

Columbus Metropolitan Library Catalog Software

Reid Bowers

System Implementation

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Problem Statement:

The purpose of the library management system is to alleviate many of the problems librarians and patrons can experience. The library management system should be capable of allowing patrons to see the available media catalog, reserve media and add themselves to a waitlist if something is already checked out. Librarians should also be able to update the catalog easily, including adding new media, editing existing media, and removing media entirely. In order to check something out or reserve, a patron must have a valid library membership, which they can sign up for in the app.

Glossary of Terms:

- **Media**
 - *Refers to any books, DVD's, CD's, magazines that are present in the library's system*
- **Catalog**
 - *Refers to the collection of all available media at the library*
- **Patron**
 - *Anyone not employed by the library that accesses the software*
- **Reserve**
 - *Patrons can reserve media to be picked up*

- **Waitlist**

- *A list containing all patrons who have requested to reserve a specific piece of media (Chronological Order)*

System Requirements

No.	Priority Weight	Description
REQ-1	HIGH	Library catalog should be able to support up to 20,000 entries; the average collection size of a library
REQ-2	HIGH	Patrons can reserve media
REQ-3	HIGH	Library staff can add new media
REQ-4	HIGH	Staff can remove media
REQ-5	HIGH	Staff can edit existing media
REQ-6	HIGH	Patrons can add themselves to waitlists
REQ-7	MEDIUM	Patrons can create a new membership
REQ-8	LOW	media listings contain photos if available
REQ-9	MEDIUM	Search queries can be filtered
REQ-10	HIGH	Sign-In page can differentiate from employee and patron
REQ-11	HIGH	Media catalog is searchable by name
REQ-12	MEDIUM	Layout of site is intuitive and easy to use

REQ-13	HIGH	Search and update functions are handled for errors
REQ-14	MEDIUM	Database is flexible and scalable, in case of additional library branches being added, or an increase in the size of the catalog
	UI REQUIREMENTS	
REQ-15	HIGH	Log-in page that works for both employees and patrons
REQ-16	HIGH	Search-bar on homepage
REQ-17	HIGH	Search results page
REQ-18	HIGH	Edit/add/remove media page for employees

REQ-15:

Columbus Metropolitan Library

Log-In

REQ-16:

Search...

☒ All Media

☐ Books

☐ CD's

☐ DVD's

REQ-17:

Search...

Media Title Author	ISBN Available? Y/N Reserve
Media Title Author	ISBN Available? Y/N Reserve
Media Title Author	ISBN Available? Y/N Reserve
Media Title Author	ISBN Available? Y/N Reserve
Media Title Author	ISBN Available? Y/N Waitlist

REQ-18

Add Media

Media Title

Author

ISBN

Date Published

Media Type ▼

Book

DVD

CD

Quantity

Submit

Description...

Plan of Work

So far I have set up my development environment on both my desktop and laptop so that I may continue my work from wherever. This included setting up a github repository and getting mySQL servers running on both machines and downloading VSCode to use as a code editor. Next I ran some basic tests to make sure everything was working properly.

This week I have set up a skeleton database to get the basic structure in place. Next week I will further refine the DB and attempt to implement a basic catalog view to ensure the DB was created correctly.

Stakeholders

- Patrons
- Librarians
- Library Manager
- Library Director
- Local Donors/Sponsors
- Local Government

Actors & Goals

Primary Actors:

- Patrons: Can use their library membership to reserve, waitlist, and check out media included in the library's catalog
- Library Manager/Librarians: Can add new media to the catalog, and remove or edit existing media

Secondary Actors:

- System Admin: Can make changes to database of members in case of any errors, as well as directly edit catalog if needed
- System: Keeps track to available media, waitlists, and employee/patron account information

Use Cases

Patron:

- View catalog: browse and search the library's catalog (6)
- Reserve media: Reserve available media for check-out (4)
- Waitlist media: Add patron to waitlist for unavailable media (2)
- Login: Use unique credentials to verify membership (2)

Library Employee (Librarian, Library Manager):

- View catalog: browse and search the library's catalog (6)
- Login: Use employee ID to execute employee only commands (2)
- Edit Catalog: Add/Remove/Edit the library's catalog of media (4)
- Return Media: Mark media as being returned and available in catalog (4)

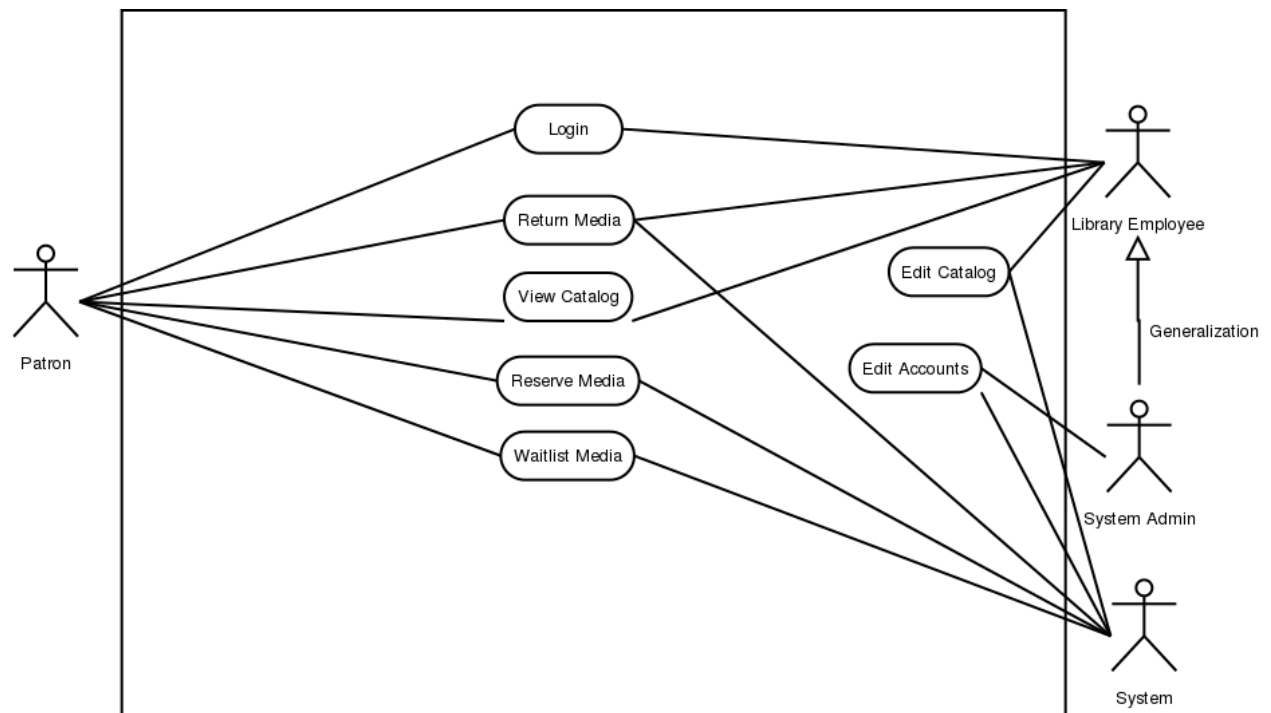
System Admin:

- Edit Accounts: Make changes to user and employee accounts (2)

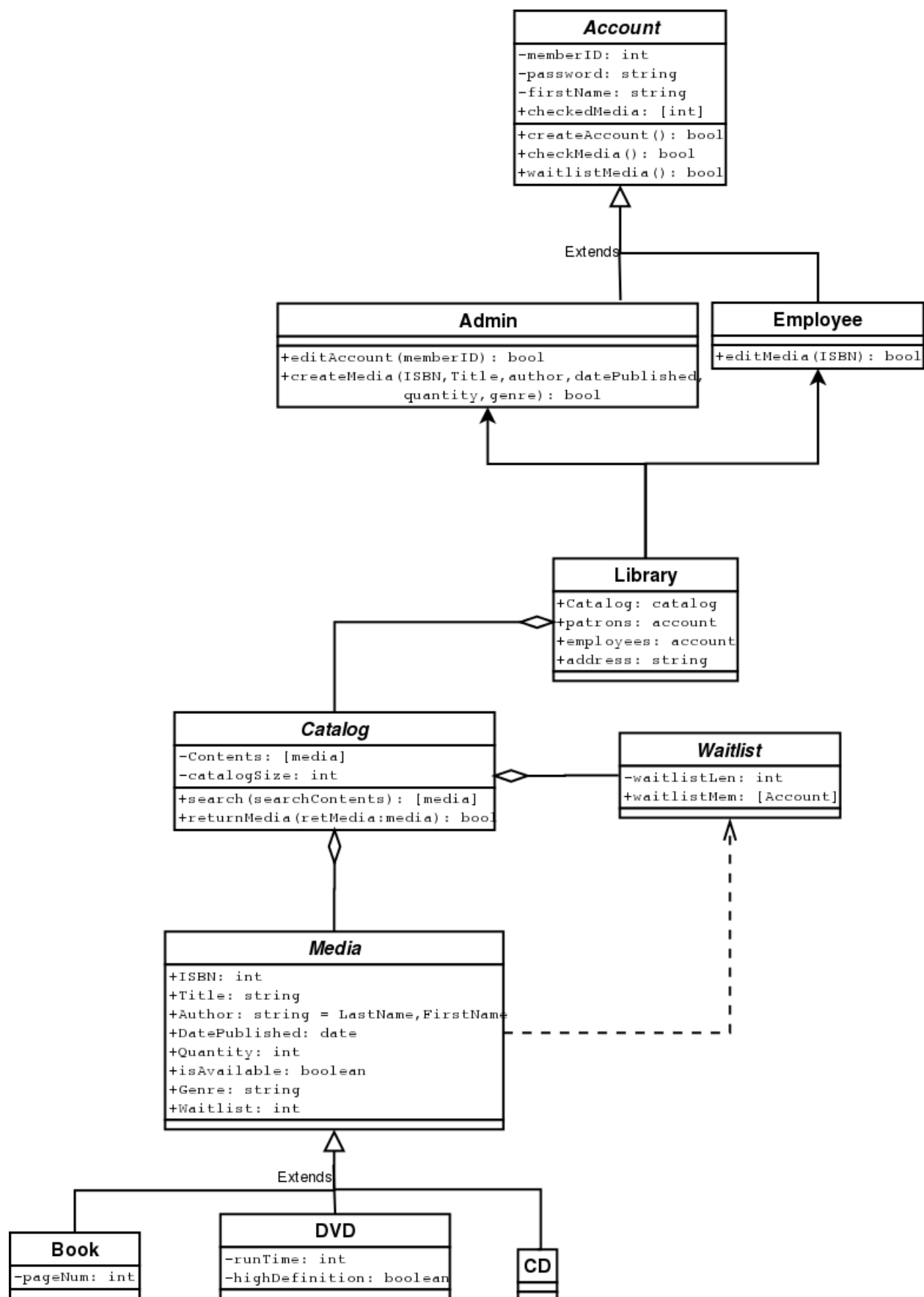
System:

- Show available: Track media quantities to show what is available (2)
- Waitlist Media: Track waitlists and which patrons are on them (2)
- Reserve Media: Track which media specific patrons have reserved (4)

Use Case Diagram



Class Diagram

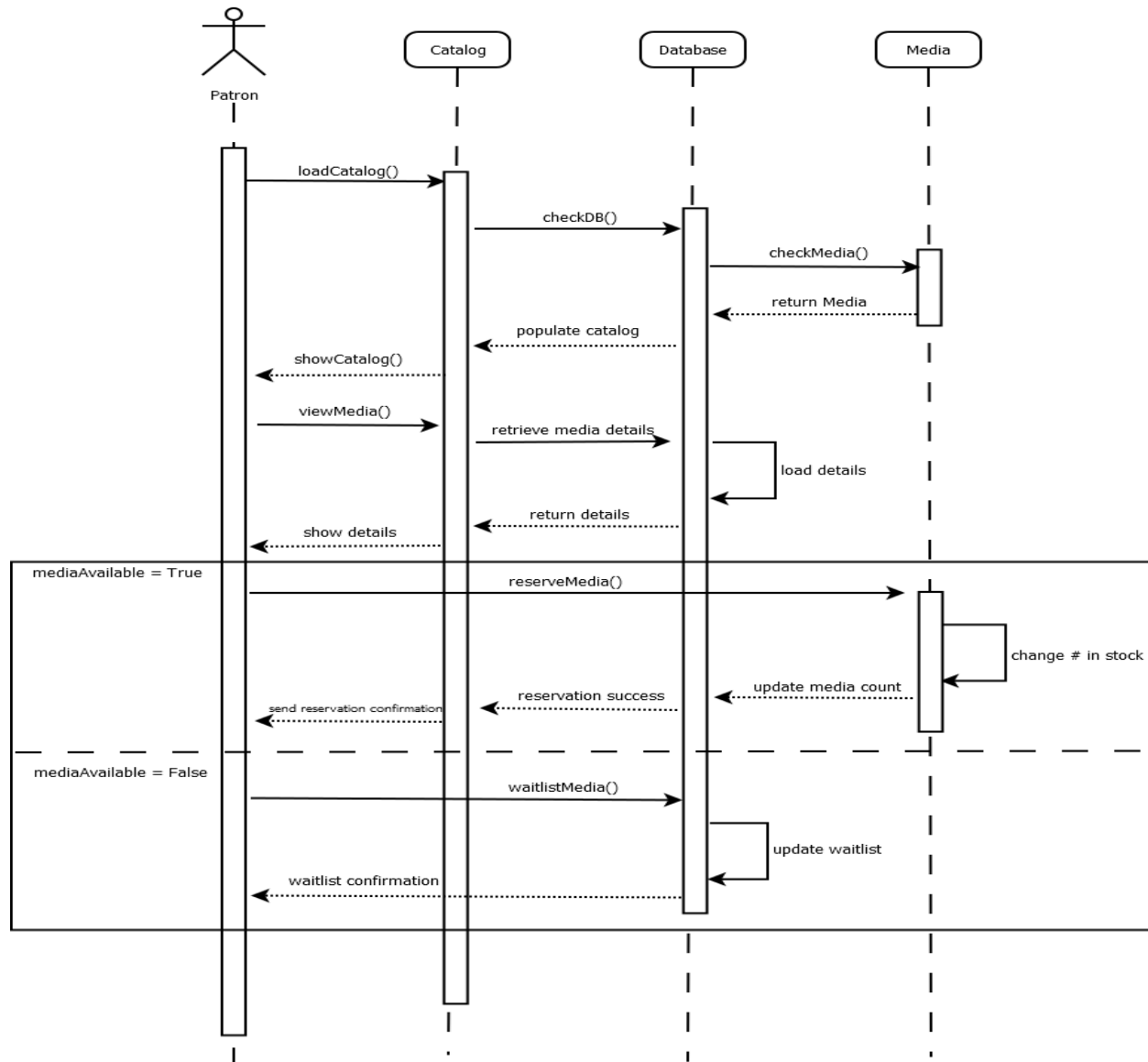


Sequence Diagrams

Reserve & Waitlist Media

Actor: Patron

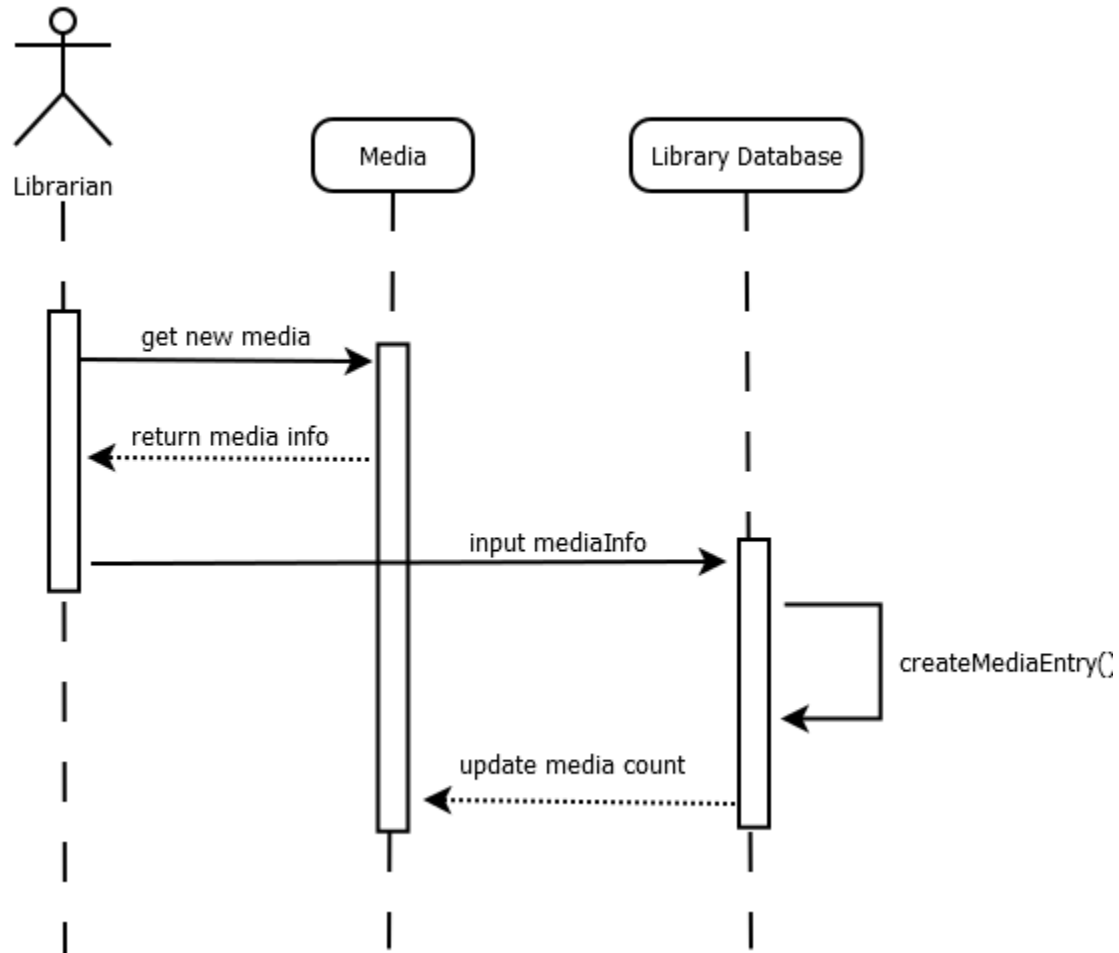
Objects: Catalog, Database, Media



Add new Media to catalog

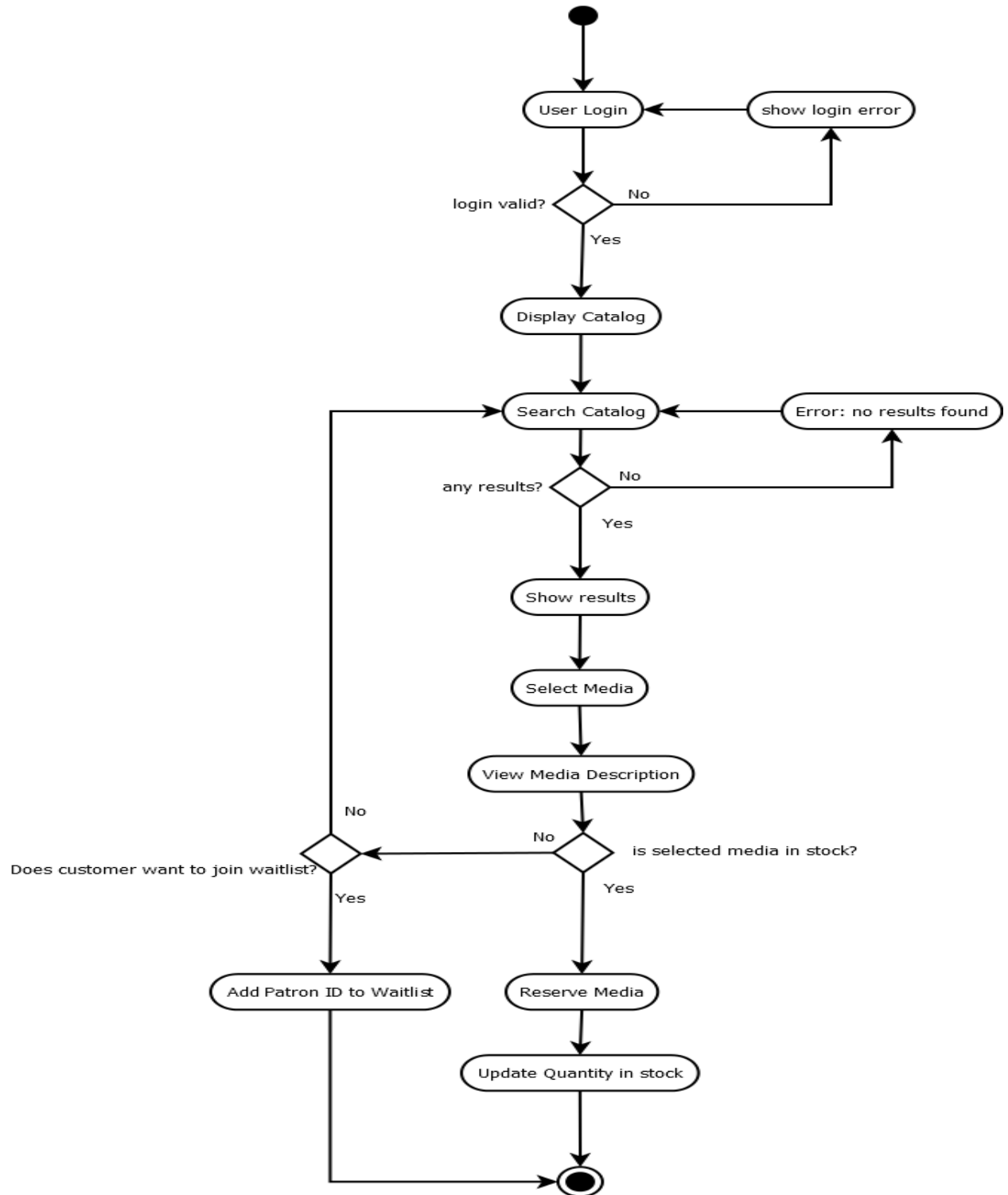
Actor: Librarian

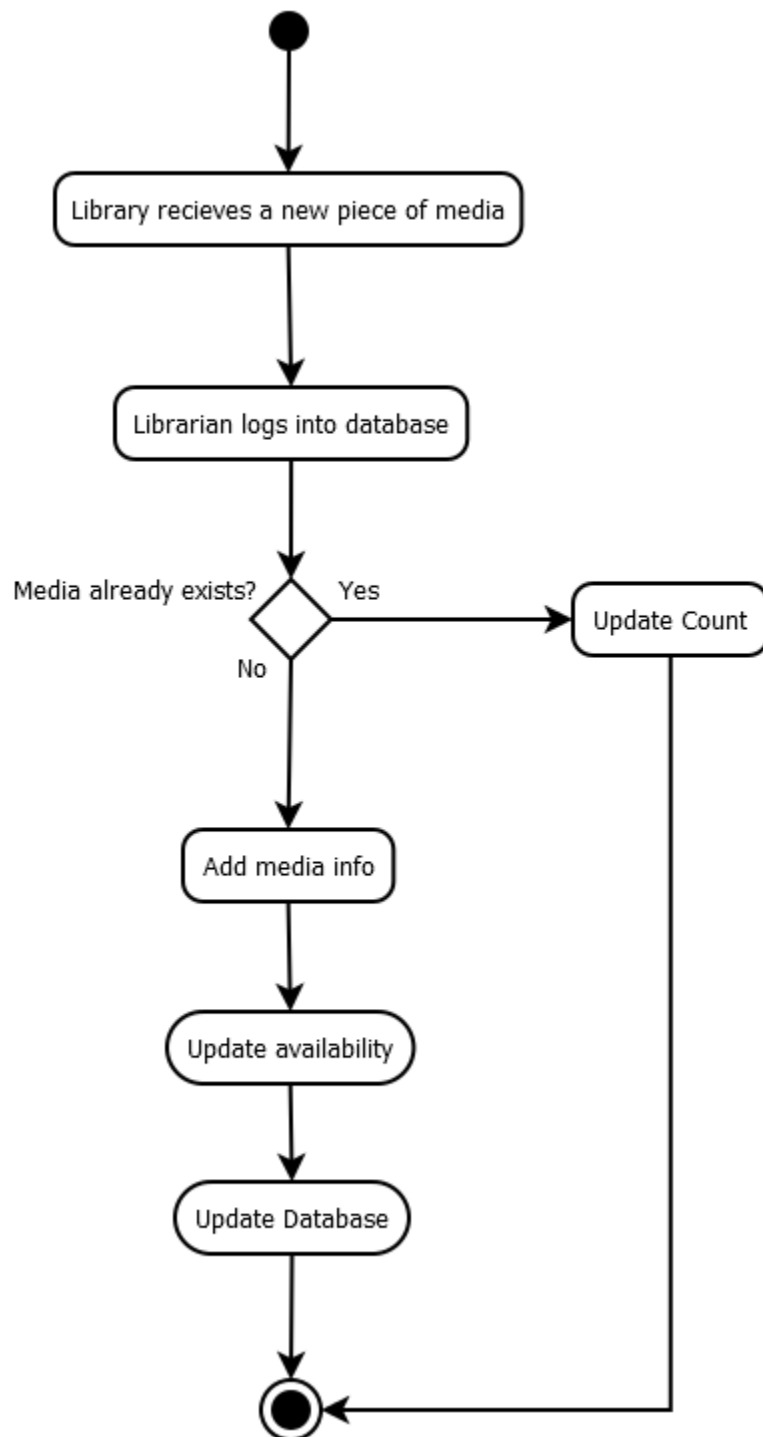
Objects: Media, Library Database



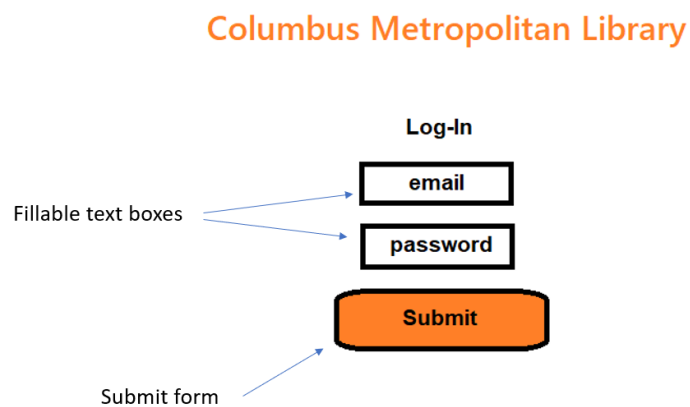
Activity Diagrams

Reserve or Waitlist Media



Update Media Entry

Log-in page:



On log-in failure



Homepage

...after login success

Welcome to CML!

Textbox with search function

Search filter radio buttons

Search...

☒ All Media
 ☐ Books
 ☐ CD's
 ☐ DVD's

Submit

Clickable link to account page

My Account

Search Results

...after search submit

Search results (clickable)
List is scrollable

Search...

submit

Option to refine search

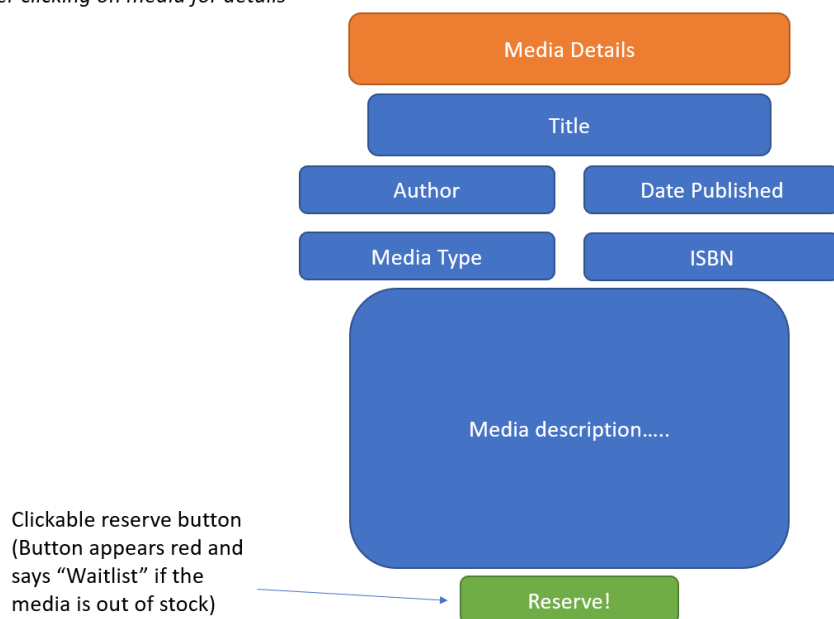
Quick Reserve/Waitlist buttons

Media Title Author	ISBN Available? Y/N	Reserve
Media Title Author	ISBN Available? Y/N	Reserve
Media Title Author	ISBN Available? Y/N	Reserve
Media Title Author	ISBN Available? Y/N	Reserve
Media Title Author	ISBN Available? Y/N	Waitlist

My Account

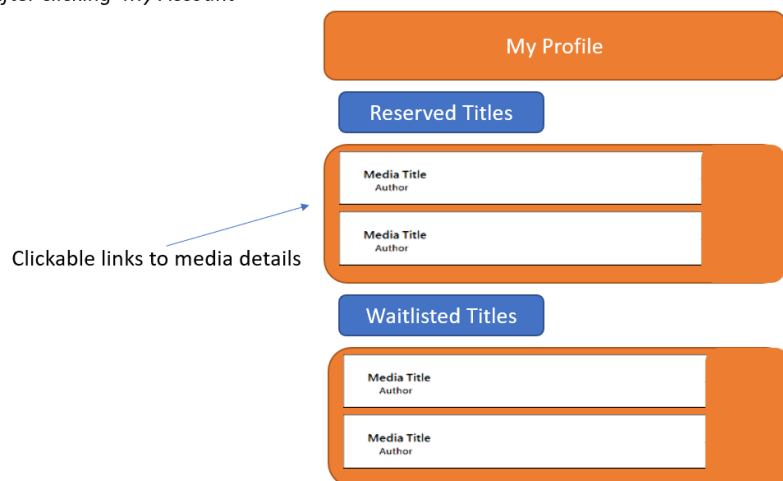
Media Details

...After clicking on media for details



Profile Page

...After clicking 'My Account'



Project Roadmap
(March 19th-May 5th)

- Week 1: Finish implementing search functionality
- Week 2: Create Login Screen and expand DB
- Week 3-4: Filtered View for catalog
- Week 5-6: Improve look and feel of program with revamped CSS