

Theodora Tataru

Ana Griga

Derry Brennan



Second Year, Software Development

Library System

Sequence Diagrams

&

Test Cases

Table of contents:

System overview	page 3
Sequences Diagrams	page 4
Book Records: Add A New Book	page 4
Apply For Membership	page 5
Request Book	page 6
Return Book	page 7
Loan A Book	page 8
Test Cases	page 9
Book Records: Add A New Book	page 9
Apply For Membership	page 10
Request Book	page 11
Return Book	page 12
Loan A Book	page 13

System overview

In our library system we have made an account for 5 specific use cases. These we feel are the main functions of the library system and are as follows:

- ❖ **Loan a Book**
- ❖ **Return Book**
- ❖ **Apply membership**
- ❖ **Book request**
- ❖ **Book Records**

In the **loan a book** scenario we have a Member looking to loan a book out. The librarian checks if the book is in stock first. Then checks the persons membership. In the event they are not a member we offer them to become a member or if they owe a lot of money on their account, we refuse the loan until the account is cleared. Once these conditions have been met, we loan the book to the member and finally provide to them the information about the loan duration and the fees that will be applies upon returning late.

In the **return a book** scenario we have the member coming back to the library with a loaned book. The librarian receives the book and checks the books loan status. At this stage a fine will be applied to the members account if they are returning the book late. The librarian will change the books status on or system to available, this will include an update in the books table under the relevant section.

In the **apply for membership** scenario a perspective member comes into the library to sign up with us. The first step is engaging a staff member about the process. The staff member will tell them about required proofs of identity. The person will provide these and the staff member will conduct a search to ensure that that the person is not already a member. If the identity is correct and membership is not already present , then the staff member will create a new membership for that person.

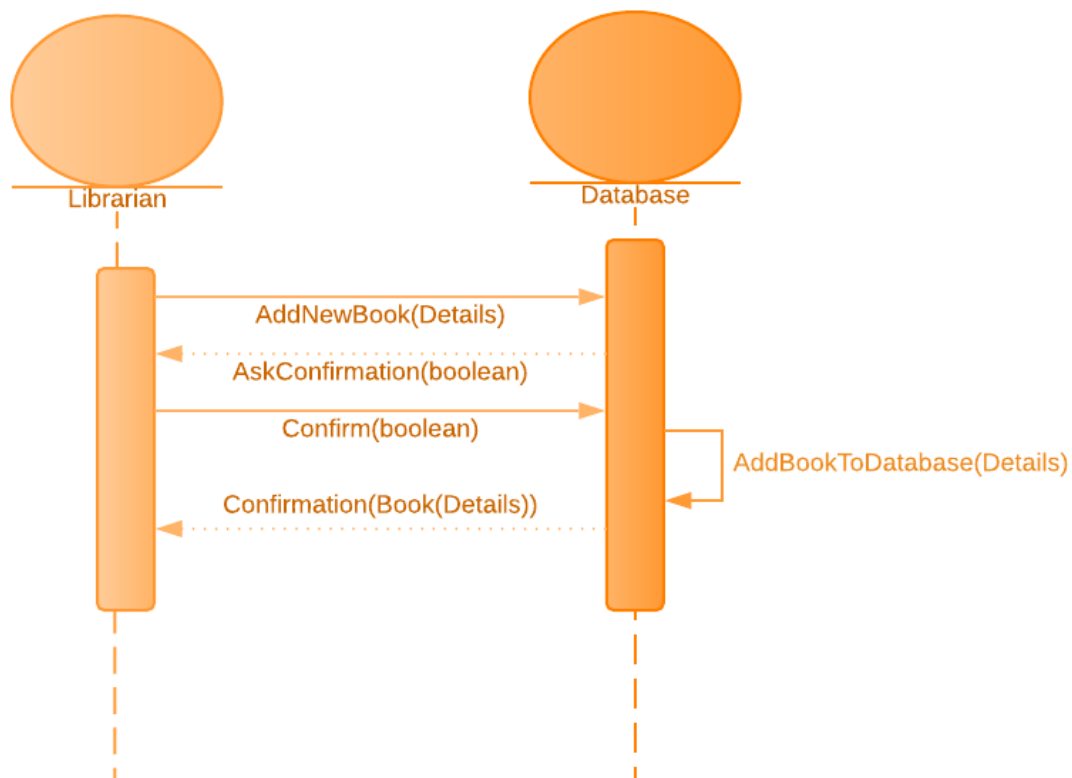
In the **book request** scenario, a member comes in and requests a specific book. The staff member will conduct a search and see if the book is already stocked and if so, will instigate a loan a book scenario. If the book is not present, then the staff member will create an entry in the request a book table with the details of the member and the book requested.

In **book records** scenario we have the option for members and staff to search our database for books and to see their availability on the screen. In the event that it is a staff member conduction the search they will be provided with extra options such as adding a new book, updating an existing books details or deleting a book from our database.

Sequence Diagrams

Add A New Book Sequence Diagram

Ana Griga, Theodora Tataru,
Derry Brennan



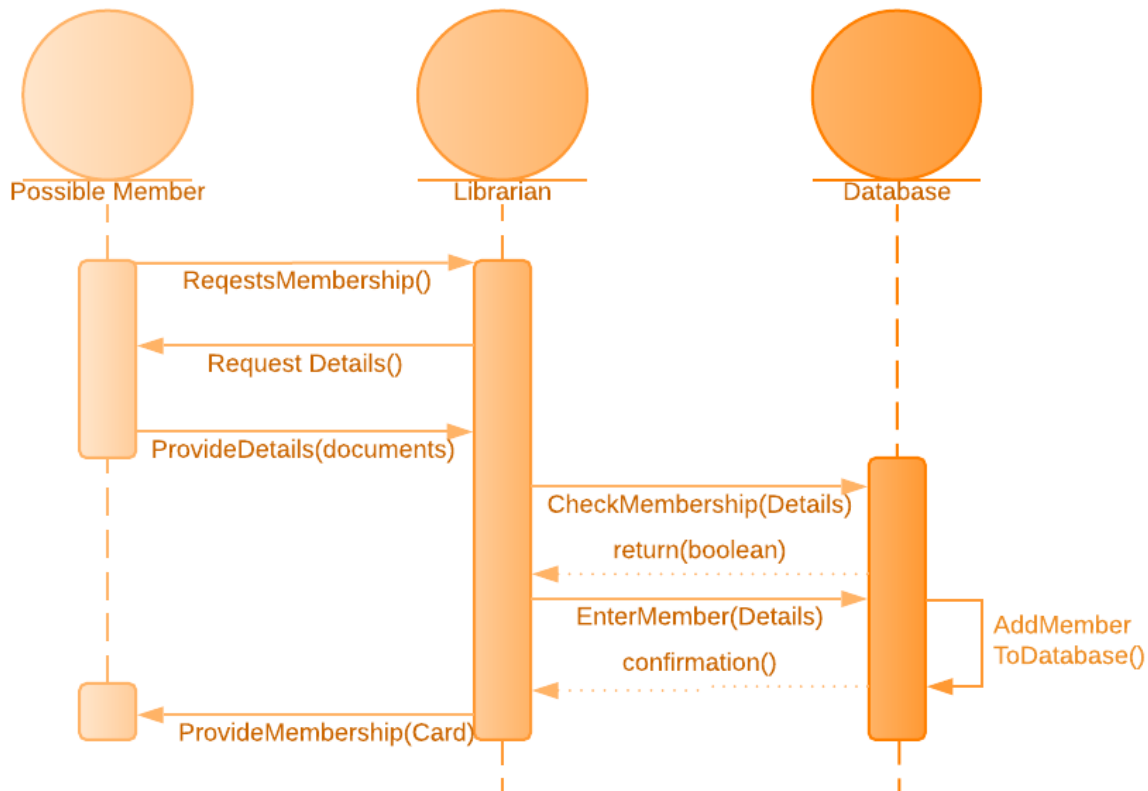
NARRATIVE

1. The librarian is completing the form, to add a new book to the system.
2. The system asks for confirmation, to add the book to the database
3. The librarian, gives confirmation to add the book to the database
4. The database adds the book into the "Book" table
5. The database, confirms to the librarian that the addition was made successfully showing the details of the book back to the librarian.

** this is an <<extends>> example from the "Book Records" use case

Apply For Membership Sequence Diagram

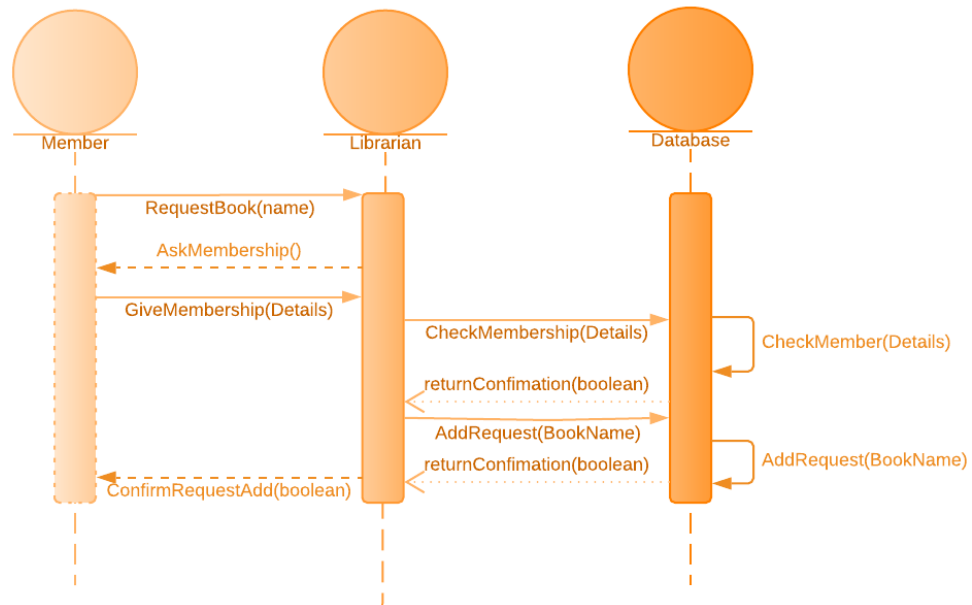
Ana Griga, Theodora Tataru,
Derry Brennan



NARRATIVE

1. The user requests membership
2. The librarian is asking for details (documents)
3. The user is providing the documents
4. The librarian checks with the database if the user is already a member
5. The database returns whatever the user is a member or not
6. The librarian enters the details of the user into the database
7. The database is updating the member's tables
8. The database is sending the confirmation of adding the user to the library
9. The librarian issues the membership and provides the user the new membership

Request Book
Sequence Diagram
Ana Griga, Theodora Tataru,
Derry Brennan

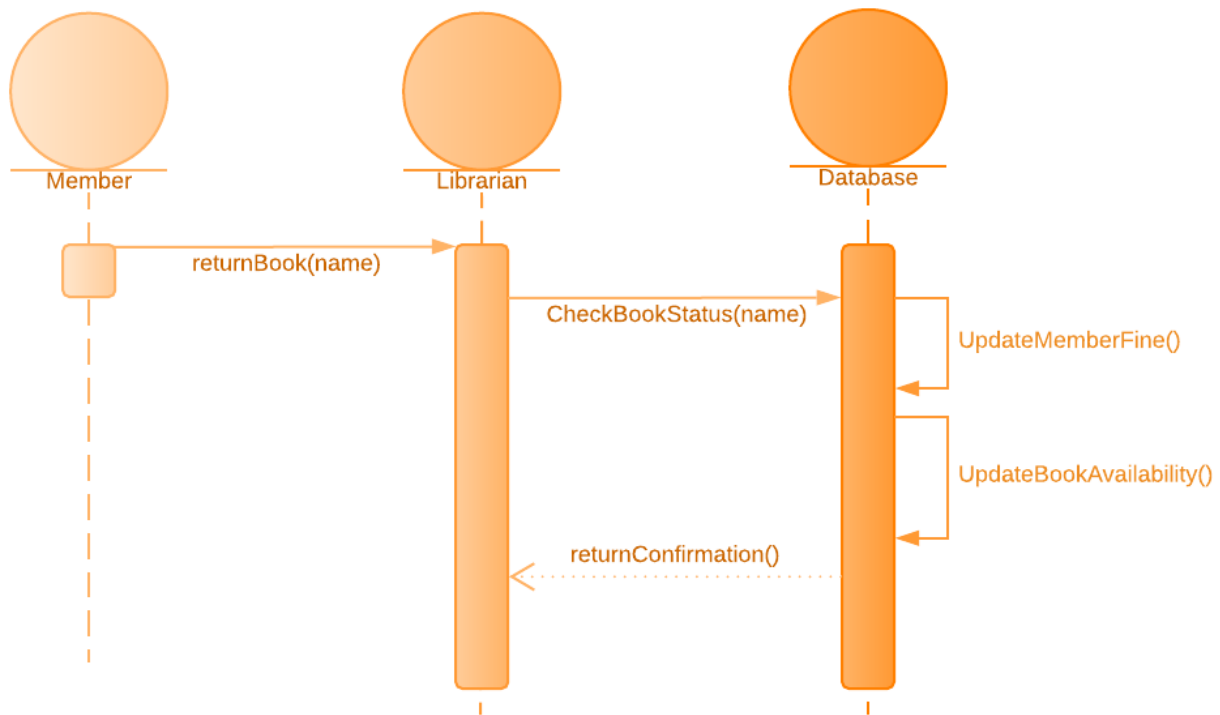


NARRATIVE

1. The member requests a specific book title
2. The librarian is asking for membership
3. The member provides membership details
4. The librarian passes the details to the database
5. The database checks the membership details
6. The database return confirmation to the librarian
7. The librarian adds the book name to the request book table
8. The requested book is updated and sends a confirmation to the librarian
9. The librarian confirms the request to the member

Return Book Sequence Diagram

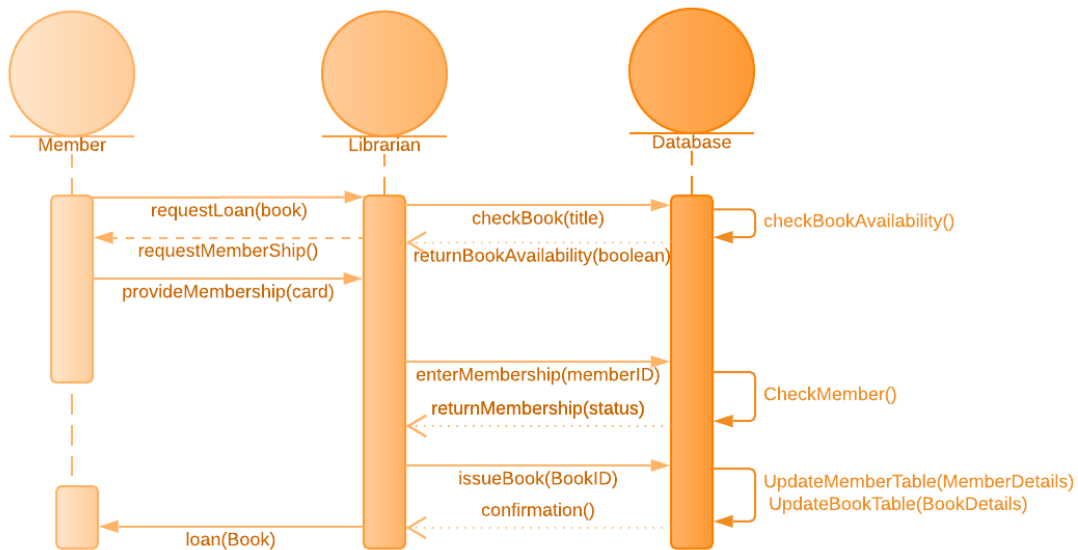
Ana Griga, Theodora Tataru,
Derry Brennan



NARRATIVE

1. The member returns a loaned book to the library
2. The librarian checks the book status with the database
3. The database updates the members account with the relevant fines
4. The database updates the book table
5. The database returns confirmation to the librarian

Loan A Book
Sequence Diagram
Ana Griga, Theodora Tataru,
Derry Brennan



NARRATIVE

1. The member hands in a book to be loaned
2. The librarian checks if the book is available in the database
 - 2.1 If the book is not available, inform member, ask for another book and repeat
3. The librarian requests membership details
4. The member provides the membership
 - 4.1 If the person isn't a member, offer membership (<<extends>>)
5. The librarian enters the member ID into the database
6. The database returns the status of the member account
 - 6.1 Refuse loan if outstanding fines unpaid
7. Librarian issues the book to the members account
8. The database updates the member and the book tables
9. The database returns confirmation of updating the tables
10. The librarian issues the book to the member

Test Cases

USE CASE: Book Records

Test Number:	1
Test Name:	Add a new book
Requirement:	Add a new entry to the book table in the database
Preconditions:	A table for book exists. The book copy being entered is not in the table already.
Steps:	<ol style="list-style-type: none">1. Complete the form with the book details.2. The system asks for confirmation from the user.3. The user gives confirmation that the entry can be added.4. The data base confirms to the user that the entry was successfully added.
Expected Result:	The new book copy can be found in the system and is ready to be used.
Postconditions:	A new primary key has been added into the book table. The book table had been properly updated.

USE CASE: Apply for membership

Test Number:	2
Test Name:	Adding a new membership to the database
Requirement:	The person is not already a member.
Preconditions:	Check the person history with the library. The person has suitable identification documents.
Steps:	<ol style="list-style-type: none">1. Adding the identification details to the database.2. The databases send ta confirmation that the details were added into the table.3. The librarian issues the membership and provides the user with their card.
Expected Result:	The member is added successfully to the database.
Postconditions:	The user is provided with the card membership.

USE CASE: Request A Book

Test Number:	3
Test Name:	Requesting a non-stock book
Requirement:	The book does not exist in the library
Preconditions:	There are members interested in having this book supplied by the library
Steps:	<ol style="list-style-type: none">1. The librarian checks the membership of the user requesting the book2. The librarian details enter the details of the book to the database3. The librarian confirms that the details entered into the database are correct
Expected Result:	The request books table is updated with the new entry
Postconditions:	The user is happy that the copy of the book will be ordered in the future

USE CASE: Return a book

Test Number:	4
Test Name:	Returning a book
Requirement:	The book had been on loan
Preconditions:	The member returns the library the book had been loaned
Steps:	<ol style="list-style-type: none">1. The librarian checks the returned book's status with the database2. The database updates the member's account with the relevant fines3. The database returns the librarian confirmation that the book's status had been changed
Expected Result:	The book is returned to the library
Postconditions:	The book is ready to be loaned by a different member

USE CASE: Loan A Book

Test Number:	5
Test Name:	Loan A Book
Requirement:	The member wants to loan a book
Preconditions:	The user is already a member. The user has no outstanding fines. The book is in the stock.
Steps:	<ol style="list-style-type: none">1. The librarian checks if the book is available in the database2. The librarian enters the member's id into the database3. The database returns the status of the member's account4. The librarian issues the book to the member's account5. The database return confirmation of the approval loan6. The book is handed over to the member.
Expected Result:	The database has the book flagged as loaned.
Postconditions:	The copy of the book is not available for a loan