

Assignment 3 – Open Source Software: Proposal

Ethan Staiman

GitHub: <https://github.com/Estaiman/TCNJ-Bazaar>

VM Name: csc415-server21.hpc.tcnj.edu

VM Path: /local/home/sysadmin/bazaar

Social Issue: The social issue I am trying to solve is the high cost of textbooks for college students.

Project Title: Textbook Bazaar

Option: I chose option 2 because I wanted to design my own project. Option 1 would require a lot of time just to understand how other people's code works, and I feel it would be hard to add to something that big. Option 3 was just an extension of a previous assignment, and I wanted to try something new. I also feel like the high cost of textbook is an important issue in our community that needs to be addressed.

Implementation: I will be implementing a web application. This will be written in Ruby using the Rails framework. The formatting will be done in HTML using CSS to style the page.

Project Idea: This will be an online marketplace where TCNJ students can buy or sell their textbooks.

Innovation: My project is innovative because the websites/apps that exist are focused on a wide community. By focusing on just the TCNJ community it means that there is no shipping or waiting, the buying and selling can happen on campus quickly. This addresses the social issue because people will be selling their textbooks significantly cheaper than the bookstore and other sites. This also saves resources as more textbooks don't have to be produced.

Algorithm: I will be using an algorithm that accesses a hash with a textbook name and returns the relevant textbooks. I will be using a modified merge sort algorithm that sorts the textbook found by price making it easy to find the best prices.

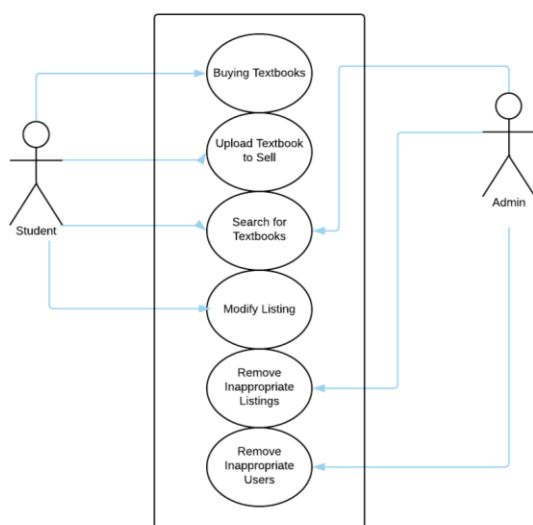
Data Structure: I will be using a hash table to store the textbooks in, and the textbooks will be objects with multiple data fields such as name, condition, edition, publication year, etc.

Software Concepts: I will be doing a very well-thought out and planned project. I will be using models such as the use case diagram to better plan out my approach. I will be learning how to use the rails framework, which I have never used before. The formatting will be in HTML and CSS, which I have limited experience in. Finally, I will be using PostgreSQL for the database, which I have never used and will need to learn.

Detailed Description: People will be able to create an account and list textbooks for sale, uploading information about the textbook's name, listing price, authors, edition, year of publication, condition, etc. They will also have the ability to browse textbooks based off of different criteria, such as textbook name, class, major. Once a user finds a desired textbook, they are able to make an offer on that textbook. The communication method will be through email, with the prospective buyers contacting the seller through the email associated with their account. People will be able to modify any listings they've created. There will be admin(s) who will remove any listing that isn't appropriate for the site, and if necessary, remove users who have been disingenuous about the condition of their textbooks. Transactions will not be done through the site; students can agree on payment methods and amount and handle the transactions in person when the textbook is received.

Security: Any application where users meet in person has an inherent risk, as people can have malicious intents. First, the end goal would be to need a TCNJ login to access the account. This would ensure that all users are TCNJ students/alumni/faculty. But this does not ensure safety. Anytime a user buys something, the website will provide the user with a list of safe locations and times. These locations will be places like the library or the student center, where there are a lot of people around. While we cannot make a user go to these safe locations, we can recommend they use this and have the user click a box acknowledging the inherent risk of meeting strangers in a potentially unsafe location.

Use Case Diagram:



Timeline:

October: Learning the basics of android development in Android Studio and refining what the functionality will be. Ask around school what people would want in a textbook buying/selling application. Develop a very basic app that has a basic GUI with basic functionality of selling.

November: Begin to implement more complex feature like the buying and transactions.

December: Testing and bug fixing.

I will start learning how to code rails using the tutorial on the ruby on rails website. I will learn how to use PostgreSQL using the tutorial on the PostgreSQL website.