SW Engineering CSC648/848 Spring 2022

GatorTrade

Team 05

Milestone 1

5 March 2022

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1. Executive Summary:

Currently, there is a lack of a dedicated platform for the students, faculty, and staff of San Francisco State University (SFSU) to quickly and securely exchange goods. Students often try to find the cheapest and most efficient way to get the items they need for their classes. If a student wanted to sell a used textbook for a particular class, it is hard to find a suitable platform since they would not be certain what type of platform other students would use to find used textbooks for sale. Although there are some undedicated places for SFSU members to sell their belongings like Amazon, SFSU Reddit, and SFSU Discord, they have less traffic and exposure since not every SFSU member would use or know about that platform. Students and employees that have hobbies in arts and crafts can also list their handicrafts on this platform to be sold and exchanged with students and fellow coworkers. Having a dedicated platform can also provide a sense of safety for the users, especially since having a place to have secure transactions can allow for accountability to occur.

Our application will be tailored to the students, faculty, and staff at SFSU. Belongings they may not want anymore or think others can benefit from can be listed here. The platform will allow for SFSU students, faculty, and staff to buy, sell, or exchange items with one another. This means that the used textbooks, electronics, and other used or handcrafted goods can find new owners amongst the SFSU community. Users of this application shall be able to search and filter through tags for the goods they are looking for such as technology, textbooks, or crafts. It can also be an outlet for artistic students to showcase their skills and sell handmade goods to fellow students and SFSU employees.

Our team is a student start-up composed of students at SFSU. Each member is well-versed in the problems and concerns we address with our application since we have all experienced it firsthand at least once. Therefore, it is safe to say that we know the target audience well because we are in fact part of that same target audience the application strives to appeal to.

2. Personae and Main Use Cases:

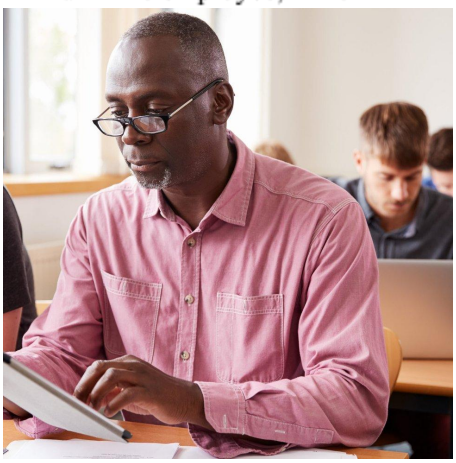
Personae:

Jennifer - Full-Time Student

https://www.shutterstock.com/image-photo/smart-female-college-student-on-campus-193300418

About/Personality	Goals/Scenario
• Full-time SFSU freshman with financial aid and student loan. • Is majoring in Psychology. • Uses smart-phone for social media and computer to watch k-drama. • Have basic WWW skills. • Is tight on money, so she likes to save up whenever she can.	• She recently moved into a new apartment. As she is on a tight budget, she is looking for cheap and used furniture for her new apartment.

Jerry - part-time student, full-time employee, father



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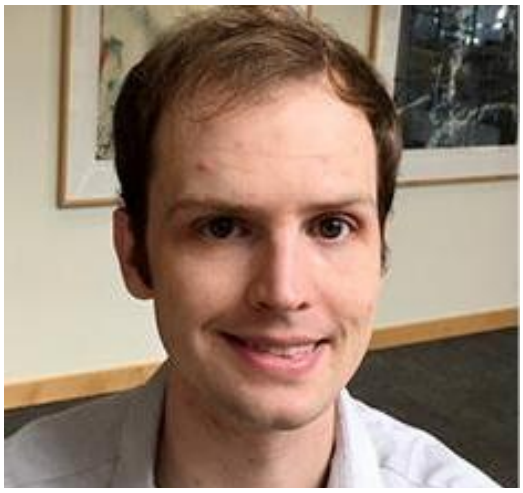
About/Personality	Goals/Scenario
• Part time student at SF State • Works at an ice cream shop • Has to care for his young daughter • Limited time: Constantly rushing to get things done • Proficient WWW app skills • Has big hands so struggles navigating WWW apps on mobile • With his limited time and big hands he has low patience for WWW apps	• He wants to know the required materials for each class and order them while navigating through as few pages as possible.(On his phone) • He wants to get his daughter a present but doesn't have the free time to go shopping. He wants to be able to search for gifts and contact a seller to set up a pickup to his workplace.

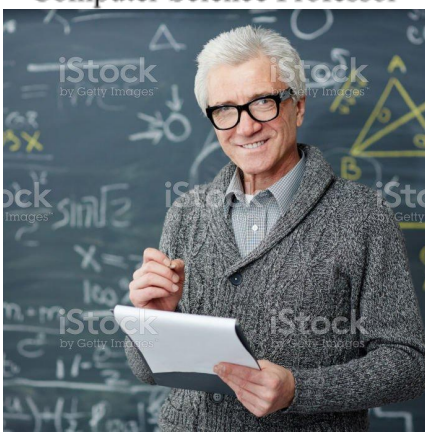
Robert - SFSU Faculty Member, Registered Admin



https://www.scs.gatech.edu/sites/scs.gatech.edu/files/styles/medium/public/images/mercury/scsnew2018.jpg?itok=5jEIXmae

About/Personality	Goals/Scenario
• Has worked at SFSU as an Office IT worker for ~2 years. • Was previously a SFSU student, and is now an alumni. • Is knowledgeable and patient when it comes to using and managing WWW apps. • Has some free time during his work hours, and plenty after work hours.	• He was asked by a student if he could help manage the GatorTrade application part-time as an admin, and with Robert's prior experience in managing WWW applications, he agreed to help. • Because of the amount of free time he has, he can manage the GatorTrade app on the side as an admin. • If a SFSU student user of GatorTrade has posted an inappropriate item for sale, Robert will remove such items as soon as possible during his free time managing the application.

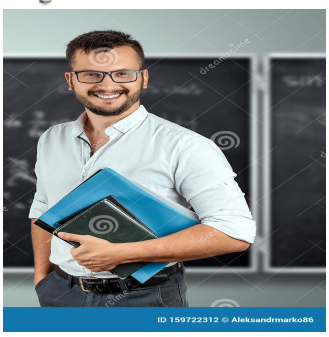
Franklin - SFSU Staff, Computer Science Professor



https://media.istockphoto.com/photos/teacher-with-document-picture-id905256730

About/Personality	Goals/Scenario
• Familiar with online shopping, has used Amazon before • Has a busy schedule, doesn't like to click more than necessary • Knows what he wants, isn't looking to browse	• Provide resources necessary for his students to succeed • Do his tasks quickly and efficiently

Steve - A graduate student at SFSU



https://www.dreamstime.com/portrait-young-male-teacher-background-school-blackboard-teacher-s-day-knowledge-day-back-to-school-study-image159722312

About/Personality	Goals/Scenario
• Very busy with work and study at same time • English major, excels at his analytical papers • Poor time management skills • Need help with his Math class • Average WWW skills, prefers mobile app	• Struggling with Math class in the middle of semester • Wants to buy some resources that might be helpful with the class

Main Use Cases:

A. **Jennifer** - Buying a used textbook from GatorTrade

Jennifer is a **SFSU student**. She finds out about GatorTrade from an email sent by a **SFSU administrator**. She goes to the web site and searches for her courses' textbooks by typing in their name. She sorts the list of used textbooks from the search result by lowest to highest price. She doesn't care about editions because her course allows her to use older editions. After clicking on the **item** that she wants to buy, she gets a description of the **item**, the seller, the price, and an image of the **item**. She wants to buy the **item**, so when she tries to send a one-way message to the seller, she is prompted to login or register an account. Since she is a SFSU student, she can register with her SFSU email and become a **registered user.** After registering, she is now allowed to send a one-way message to the seller, who is also a **registered user.** She sends her phone-number and shortly, she is contacted by the seller. They agreed to meet at the library to conduct the transaction. After the **transaction**, the seller goes to their post and removes it because they have sold the **item**.

B. **Jerry** - Getting Materials for class and personal shopping using GatorTrade

While Jerry is at work, he realizes that the semester is about to begin. He pulls out his phone and navigates to GatorTrade. He quickly locates the large **login button** and enters his **username** and **password.** He is redirected to the **homepage** and searches for a clicker and textbooks. Someone happens to be selling each **item** so he contacts each

seller who all agree to meet on campus during his break. He then remembers that his daughter's birthday is soon but is too busy to go shopping. She's been getting into physical conditioning recently so she searches for weights under the Fitness **category**. He eventually finds some dumbbells and contacts the seller who agrees to swing by his workplace tomorrow since Jerry wont be able to make it to the campus tomorrow.

C. **Robert** - Managing the GatorTrade application.

Robert is a **Faculty member**. He was approached by a SFSU student to help manage the GatorTrade application as an admin. Using an **admin account** given to Robert, he can manage all **buy, sell,** and **exchange** postings on the application. One of his major responsibilities include authorizing all posts before they are live on the website. He can browse through the posts on the **home page** or on any specific pages. From there, as an admin, Robert can **delete** the posting should it contain any inappropriate information or content.

D. **Franklin** - Listing class materials

Franklin is an **instructor** for computer science classes. He is also responsible for hiring student assistants for various courses. He wants to add a **listing** on the website. After he **verifies** his status as an instructor, he is able to make a listing under the "jobs" **section**. Franklin fills out a **form** that describes the necessary information about the job. After approval by the site admin, student users are able to **view** the job listing.

E. **Steve** - Exchanging notes on GatorTrade

Steve is a **graduate student** with an English major at SF State University. He also has a part time job on campus and often struggles managing work and study together. In the middle of the semester, he feels like he needs help with his Math class. While he was working, he only had a phone with him, so he used his phone to navigate through our website. On the website, he found a **post** from another student named Bucky for exchanging notes. He also found notes for his Math class in the list of notes that Bucky wanted to give. So Steve **texted** Bucky using GatorTrade's **chat feature** and **traded** his English notes for Bucky's Math notes.

3. List of Data Items and Entities - Glossary/Definitions:

a. Key Users:

- **i.** **Users**: People who are using the application.
    1. **Unregistered_users**: They can view and search items, cannot send one-way messages or post items for sale, and do not need to login/register.
    2. **Registered_users**: They can register if they have a valid SFSU email. They are allowed to view, search, post items, review other users, and send one-way messages. Will have a profile picture, username, password, notifications. They are required to login/register.
    3. **Admin**: They have all the privileges and can access and modify permissions for all users. They also check items before other users are allowed to view them. They are allowed to delete any posts or reviews that violate the policies/terms/conditions.

b. Data items:

- **i.** **Items**: These are products listed by users to be sold or exchanged. Each item has a price and/or other items they are willing to exchange for, the user who posted it, the date it was posted, a brief description of the item, photo(s) of the item, and related tags.
- **ii.** **Reviews:** These are posts made by users of a particular seller. It includes the user who posted it, the user that is being reviewed, the item related to the review, and the date it was posted.
- **iii.** **Transactions:** It is the exchange of goods between users that includes the date it happened, the two users associated with the exchange, status of the exchange, and the item involved.
- **iv.** **Category:** A label to identify related to items, including but not limited to books, tech, supplies, notes.
    1. **Electronics:** a specific category that describes technology related items

2. **Text:** a specific category that describes text related items such as textbooks, notes, books not related to courses [novels, non-fiction, etc].
3. **Handicraft:** a specific category that describes items that are handcrafted.
4. **Edu_supply:** a specific category that describes supplies such as pens, pencils, notebooks, binders, folders, etc.
5. **Food:** Cooking service for lunch and dinner.

4. List of Functional Requirements:

1. Unregistered Users:
    - 1.1. Unregistered users shall be able to register a new account with a valid SFSU email address.
    - 1.2. Unregistered users shall be able to access the homepage of the website.
    - 1.3. Unregistered users shall be able to browse items on the website.
    - 1.4. Unregistered users shall be able to view details of an item including price, image, item details, etc.
    - 1.5. Unregistered users shall be able to search for items on the website.
    - 1.6. Unregistered users shall be able to sort and filter search results with specific tags and labels.
    - 1.7. Unregistered users shall be prompted to create an account (lazy registration).
2. Registered Users:
    - 2.1. Registered users inherit all functional requirements from Unregistered users.
    - 2.2. Registered users shall be able to login to their account.
    - 2.3. Registered users shall be able to edit their user profile picture.
    - 2.4. Registered users shall be able to change their password.
    - 2.5. Registered users shall be able to post items to sell on the website.
    - 2.6. Registered users shall be able to exchange items with other registered users.

2.7. Registered users shall be able to delete items posted by them only.
2.8. Registered users shall be able to send messages to other registered users.
2.9. Registered users shall be able write reviews for items from other registered users only.
2.10. Registered users shall be able to logout from their account.

3. Admin:
3.1. Admin inherits all functional requirements from Registered users.
3.2. Admin shall be required to authorize items posted by registered users.
3.3. Admin shall be able to delete any item from the website.
3.4. Admin shall be able to delete user accounts permanently from the website.
3.5. Admin shall be able to add or delete categories of items from the website.

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.
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.
7. The language used shall be English (no localization needed).
8. Application shall be very 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, Spring 2022. For Demonstration Only"* at the top of the WWW page nav bar. (Important so as to not confuse this with a real application).

6. Competitive Analysis:

Key Features	GatorTrade	Competitor A: (SFSU Bookstore)	Competitor B: (Etsy)	Competitor C: (Craigslist)	Competitor D: (Ebay)
Sell a variety of products	+	+	+	++	++
Job Listings	+	-	-	+	+
Reviews for items/sellers	+	-	+	-	+
Communication	+	-	++	+	+
Browse for items	+	+	+	+	+
Exclusivity	++	-	-	-	-
Feature exists: +		Superior: ++		Does not exist: -	

Unlike the current market, our product will offer a user experience that will be easier for students to navigate. Students will easily be able to locate all the required or recommended materials for their classes. In addition, students are able to read reviews left by other users. All of this information will help students make a decision on whether they should make a purchase. In addition, our product will offer services exclusively for students such as discounted prices. Students may find offerings intended for students, such as discounted items or job listings.

7. Technologies and Architectures:

1. Server Host: AWS 1 vCPU 1 GB RAM
2. Operating System: Ubuntu 20.04 Server
3. Server Database: MySQL v8.0
4. Web Server: Apache v2.4
5. Server-Side Language: Javascript (Node v17.0)
6. Additional Technologies:
    a. Web Framework: Express, Bootstrap
    b. IDE: Visual Studio Code
    c. Web Analytics: Google Analytics
    d. SSL Cert: Lets Encrypt (Cert Bot)

8. Team Members and Roles:

1. **Team Lead:** Kishan Patel
2. **Front End Lead:** Michael Cheung
3. **Front End Member/Document Master:** Joanne Wong
4. **Back End Lead:** Faisal Zaheer
5. **Back End Member:** Juan Hernandez
6. **Back End Member/Github Master:** Ze Lei

9. Checklist:

1. So far all team members are engaged and attending ZOOM sessions when required. **DONE**

2. Team found a time slot to meet outside of the class. **DONE**
3. Back end, Front end leads and Github master chosen. **DONE**
4. 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**
5. Team lead ensured that all team members read the final M1 and agree/understand it before submission. **DONE**
6. Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.). **DONE**