# "SW Engineering CSC648-848 Spring 2025"

# Gator Savvy

## Team 5

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Milestone 1

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# Milestone 1

Use cases, High-Level Requirements, Architecture, and Competitive Study

## 1. <u>Executive Summary</u>

**Project Name:** Gator Savvy

Students often struggle to make ends meet in today's fast-paced world while balancing their academic responsibilities. The rising cost of living, textbooks, and everyday essentials can leave students searching for affordable options. Gator Savvy aims to solve this problem by creating a dedicated online marketplace that connects students with exclusive discounts and deals from local businesses, national brands, and campus services. By centralizing these offers, Gator Savvy ensures that students can access the discounts they need, all in one place.

Gator Savvy will function as a one-stop shop for students looking for deals on everything from food, clothing, and tech gadgets to textbooks, transportation, and entertainment. Students can access a wide array of verified, time-sensitive discounts through an intuitive website. The platform will also include features like personalized recommendations based on location and student preferences and a user-friendly interface that allows businesses to update and offer new promotions easily. By using Gator Savvy, students can save money on the products and services they need most, while businesses gain access to a loyal and targeted customer base.

What makes Gator Savvy unique is its specific focus on the student experience. Unlike other general coupon sites, Gator Savvy is designed exclusively for the student community, ensuring that all deals are relevant and beneficial to students' everyday needs. Additionally, the platform will partner with local San Francisco businesses and offer exclusive, campus-specific discounts students can't find elsewhere. This personalized approach to discounts and its seamless integration with campus events and student life ensures that Gator Savvy stands out as a vital tool for SFSU students.

Our startup team comprises driven SFSU students who understand the challenges of managing finances during school. We are a group of passionate individuals with backgrounds in tech, marketing, and business development, committed to creating a marketplace that saves students money and strengthens the relationship between SFSU and the local community. Funding this

project will allow us to refine the platform, expand our reach, and ensure that Gator Savvy becomes a must-have resource for students looking to make the most of their time at SFSU.

## 2. **Persona**

## Persona 1: The Budget-Conscious Student (Sophia)



About: Business Administration Major, 21 years old, Junior
- Very Busy
- Balancing her budget with school and social life.
- Familiar with shopping apps and comfortable with many technologies.
- Difficulty finding, trusting(third-party sellers), and keeping track of limited deals.
- Lack of time to search

Goals:
- Looking for deals and savings promptly.
- They want quick and easy access to deals on food and school-related items.

How Gator Savvy Helps:

Gator Savvy simplifies Sophia's shopping experience by offering a curated marketplace of student discounts in one place. It saves her time by providing tailored offers based on her preferences and location. The platform's student verification ensures all deals are trustworthy, and personalized notifications alert her to relevant deals she might have missed otherwise.

# Persona 2: The Parent Supporting a Student (Maria)



About: Mother of an SFSU Freshman, 57 years old, restaurant owner
- Easily overwhelmed by complicated technology
- Budgeting for school materials
- Fears the quality and safety of items or the reliability of certain sites

Goals:
- She wants her daughter to succeed in her studies and have the materials she needs
- She looks for many reviews as they can be a reliable source of information for what she's looking to purchase
- She has extra items that she wants to sell to people who will put them to use

How Gator Savvy Helps:

Gator Savvy provides Maria with an easy way to ensure her child is getting the best deals on essential student items. The platform's simple interface and verified discounts mean Maria doesn't need to worry about scams or confusing navigation.

## Persona 3: The Tech-Savvy Freshman (James)



About: Computer Science Major, 18 years old, freshman
- Very comfortable with technology.
- Frequently uses technologies to simplify tasks.
- Can be overwhelmed with too much information.
- Can get frustrated if a site requires too much effort to navigate.
- Wants to save money

Goals:
- Looking to explore any available resources as a new student.
- Prioritize convenience and quick access.

How Gator Savvy Helps:

Gator Savvy's user-friendly interface makes it easy for James to find discounts that match his needs quickly. The platform can show him the best options to buy, exchange, or rent that item quickly and simply. With Gator Savvy, he can access discounts with just a few taps, simplifying his search for savings.

## 3. <u>High-level Use cases</u>

1. Sophia (Persona 1) is looking for cheaper ways to get some tools for class. She logs into Gator Savvy using her school email and searches for exclusive deals on school supplies and groceries.

2. Sophia clicks on SFSU Exclusive deals, but she doesn't need that item for too long. From the item page, she can look for other options, including renting, borrowing, exchanging, or purchasing second-hand items.

3. Maria (Persona 2) is looking for some textbooks and school supplies for her daughter, who is studying at SFSU. She's able to register her account to shop for supplies and help her daughter to succeed in college, with extra confirmation using her daughter's SFSU account.

4. Maria is not that good with using phones and tablets. With the simple design of our website, she can put her items that she wants to sell with ease.

5. James (Persona 3) is trying to look for some related items to purchase for his robot project. He can look up related items or text books using our simple categorized search, which refreshes in real-time, along with the search conditions.

# 4. List of main data items and entities

**Users & Roles:**

**Registered User**

Verified user who can interact with the entirety of the website and has access to student deals.

- View, search, and purchase items.
- Like and review items.
- Update their profiles.
- Make posts and sell items.
- Can access special offers
- Message sellers.

**Guest User**

Common user with limited access. This provides a preview for our app.

- View and search events and items.
- Read reviews.
- Can navigate to any section that does not require signing up.

**Key entities:**

**Student Profile**

Stores the registered user's information and preferences.

- Username
- Full name
- Student Email
- Student id
- Major
- Preferences(categories)
- Liked items
- Seller's Rating & Comments
- Items list (if any)
  - For sale
  - Sold

**Item Listing**

Provides a full description of everything you need to know about an item. This listing is where registered users can also message the sellers.

- Item Name
- Description
- Pictures
- Price
- Category(can be multiple)
- Reviews
- Quality description(new, like new, etc.)
- Chat with seller

**List of Items**

This would be a general view after you search for something. You get a list of items for quickly viewing the picture name and price of each item.

- Item name
- Picture
- Price
- Location/Distance

# 5. List high-level functional requirements

1. **Student Verification:** Only allow users with SFSU email addresses to register and post items to ensure that the platform is restricted to students.
2. **Classifieds by Category:** Organize sales into categories like textbooks, furniture, electronics, clothing, and event tickets to help students quickly find what they're looking for.
3. **Price Comparison Tool:** Enable students to compare prices for similar items posted by different sellers (or even compare with online stores).
4. **Customizable Alerts:** Let students set up price drop or availability alerts for specific items they are looking for.
5. **Student-to-Student Reviews:** Allow buyers and sellers to leave reviews specifically about the transaction experience, product quality, and communication.
6. **Wishlist & Save for Later:** Allow users to create a wishlist and "save for later" items they're interested in but not ready to buy yet.
7. **Instant Messaging for Buyers & Sellers:** In-app messaging for direct communication between students, with the option to send quick replies or images.
8. **Event-based Deals:** Offer a platform to share event-based promotions, such as discounts on textbooks during registration periods or specials during finals week.
9. **Item Rental Option:** Let users list items for rent (e.g., textbooks, cameras, or even bicycles) for a fixed period.
10. **Geo-location-based Search:** Show deals or sellers who are geographically close to the user's campus or dorm, which can help with local transactions.
11. **Barter System:** Enable students to exchange items (e.g., "I'll trade my old bike for your old laptop") instead of just buying and selling.
12. **Limited-time Flash Sales:** Have timed sales events where certain items are discounted for a limited period or have a specific number of products available.
13. **Verification Badges:** Introduce badges for top-rated sellers, verified sellers, or trusted students to build community trust.
14. **Student ID Integration:** Add a feature that integrates with the SFSU student ID to get special offers or student-specific deals.
15. **Donation Feature:** Allow students to donate items directly to other students in need (for example, textbooks for students who can't afford them).
16. **Video Listings:** Allow sellers to upload short videos showcasing their items to give buyers a better idea of the product's condition.
17. **Transportation Deals:** Offer a platform for students to sell or share transportation options (e.g., carpooling or bike-sharing).

18. **Cultural Event Tickets:** Provide access to discounted tickets or merchandise for SFSU-related cultural events, sports, or student gatherings.
19. **Community Polls for Popular Items:** Let users vote on which items or types of deals they'd like to see more of (e.g., "Would you prefer discounted winter jackets or tech accessories this semester?").
20. **"Take My Stuff" Section:** A feature where students can post about items they want to give away for free (e.g., old furniture, clothes, or kitchen appliances), contributing to sustainability efforts.

# 6. <u>List of non-functional requirements</u>

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 straightforward 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 the 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 the 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. (It is important 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):

| Feature | Gator Savvy | Student Beans | Craigslist | UNiDAYS | Amazon |
|---|---|---|---|---|---|
| Text Search | + | + | + | + | ++ |
| SFSU Student Verification Login | + | - | - | - | - |
| Shopping Cart | + | + | + | + | + |
| Browse | ++ | + | + | + | ++ |
| Giveaway free items | + | - | + | - | - |
| Rental System | + | - | - | - | - |

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

Gator Savvy's focus on local, campus-specific, and more personalized student deals in San Francisco is unique compared to these companies. While other platforms offer discounts to students, Gator Savvy aims to integrate more deeply into the student experience, providing a comprehensive, community-based, one-stop-shop that bridges the gap between students and local businesses.

## 8. High-level system architecture and technologies used

Server Host: Amazon AWS
Operating System: Ubuntu Server
Database: MySQL
Web Server:  NGINX-1.26.3
Server-Side Language: Python
Web-Side Language: JavaScript

Backend Framework: Flask
Frontend Framework: Vue.js
IDE: PyCharm, vs code,
Web Analytics: Google Analytics
SSL Cert: Lets Encrypt (Cert Bot)
Documentation: Doxygen

Supported Browsers: Safari 18.3 & Chrome LTS-126

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

AI models used: ChatGPT - GPT-4o, DeepSeek and DeepSeek (R1), Gemini

**List tasks for which you used or tried GenAI tools, and for each, rate how useful it was:**

ChatGPT (GPT-4o) - HIGH
DeepSeek and DeepSeek (R1) - HIGH
Gemini - 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."**

ChatGPT:
We used ChatGPT to give us ideas for our marketplace application, and Gator Savvy is one of them.

Task 1: Find the port and IP for the MySQL server and allow access from everywhere.
(https://chatgpt.com/share/67bab863-1cc8-800d-abe7-d26b5873914d)
Helpfulness: Very helpful
This is very clear and straight to the point. I got it going within 15 minutes
Task 2: Setting up NGINX
(https://chatgpt.com/share/67bab8b9-d25c-800d-964f-14100aff63e7)
Helpfulness: Not so helpful
It was going well at first, but it provided too much extra/unnecessary information and kept looping answers that weren't working before.

Task 3: Suggesting front-end languages
Helpfulness: Very helpful
We asked ChatGPT for suggestions on an easy-to-learn and useful front-end language for our website, and we chose Vue.js.

**Comment on anything else you found useful:**
- Brainstorming ideas
- Resolving merge errors

## 10. Team and roles

| Name | School Email | Role |
|---|---|---|
| Yu-Ming Chen | ychen88@sfsu.edu | Team Lead |
| David (Jun) Chang | dchang6@mail.sfsu.edu | Back-End Lead |
| Alexis Perez | aperez75@sfsu.edu | Front-End Lead |
| Athan Cheung | acheung4@mail.sfsu.edu | Front-End |
| David Cabanela | dcabanel@mail.sfsu.edu | Github Master |

## 11. Team Lead Checklist to be completed by the team lead

For each item below, the team lead must answer with only one of the following: DONE/OK; or ON TRACK (meaning it will be done on time and no issues perceived); or ISSUE (you have some problems, and then define the problem with 1-3 lines)

- So far, all team members are fully engaged and attending team sessions when required **DONE**
- The team found a time slot to meet outside of the class. **DONE**
- The team is 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**
- The team reviewed class slides on requirements and use cases before drafting Milestone 1 **DONE**
- The team reviewed non-functional requirements from the "How to start..." document and developed Milestone 1. **DONE**
- The team lead checked the Milestone 1 document for quality, completeness, formatting, and compliance with instructions before the submission **DONE**
- The team lead ensured that all team members read the final M1 and agreed/understood it before submission **DONE**
- The team shared and discussed the 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). **DONE**

## History Table

| Updates | Date submitted | Date Revised |
|---|---|---|
| Milestone 1st submittion | 3/12/2025 | |