Exercise10

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.
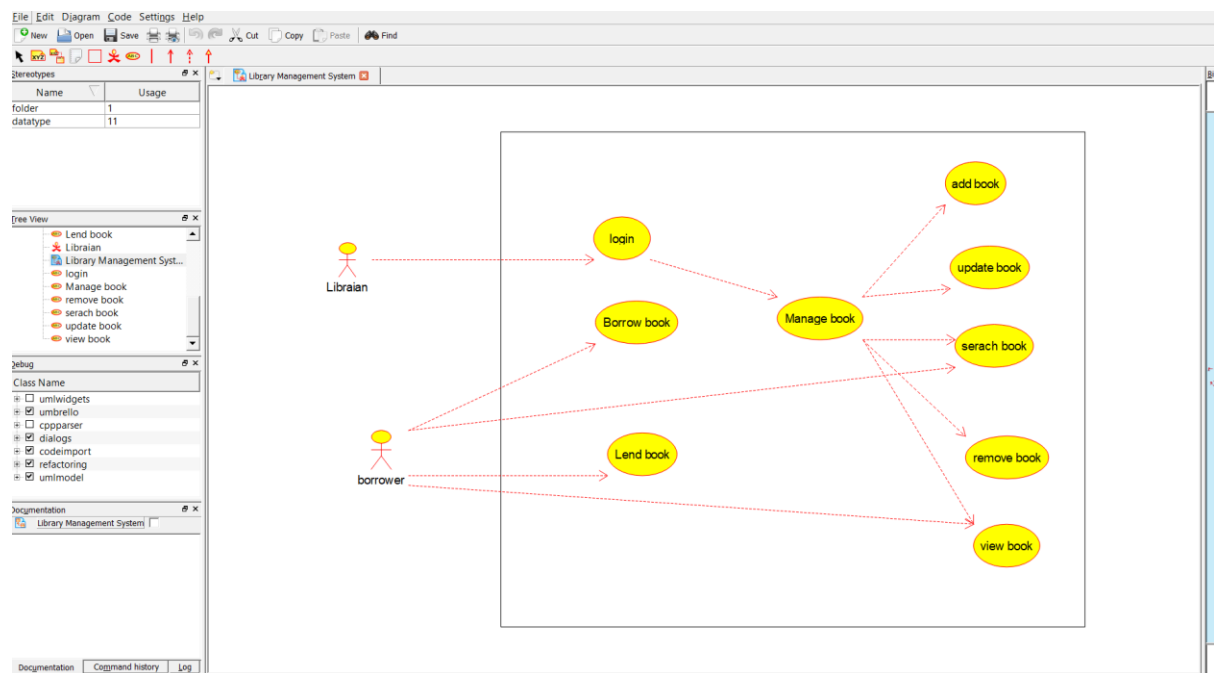
Aim

To design a Use Case Diagram for a Library Management System (LMS) that automates core library operations such as cataloging, book checkouts and returns, invoicing, and user management, ensuring efficient resource handling and accessibility.

Procedure

1. Identify Key Actors – Define the primary actors interacting with the system, including Library Members (Users), Librarians, and Administrators.

2. Define Use Cases for Users – Specify actions users can perform, such as Searching for Books (by Book ID, Title, Author, Publisher), Checking Out Books, Returning Books, and Viewing Book Details.

3. Define Use Cases for Librarians – Outline librarian responsibilities, including Cataloging Books, Issuing Books, Receiving Returned Books, Maintaining Inventory, and Managing Reservations.

4. Define Use Cases for Administrators – Detail administrative tasks such as Managing User Accounts, Handling Book Inventory, Processing Book Requests, and Generating Reports.

5. Draw the Use Case Diagram – Illustrate actors and their interactions with the system, linking them to corresponding use cases through appropriate relationships (e.g., a User connecting to Search Books, a Librarian connecting to Issue Books).

6. Include System Processes – Incorporate core system operations such as Book Search, Book Checkout, Book Return, Book Cataloging, and Inventory Management to enhance functionality.

7. Validate and Optimize – Review the diagram for clarity, verify correct actor-use case relationships, ensure all functionalities are covered, and refine the diagram for completeness and efficiency.

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Output

Result

Thus the UML diagram for the Library Management System has been implemented successfully.