

Use Case Diagram for the Library Management System

- System

- Primary actors
- Secondary actors
- Use cases
 - Librarian
 - Member
 - System
- Relationships
 - Generalization
 - Associations
 - Include
 - Extend
- Use case diagram

System

Actors

Primary

return a book and n

- **Librarian:** It acts as an admin in a library management system. It can

issue and return b

- **System:** It can send alerts related to reservations and late returns of books.

- ## se cases

according to their respective

- Note:** You will see some use cases occurring multiple times because they are shared among different actors in the system.

Librarian

- **Add book:** To add a new book to the library

Edit book: To modify a book

Register new account: To register a new library member

- Login/Logout

- **Issue book:** To issue a book to a member
 - **Remove reservation:** To remove reservation of books
 - **Renew book:** To renew the issuance of the book
 - **Reserve book:** To reserve a book that is currently not available
 - **View account:** To view the account and access all account details
- ## member
- **Search catalog:** To search for a book in the library
 - **Cancel membership:** To cancel the library membership of a member
 - **Register/Update account:** To create or update an account
 - **Login/Logout:** To log in or log out of the account
 - **Checkout book:** To complete the issue book process
 - **Remove reservation:** To remove the reservation of books

- Reserve

- **view account:** To view the account and access all account details
 - **Return book:** To return a book to the library
- ## system
- **Overdue notification:** To send an alert if the book is not returned on
 - **Reservation available notification:** To send an alert when the book for reservation
 - **Reservation canceled notification:** To send an alert when a book res canceled
- ere are some use cases that are not directly related to any actor. They are elaborated below.
- **Add book item:** To add an item of a book in the catalog

- **Remove**

- **Update catalog:** To update (add, edit, or remove) a book item or book from the catalog
- **Issue library card:** To issue a library card to new members that will be for identification.
- **By subject name:** To search for a book in the catalog by its subject name

- **By book title:** To search for a book in the catalog by its title
- **By author name:** To search for a book in the catalog by its author name
- **By publication date:** To search for a book in the catalog by its publication date
- **Pay fine:** To pay a fine if the book is returned after the due date

This section describes t

cases.

Generalization

date. This shows that

use cases.

Associations

The table below shows the association relationship between actors and their use

Librarian	Member	System
Add book	Search catalog	Overdue notificati

has an

- To edit a book, we need to edit its items, so the "Edit Book" use case has an include relationship with the "Edit book item" use case.
- To remove a book from the library, we need to remove its items, so the "Remove Book" use case has an include relationship with the "Remove book item" use case.
- To update a catalog, we need to update all the book items. This will include adding, editing, or removing a book item since "Edit book item," "Add book item," and "Remove book item" have an include relationship with the "Update

- To issue a book, we need to go through a checkout process, so the “issue book” use case has an include relationship with the “Checkout book” use case.
- Whenever we go through the checkout process, our book reservation will be

- When a new member is registered, a library card is issued. So the "Register new

- member" use case has an extend relationship with the "Issue library card" use case.

book

- ## Use case diagram
- Here is the use case diagram of the library management system:
-
- ```
graph TD
 subgraph Library
 UC1[Use Case 1: Borrow a book]
 end
```

- 

```

 <<include "..."
 Remove reservation
 <<endinclude

```

<<include>>

