SW Engineering CSC 648/848 Fall 2020
Team 4

Milestone 2
GatorTrader

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1. Executive Summary:

As new students who are proficient in using technology enroll at San Francisco State University, a need for a platform that provides the ability to buy, sell, and trade essential items increases. Buying textbooks straight from a vendor is expensive, and finding good deals can be challenging. Our company would like to develop a free-to-use website named **GatorTrader** to solve this issue. **GatorTrader** will allow the students, professors, and faculty of San Francisco State to easily buy, sell, and trade items.

Since many students attend the same classes at San Francisco State University, and classes usually use the same textbooks and supplies every semester, these goods should be able to be passed down from student to student each semester. This does not happen, however, because there is no communication medium in place to facilitate these transactions. **GatorTrader** will serve as this communication medium and provide excellent features, including: search by category, search by class, a messaging system, and a clean user interface.

Our team of six students is excited to provide an excellent product for our fellow Gators to use. Our ultimate goal is for **GatorTrader** to be an easy to use website that allows buyers and sellers to communicate with each other over a secure and reliable interface. In a time where the price of attending university is skyrocketing, we believe **GatorTrader** will make college life more affordable.

2. List of main data items and sub-items:

1. **User**
   1.1. **Definition:** Users of the website have a login and password that are stored on the server. Stores all current and previous listings that the user has made. Stores listings that the user has saved for later. Stores what type of privileges this account has, this could be admin, student, or faculty.
   1.2. **Sub-items:**
      1.2.1. **username:** Username used to login to site
      1.2.2. **userID:** Unique user ID used for database
      1.2.3. **phone:** The user's phone number
      1.2.4. **email:** The user's SFSU email address
      1.2.5. **password:** The password that the user uses to sign in
      1.2.6. **listings:** List of listings a user has posted
      1.2.7. **messageThreads:** List of message thread IDs the user is a part of
      1.2.8. **isAdmin:** Flag used to delineate admin accounts from other users

2. **Listing**
   2.1. **Definition:** This data item is used to store sellers listings, depending on the type of listing (textbook, furniture, housing, etc.) it has different data items that need to be stored. For example, selling a textbook would require entering the ISBN, and name of the class that it is used for. If selling furniture, the color, the type(sofa, bed, table, etc.) will be stored.
   2.2. **Sub-items:**
      2.2.1. **name:** The name of the listing; displayed on search results and listing pages
      2.2.2. **listingID:** Unique listing ID used for database
      2.2.3. **sellerID:** userID of the user who posted the listing
      2.2.4. **timestamp:** Date and time the listing was posted
      2.2.5. **description:** The description of the listing; displayed on the listing page
      2.2.6. **price:** The price that the seller set for the listing
      2.2.7. **categories:** List of categories that the listing applies to
      2.2.8. **photos:**
      2.2.9. **isApproved:** Flag used to show whether the post has been approved by an admin
      2.2.10. **isActive:** A flag that represents whether or not a Listing can show up in the search query

3. **Message thread**

3.1. **Definition:** Message threads are stored in tables with the two parties' ID's along with a key to a message table where individual messages will be stored. This will allow us to easily get all the message threads for a particular user.

3.2. **Sub-items:**

    3.2.1. **threadID:** Unique message thread ID used for database

    3.2.2. **messages:** List of messages that the thread consists of

    3.2.3. **sellerID:** userID of the seller

    3.2.4. **buyerID:** userID of the buyer

4. Message

4.1. **Definition:**

4.2. **Sub-items:**

    4.2.1. **messageContents:**

    4.2.2. **messageID:** Unique message ID used for database

    4.2.3. **threadID:** threadID of the message thread that the message belongs to

    4.2.4. **senderID:** userID of the user who sent the message

    4.2.5. **timestamp:** Date and time the message was sent

5. Category

5.1. **Definition:** Table that holds Listing IDs sorted by category

5.2. **Sub-Items:**

    5.2.1. **books:** List of Listing IDs that are part of the books category

    5.2.2. **housing:** List of Listing IDs that are part of the housing category

    5.2.3. **services:** List of Listing IDs that are part of the services category

    5.2.4. **household:** List of Listing IDs that are part of the household category

    5.2.5. **electronics:** List of Listing IDs that are part of the electronics category

    5.2.6. **automotive:** List of Listing IDs that are part of the automotive category

    5.2.7. **games:** List of Listing IDs that are part of the games category

    5.2.8. **beauty:** List of Listing IDs that are part of the beauty category

    5.2.9. **outdoors:** List of Listing IDs that are part of the outdoors category

3. Prioritized Functional Requirements:

a. Priority 1:

1.1. Registered Users

1.1.3. Shall be able to post item/service **listings**

1.1.8. Shall be able to send **messages** to sellers/respond to buyers

1.1.9. Shall login with a username and password

1.2. Any Users

1.2.1. Shall be able to use their SFSU email to create an account

1.2.2. Shall be able to search for items by item name

1.3. Admins

1.3.2. Shall be able to remove **listings** at any time

1.3.5. Shall be able to ban **user** account

b. Priority 2:

1.1. Registered Users

1.1.1. Shall be able to delete their account

1.1.2. Shall be able to edit account information

1.1.4. Shall be able to delete item/service **listings**

1.1.5. Shall be able to edit item/service **listings**

1.1.10. Shall be able to report users/**listings** for suspicious/illegal activity

1.2. Any Users

1.2.3. Shall be able to search for items by **category**

1.2.4 Shall be able to search for items by class name

1.3. Admins

1.3.1. Shall be able to review **listings**/edits/reports

1.3.4. Shall be able to **message** registered users

1.3.6. Shall be able to report illegal activities to the authorities

c. Priority 3:

1.1. Registered Users

1.1.6. Shall be able to post **listings** with a multiple photos

1.1.7. Shall be able to tag **listings** with common attributes

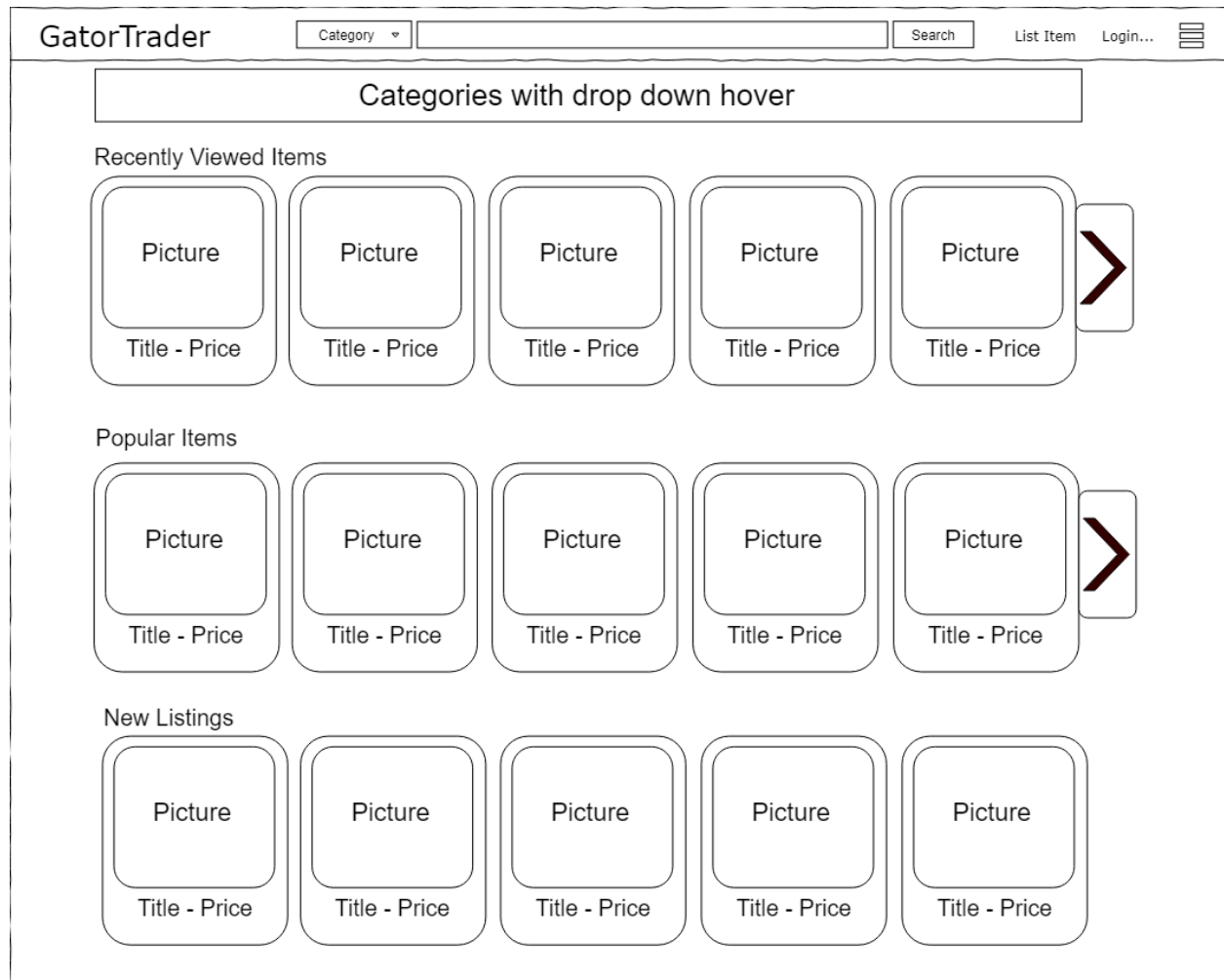1.1.11. Shall be able to view past **messages** for specific **listings**

1.3. Admins

1.3.3. Shall be able to provide feedback if a **listing** is rejected

4. UI Mockups and Storyboards:

Use Case 1: Selling Books - David Miller

David wants to list his books on the site. He selects 'List Item'. Visits the site.

1. User selects List Item.

GatorTrader | Category ▾ | [   ] | Search | List Item | Login... | ☰

List Item

Listing Name

[Listing Name]

x character limit.

Meeting Location

[Meeting Location]

Preferable meeting location would be close to or on campus.

Price

[$0.00]

Price needs to match $0.00.

Category

[Textbooks ▾]

Meeting Time

[Meeting Time]

Describe any days and times you are available to meet.

Description

[Describe your item]

x character limit.

Image

choose file | No File Chosen

Add an image to your listing.

2. After filling out the information they select next.

[Cancel] [Next]

After filling out the prior information the next page asks for more specific information based on the category.

GatorTrader   Category ▽ | | Login... ≣

3. They are asked for more specific information based on the category.

List Item

ISBN

ISBN

Course Type   Course Number

PHIL ▽   101.1 ▽

4. After selecting Submit, they are asked to login/register.

Cancel   Submit

After registering for an account David is brought to the 'My Listings' page, which shows the status of approval for his listing.

GatorTrader Category ▾ Search   List Item   David M. ☰

5. The user is brought to a page that shows all their listings along with their approval status.

My Listings

Showing x listings of x total...

Listing Title

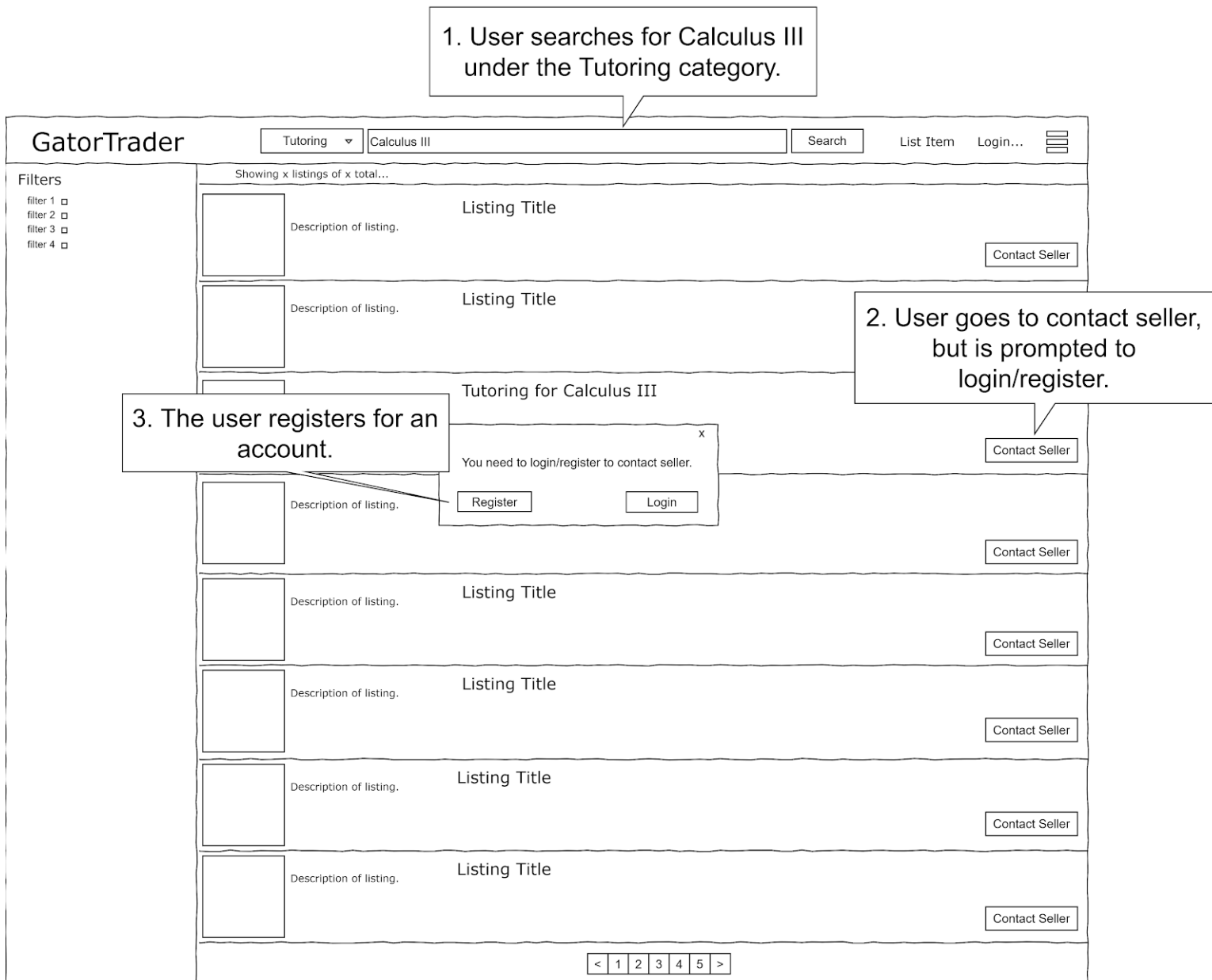Description of listing.

Modify

Delete

1

List Another Item

Use Case 2: Scheduling Tutor - Sarah Nelson

Sarah is looking for a tutor for Calculus III. She enters the appropriate search information and sets the category to tutoring.

She is prompted to make an account.

GatorTrader | Tutoring ▽ | Calculus III | Search | List Item | Login... | ☰

Register

Email

Email

Password

Password

First Name

First Name

Last Name

Last Name

Cancel   Register

4. After filling out the form, they register for an account.

After making an account she is prompted with a message box addressed to the tutor.

| GatorTrader | Tutoring ▽ | Calculus III | Search | List Item | Sarah N. ☰ |

Filters

filter 1 ☐
filter 2 ☐
filter 3 ☐
filter 4 ☐

Showing x listings of x total...

Listing Title
Description of listing.
Contact Seller

Listing Title
Description of listing.
Contact Seller

Tutoring for Calculus III
Description of listing.
Contact Seller

Listing Title
Description of listing.
Contact Seller

Listing Title
Description of listing.

Listing Title
Description of listing.

Listing Title
Description of listing.

Listing Title
Description of listing.

5. User is brought back to listing and is prompted with message box to seller.

Henry Thomas   — x

You: Hello, I am interested in tutoring
Henry: Yes, let me know what day works best.

Enter your message here   Send

< 1 2 3 4 5 >

Approval of Listings - Admin

Page that allows admin to approve or deny listings.

| GatorTrader | Category ▽ | | Search | List Item | Admin | ☰ |

Listings to be Approved

Showing x listings of x total...

| | Listing Title | Deny |
| | Description of listing. | Accept |

| | Listing Title | Deny |
| | Description of listing. | Accept |

| | Listing Title | Deny |
| | Description of listing. | Accept |

| | Listing Title | Deny |
| | Description of listing. | Accept |

| | Listing Title | Deny |
| | Description of listing. | Accept |

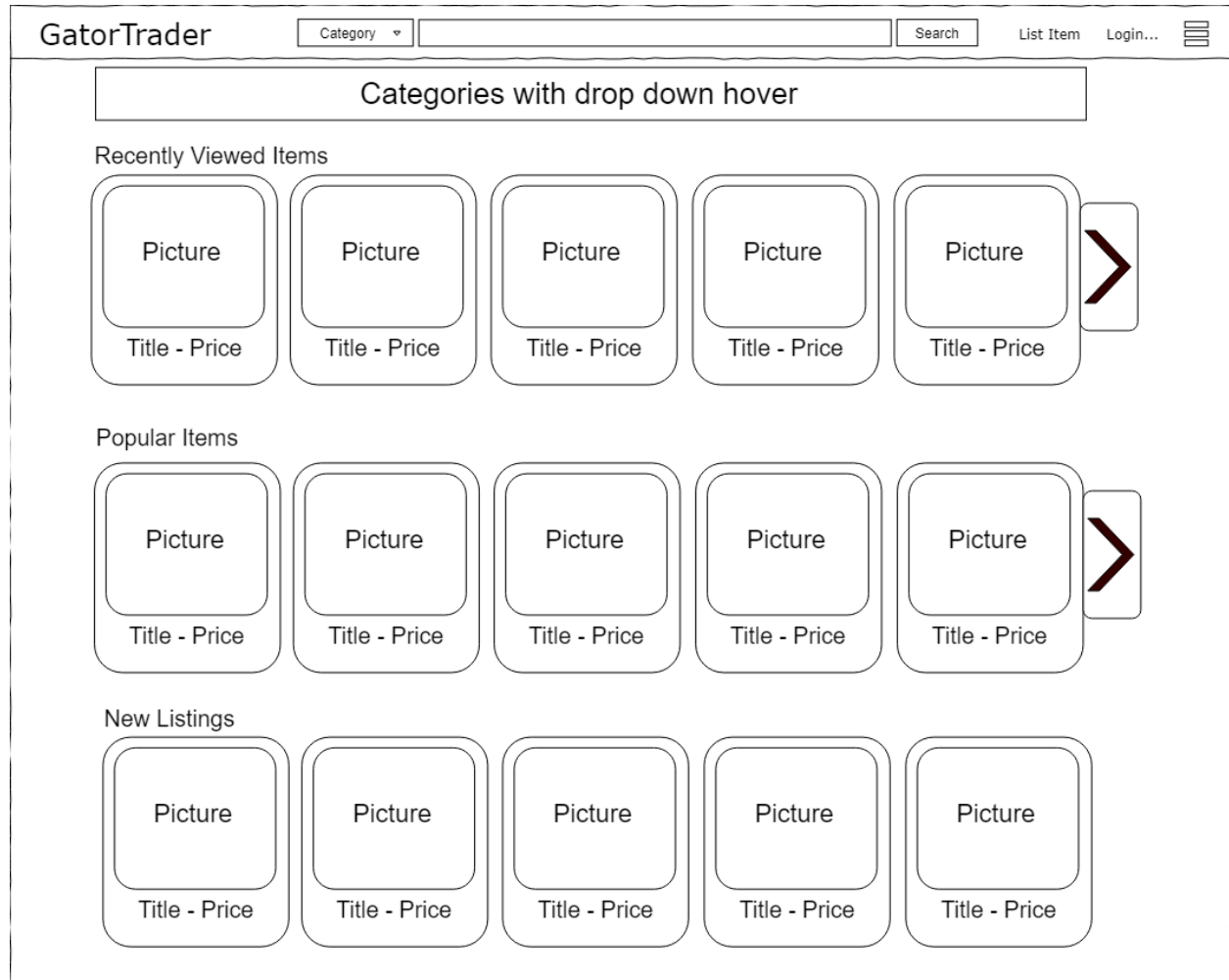| | Listing Title | Deny |
| | Description of listing. | Accept |

< | 1 | 2 | 3 | 4 | 5 | >

Use Case 3: Selling Equipment - John Anec

John visits the website.

He then signs up for an account

| GatorTrader | Tutoring ▾ | Calculus III | Search | List Item | Login... |

Register

Email

| Email |

Password

| Password |

First Name   Last Name

| First Name | | Last Name |

Cancel   Register

He is now able to list his weight equipment. He selects misc for category. Clicks submit and waits for approval.

GatorTrader [Category ▽] [   ] [Search]   List Item   Login...   ☰

List Item

Listing Name

[Listing Name]
x character limit.

Meeting Location

[Meeting Location]
Preferable meeting location would be close to or on campus.

Price   **Category**

[$0.00]   [Misc ▽]
Price needs to match $0.00.

Meeting Time

[Meeting Time]
Describe any days and times you are available to meet.

Description

[Describe your item

]
x character limit.

Image

[choose file] No File Chosen
Add an image to your listing.

[Cancel]   [Submit]

Once approved, he checks his messages and is able to communicate with a buyer.

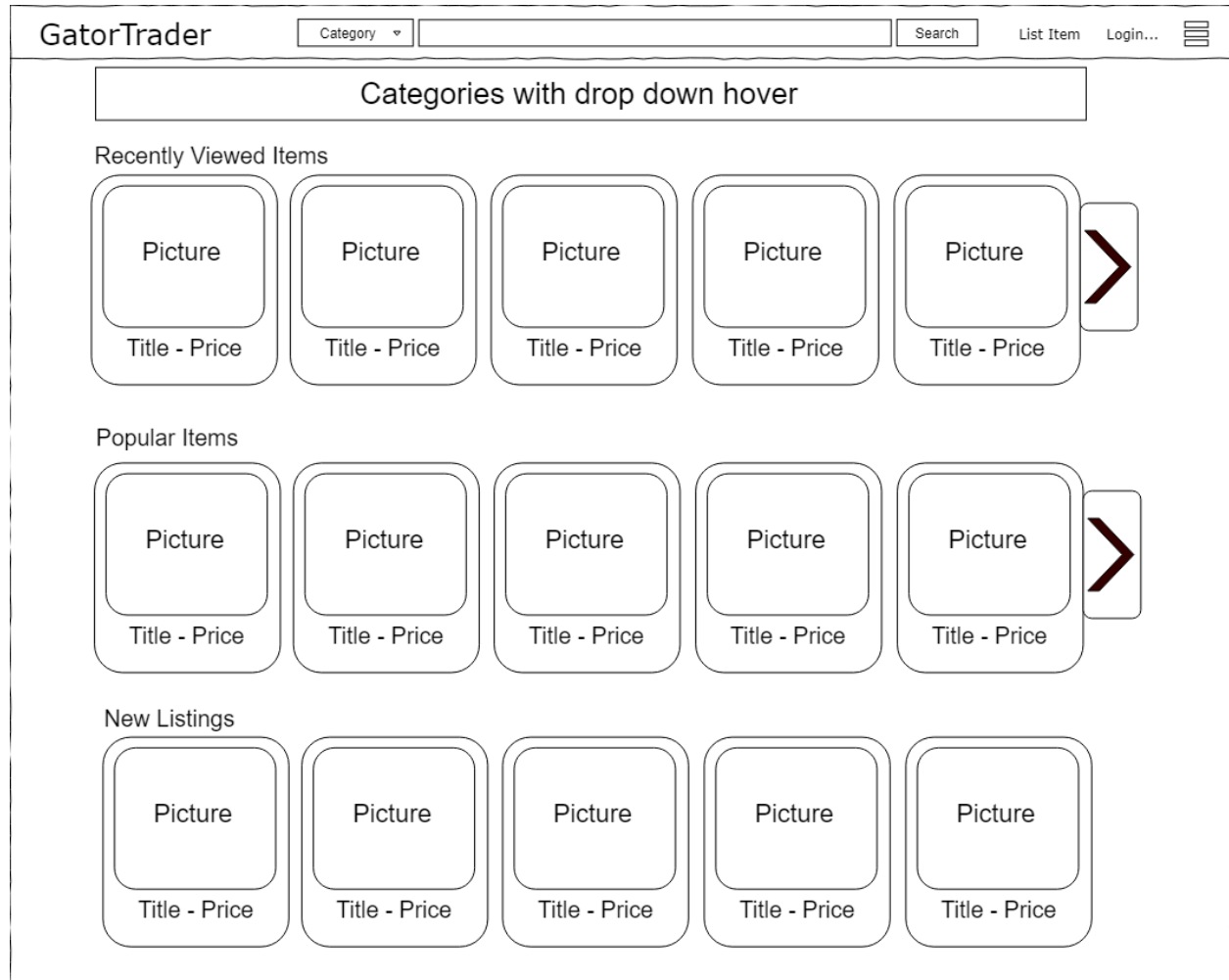| GatorTrader | Category ▾ | | Search | List Item   John Anec ☰ |

Messages

Julie Roberts
Name

Julie Roberts: Hi, I would like to buy your workout equipment. Can we meet tomorrow?

John Anec: Sure I'm free to meet tomorrow

Use Case 4: Buying Books - Mike Jones

Mike signs onto the website.

He then changes the category in the drop down next to the search bar and selects books. He proceeds to enter the first book that he needs for his classes and clicks search. He is able to sort by Price.

He finds a suitable book for a good price and clicks on the listing.

GatorTrader Category ▼ [   ] Search   List Item   Login... ☰

Contact Seller

Title - Price

Picture

Description

He reads the description and takes a look at the available pictures. Then decides to contact the seller. Since he does not have an account, he has to register first.

GatorTrader | Tutoring ▾ | Calculus III | Search | List Item | Login...

Register

Email

Email

Password

Password

First Name

First Name

Last Name

Last Name

Cancel | Register

Once he is done registering, he is able to contact the seller.

GatorTrader   Category ▾ [   ] [Search]   List Item   Login... ☰

[Contact Seller]

Title - Price

Picture

Description

Seller Name   − x

[   ]

[Enter your message here] [Send]

5. High Level Architecture, Database Organization Summary:

The backend for our project consists of main tables to organize the main data items, as well as sub tables that are used for holding data of specific categories of items. We are using IDs for much of our database to relate different tables to one another. For example we use the userID to tie users to Listings as well as message Threads as well as individual messages. We are also using ListingIDs to relate it to our sub tables as well as the Categories table.

Main Tables:

User
username
userID
phone
email
password
listings
messageThreads
isAdmin

Categories
books
housing
services
household
electronics
automotive
games
beauty
outdoors

Sub Tables:

books
listingID
relevantClass

housing
listingID
streetAddress

Listing
name
listingID
sellerID
timestamp
description
categories
photos
isApproved
isActive

Message
messageContents
messageID
threadID
senderID
timestamp

automotive
listingID
year
make
model
odometer
title status
fuel

Message thread
threadID
messages
sellerID
buyerID

6. Key Risks:

Skill Risks:
- Some technical issues that can arise may be difficult for team members to troubleshoot in a timely manner.
    - Solution: Have good documentation of the project and well-managed version control to recover possible errors. Learn how to properly use relevant tools.
- Many of our members are learning the skills we use during the project for the first time. We may not have enough time to both learn the tools and use them in our project.
    - Solution: Distribute the workflow on the sections needed.

Scheduling Risks:
- Collaborating with a group may be difficult in terms of finding a meeting time that works with every team member. The risks include scheduling a regular meeting time, having every member participate in those meetings, and not meeting deadlines due to confusions about work distribution.
    - Solution: Use applications such as Discord to schedule meetings and to keep in touch with everyone. Team members can help their team catch up with anything that was missed in case they were not able to attend meetings.

Technical Risks:
- Issues can arise that may be out of team members' hands, such as their internet going out or malfunctioning hardware/software.
    - Solution: Have a back up plan in place. For example, if there is a problem with one's internet connection, have Zoom/Discord available on mobile so that they can still attend meetings.

Teamwork Risks:
- It can be difficult to track how each team member is doing on their part of the project without constantly checking up on them, which may hinder team chemistry and trust.

  ○ Solution: Set up regular checkpoints (weekly, bi-weekly, etc.) for the team to quickly chat or meet up to see how each team member is doing on their individual tasks.

Legal/Content Risks:
- Using software and utilities without proper licensing will pose a legal risk to the project and to the team members.
    - Solution: Make sure team members have the proper licensing and permission for all software and tools used for the project.

7. Project Management:

For project management we have decided to use Trello. It's free and has a convenient and user friendly GUI that makes it simple to assign tasks and track how everyone in the group is doing. Many of the default settings work perfectly for our project, and it makes you think about what a great job Trello did developing their web application. We have it set up so that our team lead gets an email whenever a card is moved, helping them keep track of the workflow even better. Trello should be a very useful tool that greatly contributes to the team's success moving forward.