

# **CSC 0648 Software Engineering Fall 2020**

## **Online Buy/Sell/Exchange Website for SFSU students**

### **Milestone 1**

### **Team 05**

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# Executive Summary

## Our Service

Students everywhere have always required specific resources to meet their educational goals. These resources vary widely but are quite specific to the role of being a student at a university, and much of these needs go unmet throughout the career of the student. To name just a few examples, faculty, staff, and students are often looking for things such as tutoring, cheap textbooks, class-specific tools like iClickers, or perhaps even furniture for those who are moving to live close to or on their university of choice. All these needs involve the exchange of goods and services from one student to another, meaning that there is a large untapped market for a specialized marketplace where students can exchange goods and services amongst each other quickly and safely. Our service aims to meet this need and bridge the gap in this market.

The website we are developing will serve as a student marketplace for SFSU students and staff to exchange items or services safely, quickly, and easily between each other. The website will provide a platform for students to easily sell and buy things like textbooks, tutoring services, electronics, miscellaneous accessories, furniture, and a variety of other things. Although with services like Amazon or eBay today, it is already quite easy to find items online, our website brings a novel approach of ease-of-use, quickness, and variety to the online trading world. Students will be trading in a marketplace that is specific to their university, allowing for a much faster transaction to take place. Students can also exchange items for other items, giving them more freedom and flexibility with how they value and exchange the items they choose to sell. Students will find it easier to search for what they need, as materials can be linked to and categorized by the courses that require them, if any.

This website will also help instructors, which is giving them the opportunity to provide resources to their students directly. Professors can easily assign books under their classes and names, so students can search for their class materials by course or instructor name. This will also assist students looking to sell used textbooks, as the marketplace will ensure their used books are easily found by students looking for them.

Given that we are a team of students developing this site, we are most qualified to understand the needs of students overall. We have first-hand experience with what students need, and what others can offer, and we are intimately familiar with what makes an online marketplace easy to navigate and use, being customers ourselves. With our personal experience and expertise, we plan to deliver a resource that stands out above any other online marketplace today, in the spirit of providing an unmatched resource catered towards students, teachers, and the educational community.

# Personae and main Use Cases

## Personae 1: Sarah (student)

### About Sarah:

- New to college, freshman
- Enjoys meeting new people and social activities
- Sometimes feels overwhelmed with all the new information she needs to understand
- Very comfortable with online applications

### Goals:

- Is willing to meet new people, wants social interactions.
- Wants to be economical

### Skills:

- Familiar with mobile technology
- Frequent Amazon shopper



<https://www.pexels.com/photo/woman-standing-in-hallway-while-holding-book-1462630/>

## Personae 2: Tom (student)

### About Tom:

- Returning student, late 20's
- Has a strict schedule because of his full time job
- Not patient with technology, frustrates easily
- Determined to finish his education

### Goals:

- Is constantly working, wants to be able to check the status of books from work quickly.
- Wants all his interactions to be quick, doesn't want to spend too much time online

### Skills:

- Has experience with online selling and exchange



<https://www.pexels.com/photo/smiling-formal-male-with-laptop-chatting-via-phone-3760263/>

## Personae 3: Joseph (Instructor)

**About Joseph:**

- History Instructor
- Likes to read
- Not very good with technology

**Goals:**

- Wants to be able to sell his books to students
- Wants to be able to communicate with student effectively

**Skills:**

- Good face-to-face and interpersonal skills
- Well organized



<https://www.pexels.com/photo/man-in-black-suit-jacket-3831612/>

**Personae 4: Kim (Administration)****About Kim:**

- Experience with college system
- Very busy with administrative tasks
- Willing to do anything she can to help students, enjoys making their lives easier
- Her busy schedule and family life only leave specific windows of availability throughout the day

**Goals:**

- Would like to make her students lives easier, likes simplicity
- Wants students to have economical choices

**Skills:**

- Organizational skills
- Experience with managing college site before



<https://www.pexels.com/photo/woman-sitting-in-front-of-a-computer-while-talking-on-the-phone-3894377/>

## Use Cases:

### **Personae 1: Sarah (student)**

Sarah is a freshman in her first semester of college. She just moved into her new dorm and is looking for new furniture and electronics for her room. She also is looking for new ways to connect with other new students and thinks tutoring can be a good way to meet new people and study for classes. She enters the site and searches for furniture and home electronics and finds some she likes. She messages the seller and the site then prompts her to register in order to message the seller. She searches for tutoring by class and can message the seller to meetup.

### **Personae 2: Tom (student)**

Tom is a busy part time student. He is having trouble finding the books he needs for his classes. He logs into our site and puts out a request for a particular book that he'll need later in the semester. He wants to be notified when a seller has a book available. Depending on his circumstances, he wants the option of having the book shipped to him or meeting the seller for a quick exchange.

### **Personae 3: Joseph (Instructor)**

Joseph is an instructor in history. He likes to read and encourages his students to read as much as they possibly can. He has extra books that his students can purchase from him if needed. Since his class of students is too large for him to handle, he wants a simple and easy way for students to communicate with him if they want to purchase a book from him. Using the seller option, Joseph can create a post of the different products. Upon submitting the post he is then prompted to log in or sign up in order to continue, where he can then communicate with other users of when and where they can pick up the product and discuss the pricing.

### **Personae 4: Kim (Administration)**

Kim is an experienced administrator. Since Kim is an administrator to the website, she has access to an admin account which allows her approval and deletion of posts and user accounts. She is required to approve each post before going live. After reviewing the posts and finding and removing all inappropriate posts, Kim allows all the other posts to go live for other people to look at.

# List of main data items and entities – data glossary/description

1. Communication: A conversation between buyer and seller about posted items
2. Products: Physical material or non-tangible items that will be sent/received between the 2 parties. (eBooks, Calculator, laptop, software, etc.)
3. Posting: Provide product page, or service to be agreed upon through Communication between Buyer and Seller
  - Product title: The title of the product for posting
  - Product description: The description of the product and the date it was posted.
  - Product price: price of the product is set by the sellers
  - Product category
    - Course ID required if category belongs to Books category
  - Product image
4. Unregistered user:
  - Can browse through the listings of services and products on the website but cannot purchase nor create posts.
  - Can create an account
5. Registered Users: Registered users can post products/services to sell and pay for them in vice versa.
  - Registration Record (METADATA)
    - Registration Record: User SFSU id to validate students.
    - SFSU email address: User SFSU email to validate student. (sfsu.edu)
    - Name: How the user is addressed via communication.
    - Password: confidentiality for the user's information encapsulated in their account.
6. Admin: Full system control of the website to oversee all traffic and usability.
  - Suspend or ban users from the website.
  - Has the capability to approve posts.
7. Message: Communication built between two users.
  - Product ID: The message tied to the product listed that facilitates what product they are talking about.
  - Title: The product/service title that reflects the Product ID.
  - Date: The date the message was sent.
  - Text: Plaintext of information given from the user with the inquiry.

# Initial list of functional requirements

## **Unregistered users:**

1. The system shall allow only SFSU students/employees/staff to create an account to buy and sell school supply as a user.
2. Unregistered users shall be able to browse the products/services on the website.
3. Unregistered users shall be able to search for desired items listed using a filter.

## **Registered Users:**

4. Registered users inherit all features of unregistered users.
5. The system shall allow the users to personalize their profile, such as name, address.
6. Registered users shall be able to coordinate delivery options through the portal.
7. Registered users shall be capable of uploading a profile picture.
8. Registered users shall be able to rate their seller or buyer experience.
9. Registered users shall be able to post items with all the data such as image, category, and description.
10. Registered users shall be able to adjust price before point of sale.
11. Registered users shall be allowed to add relevant course information about the school item they post for sale.
12. Registered users shall be allowed to post under their profile a list of services that they are providing.
13. Registered users shall be allowed to remove their sales/services posts.
14. Registered users shall be able to message other users directly through the product post based on the item of interest.
15. Registered users shall be able to message back the exact buyers who initiated the message.

## **Admin**

16. Admin required to approve all posts that are requesting to be listed.
17. Admin shall be required to suspend and ban users.



# 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 two major browsers
3. All or selected application functions must render well on mobile devices
4. Data shall be stored in the database 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 (no localization needed)
8. Application shall be quite easy to use and intuitive
9. Application should follow established architecture patterns
10. Application code and its repository shall be easy to inspect and maintain
11. Google analytics shall be used
12. No email clients shall be allowed. Interested users can only message to sellers via in-site messaging. One round of messaging (from user to seller) is enough for this application
13. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
14. Site security: basic best practices shall be applied (as covered in the class) for main data items
15. Media formats shall be standard as used in the market today
16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
17. The application UI (WWW and mobile) shall prominently display the following exact text on all pages *"SFSU Software Engineering Project CSC 648-848, Fall 2020. For Demonstration Only"* at the top of the WWW page. (Important to not confuse this with a real application).

# Competitive analysis

	Our Site	Amazon	Craigslist	eBay	Facebook Marketplace
<b>Seller Review</b>	+	++	-	+	-
<b>Safe Meetup Suggestion</b>	+	-	-	-	-
<b>Exclusive to SFSU students/staff</b>	+	-	-	-	-
<b>Buyer to Seller Contact</b>	++	+	+	+	++
<b>Service Exchange (i.e, tutoring, disability assistance)</b>	+	-	+	-	-

(++) Superior

(+) The same

(-) Does not exist

Our application aims to focus on local convenience, safe public transactions, and student specific services. With the limitations of inventory and infrastructure, it will be too difficult to compete with top marketplace applications like Amazon and eBay. The number of users for the site will also be significantly smaller than Craigslist, who host a multitude of users all over the world. The problem with these sites is the lack of trust and safety through buyer and seller interactions. With Amazon, there is no direct and simple way to contact the seller and buyer, therefore trust relies mainly on seller ratings. As for eBay and Craigslist, it can be scary and potentially dangerous for buyers to meet with unknown sellers. Our app will address these problems with unique features like direct messaging between buyers and sellers, seller reviews, like Amazon and eBay, as well as recommended public meetup spots. Along with the exclusive user space limited to SFSU staff and students, we will provide a stronger sense of security and trust through our marketplace app.

# High-level system architecture and technologies used

- Server Host: Amazon AWS
- Operating System: Linux
- Database: MySQL
- Web Server: NGINX
- Server-Side Language: Python
- Additional Technologies:
  - i. Web Framework: Flask
  - ii. IDE: PyCharm. Bootstrap.

# Team and roles

Student Name	Role
Naweeda Qeyam	Team Leader
Joshua Hansen	Github Master
Manuel Hernandez	Frontend/ Backend
Marvin Thai	Github Master/Backend
Austin Bernard	Frontend Lead
Dang Anh Tu Nguyen	Backend Lead

## Checklist

Tasks	Status
So far all team members are engaged and attending ZOOM sessions when required	DONE
Team found a time slot to meet outside of the class	DONE
Back end, Front end leads, and GitHub master chosen	DONE
Team decided and agreed together on using the listed SW tools and deployment server	DONE
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
Team lead ensured that all team members read the final M1 and agree/understand it before submission	DONE
GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	DONE