EXERCISE -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.
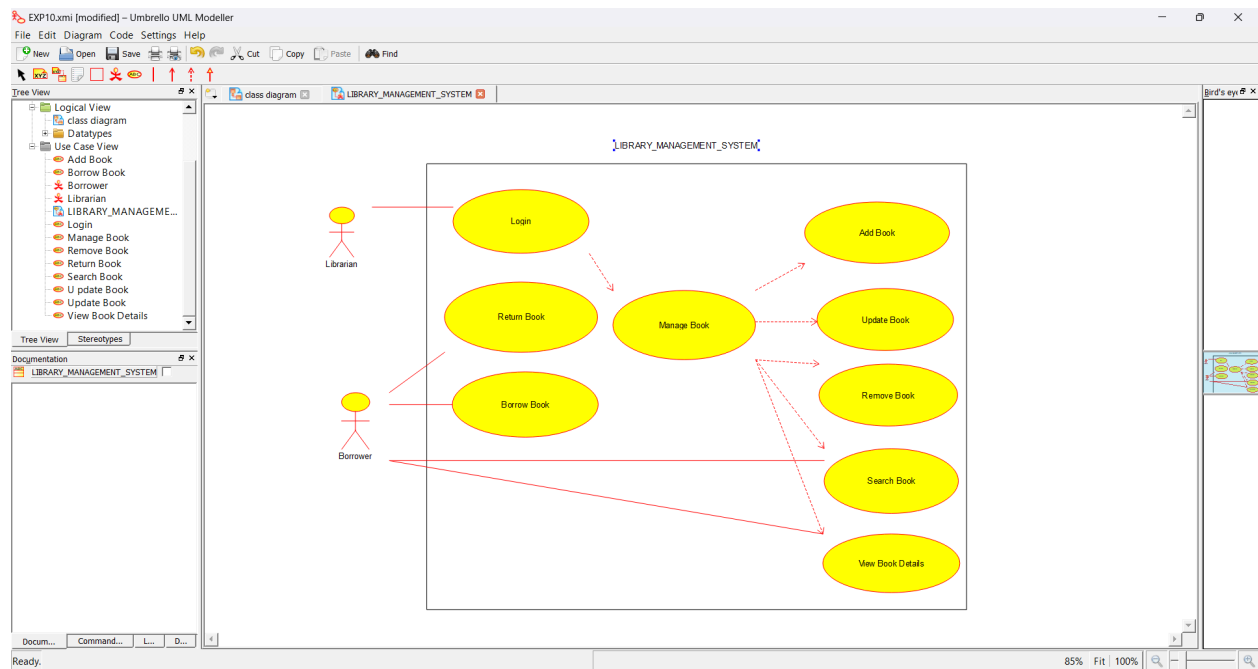
Aim:

To develop a **Use Case Diagram** for a **Library Management System**, illustrating the interactions between users and system functionalities.

Procedure:

1. **Identify Actors** – Define key users: **Librarian, Member (User), and Library System**.
2. **Define Use Cases for Members** – Include actions like **Search Books, View Book Details, Check Out Book, and Return Book**.
3. **Define Use Cases for Librarians** – Include **Manage Books, Add New Books, Remove Books, and Generate Invoices**.
4. **Define Use Cases for System** – Automate **Book Cataloguing, Track Issued Books, and Manage User Accounts**.
5. **Establish Relationships** – Show how each actor interacts with relevant system functionalities.
6. **Use Relationships if Needed** – Apply **include** (e.g., Searching includes Viewing Book Details) and **extend** (e.g., Late Return extends Return Book).
7. **Draw Use Case Diagram** – Represent **actors as stick figures, use cases as ellipses, and interactions with lines**.
8. **Review and Validate** – Ensure clarity, completeness, and correctness in system interactions.

Use Case Diagram:

Result:

A **Use Case Diagram** for the **Library Management System** was successfully developed, detailing interactions for book cataloguing, checkouts, returns, invoicing, and user management.