Requirement analysis : *Library*
Java application example in a distributed environment (RMI)

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1 Domain description

1.1 Domain model

Figure 1 shows the domain model diagram. Note that we no longer included the *Item* hierarchy, to make the system easier to implement. Instead users and authentication have been added, along with distributed concepts.
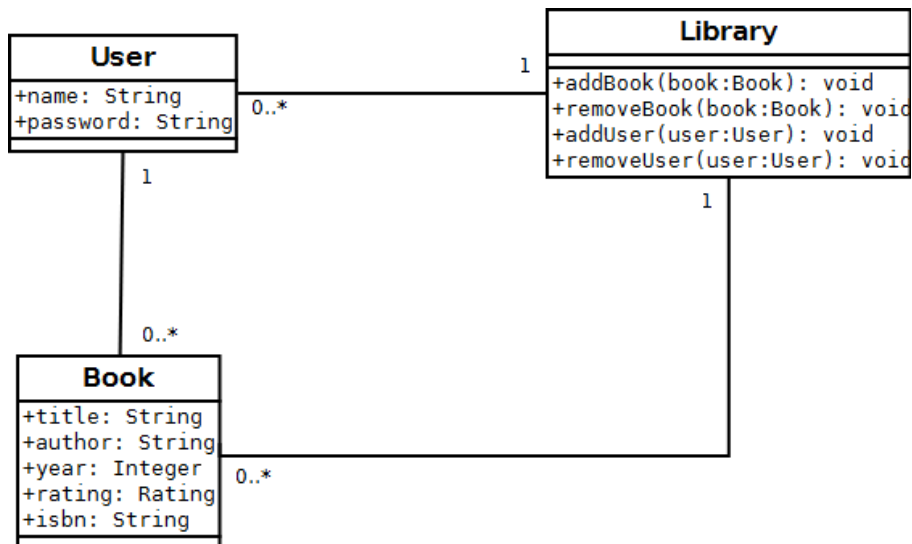

Figure 1: Domain model diagram for the *Library* application.

2 Functional requirements

Figure 2 shows the use case diagrams for the *Library* application. There is only one actor, namely *User*.
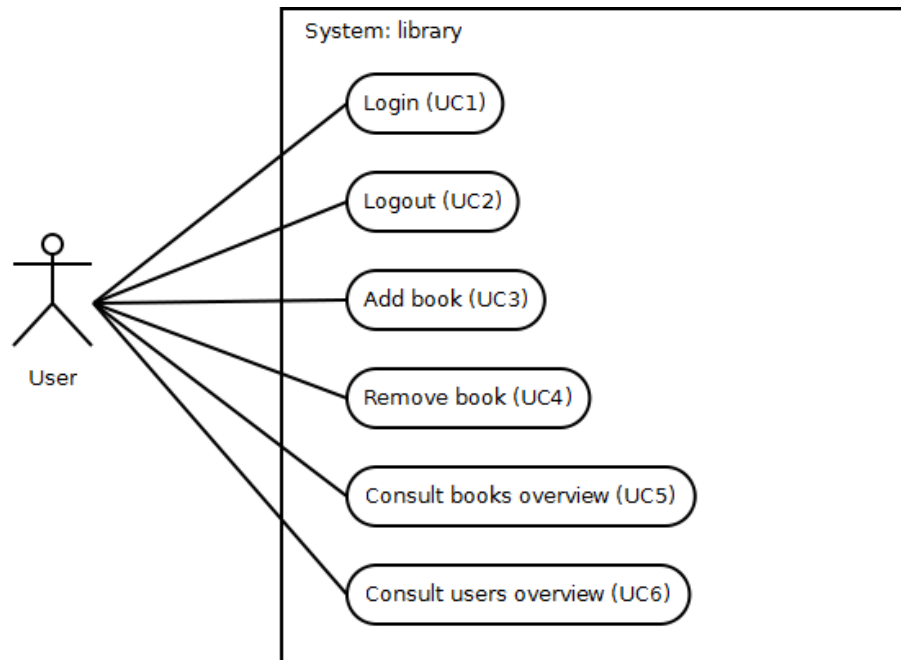

Figure 2: Use case diagram for the (distributed) *Library* application.

The following use case descriptions (UC1-6) give a detailed overview of each operation.

2.1 UC1 : Login

- **Name** : Login

- **Primary actor** : User

- **Preconditions** :

    - The user is not logged in.

- **Post-conditions** :

    - User is logged in.
    - User has a session through which he/she can perform actions that require authentication.

- **Main scenario** :

    1. User selects the option to login into the application.
    2. User enters his/her username and password.
    3. The user is authenticated and arrives at the main screen of the application.

- **Alternate scenarios** :

    1. 3b. The login data were invalid. The user is not logged in and is shown an error message. The use case ends here.

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2.2   UC2 : Logout

- **Name** : Logout

- **Primary actor** : User

- **Preconditions** :

  – User is logged in (cf. UC1).

- **Post-conditions** :

  – User is logged out.

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- **Main scenario** :

  1. User selects the option to logout.
  2. User is logged out and is redirected to the default screen of the application.

- **Alternate scenarios** :

  1. 2b. An error occurred. User is not logged out. The user is redirected to the main screen and is shown an error message. The use case ends here.

2.3   UC3 : Add book

- **Name** : Add book

- **Primary actor** : User

- **Preconditions** :

  – User is logged in (cf. UC1).

- **Post-conditions** :

  – A new book is added to the library.
  – User is the owner of the book.

- **Main scenario** :

  1. User selects the option to add a new book to the library.
  2. User enters all the required data about the new book.
  3. A new book is created an stored in the library.

- **Alternate scenarios** :

  1. 3b. An error occurred. The user is shown an error message. The book is not added to the library. The use case ends here.

2.4   UC4 : Remove book

- **Name** :

- **Primary actor** : User

- **Preconditions** :

  – User is logged in (cf. UC1).

- **Post-conditions** :

  – The book is no longer in the library.

- **Main scenario** :

  1. User selects the option to remove a book from the library.
  2. User is shown an overview of all his/her books.
  3. User selects a book to remove.
  4. User confirms removal.
  5. The book is removed from the library and his/her collection.

- **Alternate scenarios** :

  1. 5b. An error occurred. The user is shown an error message. The book is not removed from the library. The use case ends here.

2.5   UC5 : Consult books overview

- **Name** : Consult books overview

- **Primary actor** : User

- **Preconditions** :

  – User is logged in (cf. UC1).

- **Post-conditions** :

  – User is shown an overview of all the books in the librray.

- **Main scenario** :

  1. User selects the option to get an overview of all the books in the library.
  2. User is shown the overview of the library books.

- **Alternate scenarios** :

  1. 2b. An error occurred. User is shown an error message. The use case ends here.

2.6 UC6 : Consult users overview

- **Name** : Consult users overview

- **Primary actor** : User

- **Preconditions** :

    – User is logged in (cf. UC1).

- **Post-conditions** :

    – User is shown an overview of all the users in the library.

- **Main scenario** :

    1. User selects the option to get an overview of all the users in the library.
    2. User is shown the overview of the library users.

- **Alternate scenarios** :

    1. 2b. An error occurred. User is shown an error message. The use case ends here.