

EXPERIMENT-10

10) Draw a use case diagram for Library Management System is an automation system used to manage a library and the different resource management required in it like cataloguing of books, allowing check out and return of books, invoicing, user management, etc. The user can search for books details using few book properties (Book ID, Title, Author, and Publisher). Searching should return details about all the book copies that match the search query.

Aim:

To design a **Use Case Diagram** for a **Library Management System**, illustrating the interactions between users and system functionalities for managing books, checkouts, and user accounts.

Procedure:

1. Identify the Main Actors

- **Librarian:** Manages books, users, checkouts, and returns.
- **Library Member:** Searches for books, checks out, and returns books.
- **Library System:** Handles cataloging, invoicing, and user management.

2. Define Use Cases for Each Actor

Library Member

- **Search Book** (by Book ID, Title, Author, Publisher)
- **View Book Details**
- **Check Out Book**
- **Return Book**
- **Pay Fine** (if applicable)

Librarian

- **Add/Edit/Remove Books**
- **Manage Book Copies**
- **Manage User Accounts**
- **Approve Checkouts & Returns**
- **Generate Invoice & Fine Collection**

3. Establish Relationships

- **Library Member ↔ Library System:** Searches books, checks out, and returns books.
- **Librarian ↔ Library System:** Manages books, users, and transactions.

- **Library System:** Processes book searches, maintains records, and generates invoices.

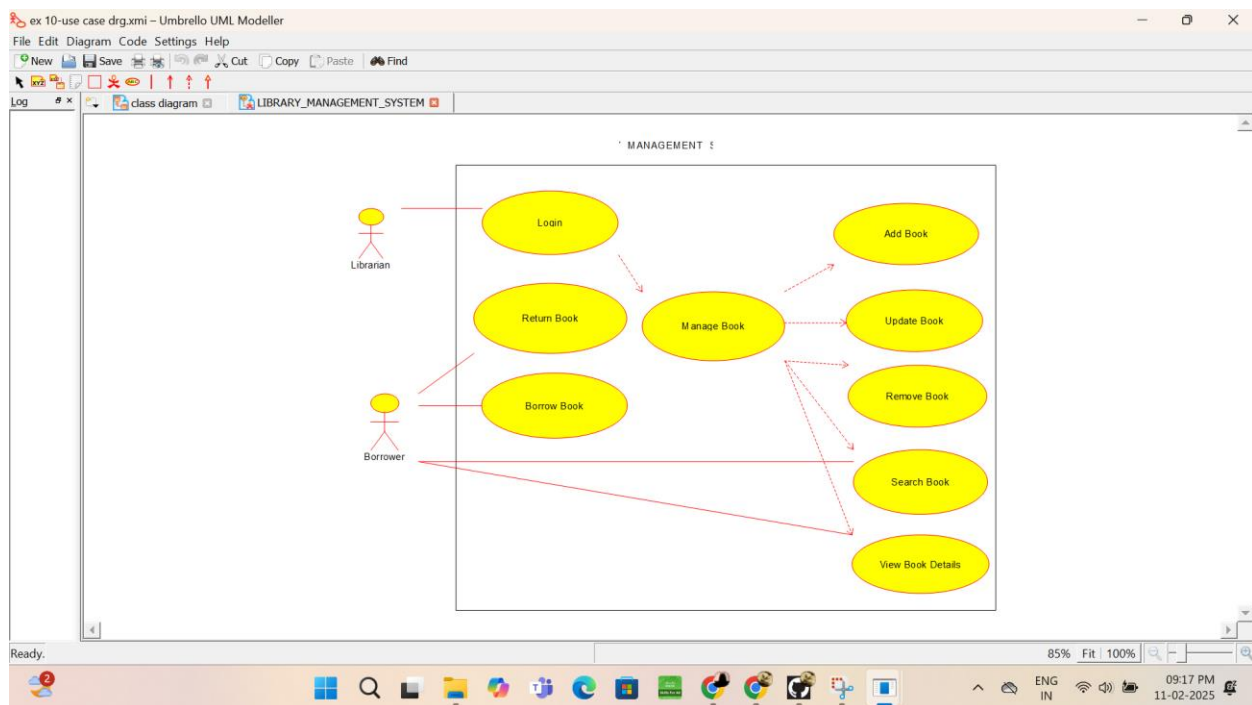
4. Draw the Use Case Diagram

- Represent **actors** as stick figures.
- Represent **use cases** as ovals.
- Connect actors to use cases with **associations**.

5. Verify the Diagram

- Ensure all core **library management functions** are represented.

Diagram:



Result:

A **Use Case Diagram** for the **Library Management System** was successfully designed, covering **book cataloging, user management, book checkouts/returns, and invoicing**.