Frank Lu

CSC415-01

Assignment 3

Proposal and Specifications

Social issue: Children's Literacy (or all age groups).

Project Title: Shelf Awareness

Option 2 – A project to design and implement an innovative computational solution to a social issue (literacy rates, particularly in children)

I am developing a web-based application using Ruby on Rails and PostgreSQL. I chose a web application because I am currently learning html and CSS and this project would be a good application of those skills.

Project Description: Shelf Awareness aims to encourage literacy rates in children by making books more readily available through donations to those who are less fortunate and fostering the growth of literacy in children who already read by providing a place where they can share ideas and discourse with others their age.

Shelf Awareness is unique because most existing applications or sites which host communities of those who read only target individuals who already read every day. Contrarily, the focus of Shelf Awareness will also encompass those who do not currently read regularly and attempt to provide opportunities to those who are unable to afford books of their own. A large contributing factor to low literacy rates may be a lack of funding in certain areas or communities.

The following are some potential functionalities to be implemented in ShelfAwareness (also in the GitHub readme and wiki):

```
1. Check off books they own
2. Check off books they have read already
   - Rate the books they've read
   - Record favorite quotes
   - Write notes about those books
   - Write reviews of those books
   - Write analyses of those books
   - Start discussions about those books
3. Mark books that they are in the process of reading
4. Mark books they want/intend to read
5. Find other books they may be interested in
   - Popular books in the same genre
   - Books by authors of works they've already read
   - Further reading of books suitable for age group
      - Lexile (service for teachers)
6. Create customized lists/collections of books, based on genre, themes, etc.
7. Create a favorites list
8. View the profiles of everything above from other users
   - View the most popular books and authors on the site
```

```
9. Add books to a wish list if they cannot afford books
   - Wishes are moved to a queue and other users will have the option to donate or
sell at a discounted price
10. Invite others to use the service
   - Some form of compensation
   - Top contributors to wish lists are also recognized on site
```

Algorithms for sorting and analyzing popular books for age groups and genres, as well as algorithms for organizing donations of books need to be researched.

Data Structures: The data structures I will implement will depend on the function. For the donations and wish lists, I intend to use a queue to ensure that any existing donations/wishes available to be claimed do not get buried under any new donations. The personal catalogs of books will most likely be stored utilizing arrays because it is only a simple record. Finally, the forums for discussions on books will be a simple stack, with new/ongoing discussions replaced at the top of the stack.

Software Engineering Concepts: This project will allow me to explore the use of relational databases and security, as well as web page development. Because the project is aimed at a younger audience, security of information will be a top priority during development.

Timeline:

Week 1: Implement a home page with working links to different pages of the application, one for each major functionality

Week 2: Implement a working account registration and log in system

Week 3: Implement functionality for users to log books they have read before and intend to read in the future

Week 4: Implement functionality to record peripheral information about their books (quotes, analyses, reviews, ratings)

Week 5: Implement a forum where users can start discussions on various book-related topics

Week 6: Continue implementation of forums

Week 7: Implement user wish lists to user profiles

Week 8: Implement a system where users can donate books, where books available for claiming will be in a list for other users to view

GitHub Repository Name: ShelfAwareness

Link: https://github.com/luf1/ShelfAwareness

Path on VM: /local/home/sysadmin/ShelfAwareness

Application URL: http://csc415-server14.hpc.tcnj.edu:3000/welcome/index

Resources: Lynda.com

Use Case Diagram:

Basic Use Case Diagram

Frank Lu | March 4, 2019

Create new book list

Ban/Suspend Users

Rate books

Review Reports

Donate Books

Pin forum posts

Record notes, quotes,etc.

Report other users

Create new forum posts

Add book to wishlist

Edit profile

Delete forum posts

Claim Donations

Log In

Users

Moderators