

SW Engineering CSC 648/848 Fall 2020
SFSU Market

Team # 03

Team Lead: Nicholas Green ngreen2@mail.sfsu.edu

Back end Lead: Steven McHenry

Front end Lead: Ahmad Afghan

Github Master: Lauren Luke

Waqas Hassan

“Milestone 1”

Due Date: September 24, 2020

Tables of Contents

Title Page	Page 1
Table of Contents	Page 2
Executive Summary	Page 3
Personas	Page 4-6
Use Cases	Page 7
Main Entities	Page 7-8
Initial List of Functional Requirements	Page 8-9
List of Non-Functional Requirements	Page 9-10
Competitive Analysis	Page 10-11
High-Level System Architecture	Page 11
Team Roles	Page 11
Checklist	Page 11

1. Executive Summary

The goal of this product is to streamline a less expensive version of the preexisting process by which students buy books and other supplies at SFSU. Currently, if a student has a set of books and other supplies that they need, they can put in an order at the student bookstore and receive them, if all goes well. However, this is not cost-effective, and it can sometimes lead to frustration if books are in low stock or lines are too long for a student's schedule. As such, many students acquire books/iClickers/etc. by other, more convenient means, including buying them off of other students and using websites designed for this purpose, such as Chegg. There is no standard procedure for this, however our product will allow for a more streamlined version of this second process, where supplies are acquired after a search for the best methods. It will allow students to list any supplies they would like to sell and contact those people who are selling. It will also give students a platform to discuss where it is best to acquire the supplies they need. It will also involve professors, who can submit a reading list to the website's moderators, who will then create a post where students can discuss buying the books and any other supplies they need for that class in particular.

Students will also be able to tag their listings by the classes their items are used in, and search using these tags. This prevents students from having to look for each book individually. If they are in a class with five textbooks required, for example, they can simply search using that class name and see all listings and discussions related to the class.

Our team consists of five undergraduate students in the computer science department. Several of us have completed general education requirements at SFSU, and all of us have had to get books for a class here. Since this is true, we are all aware of the challenges in this process and have been able to develop a manner in which we would like to address them. The team also contains people who have switched majors from a BA to a BS and therefore are more able to approach this problem from both of these angles.

2. Personae and Main Use Cases

Persona: **Jennifer**

- § First year, majoring in Biology
- § Lives on-campus in first year dorms
- § Has one roommate
- § Originally from SoCal, goes back home during holiday breaks
- § Has never bought textbooks online before



After the first day of school, Jennifer knows that she needs a textbook and iClicker for her Bio 100 class. The professor recommends a website to buy a brand new version of both items but it is more expensive than what Jennifer can afford. Professor urges everyone to have the materials in class by next week.


"I am trying to not take loans this year and have been saving up all summer to pay for my education and housing. I know these materials are important but they are also really expensive. Thankfully, I was able to find used versions from past students for a much reasonable price."

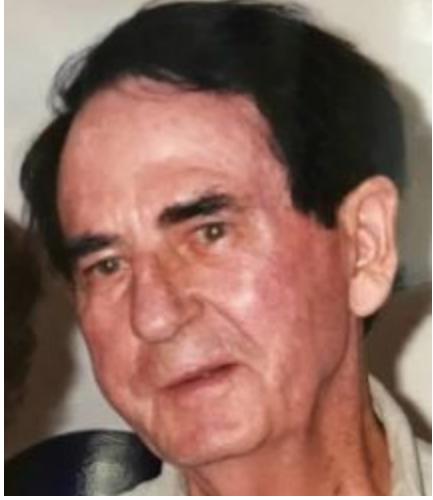

Persona: **Edgar**

- § Undergraduate full-time student
- § He is a transfer student
- § Lives in San Jose
- § On campus 4 days a week
- § Familiar with craigslist and similar sites.
- § Hates waiting



It is the beginning of the semester and Edgar needs to buy a textbook for his physics class. He needs it in the next few days so that he can start working on his first assignment that is due next week.	<i>"I added the class late, so I missed the first few lectures. I did not know that the first assignment is due next week. I found this website that had lots of SFSU students selling their old books, and I could get it on the same day."</i>
---	--

<p>Persona: Monica</p> <ul style="list-style-type: none"> § Undergraduate part-time student § English major § Works a full-time job § Great with time management, organization and communication § Works mainly remote due to constant travel 	
Monica is enrolled in two online classes this semester while recently receiving a promotion at her full-time job. She travels often so she is not able to visit the school to buy her textbooks. Electronic books work best for her but she is also on a budget.	<i>"I am constantly on the go so I need my textbooks to be easily accessible. Electronic books that I can easily download make my life so much easier. I heard about this website where students sell their links to their online textbooks. This would help me so much to get my books right away and keep me within my budget."</i>

<p>Persona: Samuel</p> <ul style="list-style-type: none"> § Philosophy professor at SFSU § On campus three days a week § Has used online learning resources before, but is unfamiliar with e-commerce § Dislikes confusion, both in himself and among his students 	
<p>Samuel assigns five books for an undergraduate philosophy course. He understands that this can be a complicated, or at least tedious, process. He wants to find a way to streamline this process for his students.</p>	<p><i>“Philosophy has a lot of reading in it, of course, and buying textbooks is difficult to do without breaking the bank. I would like to help my students do this more easily, but I am not willing to change the reading list.”</i></p>
<p>Persona: Sasha</p> <ul style="list-style-type: none"> § Director, Academic Technology § Lives off campus in her own house § Originally from Spain § Technologically minded and strongly involved with student affairs 	
<p>Sasha is the Director of Technology at SFSU. She is interested in having a portal for students to easily access school materials and books that is organized by students. She has a deep love for student involvement and is an avid online forum user.</p>	<p><i>“I would love for a place where students and teachers can go so they can get affordable books and supplies for their classes. It would be exciting to have it be student run and dynamic enough for many different needs.”</i></p>

Main Use Cases:

Full Time Freshman Student-Jennifer is worried she is going to spend too much on one textbook and iClicker. Her roommate told her about the website where SF State students can sell and buy used school materials. This is very convenient for Jennifer because she lives on campus and ended up finding someone with her book and iClicker that also lives on campus. Now Jennifer is ready for her semester as a first year Bio student.

Full Time Undergraduate Student-Edgar needs a Physics textbook very soon for completing his first assignment that is due next week. He found out that some students are selling their old textbooks on a website. He found the exact textbook and contacted the seller which asked him to register first before purchasing the textbook. He is very happy and shall get his textbook in the next few days.

Part Time Online Student-Monica works eight hour days and travels from city to city for her job so school for her is remote. At the end of her day she needs her electronic textbooks to be easily accessible and ready for download. Monica did some research and found a website through SFSU where students can buy and sell textbooks. She browsed the website and found what she needed for the semester. The website was very easy to use and only took a few minutes to complete her purchase. Monica is now ready for the semester and knows at any time she can easily purchase the books she needs.

Professor at SFSU-Samuel assigns several textbooks. A student asks Samuel if he can make a class listing on SFSU Market so they can communicate with one another. The student says Samuel can contact the admins and submit the class's reading list, and a post will be created on which students can discuss how best to acquire these books. Samuel does so by filling out the "Teacher's Class Submission" form available on SFSU Market. A week later he asks the class if anyone has had trouble getting the books. No one has.

School Administrator at SFSU-Sasha is a school administrator at SFSU and she wants to go on the site and keep track of current needs of students across various disciplines. She is also interested in studying the technological requirements of a third party system that would facilitate a variety of uses for the student body. She creates an online poll for students to input their experience with using the platform along with contacting the developers of the site to inquire about the technological hurdles that they have encountered.

3. Main Entities

1. User
 - a. Each registered individual on the site.
2. Permission

- a. Contains the list of possible permissions a user can have.
- 3. Message
 - a. The messages for each user that they can access.
- 4. Listing
 - a. All information pertaining to a posted item or service.
- 5. ListingType
 - a. The category of the item for sorting purposes.
- 6. Comment
 - a. Comments left for each posting.
- 7. Location
 - a. All available safe locations that they can choose from to meet at.
- 8. Class
 - a. Contains all class names and numbers. Used for sorting as well.
- 9. Book
 - a. The book name and ISP for sorting and searching.

4. Initial List of Functional Requirements

- 1. User registration
 - a. Users shall be able to make accounts on the website.
- 2. User login
 - a. People shall be able to log in to their preexisting accounts.
- 3. User logout
 - a. Users shall be able to log out of their account from the application.
- 4. Ability to make posts
 - a. Users shall be able to post an item or service for sale on this application.
- 5. Ability to respond to posts
 - a. Users shall be able to make public comments on posts.
- 6. Lazy registration
 - a. Users shall not be prompted to register until the final stages of performing an action on the website.
- 7. Direct messaging between users
 - a. Users shall be able to message other users privately.
- 8. Filter search results (price, location, tags, etc.)
 - a. A dropdown menu shall enable users to search by other criteria, such as price, in addition to post title.
- 9. Teacher-verified reading list for classes
 - a. Users who are teachers shall be able to submit reading lists for their class. All books being sold that are on that list will then be marked as such.
- 10. Most recent posts displayed on homepage
 - a. On load, the site shall display the most recent posts made on the application.

11. Rate buyers/sellers out of 5
 - a. Users shall be able to rate other users they have made transactions with.
12. Designated safe locations for exchanges
 - a. The website admins shall maintain a list of locations that are designated as safe for exchange.
13. Sold marking
 - a. Registered users shall be able to mark an item as sold once sold out
14. Indication of relevant version changes
 - a. If the website is updated users shall be notified of this via a prominently displayed message on the homepage.
15. Price comparison to new book
 - a. The application shall connect to a publisher's e-commerce page to see what the price of a new version of a textbook that is being sold is.
16. Pagination for viewing items
 - a. The application shall fetch data in small packages rather than all at once.
17. Responsive UI
 - a. The application shall respond visually to the user's mouse movements, such as enlarging an image if moused over.
18. COVID-19 mark
 - a. Users shall be able to mark themselves as COVID-19 negative and display this marking on their listings.

5. List of Non-Functional Requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team, but all tools and servers have to be approved by class CTO).
2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of all major browsers: Mozilla, Safari, Chrome.
3. Selected application functions must render well on mobile devices.
4. Data shall be stored in the team's chosen database technology on the team's deployment server.
5. No more than 50 concurrent users shall be accessing the application at any time.
6. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
7. The language used shall be English.
8. Application shall be very easy to use and intuitive.
9. Google analytics shall be added.
10. No email clients shall be allowed.

11. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated.
12. Site security: basic best practices shall be applied (as covered in the class).
13. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
14. The website shall prominently display the following exact text on all pages "SFSU Fulda Software Engineering Project CSC 648-848, Fall 2018. For Demonstration Only" at the top of the WWW page. (Important so as to not confuse this with a real application).

6. Competitive analysis

Features	Craigslist	Amazon	eBay	SFSU Bookstore	SFSU Market
Direct messaging between users	✓✓	✓	✓	✗	✓
Filter search results (price, location, tags)	✓	✓✓	✓	✗	✓✓
Price comparison to new book	✗	✓	✗	✓	✓
Designated safe locations for exchanges	✗	✗	✗	✓	✓
Most recent posts displayed on homepage	✗	✗	✗	✗	✓✓
Teacher-verified reading list for classes	✗	✗	✗	✗	✓✓

- ✓ = good
 ✗ = not available
 ✓✓ = excellent

SFSU Market allows students to easily and safely sell and buy school related materials with each other in a convenient manner. Students from the past can sell their class materials like textbooks, books, iClickers, etc, on our website to other students at SFSU. We have many similar features of Craigslist, Amazon, eBay, and SFSU Bookstore on our website such as private messaging between the buyer and seller and searching by specific filters like price and locations. One benefit that we provide that is not offered by our competitors are designated safe locations for exchanges, which allows our users to feel safe during their meet up with the buyer/seller and relieves the likelihood of danger. Another feature that is only on our website is that the most recent posts get shown on the homepage which takes away the disadvantage of paying for advertisements to get more views on your posts. On our website we also provide teacher-verified readings lists, allowing students to view what materials they need for their respective classes. Although the SFSU Market is a safe place to buy textbooks, you cannot always sell at the

bookstore and they are not the cheapest price you can get. On the website, you can compare prices and messages whichever one is available and convenient for the user.

7. High-Level System Architecture

- 1). Server Host: Amazon Web Services (AWS) 1vCPU 1GB RAM
- 2). Operating System: Ubuntu
- 3). Database: MySQL server
- 4). Web Server:
 - Nodejs
- 5). Server-Side Language:
 - Javascript (v 1.8. 5)
- 6). Additional Technologies:
 - Bootstrap 4
 - Express (Back-end framework)
 - ReactJs (Front-end framework)
 - IDE (VScode)
- 7). Supported Browser:
 - Google Chrome and Mozilla Firefox (latest 2 versions for each)

8. Team and Roles

Nick Green- Team Lead

Lauren Luke- Github Master, Document Master

Steven McHenry- Back end Lead

Ahmad Afghan-Front end Lead

Waqas Hassan- Team Member Front end

9. Checklist

- So far all team members are engaged and attending ZOOM sessions when required **DONE/OK**
- Team found a time slot to meet outside of the class **DONE/OK**
- Back end, Front end leads and Github master chosen **DONE/OK**
- Team decided and agreed together on using the listed SW tools and deployment server **DONE/OK**
- Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing **DONE/OK**
- Team lead ensured that all team members read the final M1 and agree/understand it before submission **DONE/OK**
- Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.) **DONE/OK**