

SW Engineering CSC648/848 Fall 2022

GatorExchange

(WWW site for Buy/Sell/Share of Digital media exclusively for SFSU students and faculty)

Team 4

Mahisha Patel: mpatel17@mail.sfsu.edu (Team Lead)

Sudhanshu Kulkarni (GitHub Master)

Sophia Chu (Front End Lead)

Jerry Liu (Back End Lead)

Ekarat Buddharuksa

Ruben Ponce

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1. Executive Summary

Nowadays, in a digital era, we are well aware that most communication and collaboration occur through digital devices and primarily through media, whether formal or informal interaction. This inflated the existence and the use of digital media like digital photos, videos, audio, soft copy of documents, etc. As students, we empathize with how difficult it is for us to search for the relevant documents and files for our projects, assignments, presentations, and self-study. Not only for students, but sometimes the professors, instructors, and teaching assistants also require some document or file related to their subject. Searching for the required and relevant files from the whopping internet is a time-consuming and tiresome process, especially when we have to work with an approaching deadline; locating the supporting material is more burdensome than completing the work. So, we came up with the idea of building a platform called "GatorExchange" that provides an easy-to-share, sell, and buy interface for exchanging digital media among SFSU students and staff members.

GatorExchange enables the students and staff members of the university to look around for digital materials related to their interests without any login and sign-up process. It also allows them to upload their original media like handwritten notes, presentation, supplementary textbooks, musical sequence, etc. Moreover, these media can be shared freely or posted to sell. It works two ways, i.e., one can get an appreciation for their efforts, and the other can easily access the material either free of cost or with nominal pay. As our project is exclusive to SFSU, it allows searching from limited and most relevant materials posted by someone from the same community rather than futile efforts to explore the entire internet.

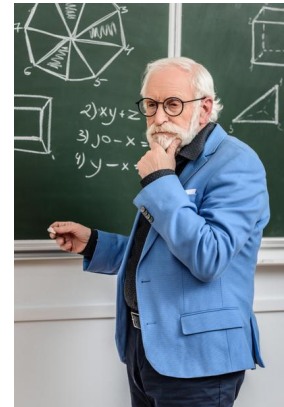
We, as a team, are a group of students from Computer Science and Business major. Our vision is to build an interface that connects people with similar interests, hobbies, or majors to sell, buy and share digital media among SFSU. Also, we aim to design this application to be very user-friendly, enabling the people from SFSU to access the digital content easily.

2. Personae and main Use cases

PERSONAES:

2.1. Bob (A Professor at SFSU)

- About Bob:
 - Very Busy
 - Wants a place to put media used in class
 - Not patient with technology
 - Has very Basic Internet skills
 - Prefers to use a computer; dislike using mobile apps
 - Has trouble seeing small text
 - Prefers reading and looking at diagrams instead of watching videos
- Goals and Scenario: Decides to start posting his slides online for any student to use and look up even if they are not in his course currently.



[Image Link \(1\)](#)

2.2. Jane (A Student at SFSU)

- About Jane:
 - Unemployed
 - Produces music in her free time
 - Able to use the Internet with no problem
 - Prefers mobile
 - Enjoys listening to music
 - Wants to sell her music
- Goals and Scenario: Decides to post some of her music. She wants a place to sell music to fellow SFSU students to make extra money and gain a following.



[Image Link \(2\)](#)

2.3. Josh (A Student at SFSU)

- About Josh:
 - Works part-time
 - Biology major
 - Enjoys photography
 - Interests include exploring different kinds of plants and flowers
 - Sufficient computer skills
 - Enjoys exploring different kinds of photographs online
 - Wants to sell his photographs
- Goals and Scenario: Josh is Biology major at SFSU. He wants to earn some extra cash from his photography hobby. Josh needs a marketplace to sell his photographs online to interested buyers. He also wants to view and buy photographs and images of plants and flowers.



[Image Link \(3\)](#)

2.4. Ellie (A Teacher Assistant at SFSU)

- About:
 - Helping teacher
 - Busy (Works, TA, and Student)
 - Has no Preference between mobile and desktop
 - Skilled with WWW
 - Very patient
 - Color Blind
 - Enjoys browsing through music and videos of his interests
- Goals and Scenario:
 - Ellie is a teacher assistant for a Physics Professor at SFSU. The professor tasked her to find different videos, images, etc., for his course. Ellie wants to quickly find these as she does not have time.



[Image Link \(4\)](#)

USE CASES:

1. **(post) BOB: Bob**, a CS professor at SFSU and an **unregistered user**, **previews** the website, decides to **register**, and goes through that process. He then wants to **post** slides

from his class. When posting, he then gives his **post** a tag to his class, subject, and type of media.

2. **(post/prompt to register) Jane:** Jane, an unemployed student at SFSU and **unregistered user**, she then goes and tries to **post** her music. She goes through the process of creating a **post**. When trying to **post**, she is then prompted to **register**, goes through the **registration** process, and is finally able to **post** her music with **post tags** and make it **sell**.
3. **(post/search/buy) Josh:** Josh, a Biology major at SFSU, is a **registered** user who decides to **post** photographs and makes them be able to be **sold**. He then uses the **search** to find other photographs that have been posted by other **registered** users. He then finds a post he likes and decides to **buy** it. He then **rates** the post he bought.
4. **(search/bookmark) Ellie:** Ellie, a teacher assistant at SFSU, decides to use the **search** and **filters** the search to narrow the field. She then **previews** the results as an **unregistered user**. She then finds some media her teacher needs and goes through the process of getting the media. This prompts her to **register** to get the media. Now that she is a **registered user**, she finds some media she **bookmarks** to show the professor later.

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

3.1. User:

The user can be of 3 types, as listed below.

- Admin: Admin can approve the post of the registered user to be displayed on the web.
- Registered user: Registered users can buy, sell and share the media.
- Guest user: Guest users can search but must register to buy, sell or share the media.

3.2. Media:

The media can be of multiple types as shown below:

- Audio
- Video
- Image
- Document
- These media items can be bought, sold, or shared exclusively with the people of SFSU.

3.3. Tags/Categories:

The tags can be attached to each post, making it easier for the user to search.

- Lecture Notes
- Presentation

- Lecture Recording
- Music
- Poetry
- Art
- Computer Science
- Philosophy
- Sports
- Photography
- Travel
- Gaming
- Food
- Technology

3.4. Transaction:

The transaction records all the buying and selling information. The registered user can only perform the transactional action.

- Buyer
- Seller
- Price
- Status

4. The initial list of functional requirements

4.1. **Unregistered users-** Unregistered users can access the website to browse through the contents. Unregistered users can only view and search for posts. They can create a post but before posting it onto the website, they are prompted to create an account before other users can see their content.

4.1.1. Search

4.1.1.1. **Search by tags-** allows users to search the content by using the specific tag

4.1.2. **Preview-** allow unregistered users to see the preview of the media.

4.1.3. **Create a post-** allow the unregistered user to create post but is required to register before posting onto the website

4.1.3.1. Upload files to the post

4.1.3.2. Insert Title and Body Text

- 4.1.4. **Register for account-** Allow unregistered users to make a registration to the website.
- 4.2. **Registered user-** Unregistered users can become registered users after registering. They can perform all functions from unregistered users. They are permitted to create and post their content. Registered users looking to sell their posts must go through a short process to post their content. After creating and submitting a post, an administrator can view the post privately and then approve it before other users can see the post.
 - 4.2.1. **All functions from Unregistered User**
 - 4.2.2. **Post-** Registered user is able to upload media for other unregistered/registered users to preview and later buy, rate, download, etc.
 - 4.2.3. **Sell-** Allow registered user to create the post to sell the media content, needed to be approved by admin
 - 4.2.4. **Buy-** allow registered users to buy the media content posted by the seller.
 - 4.2.5. **Bookmark-** allows registered users to save a post to be seen later
 - 4.2.6. **Rate post-** allows a registered user to rate the post after buying the media content
 - 4.2.7. **Notification-** notifies users when a buyer is interested in purchasing their file and when followed users created a new post
 - 4.2.8. **Download Purchased Content-** allow the buyer of the media content to download the purchased media content.
 - 4.2.9. **Follow-** Users can follow other users to get notified when they have a new post
- 4.3. **Administrator-** Administrators can perform all functions from Registered users. They also have the power to view posts created by a seller and then approve or disapprove it. They also can ban users for misconduct or unban them if there was a mistake.
 - 4.3.1. **All Functions from Registered User**
 - 4.3.2. **Approve Seller's post-** This function will allow the admin to approve the post and it will show and be able to sell on the website.
 - 4.3.3. **Delete Post-** allow admin to delete illegal posts.

- 4.3.4. **Ban/Unban Registered User-** This function will enable the administrator to ban the user that attempts to post illegal media on the website.- optional
 - 4.3.5. **Analytics-** Statistics for the entire application show the overall users, interactive users, no. of posts, and trending posts and users.
 - 4.4. **Media Files-** Media files are stored that are posted and shared for all the application users to use, either free or paid.
 - 4.4.1. Images for sale are **automatically watermarked**
 - 4.4.2. Audio and Video files for sale are **automatically trimmed for preview**
 - 4.4.3. **Publicly shared files** are viewed with **no watermark and full duration**
 - 4.5. **Registration record-** Registration will contain details like email, name, and encrypted password.
 - 4.5.1. **Encrypting password-** After the user makes a registration, the password is automatically encrypted, providing security.
 - 4.5.2. **SFSU email checking-** This will check if the email used to make registration is an SFSU email. We only allow SFSU members to make a registration on our website.
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5. List of non-functional requirements

- 5.1. The application shall be developed, tested, and deployed using tools and servers approved by Class CTO and as agreed in M0
- 5.2. 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
- 5.3. All or selected application functions must render well on mobile devices
- 5.4. Data shall be stored in the database on the team's deployment server.
- 5.5. No more than 50 concurrent users shall access the application at any time
- 5.6. Privacy of users shall be protected
- 5.7. The language used shall be English (no localization needed)

- 5.8. The application shall be straightforward to use and intuitive
 - 5.9. The application should follow established architecture patterns
 - 5.10. Application code and its repository shall be easy to inspect and maintain
 - 5.11. Google Analytics shall be used
 - 5.12. No email 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
 - 5.13. Pay functionality, if any (e.g., paying for goods and services), shall not be implemented nor simulated in UI.
 - 5.14. Site security: basic best practices shall be applied (as covered in the class) for main data items
 - 5.15. Media formats shall be standard as used in the market today
 - 5.16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
 - 5.17. 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 to not confuse this with a real application).
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6. Competitive analysis

Feature	Pexels	YouTube	Fiverr	GatorExchange
Text Search	+	+	+	+
Media Marketplace	+	-	++	++
Media Share	-	+	-	++
Preview Media	+	+	-	+
SFSU Exclusivity	-	-	-	++

Tag Media Based on Community Groups	-	-	-	++
Buy and Sell Media	+	-	+	++

GatorExchange shall bridge the gap between a media marketplace and a media sharing website. By being exclusive to SFSU students and faculty, our product aims to forge new communities through the sharing of various forms of media, as well as give SFSU content creators a space to build a foundation of support by way of personalized shops. We shall further magnify this aspect by allowing users to tag and search for media by community groups (school subject/class). This shall create connections among users with similar interests along with users in similar fields of study.

7. High-level system architecture and technologies used

Server Host: AWS EC2

OS: Ubuntu 18.04

Database: MySQL 8.0

Web Server: Nginx 1.22.0

Server-side Language: Python

Additional Technologies

- Web Framework: Flask, React, Node, React Native
 - IDE: VS Code/PyCharm
 - Web Analytics: Google Analytics
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8. Team and roles

Team Lead:	Mahisha Patel
Frontend Lead:	Sophia Chu
Frontend Team Members:	Mahisha Patel, Ruben Ponce
Backend Lead:	Jerry Liu
Backend Team Members:	Sudhanshu Kulkarni, Ekarat Buddharksa
Database Master:	Sudhanshu Kulkarni
GitHub Master:	Sudhanshu Kulkarni
Document Editor:	Ruben Ponce

9. Checklist

- So far, all team members are engaged and attending ZOOM sessions when required
 - **DONE**
- Team found a time slot to meet outside of the class
 - **DONE**
- 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**
- 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, a folder for milestone documents, etc.)
 - **DONE**