Model Use Case Report

Use Case Document for Magic Library System

MagicLibrary
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Approval

The original of this document is approved and signed by:
Name:
Surname:
Title:
Date:
Signature:

Revision History

Revision	Date	Description	Author
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1. Actors

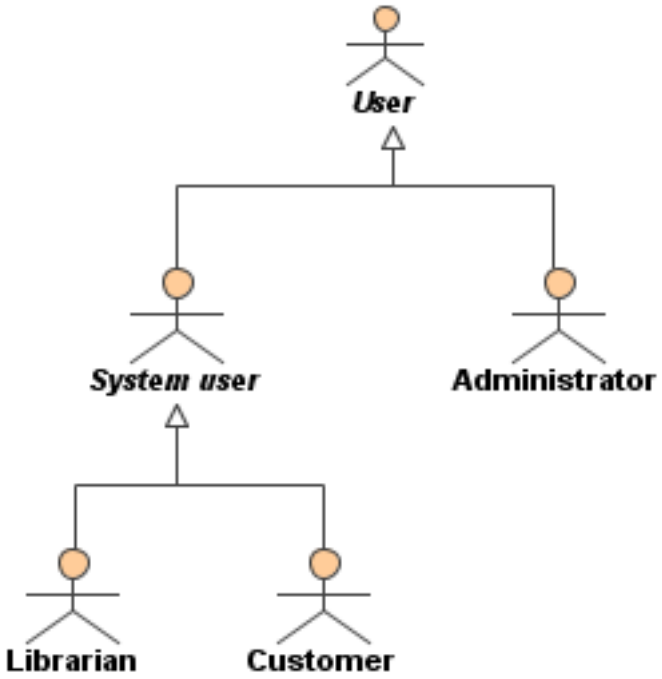

Figure 1 - Actors Diagram

• UC.Customer
Customers need the following functionality from the system:
·Search for an item in library funds;
·Get details of a library item;
·Reserve items;
·Check status summary (borrowed books, reserved books, due times, etc.).
They need to access the system both locally (i.e. inside the library) and from the Web.
Owner: Users
Child List: None.

• UC.Librarian
The role of librarians is to register customer users, handle loans and returns, provide information to customers, and manage library items: register new items, remove (discard) old library items, edit item. Librarians need to use this functionality only locally (i.e. inside the library).
Owner: Users
Child List: None.

• UC.Administrator
The role of administrator is to register and remove librarian users, also edit system settings. Administrator needs to access system only locally, i.e. inside the library or from his workplace.
Owner: Users
Child List: None.

• UC.System user
The following properties need to be defined for both customer and librarian users:
·System access info:
·Username (unique);
·Password;
·ID (e.g. social security number);
·Full Name (First, Middle, Last);
·Birth date;
·Contact info:
·Phone;
·E-mail;
·Address.
The following additional properties have to be defined for librarian user:
·Duties;
·Date of started working in library.
The following additional properties have to be defined for customer users:
·Faculty;
·Faculty enter year;
·Subscription date;
·Status.
The value of username for customers is an auto-incremental number generated by the system. This number is called customer number and is used for identification of a customer when loaning or returning a library item.
Owner: Users
Child List: Customer,Librarian

• UC.User
Owner: Users
Child List: System user,Administrator

2. Use-Case Model of the System

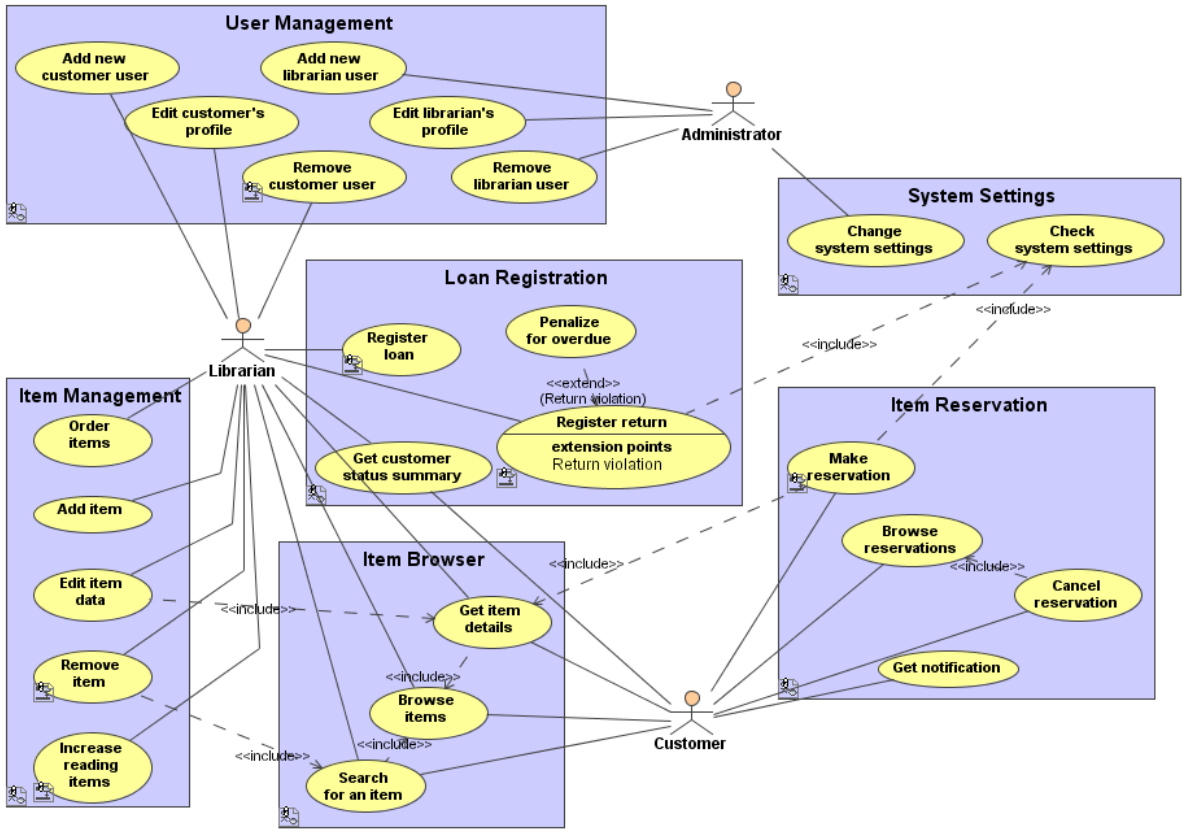

Figure 2 - MagicLibrary System Diagram

3. UC2.System Settings

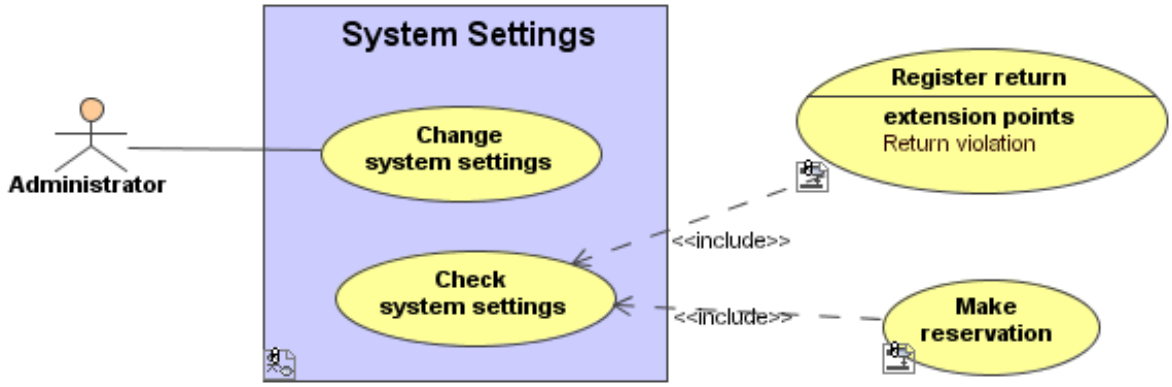

Figure 3 - System Settings Diagram

3.1. UC2.1.Check system settings

Description

Another use cases check system settings in order to process their tasks. This use case demonstrates use cases reusability.

PreCondition

- Request to check system settings

3.2. UC2.2.Change system settings

Description

Administrator may change predefined settings for library system.

Actors

1. Administrator

PreCondition

• Request to change system settings

PostCondition

• System settings are changed.

Non Functional Requirements

• System settings include:
- Reading item loaning time
- Reading items loaning limit
- Reservations limit
- Penalties for reading item return violation.

4. UC7.Loan Registration

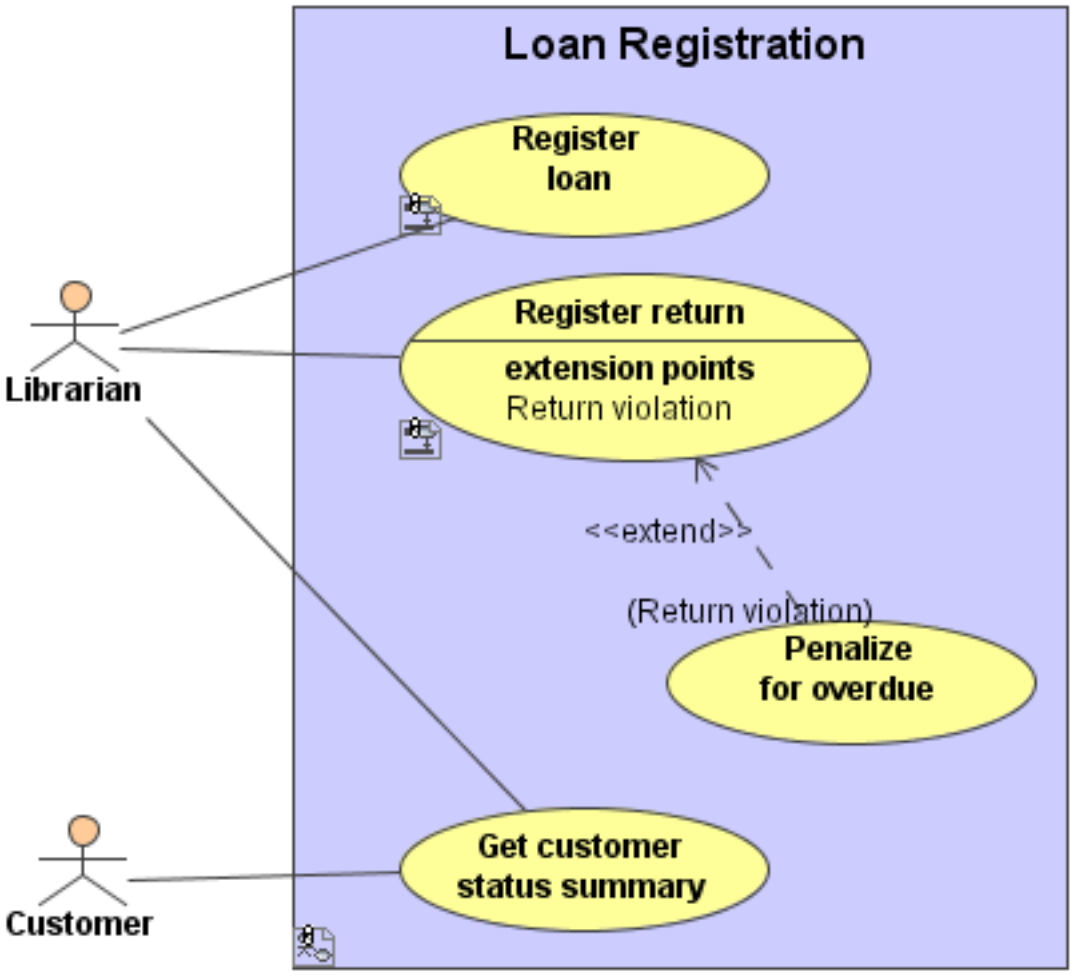

Figure 4 - Loan Registration Diagram

4.1. UC7.2.Get customer status summary

Description

The abstract use case. The librarian may get the list of loaned reading items of the selected customer. Also, the customer may get his own list of loaned reading items. The reading items list contains the loaned reading items and the time when the item shall be returned. If the return time is passed, the reading item is marked.

Actors

1. Customer
2. Librarian

PreCondition

- Request to display customer status.

Non Functional Requirements

- Loaned items list for customer shall be displayed. List shall include:
  - information about item,
  - loan date,
  - the date when item must be returned.

4.2. UC7.4.Penalize for overdue

Description

If customer does not return the reading item in specified time limit, the librarian may penalize the customer for overdue. The librarian may shorten the reading items list limit for the customer, etc.

PreCondition

- Return violation extension point is reached - the reader is late to return the loaned reading item.

Basic Flow of Events

- 1. The system displays possible items of penalizing.
  2. The librarian selects the penalizing method.
  3. The system updates reader properties information.

Alternative Flow of Events

- Alternative Flow #1: The librarian selects not to penalize customer [step 2 of main flow]:
  1. The system applies no penalization for the reader.
- Alternative Flow #2: The librarian selects to give warning to the customer [step 2 of main flow]:
  1. The system adds warning for the customer.
  2. Step 3 of main flow.
- Alternative Flow #3: The customer has 3 warnings [step 3 of main flow]:
  1. The system decreases customer number of reading items for loan
  2. The system resets number of warnings
  3. The system updates reader properties information.

Non Functional Requirements

- The penalizing methods are:
  - No penalization
  - Warning

- Shorten number of reading items for loan after 2 warnings

4.3. UC7.1.Register loan

Description

The librarian registers loan for the reader, after the reserved item gets available for the reader.
The reader cannot take more than the limit of items for the loan. The reader cannot take reading items for loan if he/she is penalized for not returned reading items.

Actors

1. Librarian

PreCondition

• Request to register loan.

Basic Flow of Events Diagrams

• Register Loan

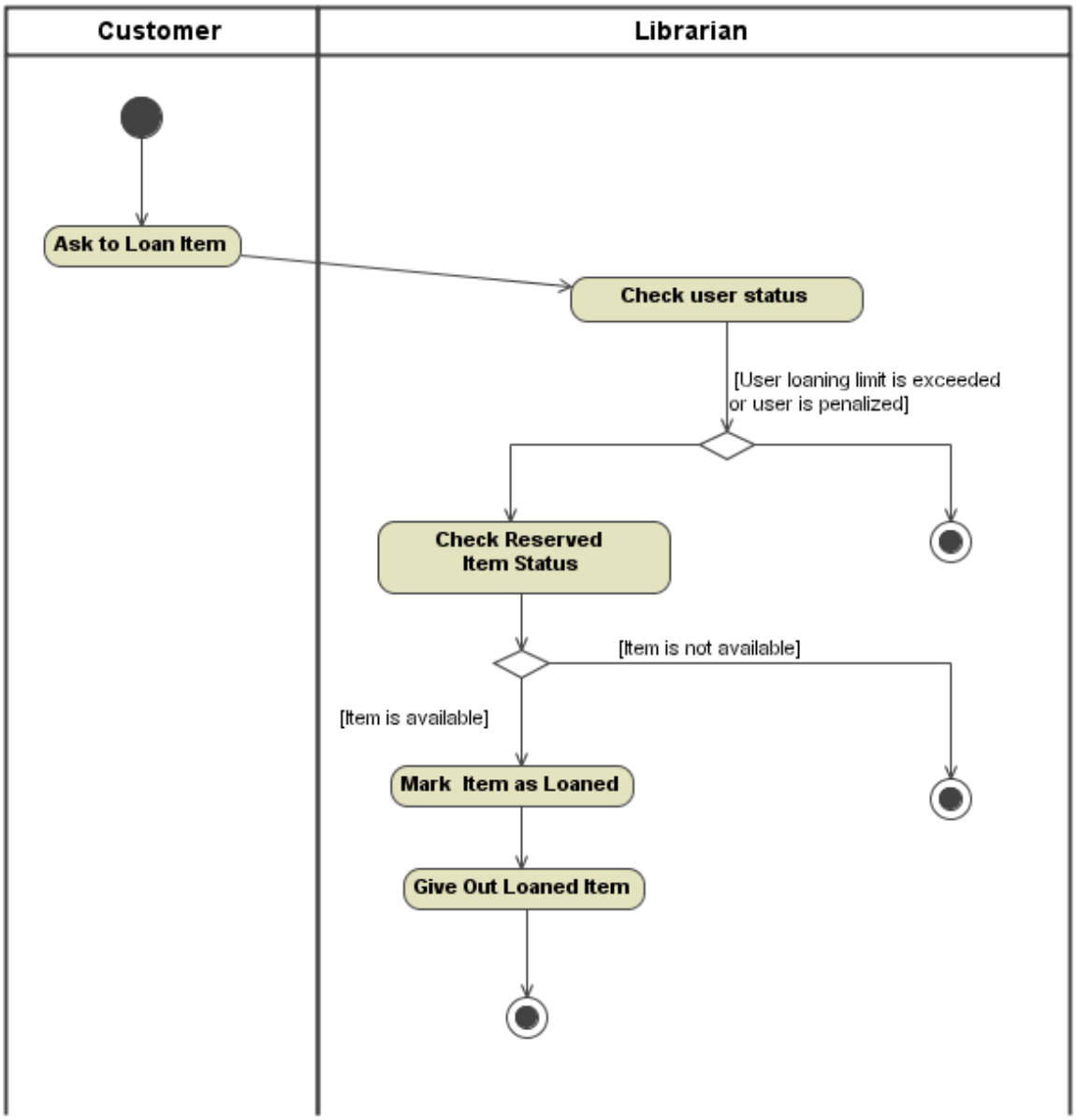

Figure 5 - Register Loan Diagram

PostCondition

- Reading item is loaned to customer.

4.4. UC7.3.Register return

Description

The librarian registers the items that customer returns after loan. The customer must return reading items during defined time limit. If customer does not return the loaned reading item during defined time limit, the librarian may penalize the

customer for overdue.

Actors

1. Librarian

PreCondition

• Request to register item return.

Basic Flow of Events Diagrams

• Register Return

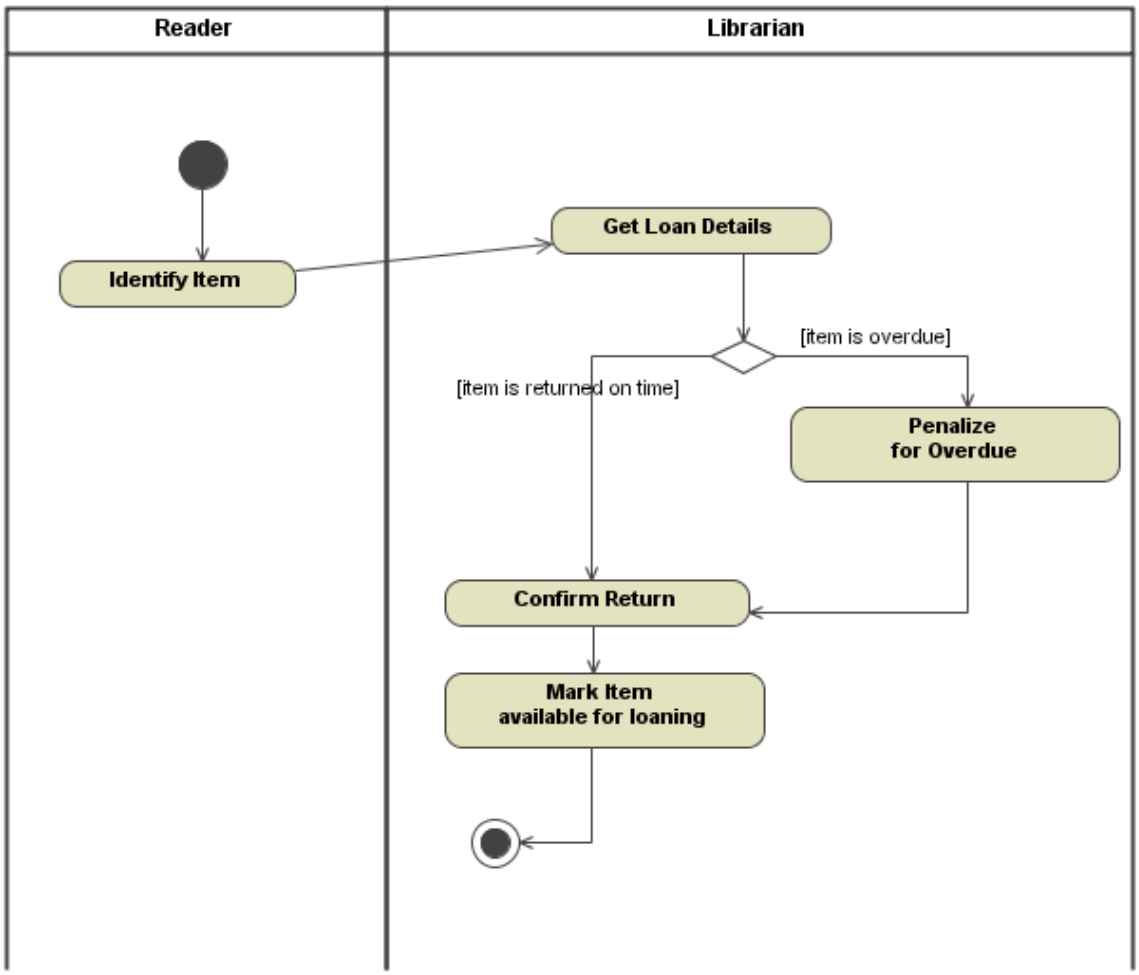

Figure 6 - Register Return Diagram

PostCondition

• The item return is registered for customer. Item is available for loaning.

Extension Points

• Register return

Included Use Cases

- Register return

Non Functional Requirements

- The loan period gets passed the next day after the loaned item return date.

5. UC.Users

6. UC1.System Access

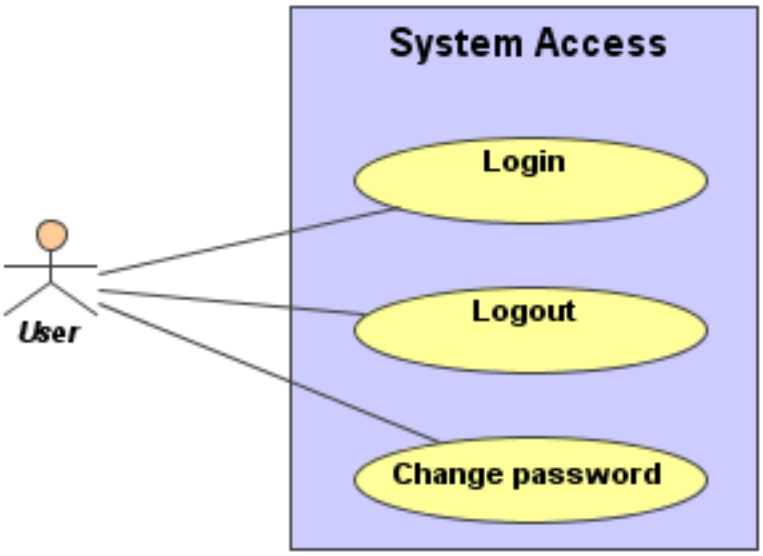

Figure 7 - System Access Diagram

6.1. UC1.3.Change password

Description

Every user shall be able to constantly change his/her password for security reasons.

Actors

1. User

PreCondition

- The user requests to change password.
- System requests user to change password after password validation limit has expired.

Basic Flow of Events

- 1. The system requests to enter old password.
  2. The user enters his old password.
  3. The system requests to enter new password and repeat new password.
  4. User enters and repeats his new password.
  5. The system changes the user password.

Alternative Flow of Events

- Alternative Flow #1: User enters incorrect old password [step 2 of main flow]:
  1. System informs user that incorrect password is entered.
  2. Step 1 of main flow.

- Alternative Flow #2: New passwords do not match each other [step 4 of main flow]:
  1. System informs that passwords do not match.
  2. Step 3 of main flow.

PostCondition

- The user password is changed.

Non Functional Requirements

- Password shall be longer than 4 symbols.
- Password validation limit is 150 days.

6.2. UC1.1.Login

Description

As only registered users can use the system, every user has to provide his/her login information – login name and password – in order to use the system.

Actors

1. User

PreCondition

- User requests to login to a system.

Basic Flow of Events

- 1. The system requests the user to enter his login name and password.
  2. The user enters the login name and password.

Alternative Flow of Events

- Alternative Flow #1: User name or password is incorrect [step 2 of main flow]:
  1. System informs user that incorrect password or username is entered.
  3. Refer to step 1 of main flow.

PostCondition

- The user is logged into the system and may use appropriate functionality according user type - reader, librarian, or administrator.

6.3. UC1.2.Logout

Description

After the user ends working with the system, he logs out in order none can use his profile to add new reading items or for any other reason to pretend someone else.

Actors

1. User

PreCondition

- The user requests to log out from the system.

Basic Flow of Events

- 1. System saves user settings and logs user out.

PostCondition

- The user is logged out from the system.

7. UC6.Item Reservation

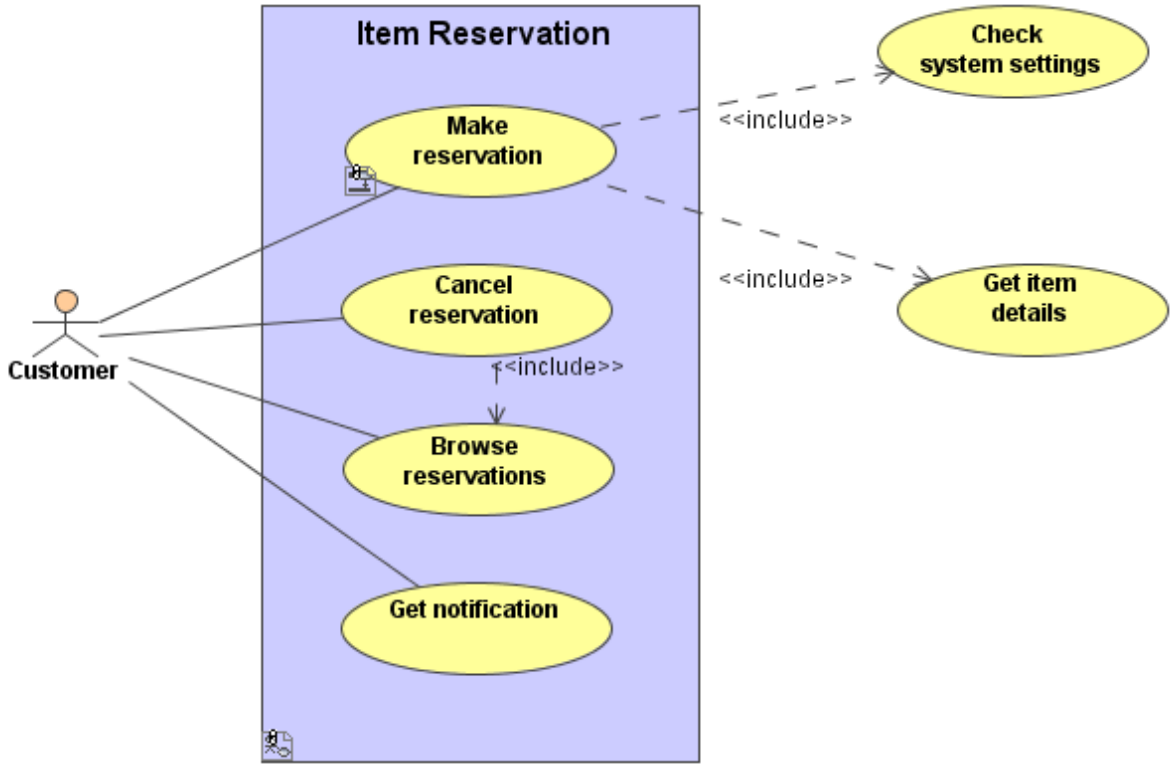

Figure 8 - Item Reservation Diagram

7.1. UC6.2.Cancel reservation

Description

The reader shall be able to cancel the reserved reading item. Also, the system cancels the reading item automatically after the defined time period is passed when it is available for loaning.

Actors

1. Customer

PreCondition

- Request to cancel reservation.

Basic Flow of Events

- 1. Select item to canel reservation.
  2. Confirm the cancellation.
  3. The system removes the reading item from the reserved items list.
  4. The system marks the reading item as available.

Alternative Flow of Events

- Alternative Flow #2: The next customer that has requested the reservation of the selected reading item [step 4 of main flow]:
  1. The system updates all following readers reservation dates.
  2. The system e-mails the notification to the next customer.

PostCondition

- Reservation is cancelled.

Included Use Cases

• Cancel
reservation

7.2. UC6.4.Browse reservations

Description

The reader shall be able to browse his reservations list and make changes to the reservations. The reservations list item displays the reading item information and the time when the reading item shall become available.

Actors

1. Customer

PreCondition

• Request to review reserved items list.

Non Functional Requirements

• Reserved items list item shall display the reserved item and the time when the item becomes available for loan.
• If reading item is available at current time - none has taken it fo loan - the available time is 'currently available'.
• If there are no currently available copies of reading item, the date when reading item is available is the first return date of the reading item plus one day.

7.3. UC6.1.Make reservation

Description

The reader shall be able to reserve the selected reading item. The reading item is added to the readers reserved items list. The list item displays the reading item information and the time when the reading item is available for the loan.

Actors

1. Customer

PreCondition

• Request to make item reservation.

Basic Flow of Events Diagrams

• Make Reservation

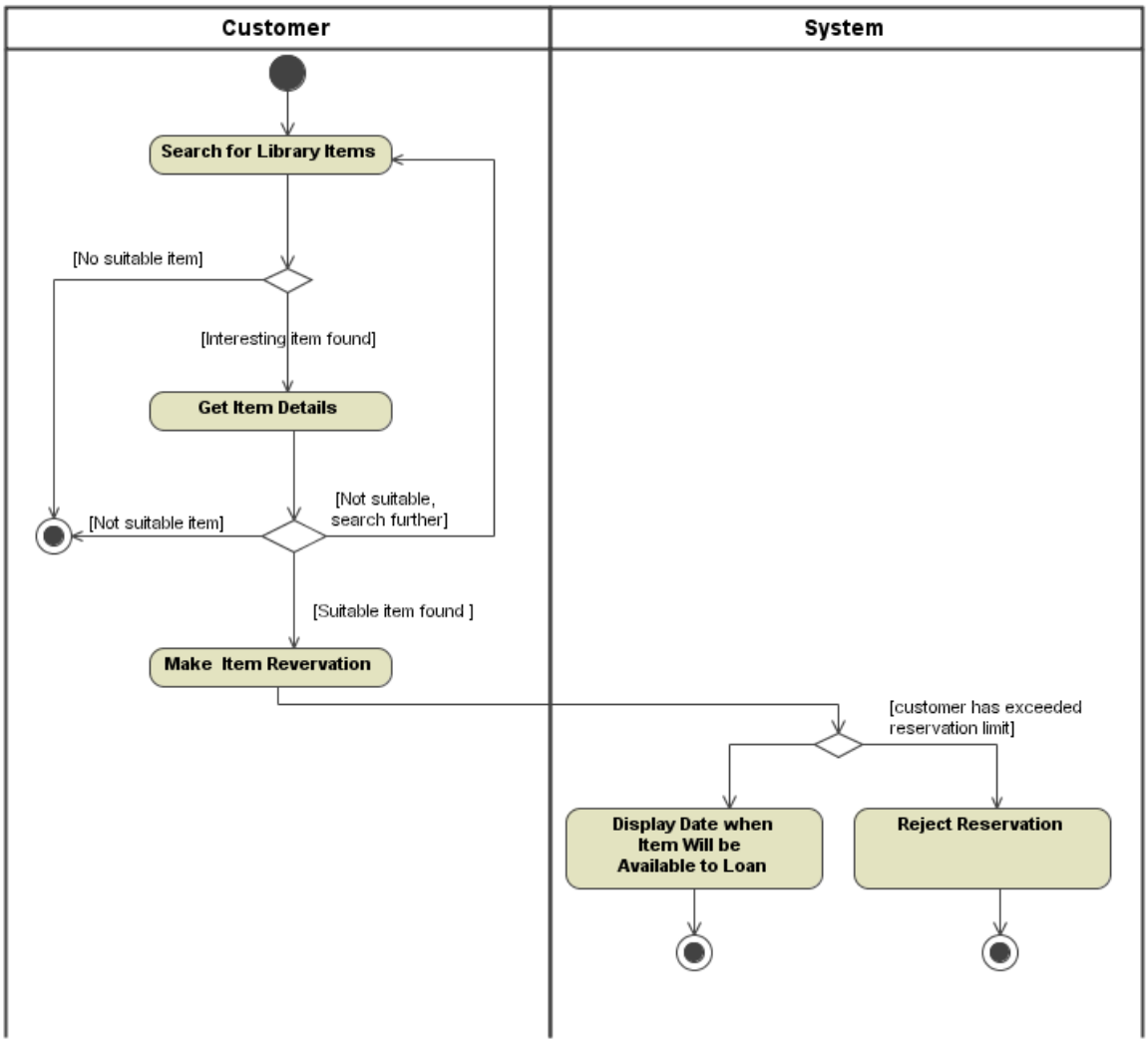

Figure 9 - Make Reservation Diagram

PostCondition

- The reading item is added to the reserved items list for the customer.

Included Use Cases

- Make reservation

Non Functional Requirements

- The reserved items list item shall contain the reading item information and the date when the reading item is available for loan.
- If reading item is available at current time - none has taken it for loan - the available time is 'currently available'.
- If there are no currently available copies of reading item, the date when reading item is available is the first return date of the reading item plus one day.
- The availability for loan is defined using the FIFO principle.

- User is allowed to make reservation if reservation limit is not exceeded.
- Reservation limit is set in system settings.

7.4. UC6.3.Get notification

Description

User shall get e-mail notifications when reserved item becomes available or when reservation is cancelled. User also should be notified 1 day before reading item returning date.

Actors

1. Customer

PreCondition

- Reserved reading item is available
- Reading item reservation is cancelled
- Loaned reading item must be returned within 1 day.

8. UC3.User Management

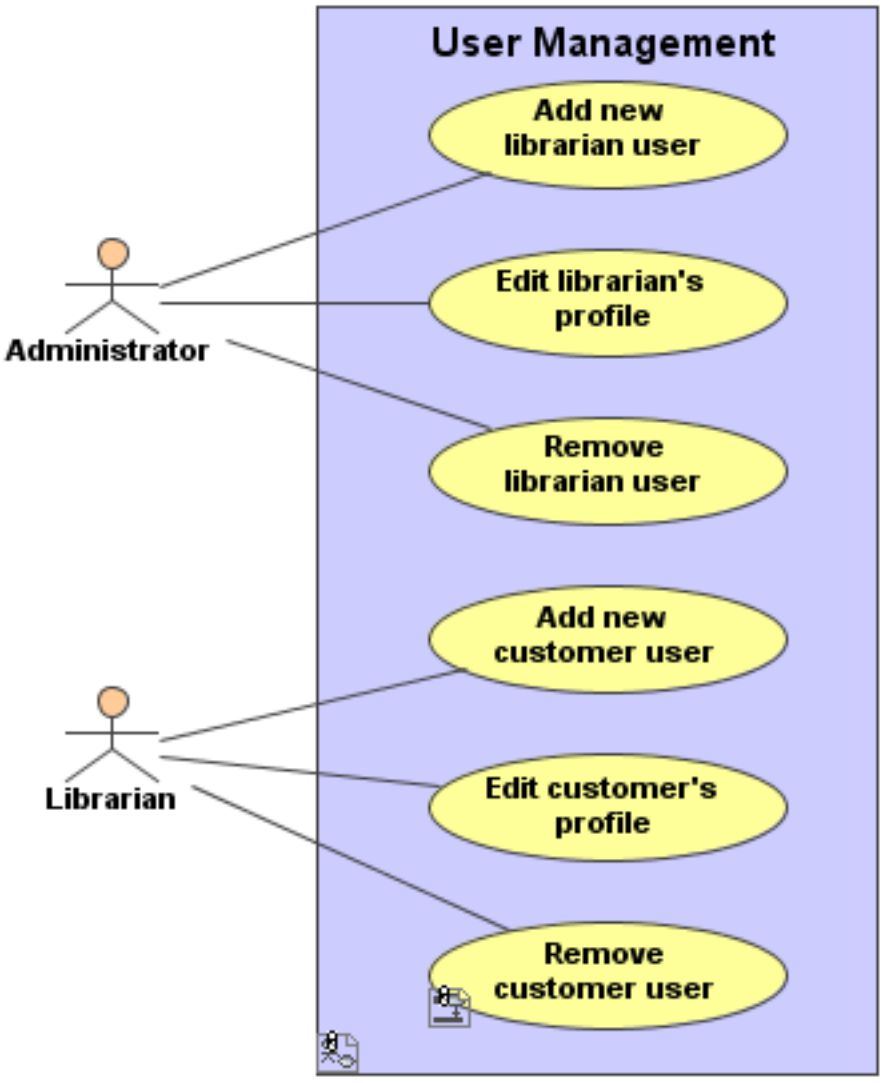

Figure 10 - User Management Diagram

8.1. UC3.3.Remove librarian user

Description

Administrator shall be able to remove librarian users from library system.

Actors

1. Administrator

PreCondition

- Request to remove librarian user.

Basic Flow of Events

- 1. User confirms librarian user removal.
  2. System removes librarian user from the database.

PostCondition

- Librarian user is removed.

8.2. UC3.2.Edit librarian's profile

Description

Administrator shall be able to edit librarian users personal information, permissions, and password.

Actors

1. Administrator

PreCondition

- Request to edit librarian user information.

Basic Flow of Events

- 1. User edits librarian personal information, permissions or password.
  2. System saves modified librarian user information.

Alternative Flow of Events

- Alternative Flow #1: Incorrect password is entered [step 1 of main flow]:
  1. System notifies about incorrect password and asks reenter password.
  2. Step 1 of main flow.
- Alternative Flow #1: Entered passwords do not match [step 1 of main flow]:
  1. System notifies about that passwords do not match and asks reenter password.
  2. Step 1 of main flow.

PostCondition

- Librarian user information is changed.

Non Functional Requirements

- The password shall be longer than 4 symbols.

8.3. UC3.6.Remove customer user

Description

Librarian shall be able to remove customer users (readers) from library system. The customer user may only be removed from the system after he returns all his loans. All reservations user had made are cancelled.

Actors

1. Librarian

PreCondition

• Request to remove customer user.

Basic Flow of Events Diagrams

• Remove Reader

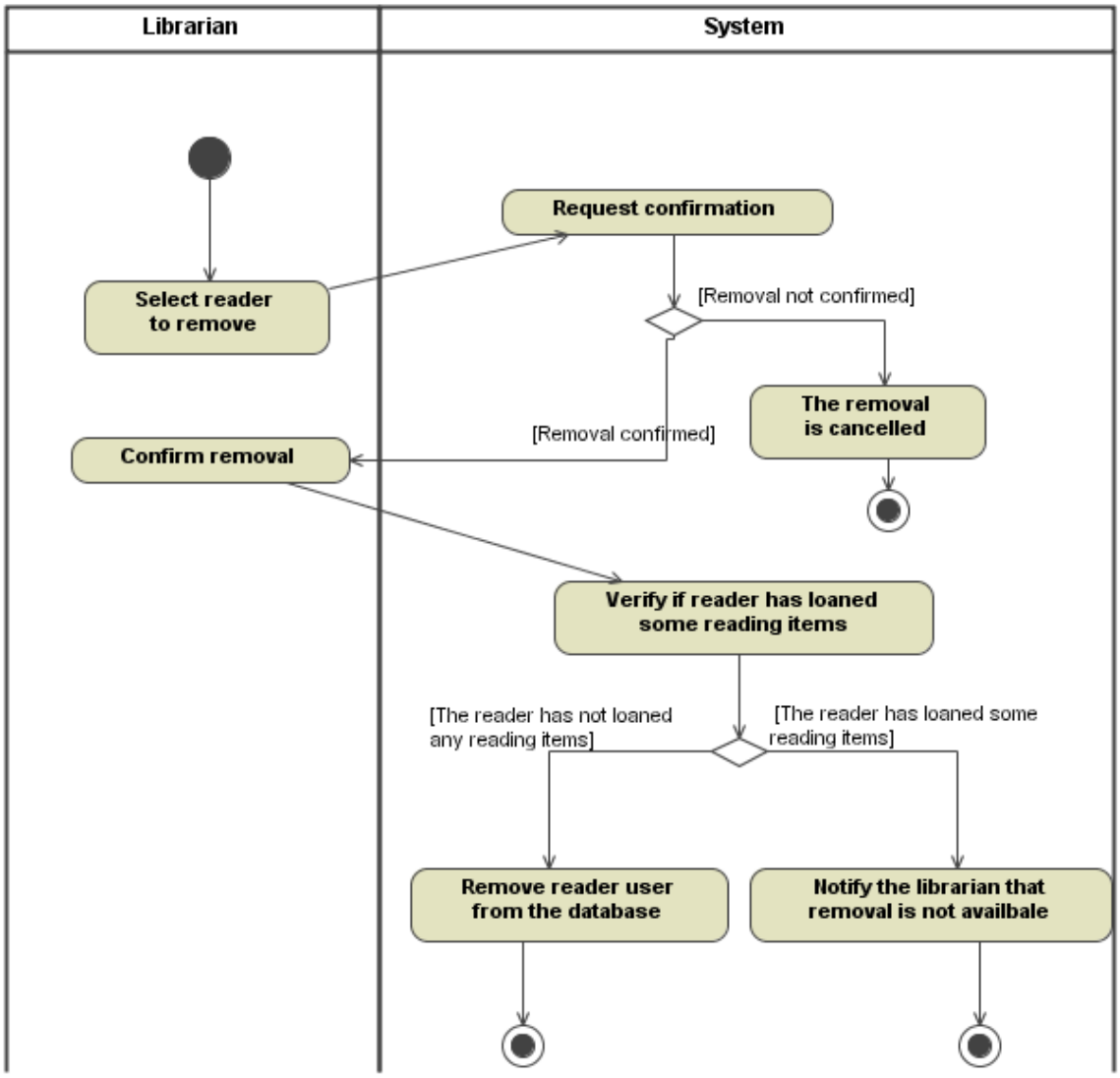

Figure 11 - Remove Reader Diagram

PostCondition

• Customer user is removed.

8.4. UC3.1.Add new librarian user

Description

Administrator shall be able to create new librarian users. The librarian personal information, permissions, login name and password shall be specified for each user.

Actors

1. Administrator

PreCondition

- Administrator requests to add new user.

Basic Flow of Events

- 1. User enters new librarian user name.
  2. User enters librarian user passsword.
  3. User reenters librarian user password.
  4. User enters librarian user personal information.
  5. User specify librarian user permissions.
  6. System adds librarian to a database.

Alternative Flow of Events

- Alternative Flow #1: Entered user name already exists [step 1 of main flow]:
  1. System notifies about already existing user name.
  2. Step 1 of main flow.
- Alternative Flow #2: Passwords do not match [step 3 of main flow]:
  1. System notifies that entered passwords do not match.
  2. Step 2 of main flow.

PostCondition

- Librarian user is added.

Non Functional Requirements

- The librarian user's login name shall be unique.
  Librarian user's login name shall be longer than 5 symbols.
- The librarian's password shall be longer than 4 symbols.

8.5. UC3.4.Add new customer user

Description

Librarian user shall be able to create new customer users (readers). The customer personal information, login name and password shall be specified for a new customer.

Actors

1. Librarian

PreCondition

- Requests to add new customer.

Basic Flow of Events

- 1. Librarian enters new customer user name.
  2. Librarian enters customer user passsword.
  3. Librarian reenters customer user password.
  4. Librarian enters customer user personal information.
  6. Syatem adds customer to a database.

Alternative Flow of Events

- Alternative Flow #1: Entered user name already exists [step 1 of main flow]:
  1. System notifies about already existing user name.
  2. Step 1 of main flow.
- Alternative Flow #2: Passwords do not match [step 3 of main flow]:
  1. System notifies that entered passwords do not match.
  2. Step 2 of main flow.

PostCondition

- Customer user is added.

Non Functional Requirements

- The customer user's login name shall be unique.
  Customer user's login name shall be longer than 5 symbols.
- The customer's user password shall be longer than 4 symbols.

8.6. UC3.5.Edit customer's profile

Description

Librarian user shall be able to modify customer users (readers) personal information and password.

Actors

1. Librarian

PreCondition

- Request to edit customer user's information.

Basic Flow of Events

- 1. Librarian edits customer user's personal info and/or password
  2. System saves changed customer profile.

Alternative Flow of Events

- Alternative Flow #1: Incorrect password is entered [step 1 of main flow]:
  1. System notifies about incorrect password and asks reenter password.
  2. Step 1 of main flow.
- Alternative Flow #1: Entered passwords do not match [step 1 of main flow]:
  1. System notifies about that passwords do not match and asks reenter password.
  2. Step 1 of main flow.

PostCondition

- Customer user information has changed.

Non Functional Requirements

- The customer user's password shall be longer than 4 symbols.

9. UC4.Item Management

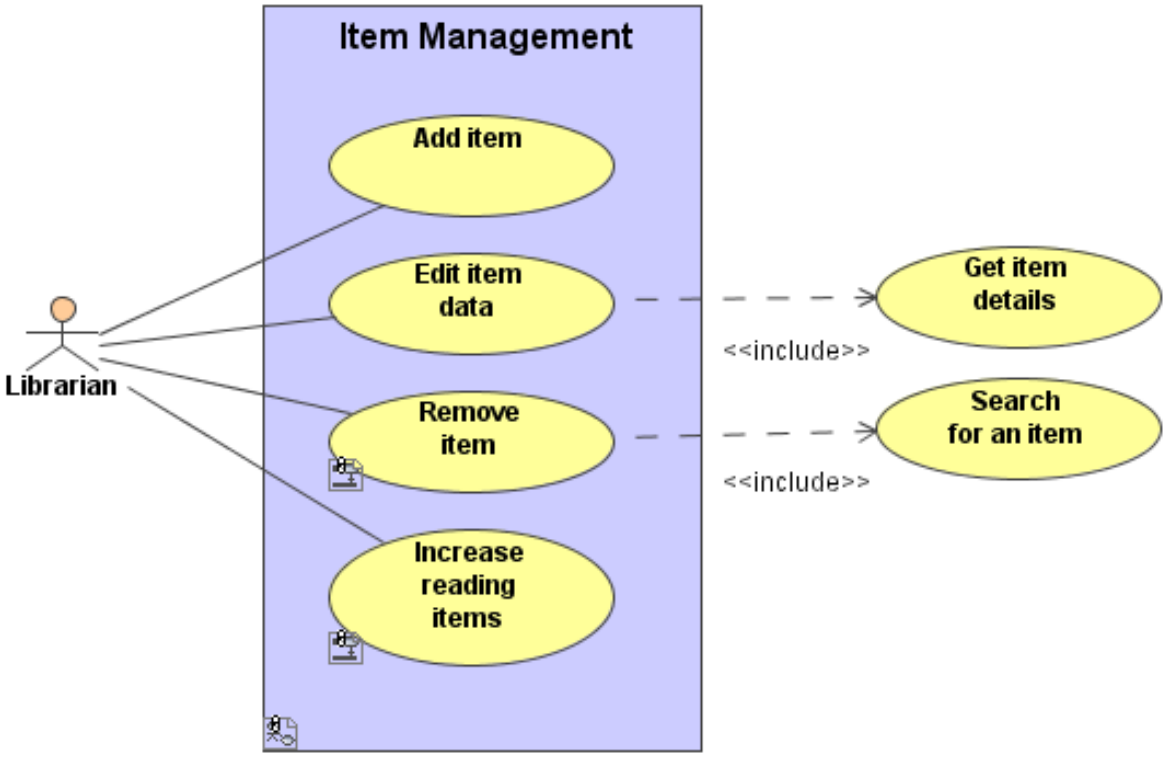

Figure 12 - Item Management Diagram

9.1. UC4.5.Order items

Actors

1. Librarian

9.2. UC4.2.Remove item

Description

The librarian shall be able to remove outdated items from library system. The outdated items are the ones that are lost or broken, so cannot be loaned.

Actors

1. Librarian

PreCondition

• Request to remove reading item.

Basic Flow of Events Diagrams

• Remove Reading Item

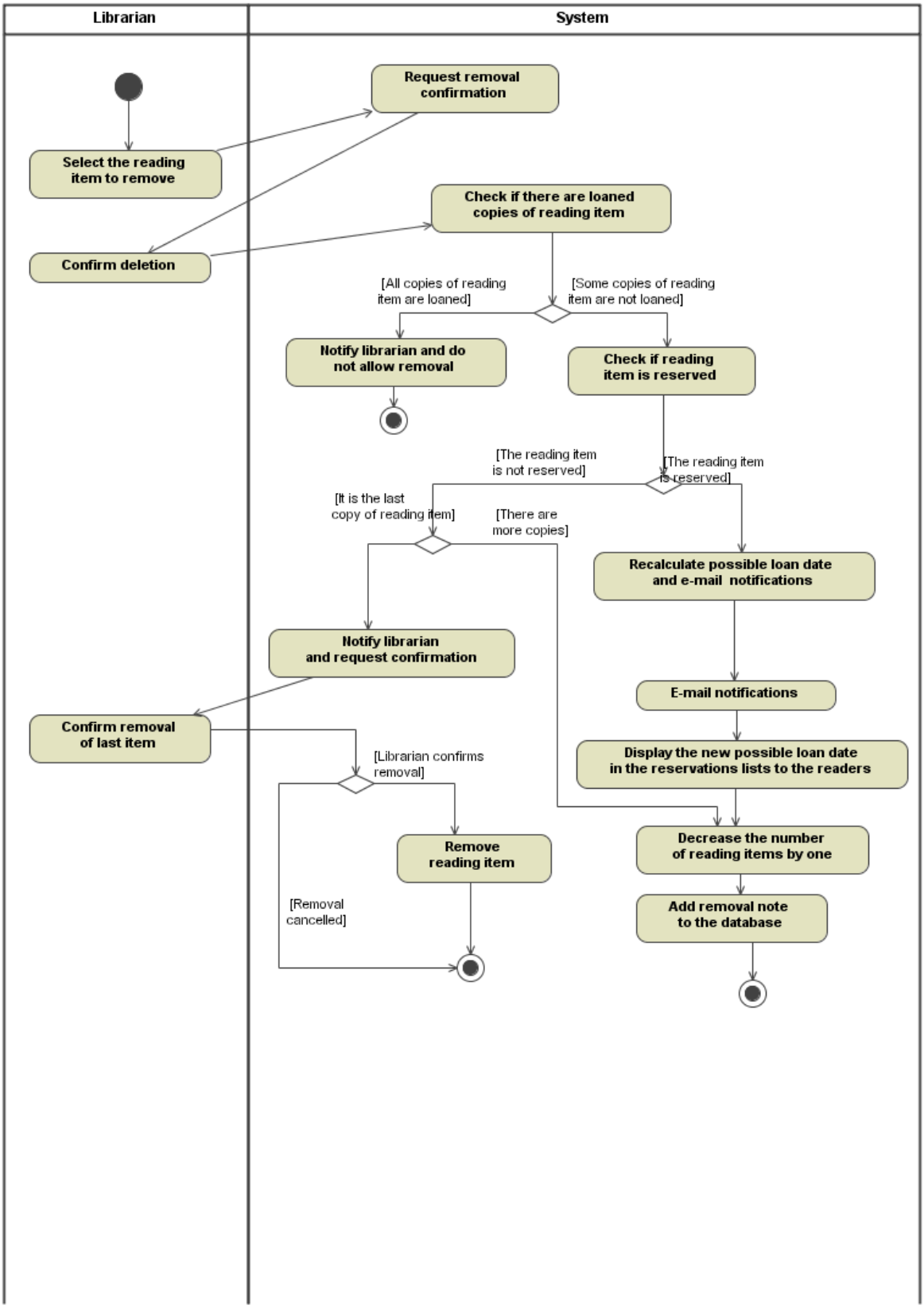
Librarian
System
Request removal confirmation
Select the reading item to remove
Check if there are loaned copies of reading item
Confirm deletion
[All copies of reading item are loaned]
[Some copies of reading item are not loaned]
Notify librarian and do not allow removal
Check if reading item is reserved
[The reading item is not reserved]
[The reading item is reserved]
[It is the last copy of reading item]
[There are more copies]
Recalculate possible loan date and e-mail notifications
Notify librarian and request confirmation
E-mail notifications
Confirm removal of last item
[Librarian confirms removal]
Display the new possible loan date in the reservations lists to the readers
Remove reading item
Decrease the number of reading items by one
[Removal cancelled]
Add removal note to the database

Figure 13 - Remove Reading Item Diagram

PostCondition

• Reading item is removed from loning items database.

Included Use Cases

• Remove
item

9.3. UC4.1.Add item

Description

The librarian shall be able to add new item to a library system. When adding the new reading item, the librarian shall enter the reading item information, define the number of items received, and the available loan period.

Actors

1. Librarian

PreCondition

• Request to add new item.

PostCondition

• Item is added to library system.

Non Functional Requirements

• Each item has and unique ID.
• Each items shall consist:
  - Item ID
  - Information aout item
  - Number of copies owned
  - Available loan period

9.4. UC4.4.Increase reading items

Description

The librarian increases count of the reading items when some more copies of existing reading items are received.

Actors

1. Librarian

Basic Flow of Events Diagrams

• Increase Reading Items

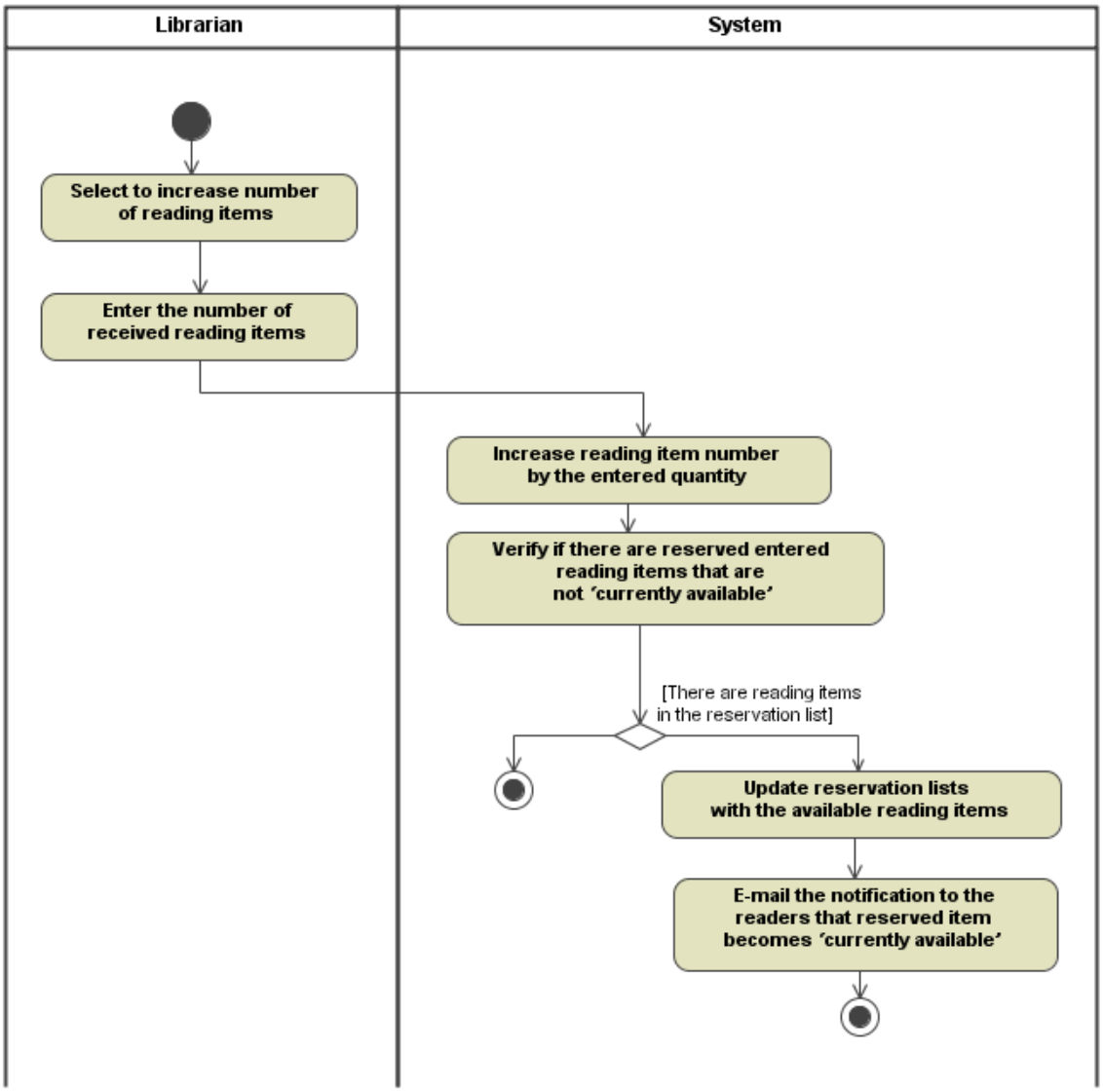

Figure 14 - Increase Reading Items Diagram

9.5. UC4.3.Edit item data

Description

The librarian modifies the reading items information when some error is entered into the reading item description.

Actors

1. Librarian

PreCondition

• Request to edit reading item data.

PostCondition

• Modified reading item data are saved in a database.

Included Use Cases

• Edit item data

Non Functional Requirements

• Reading item ID may not be edited.

10. UC5.Item Browser

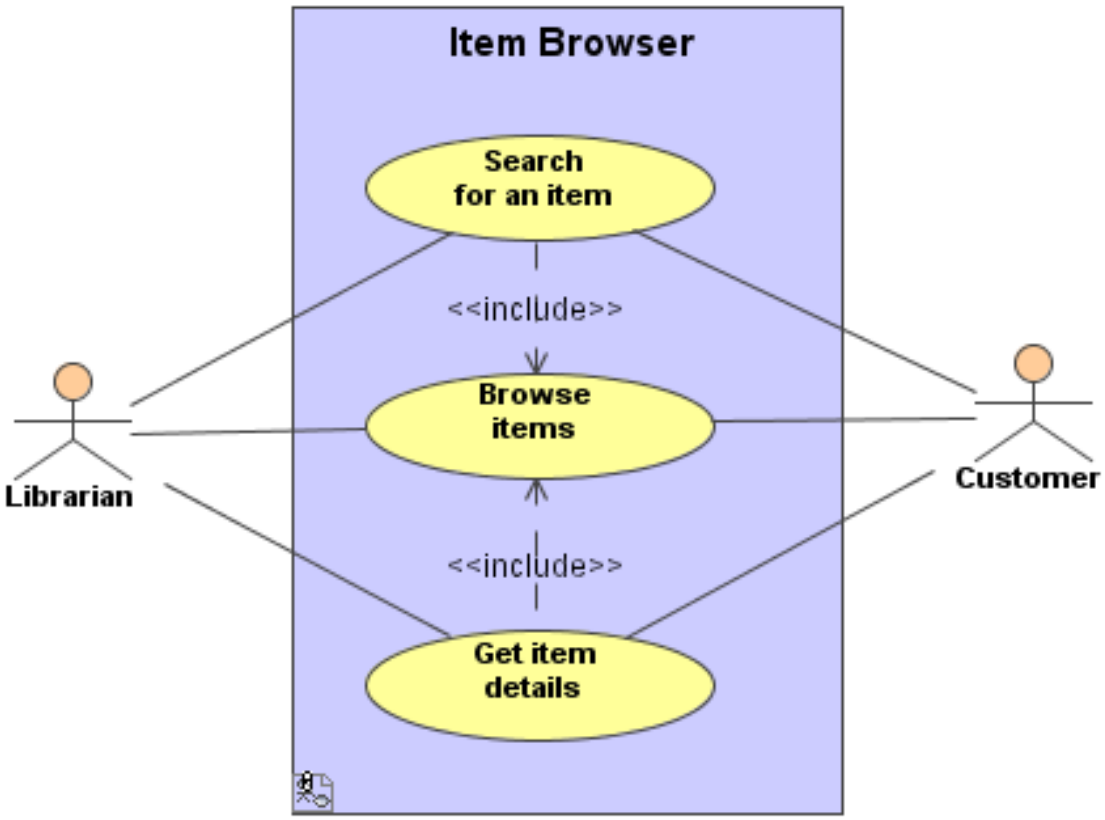

Figure 15 - Item Browser Diagram

10.1. UC5.2.Get item details

Description

The librarian and customer shall be able review selected reading items details.

Actors

1. Customer
2. Librarian

Included Use Cases

• Get item details

10.2. UC5.1.Search for an item

Description

The librarian and customer shall be able search for reading items according selected search criteria.

Actors

1. Customer
2. Librarian

Basic Flow of Events

- 1. User defines the search criteria.
  2. System founds some reading items according search criteria.
  3. System allows browsing between search criteria.

Alternative Flow of Events

- Alternative Flow #1: System did not find any reading item matching the search criteria [step 2 of main flow]:
  1. System notifies the user.
  2. Step 1 of main flow.

Included Use Cases

- Search
for an item

Non Functional Requirements

- The search shall be available according any property of the reading item. Also, the search shall be available according the type of reading.

10.3. UC5.3.Browse items

Description

The librarian and customer shall be able to browse all existing reading items. While browsing the search, the list of reading items matching the search results shall be displayed. The list item shall show all reading item information if the list is displayed in the expanded form. The list item shall show reading item title if the list is displayed in the short form.

Actors

1. Customer
2. Librarian

Non Functional Requirements

- The expanded form list item shall contain the reading item type, and all reading item information.
- The short form of list item shall contain the name of reading item.
- The user shall be able to switch between the short and expanded form of lists.
- User shall be able to list all reading items.