
SW Engineering

CSC648/848 Spring

2022

Team 01

Gator Xchange

Team Lead

Drashti Pareshkumar Shah
dshah5@mail.sfsu.edu

Back End Lead

Thomas Duc Nguyen
tnguyen135@mail.sfsu.edu

Front End Lead

Mary Nicole Tangog
mtangog@mail.sfsu.edu

Github Master

Wilfredo Joel Aceytuno Jolon
waceytun@mail.sfsu.edu

Team Members

Micheas G Gebere
mgebere@mail.sfsu.edu

Javier Guintu Marquez

jmarquez21@mail.sfsu.edu

Milestone 2

Submitted	Revised
20 March 2022	

Table of Contents

1. Executive Summary:	3
2. Main data items/entities:	4
3. Functional Requirements - prioritized	5
4. UI Storyboards:	7
5. High level Architecture, Database Organization summary only	18
6. Identify actual key risks for your project at this time	21
7. Project management	22

1. Executive Summary:

In a world where virtual marketplaces and online shopping is prolific, the existence of a platform solely for SFSU students, faculty, and staff is absent. Imagine a convenient method in order to facilitate the purchases and selling goods at affordable prices amongst the SFSU community. With the courtesy of safety being one of our top concerns and priorities, our startup, Gator Xchange provides the solution to this problem as a host for SFSU's online marketplace. Thus, providing users a seamless eXchange, and a safe environment while shopping & selling within the SFSU community.

Our users will consist of verified SFSU members, such as students, staff and faculty, so a sense of trust lies between each party to prevent unethical transactions such as fraud and scams. Our user interface provides a convenience function to browse through categories of products, register an account, login, create a product listing, and has an option to share seller's contact information. We provide users an option to search for any specific item in the database which includes a function to browse through the item listings based on keywords and filter options. Just like a middle man, our app connects the buyers and sellers where they can organize a safe location to meet and pick up at SFSU using the map functionality. This creates a personalized and convenient eXchange for our users, with ease and familiarity of the pick up location. We emphasize the importance of personal safety for our users to eXchange a safe and smooth transaction. The Gator eXchange provides users with the option to choose their own pick-up locations on SFSU campus from the list of safe places provided. The list contains pick-up spots that are well-lit, populated areas of campus to ensure personal safety between buyers and sellers. We provide a consistent user eXchange through a blend of sleek, minimalistic design combined with fast and responsive performance. Our product's advantages over our competitors is our focus on affordable prices, local trade, and personal safety. We believe that trust and camaraderie will allow our local gator community to thrive.

Our startup team consists of six students, where we use our skills and background to create a true gator eXchange for our SFSU academic community.

Our team incorporates an agile methodology during development so we can reiterate our website and continue to listen to our user's pain points. We hope you join us in our journey in creating the foundation for a growing community within SFSU that current and future generations of gators will love and build upon.

2. Main data items/entities:

- Guest users - Read permission - can only view and search for public listings and advertisements. Does not need to login or register.
- Registered users - Read and write permission - only available to SFSU students, verified by the school email id, can access and post listings explicitly approved by the admin. Will need to login/register.
- Site administrator - Read, write, execute permission - can access all data and content and modify the database. Needs to login/register
- Product listing - A product for sale or up for exchange; approved by the admin
- Login: SFSU email, password, login button.
- Cart: list of items, add/remove, checkout button
- Item - name, description, price, photo, keywords, number of items, contact information of the seller.
 - Subtypes of items: books, electronics, SFSU merch, stationary(school supplies)
- Pickup Option - can be accessed only by a registered user to choose a safe pickup location at SFSU.

3. Functional Requirements - prioritized

Priority 1

Guest user -

The system's registration form shall require users to register with their name, SFSU email, school ID, password, address and optionally phone number and is stored in the database.

Registered user -

Users registering for an account shall fill out a registration form.

Registered users shall be able to create their own product listing.

Admin-

The site administrator shall have the ability to approve all user generated product listings.

Registered and guest users -

Registered and guest users shall be able to view all the products listed on the website.

Registered and guest users shall be able to search for a product.

Priority 2

Guest user -

Guest users shall only be able to view product listings.

Guest users shall be prompted to register for an account at the start of the product listing submission process.

Registered user -

Every registered user's account ID shall be their SFSU ID (Prevent situations where users with the same first and last name cannot both have their own account. E.g. a past user is no longer at SFSU anymore and a new user with the same first/last name cannot create their own account).. Registered users shall be able to contact the product's seller.

Registered users shall be able to choose a safe pickup location at SFSU.

Registered users who created a product listing shall have the capability to delete it.

Registered and guest users shall be required to login with their registered account id and password.

Admin -

The site administrator shall have the ability to delete the user generated product listings.

The site administrator shall have the ability to view user generated product listings.

Registered and guest users -

Every product listing shall have an image(s).

Every product listing shall have a title.

Every product listing shall have a category.

Every product listing shall have a price.

Every product listing shall have a description.

Priority 3

Registered user -

Registered and guest users shall be able to search for a product and filter by title or category.

Registered and guest users shall be able to search for a product and filter by price.

Registered users shall be able to edit any of their product listings after submission.

Registered users shall be able to view all current and past product listings they've created.

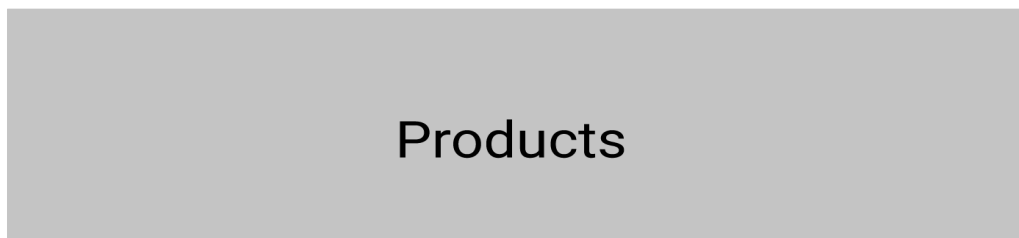
4. UI Storyboards:

<https://www.figma.com/file/lGvMnqeNPcf8sLHQ5LjIQN/M02%3AUI-Storyboard?node-id=0%3A1>

2.1 Claire: unregistered user trying to post an ad.

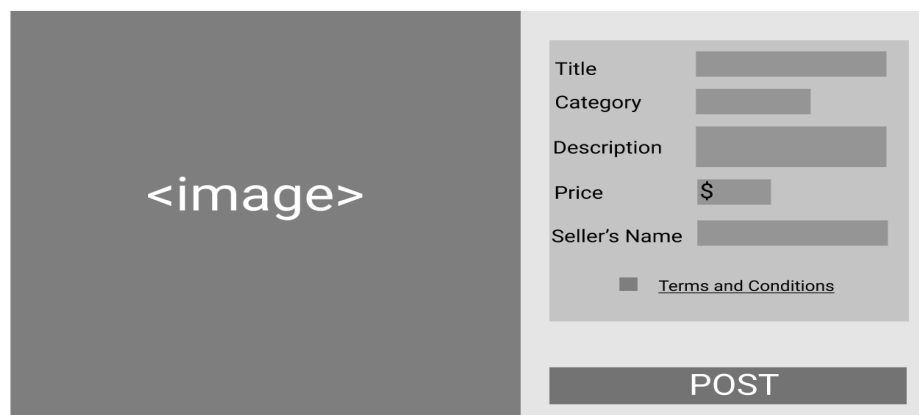
Claire visits the homepage of Gator Xchange in order to sell her laptop.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

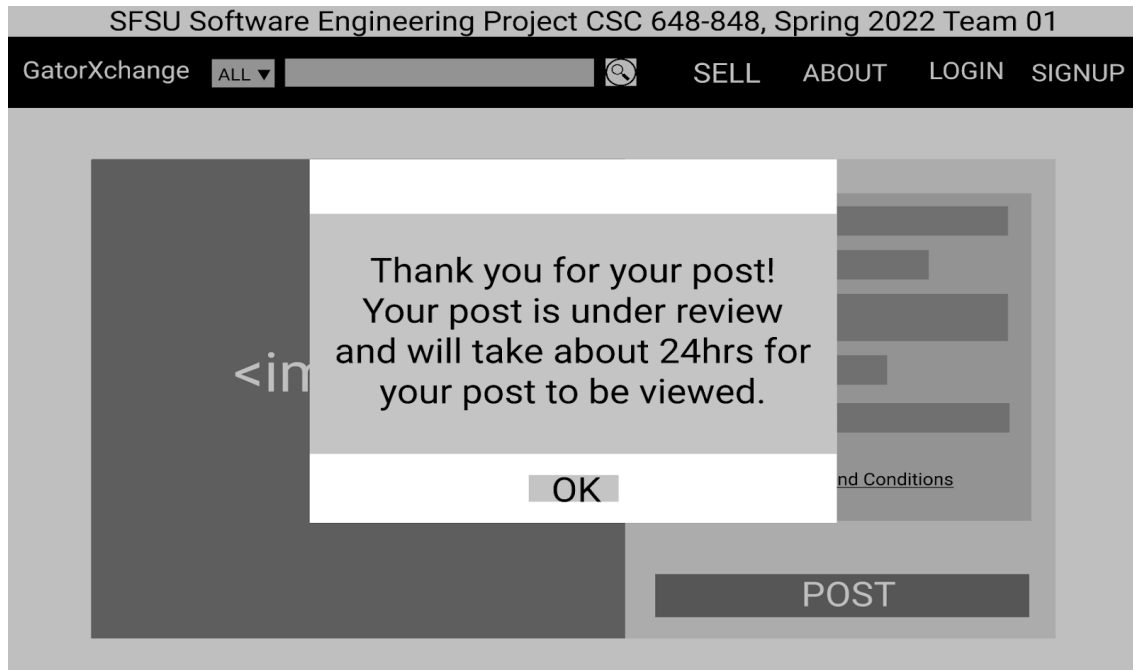


Claire went ahead and clicked on “Sell” and was redirected to the sell page. As she uploads the images of the laptop and adds all the necessary information, she is also required to check off the “terms and condition” which also requires sellers to meet with buyers on specific approved locations on SFSU campus. Then she went ahead and clicked “Post.”

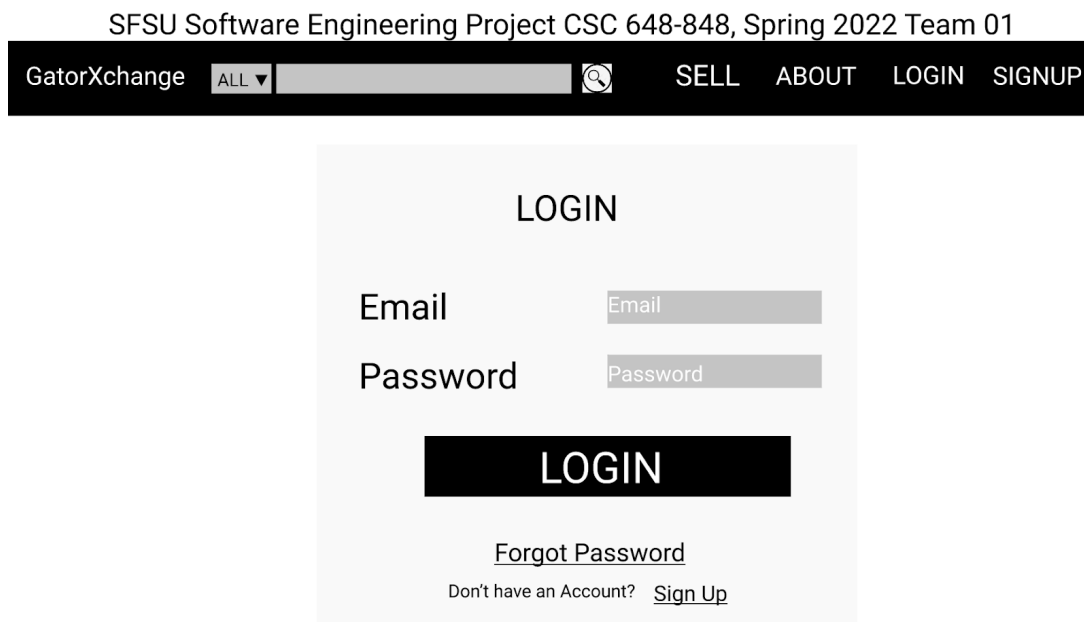
SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

A UI storyboard for the "Sell" page. On the left is a large gray rectangle with the text "<image>" in white, representing a placeholder for a product image. To the right is a light gray form container. Inside the form, there are labels and input fields for "Title", "Category", "Description", "Price" (with a "\$" symbol), and "Seller's Name". Below these fields is a checkbox labeled "Terms and Conditions". At the bottom of the form is a dark gray button with the word "POST" in white capital letters.

After clicking “Post,” Claire is notified that her post is under review and will take about 24 hours for it to be reviewed and approved by the admin before other users will be able to view her listing.



After clicking “OK,” Claire is redirected to login as she is not currently logged in.



Claire is a SFSU student, but is not registered yet, so she fills in all required information and signs up.

Sign Up

First Name	<input type="text" value="First Name"/>
Last Name	<input type="text" value="Last Name"/>
Email	<input type="text" value="Email"/>
SFSU ID	<input type="text" value="SFSU ID"/>
Password	<input type="password" value="Password"/>

☐ [Terms and Conditions](#)

SIGN UP

[Forgot Password](#)

Already have an Account? [Login](#)

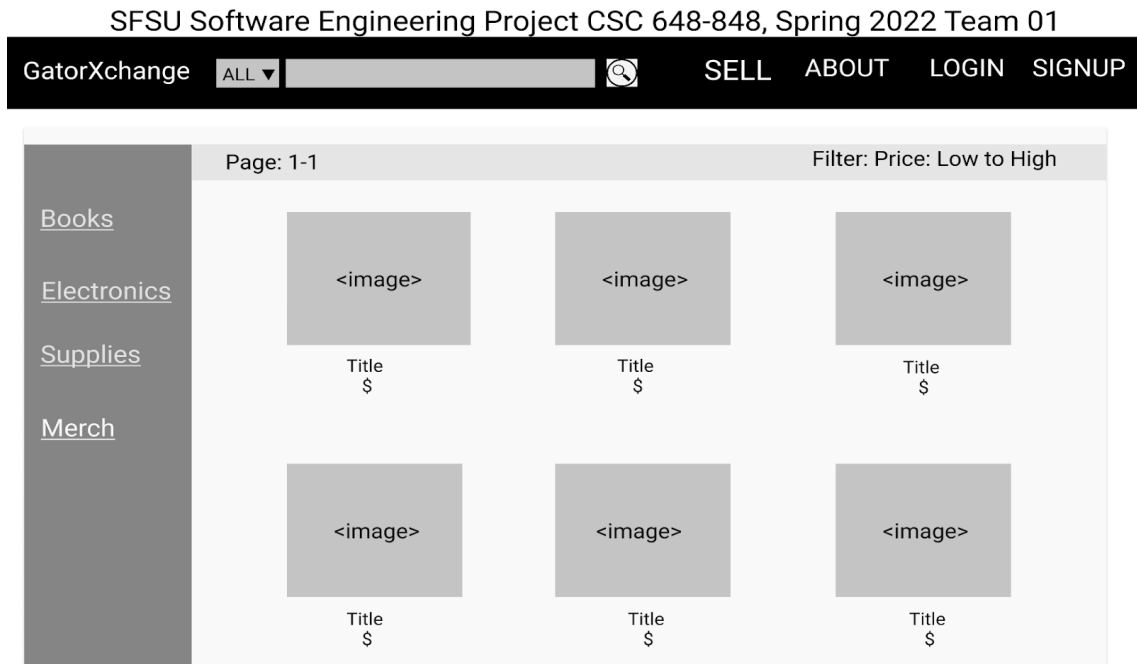
2.2. John: the Student Athlete

John visits GatorXchange to purchase an affordable gym bag. He already has an account, so he visits the login page and enters his email and password. Then he searches “gym bag” on the search box located on the navigation bar.

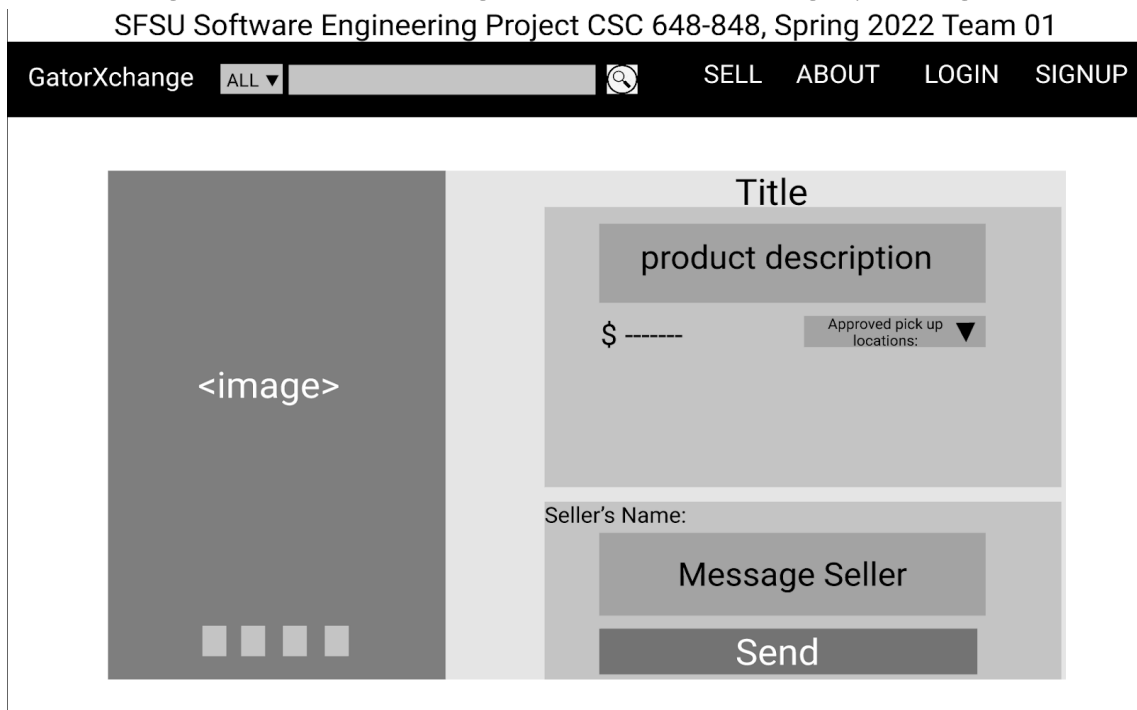
SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

Products

John filters the price “low to high” to easily find a gym bag based on his budget.



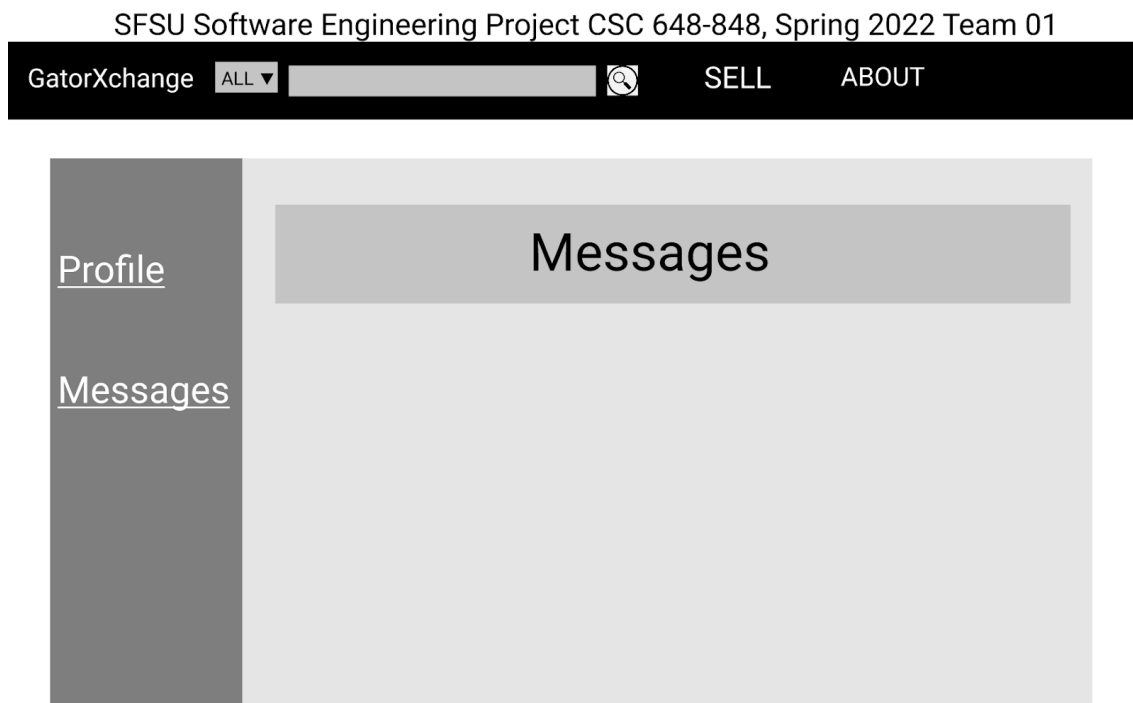
Once he finds the item that he is interested in, he clicks on the image and is sent to the product page. There is also a drop down menu that allows him to choose one of the approved locations on SFSU campus to make it easier and safer for him to do the transaction. He is able to message the seller on the message box and sends his message by clicking “Send.”



Once John sends his a message to the seller, a pop up message will let him know that his message has been sent.



Once John is in contact with the seller, he is able to communicate more about the transaction and confirm the pick up location.



2.3 Alia: international student

GatorXchange made it safer and easier for even international students to purchase textbooks and other products. Alia searches for a used textbook that she needs for one of her classes and chooses a pick up location where she can meet the seller.

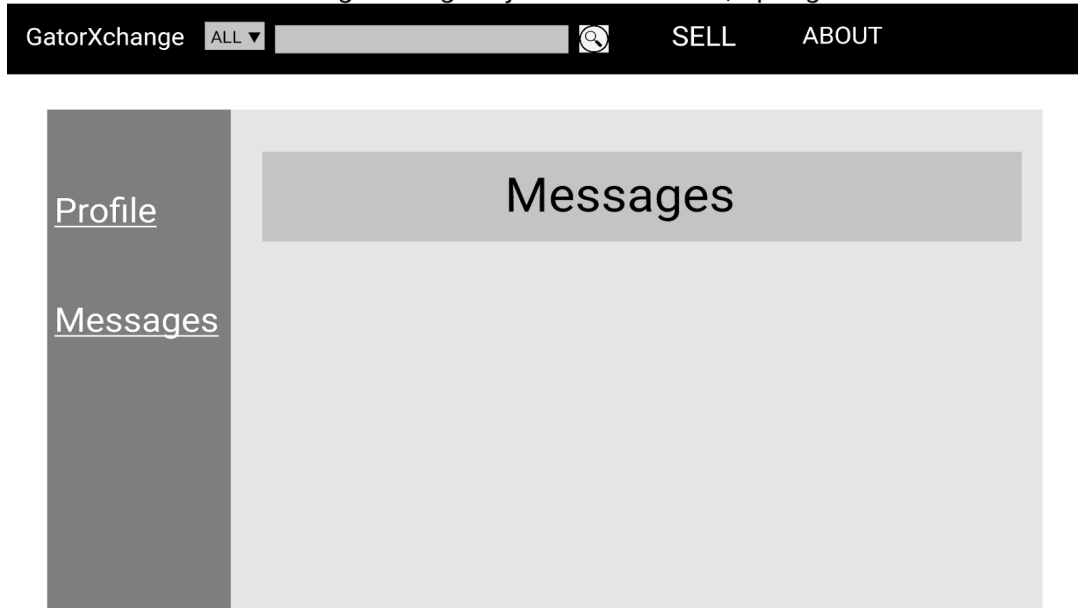


After choosing a pick up location she messages the seller that she's interested in purchasing their listed book.



A few minutes later, the seller responds to her message which is found on the dashboard and both agree to meet on the chosen location from the approved list.

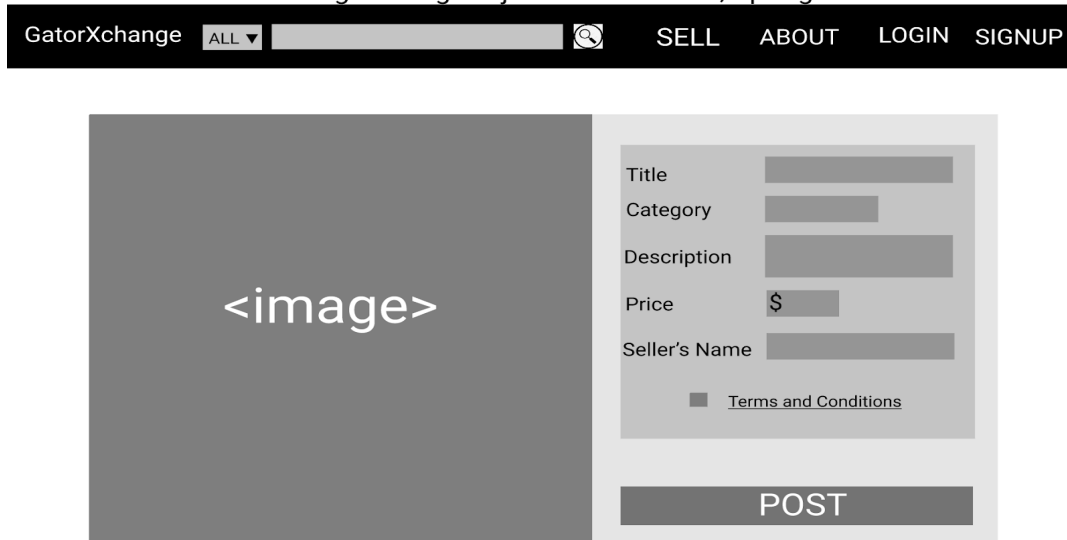
SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01



2.4 Liam: Liam, the Senior

Liam wants to quickly sell his old textbooks so he decided to post them on GatorXchange as he already has an account. He goes to the “sell” page and adds the information. He also checks out the terms and conditions which states that, as a seller, they are only allowed to meet with the buyer at an approved pick up location.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01



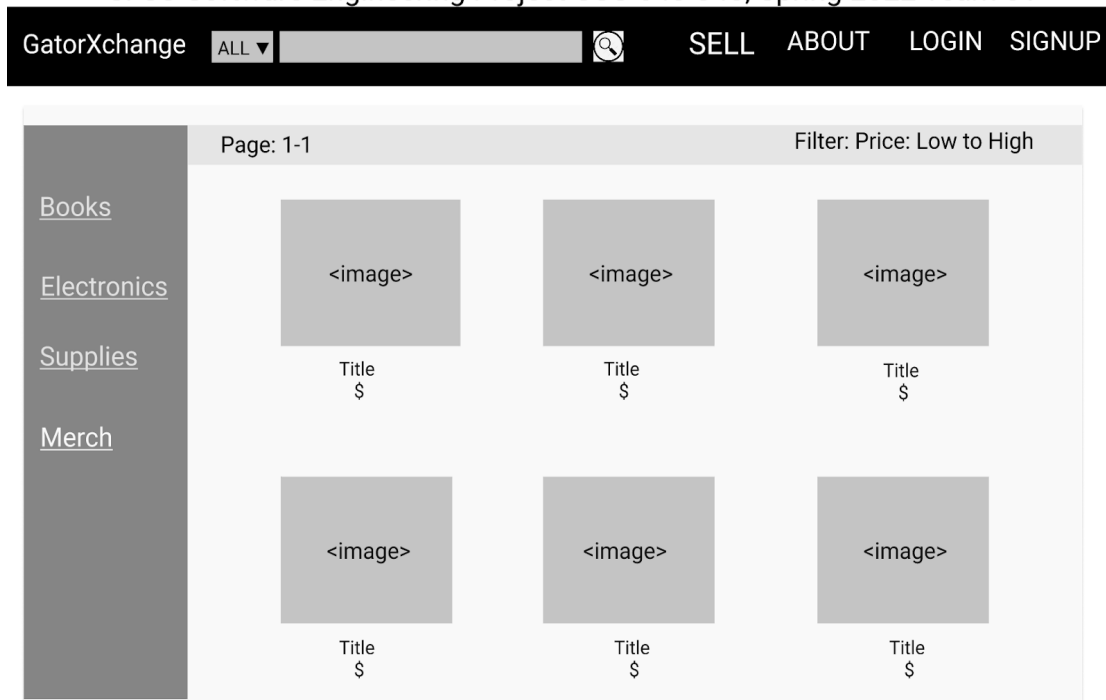
Once Liam clicks post, he is then informed that his post is under review and will take about 24 hours before it'll be available on the product listing.



2.5 Elizabeth: Faculty: Elizabeth, the Assistant Professor of Electrical Engineering


Elizabeth is looking for a phone charger that she can purchase while on campus and visits the GatorXchange. She already has an account, so she logs in and checks out the product listing. Elizabeth filters the products by clicking on the electronics category on the left.


SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01



Elizabeth checks out different charger listings and reads the product descriptions to make sure that the charger is compatible with her cellphone.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01


GatorXchange ALL  SELL ABOUT LOGIN SIGNUP



Title

product description

\$

Approved pick up locations: 

Seller's Name:


Message Seller

Send

2.6 Henry: A SFSU Admin

Henry registers to GatorXchange as he wanted to sell things that he knows the students, staffs, and faculty will need.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

GatorXchange ALL  SELL ABOUT LOGIN SIGNUP

Sign Up

First Name

Last Name

Email

SFSU ID

Password

☐ [Terms and Conditions](#)

SIGN UP

[Forgot Password](#)

Already have an Account? [Login](#)

Once registered and logged in, he explores the website. He checks out the dashboard and sees that buyers' messages will be found there.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

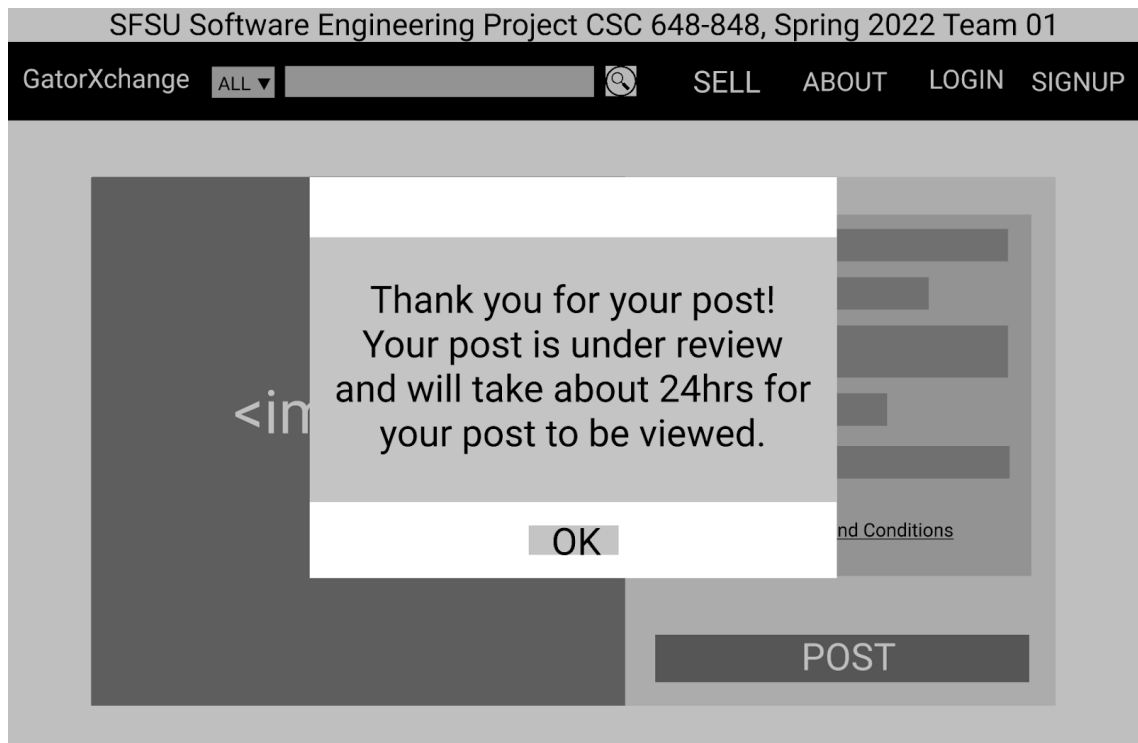


Henry then checks out the selling page in order to start posting things he can sell.

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

The form is divided into two main sections. On the left is a large dark gray square containing the text "<image>" in white. On the right is a light gray rectangular box containing a form. The form has five input fields: "Title", "Category", "Description", "Price" (with a dollar sign icon), and "Seller's Name". Below these fields is a checkbox labeled "Terms and Conditions". At the bottom of the light gray box is a dark gray button with the word "POST" in white capital letters.

Once he posted a new listing, he is notified that his post will be under review by the admin and will take some time before it's available on the product listing.



5. High level Architecture, Database Organization summary only

1. Database Organization

Table: Users

Columns:

1. Primary Key

- sfsu_id INT, Not Null, Unique

2. Attributes

- username VARCHAR(64), Not Null, Unique
- email VARCHAR(128), Not Null, Unique
- password VARCHAR(128), Not Null
- role TINYINT, Not Null
- Ex: admin (0), student (1), faculty (2), staff (3)

Table: Posts

Columns:

1. Primary Key

- post_id INT, Not Null, Unique, Auto Incremental

2. Attributes

- title VARCHAR(128), Not Null
- price INT, Not Null
- description VARCHAR(4096), Not Null
- photo_path VARCHAR(4096), Not Null
- thumbnail VARCHAR(4096), Not Null
- created DATETIME, Not Null
- active TINYINT, Not Null

3. Foreign Keys

- fk_sfsu_id INT, Not Null

Users and Posts Relationship:

Users || ---- |< Posts

- Users shall have one to many posts
- An individual post shall have one and only one user

Table: Categories

Columns:

1. Primary Key

- Category ENUM(books, electronics, clothes), Not Null

2. Foreign Keys

- fk_post_id INT, Not Null

Posts and Categories Relationship:

Posts || ---- || Categories

- A post shall have one and only one category

2. Media Storage

Keep images and optional videos/audio in the local file system or in DB blobs?

- Local file system is more simpler

3. Search/filter architecture and implementation

Use %like for search queries and filtering?

4. APIs

- /home
- /register
- /login
- posts/createPost
- posts/deletePost
- posts/search

5. Significant non-trivial algorithms (Like rating, ranking, automatic prioritizing of items etc) **OPTIONAL**

TBD

6. New/Changed Software Tools/Frameworks

- Bcrypt (Hash user's passwords in DB)

- Crypto (Use to create randomized image filenames in DB. Is now a built in node module. No need to install it anymore)
- Trello for project management

Notes:

Have 2 database servers: prodDB and devDB on deployment server

6. Identify *actual* key risks for your project at this time

Scheduling risks

- Less time to meet because of other classes and personal commitments

How to address:

- Check for everyone's availability
- Plan ahead
- Schedule 2 meetings ahead

Technical risks

- Difficulties with connecting local server with remote server.

How to address:

- Check in about progress made everyday.
- Assign duties and concrete deadlines to present it to group before it is actually due for the class.

7. Project management

- Using trello
- Assign tasks
- Questions, comments, feedbacks on Discord group chat

Our team has been using Discord, Trello and Zoom as our main ways of communication. We use Zoom for meetings after class and any additional meeting we have during the week. During our meetings the Team Lead assigns us tasks to complete before we meet again. In order to remember every task we have been using Trello. Trello is a work management tool that makes team collaboration easier. We add our tasks on Trello then mark them as complete once they are done. We use discord to organize meetings, ask any question, and share progress.