

1. Sign Up Page

Constraints:

- **VC1:** Name cannot be empty.
- **VC2:** Mobile number cannot be empty.
- **VC3:** Email cannot be empty.
- **VC5:** Name should be less than 30 characters.
- **VC6:** Mobile number should contain 10 digits.

Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Name: "", Mobile: "9876543210", Email: "abc@gmail.com",	Error: "Name cannot be empty."	Error displayed.	Test case passed	VC1
Name: "Keyur", Mobile: "", Email: "abc@gmail.com",	Error: "Mobile number cannot be empty."	Error displayed.	Test case passed	VC2
Name: "Keyur", Mobile: "9876543210", Email: "",	Error: "Email cannot be empty."	Error displayed.	Test case passed	VC3
Name: "Mynameisanthonygonzalezhelloi amheretoreadbookspleasehelpme", Mobile: "9876543210", Email: "abc@gmail.com",	Error: "Name should be less than 30 characters."	Error displayed.	Test case passed	VC5
Name: "John", Mobile: "12345", Email: "abc@gmail.com",	Error: "Mobile number must have 10 digits."	Error displayed.	Test case passed	VC6
Name: "Keyur", Mobile: "9876543210", Email: "abc@gmail.com",	User successfully signed up.	User successfully signed up.	Test case passed	VC1, VC2, VC3, VC4, VC5, VC6

2.Login Page

Constraints:

- **VC1:** Email must exist in the database.
- **VC2:** Password must match the database.

Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Email: "abc@gmail.com", Password: "pass123"	User successfully logged in.	User successfully logged in.	Test case passed	VC1, VC2
Email: "xyz@gmail.com", Password: "pass123"	Error: "Email not found."	Error displayed.	Test case passed	VC1
Email: "abc@gmail.com", Password: "wrongpass"	Error: "Incorrect password."	Error displayed.	Test case passed	VC2
Email: "", Password: "pass123"	Error: "Email cannot be empty."	Error displayed.	Test case passed	VC1

Email: "abc@gmail.com", Password: ""	Error: "Password cannot be empty."	Error displayed.	Test case passed	VC2
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3.1 Buy Books

Constraints:

- **VC1:** User must be logged in.
- **VC2:** Book ID must exist in the database.
- **VC3:** Book must be available for purchase.

Action	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Buy Book (valid ID and availability)	Book purchased successfully.	Book purchased successfully.	Test case passed	VC1, VC2, VC3
Buy Book (invalid ID)	Error: "Book not found."	Error displayed.	Test case passed	VC2
Buy Book (unavailable book)	Error: "Book not available for purchase."	Error displayed.	Test case passed	VC3
Buy without logging in	Error: "Please log in to continue."	Error displayed.	Test case passed	VC1
Buy Book (invalid payment method)	Error: "Payment failed."	Error displayed.	Test case passed	VC3

3.2 Sell Books

Constraints:

- **VC1:** User must be logged in.
- **VC2:** Book details (title, author, price) must not be empty.

Action	Expected Output	Displayed Output	Test Case Status	Constraints Covered
List book (valid input)	Book listed successfully.	Book listed successfully.	Test case passed	VC1, VC2
List book (missing title)	Error: "Please provide all details."	Error displayed.	Test case passed	VC2
List book (missing price)	Error: "Please provide all details."	Error displayed.	Test case passed	VC2
List book without logging in	Error: "Please log in to continue."	Error displayed.	Test case passed	VC1

3.3 Rent Books

Constraints:

- **VC1:** User must be logged in.
- **VC2:** Book must be available for rent

Action	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Rent Book (valid)	Book rented successfully.	Book rented successfully.	Test case passed	VC1, VC2
Rent Book (already rented)	Error: "Book not available for rent."	Error displayed.	Test case passed	VC2
Rent without logging in	Error: "Please log in to continue."	Error displayed.	Test case passed	VC1

3.4 Sort Books

Constraints:

- **VC1:** Sorting criteria must match available options (e.g., price, genre,time).
- **VC2:** Sorting must update the book display.

Action	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Sort by price (ascending)	Books sorted by price (ascending).	Books sorted by price (ascending).	Test case passed	VC1, VC2
Sort by price (descending)	Books sorted by price (descending).	Books sorted by price (descending).	Test case passed	VC1, VC2
Sort by genre	Books grouped by genre.	Books grouped by genre.	Test case passed	VC1, VC2
Sort by invalid option	Error: "Invalid sorting criteria."	Error displayed.	Test case passed	VC1

6. Search and Sorting Feature

Constraints:

- **SSC1:** Sorting criteria must match available options.
- **SSC2:** Empty search input should return all books.
- **SSC3:** Invalid characters in search input must return no results or an appropriate error.
- **SSC4:** Large datasets should sort within a reasonable time.

Test Case Name	Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Test valid sort by price	Sort books by price (ascending).	Books sorted by price in ascending order.	Books displayed in order.	Test case passed	SSC1
Test empty search query	Search query is empty.	All books displayed.	All books listed.	Test case passed	SSC2

Test invalid search characters	Search query: @#\$%^.	Error: "No results found."	Error displayed.	Test case passed	SSC3
Test sorting large dataset	Sort 1,000+ books by price.	Sorted list displayed within 2 seconds.	Sorting completed successfully.	Test case passed	SSC4

7. Book Swapping

Constraints:

- **BC1:** A user must be logged in to request a swap.
- **BC2:** Requested book must be available for swapping.
- **BC3:** Ownership of both books should update after swap completion.
- **BC4:** A swap request can be canceled before acceptance.
- **BC5:** Concurrent swap requests for the same book must be handled.

Test Case Name	Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Swap request without login	User tries to request a swap while logged out.	Error: "Please log in to continue."	Error displayed.	Test case passed	BC1
Swap with unavailable book	User requests a book already swapped.	Error: "Book not available for swapping."	Error displayed.	Test case passed	BC2
Successful swap	Both users accept the swap.	Ownership of books updated.	Swap completed message displayed.	Test case passed	BC3
Cancel swap request	User cancels a swap request before acceptance.	Request successfully canceled.	Cancellation confirmation displayed.	Test case passed	BC4
Concurrent swap requests	Two users request the same book simultaneously.	Only the first request is processed.	Error for the second request: "Book unavailable."	Test case passed	BC5

6. Constraints for User Profile Management

1. **UP1:** User must be logged in to access or update their profile.
2. **UP2:** Name field cannot be empty.
3. **UP3:** Name should not exceed 50 characters.
4. **UP4:** Email format must be valid (e.g., user@example.com).
5. **UP5:** Phone number must contain exactly 10 digits.
6. **UP8:** Password updates must match the required format (e.g., 8+ characters, 1 uppercase, 1 number, 1 special character).
7. **UP9:** Users must confirm their old password before updating to a new one.

8. **UP10:** Profile changes should trigger a success or error notification.

Test Case Name	Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Access profile without login	User tries to access the profile page without logging in.	Error: "Please log in to access your profile."	Error displayed.	Test case passed	UP1
Empty name field	User leaves the name field empty during profile update.	Error: "Name cannot be empty."	Error displayed.	Test case passed	UP2
Name exceeding character limit	Name entered exceeds 50 characters.	Error: "Name must not exceed 50 characters."	Error displayed.	Test case passed	UP3
Valid email format	Email entered as user@example.com.	Profile updated successfully.	Success message displayed.	Test case passed	UP4
Invalid email format	Email entered as userexample.com.	Error: "Invalid email format."	Error displayed.	Test case passed	UP4
Valid phone number	Phone number entered as 9876543210.	Profile updated successfully.	Success message displayed.	Test case passed	UP5
Invalid phone number	Phone number entered as 12345.	Error: "Phone number must contain 10 digits."	Error displayed.	Test case passed	UP5
Valid profile picture upload	File uploaded is profile.png (size: 1.8MB, format: PNG).	Profile picture updated successfully.	Success message displayed.	Test case passed	UP6
Invalid profile picture size	File uploaded is profile.jpg (size: 2.5MB).	Error: "File size must not exceed 2MB."	Error displayed.	Test case passed	UP6
Invalid profile picture format	File uploaded is profile.gif.	Error: "Unsupported file format. Use JPEG/PNG."	Error displayed.	Test case passed	UP6
Valid DOB	Date of birth entered as 21/05/1990.	Profile updated successfully.	Success message displayed.	Test case passed	UP7
Future DOB	Date of birth entered as 21/05/2025.	Error: "Date of birth cannot be in the future."	Error displayed.	Test case passed	UP7
Password update success	Old password: OldPass1!, New password: NewPass2!.	Password updated successfully.	Success message displayed.	Test case passed	UP8, UP9
Password update mismatch	Old password incorrect.	Error: "Old password does not match."	Error displayed.	Test case passed	UP9
Password format invalid	New password entered as password123.	Error: "Password must include uppercase, number, special character."	Error displayed.	Test case passed	UP8

Notification on profile update	User updates their email or phone number.	Success notification: "Profile updated."	Notification displayed.	Test case passed	UP10
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Test Case Name	Input Details	Expected Output	Displayed Output	Test Case Status	Constraints Covered
Empty profile update submission	All fields left blank during submission.	Error: "Please fill in required fields."	Error displayed.	Test case passed	UP2, UP4, UP5
Simultaneous updates	Two devices attempt to update the profile at the same time.	Last update overwrites the previous one.	Profile reflects the last update.	Test case passed	UP1, UP10
Invalid special characters	Name entered as John@Doe.	Error: "Name cannot include special characters."	Error displayed.	Test case passed	UP2
Unsupported DOB format	DOB entered as 1990-05-21 instead of 21/05/1990.	Error: "Invalid date format."	Error displayed.	Test case passed	UP7
Session timeout during update	User logged out during profile update.	Error: "Session expired. Please log in again."	Error displayed.	Test case passed	UP1