GatorMarket

SW Engineering CSC 648/848 Spring 2025

Team 4

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Executive Summary

Why this product?

Students and professors at San Francisco State University (SFSU) frequently encounter difficulties when attempting to buy, sell, or trade various items, particularly during the transitions at the beginning and end of each semester. While alternative platforms such as Craigslist and OfferUp offer general marketplaces, they often come with significant drawbacks, including potential scams, high transaction fees, and unreliable buyers or sellers, making them less than ideal for students.

To address these challenges, GatorMarket provides a secure, student-exclusive marketplace designed specifically for the SFSU community. By ensuring that all users are verified SFSU students and professors, GatorMarket fosters a trusted environment where students can conveniently and safely engage in transactions without concerns about fraud or excessive fees.

Functions and services

GatorMarket is a web-based marketplace created exclusively for SFSU students and professors, offering a secure and scam-free environment by requiring SFSU email verification to restrict access to authorized users only. The platform enables users to buy, sell, and trade a wide range of items, including textbooks, electronics, furniture, clothing, and collectibles such as Pokémon cards. With an integrated real-time chat feature, buyers and sellers can negotiate prices, arrange meetups, and finalize transactions without depending on third-party messaging apps. To further enhance safety, designated on-campus meetup locations provide a secure space for in-person exchanges, eliminating the risks of public transactions. Additionally, user profiles with ratings and reviews help build trust and credibility within the marketplace. GatorMarket is entirely free and it allows the users to retain 100% of their earnings. Unlike traditional platforms that impose listing or transaction fees. With these comprehensive features, GatorMarket offers a reliable, convenient, and cost-effective platform for the SFSU community to conduct trusted peer-to-peer transactions efficiently.

Uniqueness & Custom Features for SFSU

What sets GatorMarket apart is its exclusive focus on SFSU community. This platform is tailored to students and professor's needs, providing a cost-effective, local, and safe way to trade by integrating features like campus-specific meetup points. Having a safe and exchange points within the university eliminates the risks of meeting strangers in public places. To ensure the student has a secure and reliable experience, GatorMarket has a real-time chat for negotiation, and a rating system to build user trust.

About our team

Our team consists of dedicated and innovative computer science students at SFSU who are passionate about technology, problem-solving, and creating impactful solutions. As members of the SFSU community, we recognize the need for a secure and student-focused marketplace and are committed to developing an application that enhances convenience, safety, and accessibility

for our peers. Our goal is to empower students and professors with a trusted platform for buying, selling, and trading within the university. We believe that GatorMarket has the potential to not only streamline campus transactions but also serve as a model for other universities looking to build their own exclusive community-driven marketplaces**.**

Personae

Bob

- Male
- 22 yrs old
- Single
- Computer Science Major
- Plays Pokémon Go
- Tech Savvy
- Enjoys Outdoors
- SF Native
- Buys Trading Cards

Bobby

- Male
- 47 yrs old
- Married
- 3 kids
- Truck Driver
- Family Guy
- Values Education
- Veteran
- Likes to travel
- Collects vintage cards
- Long time collector

Bobbette

- Female
- 21 yrs old
- Physiology Major
- Pursuing MD after bachelors
- Enjoy Pokémon Lore
- Amateur Collector
- People person

High Level Use Cases

Use Cases 1: Trusted Seller Verification System

Daniel is an active seller on the marketplace. He wants to increase his credibility and attract more buyers. He wants to build trust with buyers and increase his chances of making sales. As he completes more transactions and receives positive feedback, the system automatically tracks his performance. After reaching 20 successful sales and maintaining a 90%+ rating, Clark earns a Trusted Seller badge next to his username. This badge helps him attract more buyers, leading to faster sales and fewer disputes. If his rating drops below 80%, the system automatically revokes his badge, ensuring that only reliable and reputable sellers maintain this status.

Use Cases 2: Fair Market Price Suggestion

Emily is a new user of a marketplace and struggles to determine the fair value of her items. She uses the marketplace's Fair Price Suggestion Tool, which analyzes historical sales data, recent transactions, and item conditions to recommend a reasonable price. Before accepting a trade, she sees a market value range that helps her set a competitive price. This tool allows sellers to avoid overpricing and underpricing, making transactions fairer for both buyers and sellers.

Use Cases 3: Wishlist Item

Kevin is searching for specific items for his class but does not want to constantly check the marketplace. He adds the items to his Wishlist, which allows the system to notify him when a seller lists them and easier to track them down. When the items are available, he receives an automatic alert and can quickly message the seller before someone else buys them. Additionally, he can sort listings by price, condition, and seller rating, making it easier to find the best deal. This feature helps students efficiently track down the items they need.

Use Cases 4: On-Campus Meetup Points

James wants to buy the items on the marketplace, but he does not trust the online transactions. The marketplace provides designated meetup points on SFSU's campus. When scheduling a trade, he and the seller choose a meetup location from a pre-approved list of safe zones. They can also select the time when they want to meet. This feature ensures that students can easily make an appointment and feel secure when trading in person.

Data Items and Entities

Users - Encapsulates all accounts, buyers and sellers
Buyer - An individual looking to buy from a local seller
Seller - An individual looking to sell to local buyers
Trusted Buyer / Seller - Someone who has earned a high enough rating from buying or selling as well as has at least a certain number of unique user ratings. Trusted buyers/sellers will have an identifiable marker to communicate their status to others on the site.
Admins - Operators of the website who will help users sort out disputes and issues. They will be reachable through the in-site messaging service for any user.

Backend Items:
Users Database - repository for information on user accounts such as username, their relevant SFSU email, rating, history, and other necessary metadata.
Listings Database - catalogue of all currently available Pokémon cards for sale, their price, who's selling them, and any other relevant data to the listing such as card rating.
Messaging Database - holds information about messages sent.

Requirements
High Level Functional Requirements

UNREGISTERED USERS

1. System shall allow users to browse all available items without requiring login
2. System shall provide search functionality by item name, type, and rarity
3. System shall display detailed card information including images, description, and market price
4. System shall allow users to register for a new account
5. System shall provide information about trading policies and platform guidelines

REGISTERED USERS

6. System shall allow users to log in securely with username and password
7. System shall enable users to list their own item for sale or trade
8. System shall provide a way for users to set prices and trade preferences for their items
9. System shall facilitate direct messaging between users for trading negotiations
10. System shall allow users to purchase items using the platform's payment system (platform does not have payment system)
11. System shall maintain a digital collection of users' owned items (no need for this one)

12. System shall notify users of new listings matching their wishlist criteria
13. System shall allow users to rate and review other users after completed transactions
14. System shall provide transaction history for all past trades and purchases

ADMIN USERS

15. System shall allow administrators to approve or reject item listings
16. System shall enable administrators to suspend or ban users who violate platform rules
17. System shall provide administrators with transaction monitoring capabilities
18. System shall allow administrators to resolve disputes between users
19. Admins will not be blockable like regular users

SFSU-SPECIFIC FUNCTIONS

19. System shall facilitate on-campus meetups for item trading between SFSU students
20. System shall provide a special marketplace section for SFSU-exclusive item events

21. System shall verify SFSU student status using school email domains for special privileges

Non-functional Requirements

1. Application shall be developed, tested and deployed using tools and cloud 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 version of two major browsers
3. All or selected application functions shall render well on mobile devices (o 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. Privacy of users shall be protected
8. The language used shall be English (no localization needed)
9. Application shall be very easy to use and intuitive
10. Application shall follow established architecture patterns
11. Application code and its repository shall be easy to inspect and maintain
12. Google analytics shall be used

13. No e-mail client or chat services 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
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 in the market today
18. The application UI (WWW and mobile) shall prominently display the following 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. (Important to not confuse this with a real application). You must use this exact text without any editing.

Competitive Analysis

Features	Craigslist	OfferUp	GatorMarket
On-Campus Safe Meetup	+	-	+
Real-Time Chat System	+	-	+
Reporting Option	+	+	-
Trade Option	-	-	+
Reporting Option	-	-	++

+Feature Exist; ++Superior;-does not exist

Our site's value proposition comes from its community centered approach. It provides all essential features from Craigslist and OfferUp plus more. With a unique campus meetup and trade options exclusive only to SFSU students, safety is ensured. We pride ourselves in community and the safety of our users.

High Level System Architecture and Technologies

Main SW Components

- Database - AWS RDS for MySQL ver 8.0
- WWW Server: Apache 2.4
- Node.js (20.x)

Deployment Cloud Server

- AWS free tier - EC2 instance free for 12 months

Frontend Frameworks

- Express.js 4.18+
- React (Next.js) 19.0.0

Browsers We Support

- Chrome
- Firefox

GenAi Usage

Clark

Tool:

- ChatGPT 4o

Task where it was used:

- Executive Summary
- Useful rating High

How it was used and benefits:

- ChatGPT was utilized to edit the Executive Summary that I had originally wrote down and organize it

Prompt Used:

- “Organize and edit the paragraph to make it sound professional”

Caleb

Tool:

- Claude 3.7 Sonnet

High Level Functional Requirements

- MEDIUM

How it was used and benefits:

- We used gen ai to assist with organizing and formatting the high-level functional requirements into user categories.

Prompt Used:

- “Can you organize these high level functionalities into user based categories? Examples - Unregistered Users, Registered Users, Admin Users”

Teams and Roles

ROLES	NAME	E-MAIL
Team Leader	Clark Batungbakal	cbatungbakal@sfsu.edu
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Front-End Member	Daniel Lee	dlee40@sfsu.edu
GitHub Master	Trinity Godwin	cgodwin@mail.sfsu.edu

Team Lead Checklist

ON TRACK	So far, all team members are fully engaged and attending team sessions when required
ON TRACK	Team found a time slot to meet outside of class
ON TRACK	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/OK	Team reviewed class slides on requirements and use cases before drafting Milestone 1
DONE/OK	Team reviewed non-functional requirements from "How to start…" document and developed Milestone 1 consistently
DONE/OK	Team lead checked Milestone 1 document for quality, completeness, formatting and compliance with instructions before submission
DONE/OK	Team lead ensured that all team members read the final M1 and agree/understand it before submission
ON TRACK	Team shared and discussed experience with GenAI tools among themselves
ON TRACK	GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)

Appendix

Site Pages / Services:

User creation page - page where new users will be able to register/create their accounts.
Homepage - landing page for all users, logged in or otherwise, will serve as the primary page for looking at listings, finding listings, messaging Admins and other essential activities.

User page - All users will have a user page giving basic information about that user such as their username, access to message them, their rating, number of transactions, how long the account has existed and any other useful information. There will also be a block button. If the user is a Seller, it will also display the user's current listings.
Listings - This page will serve as the interaction portal for buyers to look at a particular seller's item. It will have an image of the card, a link to the sellers User page, a brief description, the seller's asking price, a chat box to send a message to the seller, quantity of available cards if there are multiple, any other relevant information about the card such as if it has been graded, and finally an 'offer' selection tab which will allow a buyer to send a proposed price, meetup location (selected from the predesignated on-campus locations) and a proposed meeting time.
Offers - These are special messages sent to the seller. The message will contain all relevant information including who is trying to buy, proposed location, price, quantity to buy, and meetup time. That seller will be given a certain amount of time to approve or deny. Replying to this message will allow the seller to send a counteroffer or negotiate with the buyer. Once an offer is accepted the listing will be taken off the website.
Blocking Service - Buyers and sellers can block users seamlessly without the blocked user being informed. All messages and offers made by a blocked User will not be shown to the blocker. Blocked sellers will not have their listings appear when searching / on the Homepage.
Messaging Service - The messaging service will serve as the primary way buyers and sellers are able to communicate and negotiate. Users will be able to go to another user's User page and start a conversation there as well as at the Listing page. The Homepage will have a notification bar that will alert a user to new messages and allow them to respond. This messaging service will also be how users are able to get in touch with the admins.
Wishlist - Users will be able to 'save' or otherwise highlight listings of interest as well as wish list sought-after cards. When a card the user has wish listed has a new listing, the User will automatically be messaged about the new listing.
Location Selection - Users will be only able to meet up at predesignated locations on campus where Admins have evaluated it to be safe. AKA places with cameras and bystanders to help prevent the service being used to target users.
Rating System - After a transaction buyers and sellers can rate how well it was to interact with the other person. The buyers/sellers rating will be displayed with their listings / at their user page to help potential future users make informed decisions about who they choose to deal with. A user can only rate another user after an offer is accepted and the agreed meeting time has elapsed.