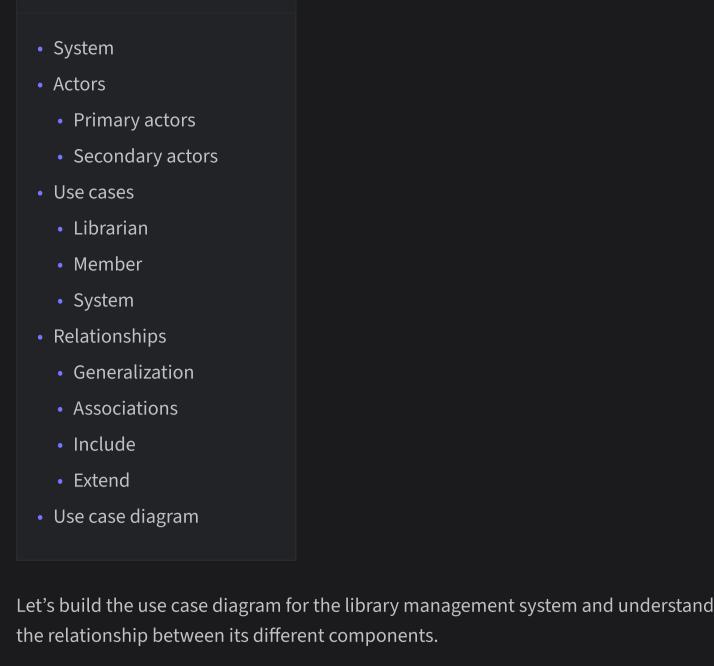
## Use Case Diagram for the Library **Management System** Learn how to define use cases and create the corresponding use case diagram for the library management

system.



case diagram of the system.

We'll cover the following

**System** Our system is a "library."

First, we will define the different elements of our library, followed by the complete use

Actors

Next, we will define the main actors of our library management system.

## **Primary actors** • Member: This actor is the client of the library. It can search, reserve, renew, or

return a book and modify its library membership.

issue and return books.

### • Librarian: It acts as an admin in a library management system. It can add or remove a book as well as modify the status of members or books. It can also

**Secondary actors** 

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

In this section, we will define the use cases for the library. We have listed the use cases

# according to their respective interactions with a particular actor.

Use cases

shared among different actors in the system.

**Note:** You will see some use cases occurring multiple times because they are

## Librarian

Register/Update account: To create or update an account

**Login/Logout:** To log in or log out of the account

**Renew book:** To renew the issuance of the book

**Return book:** To return a book to the library

**Checkout book:** To complete the issue book process

**Remove reservation:** To remove the reservation of books

- **Reserve book:** To reserve a book that is currently not available • **View account:** To view the account and access all account details
- for reservation

**Reservation canceled notification:** To send an alert when a book reservation is

**Edit book item:** To edit the details of a book item in a catalog

There are some use cases that are not directly related to any actor. They are

**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

• **Pay fine:** To pay a fine if the book is returned after the due date

• Issue library card: To issue a library card to new members that will be for

We can search for a book with the title, subject name, author name, or publication

This section describes the relationships between and among actors and their use

**Associations** 

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

**Member** 

Search catalog

Cancel membership

Remove reservation

Renew book

Reserve book

View account

Return book

**System** 

Overdue notification

Reservation available notificat

Reservation canceled notificat

#### Register/Update account Register new account Login/Logout Cancel membership Checkout book

Remove book: To remove an existing book from the library **Edit book:** To modify a book Register new account: To register a new library member 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 account **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

• Add book: To add a new book to the library

• Overdue notification: To send an alert if the book is not returned on time **Reservation available notification:** To send an alert when the book is available

canceled

elaborated below.

catalog

identification.

Relationships

cases.

use cases.

cases.

System

**Remove book item:** To remove a book item from the catalog

Add book item: To add an item of a book in the catalog

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

• **Update catalog:** To update (add, edit, or remove) a book item or book from the

Generalization

date. This shows that the "Search catalog" use case has a generalization relationship

with "By subject name," "By book title," "By author name," and "By publication date"

Register/Update account Login/Logout

Issue book

Remove reservation

Renew book

Reserve book

View account

Librarian

Add book

Remove book

Edit book

Include • To add a new book, we add its copies (book items), so the "Add Book" use case has an include relationship with the "Add book item" use case.

To edit a book, we need to edit its items, so the "Edit Book" use case has an

reservation <<include>> By book . Issue Library Search catalog By publication card date

<<include>>

<<include>>

By subject

<include

<include>

<include>

Edit book

Remove book

item

Add book

Remove book

Librarian

Use case diagram of the library management system

classes and their relationship with each other.

Update

Member

Reservation Overdue canceled available notification notification System

In the next lesson, we will discuss the class diagram with a detailed explanation of all

