INFO C451 Functional Requirements

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Stakeholders

* Business Owners: Can run reports and manage business finances.
* Managers: Help manage employees and customer issues with admin access.
* The Public: This stakeholder can utilize this system to easily check out books in a more convenient manner.

Primary Actors

* Customer: This actor is essentially the public who can check out books from the comfort of their home and pay all their dues easily from a web interface without going into the library.

Secondary Actors:

* Admin: This person can add, remove, edit all entries within the library site as well as perform necessary modifications when issues arise.
* System: This is required for the operation of the site and is responsible for all the calculations and management of books, inventory, sales, transactions, and historical data.

Use Cases

Here we list out all the different responsibilities for all the use cases and how long it will take the engineers to develop each portion of the use case. In these estimates, 2 indicates a full days’ worth of work.

Admin (total: 14)

* Add/Modify book: This is to add a new book (2)
* Add User: This is to add a new user to the system (2)
* Add/Modify late fees: This is to add or modify late fees added to books (4)
* Login/Logout: This is to securely log in and out of the site, the site will automatically detect admin account and show required dashboard upon login (4)
* View Historical Information: To view information such as check outs, check ins, etc. (2)

Customer (total: 16)

* Check Out Book: The ability to check out a book (4)
* Pay Late Fees: Gives customer a breakdown of fees and ability to pay online (4)
* Credit Card: Add the ability to pay by card (2)
* PayPal: Add the ability to pay with PayPal (2)
* Return Book: Add the ability to return the book (4)

Library Website (total: 16)

* Transactional History: Keeps a record of all transactions made by account (4)
* Login/Logout: The ability to login or logout via the site (2)
* View Account: The ability to see late fees, checked out books, and other information related to account (2)
* Search Book: The ability to search for a specific book (2)
* Filter Books: The ability to filter all books (2)
* Credit Card: Add the ability to pay by card (2)
* PayPal: Add the ability to pay with PayPal (2)

System (total: 8)

* Assigning books to users: ensure book has not been checked out before letting transaction through (4)
* Show available/unavailable: The ability to show if a particular book is available or not (2)
* Show friendly errors: Show a friendly error to the user when necessary (2)

Use Case Diagram

A diagram of a library system

Description automatically generated

Class Diagram

Book

In the library system, we are only to hold book type items, and we provide a method in order for customers to be able to check the books out based on availability.

A screenshot of a computer

Description automatically generated

User

We have 3 types of users here, which are basic user, employee, and admin users.

A screenshot of a computer

Description automatically generated

Loans

A screenshot of a computer program

Description automatically generated

Permissions

Having a separate permissions table allows us to expand the permissions in the future if necessary. It is also reusable.

A blue box with white text

Description automatically generated

Author

A screenshot of a computer

Description automatically generated

Publisher

A screenshot of a computer program

Description automatically generated

Location

A screenshot of a computer

Description automatically generated

System will utilize a transactional table, for each transaction (credit, debit, etc) there will be a row added and its foreign key will be the account ID of the user. This will be the Loans table in our case.

A screenshot of a computer

Description automatically generated

Complete Diagram:

A screenshot of a computer

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