

Library Management System

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● Test Cases

○ User Landing Page

Sr.No	Test Case	Expected Outcome
1.	Check if the user is already logged in?	Navigate to the main page.
2.	On click login button	Navigate to the login page.
3.	On click signup button	Navigate to the signup page.

○ Signup Page:

Sr.No	Test Case	Expected Outcome
1.	Enter valid new Username, Email Id, Password & click on signup button	The user must be added at the backend and then navigate to the main page.
2.	Sign up using google authentication	OTP is sent to the email filled by user and then is Navigated to OTP Verification page
3.	Password length < 8.	Popup error message citing password length is less than 8 and stay on the same page.
4.	Username already exists.	Popup error message citing username is not available and stays on the same page.
5.	Email id not in proper format or already used by another user.	Popup error message citing enter email id in proper format or this email address is already being used and stay on the same page.
6.	On clicking the "Back" button at the top left corner of app	Navigate the user on the Landing Page

- **OTP Verification Page:**

Sr.No	Test Case	Expected Outcome
1.	Enter 4 digit OTP received on Email	User is added to the backend and then is navigated to the main page.
2.	OTP length < 4	Popup error message citing OTP invalid.
3.	Wrong OTP entered	Popup error message citing OTP invalid.

- **Login Page:**

Sr.No	Test Case	Expected Outcome
1.	Enter valid Email Id, Password & click on login button	Verify the user from the backend and Navigate to the main page.
2.	Login using google authentication	Navigate to the main page.
3.	Password length < 8.	Popup error message citing password length is less than 8 and stay on the same page.
4.	Email id not in proper format	Popup error message citing enter email id in proper format stay on the same page.
5.	If email or password does not match	Popup error messages citing email and password are incorrect and stay on the same page.
6.	On clicking the “Back” button at the top left corner of app	Navigate the user on the Landing Page

- **Main Page**

Sr.No	Test Case	Expected Outcome
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1.	On clicking the “Mark Presence” Button	Navigate to the QR Scan page where the user scans the QR Code at the Library and his/her in time must be added to the backend and then navigate again to the main page.
2.	On clicking “Genre List” button	Navigate to the “Genre of Books” page where the user gets a list of different genres of books which he/she can select for getting further more books of the selected genre.
3.	On clicking “My Issued Books” button	Navigate to the “Issued Books” page where the user gets the list of all the books issued by him/her sorted according to date along with an option to return the book.
4.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
5.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
6.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
7.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.
8.	On clicking “Admin Panel” button in bottom modal sheet	If the user is provided with admin access, navigate to the admin panel else stay on the same page.

○ **QR Code Scanning Page**

Sr.No	Test Case	Expected Outcome
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1.	On pointing the camera towards the QR Code.	The content in qr code is extracted and then validated according to the one set in the backend, if validation is successful the intime for the given user is added to backend and the user is then navigated to the main page.
2.	On clicking “Flash” Button	Flash of the mobile phone turns on in case it was off and vice versa.
3.	On Clicking “Camera Rotate” Button	The Selfie Camera gets activated in case the camera at back was activated and vice versa.
4.	On clicking “Pause” Button	The camera freezes at the position the button was pressed.
5.	On clicking “Resume” Button	The camera resumes at the position the button was pressed.

○ **Genre List Page**

Sr.No	Test Case	Expected Outcome
1.	On clicking the particular genre of the book shown on the page	Navigate to the “available books” page where all the books of selected genre that are present in the library are fetched and shown.
2.	On clicking on “Search Bar”	Type the content user wants to search and then the application scrolls to that particular location.
3.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
4.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.

5.	On clicking "Profile" button in bottom modal sheet	Navigate to the user profile page.
6.	On clicking "Logout" button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **My Issued Books**

Sr.No	Test Case	Expected Outcome
1.	On clicking the "Return" icon.	Popup message asking the confirmation to return the book and after confirmation, send an email to the user regarding return of the particular book and remove the book from the issuedBooks model at the backend.
2.	On clicking on "Search Bar"	Type the content user wants to search and then the application scrolls to that particular location.
3.	On clicking "Home" button in bottom modal sheet	Navigate to the main page.
4.	On clicking "Search" button in bottom modal sheet	The user can search anything by typing in the text field given.
5.	On clicking "Profile" button in bottom modal sheet	Navigate to the user profile page.
6.	On clicking "Logout" button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Available Books Page**

Sr.No	Test Case	Expected Outcome
1.	On clicking the particular book shown on the page	The selected book gets highlighted and an icon appears on the right corner of the app.
2.	On clicking the icon appearing on the right corner of the app.	Navigate the user to the “book Issue” page where the user sees the availability of the book to issue.
3.	On clicking on “Search Bar”	Type the content user wants to search and then the application scrolls to that particular location.
4.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
5.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
6.	On clicking “Profile” button in bottom modal sheet	Navigate to the “user profile” page.
7.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Book Issue Page**

Sr.No	Test Case	Expected Outcome
1.	On clicking Issue button if the book is available to issue	Popup message asking the confirmation to issue the book and after the confirmation, the user gets an email containing details about the book and the date to return the book and then the book name is added at the backend of issued books.
2.	If the book is not available.	Issue button gets disable and

		instead of it “Currently Unavailable” text is shown
3.	On clicking on “Heart” Icon	The Icon turns pink and the counter of likes of that book at the backend is increased by 1.
4.	On clicking the “Forward Arrow” icon shown in the cards presenting the books of the same genre.	User is navigated to the book Issue page again and the selected book is now checked for being issued.
5.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
6.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
7.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
8.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **User Profile Page**

Sr.No	Test Case	Expected Outcome
1.	On clicking the “edit” icon present just below the user profile image	Users can upload a new profile picture which will be shown on the “user profile” page.
2.	On clicking the “Edit” icon present in front of username	Users can update the username by verifying his/her password and through OTP verification.
3.	On clicking the “Edit” icon present in front of email	User can update the email by verifying his/her password and through OTP verification
4.	On clicking the “Edit” icon present in	Users can update the password

	front of password	by verifying his/her previous password or through OTP verification.
5.	On clicking the “Forward Arrow” icon in front of “My Activity” card	User is navigated to the “My Activity” page where he/she gets the entire log of his/her in time at the library.
6.	On clicking the “Forward Arrow” icon in front of “My Issued Books” card	User is navigated to the “My Issued Books” page.
7.	On clicking the “Forward Arrow” icon in front of “Report Query” card	User is navigated to the “Ask Query” page wherein he/she can report the query.
8.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
9.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
10.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
11.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Ask Query Page**

Sr.No	Test Case	Expected Outcome
1.	Enter query and on clicking submit button	Users query is whatsapped to the librarian and the user is then navigated to profile page
2.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
3.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.

5.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.
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○ **Admin Panel:**

Sr.No	Test Case	Expected Outcome
1.	On clicking “Add Books” Card	Admin is navigated to the addBook page.
2.	On clicking “Available Books” Card	Admin is navigated to availableBooks page
3.	On clicking “Issued Books” Card	Admin is navigated to issuedBooks page
4.	On clicking the “edit” icon present just below the user profile image	Users can upload a new profile picture which will be shown on the “user profile” page.
5.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
6.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
7.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
8.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Add Books Page:**

Sr.No	Test Case	Expected Outcome
1.	Enter valid new book name, book’s author name, book genre, book description and upload a book image	After verifying that all the details are filled book is added to the model and shown on the ui

		through backend and admin is navigated to admin panel again
2.	If any field is empty	Popup message citing empty details provided appears and the user stays on the same page.
3.	On clicking "Home" button in bottom modal sheet	Navigate to the main page.
4.	On clicking "Search" button in bottom modal sheet	The user can search anything by typing in the text field given.
5.	On clicking "Profile" button in bottom modal sheet	Navigate to the user profile page.
6.	On clicking "Logout" button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Available Books:**

Sr.No	Test Case	Expected Outcome
1.	On clicking delete button provided in right side of the card	Popup message asking for the confirmation to delete the book appears and on pressing confirm the book gets deleted from the model.
2.	On clicking "Home" button in bottom modal sheet	Navigate to the main page.
3.	On clicking "Search" button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	On clicking "Profile" button in bottom modal sheet	Navigate to the user profile page.
5.	On clicking "Logout" button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then

		navigates to the Landing Page.
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○ **Issued Books:**

Sr.No	Test Case	Expected Outcome
1.	On clicking mail button on the right side of the card	Popup asking for the confirmation to send automated mail appears and after confirmation a reminder mail to return the book is sent to the user who has issued the book.
2.	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
3.	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

PS: Several changes may be done on the page later as the app is currently under development.

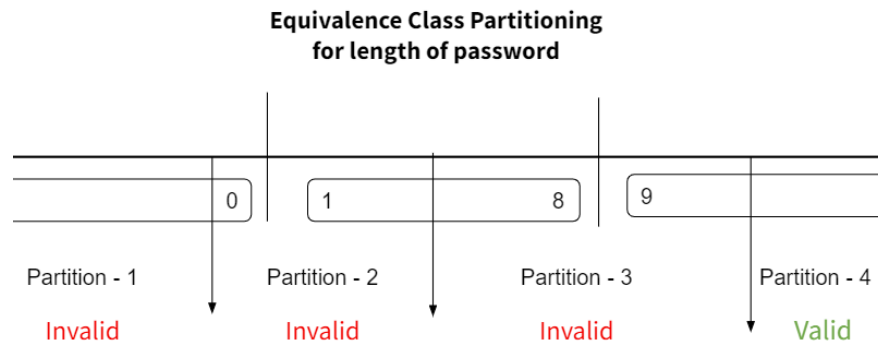
○ **Boundary Value Analysis:**

- We tried to cover as many test cases in the above given table.
- It majorly consists of all the BVA test cases.
- In our application, BVA can be performed only on the **Login** and **Signup** page.

BVA for length of password

Invalid	Invalid	Valid
<input type="text" value="0"/>	<input type="text" value="1"/> <input type="text" value="8"/>	<input type="text" value="9"/>
Partition - 1	Partition - 2	Partition - 3

- **Equivalence Class Partitioning:**
 - We tried to cover as many test cases in the above given table.
 - It majorly consists of all the BVA test cases.
 - In our application, BVA can be performed only on the **Login** and **Signup** page



- **Integration Test Cases**

- **User Landing Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between landing page and login page	On clicking login button	Navigate to login page
2.	Check the interface link between landing page and signup page.	On clicking signup button	Navigate to signup page

- **Login Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between login page and main page	Enter valid email id and password and click on login button	Verify the user from the backend and Navigate to the main page.
2.	Check the interface link between the login page and signup page.	On clicking signup hyperlink	Navigate to signup page

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○ **Signup page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between signup page and main page	Enter valid email id and password and click on login	The user must be added at the backend and then navigate to the main page.
2.	Check the interface link between the signup page and login page.	On clicking login hyperlink	Navigate to login page

○ **OTP verification page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between OTP verification page and main page	Enter valid OTP and press verify button	The user must be added at the backend and then navigate to the main page.

○ **Main page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between Main page and QR Code Scan page	On clicking the "Mark Presence" Button	Navigate to the QR Scan page where the user scans the QR Code at the Library and his/her in time must be added to the backend and then navigate again to the main page.

2.	Check the interface link between the genre of books page and main page.	On clicking “Genre List” button	Navigate to the “Genre of Books” page where the user gets a list of different genres of books which he/she can select for getting further more books of the selected genre.
3.	Check the interface link between the genre of books page and main page.	On clicking “My Issued Books” button	Navigate to the “Issued Books” page where the user gets the list of all the books issued by him/her sorted according to date along with an option to return the book.
4.	Check the interface link between “Home” button and main page	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
5.	Check the interface link between “Search” and main page	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
6.	Check the interface link between “Profile” page and main page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
7.	Check the interface link between “popup” and main page	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.
8.	Check the interface link between “Admin Panel” page and main page	On clicking “Admin” button in bottom modal sheet	If the user has admin panel access, the user must be redirected to the admin panel.

○ **QR Code Scan page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between Main page and QR Code Scan page	On pointing the camera towards the QR Code.	The content in qr code is extracted and then validated according to the one set in the backend, if validation is successful the intime for the given user is added to backend and the user is then navigated to the main page.

○ **Genre List page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between Book Available page and Genre List page	On clicking the particular genre of the book shown on the page	Navigate to the "available books" page where all the books of selected genre that are present in the library are fetched and shown.
2.	Check the interface link between "Home" button and main page	On clicking "Home" button in bottom modal sheet	Navigate to the main page.
3.	Check the interface link between "Search" and qr code page	On clicking "Search" button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	Check the interface link between "Profile" page and qr code scan page	On clicking "Profile" button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between "popup" and qr code scan page	On clicking "Logout" button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the

			app and then navigates to the Landing Page.
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○ **My Issued Books page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between “popup” and my issued books page	On clicking the “Return” icon.	Popup message asking the confirmation to return the book and after confirmation, send an email to the user regarding return of the particular book and remove the book from the issuedBooks model at the backend.
2.	Check the interface link between “Home” button and main page	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
3.	Check the interface link between “Search” and my issued book page	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	Check the interface link between “Profile” page and my issued book page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between “popup” and my issued book page	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Available Books Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between Book Available page and icon and highlight.	On clicking the particular book shown on the page	The selected book gets highlighted and an icon appears on the right corner of the app.
2.	Check the interface link between book Available page and book issue page	On clicking the icon appearing on the right corner of the app.	Navigate the user to the "book Issue" page where the user sees the availability of the book to issue.
3.	Check the interface link between "Home" button and main page	On clicking the icon appearing on the right corner of the app.	Navigate the user to the "book Issue" page where the user sees the availability of the book to issue.
4.	Check the interface link between "Search" and search functionality	On clicking on "Search Bar"	Type the content user wants to search and then the application scrolls to that particular location.
5.	Check the interface link between the "Profile" page and available books page.	On clicking "Home" button in bottom modal sheet	Navigate to the main page.
6.	Check the interface link between "popup" and main page	On clicking "Search" button in bottom modal sheet	The user can search anything by typing in the text field given.

○ **Book Issue Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between popup and book issue page	On clicking Issue button if the book is available to issue	Popup message asking the confirmation to issue the book and after the confirmation, the user gets an email containing details

			about the book and the date to return the book and then the book name is added at the backend of issued books.
3.	Check the interface link between backend counter and book issue page	On clicking on “Heart” Icon	The Icon turns pink and the counter of likes of that book at the backend is increased by 1.
4.	Check the interface link between book issue and book issue page	On clicking the “Forward Arrow” icon shown in the cards presenting the books of the same genre.	User is navigated to the book Issue page again and the selected book is now checked for being issued.
5.	Check the interface link between book issue and main page	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
6.	Check the interface link between book issue and search functionality	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
7.	Check the interface link between book issue and profile page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
8.	Check the interface link between book issue and popup.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **User Profile Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between profile page and	On clicking the “camera” icon present	User can upload a new profile picture

	camera/album.	just below the user profile image	which will be shown on the “user profile” page.
2.	Check the interface link between firebase and user profile page	On clicking the “Edit” icon present in front of username	User can update the username by verifying his/her password.
3.	Check the interface link between profile page and firebase.	On clicking the “Edit” icon present in front of email	User can update the email by verifying his/her password.
4.	Check the interface link between profile page and firebase	On clicking the “Edit” icon present in front of password	User can update the password by verifying his/her previous password.
5.	Check the interface link between profile page and firestore models and my activity page	On clicking the “Forward Arrow” icon in front of “My Activity” card	User is navigated to the “My Activity” page where he/she gets the entire log of his/her in time at the library.
6.	Check the interface link between profile page and firestore models and my issued book page	On clicking the “Forward Arrow” icon in front of “My Issued Books” card	User is navigated to the “My Issued Books” page.
7.	Check the interface link between profile page and query page	On clicking the “Forward Arrow” icon in front of “Report Query” card	User is navigated to the “Ask Query” page wherein he/she can report the query.
8.	Check the interface link between “Home” button and main page	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
9.	Check the interface link between main page and Search functionality	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
10.	Check the interface link between “Profile” button and profile page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
11.	Check the interface link	On clicking “Logout”	Popup message

	between “Logout” button and landing page	button in bottom modal sheet	asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.
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○ **Ask Query Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between “submit” button and profile page	Enter query and on clicking submit button	Users query is whatsapped to the librarian and the user is then navigated to profile page
2.	Check the interface link between “home” button and main page	On clicking “Home” button in bottom modal sheet	Navigate to the main page.
3.	Check the interface link between “search”button and search functionality	On clicking “Search” button in bottom modal sheet	The user can search anything by typing in the text field given.
4.	Check the interface link between “profile” button and profile page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between the “logout” button and the popup.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Admin Panel Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between	On clicking the “+”	Admin is navigated to

	“addBooks” page and admin panel page	icon on the right side on card	addBooks page
2.	Check the interface link between “availableBooks” page and admin panel page	On clicking the “>” icon on the right side on card	Navigate to the available books page.
3.	Check the interface link between “issuedBooks” page and admin panel page	On clicking the “>” icon on the right side on card	Navigate to the issued books page.
4.	Check the interface link between “profile” button and admin page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between the “logout” button and the popup.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.

○ **Available books Page**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between delete popup and available books page	On clicking the “delete” icon on the right side on card	Popup message asking the confirmation to delete the book and after confirmation the book is deleted from the model.
4.	Check the interface link between “profile” button and available books page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between the “logout” button and the popup.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then

			navigates to the Landing Page.
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○ **Issued Books Page:**

Sr.No	Test Case Objective	Test Case	Expected Outcome
1.	Check the interface link between mail popup and issued books page	On clicking the “delete” icon on the right side on card	Popup message asking the confirmation to mail the user and after confirmation the mail must be sent.
4.	Check the interface link between “profile” button and issued books page	On clicking “Profile” button in bottom modal sheet	Navigate to the user profile page.
5.	Check the interface link between the “logout” button and the popup.	On clicking “Logout” button in bottom modal sheet	Popup message asking the confirmation to logout and after confirmation, the user gets logged out of the app and then navigates to the Landing Page.