

SW Engineering CSC648/848 Fall 2022

Milestone 1

2022-10-08

Team 7

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Executive Summary

We at Team 7 believe that the exchange of ideas is a fundamental component to a thriving educational environment. The selling and sharing of media, including pictures, videos, audio, and digital documents, is an essential component of this exchange of ideas. Unfortunately, this is typically managed either by private ad-based social media or restrictive educational platforms. GaterTrader is built by and for the people that give life to the university. GaterTrader is a web platform exclusive for San Francisco State University (SFSU) students, staff, and faculty to sell and share content that may be useful to all.

GaterTrader will be accessible on smartphones, tablets, and personal computers via the web. It will offer exclusive access to students, staff, and faculty. Users will be able to freely share media or offer it for sale to the rest of the university. Anyone will be able to browse and search for media. Users will be able to reach out to creators in order to express interest in purchasing or accessing content. GaterTrader will offer functionality especially tailored to collegiate use.


GaterTrader will benefit all of SFSU, including students, staff, and faculty. We are believers in the power of the exchange of media. GaterTrader will facilitate this exchange and foster collaboration, university culture, and a closer community between staff, students, and faculty.

GaterTrader will launch with unique features to best serve the university community. Students and faculty will immediately see a benefit from the school-friendly categorization of media by course and field of study. Professors will be able to publish their syllabi, notes, and handouts in one place. Students, for example, will have the opportunity to be rewarded for their creativity by facilitating buying and selling of media. Users will have the ability to collect their favorite posts into different categories, including but not limited to courses.


Team 7 developed GaterTrader as part of the computer science major's capstone course, Software Engineering (CSC648-848) with Professor Dragutin Petkovic. We are a diverse team of software engineers striving to make our "dent in the universe," beginning with San Francisco State University. Our team is made up of members from Asia, Europe, Latin America, and California, including our local San Francisco Bay Area.

Personas and Use Cases

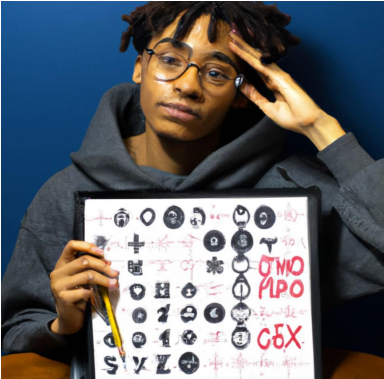
1. Where to look

Persona 1: Student (Fiona)	Goals and Scenario:
 <p>Hectic schedule</p> <p>Many projects</p> <p>Doesn't have a high paying job</p> <p>Helps tutor 4th graders part time</p> <p>Technically Savvy</p> <p>Enjoys browsing social media sites</p>	<p>Has a presentation using PowerPoint and doesn't know where to look online for photos and eBooks for reference. Every site Fiona encounters is too expensive, or doesn't provide free use resources.</p> <p>Fiona has heard that stock photos are available online and searches for a practical site. Fiona hopes to find reasonably priced school resources for the presentation.</p>

2. Where to upload

Persona 2: Faculty (Frank)	Goals and Scenario:
<div data-bbox="305 470 686 846"></div> <p data-bbox="427 890 574 926">Family of 3</p> <p data-bbox="282 966 751 1001">Enjoys relaxing to favorite podcast</p> <p data-bbox="326 1041 719 1077">Many students to account for</p> <p data-bbox="331 1117 704 1152">Technologically resourceful</p> <p data-bbox="341 1192 693 1297">Class requires students to download online textbook resources</p>	<p data-bbox="956 617 1377 722">Wishes to upload course books to a site where students can download.</p> <p data-bbox="956 764 1364 911">Believes it is less demanding for students if course books and media are available in the same place.</p> <p data-bbox="950 953 1370 1058">Wants students to learn the required material and have the capability to share.</p>

3. Building the System

Persona 3: System Admin (Liam)	Goals and Scenario:
<div data-bbox="305 543 686 919"></div> <p data-bbox="305 961 716 999">Was a student TA at Ohio State</p> <p data-bbox="396 1045 623 1083">Avid blog reader</p> <p data-bbox="277 1129 743 1167">People person and family oriented</p> <p data-bbox="321 1213 699 1289">Moderate Coding skills with database experience</p> <p data-bbox="284 1335 737 1373">Enjoys solving crossword puzzles</p>	<p data-bbox="963 688 1455 802">Liam wants to assist in creating an app where students can find various sources of media.</p> <p data-bbox="979 840 1438 915">Believes online content to be very useful.</p> <p data-bbox="979 953 1438 1066">Wants to help with the technical design and planning of the system infrastructure</p> <p data-bbox="995 1104 1422 1180">Hopes student will use the site regularly with little to no issues</p>

Use Cases

1. Searching

Fiona, a hard working student, decides to use Team 7's Web application in order to acquire stock photos for their class project. As the site provides inexpensive media, Fiona uses the site to find media and discovers it is easy to locate based on course classification. Fiona, unsure if the digital media is usable for the class project, proceeds to read the description. Fiona then decides to send a message to the owner of the media.

2. Posting

Frank uses the night time to find a site where course content can be uploaded for students to use. Stumbling across a link in discord, a digital media distribution site run by SFSU students appears to provide a solution. Excited about this discovery, Frank locates the post section of the webpage and decides to upload the class books and digital resources.

3. Admin

Liam, with some spare time, walks into an open classroom and checks the pending posts. Liam notices that many posts have been made overnight and are awaiting approval. Tasked with content organization, Liam's goal is to ensure everything posted is safe for all students, and put into the right category. After covering all the bases, Liam proceeds to approve the posts.

4. Checking on Product

While Liam was browsing through the posts that are pending for arrival, he sees a post that has potential to be copyrighted material. With the team 7's best interests in mind, Liam denies the post and prevents any illegal recourse. Liam decides to deny any postings that has any potential to put the company in jeopardy.

Data Glossary

This section provides a list and a definition of the main entities in our system at a high logical level. The purpose of this section is to offer an early high-logical level design for the database. It also provides a specific set of names that can be referred to and used by variables, methods and the database itself.

Users:

- **unregistered-users:** they shall be able to browse the posts' content, search for specific content, view posts made by registered-users, and draft messages before sending them.
- **registered-users:** they shall do all the things that unregistered-users do plus post multimedia documents and send messages to other registered_users.
- **admin:** they shall be required to approve/disapprove the content of a post, they shall ban registered-users for violation of the webapp content policy.

Data Entities:

- **posts:** these entities are created by registered-users and they are visible to all users. They have an author, a title, a description, a creation date and time, multimedia content, a thumbnail, associated category, and tags.
- **messages:** these entities represent text messages sent by registered-users to other registered-users in relation to a specific post, they have an author, a text content, a receiver, a creation date and time, and a post affiliation.
- **categories:** these entities constitute the set of possible categories that each post can be associated with, they are going to be used in the search bar and in the posting page as a list to be chosen from when you search a post or when you post multimedia content..

Functional Requirements

1. The site shall allow SFSU students and faculty to post items for sale or for free use and get contact messages from interested buyers.
2. The site shall allow users to search and browse items for sale, and contact the seller via messaging.
3. The site shall allow users to download or access in some way the material in full resolution upon agreeing on terms. Free media shall be downloadable in full resolution directly, and media for selling shall be obtained in full resolution only after contacting the seller/owner.
4. The site shall also have an administrator who will be required to approve each media item before it can go live in order to verify that it conforms to SFSU rules on digital media and other common ethical rules, as well as to delete inappropriate items or users.
5. Due to site security issues and limitation of cloud servers where the application shall be developed and deployed, messaging between sellers and buyers shall be done via in-site messaging.
6. To verify that the person who is registering is affiliated with SFSU, it shall only be required to verify that e-mail suffix has the string "sfsu.edu" at the end – no PW activation via email nor access to SFSU database to verify real emails shall be required nor allowed
7. Some unique functions to make our site stand out from others, including categorization by courses and user-created collections.

Non-functional 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 must 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 should follow established architecture patterns.
10. Application code and its repository shall be easy to inspect and maintain.
11. Google analytics shall be used.
12. No email clients 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.
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 practices shall be used as specified in the class, including collaborative and continuous SW development.
17. The application UI (WWW and mobile) shall prominently display the following exact text on all pages *"SFSU Software Engineering Project CSC 648-848, Fall 2022. For Demonstration Only"* at the top of the WWW page nav bar. (Important so as to not confuse this with a real application).

Competitive Analysis

Sites	Adobe Stock	Pexels	Unsplash	Team 7
Features				
Download free	++	+	+	+
Buy on Demand	+	-	-	+
Filter By	+	-	+	+
Search	+	+	+	+
Favorites	+	+	+	+
Preview	+	+	+	+
In-app Chat	-	-	-	+
Register/ Log-in	+	+	+	+
Variety of Media Types	-	-	-	++
Tentative: Can create collections	+	+	+	+
Search by classes	-	-	-	+

++: Included with trial

- : not included

+ : included

++ : excellent

Team 7's project aims to incorporate the main features of sites such as Adobe Stock, Pexels, and Unsplash. Each of these media distribution organizations hold their own competitive advantage. Unsplash provides free services, where Adobe Stock allows free downloads after accepting the trial and optional licensing rights upon purchase. Each of the sites provide the ability for users to input text into the search bar and find images and videos. Previewing media is available across all competitor sites. Team 7's project is for SFSU students and faculty, and we will provide users with the ability to contact the provider/author of the digital media they wish to acquire. This not only guarantees

customer satisfaction, this also allows users (students) to inquire and potentially bargain for reasonable pricing. Upon analysis, this unique feature separates Team 7's application from the competition and grants SFSU users manageable communication with digital media providers. Another feature our application aims to provide users is the ability to access various forms of media. In comparison to the other competitors, they offer solely access and downloads to digital art and photos. This further encourages students to access our site over the competitors in attempts to discover useful content.

High-level System Architecture

- Server:
 - Amazon EC2 (free software tier)
 - AWS Cloud
 - T2.micro
 - 1 vCPU
 - 1GiB Memory
- Operating System:
 - Ubuntu Server 22.04 LTS (HVM), SSD Volume Type
- Database: MySQL v8.0
- Server-Side Language: JavaScript
- Other tools/tech:
 - Handlebars
 - Node.JS
 - Express.JS
 - Google Analytics
- IDE:
 - Visual Studio Code
 - (alternative: JetBrains WebStorm)

Team and Roles

Name	Role	Email
Gineton Alencar	Team Lead	galencar@mail.sfsu.edu
Eddie Fu	Front-end Lead	efu1@sfsu.edu
Duccio Rocca	Back-end Lead	drocca@sfsu.edu
Yoshimasa Iwano	GitHub Master, Engineer	yiwano@sfsu.edu
Dominique Henry	Document Master, Engineer	dhenry3@mail.sfsu.edu
Rai'd S. Muhammad	Software Engineer	rmuhammad@mail.sfsu.edu
Kobe D. Shelby	Software Engineer	kshelby@mail.sfsu.edu

Checklist

Item	Status
So far all team members are engaged and attending ZOOM sessions when required	OK
Team found a time slot to meet outside of the class	Done/On track: meetings alternating on Tuesdays and Fridays due to scheduling conflicts.
Back end, Front end leads and Github master chosen	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/OK
Team lead ensured that all team members read the final M1 and agree/understand it before submission	Done
Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	Done