

SW Engineering CSC648-848 Spring 2025

ThriftAtSFSU

Milestone 1

Team 15

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1. Executive Summary

In today's fast-paced college environment, affordability and convenience are key concerns for students. ThriftAtSFSU is a dedicated resale platform designed exclusively for San Francisco State University (SFSU) students, providing a secure and efficient way to buy and sell second-hand goods within the campus community. Unlike generic resale platforms, ThriftAtSFSU is tailored to meet the specific needs of SFSU students, ensuring a trusted marketplace that fosters sustainability and affordability. ThriftAtSFSU enables students to easily list and search for items, using an intuitive interface equipped with search filters. The platform enhances user safety and trust by requiring a valid SFSU email for registration and offering a seller rating system. Additionally, ThriftAtSFSU simplifies transaction logistics by allowing buyers and sellers to coordinate meet-up times conveniently, eliminating the hassle of unreliable third-party deliveries. Importantly, payment is handled off-platform, allowing users the flexibility to choose their preferred method of exchange.

What sets ThriftAtSFSU apart is its exclusive focus on the SFSU community, ensuring a localized and student-friendly marketplace that prioritizes security, convenience, and affordability. This project directly addresses the need for a reliable, campus-specific resale network, fostering a culture of sustainability while making essential goods more accessible to students. Our team comprises passionate SFSU students committed to enhancing campus life through innovative solutions. With firsthand experience of students' challenges in accessing affordable goods, we are dedicated to making ThriftAtSFSU the go-to platform for peer-to-peer resale within our university. By supporting this project, you invest in a practical and impactful solution that benefits the entire SFSU community.

2. Personae

Persona: Dr. James Carter

Attitude:

Dr. Carter is a seasoned professor in the English department at SFSU. He prefers convenience when shopping online and values clear descriptions and easy navigation. He isn't tech-averse but prefers platforms that are simple and efficient. He appreciates sustainability and enjoys the idea of second-hand shopping to reduce waste.

Skills:

- Proficient in using computers but not a fan of overly complex or cluttered interfaces.
- Familiar with online shopping platforms like eBay and Amazon but not a frequent user of online marketplaces.
- Prefers using search filters to find what he needs quickly.

Limitations:

- Has a busy schedule, making it difficult to spend time browsing.
- Not interested in negotiating or haggling, prefers clear pricing.
- May struggle with messaging sellers if responses are delayed.

Pain Points:

- Finding clothes in his size can be difficult in a marketplace setting.
- Unreliable or unclear product descriptions can be frustrating.
- Lack of clear filtering options could make searching inefficient.

Goals:

- Quickly find professional attire in his size without sifting through irrelevant listings.
- Avoid lengthy negotiations and unclear pricing.
- Ensure that sellers are legitimate and trustworthy.

Persona: Maria Sanchez

Attitude:

Maria is a dedicated student and a mother of a 3-year-old. She is cautious when buying online and prioritizes safety, reliability, and affordability. She prefers to shop from trusted sellers and checks reviews before making a purchase. Convenience is essential for her, as she balances schoolwork and parenting.

Skills:

- Comfortable using technology but prefers mobile-friendly and easy-to-navigate websites.
- Experienced in online shopping, familiar with platforms like Facebook Marketplace and Craigslist.
- Relies on reviews and ratings to assess seller credibility.

Limitations:

- Limited time to browse listings due to her busy schedule.
- Prefers in-person meet-ups that fit within her class schedule.
- Avoids high-priced listings due to budget constraints.

Pain Points:

- Concerns about scams or unreliable sellers.
- Difficulty finding listings that include detailed descriptions and good photos.
- Hard to schedule meet-ups that align with her limited free time.

Goals:

- Find affordable school supplies, children's items, and household essentials.
- Ensure that transactions are safe and efficient.
- Minimize the time spent searching for trustworthy sellers.

Persona: Alex Nguyen

Attitude:

Alex is a first-year student living in an SFSU dorm. He is excited about his new independence but also mindful of his budget. He prefers to buy second-hand items to save money and make his dorm feel more like home. He is comfortable with technology and prefers quick, efficient transactions.

Skills:

- Tech-savvy and familiar with online marketplaces like Facebook Marketplace and OfferUp.
- Comfortable with messaging sellers and negotiating prices.
- Prefers a simple and intuitive platform for easy browsing.

Limitations:

- Limited space in his dorm, so he has to be selective with purchases.
- No car, so he needs sellers to meet on campus or nearby.
- Relies on financial aid, so affordability is key.

Pain Points:

- Finding affordable dorm essentials that are in good condition.
- Coordinating meet-ups without reliable transportation.
- Dealing with listings that lack detailed information or clear photos.

Goals:

- Buy second-hand dorm essentials like a mini-fridge, microwave, or desk chair at a low cost.
- Ensure sellers are trustworthy and products are as described.
- Arrange meet-ups that work with his class schedule and lack of transportation.

Persona: Jasmine Lee**Attitude:**

Jasmine is a junior at SFSU who commutes daily from Daly City. She prefers efficient and straightforward transactions because she has limited time on campus. She values clear communication with sellers and quick responses. She enjoys finding good deals but dislikes last-minute changes or unreliable sellers.

Skills:

- Proficient in using online marketplaces like eBay and Facebook Marketplace.
- Organized and plans her meet-ups ahead of time.
- Comfortable with digital payments and messaging apps for quick coordination.

Limitations:

- Limited time on campus, so she needs to arrange meet-ups that fit her schedule.
- Prefers not to carry large or heavy items on public transportation.
- Avoids complicated negotiations due to time constraints.

Pain Points:

- Sellers who don't respond quickly can make transactions difficult.
- Unclear listings that lack information or proper photos.
- Arranging meet-ups that align with her class and commute schedule.

Goals:

- Find good deals on electronics, books, and commuter-friendly items.
- Ensure smooth and reliable transactions with sellers.
- Minimize time spent coordinating purchases.

3. High-level Use cases**Use Case: Selling Items**

Dr. Carter needs a new blazer for an upcoming conference but prefers to shop second-hand to support sustainability. He logs into the marketplace and uses the size filter to avoid sifting through irrelevant listings. Within minutes, he finds a well-maintained blazer in his size and at an affordable price. Since he dislikes lengthy negotiations, he appreciates that the price is clearly stated. He messages the seller to confirm availability and arranges a pickup on campus, making his shopping experience quick, efficient, and stress-free.

Use Case: Checking Reviews

Maria needs to buy a used stroller for her three-year-old but is cautious about online purchases. Before committing to a meet-up, she carefully checks the seller's profile and reads past reviews from other buyers. Seeing that the seller has multiple positive reviews for being reliable and honest gives her confidence in the purchase. She messages the seller, confirms the stroller's condition with additional photos, and arranges a safe, public meet-up near campus. Thanks to the review system, she feels reassured that she is dealing with a trustworthy seller.

Use Case: Needs to buy items for dorm

Alex has just moved into his dorm at SFSU and quickly realizes he needs a mini-fridge, a desk lamp, and some storage bins. Rather than spending a fortune on new items, he visits the market site for second-hand deals from students who are moving out. Using the search filters, he quickly finds listings that match his needs and budget. He messages a senior who is selling a mini-fridge at half the retail price and arranges a meet-up on campus. Within a day, he has everything he needs for his dorm without breaking the bank.

Use Case: Communicate/Plan with seller

Jasmine commutes from Daly City and has limited time between classes. She finds a great deal on a used laptop from a student seller but needs to make sure she can pick it up at a convenient time. Using the messaging feature, she coordinates a meet-up during her lunch break and confirms the seller's availability before making the trip. The quick response from the seller and the ability to arrange a hassle-free pickup help her complete the transaction without disrupting her busy schedule.

4. List of main data items and entities – data glossary/description

Entities

Unregistered User: Unregistered users are the first role anyone on the app has access to, and have limited access to most features. Unregistered users can view listings and reviews, but can't access their own profile page, chat logs with other users, or buy and sell items that are listed.

Registered User: Registered users are verified accounts that can create, delete, and edit listings, add their own photos, leave reviews under other listings, and have their own profile where they can share more about themselves and what they are looking to buy or sell on the app. Registered users can edit their own profile, share chat logs with other users, and buy and sell items - but can only edit and make changes to their own created photos, listings, reviews, and profile.

Admin: Administrators, or admins, have overarching access to the entirety of the app, and can make changes to other registered users' profiles, listings, photos, and reviews in order to moderate the app more efficiently. Admins share the permissions of registered and unregistered users as well, and are able to use the app as a normal registered user would.

Items

Photos: Photos belong to listings, and are used to better visually depict an item being sold or offered.

Listings: Every Registered user can create listings, which are how items are viewed online for other users to buy or leave reviews under. Listings typically have photos that belong to them, and the listings themselves belong to each user that created it.

Profile: Registered users can create a profile for their account, which may include a profile picture, an about section or bio, and other details regarding their intentions to buy or sell on the app.

Reviews: Reviews are attached to specific item listings, and better communicate the quality of the item as well as the seller's efficiency. Registered users can leave reviews under listings.

Chat Log: Chat logs are shared between users, and improve the flow of conversation between buyer and seller. Chat logs belong to users and are sorted by the second user being communicated with.

5. List high-level functional requirements

1. Users of all levels of authority and privileges shall be able to access the app and see listings as well as see reviews without manually loading (besides opening the website).
2. Unregistered users shall not be granted access to view images for existing listings, and they must create an account and become registered users to do so.
3. Unregistered users shall be blocked from editing access to their own profile, as well as from creating chat logs with other users or viewing profiles of other users.
4. Unregistered users shall be able to search based on various forms of input, including text search and filter by category - but not image search or user search.
5. Unregistered users shall not have access to creating reviews under other registered users' listings.
6. Unregistered users shall not have access to a personal user profile, where they can select a profile picture, have or change a display name, have or change their bio/about section, or list their own items from their profile page.
7. Unregistered users shall have access to a settings tab, where they can change the appearance of the app to become a vision-friendly dark mode and other settings not included in the search feature.
8. Unregistered users shall be allowed to create an account, become a registered user, and gain access to all associated privileges and benefits.
9. Registered users shall agree to the terms and conditions upon account creation that ensure they do not break the app's rules or etiquette while using it.
10. Registered users shall be able to edit and change data after it is submitted, including their own user profile, listings for their own items, and reviews for other registered users' items.
11. Registered users shall be able to search based on various forms of input, such as image search, text search, filter by category, and user search.
12. Registered users shall be able to create, delete, and edit their own listings.
13. Registered users shall have access to a more robust settings tab, complete with account owner features that enable more control over their personal user experience.
14. Registered users shall be able to privately block or report other users, automatically notifying admin to enact moderation upon.
15. Registered users shall be able to report listings for potential scams to be reviewed by admins.
16. Admin shall be able to create, delete, and edit all listings, regardless of ownership, to moderate the app.
17. Admin shall be able to ban registered users.
18. Admin shall be able to monitor and review reported listings.
19. Admin shall be able to create, delete, and edit all categories for searching on the website.

6. List of 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 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. 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 clients 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 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 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 so as to not confuse this with a real application). You have to use this exact text without any editing.

7. Competitive analysis (functions/features only, not business or marketing)

<u>Feature</u>	<i>ThriftAtSFSU</i>	<i>Craigslist</i>	<i>Facebook Marketplace</i>	<i>eBay</i>
Browsing and Searching	Advanced filtering specific to academic needs (books, dorm supplies)	Generic with broad categories	Advanced with various filters but not student-specific	Highly sophisticated with detailed categories
Contacting the Seller	Secure in-site messaging with SFSU email verification	Direct, less secure	Integrated with Facebook Messenger, more public	In-site messaging, more formal and structured
Uploading Information	Streamlined for student items, includes academic categories	Simple, less structured	Detailed with photo uploads, general categories	Detailed with options for professional listings
Dashboard for Sellers	Customized for student sellers, tracks academic cycles	Basic functionality	More developed with social insights	Advanced with analytics and sales tracking
Admin Functions	Strict item and user moderation to ensure academic integrity	Minimal, mostly automated	Some oversight, not academic-focused	Comprehensive oversight with robust user and listing management
Mobile Responsiveness	Fully responsive design optimized for student use on campus	Varies significantly	Highly responsive and well-designed	Fully responsive with a strong mobile app
Security	High, with SFSU-only access	Low, no specific student security measures	Moderate, with general security measures	High with advanced user verification and

<u>Feature</u>	<i>ThriftAtSFSU</i>	<i>Craigslist</i>	<i>Facebook Marketplace</i>	<i>eBay</i>
	and strict data handling			transaction security measures
Exclusivity	Exclusive to SFSU students for safety and relevance	Open to the general public	Open to the general public, although community groups can be exclusive	Open to the general public with a global reach

8. High-level system architecture and technologies used

Server Host: Amazon AWS

Operating System: Ubuntu v.20.04 Server

Database: MySQL v.9.1

Web Server: NGINX 1.12.2

Server-Side Language: Python

Browser Support: Chrome (Version 133.0.6943.143), Firefox (136.0)

Additional Technologies: Web Framework: Flask

IDE: PyCharm, VScode

Web Analytics: Google Analytics

SSL Cert: Lets Encrypt (Cert Bot)

SASS: 3.5.5

9. Use of GenAI tools like ChatGPT and Copilot for Milestone 1

- What GenAI tool and version you used/tried.
 - GPT-4o
- List tasks for which you used or tried GenAI tools and for each rate how useful it was, use LOW, MEDIUM, HIGH.
 - Help generate an executive summary (HIGH)
 - Generate Persona personalities (MEDIUM)
- For each task above briefly explain how you used the tool and what benefit it offered. If the tool was not beneficial, do not use it for M1, but explain why.
 - I used the tool to generate an executive summary for this Milestone 1 document.
 - Used the tool to help generate personas and high level use cases with the description of what we needed
- Provide key examples and prompts.
 - Prompt: "Help me write an executive summary for my website: Short description of the final product/application and its key advantages, novelty, value (up to 1 page). Make it as an executive summary to be readable to broad and not just technical audience – think also of answering the question of why we should fund this project. We suggest you assign a name to your project for easier reference and good “marketing”. This summary should be readable to a general manager/executive that is not a CS specialist and is used to explain and also to advertise/promote your project. Typical outline is: one paragraph on the motivation and importance of the application you are developing, followed by a paragraph on what functions and services your application will be providing and how it helps the users (high level only, no jargon). You also must say what is unique and custom for SFSU in your design. At the end say in one paragraph something about your team (e.g. about your student startup team...). (BTW ChatGPT may help here BUT be careful not to use meaningless fluff written in perfect English, a common error in blindly using ChatGPT or likes) The name: ThriftAtSFSU Advantages: Local for SFSU students, seller ratings and schedule for meet up time convenience Novelty: SFSU specific resale site, Payment is done off platform Value: For ease of community access to affordable second-hand goods Only registered users with a valid sfsu email can access the platform and look at listings and post listings. There is search function with filters. “
 - The output is in [Executive Summary](#)
- Comment on anything else you found useful.
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10. Team and roles

Name	Email	Role
Hilary Lui	hlui@sfsu.edu	Team Lead
Annison Van	avan@sfsu.edu	Frontend Lead
Sid Padmanabhuni	spadmanabhuni@sfsu.edu	Backend Lead & GitHub maintainer
Joseph Alhambra	jalhambra@sfsu.edu	Team Member Frontend
Joseph Shur	jshur1@sfsu.edu	Team Member Backend

11. Team Lead Checklist to be completed by team lead

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