Iteration 3 Report
EECE 2140: Fundamentals of Engineering Algorithms
Student Registration System

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GitHub Link: https://github.com/aLExDoesCodingStuff/EECE2140-Library-Management.git

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1 Summary of Team Progress and Development Updates

For Iteration 3, our team's goals were to (1) develop all the core functionality of our library management system (ie, inventory management, checkout/return, waitlists), and (2) to begin development of advanced features including database search (by author, genre, title), persistence (save-file functionality) and role-based access control.

As of the time of this report, Goal (1) has been completed and all of the core functionality of the library management system is implemented and working. Users can check out, return, and place holds on books. The library system manages waitlists and notifies users when books they've placed on hold become available to them.

As for Goal (2), we are on track with the development of advanced features. The program has the ability to read from and write to a save file, as well as the ability to search the library inventory by book title, author, or genre. The role-based access control system, which will provide unauthorized (non-admin) users from manipulating the library inventory, is still in progress.

Planned next steps for Iteration 4 are to finish and merge RBAC, and expand/debug persistence functionality and the advanced search features.

2 Implemented Core Features

We have four core features of our program, which are as follows:

- **Checkout Capability:** `checkout item()` allows registered users to check out copies of books from the library's inventory. Copies are implemented as dictionaries belonging to each Book object in the Library's inventory, and store relevant checkout information (eg, User, borrow/return date) used by the Library to track its inventory, evaluate overdue status, and manage waitlists. `checkout item()` also has code to prevent duplicate checkout/hold requests and generally preserve the order of the waitlist queue. Validated using `library.checkout item(book1,user1)`.
- **Class Waitlist:** This feature is its own class. Uses multiple functions to create a waitlist for a book, when someone is removed from that waitlist to advance the line, and to notify the users. Was validated by attempting to checkout a book that all copies have been reserved for, which can be done by running the checkout function 4 separate times if there are only 3 copies for that title.
- **Search Capabilities:** This feature allows users to search for their books in a simple fashion. Classified underneath the `class Library`, the func-

tion parses the library catalog and sees if the search is in the catalog via lists and functions. Will be validated by calling `library.search by author (preferred author)`.

- **Saving Function:** Within this feature, the library automatically creates a separate csv file that holds what titles are checked out and by whom. We are working to add capabilities that show the waitlist and holds,as well as what titles are checked out from previous sessions. Can be validated by opening up the save file catalogSystem that is saved to the computer.

3 Challenges and Resolutions

Our discussion of the main technical or organizational challenges faced during Iteration 3 and how they were resolved.

- **Challenge 1:** Waitlist conflicts involving duplicate hold requests or frozen holds (books on hold but not checked out)
  Resolution: Reworked `checkout item()` method in `Library` as well as `Waitlist` class to check for conflicts before processing checkout requests.

- **Challenge 2:** Persistence learning - Brooke had no prior experience creating and saving an csv file from a program to the computer. First attempt continued to save entire program library, not the catalog.
  Resolution: Dropped usage of `pickles` and focused on cleaner, simpler code. Created a new function that created a catalog within a list and simply exported that.

4 Leadership Rotation and Team Contributions

Leadership Summary

Week/Span	Leader	Responsibilities	Key Outcomes
Week 1	Alex Messier	Organize the team meeting, debugging main	Created project schedule on excel, worked on core
Week 2	Brooke Wassmann	Making sure excel is up to date	Worked on user/admin permissions, worked on creating inventory search(title, author, genre),

Individual Contributions

Team Member	Contributions (Technical / Documentation)	Hours
Alex Messier	Worked on user/admin permssions	4 hrs
Brooke Wassmann	Worked on persistance	3 hrs
Harshitha Vemula	Created inventory search, added to the library class	2 hrs

Statement by the Individual Submitter

I, **Alex Messier, Brooke Wassmann, Harshitha Vemula**, confirm that the above table accurately reflects my personal contributions during Iteration 3.