SW Engineering CSC 648/868

Section 01 Spring 2017
Group 3

Gator Swap

Milestone 2

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Revision	Date
1.0	3/15/17

1. Use Cases

1. Unregistered User: Sara is a freshman at San Francisco State University living in her own for the first time she quickly realizes that she does not have all that she needs to create a comfortable living space for herself. She hears about an amazing site for San Francisco State University students where she can buy all the furnishings and appliances needed to create an amazing and productive home. Upon visiting site she finds a series of categories including but not exclusive to home furnishings and appliances, finally a place where she can buy a toaster and a couch at an affordable price. As an unregistered user she will have the ability only to browse items. She will not be allowed to purchase or sell items until she herself becomes a registered user. She will have the opportunity to become a registered user when she tries to post an item for sale or contact a registered in order to make a purchase. Once at the registration page she will be asked to provide a valid SFSU email and fill out a CAPTCHA. She will then be asked to decide on a username and password that she will use for her login information next time she arrives at the site.

2. Registered User: Dillon is a sophomore at San Francisco State University and a registered user of the site. He has found himself in need of somewhere to sit in his apartment.From the home pager he finds the link to view the different categories of items for sale. Once on the categories page he finds the link to “ furniture” after clicking on the furniture link he is brought to a page containing photos of all the furniture for sale by other SFSU students. He uses the information provided by the seller and the visual information form the photos to inspect each piece for quality as well as compatibility for his specific seating needs. After finding a chair that meets his needs he contacts the seller to arrange a meeting. He is in luck because the person he wants to buy a chair from lives very close to him and is available to meet later that afternoon. After meeting the seller and fulfilling the financial obligations that were arranged between he and the seller, brings his new (new to him) chair home and reflects on the ease of the transaction, the low cost of the item, and the politeness and promptness of the seller. With all this in mind he returns to the site and with ease he finds the link to rate the seller and gives her the highest rating available, improving her overall rating and making her day.

3. Seller: Jenny is a senior at San Francisco State University and has used the site many times to buy an apartment full of furniture, a bicycle, and many semesters worth of textbooks all squirrels at a reasonable price with the greatest of ease. Jenny like many students, is in need of money for a plethora of living expenses.

Jenny being smart decides to use the same amazing site that she used to purchase these items to sell them back to another SFSU student that may have need them.After logging into the site she finds the link to sell items. Now that she has arrived at the page to sell items. One by one she uploads a photo of the item and gives a brief description of the item as well as any information she finds important about the item for sale, and a fair price. She can hardly contain her excitement as she eagerly awaits to be contacted by another registered user and hopefully receive a high rating like she has given to many other sellers. She is in luck within moments she is contacted by another SFSU student who is interested in buying her toaster. Jenny and the buyer arrange a time and place to carry out the transaction as well as any specifics about payment . After selling her toaster Jenny could not be happier with the transaction and rushes immediately back to the site to give the highest rating possible to the buyer.

4. Administrator: Sophia is a junior at San Francisco State University and is the administrator of a website that offers a platform for other students at her school to buy and sell goods. As the admin she has some concerns about whether or not everyone on the site is using it for its intended purpose. As the administrator she has the ability to browse through all registered user product listings as well as a list of all registered users. One afternoon she is looking through the items for sale in the furniture category and notices that some one has posted something illegal for sale. Although she does not have the ability to edit any listings or registered user information she does have the ability to remove the item and ban the user from the site. Sophia does not have the ability to sell items of her own on the site but as we have seen she does have the ability to fight crime.

2. Data Definitions

1. Unregistered User- This kind of user will be able to fully browse all products that are viewable on the site. However, they will not be allowed to purchase, sell, or contact registered users unless they themselves become a registered user by using their SFSU email to sign up. Sign up will be possible by both a sign in button located on the page or when the user tries to contact the seller in order to make a purchase.

2. Registered User- After going through the process of registration this type of user will retain all of the privileges of an unregistered user as well as now being able to contact sellers in order to purchase a listing from them and report improper use of the site to the admin. Along with these privileges they will also themselves be able to post listings to the site thus becoming a seller.

3. Buyer- A registered user will be able to use the site to connect with the seller of a listing that they are interested in. It will then be between the buyer and seller to determine the form of payment and the exchange of the listed item.

4. Seller- A registered user will have the option to post listings to the site in order to make contact with other registered users that may be interested in purchasing an item from them. They will be responsible for providing at least one image, the price, as well as a short description of what the listing is and its current state. It will be between this seller and registered user to determine the amount for the product as well as the form of payment. This will be facilitated by the site by contacting the seller with the registered user showing interest in buying the listing.

5. Admin- Will be in charge of making sure the site is being used correctly by having the ability to browse through all registered user product listings as well as a list of all registered users. From these lists the admin will have the ability to remove any listing postings as well as registered users if the need arises. The admin will not however have the ability to edit any listings or registered user information as well as not being able to place any listing posts of their own.

6. San Francisco State University Email- An SFSU email account is required from a user in order to register or sign in. It is the only personal information that will be taken from a registered user that will be authenticated as it will be used to prove that the user is associated with SFSU.

7. Listing- The listings that will be able to be sold on the site will have to be legal items. Listing price, description, and image will be set by the seller. Along with this the seller will also will be presented with category names to choose from which will determine which category the listing will be under. As another optional choice the seller will be able to choose a pick up location where once the deal is concluded the buyer will be able to pick up the listing. These listings will be monitored and be able to be removed by the admin if the listing does not meet the site's listing requirements.

8. CAPTCHA- A program that will be used to authenticate whether or not the user signing in or registering is not a bot.

9. Ranking- Each registered user will have a rating associated with their account that is based on a one to five star rating system. With a one being the lowest rating and a five being the highest. All registered users will be given a five star rating to begin with and with each transaction they perform both registered users in the transaction will rate the other once the deal has been completed by their satisfaction level with the deal. This will allow the users to get a better sense of who they are conducting business with.

10. Illegal Listing- A listing that has been deemed offensive by the admin or is clearly a listing referring to an illegal item or activity as defined by state and federal laws. All illegal listings will be removed by the admin with a warning to the seller that further listings of this type will result in them being permanently banned from the site.

11. Categories- When a registered user puts up a listing to be sold they are required to choose a category from a list that is provided to them. This will allow the potential buyer to search through listings more efficiently thus increasing the sites ease of use and increasing the likelihood of the site being used.

12. Pickup Location- An optional choice that allows the seller to designate where the buyer will have to retrieve the listed item from once they have completed their purchase. This allows the buyer to make a more informed decision when purchasing a listing.

3. Functional Requirements

- Priority 1

All Users

1. All Users shall have be able to view listings by category.
2. All Users shall be able to browse site and listings posted.
3. All Users shall be able to use search bar for listings.

Unregistered Users

1. Unregistered Users shall be able to create an account.

Registered Users

1. Registered Users shall be able to post listings for sale.
2. Registered Users shall be able to contact seller through the site about payment.
3. Registered Users shall be able to upload photos of listings they are attempting to sell.
4. Registered Users shall be able to add pick up location between Registered buyer and Registered seller.

Admin

1. Admin shall have ability to browse through a list of all registered users.
2. Admin shall have ability to browse through all registered user listings.
3. Admin shall have the ability to remove illegal listing.
4. Admin shall have the ability to ban registered users.

- Priority 2

All Users

1. All Users shall be able to see recently posted listings on homepage.

Registered Users

1. Registered Users shall be able to make a wish list they are interested in buying.
2. Registered Users shall be able to post Buyer/Seller Reviews.

Admin

1. Admin shall have ability to ban registered users for a period of time.

- Priority 3

All Users

1. All Users shall be able to see trending listings on homepage.
4. All Users shall be able to see recently sold listings on homepage (but not who bought them).
5. All Users shall be able to see other listings selling/sold by a certain seller.
6. All Users shall be able to see whether a listing is selling, pending, or is sold.
7. All Users shall be able to use search bar to search up registered users

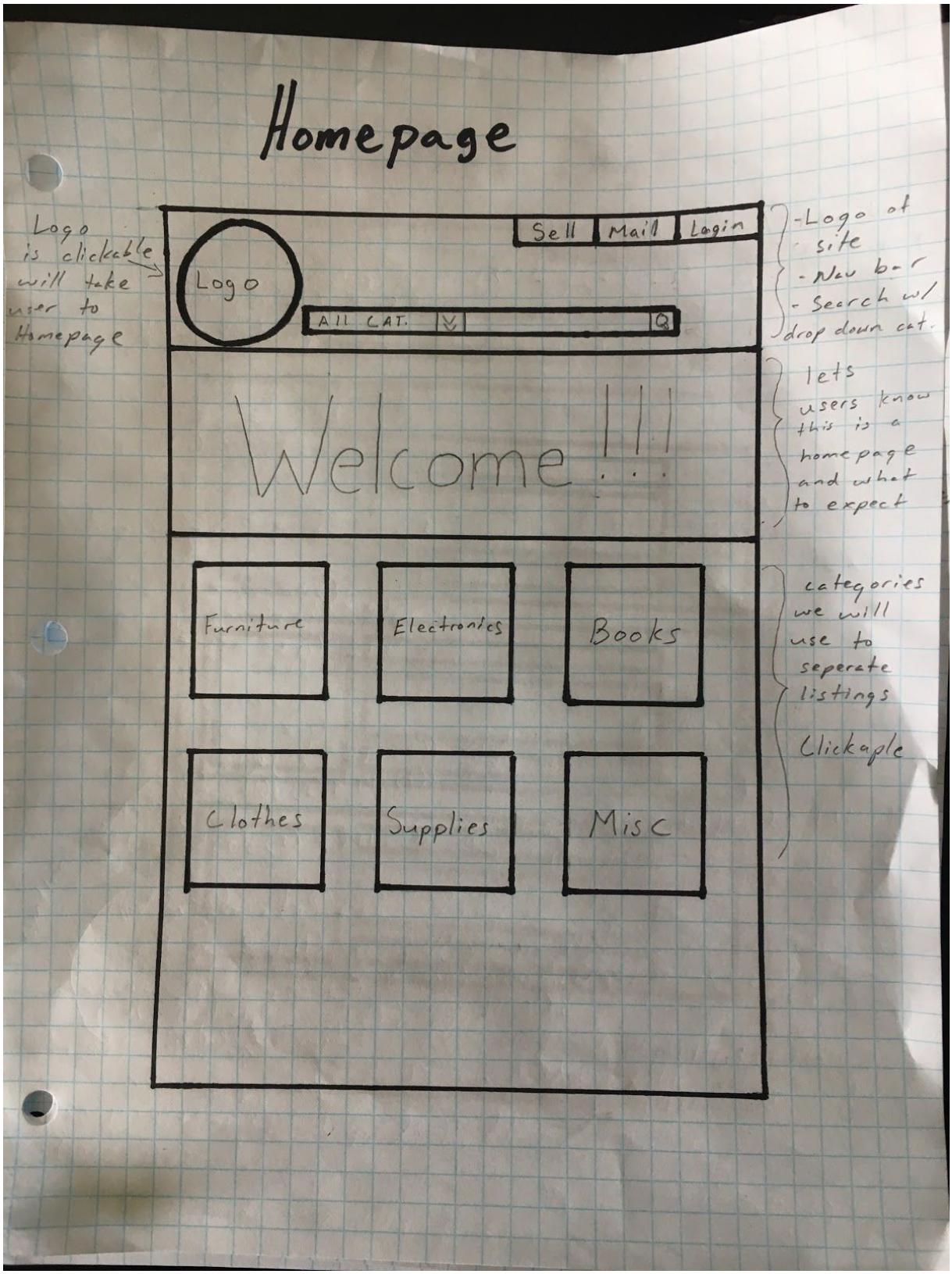
Registered Users

1. Registered Users shall be able to use a public chat to talk about listings they are willing to buy.
2. Registered Users shall be able to see listings tailored to their interests on homepage.

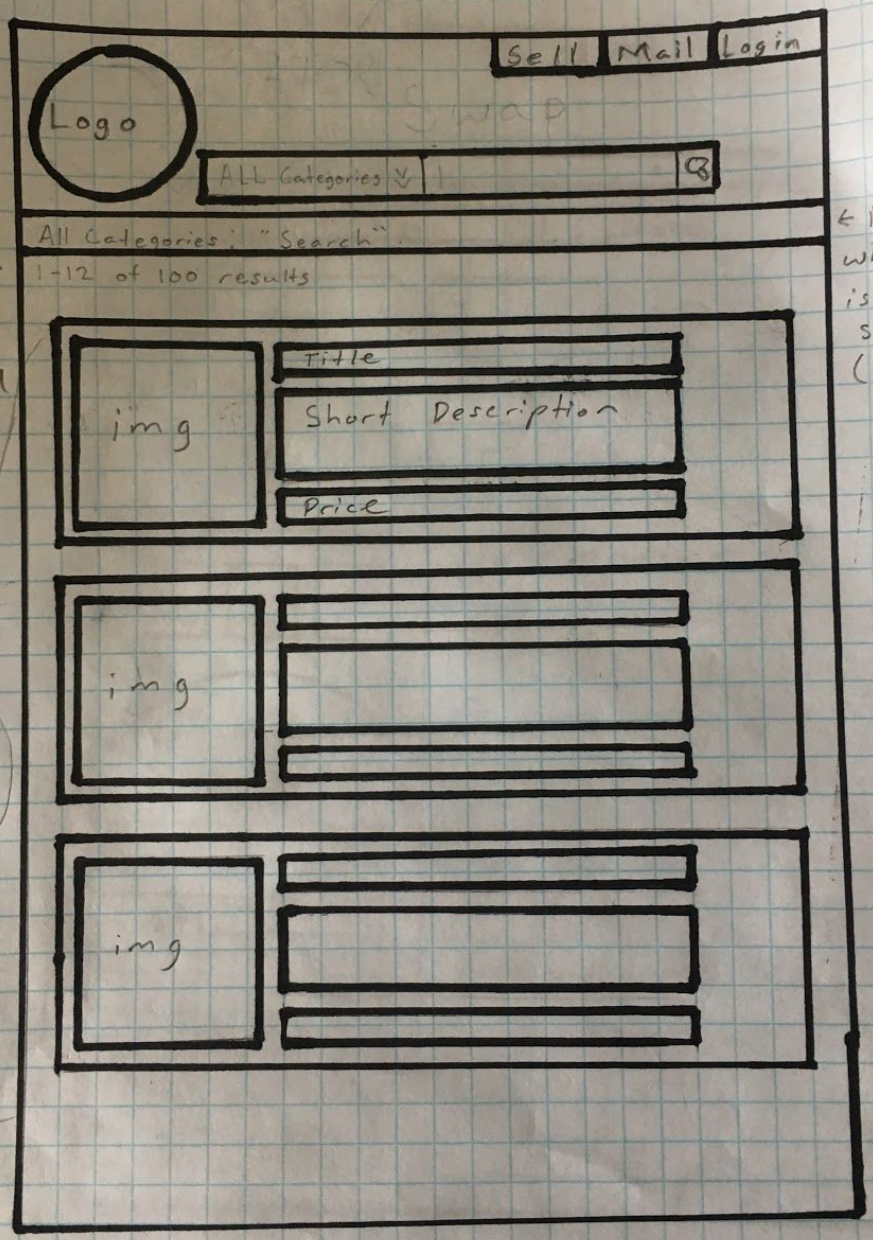
4. Non-Functional Requirements

1. Application shall be developed using class provided LAMP stack.
2. Application shall be developed using pre-approved set of SW development and collaborative tools provided in the class. Any other tools or frameworks must be be explicitly approved by Anthony Souza on a case by case basis.
3. Application shall be hosted and deployed on Amazon Web Services as specified in the class.
4. Application shall be optimized for standard desktop/laptop browsers, and must render correctly on the two latest versions of all major browsers: Mozilla, Safari, Chrome.
5. Application shall have responsive UI code so it can be adequately rendered on mobile devices but no mobile native app is to be developed.
6. Data shall be stored in the MySQL database on the class server in the team's account.
7. Application shall be served from the team's account.
8. No more than 50 concurrent users shall be accessing the application at any time.
9. Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
10. The language used shall be English.
11. Application shall be very easy to use and intuitive. No prior training shall be required to use the website.
12. Google analytics shall be added.
13. Messaging between users shall be done only by class approved methods to avoid issues of security with e-mail services.
14. Pay functionality (how to pay for goods and services) shall not be implemented.
15. Site security: basic best practices shall be applied (as covered in the class).
16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
17. The website shall prominently display the following text on all pages "SFSU Software Engineering Project, Spring 2017. For Demonstration Only". (Important so as to not confuse this with a real application).

5. UI Mockups and Storyboards



Listings Page

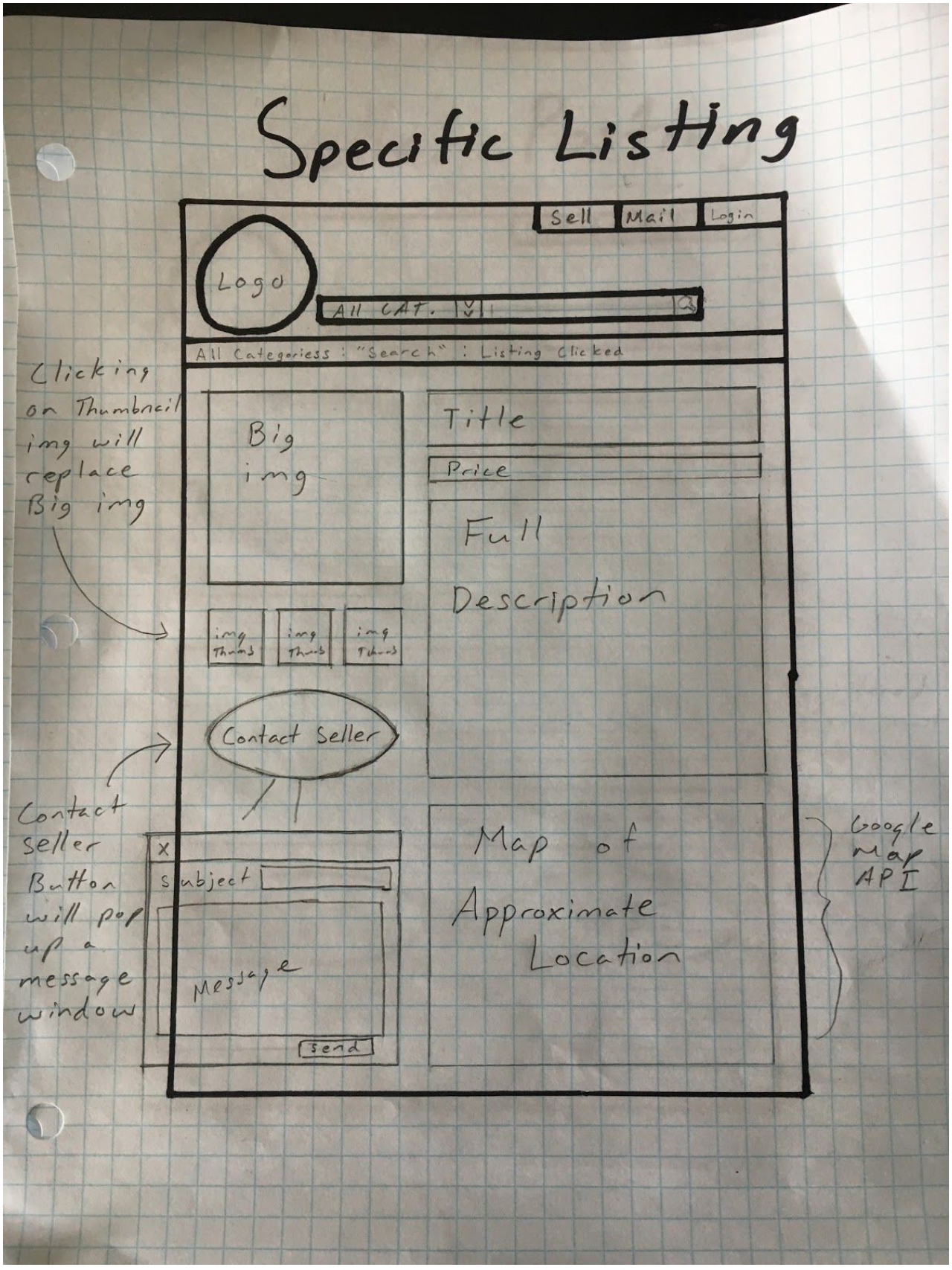


← Path to which page is currently showing (not clickable)

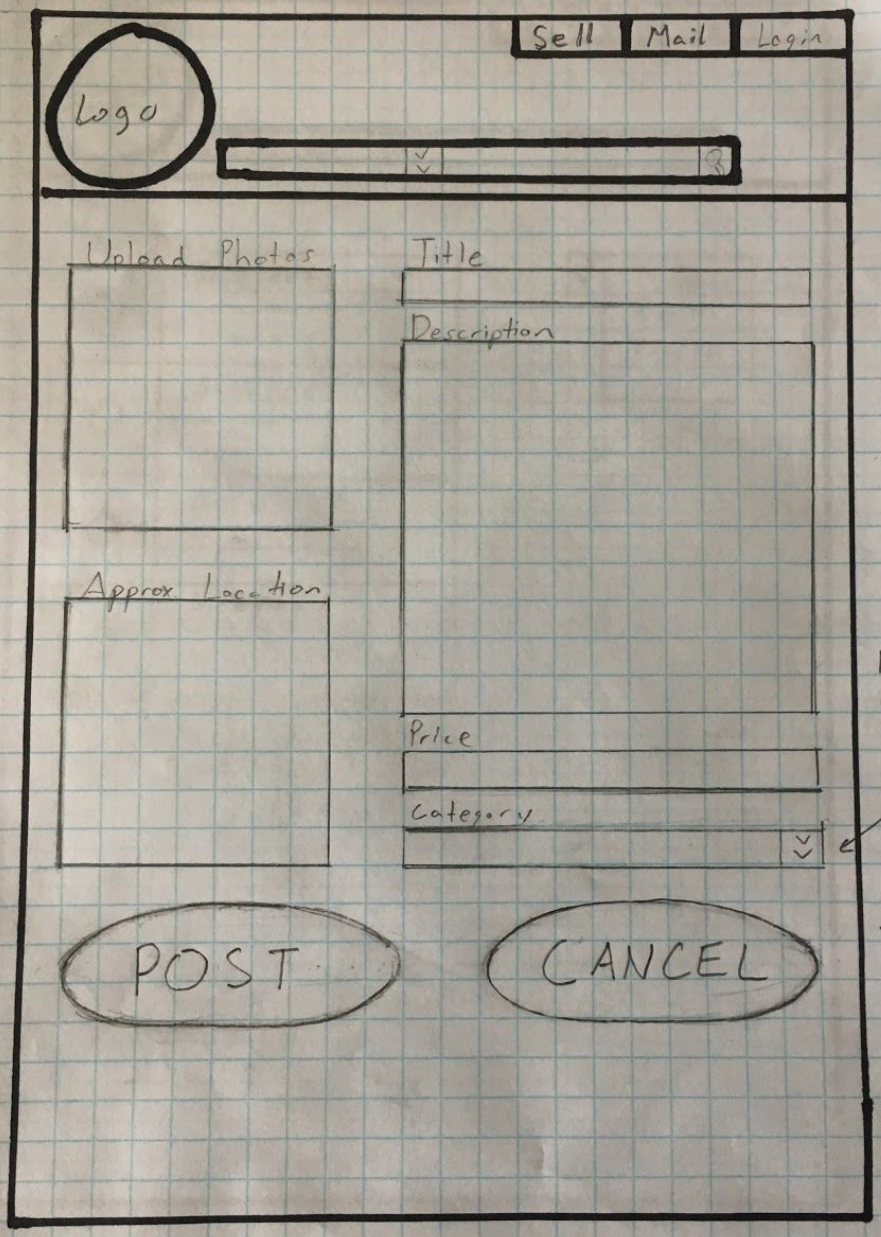
...ows → ...of listings ...page out ...total found

...oundry ...ox is ...lickable

Specific Listing



Seller Posting



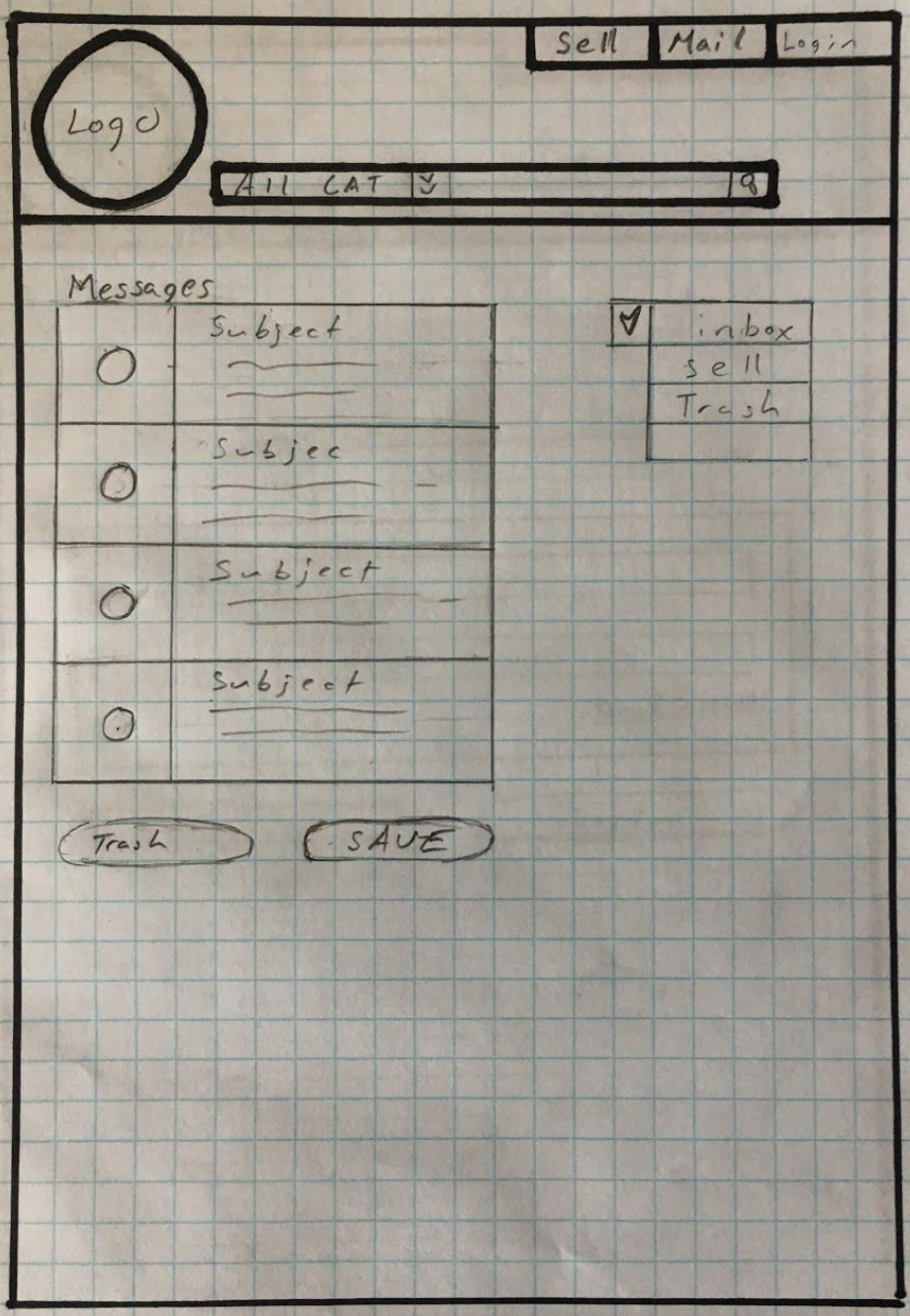
Registered Users must pick a category from drop down

this will help sort listings

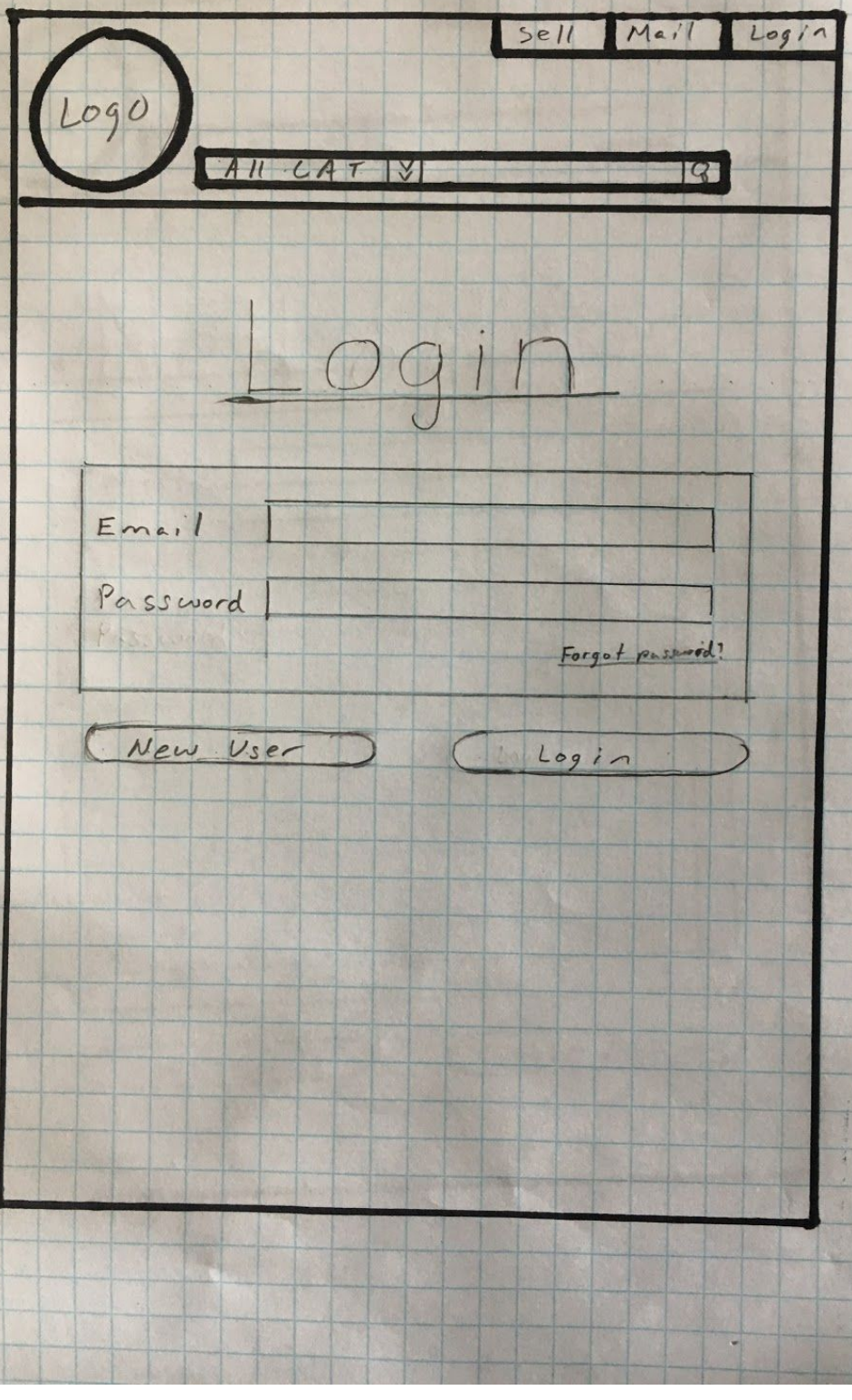
If a registed user clicks sell on the navbar he or she will be taken here.

If an unregisted user clicks sell they are taken to Login

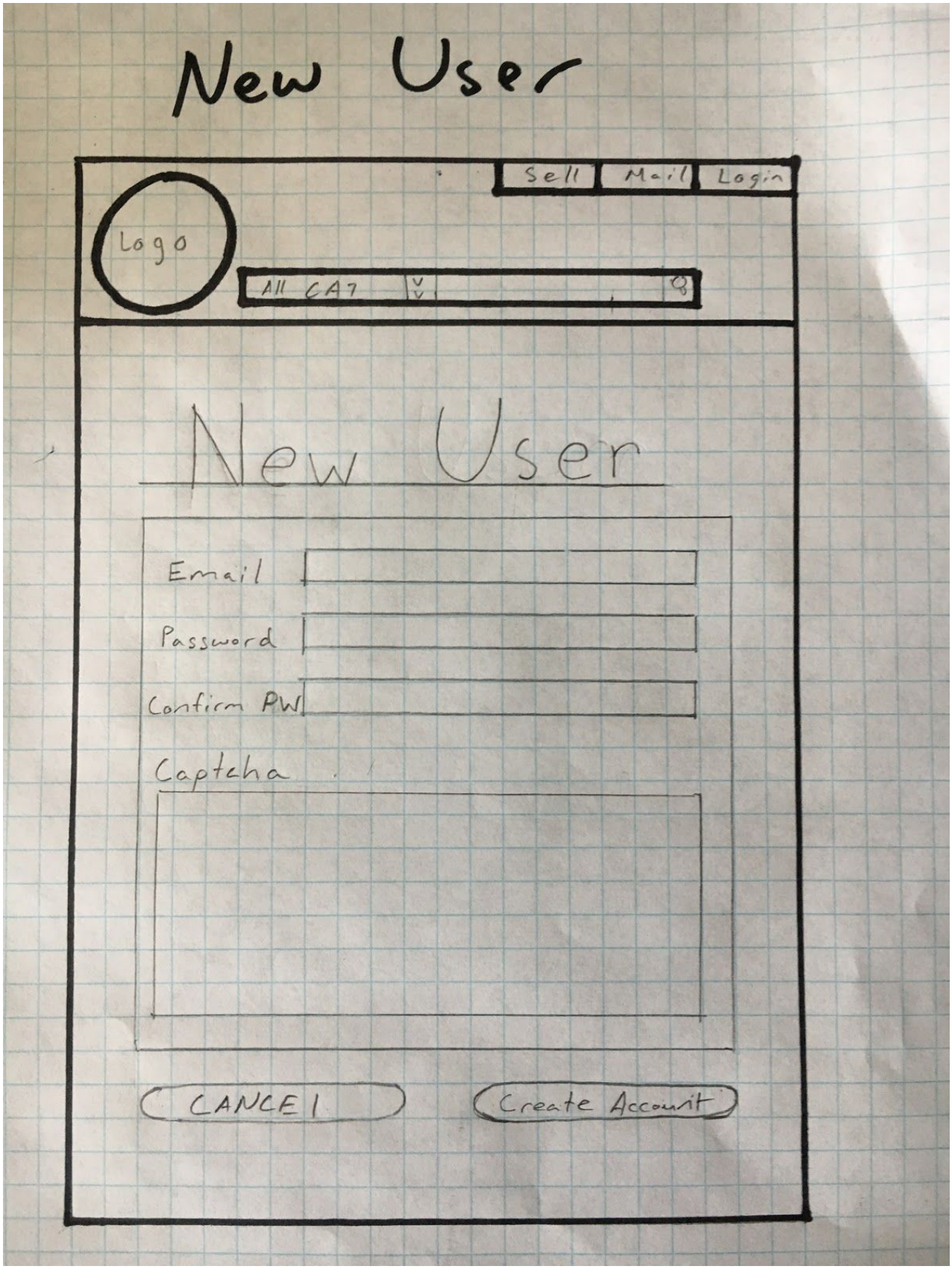
Mail


Sell
Mail
Login
Logo
All CAT
Messages
Subject
Subjec
Subject
Subject
inbox
sell
Trash
Trash
SAVE

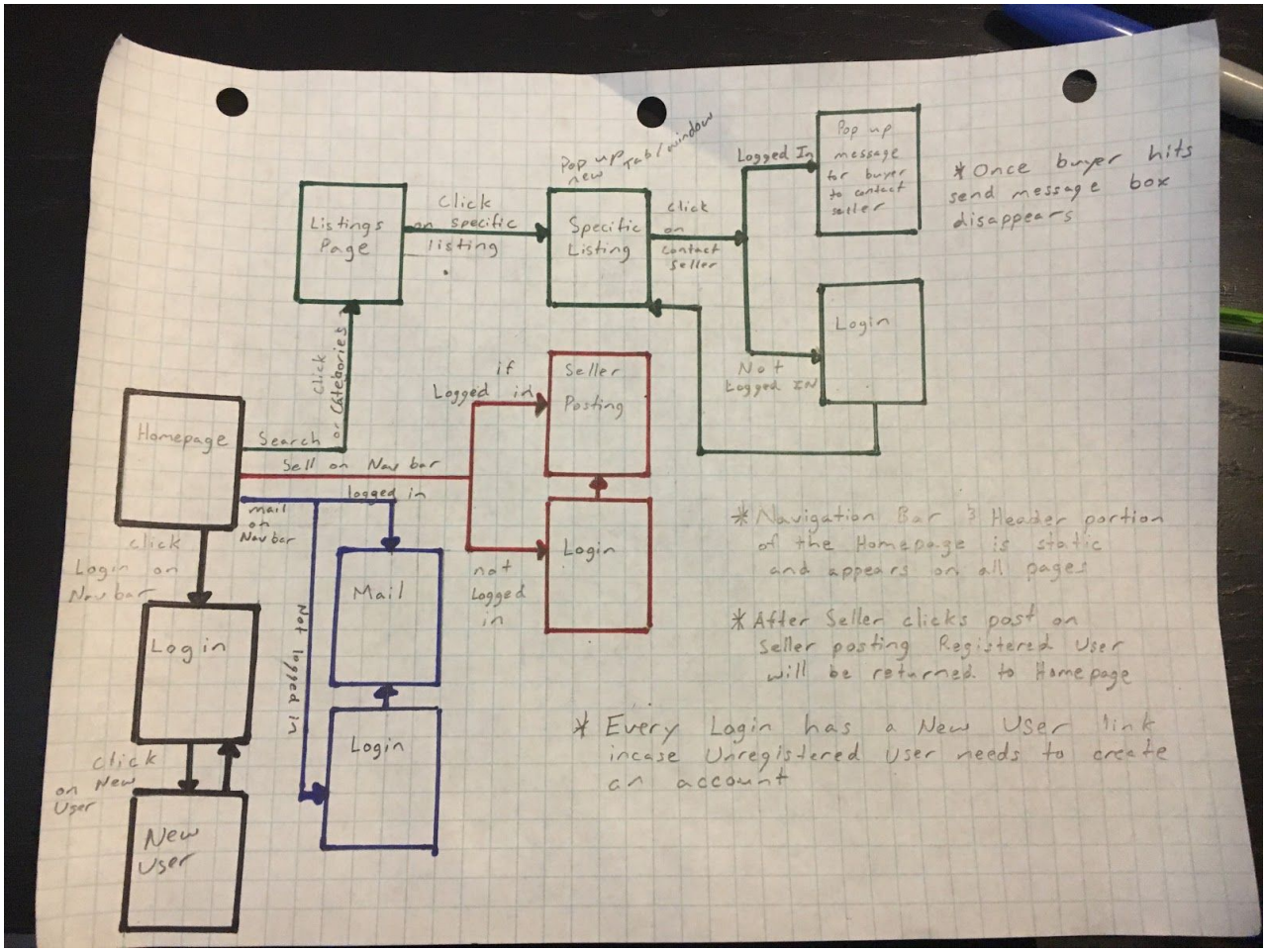
Login

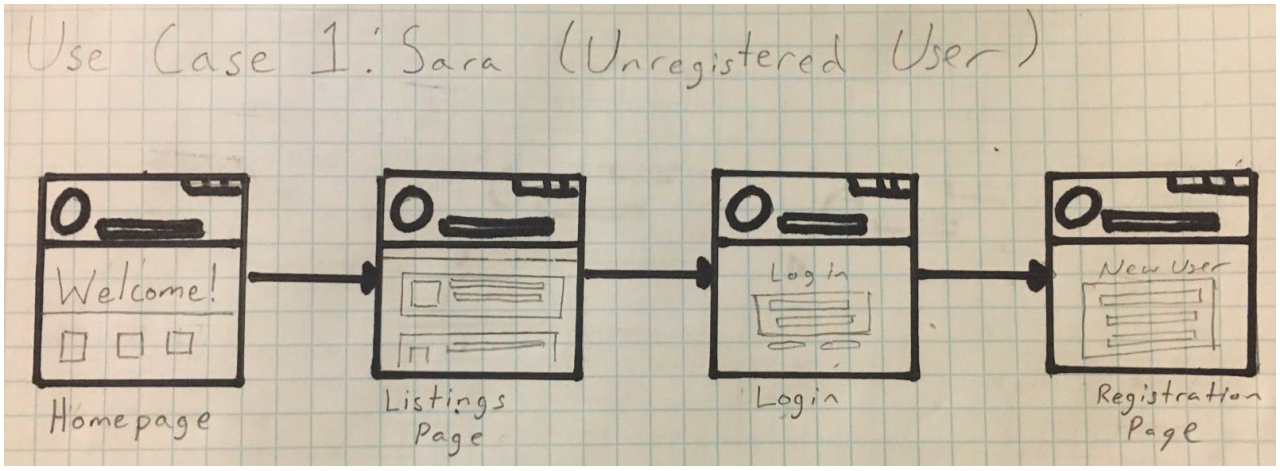

Sell
Mail
Login
Logo
All CAT
Login
Email
Password
Forgot password?
New User
Login

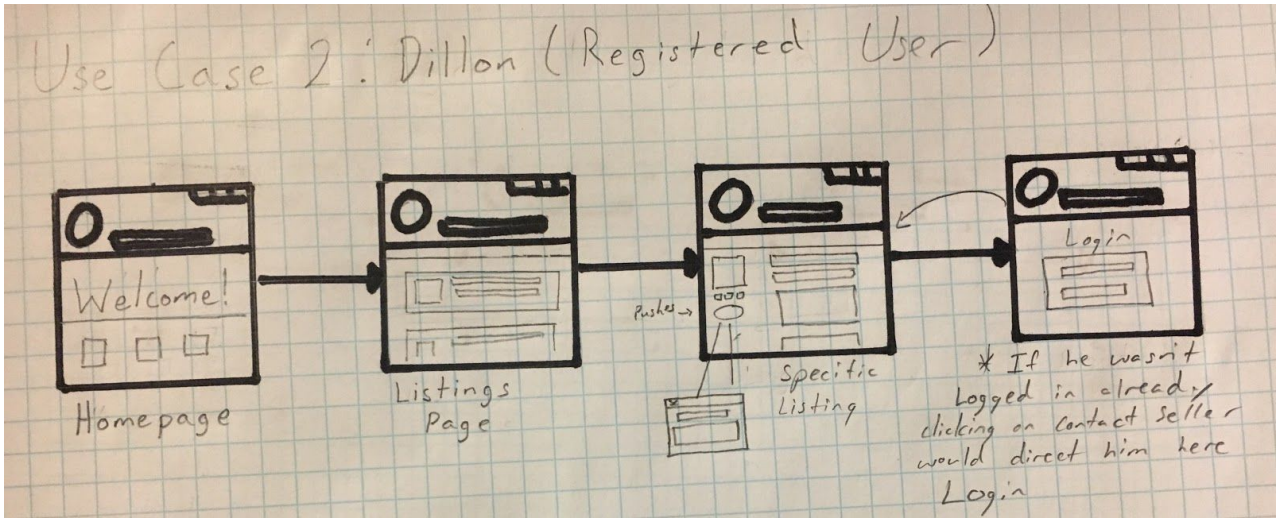
New User

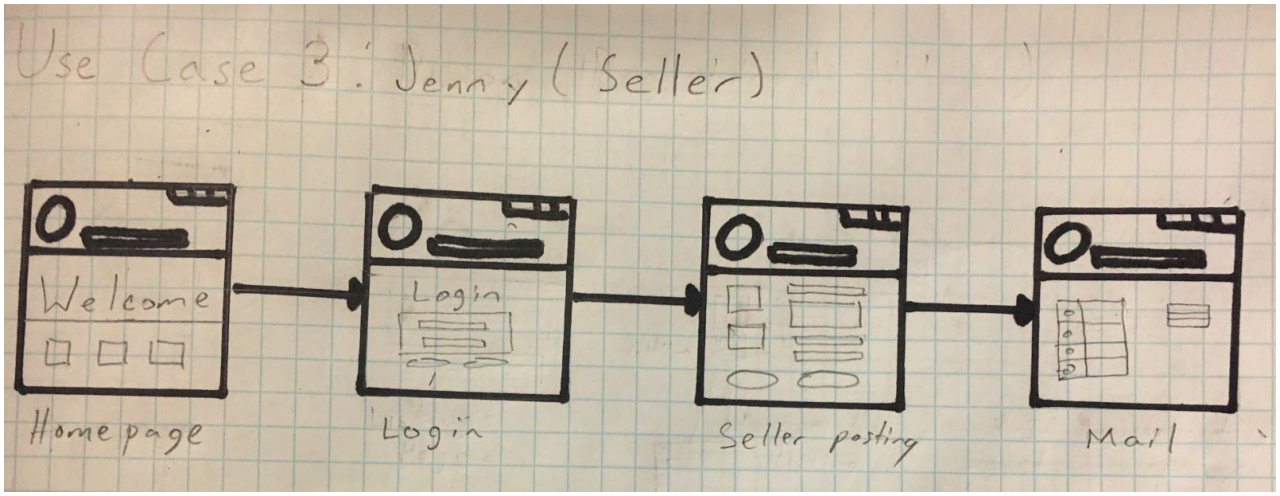

Sell
Mail
Login
Logo
All CAT
New User
Email
Password
Confirm PW
Captcha
CANCEL
Create Account

Storyboard


Listings Page
Click on specific listing
Specific Listing
Pop up new tab/window
click on contact seller
Logged In
Pop up message for buyer to contact seller
*Once buyer hits send message box disappears
Login
Not Logged IN
Click on Categories
Homepage
Search
Sell on Nav bar
if Logged in
Seller Posting
mail on Nav bar
logged in
click Login on Nav bar
Mail
not Logged in
Login
Login
not logged in
*Navigation Bar & Header portion of the Homepage is static and appears on all pages
*After Seller clicks post on Seller posting Registered User will be returned to Homepage
*Every Login has a New User link incase Unregistered user needs to create an account
click on New User
New User


Use Case 1: Sara (Unregistered User)
Welcome!
Homepage
Listings Page
Log in
Login
New User
Registration Page


Use Case 2: Dillon (Registered User)
Welcome!
Homepage
Listings Page
Pushes
Specific Listing
Login
* If he wasn't Logged in already, clicking on Contact Seller would direct him here Login


Use Case 3: Jenny (Seller)
Welcome
Homepage
Login
Login
Seller posting
Mail

6. High Level Architecture, Database Organization

The DB schema will take care of how data is manipulated throughout the user pipeline. If Registered user login (login screen) successfully meets DB content then the user will be sent to the Registered user login (landing page); which will mitigate between Search and Registered users (profile), depending on the state of the user.

Search will be viewable regardless of what state the user is in. When the user is in the state of searching, inventory item will be called and adjusted accordingly from what the users has selected. Once the items have been selected, the next step is shopping cart. In their shopping cart, users will be able to delete items and also checkout to complete a transaction.

1. CakePHP: We will be using CakePHP, which is the most pleasant framework with respect to MVC pattern. Also, the great principle of convention over configuration (COC) is by far the separator from other PHP frameworks. The great thing about COC is if you create a file called “login” in a model folder, you will have a corresponding table in the database called “login”. Cake PHP was built from the ground up. This makes it unique and enjoyable to work with. CakePHP is handy because it has a CRUD (create, read, update, and delete) for database implementation; making development much more efficient.

2. MySQL: Is the relational database management system which, will work well with CakePHP. We will be able to have a database table populated whenever we create a file in model. MySQL server will be connected with our database. So each individual will be able to contribute their assigned task and use the team’s database to accept user input or static files.

3. Foundation (HTML, CSS): This is the best front end framework. This provides a responsive grid, HTML, and CSS UI components. We will be implementing templates, forms, buttons, navigation and other interface components. We plan to create a navbar that is displayed on page 1. When the user decides to scroll down he/she will notice the navbar becomes tucked in.

4. IDE (Webstorm PhpStorm and vim and test remotely): We plan to use PhpStorm because it provides seamless integration with PHPCake.

    a. VCS: Virtual Control System enables us to connect a github account. Once the we are able to login, we can link our github repository. Also, we can pull and push our updated work. VCS benefit enables us to use the IDE and not

refer to other git resources, such as terminal, command line, and git software.

b. Auto-complete: Saves us plenty of time when writing code. It will require is only a couple letters and we will have multiple

5. PHPStorm is a full featured IDE for PHP and it is developed and marketed by Jet Brains. We plan to use the student account which is free, and we get the same features as a regular account. The best feature about PHPStorm is the live editing. For example, say I want to edit a code that I already compiled and want to adjust placement of some content on the website. I can rewrite the code on my IDE and check out my browser. Simply press refresh and I will be able to see the difference Integration with version control systems, databases/SQL, composer, remote deployment, vagrant, rest client, and command line tools are just a few developer tools that my team will be using. Xdebug is a debugging tools that will be implemented and it can be used both locally and remotely.

6. Apache: Is the open source web server my team plans to use. It is part of LAMP stack discussed briefly during lecture. It will enable us to serve contents of our project.

7. Web grind: Is an Xdebug profiling web frontend in PHP 7. It implements a subset of the features of kcachegrind. This simple tool will help track time spent in functions. The process of doing this will be by self-cost or inclusive cost. Inclusive cost is time inside function + calls to other functions. This tool will let us keep track of all function time cost. Which is very important for making a feasible UX design model. Our goal is to make the website simple and easy access and navigate content for users. Just to simply our usage of Xdebug is to receive stack and function traces in error messages with the following messages: 1) Full parameter display for user defined functions 2) function name, file name and line indications and finally 3) support for member functions. Also, memory allocation and protection for infinite recursions.

8. reCaptcha: We plan to use this google based tools to exclude robots from accessing our website. The captcha can be solved by clicking on a box/button, making solving the captcha easier than reading blurred and smeared text from other captcha services. We will implement this feature in two phases, it will be explained in “a” and b”

    a. When we have new users sign up. It will make sure that the registration is authenticate. Avoids any overhead of robots attempting to register.

b. Say a user wants to add an item to their cart, and checkout. For some unforeseen situation the user had to attend an emergency and forgot to log out of their profile. The time lapsed from the user allowed a robot to check out the items without the user actually approving. This can be avoided by simply adding reCaptcha when the user decides to checkout. Once the user can verify the landing page will enable them to complete their desired transaction.

Images:

We plan to use Blob in mysql to read and write images into our database. The images will be in .jpg format, then converted into binary format and the stored. If the user searches for an item, then the image content will be displayed by converting binary into jpg.

Search feature:

Items that available to search, will be accessed regardless of users' registration status. A user can type one word and search will auto populate other words in that field. This can be done by using '%'.

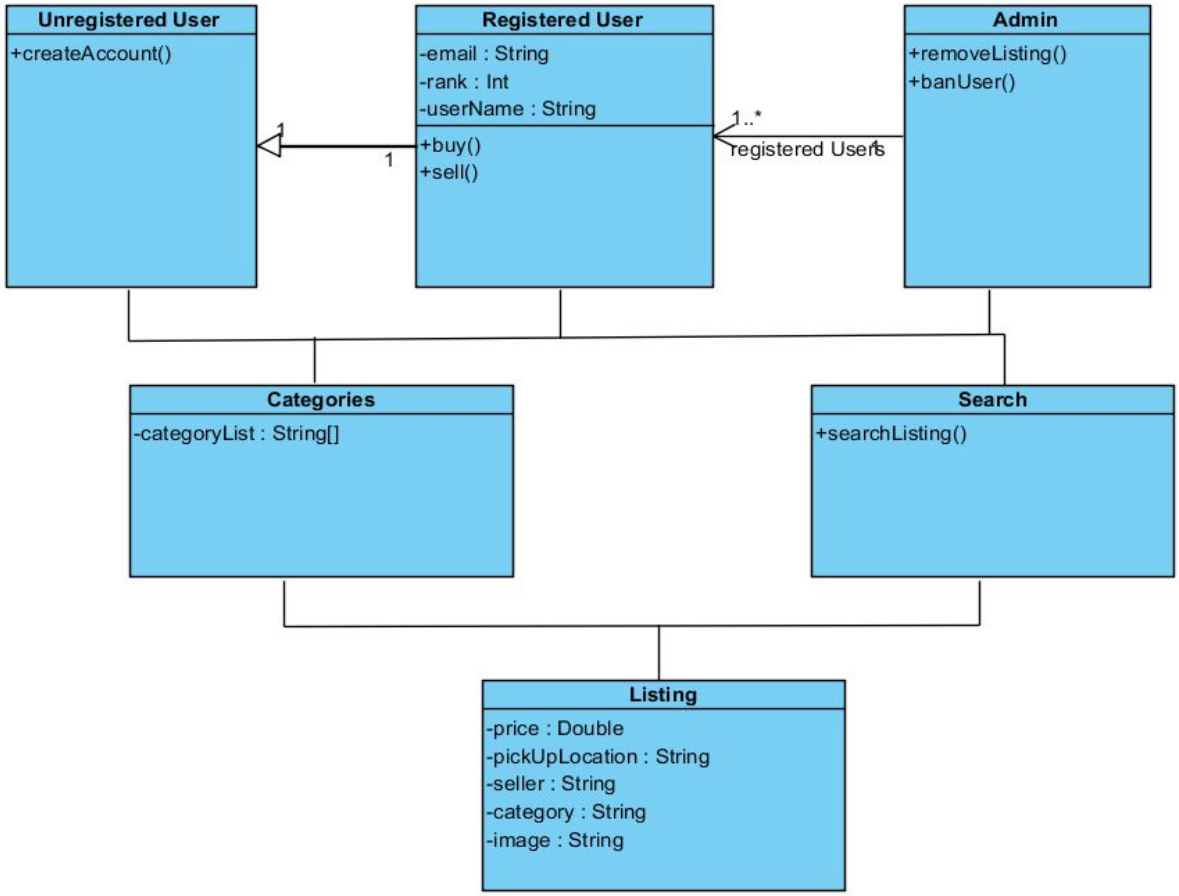
Non-trivial algorithm:

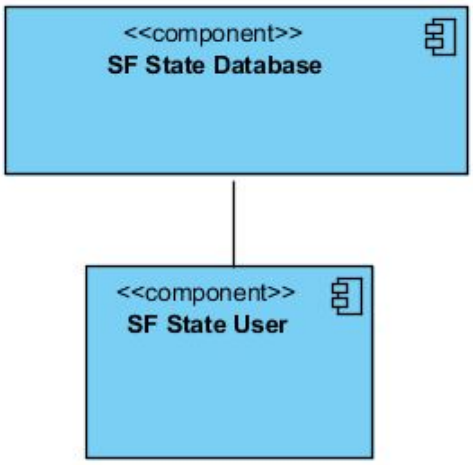
Rating will be completed on a number system. This number system will consist of high score, five and a low score, one. The users aren't required to give a rating. However, by doing so it will let other users know what kind of business are doing.

API:

We will embed google maps for users to be able to locate items within a specified parameter. The user will be able to view items nearest to their zip-code, only after they have clicked on the item. Once the item is in full screen mode, there will be a pin that locates the item. The user will be able to open google maps, if they plan to navigate the user at the location of the item

7. High Level UML Diagrams





8. Key Risks

Skill Risks:

- We have no experience using the Google Maps Embed API. The frontend team will solve this by reading the extensive API documentation. As a last resort, no map will be shown and just an address.
- We have no experience using BLOBs in MySQL. The backend team will solve this by researching BLOBs.

Schedule Risks:

- Two thirds of our team works at least part time while being full time students. We will overcome this by staying ahead of project deadlines. As a last resort, the scope of the project may be reduced.

Technical Risks:

- No technical risks at this time.

Teamwork Risks:

- No teamwork risks at this time.

Legal/Content:

- We will need an API key for the Google Maps Embed API. There is a limited free tier offered by Google that will fit the scope of this project.

9. Team Organization

Mark Reynolds

- Team Lead
- Frontend Developer

Ahmed Salem

- Chief Technology Officer
- Backend Developer

Rushabh Vora

- GitHub Administrator
- Backend Developer

Skylar Miles

- Quality Assurance
- Frontend Developer

Shayn Hoy

- Backend Developer

Lowell Castillo

- Frontend Developer