Requirement analysis: *Library*

Java application example in a distributed environment (RMI)

Joris Schelfaut (DistrICT Education)

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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.

![Domain model diagram](image)

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.
2.2 UC2 : Logout

- **Name**: Logout
- **Primary actor**: User
- **Preconditions**:
  - User is logged in (cf. UC1).
- **Post-conditions**:
  - User is logged out.
  - 
  - 

- **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 and 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.
  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 library.

• 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.