# SW Engineering CSC648/848 Section 01 Spring 2017
# Website name: TheGatorBay

Team # 02
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Milestone 2
March 15, 2017

History Table:

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|---|---|
| Date | March 15th, 2017 |
| 1st Draft | March 13th, 2017 |
| Revision 1 | March 15th, 2017 |
| Revision 2 | |

## Contents

**1. Use Cases**

List an Item for selling:

Ron is an SFSU student who wants to sell one of his last semester's textbook. With no experience in selling products online, he decides to use TheGatorBay website to advertise this textbook. He visits the website and explores it. Because of the easy to use interface, he instantly finds the option to list an item for selling. He then selects this option where he is prompted to register and does so in order to sell. He is able to easily upload photos of the textbook and list it in very little time. In extremely short time, Ron is now able to reach the entire SFSU student community for selling the textbook.

Purchase an item:

John is a transfer student in SFSU. This is his first semester at SFSU and he is not very well aware of all the stationary he should be purchasing for a particular class. He finds out about TheGatorBay and there he is able to search for his class. Now he can see all the items on sale which are used for this class. He then tries to connect with one of the students who is selling textbooks for this class. Before being able to message to the seller, he is prompted to register/sign-in for security purpose. Because of TheGatorBay, John is now not only able to purchase the textbook at a lower price but also receives valuable guidance from this student.

Edit a listing:

June is an SFSU student and has a hobby of knitting. She decides to sell her hand knit sweater on TheGatorBay. But she is not getting enough response for this listing. One day she finds out that the SFSU bookstore is selling a similar quality sweater at a similar cost. Figuring that this might be a reason, she then edits the listing on TheGatorBay to reduce the price of her sweater. Within a couple of days, she receives a ton of responses and is able to sell her sweater. Looking at the demand, she decides to convert her hobby into a part-time business.

Browsing:

Josiah is a junior at SFSU and has always bought his books from the bookstore. Currently, he is not earning enough money from his job to pay full price, so he decides to go on a TheGatorBay. He heard about this website from fellow students who are in the same financial situation. He does not want to create an account just to browse items and compare prices. Josiah is able to go on the website and look through items that are posted by other students without having to register until he decides to purchase.

Pick-up Location:

Johnny is an SFSU student. He is fascinated about this new backpack which has just arrived at the SFSU bookstore. But this backpack is slightly out of his budget. He decides to sell his current backpack on TheGatorBay website for some extra cash. He is a registered user of TheGatorBay. With intentions of earning some instant money, he quickly opens TheGatorBay signs-in, uploads pictures and description of the bag. Now he is prompted to fill in the pick-up location where he has the option to simply select SFSU address or enter a custom address. Simply selecting SFSU address saves time which is why Johnny selected this option and thus is able to quickly list his backpack for selling.

Admin:

Mary is an administrator of TheGatorBay. The website shows all listings that have been recently listed. While browsing this list, she finds a post containing offensive and inappropriate material. She then deletes the post and it no longer visible to the users. Later in the day a user who has posted inappropriate content in the past and has also been notified of his actions posts another inappropriate listing. Mary chooses to ban the user for repeated offense.

## 2. Data Definitions

- Listing: Information about an item. This includes information such as description, price, category, etc.
- Category: A classification for an item. Items to be sold define the category they are in so that they will be displayed in the appropriate category.
- Course: Name of a San Francisco State University course. It will be used as an attribute of the listing.
- Pickup Location (location): This is the location from where the item on sale needs to be picked up by the buyer. This location will be set by the seller.
- Private Message: Text that is sent among registered users that only the sender and recipient can see.
- Watching List: A collection of listings that a registered user is interested in.
- Selling List: A collection of listings that a registered user has created.
- Purchased List: A collection of listings whose items a registered user has purchased.
- Sold List: A collection of items that a registered user has sold.
- Wish List: A collection of items that a registered user wants to purchase.
- Price: The price of the item being sold.
- Sellers: Information of registered users who are selling and who have sold items.
- Registered User: A user of the website who has an account and special privileges.
- Buyers: Information of registered users who have bought items.
- Non-registered User: User who does not an account on the website or has not yet signed into the account on the website.
- Username: It is the unique identification which will be used by our website to recognize a registered user.
- Admin/Moderators: Users with privileged access who can delete listings, block and unblock users.

## 3. Functional Requirements

Priority 1: -

All Users: -

1. Both registered and non-registered users shall be able to sort listings by price and date.
2. All users shall be able to search for items.
3. All users shall be able to use the QuickView functionality, which enables the user to view a summary of a chosen item displayed on a modal on the same page.

Registered Users: -

1. Registered users shall have a user account page of their own which will be used to display their transaction history.

Buyers: -

1. Buyers shall register before they are eligible for buying.

Sellers: -

1. Sellers shall be prompted to enter the Course Details if they are listing the product under the category of Books. If the book is not under any course then they shall be able to list it as Others.
2. Sellers shall have the ability to add tags/keywords to their product to facilitate ease of search.

Priority 2: -

Registered Users: -

1. A buyer shall be able to privately message a seller.
2. Buyers and sellers shall be able to set a location for a meetup and review the location at any other time after confirmation.
3. The website shall provide a list of recommended listings to the registered user, based on the user's account information.

Buyers: -

1. Buyers shall be able to post products which they want to buy.

Sellers: -

1. Sellers shall be able to edit their listings. If the price is being edited, sellers shall have the option to either display the old price with a strikethrough or don't display it at all.
2. Sellers shall have the option to specify the location to pick-up the item. This can be either at SFSU or any other address which shall be shown using Google Maps.

Admin: -

1. Administrators shall be able to delete inappropriate listings at their discretion.
2. Administrators shall be able to see all the new listings recently posted.
3. Administrators shall be able to ban, disable, and enable any user accounts.

Priority 3: -

Sellers: -

1. Sellers shall be shown a list of items related to the item being listed as a reference for deciding the price.

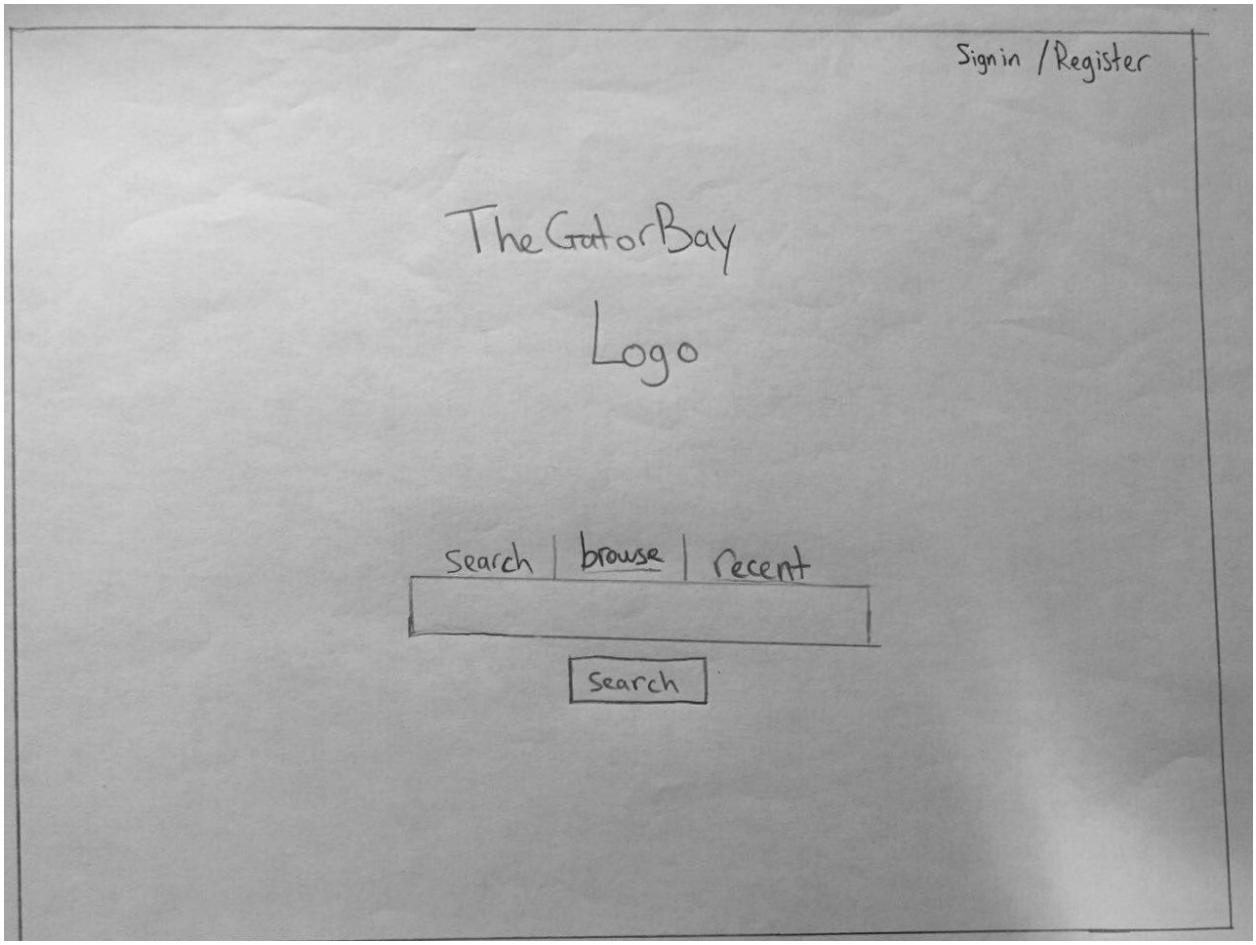
## 4. Nonfunctional Specs

1. Application shall be developed using class provided LAMP stack.
2. Application shall be developed using the pre-approved set of SW development and collaborative tools provided in the class. Any other tools or frameworks must 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 is 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.

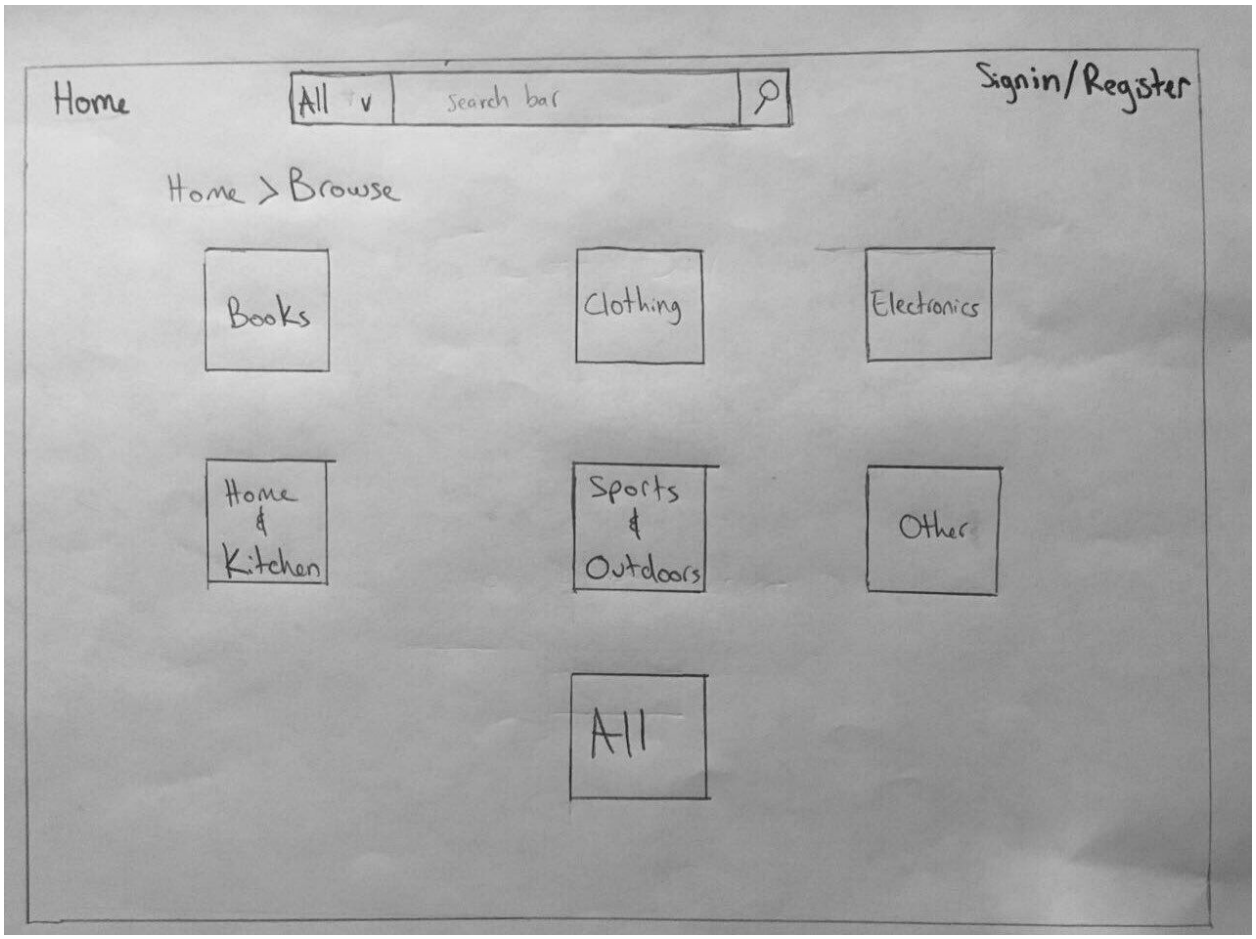
17. The website shall prominently display the following text on all pages *"SFSU Software Engineering Project, Spring 2017. For Demonstration Only"*. (Important so as to not confuse this with a real application).

## 5. UI Mockups and StoryBoards

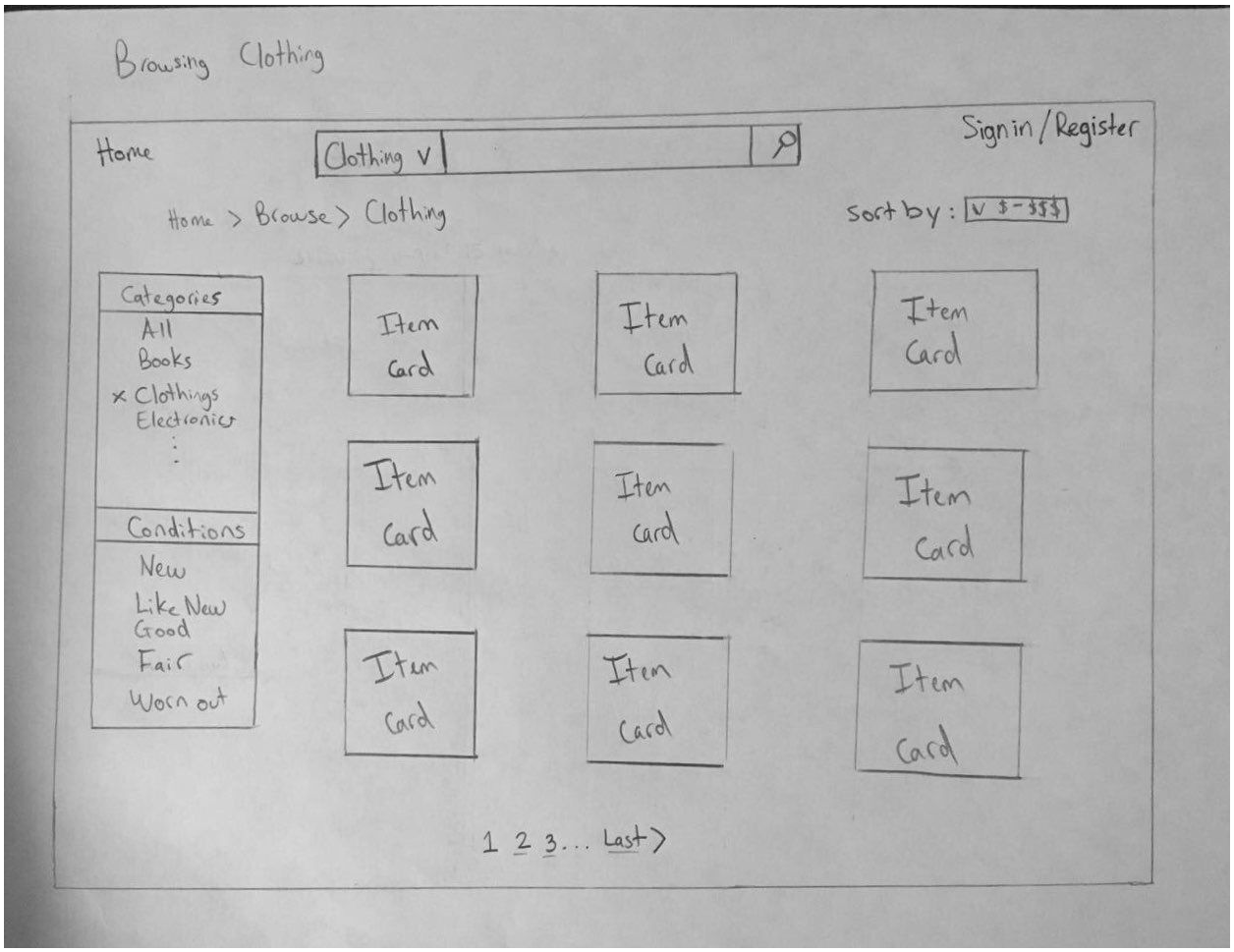
- Welcome Page.



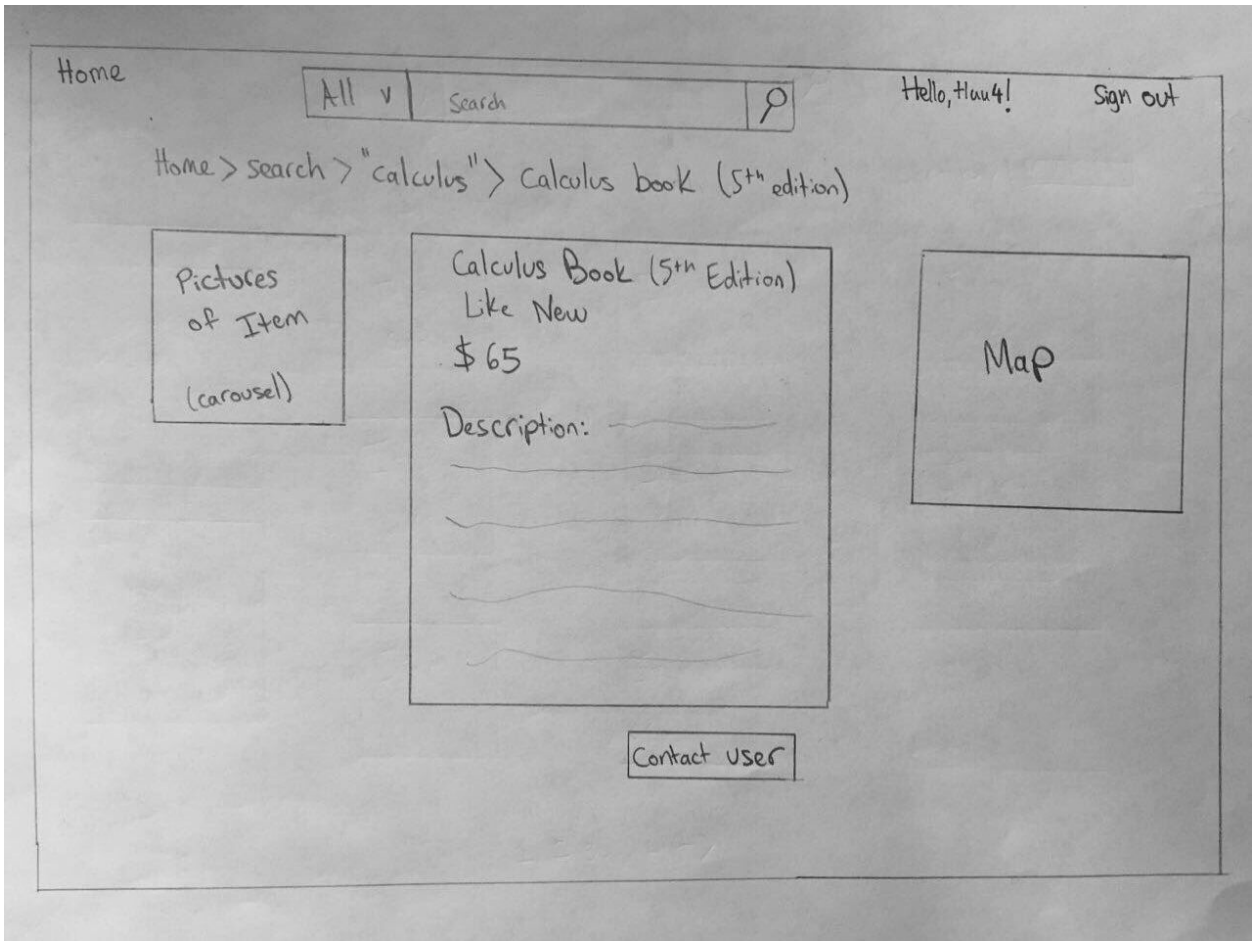
- Browse


Home
All
search bar
Signin/Register
Home > Browse
Books
Clothing
Electronics
Home & Kitchen
Sports & Outdoors
Other
All

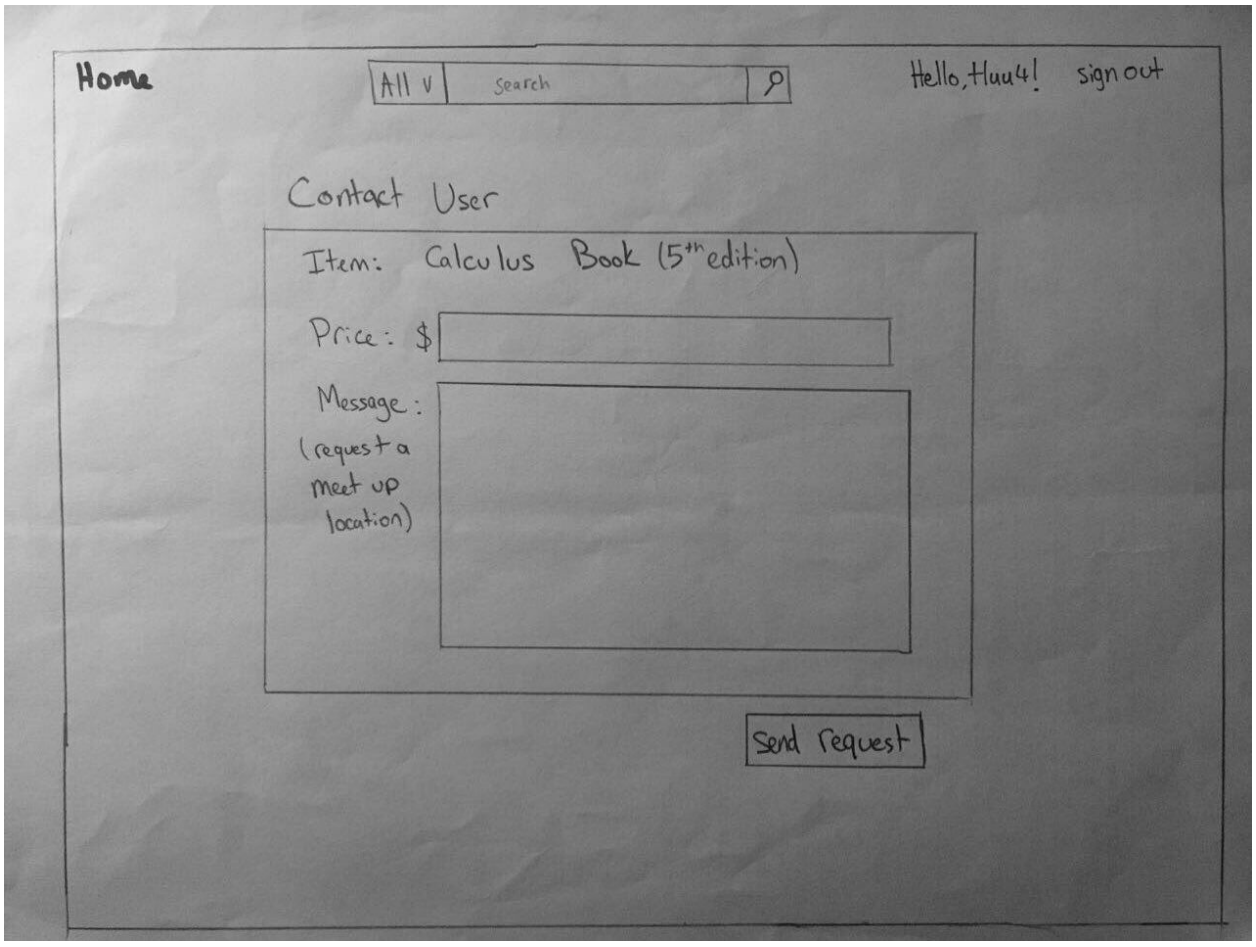
- Browsing a category



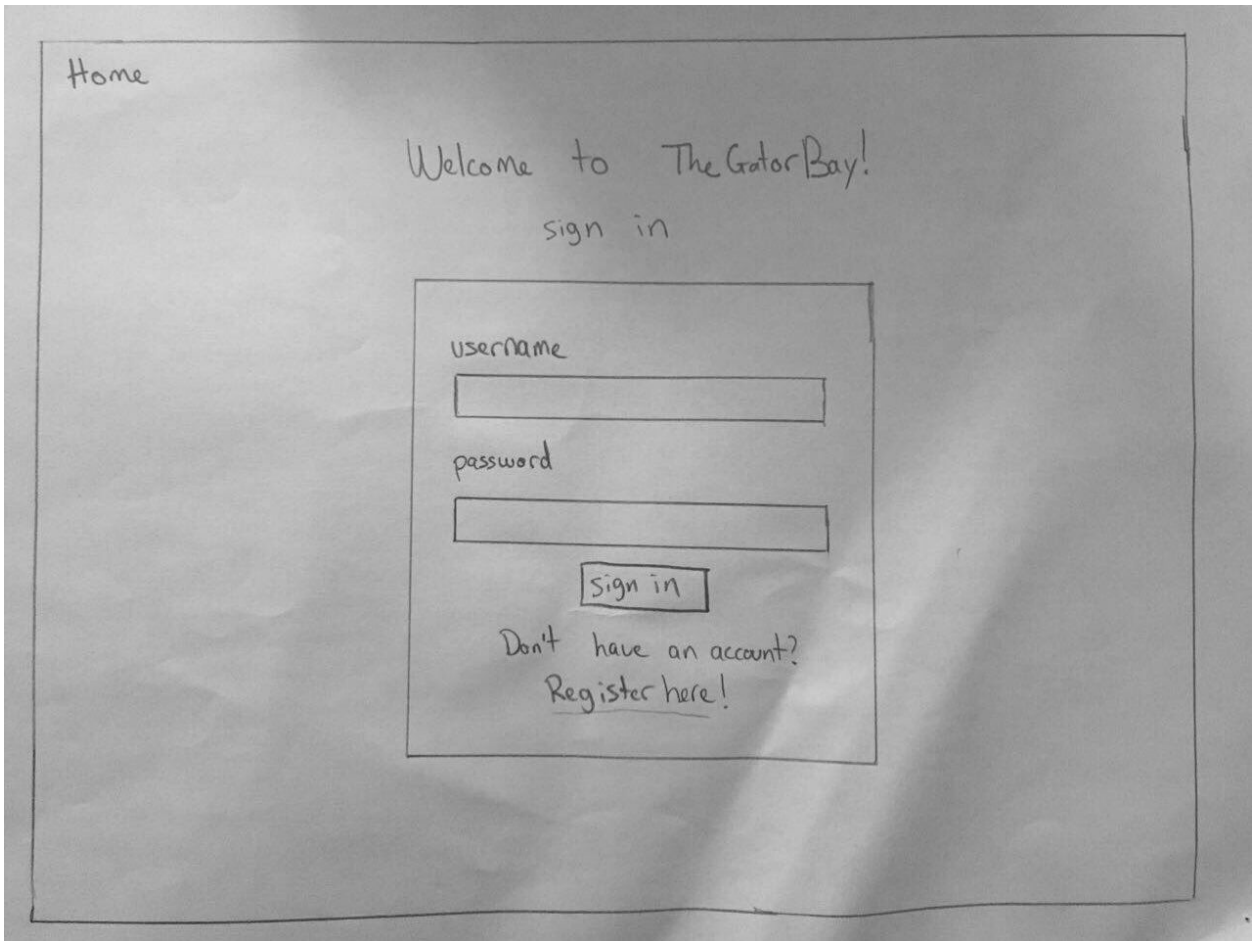
- Detailed Listing



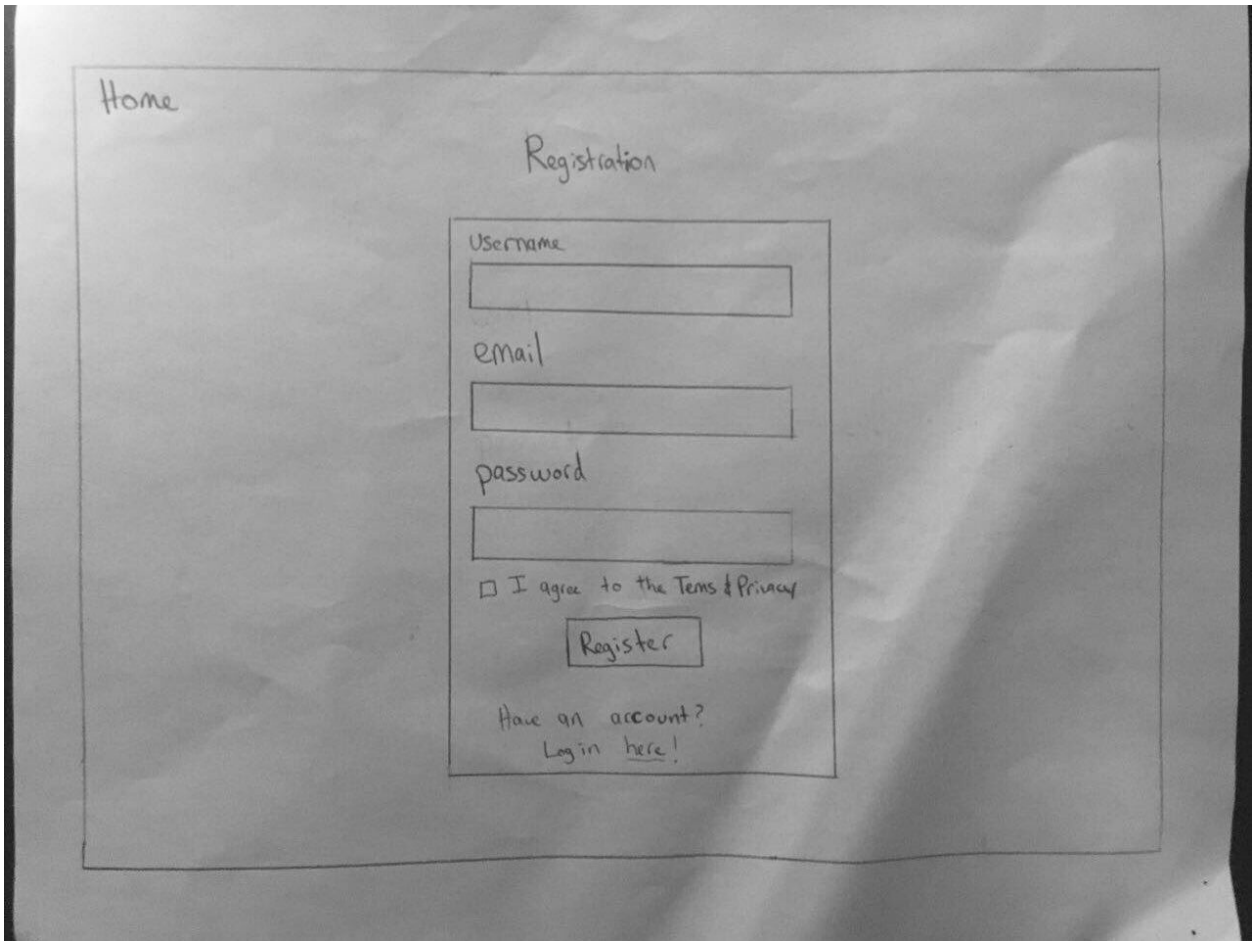
- Contact Seller



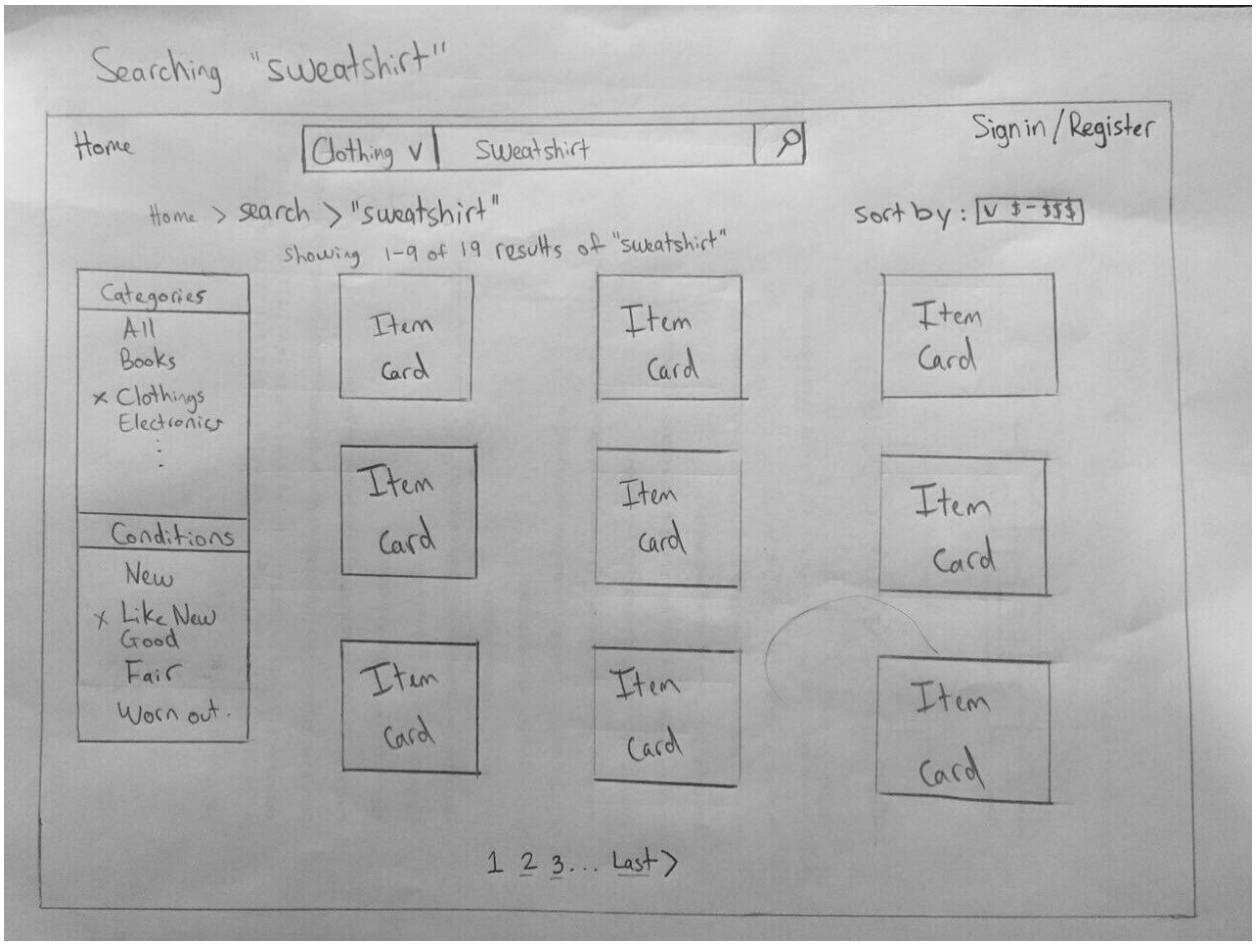
- Sign-in


Home
Welcome to The GatorBay!
sign in
username
password
sign in
Don't have an account?
Register here!

- Registration



- Searching for an item



## 6. High Level System Architecture, Database Organization

- Stack: LAMP
    - Operating system: Ubuntu
    - Web server: Apache
    - Database: MySQL
    - Scripting language: PHP using the CakePHP framework.
- Source code revision: Github.
- Supported Browsers: Safari, Firefox, Chrome.
- Frameworks: jQuery, Bootstrap, CakePHP, Materialize, MySql, HandleBars.js.
- Software Tools: Atom text-editor, Sublime, Netbeans,Workbench.
- Search Architecture: The website shall make use of search tags for better search results. These tags will be taken as input from the sellers and stored in database. The name of a listing and the tags provided by the seller will together be used for searching the listings.
- Google Maps Services: The website shall show an approximate location of pickup on Google Maps. This pickup location shall be provided by the seller.

Main Data Organization and High Level Database Schema/Organization

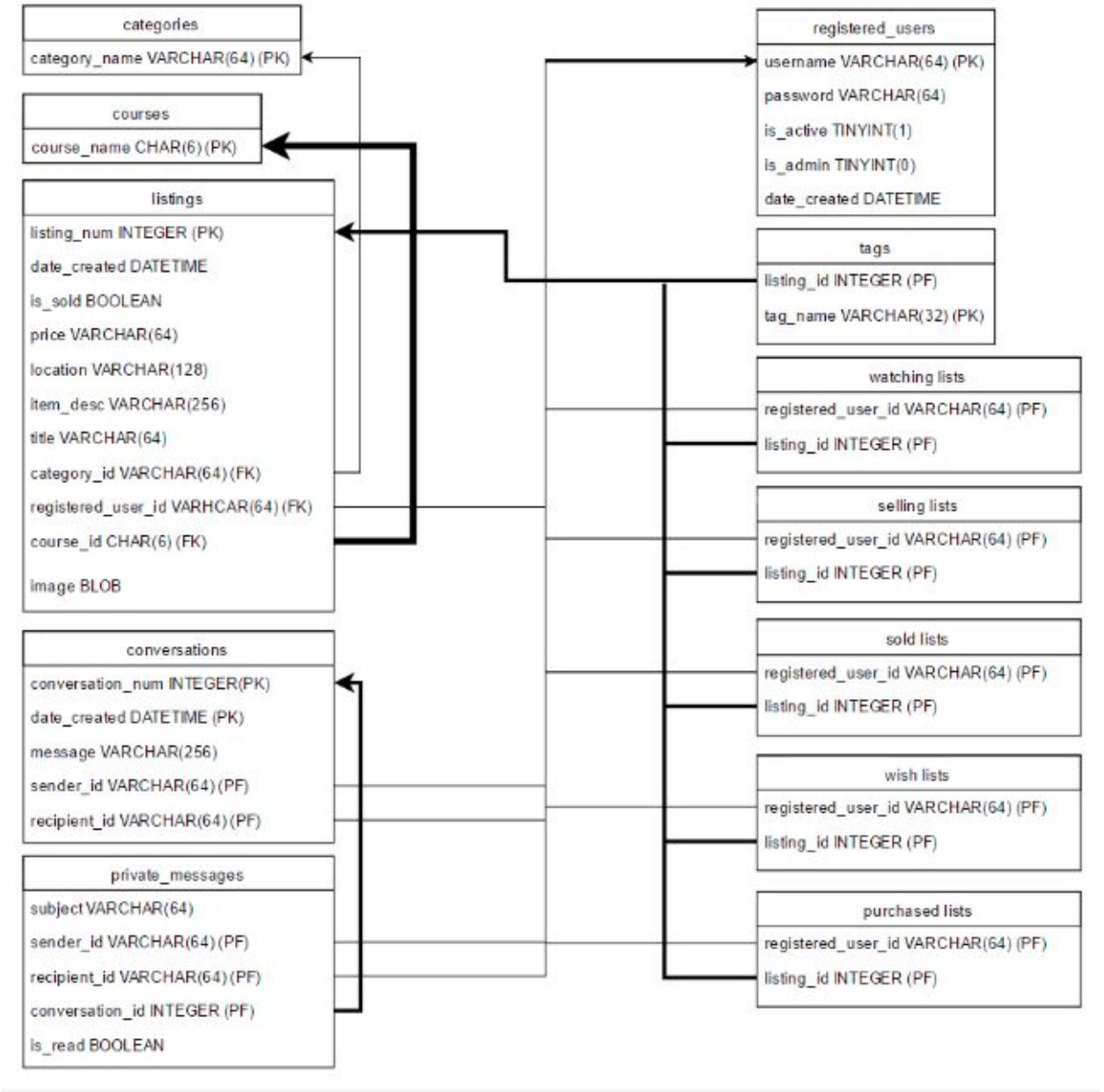



Figure 1: Database Tables

As shown in the figure above, the database schema contains the following tables:

- Registered users
- Categories
- Courses
- Listings
- Tags
- Conversations
- Private messages
- Watching lists
- Selling lists
- Sold lists
- Wish lists
- Purchased lists

The Registered User table is used to record the users who register with an account on the website, and as shown in Figure 1, this table contains only 1 primary key, which is the id of the user. This makes every registered user account unique from one another.

The Listings table has foreign keys referring to the registered user's id, the Course table's primary key id's and Categories table's primary key id's. The Listings table only has 1 primary key, which is the id of the item, and therefore, each item is unique from one another, even though items may have the same values for any of its other attributes such as titles and item description. The images stored in a record in the Listings table is of the BLOB data type, which can support to an approximate maximum of 64 KB. Proper implementation of the database access and storage will be taken to increase web page performance, reduce loading time due to the rendering of large BLOB images on the web pages, and allow only images of proper sizes to be stored in the database.

The Watching List, Sell List, Sold List, Wish List and Purchased Lists have registered user id's and listing id's as foreign keys, and the primary key for these List tables is a combination of both the registered user id and the listing id. This

means that a record in the table cannot have the same user id and listing id as another record in the same table.

The Conversation and Private Messages Table are implemented such that each message sent from one registered user to another is a record unique from another message transmitted between the same or different users. The set of primary key for the Private Messages table is a combination of the id of the sender and the recipient (which are foreign keys referencing the id contained in the Registered User table) and the conversation id, which is unique for all different messages recorded on this table. This means that even though 1 user can send multiple messages to another user, those messages are recorded uniquely in the Private Messages table, since each message will have a different id. The Conversation table uses the combination of the date when the message was created, the id of the conversation, and the same sender and recipient id's as the set of primary keys.

## 7. High Level UML Diagrams

- UML Class Diagram

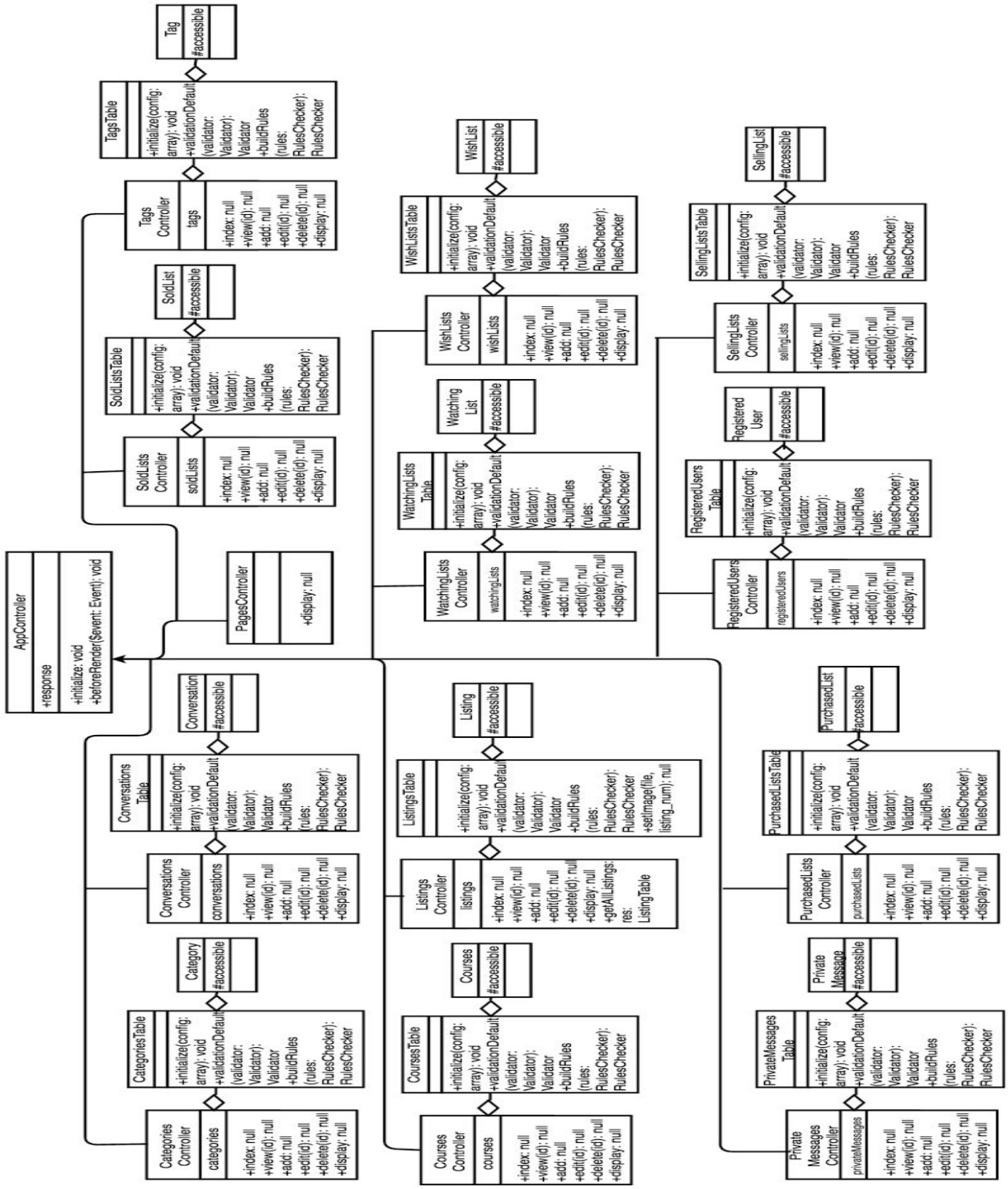



Figure 2: UML Class Diagram

The UML class diagram depicts the classes used for the website. All controller classes are subclasses of the AppController class. Each Controller class is aggregated with its corresponding Table class; the Controller classes contains an instance variable of the associated Table class. Each Table class is aggregated with its associated Entity class. The only Controller class that does not have any associated Table or Entity class is the PagesController class, which is used by the website to render the home page.

- UML Deployment Diagram

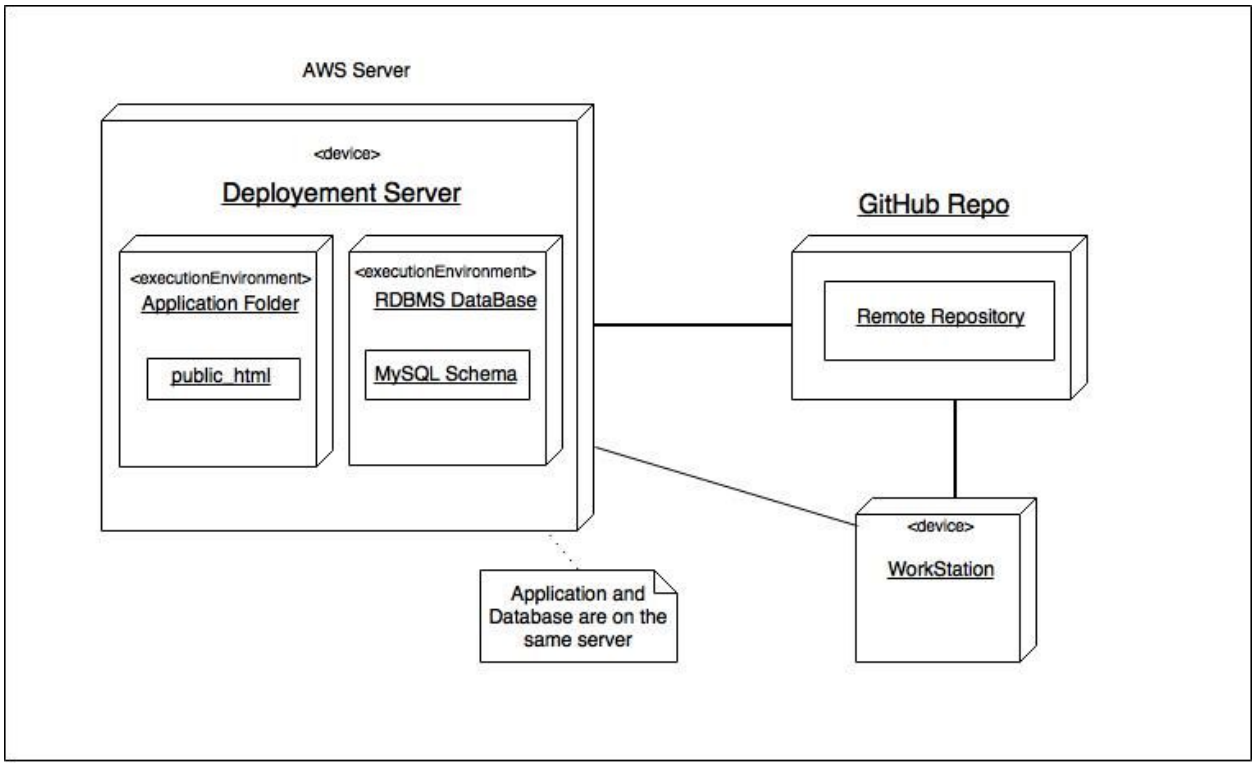



Figure 3: UML Deployment Diagram

## 8. Key Risks

Technical Risks

The use of BLOB's for images stored in the database provides key technical risks for the implementation of the web application.

Currently, the prototype of the project renders BLOB images from the database in acceptable speed, but however, web page performance problems may arise when images with sizes too large are uploaded into the database. The use of BLOB can worsen web page performance and increase loading time of web pages in the event that an image of a large size is inserted into the database. In this case, rendering the image on the web page may become a much longer process. To account for this risk, the proper implementation of database access and storage is necessary. The group is planning on allowing the user to only upload images of certain sizes so that the loading time of the web pages are not increased due to the time it takes to render the image. The group will also test the webpage by using different maximum image file sizes, to determine the optimal image size the that can be allowed to be uploaded into the database.

**9. Team**

- Ajinkya Chalke. - Team Lead
- Ivan Yu. - Technical Lead
- Bradley Ng. - Backend/Database
- David Rodriguez. - Quality Control + Backend/Database
- Thao Luu. -Frontend/Design
- Jerry Auyeung -Backend/Frontend