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, 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 of 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 students to safely, quickly, and easily exchange items or services 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 directly 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 firsthand 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

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

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
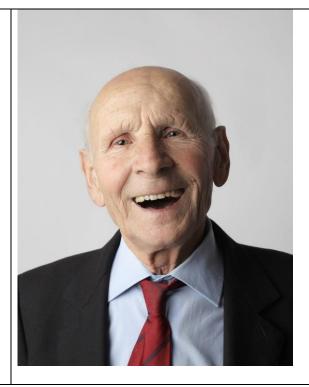
Personae 3: Joseph (Instructor)

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

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

Use Cases:

Personae 1: Sarah (student)

      Sarah is a freshman in her first semester of college. She needs to figure out which books she needs along with the version number. She logs into our site to get the exact book she needs after inputting her course numbers. Sarah is also shown version numbers of her text that would suffice. She also needs the books as soon as possible and would like to set up times she is available to meet other students to purchase the books. She also would like to use the service for joining study groups.

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 post the different products that he may want to sell to buyers and will be able to communicate with them where they can pick up the product and the price of it.

Personae 4: Kim (Administration)

      Kim is an experienced administrator. She logs into our site to easily communicate with faculty and students. She also uses the website to get an idea of students that are willing to tutor. She uses our site to easily connect students. Along with tutoring, Kim wants students to know who to contact when they are in need of particular products or services.

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

- Communication: A conversation between buyer and seller about posted items
- Seller: A registered user who wants to buy or sell materials / services. At SFSU.
- Buyer: A registered user trying to find affordable materials / services at SFSU.
- Products: Physical material or non-tangible items that will be sent/received between the 2 parties. (ie:Books, Calculator, laptop, softwares, etc.)
- Services: various small services to be agreed upon between buyer and seller (i.e tutoring, accessibility)
- Guest: Unregistered user visiting the website.Can browse through but can't download or upload any content.
- User: Allowed to perform actions of Buyer and Seller
  - Student ID
  - Name
  - SFSU email address
  - Password
- Admin: Full system control of the website to oversee all traffic and usability.
  - Fix errors that interfere with user experience
  - Control flow of the buyer-to-user transactions with limitless control.
  - To modify, alter, and delete all accounts on the application.
- Posting: Provide product page, or service to be agreed upon through Communication between Buyer and Seller

Initial list of functional requirements

All users

- The system shall allow only SFSU students/employees to create an account to buy and sell school supply as a user.
- Users shall browse the products/services in the website

Buyers

- The system shall allow the users to personalize their profile, such as name, address.
- Users shall be allowed to set the price of their product or service.
- Users shall be able to search for desired items listed using a filter.
- Users shall be able to coordinate delivery options through the portal.
- Users shall be capable of uploading a profile picture.
- The users shall be able to rate their seller or buyer experience.
- Users shall message the sellers

Sellers

- Seller shall be allowed to list items for sale under their account name and post it
- Users shall be able to adjust price before point of sale.
- Sellers shall be allowed to add relevant course information about the school item they post for sale.
- Students shall be allowed to post under their profile a list of services that they are providing.
- Users shall be allowed to remove their sales/services posts.
- Sellers shall message back the exact buyers who start the message

System services

- System shall list the recommended books to match user's courses
- The system shall categorize all service and goods accordingly.
- System shall allow the users to see their own purchase and selling history.
- System shall have a support section like chat or help page
- Admin shall approve posts from users
- System shall validate user emails before allowing posts of services or products

List of non-functional requirements

- 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).
- Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
- All or selected application functions must render well on mobile devices
- Data shall be stored in the database on the team's deployment server.
- No more than 50 concurrent users shall be accessing the application at any time
- Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
- The language used shall be English (no localization needed)
- Application shall be very easy to use and intuitive
- Application should follow established architecture patterns
- Application code and its repository shall be easy to inspect and maintain
- Google analytics shall be used
- 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
- Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
- Site security: basic best practices shall be applied (as covered in the class) for main data items
- Media formats shall be standard as used in the market today
- Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
- The application UI (WWW and mobile) shall <u>prominently</u> display the following <u>exact</u> text on all pages *"SFSU Software Engineering Project CSC 648-848, Fall 2020. For Demonstration Only"* at the top of the WWW page. (Important so as to not confuse this with a real application).

Competitive analysis

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

(++) 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 amount 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 features like direct messaging between buyers and sellers, seller reviews, similar to 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:
    - Web Framework: Flask
    - 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 elads 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