Software Engineering CSC648/848

GatorMart

Team 03 / Section 01

Sanjana – Team Lead
Madina Ahmadzai – Frontend Lead
Lakshay Mittal – Backend Lead
Arjun Sharma – Scrum Master
Zahid Sayed – Github Master
Dinesh Arunraj – Frontend Support
Sanket Shah – Backend Support

“Milestone 2”
“a) Architecture, UI mock-ups & GUI design
b) vertical SW prototype”
Due Date - 10/19/22

Revision History Table

Revision ID	Revision Date Revised By
1	10/18/2022 - Sanjana G (Team Lead)
2	10/19/2022 - Lakshay Mittal (Backend Lead)
3	10/19/2022 - Arjun Sharma(Scrum Master)

1. Data Definitions

Our web app will use the NoSQL database MongoDB to store some major entities/ elements in database clusters. Each of these entities will have a separate uniquely structured layout.
The following entities will be required in the development of our Web App.

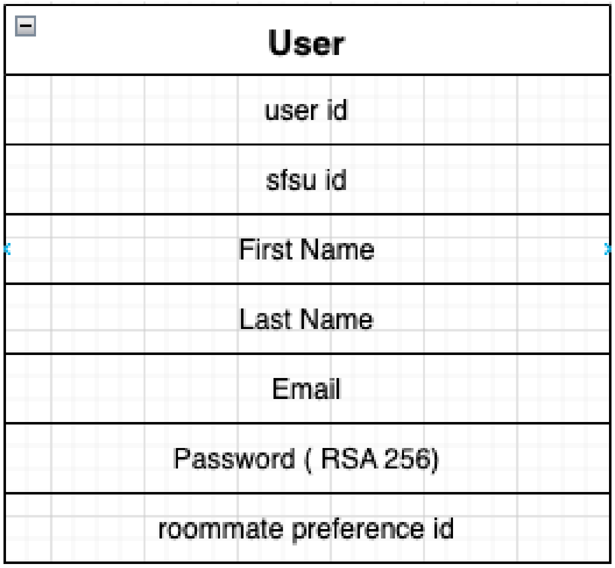
- **User**
- **Product**
- **Transaction**

Data entity	Definition	Usage
User	The **User** entity will contain the authentication details and information about the users accessing the web app. e.g., Sofia, @sofia201, 922583257, age 20, female, (669)-260-3264	The login credentials and information regarding the registered users is stored in this entity and will be on display on their user account page.
Product	The **Product** entity will contain information about all the products that are listed on the marketplace.	This entity stores details of the products that users wish to upload to/buy from the website.
Transaction	The **Transaction** entity will contain information about all of the transactions that are occurring on SFSU Marketplace.	This entity stores sensitive information regarding the status of the payment and date and mode of payment opted by the user to purchase products.

SUB-DATA WITHIN ENTITIES -

1.1 User

One of the main attributes of the User entity will be the **sfsu_id** attribute which will help us to restrict and verify that all the users that are accessing the website are actual SFSU students. The User entity will contain other commonly needed information like First and Last Name, SFSU email, and their **unique user_id** (Which will help us to uniquely identify each user)



User

user id

sfsu id

First Name

Last Name

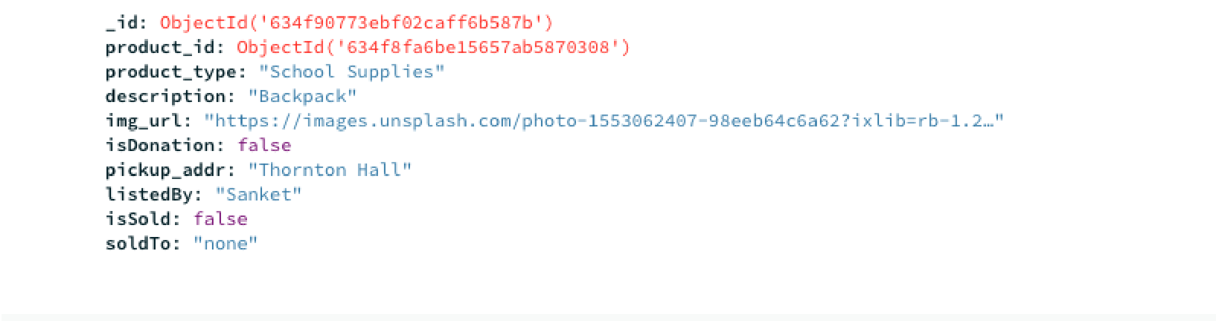
Email

Password (RSA 256)

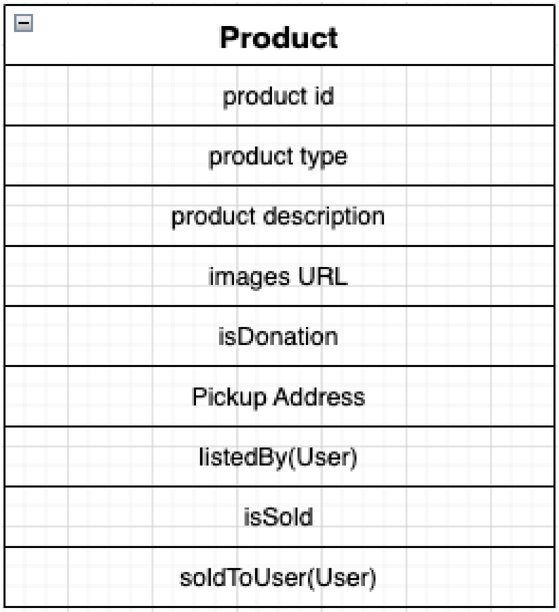
roommate preference id

1.2 Product

Some of the key features of this entity are that it will contain **product pictures**, information about the **product type**, **and tags** specific to each product which will tell us if the product **has been donated** by someone, is it **sold**, **who bought the product**, etc. The product object will have the following structure in mongoDB.



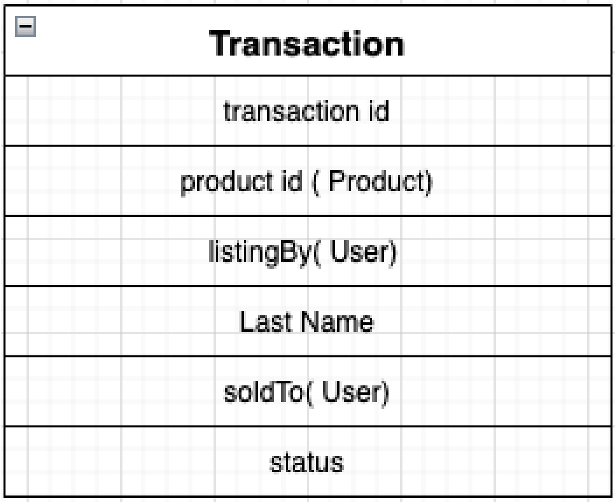
```
_id: ObjectId('634f90773ebf02caff6b587b')
product_id: ObjectId('634f8fa6be15657ab5870308')
product_type: "School Supplies"
description: "Backpack"
img_url: "https://images.unsplash.com/photo-1553062407-98eeb64c6a62?ixlib=rb-1.2…"
isDonation: false
pickup_addr: "Thornton Hall"
listedBy: "Sanket"
isSold: false
soldTo: "none"
```



Product
product id
product type
product description
images URL
isDonation
Pickup Address
listedBy(User)
isSold
soldToUser(User)

1.3 Transaction

The **status** attribute in this entity will dictate if the transaction was successful or not. Since we'll be using a third-party API for payments, most of the data in this entity will be populated automatically.



Transaction
transaction id
product id (Product)
listingBy(User)
Last Name
soldTo(User)
status

2. Functional Requirements V2

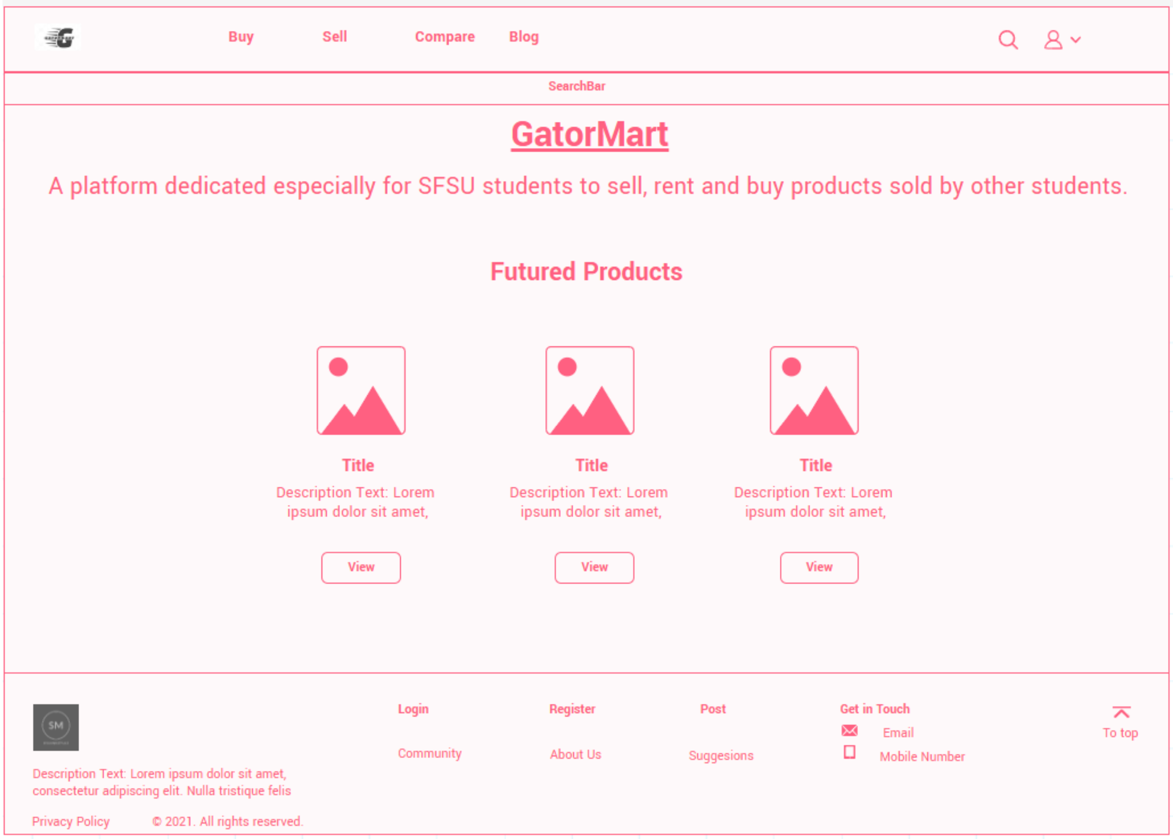
User stories: 1. Emily, 2. Bob, 3. Anita, 4. Josh
Priority Level: 1 (Important), 2 (Medium), 3 (Opportunistic)

Priority	Function	Description	User story
1	**Create an account**	1. New users are required to create account with their personal details like username/email and password 2. If user prefer to have more accurate plan, then they can choose to do more questions which is the advanced mode (age, weight, height, BMI)	2. Bob
1	**Post the things in the Marketplace of SFSU**	1. The user can post the things, which they would like to sell (used things) such as bed, cart, bicycle etc… and fix and exact price for it so it's more convenient for people to know they price and be able to see different pictures of the post like if a user post a bed they should take pictures from each angle and describe how use it is and what the condition. 2. If users prefer, they can buy the things too in the marketplace this recommended portion which is published by the SFSU students. Like as we said it's a Marketplace that we sell and buys stuff in this platform	
1	**Edit/manage their past posts**	1. Users are able to change the rate of the things which they have posted.like if they post something and they rate it very high and nobody buys it so they should be able to decrease the price so the students can afford it. 2. Users are able to delete their post once they sell the product or change the decision. All users, sellers or buyers should always post the details of their material.	

2	**Comparison diagram**	1. Help the users to keep aware of the rate of product and compare the products 2. The users should understand the pricing path so the student can afford and the platform be successful and everyone uses it for their needs.	3. Anita
3	**Product suggestions**	1. Based on the comparison diagram, the system will give suggestions on which product will suit the user as per their budget which makes the user to purchase most efficiently. If not, would be a general suggestion. 2. By using cookies as our team decided to use cookie the users will be able to get similar products that they have searched for	4. Josh
3	**Budget Tracker**	1. Allow user to track how much amount remaining in their budget Will design an easy-to-use interface. The use should also get informed when the budget gets close to zero	
3	**Change the Theme**	1. Users are able to customize their theme according to their desire. So they make the theme the way they prefer.	1. Emily
1	**Post owners connect**	1. List the people who post the things with their contact information so that users can directly click on the link and get in touch with them in case of any negotiation so they don't get confused with anything.	

3. UI Mockups and Storyboards (high level only)

Please visit the link below for a live interactive demo and UX Flow linking functional requirements.
https://claritee.io/public-view/R8w1H2QvYTEXkD5orGjCJg%3d%3d/tree



GatorMart

A platform dedicated especially for SFSU students to sell, rent and buy products sold by other students.

Futured Products

Title
Description Text: Lorem ipsum dolor sit amet,

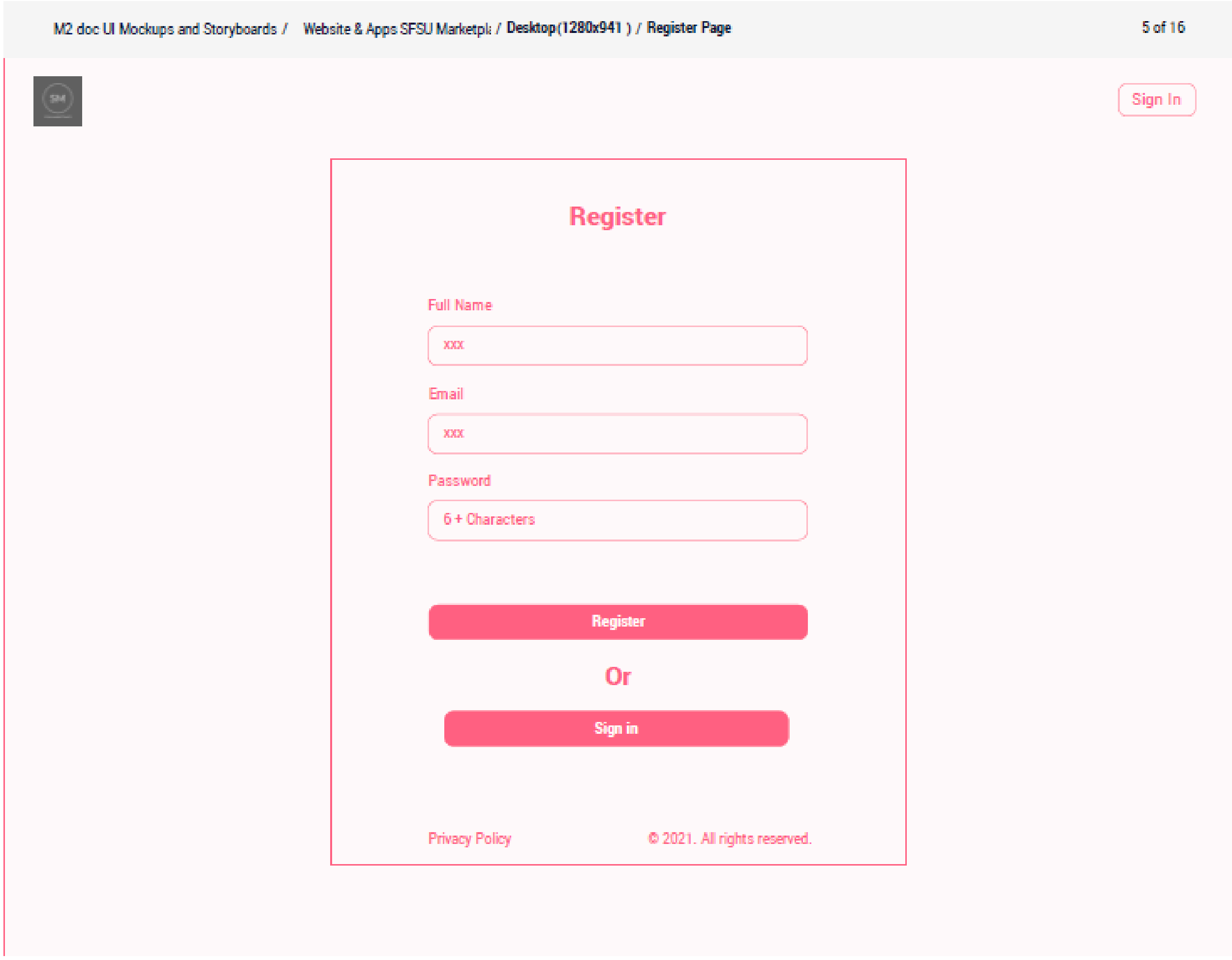
Title
Description Text: Lorem ipsum dolor sit amet,

Title
Description Text: Lorem ipsum dolor sit amet,

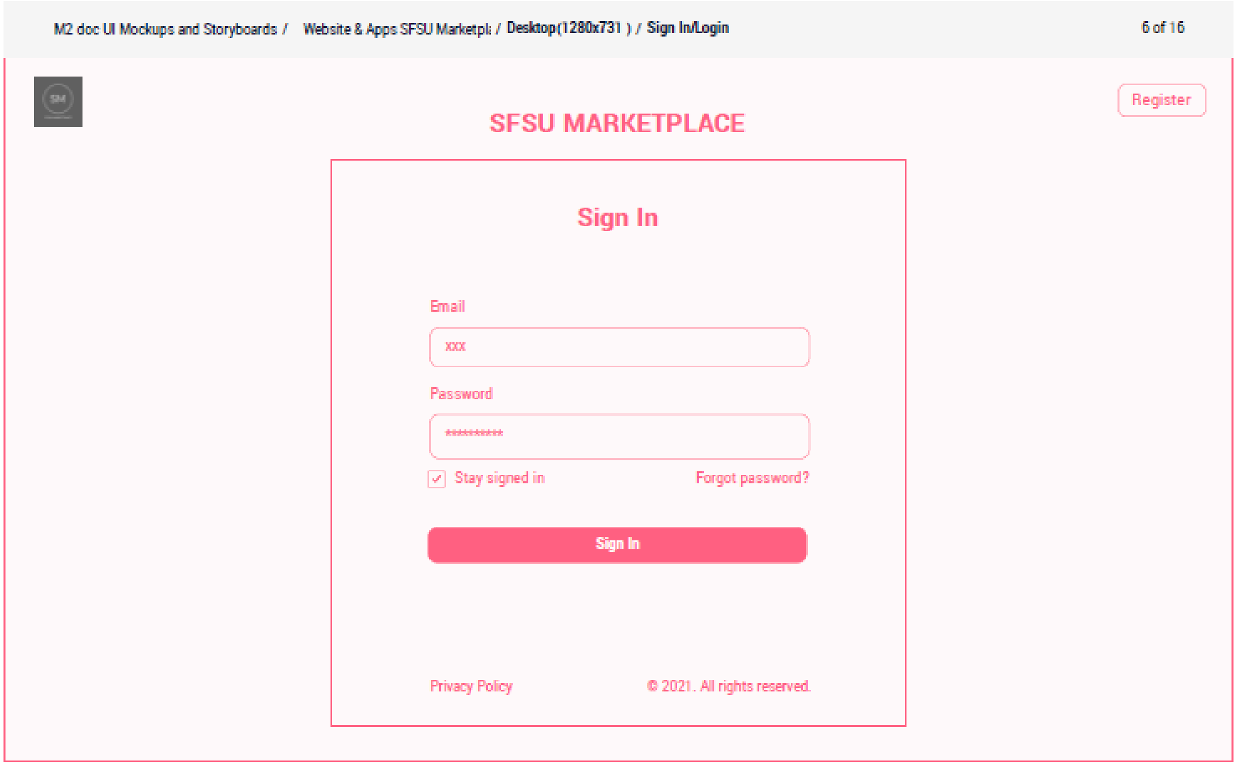
Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla tristique felis

Privacy Policy © 2021. All rights reserved.

This is the landing/home page where any user is welcomed to the website. The website is called gatormart. The home page includes a registration/sign in link in the top right corner. We also have a centered search bar in the middle and featured products in the center of the page where users can click any products to view them. Our home page also includes a footer with additional useful links.


M2 doc UI Mockups and Storyboards / Website & Apps SFSU Marketpl: / Desktop(1280x941) / Register Page
5 of 16
SM
Sign In
Register
Full Name
xxx
Email
xxx
Password
6+ Characters
Register
Or
Sign in
Privacy Policy
© 2021. All rights reserved.

The register page is where a new user needs to put all the credentials and be able to create an account. User needs to meet all the password requirements before getting registered. It will also give an option for existing users to sign in. Later incorporations may include sfsu student id.



M2 doc UI Mockups and Storyboards / Website & Apps SFSU Marketpl: / Desktop(1280x731) / Sign In/Login
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SM
Register
SFSU MARKETPLACE
Sign In
Privacy Policy
© 2021. All rights reserved.

Email

xxx

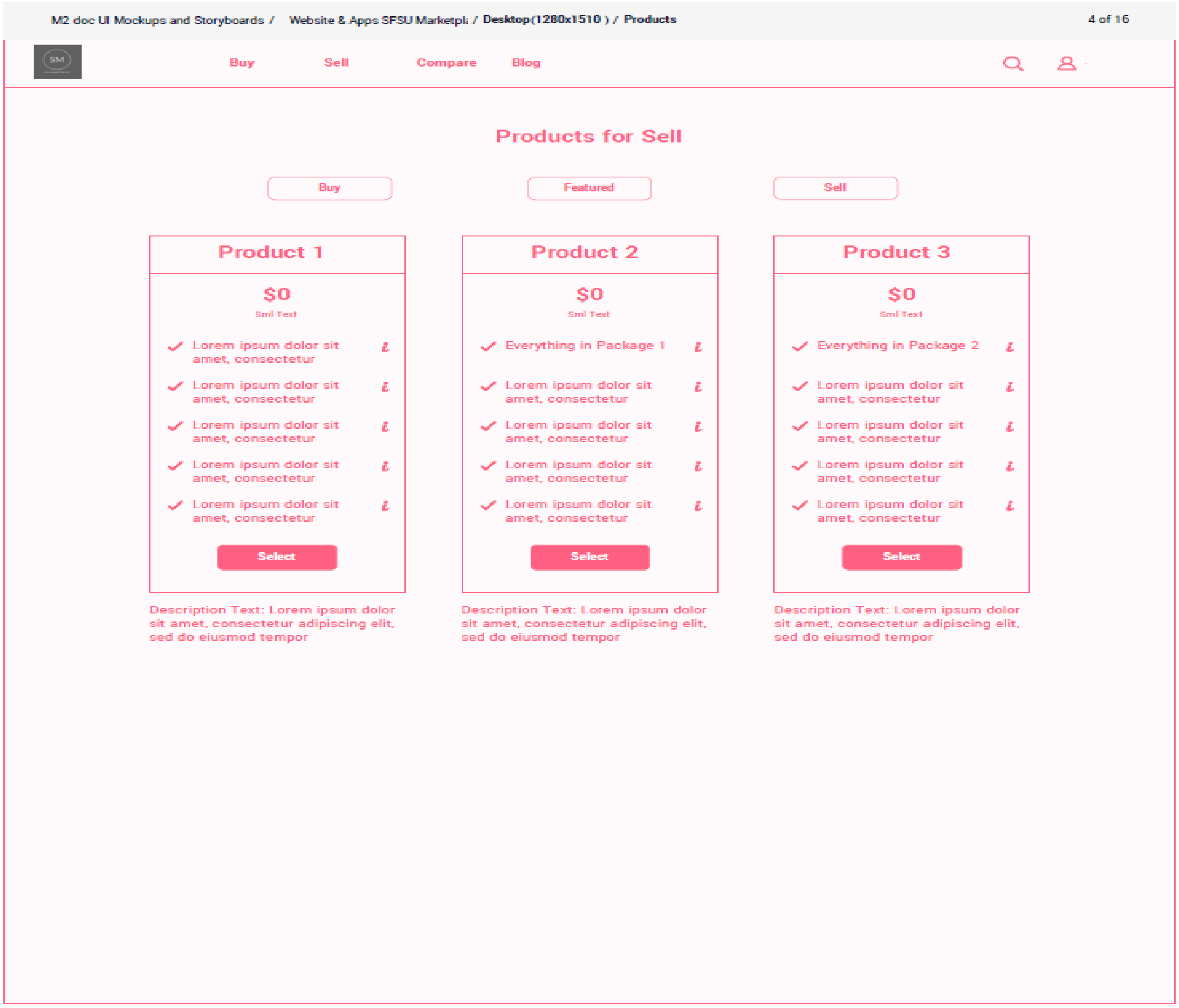
Password

****

☑ Stay signed in   Forgot password?

Sign In

This will be our sign in page through which an existing user can login with their saved credentials. Users need to be signed in to sell or buy/rent items.



M2 doc UI Mockups and Storyboards / Website & Apps SFSU Marketpl: / Desktop(1280x1510) / Products 4 of 16

Products for Sell

Product 1

$0

Sml Text

- ✓ Lorem ipsum dolor sit amet, consectetur
- ✓ Lorem ipsum dolor sit amet, consectetur
- ✓ Lorem ipsum dolor sit amet, consectetur
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Select

Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

Product 2

$0

Sml Text

- ✓ Everything in Package 1
- ✓ Lorem ipsum dolor sit amet, consectetur
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- ✓ Lorem ipsum dolor sit amet, consectetur

Select

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Product 3

$0

Sml Text

- ✓ Everything in Package 2
- ✓ Lorem ipsum dolor sit amet, consectetur
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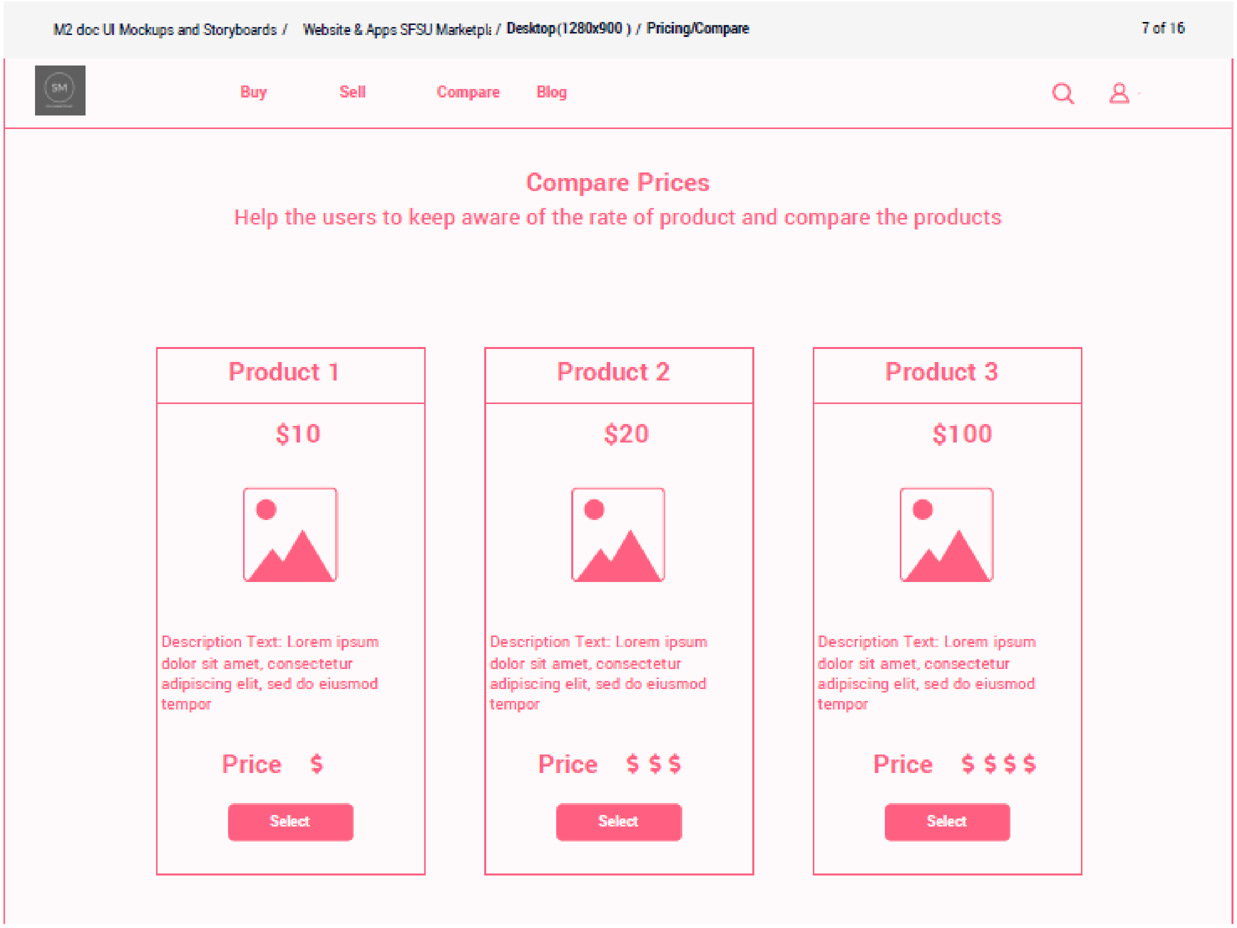
- ✓ Lorem ipsum dolor sit amet, consectetur
- ✓ Lorem ipsum dolor sit amet, consectetur

Select

Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

This will be our products to sell where users have posted the items with the description and contact information to make the sale. It will also show out the price. This page is similar to our home page with important links to make a sell or buy an item, will be be like MyList for the user if he is intending to sell out items and can add over here.



M2 doc UI Mockups and Storyboards / Website & Apps SFSU Marketpl: / Desktop(1280x900) / Pricing/Compare

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Compare Prices

Help the users to keep aware of the rate of product and compare the products

Product 1

$10

Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

Price $

Product 2

$20

Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

Price $ $ $

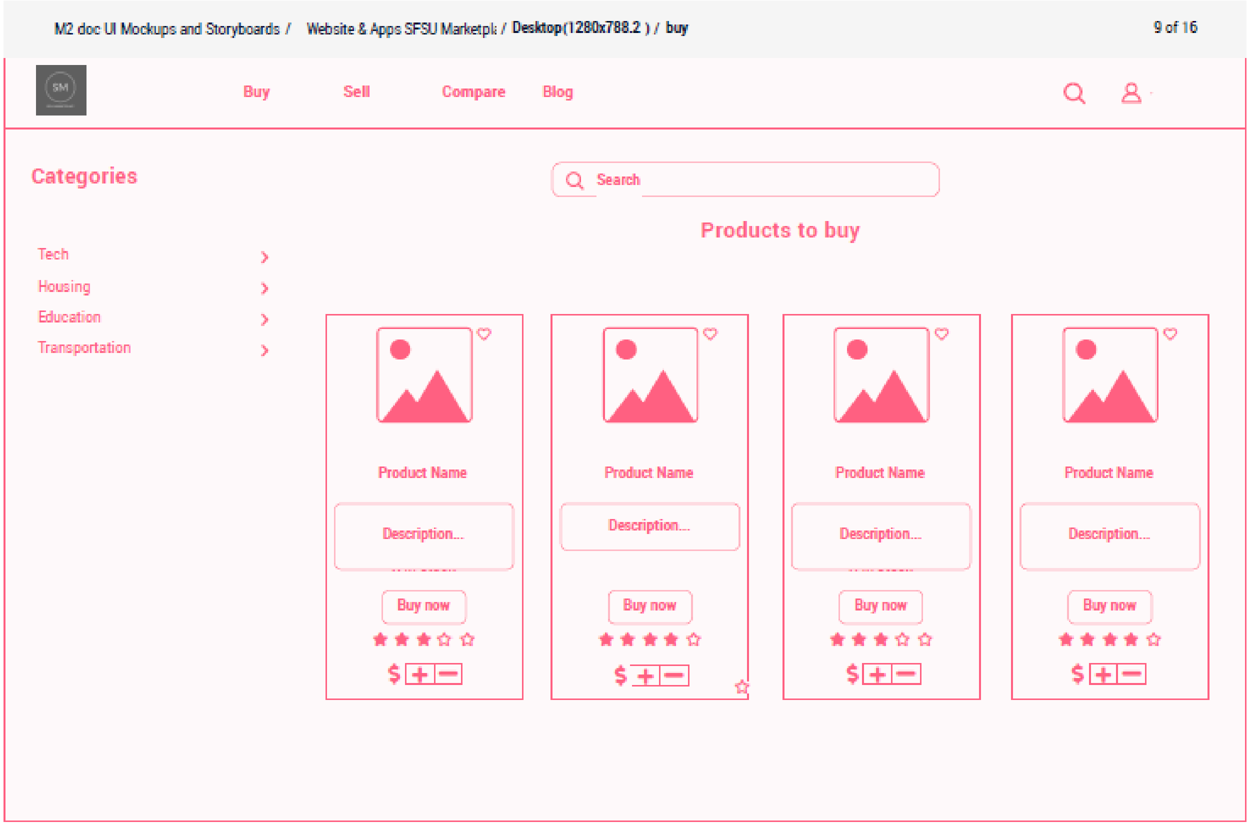
Product 3

$100

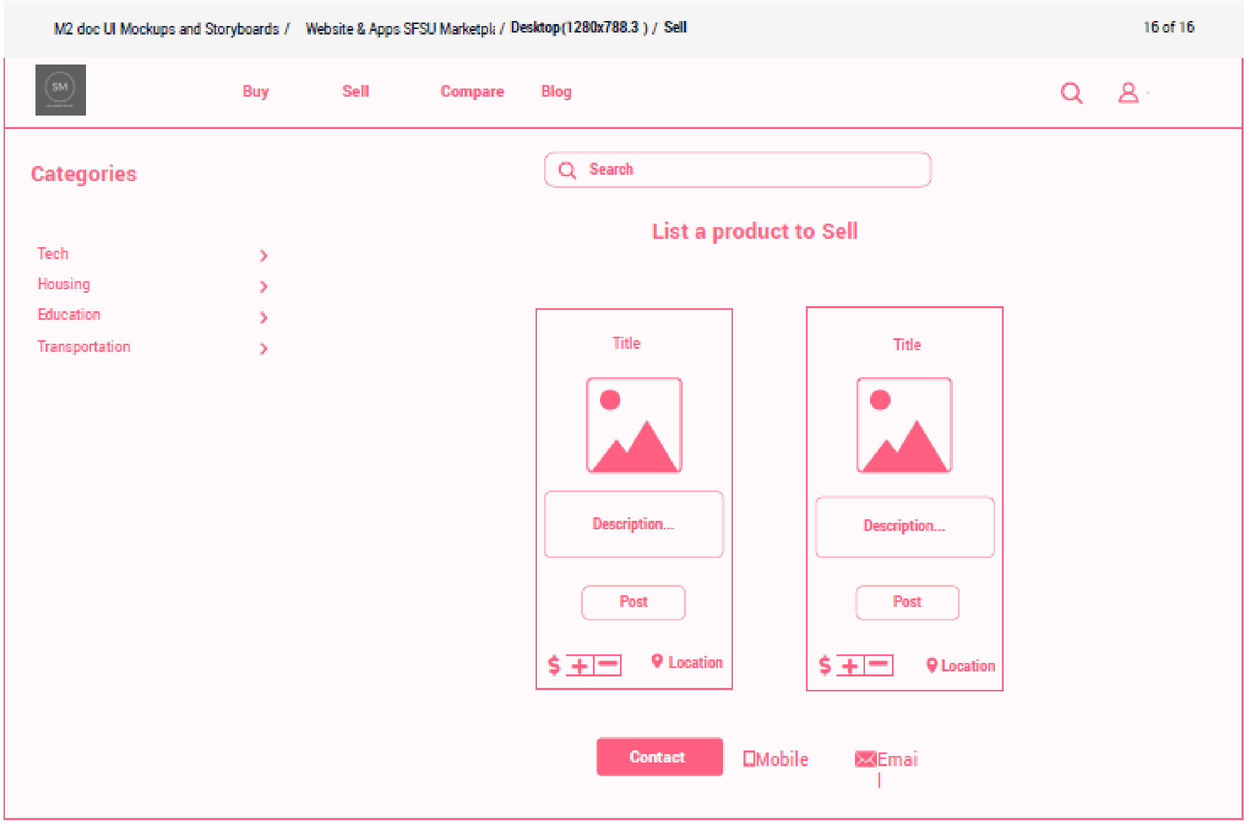
Description Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

Price $ $ $ $

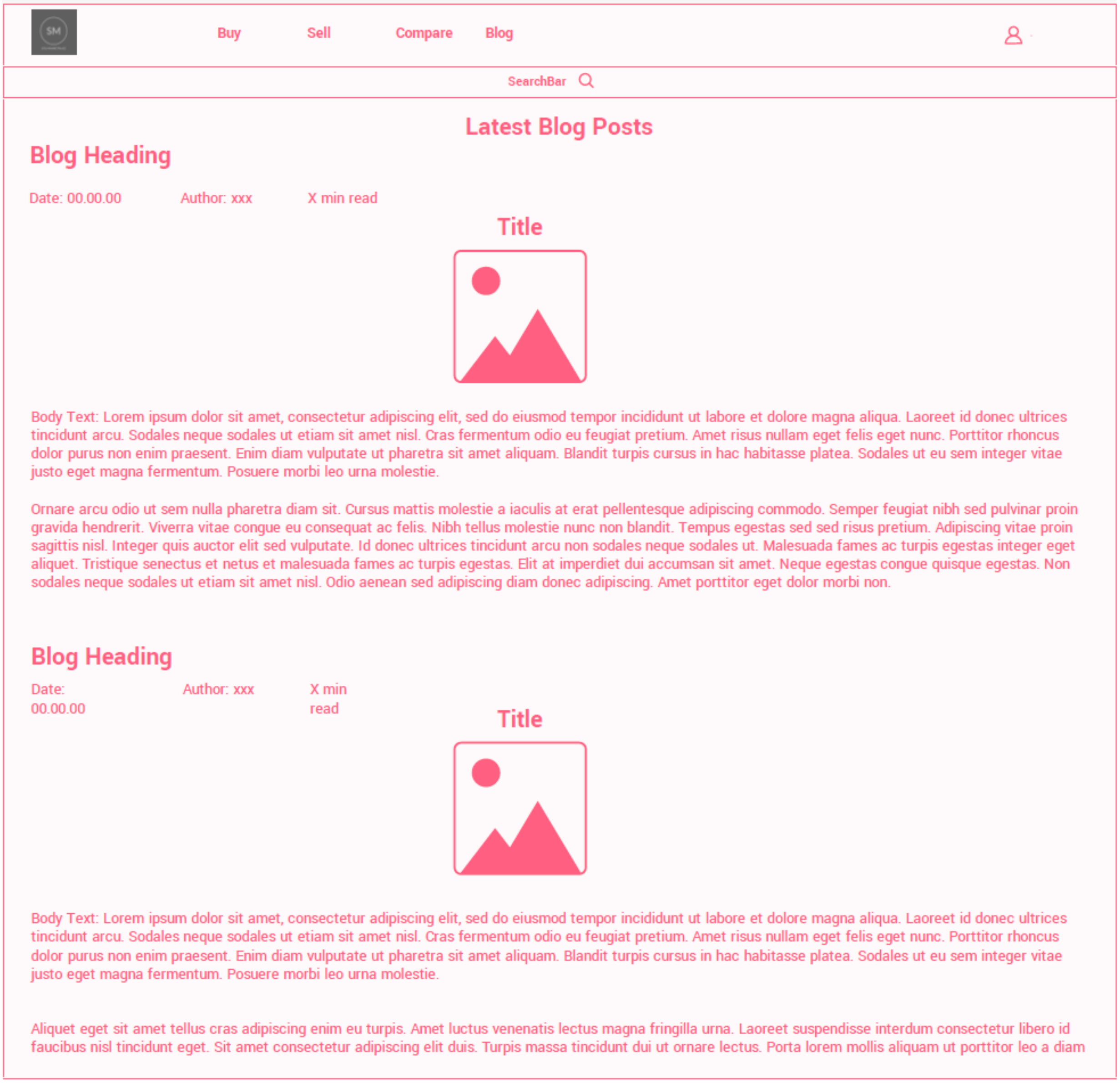
This is the Compare price page which will give access to the user to see the difference in prices for the products and help give an estimate of how much the products are being posted on the market. A dollar sign indicates the value of the item and its price.



This is the page to buy items, a user can either search for products to buy or explore popular items. Additionally we will have filters to filter out products.



Product to buy page will have all the information about the product and also a list of categories on the side which will help the user to look for items. Also our product's sale page will have an image and description with price bid for the user and also give out the location if the product needs to be picked or dropped off. All the contact information via phone or email will be provided too for other students to contact.



Latest Blog Posts

Blog Heading

Date: 00.00.00 Author: xxx X min read

Title

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Blog Heading

Date: 00.00.00 Author: xxx X min read

Title

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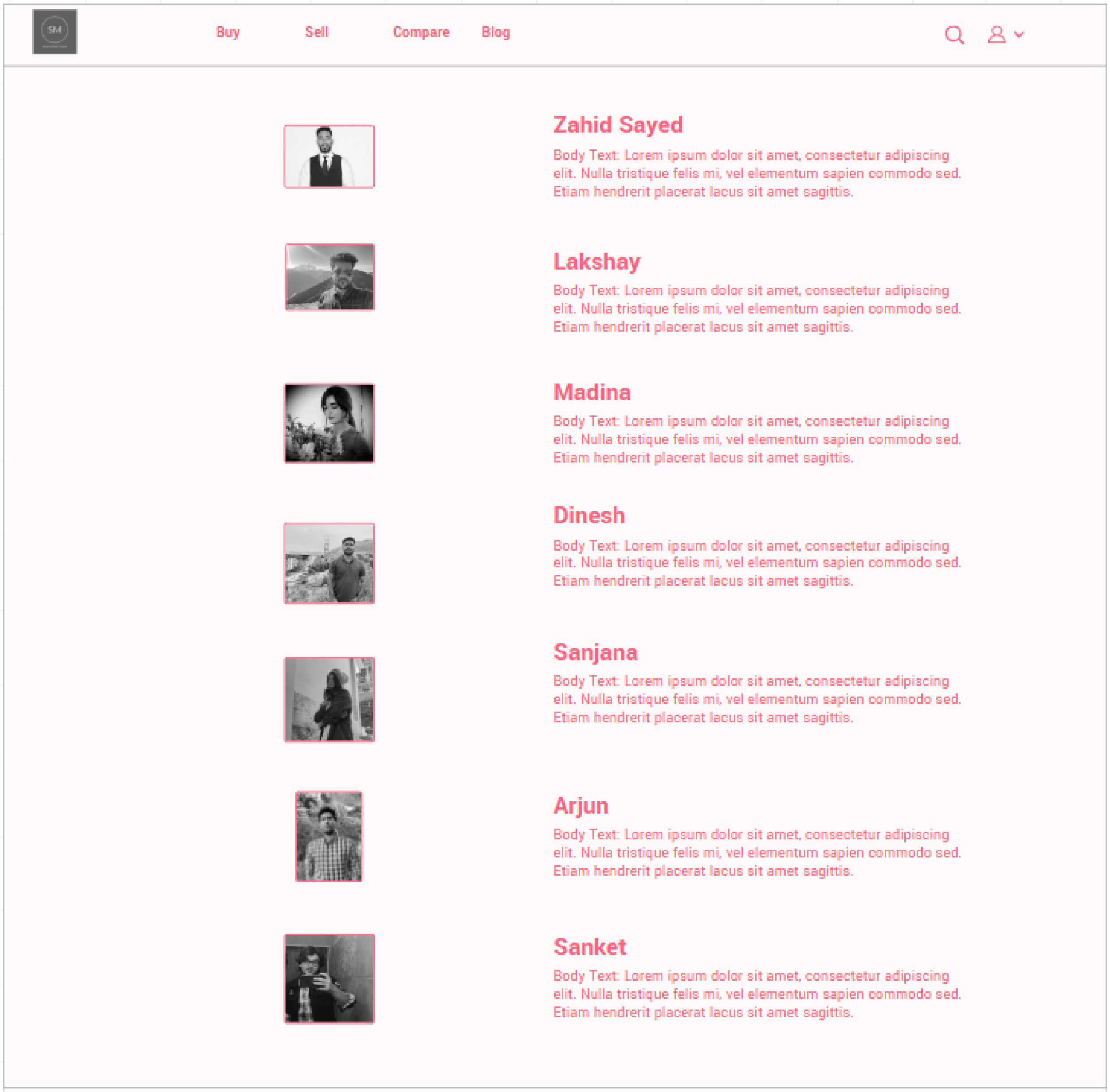
Our latest blog post will be serving as a community page where students are just able to post anything related to academics, images or important notices. This will give other students a chance to keep up with the recent information and also give information on who posted it. It's a great source for communication for the local students and community.



Zahid Sayed

Body Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla tristique felis mi, vel elementum sapien commodo sed. Etiam hendrerit placerat lacus sit amet sagittis.

Lakshay

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Madina

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Dinesh

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Sanjana

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Arjun

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Sanket

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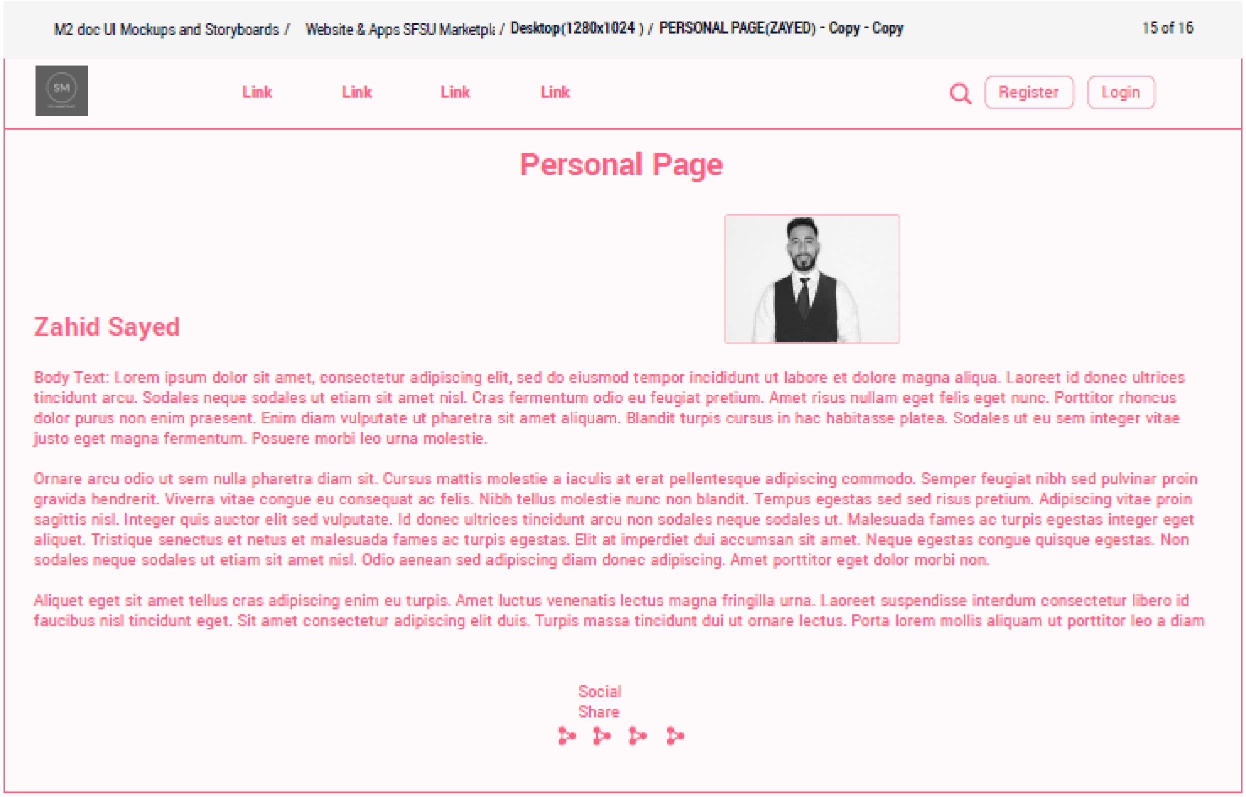
This page will be our team members page, providing members information each title and picture is linked to our individual team members page.



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Personal Page

Zahid Sayed

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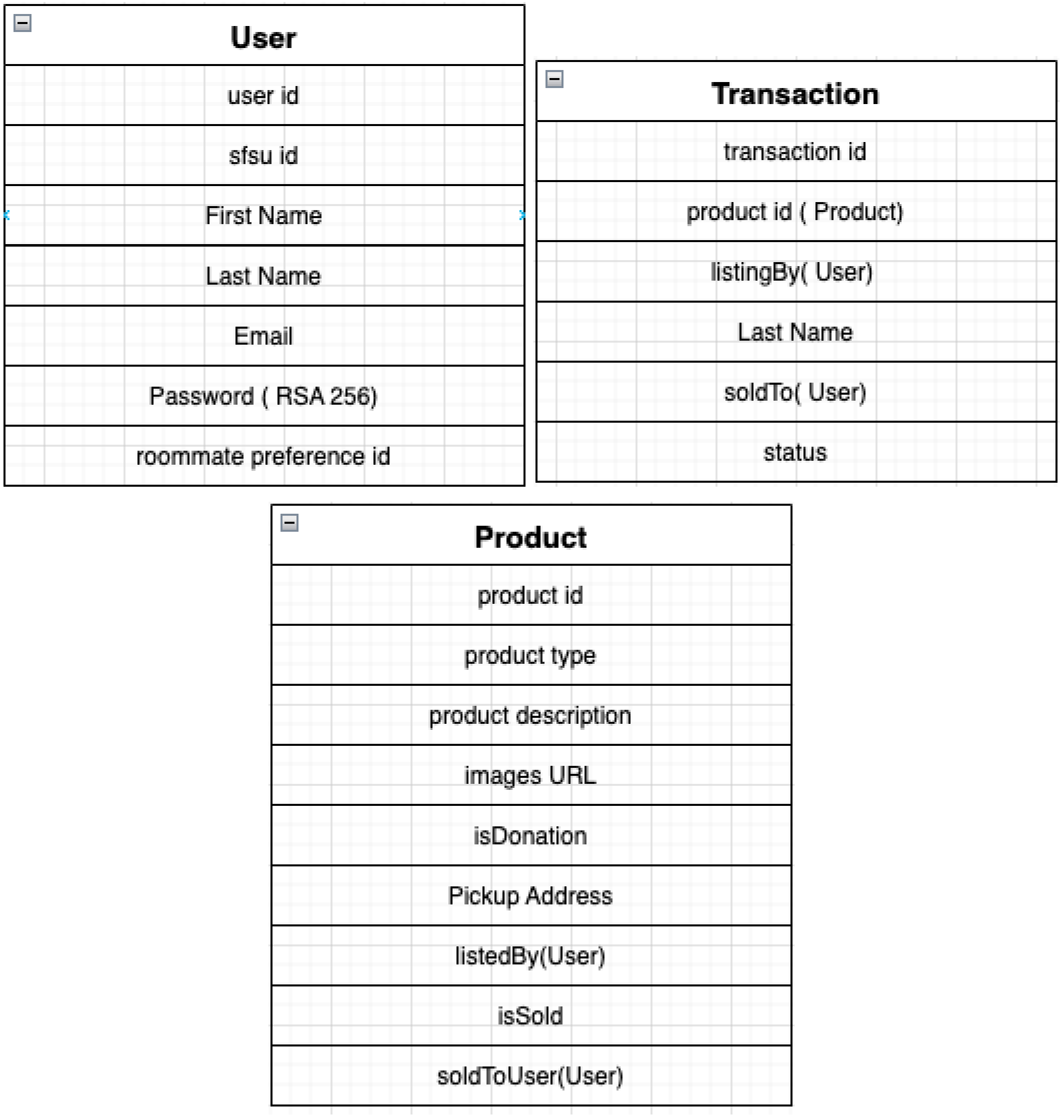
Our personal page will be with a picture and brief introduction of the team members, here a team member can show off their skills or promote themselves and their skills for future oppertunites.

4. High level Architecture, Database Organization

4.1 Database Organization

We use mongoDB for the database architecture. For Gatormart, we primarily have three tables: 1) User 2) Transaction 3) Product. All these tables support add, search and delete operations for functioning of the platform.



User
user id
sfsu id
First Name
Last Name
Email
Password (RSA 256)
roommate preference id

Transaction
transaction id
product id (Product)
listingBy(User)
Last Name
soldTo(User)
status

Product
product id
product type
product description
images URL
isDonation
Pickup Address
listedBy(User)
isSold
soldToUser(User)

4.1.1 User Table

This table keeps records of every single user (buyers or sellers) present on the platform. *user_id* shall be the primary key. We also keep track of the student ID of the user with the column *sfsu_id*. Users can log in through either *email* or their student ID and can set a *password* for their account.

4.1.2 Transaction Table

This table keeps track of all the transactions performed by the users. *transaction_id* is the primary key in this table. *product_id* is a foreign key (primary key of the product table). The columns *listingBy* and *soldTo* are foreign keys from the user table and the column *status* describes whether the transaction has been performed or not (product sold or not).

4.1.3 Product Table

This table lists all the products posted on the platform. *product_id* is the primary key. *product_type* and description describes the product to the user. *img_url* stores the link to the image that will be used to render the image of the product on the platform. *isDonation* and *isSold* are boolean keys whereas *pickup_addr*, *listedBy* and *soldTo* are strings that provide relevant information about the product posting.

4.2 APIs

We use four self-made APIs for Gatormart

4.2.1 /login

/login API shall be employed whenever a user submits their information to login to the platform. This API will be used to fetch the login information and verify the user's identity to permit access to the platform.

4.2.2 /getProduct

While browsing the platform, a user tends to surf through a variety of products in a short span of time. /getProduct API is employed for rapidly fetching data for a specific product whenever a user clicks on them on the platform.

4.2.3 /addTocart

When a user wants to make a purchase they may or may not desire to do so for multiple products at the same time. /addTocart enables the platform to keep track of multiple products that a user wishes to purchase.

4.2.4 /buy

Whenever a user wishes to make a purchase of some product(s), /buy API is triggered. /buy verifies the identity of the user before the purchase is made to avoid unauthorized billings.

5. High Level UML Diagrams

Diagram: UML class diagram

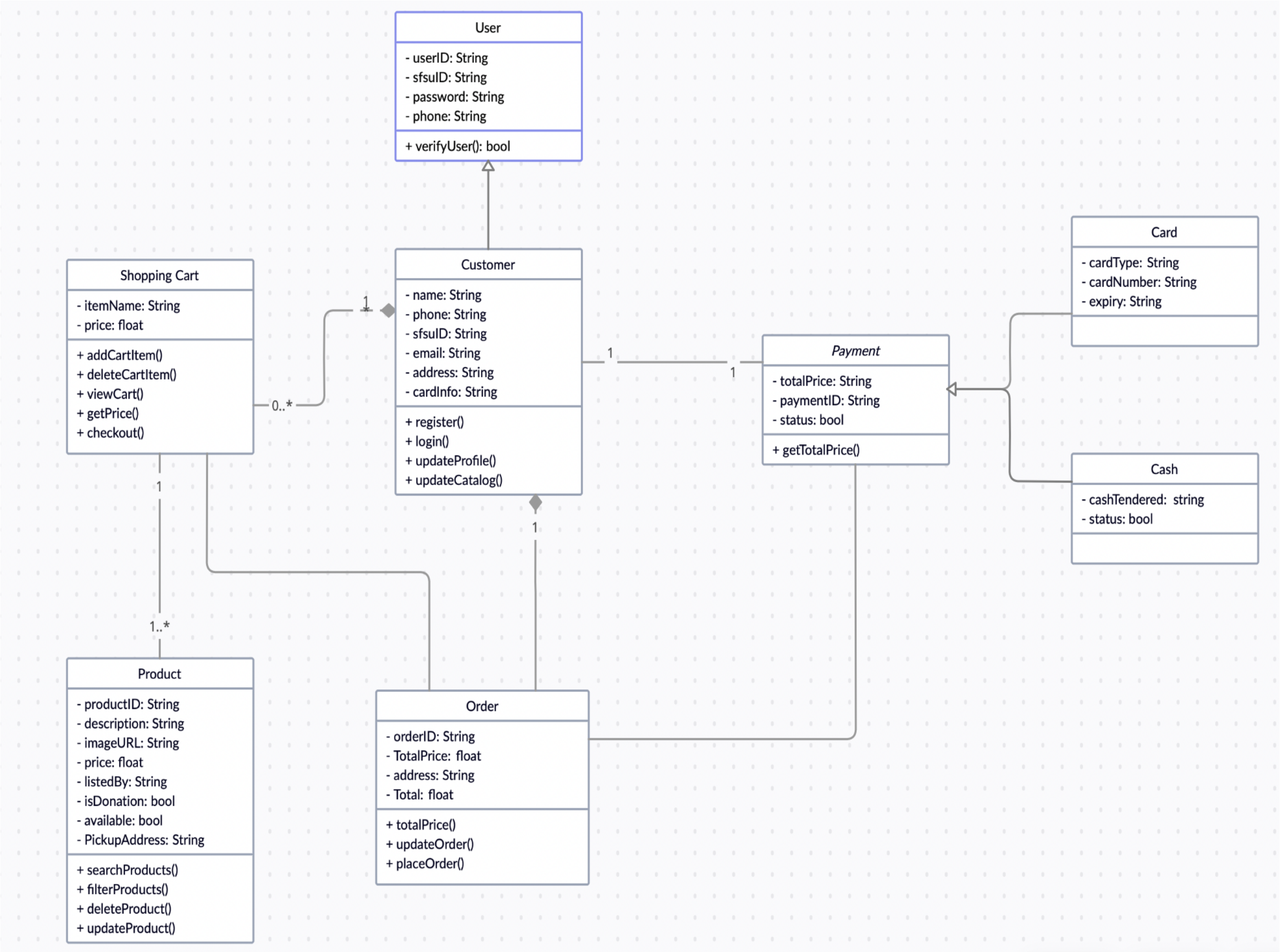
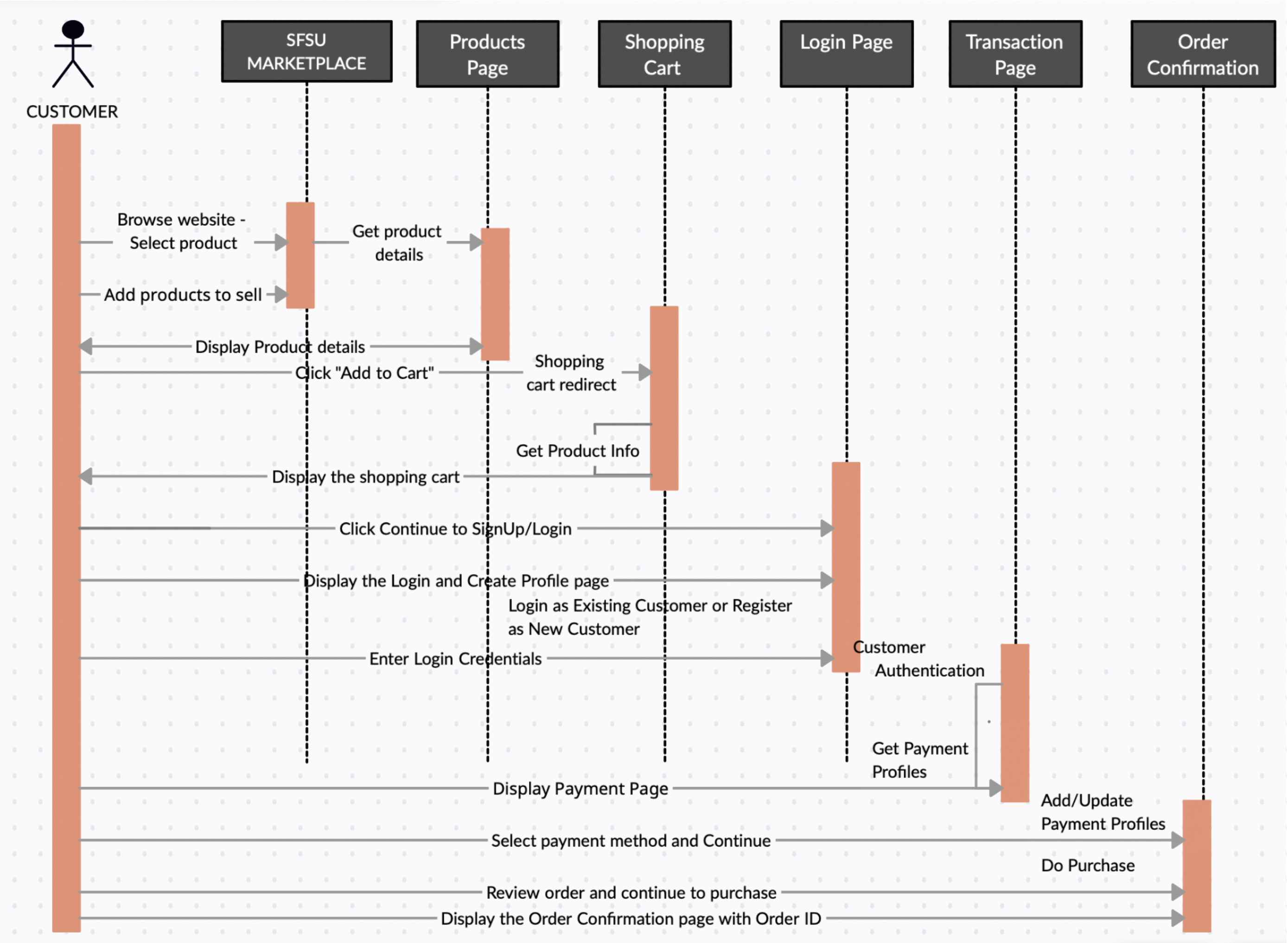


Diagram: UML sequence diagram


CUSTOMER
SFSU MARKETPLACE
Products Page
Shopping Cart
Login Page
Transaction Page
Order Confirmation
Browse website - Select product
Get product details
Add products to sell
Display Product details
Click "Add to Cart"
Shopping cart redirect
Get Product Info
Display the shopping cart
Click Continue to SignUp/Login
Display the Login and Create Profile page
Login as Existing Customer or Register as New Customer
Enter Login Credentials
Customer Authentication
Get Payment Profiles
Display Payment Page
Add/Update Payment Profiles
Select payment method and Continue
Do Purchase
Review order and continue to purchase
Display the Order Confirmation page with Order ID

6. Identify key risks for your project at this time

1. Skills resource risk

Our team consists of 7 members, all possessing different levels of programming skills and awareness of technologies. As a result, it is only natural for us to run into obstacles when it comes to deciding on one software stack and ensuring everyone puts in the same effort.

Methods to resolve -

- ➢ Share multiple resources to help the team learn quicker.
- ➢ The team lead should come up with a resource allocation plan and identify potential risks with it. For example, identifying how many in the team have the needed critical skills and whether more members should be upskilled in order to avoid delays in the milestone.

2. Poor team cohesion

Inner conflicts can affect how the team functions. Unfair distribution of tasks within the team may sometimes cause unrest among the team members. In order to avoid this, we are making sure that transparency and fairness is maintained.

Methods to resolve -

- ➢ Contributions by each team member can be made fully transparent and available to view on JIRA, making it easier for each of us to track and adjust our workload accordingly.

3. Time Crunch

Time management and on-time delivery is sometimes difficult to ensure in a team of 7 people such as ours. Miscommunication and heavy workload might result in a delay in the completion of a few tasks.

Methods to resolve -

- ➢ Contributions by each team member can be made fully transparent and available to view on JIRA, making it easier for each of us to track and adjust our workload accordingly.

4. Active succession planning

On days where some of our backend developers could not be available, we noticed instances where it caused disruption to how the entire team functions. Experienced members have a wealth of knowledge and skills that simply cannot be replaced.

Methods to resolve -

- ➢ We aim to minimize this risk by upskilling and preparing other members who may be in line for extra responsibilities in the event that a backend/frontend lead does not show up

7. Project management

Our team has three front-end and two back-end developers. We started this milestone off with a website layout and UI wireframes designed by the frontend team. After discussing and finalizing these designs with the team, we assigned tasks in the documentation as well as the prototype implementation among the team. I, along with the frontend team took care of the basic implementation of the UI in the website. Although we have people assigned specifically for the frontend, other members such as the github master and the scrum master also contributed to the UI implementation of the website. I assigned pages of the frontend along with the UI/UX storyboards and UML class diagrams to pairs consisting of one graduate student and one undergraduate student. The backend developers simultaneously worked on designing and developing the database and adding GET and POST requests to the DB.

We had weekly team meetings every Monday 7-8pm at the library and Thursday 7-8pm in-person/online. We spend the first ten minutes of the meetings discussing what tasks each of us has completed so far. After that, we address the team's queries/concerns regarding the project and discuss our agenda for the particular week. We made sure to factor in everyone's feedback and divided tasks in a way that would achieve optimum results.

I understand that, when working in a team, it's important to be transparent in communication, set sensible deadlines and schedule tasks properly. We utilized JIRA to assign tasks and post comments/descriptions to manage communication within our team. Our scrum master updates tasks on the JIRA board and ensures everyone checks their assigned tasks regularly. We use our discord group for most of our communication. We've created multiple text channels within our Discord to address different aspects of teamwork such as "queries by the team", "notes and files", "team-meeting minutes", and "general".