

Report

I. CASE STUDY

● Introduction:

This is an online book management library, it allows users to register and borrow books online from the library. Also, librarians can use this website to verify books from members and manage books by creating new books, updating books' information, and deleting books.

The user of this app consists of 2 roles: **MEMBER** and **LIBRARIAN**. Each role will be able to use different functions:

- **MEMBER**: view list of books, search book, view detail, add book to and delete book from cart. Also, they can verify book borrowing and view borrowed history.

- **LIBRARIAN**: search book by book's ID, book's name, view member's book borrowing history, and add, update, delete book.

● Business Rule:

All	
Rule 1	Can not use functions that are not related to the role.

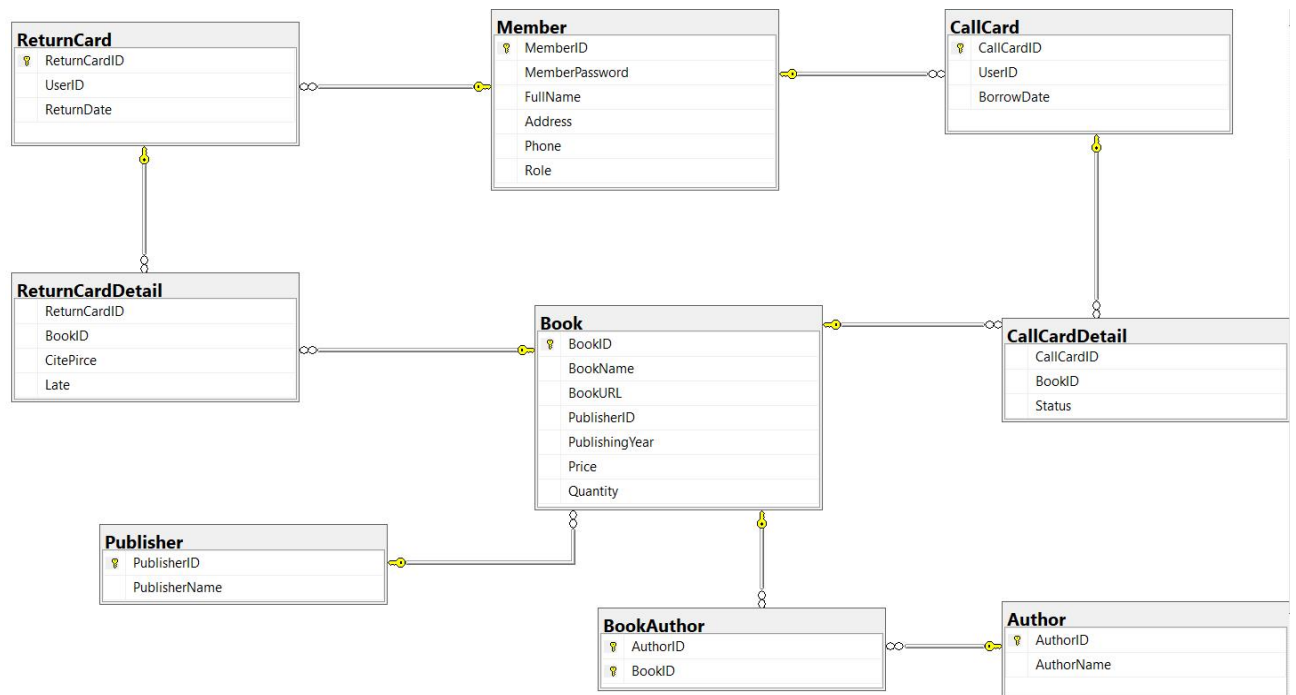
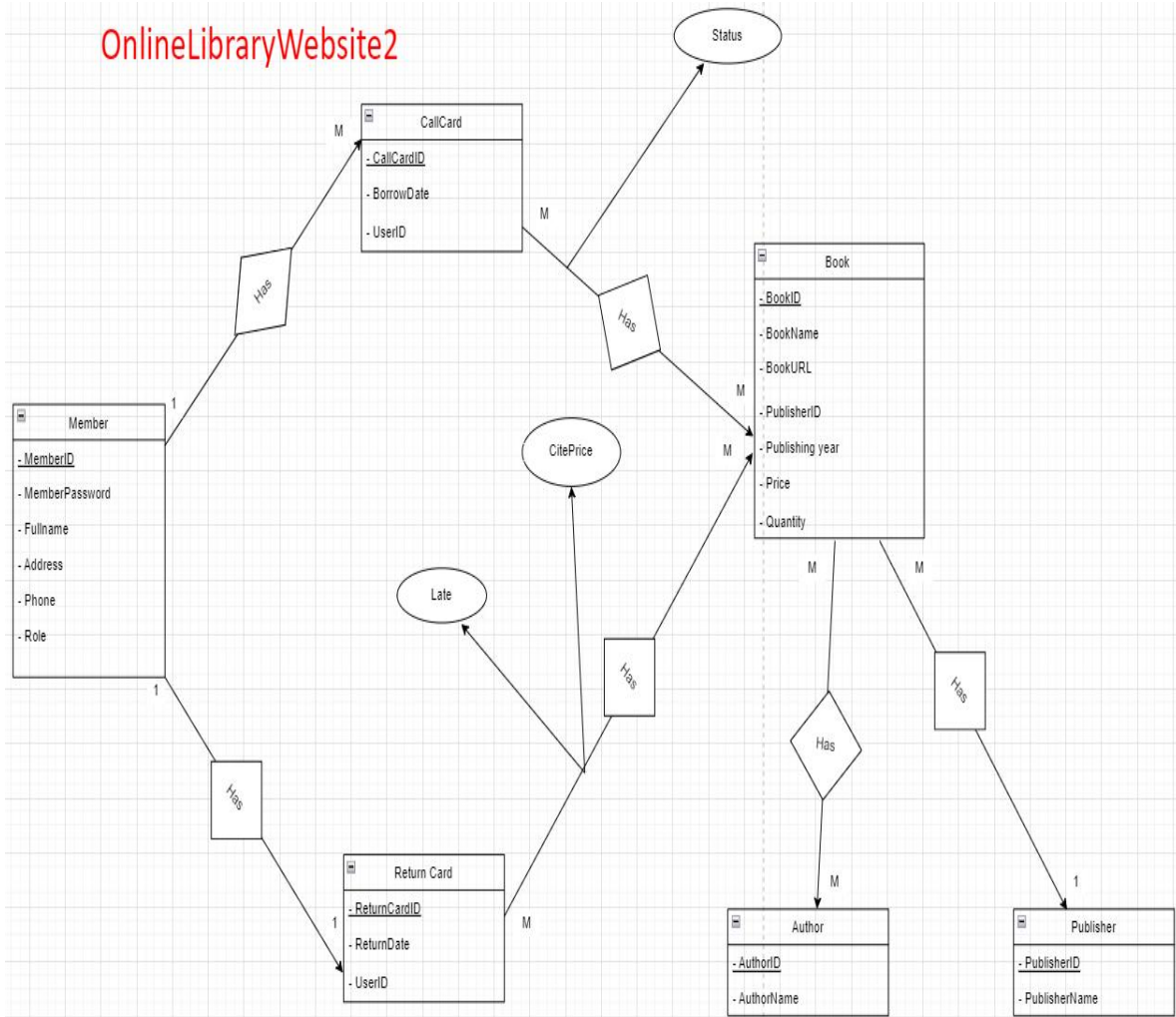
Member	
Rule 2	Members are required to login to use website, if not have an account, must register to become a new member to borrow books.
Rule 3	Members who register for an account must be fill full information with a phone number cannot be the same as the phone number of another accounts.
Rule 4	Maximum 7 borrowing books/member. The number of borrowed books and the number of books that member want to borrow for the next time must not exceed 7 books.
Rule 5	Each type of book, member can only borrow 1 book. If a member wants to borrow a book of the same type as the borrowed book but has not yet returned it, the member must return the borrowed

	book first before being able to borrow it.
Rule 6	The borrow term for all books is the same (30 days). The penalty money for a book is late on a day/5000VND.
Rule 7	To borrow a book, a member is required to add the book to the cart and then confirm that they want to borrow the book.

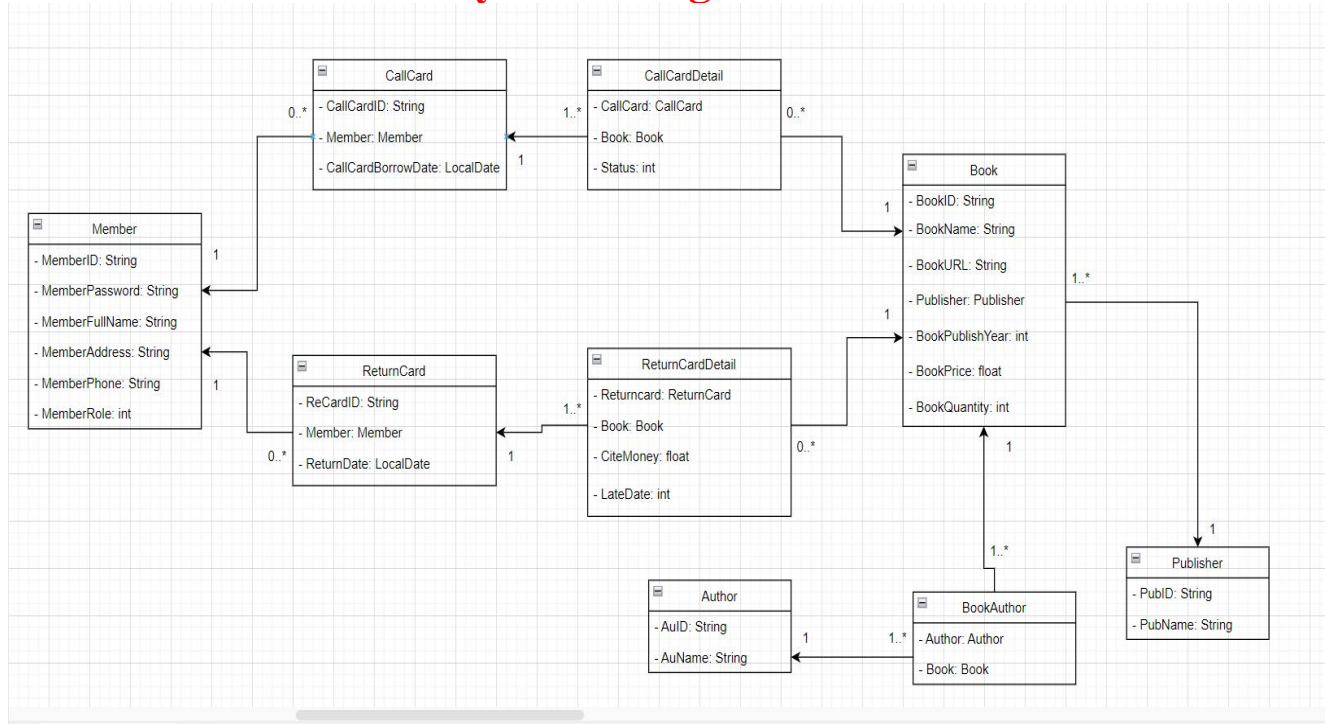
Librarian	
Rule 8	Librarians are required to login to manage book in the website.
Rule 9	Librarian must enter complete information for the book before creating.
Rule 10	The number of books when creating is maximum 20 books for each type.
Rule 11	The borrow price of each book when creating must be in the range of less than 100,000 VND.
Rule 12	The image transmitted must be in a specific format, such as PNG or JPG File. Before that librarian must be add image to the "images" folder.
Rule 13	When editing can only edit price and quantity of book.
Rule 14	The librarian can delete the book as long as the book is returned, otherwise the librarian cannot delete the book.

II. A database design:

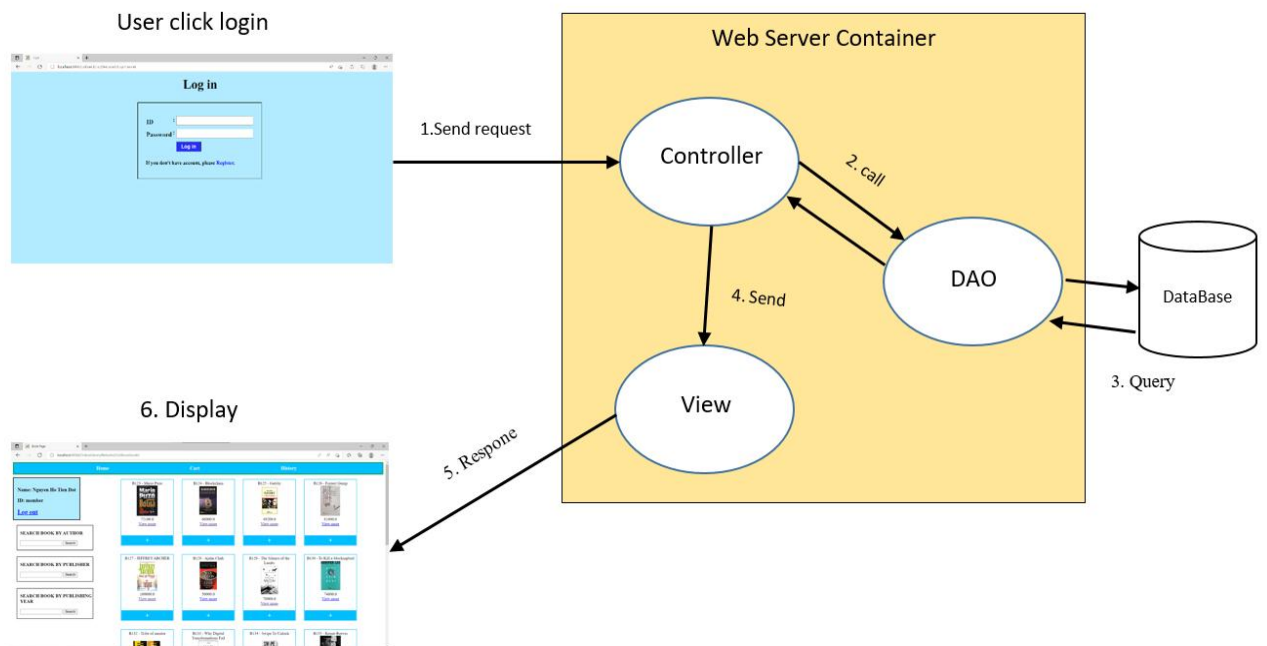
OnlineLibraryWebsite2



III. System design:

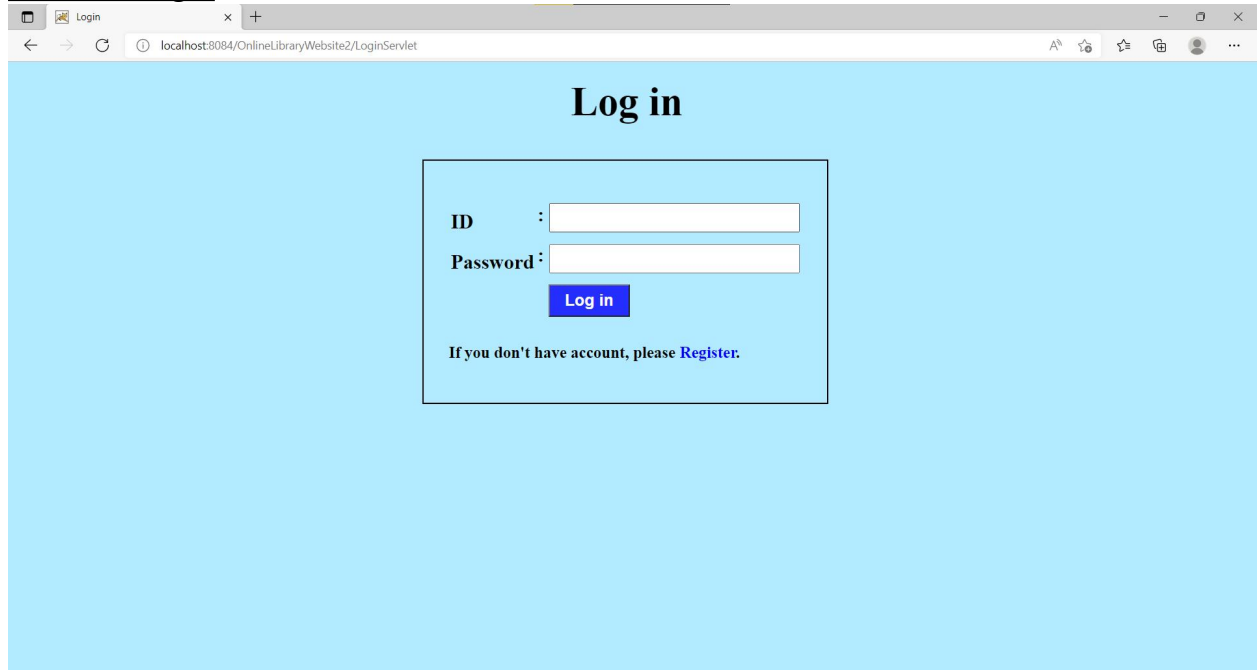


MVC model 2



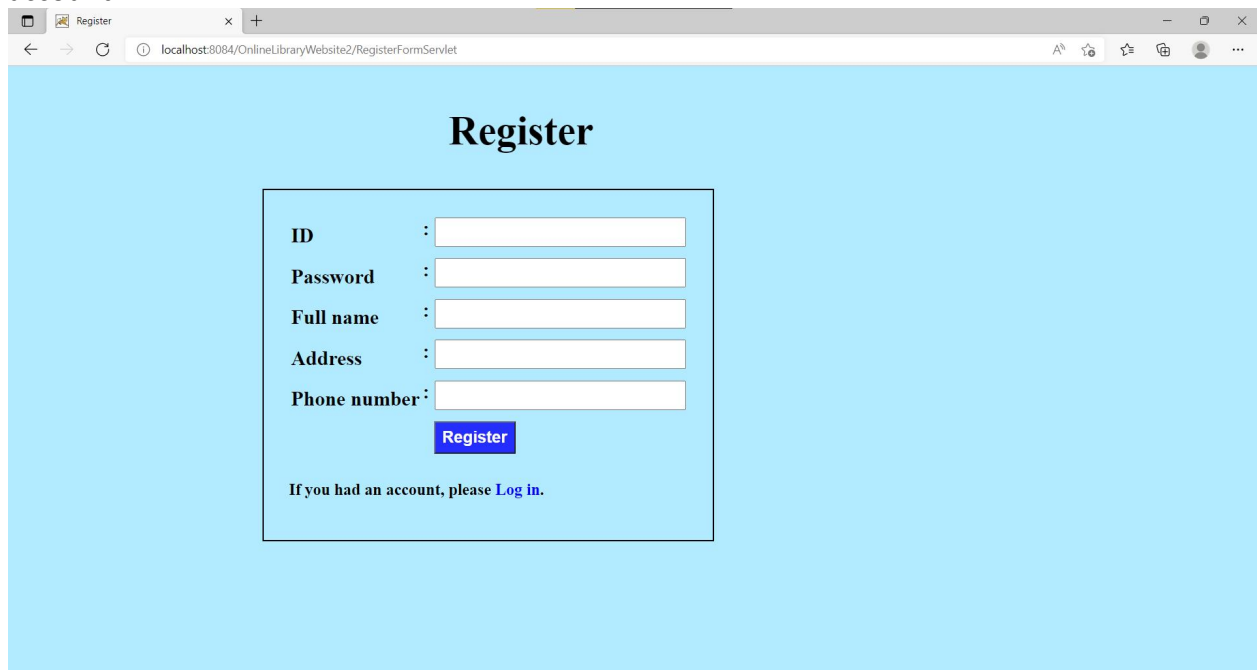
IV. Screenshot:

+Function Login



The screenshot shows a web browser window with the address bar displaying "localhost:8084/OnlineLibraryWebsite2/LoginServlet". The page has a light blue background and is titled "Log in" in a large, bold, black serif font. Below the title, there is a white rectangular form box with a thin black border. Inside the box, the labels "ID" and "Password" are followed by empty text input fields. Below these fields is a blue button with the text "Log in" in white. At the bottom of the form box, there is a line of text: "If you don't have account, please [Register](#)."

Explanation: The login page interface appears to help us enter the ID and password to access the website so that we can borrow and return the book. We can access member or user accounts depending on user needs. Once you have entered your ID and password, you will click login to access the main website. If you do not have an account, you can click Register to register for an account.

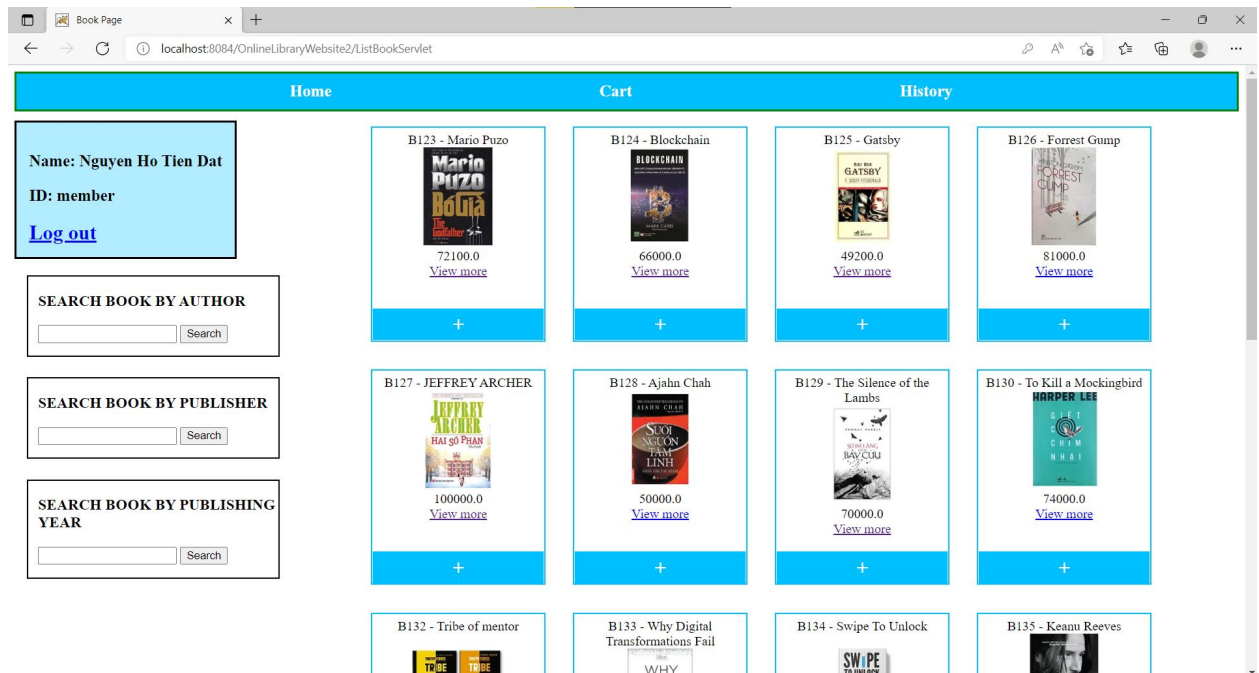


The screenshot shows a web browser window with the address bar displaying "localhost:8084/OnlineLibraryWebsite2/RegisterFormServlet". The page has a light blue background and is titled "Register" in a large, bold, black serif font. Below the title, there is a white rectangular form box with a thin black border. Inside the box, the labels "ID", "Password", "Full name", "Address", and "Phone number" are each followed by an empty text input field. Below these fields is a blue button with the text "Register" in white. At the bottom of the form box, there is a line of text: "If you had an account, please [Log in](#)."

Explanation: On the registration page, we will enter the required information to be able to build an account. When finished entering, we click Register to proceed with account registration.

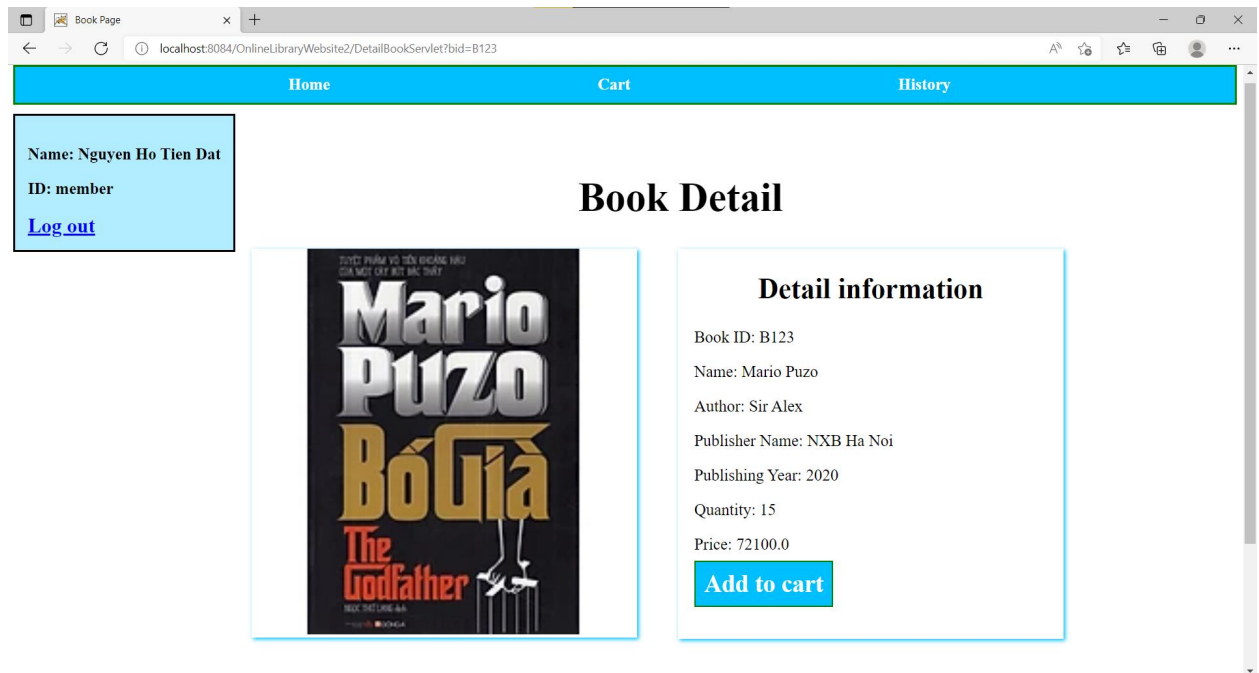
- After successful login, we will have two main navigation : Login with user account and login with manager account.

- Login with user account:



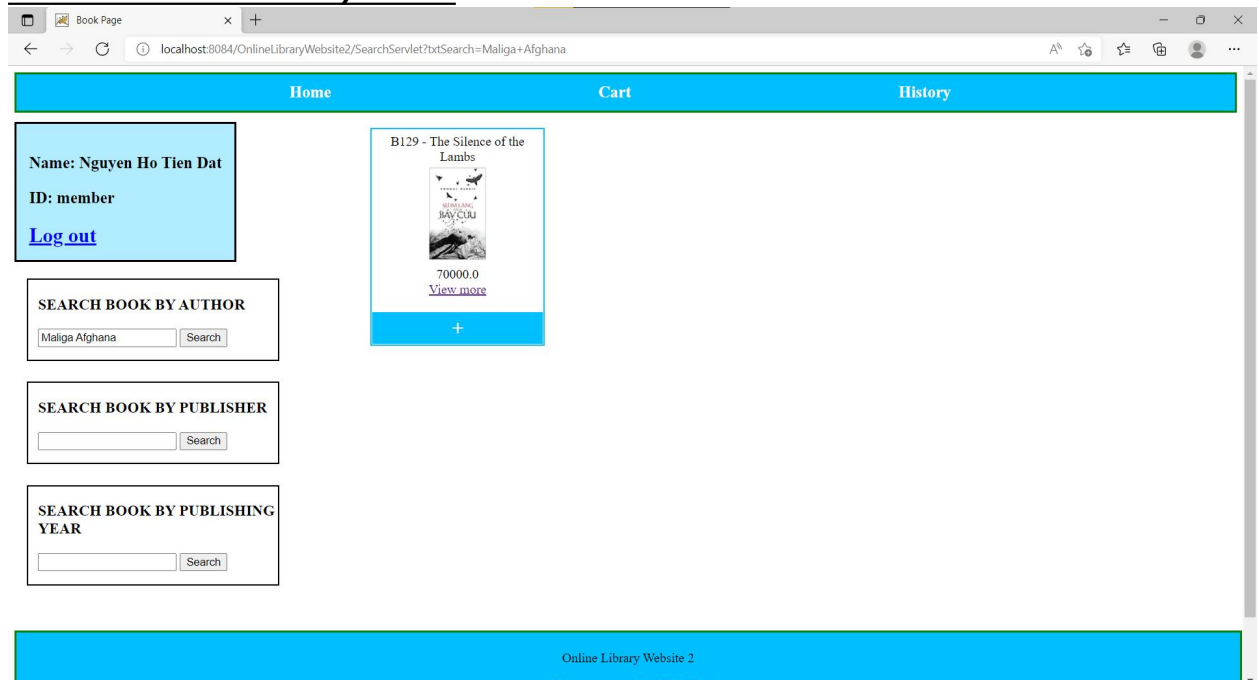
Explanation: When logged in with a user account, the website will show us a list of books available to the user that can be borrowed. If you want to see the details of the book, users will click on View more. In addition, the search function will support users to find the book they like in the most optimal way and without wasting much time. After the user finds the book he wants to borrow, the user will click on the + sign to proceed to add the book to the cart. The cover function will help users easily manage the products they want to borrow, and the history function will help users record the time to borrow and return without having to memorize it in their heads. When you want to log out, users just need to click on Log out, the system will redirect to the login page so that users can log in with another account.

+ Function View more:



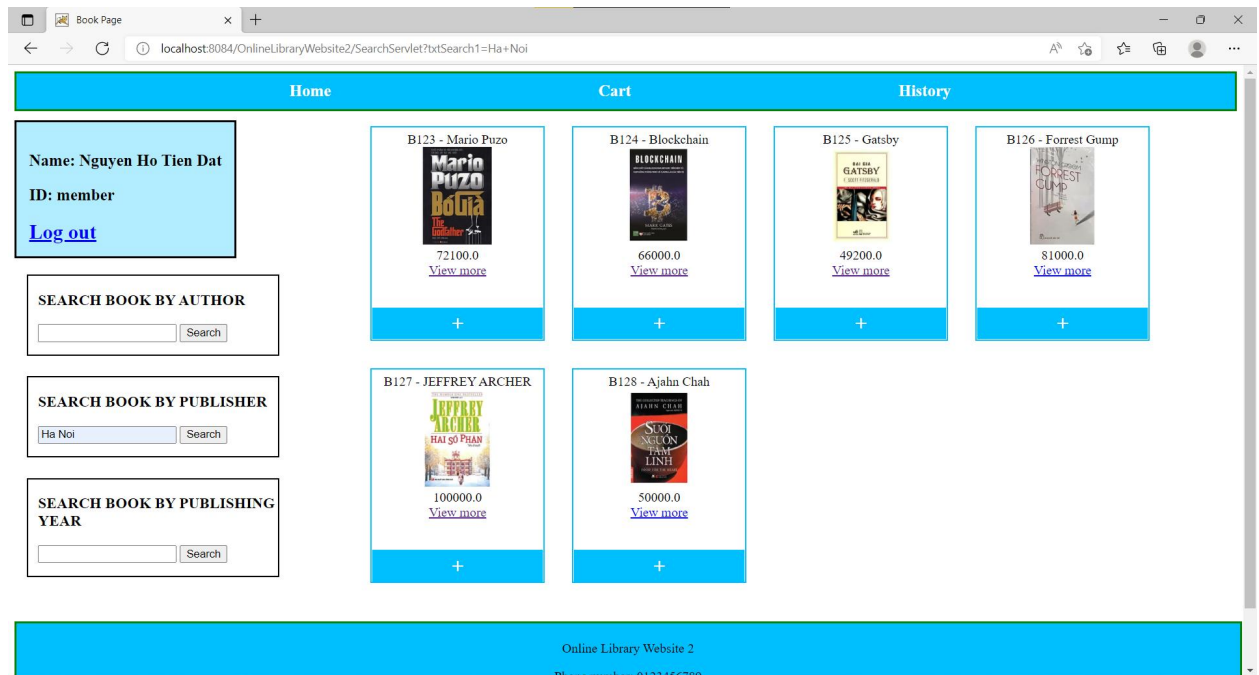
Explanation: The view more function will show the user more details about the book. When the user has decided to select the book he is viewing, he can click on the Add to cart box to switch to the cart and pay.

+ Function Search Book By Author



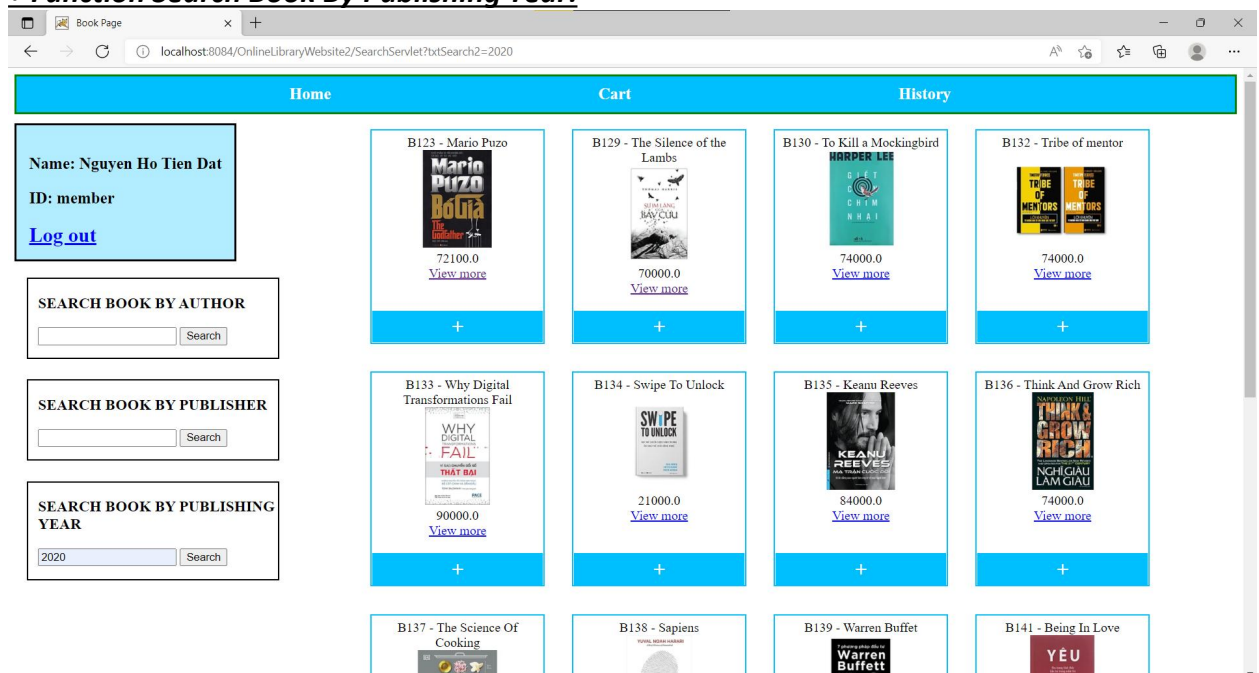
Explanation: When the user enters the desired author in the Search Book By Author box, the system will search for books whose author matches the user's request and display it on the screen. Now the user can add the searched book to the cart by clicking on the + sign.

+ Function Search Book By Publisher



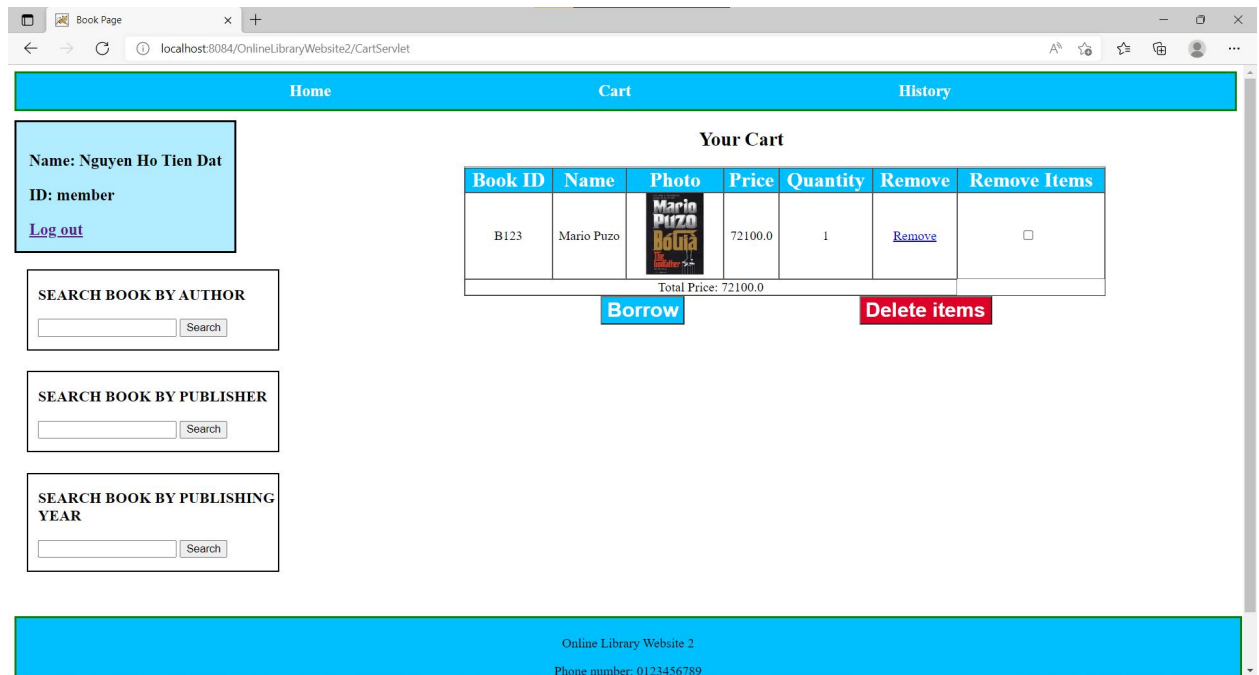
Explanation: When the user enters the desired publisher in the Search Book By Publisher box, the system will search for books whose publisher matches the user's requirements and display it on the screen. Now the user can add the searched book to the cart by clicking on the + sign.

+ Function Search Book By Publishing Year:



Explanation: When the user enters the required publication year in the Search Book By Publishing Year box, the system will search for books with the same publication year as the user's requirements and display them on the screen. Now the user can add the searched book to the cart by clicking on the + sign.

+Function Cart:



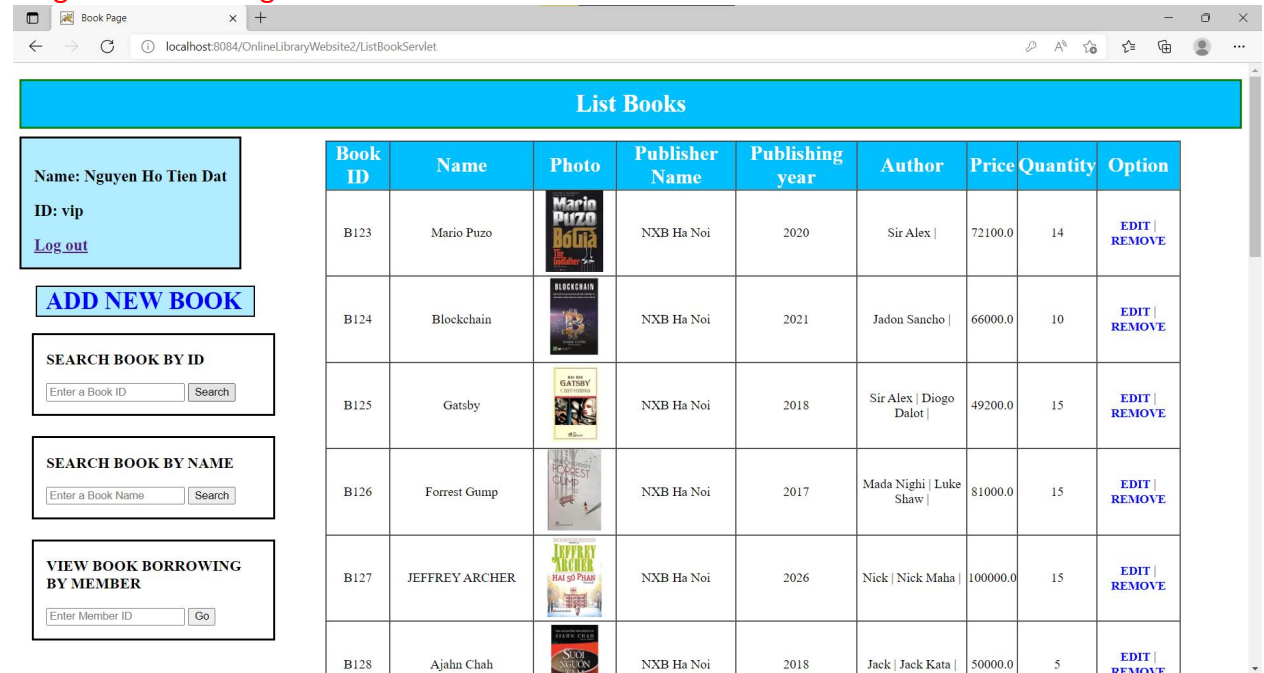
Explanation: The Cart function helps users manage their selected books more easily, here if the user changes his mind and does not want to borrow, he can click Remove to be able to delete the product he has selected. or want to delete many products at the same time, users can tick the Remove Items column for the products they want to delete and click on Delete items to proceed with the deletion. If a user decides to borrow a book, they can click Borrow. When you want to continue borrowing books, users just need to press Home to return to the homepage.

+Function history:







No	Borrow Date	Book Name	Is return ?
1	2022-03-16	Mario Puzo	Not Return

Explanation: History helps users record the time of borrowing books and information about the books that the user has borrowed. At the same time, it also displays the status of returned books or not returned books to inform users. When you want to continue borrowing books, users just need to press Home to return to the homepage.

-Login with a manager account

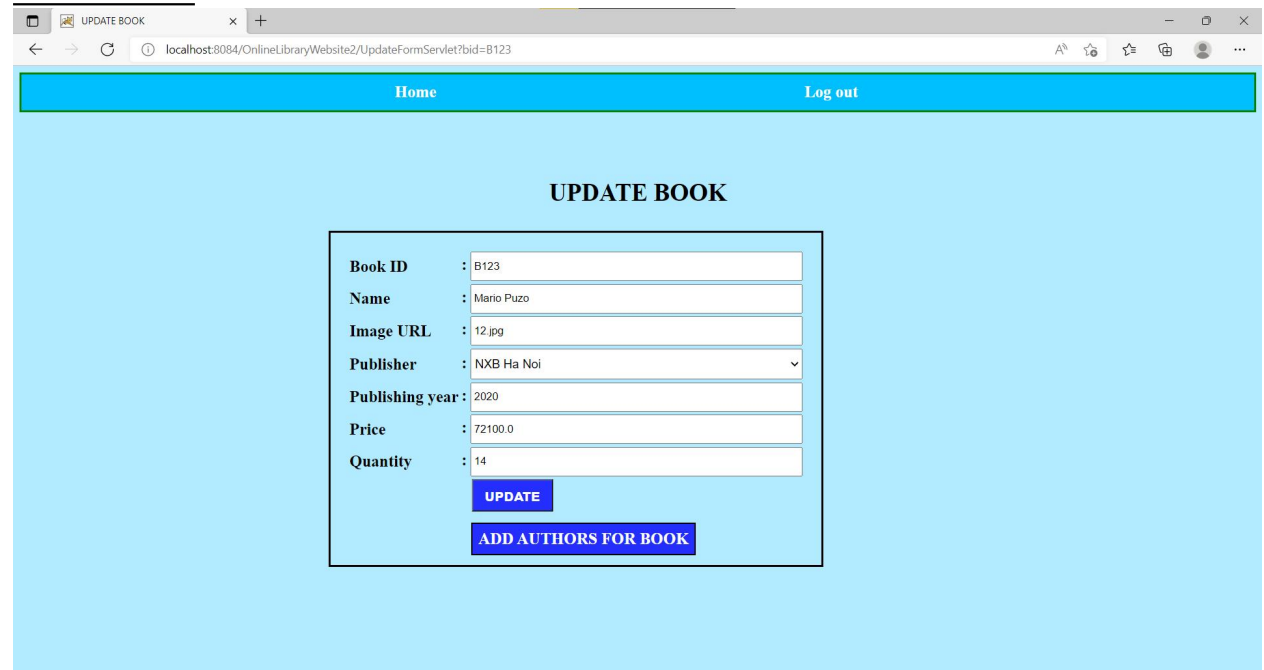


List Books

Book ID	Name	Photo	Publisher Name	Publishing year	Author	Price	Quantity	Option
B123	Mario Puzo		NXB Ha Noi	2020	Sir Alex	72100.0	14	EDIT REMOVE
B124	Blockchain		NXB Ha Noi	2021	Jadon Sancho	66000.0	10	EDIT REMOVE
B125	Gatsby		NXB Ha Noi	2018	Sir Alex Diogo Dalot	49200.0	15	EDIT REMOVE
B126	Forrest Gump		NXB Ha Noi	2017	Mada Nighi Luke Shaw	81000.0	15	EDIT REMOVE
B127	JEFFREY ARCHER		NXB Ha Noi	2026	Nick Nick Maha	100000.0	15	EDIT REMOVE
B128	Ajahn Chah		NXB Ha Noi	2018	Jack Jack Kata	50000.0	5	EDIT REMOVE

Explanation: When logged in with a manager account, the site will show us a list of books for the manager that can be edited. The administrator can edit the book information by clicking edit and delete the book on the web by clicking remove and the administrator can only delete the book when the book is not borrowed by any user. In addition, the search function will assist the book search manager to modify the information in the most optimal way and without wasting much time. Users can also add books on the web by clicking on the Add new book box. When you want to log out, users just need to click on Log out, the system will redirect to the login page so that users can log in with another account.

Function edit:



UPDATE BOOK

Book ID :

Name :

Image URL :

Publisher :

Publishing year :

Price :

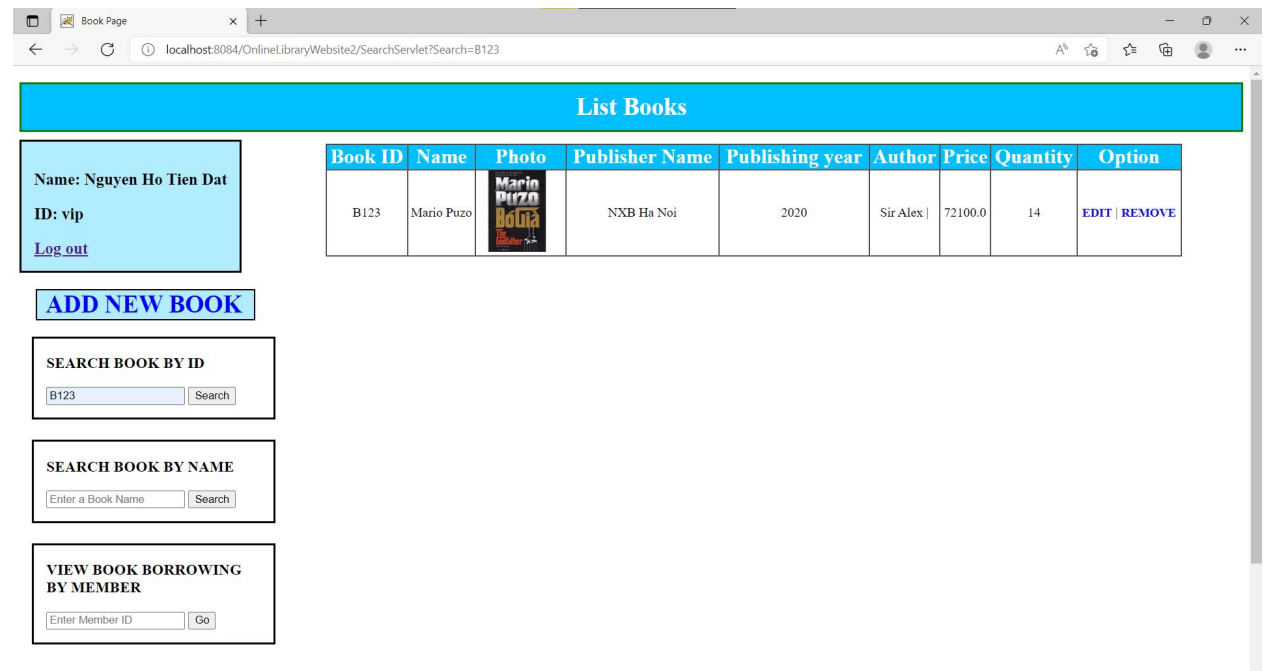
Quantity :

[UPDATE](#)


[ADD AUTHORS FOR BOOK](#)

Explanation: The manager can edit some information of the book such as Publisher, Price, Quantity. After editing, the administrator will press Update to update the data. In addition, to add more author information for the book, the administrator can click Add Author For Book. At this point, the website will redirect to the add author page for the book for the administrator.

+ Function Search Book By Id

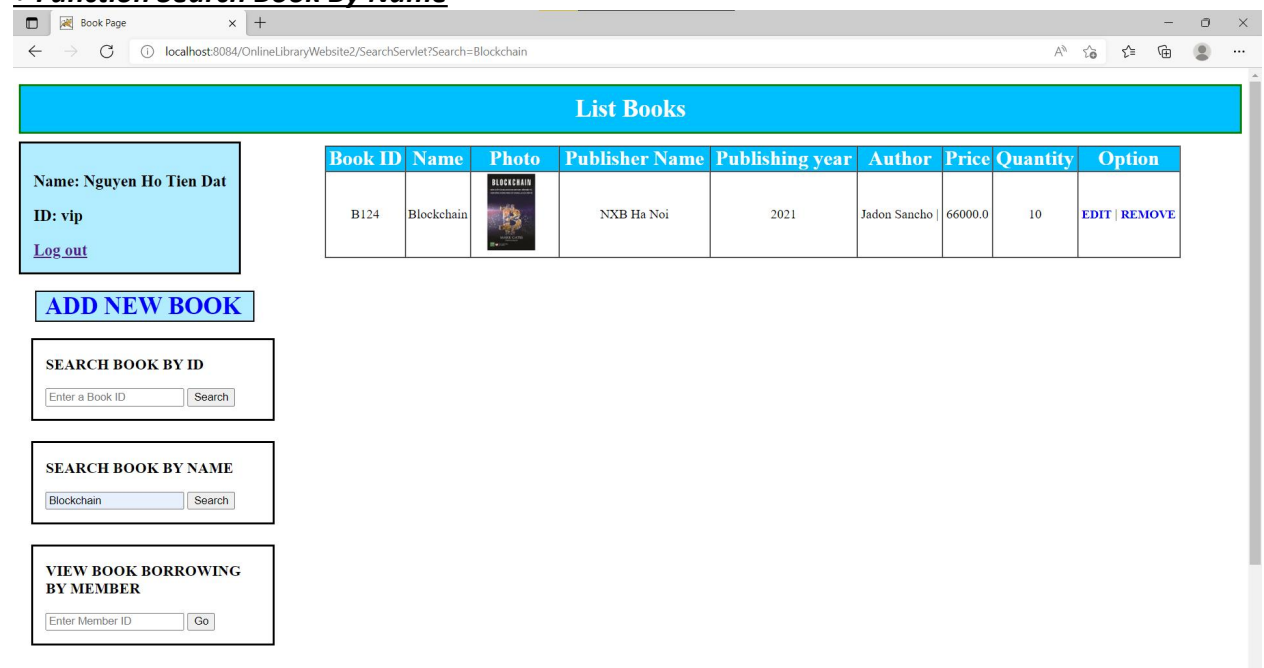


The screenshot shows a web browser window with the URL `localhost:8084/OnlineLibraryWebsite2/SearchServlet?Search=B123`. The page has a blue header bar with the text "List Books". On the left side, there is a sidebar with the following information: "Name: Nguyen Ho Tien Dat", "ID: vip", and a "Log out" link. Below this, there are three buttons: "ADD NEW BOOK", "SEARCH BOOK BY ID", "SEARCH BOOK BY NAME", and "VIEW BOOK BORROWING BY MEMBER". The "SEARCH BOOK BY ID" button is highlighted. The main content area displays a table with the following data:


Book ID	Name	Photo	Publisher Name	Publishing year	Author	Price	Quantity	Option
B123	Mario Puzo		NXB Ha Noi	2020	Sir Alex	72100.0	14	EDIT REMOVE

Explanation: When the manager enters the ID of the book to be searched in the Search Book By ID box, the system will search for books with the ID matching the manager's request and display it on the screen. The user can now proceed to edit and delete the searched book.

+ Function Search Book By Name



The screenshot shows a web browser window with the URL `localhost:8084/OnlineLibraryWebsite2/SearchServlet?Search=Blockchain`. The page has a blue header bar with the text "List Books". On the left side, there is a sidebar with the following information: "Name: Nguyen Ho Tien Dat", "ID: vip", and a "Log out" link. Below this, there are three buttons: "ADD NEW BOOK", "SEARCH BOOK BY ID", "SEARCH BOOK BY NAME", and "VIEW BOOK BORROWING BY MEMBER". The "SEARCH BOOK BY NAME" button is highlighted. The main content area displays a table with the following data:

Book ID	Name	Photo	Publisher Name	Publishing year	Author	Price	Quantity	Option
B124	Blockchain		NXB Ha Noi	2021	Jadon Sancho	66000.0	10	EDIT REMOVE

Explanation: When the manager enters the title of the book to be searched in the Search Book By Name box, the system will search for books with the name matching the manager's request and display it on the screen. The user can now proceed to edit and delete the searched book.

+ Function View Book Borrowing By Member

The screenshot shows a web browser window with the URL `localhost:8084/OnlineLibraryWebsite2/SearchServlet?viewBookBorrowByMemberID=member`. The page has a blue header with 'Home' and 'Log out' links. Below the header, a light blue box displays member information: Member ID: member, Member Name: Nguyen Ho Tien Dat, Member Phone: 0123456789, and Member Address: Bien Hoa - Dong Nai. Below this, a table lists borrowed books with columns: Call Card ID, Book ID, Book Name, Borrow Date, Is Return?, and Return check. The first row shows Call Card ID 3112204455, Book ID B123, Book Name Mario Puzo, Borrow Date 2022-03-16, and Is Return? Not Return. A 'Return Checked' button is located at the bottom right of the table.

Call Card ID	Book ID	Book Name	Borrow Date	Is Return?	Return check
3112204455	B123	Mario Puzo	2022-03-16	Not Return	<input type="checkbox"/>

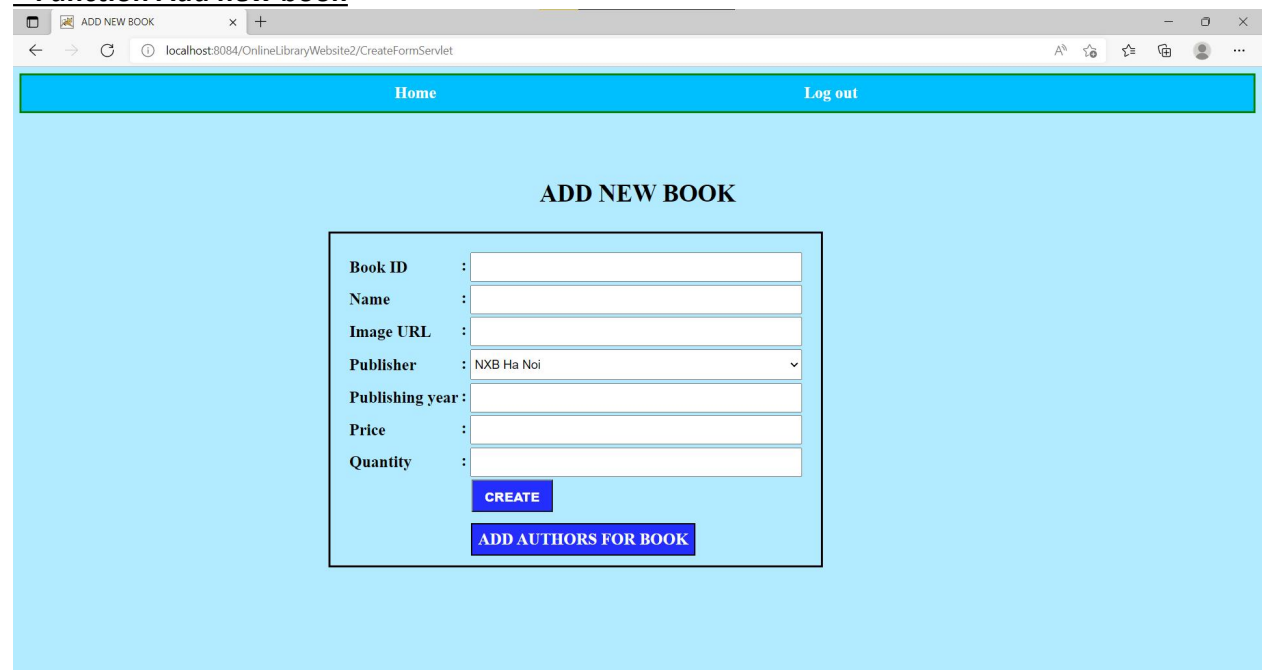
Explanation: Managers can control the process of borrowing and returning users' books through the Search Borrowing By Member box, where users only need to enter a few IDs of the borrower. The system will proceed to display the borrower's information, borrowed books and borrowed date. If the user has returned the book, the administrator can tick the Return check column to move to the confirmation page.

The screenshot shows a web browser window with the URL `localhost:8084/OnlineLibraryWebsite2/ReturnFormServlet?Book0=B123&member=member`. The page has a blue header with 'Home' and 'Log out' links. Below the header, a light blue box displays member information: Member ID: member, Member Name: Nguyen Ho Tien Dat, Member Phone: 0123456789, and Member Address: Bien Hoa - Dong Nai. Below this, a table lists books to be returned with columns: Book ID, Book Name, Cite Money, and Late Date. The first row shows Book ID B123, Book Name Mario Puzo, Cite Money 0, and Late Date 0. A 'Confirm' button is located at the bottom right of the table.

Book ID	Book Name	Cite Money	Late Date
B123	Mario Puzo	0	0

Explanation: The website shows the manager about the user's borrowed information, and also displays the return date details, if the user returns the book late, there will be an additional penalty. After checking all the information, the administrator will click on the confirm box to confirm the return of the user's books.

+ Function Add new book

The screenshot shows a web browser window with the title 'ADD NEW BOOK'. The address bar shows 'localhost:8084/OnlineLibraryWebsite2/CreateFormServlet'. The page has a blue header with 'Home' and 'Log out' links. The main content area is light blue and contains a form titled 'ADD NEW BOOK'. The form has the following fields: 'Book ID' (text input), 'Name' (text input), 'Image URL' (text input), 'Publisher' (dropdown menu with 'NXB Ha Noi' selected), 'Publishing year' (text input), 'Price' (text input), and 'Quantity' (text input). Below the fields are two buttons: 'CREATE' and 'ADD AUTHORS FOR BOOK'.

Explanation: Managers can add books to the web to make the site more diversified and more user-friendly. At the homepage, the manager clicks on the Add new book box, the system will redirect to the information entry page so that the manager can enter the books that need to be added. After entering, the administrator will press Create to proceed with adding books to the website. In addition, administrators can also add authors for books through Add authors for book.

V. Conclusion and Discussion

● The pros and cons of the application as well as your design:

* The pros:

- Help users borrow books through the internet easily without having to go to the library to register for an account
- Besides, choosing books according to your needs will be simpler and more convenient.
- Helping the library to manage books more closely without having to make statistics according to written paper.

* The cons:

- The design of our website has not been optimized and the decoration is not beautiful.
- Not being able to provide a wide variety of books for everyone because books are an encyclopedia that everyone wants to experience. We will try to provide books that suit your needs and experiences.

● What you've learned anything through the development of this application???

- We learned how to design a website that is right with the needs of users to meet everyone's requirements when society is increasingly developing in the era of technology 4.0.

- Through the development of this application we can improve our own skills knowing many technical techniques that need to be learned much more.

- In the future, if having more time, what would you do to improve it?

- In the future, if possible, we will design a more complete website to meet the needs of users in a higher way.

- In addition, we will develop to buy and sell books through the website, if possible, we will open a bookstore for everyone.