Library System - Use Case Descriptions

Use Case: Register New Account

Scenario: A new user wants to create an account to access the library system.

Triggering event: User selects "Register" and submits their details through the registration form.

Brief description: This use case allows a new user to sign up by providing required information such as username, email, and password. The system validates the input and creates a new record if the data is valid.

Actors: User

Related use cases: Login

Stakeholders: Library users, system administrator

Preconditions: The user is not already registered in the system.

Postconditions: A new user account is created and stored in the system database.

Flow of activities:

- Actor: Fills registration form and submits.
- System: Validates the entered data, checks if email already exists, creates new user record, and confirms successful registration.

Exception conditions: Invalid or incomplete data. Email or username already exists.

Use Case: Login

Scenario: A registered user or admin logs in to access their dashboard.

Triggering event: User selects "Login" and enters credentials.

Brief description: This use case allows registered users or administrators to access their accounts after successful authentication.

Actors: User, Admin

Related use cases: Register, Borrow Book, Return Book, Manage Books, Manage Users

Stakeholders: Library users, system administrator

Preconditions: User must have a registered account.

Postconditions: User is authenticated and redirected to their respective dashboard.

Flow of activities:

- Actor: Enters email and password, clicks "Login".
- System: Validates credentials, generates session token, and redirects to user or admin dashboard.

Exception conditions: Invalid credentials. Account disabled or not found.

Use Case: Browse and View Book Details

Scenario: User searches or browses available books to view details.

Triggering event: User opens the catalog or enters a search query.

Brief description: The system displays a list of available books. Users can view information about a selected book, including title, author, and availability.

Actors: User

Related use cases: Borrow Book

Stakeholders: Library users

Preconditions: User is logged in or has access to the catalog.

Postconditions: Book details are displayed to the user.

Flow of activities:

- Actor: Opens catalog, searches, or selects a book.
- System: Retrieves and displays matching results, and shows details for the selected book.

Exception conditions: No books found for the search query. Database connection failure.

Use Case: Borrow Book

Scenario: A logged-in user borrows a book that is available in the library.

Triggering event: User selects "Borrow" on the book's details page.

Brief description: This use case allows a user to borrow a book. The system verifies eligibility and updates the book and loan records accordingly.

Actors: User

Related use cases: Return Book, View Borrowed Books

Stakeholders: Library users, library staff

Preconditions: User is logged in, book is available, and user has not exceeded borrow limit.

Postconditions: Loan record created, book availability updated.

Flow of activities:

- Actor: Clicks "Borrow Book".
- System: Validates user eligibility, checks book availability, records the loan, and updates book status.

Exception conditions: Book not available. User reached borrow limit. Database transaction failed.

Use Case: Return Book

Scenario: A user returns a borrowed book to the library.

Triggering event: User selects a borrowed book and clicks "Return".

Brief description: This use case allows a user to return a borrowed book. The system updates the loan status and book availability.

Actors: User

Related use cases: Borrow Book, View Borrowed Books

Stakeholders: Library users, library staff

Preconditions: The book is currently borrowed by the user.

Postconditions: Loan record marked as returned and book availability updated.

Flow of activities:

- Actor: Selects borrowed book and requests return.
- System: Verifies loan, updates status to "returned", increases available copies, and confirms completion.

Exception conditions: Loan not found. Book already returned. Database error.

Use Case: Manage Books (Admin)

Scenario: Admin adds, edits, or deletes books in the library catalog.

Triggering event: Admin logs in and accesses the "Manage Books" section.

Brief description: This use case allows the admin to manage all book records, including adding new books, updating details, or removing old entries.

Actors: Admin

Related use cases: Login, Generate Reports

Stakeholders: System administrator, library management

Preconditions: Admin is logged in and has permission to manage the catalog.

Postconditions: Book records updated in the database.

Flow of activities:

- Actor: Chooses an action (add/edit/delete).
- System: Validates input, performs the requested action, and updates database.

Exception conditions: Invalid book details. Attempt to delete book with active loans. Database connection error.

Use Case: Manage Users (Admin)

Scenario: Admin views and manages registered users.

Triggering event: Admin selects "Manage Users" in the admin dashboard.

Brief description: This use case allows admin to view all users, add new ones, edit their roles, or remove accounts.

Actors: Admin

Related use cases: Login

Stakeholders: System administrator, registered users

Preconditions: Admin must be logged in.

Postconditions: User accounts updated or managed successfully.

Flow of activities:

- Actor: Opens "Manage Users" section.
- System: Displays user list; allows admin to add, edit, or delete user records.

Exception conditions: Attempt to delete user with active loans. Database access failure.