Introduction

Hello everyone, we are group 6. My name is Maggie. Today we are going to introduce our library management system.

Library management system is used only in the library. It cannot use outside the library.

In our system, we ignore other object’s situation, like discussion room or movie.

System can’t trace back the records of books and members.

It’s difficult to present the form of a card, so we’ll use an account to replace.

We have two kinds of book in our library, Paper book and E-book.

There are three kinds of identity, guest, member, and librarian.

Guest can only search Paper book.

Except searching, Member also can borrow paper book and read E-book.

Librarian is responsible for returning books, and managing the collection of the library.

Use Case Diagram

There are two types of people who will use the system: one is user and the other is librarian.

First, let me introduce the "user"

If the user is "guest", then he can only search book information and read the paper-books in the library.

If the user is "member", he can do all the things that guest can do. Besides this, member also has the rights of having self-borrowing-service and reading E-Books.

Next is "librarian"

Librarian can manage all the data, including books, memberships and E-books.

Returning books must be done through the librarian. Otherwise, it won't be accepted.

The reason that "time" used the system is in every midnight, this system functions punctually to inspect whether there are any books past the limit borrowing time.

Use Case Description

We have 8 use case descriptions, because it is too many, so we just tell you about manage book description.

Primary actor is librarian and use case type is Essential and Detail.

Trigger is Create new book data, edit or delete when the librarian needs.

Association is Librarian

Normal Flow of Event

Activity Diagram

Hello everybody, let me introduce this activity diagram about manage book.

（這邊要不要跟description 一樣，強調一下很多張選一張）

First, librarian should login into the system. IF the librarian inputs wrong account or password, the librarian should input it again until he succeeds. Then, librarian can choose function he wants to use. We have three functions. 1. create book 2. edit book 3. delete book.

I will start from the left side, “create book”. First, we need to input book id. The system will check this book id has been used or not, if the book id has been used, then we need to input another id. If the book id hasn’t been used. Then the librarian could input any information needs to be saved. If the librarian already input anything he wants. The system will show a “confirm” message to the librarian. If he doesn’t want to create this book, the system will go back to the beginning part. If the librarian confirms the message, the system will save all information in database.

Now, let me talk about the middle part, “edit book”. Like create book, first, you need to find which book you want to edit. So, librarian should input book ID which he wants to edit. If system doesn’t find anything, the librarian should input it again. If the system found it, the librarian can update anything he wants to change. After the librarian changed anything he wants except book ID, he can save this change in database.

The last is “delete book” part. Such as create book and edit book. The librarian should find book id first. Then, the system will check the book state. If the book is borrowed by member, unless member return book, the system couldn’t delete this book. Because if we delete this book, we may not find it again. So, if the book isn’t borrowed or overdue. The system will show a “confirm” message to librarian. Does he/she really want to delete this book? If the librarian confirms, then this book data will delete in database.

Sequence Diagram

My name is Lynn, let’s talk about sequence diagram of Manage Book Use Case.

1. Login

At first, only librarian can use this use case so system will show the login GUI for user to request user login Account and Password so that system can know what functions it need to provide for user.

When librarian presses “Login” button, the system check Account’s first word to decide which DB he need to use. When Account’s first word is ‘M’, system will go to member login process, and if it is ‘L’, system will go to librarian login process. And then system will compare librarian’s input with Account and Password which get from Librarian DB. When Account and Password compare success, system will show login success message and change interface to Librarian GUI instead of showing login fail message.

2. Manage Book

After enter Librarian GUI, librarian can choose three button “Add Book”, “Edit Book” and “Delete Book” to manage book which stores in book DB.

2A. Add Book

When librarian presses “Add Book” button, the system will request librarian input a new book ID, the system will check if book DB has same ID or not. When ID doesn’t repeat, system requests librarian input book’s information instead of showing “book ID has been used” message. And then system asks librarian confirm to add this book. When librarian press ”Yes”, system will save book to book DB instead of showing “Add book fail” message.

2B. Edit Book

When librarian presses “Edit Book” button, the system will request librarian input a book ID, the system will check if book DB has this book ID or not. When ID exist, system requests librarian input new book’s information which he want to change instead of showing “book ID not found” message. And then system asks librarian confirm to edit this book information. When librarian press ”Yes”, system will save book to book DB instead of showing “Edit book fail” message.

2C.

When librarian presses “Delete Book” button, the system will request librarian input a book ID, the system will check if book DB has this book ID or not. When ID exist, system show book’s information and asks librarian confirm to delete this book instead of showing “book ID not found” message. When librarian press “Yes”, system will delete book to book DB instead of showing “Delete book fail” message.

Q1.teacher ask ref

A1.Because member doesn’t have relationship with manage book use case, and member login will process in other sequence which use case member can use, so I separate it from manage book sequence diagram.

Q2.teacher ask alt frame or seq number

A2.Because this sequence diagram has too many conditions need to separate different process. If I use alt frame, it will have a lot of line and looks very complex, so I use condition message and give a sequence number to describe the condition and process order.

Class Diagram

Hellow my name is kendy.I am going to introduce class diagram.

In the beginning, system will provide UserGUI and UserGUI provid login function, if you are the guest, you can click guestbutton, system will go to SearchGUI let guest input book title to search book. When guest clicks searchBotton, SearchGUI will show the search’s result in the bookSearchedTable and guest can click search’s results and view book information.

If you choose login, system will use login ID to consider you are member or librarian and get your password from libraryDBMger to check your input password, if you success login system will get your information from libraryDBMger and new librarian or member class to store your message.

If system consider you are Member and successfully login, system will go to MemberGUI,Member can borrow book、read E-book、Search Book.

If system consider you are Librarian and successfully login, system will go to LibrarianGUI, librarian can add、edit、delete data of paper-book、E-book、membership

Librarian also can handle return-book to change the book’s state borrowed to available.

Finally, system will check overdue book at 0’oclock, if book is overdue, system will change book’s state to overdue and lock member’s borrowing-book right.

Behavior State Machine

Hi, my name is Jerry. It's time to talk about behavior State Machine.

Our object is Book. First, the librarian will input book data into the system. If the librarian isn’t sure the book is collection or not, the state will stay in the registered state until the librarian decides the state.

If the book is not collection, the state will be available, and member can borrow the book.

After borrowing book, the state will become "borrowed". If the member doesn't return the book in time, the state will be "overdue" until the member giveback the book. The state will change back to available.

If one day, the book is collection, the librarian can change state from available to unavailable.