

# Project Requirements Document

Sponsor: AppFolio

Team: The Exceptional Null Pointers

Project: R.E.A.L.M.

(Real Estate Application & Listing Manager)

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## Introduction

What is the problem? What is the background of the problem?

Finding a perfect place to live in the Santa Barbara area has become more and more challenging recently. With so many different sites to comb through, people to contact, and other external variables, the process is not made any easier. Clients have to spend time scrolling through pages of rental listings on multiple websites, everything from Zillow to Craigslist to Redfin, usually keeping tabs open for many potential listings, inefficiently comparing them (ranking them manually by rent, location, etc.). In turn, this process then leads to users making multiple, repetitive accounts with redundant information, filling out rental applications for each property, having to individually contact each listing for any further questions, creating a messy and unenjoyable rental application process.

How is the problem addressed today?

Currently, Zillow seems to have the most direct solution to this problem, where the user can look at a map of the nearby area and see where there are places open to rent. This generally works fine for finding which places have openings, but property managers have to register their listing on Zillow for it to show up; this reliance on a single website paints an inaccurate view of the rental market, potentially leading to missed opportunities. Listings on Zillow are also often out of date, leading to wasted time. Moreover, once a client finds a listing on Zillow, they can only message the property manager through Zillow to request to apply; it would be much more convenient to simply be able to apply in the same place, without the need to create new accounts on many different websites and then having to remember all the different places they applied to. Our project aims to solve these problems.

# Objective, Implementation, and Assumptions

What is our objective and who will benefit from it?

We will create a web application, R.E.A.L.M. (Real Estate Application and Listing Manager), which is essentially a one-stop-shop for prospective renters. On R.E.A.L.M., users will be able to view all available listings aggregated from multiple rental listing websites, apply to properties, filter through properties, view properties on a map overlay, and share listings with a group of roommates. Furthermore, our solution will rate various rental listings based on price, location, and offered amenities. Lastly, we will create a universal rental form to collect the most common information so that renters won't have to fill out the majority of a new form for each property that they apply to. Our application will streamline the rental process, for both renters and property managers. We intend to improve the quality of life of everyday users by using APIs to provide the most up-to-date information regarding new houses for rent, their prices, etc.

How will we implement our solution?

R.E.A.L.M. will be implemented with a Ruby on Rails backend and a ReactJS frontend. On the backend, R.E.A.L.M. will aggregate rental listings by combining various APIs that are publicly available. On the front-end, a simple UI will be implemented so that the user can easily browse through the listings. The user will start on the homepage, where they can choose a city to view rental listings from and filter listings from there. R.E.A.L.M. will be hosted on Heroku.

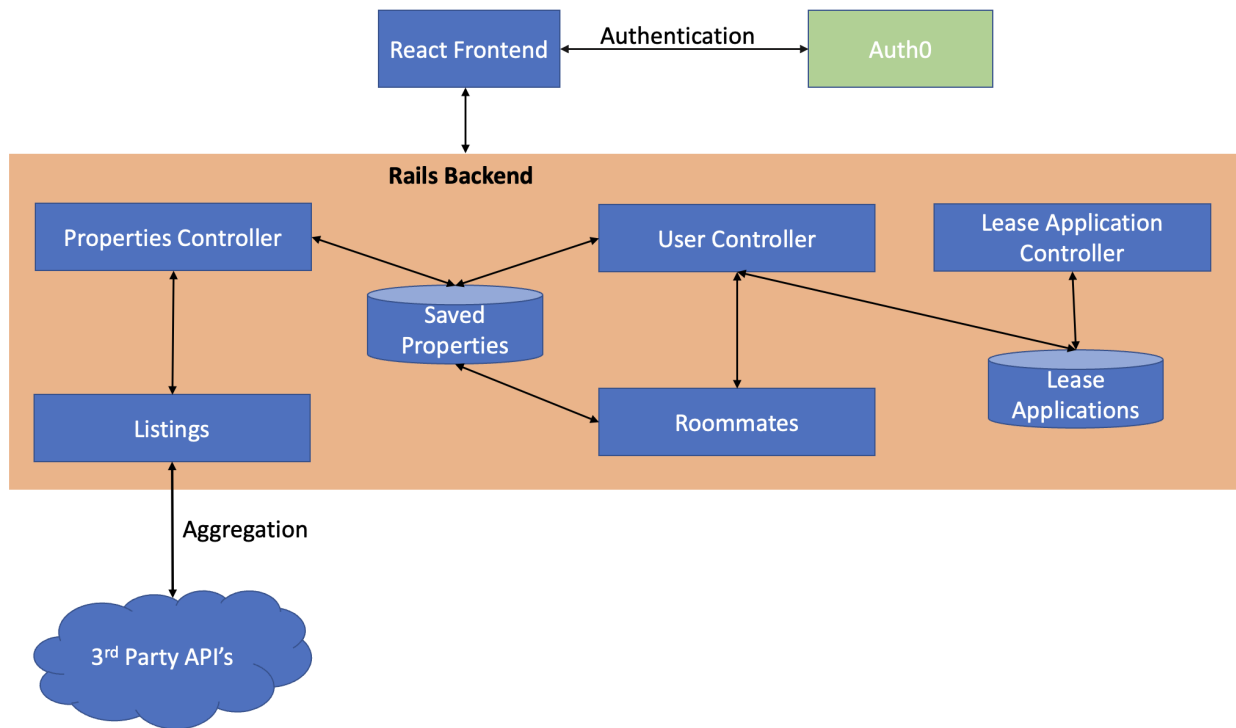
Assumptions

Any user that has internet access will be able to use the application. For now, R.E.A.L.M. will only aggregate data from Santa Barbara, Isla Vista, and Goleta. This is so that we can analyze the local leases that the property management companies have and automatically fill out the data for users. Users must be able to navigate through a simple directory/navigation bar system to locate different services the website provides. Finally, to create groups a user must be able to sign in and have the information of other people they intend to add.

Our application will rely on the assumption that the third-party API's will be up and running close to 100% of the time so that the application will be able to properly aggregate rental listings.

## System architecture overview

The figure below depicts the system architecture employed in our application. The user interacts with the frontend, which is designed to quickly and efficiently deliver data to the user with little to no hoops to jump through. Upon visiting the website, users are able to immediately start searching through aggregated rental listings for Santa Barbara, Goleta, and Isla Vista. All data is publicly available through the website, however, users have the ability to login to the application for a more personalized experience. Such features include saving properties, creating roommate groups, and quickly generating needed files to apply for leases based on user-inputted information.



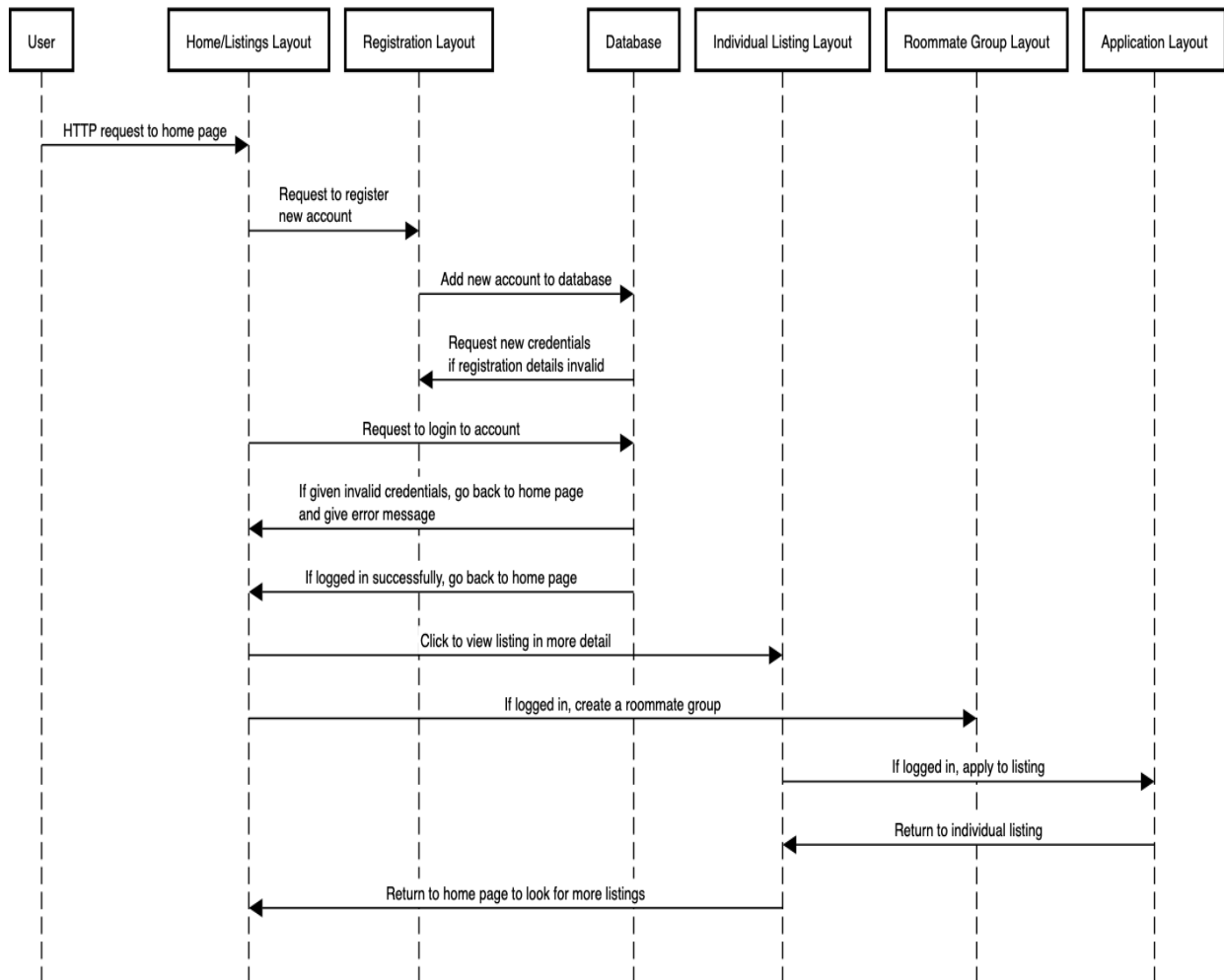
## User interaction and design

Users visit a frontend web interface allowing them to browse through aggregated rental listings in the Isla Vista, Goleta, Santa Barbara area anonymously. Users then have the option to sign into the application to save property listings for viewing later. Users also have the ability to save custom filters, so that they are able to quickly view only the property listings they are interested in. Furthermore, users will have the ability to create roommate groups, so that any saved properties are viewable by all roommates.

The application is designed to support various functions independently of one another, however, upon logging into the application, users are able to view persisted data that is relevant to them, such as saved properties and roommate groups. A stretch goal is to implement a mobile application to support both mobile and desktop users simultaneously.

# Sequential Model

R.E.A.L.M. Sequential Model



## User Stories

As a user, I am able to login to the application using a Google login.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/25>
- **Scenario 1:** The user clicks on the “Login” button, and the web will allow them to login through their Google account via Auth0. The new homepage has a “Welcome First\_Name\_Of\_User” message for greeting.

As a user, there is an about page that gives information about the application when I navigate to it.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/17>
- **Scenario 1:** The user loads the home page and then clicks the “About” tab from the navbar. The user is then able to view extra information about the functionality of the application.

As a user, I can access a toolbar/navbar that lets me navigate different pages of the website.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/19>
- **Scenario 1:** The user clicks the “Home” button or the R.E.A.L.M. logo to navigate to the home/landing page of the website that allows a user to search for listings.
- **Scenario 2:** The user clicks the “About” button to navigate to the website’s about page that allows a user to view more information about the website.  
I can use the Login/Logout button to do the respective function.

As a logged-in user, I can save listings for myself.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/26>
- **Scenario 1:** The user is able to click on the “save” button to save the listings they want to keep a record for after logging in.

As a user, I can “search” for properties and find all rental properties instantly.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/21>
- **Scenario 1:** The user selects a location from the dropdown menu and searches for the respective properties. If there is an error aggregating the information from the backend, the user is displayed an error message.
- **Scenario 2:** The user selects a location from the dropdown menu and searches for the respective properties. If there is no error aggregating the information from the backend, the user is displayed the property information in a styled format.



As a user, I can filter through search results to narrow down properties.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/20>
- **Scenario 1:** The user clicks on a filter button with different options for filtering properties with different attributes. If there are properties with the attributes they selected, then it displays all the properties with those attributes.

As a logged-in user, I can create a roommate group.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/22>
- **Scenario 1:** The user clicks a button to create a group with users that allows them to share/sync properties. If a user tries to create a new roommate group when they are already in one, they encounter an error message saying that they can only be in one roommate group.

As a logged-in user I can fill in a “common application” for renters.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/24>
- **Scenario 1:** The user is able to access a page that generates/fills in a common lease application based on saved information specific to the user.

As a user, I can see the estimated “value” of a rental property.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/23>
- **Scenario 1:** When viewing aggregated rental listings, users are able to see a value indicator for each property or selected property.

As a logged-in user I can see a page of all my saved properties.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/16>
- **Scenario 1:** The user clicks on “Saved Listings” on the navigation bar and visits the saved listings page.

As a user, I can share a link that filters rental properties to share.

- Github Issue: <https://github.com/Realm-App/R.E.A.L.M./issues/18>
- **Scenario 1:** The user clicks on a link that brings them to a page that has a list of filtered listings, and the filter is the exact same as the one applied when the other user shared the link with them.

# Appendices

- Frontend
  - React
  - React-bootstrap
- Backend
  - Ruby on Rails
  - SQL Database
- Miscellaneous
  - Rapid API
  - Amazon AWS
  - Git/Github
  - Heroku