SW Engineering CSC648/848 Fall 2020

Application: SFSU Buy and Sell Website

Name: SFSU CONNECT

Team: 1

Robert Clarkson - team lead - rclarkso@mail.sfsu.edu

Kevin Fung - gitmaster

Cody Camp - backend lead

Taylor Luke - frontend lead

Gerardo Ochoa - developer

Hong Li - developer

Milestone 1

September 23, 2020

September 23, 2020	First Revision Done

Table of Contents

Executive Summary

The idea behind this website is to provide an advertising platform akin to craigslist but targeting a niche market. The market we are looking to target is the SFSU community. By targeting such a specialized market, we can build a product that caters to their specific needs. For example, by creating a system which allows the users to filter by either class, course number or subject, they will be able to efficiently find listings relevant to their needs. Unlike other platforms, search results will not be bloated with irrelevant results such as textbooks not used at SFSU. By limiting the ability to post advertisements and contacting others users that have signed up, we can ensure that those participating are affiliated with the school. In this way we can provide a measure of security for our users.

Our team consists of six senior level students at SFSU. As such we think we are uniquely positioned to understand and properly address the needs of the SFSU community. Our experience as students allows us to know what type of features will be best in addressing the needs of our fellow students. Our narrow target market combined with our understanding of it, ensures that our website will be able to compete with other platforms.

Personae and main Use Cases

Personae:

Name: Mary	Picture
Characteristics: • Student • Bargain shopper • Persistent • Intelligent	 Photo by mentatdgt pexels.com
Goals • Get books as soon as possible • Find the best price for her materials • Shopping with convenience	
Skills • Organized • Good communication	
Main points • Looking to sell and buy books online in a timely matter with no shipping costs • No immediate contact with the buyer, everything needs to be online • Being a college student on a very tight budget, she needs quick affordable solutions • Bad at math • Very Good at Spanish	

Use Cases:

● **Mary is a user who wants to sell a book she doesn't need anymore**

Mary hears of a website through her classmate where you can buy and sell textbooks. She is used to buying books online so this offer intrigued her when she needs to sell an old book she used in the last semester. Mary makes an account

online and posts her book for sale. She includes the class name when she posts the book onto the website. The next day she looks on the website and sees another user has contacted her regarding her book. She is able to communicate only via the website and no personal email, which she likes for privacy reasons. She messages with the potential buyer and the two agree on a price and location. She walks to the SFSU Library where she meets the buyer. The book is exchanged and the buyer gives Mary cash. When Mary gets home she removes the listing for her sold book.

- **Mary is a user who needs to buy a book for her upcoming semester**

Mary attends her first day at SFSU and learns that she needs a certain book for her Archeology class. Mary's professor tells her about the *SFSU Connect* website which she can use to get a textbook for a better price from another student. Mary does just that and browses the website. She uses her class title Intro to Archeology to filter the items listed. Sure enough there are 3 listings for the book she needs. Mary creates an account and contacts all three sellers regarding their books. Within the day, one of the sellers gets back to Mary with a steep price. Mary messages with the seller and negotiates a better price. The seller and Mary then agree on a location and time to meet using the website. The website recommends the SFSU Library and both Mary and the seller agree as they will be on campus regardless. They exchange phone numbers through the messenger so they can find each other at the library. On the day of the transaction, Mary and the seller meet and exchange the money for the book, then go about their days. Mary is satisfied with the service as she felt an extra sense of security when she met in a public place with a fellow student.

- **Mary is a user who has a new apartment and needs cookware**

Mary doesn't know exactly what she needs so she looks to SFSU Connect (our website) for inspiration. Mary doesn't need to be a member to browse and can find what she needs quickly without obligation. When she enters the site she finds that she can search for items by category. She sees for example that there is

a "kitchen" category and selects that to see all related listings. She sees a "cheese grater" listed and realizes that it is something she needs. Mary creates an account and contacts the seller. Mary and the seller agree on a price ($5), a location (the SFSU Library), and a date and time (Friday at 4:30 PM). Mary and the seller meet at the library and exchange items and then go about their day.

- **Mary is a user looking for a tutor**

    Mary is bad at math and needs one math course for her major. She knows she will need a tutor and decides to visit SFSU Connect to see what prices are available. She uses "Business Calculus" and "tutor" to narrow down her results and sees there are two students who can tutor her. Mary sends messages to both tutors and they respond immediately. After some messaging Mary feels confident that either tutor would be appropriate for her class. She then negotiates a price with both tutors, one tutor having a much lower price. Mary agrees to the cheaper tutor but tells the other tutor she will keep their conversation saved in case it does not work out. The two then decide on a time and place to meet weekly. Mary has found what she needed through SFSU Connect.

- **Mary has some spare time and is looking to tutor**

    Mary found some extra time in her week to make some money. She decides she wants to tutor in Spanish. Mary visits SFSU Connect and creates a post that she would like to start tutoring. She lists her title as "Spanish Tutor" so students can easily find her when they search the website. She states a basic description, profile photo, and the classes she is eligible to tutor for. A day goes by and Marys already has inquiries sent to her by direct message through the website. She is able to communicate with each student and make sure they are the right fit for each other. Because Mary already stated her hours of operation and her skill level, most of the students were a good fit. Communication through direct message on the website makes it easy for the student and Mary to decide on the time and place to meet for their tutoring sessions. SFSU Connect has made it

easy for Mary to put her extra time to good use by taking advantage of all the site has to offer.

Bob - A professor at SFSU

About Bob:
- Very Busy
- Has basic WWW skills
- Teaches Math
- Have multiple classes
- Spends a lot of time on campus

Goals and Scenario:
- Would like to register as a professor and browse through items.

- Would like to buy an appliance or other materials through the website.

- Would like to sell materials or furnitures to others.

Photo by Max Fischer from Pexels

Use Case:
- **Bob is looking to sell a barely used microwave**

  Bob recently bought a microwave but it turns out he didn't really need it. Since it is still brand new, he wants to sell it and he comes across SFSU Connect. Upon entering the site, Bob realizes he can sell the microwave here to students or faculty members nearby. He would register for an account and list the microwave in the "kitchen" category along with other information. Bob waits until a buyer contacts him on the website and they will discuss the final details. Once they have

an agreement, the buyer and Bob can meet up and do their exchange. Bob has successfully sold his new microwave.

- **Bob is looking to buy some last minute materials for his courses**

     Bob has recently been assigned to teach an extra course due to high demand. Since the semester is almost starting, Bob is in a hurry to gather some last minute materials for the course. He comes across SFSU connect and decides to browse through it. Bob eventually finds someone that was selling a book that he needed for the course. Bob registers for an account and messages the seller regarding the book. Upon making an agreement on both sides, Bob meets with the seller and buys the book. Bob is satisfied since he got the material without wasting much time.

List of main data items and entities

1.   User

    1.1.   Anyone viewing the webpage using any web client

2.   Unregistered user

    2.1.   Can search for *Items* without logging in

3.   Registered user

    3.1.   Can buy, sell, request for *Items* on the site

    3.2.   Report other registered ussr to admin for review

4.   Admin

    4.1.   Can make changes to the item post on site

    4.2.   Can ban registered user for violating TOS

5.   Public

    5.1.   Viewable by anyone. i.e. *unregistered users* and *registered users*

6.   Private

    6.1.   Viewable only to *registered users.* Not viewable to *unregistered users.*

7.   Buyer

    7.1.   The *user* who is interested in obtaining an *item* or *service* regardless of whether or not there is money involved

8.   Seller

    8.1.   The *user* who has an *item* or *service* available regardless of whether or not there is money involved

9.   SFSU Email

    9.1.   Any email address which belongs to the sfsu.edu domain

     9.2.   Registration on the website is only possible with an SFSU email

10. *Internal Message*

     10.1.   The messaging system built into the website allowing *registered users* to communicate with each other

     10.2.   Discourage users from giving out contact info in favor of the safer messaging system provided by the website

     10.3.   Give a notification when you get a message(sound or tab notice)

11. *Class*

     11.1.   The way an *item* or *service,* such as a book, can be categorized on the site is by the university class it belongs to

12. *Meet Info*

     12.1.   The *meeting location* and *meeting time* regardless of whether the exchange is for an *item* or a *service*

     12.2.   Only visible to *buyer* and *seller*

13. *Meet Location*

     13.1.   The specified location where the exchange will take place regardless of whether the exchange is for an *tem* or a *service*

     13.2.   Only visible to *buyer* and *seller*

14. *Meet Time*

     14.1.   The specified time when the exchange will take place regardless of whether the exchange is for an *tem* or a *service*

     14.2.   Only visible to *buyer* and *seller*

15. *Post*

     15.1.   The act of a *user* placing an *item* up for sale on the website, adding to the current list of *items*

15.2. All posts are *public*

15.3. *Post* is directly related to *Listing* where post is the verb and listing is the noun. i.e. a user posts a listing

16. *Listing*

16.1. The *item* and all its information available for viewing by *users*

16.2. *Post* is directly related to *Listing* where post is the verb and listing is the noun. i.e. a user posts a listing

17. *Item*

17.1. This is the item for sale

17.2. Has a *title*, a price, a *description*, zero or more *tags*, zero or more *photos*

17.3. Items are *public*

18. *Title*

18.1. The name given to an *item* and is the main focus for searching. (e.g. green couch)

19. *Photo*

19.1. Photos of users visible only to *registered users*

19.2. Photos of items are *public*

20. *Description*

20.1. A text description of each *Item*

20.2. Descriptions are *public*

21. *Tag*

21.1. Special words used to categorize the *Items*. A couch would have the tag "furniture" so that it would be placed among other furniture during a search.

21.2. Tags are *public*

22. *Service*

    22.1.   A service that a *user* could provide to another *user* as opposed to a physical object

23. *Tutoring*

    23.1.   A *service* in which one *user* provides extra opportunities for learning to another *user*

Initial list of functional requirements

1. Unregistered user

   1.1. User shall be able to look at all listings

   1.2. User shall be able to view each listing's details

   1.3. User shall be able to create an account

   1.4. User shall be able to search for listings based on category

2. Registered user

   2.1. User shall be able to look at all listings

   2.2. User shall be able to view each listing's details

   2.3. User shall be able to search for listings based on category

   2.4. User shall be able to message listing's owner

   2.5. User shall be able to create a listing for an item

   2.6. User shall be able to remove a posting they own

   2.7. User shall be able to message with potential buyers

   2.8. User shall be able to delete their account

3. Admin

   3.1. Admin shall inherit all functional requirements of a registered user

   3.2. Admin shall be able to remove postings the admin does not own

   3.3. Admin shall be able to message registered users

   3.4. Admin shall approve each listing before it is posted publicly

   3.5. Admin shall be able to delete a registered user's account

   3.6. Admin shall take request from users

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 e-mail 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 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 so as to not confuse this with a real application).

Competitive analysis

	SFSU Connect	Amazon	Ebay	SFSU BookStore	Craigslist
Buy/Sell Books	++	+	+	++	+
Get Tutor	++	-	-	-	-
Communication	++	+	+	+	+
Look Up Class	++	-	-	++	-
Locality	+	+	+	++	+
Negotiation	++	-	-	-	-

- = not available   + = can work   ++ = best

In our website, SFSU Connect, we focus on helping everyone in the university. From helping students find their book they need with a low price to looking for a tutor. There are many places you can get the book you need for your classes, but we all know that the price on it is often not worth it, given the fact that you only need this book for a semester, and there are other students who took that class and they don't need their book anymore, so why not help each other out. We focus on face-to-face deals after it is confirmed online, so there is no need to wait for shipping, just meet up in school on a time you agree on. When you meet up, you can check on the product, and decide on the price that you both can agree on. If you ever get stuck in class, we also offer a tutor help, just go on and find a tutor that fits your requirement, and request for their help. Once they accept the request, you will get your tutor session. In our site we focus on letting our students help each other out, and build a strong community.

High-level system architecture and technologies used

- AWS EC2
- Ubuntu Server 18.04 LTS with 8GB of SSD
- MySQL Community Server 8.0.21
- JavaScript
- ExpressJS
- MaterializeCSS
- Google Analytics
- Lets Encrypt
- Bcrypt

Team and roles

- Robert Clarkson - Team Lead
- Taylor Luke - Front end Lead
- Cody Camp - Back end Lead
- Kevin Fung - Githhub Master
- Hong Li - Member
- Gerardo Ochoa - Member

Checklist

- So far all team members are engaged and attending ZOOM sessions when required
  - **ON TRACK**
- 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
  - **ON TRACK**
- 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**