LIBRARY MANAGEMENT SYSTEM

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- User Manual

- Check In: From search window, select 'Check in a Book'. Select one entry of potential multiple entries. Press 'Check In'
- Check Out: From search window, search and select a book entry to be checked out. Press 'Check Out'. Enter card number.
- Add a Borrower: From search window, press 'Add a Borrower'. Enter all fields corresponding to a borrower and press 'Add'.
- Pay a Fine: From search window, press 'Pay a Fine'. Search by card number and select an entry. Press 'Pay'. (Note: Only fines for checked in books can be paid).
- Borrower Statistics: From search window, select 'Pay a Fine'. Select 'Borrower Stats'. Enter card number.

- Design Decisions

- Used a singleton class for database operations.
- Used Window Builder to build GUI.
- Planned UI to minimize navigation and number of screens.

- System Description

- Maximum duration for a book to be checked out: 14 days

- No need to navigate to multiple screens for checking out or searching a book or checking out one.

- **Book Search:** Search a book by book id, author or title. Search as you type! Resize columns and exchange column positions as per priority.

- **Borrower Statistics:** History of borrower. Displays number of books checked in/checked out, amount of previous fines, currently unpaid amount. This is used to impart the credibility of a borrower.

- **Check In:** Search by card number, book Id or borrower name. Interchange columns and resize as per priority.

- **Login Screen:** User credentials are required for logging into the system. This adds a security layer.

- **Add a borrower:** Adds a new borrower. Doesn't allow a new borrower to be added if all the fields match an existing entry in the database.

- **Paying a fine:** A module to pay fine. Fines can be paid only on checked in books.

- **Check Out:** Checking out a book. Card number is required against which the book will be checked out. Check out fails if current borrower has 3 books yet to be checked in. Another case where check out operation fails is if the borrower has an existing unpaid fine.

- Technical Dependencies

- **IDE:** Eclipse Kepler Service Release 2

- **Window Builder:** Creating GUI in swing

- **JDK:** JDK 1.7.0_67

- **MySQL Library Connector:** MySQL connector java - 5.0.8

- **MySQL Version:** 5.6.20 Community Server (GPL)

- **Data Population:** For data population, **"PopulateDB.java"** in **"com.library.project.populateData".** This can be run as an independent java application that will populate database.

- Bonus Point Features

- **Search as you type:** The application listens for any key event and fires a search query as you type thereby avoiding the need to hit the search button.

- **Login Security:** User needs to login to the system to use it. This provides an added security layer.

- **Check Out:** If a borrower has three books already checked out, check out operation will fail suggesting user with a friendly message.

- **Partial Fines:** Borrower can view total outstanding fines by navigating to 'Borrower Statistics' module, but will only be able to pay fines for books that have been checked in. Remaining fine amount can be paid after checking in the remaining books.

- **Borrower Statistics:** Borrower statistics shows total number of checked in books till date as well as currently checked out books, current outstanding fines and previously paid fines. This serves as a short summary for viewing the credibility of a particular user.