

SW ENGINEERING CSC648/848

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Gator Barter

Section 01

Team # 04

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“Milestone 1”

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Executive Summary

San Francisco State University does not have local buying and selling options unique for SF State students. Our team is a motivated group of students who have gone through a lack of local buying and selling option. We wish to make this easier for everyone that comes after us. Being students of the Computer Science department, we have decided to launch our professional website named “**Gator Barter**”. We come from many different backgrounds and interests and represent a small portion of the intersectionality of the SFSU student. We will combine these many different points of view to create a site that can cater to as many of these needs as possible. This website would serve as a platform for students to sell their items, old class materials, etc. as well as buy essential items at a cheaper rate compared to the market price. This website also provides an option of trading things or free items where students can either trade the items without money or give away the items for free. Moreover, this website builds direct communication between seller and buyer. This unique approach will eliminate long wait times and shipping cost. It will also help students to build relationships within the university and save their money.

Our website, Gator Barter would allow registered users to post the items they wish to sell on the website. Once posted, it has to be approved by the admin before going live for selling. The post would contain sales item, title, single or multiple images of the item, category, price, brief description. The website can be browsed by any unregistered or registered user for checking the required posts/items. Registered users, interested in buying an item from respective sellers, can message the seller directly and could then set up a meeting point to complete the purchase. It would provide a safe exchange between the seller and the buyer. So, users can buy/sell or trade for items on the Gator Barter website. Also, they can get free items if, someone has posted. Buyers and sellers can contact each other through messages and decide a place to meet for buying or selling.

Our student startup team has seven motivated SF State students from the Computer Science department. Four students are undergraduate and three of them are graduate students. The entire team would work collaboratively towards the development of the website starting from basic requirement gathering, till final product delivery.

Personae and Main Use Cases

Personae:

1. Nikita, a student of SF State pursuing Masters in Embedded Electrical and Computer Systems

- Nikita is an EECS student and works on few electronics related projects
- Nikita requires equipment and materials related to her electronics projects
- Nikita is a very busy person given her schedule; she has less time to spend on other activities
- Nikita's close contacts are her friends and classmates in the school.
- Nikita stays on-campus so that she can work on her projects in the science lab at school.
- She is very interested in online shopping and frequently does it.



2. John, a recent graduate and working at Texas

- John recently graduated and got a great job offer in Texas.
- John has got busy with his new life.
- John stayed at SF state dorm.
- John wants to keep things simple.
- John wants the moving out process to be quick.
- John is familiar with internet surfing.
- John prefers communicating with trusted users



3. Bucky, a senior student at SF State and an intern

- Bucky is a senior in CS at SFSU.
- Bucky is also doing internship at San Jose.
- Bucky moved to San Jose and comes to the campus 4 days a week.
- Bucky has bought a few CS-related course textbooks in the previous semesters, which are not required now.
- Bucky is in need of some stuff required for his new room.



4. Richard, a very busy working employee at IBM

- Richard is a Consultant for IBM.
- He lives in Seattle
- Richard is very busy and cannot waste time being trained to use a new platform.
- Richard wishes to have tools to increase his workflow
- Richard is willing to work as an Admin for a website.



User Cases:

1. Nikita is a graduate student from EECS department at SF State.

She lives near campus. She needs a PCB board for her Embedded course project. As project deadline is closer, she doesn't have enough time to buy the new board. Buying online would be a slow process considering the shipping time. Also, used PCB board would serve her perfectly from this project's point of view. She needs it within the next 2 days, so that she can cover up her project work and complete milestones on time. Our website serves as a great

opportunity to this student. There will be students who are willing to sell their used/new pcb boards on the gator barter website. She can access the Gator Barter website to find the post for a PCB board and buy it. She can get it from the seller in very less time as the they can meet on campus.

2. John is a student from SF State Mathematics department.

He recently graduated and got a great job offer in Texas. Now, he is moving out of SF State dorm and wants to sell his room items quickly before moving. Selling online would be a slow process. It would save a lot of time if he can sell those items to someone from the dorms or SF State itself. He can access our gator barter website to and create posts which he wants to sell. He can choose a relevant category to sell his items through the website. As this website is accessed by SF state students, John can easily find potential buyers.

3. Bucky is a senior student from the Computer Science Department.

He lives in San Jose and is on campus 4 days a week. Bucky has few CS course-related textbooks, which he doesn't need once he graduates. He wants to trade those readers/textbooks with some other stuff required for his new room. As course material is the same for courses, it would be good if someone from SF State CS department can trade those textbooks. As Bucky comes frequently to the school, he can trade things with the students with an ease. Gator Barter website would be the best choice for Bucky to get his work done. As our website is used by the SF State students, he can easily find students who are willing to buy/trade textbooks. He has to create a post on the website with relevant course related category and choose an option to trade. This post will then be available to the students as a tradeable option.

4. Richard is a Consultant for IBM.

He lives in Seattle and has experience in managing subreddits. Richard is very busy and cannot waste time being trained to use a new platform. He will be one of the admins of our Gator Barter website. Richard wishes to have tools to efficiently moderate posts, approve/reject posts, add/remove users and communicate with users if their posts are inappropriate. Richard prefers a clean and simple workflow that allows him to quickly execute a task and get back to his other work. As the workflow of our website will be simple and smooth, it will be a good place for him to be the admin of our Gator Barter website.

List of Main Data Items and Entities

1. **User:** Any person who uses Gator Barter is a user.

a) **Unregistered User:** These users have below access –

- Unregistered users can browse and search the website to check for the items being sold/tradeable by category
- Unregistered users are not allowed to post or buy items

b) **Registered User:**

- Users who have registered and created an account with Gator Barter. User account contain first name, last name, SF State email id and password.
- Registered users can log in the website, to either sell their items or buy available items on the website.
- Registered users can be both sellers as well as buyers. They can check their transaction history for the items they sold through the website.

c) **Administrator:**

- Administrator is a user having special privileges to access all data and content as well as modify the database.
- Administrator is capable of monitoring Gator Barter transactions
- Administrator can perform tasks such as remove illegal posts, removing suspicious users, review and approve pending posts from sellers in order to be posted on the website, etc.

2. **Item:**

- It is a product listed on the website by a registered user
- Item consists of Name/Title of the item, Price, Image(s), Description about the item, Category, Name of user who posted.
- Buyers can browse by different categories to check for items as per their need
- Sellers need to select a category for posting their item for sale

3. **Messages:**

- The communication medium between a buyer and a seller used for in-site messaging in Gator Barter
- Buyer can contact the seller by sending them a message through Messages
- The seller can check for the messages received from buyers for their posts

4. **Categories:**

- These are different types of items listed for buying or selling
- Categories would help to sort and group posts into different sections

Initial List of Functional Requirements

- Unregistered users –
 1. Unregistered users shall be able to browse the Gator Barter website.
 2. Unregistered users shall be able to search any item as per their need on the Gator Barter website.
 3. Unregistered users shall be able to search as per Category on the Gator Barter website.
 4. Unregistered users shall be able to see search results in an organized manner.
 5. Unregistered users shall be able to filter search results.
 6. Unregistered users shall be able to create an account on Gator Barter by using credentials.
 7. Unregistered users shall be able to search for class materials using abbreviated course name and course number.
 8. Unregistered users shall be able to initiate pre-posting listings onto the website which shall require registration to complete the listing.
- Registered users –
 9. Satisfy all functional requirements of unregistered users
 10. Registered users shall be able to login into their Gator Barter account by using credentials.
 11. Registered users shall be able to post their item(s) for sale on Gator Barter website.
 12. Registered users shall be able to check the list of their transaction history
 13. Registered users shall be able to communicate through messages with other registered users for buying or selling or trading.
 14. Registered users shall be able to purchase/trade products on Gator Barter website.
 15. Registered users shall be able to communicate with the Administrator.
 16. Registered users shall be able to remove the items posted if they no longer wish to sell the item.
 17. Registered users shall be able to mark the item as sold once sold out.
 18. Registered users shall be able to report other users to the Administrator for violating website policies and terms of service.
- Administrator –
 19. Administrator shall be able to approve or reject the pending item(s) in the selling queue.
 20. Administrator shall be able to remove inappropriate or illegal item(s).
 21. Administrator shall be able to block suspicious registered users.
 22. Administrator shall be able to contact registered users if required.

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 the 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

Features	Ebay	Amazon	SF State Bookstore	Gator Barter
Search Text / Filter / Sort /	+	+	+	+
Messages	+	+	-	+
Reduced cost for resell items	+	+	-	++
Internal Organizational Use	-	-	++	++
Local Seller	-	-	++	++
Barter System	-	-	-	++
Free Items	-	-	-	+

+ feature exists; ++ superior; - does not exist

Feature Definitions:

- Search Text/ Filter/ Sort: Searching by entering text in search bar, filter the results, sort the results
- Messages: Seller receiving messages from the buyer.
- Reduced cost for resell items: Cost is reduced while reselling the items in comparison with new item's market price
- Internal Organizational Use: Can be privately used inside an organization. The items can be categorized as per the organization, e.g., by 'class'.
- Local Sellers: Sellers who are geographically near the buyer (results in reduced shipping time and no shipping cost)
- Barter System: Provision to exchange items for another item, just like the traditional barter system. This works like a win-win situation by saving money for both the seller & buyer, as well as reduces the cost of utilizing an online payment gateway.
- Free Items: As users of this website are mostly students, who have to vacate their places every semester or every year. Thus, they have a lot of opportunities to donate or post giveaways, and Gator Barter can be used as a platform for the same.

Gator Barter's main goals are to provide SFSU students a platform which provides a local, student-friendly, direct market for specific products geared towards students. The main key feature of our website includes local selling, internal organizational use, barter system, and free items. This system is designed for SFSU student use and can be similarly deployed in any other school or organization campus. Thus, providing the school or organization a secure website for local trade. We believe that having a good organization based on categories would help to cater the buyer or seller, making it easier for students to find what they are looking for. Also, students would benefit from local options available around them to save time and money.

High-Level System Architecture

- Server Host: AWS 1GB RAM, 1vCPU
- Operating System: Ubuntu 18.04 LTS Server
- Database: mysql Ver 14.14 Distrib 5.7.27, for Linux (x86_64) using EditLine wrapper
- Web Server: uWSGI 2.0.18-debian and nginx/1.15.9 (Ubuntu)
- Server-Side Language: Python3.6
- Web Framework: Flask 1.1.1
- Development Environments: PyCharm, VSCode, Sublime, Atom
- SSL Cert: Lets Encrypt (Cert Bot)
- BootStrap: Version 3
- Google Analytics

Team

Name	Role
Aditya Bodi	Team Lead
Alan Ng	Frontend Lead
Alex Kohamin	Backend lead
Akshay Kasar	Git Master, Backend Engineer
Philip Yu	Frontend Engineer
Deming Yan	Full Stack Engineer
Tejasvi Belsare	Document master, Backend Engineer

Checklist

- Team found a time slot to meet outside of 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 – 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