	1008	8	2024-04-08	2024-04-22	
9	1009	9	2024-04-09	2024-04-23	

[Borrowed Books](#) [Return Resource](#) [Overdue Books](#)

Return resource section

Only accessible for the Administrator and librarians.

Borrows Table								
BorrowID	StudentID	StudentN...	Email	CopyID	Title	IssueDate	DueDate	
31	1001	Charlie Green	charlie.green...	51	heavens	2020-02-02	2020-02-04	
32	1003	Emily Davis	emily.davis@...	50	Don Quixote	2020-01-01	2020-01-03	
Borrowed Books			Return Resource			Overdue Books		

By clicking on the overdue button it will show you the list of books that are overdue

Borrows Table							
BorrowID	StudentID	CopyID	IssueDate	DueDate	ActualReturnDate		
1	1001	1	2024-04-01	2024-04-15	4-03-12		
2	1002	2	2024-04-02	2024-04-16	4-03-14		
3	1003	3	2024-04-03	2024-04-17			
4	1004	4	2024-04-04	2024-04-18			
5	1005	5	2024-04-05	2024-04-19			
6	Message			OK			
7	Access Denied. Only Librarians and Administrators can access this feature.						
8							
9							
10							
11							
12							
13	1003	3	2024-04-03	2024-04-17			
14	1004	4	2024-04-04	2024-04-18			
15	1005	5	2024-04-05	2024-04-19			
16	1006	6	2024-04-06	2024-04-20			
17	1007	7	2024-04-07	2024-04-21			
18	1008	8	2024-04-08	2024-04-22			
19	1009	9	2024-04-09	2024-04-23			
Borrowed Books			Return Resource			Overdue Books	

A student wouldn't be able to access the borrowed books page.

Borrows Table					
BorrowID	StudentID	CopyID	IssueDate	DueDate	ActualReturnDate
1	1001	1	2024-04-01	2024-04-15	
2	1002	2	2024-04-02	2024-04-16	
3	1003	3	2024-04-03	2024-04-17	
4	1004	4	2024-04-04	2024-04-18	
5	1005	5	2024-04-05	2024-04-19	
6	Message				
7					
8	Access Denied. Only Librarians and Administrators can access this feature.				
9					
10					
11					
12					
13	1003	3	2024-04-03	2024-04-17	
14	1004	4	2024-04-04	2024-04-18	
15	1005	5	2024-04-05	2024-04-19	
16	1006	6	2024-04-06	2024-04-20	
17	1007	7	2024-04-07	2024-04-21	
18	1008	8	2024-04-08	2024-04-22	
19	1009	9	2024-04-09	2024-04-23	
<input type="button" value="Borrowed Books"/> <input type="button" value="Return Resource"/> <input type="button" value="Overdue Books"/>					

A student wouldn't be able to return a book on their own

Borrows Table					
BorrowID	StudentID	CopyID	IssueDate	DueDate	ActualReturnDate
1	1001	1	2024-04-01	2024-04-15	
2	1002	2	2024-04-02	2024-04-16	
3	1003	3	2024-04-03	2024-04-17	
4	1004	4	2024-04-04	2024-04-18	
5	1005	5	2024-04-05	2024-04-19	
6	Message				
7					
8	Access Denied. Only Librarians and Administrators can access this feature.				
9					
10					
11					
12					
13	1003	3	2024-04-03	2024-04-17	
14	1004	4	2024-04-04	2024-04-18	
15	1005	5	2024-04-05	2024-04-19	
16	1006	6	2024-04-06	2024-04-20	
17	1007	7	2024-04-07	2024-04-21	
18	1008	8	2024-04-08	2024-04-22	
19	1009	9	2024-04-09	2024-04-23	
<input type="button" value="Borrowed Books"/> <input type="button" value="Return Resource"/> <input type="button" value="Overdue Books"/>					

A student does not have the capability to see the overdue books page.

Search in Borrows:

Borrows Table					
BorrowID	StudentID	CopyID	IssueDate	DueDate	ActualReturnDate
2	1002	2	2024-04-02	2024-04-16	
12	1002	2	2024-04-02	2024-04-16	
22	1002	2	2024-04-02	2024-04-16	2024-03-14
36	1002	2	2024-04-17	2024-04-18	
37	1002	2	2024-04-19	2024-04-20	

[Borrowed Books](#) [Return Resource](#) [Overdue Books](#)

You can search by entering the studentID and it will display the history of borrows and returned resources of that Student

Copies:

Copies Table							
CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies	
32	32	BARCODE032	62.0	2023-02-02	1	30	
33	33	BARCODE033	65.0	2023-02-03	2	30	
34	34	BARCODE034	67.5	2023-02-04	2	30	
35	35	BARCODE035	70.0	2023-02-05	2	30	
36	36	BARCODE036	72.5	2023-02-06	3	30	
37	37	BARCODE037	75.0	2023-02-07	3	30	
38	38	BARCODE038	77.5	2023-02-08	3	30	
39	39	BARCODE039	80.0	2023-02-09	4	30	
40	40	BARCODE040	82.5	2023-02-10	4	30	
41	41	BARCODE041	85.0	2023-02-11	4	0	
42	42	BARCODE042	87.5	2023-02-12	5	0	
43	43	BARCODE043	90.0	2023-02-13	5	0	
44	44	BARCODE044	92.5	2023-02-14	5	0	
45	45	BARCODE045	95.0	2023-02-15	6	0	
46	46	BARCODE046	97.5	2023-02-16	6	0	
47	47	BARCODE047	100.0	2023-02-17	6	0	
48	48	BARCODE048	102.5	2023-02-18	7	0	
49	49	BARCODE049	105.0	2023-02-19	7	0	
50	50	BARCODE050	107.5	2023-02-20	7	0	
51	51	bar	33.0	2020-03-03	3	1	

[Add Copy](#) [Delete Copy](#) [Checkout Copy](#)

Consists of 3 buttons, add, delete and checkout copy. The add and delete are for the administrator while the checkout is only for the student. The add only is for the librarian.

Copies Table							
CopyID	ResourceId	Barcode	Price	PurchaseDate	RackNumber	NumberOfCo...	
1	1	BARCODE001	10.0	2023-01-01	1	31	
2	2	BARCODE002	12.0	2023-01-02	1	25	
3	3	BARCODE003	15.0	2023-01-03	1	40	
4	4	BARCODE004	11.0	2023-01-04	2	21	
5	5	BARCODE005	15.5	2023-01-05	2	81	
6	6	Input					46
7	7	Enter Copy ID to checkout:					84
8	8	<input type="text" value="1"/>					81
9	9	<input type="button" value="Cancel"/> <input type="button" value="OK"/>					54
10	10						25
11	11						66
12	12						51
13	13	BARCODE013	17.0	2023-01-13	5	56	
14	14	BARCODE014	19.5	2023-01-14	5	28	
15	15	BARCODE015	22.0	2023-01-15	5	72	
16	16	BARCODE016	24.5	2023-01-16	6	75	
17	17	BARCODE017	27.0	2023-01-17	6	59	
18	18	BARCODE018	29.5	2023-01-18	6	70	
19	19	BARCODE019	30.0	2023-01-19	7	70	

If a student wants to check out a copy of the book/Journal etc. they need to enter their student ID,CopyID, its issue date, and due date.

Copies Table						
Menu		Search:	Search			
CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
1	1	BARCODE001	10.0	2023-01-01	1	31
2	2	BARCODE002	12.0	2023-01-02	1	25
3	3	BARCODE003	15.0	2023-01-03	1	40
4	4	BARCODE004	11.0	2023-01-04	2	21
5	5	BARCODE005	15.5	2023-01-05	2	81
6	6		Message			2
7	7		Copy successfully checked out.			3
8	8					3
9	9					3
10	10					4
11	11					4
12	12					4
13	13		BARCODE013	17.0	2023-01-13	5
14	14		BARCODE014	19.5	2023-01-14	5
15	15		BARCODE015	22.0	2023-01-15	5
16	16		BARCODE016	24.5	2023-01-16	6
17	17		BARCODE017	27.0	2023-01-17	6
18	18		BARCODE018	29.5	2023-01-18	6
19	19		BARCODE019	30.0	2023-01-19	7

Add Copy Delete Copy Checkout Copy

After that a message would appear that the checkout has been done successfully

CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
1	1	BARCODE001	10.0	2023-01-01	1	30

Checkout copy Conditions:

Copies Table						
Menu		Search:	Search			
CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
1	1	BARCODE001	10.0	2023-01-01	1	30
2	2	BARCODE002	12.0	2023-01-02	1	25
3	3	BARCODE003	15.0	2023-01-03	1	40
4	4	BARCODE004	11.0	2023-01-04	2	21
5	5	BARCODE005	15.5	2023-01-05	2	81
6	6		Error			2
7	7		You can only borrow for a maximum of 15 days.			3
8	8					3
9	9					3
10	10					4
11	11					4
12	12					4
13	13		BARCODE013	17.0	2023-01-13	5
14	14		BARCODE014	19.5	2023-01-14	5
15	15		BARCODE015	22.0	2023-01-15	5
16	16		BARCODE016	24.5	2023-01-16	6
17	17		BARCODE017	27.0	2023-01-17	6
18	18		BARCODE018	29.5	2023-01-18	6
19	19		BARCODE019	30.0	2023-01-19	7

Add Copy Delete Copy Checkout Copy

However, they can't borrow the book for more than 15 days

Copies Table							
CopyID	ResourceId	Barcode	Price	PurchaseDate	RackNumber	NumberOfCo...	
1	1	BARCODE001	10.0	2023-01-01	1	40	
2	2	BARCODE002	12.0	2023-01-02	1	43	
3	3	BARCODE003	15.0	2023-01-03	1	45	
4	4	BARCODE004	11.0	2023-01-04	2	50	
5	5	BARCODE005	15.5	2023-01-05	2	50	
6	6			Error			
7	7						
8	8						
9	9			You can only borrow up to 5 book(s)			
10	10						
11	11				OK		
12	12						
13	13	BARCODE013	17.0	2023-01-13	5	50	
14	14	BARCODE014	19.5	2023-01-14	5	48	
15	15	BARCODE015	22.0	2023-01-15	5	50	
16	16	BARCODE016	24.5	2023-01-16	6	50	
17	17	BARCODE017	27.0	2023-01-17	6	50	
18	18	BARCODE018	29.5	2023-01-18	6	50	
19	19	BARCODE019	30.0	2023-01-19	7	50	

Add Copy Delete Copy Checkout Copy

A student can borrow up to 5 books

Copies Table							
CopyID	ResourceId	Barcode	Price	PurchaseDate	RackNumber	NumberOfCo...	
1	1	BARCODE001	10.0	2023-01-01	1	40	
2	2	BARCODE002	12.0	2023-01-02	1	43	
3	3	BARCODE003	15.0	2023-01-03	1	45	
4	4	BARCODE004	11.0	2023-01-04	2	50	
5	5	BARCODE005	15.5	2023-01-05	2	50	
6	6			Error			
7	7						
8	8						
9	9			You can only borrow up to 1 book(s)			
10	10				OK		
11	11						
12	12						
13	13	BARCODE013	17.0	2023-01-13	5	50	
14	14	BARCODE014	19.5	2023-01-14	5	48	
15	15	BARCODE015	22.0	2023-01-15	5	50	
16	16	BARCODE016	24.5	2023-01-16	6	50	
17	17	BARCODE017	27.0	2023-01-17	6	50	
18	18	BARCODE018	29.5	2023-01-18	6	50	
19	19	BARCODE019	30.0	2023-01-19	7	50	

Add Copy Delete Copy Checkout Copy

However, a user not registered within the university can borrow only 1 book

Delete:

Copies Table

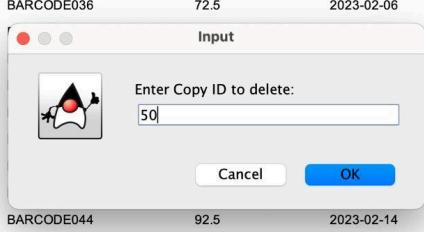
CopyID	ResourceId	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
31	31	BARCODE031	60.0	2023-02-01	1	35
32	32	BARCODE032	62.5	2023-02-02	1	21
33	33	BARCODE033	65.0	2023-02-03	2	2
34	34	BARCODE034	67.5	2023-02-04	2	47
35	35	BARCODE035	70.0	2023-02-05	2	26
36	36	BARCODE036	72.5	2023-02-06	3	89
37	37	BARCODE037	75.0	2023-02-07	3	66
38	38	BARCODE038	77.5	2023-02-08	3	64
39	39	BARCODE039	80.0	2023-02-09	4	20
40	40	BARCODE040	82.5	2023-02-10	4	8
41	41	BARCODE041	85.0	2023-02-11	4	80
42	42	BARCODE042	87.5	2023-02-12	5	74
43	43	BARCODE043	90.0	2023-02-13	5	30
44	44	BARCODE044	92.5	2023-02-14	5	29
45	45	BARCODE045	95.0	2023-02-15	6	52
46	46	BARCODE046	97.5	2023-02-16	6	73
47	47	BARCODE047	100.0	2023-02-17	6	8
48	48	BARCODE048	102.5	2023-02-18	7	21
49	49	BARCODE049	105.0	2023-02-19	7	82

Add Copy Delete Copy Checkout Copy

Menu Search

CopyID	ResourceId	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
32	32	BARCODE032	62.5	2023-02-02	1	21
33	33	BARCODE033	65.0	2023-02-03	2	2
34	34	BARCODE034	67.5	2023-02-04	2	47
35	35	BARCODE035	70.0	2023-02-05	2	26
36	36	BARCODE036	72.5	2023-02-06	3	89
37	37				3	66
38	38				3	64
39	39				4	20
40	40				4	8
41	41				4	80
42	42				5	74
43	43				5	30
44	44	BARCODE044	92.5	2023-02-14	5	29
45	45	BARCODE045	95.0	2023-02-15	6	52
46	46	BARCODE046	97.5	2023-02-16	6	73
47	47	BARCODE047	100.0	2023-02-17	6	8
48	48	BARCODE048	102.5	2023-02-18	7	21
49	49	BARCODE049	105.0	2023-02-19	7	82
50	50	BARCODE050	107.5	2023-02-20	7	45

Add Copy Delete Copy Checkout Copy



Input

Enter Copy ID to delete:

Cancel OK

input the copy ID of the book you wish to delete. Before proceeding with the deletion, it is essential to verify if the corresponding resource exists in the Resources table. If it is then you can delete its copy.

Add

Copies Table

CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCo...
32	32	BARCODE032	62.5	2023-02-02	1	1
33	33	BARCODE033	65.0	2023-02-03	2	47
34	34	BARCODE034	67.5	2023-02-04	2	33
35	35	BARCODE035	70.0	2023-02-05	2	22
36	36	BARCODE036	72.5	2023-02-06	3	11
37	37	Input				
38	38	 Enter Resource ID:				
39	39	<input type="text" value="51"/>				
40	40					
41	41	<input type="button" value="Cancel"/> <input type="button" value="OK"/>				
42	42					
43	43					
44	44	BARCODE044	92.5	2023-02-14	5	14
45	45	BARCODE045	95.0	2023-02-15	6	96
46	46	BARCODE046	97.5	2023-02-16	6	40
47	47	BARCODE047	100.0	2023-02-17	6	13
48	48	BARCODE048	102.5	2023-02-18	7	42
49	49	BARCODE049	105.0	2023-02-19	7	71
50	50	BARCODE050	107.5	2023-02-20	7	27

Add Copy Delete Copy Checkout Copy

Copies Table

CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCo...
33	33	BARCODE033	65.0	2023-02-03	2	47
34	34	BARCODE034	67.5	2023-02-04	2	33
35	35	BARCODE035	70.0	2023-02-05	2	22
36	36	BARCODE036	72.5	2023-02-06	3	11
37	37	BARCODE037	75.0	2023-02-07	3	89
38	38	BARCODE038	77.5	2023-02-08	3	12
39	39	BARCODE039	80.0	2023-02-09	4	94
40	40	BARCODE040	82.5	2023-02-10	4	31
41	41	BARCODE041	85.0	2023-02-11	4	72
42	42	BARCODE042	87.5	2023-02-12	5	68
43	43	BARCODE043	90.0	2023-02-13	5	24
44	44	BARCODE044	92.5	2023-02-14	5	14
45	45	BARCODE045	95.0	2023-02-15	6	96
46	46	BARCODE046	97.5	2023-02-16	6	40
47	47	BARCODE047	100.0	2023-02-17	6	13
48	48	BARCODE048	102.5	2023-02-18	7	42
49	49	BARCODE049	105.0	2023-02-19	7	71
50	50	BARCODE050	107.5	2023-02-20	7	27
51	51	bar	33.0	2020-03-03	3	23

Add Copy Delete Copy Checkout Copy

The librarian can add a new copy to the section by inputting the required information. They can add multiple copies linked to a single ResourceID. However, it's necessary for them to verify the presence of the ResourceID before adding a copy to it.

Search in Copies:

Copies Table

Menu Search: Barcode015 Search

CopyID	ResourceID	Barcode	Price	PurchaseDate	RackNumber	NumberOfCopies
15	15	BARCODE015	22.0	2023-01-15	5	50

Add Copy Delete Copy Checkout Copy

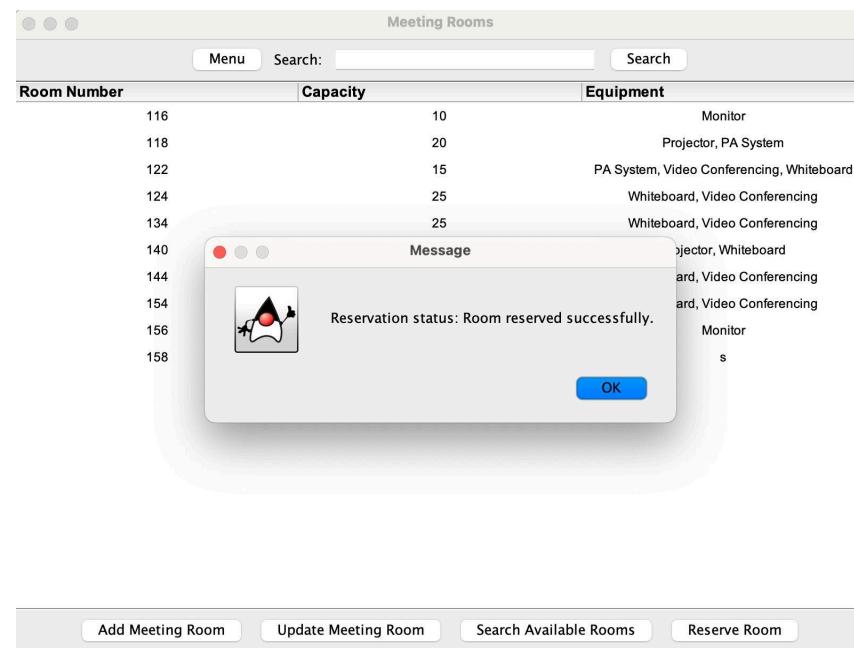
Meeting Room:

The screenshot shows a Mac OS X application window titled "Meeting Rooms". The window has a standard title bar with red, yellow, and green buttons. Below the title bar is a menu bar with "Menu" and a search field labeled "Search:" followed by a "Search" button. The main content area is a table with the following columns: "Room Number", "Capacity", "Equipment", "Maintenance Schedule", and "Availability". The table contains 24 rows of data. At the bottom of the window is a horizontal bar with four buttons: "Add Meeting Room", "Update Meeting Room", "Search Available Rooms", and "Reserve Room".

Room Number	Capacity	Equipment	Maintenance Schedule	Availability
106	10	Monitor	Every Wednesday 10:00 AM	true
107	15	PA System, Video Confer...	Every Friday 11:00 AM	false
108	20	Projector, PA System	Every Tuesday 8:00 AM	true
109	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	false
110	5	Projector, Whiteboard	Every Monday 9:00 AM	true
111	10	Monitor	Every Wednesday 10:00 AM	false
112	15	PA System, Video Confer...	Every Friday 11:00 AM	true
113	20	Projector, PA System	Every Tuesday 8:00 AM	false
114	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	true
115	5	Projector, Whiteboard	Every Monday 9:00 AM	false
116	10	Monitor	Every Wednesday 10:00 AM	true
117	15	PA System, Video Confer...	Every Friday 11:00 AM	false
118	20	Projector, PA System	Every Tuesday 8:00 AM	true
119	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	false
120	5	Projector, Whiteboard	Every Monday 9:00 AM	true
121	10	Monitor	Every Wednesday 10:00 AM	false
122	15	PA System, Video Confer...	Every Friday 11:00 AM	true
123	20	Projector, PA System	Every Tuesday 8:00 AM	false
124	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	true

The meeting room page consists of 4 buttons: add, update, search Available rooms, and reserve a room.

1. Reserve:



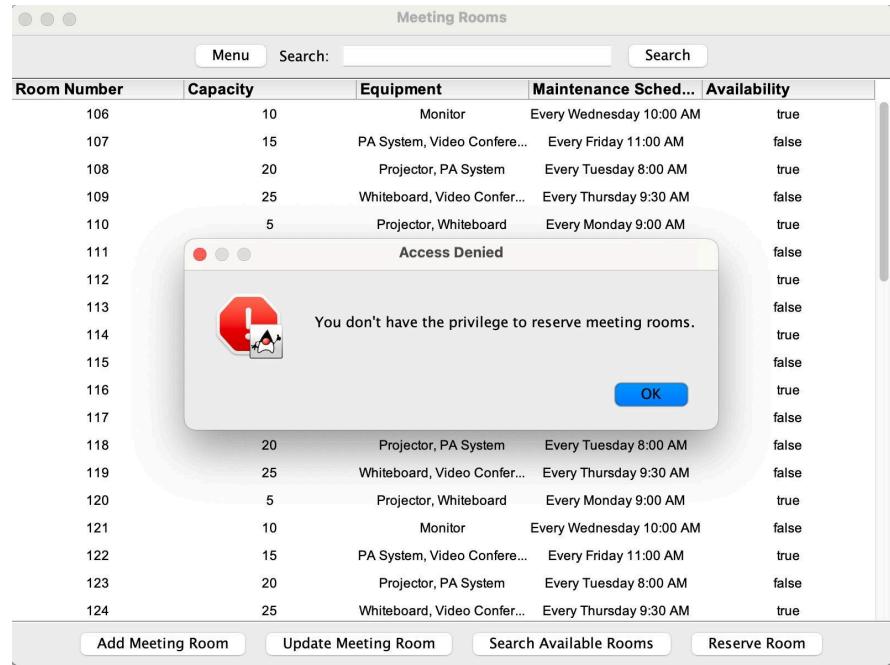
The student is able to reserve a room

Bookings					
BookingID	RoomNumber	StudentID	StartDateTime	EndDateTime	Status
35	139	1015	2024-08-07 00:00:00...	2024-08-07 00:00:00.0	Pending
36	142	1016	2024-03-23 00:00:00...	2024-03-23 00:00:00.0	Pending
37	152	1017	2024-11-26 00:00:00...	2024-11-26 00:00:00.0	Pending
38	138	1018	2024-11-30 00:00:00...	2024-11-30 00:00:00.0	Pending
39	127	1019	2024-06-13 00:00:00...	2024-06-13 00:00:00.0	Pending
40	117	1020	2024-10-17 00:00:00...	2024-10-17 00:00:00.0	Pending
41	112	1001	2024-08-03 00:00:00...	2024-08-03 00:00:00.0	Pending
42	152	1002	2024-07-06 00:00:00...	2024-07-06 00:00:00.0	Pending
43	113	1003	2024-03-15 00:00:00...	2024-03-15 00:00:00.0	Pending
44	125	1004	2024-09-27 00:00:00...	2024-09-27 00:00:00.0	Pending
45	149	1005	2024-08-07 00:00:00...	2024-08-07 00:00:00.0	Pending
46	147	1006	2024-07-25 00:00:00...	2024-07-25 00:00:00.0	Pending
47	146	1007	2024-03-30 00:00:00...	2024-03-30 00:00:00.0	Pending
48	110	1008	2024-07-07 00:00:00...	2024-07-07 00:00:00.0	Pending
49	112	1009	2024-04-21 00:00:00...	2024-04-21 00:00:00.0	Pending
50	114	1010	2024-01-01 00:00:00...	2024-01-01 00:00:00.0	Pending
51	114	1001	2024-12-12 00:00:00...	2024-12-12 00:00:00.0	Approved
52	118	1001	2024-12-13 00:00:00...	2024-12-13 00:00:00.0	Reserved

Update Status

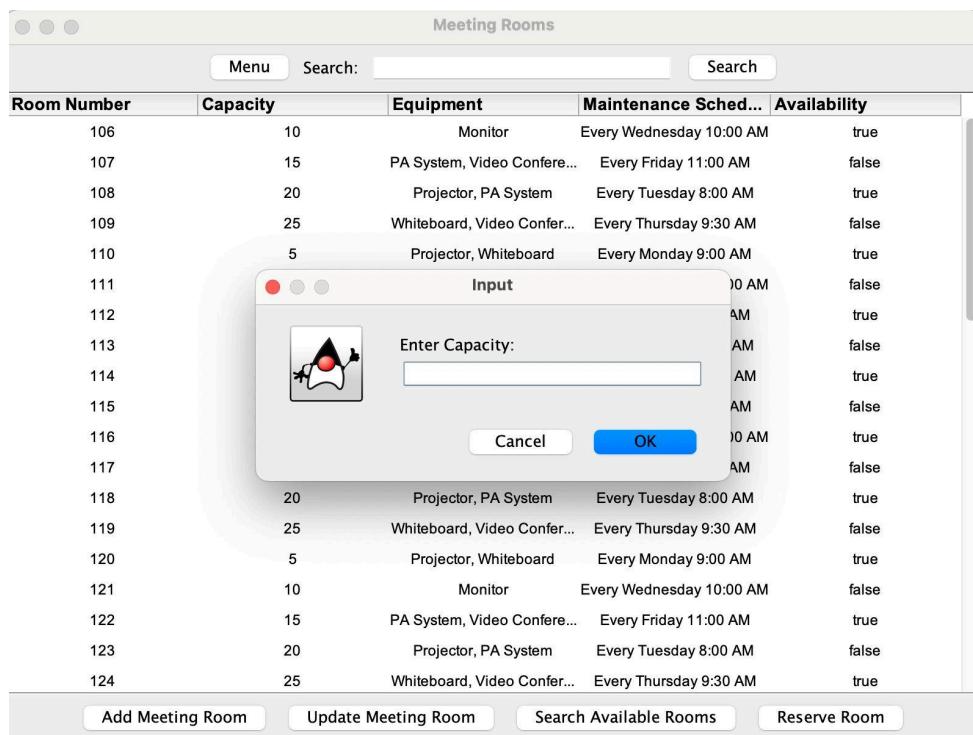
After clicking on the reserve button, enter the room you wish to reserve. Subsequently, the reservation will be displayed on the Bookings page, indicating that the room has been reserved.

Approval for the reservation can only be granted by the Administrator.



The librarian and Administrator doesn't have the functionality to reserve a room.

2. Add



Add the a new meeting room by entering the following information (room number, capacity, equipment, maintenance schedule , and availability)

Room Number	Capacity	Equipment	Maintenance Schedule	Availability
106	10	Monitor	Every Wednesday 10:00 AM	true
107	15	PA System, Video Conferencing, ...	Every Friday 11:00 AM	false
108	20	Projector, PA System	Every Tuesday 8:00 AM	true
109	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	false
110	5	Projector, Whiteboard	Every Monday 9:00 AM	true
111	10	Monitor	Every Wednesday 10:00 AM	false
112	15	PA System, Video Conferencing, ...	Every Friday 11:00 AM	true
113	20	Projector, PA System	Every Tuesday 8:00 AM	false
114	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	true
115	5	Projector, Whiteboard	Every Monday 9:00 AM	false
116	10	Monitor	Every Wednesday 10:00 AM	true
117	15	PA System, Video Conferencing, ...	Every Friday 11:00 AM	false
118	20	Projector, PA System	Every Tuesday 8:00 AM	false
119	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	false
120	5	Projector, Whiteboard	Every Monday 9:00 AM	true
121	10	Monitor	Every Wednesday 10:00 AM	false
122	15	PA System, Video Conferencing, ...	Every Friday 11:00 AM	true
123	20	Projector, PA System	Every Tuesday 8:00 AM	false
124	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	true
125	5	Projector, Whiteboard	Every Monday 9:00 AM	false
126	10	Monitor	Every Wednesday 10:00 AM	true
127	15	PA System, Video Conferencing, ...	Every Friday 11:00 AM	false

Add Meeting Room Update Meeting Room Search Available Rooms Reserve Room

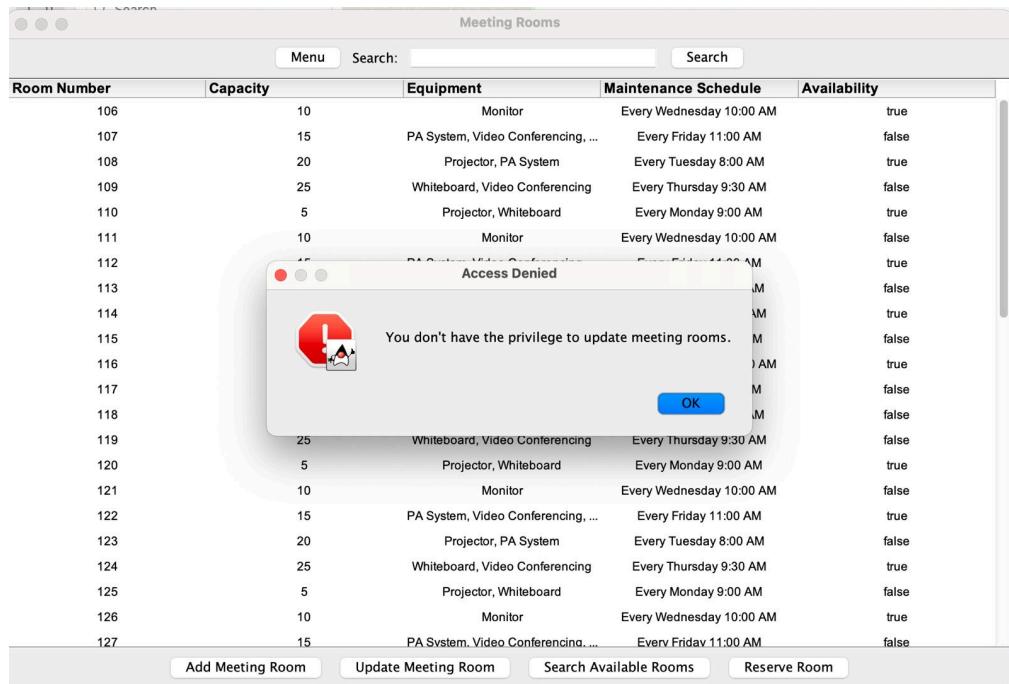
Student do not have the privilege to add a meeting room

3. Update

Room Number	Capacity	Equipment	Maintenance Sched...	Availability
140	5	Projector, Whiteboard	Every Monday 9:00 AM	true
141	10	Monitor	Every Wednesday 10:00 AM	false
142	15	PA System, Video Confere...	Every Friday 11:00 AM	true
143	20	Projector, PA System	Every Tuesday 8:00 AM	false
144	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	true
145	15	PA System, Video Confere...	Every Friday 11:00 AM	false
146	20	Projector, PA System	Every Tuesday 8:00 AM	true
147	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	false
148	5	Projector, Whiteboard	Every Monday 9:00 AM	true
149	12	Monitor	2024-3-3	true
150	2	monitor	monday	false
151	23	s	we	true
152	15	PA System, Video Confere...	Every Friday 11:00 AM	true
153	20	Projector, PA System	Every Tuesday 8:00 AM	false
154	25	Whiteboard, Video Confer...	Every Thursday 9:30 AM	true
155	5	Projector, Whiteboard	Every Monday 9:00 AM	false
156	12	Monitor	2024-3-3	true
157	2	monitor	monday	false
158	23	s	we	true

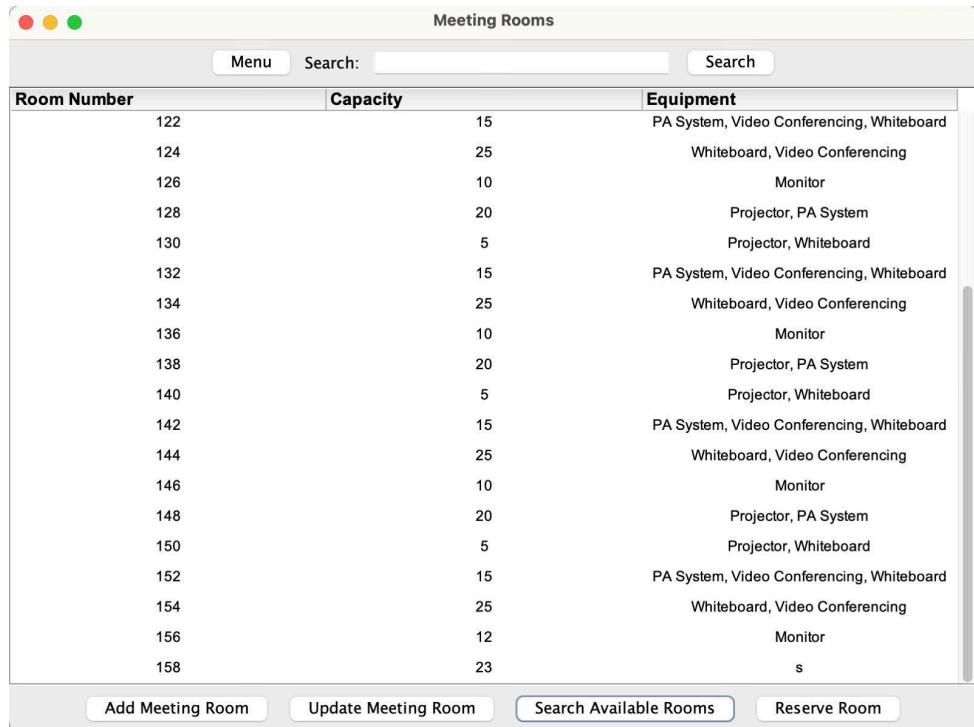
Add Meeting Room Update Meeting Room Search Available Rooms Reserve Room

Librarians and administrators can update a meeting room by entering the information needed.



Student on the other hand does not have this functionality

4. Search Available Rooms



Filters out the available rooms for the students to reserve and book. Later it will appear in the Bookings page.

Search for rooms:

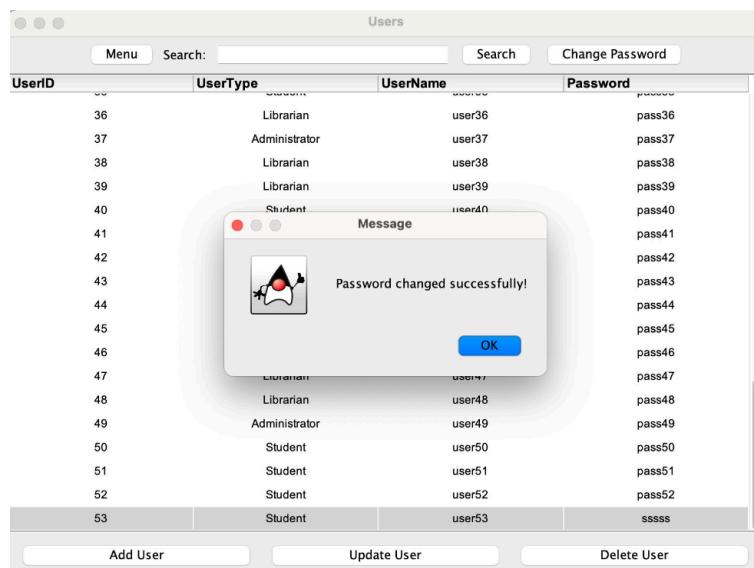
Room Number	Capacity	Equipment	Maintenance Sched...	Availability
108	20	Projector, PA System	Every Tuesday 8:00 AM	true
110	5	Projector, Whiteboard	Every Monday 9:00 AM	true
113	20	Projector, PA System	Every Tuesday 8:00 AM	false
115	5	Projector, Whiteboard	Every Monday 9:00 AM	false
118	20	Projector, PA System	Every Tuesday 8:00 AM	false
120	5	Projector, Whiteboard	Every Monday 9:00 AM	true
123	20	Projector, PA System	Every Tuesday 8:00 AM	false
125	5	Projector, Whiteboard	Every Monday 9:00 AM	false
128	20	Projector, PA System	Every Tuesday 8:00 AM	true
130	5	Projector, Whiteboard	Every Monday 9:00 AM	true
133	20	Projector, PA System	Every Tuesday 8:00 AM	false
135	5	Projector, Whiteboard	Every Monday 9:00 AM	false
138	20	Projector, PA System	Every Tuesday 8:00 AM	true
140	5	Projector, Whiteboard	Every Monday 9:00 AM	true
143	20	Projector, PA System	Every Tuesday 8:00 AM	false
145	5	Projector, Whiteboard	Every Monday 9:00 AM	false
148	20	Projector, PA System	Every Tuesday 8:00 AM	true
150	5	Projector, Whiteboard	Every Monday 9:00 AM	true
153	20	Projector, PA System	Every Tuesday 8:00 AM	false

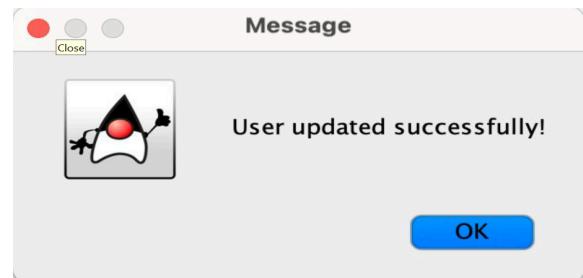
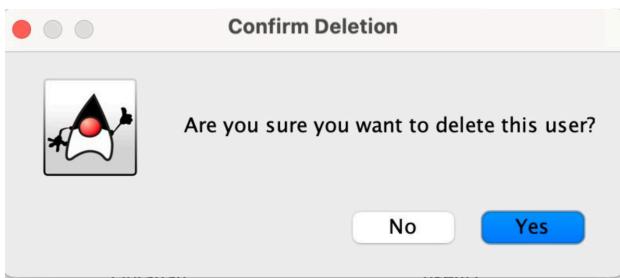
Users Page:

UserID	UserType	UserName	Password
1	Administrator	user1	pass1
2	Librarian	user2	pass2
3	Student	user3	pass3
4	Administrator	user4	pass4
5	Administrator	user5	pass5
6	Librarian	user6	pass6
7	Administrator	user7	pass7
8	Librarian	user8	pass8
9	Librarian	user9	pass9
10	Student	user10	pass10
11	Librarian	user11	pass11
12	Librarian	user12	pass12
13	Administrator	user13	pass13
14	Administrator	user14	pass14
15	Administrator	user15	pass15
16	Student	user16	pass16
17	Student	user17	pass17
18	Administrator	user18	pass18
19	Student	user19	pass19
20	Student	user20	pass20

Add User **Update User** **Delete User**

The administrator can add, update or delete a user. They are also able to change the password of a given user. This page also consists of a search bar where they can easily filter out the list. A notification is shown after every procedure.





Users				
UserID	UserType	UserName	Password	
36	Librarian	user36	pass36	
37	Administrator	user37	pass37	
38	Librarian	user38	pass38	
39	Librarian	user39	pass39	
40	Student	user40	pass40	
41	Librarian	user41	pass41	
42	Administrator	user42	pass42	
43	Student	user43	pass43	
44	Student	user44	pass44	
45	Student	user45	pass45	
46	Student	user46	pass46	
47	Librarian	user47	pass47	
48	Librarian	user48	pass48	
49	Administrator	user49	pass49	
50	Student	user50	pass50	
51	Student	user51	pass51	
52	Student	user52	pass52	
53	s	s	s2	

Buttons at the bottom: Add User, Update User, Delete User.

Users page from the librarians point of view, they can only add a user the other functionalities are for the administrator. And the students don't have access to this page.

Search in Users:

The screenshot shows a Mac OS X style application window titled "Users". At the top, there is a menu bar with "Menu", a search field containing "Admin", a "Search" button, and a "Change Password" button. Below the menu is a table with the following columns: "UserID", "UserType", "UserName", and "Password". The table contains 20 rows of data, all of which have "Administrator" listed under "UserType". The "UserID" column lists values from 1 to 49. The "UserName" column lists "user1" through "user49". The "Password" column lists "pass1" through "pass49". At the bottom of the window, there are three buttons: "Add User", "Update User", and "Delete User".

UserID	UserType	UserName	Password
1	Administrator	user1	pass1
4	Administrator	user4	pass4
5	Administrator	user5	pass5
7	Administrator	user7	pass7
13	Administrator	user13	pass13
14	Administrator	user14	pass14
15	Administrator	user15	pass15
18	Administrator	user18	pass18
20	Administrator	user20	pass20
22	Administrator	user22	pass22
25	Administrator	user25	pass25
32	Administrator	user32	pass32
33	Administrator	user33	pass33
34	Administrator	user34	pass34
37	Administrator	user37	pass37
42	Administrator	user42	pass42
49	Administrator	user49	pass49

You have the option to search by typing the user type.

Resource:

On the resources page, you'll find four buttons: "Available Resources," "Add Resources," "Delete Resources with Associations," and "Update Resources."

Resources Table											
		Menu		Search:		Search		Available Resources			
ResourceID	ResourceTy...	Title	EditionNum...	Publication...	Publisher	Editor	Subject	Language	Author	ProductionY...	
1	Journal	Nature	9	2024-03-01	Nature Publishin...	Editor29	Science	English	Charles Smith	1941	
2	Book	The Great Gatsby	9	1925-04-10	Charles Scribner...	Editor15	Fiction	English	F. Scott Fitzgerald	1994	
3	E-book	The Da Vinci Co...	4	2003-03-18	Doubleday	Editor22	Thriller	English	Dan Brown	1999	
4	Audiobook	The Hitchhiker's ...	1	1979-10-12	Pan Books	Editor68	Science Fiction	English	Douglas Adams	1987	
5	Journal	Science	2	2024-03-01	American Associ...	Editor91	Science	English	Sam Smith	1916	
6	Book	To Kill a Mockin...	10	1960-07-11	J. B. Lippincott &...	Editor14	Fiction	English	Harper Lee	1966	
7	E-book	The Hunger Ga...	8	2008-09-14	Scholastic Corp...	Editor46	Young Adult/Fan...	English	Suzanne Collins	1936	
8	Audiobook	1984	10	1949-06-08	Secker & Warburg	Editor46	Dystopian Fiction	English	George Orwell	2006	
9	Journal	Cell	4	2024-03-01	Cell Press	Editor52	Biology	English	Emily Rodrigo	1947	
11	E-book	The Lord of the ...	3	1954-07-29	Allen & Unwin	Editor99	Fantasy	English	J.R.R. Tolkien	1978	
12	Audiobook	Pride and Prejud...	3	1813-01-28	T. Egerton, Whit...	Editor23	Romance	English	Jane Austen	1907	
13	Journal	The Lancet	5	2024-03-01	Elsevier	Editor45	Medicine	English	Sara Smith	1954	
14	Book	The Catcher in t...	10	1951-07-16	Little, Brown and...	Editor40	Fiction	English	J.D. Salinger	2023	
15	E-book	Twilight	2	2005-10-05	Little, Brown and...	Editor57	Young Adult/Fan...	English	Stephenie Meyer	1980	
16	Audiobook	The Alchemist	4	1988-01-01	Harper & Row	Editor15	Fiction	English	Paulo Coelho	1931	
17	Journal	New England Jo...	7	2024-03-01	Massachusetts ...	Editor77	Medicine	English	Kevin Harvs	1941	
18	Book	The Hobbit	9	1937-09-21	Allen & Unwin	Editor16	Fantasy	English	J.R.R. Tolkien	2014	
19	E-book	Gone with the Wi...	2	1936-06-30	Macmillan Publis...	Editor10	Historical Fiction	English	Margaret Mitchell	1971	
20	Audiobook	The Secret Gard...	2	1911-08-01	Frederick A. Stok...	Editor37	Children's Literat...	English	Frances Hodgso...	1913	

The resource contains books, E-books, audiobooks, etc. the librarian and administrator can add, update, or delete a resource.

1. Available Resources button

Resources Table											
		Menu		Search:		Search		Available Resources			
ResourceID	Resource...	Title	EditionNu...	Publication...	Publisher	Editor	Subject	Language	Author	Producti...	Available...
33	Journal	Nature Revie...	9	2024-03-01	Nature Publis...	Editor14	Genetics	English	Biden Jack	1999	Available
34	Book	The Adventur...	2	1884-12-10	Charles L. We...	Editor23	Adventure	English	Mark Twain	1996	Available
35	E-book	The Martian	8	2014-02-11	Crown Publis...	Editor8	Science Fiction	English	Andy Weir	1959	Available
36	Audiobook	Frankenstein	2	1818-01-01	Lackington, H...	Editor34	Gothic Fiction	English	Mary Shelley	1907	Available
37	Journal	The Journal of...	4	2024-03-01	Wiley-Blackwell	Editor74	Finance	English	Mark Spencer	2010	Available
38	Book	The Odyssey	7	2020-12-12	Homer	Editor95	Epic Poetry	Homeric Greek	William Smart	1928	Available
39	E-book	The Kite Runn...	9	2003-05-29	Riverhead Bo...	Editor31	Historical Ficti...	English	Khaled Hosseini	1962	Available
40	Audiobook	The Adventur...	1	1892-10-14	George Newn...	Editor36	Mystery	English	Arthur Conan Doyle	2002	Available
41	Journal	The Astrophys...	7	2024-03-01	Institute of Phy...	Editor95	Astrophysics	English	Suzie Waldorf	1972	Not Available
42	Book	One Hundred ...	10	1967-05-30	Editorial Suda...	Editor72	Magic Realism	Spanish	Gabriel García Már...	1957	Not Available
43	E-book	The Shining	9	1977-01-28	Doubleday	Editor16	Horror	English	Stephen King	1967	Not Available
44	Audiobook	Wuthering Hei...	2	1847-12-19	Thomas Cautl...	Editor45	Gothic Fiction	English	Emily Brontë	1941	Not Available
45	Journal	The Journal of...	7	2024-03-01	American Che...	Editor100	Physical Che...	English	Natasha Brown	1906	Not Available
46	Book	War and Peace	10	1869-01-01	The Russian ...	Editor94	Historical Ficti...	Russian	Leo Tolstoy	1932	Not Available
47	E-book	The Catcher i...	8	1951-07-16	Little, Brown a...	Editor74	Fiction	English	J.D. Salinger	1917	Not Available
48	Audiobook	Sense and Se...	6	1811-10-30	Thomas Egert...	Editor64	Romance	English	Jane Austen	2013	Not Available
49	Journal	The Journal of...	5	2024-03-01	American Soci...	Editor46	Biochemistry	English	Ali Saif	1914	Not Available
50	Book	Don Quixote	9	1605-01-16	Francisco de ...	Editor96	Novel	Spanish	Miguel de Cervant...	2009	Not Available
51	Book	heavens	2	2020-03-03	Melissa	Editor97	fantasy	english	maram	1901	Available

Resources Table											
Resource ID	Resource Type	Title	Edition	Publication Date	Publisher	Editor	Subject	Language	Author	Production Year	
1	Journal	Nature	9	2024-03-01	Nature Publishing Group	Editor29	Science	English	Charles Smith	1941	
2	Book	The Great Gatsby	9	1925-04-10	Charles Scribner's Sons	Editor15	Fiction	English	F. Scott Fitzgerald	1994	
3	E-book	The Da Vinci Code	4	2003-03-18	Doubleday	Editor22	Thriller	English	Dan Brown	1999	
4	Audiobook	The Hitchhiker's Guide to the Galaxy	1	1979-10-12	Pan Books	Editor68	Science Fiction	English	Douglas Adams	1987	
5	Journal	Science	2	2024-03-01	American Journal of Science	Editor91	Science	English	Sam Smith	1916	
6	Book	To Kill a Mockingbird	10	1960-07-11	J. B. Lippincott & Co.	Editor14	Fiction	English	Harper Lee	1966	
7	E-book	The Hunger Games	8	2008-09-14	Scholastic Inc.	Editor46	Young Adult	English	Suzanne Collins	1936	
8	Audiobook	1984	10	1949-06-08	Secker & Warburg	Editor46	Dystopian	English	George Orwell	2006	
9	Journal	Cell	4	2024-03-01	Cell Press	Editor52	Biology	English	Emily Rodham	1947	
10	Book	Harry Potter and the Philosopher's Stone	5	1997-06-26	Bloomsbury Publishing Plc	Editor72	Fantasy	English	J.K. Rowling	1944	
11	E-book	The Lord of the Rings	3	1954-07-29	Allen & Unwin	Editor99	Fantasy	English	J.R.R. Tolkien	1978	
12	Audiobook	Pride and Prejudice	3	1813-01-28	T. Egerton Shakespear	Editor23	Romance	English	Jane Austen	1907	
13	Journal	The Lancet	5	2024-03-01	Elsevier	Editor45	Medicine	English	Sara Smith	1954	
14	Book	The Catcher in the Rye	10	1951-07-16	Little, Brown and Company	Editor40	Fiction	English	J.D. Salinger	2023	
15	E-book	Twilight	2	2005-10-05	Little, Brown and Company	Editor57	Young Adult	English	Stephenie Meyer	1980	
16	Audiobook	The Alchemist	4	1988-01-01	HarperCollins Publishers	Editor15	Fiction	English	Paulo Coelho	1931	
17	Journal	New England Journal of Medicine	7	2024-03-01	Massachusetts Medical Society	Editor77	Medicine	English	Kevin Harves	1941	
18	Book	The Hobbit	9	1937-09-21	Allen & Unwin	Editor16	Fantasy	English	J.R.R. Tolkien	2014	
19	E-book	Gone with the Wind	2	1936-06-30	Macmillan Publishing	Editor10	Historical	English	Margaret Mitchell	1971	
20	Audiobook	The Secret Life of Walter Mitty	2	1911-08-01	Frederick Warne	Editor37	Children's	English	Frances Hodgson Burnett	1913	

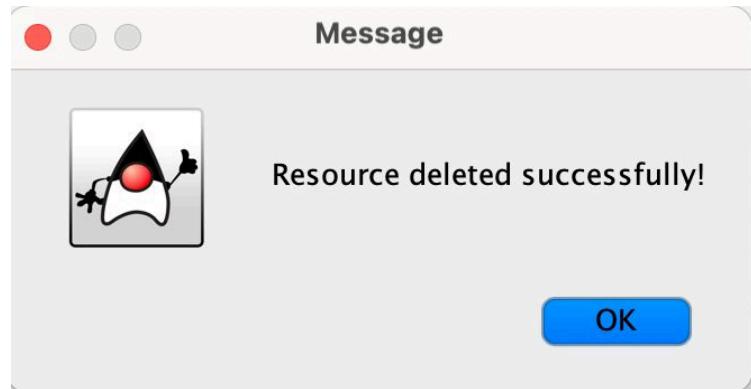
Resource table from the students point of view, so they can't delete, update or add resources.
But they can search for Available resources.

2. Add Resources

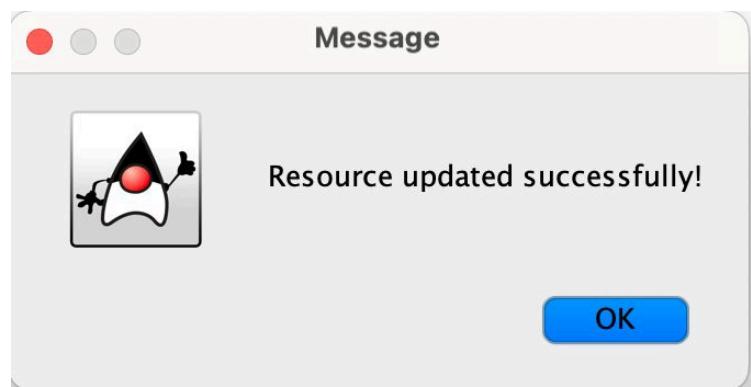
Resources Table											
Resource ID	Resource Type	Title	Edition	Publication Date	Publisher	Editor	Subject	Language	Author	Production Year	
25	Journal	Journal of Chemistry	6	2024-03-01	American Chemical Society	Editor90	Chemistry	English	Milley Brooker	2001	
26	Book	Moby-Dick	8	1851-10-18	Richard Bently	Editor7	Adventure	English	Herman Melville	1947	
27	E-book	The Girl with the Dragon Tattoo	1	2015-01-13	Riverhead Books	Editor17	Thriller	English	Paula Hawkins	1955	
28	Audiobook	Les Misérables	7	1862-03-30	A. Lacroix, Paris	Editor64	Historical	French	Victor Hugo	1912	
29	Journal	Physics Today	3	2024-03-01	American Institute of Physics	Editor56	Physics	English	Elbert Smith	1921	
30	Book	Crime and Punishment						Russian	Fyodor Dostoevsky	1967	
31	E-book	The Help						English	Kathryn Stockett	1924	
32	Audiobook	The Picture of Dorian Gray						English	Oscar Wilde	1942	
33	Journal	Nature Reviews Neuroscience						English	Biden Jack	1916	
35	E-book	The Martian						English	Andy Weir	1988	
36	Audiobook	Frankenstein						English	Mary Shelley	1986	
37	Journal	The Journal of Neuroscience						English	Mark Spengler	1939	
38	Book	The Odyssey	8	2020-12-12	Homer	Editor57	Epic Poetry	Homeric Greek	William Shakespeare	1965	
39	E-book	The Kite Runner	6	2003-05-29	Riverhead Books	Editor92	Historical	English	Khaled Hosseini	1984	
40	Audiobook	The Adventures of Huckleberry Finn	1	1892-10-14	George Newell	Editor32	Mystery	English	Arthur Conan Doyle	2000	
42	Book	One Hundred Years of Solitude	6	1967-05-30	Editorial S. A.	Editor77	Magic Realism	Spanish	Gabriel García Márquez	2023	
43	E-book	The Shining	2	1977-01-28	Doubleday	Editor68	Horror	English	Stephen King	1967	
44	books	gravity	1	2020-01-01	me	a	s	s	s	2020	
45	s	q	3	2020-03-03	s	d	s	f	d	2323	

[Delete Resource with Associations](#) [Update Resource](#) [Add Resource](#)

3. Delete Resources with Associations



4. Update Resources



Search in Resources:

Resources Table											
ResourceID	Resource...	Title	EditionN...	Publicati...	Publisher	Editor	Subject	Language	Author	Producti...	
3	E-book	The Da Vinci ...	4	2003-03-18	Doubleday	Editor22	Thriller	English	Dan Brown	1999	
7	E-book	The Hunger ...	8	2008-09-14	Scholastic C...	Editor46	Young Adult/...	English	Suzanne Col...	1936	
11	E-book	The Lord of t...	3	1954-07-29	Allen & Unwin	Editor99	Fantasy	English	J.R.R. Tolkien	1978	
15	E-book	Twilight	2	2005-10-05	Little, Brown ...	Editor57	Young Adult/...	English	Stephenie M...	1980	
19	E-book	Gone with th...	2	1936-06-30	Macmillan P...	Editor10	Historical Fict...	English	Margaret Mit...	1971	
23	E-book	The Girl with ...	5	2005-08-01	Norstedts Förf...	Editor83	Mystery/Thrill...	Swedish	Stieg Larsson	1966	
27	E-book	The Girl on th...	1	2015-01-13	Riverhead B...	Editor27	Thriller	English	Paula Hawkins	1936	
31	E-book	The Help	6	2009-02-10	Penguin Boo...	Editor31	Historical Fict...	English	Kathryn Stoc...	2019	
35	E-book	The Martian	8	2014-02-11	Crown Publis...	Editor8	Science Ficti...	English	Andy Weir	1959	
39	E-book	The Kite Run...	9	2003-05-29	Riverhead B...	Editor31	Historical Fict...	English	Khaled Hoss...	1962	
43	E-book	The Shining	9	1977-01-28	Doubleday	Editor16	Horror	English	Stephen King	1967	
47	E-book	The Catcher i...	8	1951-07-16	Little, Brown ...	Editor74	Fiction	English	J.D. Salinger	1917	

[Delete Resource with Associations](#) [Update Resource](#) [Add Resource](#)

Library Card:

Library Cards					
CardID	UserID	StudentID	CardActivationDate	Status	
1	3	1001	2024-03-11	Active	
2	10	1002	2024-03-10	Active	
3	16	1003	2024-07-01	Active	
4	17	1004	2024-03-10	Active	
5	21	1005	2024-09-01	Active	
6	23	1006	2024-03-11	Active	
7	27	1007	2024-07-01	Active	
8	28	1008	2024-08-01	Pending	
9	35	1009	2024-09-01	Active	
10	40	1010	2024-10-01	Inactive	
11	43	1011	2024-11-01	Active	
12	44	1012	2024-12-01	Inactive	
13	45	1013	2025-01-01	Active	
14	46	1014	2025-02-01	Pending	
15	50	1015	2025-03-01	Active	
16	51	1016	2025-03-04	Active	
17	52	1017	2025-04-04	Pending	
18	53	1018	2025-04-10	Pending	
19	100	1019	2025-04-17	Pending	

[Apply for Library Card](#)

A librarian can apply a library card for the students

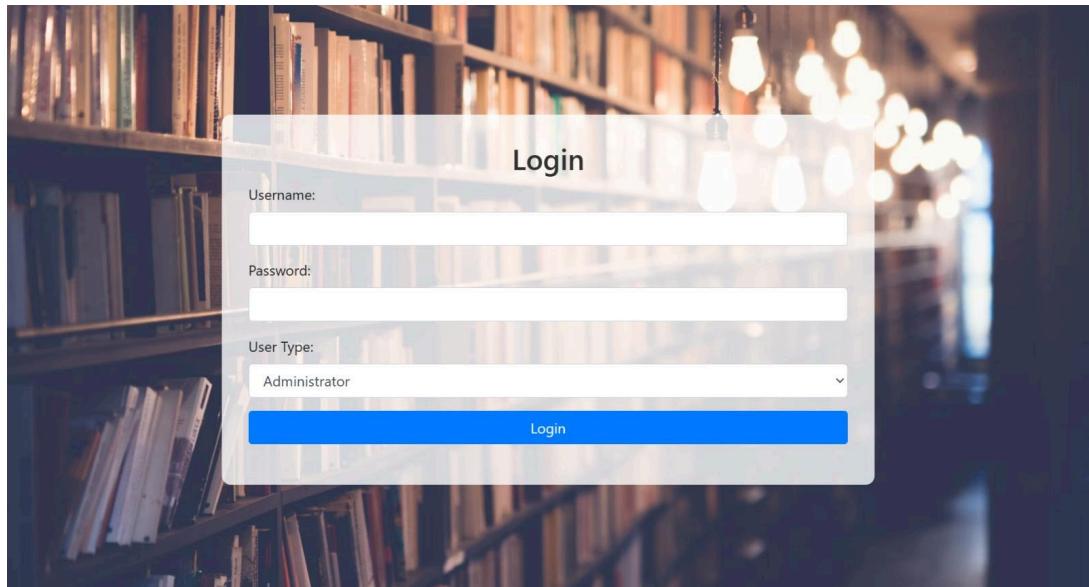
Student :

Students Table						
StudentID	UserID	FirstName	LastName	Email	IsRegisteredUniver...	
1001	3	Charlie	Green	charlie.green@example....	1	
1002	10	David	White	david.white@example.com	0	
1003	16	Emily	Davis	emily.davis@example.com	1	
1004	17	Frank	Miller	frank.miller@example.com	0	
1005	21	Grace	Wilson	grace.wilson@example.c...	1	
1006	23	Henry	Taylor	henry.taylor@example.co...	0	
1007	27	John	Doe	john.doe@example.com	1	
1008	28	Jane	Smith	jane.smith@example.com	0	
1009	35	Alice	Johnson	alice.johnson@example....	1	
1010	40	Bob	Brown	bob.brown@example.com	0	
1011	43	Charlie	Green	charlie.green@example....	1	
1012	44	David	White	david.white@example.com	0	
1013	45	Emily	Davis	emily.davis@example.com	1	
1014	46	Frank	Miller	frank.miller@example.com	0	
1015	50	Grace	Wilson	grace.wilson@example.c...	1	
1016	51	Henry	Taylor	henry.taylor@example.co...	0	
1017	52	Ivan	Moore	ivan.moore@example.com	1	
1018	53	Julia	Clark	julia.clark@example.com	0	
1019	100	Kyle	Lewis	kyle.lewis@example.com	1	
1020	56	Laura	Robinson	laura.robinson@example...	0	

Search in Students:

Students Table						
StudentID	UserID	FirstName	LastName	Email	IsRegisteredUni...	
1020	56	Laura	Robinson	laura.robinson@example...	0	

PHP:



Admin Dashboard [Home](#) [Add Student](#) [Manage Student](#) [Add Librarian](#) [Manage Librarian](#) [Logout](#)

Welcome, Admin!

This is your admin dashboard. Manage your system efficiently.

Here's an example of how the homepage would appear after logging in as an Administrator.

Adding a Student:

Add Student

First Name:

Last Name:

Postal Code:

Email:

Phone Number:

Password:

Is Registered In University:

the admin can add student by filling the following, and they can also determine whether the student is a student within the uni or not

Admin Dashboard [Home](#) [Add Student](#) [Manage Student](#) [Add Librarian](#) [Manage Librarian](#) [Logout](#)

Manage Students

Student ID	First Name	Last Name	Postal Code	Email	Phone Number	Is Registered	Actions
1001	Charlie	Green	56789	charlie.green@example.com	567-890-1234	No	Edit Delete
1002	David	White	67890	david.white@example.com	678-901-2345	No	Edit Delete
1003	Emily	Davis	78901	emily.davis@example.com	789-012-3456	Yes	Edit Delete
1004	Frank	Miller	89012	frank.miller@example.com	890-123-4567	No	Edit Delete
1005	Grace	Wilson	90123	grace.wilson@example.com	901-234-5678	Yes	Edit Delete
1006	Henry	Taylor	01234	henry.taylor@example.com	012-345-6789	No	Edit Delete
1007	John	Doe	12345	john.doe@example.com	123-456-7890	Yes	Edit Delete
1008	Jane	Smith	23456	jane.smith@example.com	234-567-8901	No	Edit Delete

Another feature is that the admin can manage students, so they can either edit the following information about the student or delete the following student.

Adding a Librarian:

Add Librarian

First Name:

Last Name:

Username:

Password:

Add Librarian

Manage Librarians

Librarian ID	Username	Password	Actions	
6	user6	pass6	Edit	Delete
8	user8	pass8	Edit	Delete
9	user9	pass9	Edit	Delete
11	user11	pass11	Edit	Delete
12	user12	pass12	Edit	Delete
24	user24	pass24	Edit	Delete
26	user26	pass26	Edit	Delete
29	user29	pass29	Edit	Delete
31	user31	pass31	Edit	Delete

Edit Librarian

Username:

Password:

[Update Librarian](#)

Same thing for the librarian. The administrator can edit the information of a specified librarian and delete them once they are not in use.

Students Page:

Welcome, Student!

This is your student dashboard. Explore available resources and more.

Student home page

Search Books

Title:

Publisher:

Editor:

Apply Filter

All Available Resources:

Resource ID	Title	Author/Editor	Publisher	Action
1	The Great Gatsby	F. Scott Fitzgerald	Charles Scribner's Sons	<button>Request Borrowing</button>
5	The Art of Programming	Alice Johnson	Tech Publishing House	<button>Request Borrowing</button>

Search Magazines

Title:

Publisher:

Editor:

Apply Filter

All Available Resources:

Resource ID	Title	Author/Editor	Publisher	Action
2	National Geographic	Susan Goldberg	National Geographic Society	<button>Request Borrowing</button>
6	Tech Today	Bob Anderson	Tech Media Group	<button>Request Borrowing</button>

The student is able to request a book or magazine, they can also filter out the column by searching for the title, publisher, or editor.

Search Meeting Rooms

Minimum Capacity:

[Search](#)

All Meeting Rooms:

Room Number	Capacity	Equipment	Maintenance Schedule	Availability
106	10	Monitor	Every Wednesday 10:00 AM	1
107	15	PA System, Video Conferencing, Whiteboard	Every Friday 11:00 AM	0
108	20	Projector, PA System	Every Tuesday 8:00 AM	1
109	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	0
110	5	Projector, Whiteboard	Every Monday 9:00 AM	1
111	10	Monitor	Every Wednesday 10:00 AM	0

The students are able to see which meeting rooms are available, and what equipments are within each room. They can search for the appropriate room according to their capacity.

Search Meeting Rooms

Minimum Capacity:

[Search](#)

Available Meeting Rooms:

Room Number	Capacity	Equipment	Maintenance Schedule	Availability
107	15	PA System, Video Conferencing, Whiteboard	Every Friday 11:00 AM	0
109	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	0
113	20	Projector, PA System	Every Tuesday 8:00 AM	0
117	15	PA System, Video Conferencing, Whiteboard	Every Friday 11:00 AM	0
119	25	Whiteboard, Video Conferencing	Every Thursday 9:30 AM	0
123	20	Projector, PA System	Every Tuesday 8:00 AM	0

Example on inserting the minimum number of students is 15.

Librarian Page:

[Librarian Dashboard](#) [Home](#) [Add Resource](#) [Add Meeting room](#) [Pending Bookings](#) [Overdue Books](#) [Logout](#)

Welcome, Librarian!

This is your librarian dashboard. You can manage resources, meeting rooms, and more.

Librarian Home Page

[Librarian Dashboard](#) [Home](#) [Add Resource](#) [Add Meeting room](#) [Pending Bookings](#) [Overdue Books](#) [Logout](#)

Add Books/Magazines

Resource Type:

Title:

Edition Number:

Publication Date:

Publisher:

Editor:

[Add Resource](#)

Add Meeting Room

Capacity:

Equipment:

Maintenance Schedule:

Availability:

 Available[Add Meeting Room](#)

The librarian has the capability of adding a new book, magazine, and meeting room.

Pending Booking Requests

Pending booking requests retrieved successfully!

Booking ID	Resource ID	Student ID	Start Date/Time	End Date/Time	Action
3	3	1003	2024-03-03 11:00:00	2024-03-03 13:00:00	Approve Reject
4	4	1004	2024-03-04 12:00:00	2024-03-04 14:00:00	Approve Reject
5	5	1005	2024-03-05 13:00:00	2024-03-05 15:00:00	Approve Reject
6	6	1006	2024-03-06 14:00:00	2024-03-06 16:00:00	Approve Reject
7	7	1007	2024-03-07 15:00:00	2024-03-07 17:00:00	Approve Reject
8	8	1008	2024-03-08 16:00:00	2024-03-08 18:00:00	Approve Reject
9	9	1009	2024-03-09 17:00:00	2024-03-09 19:00:00	Approve Reject

They can also approve or reject booking requests done from the student

Conclusion

In summary, this project highlights how database systems can transform library management. We've thoroughly explained how our custom system works, showing how it organizes data efficiently. Through our discussion of diagrams and relationships, we've demonstrated the importance of database systems for managing information effectively in libraries. Our contribution sheds light on the crucial role of structured data in improving information retrieval and utilization in today's digital era.