SW Engineering CSC 648/848 Fall 2020
SFSU Market

Team # 03

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"Milestone 1"

Due Date: September 24, 2020

Tables of Contents

1. **Executive Summary**

The goal of this product is to streamline the currently spread-out method by which students, faculty, and staff exchange items and services at SFSU. As of now, there is no real hub to do this, with transactions being spread across many platforms. For instance, a student might post a used textbook on a Facebook group, a tutoring offer on a bulletin board, or an old couch they do not need anymore on Craigslist. Our goal is to consolidate all of this by creating a versatile platform on which all services and goods that could be exchanged in this way can be advertised and sold.

Users will also be able to tag their listings by the classes their items are used in, and search using these tags. This feature is in many places on the internet, and is very useful when it is used. This project will be no exception to that. For example, if a student is buying several textbooks for a class, 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 that have been marked as 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.

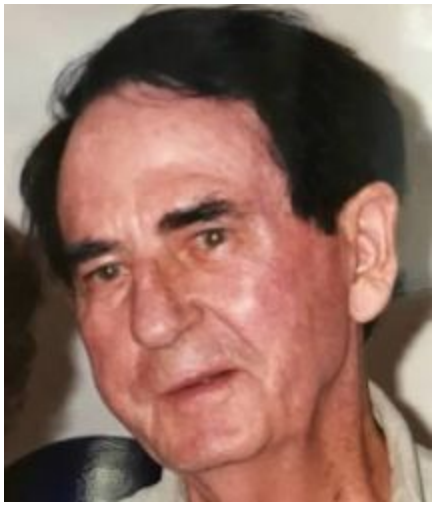
2. Personae and Main Use Cases

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 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."*

Persona: **Monica** § 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 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."*

Persona: **Samuel** § 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	
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.	*"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."*

Persona: **Sasha** § Grad Student, SFSU § Lives off campus in her own house § Originally from France § Technologically minded and strongly involved with student affairs	
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.	*"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."*

Main Use Cases:

Inexpensive Resources-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. She uses the search toolbar to look up the clicker and her textbook. She finds her specific matches and reaches out to the seller, after which she is prompted to register as a user first. They then decide a meet up place and time through the private chat between Jennifer and the seller. 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.

Quick Resources-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 prompted him to register first before purchasing the textbook. He is very happy and shall get his textbook in the next few days.

Online Textbooks-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 a variety of items. She browsed the website and was able to pick out what she needed very easily by searching by title and tags. Once her browsing was concluded, she was able to message the seller and purchase the link to her online textbook receiving it in minutes. Monica is now ready for the semester and knows at any time she can easily purchase anything she needs from SFSU Market.

Reading List-Samuel assigns several textbooks and recommends SFSU Market to his students. Several users on SFSU Market are selling copies of these books. They can all be found by searching for the tag corresponding to the class name. His students are all able to find the books required for the class within a week using this application and the tag search feature.

Site Adminstration-It is after a long day of classes and Sasha hops on her admin portal for the website she helped create. She starts by scanning through the requested postings and approved most while denying some that do not fit the criteria of the site. She then notices that a post that displayed a student's address made it past her previous scans. Sasha deletes that post and then goes on to delete the user that made that post as it is not the first time they have posted sensitive information about other students.

3. Main Entities

1. User

    a. Three types of possible users
        i. UNREGISTERED
        ii. REGISTERED
        iii. ADMIN
    b. Registration Record
        i. Name
        ii. Email (used to verify SFSU member)
        iii. Password (Encrypted)
        iv. Avatar (Possibly upload their own or select from various possibilities)
2. Permission
    a. Contains the list of possible permissions a user can have.
        i. REGISTERED
        ii. ADMIN
3. Message
    a. The messages for each user that they can access.
    b. These messages are used for communication within the app so that users can ask questions pertaining to listings and set up meetings for exchanges
4. Listing
    a. Will contain the following elements
        i. Key: Randomly generated ID
        ii. Title: String
        iii. Description: String
        iv. Category: List of Categories
        v. Price: Int
        vi. Images: List of Images
5. Category
    a. The category of the item for sorting purposes.
6. Image
    a. This entity will contain the following elements
        i. Key: Randomly generated ID
        ii. Name: String
        iii. Size: Int
        iv. Url: String
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.
10. Tag

a. All possible Tags
    i. List of Classes
    ii. List of Books
    iii. List of Categories

4. Initial List of Functional Requirements

1. On load, the site shall display the most recent posts made on the application.
2. Unregistered users shall be able to create accounts on the application.
3. Unregistered users shall not be prompted to register until the final stages of performing an action on the website. Unregistered users shall be able to begin an action that requires the user to be logged in to an account. They will be unable to finish these actions without registering.
4. Registered users shall be able to log in to their preexisting accounts.
5. Registered users who have logged in shall be able to log out through the application.
6. Registered, logged-in users shall be able to post an item or service for sale on this application and attach images to that post.
7. Registered, logged-in users shall be able to add tags to their posts.
8. Registered, logged-in users shall be able to make public comments on posts.
9. Registered, logged-in users shall be able to message other users privately.
10. Registered, logged-in users shall be able to rate other users they have made transactions with.
11. Registered, logged-in users shall be able to mark an item as sold once sold out.
12. Site admins shall maintain a list of locations that are designated as safe for exchange, which will be publicly available for both registered and non-registered users to access.
13. Site admins shall be required to verify all posts before those posts are made public.
14. Site admins shall be able to delete or lock posts made by registered users.
15. Site admins shall be able to delete comments made on posts.
16. All users shall be able to view posts.
17. All users shall be able to search for posts by title and other criteria such as location, price, and tags.

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**