**Library Management System**

**Requirements**

**2/27/18**

**1.0 Requirements**

1. Adding a new user to the User List in the Library
   1. If the user is already a library member, throws an error message.
2. Adding a new book to the Book List in the Library
3. User checks-out a book from the Library
   1. Max allowed books can be checked out is 5
4. User returns a book to the Library
   1. Upon return, calculate the penalty for late returns
   2. Penalty is $0.05 per day
5. User holds a book
   1. Max allowed holds are 3
6. Searching for a book
   1. Should be able to search by author name and book name
7. Deleting a book from the Book List
8. Removing a hold on a book

a. Throws an error message if the user ID and book ID are invalid

1. Renewing a book
   1. Max allowed renewals are 3
2. Printing user’s transactions
   1. Should allow printing of transactions from last 30 days.

**2.0 Use cases**

**2.1. Add a new User**

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| --- | --- |
| Actions performed by the actor | Responses from the system |
| 1. The customer gives an application to a Librarian with his/her name, address, and phone number. |  |
| 2. The Librarian issues a request in the system to add a new user. |  |
|  | 3. The system asks for the details about the new user. If the user is already a library member, throws an error message |
| 4. The Librarian enters the data into the system if he/she is a new member |  |
|  | 5. The system reads the data and generates an ID for the new user and saves it into the system. Informs the Librarian if the user is added or not. |
| 6. The Librarian gives the user his/her ID(Identification number). |  |

**2.2 Add a new Book**

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| Actions performed by the actor | Responses from the system |
| 1. Library receives books from the publisher. |  |
| 2. The Librarian issues a request to add a new book. |  |
|  | 3. The system asks for the ID, title, and author of the new book. |
| 4. The Librarian generates a unique ID and enters the ID, title, and author of the book. |  |
|  | 5. The system saves the details of the new book into the Book List and asks the Librarian if he/she wants to add another book. |
| 6. The Librarian enters Yes or No. |  |
|  | 7. If the answer is Yes, then the system goes to step 3, otherwise exits. |

**2.3. Use Case Return Book**

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| Actions performed by the actor | Responses from the system |
| 1. The user arrives at the return counter with a set of books. |  |
| 2. The Librarian issues a request to return books. |  |
|  | 3. The system asks for the book ID. |
| 4. The Librarian enters the book ID. |  |
|  | 5. The system marks that the book has been returned, if the ID is valid. Otherwise it says that the ID is invalid. It then asks the Librarian if he/she wants to return another book. |
| 6. The Librarian enters Yes or No. |  |
|  | 7. If it is Yes, the system goes to step 3. Otherwise it exits. |

**2.4. Use Case Remove Book**

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| Actions performed by the actor | Responses from the System |
| 1. The Librarian identifies the books to be deleted. |  |
| 2. The Librarian issues a request to delete a book. |  |
|  | 3. The system asks for the book ID. |
| 4. The Librarian enters the book ID. |  |
|  | 5. The system checks if the ID is valid and then deletes the book from the Book List. If the ID is invalid, informs the Librarian. It then asks the Librarian if he/she wants to delete another book. |
| 6. The Librarian enters Yes or No. |  |
|  | 7. If it is Yes, the system goes to step 3. Otherwise it exits. |

**2.5. Use Case Book checkout**

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| Actions performed by the actor | Responses from the system |
| 1. The user/memeber goes to the Librarian at checkout counter with a set of books and gives his/her ID. |  |
| 2. Librarian issues a request in the system to check out books |  |
|  | 3. The system asks for the user ID |
| 4. Librarian enters the user ID into the system |  |
|  | 5. The system asks for the book ID |
| 6. Librarian enters the book ID into the system |  |
|  | 7. The system records the book and user IDs and generates a due-date. It displays the book title and due date. It asks if there are any more books. |
| 8. Librarian replies ‘Yes’ or ‘No’ |  |
|  | 9. If ‘Yes’, system goes to step 5 and repeats up to step 7 until the no. of books reached is 5 and then throws an error message if Librarian tries to check out any more books, otherwise exits |
| 10. User/ Member collects all the books and leaves the counter. |  |

**2.6 Use Case Hold Book**

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| Actions performed by the actor | Responses from the system |
| 1. Librarian issues a request to place a hold |  |
|  | 2. System asks for the user ID, book ID, and duration of the hold |
| 3. Librarian enters the user ID, book ID and duration |  |
|  | 4. System checks if the User ID and book ID are valid. If yes, it records the book on a hold and displays that, otherwise throws an error message.  System then asks if there are any more books to place a hold |
| 5. Librarian enters ‘Yes’ or ‘No’ |  |
|  | 6. If ‘Yes’, system repeats steps from 2 to 4. If the no. of books reached is 3, it throws an error message saying that it can’t hold any more books, otherwise exits |

**2.7 Use Case Remove Hold**

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| Actions performed by the actor | Responses from the system |
| 1. Librarian issues a request to remove a hold on a book |  |
|  | 2. System asks for the book ID and user ID |
| 3. Librarian enters the user ID and book ID |  |
|  | 4. System checks if the user ID and book ID are valid. If not, throws an error message. Otherwise removes the hold on the book. Asks if any more books to be removed |
| 5. Librarian enters ‘Yes’ or ‘No’ |  |
|  | 6. If yes, system follows the steps from 2 to 4, otherwise prints confirmation and exits |