



FPTU Library

Software Requirement Specification

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SIGNATURE PAGE

ORIGINATOR: Phạm Nhật Hạ 20/05/2022
 Lù Nhân Tuấn
 Lê Vũ Lâm Duy
 Ngô Tổ Oanh

REVIEWERS: Lại Đức Hùng 14/06/2022
 Lecturer

APPROVAL: <Name> _____ <Date> .
 <Position>

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1 INTRODUCTION

1.1 Purpose

The purpose of this software requirements specification (SRS) is to clarify the functional and non-functional requirements for the FPT HCM University library web application. Besides it contains detailed descriptions of all the requirements specified. It will explain the purpose and features of the system, what the system will do, and the constraints under which it must operate. This document is intended for both the stakeholders and the developers of the system.

1.2 Scope

This document defines the requirements for FPT HCM University's library web application. The web application provides an online tool for librarians to manage the books flow: loan/return books, and make reports. Students and Lecturers can search for book information, and reserve a booking for offline check-out.

There are three basic users: Guest, Reader, and Employee.

Reader and Employee have their own profiles in the web application.

Guest can search for book information.

Reader can login to the web application to manage book reservations, send feedback.

Employee can use the web application to record student's loan/return books. He also manages the library inventory and makes reports when needed.

1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
Reference book	A non-related to a specified major at FPT HCM University such as international literatures ("Những người khốn khổ" by Victor Hugo, book code: TXH003707), self-helps ("Phẩm chất cha mẹ") and logical related theme ("Bí mật phía sau điện toán đám mây" by Adler, book code: TTN000090). This type of resource is available for readers and employees.

Specified book	A related to a specified major at FPT HCM University such as Software Engineering ("Computer Organization and Architecture: designing for performance" by William Stallings, book code: GSE008658). This type of resource is available for students and lecturers.
Restricted reference book	This type of resource is only available for lecturers.
SRS – Software Requirements Specification	A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.
Returned day	A day is automatically created when the user borrows a book or extends the loan time.
DDC – Dewey Decimal Classification	A proprietary library classification system which allows new books to be added to a library in their appropriate location based on subject.
MARC21 – Machine Readable Cataloging	A data format is used to record, store and exchange bibliographic data.
VND - Vietnam Dong	Vietnamese currency.

Acronym	Definition
BR	Business Rule
UC	Use Case
AS	Assumption
DE	Dependency
CO	Constraint
US	Usability
RE	Reliability
PE	Performance

SU	Supportability
DC	Design Constraints
OD	Online User Documentation and Help System
PC	Purchased Components
LC	Legal, Copyright

1.4 References

Libor Bus, Eccam. (2021, 09 03). https://www.reqview.com/papers/ReqView-Example_Software_Requirements_Specification_SRS_Document.pdf. Retrieved from ReqView: https://www.reqview.com/papers/ReqView-Example_Software_Requirements_Specification_SRS_Document.pdf
(Jyothi,Kavya,Sandeep,Sunil, 2009)
(DDC Classification)

1.5 Overview

The rest of the SRS contains Use Case Diagram and detailed use cases. When the project expands, new requirements will be elicited and added in the next version. The flow starts at Guest.

2 OVERALL DESCRIPTION

2.1 Product perspective

2.1.1. System interfaces

The web application runs in the latest version of Chrome or Edge browser.

2.1.2. User interfaces

The application GUI provides menus, buttons allowing for easy control by a mouse.

2.2 User characteristics

Guest is the one who can use the search function and view a book's detail function without login.

Reader is the one who has FPT University's email account and uses this account to access authorized pages inside this web application. Reader includes Student and Lecturer. Lecturers can borrow restricted reference books.

Employee is the one who has FPT University's email account provided by FPTU and uses this account to access authorized pages inside this web application. Employees include Librarian and Manager. The manager creates statistical reports.

2.3 Assumption

AS.1: The Internet is always available for the web application to work efficiently.

AS.2: The readers' and employees' accounts are created and authorized by FPT HCM University's IT Department.

2.4 Constraints

CO.1: The returned day for specified books will be set automatically at the end of the semester.

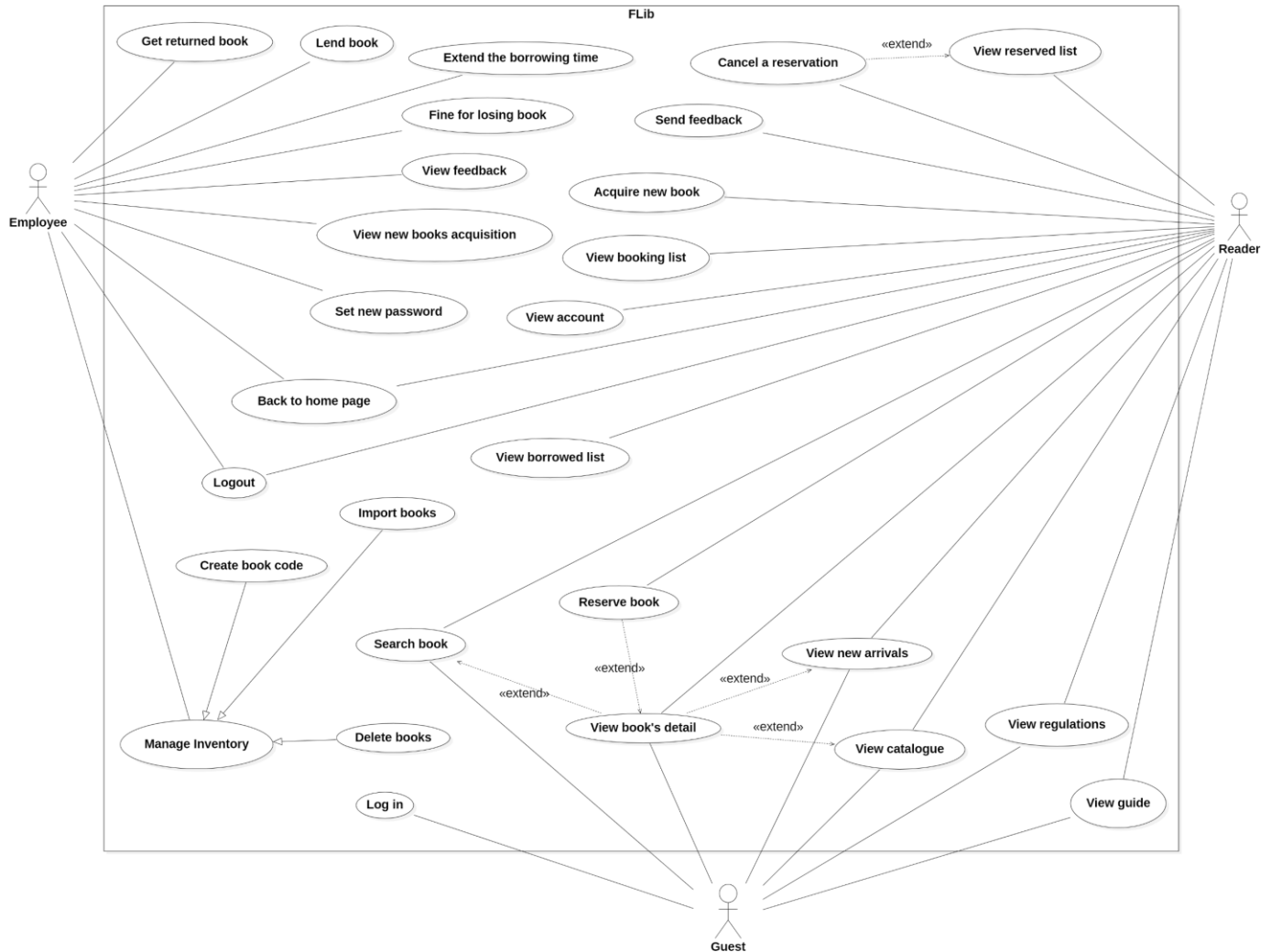
CO.2: When a new book is imported to the inventory, the manager must type all fields correctly.

2.5 Dependencies

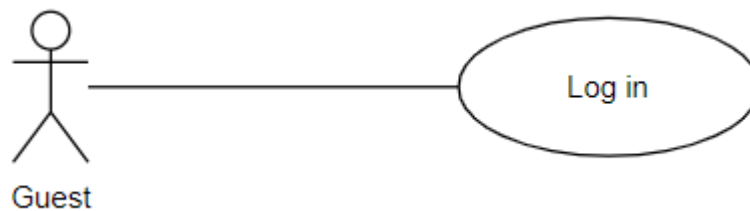
- DE.1:** Students', Lecturers' and Employees' accounts are imported from the Academic Administration Department Excel file (.csv) and uploaded to the system using external software.
- DE.2:** The web application uses a pre-made book cataloging repository from an external source. This repository is standardized by using the MARC21 cataloging method.
- DE.3:** The web application uses a pre-made book code maker software from an external source. This software follows DDC standard.
- DE.4:** DDC is used to create books' call numbers.

3 FUNCTIONAL REQUIREMENTS

3.1 Use Cases Diagram



3.2 Log in



USE CASE-1 SPECIFICATION															
Use-case No.	UC001	Use-case Version	1.2												
Use-case Name	Log in														
Author	Ngô Tố Oanh														
Date	23/05/2022	Priority	High												
<p>Actor:</p> <p>Guest.</p> <p>Summary:</p> <p>The actor logs in to the website.</p> <p>Goal:</p> <p>The actor logs in to the website successfully. The system must redirect the actor to the “Trang chủ” page.</p> <p>Triggers:</p> <p>When the actor wants to login to the website.</p> <p>Preconditions:</p> <p>The actor has an account.</p> <p>The actor accessed the website.</p> <p>Post Conditions:</p> <p>N/A</p> <p>Main Success Scenario:</p> <table><tr><th>#</th><th>Actors’ actions</th><th>System response</th></tr><tr><td>1</td><td>The actor clicks on “Đăng nhập” button on the up-right corner on page. [Alternative1] [Alternative2] [Alternative3]</td><td>The system sends redirection to Login page.</td></tr><tr><td>2</td><td>The actor clicks on “Đăng nhập bằng tài khoản Google”.</td><td>The system switches to Google’s login screen.</td></tr><tr><td>3</td><td>The actor chooses the account.</td><td>Google verifies the login information.</td></tr></table>				#	Actors’ actions	System response	1	The actor clicks on “Đăng nhập” button on the up-right corner on page. [Alternative1] [Alternative2] [Alternative3]	The system sends redirection to Login page.	2	The actor clicks on “Đăng nhập bằng tài khoản Google”.	The system switches to Google’s login screen.	3	The actor chooses the account.	Google verifies the login information.
#	Actors’ actions	System response													
1	The actor clicks on “Đăng nhập” button on the up-right corner on page. [Alternative1] [Alternative2] [Alternative3]	The system sends redirection to Login page.													
2	The actor clicks on “Đăng nhập bằng tài khoản Google”.	The system switches to Google’s login screen.													
3	The actor chooses the account.	Google verifies the login information.													

		<p>If the actor logged in as "Reader" role, the actor will be redirected to "Trang chủ" page. [Exception1]</p> <p>If the actor logged in as "Employee" role, the actor will be redirected to "Làm việc" page. [Exception1]</p>
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Alternative Scenario:

Alternative1:

#	Actors' actions	System response
1	The actor clicks on "Feedback" tab on navigation bar.	The system sends redirection to Login page.
2	The actor clicks on "Đăng nhập bằng tài khoản Google".	The system switches to Google's login screen.
3	The actor chooses the account.	<p>Google verifies the login information and allows the actor to role "Reader" and redirects to Feedback page. [Exception1]</p> <p>If the actor logged in as "Employee" role, the actor will be redirected to "Làm việc" page. [Exception1]</p>

Alternative2:

#	Actors' actions	System response
1	The actor clicks on "Account" tab on navigation bar.	The system sends redirection to Login page.
2	The actor clicks on "Đăng nhập bằng tài khoản Google".	The system switches to Google's login screen
3	The actor chooses the account.	<p>Google verifies the login information and allows the actor to role "Reader" and redirects to Account page. [Exception1]</p> <p>If the actor logged in as "Employee" role, the actor will be redirected to "Làm việc" page. [Exception1]</p>

Alternative3:

#	Actors' actions	System response
1	The actor clicks on "Đặt mượn sách" tab on navigation bar.	The system sends redirection to Login page.
2	The actor clicks on "Đăng nhập bằng tài khoản Google".	The system switches to Google's login screen.
3	The actor chooses the account.	Google verifies the login information and allows the actor to role "Reader" and redirects to "Đặt mượn sách" page. [Exception1] If the actor logged in as "Employee" role, the actor will be redirected to "Làm việc" page. [Exception1]

Exceptions:

Exception1:

#	Cause	System response
1	The actor chooses the wrong account.	Shows a message "Tài khoản của bạn không được phép đăng nhập vào hệ thống!".

Exception2:

#	Cause	System response
1	The actor enters the wrong username or password.	Shows a message "Sai username hoặc password!".

Exception3:

#	Cause	System response
1	The actor does not fill in username or password	Shows a message "Không được để trống!"

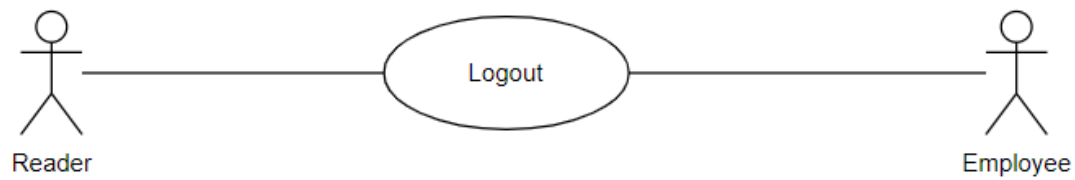
Relationships:

Include UC006.

Business Rules:

BR.1: Google account must end with @fpt.edu.vn.

3.3 Log out



USE CASE-2 SPECIFICATION

Use-case No.	UC002	Use-case Version	1.2
Use-case Name	Logout		
Author	Ngô Tố Oanh		
Date	23/05/2022	Priority	High

Actor:

Reader, Employee

Summary:

The actor signs out of the website.

Goal:

The actor signs out of the website and is redirected to the home page.

Triggers:

The actor wants to sign out.

Preconditions:

The actor already logged in.

Post Conditions:

The actor logs out of the system successfully. The system must redirect the user to the "Trang chủ" page.

Main Success Scenario:

#	Actors' actions	System response
1	Clicks "Đăng xuất" button.	The system returns to the "Trang chủ" page.

Alternative Scenario:

#	Actors' actions	System response
1	Being inactive for one hour	The system will log the reader out. The incomplete use case will also fail.

Exceptions:

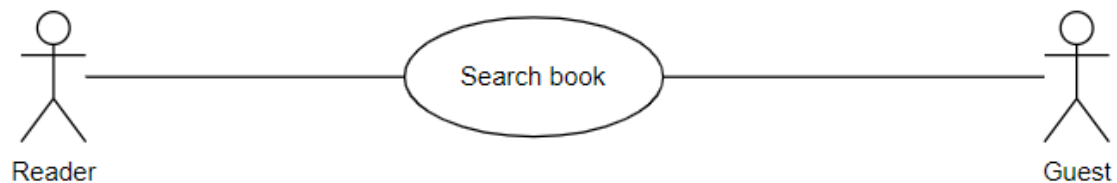
N/A

Relationships:

N/A

Business Rules:

N/A

3.4 Search book**USE CASE-3 SPECIFICATION**

Use-case No.	UC003	Use-case Version	1.2
Use-case Name	Search book		
Author	Ngô Tố Oanh		
Date	07/06/2022	Priority	High
Actor: Reader, Guest.			
Summary: The actor searches for books.			
Goal: Books with similar information will be displayed on the screen.			

Triggers:

The actor wants to search for a book.

Preconditions:

On a page that contains the search bar.

Post Conditions:

A list of books which have related information is displayed.

Main Success Scenario:

#	Actor's actions	System response
1	User types in a name they want to search.	N/A
2	User clicks on "Tìm kiếm" button.	The system gets the list of books that contains the search string. Then display the list on the screen. [Exception1] [Exception2]

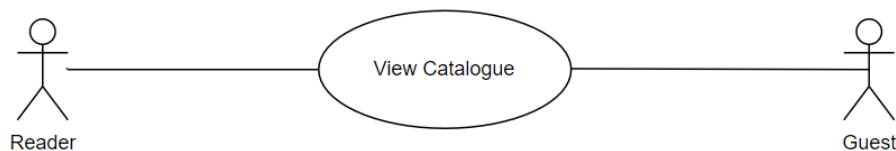
Alternative Scenario:

Alternative1:

#	Actor's actions	System response
1	Actor clicks on "Tìm kiếm nâng cao" button.	System shows a pop-up to start searching: 1 st line: the first drop-down list shows search categories: title, author, ISBN, publisher, keywords. The second drop-down list shows search types: contains, exact, starts with, ends. The textbox for the user to input the search term. 2 nd to 4 th line: the first drop-down list shows combined criteria: and, or, not. The second drop-down list shows search categories: title, author, ISBN, publisher, keywords. The third drop-down list shows search types: contains, exact, starts with, ends. The textbox for the user to input the search term.
2	Actor fills in the field(s) in the pop-up.	N/A
3	Actor clicks on "Tìm kiếm" button.	The system gets the list of books that match the search filter then displays the list on the screen.

		[Exception1] [Exception2]
Alternative2:		
#	Actor's actions	System response
1	Actor clicks on a book's type.	System redirects to "Tìm kiếm" page. Shows a list of books which have that book's type.
Exceptions:		
Exception1:		
#	Cause	System response
1	The book(s) with the search term does not exist in the system.	System shows message "Không thể tìm thấy!".
Exception2:		
#	Cause	System response
1	Input string is empty.	The system shows message "Trường tìm kiếm không thể trống".
Relationships:		
Extends UC005		
Business Rules:		
BR.2: Search with specified languages: Tiếng Việt, Tiếng Anh.		
BR.3: The limited number of letters on the search bar is 255.		

3.5 View Catalogue



USE CASE-4 SPECIFICATION

Use-case No.	UC004	Use-case Version	1.2
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Use-case Name	View Catalogue		
Author	Ngô Tố Oanh		
Date	07/06/2022	Priority	Normal

Actor:

Reader, Guest.

Summary:

The actor views book based on catalogue.

Goal:

Books with similar book type will be displayed on the screen.

Triggers:

When the user wants to view book(s) based on catalogue.

Preconditions:

Bấm vào "Tài nguyên" ở trang chủ.

Post Conditions:

A list of books which have related information is displayed.

Main Success Scenario:

#	Actor's actions	System response
1	Actor clicks "Tài nguyên" tab at "Trang chủ" page.	Shows "Tài nguyên" page which has 6 buttons: <ul style="list-style-type: none">— Mọi tư liệu— Sách chuyên ngành— Sách đọc thêm— Luận án— Báo tạp chí— Bài trích
2	Clicks on 1 of 6 buttons.	The system shows the list on the "Search" screen.

Alternative Scenario:

N/A

Exceptions:

N/A

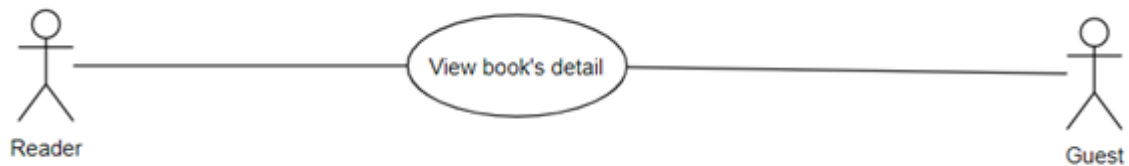
Relationships:

Extend UC005

Business Rules:

N/A

3.6 View book detail



USE CASE-5 SPECIFICATION

Use-case No.	UC005	Use-case Version	1.2
Use-case Name	View book’s detail		
Author	Lê Vũ Lâm Duy		
Date	07/06/2022	Priority	Normal
Actor: Reader, Guest			
Summary: The actor wants to view a book’s detail.			
Goal: The book’s details will be shown on the “Chi tiết sách” page.			
Triggers: The actor clicks on a book’s title.			
Preconditions: N/A			
Post Conditions: The book’s description is displayed on “Chi tiết sách” page.			
Main Success Scenario:			
#	Actor’s actions	System response	
1	Clicks on the book’s title.	The system redirects to “Chi tiết sách” page and shows the book’s description on screen: <ul style="list-style-type: none">- Book’s cover- Book’s name- Catalogue- ISBN- Author	

		<ul style="list-style-type: none"> - Number of pages - Publisher - Availability - Description <p>The system contains the button “Đặt mượn sách”.</p>
Alternative Scenario: N/A Exceptions: N/A Relationships: Extends: UC005 Business Rules: N/A		

3.7 View new arrivals



USE CASE-6 SPECIFICATION			
Use-case No.	UC006	Use-case Version	1.2
Use-case Name	View new arrivals		
Author	Lê Vũ Lâm Duy		
Date	07/06/2022	Priority	High
Actor: Reader, Guest Summary: The actor wants to view new arrivals. Goal: Introducing new book arrivals to readers.			

Triggers:

When the actor wants to see new book arrivals.

Preconditions:

When the actor opened the FLib “Trang chủ” page.

Post Conditions:

The website shows a list of new book arrivals on “Trang chủ” page. The list is shown below the website’s taskbar.

Main Success Scenario:

#	Actor’s actions	System response
1	The actor clicks on the logo or “Home” button.	Displays new arrivals, each item includes: <ul style="list-style-type: none"> — Cover — Name — Category — Author

Alternative Scenario:

N/A

Exceptions:

N/A

Relationships:

Extend UC005

Business Rules:

BR.4: Display new arrivals in slideshow view, with a maximum quantity is 5 books in a slide.

BR.5: The time to show each slide is 60 seconds.

3.8 Reserve a book**USE CASE-7 SPECIFICATION**

Use-case No.	UC007	Use-case Version	1.2
Use-case Name	Reserve a book		
Author	Phạm Nhật Hạ		
Date	07/06/2022	Priority	Normal

Actor:
Reader

Summary:
The actor reserves a book.

Goal:
The book is successfully reserved.

Triggers:
The actor clicks on "Đặt mượn sách" button.

Preconditions:
The reader already logged in.
The reader stays at "Chi tiết sách" page.
The book must be available in the inventory.

Post Conditions:
The book is successfully reserved.
A pop-up shows "Bạn đã đặt thành công tư liệu này. Vui lòng đến lấy trước ngày dd/mm/yyyy".

Main Success Scenario:

#	Actor's actions	System response
1	Click "Đặt mượn sách" button.	Shows pop-up "Bạn đã đặt thành công tư liệu này. Vui lòng đến lấy trước ngày dd/mm/yyyy". Example: The reservation is set at 16:00 15-Jun-2022 then the returned date is 00:00 19-Jun-2022. [Exception1]

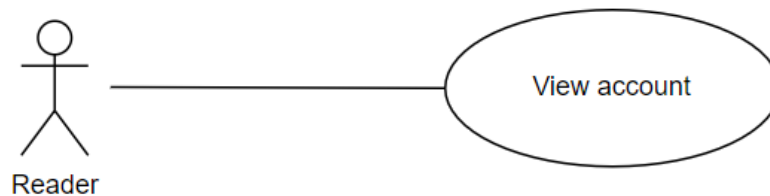
Alternative Scenario:
N/A

Exceptions:
Exception1:

#	Cause	System response
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1	When the book quantity is equal to 0 in the inventory.	Show pop-up “Đặt mượn thất bại”.
Relationships: N/A		
Business Rules: BR.6: The reader can only reserve one copy of the book. BR.7: The maximum reservation quantity (borrowed and reserved) is 11. BR.8: The book will stay on the reserved list for only three days. After three days without checkout, the system will remove the reservation and the book returns to the inventory.		

3.9 View account



USE CASE-8 SPECIFICATION			
Use-case No.	UC008	Use-case Version	1.1
Use-case Name	View account		
Author	Phạm Nhật Hạ		
Date	07/06/2022	Priority	High
Actor: Reader			
Summary: The actor views their account information.			
Goal: The system shows the reader's account information.			
Triggers:			

When the actor wants to see his/her account information.

Preconditions:

The actor logged in as Reader role.

Post Conditions:

The reader's information is shown on the screen successfully.

Main Success Scenario:

#	Actor's actions	System response
1	Click "Tài khoản" button.	The reader's information will be shown as a bordered box under the website's taskbar and on the left side. This box shows: <ul style="list-style-type: none"> — Profile image — ID — Full name — Expired date — Role

Alternative Scenario:

N/A

Exceptions:

N/A

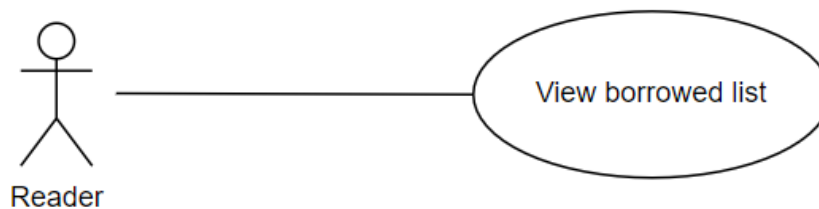
Relationships:

Include: UC009.

Business Rules:

N/A

3.10 View borrowed list

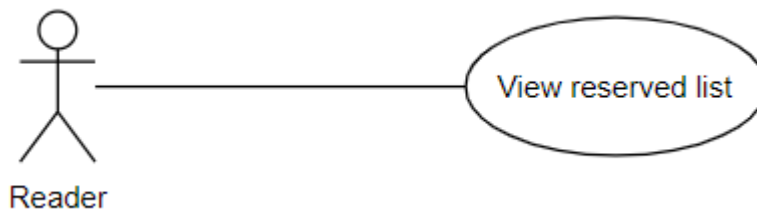


USE CASE-9 SPECIFICATION

Use-case No.	UC009	Use-case Version	1.2
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Use-case Name	View borrowed list		
Author	Phạm Nhật Hạ		
Date	07/06/2022	Priority	High
Actor: Reader			
Summary: The reader wants to view the borrowed list.			
Goal: A borrowed list with detailed information is shown on screen.			
Triggers: The reader clicks on "Sách đang mượn" in "Tài khoản" page.			
Preconditions: The actor logged in as Reader role. The actor stays on "Tài khoản" page.			
Post Conditions: A list of borrowed bookings is displayed.			
Main Success Scenario:			
#	Actor's actions	System response	
1	The reader clicks on "Sách đang mượn" tab in "Tài khoản" page.	If the list is not empty, then the system shows a borrowed list containing these fields: — Book's cover — Book's name — Category — Author — Borrowed date — Checkout date — Overdue day (unit: days) — Fine (unit: VNĐ). If the list is empty, the system shows "Không có sách đang mượn".	
Alternative Scenario: N/A			
Exceptions: N/A			
Relationships:			

N/A

Business Rules:**BR.9:** The expired reservation(s) will be shown first.**BR.10:** The list order is displayed by the oldest date.**3.11 View reserved list****USE CASE-10 SPECIFICATION**

Use-case No.	UC010	Use-case Version	1.2
Use-case Name	View reserved list		
Author	Ngô Tố Oanh		
Date	07/06/2022	Priority	High
Actor: Reader			
Summary: The reader wants to view the reserved list.			
Goal: A reserved list with detailed information is shown on screen.			
Triggers: The reader clicks on "Sách đang đặt" in "Tài khoản" page.			
Preconditions: The actor logged in as Reader role. The actor stays on "Tài khoản" page.			

Post Conditions:

A list of reserved bookings is displayed.

Main Success Scenario:

#	Actor's actions	System response
1	The reader clicks on "Sách đang đặt" tab in "Tài khoản" page.	<p>If the list is not empty, then the system shows a reserved list containing these fields:</p> <ul style="list-style-type: none"> — Book's cover — Book's name — Category — Author — Borrowed date — Checkout date — Overdue day (unit: days) — Fine (unit: VNĐ). <p>If the list is empty, the system shows "Không có sách đang đặt mượn".</p>

Alternative Scenario:

N/A

Exceptions:

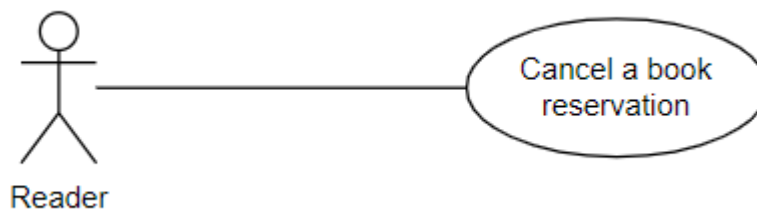
N/A

Relationships:

Extend: UC011

Business Rules:

BR.10: The list order is displayed by the oldest date.

3.12 Cancel a book reservation**USE CASE-11 SPECIFICATION**

Use-case No.	UC011	Use-case Version	1.2
Use-case Name	Cancel a book reservation		
Author	Phạm Nhật Hạ		
Date	07/06/2022	Priority	Normal

Actor:
Reader

Summary:
The actor wants to cancel a reservation.

Goal:
The reservation is cancelled successfully.

Triggers:
The actor clicks on "Hủy đặt" button

Preconditions:
The actor logged in as Reader role.
The reader stays at "Tài khoản" page, on "Sách đang đặt" tab.
The reserved list is not empty.

Post Conditions:
The book is removed from the reserved List.

Main Success Scenario:

#	Actor's actions	System response
1	Clicks on "Hủy đặt" button.	Shows a pop-up: "Bạn có muốn hủy đặt tư liệu này?" with 2 options: "Đồng ý" and "Hủy"
2	Clicks on "Đồng ý" button. [Exception1]	The book is removed from the Reserved List.

Alternative Scenario:

#	Actor's actions	System response
1	The actor doesn't come to check out after 3 days from the reserved date.	The book is removed from the Reserved List.

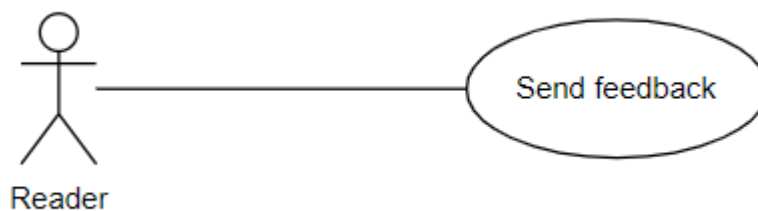
Exceptions:

#	Actor's actions	System response
1	Clicks on "Hủy" button.	The book is not removed from the Reserved List.

Relationships:
N/A

Business Rules:
N/A

3.13 Send feedback



USE CASE-12 SPECIFICATION			
Use-case No.	UC012	Use-case Version	1.2
Use-case Name	Send feedback		
Author	Ngô Tố Oanh		
Date	23/05/2022	Priority	Low
<p>Actor: Reader</p> <p>Summary: The reader sends feedback to the Library.</p> <p>Goal: Library receives feedbacks from the reader.</p> <p>Triggers: Reader clicks on "Feedback" button. When the reader clicks "Feedback" tab then chooses "Đóng góp sách mới" in a drop-down list.</p> <p>Preconditions:</p>			

The actor logged in as Reader role.

Reader stays on Feedback page.

Post Conditions:

Feedback is sent successfully.

A pop-up "Cảm ơn bạn đã đóng góp ý kiến cho thư viện!" is shown.

Main Success Scenario:

#	Actors' actions	System response
1	Clicks "Feedback" tab.	Redirects to "Feedback" page
2	Clicks "Góp ý về việc" tab.	Shows a drop-down list: <ul style="list-style-type: none"> — Thái độ nhân viên — Chất lượng sách — Cơ sở hạ tầng — Khác "Nội dung" textbox becomes a required field.
3	Votes stars for "Mức độ sử dụng".	The chosen stars will change their colors.
4	Votes stars for "Thái độ nhân viên".	The chosen stars will change their colors.
5	Votes stars for "Chất lượng cơ sở vật chất".	The chosen stars will change their colors.
6	Clicks "Gửi" button.	Shows pop-up "Cảm ơn bạn đã đóng góp ý kiến cho thư viện!". [Exception1]

Alternative Scenario:

None

Exceptions:

Exception1:

#	Cause	System Response
1	All fields are blank.	Shows message "Không thể gửi feedback trống!".

Relationships:

N/A

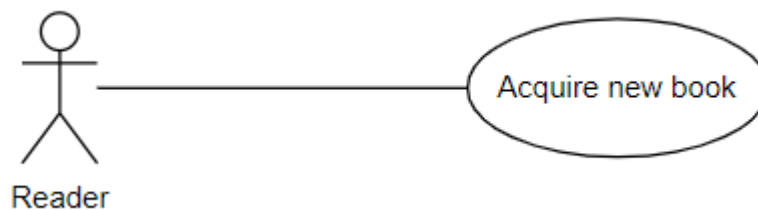
Business Rules:

BR.11: About "Nội dung" textbox: the minimum length is 20 letters. The maximum length is 2500 letters. There are no abusive or inappropriate words.

BR.12: About voting stars: the minimum quantity is 1 star; the maximum quantity is 5 stars.

BR.13: When the user does not choose a topic in "Góp ý về việc" then "Nội dung" is grayed and unavailable to type content.

3.14 Acquire new book



USE CASE-13 SPECIFICATION

Use-case No.	UC013	Use-case Version	1.2
Use-case Name	Acquire new book		
Author	Ngô Tố Oanh		
Date	23/05/2022	Priority	Low
<p>Actor: Reader</p> <p>Summary: Reader requests new book(s).</p> <p>Goal: The request is sent successfully to the library.</p> <p>Triggers: When the reader clicks "Feedback" tab then chooses "Đóng góp sách mới" in drop-down list.</p> <p>Preconditions: The actor logged in as Reader role.</p> <p>Post Conditions: The request is sent successfully to the library.</p>			

Main Success Scenario:

#	Actors actions	System response
1	Clicks "Feedback" tab.	Shows drop-down list: <ul style="list-style-type: none"> - Góp ý thư viện - Đóng góp sách mới
2	Clicks "Đóng góp sách mới" tab.	Redirects to "Đóng góp sách mới" page. The page contains: <ul style="list-style-type: none"> - Filled automatically by the system: <ul style="list-style-type: none"> • Full name • Reader ID - Required: <ul style="list-style-type: none"> • Book's name • Author - Optional: <ul style="list-style-type: none"> • Book cover • ISBN
3	Fills in all fields.	Checks if required fields are filled yet.
4	Clicks "Thêm" button. (This is an optional choice)	Shows another list with the same format
5	Clicks "Gửi" button.	Checks if ISBN is filled or not: <ul style="list-style-type: none"> — If yes, then the system checks if the book does exist or not. — If not, then the system uses the book's name and author to validate. When the book does not exist in the system, a pop-up appears "Cảm ơn bạn đã đóng góp cho thư viện!" [Exception1]

Alternative Scenario:

N/A

Exceptions:

Exception1:

#	Cause	System Response
---	-------	-----------------

1	The acquired book exists in the system.	Shows a pop-up "Cảm ơn bạn đã đóng góp cho thư viện, nhưng sách đã tồn tại!".
Relationships: N/A		
Business Rules: N/A		

3.15 View Regulations



USE CASE-14 SPECIFICATION			
Use-case No.	UC014	Use-case Version	1.2
Use-case Name	View regulations		
Author	Lê Vũ Lâm Duy		
Date	10/06/2022	Priority	Low
Actor: Guest, Reader			
Summary: The actor views FPT University HCM campus Library's regulations.			
Goal: View regulations			
Triggers: The reader wants to view the library's regulations			
Preconditions: Actor accessed FLib.			
Post Conditions:			

Shows FLib's regulations.

Main Success Scenario:

#	Actors' actions	System response
1	Clicks on "Nội quy" tab.	Shows FLib's regulations. Details are attached in "FLibs regulation.docx"

Alternative Scenario:

N/A

Exceptions:

N/A

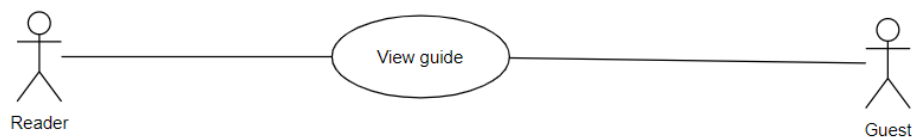
Relationships:

N/A

Business Rules:

N/A

3.16 View Guide



USE CASE-15 SPECIFICATION

Use-case No.	UC0015	Use-case Version	1.2
Use-case Name	View guide		
Author	Lê Vũ Lâm Duy		
Date	10/06/2022	Priority	Low
<p>Actor: Reader, Guest</p> <p>Summary: The actor views guide.</p> <p>Goal:</p>			

The actor knows how to use FLib.

Triggers:

The actor wants to know how to use FLib.

Preconditions:

Actor accessed FLib.

Post Conditions:

Shows "Hướng dẫn sử dụng FLib".

Main Success Scenario:

#	Actor's actions	System response
1	Clicks on "Trợ giúp" tab.	Shows the details in "FLib guiding.docx"

Alternative Scenario:

N/A

Exceptions:

N/A

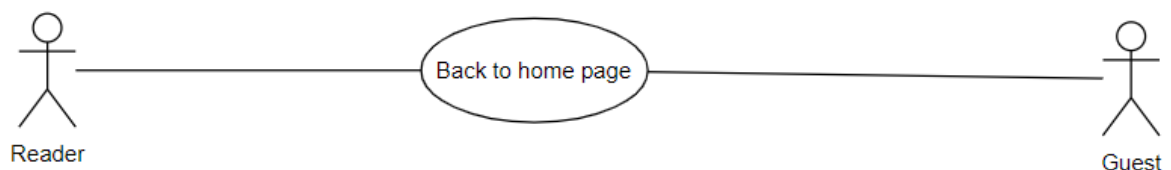
Relationships:

N/A

Business Rules:

N/A

3.17 Back to home page



USE CASE-16 SPECIFICATION

Use-case No.	UC0016	Use-case Version	1.2
Use-case Name	Back to home page		

Author	Ngô Tổ Oanh		
Date	07/06/2022	Priority	High

Actor:

Reader, Guest

Summary:

The actor wants to go back to the home page.

Goal:

The actor is redirected to the home page successfully.

Triggers:

The actor wants to go back to the home page.

Preconditions:

The actor stays on any authorized page belonging to Flib website.

The actor cannot access Employee’s page.

Post Conditions:

The system redirects the actor to “Trang chủ” page.

Main Success Scenario:

#	Actor’s actions	System response
1	The actor clicks the “Home” logo in the taskbar.	Redirects to Home page

Alternative Scenario:

#	Actor’s actions	System response
1	The actor clicks the FPT logo in the taskbar.	Redirects to Home page

Exceptions:

N/A

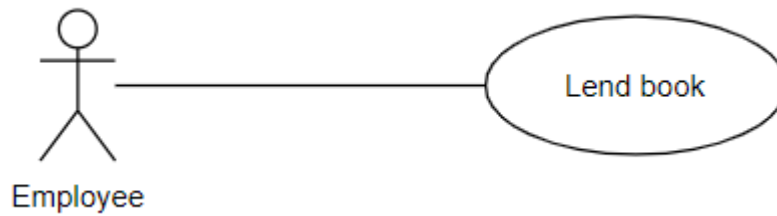
Relationships:

N/A

Business Rules:

N/A

3.18 Lend book



USE CASE-17 SPECIFICATION

Use-case No.	UC017	Use-case Version	1.1
Use-case Name	Lend book		
Author	Lù Nhân Tuấn		
Date	05/06/2022	Priority	High
Actor: Employee			
Summary: Uses a code scanner to get reader's ID and saves the book's detailed information to the list of borrowed books.			
Goal: Successfully save book detail to the reader's "Mượn về nhà" list.			
Triggers: A reader wants to borrow book(s) from the library.			
Preconditions: Actor logged in as Employee role. The system already has the details of the reader who wants to borrow the book. The current page is "Ghi mượn".			
Post Conditions: "Mượn về nhà" list contains the book's detail. The system shows the list of borrowed books with the books' details.			
Main Success Scenario:			
#	Actors' actions	System response	

1	Scans the reader card. [alternative1]	Shows reader details and books' list related to the student: <i>Mượn về nhà, Đã đặt mượn.</i> [Exception1] [Exception2]
2	Scans the book's barcode. [alternative2]	Displays a list of borrowed books with a returned date. [Exception3]

Alternative Scenario:

Alternative1:

#	Actors' actions	System response
1	Types the reader's ID.	
2	Click on "Add" button.	Shows reader details and books list related to the reader. The list's order: <i>"Mượn về nhà" and "Đã đặt mượn".</i> [Exception1] [Exception2]
3	Continuing with main success scenario step 2.	

Alternative2:

#	Actors' actions	System response
1	Types the book's barcode into "Mã sách".	
2	Clicks on "Add" button.	Displays a list of borrowed books with a returned date. [Exception3]

Exceptions:

Exception1:

#	Cause	System response
1	Reader's ID doesn't exist.	Displays a pop-up "Mã bạn đọc không tồn tại!".

Exception2:

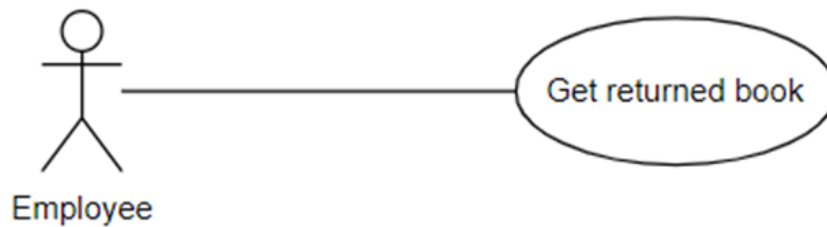
#	Cause	System response
1	Incorrect Reader's ID.	Displays a pop-up "Mã bạn đọc không tồn tại!".

Exception3:

#	Cause	System response
1	Incorrect Book's ID.	Displays a pop-up "Mã bạn đọc không tồn tại!".

Relationships:

N/A

Business Rules:**BR.7:** The maximum reservation quantity (borrowed and reserved) is 11.**BR.14:** The reader can only reserve one copy of a book.**BR.15:** The system must show the return day of each book.**BR.16:** Based on book's return day: 15/4, or 15/8 or 15/12 - within that semester.**BR.17:** Reference book, Restricted reference book: 7 days from the borrowing day.**3.19 Get returned book****USE CASE-18 SPECIFICATION**

Use-case No.	UC018	Use-case Version	1.2
Use-case Name	Get returned book		
Author	Lù Nhân Tuấn		
Date	20/06/2022	Priority	High
Actor: Employee			
Summary:			

Uses a code scanner to get student's borrowed list and removes the book from the borrowed list.

Goal:

Successfully removes the book from the borrowed list.

Triggers:

A reader wants to return book(s) at the library.

Preconditions:

Actor logged in as Employee role.

The system has reader's borrowed list.

The actor stays at "Ghi trả" page.

Post Conditions:

Remove the book from the borrowed list successfully.

Main Success Scenario:

#	Actors' actions	System response
1	Scans reader ID card. [alternative1]	Shows reader's borrowed list. [Exception1] [Exception2]
2	Scans book's barcode. [Alternative2]	Removes the book from borrowed list and delete the fine (if exists). [Exception3]

Alternative Scenario:

Alternative1:

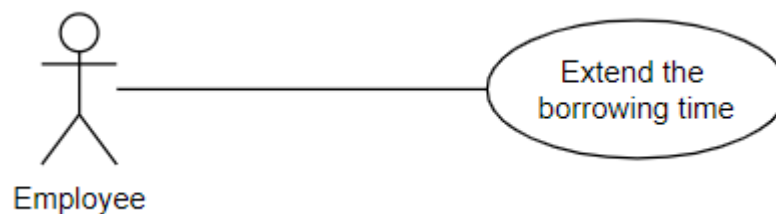
#	Actors' actions	System response
1	Types reader's ID into "Bạn đọc" field.	
2	Click on "Add" button.	Shows reader's borrowed list. [Exception1] [Exception2]
3	Continuing with main success scenario step 2.	

Alternative2:

#	Actors' actions	System response
1	Types book's barcode into "Mã sách" field.	

2	Clicks on "Add" button.	Removes the book from borrowed list and delete the fine (if exists). [Exception3]
Exceptions:		
Exception1:		
#	Cause	System response
1	Reader's ID doesn't exist.	Displays a pop-up "Mã số bạn đọc không có trong hệ thống!".
Exception2:		
#	Cause	System response
1	Incorrect Reader's ID.	Displays a pop-up "Mã số bạn đọc không có trong hệ thống!".
Exception3:		
#	Cause	System response
1	Incorrect Book's ID.	Displays a pop-up "Mã sách không tồn tại trong hệ thống!".
Relationships:		
N/A		
Business Rules:		
N/A		

3.20 Extend the borrowing time



USE CASE-19 SPECIFICATION

Use-case No.	UC019	Use-case Version	1.2
Use-case Name	Extend the borrowing time		
Author	Lù Nhân Tuấn		
Date	20/06/2022	Priority	High

Actor:

Employee

Summary:

The reader has one or more reference book(s)/restricted reference book(s) that are not exceed maximum extensions and wants to extend the borrowing's time.

Goal:

The book is removed from the "Gia hạn" list and "Quá hạn" list (if exists).

Triggers:

The reader visits the library to extend the borrowing time

Preconditions:

Actor logged in as Employee.

The system already has the details of the reader.

The current page is "Gia hạn".

Post Conditions:

The book is removed from "Gia hạn" List and "Quá hạn" list (if exists).

Main Success Scenario:

#	Actor's actions	System response
1	Scans reader's card. [Alternative1]	The system shows "Gia hạn" list.
2	Click on "Gia hạn" button.	The book is removed from the "Có thể gia hạn" List.

Alternative Scenario:

Alternative1:

#	Actors' actions	System response
1	Types the reader's ID.	

2	Click on "Add" button.	The system shows "Gia hạn" list. [Exception1] [Exception2]
3	Continuing with main success scenario step 2.	

Exceptions:

Exception1:

#	Cause	System response
1	Reader's ID doesn't exist.	Displays a pop-up "Mã bạn đọc không tồn tại!".

Exception2:

#	Cause	System response
1	Incorrect Reader's ID.	Displays a pop-up "Mã bạn đọc không tồn tại!".

Relationships:

N/A

Business Rules:

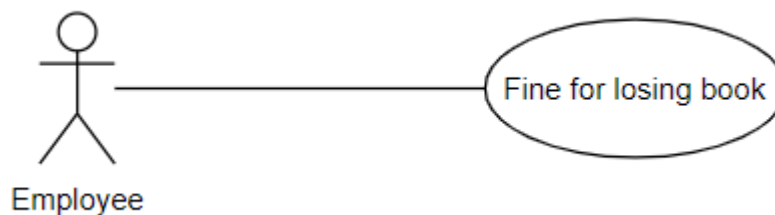
BR.18: The property "Hạn trả" is extended for 7 days.

BR.19: The return day will extend to 7 days. If the reader wants to extend more, he/she must repeat this use case. The reader can extend at most 4 times for a book.

BR.20: "Số lần gia hạn" value starts from 0, maximum 4

BR.21: The property "Số lần gia hạn" is increased by 1.

3.21 Fine for losing book



USE CASE-20 SPECIFICATION

Use-case No.	UC020	Use-case Version	1.2
Use-case Name	Fine for losing book		
Author	Lê Vũ Lâm Duy		
Date	07/06/2022	Priority	Normal

Actor:
Employee

Summary:
The reader must pay a fine for losing a book at the library.

Goal:
The borrowed book is deleted from the list after the reader pays the fine.

Triggers:
The reader visits the library to pay the fine.

Preconditions:
Actor logged in as Employee role.
The system already has the details of the reader.
The current page is "Phí/phạt".

Post Conditions:
The book is removed from the borrowed list.

Main Success Scenario:

#	Actor's actions	System response
1	Clicks "Mất sách" button.	<p>The book is removed from the borrowed list.</p> <p>The related fields "Tổng số", "Cho mượn" in database are reduced by 1 unit, change lost book's status to "Lost".</p>

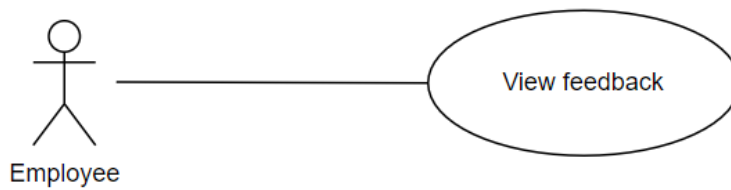
Alternative Scenario:
N/A

Exceptions:
N/A

Relationships:
N/A

Business Rules:
N/A

3.22 View feedback



USE CASE-21 SPECIFICATION

Use-case No.	UC021	Use-case Version	1.2
Use-case Name	View feedback		
Author	Phạm Nhật Hạ		
Date	25/05/2022	Priority	Low

Actor:

Employee

Summary:

The actor can view the reader's feedback.

Goal:

The list of feedback will be shown on screen.

Triggers:

When the actor wants to view the feedback.

Preconditions:

Actor logged in as Employee role.

Post Conditions:

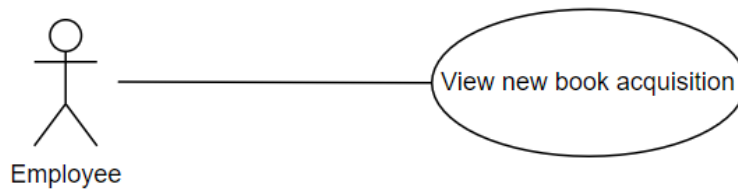
The list of feedback will be shown on screen.

Main Success Scenario:

#	Actors' actions	System response
1	Clicks "Xem Feedback" tab.	Shows drop-down list: <ul style="list-style-type: none"> - Góp ý về thư viện - Yêu cầu sách mới
2	Clicks "Góp ý về thư viện".	Redirects to "Góp ý" page. Page description: <ul style="list-style-type: none"> - List will show as rows.

		<ul style="list-style-type: none"> - 1st column: Reader's name - 2nd column: Reader's role - 3rd column: Feedback type, detail - 4th column: Rating of the 3 questions in Feedback.
Alternative Scenario: N/A Exceptions: N/A Relationships: N/A Business Rules: N/A		

3.23 View new book acquisition



USE CASE-22 SPECIFICATION			
Use-case No.	UC022	Use-case Version	1.2
Use-case Name	View new book acquisition		
Author	Phạm Nhật Hạ		
Date	01/06/2022	Priority	Low
Actor: Employee Summary: The actor can view the reader's acquisitions. Goal: The list of requests will show on screen.			

Triggers:

When the actor wants to view the acquisitions.

Preconditions:

Actor logged in as Employee role.

Post Conditions:

The list of requests will show on screen.

Main Success Scenario:

#	Actors' actions	System response
1	Clicks "Xem Feedback" tab.	Shows drop-down list: <ul style="list-style-type: none">- Góp ý về thư viện- Yêu cầu sách mới
2	Clicks "Yêu cầu sách mới".	Redirects to "Yêu cầu" page. Page description: <ul style="list-style-type: none">- List will show as rows.- 1st column: Reader's name- 2nd column: Reader's role- 3rd column: Requested book's information (Photo, name, author...)

Alternative Scenario:

N/A

Exceptions:

N/A

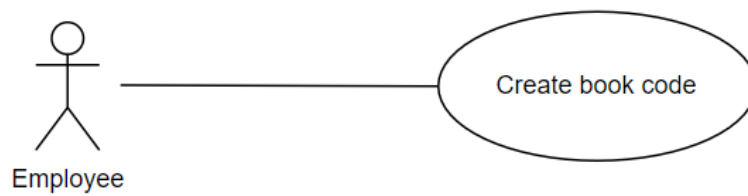
Relationships:

N/A

Business Rules:

N/A

3.24 Create book code



USE CASE-23 SPECIFICATION			
Use-case No.	UC023	Use-case Version	1.2
Use-case Name	Create book code		
Author	Lù Nhân Tuấn		
Date	15/06/2022	Priority	High
Actor: Employee			
Summary: The actor fills in the form with book information so that system will automatically generate book's code by DDC standard.			
Goal: Successfully create a book's code.			
Triggers: An employee wants to generate a book's code.			
Preconditions: Actor logged in as Employee role. The book has a legit ISBN. The current page is "Tạo mã sách".			
Post Conditions: The system redirects the employee to "Quản lý sách" page.			
Main Success Scenario:			
#	Actors' actions	System response	
1	Clicks on "Tạo mã sách" tab	Shows form: — Book's title	

		<ul style="list-style-type: none"> — ISBN — Author — Catalogue — Book's cover — Reader type — Publisher — Published year — Language
2	Fills in the form	
3	Clicks on "Tạo mã sách"	<p>System creates book's code base on the DDC standard.</p> <p>System show message "Mã sách là: FULXXXXXX"</p>

Alternative Scenario:
N/A

Exceptions:
N/A

Relationships:
N/A

Business Rules:

BR.22: If any information in the form is incorrect during the filling process, the manager drops the created code.

BR.23: Reader type is set to restrict the book's access. There are only readers listed can have permission to access those books' resource.

3.25 Import books



USE CASE-24 SPECIFICATION			
Use-case No.	UC024	Use-case Version	1.2
Use-case Name	Import books		

Author	Phạm Nhật Hạ		
Date	07/06/2022	Priority	High
Actor: Employee			
Summary: The actor imports books to the inventory.			
Goal: The books are imported to the inventory.			
Triggers: The actor wants to import books.			
Preconditions: Actor logged in as Employee role. The current is "Bổ sung sách" page.			
Post Conditions: Shows message: "Add successfully".			
Main Success Scenario:			
#	Actor's actions	System response	
1	Clicks on "Bổ sung" tab.	The system displays a form that contains: "Mã tài liệu" textbox, "Tìm kiếm nâng cao" button, "Số lượng" input textbox, "Bổ sung" button.	
2	Actor clicks on "Tìm kiếm nâng cao" button. [Alternative1]	System shows a pop-up to start searching.	
3	Actor fills in the fields in the pop-up.	N/A	
4	Actor clicks on "Tìm kiếm" button.	The system closes the pop-up and fills in "Mã tài liệu" textbox. [Exception 1]	
5	Input book's quantity.		
6	The actor clicks on "Bổ sung" button.	The books are added to the inventory.	
Alternative Scenario: Alternative1:			
#	Actor's actions	System response	

1	Types book's code in "Mã tài liệu" textbox.	
2	Continuing with main success scenerio step 5.	

Exceptions:

Exception1:

#	Cause	System response
1	The book's code does not exist.	System shows message "Không thể tìm thấy!".

Exception2:

#	Cause	System response
1	The input string is empty.	The system shows message "Trường tìm kiếm không thể trống".

Relationships:

N/A

Business Rules:

BR.24: The limited number of letters on the textbox fields are 255 each.

3.26 Delete books



USE CASE-25 SPECIFICATION			
Use-case No.	UC025	Use-case Version	1.2
Use-case Name	Delete books		
Author	Lê Vũ Lâm Duy		
Date	07/06/2022	Priority	High

Actor:

Employee

Summary:

The actor deletes books from the inventory.

Goal:

The books are deleted from the inventory.

Triggers:

The actor wants to delete books.

Preconditions:

The actor logged in as Employee role.

The books are in the database.

The actor clicks on "Xoá sách" tab.

Post Conditions:

Shows pop-up: "Delete successfully"

Main Success Scenario:

#	Actor's actions	System response
1	Clicks on "Xoá sách" tab.	The system displays a form that contains: "Mã tài liệu" textbox, "Tìm" button.
2	The actor clicks on "Tìm" button.	The system responses with a pop-up contains: <ul style="list-style-type: none"> — Book's title — Author — Publisher — Published year — DDC No. — Language — Keywords — "Tìm kiếm" button
3	The actor fills in one or more fields of the form.	
4	The actor clicks on "Tìm kiếm" button.	The system returns book's code in the "Mã tài liệu" textbox, then closes the pop-up. [Exception1] [Exception2]
5	The actor chooses a deletion reason from the drop-down list:	

	<ul style="list-style-type: none"> — Quà tặng — Sách tiếng anh dự bị — Sách hỏng 	
6	The actor clicks on "Loại bỏ" button.	The book is removed from the inventory.
Alternative Scenario:		
Alternative1:		
#	Actor's actions	System response
1	Types book's code in "Mã tài liệu" textbox.	
2	Continuing with main success scenerio step 5.	
Exceptions:		
Exception1:		
#	Cause	System response
1	The book's code does not exist.	System shows message "Không thể tìm thấy!".
Exception2:		
#	Cause	System response
1	The input string is empty.	The system shows message "Trường tìm kiếm không thể trống".
Relationships:		
N/A		
Business Rules:		
BR.3: The limited number of letters on the search bar is 255.		

4 NON-FUNCTIONAL REQUIREMENTS

4.1 Usability

- US.1:** All text, label and message should be uniformly written in Vietnamese.
- US.2:** It takes less than an hour to train the user to use the Library system.
- US.3:** Users are not required to have technical knowledge before using.

4.2 Reliability

- RE.1:** The likelihood of the system failure is less than 10%.
- RE.2:** The availability of the system is over 90%.

4.3 Performance

- PE.1:** Response time is equal to or less than 03 seconds for each request.
- PE.2:** Processing time is 03 – 05 seconds for each frame.

4.4 Supportability

- SU.1:** System is modularized to support maintenance and further development.
- SU.2:** The software will practice the SOLID principles to make designs maintainable.

4.5 Design Constraints

- DC.1:** Language used for Web Application is Vietnamese.
- DC.2:** The system interface must be written in HTML5 using Bootstrap 4 framework.

4.6 On-line User Documentation and Help System Requirement

- OD.1:** Another document with screenshots and step-by-step instructions will be written in HTML file.

4.7 Purchased Components

- PC.1:** A scanner to scan the bar code.
- PC.2:** A Tattle tape™ device for sensitized and desensitized books.

4.8 Interfaces***4.9 Licensing Requirements******4.10 Legal, Copyright, and Other Notices***

LC.1: The library's logo belongs to FPT University.

4.11 Applicable Standards

5 SUPPORTING INFORMATION