

AAA Battery

Library Management System

Software Requirements Specification

(SRS)

| | |
|--|-----------|
| 1. Functional Requirements | 3 |
| 1.1. User Account Management | 3 |
| 1.2. Password Management | 3 |
| 1.3. Activity Logging and Monitoring | 3 |
| 1.4. Content Management | 3 |
| 1.5. Fine Management | 4 |
| 1.6. Subscription Management | 4 |
| 1.7. Borrowing and Returning Content | 4 |
| 1.8. Deadline Extension Requests | 4 |
| 1.9. New Book Requests | 4 |
| 2. Non-Functional Requirements | 5 |
| 2.1. Product Requirements | 5 |
| 2.2. Organizational Requirements | 5 |
| 2.3. External Requirements | 6 |
| 3. Diagrams | 6 |
| 3.1. Use Case Diagram | 6 |
| 3.2. Sequence Diagrams | 7 |
| 3.3. Class Diagram | 11 |
| 4. User Stories | 11 |
| 4.1. Register Account | 11 |
| 4.2. Track Activity Logs | 12 |
| 4.3. Change Password | 12 |
| 4.4. Add and Update Content | 12 |
| 4.5. Accept and Reject Content Requests | 13 |
| 4.6. Charge Fines | 13 |
| 4.7. Manage User Subscriptions | 13 |
| 4.8. Get Availability Notifications | 14 |
| 4.9. Subscribe to AAA Battery | 14 |
| 4.10. View Available Content | 15 |
| 4.11. Request Content | 15 |
| 4.12. Return Content | 15 |

| | |
|--|-----------|
| 4.13. Pay Charged Fine | 16 |
| 4.14. Request Extended Deadline | 16 |
| 4.15. Request New Books | 16 |

1. Functional Requirements

1.1. User Account Management

- **Registration:**
The system shall allow a user to register an account by providing the required information (e.g., username, email, and password) to access the system.
- **Validation:**
The system shall validate the registration data to ensure its correctness and uniqueness.
- **Login/Logout:**
The system shall allow a registered user to log in and log out securely.

1.2. Password Management

- **Change Password:**
The system shall enable a user to change their password.
- **Password Recovery:**
The system shall provide a password recovery mechanism to assist users in resetting forgotten passwords.

1.3. Activity Logging and Monitoring

- **Logging:**
The system shall record all website activity logs for user actions and system events.
- **Librarian Monitoring:**
The system shall provide an librarian interface that allows an librarian to monitor and filter activity logs to assess system functionality.
- **Librarian Log Details:**
The system shall record and maintain log details relevant to librarian activities for effective management.

1.4. Content Management

- **Add Content:**
The system shall allow a librarian to add new content (e.g., books or other library materials) to the library database.
- **Update Content:**
The system shall allow a librarian to update existing content in the library to ensure it remains current.
- **Content Request Decisions:**
The system shall allow a librarian to accept or reject content requests based on content availability.

1.5. Fine Management

- **5.1 Calculate Fines:**

The system shall calculate fines for overdue borrowed content based on borrowing timestamps.

- **Charge Fines:**

The system shall allow a librarian to charge the calculated fines to the respective borrowers.

- **Fine Payment:**

The system shall enable a borrower to pay any charged fines through an integrated payment mechanism.

1.6. Subscription Management

- **Manage Subscriptions:**

The system shall allow a librarian to add and cancel user subscriptions.

- **Subscription Feature:**

The system shall enable a borrower to subscribe to specified services or products (e.g., AAA battery subscription).

- **Availability Notification:**

The system shall notify a subscriber when requested content becomes available.

1.7. Borrowing and Returning Content

- **Display Content:**

The system shall display a list of all available content in the library.

- **Request Content:**

The system shall allow a borrower to request available content for borrowing at a specified time.

- **Return Content:**

The system shall enable a borrower to return borrowed content and update the content's availability status accordingly.

1.8. Deadline Extension Requests

- **Extension Request:**

The system shall allow a borrower to request an extension on the borrowing deadline to avoid incurring fines.

1.9. New Book Requests

- **New Book Request:**

The system shall allow a borrower to request the addition of new books that are not currently available in the library.

2. Non-Functional Requirements

2.1. Product Requirements

- **Performance**
 - The system shall respond to user requests (e.g., logging in, searching for books) within a few seconds under normal conditions.
- **Security**
 - The system shall store user passwords in an encrypted format.
 - The system shall use secure connections (e.g., HTTPS) for all sensitive data transfers.
- **Usability**
 - The system shall have a clear and simple interface that is easy for new users to understand.
 - The system should include basic on-screen instructions or help tips for important features.
- **Reliability**
 - The system shall be available most of the time during library operating hours.
- **Maintainability**
 - The system shall use consistent coding practices and naming conventions to make updates easier.
 - The system shall allow parts (e.g., the payment module) to be changed or upgraded without affecting the rest of the system too much.
- **Scalability**
 - The system shall handle an increase in the number of users or books without major modifications.
 - The system should be designed so that adding more servers or resources is straightforward if user traffic grows.

2.2. Organizational Requirements

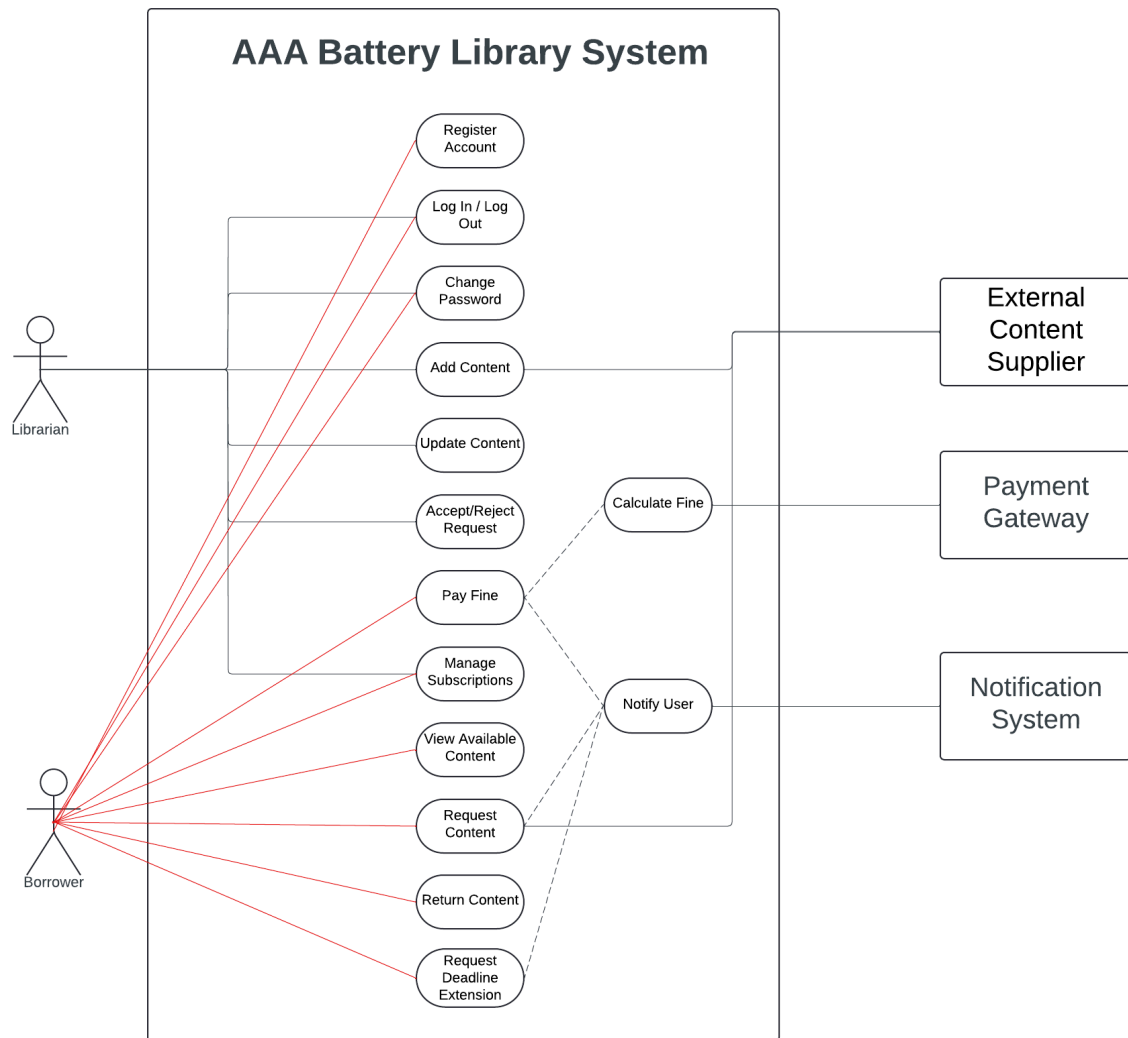
- **Standards and Guidelines**
 - The system shall follow any coding and design standards set by the library or school.
 - The system should use the library's color scheme and logo in its interface.
- **Development Environment**
 - The system shall be developed with tools chosen by the library or school (e.g., a specific programming language or framework).
 - The development team shall keep the project in a shared version control system (e.g., Git).
- **Documentation and Training**
 - The system shall include a simple user guide for librarians and staff.
 - The library shall provide short training sessions to help staff learn the new system.

2.3. External Requirements

- **Legal and Regulatory Compliance**
 - The system shall respect copyright laws when handling digital or physical materials.
 - **Interoperability**
 - The system should be able to connect with other services (e.g., payment gateways, eBook providers) if needed.
 - The system shall use standard data formats (e.g., JSON, XML) when sharing information with other systems.
 - **Accessibility**
 - The system shall consider basic accessibility guidelines so that users with disabilities can use it.
 - The system should minimize unnecessary data collection to protect user privacy.
-

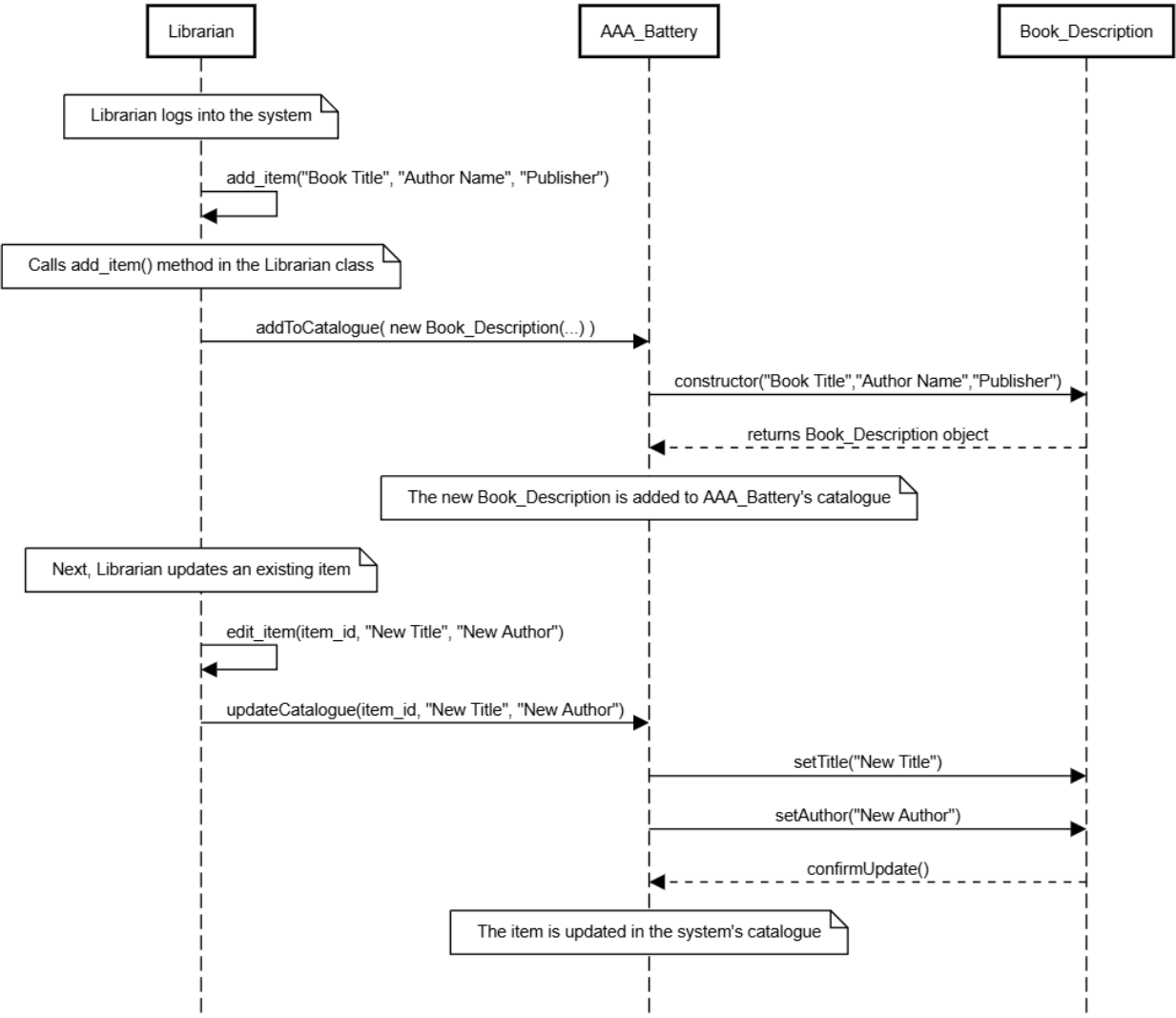
3. Diagrams

3.1. Use Case Diagram

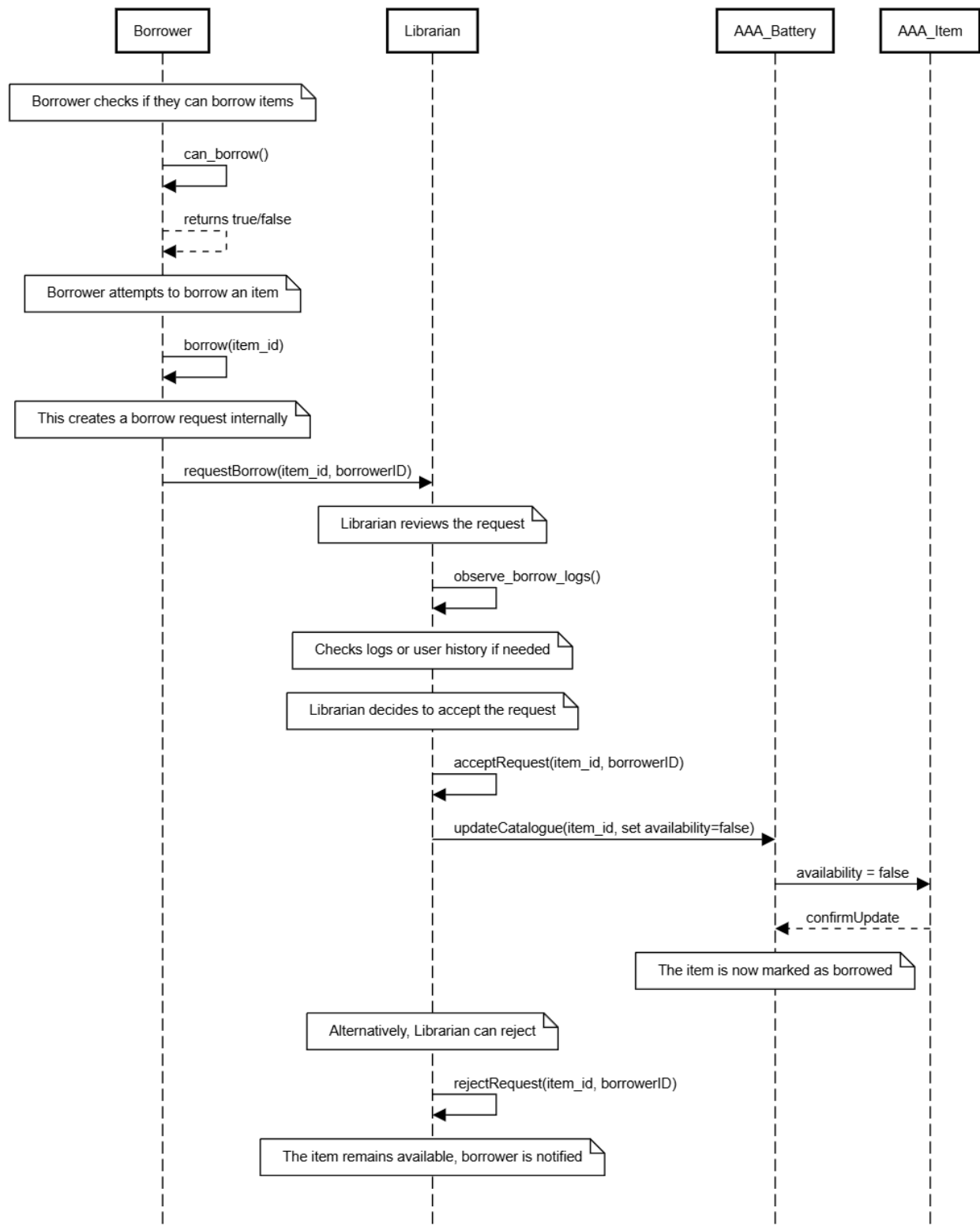


3.2. Sequence Diagrams

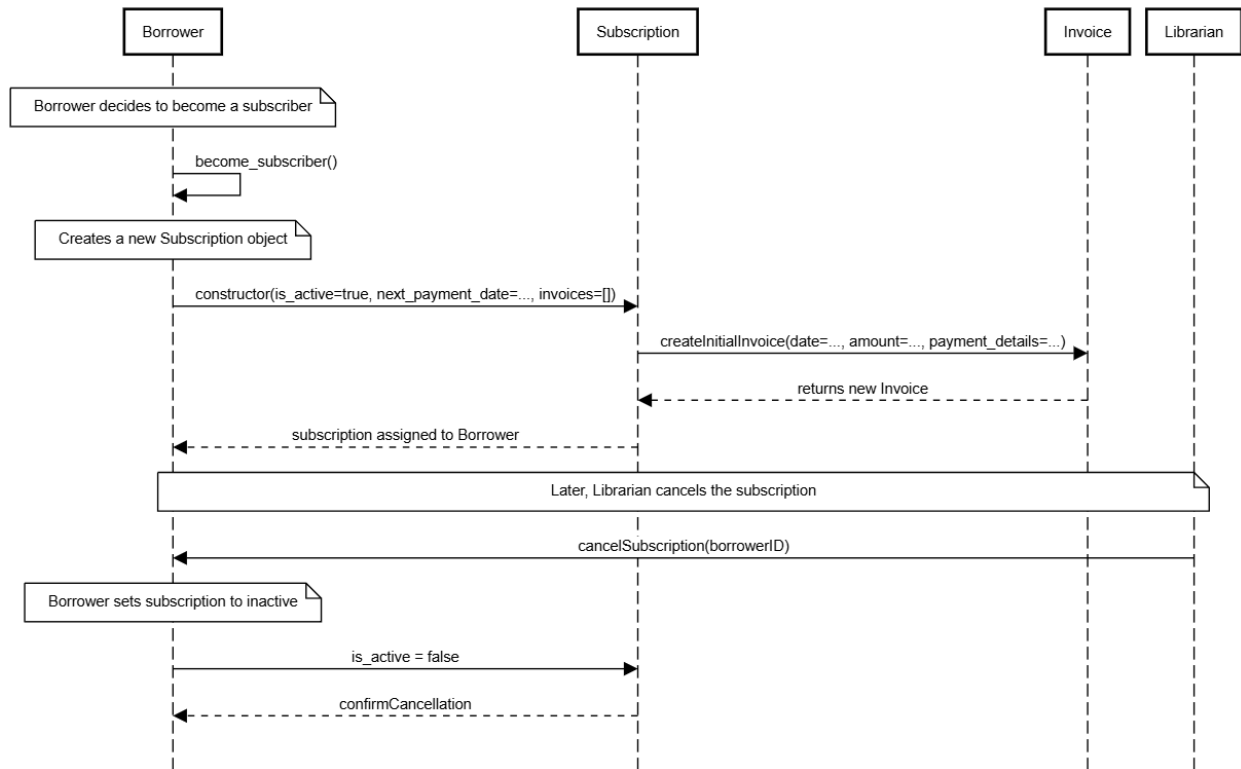
Add and Update Content



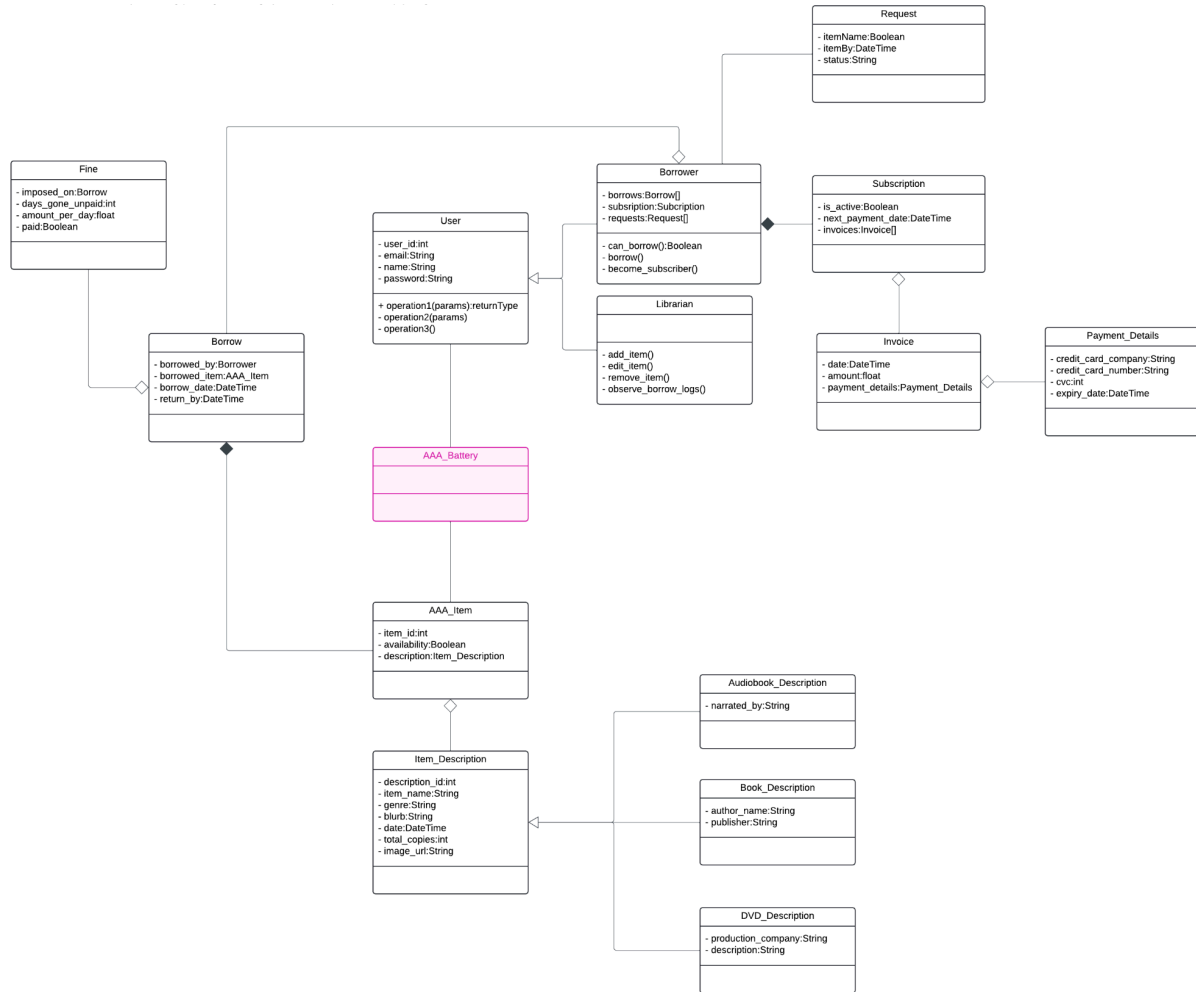
Accept and Reject Content Requests



Add/Cancel User Subscriptions



3.3. Class Diagram



4. User Stories

4.1. Register Account

■ One-Line User Story:

“As a User, I want to register an account, so that I can access the library system.”

■ Detailed Breakdown:

- **Role:** User
- **Goal:** Register an account
- **Reason:** To gain access to the library management system
- **Pre-conditions:**
 - The user is not already registered.
 - The system is online and accepting new registrations.
- **Post-conditions:**

- The user's account is created and stored in the system.
- The user can log in using their new credentials.

4.2. Track Activity Logs

■ One-Line User Story:

“As a Librarian, I want to monitor activity (borrowing, requests, fines, borrower registration, etc) logs, so that I can keep track of the system's functionality.”

■ Detailed Breakdown:

- **Role:** Admin
- **Goal:** Monitor website activity logs
- **Reason:** To keep track of system functionality and spot any issues
- **Pre-conditions:**
 - The librarian is logged in with valid librarian privileges.
 - The system is capturing activity logs.
- **Post-conditions:**
 - The librarian can view detailed logs of user actions and system events.
 - The librarian can identify and address any unusual activities or errors.

4.3. Change Password

■ One-Line User Story:

“As a User, I want to change my password, so that I can reset it if I forget or suspect it's compromised.”

■ Detailed Breakdown:

- **Role:** User
- **Goal:** Change password
- **Reason:** To update or reset credentials when forgotten or compromised
- **Pre-conditions:**
 - The user already has an account.
 - The user can access the “Change Password” or “Forgot Password” feature.
- **Post-conditions:**
 - The user's password is updated in the system.
 - The user can log in with the new password.

4.4. Add and Update Content

■ One-Line User Story:

“As a Librarian, I want to add and update library content, so that the library's catalog remains accurate and current.”

■ Detailed Breakdown:

- **Role:** Librarian
- **Goal:** Add and update content (books, media, etc.)

- **Reason:** To keep the library's catalog current and accurate
- **Pre-conditions:**
 - The librarian is logged in with valid librarian privileges.
 - The system is online and ready to accept content changes.
- **Post-conditions:**
 - New or updated content is recorded in the library database.
 - Users can see the latest content information when searching or browsing.

4.5. Accept and Reject Content Requests

- **One-Line User Story:**

“As a Librarian, I want to accept or reject content requests, so that users can borrow items based on availability.”
- **Detailed Breakdown:**
 - **Role:** Librarian
 - **Goal:** Accept or reject content requests
 - **Reason:** To manage borrowing requests based on content availability
- **Pre-conditions:**
 - The librarian is logged in with valid librarian privileges.
 - There are pending content requests in the system.
- **Post-conditions:**
 - Accepted requests move to a “reserved” or “borrowed” status.
 - Rejected requests are updated in the system, and the user is notified.

4.6. Charge Fines

- **One-Line User Story:**

“As a Librarian, I want to charge fines to borrowers, so that overdue items are managed and library rules are enforced.”
- **Detailed Breakdown:**
 - **Role:** Librarian
 - **Goal:** Charge fines to borrowers
 - **Reason:** To enforce due dates and manage overdue items
- **Pre-conditions:**
 - The librarian is logged in with valid librarian privileges.
 - The system has records of overdue items.
- **Post-conditions:**
 - The borrower's account is updated with a fine.
 - The fine amount is stored for payment and reporting purposes.

4.7. Manage User Subscriptions

- **One-Line User Story:**

“As a Librarian, I want to manage (add/cancel) Borrower subscriptions, so that I can ensure system integrity and security.”
- **Detailed Breakdown:**

- **Role:** Librarian
- **Goal:** Add or cancel user subscriptions
- **Reason:** To manage subscription-based services offered by the library
- **Pre-conditions:**
 - The librarian is logged in with valid librarian privileges.
 - The user's account is eligible for subscription changes.
- **Post-conditions:**
 - The user's subscription status is updated (added or canceled).
 - The system reflects the current subscription details for that user.

4.8. Get Availability Notifications

- **One-Line User Story:**

“As a Subscriber, I want to get notified about the availability of requested content, so that I can borrow it as soon as it's available.”
- **Detailed Breakdown:**
 - **Role:** Subscriber (Borrower)
 - **Goal:** Receive notifications when requested content becomes available
 - **Reason:** So the subscriber can borrow or re-request the content immediately
- **Pre-conditions:**
 - The user has an active subscription.
 - The user previously requested content that was unavailable.
- **Post-conditions:**
 - The subscriber receives a notification (email or system alert).
 - The user can proceed to borrow or request the newly available content.

4.9. Subscribe to AAA Battery

- **One-Line User Story:**

“As a Borrower, I want to subscribe to an AAA battery service, so that I can access 100% charging at the library.”
- **Detailed Breakdown:**
 - **Role:** Borrower
 - **Goal:** Subscribe to an AAA battery plan
 - **Reason:** To access 100% charging services at the library
- **Pre-conditions:**
 - The borrower has a valid account with no outstanding fines (if required by policy).
 - The borrower is eligible for subscription services.
- **Post-conditions:**
 - The borrower's account includes the AAA battery subscription.
 - The borrower can now use the charging service as per the plan.

4.10. View Available Content

- **One-Line User Story:**

“As a Borrower, I want to view all available content, so that I can decide which items to borrow.”
- **Detailed Breakdown:**
 - **Role:** Borrower
 - **Goal:** View all available content
 - **Reason:** To decide which items to borrow
- **Pre-conditions:**
 - The borrower is logged in.
 - The library’s catalog is up-to-date with current availability.
- **Post-conditions:**
 - The borrower sees a list of available items.
 - The borrower can choose specific items to request or borrow.

4.11. Request Content

- **One-Line User Story:**

“As a Borrower, I want to request content not yet available in the library, so that I can borrow it.”
- **Detailed Breakdown:**
 - **Role:** Borrower
 - **Goal:** Request available content
 - **Reason:** To borrow the content at a specified time
- **Pre-conditions:**
 - The borrower is logged in.
 - The content is marked as available in the system.
- **Post-conditions:**
 - The content is reserved or checked out to the borrower.
 - The system updates the availability status for other users.

4.12. Return Content

- **One-Line User Story:**

“As a Borrower, I want to return borrowed content, so that I can free my account for other items and avoid fines.”
- **Detailed Breakdown:**
 - **Role:** Borrower
 - **Goal:** Return borrowed content
 - **Reason:** To free up the borrower’s account and avoid further fines
- **Pre-conditions:**
 - The borrower has an item checked out.
 - The item is within the return deadline (or possibly overdue).
- **Post-conditions:**

- The content is marked as returned in the system.
- The borrower's account is updated; any overdue fines are calculated.

4.13. Pay Charged Fine

- **One-Line User Story:**

“As a Borrower, I want to pay my charged fines, so that I can clear my account and continue borrowing.”

- **Detailed Breakdown:**

- **Role:** Borrower
- **Goal:** Pay a charged fine
- **Reason:** To clear the account and continue borrowing other content

- **Pre-conditions:**

- The borrower has an outstanding fine on their account.
- A payment method (e.g., online payment gateway) is available.

- **Post-conditions:**

- The borrower's fine is marked as paid in the system.
- The borrower's account status is cleared for future borrowing.

4.14. Request Extended Deadline

- **One-Line User Story:**

“As a Borrower, I want to request an extended deadline, so that I can avoid or reduce overdue fines.”

- **Detailed Breakdown:**

- **Role:** Borrower
- **Goal:** Request an extended borrowing deadline
- **Reason:** To reduce or avoid overdue fines

- **Pre-conditions:**

- The borrower has a borrowed item that is not yet severely overdue.
- The library policy allows deadline extension requests.

- **Post-conditions:**

- The item's due date is updated if the extension is approved.
- The borrower is notified of the new due date or rejection.

4.15. Request New Books

- **One-Line User Story:**

“As a Borrower, I want to request new books, so that I can borrow titles that are not currently in the library.”

- **Detailed Breakdown:**

- **Role:** Borrower
- **Goal:** Request new books not currently in the library
- **Reason:** To suggest or borrow items that the library doesn't have yet

- **Pre-conditions:**

- The borrower is logged in.

- The library system allows user requests for new materials.

■ **Post-conditions:**

- The system logs the request for new books.
- The librarian can review and potentially add the requested books to the library catalog.