



SW Engineering CSC648/848

Spring 2019

GatorRooms.com

Team 9 Milestone 2

Product Requirements Document

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Versions

History Table

Version	Date	Notes
1.0	3/22/19	First version for submittal.
2.0	4/1/19	Second version. Revised document to incorporate feedback from professor.

1. Data Definitions and Entities

Listing -	<p>The advertisement post of the apartment by the landlord. It includes the date it was posted, images, number of rooms, address, distance, and price of the apartments.</p> <p>This 'Listing' class will include the 'description' method.</p>
- Image -	<p>An image of the apartment within acceptable size and resolution.</p> <p>Image formats supported:- jpeg, png, bmp. gif, tiff. dicom.</p> <p>A maximum image size of 7 MB per picture.</p> <p>No video.</p> <p>The listing will include 'image' field.</p>
- Address -	<p>A valid residential address that follows a defined format.</p> <p>A valid address contains the following:</p> <p>All capital letters, No commas or periods</p> <p>A valid and deliverable address</p> <p>Included company name, apartment number, or suite number if applicable</p> <p>Valid acronyms and abbreviations</p> <p>A valid ZIP CODE</p> <p>The example below shows a valid address:</p> <p>JACK SMITH</p> <p>COMPANY LTD</p> <p>123 N MAIN ST STE 45</p> <p>SF CA 94132</p> <p>This 'Listing' class will include the 'address' method.</p> <p>The 'Address' class will include street address, city, state, zipcode.</p>
- Price -	<p>This 'Listing' class will include:</p> <p>A price (amount method) of the listing per month in <u>US dollars</u>. Filters will be available.</p> <p>Amount type (amountType method) is also available for listings showing per month, per semester, per year.</p>

- Distance -	A distance in <u>miles</u> to SF State campuses. Filters will be available.
- Type -	A category of listings available, for example a room for rent in a house, in an apartment, the whole house/apartment.
User-	
-Guest User -	A user that can browse website and see the listings and contact Landlords. The user can start to post a listing, can start a message to to landlord, but they will not be able to save or continue unless they become a registered user. Their information will not be stored.
-Registered User-	<p>A registered user has privileges guest user has, and additional privileges, which include ability to post a listing, contact another registered user, and have an account in which this information is stored. For example, landlord will be able to post listing, renter can contact landlord, and their registration information will be stored.</p> <p>Information will be stored are, at a minimum : email address, password, first and last name.</p>
-Admin User -	A user who will be able to approve listing before they are published and reject the posting without editing it. Data will be flagged "is_admin".
-User Email -	Email address of the user that will needed to be verified to validate this is a legitimate address. Validation will include that the address was entered, then an "@" symbol, and then something else followed @.
User Phone Number-	<p>Phone numbers to connect to the user for admin purposes.</p> <p>These are the valid formats.</p> <p>(123) 456-7890</p> <p>(123)456-7890</p> <p>123-456-7890</p> <p>123.456.7890</p> <p>1234567890</p>
Message -	A communication unit that will be used by Users. Includes content(text), date, sender's and recipient's name. Text field will have ability to include one standard text version only.

	Message class will include fields from, to, message, date, status “is_read”, and the listing ID it is referring to.
Favorite -	A rental listing can be added to the set of saved info of user’s database. A “heart” heart-shaped icon can be clicked to indicate to the user that the listing will be saved.
Registration record -	A set of information obtained during registration such as first name, last name, email address

2. Functional Requirements

User - Guest User

First Priority (P1)

User - Guest User

- P1-Guest-1. User shall be able to browse the list.
- P1-Guest-2. User shall be able to sign up and register.
- P1-Guest-3. User shall be able to sort the list ascending, descending date of posting and monthly rent price.
- P1-Guest-4. User shall be able to click display the property's larger version of the image.
- P1-Guest-5. User shall be able to review the listings quickly whether they are on mobile or desktop.
- P1-Guest-6. User shall be able to sort based on distance to the campus.
- P1-Guest-7. User shall be able to review the About page and read team's profile on mobile and desktop easily.

User - Registered User

- P1-Reg-1. Users shall be able to login to their accounts.
- P1-Reg-2. Users shall be able to post after the post have been approved by admin.
- P1-Reg-3. Users / Landlords shall be able to publish multimedia like images so that students can view it.
- P1-Reg-4. Users/ Renters shall be able to send a message from their dashboard to the landlord/listing owner.
- P1-Reg-5. Users / Landlord shall have a dashboard allowing them to review messages from user and contact the student.

User - Admin

- P1-Admin-1. Admins shall be able to login as admin.
- P1-Admin-2. Admins shall be able to review, remove, approve listings before they go live.
- P1-Admin-3. Admins shall be able to reject but not modify the listings from customers.

Second Priority

User - Guest User

- P2-Guest-1. User shall be able to click on a different way of viewing the listing, i.e. list, thumbnails, etc.
- P2-Guest-2. User shall be able to filter based on distance to popular study spots, and filter amenities (i.e., garage, community amenities, heating/cooling and more types of filters).
- P2-Guest-3. User shall be able to print their listings in a printer-friendly format from the site.
- P2-Guest-4. User shall be able to view the Frequently Asked Questions(FAQ) page.

P2-Guest-5. User shall be able to review a listing and find commuting directions and time estimate.

User - Registered User

P2-Reg-1. Users / Landlords shall be able to publish multimedia like images so that students can view it.

P2-Reg-2. Users shall be able to send message from their dashboard to the landlord/listing owner.

P2-Reg-3. Users / Landlord shall have a dashboard allowing them to review messages from user and contact the student.

User - Admin

P2-Admin-1. Admins shall be able to have a dashboard allowing them to review and reject posting in bulk.

Last Priority

User - Guest User

P3-Guest-1. User shall be able to print their listings in a printer-friendly format from the site.

P3-Guest-2. User shall be able to have access to a built-in rental calculator to help students avoid committing to a property they cannot afford and keep rental expectation in check.

P3-Guest-3. User shall be able to access the forum page where they can contact other students or landlords for assistance.

P3-Guest-4. User shall be able to fill out a “Refer a friend” form for their friends, families and relatives.

P3-Guest-5. User shall be able to view GatorRooms.com’s social media platforms.

User - Registered User

P3-Reg-1. Users shall have a dashboard viewing status of their postings, i.e. under review, approved.

P3-Reg-2. Users/Landlords shall be able to publish videos (virtual tour) of their properties so that students can view it.

P3-Reg-3. Users shall be able to bookmark or save their favorite listings.

P3-Reg-4. Users shall be able to create alerts and be emailed when the listing fitting their criteria is posted.

User - Admin

P3-Admin-1. Admins shall be able to help users troubleshoot issues with registration such as logging in, form issues, resetting password, reconciling old/new accounts, etc.

3. UI Mockups and Storyboards

Admin Dashboard - Reviewing, Approving (Jia Nan)

Registered User/Landlord Dashboard - Write Posting, Submitting for admin review (Ish)

Guest User Dashboard - Reviewing communication from landlord (Inez)





Guest User - Browsing, Sorting (Hang)

3.1. Use Case: Guest User Mary

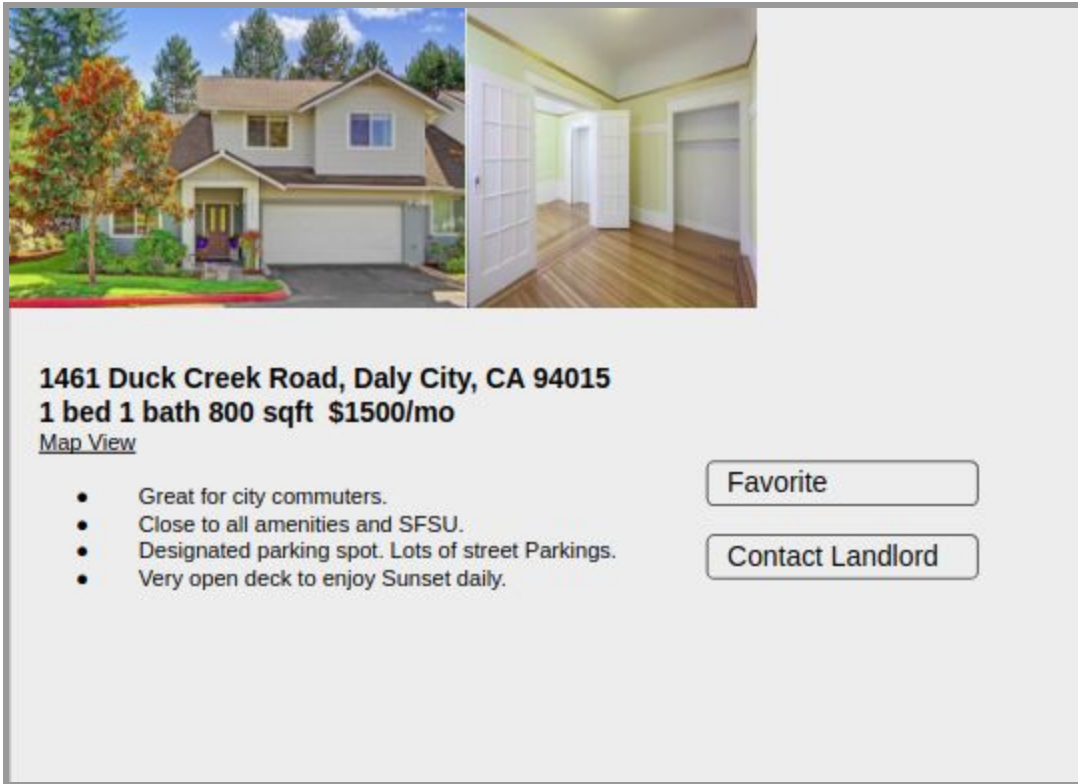
Mary, an SFSU student, needs a rental apartment. She finds GatorRooms.com and enjoys the simplicity of the site since she can use the site **without registering**. She **logs in** and **reads** messages from the landlord, or she can **post a reply** message. She can easily, and securely find a rental apartment without taking too much time out of her studies.

Mary sees website page with listings

The mockup shows a web interface for finding rentals. At the top, there's a search bar with 'Daly city, Ca' entered. Below the search bar are navigation links: Home, Post, About, and Login/Reg. On the left, there's a 'Filter' section with checkboxes for 'Rental Type' (Apartment, House), 'Description only', 'Near SFSU', 'Posted this week', 'Date Posted', 'Newest first', and 'Price' (Low to High, High to Low). The main content area is titled 'Listings, Daly City House for rent' and shows a table of results. The table has columns for 'Address', 'Price \$', 'sqft', and 'Distance to SFSU mi'. There are four listings shown, each with a small image of the property. At the bottom of the table, there's a pagination link '< 1 2 3 .. 13 >'. Each listing has a 'Save' button next to the distance column.

Listings, Daly City House for rent		Sort by	Distance	Price	sqft	
	Address			Price \$	sqft	Distance to SFSU mi
	272, alameda blvd, Daly City, CA 94*** 3bds/2ba			\$3000/mo	1200 sq ft	1.9 Save
	333, 2nd blvd, Daly City, CA 94*** 2bds/2ba			\$2000/mo	1000 sq ft	2.1 Save
	555, palisades blvd, Daly City, CA 94*** 1bds/1ba			\$1500/mo	800 sq ft	3.0 Save
	556, kent blvd, Daly City, CA 94*** 3bds/3ba			\$3600/mo	1500 sq ft	3.5 Save

Mary clicks on one of the listings and it pops up as a new child window, so she can go back to the browser where the listings are displayed.



Guest User Mary's Storyboard



Mary sees website page with listings, and selects one of the listings.

Mary clicks on one of the listings and visits the listing page. Clicks "Contact Landlord" button and is asked to Login/Register first.

Mary is asked to Login/Register Page before submitting her message to the landlord/poster.

3.2. Use Case: Registered User/Landlord Jill

Jill is a busy realtor and she is always in her car, ...finds GatorRooms.com and finds the website **easy to access on her laptop** and **can create a post between meetings**. She is a realtor so she likes that she **can**

use her business email address as a contact and does not need a masked email address.

Jill creates her posting on New Listing page

[Home](#) [Post](#) [About](#) [Message](#) [Login/Reg](#)

Rooms for rent

☐ Description only

☐ Near SF/SU

☐ Posted this week

Date Posted

☐ Newest first

Price

☐ Low to High

☐ High to Low

Type

☐ Apartment


☐ House

New Listing

Price* :

Bed* :

Bath* :

Image* : 

*Asterisk marks mandatory fields.

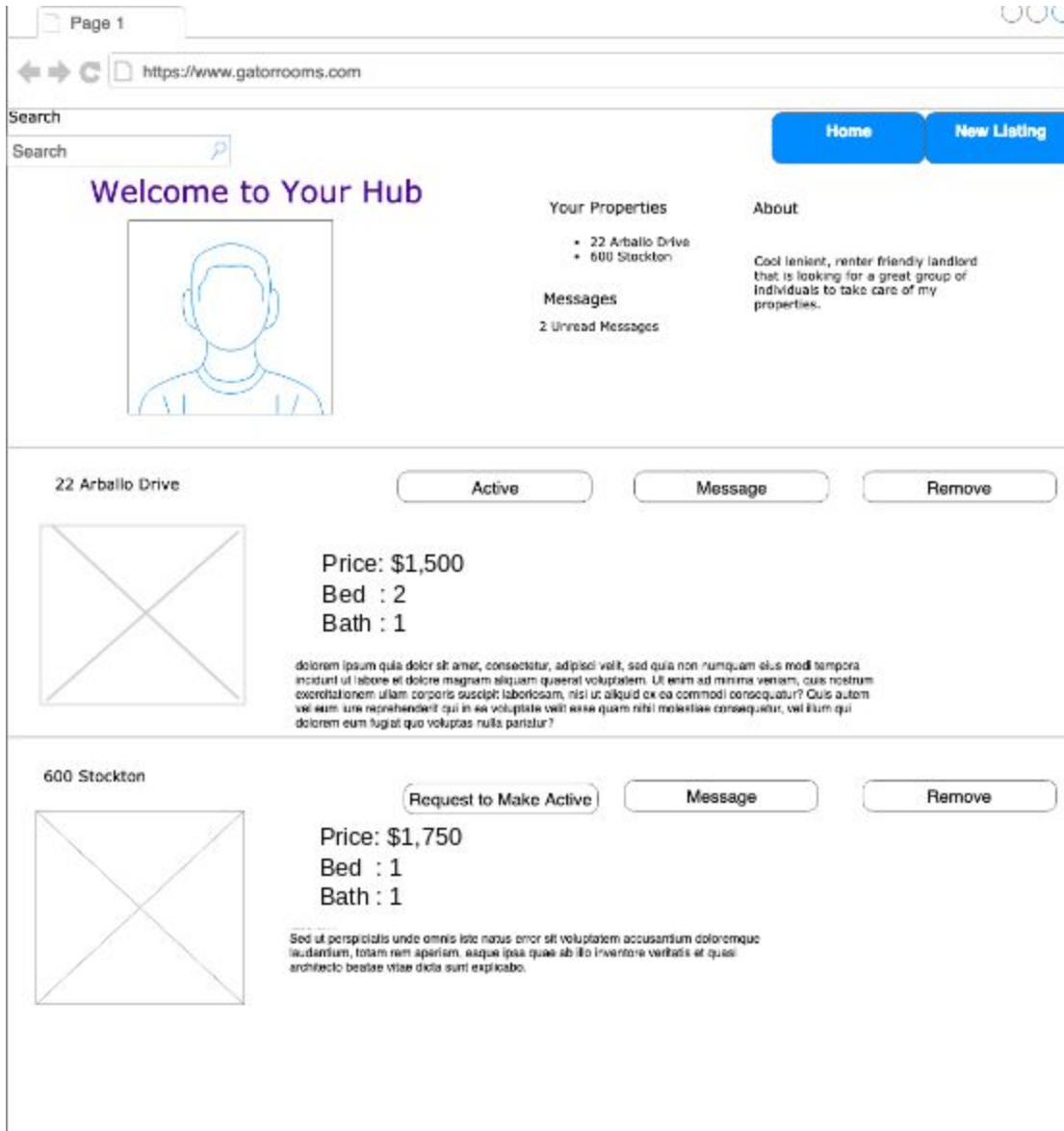
Description

Cancel

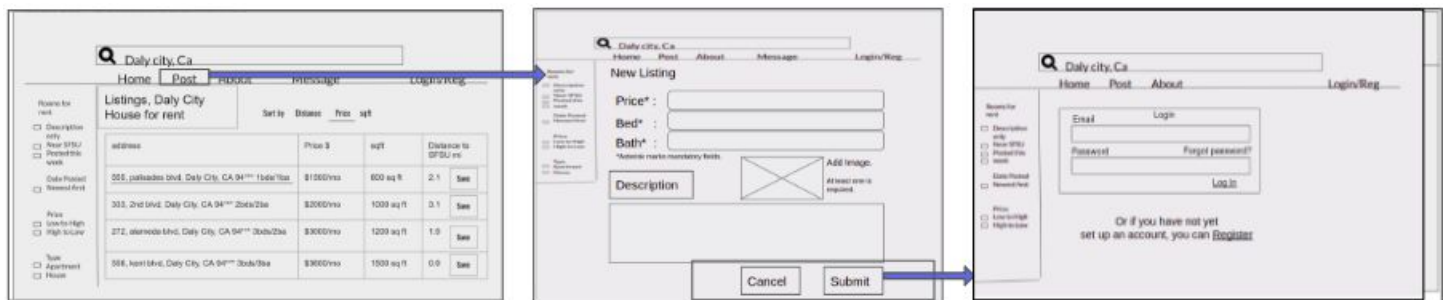
Submit

All postings are reviewed and posted upon approval.

After logging in, Jill can view her list of postings and its status



Registered User/Landlord Jill's Storyboard



Jill sees website page with listings and clicks on “Post”.	Jill fills out her listing details and clicks “Cancel” or “Submit”.	Jill is asked to Login/Register Page before submitting her listing to the admin for review.
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3.3. Use Case: Registered User/Landlord Jon’s Login Experience

Jon represents all users who want to login/register. They are looking to complete the login/registration process painlessly with minimum clicks and forms to fill out.

Jon wants to register and a form to register is presented to sign up for an account.

<p>Jon confirms he is a real person during creation of new account</p>	

Following login, he lands on GatorRooms.com homepage with his email address displayed at top-right corner.

Rental Type

☐ Apartment
 ☐ House

HomePostAbout

reguser@gmail.com

Filter

☐ Description only
 ☐ Near SFSU
 ☐ Posted this week

Date Posted

☐ Newest first

Price

☐ Low to High
 ☐ High to Low

Listings, Daly City





House for rent

Sort by

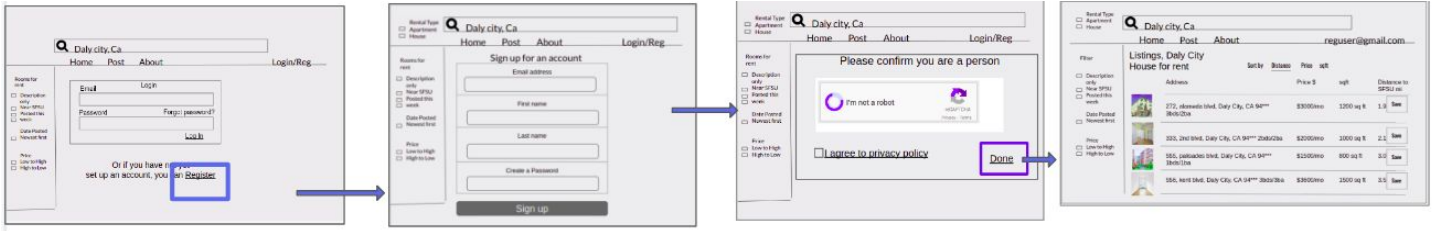
Distance

Price

sqft

	Address	Price \$	sqft	Distance to SFSU mi	
	272, alameda blvd, Daly City, CA 94*** 3bds/2ba	\$3000/mo	1200 sq ft	1.9	<div>Save</div>
	333, 2nd blvd, Daly City, CA 94*** 2bds/2ba	\$2000/mo	1000 sq ft	2.1	<div>Save</div>
	555, palisades blvd, Daly City, CA 94*** 1bds/1ba	\$1500/mo	800 sq ft	3.0	<div>Save</div>
	556, kent blvd, Daly City, CA 94*** 3bds/3ba	\$3600/mo	1500 sq ft	3.5	<div>Save</div>

Storyboard - Jon’s registration flow



Storyboard - Jon's login as existing user flow



Jon is presented an option to login or register. He chooses to login.

Once email address and password is entered, he lands on GatorRooms.com homepage and his email is displayed on top right.

3.4. Use Case: Admin Dashboard David

David is a new website administrator... using the **Admin dashboard** on GatorRooms, he can review, approve, and reject, several listings **all on one page, in bulk**. He can also **review and approve all postings** on the website **before they go live, on the same dashboard page**.

David's dashboard where he can see the status of listings he has reviewed: "x" for Reject, "✓" for Approved and "N/A" is shown for pending. He can filter by status, Approved, Rejected, or Pending.

Rental Type

☐ Apartment

☐ House

Q

Daly city, Ca

Home

Post

About

adminuser@gatorrooms.com

Filter

☐ Description only

☐ Near SFSU

☐ Posted this week

Date Posted

☐ Newest first

Price

☐ Low to High

☐ High to Low

Listings, Daly City





House for rent

Filter by

Approved

Rejected

Pending

	Address	Price \$	sqft	Status
	272, alameda blvd, Daly City, CA 94*** 3bds/2ba	\$3000/mo	1200 sq ft	✓
	333, 2nd blvd, Daly City, CA 94*** 2bds/2ba	\$2000/mo	1000 sq ft	x
	555, palisades blvd, Daly City, CA 94*** 1bds/1ba	\$1500/mo	800 sq ft	✓
	556, kent blvd, Daly City, CA 94*** 3bds/3ba	\$3600/mo	1500 sq ft	N/A

David's dashboard and the listings he can edit, to either approve or reject.

Rental Type

☐ Apartment

☐ House

Q

Daly city, Ca

Home

Post

About

adminuser@gatorrooms.com

Filter

☐ Description only

☐ Near SFSU

☐ Posted this week

Date Posted

☐ Newest first

Price

☐ Low to High

☐ High to Low

Listings, Daly City





House for rent

Filter by

Approved

Rejected

Pending

	Address	Price \$	Approve	Reject
	272, alameda blvd, Daly City, CA 94*** 3bds/2ba	\$3000/mo	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	333, 2nd blvd, Daly City, CA 94*** 2bds/2ba	\$2000/mo	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	555, palisades blvd, Daly City, CA 94*** 1bds/1ba	\$1500/mo	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	556, kent blvd, Daly City, CA 94*** 3bds/3ba	\$3600/mo	<input type="checkbox"/>	<input type="checkbox"/>

3.5. Use Case: Renter Nancy & Diana Landlord Messaging Dashboard

Nancy can use the same website without having to go to another mail app. She **logs in** and **reads** messages from the landlord, or she can **post a reply** message. She can easily, and securely find a rental apartment without taking too much time out of her studies.

Diana does not need a masked email address. She prefers to keep it all in her business email account because she highly monitors that one inbox but likes the **convenience of the dashboard** while she is checking in with **all of her listings/renters at once**.

After Nancy the renter logs in, she can view the messages from the landlords she contacted.

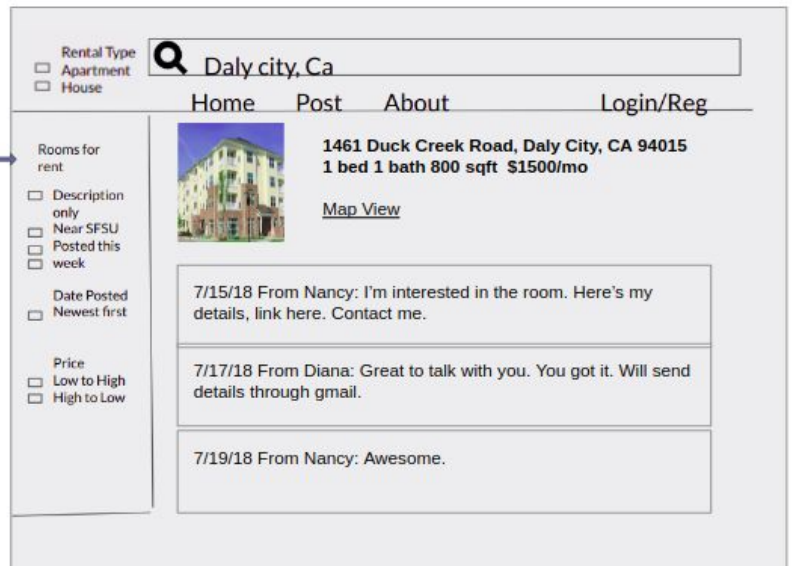
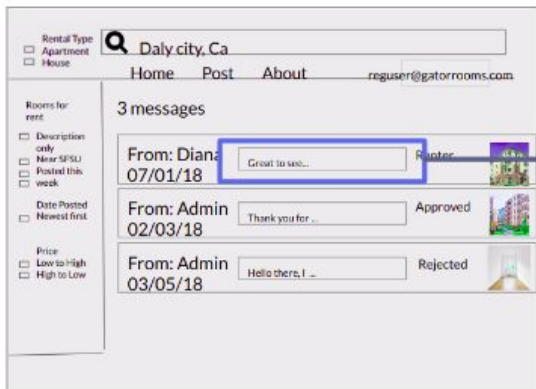


Nancy clicks on her email address at the top line to access her account.



She sees a list of messages dashboard between her and other landlords she has contacted.

After Diana the landlord logs in, she can view the messages from Renters or from Admin.



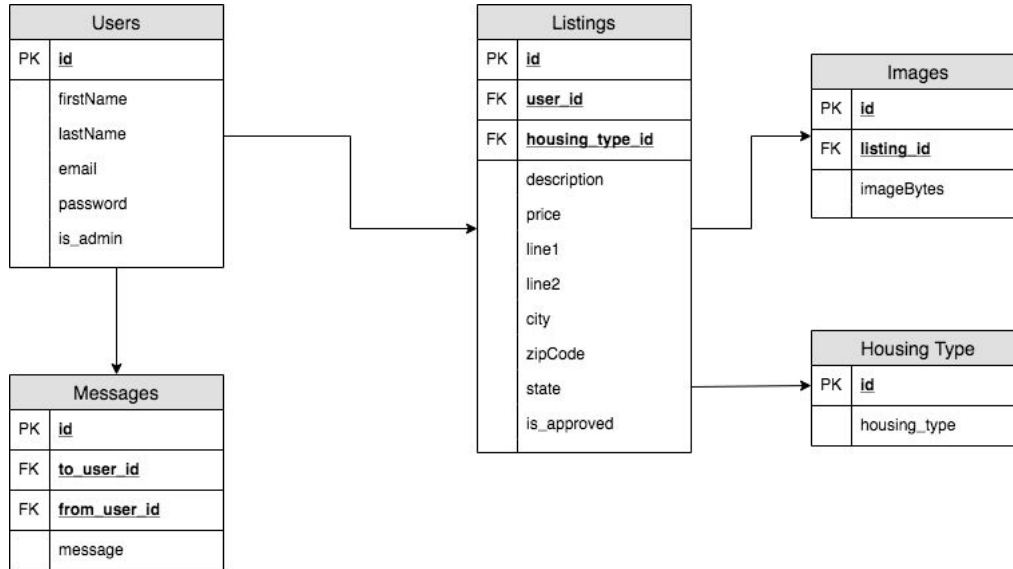
Diana clicks on the message from the Renter.

She sees a historical view of the messages between her and the renter, Nancy, tied to the listing they are discussing.

4. High Level Architecture, Database Organization

- Database Organization

- There will be several tables that will store the users, chats, messages, and listing information.



- Media Organization

- The listing images will be stored in the database using BLOB (Binary Large Object) in the high resolution format, the client will resize the image based on its needs.

- Search / Filter architecture and implementation

- A client will be sending the keywords entered by the user and their type (All, Zip code, Name Address, City, Name, and Description) based on the type a SQL query will be picked and the results will be returned if there is a match in the Database, "DB".
- For 'All' type, all the query will be executed. For name, city, description and address, SQL %like will be used, if no response than no listings will returned.

- APIs

- Application will be divided into two parts, front-end and back-end.
 - Back-End will expose REST-API that will be used for communication between client and back-end application
- App will be using Google Maps API to show locations on the maps and Google Analytics

- Listing Sorting

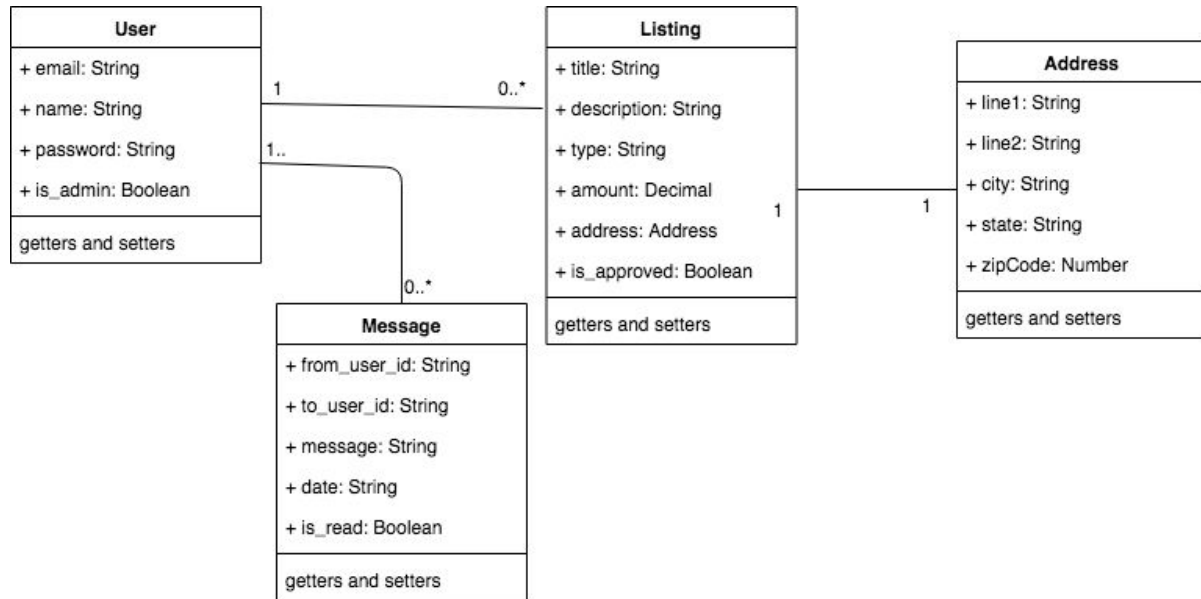
- DB will be used to sort the data and return it to the client.
- Listing will default and sorted by date it was posted, following approval by admin.

- Tools/Frameworks

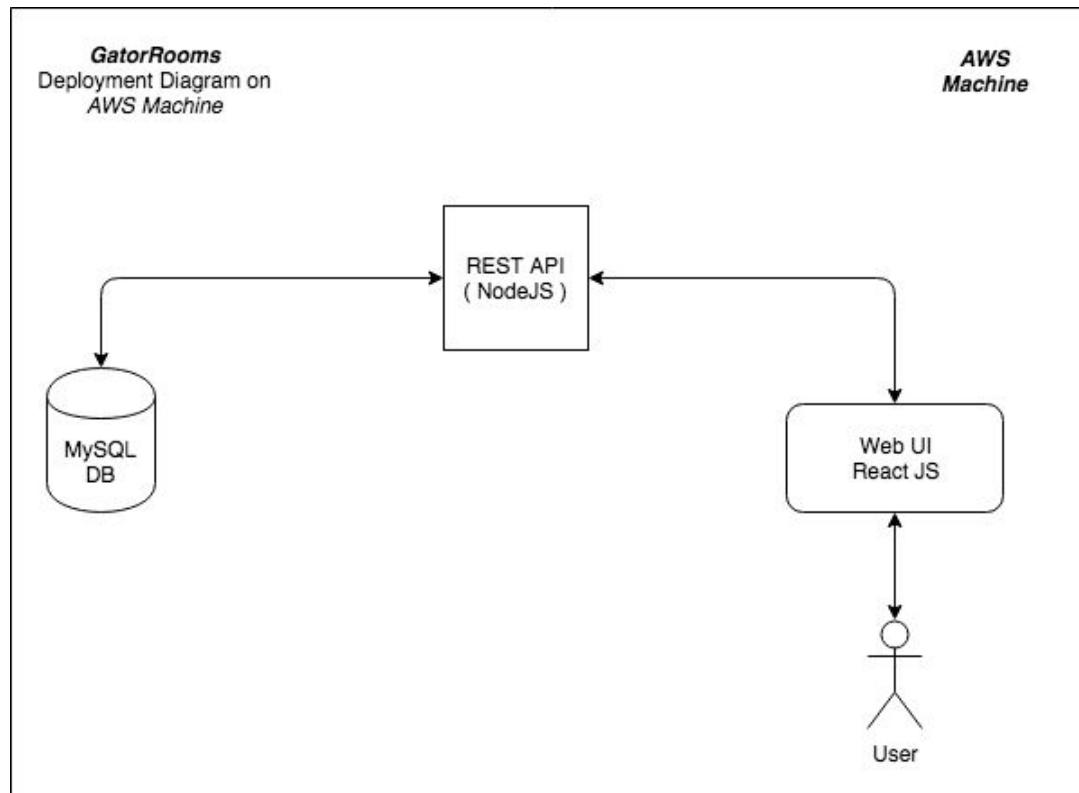
- No Changes

5. High Level UML Diagrams (Alex)

Class Diagram



Deployment Diagram



6. Risks (Inez & Anyone else)

1. Skills risks

- Team is ramping up on learning React. In order to efficiently work through the pages in the later milestones, the team will have to continue self-study every week, and follow along even though tasks of learning React, are not assigned.
- We will be reviewing React tutorials, sharing documentation/tutorial with each other to help us get practice on creating pages as personal training.

2. Schedule risks

- Team has one 30-minute time slot and majority of time works remote. We have used Slack and Google Drive for M1. We are starting to use Trello heavily to assign tasks that lead up to bigger tasks/to-dos in Trello

3. Technical risks

- We are starting to think about the pages for the prototype and how the data will be structured. Need to test and ensure the page displays the correct list of data, as organized the data tables.
- Keep design simple (e.g. no user roles, no char) and P1 list to a minimum

4. Teamwork risks

- Need to touch base with the team periodically to make sure the level of work is manageable and equally shared across individual team members.

5. Legal/Content risks

- We are going to ensure we use royalty free images, and fictional listing, therefore we won't need to create legal/content risk.

7. Project Management

1. After class:
 - a. We discuss any changes since the last meeting/milestone.
 - b. We discuss dividing up tasks, with due dates, and record them using a tool like Trello.
 - c. Answer any questions from the previous milestone.
2. Between class / team meetings:
 - a. We ask/answer questions on Slack, assign tasks on Trello, and set up Zoom meetings whenever necessary.
 - b. Team lead set up templates and docs on Google Docs & Google Slides so that everyone can collaborate on one tool.
 - c. We create tasks in Trello with our names as the Title, assign to ourselves or teammate, and provide due date when applicable
3. Before class:
 - a. We meet for 30 min to whiteboard, troubleshoot, answer questions
 - b. Walk through any questions that require more collaboration
 - c. Set up next steps/to-dos