Rate My Landlord: Requirements Document

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Introduction

This document contains the system requirements for ***Rate My Landlord***. These requirements have been derived from several sources, including the University of Pittsburgh's technical documentation and the Pittsburgh Rental Registration.

Types of Reader

Project Manager: The project manager should read through the entirety of this requirements document so that they fully understand the project, including aspects such as the purpose of the application, its features, and the goals moving forward. This is so they can set necessary deadlines and deliver feedback to the project stakeholders.

Front End Developers: For front end developers they will have to try and get a full holistic approach of the application to be able to direct the user-facing side of the project. To achieve this goal they should read the entire General Description to understand what needs to be done in the aggregate. They should also read the User Interface requirements as well as the System and Integration requirements to understand what is expected as well as how to implement certain aspects.

Back-End Developers: Back end developers should read the General Description to understand the application as a whole. Besides that they should really understand the intricacies of System and Integration requirements as they will be implementing the entirety of the application's database and architecture. For this same reason, developers should read the Availability and Performance section as well.

Network Engineers: Network engineers should read the Availability and Performance section to familiarize themselves with the intended network setup for RateMyLandlord and to understand the expectations for network efficiency.

Database Administrators: Database administrators should read the Availability and Performance section to understand what data will need to be stored. They should also read the Systems and Integration section to learn about the data structures that will be behind RateMyLandlord.

Technical Background Required

Availability and Performance requirements: This section requires basic knowledge of database management and website performance.

System and Integration requirements: This section requires particular knowledge in the architecture of web applications along with some understanding of the PITT OAuth system.

General Description (Charles Tran)

This section will give the reader an overview of the project, including why it was conceived, what it will do when complete, and the types of people we expect will use it. We also list constraints that were faced during development and assumptions we made about how we would proceed.

"Rate my Landlord" is a project to address a pressing need among University of Pittsburgh students to find reliable, safe, and affordable housing options. This online platform aims to provide a comprehensive database of landlords and rental properties, accompanied by past tenant reviews and ratings. By facilitating transparent communication between students and landlords, the platform seeks to improve the overall rental experience for students and foster a sense of community accountability.

The platform will allow users to search for rental properties based on various criteria such as location, landlord rating, price range, and overall safety. Users can also read and contribute reviews, ratings, and comments about their experiences with specific landlords and properties.

We anticipate that University of Pittsburgh students, both current and prospective, will be the primary users of this platform. These users may vary in technical background, but our website is easy to use and students will have an easy time navigating online platforms and utilizing basic web functionalities. Their motivations to use the platform include finding suitable housing options, avoiding problematic landlords, and sharing their own experiences to benefit their peers.

Product Functions

1. Search for rental properties based on location, price, and amenities.
2. View detailed profiles of landlords and properties, including photos and descriptions.
3. Read reviews and ratings from other students about landlords and properties.
4. Submit reviews, ratings, and comments about their own experiences.
5. Access resources and guides on tenant rights and housing-related topics.

User Characteristics

The target user base are students at the University of Pittsburgh who are looking for housing. Their technical background should not be a concern since our website is easy to use and most students typically know how to navigate through websites. The main motivations for using our website include finding safe and affordable housing options, avoiding problematic landlords, and contributing to a community-driven resource for housing information.

Constraints

Our main constraint is the Triple constraint: time, cost, and scope. We also will uphold the anonymity of our users to protect from retaliation. We are also constrained by the current state of the browser software. The website must also be compatible with the University of Pittsburgh's login system.

Assumptions and Dependencies

We will depend on the University of Pittsburgh's infrastructure for security and use management.

Specific Requirements

This section of the document lists specific requirements for Rate My Landlord. Requirements are divided into the following sections:

1. **User requirements**.[Jake Medica] These are requirements written from the point of view of end users, usually expressed in narrative form.

2. **Availability and Performance requirements**.[Linda Schnabel] (see below)

3. **System and Integration requirements**. [Ryan Chakov] This is a technical section! Provide detailed specifications describing the components, pieces and architecture that your system will have so that it is capable of working for your users!

4. **Sustainability Requirements** [Ronan Mansour] – Some critical factors that you should consider are - scalability, system maintenance, security requirements.

5. **User Interface requirements**. [Sim Sharma] These are requirements about the user interface, which may be expressed as a list, as a narrative, or as images of screen mock-ups.

Functional (User) Requirements (Jake Medica)

The website must offer a user-friendly interface enabling swift access to both viewing and creating reviews of landlords, catering to users of varying technological proficiency.

Case Sample:

> A first-year student at Pitt with limited knowledge of renting is seeking a landlord that fits their needs. We would need the website to be easy to navigate to avoid discouragement or discomfort to the new user.

Reviews should encompass professionalism, price/value, property conditions, communication, and privacy, each rated on a 5-star scale with the average forming the final rating. This is made to ensure ratings are both fair and all encompassing on possible issues faced by tenants.

Case Sample:

> A sophomore at Pitt was extremely dissatisfied with the maintenance and lack of communication provided by his/her landlord. To voice his displeasure and to ensure no other possible renters fall into the same trap as him, he posts a review involving poor ratings in communication and property conditions.

Additionally, users may rate general safety of areas if desired, this is so users can get the satisfaction they deserve when they are fully moved into their apartment and can be happy with the area they reside in.

Case Sample:

> A student at Pitt is concerned about the safety in the area his apartment is located, as a result he leaves a poor rating for safety in the area. This will alert other potential renters to stay away from this area.

User privacy is paramount; names are not displayed on reviews, and user identities remain undisclosed. This is to ensure users can be confident in their reviews without possible backlash from landlords.

Case Sample:

> A student is concerned if they're review will result in repercussions from their landlord, however with the concealment of their identity on our site, the risk of this being the case is diminished. This will result in more honest and thorough reviews of each landlord.

Landlords can access reviews under their business to gauge tenant satisfaction and make improvements. This is to encourage good practices by landlords.

Case Sample:

A landlord that uses poor business practices involving the treatment of their property or the tenant will see the poor reviews on our site by looking up their profile. This will result in improvement of their practices to ensure renters will go to them instead of being discouraged by a poor rating.

Users must log in using Pitt ID with Duo Mobile double authentication to ensure authenticity, and submission of lease agreements or documentation is required to leave reviews, bolstering review integrity.

Case Sample:

A competitor of one of the top landlords with a high rating in South Oakland seeks to hurt their reputation by leaving a bad review on their profile. However, with the authentication process in place, these fraudulent reviews will not be possible. This holds the honesty and integrity of our reviews intact.

Landlords will be able to be certified through our site by uploading Landlord Certification, such as Rental Registration through the City of Pittsburgh (GOV) as well as possible training courses they completed (HACP). This is done to help landlords showcase their integrity and level of expertise.

Case Sample:

A landlord with a low rating seeks to improve his standing amongst competition. To help with this fact, he undergoes the County Housing Authority Landlord Training Program to sharpen his skills. He is then allowed to post documentation of this on his profile to be seen by users.

Availability and Performance Requirements (Linda Schnabel)

To ensure students can rely on RateMyLandlord the goal is to maintain at least a 99.9% uptime rate, which is the industry standard for websites (Alexandrea). The website should also keep latency under 2 seconds for when loading a page and 2.5 seconds for when posting a review (MDN Contributors). To achieve these requirements, it is important to keep the website's code to a minimum ("How to reduce website latency?").

The website will be hosted on Amazon Web Services through their lightsail plan. It is important to take advantage of AWS's cloud and Content Distribution Networks (CDN) so students have access to the website on or off campus, particularly during the breaks ("Amazon Lightsail Features"). Through AWS, RateMyLandlord will use MySQL to store the website's data including reviews, landlord and area profiles ("Amazon Lightsail Features").That being said, when it comes to reviews, only the review itself will be stored excluding the user in order to maintain anonymity. This is key to keeping student identities confidential allowing them the liberty to post reviews without fear of retaliation from past or current landlords and of discrimination when renting in the future.

Students will be able to access the website either by entering the URL in their browser or by looking it up on my.pitt.edu through the OneCampus RESTful API's (OneCampus). This log in page allows students to log into their Pitt accounts in their browser and access any Pitt affiliated resources without having to sign in again. Through this integration ,students will sign in to RateMyLandlord using the single-sign-on page on my.pitt.edu.

System and Integration Requirements (Ryan Chakov)

Our system will be focused on the web with the main platform being both laptop and desktop, while excluding mobile focus. The main platforms we will be targeting are Chrome, Firefox, Safari, and Edge as they have the highest market control (“Browser Market Share Worldwide”). For the front-end we will be using the Angular framework to streamline the creation and leverage the robust functionality included in the framework (“Angular Features”). This will allow for dynamic and responsive design with a quicker turnaround time. For the backend of the website we will use Node.js because of its large ecosystem of available packages and solutions for common tasks, as well as the high performance (“Introduction to Node.Js”). Data management will be using MySQL, a relational database to ensure structured storage and efficient data retrieval (“Why Mysql?”). A relational database ensures integrity in the data and also allows for the management of the data to be much simpler. A version control system will be implemented using Git to enable collaboration in the development and better code management (“About Git”).

Users will need a modern web browser such as Chrome, Firefox, Safari, or Edge installed on their laptop or desktop to access our system. It's essential to have JavaScript enabled in the browser for full functionality. This website is operating system agnostic. However, for optimal performance and user experience, we recommend using the latest versions of these browsers. Additionally, users will need an internet connection to access the system.

Lastly for security, since this is just a University of Pittsburgh website we will be using the University of Pittsburgh single sign on plugin provided by the school (“Pitt Passport: Using Pitt Passport for Your Departmental Service or Application”). To do this we will have to send a “Pitt Passport Online Vendor Application Registration Request Form”. After that is approved we will then have to submit the “Pitt Passport Service Provider Registration Form”. After all that is approved we will have to implement the Shibboleth backed single sign on. This will allow for cheaper cost for us with great security for our users as the costly security measures such as multifactor authentication are already implemented.

Sustainability Requirements (Ronan Mansour)

At this time our website will target solely students enrolled at the University of Pittsburgh (Pittsburgh Campus). There are no plans at the moment to expand to other universities or to start targeting the general population of the Oakland area outside of the university students. The system will be supported by users submitting reviews of their experiences with not only the landlords they have rented from, but also the surrounding area they inhabited. We plan to utilize the University of Pittsburgh’s single sign on plugin as previously mentioned, to ensure both the security of the website and the legitimacy of the reviews hosted on it. Another additional feature

to enhance the security of the website is the anonymity of reviews. Although users will sign on with their University of Pittsburgh login credentials, the reviews they post on the website will hide any personal information from landlords who decide to view the website. A vengeful landlord seeking retribution from a bad review is a realistic possibility, so keeping personal information hidden from these individuals will make sure that users are kept safe.

Our website will have an uptime of 22 hours a day and 7 days a week. This is to allow users access during most reasonable hours of the day and makes sure our maintenance crews have the necessary time to fix any issues they encounter.

At launch we expect there to be support for approximately 5,000 users. This number provides a solid foundation to start and test our service, while preventing any issues from starting out with a large number of users off the bat. This number will slowly expand until we reach around a capacity of 15,000 users to accommodate the appropriate number of users, who will mostly consist of second year students and above. This number is derived from the fact that in the Fall 2023, the University of Pittsburgh had 24,503 undergraduate students enroll (Wells), and that the University has calculated that 58% of undergraduates live off campus or commute (Common Data Set 2022-2023 Pittsburgh Campus). In addition, 4,390 first-year students enrolled in this period and 96% of them lived in university-owned, -operated, -affiliated housing (Common Data Set 2022-2023 Pittsburgh Campus). This amount should provide us enough room to ensure we get a good amount of space for users to operate without causing issues for the website.

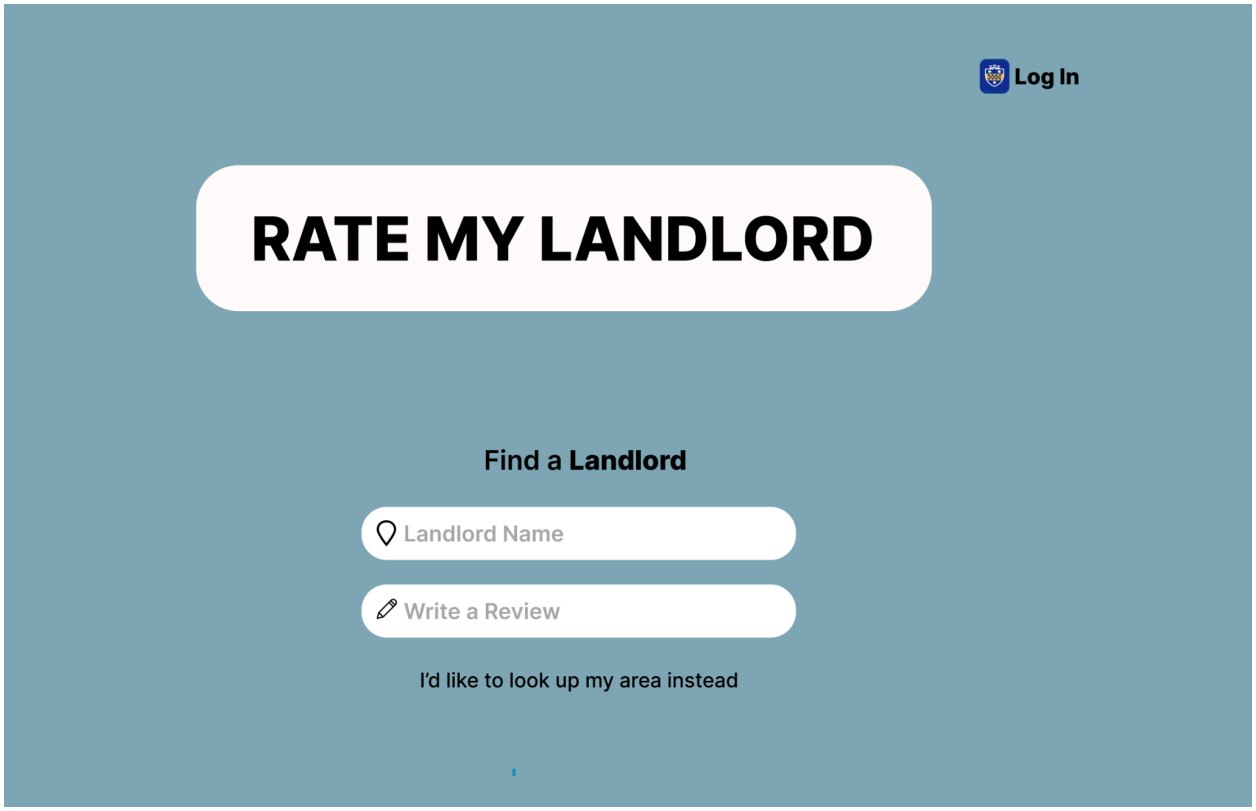
On the website there will be a page where users can leave feedback for us in order for us to keep up with user demands and optimize performance. This feedback would include what our website does well, what is not working as intended, as well as suggestions for what new features we should include to make the user experience even better.

User Interface Requirements (Sim Sharma)

User Narrative:

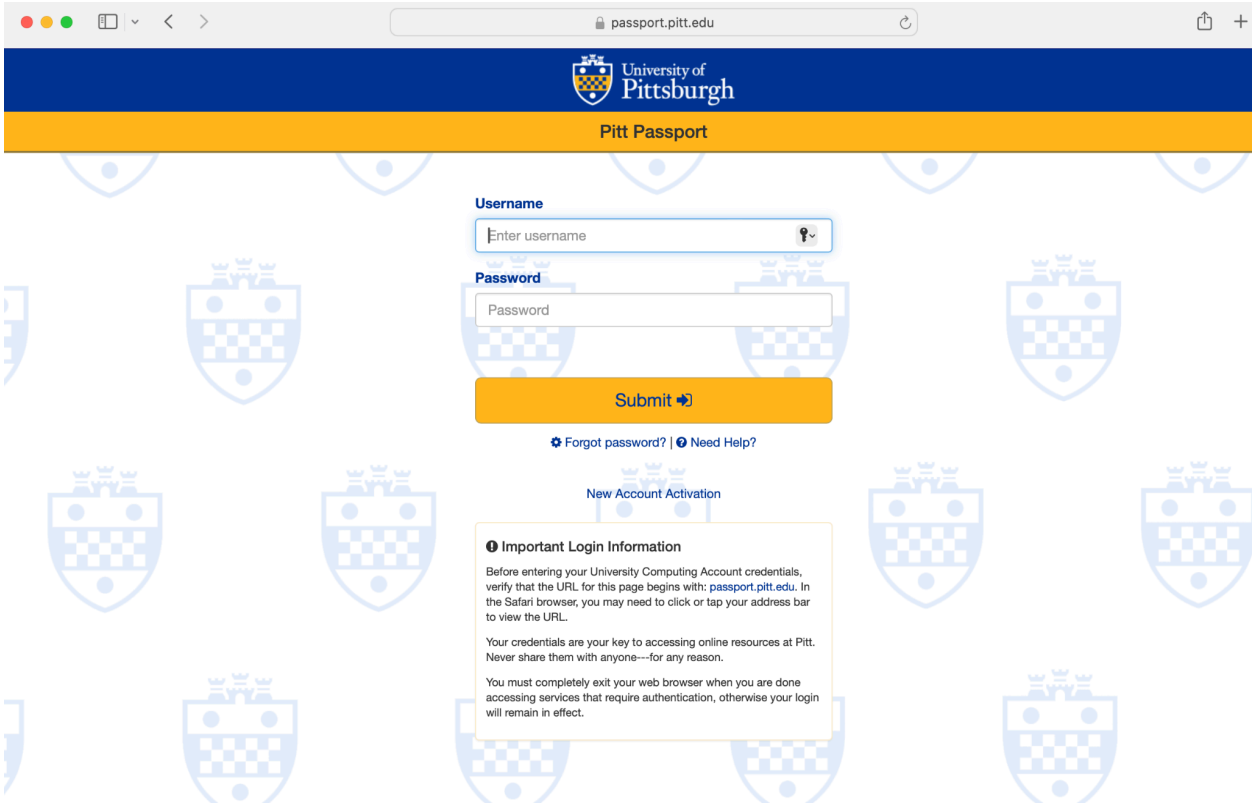
Home Page: The home page is a straightforward interface for users. The primary functions are to find a landlord by name or to write a review. Additionally, there is an option to “look up my area instead”, giving the user an alternative way to browse landlords based on location. If a user decides to write a review and clicks on the corresponding button, they will be prompted to log in with their University of Pittsburgh credentials. The “Log In” button on the top right is designated

for this purpose.

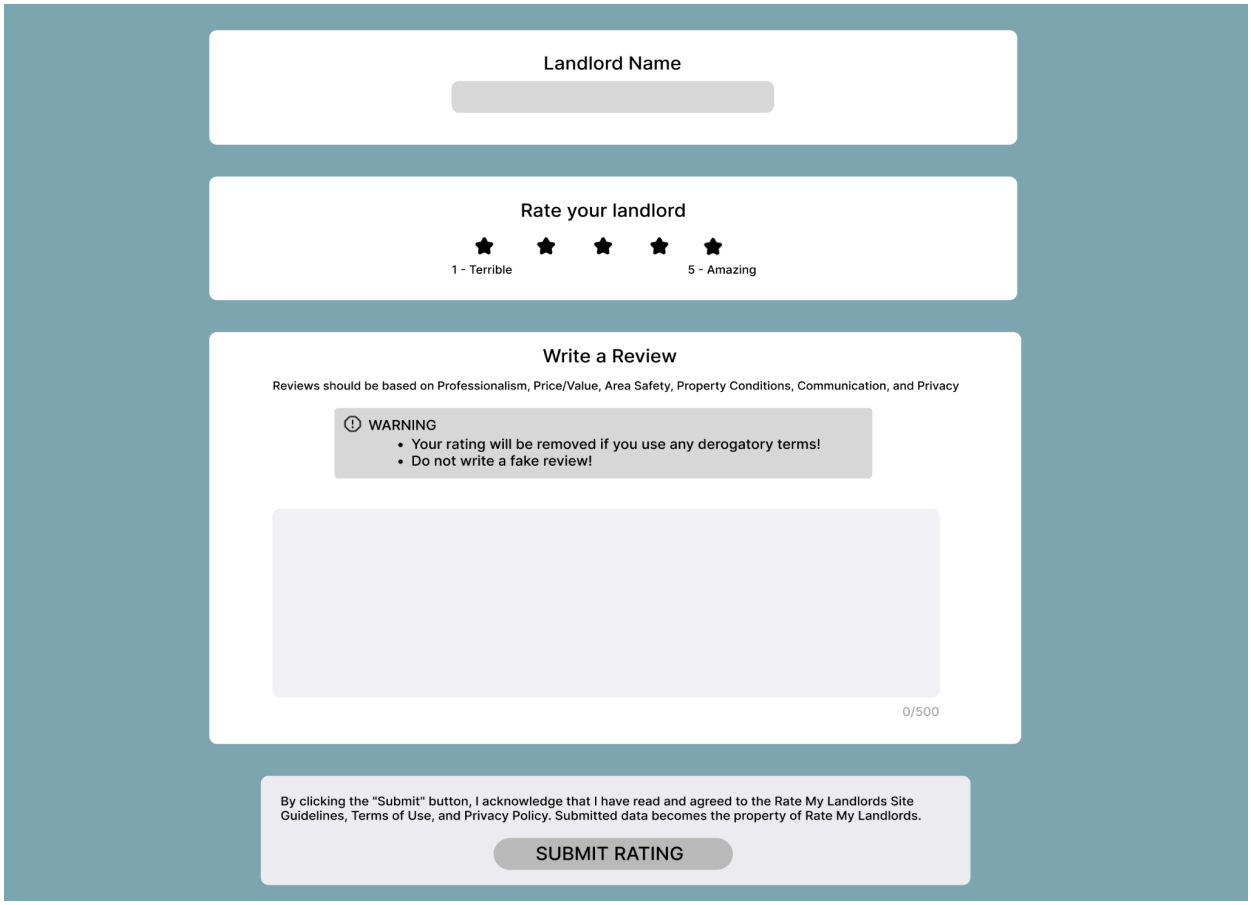


Log In Portal: The second screen directs students to the University of Pittsburgh login portal. Users must enter their Pitt username and password and be redirected to DUO Mobile for two-factor authentication. After the user signs in to their Pitt account, they will be redirected

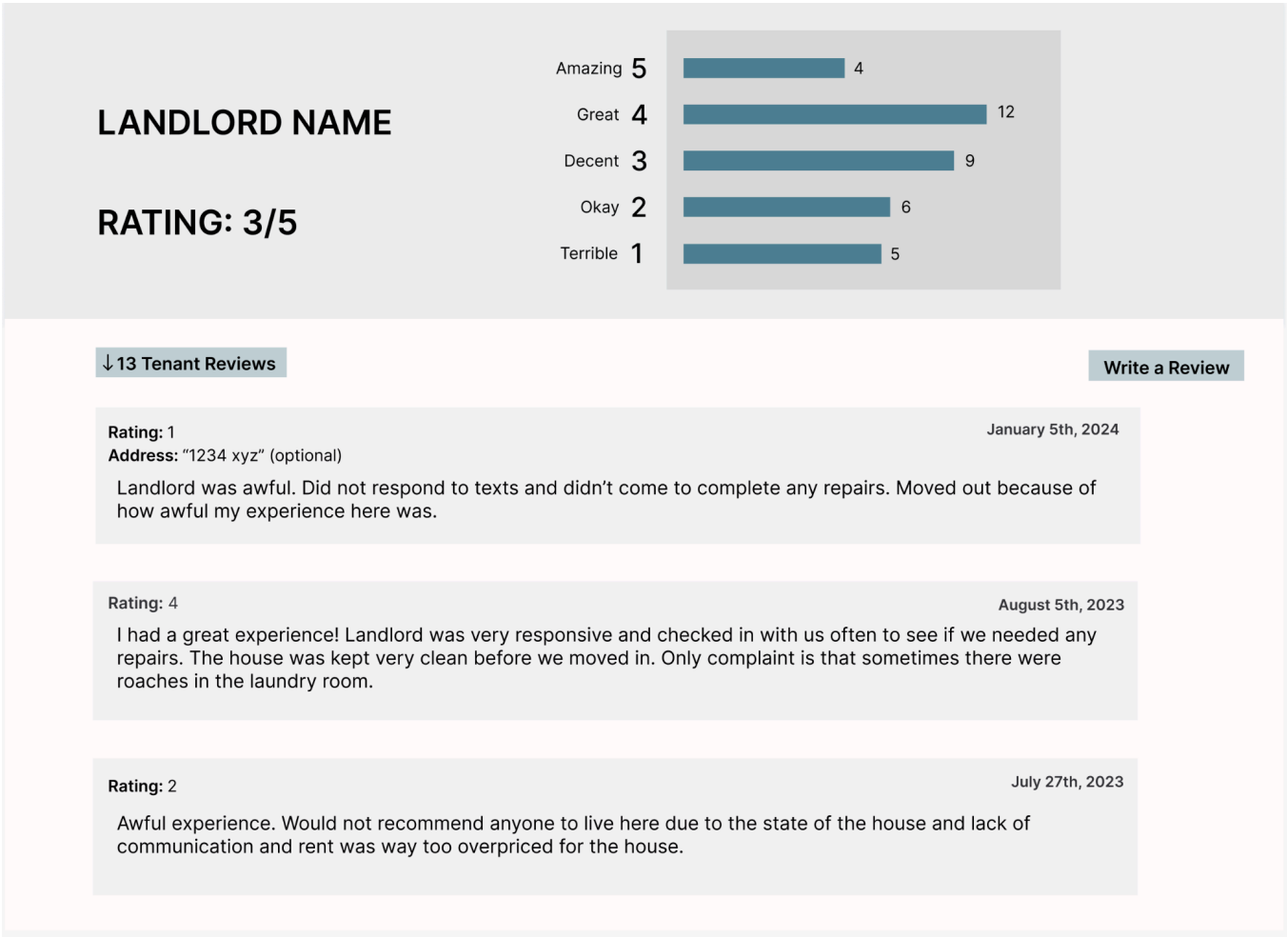
back to the homepage.



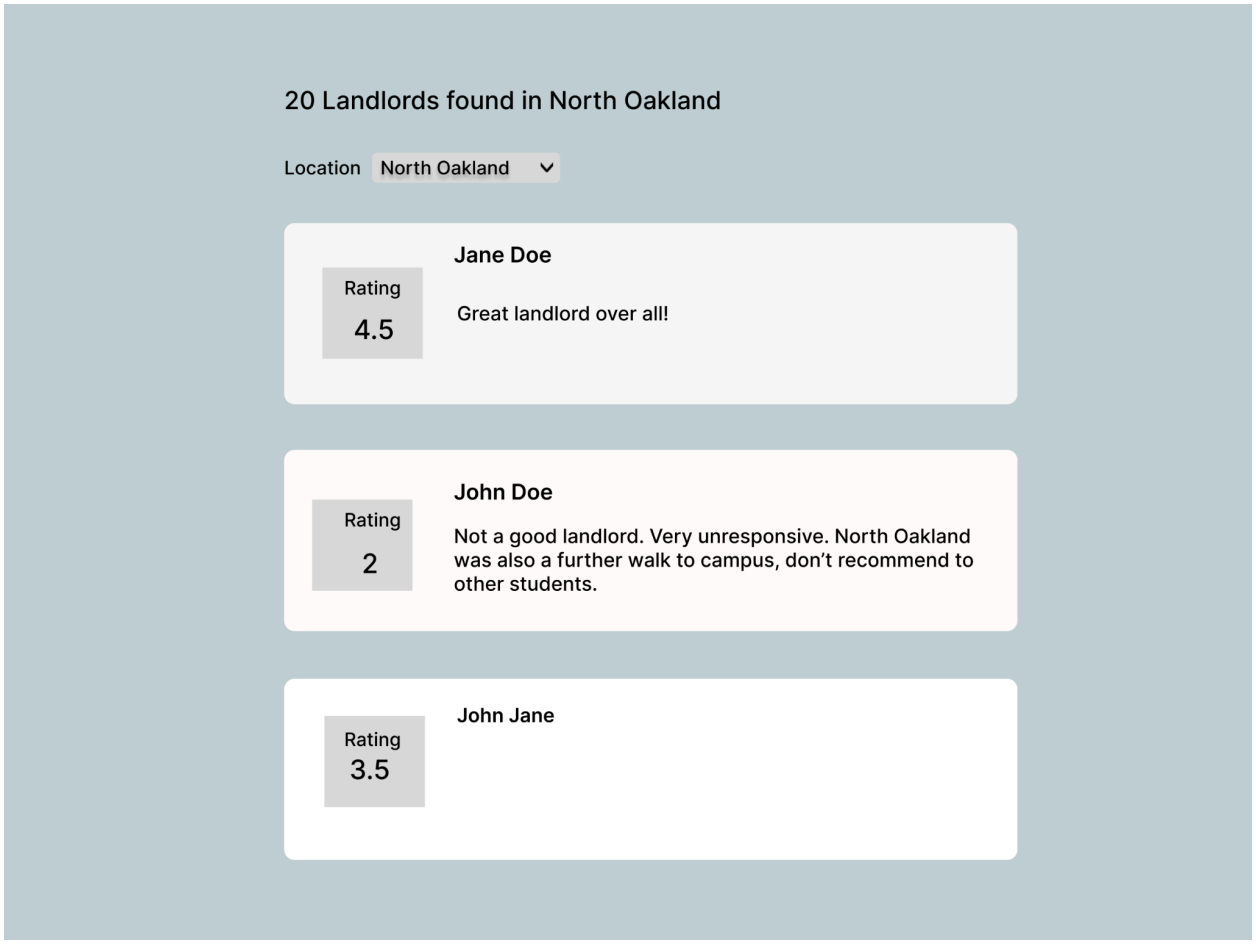
Writing a Review: On this page, users can rate and write a review for their landlords. They must first enter the landlord's name and then select a rating between 1 (Terrible) and 5 (Amazing). Below the rating, there's a text box where users can write a detailed review. Users are encouraged to submit a review, however, it is optional to do so. A warning reminds users to refrain from using derogatory terms and submitting fake reviews. If a user does not follow these guidelines, the review will be taken down.



Landlord Profile Page: The landlord profile page features a summary of the landlord's overall rating out of 5. Below the summary, individual tenant reviews are listed with detailed feedback, which can be completely anonymous if the user wants. This page serves to provide prospective tenants with in-depth insights into the landlord's past performance and tenant satisfaction levels.



Landlord Rating Page Based on Area: This page displays a list of landlords in an area when the user searches up an area instead of a landlord. This list allows the user to quickly assess the general idea of each landlord and potentially the area itself. The user can select different locations to view different landlords from in the "Location" section.



Appendices (Mandatory)

Personas (Ronan):

1. Alexa is a sophomore who values safety and security above all else, especially since she's living away from home for the first time. She's originally from a small town and is not very familiar with the city of Pittsburgh or city life in general.
2. Carlos is a senior and has lived off-campus for the past two years. He has had multiple bad experiences with landlords. There were many cases of poor communication and some have even shown disrespect to him.
3. Max is a landlord in the Oakland neighborhood with ownership of multiple properties. He is one of many in the area and is trying to make himself stand out among the crowd.

Scenarios (Ronan):

1. Alexa is now a sophomore and decides she wants to have the experience of off-campus living. Stories of poor experiences from her friends have caused her to be concerned, so she wants to find a source for student reviews of certain landlords and areas.
2. Carlos wants to continue living off-campus but is tired of the constant bad run-ins with landlords. He wants a site where he can filter out the bad landlords so he can finally have a good time living on his own. He also wishes to be able to leave feedback in the hopes they will improve their services, or at the very least, help his fellow students avoid these bad actors.
3. Max hopes to bring in more business by putting his good name out there for students to see. By taking feedback from his tenants and completing certification, he can improve his reputation, and he can make this even more effective by publicizing it on an application.

Summary List of Requirements (Linda):

Must Have

- Ability to leave reviews for landlords and areas in Pittsburgh
- Anonymity for users
- Easy to navigate

Nice to Have

- User-friendly
- Reliable and quick-loading
- Accessible design to different disabilities

Not this version

- Zero downtime

Wishlisted for future versions

- Improved verification methods for ensuring reviewers have stayed at properties belonging to the landlords they claim
- Expanding the platform to cities beyond Pittsburgh

Wireframes can be accessed here (Sim)

Glossary (Optional)

1. Angular: A web application framework maintained by Google for building dynamic web applications.

3. CDN (Content Distribution Network): A network of proxy servers across wide geographic areas in order to reduce latency by bringing websites physically closer to users.

5. Duo Mobile: A two-factor authentication (2FA) mobile app used for secure login processes associated with the University of Pittsburgh's login page.

7. Git: A distributed version control system used for storing changes in source code during software development by storing copies of the different versions of the source code.

8. HACP (Housing Authority Certification Program): Landlord training programs provided by the Housing Authority of the City of Pittsburgh to prepare landlords to offer quality housing.

9. JavaScript: A programming language commonly used to create interactive effects within web browsers.

10. MySQL: An open-source relational database management system used for storing and managing data.

11. Node.js: An open-source, cross-platform JavaScript runtime environment that executes JavaScript code outside a web browser.

12. RESTful API: An Application Program Interface (API) used to access data through HTTP requests.

21. OAuth: An industry-standard protocol for authorization that enables secure access to resources without sharing user credentials, commonly used in third-party application integration scenarios

13. PITT OAuth: Protocol for authorization used by the University of Pittsburgh for secure access to online services.

14. Shibboleth: A federated identity management system used for single sign-on authentication.

16. University of Pittsburgh Single Sign-On Plugin: software used to integrate single sign-on authentication with University of Pittsburgh accounts.

18. Version Control System: Software tools used to manage changes to source code over time, facilitating collaboration among developers.

22. Uptime: Time during which a website is live, operational and accessible to users.

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