SW Engineering CSC 648-848 Spring 2025

Project Name: GatorTrade

Team 08
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Milestone 1

History Table:

Version:	Date Submitted:	Date Revised:
1	03-12-2024	03-21-2024

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I. Executive Summary

While popular, platforms like Facebook Marketplace, Craigslist, OfferUp, and eBay have challenges that impact SFSU students daily. Buying and selling essentials like electronics, furniture, and textbooks can be frustrating due to scams, scalpers, and location-based limitations. Additionally, these platforms prioritize corporate interests, leading to issues like data privacy concerns, intrusive ads, and irrelevant listings. Motivated by these challenges, my team and I created GatorTrade, a dedicated, secure, and student-exclusive platform designed to ensure every buyer and seller is a member of the SFSU community.

Since GatorTrade is a secure marketplace where only SFSU students and faculty can participate, all users must have university email accounts. This eliminates the risks of anonymous buyers and sellers to ensure a safe and secure environment. While it is possible for individuals within the SFSU community to engage in misconduct, such as scams, harassment, or theft, our platform prioritizes security by adding an admin system that monitors and moderates listings and interactions to maintain a safe and trustworthy marketplace. To further streamline transactions, the platform includes additional features such as **integrated chat for direct communication**, suggested **on-campus meetup locations** for safe exchanges, **item tracking** to monitor availability and status, and **a profile rating system** that helps users build trust within the community. These tools not only make transactions more efficient but also reinforce the security and reliability of the marketplace. With its unique student-centric design, GatorTrade will focus on those students in need, unlike other marketplaces that cater to a broad audience. Different dedicated sections for textbooks, school supplies, and dorm essentials will be boosted to make navigating for these student materials easier.

Our team is dedicated to creating this website for our community with focus and passion. As senior-year computer science majors, we want to showcase the skills we have acquired throughout our studies and apply them to a project that makes a meaningful impact.

II. Personae

Persona 1: James Tran- The Casual Seller

Name: James Tran
Age: 28
Profile: SFSU Graduate Student in Computer Science
Lives in: Daly City

Goals:

- Sell used items quickly and efficiently within the SFSU area
- Avoid dealing with shipping or returns
- Get a fair price without long negotiation

Skills:

- Understands how to attract local buyers
- Uses secure and verified buyer features to avoid scams
- Prefers a simple and efficient listing process

Pain Points:

- No-shows or last-minute cancellations from buyers
- Managing multiple inquiries and lowball offers
- Finding a safe and convenient meeting point near SFSU or BART Station

Use Case Connection:

- **Listing Item**: James, a senior, wants to sell his old gaming chair before leaving SFSU. This directly connects to James Tran's need for quick and efficient sales and his skill in using tools like the proximity radar feature to find local buyers.

Persona 2: Emma Chen - The Frugal Student

Name: Emma Chen
Age: 20
Profile: SFSU Undergraduate Student
Lives in: Sunset District

Goals:

- Find affordable furniture, textbooks, and essentials for her apartment

- Buy locally to avoid shipping fees
- Meet sellers in safe, accessible locations near campus

Skills:

- Budget-conscious shopping with a preference for verified sellers
- Comfortable with in-person pick-ups
- Relies on third-party evaluations for item quality

Pain Points:

- Making sure sellers are trustworthy and items are as described
- Limited transportation options for larger purchases
- Avoiding scams and overpricing

Use Case Connection:

- **Browsing for Items**: Emma is actively searching for a bike using filters to stay within her budget. This aligns with her persona as a frugal student who values affordability and safe in-app communication.

Persona 3: Michael Rivera - The Small Business Reseller

Name: Michael Rivera
Age: 50
Profile: SFSU Faculty Member, Art Department
Lives in: Parkmerced

Goals:

- Find local buyers for second-hand and upcycled goods
- Avoid expensive e-commerce platforms and shipping fees
- Sell high-quality vintage goods quickly
- Attract SFSU students who appreciate sustainable fashion and unique home decor

Skills:

- Curating rare vintage items that resonate with younger buyers
- Experience with resale trends and student preferences
- Prefers platforms with no marketplace commissions and trusted buyer verification

Pain Points:

- Managing multiple sales platforms

- Ensuring safe transactions without fraud
- Competing with larger online stores

Use Case Connection:

- **Meeting Up and Completing the Transaction**: Michael meets a student buyer at the SFSU library to complete a safe, in-person transaction. After the deal, the buyer tags him as a trusted seller, aligning with Michael's desire for verified transactions and building trust on campus.

III. High-Level Use Case

A. User registration and login

1. A classmate tells **Emma Chen** about the student marketplace app after she mentions needing affordable items for her apartment. Curious, Emma decides to check it out to browse for a bike and some furniture. She downloads the app and registers using her SFSU student email. The system verifies her identity to ensure only legitimate students can join. Once validated, Emma accesses the main dashboard where she can browse local listings, message sellers, and create a wish list for essential items she's looking for.

B. Listing Item

1. **James Tran**, a graduate student preparing to move out of Daly City, wants to sell his old gaming chair. He opens the marketplace app, heads to the "Sell" section, and starts creating a listing. He selects "Furniture" as the category, sets a reasonable price, adds a description emphasizing the chair's great condition, and uploads clear photos. To ensure a fast sale within the SFSU community, he activates the proximity radar to notify students nearby. After reviewing his listing, James publishes it, making it visible to verified students searching for furniture in the area.

C. Browsing For Items

1. **Emma Chen** is on the hunt for a used bike to make her commute around campus easier. She logs into the app and searches for "bikes near SFSU." Using filters, she narrows down listings to those within her budget and preferred distance from Sunset. She finds a promising bike, checks the seller's "trusted" rating, and reads through the listing details. To learn more, Emma messages the seller through the app's secure chat, keeping her personal information private while arranging a potential meet-up.

D. Meeting Up and Completing the Transaction

1. **Michael Rivera**, an SFSU faculty member and part-time reseller, has listed a vintage laptop stand for sale. After receiving a message from a student buyer, they agree to meet at the SFSU library to complete the transaction. The app helps Michael coordinate by providing the buyer with a general location pin, maintaining privacy. Upon inspecting the item in person, the student is satisfied and completes the purchase. Afterward, the buyer rates Michael as a "trusted seller," boosting his credibility within the app's community.

E. Reporting Listing

1. While browsing for textbooks, **James Tran** comes across a suspicious listing offering a high-demand textbook at an unusually low price with vague item details. Concerned about a potential scam targeting students, James clicks "Report," selects "Possible Fraud" from the dropdown options, and adds a short note explaining the issue. The report is sent to the app's moderation team, who will investigate and take necessary action to maintain a secure and trusted marketplace for SFSU students.

IV. Data Glossary/Description

A. User (Buyer/Seller/Admin)

1. Unique ID
2. First Name
3. Last Name
4. Email
5. Password
6. Role

B. Listings

1. Unique ID
2. User ID
3. Title
4. Description
5. Price
6. Category
7. Image URL
8. Status

C. Messages

1. Unique ID
2. Receiver ID
3. Sender ID
4. Listing ID
5. Content
6. Timestamp

D. Admin Review Logs

1. Unique ID
2. Admin ID
3. Listing ID
4. Decision
5. Moderator Notes
6. Timestamp (for reviewing listings)

V. High-Level Functional Requirements

1. **Browsing items**- Unregistered users shall view all listed items, including categories, prices, images, and descriptions.
2. **Searching and filtering items**- Unregistered users shall be able to access keyword search, category filtering, and price range filtering
3. **Viewing item details**- Shall allow users to click on an item to view the full description, images, price, and time of posting.
4. **User registration and login**- Unregistered users shall sign up using a valid email/university email to log in and access more features.
5. **Posting items for sale**- Users shall be able to fill in item details, upload images, and submit items for admin approval before they go live.
6. **Managing posted items**- Sellers shall be able to view, edit, or delete their listings from the "My Listings" section.
7. **In-site messaging system**- Buyers shall be able to contact sellers using an in-platform messaging system, while sellers shall be able to view received messages from the dashboard.
8. **Favoriting/tracking items**- Users shall be able to add items to the "Favorites" list for easy access later.
9. **Managing user profile**- Users shall be able to update their information in the future, except for their email.
10. **Reporting inappropriate items**- Users shall be able to report listings for violations such as fraudulent activity or inappropriate content.
11. **Approving/rejecting items** – Admins shall review all newly posted items before they go live to ensure compliance with platform policies.
12. **Removing inappropriate listings** – Admins shall be able to delete listings that violate marketplace rules and notify the seller.
13. **Banning users** – Admins shall have the authority to suspend or permanently ban users who repeatedly violate marketplace policies.

14. **Managing system announcements** – Admins shall be able to post announcements about maintenance schedules or platform policy updates.
15. **University email verification only**- Users shall be required to register and participate in transactions using a valid university email.
16. **Campus exclusive listing section**- There shall be a dedicated category for college students to trade school-related items (e.g., textbooks, school supplies).
17. **University event promotions**- The platform shall allow student clubs and organizations to post event-related listings (e.g., graduation furniture sales).
18. **Verified review system for students**- Buyers and sellers shall be able to leave reviews only after completing a transaction, and these reviews shall affect the user's credibility.
19. **Lost and found section for university students**- Users shall be able to post lost items or list found belongings to help reunite owners with their possessions.
20. **On-campus meetup locations**- The platform shall suggest safe meetup locations on university campuses (e.g., library, student center).

VI. Non-Functional Requirement

1. The application shall be developed, tested, and deployed using tools and cloud servers approved by Class CTO and as agreed in M0.
2. The application shall be optimized for standard desktop/laptop browsers; e.g., it must render correctly on the two latest versions of two major browsers.
3. All or selected application functions shall render well on mobile devices (no native app to be developed).
4. Posting of sales information and messaging to sellers shall be limited only to SFSU students.
5. Critical data shall be stored in the database on the team's deployment server.
6. No more than 50 concurrent users shall be accessing the application at any time.

7. The privacy of users shall be protected.
8. The language used shall be English (no localization needed).
9. The application shall be easy to use and intuitive.
10. The application shall follow established architecture patterns.
11. The application code and its repository shall be easy to inspect and maintain.
12. Google Analytics shall be used.
13. No e-mail clients or chat services shall be allowed. Interested users can only message sellers via in-site messaging. One round of messaging (from user to seller) is enough for this application.
14. Pay functionality, if any (e.g., paying for goods and services), shall not be implemented nor simulated in UI.
15. Site security: Basic best practices shall be applied (as covered in the class) for main data items.
16. Media formats shall be standard as used in the market today.
17. Modern SE processes and tools shall be used as specified in the class, including collaborative and continuous SW development and GenAI tools.
18. The application UI (WWW and mobile) shall prominently display the exact text on all pages: "SFSU Software Engineering Project CSC 648-848, Spring 2025. For Demonstration Only" at the top of the WWW page Nav bar. (It is important to not confuse this with a real application). You have to use this exact text without any editing.

VII. Competitive Analysis

Feature	Facebook Marketplace	OfferUp	Craigslist	Our app GatorTrade (Planned)
User Verification	Facebook account (no strict verification)	Phone/email-based, no strict ID check	No verification (completely anonymous)	**SFSU Student Email & ID Verification**
Messaging System	Messenger (requires Facebook account)	In-app chat system	No built-in chat (email relay or direct contact)	**In-app chat system (private & secure)**
Proximity-Based Search	Yes, based on user location	Yes, with adjustable distance	Yes, but no built-in map/radius search	**Yes, it is a rough location estimate (proximity radar)**
Target Audience	General public	General public	General public	**SFSU Students Only (Verified)**
Trust & Safety	Scams & fake accounts exist	Some fraud detection still faces scams	High scam risk due to lack of verification	**More secure due to student verification & reporting system**
Transaction Type	Local meetups only	Local meetups + shipping available	Local meetups only	**Local meetups, campus-focused transactions**

Compared to Craigslist, OfferUp, and Facebook Marketplace, the SFSU Student Marketplace stands out as an exclusive, student-only network that guarantees more security and confidence. This network requires SFSU student email and ID verification to prevent fraud, in contrast to Craigslist, which permits completely anonymous ads, or OfferUp and Facebook Marketplace, which are troubled with fraudulent identities and frauds. Furthermore, Facebook needs Messenger, whereas Craigslist does not have an integrated chat system; our platform will have a safe, in-app messaging system for smooth collaboration. Lastly, our proximity radar strikes a balance between student safety and convenience by providing approximate location estimations without disclosing precise locations. Our marketplace provides SFSU students with a

safer, more dependable option that is suited to their needs by emphasizing a reputable campus community

VIII. System Architecture and Tech Used

A. Server Host: AWS EC2
B. Operating System: Ubuntu 22.04 LTS
C. Database: MySQL version 8
D. Web Server: NGINX 1.27.4
E. Front-End Framework: React
F. Server-Side Language: JavaScript
G. Web Framework: Express.js
H. Supported Browsers: Chrome, Safari
I. IDE: Visual Studio Code
J. SSL Cert: Let's Encrypt (via Certbot)
K. Additional Software: PM2, Git Bash, Node JS

IX. Use of GenAI Tools

- **A. Brainstorming Ideas** – Use ChatGPT to suggest potential app features, user scenarios, or improvements based on competitors. Use ChatGPT to brainstorm a website name.
- **B. Drafting Content** – Generate drafts for executive summaries, user personas, and functional requirements.
- **C. Use Case Suggestions** – Ask ChatGPT to suggest possible use cases based on your app's purpose.
- **D. Code Assistance** – Get help with coding logic, debugging, or understanding frameworks.
- **E. Competitive Analysis** – Use ChatGPT to quickly summarize competitor features.
- **F. Writing & Formatting Help** - Use ChatGPT to refine grammar, structure, and clarity in reports.
- **G.** Rating(out of 5):
    1. **Brainstorming Ideas** – 3
    2. **Drafting Content** – 2
    3. **Use Case Suggestions** – 2
    4. **Code Assistance** – 3
    5. **Competitive Analysis** – 2
    6. **Writing & Formatting Help** – 1

X. Team and Roles

- **A.** Team Lead: Jonathan Carbajal - Jcarbajal@sfsu.edu
- **B.** Backend Lead: Kurt Balais - cbalais@sfsu.edu
- **C.** Frontend Lead: Tung-Ying Lee - nlee@sfsu.edu
- **D.** Frontend Lead 2: Chia-Tung Liu - cliu26@sfsu.edu
- **E.** Github Master: Luis Moreno - lmoreno10@sfsu.edu

XI. Team Lead Checklist

A. So far, all team members are fully engaged and attending team sessions when required: DONE

B. The team found a time slot to meet outside of class: DONE

C. The team is ready and able to use the chosen back and front-end frames, and those who need to learn are working on learning/practicing: DONE

D. The team reviewed class slides on requirements and use cases before drafting minestrone 1: DONE

E. The team reviewed non-functional requirements from the "How to start…" document and developed Milestone 1 consistently: DONE

F. Team lead checked the Milestone 1 document for quality, completeness, formatting, and compliance with instructions before submission: DONE

G. The team lead ensured all team members read the final M1 and agreed/understood it before submission: DONE

H. The team shared and discussed their experience with GenAI tools among themselves: DONE

I. Github organized as discussed in class: ON TRACK