SW Engineering CSC648/848 Fall 2019

GatorTrader

Team 02
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Revisions

October 1, 2019	Initial Draft

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Executive Summary

The GatorTrader web application can be simplified down to a buy and sell platform made specifically for students who attend San Francisco State University. That being said, the platform itself provides functionality more robust than a typical buy-and-sell platform because of its multitude of features that are specifically tailored to students at this location. Students at San Francisco State University are in an interesting position because of the student demographics with respect to the commuter aspect. While SFSU is, for the most part, a commuter university, there has recently been an uptick in students living on campus or nearby off-campus housing. This provides a specific market for young, likely mid-range income students who don't have means of transportation to meet with people for the transaction, or money to buy products and have them delivered. Another aspect that we're addressing is the fear of meeting with strangers, especially in a metropolitan area like San Francisco, thus with tailoring to SFSU students and providing a familiar location and topic, we provide a safer experience.

With GatorTrader, students of San Francisco State University will be able to have a personalized experience when they've created an account with minimal effort. Since GatorTrader is made for and by SFSU students, users can provide class schedule information for tailored recommendations, find secure meeting locations for the transaction near or on campus, a chat/message feature that provides a personal interaction between buyer and seller, and more information on the seller to determine credibility. GatorTrader users can upload their current class schedule and have textbooks and resources recommended to them because items listed on the site can be tagged with pertinent information such as class or major. The secure locations can be selected upon requesting purchase such that the two parties can schedule a time and location seamlessly. The chat message allows users to speak to each other without having to exchange personal information or leave the web application, thus providing a better experience and incentive to stay on the site. And with users providing student information on their account, there is now an additional level of trustworthiness for buyers to feel more secure in their purchase.

The GatorTrader team is composed entirely of SFSU computer science students with a mission to provide a better buy/sell economy on campus. While the market is saturated with buy/sell platforms such as Amazon, Ebay and other smaller marketplaces, our team hopes to provide an experience specifically for students like us. The GatorTrader student team consists of 3 frontend engineers, 3 backend engineers and 1 full-stack engineer, and while we may be small, the team is ready to shake up the marketplace space with the best student transactional experience.

Personae and Use Cases

Non-registered Buyer: Stephen is a potential buyer who lives near campus. He does not register to new sites, because he is worried about spam emails. He goes to the website and searches for items in the listings and browse the current listings, and really wants to set up some items for his new house. After selecting the option to buy, he is asked to do a signin and create an account for the website.

Registered Buyer: Marcel is a first time freshmen at San Francisco State University. He is an athlete at the school and spends most of his time at the field. He does not have a job on campus yet. He is looking for cheap and useful stuff for his apartment on campus, preferably from a reliable source, near the campus, as he does not have a car yet. As a buyer, Marcel can search for goods on the website, report goods that may not seem to be, as described to the admin, as well as communicate with the seller and decide on meeting spot.

Registered Seller: Kara is a senior year student at San Francisco State University. She is planning to move out from campus at the end of the month, and is looking to sell some of her items to gain some money. Kara has a lot of stuff lying around, and will be sharing a room, making it difficult for her to keep all of her belongings. She is a slightly impatient person, and doesn't like spending a lot of time on the web searching for things. Kara does not have a car, and is a bit worried about her safety. As a seller, she can post listings for items that she wants to sell on the website, with images and description. Kara can communicate with the buyer and decide on a safe place of her liking near the campus.

Administrator: Darryl is an engineer with system administrator experience. He will also resolve all the bugs found on the website. All listings posted on the website would require the approval of the Darryl before it is listed on the website. The admin may also receive complaints regarding the kind of objects posted, and also, if there is any discrepancy with the listings.

Data Items and Entities

Guest User: An un-registered user that does not need to log in. This user shall browse and search for listings, but cannot buy listings, post listings, or contact other users.

Registered User: A user that has registered, and must log in. They shall also browse, search for listings, and contact other registered users. These users can become Buyers, Sellers, and be appointed Administrators.

- Name
- Email
- Password
- Class Schedule
- Graduation Year

Seller (Registered User): A registered user that shall post listings.
Buyer (Registered User): A registered user that shall buy listings.

Administrator: A registered user that shall approve listings, and delete listings and users as needed. They can appoint other users to administrators as well.

Listing: A post about an object / service a Seller wants to offer. Listings shall be viewed by users, and must be approved by an administrator. Each listing shall have preferred locations to meet at, designated by the creator. They can be deleted by either the creator or an administrator, but can only be edited by the creator.

- Title
- Description
- Type (object / service)
- Price
- Thumbnail
- Created on
- Lase edited on
- Created by

Location: A list of safe locations Buyers and Sellers can choose to meet at to conduct transactions. Listings shall have preferred locations designated by the creator.

- Description
- Thumbnail

Functional Requirements

1. Guest users shall be able to browse through the website without logging in.
2. Guest users who want to register shall need to be verified by SFSU email.
3. Guest users shall not be able to contact the sellers.
4. Guest users shall be able to contact the administrator.
5. Guest users shall be able to create an account.
6. Guest users shall not be able to post.
7. Registered users shall be able to contact both administrators and sellers.
8. Registered users shall be able to log in their account by username/ email and password.
9. Registered users shall be able to reset their password if they forget.
10. Registered users shall be able to create profiles from the user side.
11. Registered users shall be able to create listings and posts on the website.
12. Registered users shall be able to modify the post.
13. Registered users shall be able to upload pictures of the items they want to sell.
14. Registered users shall be able to download any items they purchased on the website.
15. Registered users shall be able to choose to pay either through the website or in person.
16. The administrator shall be able to postpone the posting if they violate the policy of the website.
17. The administrator shall be able to access the database.
18. The administrator shall be able to contact the sellers directly.
19. The administrator shall be able to reply to messages and emails from Guest users.
20. The site shall present the Terms, Conditions and Privacy Policy during the registration.
21. The site shall allow registered users to pay through any payment methods, such either credit card, PayPal or in person.
22. The site shall be searched by class' name, the professor's name, author, title, category, and keywords.

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. 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 in UI.
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 Software Engineering Project CSC 648-848, Fall 2019. For Demonstration Only"* at the top of the WWW page. (Important so as to not confuse this with a real application).

Competitive Analysis

	SFSU Buy/Sell	Amazon	Ebay	Walmart	Alibaba
Text Search	+	+	+	+	+
Search By Course	+	-	-	-	-
Search By Local Events	+	-	-	-	-
Browse	+	++	+	+	+
Browsing/Order History, Shopping Cart	+	+	+	+	+
Buyer/Seller Messaging	+	+	+	+	+

+ Feature Exists ++ Superior - Does Not Exist

In this day and age, there are many online marketplaces where a potential customer can purchase almost anything they're looking for. Each of these sites have carved their own little section of the ecommerce world because they each do something better than their competitor or offer a feature rival competitors can't. For example, Amazon is known for their amazing customer service and ability to get their products to you in two days (assuming Amazon Prime membership). eBay has more individual sellers than their competitors, which means whenever you're looking for a more niche thing, eBay's your best bet. Walmart beats out their competitors because they also have brick and mortar stores, which means if there's an issue, it's much easier to handle. Lastly, Alibaba offers great deals, with the caveat that you need to buy a minimum amount of said item. So that leaves SFSU Buy/Sell. What do we offer that these other titans of the Ecommerce world haven't figured out yet? In addition to all the other features that are considered standard in an online marketplace, our site also has features that cater specifically to students at San Francisco State University. We offer the ability to search for course materials simply by the course title, whether it be textbooks, lab coats, or other supplies. Similarly, we also offer the ability to search for things that might come in handy at local events, both on and off campus. One example of this is when SantaCon comes to town and you want to go but don't have a Santa costume or can't justify buying something you're like to use just once. We offer the ability to search specifically for SantaCon to help you purchase all the necessary pieces you need to create that perfect Santa costume, or maybe you went last year and now have an extra Santa hat you're looking to sell, this feature would be perfect for you.

High-Level System Architecture

Web Application Stack - LAMP

- Amazon Linux 2018.03.0(HVM) Operating System
- Nginx (v. 1.12.2) Web Server
- MySQL (v5.7.26) Database
- Flask - Backend Framework
- Bootstrap - Frontend Framework

Frameworks & APIs

- Bootstrap - Frontend web development framework for responsive interfaces
- Flask - Web frame that provides libraries, modules and tools needed for web application.
- Google Analytics - Google API that offers accurate website tacking and statistics
- Google Maps - Google API that brings up to date location and map data

Server-Side Language

- Python 3.6.*

Supported Web Browsers

The latest versions of the most used web browsers that are supported.
These include the following:

- Google Chrome (v.61 or higher)
- Safari (v.10 or higher)
- Internet Explorer (v.11 or higher)
- Mozilla Firefox (v.56 or higher)

IDE

- Pycharm, VSCode, Webstorm, Vim

Version Control

- Git (v. 2.7.4) via GitHub

Team

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Checklist

Team found a time slot to meet outside of the class	DONE
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 frontend 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	ON TRACK
Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	DONE