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	3 April 2022

Table of Contents

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 post, and has an option to share seller's contact information. We provide users an option to search for any specific post in the database which includes a function to browse through the posts 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 posts 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
- Login: SFSU email, password, login button.
- post - name, description, price, photo, keywords, number of posts, contact information of the seller.
  - Subtypes of posts: 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.
- Message - can be accessed only by a registered user to chat with the seller and lookup their messaging history

3. Functional Requirements - prioritized

List of Functional Requirements:

1. Guest users shall be prompted to register for an account at the start of the post submission process.
2. Guest users shall only be able to view posts.
3. The system's registration form shall require users to register with their name, SFSU email, school ID, password, address and optionally phone number which will be stored in the database.
4. Users registering for an account shall fill out a registration form.
5. Registered users shall be able to create their own post.
6. Registered users shall be able to edit any of their posts after submission.
7. Registered users shall be able to view all current and past posts they've created.
8. Only registered users shall be able to contact the product's seller.
9. Registered users shall be able to choose a safe pickup location at SFSU.
10. The site administrator shall have the ability to view user generated posts.
11. The site administrator shall be required to approve all user generated posts and shall have the ability to remove bad contents and users.
12. Registered and guest users shall be able to view all the products listed on the website.
13. Registered and guest users shall be able to search for a product.
14. 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).
15. Registered users who created a post shall have the capability to delete it.
16. Registered and guest users shall be required to login with their registered account id and password.
17. The site administrator shall have the ability to delete the user generated posts.
18. Registered and guest users shall be able to search for a product and filter by title or category.
19. Registered and guest users shall be able to search for a product and filter by price.
20. Every post shall have an image(s).
21. Every post shall have a title.
22. Every post shall have a category.
23. Every post shall have a price.
24. Every post shall have a description.

Priority 1

Guest user -
1. Guest users shall be prompted to register for an account at the start of the post submission process.
2. Guest users shall only be able to view posts.
3. The system's registration form shall require users to register with their name, SFSU email, school ID, password, address and optionally phone number which will be stored in the database.

Registered user -
4. Users registering for an account shall fill out a registration form.
5. Registered users shall be able to create their own post.
6. Registered users shall be able to edit any of their posts after submission.
7. Registered users shall be able to view all current and past posts they've created.
8. Only registered users shall be able to contact the product's seller.
9. Registered users shall be able to choose a safe pickup location at SFSU.

Admin-
10. The site administrator shall have the ability to view user generated posts.
11. The site administrator shall be required to approve all user generated posts and shall have the ability to remove bad contents and users.

Registered and guest users -
12. Registered and guest users shall be able to view all the products listed on the website.
13. Registered and guest users shall be able to search for a product.

Priority 2
Registered user -
14. 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).
15. Registered users who created a post shall have the capability to delete it.
16. Registered and guest users shall be required to login with their registered account id and password.

Admin -
17. The site administrator shall have the ability to delete the user generated posts.

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

20. Every post shall have an image(s).
21. Every post shall have a title.
22. Every post shall have a category.
23. Every post shall have a price.
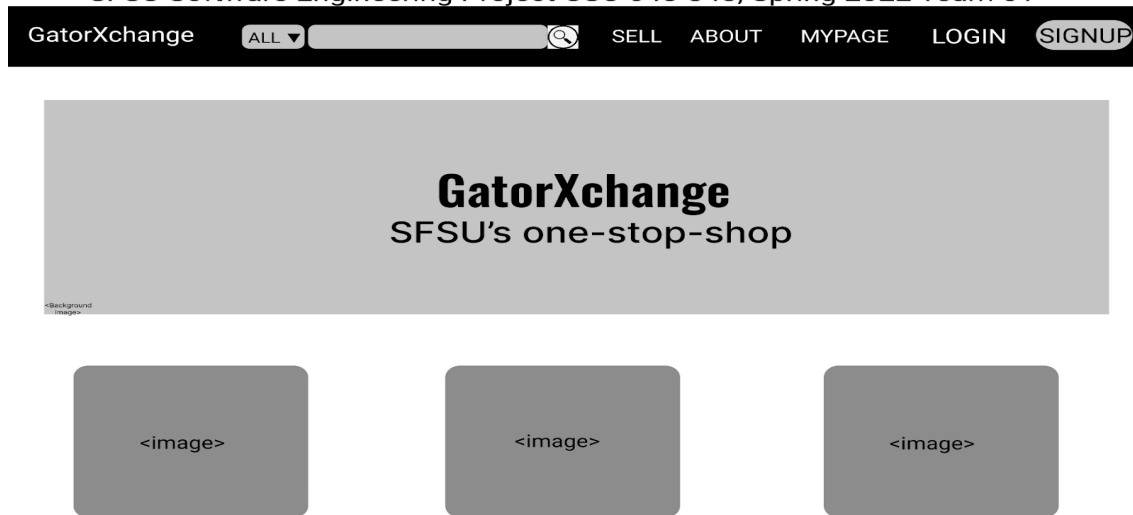24. Every post shall have a description.

Priority 3

4. UI Storyboards:

2.1 Claire: Unregistered Student- Want to sell her laptop

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

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

GatorXchange ALL ▼ 🔍 SELL ABOUT MYPAGE LOGIN SIGNUP

GatorXchange
SFSU's one-stop-shop

<Background image>

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

GatorXchange ALL ▼ 🔍 SELL ABOUT MYPAGE LOGIN SIGNUP

ADD LISTING

Title
Category   Select ▼
Price $
Description

Upload images

☐ Terms and Conditions

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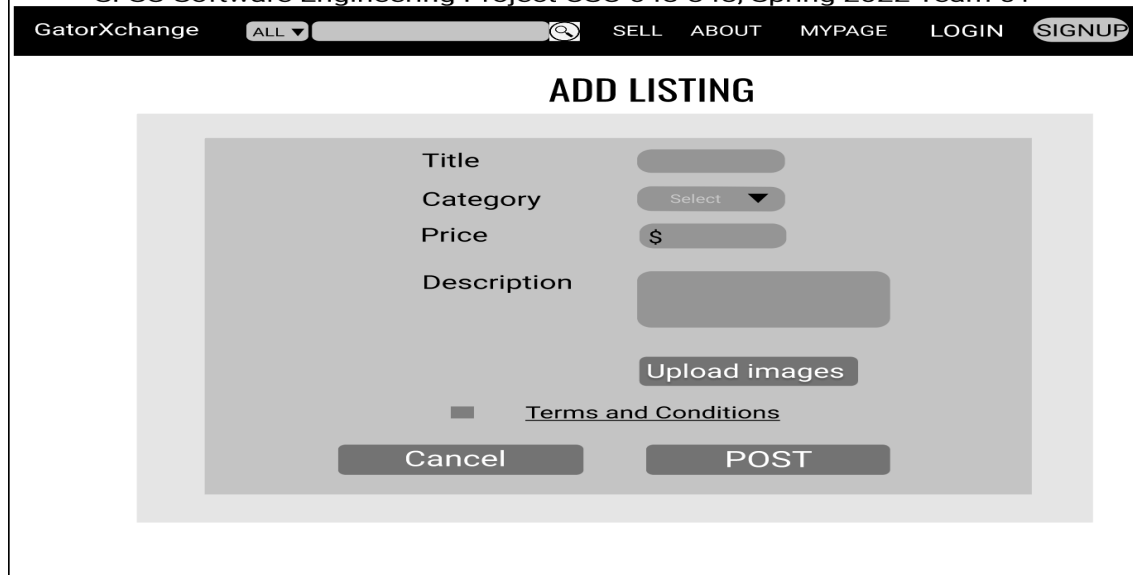
After clicking "Post," Claire is notified that her post is under review and will take about 24 hours for it to be reviewed and approved by the admin before other users will be able to view her listing.

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

GatorXchange   ALL ▼ [   ] 🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

ADD LISTING

Title

Thank you for your post!
Your post is under review
and will take about 24hrs for
your post to be viewed.

OK

Terms and Conditions

Cancel   POST

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

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

GatorXchange   ALL ▼ [   ] 🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

LOGIN

Email
[   ]

Password
[   ]

LOGIN

Forgot Password

Don't have an Account?   Sign Up

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

GatorXchange   ALL ▼ [🔍]   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

Sign Up

All fields are mandatory

*First Name

[ ]

*Last Name

[ ]

*SFSU ID

[ ]

*Email

[ ]

*Password

[ ]

☐ Terms and Conditions

SIGN UP

Forgot Password

Already have an Account?   Login

2.2. John: the Student Athlete- Looking to buy an affordable gym bag

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.

GatorXchange   ALL ▼ [🔍]   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

GatorXchange
SFSU's one-stop-shop

<Background image>
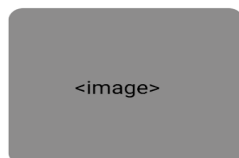
John filters the price from "low to high," which is located on the left side of the page, to easily find a gym bag based on his budget.

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

John searches for the one that he likes and clicks on the image. He is then sent to the product page which has the product information. 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."

SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01
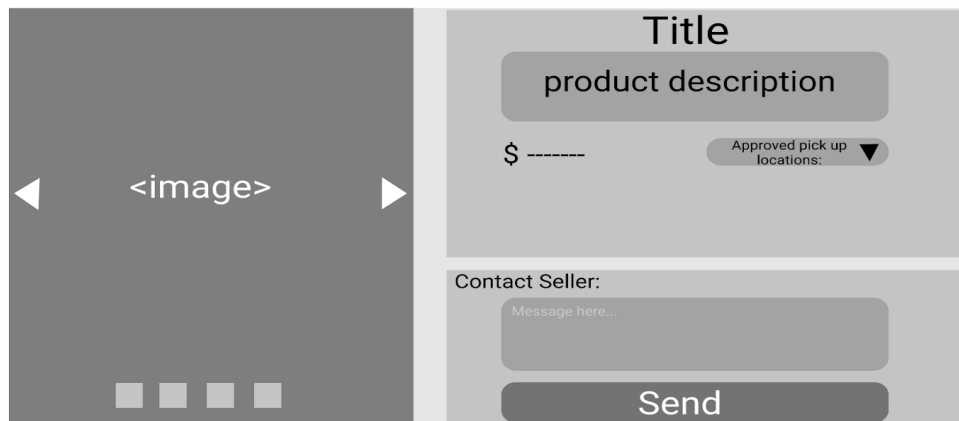
Once John sends his a message to the seller, a pop up message will let him know that his message has been sent.

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

GatorXchange   ALL ▾   🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP
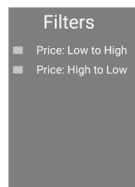
ITEM FOR SALE

...ription

approved pick up locations: ▾

Your message has been sent to the seller.

OK

Message here...

Send

■ ■ ■ ■

John also sent 2 more messages to other sellers by clicking on the "contact seller" on the post page to make it quicker to send a message with fewer clicks.

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

GatorXchange   ALL ▾   🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

MARKETPLACE

showing 1-10 out of 222 found

Filters
▫ Price: Low to High
▫ Price: High to Low

Contact Seller:

Message here...

Cancel   Send

Contact Seller
Title
$

Contact Seller
Title
$

Contact Seller
Title
$

Contact Seller
Title
$

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

GatorXchange   ALL ▼   🔍   SELL   ABOUT   MYPAGE   Sign out

MyPage

Profile

Messages

My Listings

J John

A Alia

J

S

S

SEND
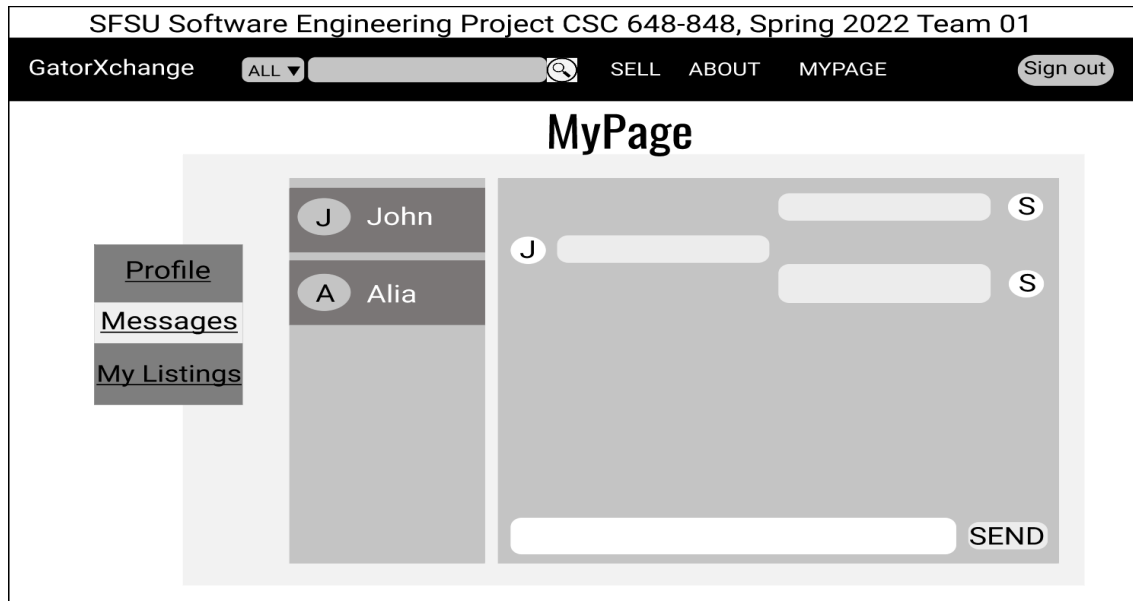
2.3 Alia: international student- needs to purchase Math textbooks at an affordable price

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

GatorXchange   ALL ▼   🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

ITEM FOR SALE

◀   <image>   ▶

■ ■ ■ ■

Title

product description

$ -------

Approved pick up locations: ▼

Contact Seller:

Message here...

Send

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

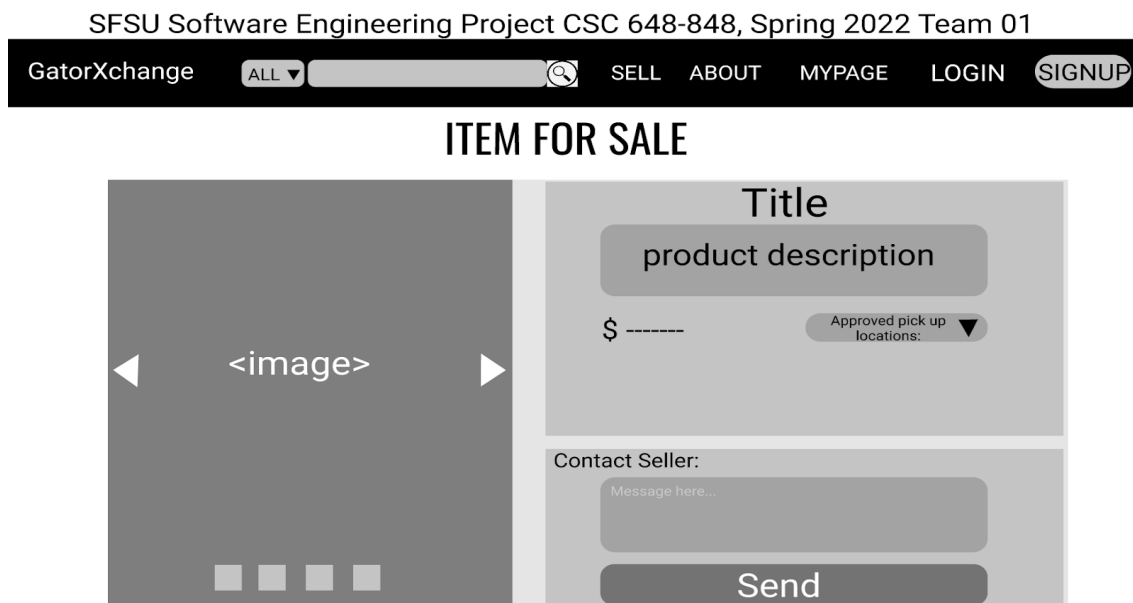SFSU Software Engineering Project CSC 648-848, Spring 2022 Team 01

GatorXchange | ALL ▼ | 🔍 | SELL ABOUT MYPAGE LOGIN SIGNUP

ITEM FOR SALE

◀ <ima

■ ■ ■ ■

...ription

...pproved pick up locations: ▼

Message here...

Send

Your message has been sent to the seller.

OK

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

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

GatorXchange | ALL ▼ | 🔍 | SELL ABOUT MYPAGE Sign out

MyPage

Profile

Messages

My Listings

J John

A Alia

S

A

SEND
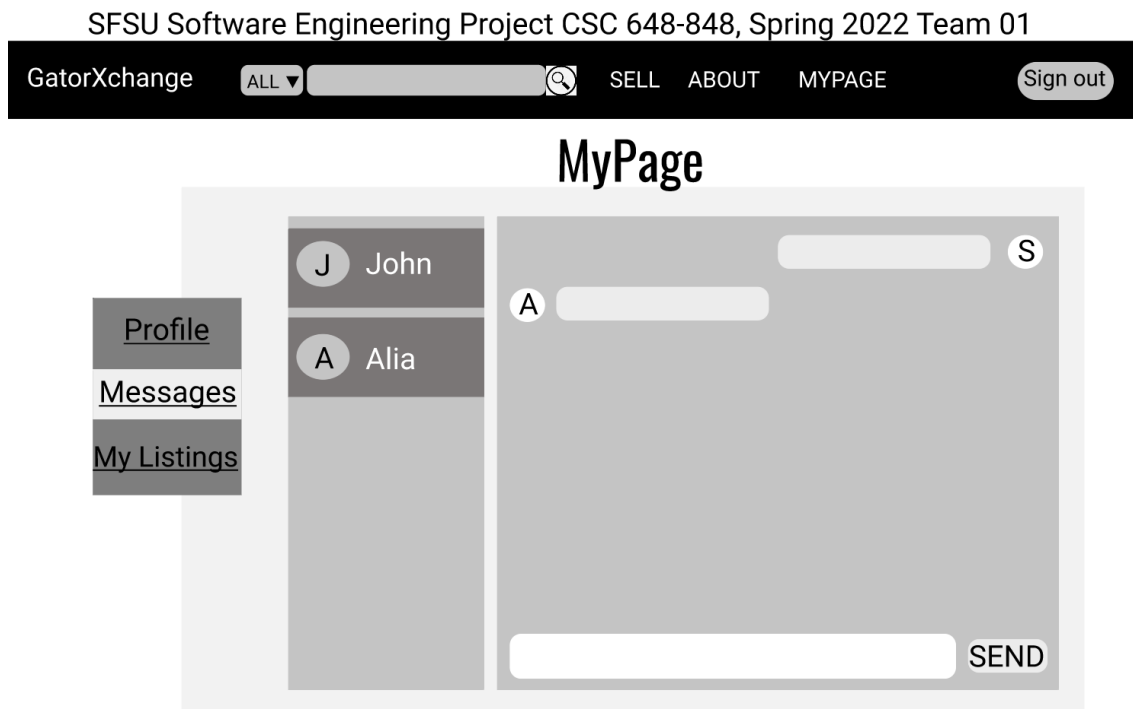
2.4 Liam: Senior Student- relocating and will need to sell used belongings

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

GatorXchange ALL ▼ 🔍 SELL ABOUT MYPAGE LOGIN SIGNUP

ADD LISTING

Title

Category   Select ▼

Price $
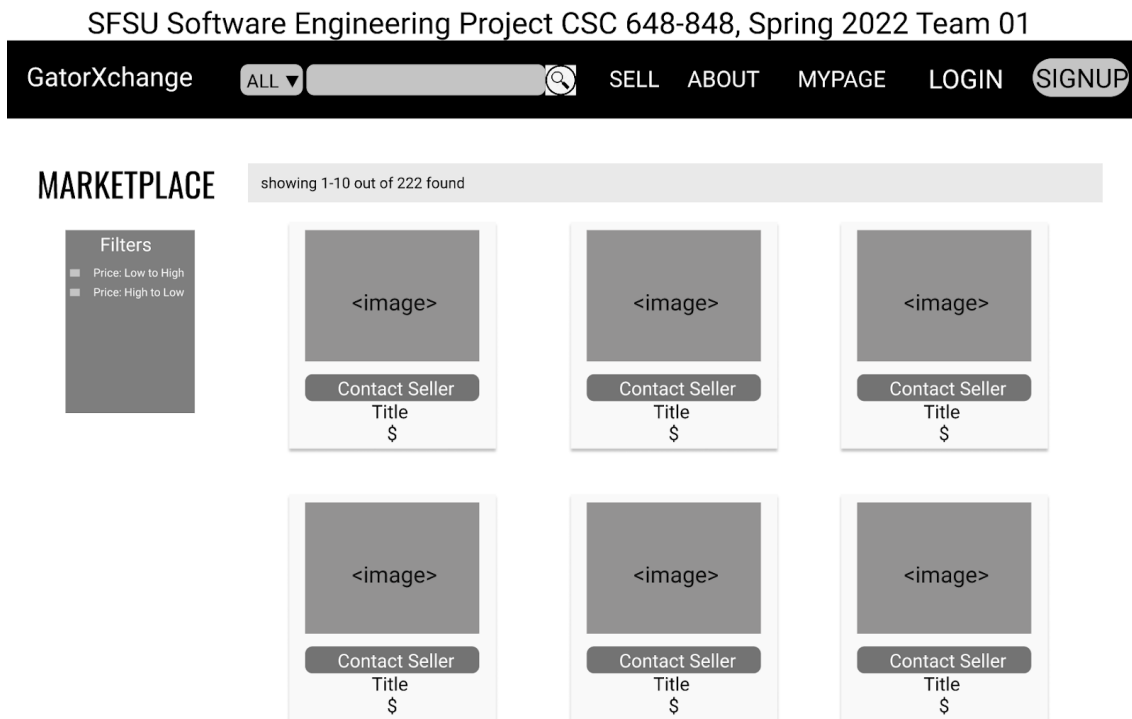
Description

Upload images

☐ Terms and Conditions

Cancel   POST

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 website.

2.5 Elizabeth: Faculty- Easy access for a last minute purchase while on campus

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 posts. Elizabeth filters the products by clicking on the electronics category from the nav bar.

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

GatorXchange | ALL ▼ | | 🔍 | SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

ITEM FOR SALE

◀ <image> ▶

■ ■ ■ ■

Title

product description

$ -------   Approved pick up
                 locations: ▼

Contact Seller:

Message here...

Send

2.6 Henry: A SFSU Admin- Wants to try starting a small business by selling things to the SFSU community.

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

GatorXchange | ALL ▼ | | 🔍 | SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

Sign Up

All fields are mandatory

*First Name

*Last Name

*SFSU ID

*Email

*Password

☐ Terms and Conditions

SIGN UP

Forgot Password

Already have an Account?   Login

After signing up, he lands on the "MyPage" which has his profile information.

GatorXchange   ALL ▼ [   ] 🔍   SELL   ABOUT   MYPAGE   Sign out

MyPage

Profile

Messages

My Listings

NAME

EMAIL

ID: 000000000

Henry then clicks on "Sell" in order to post an post for sale. After filling in the information and adding a couple of photos, he is ready to post it.
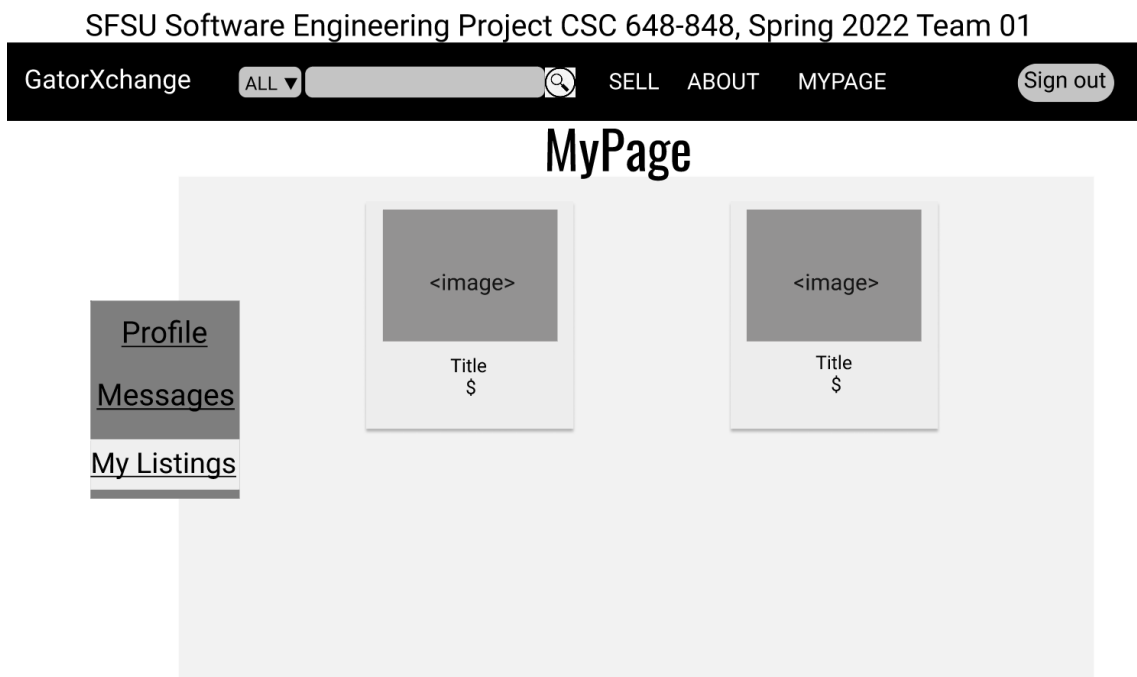
GatorXchange   ALL ▼ [   ] 🔍   SELL   ABOUT   MYPAGE   LOGIN   SIGNUP

ADD LISTING

Title   [   ]
Category   [Select ▼]
Price   [$]
Description   [   ]

                    [Upload images]

■   Terms and Conditions

[Cancel]   [POST]

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

GatorXchange ALL ▼ [ ]🔍 SELL ABOUT MYPAGE LOGIN SIGNUP

ADD LISTING

Title

Thank you for your post!
Your post is under review
and will take about 24hrs for
your post to be viewed.

OK

Terms and Conditions

Cancel   POST

Once, his listing is approved by the admin, Henry is able to view all his listings on "MyPage" under listings. This is where his current and future listings will be posted so that he can view it anytime.

GatorXchange ALL ▼ [ ]🔍 SELL ABOUT MYPAGE Sign out

MyPage

Profile

Messages

My Listings

Title
$

Title
$

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
   - type 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
   - fk_category_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_id INT Not Null

2. Attributes
   - category (Books, Electronics, Clothes) VARCHAR(64), Not Null

Posts and Categories Relationship:

Posts |< ---- || Categories

- A post shall have one and only one category
- A category shall have many posts

Table: Messages

1. Primary Key
   - message_id INT Not Null, Auto Incremental

2. Attributes
   - message VARCHAR(256), Not Null

2. Media Storage

Store images and thumbnails in the local file system

3. Search/filter architecture and implementation

Using SQL's %like for search queries and filtering data.

4. APIs
   - /register
   - /login
   - /search
   - /createPost
   - /deletePost

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

None

6. New/Changed Software Tools/Frameworks

- Bcrypt (Hash user's passwords in DB)
- Crypto (Use to create randomized image and thumbnail filenames in DB)
- React-bootstrap for user interface
- Morgan for logging http requests (Node middleware)
- Helmet for setting HTTP headers for security (Express middleware)
- Trello for project management

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.