

# SW Engineering CSC648/848 Spring 2022

## *PurpleMarket*

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# I Executive Summary

PurpleMarket is a web application that will connect students, staff, and faculty from San Francisco State together via a virtual marketplace. In this marketplace, they will be able to communicate with each other, as well as buy and sell products on a user to user basis. There will be no intermediate and no surprises. What one user posts will be verified and will be exactly what is sold to another user. With this in mind we hope to create a safer, open community at San Francisco State, while also providing our users with a more convenient way to shop. The value of PurpleMarket is in its ability to provide an experience custom tailored to people associated with San Francisco State. Our vision is to provide a marketplace that facilitate the ability to sell and purchase the types of items and/or services that are most important to our users.

PurpleMarket plans to be easy to navigate, and easy on the eyes. There isn't any clutter which makes the site much more presentable to our users. Our users are presented with a clean design that will make it much easier for users to navigate our site to find exactly what they are looking for. If they have any trouble at all finding their specific product, they are able to narrow their search in three ways. The first method to finding their desired product is by browsing different categories. By providing categories that our users are most interested in, our users will be able to more easily sell or find the products that they want. The second method will be a simple and easy to use search that would allow the user to type specific titles, names, or descriptions where the user will be presented with the results of the search. Specific to the academic environment, the final method for finding a product is by finding products that are associated with a particular course. Once a user finds what they are looking for they can sign up and create a PurpleMarket account that will allow them to communicate with the user that listed the product directly on our site and the rest is history. So what about listing products? Any verified user who opens an account will be able to list a product. Finally, PurpleMarket will be able to facilitate on-campus meetings between buyer and seller, which simplifies the transaction experience.

Our team of passionate San Francisco State students know the frustrations of navigating online classifieds and the unique needs of the people associated with the school. It is because of this that we are exceptionally equipped to understand the San Francisco State community and provide them with the experience that they desire.

## II Main Data Items and Entities

**user:** The users are the people expected to use the web application. This entity will contain all the pertinent information that describes our user like their name, email address, and other identifying information.

1. user\_id: unique user identification
2. user\_fname: user's first name
3. user\_lname: user's last name
4. user\_email: user's email
5. user\_type: user type (e.g. admin, staff, faculty, student)
6. user\_password: user's password

**item:** This entity are the items that are being bought, sold, or provided. This entity contains all the information that helps users find what they want. For example, this entity will have a name, a description, price, a category that it belongs to, and photos so that they can see what the item looks like.

1. item\_id: unique item identification
2. item\_created: time that posting was created
3. item\_category: item's category
4. item\_seller\_id: user id of seller
5. item\_price: price of item
6. item\_name: name of item
7. item\_desc: description of item
8. item\_pic: picture of item (path)
9. item\_course: course associated with item
10. item\_golive\_time: time of approval

**category:** This is the category a particular item will belong to. For example, items may be furniture, books, electronics, etc. We want this data item to be easily changed or expanded if necessary in case our users find categories that they want.

1. category\_id: unique category identification
2. category\_name: name of category (e.g. furniture, books, etc).

**session:** This will contain session information for users that are on our web application.

1. session\_id: unique session identification
2. session\_user: user associated with session
3. session\_expires: session expiration time
4. session\_data: session data

**message:** This entity exists to contain all the messages that are sent from one user to another. This will contain not only the message, but also the sender, recipient, and a time stamp of when the message was sent and received/read.

1. msg\_id: unique message identification
2. msg\_sender: sender of message
3. msg\_recipient: recipient of message
4. msg\_item: item associated with message
5. msg\_meet\_time: proposed meeting time
6. msg\_location: proposed meeting location
7. msg\_contactinfo: contact information of sender
8. msg\_body: body of message
9. msg\_timestamp: timestamp of message

**review:** This data item contains the reviews for all users. This entity will contain the review itself, the recipient of the review as well as the person who wrote the review, the time stamp of the review, and also the associated transaction/item that goes with the review.

1. review\_id: unique review identification
2. review\_item: item associated with review
3. review\_recipient: user id of recipient of review
4. review\_contributor: user id of the contributor the review
5. review\_rating: rating of review recipient
6. review\_body: body of review
7. review\_timestamp: time of review

### III Functional Requirements - Prioritized

#### A Priority 1

##### A.1 Unregistered Users

No.	Requirement
3	Unregistered users shall be able to register for an account.

## A.2 Registered Users

No.	Requirement
6	Registered users shall be able to do everything an unregistered user can do.
7	Registered users shall be able to create posts.
8	Registered users shall be able to contact the poster/seller.
11	Registered users shall be able to login to their account.
12	Registered users shall be able to logout of their account.
13	Registered users shall be able to request/reset their password if they forgot.

## A.3 Administrators

No.	Requirement
17	Admins shall be able to do everything a registered user can do.
21	Admins shall be required to approve posts before they can go live.

# B Priority 2

## B.1 Unregistered Users

No.	Requirement
1	Unregistered users shall be able to search the site for certain posts.
2	Unregistered users shall be able to filter search results.

## B.2 Registered Users

No.	Requirement
9	Registered users shall be able to edit and correct and/or delete their own post after it was submitted.

## B.3 Administrators

No.	Requirement
18	Admins shall be able to delete and edit posts done by any user.
19	Admins shall be able to contact any user.
20	Admins shall be able to ban users.

## C Priority 3

### C.1 Registered Users

No.	Requirement
10	Registered users shall be able to report violations of terms of service of another user.
14	Registered users shall be able to leave reviews of other users regarding completed transactions.
15	Registered users shall be able to propose meeting locations or modify location proposals to complete transactions.
16	Registered users shall be able to inspect their transaction history.

### C.2 Administrators

No.	Requirement
22	Admins shall be able to inspect any user's transaction history.

## IV User Interface Storyboards

### A Administrative Functions: Kobe

As an administrator, Kobe will need to approve or deny posts as needed and provide explanations for approval or denial (Figure 1). Before approval, Kobe will inspect each post to ensure that the posting follows the website's terms and conditions (Figure 2). In addition, he will be able to contact and ban users, delete and edit user posts, and inspect user transaction history. Priority 1 implementation shall be through MySQL workbench and/or MySQL command line interface. The following user interface storyboards illustrate a priority 3 implementation for administration through the website.



Figure 1: Post Management View

**PurpleMart**

All  Search Logout Admin

**CSC648 Spring 2022 Team 8**

**Admin Dashboard**

Post Management

User Feedbacks

Status Sorted by Apply

Name	Time	Status	Explanation	
Jiasheng Li	03/13/2022 08:03	Approved	Your Post Publicized	Details
Khushboo Gandhi	03/12/2022 21:07	Invalid	Invalid Item to Sell	Details
Ernesto Diaz	03/11/2022 10:11	Approved	Your Post Publicized	Details
Mark Kim	03/10/2022 07:21	Pending		Details

Figure 2: Post Detail View

**PurpleMart**

All  Search Logout Admin

**CSC648 Spring 2022 Team 8**

**Admin Dashboard**

Post Management

User Feedbacks

**Post Details**

Name : Jiasheng Li

Email : jli29@mail.sfsu.edu

Status : Approved

Post Time : 03/13/2022 08:03

Explanations

Describe what you expect.....

Submit

## B Purchase SFSU Apparel: Claire

Claire is purchasing SFSU apparel from other users. Using her laptop, she goes onto PurpleMarket and selects “SFSU Apparel” from the categories and browses the available listings (Figure 3). Once she finds the swimsuit, she views the item details (Figure 4), then attempts to message the seller for a swimsuit. The website then informs her that to message a seller, she must first register for a free account or login (Figure 5). Since she is not signed up, she must register (Figure 6). Once signed up, she is presented with a message page that allows her to message the seller (Figure 7) and the website tells her that her message was successfully sent (Figure 8).

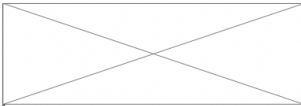
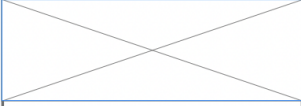




Figure 3: SFSU Apparel Category Search

**PurpleMarket** SFSU Apparel Search Post Items Login Register

**Welcome to PurpleMarket**

A Market place connects people only associated with SFSU to sell or purchase items.

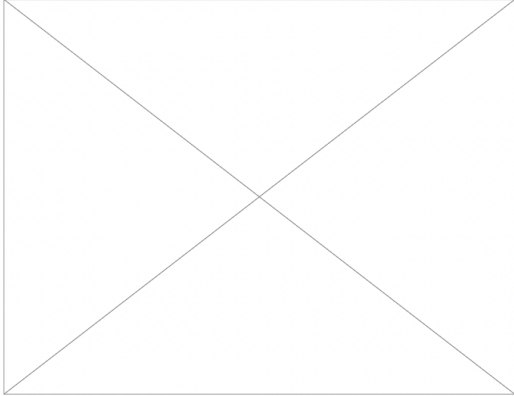
1-6 of 20 results Sort by: post date

 <b>Title: Gator Swimsuit</b> Price: \$33.60 description <a href="#">Details</a>	 <b>Title</b> Price description <a href="#">Details</a>	 <b>Title</b> Price description <a href="#">Details</a>
 <b>Title: Operating System Design</b> Price: \$23.60 description <a href="#">Details</a>	 <b>Title</b> Price description <a href="#">Details</a>	 <b>Title</b> Price description <a href="#">Details</a>

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 4: Item Detail View

**PurpleMarket** All  Search Post Items Login Register



## Title

Price

Category

description

xxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxx

Message to the Seller

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 5: Login View

**PurpleMarket** Books Operating  Search Post Items Login Register

### Start Posting and Buying Your Items

#### Log in to your account

**SFSU Email\* :**

**Password\* :**

[Forgot password?](#)

Log In

[Need an Account? Register](#)

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 6: Registration View

**PurpleMarket** All  Search Post Items Login Register

### Welcome to PurpleMart

#### Sign up for a free account

First Name\* :

Last Name\* :

SFSU Email\* :

Password\* :

Confirm Password\* :

Register

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 7: Message View

**PurpleMarket** All  Search Post Items Logout Dashboard

### Message Page

Item Name : xxxxxxxxxxxxxxxxxxxxxx

Seller Name : xxxxxxxx

Meetup Date and Time\*

Meetup Location\*

Contact\*

Addition Information

Send

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 8: Message Confirmation View

**PurpleMarket** All Search Post Items Logout Dashboard

### Message Page

Item Name : xxxxxxxxxxxxxxxxxxxxxx

Seller Name : xxxxxxxx

Meetup Date and Time\* Date Time

Meetup Location\*

Contact\*

Your Message Was Successfully Sent to the Seller!

Addition Information

Send

Contact us: csc648spring2022team08@mail.sfsu.edu

## C Request Items: Anna

Anna wants to get a copy of notes from her class from a previous student of hers. She goes to PurpleMarket to search for notes from her course (Figure 9). After finding a student posting some notes that he took from Anna's class last semester (Figure 10), Anna messages him to get a copy. When she attempts to contact him, the website prompts her to login or register (Figure 11). Since she is already registered, she logs in and messages the student to set up a meeting on campus (Figures 12, 13).

Figure 9: Search for Notes

**PurpleMarket**

Class Notes

HIST 471

Search

Post Items

Login

Register

**Welcome to PurpleMarket**

A Market place connects people only associated with SFSU to sell or purchase items.

1-6 of 20 results

Sort by: post date

Title: HIST 471 Notes from ...  
Price: \$0.00  
description

Details

Title  
Price  
description

Details

Title  
Price  
description

Details

Title: Operating System Design  
Price: \$23.60  
description

Details

Title  
Price  
description

Details

Title  
Price  
description

Details

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 10: Item Detail View

**PurpleMarket**

All

Search

Post Items

Login

Register

**Title**  
**Price**  
**Category**  
description  
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx  
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Message to the Seller

Contact us: csc648spring2022team08@mail.sfsu.edu



Figure 11: Login View

**PurpleMarket** Books Operating Search Post Items Login Register

### Start Posting and Buying Your Items

#### Log in to your account

**SFSU Email\* :**

**Password\* :**

[Forgot password?](#)

**Log In**

[Need an Account? Register](#)

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 12: Message View

**PurpleMarket** All Search Post Items Logout Dashboard

### Message Page

**Item Name :** xxxxxxxxxxxxxxxxxxxxxx

**Seller Name :** xxxxxxxx

**Meetup Date and Time\***

**Meetup Location\***

**Contact\***

**Addition Information**

**Send**

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 13: Message Confirmation View

**PurpleMarket** All Search Post Items Logout Dashboard

### Message Page

**Item Name :** xxxxxxxxxxxxxxxxxxxxxx

**Seller Name :** xxxxxxxx

**Meetup Date and Time\*** Date Time

**Meetup Location\***

**Contact\***

**Addition Information**

Your Message Was Successfully Sent to the Seller!

Send

Contact us: csc648spring2022team08@mail.sfsu.edu

## D Browsing for Items: Curry

Curry is just curious about what used items he can score on PurpleMarket, so he visits the website to browse around. While browsing, he remembers that there is a book he's been wanting to read. He does a search on the page for the book title that he's looking for (Figure 14). He checks the details of the item post to make sure it is exactly what he wants (Figure 15). As a long-time website user, he is already logged in, so he immediately messages the user to set up a time and location for the purchase (Figures 16, 17).



Figure 14: Search for a Book

**PurpleMarket**

Books

A book about nothing

Search

Post Items

Login

Register

**Welcome to PurpleMarket**

A Market place connects people only associated with SFSU to sell or purchase items.

1-6 of 20 results

Sort by: post date

Title: A book about nothing  
Price: \$10.00  
description

Details

Title  
Price  
description

Details

Title  
Price  
description

Details

Title: Operating System Design  
Price: \$23.60  
description

Details

Title  
Price  
description

Details

Title  
Price  
description

Details

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 15: Item Detail View

**PurpleMarket**

All

Search

Post Items

Login

Register

**Title**  
**Price**  
**Category**  
description  
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx  
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Message to the Seller

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 16: Message View

**PurpleMarket** All Search Post Items Logout Dashboard

### Message Page

**Item Name :** xxxxxxxxxxxxxxxxxxxxxx

**Seller Name :** xxxxxxxx

**Meetup Date and Time\*** Date Time

**Meetup Location\*** choose a location

**Contact\*** 415-706-3244

**Addition Information**

**Send**

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 17: Message Confirmation View

**PurpleMarket** All Search Post Items Logout Dashboard

### Message Page

**Item Name :** xxxxxxxxxxxxxxxxxxxxxx

**Seller Name :** xxxxxxxx

**Meetup Date and Time\*** Date Time

**Meetup Location\***

**Contact\***

**Addition Information**

Your Message Was Successfully Sent to the Seller!

**Send**

Contact us: csc648spring2022team08@mail.sfsu.edu

## E Selling Furniture: Anna

Anna has a bookshelf to sell, so she visits PurpleMarket to list the item. From the main homepage, she easily finds the button to post her item for sale (Figure 18). Once on the post page (Figure 19), she enters the details of her bookshelf and uploads a photo. When she attempts to post, the site requests that she log in (Figure 20). Once logged in, she can post her item. The website tells her that she will need to wait about 24 hrs for her post to be approved and go live (Figure 21). She receives a message when it is approved and published. She goes to her dashboard to look at the approval message (Figure 22).

Figure 18: Main Homepage

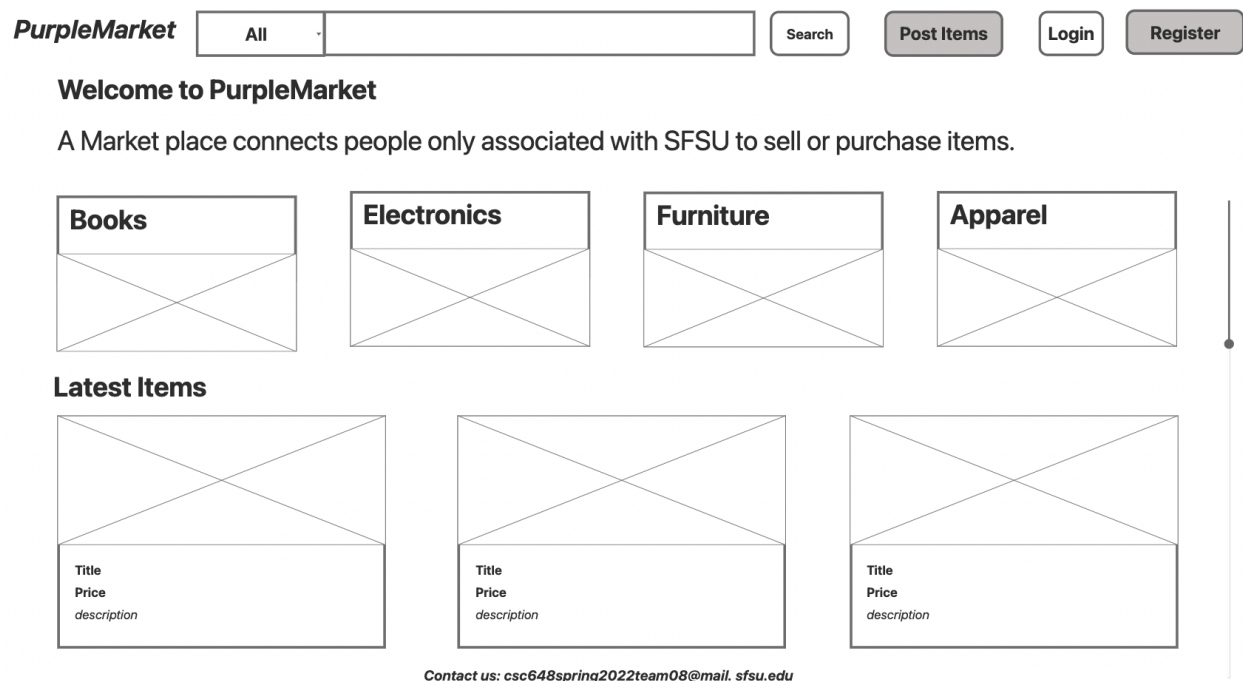


Figure 19: Post Item View

**PurpleMarket** All Search Post Items Login Register

### Item Post Page

#### Posting Your Items

**Item name\***

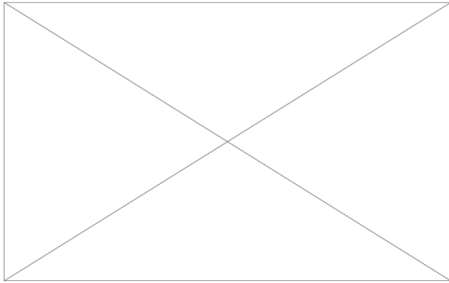
**Price\***

**Category\***  
Course Materials

**Course Number\***

**Upload image\* :** No file chosen

**Description :**



☐ I accept the terms of use and privacy policy

**Post**

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 20: Login View

**PurpleMarket** Books Operating Search Post Items Login Register

### Start Posting and Buying Your Items

#### Log in to your account

**SFSU Email\* :**

**Password\* :**

**Forgot password?**

**Log In**

**Need an Account? Register**

Contact us: csc648spring2022team08@mail.sfsu.edu

Figure 21: Message Confirmation View

PurpleMarket

All

Search

Post Items

logout

Dashboard

### Item Post Page

#### Posting Your Items

Item name\*

Price\*

Category\*

Upload image :

No file chosen

Descriptions :

☐ I accept the terms of use and privacy policy

Post

Your Post Was Uploaded Successfully.  
Please Wait for 24 hours to check Your Post in Your Dashboard!

Figure 22: User Dashboard

PurpleMarket

All

Search

Post Items

Logout

Dashboard

### User Dashboard

Username :

Jiasheng Li
edit

Email :

jli29@mail.sfsu.edu

Post History

Message Inbox

Location
Sorted by

Apply

Name	Meet Time	Location	Additional Info	Contact
Jiasheng Li	03/13/2022 08:03	HSS	xxxxxxxxxxxxxx	415-706-3250
Khushboo Gandhi	03/12/2022 21:07	J. Paul Library	xxxxxxxxxxxxxx	jli29@mail.sfsu.edu
Ernesto Diaz	03/11/2022 10:11	Fine Art	xxxxxxxxxxxxxx	415-706-3250
Mark Kim	03/10/2022 07:21	Business		415-706-3250

## V Architecture

### A DB Organization

user table

1. user\_id: unique user identification
2. user\_fname: user's first name
3. user\_lname: user's last name
4. user\_email: user's email
5. user\_type: user type (e.g. admin, staff, faculty, student)
6. user\_password: user's password

item

1. item\_id: unique item identification
2. item\_created: time that posting was created
3. item\_category: item's category
4. item\_seller\_id: user id of seller
5. item\_price: price of item
6. item\_name: name of item
7. item\_desc: description of item
8. item\_pic: picture of item (path)
9. item\_course: course associated with item
10. item\_golive\_time: time of approval

category

1. category\_id: unique category identification
2. category\_name: name of category

session

1. session\_id: unique session identification
2. session\_user: user associated with session
3. session\_expires: session expiration time
4. session\_data: session data

message

1. msg\_id: unique message identification
2. msg\_sender: sender of message

3. msg\_recipient: recipient of message
4. msg\_item: item associated with message
5. msg\_meet\_time: proposed meeting time
6. msg\_location: proposed meeting location
7. msg\_contactinfo: contact information of sender
8. msg\_body: body of message
9. msg\_timestamp: timestamp of message

review

1. review\_id: unique review identification
2. review\_item: item associated with review
3. review\_recipient: user id of recipient of review
4. review\_contributor: user id of the contributor the review
5. review\_rating: rating of review recipient
6. review\_body: body of review
7. review\_timestamp: time of review

## **B Media Storage**

User uploaded images will be stored in an AWS S3 bucket. The S3 bucket will give read-only access to the public. We want users who haven't created accounts yet to be able to view some posts with their respective images while securing write permissions to registered users only. We will use the S3 AWS SDK API for certified users who created accounts to upload images to the S3 bucket when creating a post.

## **C Search/filter architecture and implementation**

1. Database queries shall be utilized for all search items for the user.
2. Item names and descriptions shall be utilized for keyword searches.
3. Item categories shall be browsable and searchable.
4. Course materials shall be searchable by course name.
5. Search results shall be sortable by price, post age, category, item name, or seller username.

## **D Team 8 APIs**

None

## **E Algorithms or Processing**

None

## **F SW Tool and Framework Changes**

S3 storage for image storage. (seeking approval)

# **VI Key Risks**

## **A Skills**

### **Risks**

- Most of the team has very little experience in deploying a project of this scale on the cloud. Local development environments may be quite different from the cloud production environment, which requires a set of skills that have not been practiced thoroughly.
- The skill level for various frameworks is varied from team member to team member.

### **Proposed Solution**

- Schedule substantial time for research and trial-and-error.
- Promote collaboration between team members so that the entire team can benefit from each member's strengths.

## **B Schedule**

### **Risks**

- The scope of the project is substantial compared to the limited time we have.  
This is a risk in the sense it is not certain whether we are able to successfully complete the entire website as required.
- With varied course loads between students, each student is available at different times throughout each week.

### **Proposed Solution**

- We may reduce the scope of the project and focus on completing highest priority items first.



- Divide the work amongst team members as much as possible and delegate according to each students' needs.
- Create deadlines with contingency plans in place to ensure that work gets completed on-time.

## **C Technical**

### **Risks**

- Due to the scale of the project and the amount of new technologies involved there is a chance that as a team we may not be able to accomplish something successfully due to lack of expertise.
- Breaking of systems due to lack of expertise and/or mistakes.

### **Proposed Solution**

- We plan to follow the method of practice and learn until we succeed!
- Use tutorials online and follow articles and forums which will help us accomplish our desired output.
- Try to simplify our project as much as possible to reduce the need for too many new technologies.
- Maintain strict controls over each branch of code and the server to reduce the chance of mistakes.

## **D Teamwork**

### **Risks**

- There is a chance of conflict amongst team members where some members might think they do more work than others.

### **Proposed Solution**

- Use project management tools like Trello to track tasks amongst team members for efficient planning.
- Ensure that all team leads divide work efficiently.

## **E Legal/Content**

None at the moment.

## **VII Project Management**

The team is divided into two main categories: front-end and back-end. Each category has been assigned a lead, with two developers assigned to each lead. The team lead is responsible for tracking and maintaining

project progress and establishing high-level goals while contributing to either the front-end or back-end as needed. With the input of the team, the team lead will set deadlines for deliverables and work with the front-end and back-end leads to create a plan of action to complete objectives. The front-end and back-end leads are responsible for assigning tasks for their particular portion of the project while managing their particular deliverables. All tasks are tracked via shared Trello boards and progress (or problems) will be communicated via Discord. In the case that either the front-end or back-end teams encounter setbacks, the team lead will coordinate with all members to redistribute the workload. Our number one priority is maintaining an active line of communication between all stakeholders to ensure that the back-end provides the tools necessary for the front-end to deliver a great user experience.