Use Case

Book Management

Borrower Management

Transaction Management

Automated Reminders

Audit Support

Fine Mechanism

Book Issuance
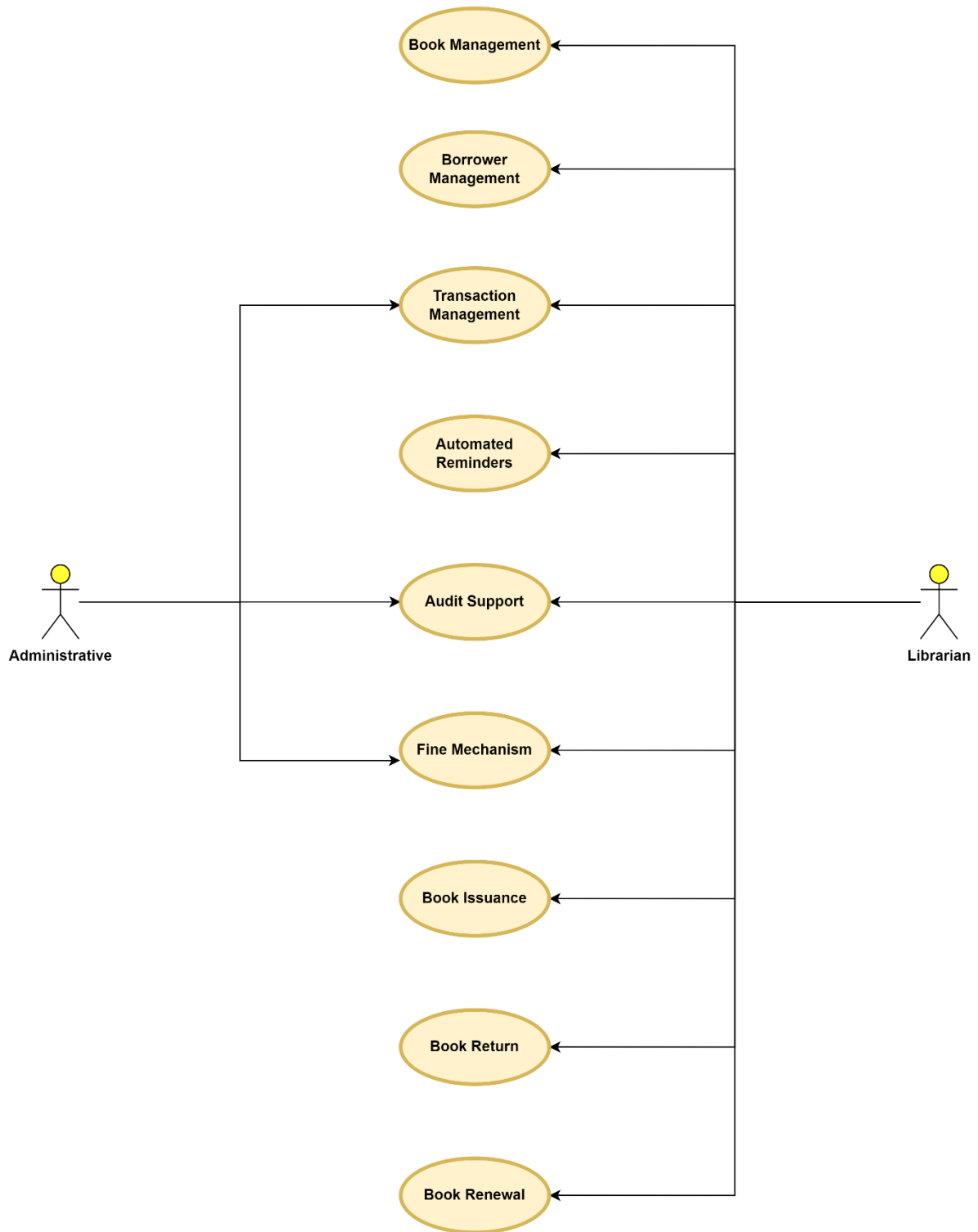
Book Return

Book Renewal

Administrative

Librarian

The use case diagram illustrates the various interactions between users (actors) and the SmartLib. It highlights the primary functionalities (use cases) that the system provides, as well as the roles that interact with these functionalities. Below is a detailed description of the actors and use cases presented in the diagram:

Actors:

1. **Librarian**
   o **Description:** A staff member responsible for managing the library's operations, including handling books and assisting borrowers.
2. **Borrower**
   o **Description:** A person who borrows books from the library. They interact with the system to check out, return, and renew books.

Use Cases:

1. **Book Management**
   o **Description:** Involves the processes of adding new books, updating book information, and removing books from the library's catalog.
   o **Actors Involved:** Librarian
2. **Borrower Management**
   o **Description:** Includes registering new borrowers, updating borrower information, and managing borrower accounts.
   o **Actors Involved:** Librarian
3. **Transaction Management**
   o **Description:** Encompasses the recording and tracking of all transactions related to book borrowing and returning.
   o **Actors Involved:** Librarian
4. **Automated Reminders**
   o **Description:** Sends automatic notifications to borrowers about due dates, overdue books, and other important reminders.
   o **Actors Involved:** System
5. **Audit Support**
   o **Description:** Provides functionalities to generate reports and logs for auditing purposes, ensuring compliance and transparency.
   o **Actors Involved:** Librarian
6. **Fine Mechanism**
   o **Description:** Calculates and imposes fines on borrowers for overdue books and other violations of library policies.
   o **Actors Involved:** System
7. **Book Issuance**
   o **Description:** Facilitates the process of issuing books to borrowers, including checking the availability and updating the borrower's account.
   o **Actors Involved:** Librarian, Borrower
8. **Book Return**
   o **Description:** Manages the process of returning borrowed books, updating the status of the books, and clearing any fines or penalties.
   o **Actors Involved:** Librarian, Borrower
9. **Book Renewal**

o **Description:** Allows borrowers to extend the borrowing period for books, provided the books are not reserved by other borrowers.
o **Actors Involved:** Borrower

Relationships:

- The **Librarian** actor is associated with multiple use cases, including Book Management, Borrower Management, Transaction Management, Audit Support, Book Issuance, and Book Return. This shows that librarians play a central role in managing the library's operations.
- The **Borrower** actor interacts with use cases like Book Issuance, Book Return, and Book Renewal, indicating their primary actions within the system.
- The **Automated Reminders** and **Fine Mechanism** use cases are handled by the system, providing automated functionalities to support the library's operations.