

SW Engineering CSC648-848 Spring 2024
CSC 648/848 Milestone 1: High Level Specs and Use Cases
Team 2

Jackson Hill, jhill@sfsu.edu
Maxwell Lewis, mlewis13@mail.sfsu.edu
Jose Rios, jrios7@sfsu.edu
Javi Buenrostro, jbuenrostro@mail.sfsu.edu
Rene Antoun, rantoun@sfsu.edu

Milestone 1

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1. Executive Summary

This website will fundamentally be a simple-to-use buy and sell application that can be used by the faculty, students, and teachers of San Francisco State University (SFSU). It will allow users to browse and search for products, purchase, and sell products to their liking. Additionally, it will allow them to review the details of sales items and contact the seller of the item. What this provides is similarly to Ebay's implementation, but will be exclusively focused towards the targeted audience of SF State. From the perspectives of the students, teachers, and faculty, this will assist with their needs in their education and everyday lives. We strive to create a resourceful space for SFSU that will provide assistance throughout their journey, for both learning and teaching purposes. Our team consists of students that understand the struggle of acquiring school supplies that work with our budget. We aim to bring forth an easier workflow when browsing for products. As we provide similar functions as other sites, we will also be providing our own functionality that further supports our objective.

For our site, guest users are able to browse products that are being sold, as well as purchase them, while registered users are able to upload sales items to sell. There will also be implementation for the site administrator to review each uploaded sales item for approval before it can go live, while also having permission to remove items or users from the site. What the users will be allowed to purchase can range from electronics in the forms of computers, phones, and other accessories, to books and supplies for students, and teaching material and equipment for faculty and teachers. This site will also provide a price range feature when browsing for products, which allows students and teachers to pick more affordable choices to their liking. For instance, students and teachers can choose to search for used school textbooks at a cheaper price than affording for brand new ones that may surpass their desired budget. Students will be able to search for textbooks by class number for a more effortless experience. Furthermore, it will provide opportunities to find certain places to hangout provided by the map hangout spots.

This is a feature we plan to add to the site, which will be called “the meetup”, with the purpose of pinpointing locations on the SFSU map to display where transactions will take place. Additionally, it will include the weather as well to inform users about the conditions they’ll find themselves for meetups when making transactions.

To reach our objective, we assembled a team of 5 students, who will tackle the roles of front-end, back-end, and github management. Our front-end lead will be in charge of the front-end implementation, which will handle designing the interface and to provide the necessary elements to display for the user. Three of our members, including team lead, will be in charge of the backend implementation. The backend lead and backend supporters will provide the data items and entities for our database that will be responsible for storing and organizing the necessary data and provide reliable communication between back-end and front-end. Lastly, we have a member that’s responsible for github management, which is in charge of handling the repository and ensuring our progress doesn't get corrupted when merging branches.

2. Personas



- Name: Ed Spicer
- Title: Student
- Characteristics: Happy go lucky, Freshmen, Looking towards a bright future.
- Looking for: Classroom textbooks at cheap pricing, a new computer to do all the essays, and to find the best spots for food, hangouts, and labs.



- Name: Linda Marshall
- Title: Bio Professor
- Characteristics: Innovative, tech-savvy, and dedicated to student success, always seeking ways to integrate technology into her lessons to make it more engaging
- Looking for: A platform for affordable, high-quality educational and grading tools and resources



- Name: Fransico Rojas
- Title: Faculty (after-class tutor).
- Characteristics: Older faculty member of after-class tutors, helps students.
- Looking to: Sell excess computer parts that he has lying around

3. High level use cases

1) Looking for Affordable Textbooks:

A hardworking freshman at SFSU with an eye on the future, named Ed Spicer, consistently maintains good grades and is a good student but does have little knowledge of how to utilize shopping websites due his low budget. He realizes that he needs a textbook for a specific course he is enrolled in. He stumbles upon our website, enters his class number to filter items specifically to what he is looking for and is given various textbook listings related to the course he has. Upon clicking on one of the listings to try to purchase them he is greeted with a sign up or login screen. He proceeds to register, contacts the seller and now awaits for a response to purchase the textbook.

2) Wanting to Buy Reliable Teaching Materials:

With a commitment to meeting the diverse needs of her students, Linda Marshall seeks a platform within the college's on-campus app where she can find affordable educational resources. Here, Linda discovers sellers offering various types of textbooks pertaining to the many courses she teaches and was able to find them by filtering the selections by adding her courses to the filter setting. She continues to filter through the items listed entering her different course numbers that she teaches to see all the listings. Upon finding a listing for cheap, affordable material she can buy to share with her class, she clicks on the listing, registers because she was prompted with a login/register panel and contacts the seller to purchase the items.

3) Computer Searching for Certain Needs:

Francisco Rojas, a seasoned faculty member providing after-class tutoring, finds himself facing a technological dilemma. He finds his office to be overflowing with an excess amount of computer parts from various donors and projects. Aware of already having an account with our on-campus selling and buying app but never actually doing anything with that account before, Francisco goes on the app, logins in by clicking the "login" button on the home page and proceeds to the page where listings are posted. He goes to post an extra CPU he had laying around by entering its price, the listing title, its item category and condition of the item. He is now informed that he has to wait up to 24 hours to have his listing approved and posted to the public.

4) Admin Confirms Listings for Sale:

The admin frequently looks at the marketplace website to look at what items are being sought after and what item listings need to be approved. The admin goes to the website, logins in and clicks on the admin tool page which displays all the listings waiting to be approved. The admin has 2 buttons on each listing, one for denying the listing access to be posted public and another to grant access to be posted public. From there the admin goes on their daily check to see who contacted for support by clicking on the page admin support page where the support requests are stored. They then log off after doing their daily maintenance of their website.

4. List of main data items and entities

Types of Users

- Unregistered
 - Limited access to simply browse and purchase products
 - Start a message but not send it
- Registered
 - Access to posing **Sales Items**
 - Access to messaging features
 - Access to save info on profile details, billing, etc.
 - Access to view **Sales Items** from a Wishlist or Shopping Cart
- Admin
 - Full access to all features and administrative privileges
 - Required to approve all postings before they go live
 - Permission to delete messages

Sales Item

- Image
- Date Posted
- Owner Id
- **Category**
- Description
- Price

Category

- Books
- Merchandise
- School Supplies

Message

- Date
- Message
- Id of Buyer
- Id of Company
- Id of Product

5. High level functional requirements

Non-registered Users

- 1) Shall be able to browse products
- 2) Shall be able to view product details
- 3) Shall be able to add items to the cart
- 4) Shall be able to proceed to checkout
- 5) Shall be able to contact support
- 6) Shall be able to register for an account
- 7) Shall be able to search by class number

Registered Users - All of the above including...

- 8) All of the requirements of non-registered users
- 9) Shall be able to login/logout
- 10) Shall be able to manage account settings
- 11) Shall be able to access locations on campus to "meet up"
- 12) Shall be able to add products to wishlist
- 13) Shall be able to write product reviews and ratings
- 14) Shall be able to receive notifications for updates
- 15) Shall be able to post listings of products to sell
- 16) Shall be able to message sellers and buyers

Admin

- 17) All of the requirements of registered users
- 18) Should be required to manage products
- 19) Should be required to verify product reviews from registered users
- 20) Should be required to handle customer support
- 21) Shall be able to manage user accounts
- 22) Shall be able to access sales analytics
- 23) Shall be able to configure website settings

6. Nonfunctional requirements

- 1) Application shall be developed, tested, and deployed using tools and 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
- 4) Data shall be stored in the database 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
- 7) The language used shall be English (no localization needed)
- 8) Application shall be very easy to use and intuitive
- 9) Application shall follow established architectural patterns
- 10) Application code and its repository shall be easy to inspect and maintain
- 11) Google Analytics shall be used
- 12) No e-mail clients 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
- 13) Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
- 14) Site security: basic best practices shall be applied (as covered in the class) for main data items
- 15) Media formats shall be standard as used in the market today
- 16) Modern SE processes and tools shall be used as specified in the class, including collaborative and continuous SW development and GenAI tools
- 17) The application UI (WWW and mobile) shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Spring 2024. For Demonstration Only" at the top of the WWW page Nav bar. (Important so as to not confuse this with a real application).

7. Competitive analysis

Competitor	Item Filtration	Viewability Options	Purchasing Safety	Meet Up Clarity	Meet Up Conditions	Search by Class #
Facebook Marketplace	+	+	+	+	-	-
Amazon	++	+	-	-	-	-
OfferUp	+	+	+	+	-	-
Our Application	++	++	++	++	++	++

For item filtration, OfferUp and Facebook Marketplace have very rudimentary filters. Amazon has a very wide selection of filters, possibly due to the large number of items they have but as for our application we have SFSU student specific filters for courses and majors. As for viewability options, all the other applications have the same browsing UI, which are just simple squares. As for our application, the item sizes in the browsing section can be adjusted, making the items larger for those who want to see items better or making the items smaller to fit more items on the page to improve browsing efficiency. When it comes to purchasing safety and meet up clarity, this is irrelevant for Amazon because they do not have the same purchasing method as the rest, but Facebook Marketplace and Offerup include a chat feature to coordinate meetups and the customers can conclude themselves whether to meet up with that person or not in the first place. Our application assures the customer and seller safety by only including people who attend SFSU to partake in our application as well as including a map of SFSU with pinpoints to potentially provide meet up locations for a transaction. We are the only ones that also include the weather of SFSU to give an idea to the people meeting up about the conditions they'll find themselves in when the day of the transaction comes.

8. High level system architecture and technologies used

- Server Host: Amazon AWS, EC2 instance
- Operating System: Ubuntu 22.04
- Database: MySQL 8.0.36
- Web Server: NGINX 1.25.3
- Web Framework: Vue.js
- IDE: Sublime Text
- Web Analytics: Google Analytics
- Authentication: Passport.js

9. Use of ChatGPT?

So far, there has been no use of ChatGPT or genAI for this milestone. (this may change)

10. Meet the Team!

Name	Role	Email	Github
Jackson Hill	Team Lead/Backend Support	jhill@sfsu.edu	sfsujackson
Maxwell Lewis	Github Master, Documenter	mlewis13@mail.sfsu.edu	Unagi6
Jose Rios	Frontend Lead	jrios7@sfsu.edu	Colorbomb1
Javi Buenrostro	Frontend/Backend Support	jbuenrostro@mail.sfsu.edu	fiy0x0
Rene Antoun	Backend Lead	rantoun@sfsu.edu	reneantoun

11. Team Lead Checklist

- 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. **[ON TRACK]**
- 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 is organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.). **[ON TRACK]**