**CSC 648-848 Software Engineering Summer 2020**

**Milestone 2**

# Freshwater Rentals

*Rent, sell, buy housing/apartment website*

*Available on desktop and mobile.*


**Team 1 : San Francisco State Coders (SFSC)**

| | | |
|---|---|---|
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| **Garrett Peuse** | **Backend Lead** | |
| **Gouri Jamakhandi** | **Frontend Lead** | |
| **Katthak Shah** | **Github Master** | |
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| **Xinwei Fan** | | |



**Submitted: July 9, 2020**

# 1. Functional Requirements (Prioritized)

1. **Priority 1:**
    - 1.1. **Guest Users**:
        - 1.1.1. Guest users shall be able to search by zip code, city, distance from SFSU campus, prices, bed / bath count, listing type (i.e. apartment, house, studio, room)
        - 1.1.2. Guest users shall have the ability to view a listing
        - 1.1.3. Guest users shall have the ability to register to use more features (posting, save profile)
    - 1.2. **Member Users**:
        - 1.2.1. Member users shall have all privileges that Guest users have
        - 1.2.2. Member users shall have the ability to securely login and logout
        - 1.2.3. Member users shall have a viewable Dashboard page where they can manage listings they created and view messages they have received
        - 1.2.4. Member users with a verified SFSU email address (SFSU Users) shall have the ability to message other users, specifically buyers or renters can message sellers with contact info
        - 1.2.5. Member users when registering will be verified with association to SFSU via user's email
        - 1.2.6. Member users shall have the ability to submit created listings for approval and manage already approved listings
    - 1.3. **Administrator Users**:
        - 1.3.1. Admin users shall have all privileges that Guests and Members have
        - 1.3.2. Admin users shall be required to approve all listings before they go live
        - 1.3.3. Admin users shall have the ability to remove any listings

2. **Priority 2:**
    2.1. **Guest Users**:
        2.1.1. Guest users shall have the ability to create a draft listing and/or message before registration (lazy registration)
    2.2. **Member Users**:
        2.2.1. Member users shall fill out a compatibility test and profile
        2.2.2. Member users shall be able to view other Member users profiles
        2.2.3. Member users shall be able to search for housing via roommate compatibility
        2.2.4. Member users shall be able to search rentals via college majors presently living in the unit
    2.3. **Administrator Users**:
        2.3.1. Admin users shall have the ability to approve media associated with submitted listings

3. **Priority 3:**
    3.1. **Guest Users**:
        3.1.1. Guest users shall be able to view nearby public transportation
        3.1.2. Guest users shall have the ability to see nearby shopping, restaurants, services (medical, food assistance providers) via map
        3.1.3. Guest users shall be able to use advanced search methods, narrowing listings by keyword phrases.(ex. Rooms, distance, renter, buyer, zip code, address, etc)
    3.2. **Member Users**:
        3.2.1. Member users shall be able to have a "Favorites List," where they can save their sentiment for a particular posting (Like, Love, Save for Later)
        3.2.2. Member users shall be able to schedule a physical tour of a listing and its surrounding neighborhood
        3.2.3. Member users managing listings shall be able to perform background checks on applicants
    3.3. **Administrator Users**:
        3.3.1. Admin users shall have the ability to remove members' privileges

# 2. List of main data items and entities (Expanded)

## Entities (Users Grouped by Permissions):

1. **Guest User:** A user of the site who has not yet registered.

2. **Member User**: A user of the site who has registered and created an account on the site.
   2.1. **SFSU User**: A user of the site who has registered and created an account on the site *using a verified SFSU email*.

3. **Administrator User**: A user of the site who has permission to approve submitted listings before they go live.

## Data Items:

4. **Listing:** A representation of a tangible legal property or living space and it's associated information including, but not limited to, photos, price, location, listing type (i.e. house, apt, room), square footage, utilities included, description, links to any Member roommate's profiles, number of people living there currently (if it is a shared space), number of people wanted (if it is a shared space), amenities (i.e. appliances, climate control, parking type, security), restrictions (i.e. no pets, no smoking), and contact details.

   4.1. **Distance:** A representation of the physical distance between a listing's location and the SFSU campus.

   4.2. **Category & Subcategory**: Ways of grouping listings by their attributes (i.e. if a listing is an apartment, house, studio, room, and if it is for rent, for sale, etc.)

5. **Media:** Includes digital text, images, art, videos, animations, and audio.

6. **Account:** A record / database entry of a Member user and their associated site data specified below.

   6.1. **Dashboard:** A viewable page where each member user can manage listings they created and view any messages they received.

   6.2. **Registration:** Includes data fields for: Username, Password, Email, Background check, DOB

6.3. **Roommate Profile:** A representation of a Member user and their associated information, viewable by other Member users, that can be used to assess roommate compatibility.

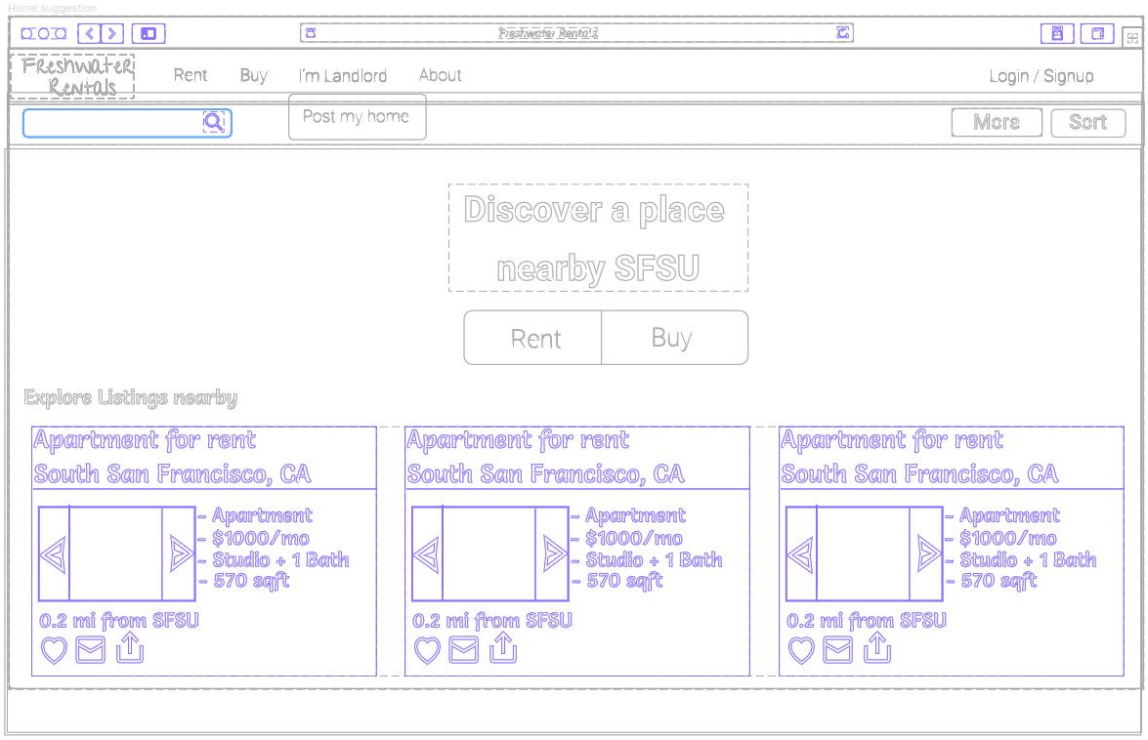
6.3.1. A Roommate Profile shall have optional fields for: photo, full name, pronouns, age, major, language/s spoken, religion, interests/hobbies, employment status, personal introduction, what they are looking for in a roommate (if they are looking), what they are looking for in a buyer or roommate (if they are looking), what they are looking for in a listing (if they are looking to rent or buy), if they drink or smoke, if they have pets.

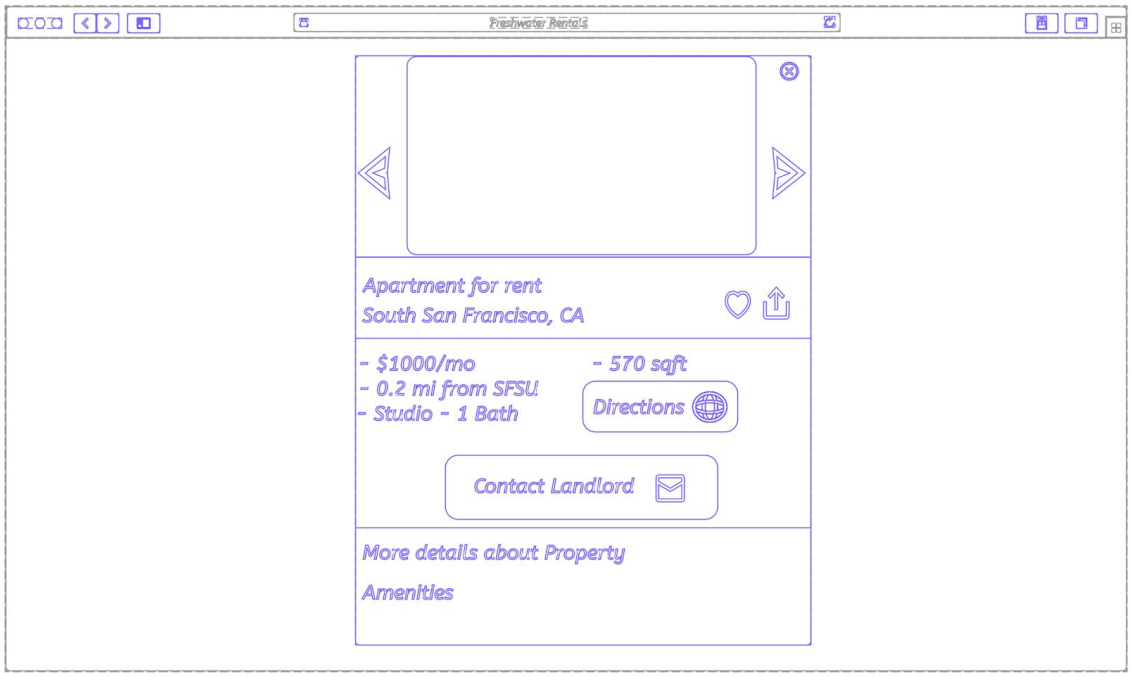
7. **Message:** A one-way text communication *from a SFSU User* to any other member that has a currently-publicly-viewable approved listing

# 3. UI Mockups and Storyboards (high level only)

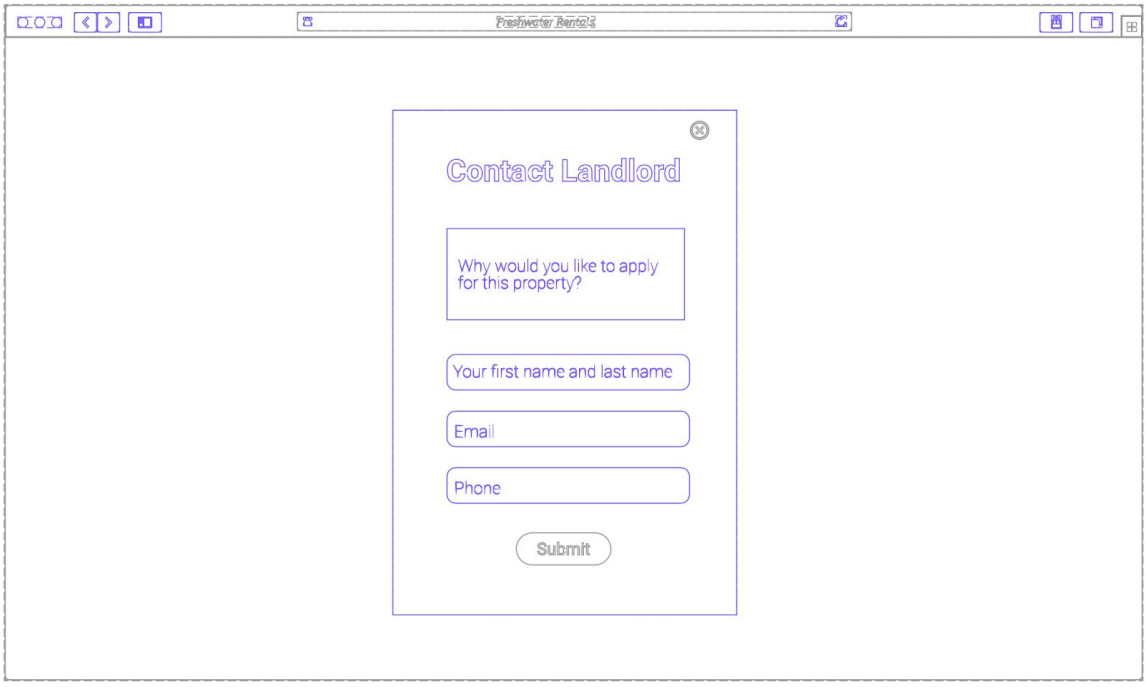
1. **Roommate (Student - Lisa)**

   Looking for an Apartment to rent: Lisa got admitted to SFSU and is looking for an apartment to rent near the University. She lives in Texas and can't travel to the University to check out the apartments in person. Lisa doesn't like to travel by public transport and is looking for the apartment closest to the University while not spending much. She is tech-savvy, and while surfing on the internet she finds our website. Lisa uses it to find apartments, sorted by the shortest distance to SFSU. She checks the photographs and amenities that the apartments have and likes one of the apartments. She then tries to send a message to the landlord for more information, that is when the login screen is prompted. She is a first time user of this website, so she needs to Sign up. Once she clicks on the Sign-Up button, she will be a registered user(after we check for the valid ".sfsu.edu" email in the backend). As a verified SFSU student, she can send a one-way message to the landlord for more information.



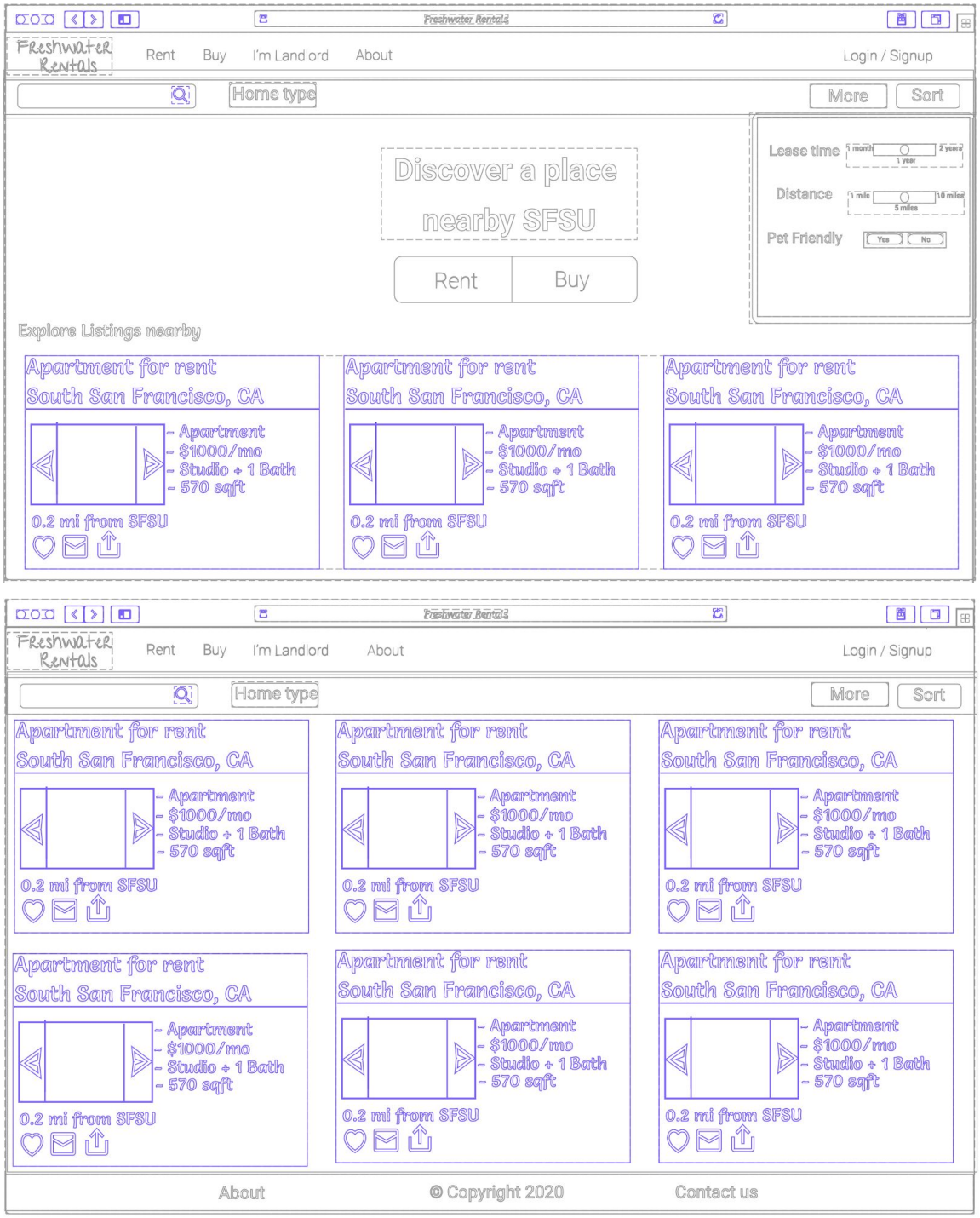

Freshwater Rentals
Apartment for rent
South San Francisco, CA
- $1000/mo
- 0.2 mi from SFSU
- Studio - 1 Bath
- 570 sqft
Directions
Contact Landlord
More details about Property
Amenities


Freshwater Rentals
Login
Signup
SFSU Renter
Landlord
Administrator
Username
Email
Password
Submit


Freshwater Rentals
Contact Landlord
Why would you like to apply for this property?
Your first name and last name
Email
Phone
Submit

2. **Roommate (Student - Jose)**

Jose is going to San Francisco for a semester as part of an international exchange program in his university in Ecuador. He wants to move into a place at most 5 miles away from SFSU and would like to have a place where he can live for only 6 months. He wants a pet friendly place for his dog; in our application he will be able to select those specific types of search.


Freshwater Rentals
Rent
Buy
I'm Landlord
About
Login / Signup
Home type
More
Sort
Discover a place nearby SFSU
Rent
Buy
Lease time
1 month
2 years
1 year
Distance
1 mile
10 miles
5 miles
Pet Friendly
Yes
No
Explore Listings nearby
Apartment for rent
South San Francisco, CA
- Apartment
- $1000/mo
- Studio + 1 Bath
- 570 sqft
0.2 mi from SFSU
About
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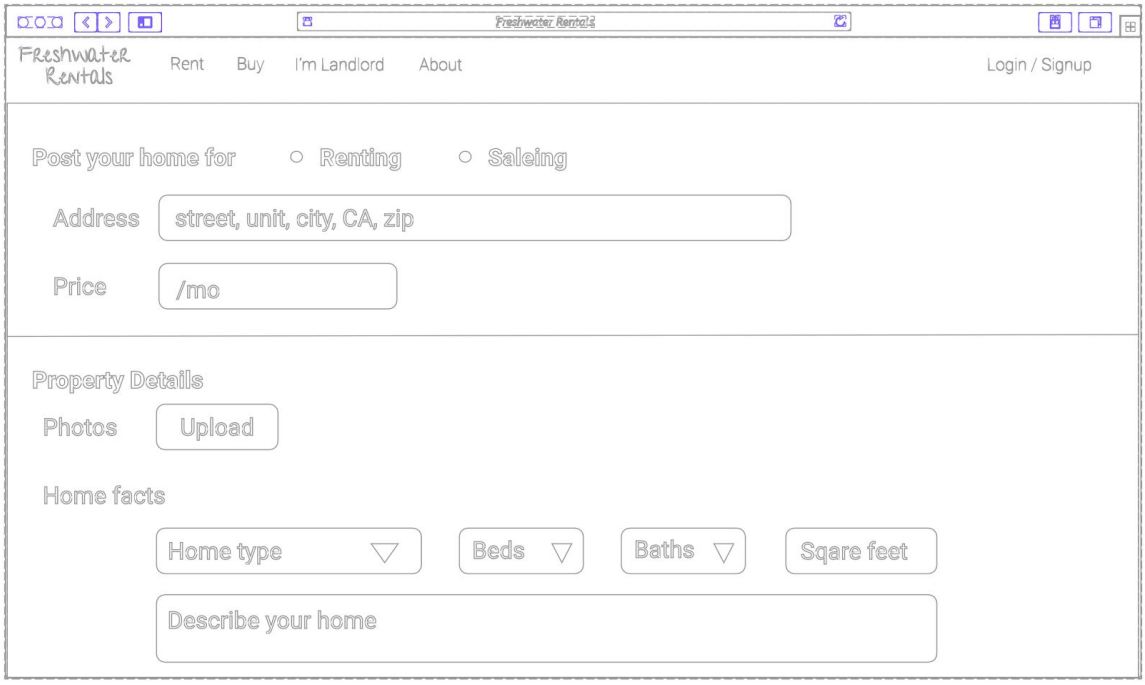
3. **Roommate (Faculty)**:
   Jane is a graduate student here at SFSU, she also teaches here part time while sharing an apartment with 3 other roommates. One of her roommates graduated, leaving an availability in her apartment. Using Freshwater Rentals, Jane can login as a student and post her room availability, and almost immediately, she gets a response. She no longer needs to look for a roommate, because of Freshwater Rentals.


Freshwater Rentals
Freshwater Rentals
Rent
Buy
I'm Landlord
About
Login / Signup
Post your home for
Renting
Saleing
Address
street, unit, city, CA, zip
Price
/mo
Property Details
Photos
Upload
Home facts
Home type
Beds
Baths
Sqare feet
Describe your home

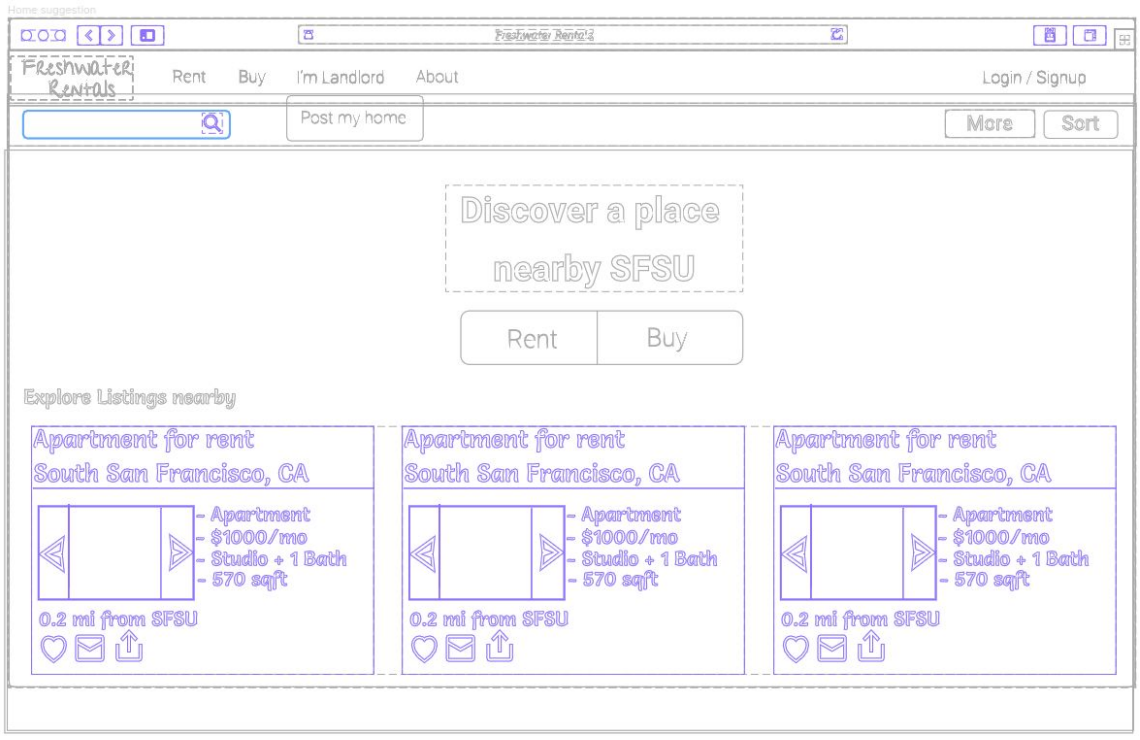

Freshwater Rentals
Freshwater Rentals
Rent
Buy
I'm Landlord
About
User name
Profile
My message
Log out
People 1
People 2
People 3
People 4
People 1
Does the rent include the costs for water and heating?
Me
Yes!

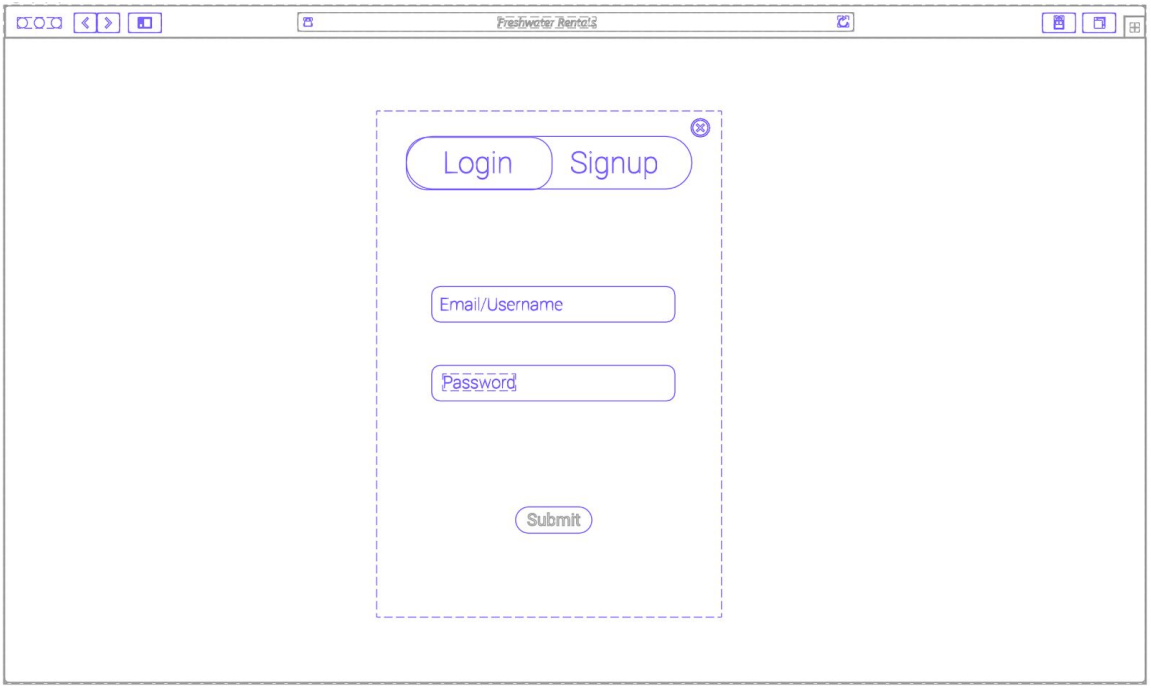
4. **Landlord (Bill):**

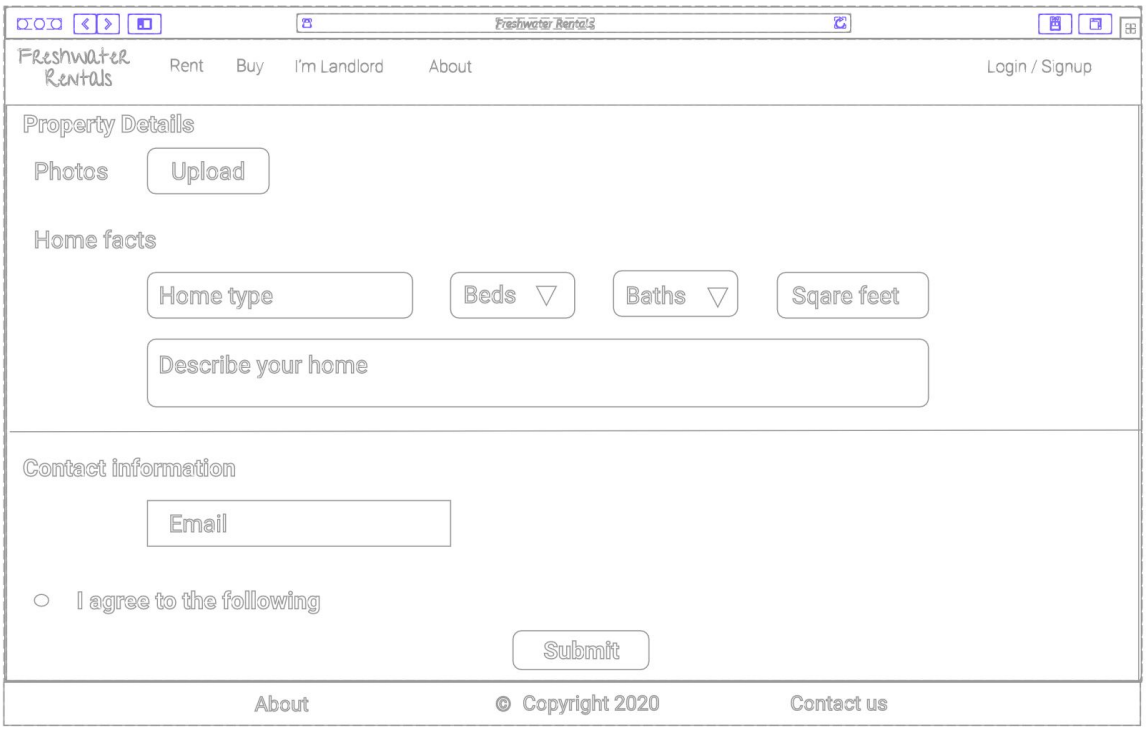
   Bill is a 52-year-old San Francisco businessman. He has an old house with three bedrooms and three bathrooms. Since the house is nearby the San Francisco State University, he is looking to rent this house to SFSU students or faculties.

   Bill visits Freshwater Rentals website. He can quickly locate I'm landlord button and click on Post my house. But before posting his house, he needs to register and login.

   In the next page, since he wants to rent his house, he clicks the renting button and types the house location (street address, unit, city, and zip) and price.

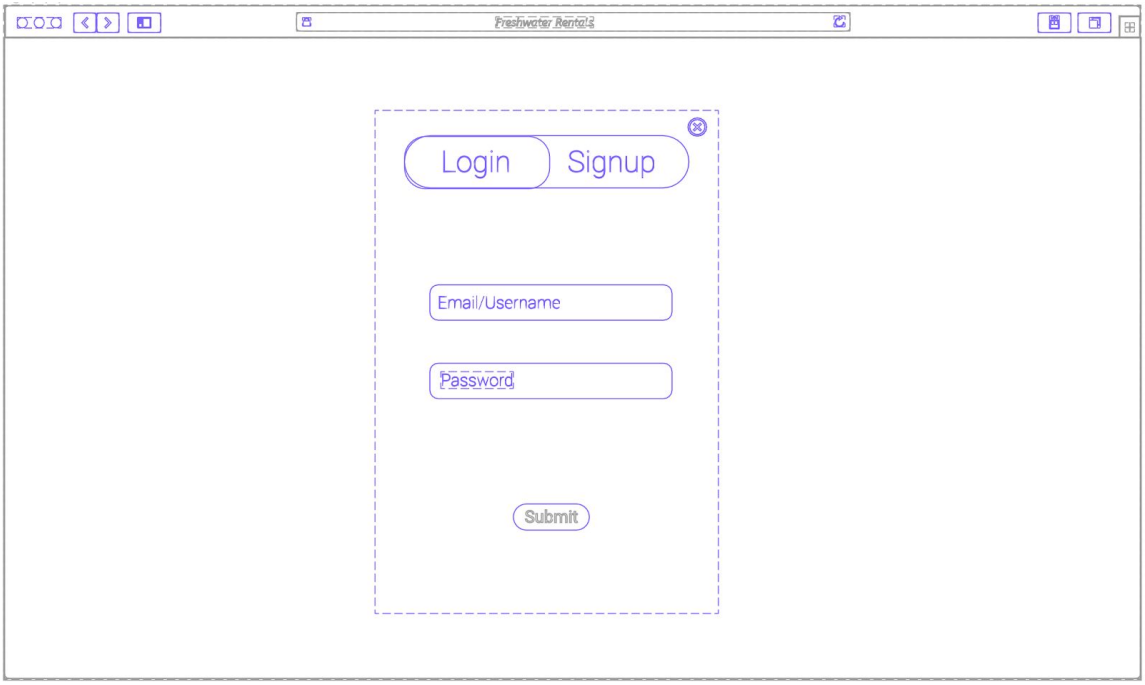


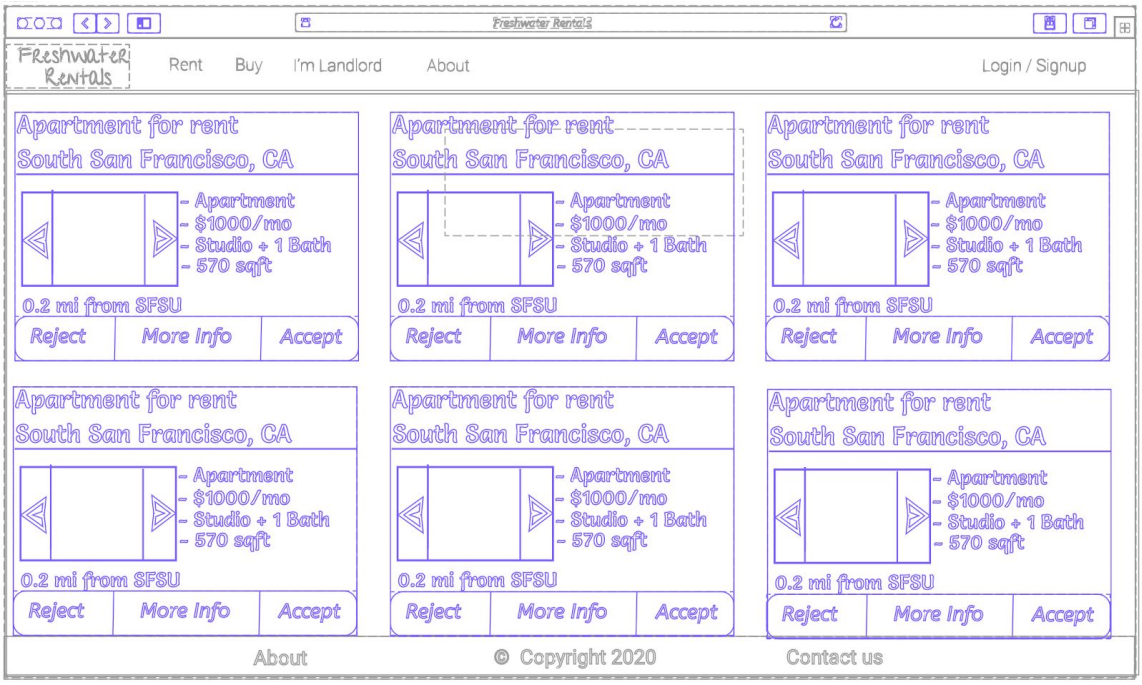

Freshwater Rental's
Login
Signup
Email/Username
Password
Submit


Freshwater Rental's
Freshwater Rentals
Rent
Buy
I'm Landlord
About
Login / Signup
Property Details
Photos
Upload
Home facts
Home type
Beds
Baths
Sqare feet
Describe your home
Contact information
Email
I agree to the following
Submit
About
© Copyright 2020
Contact us

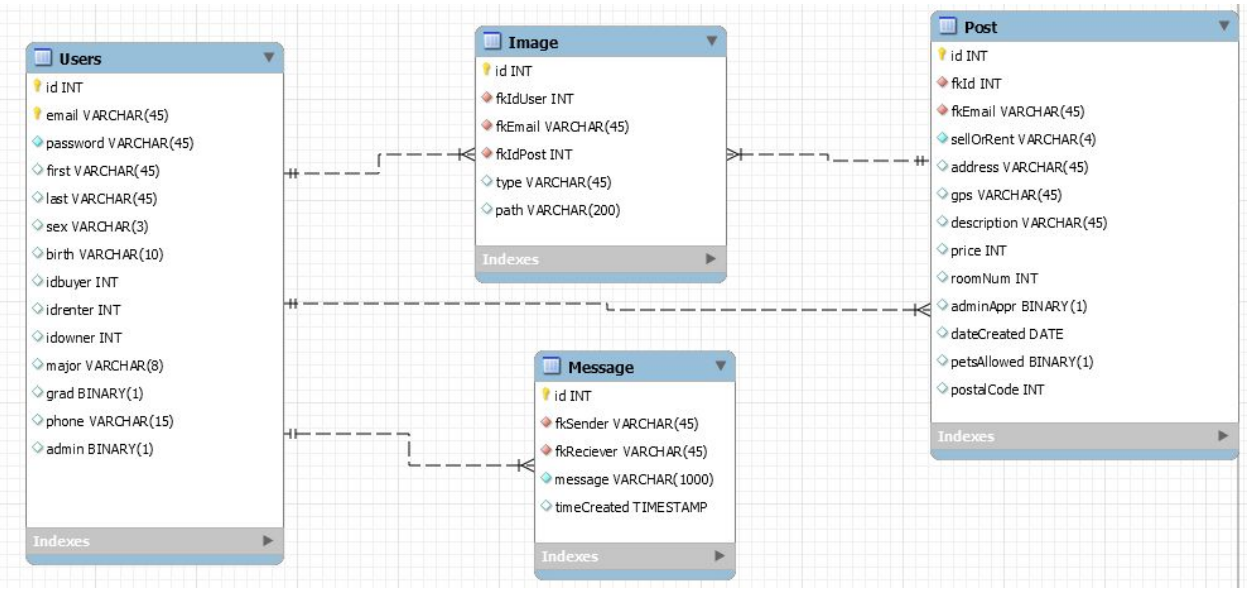
5. **Administrator (Marie):**

Marie is 25 years old, grew up in the Bay Area, still lives at home, and earned an Associates degree in Business at City College of San Francisco as she turned 20. Her college career was interrupted when her father was diagnosed with cancer. She had to put school on pause so she could work to help pay family bills. While dealing with the illness, she bonded more with her father and he taught her how to code. Her father's cancer went into remission which allowed her enough time to enroll at SFSU to get a MBA. At SFSU, she met a team of Computer Science students who built a SFSU-only niche rental website and she asked if she could help so she could learn more about online businesses. She now works as an administrator on the website approving media posts. She is worried about time management and work-life balance so she needs to be able to approve media postings very quickly and easily, with only a few minutes to spare everyday.


Freshwater Rentals
Login
Signup
Email/Username
Password
Submit


Freshwater Rentals
Freshwater Rentals
Rent
Buy
I'm Landlord
About
Login / Signup
Apartment for rent
South San Francisco, CA
- Apartment
- $1000/mo
- Studio + 1 Bath
- 570 sqft
0.2 mi from SFSU
Reject
More Info
Accept
About
© Copyright 2020
Contact us

# 4. High level Architecture, Database Organization




## Digital Media Storage:

- Digital media files will be stored statically in a file system with the relative paths of the media saved on the database.
- Image format: .png, .jpg, .gif
- Images will be uploaded by landowners for selling or renting purposes. These images will be saved as static images in a file system with the relative paths saved to the database.

## Search/Filter architecture and implementation:

There will be three types of searches.

1)The DB will have a text search using a simple search that utilizes SQL's %LIKE command.

2) There will also be a category search filter(i.e. search via number of bedrooms,)

3)There will also be a price search

**Our APIs:**

**Front End:**

Either Vue JS or React JS, which will count with its own local port

**Back End:**

Flask API that will also provide communication to the database.

## New or Removed Frameworks/Software Tools:

We have decided against using Google Cloud's mySQL database and in favor of a mySQL database stored locally on our server. There were two reasons for this: 1)connection and maintenance wise, a local database is much easier to manage and 2) Google Cloud's database storage costs are a lot(especially if we want to give everyone their own unique database in their test environment).

# 5 .Identify actual key risks for your project at this time

- **Skill Risks:**
    - Inability for team members to quickly troubleshoot any technical issues that arise.
        - **Resolution**: Have good documentation and version control of the project to revert possible errors. Learn how to use our tools correctly. Have someone like CTO, Anthony Souza, guide team members.
    - 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.
        - **Resolution**: Distribute the workflow on the sections needed.

- **Scheduling Risks:**
    - Scheduling times to collaborate or have SCRUM meetings may be difficult because each teammate has different schedules. There is a risk that we might not be able to meet enough or always have everyone at the meetings, which could lead to not meeting deadlines or confusions about work distribution.
        - **Resolution**: Schedule more "mini meetings" where the entire team is not present. Use tools like Discord and when2meet.com to coordinate meetings and facilitate scheduling.

- **Technical Risks:**
    - There is some concern about managing the database well. We will be depending on an modern API (SQLalchemy) to help.
        - **Resolution:** For the highest quality product we will have to educate ourselves on proper practices and learn to use the tools.

- **Teamwork Risks:**
    - When relying on other people for a critical part of work, something could happen where they cannot fulfill their obligations. For example, they might oversleep or have to deal with an emergency.
        - **Resolution**: Expect the unexpected and have a Plan-B for mission critical parts of the project.
    - There is the risk of confusion about distribution of work and each person knowing what they should be working on. This could lead to people doing the same work twice or certain work not getting done.

        - **Resolution**: Use tools like Trello and SCRUM meetings to make sure everyone is on the same page.

- **Legal / Content Risks:**
    - Intentional/Unintentional usage of unlicensed copyrighted code or images.
        - **Resolution**: When a teammate finds any media, make sure to verify the license and note the source/s.
    - Intentional/Unintentional usage or sharing of personal data without explicit permission (Users' Intellectual Property, Home Address, etc)
        - **Resolution**: Reviews of all database entries to verify that we use only fake addresses or get permission to use an address.

# 6. Project management

## Overall management:

The project was divided in two teams, front and back end. Each of the teams has three people. Team Lead, Luis, is working in both teams to help monitor the integration of the project as a whole. Both teams are using Trello and Discord to track and organize work distribution and "TODO" checklists.

## Front End Team management:

Front End Team Lead (Gouri) is in charge of assigning tasks, meetings and workflow of the front end. Everyone else on the team helps to brainstorm and performs the tasks assigned by the Front End Team lead.

**Future**:

- More roles will be assigned in the future as some have more familiarity with front end technologies.
- This team will work on its own front end API with either React or Vue JS to detach the workflow from front and back end on its own local port.

## Back End Team management:

Team Lead (Garret) is in charge of assigning tasks, meetings and workflow of the back end team. Garret designed the database tables and is in charge of double checking with CTO (Souza) that things are correct. Everyone contributes to installation, debugging and deployment of the backend tools. Luis coordinates with the front end team as needed to make sure front end needs are met in the back end.

**Future**:

- This team will be broken into rotational sub-teams in the future as the project needs.
- Since a back and front end API are going to be developed separately some team members will be in charge of ensuring the connectivity between them.