

Rate My Landlord

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Abstract

Previously, there was no way to gain information about landlords and rental properties around the University of Cincinnati. Landlords around college campuses are known for taking advantage of their tenants, especially those who are first time renters. Rate My Landlord puts the power back into the hands of the tenant. Rate My Landlord has given the ability to rate and provide feedback about a landlord and a specific property. Users can now warn potential renters from making the mistake of renting from a slumlord. While the main benefits are for the lessees, landlords have also benefited from Rate My Landlord. It has helped them find out what lessees like about other landlords so that they can change their practices to provide more favorable experiences. Our application has changed the way off campus housing is selected around UC, helping tenants choose landlords and properties that are right for them.

Problem Statement

Introduction

Rate My Landlord is a modern web application that is designed to put the power back into the hands of the tenant. Students decide to live off campus for multiple reasons, and according to the U.S. Census Bureau's American Community Survey in 2009 through 2011, roughly 1 in 4 students are deciding to live off campus in non-family households. (BestColleges). This means at least 25 percent of college students in the United States chose to live off campus. Our goal is to help protect the students from slumlords who treat their tenants poorly, and do little to keep their properties up to date. Rate My Landlord was created by three IT students at the University of Cincinnati as their senior design project.

Product Description

Rate My Landlord is a responsive web app that can be used on almost any device with an internet connection. Rate My Landlord helps alleviate the stress of finding a rental property that's right for you. Our plan is to eventually create native apps for both Apple and Android devices to make the experience even better.

Problem

Students around the University of Cincinnati lack a central location where they can get information about a landlord or property before signing a lease. As it stands right now, students must ask the tenants who currently live in the prospective location about their experiences. To illustrate this, word of mouth is a lot like the popular old-school party game "Telephone", where there is a race to get the message to the end of a line the fastest while keeping the original

message accurate. Most of the time, the original message gets lost halfway through the line and a new message is formed by the end. With Rate My Landlord, all previous tenants for properties around the University of Cincinnati now have the ability to provide feedback about their landlord, and the property they leased. By making this centralized location, we remove the requirement of strangers asking other strangers about a property in front of the landlord, where answers may be biased to say the least.

User Profiles

Rate My Landlord has three potential users, but only two different types of applications being used. The first user would be the students of the surrounding area. The second user would be landlords of the properties in the surrounding area. The last user would be the System Administrator of the website. Below you will see the user profiles for a Web App application and a user profile for the Database, Web Server, and .Net applications.

User Profile I

Application

Web App

Potential User

Students, Landlords

Software and Interface Experience

The user should have experience using a web browser on either a phone or desktop.

Experience with Other Applications

The user should have experience with web forums and applications like Facebook.

Task Experience

The students and potential tenants would be able to rate their landlords on various topics. They would also be able to see how other landlords operate and how other tenants rated potential landlords. The landlords would be able to “dispute” comments and see how tenants are rating the landlord’s operation. The landlord could use this information to improve their properties for current and future tenants.

Frequency of Use

Users would have the ability to view and rate landlords and properties at any time. However, this would most commonly be done during the Spring semester at University of Cincinnati, since that is when most off-campus housing is secured for the upcoming school year. Landlords would likely use the app throughout the year to see their ratings, comments, and potentially to clarify problems tenants had during their lease.

Key Interface Design Requirements that the Profile Suggests

A clean, simple, and intuitive UI design. A way for landlords to reply to comments. Lastly, an informative rating system.

User Profile II

Application

Database server, Web server, and .Net application

Potential User

System Administrator

Software and Interface Experience

The user should have experience with database and web server work. The user should also be able to code in .Net

Experience with Other Applications

The user should have experience with web forum moderation.

Task Experience

The System Administrator would be responsible for deleting comments, updating the site as needed, and troubleshooting errors and restarting servers, etc.

Frequency of Use

The System Administrator should be available to complete tasks as requested within a timely manner. Since this is a website, the System Administrator would need to be on call 24/7. To make this more feasible, there would likely be several System Administrators who would rotate in an on-call schedule.

Key Interface Design Requirements that the Profile Suggests

A clean and simple Database. An easy to use Web Server with clean, easy to read code.

Technical Elements

Network

From the back end, we have decided to use Amazon Web Services (AWS) to host our databases, with MySQL as our database management system. In Figure1 on the following page, you can see our current database diagram. We plan to back up the database weekly to an offsite location. Web hosting will be done on Microsoft Azure, as we had some difficulty hosting our site on AWS. We also have acquired the domain of ratemylandlord.xyz as our Uniform Resource Locator (URL).

Software

We decided to use ASP .Net MVC, CSS, and HTML, with MySQL being used for the database. Below you can find a database diagram of the current database. We all have a background using these technologies, and have decided that ASP .Net best meets our needs for this project. Bootstrap will also be incorporated for some of the front-end development. MySQL was chosen for its ease of use with Amazon Web Services.

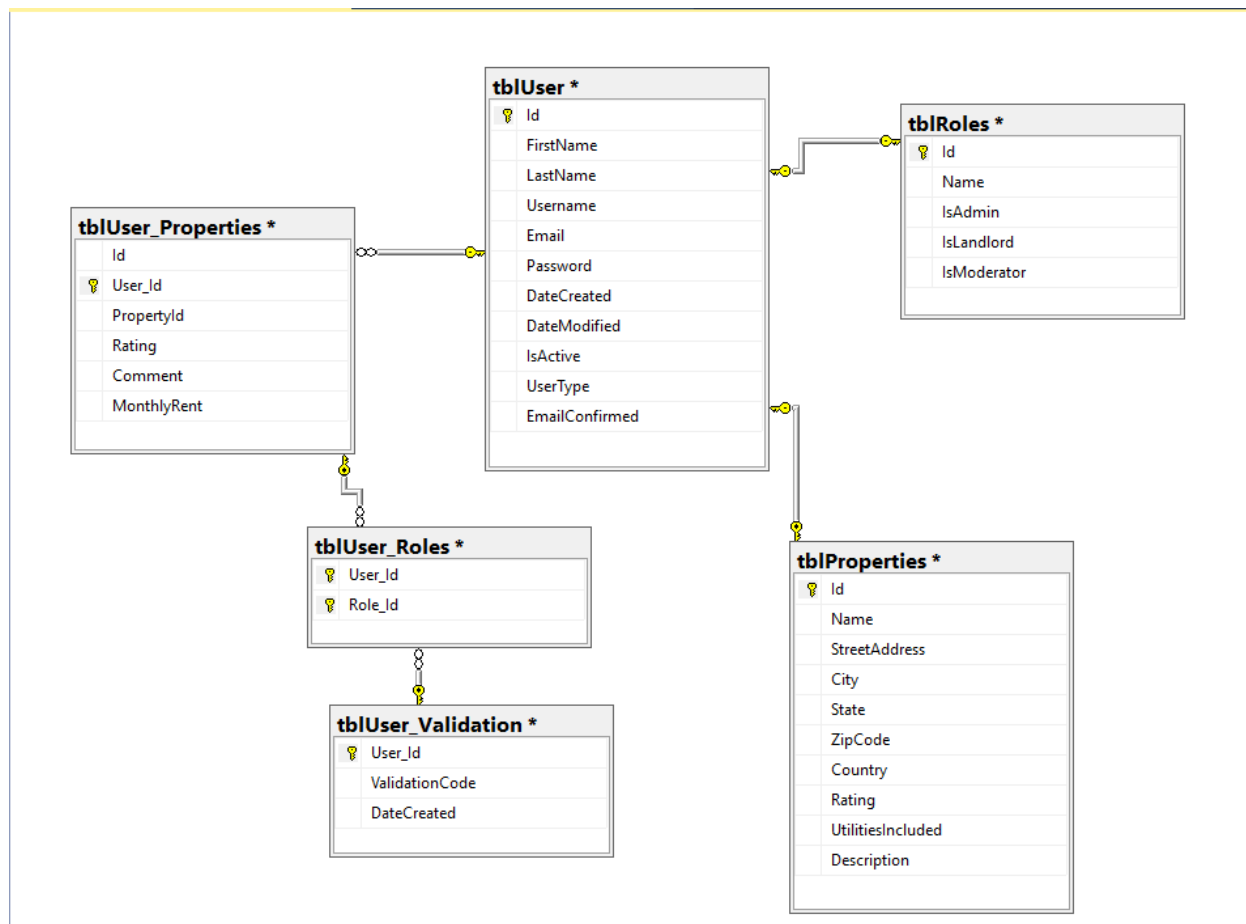


Figure 1. A diagram of our current database

Objectives and Deliverables

Deliverables

Table 1, below, presents the objectives and delivery dates for the project. The figure also displays major milestones for the project.

Project Deliverables and Due Dates				
Research and Design	9/25/2016		Quality Assurance	02/06/2017
Back End Set up	10/17/2016		Site Launch	03/20/2017
Development	12/26/2016		Prepare For IT Expo	04/10/2017

Table 1. Project Deliverables and Due Dates

Gantt Chart

Table 2 on the next page has an accurate reflection of our Gantt chart for the Fall semester of 2016. This displays our goals for each week through February of 2017. Table 3, which is following Table 2, displays what was accomplished over the Fall semester as well as an updated Gantt chart for the Spring semester of 2017.

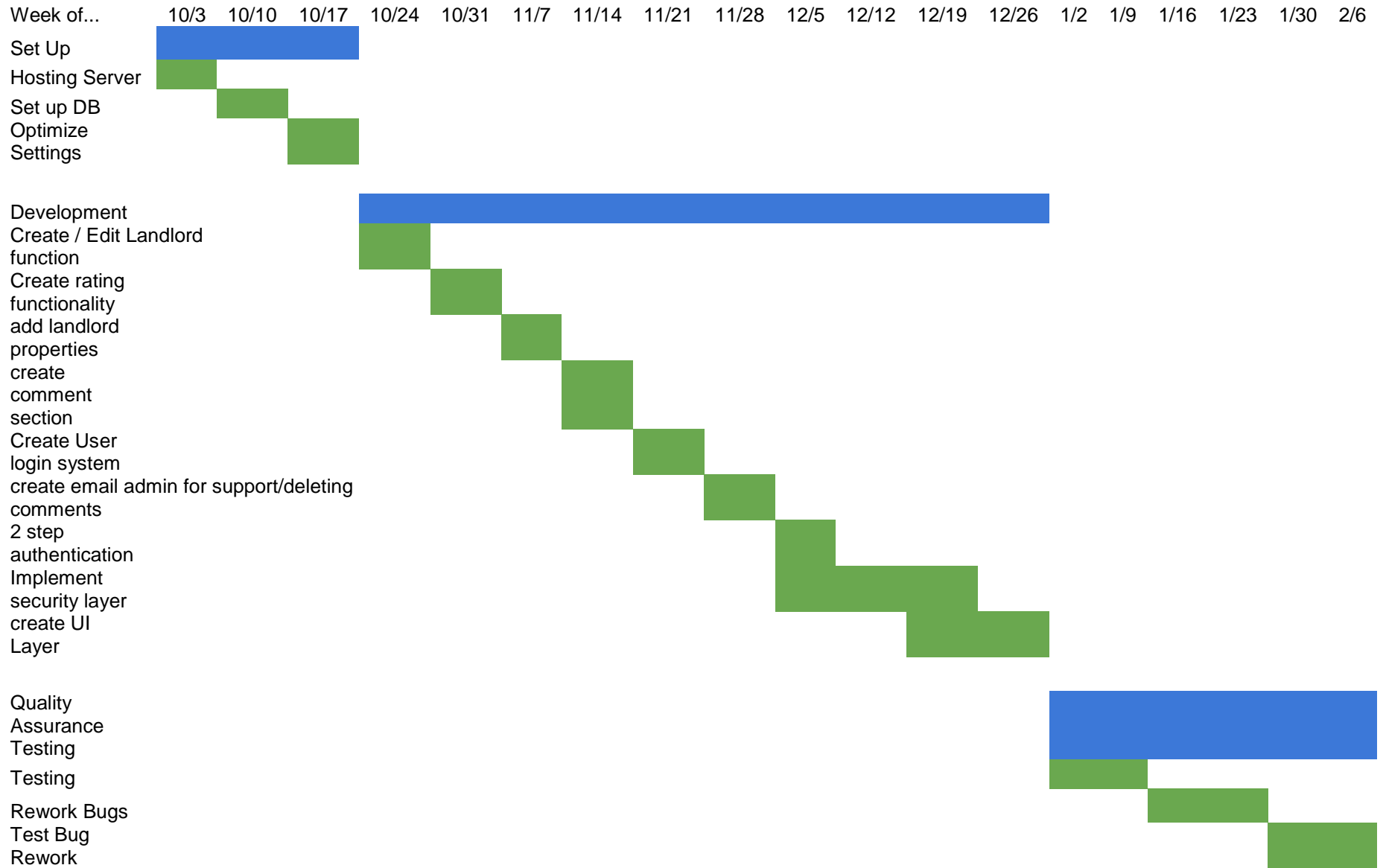


Table 2. Rate My Landlord Fall Semester Gantt Chart.

Week of...	1/2	1/9	1/16	1/23	1/30	2/6	2/13	2/20	2/27	3/6	3/13	3/20	3/27	4/3	4/10	4/17	4/24
Research Design Phase																	
Kickoff																	
Define Scope																	
Revise																	
Wireframes																	
Set Up																	
Hosting Server																	
Set up DB																	
Optimize Settings																	
Development																	
Create / Edit Landlord function																	
Create rating functionality																	
add landlord properties																	
create comment section																	
Create User login system																	
create email admin for support/deleting comments																	
2 step authentication																	
implement security layer																	
create UI Layer																	
Quality Assurance Testing																	
Testing																	
Rework Bugs																	
Test Bug Rework																	
Prepare for IT Expo																	
Practice																	
Final Preparations																	

Table 3. Rate My Landlord Spring Semester Gantt Chart

Budget

Table 4, below, presents a realistic budget for our project. Line items 2 and 3 are rough estimations for project, with both items being purchased on an annual basis.

No.	Item	Hours	Rate, \$	Total, \$
Networking				
1	Labor	80	\$15.00	\$1,200.00
2	Domain	N/A	\$20.00	\$20.00
3	Hosting	N/A	\$100.00	\$100.00
Software				
4	Labor	360	\$15.00	\$5,400.00
			Networking Total	\$1,320.00
			Software Total	\$5,400.00
			Total Cost	\$6,720.00

Table 4. A detailed budget for the project.

Application

Security

Security is a huge concern for us, considering this is a public website and could potentially cause tenants to not stay at a property, or even prevent them from leasing the property in the first place. The first type of security we will be using is that the user must be logged in to create properties, comment, and rate. We also perform an email validation, which must be completed before the user can input data on our site. The next line of defense will be a 2-step authentication process to verify the user is who they say they are. As for database security, we will use stored procedures and character limits to protect from SQL injection. Additionally, we will open a connection to the database when needed and make sure to terminate the connection when it is no longer needed.

User Interface

Non-Logged in User View

The user view is for everyone who visits the site. Here the user can view properties, landlords, and the corresponding ratings provided by other tenants.

Logged in User View

In this view, the user can create new properties that are not already on the site, as well as add ratings to new and existing properties. This user can also do everything a non-logged in user can do.

Administrator View

The administrator view is for administrators of the website. In this view, the administrator will be allowed to see the history of every property on the site. The administrator will also be allowed to comment on properties, as well as delete properties, users, and the corresponding data.

Use Cases

Landlord and Student Use Case

Figure 2, below, shows the use case for a student (tenant) and landlord. The landlord is represented by the red pentagon and red lines. The student is represented by the green pentagon and green lines.

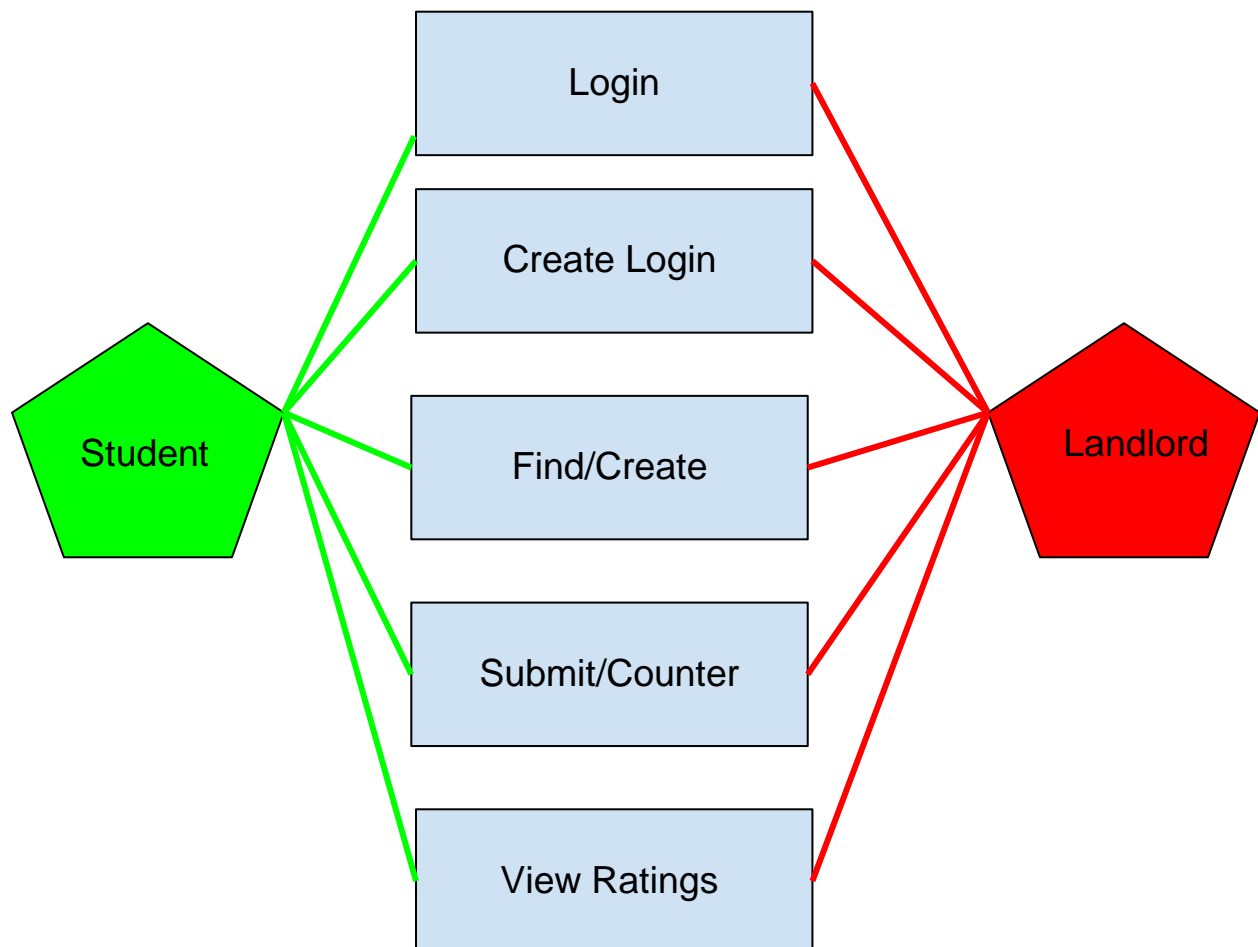


Figure 2. A use case for a Landlord and Student user.

Administrator Use Case

Figure 3, which can be seen below, displays the use case for the Administrator. The administrator is represented by a blue pentagon and blue lines.

Free User Use Case

Figure 3 will also show what a user who does not have an account with the website can do on Rate My Landlord. The free user (non-logged in user) is represented by the orange pentagon and orange lines.

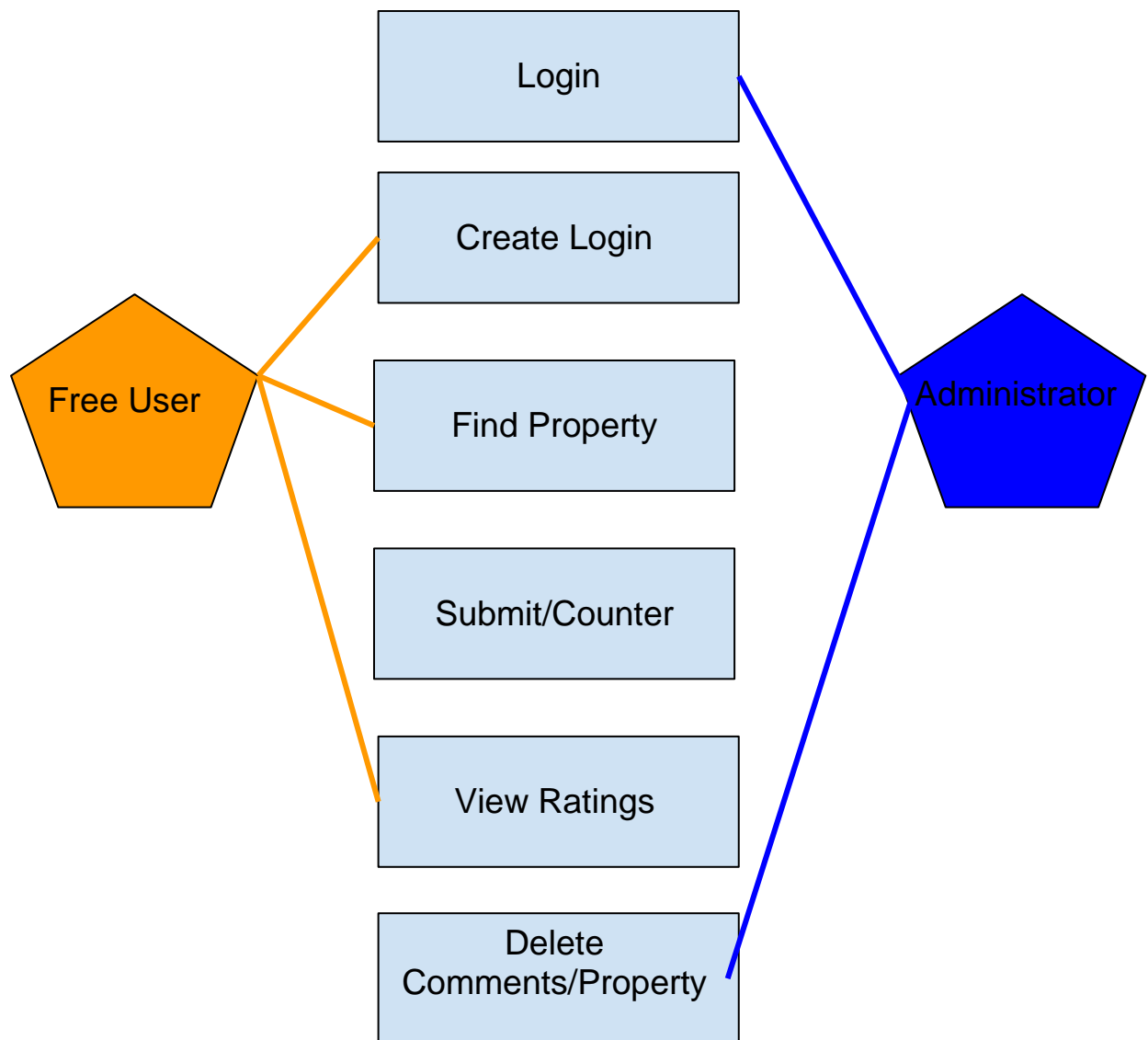


Figure 3. A use case for a free user and the administrator of the website.

Testing

Overview

The purpose of testing our website is to make sure everything is working correctly before going live. Additionally, testing could bring up other features that may be required to have a fully functioning website.

Logging and Reporting Bugs

If a bug is found, the first step will be to log the bugs with instructions included on how to reproduce the bug. The second step will be for developers to discuss if the bug is new or if it's an existing feature bug. When a bug is an existing feature bug, developers should first reproduce the bug and then begin work on fixing the bug. If the bug is determined to be a new feature, developers should discuss how critical the bug is to release. Most new feature bugs will be non-critical.

Types of Tests

Since this application will be website first, the focus will be on the website's operation. There will be two types of tests with different purposes. The first tests would be functionality tests, which are back end tests that ensure code functionality. The second test type would be a user interface test to ensure that every part of the UI functions as it should.

Pass and Fail Conditions

The expectation is that the website will pass all conditions in the testing plans. If a condition does not pass, the tester will document the issue with steps to reproduce the issue.

Risks

There are a few risks that will impact testing. Completing the initial development cycle is the biggest risk to testing - without completion of development, testing cannot begin. Since bugs are not included in the latest build, we will delay the testing of bugs to ensure that functionality and the user interface is complete. Lastly, once a bug is identified we need to prioritize and address them in a timely manner. If we don't, we run the risk of a poor user experience due to the user encountering known bugs.

Functionality Testing Plan

The purpose of this test is to determine if any functionality of the website is missing or not operating as intended. The testing plan is on the next page in Table 5, which will show if any major functionality is missing. The testing plan will also display any functionality that is not operating as intended.

Date	Item	Expected	Pass/Fail	Comments	Bug #
2/10/17	Create Account	User can create an account	PASS	User can create an account.	
2/10/17	Login / logout	User can Log in and out	PASS	User can log in and out.	
2/10/17	Manage account	User can change account data or delete account	PASS	User is able to edit their account and change password.	
2/10/17	Create Property	User and admin can create a property	PASS	User can create a property.	
2/10/17	Edit Property	User can edit a property	PASS	User can edit a property	
2/10/17	View Properties	User can view properties	PASS	Users can view properties	
2/15/17	Add images (user account and property)	User can add an image to their account and properties	FAIL	This works only for the individual property page.	0001
2/15/17	Rate Property (comment)	User can rate and comment on a property (once)	PASS	User can rate each property once.	
2/15/17	Landlord can respond to a review (report a bad one)	Landlords can dispute a bad rating	FAIL	This has not been implemented as of Expo	0002
2/15/17	Delete / Modify properties (Admin only)	Admin can modify and delete properties	FAIL	This has not been implemented	0004
2/15/17	Delete / Modify users (Admin only)	Admin can modify and delete users	FAIL	Not Implemented	0005
2/15/17	Admin controls	User can report user/property issues to Admin	FAIL	This has not been implemented.	0003

Table 5. A Table of the Functionality Testing Plan

User Interface Plan

The purpose of this test is to reveal any unappealing visuals the site may have. Our user interface is crucial as this is how users will interact with our product. On the following page you'll find Table 6, which displays the testing plan that was developed to show any defects in the visuals of the website.

Date	Item	Expected	Pass/Fail	Comments	Bug #
2/10/17	Home Button	Returns home	PASS	Returns home	
2/10/17	Nav Bar Appears	Nav bar appears on top of page	PASS	Nav exists at top of page	
2/10/17	Nav Bar links	Nav bar links work	PASS	Nav works as it should.	
2/10/17	Log in	User enters credentials and is logged in	PASS	User can log in	
2/10/17	Add Property	User is allowed to enter property details	PASS		
2/10/17	Property Rating	User is allowed to rate property	PASS	Property can be rated	
2/10/17	Property Comment	User is allowed to comment	PASS	User can comment on properties.	
2/15/17	View Property	User clicks on existing property the data is brought up. Correct data is displays	PASS	Property details show	
2/15/17	Contact Support	User can click link to contact support	PASS	Users can contact support	
2/15/17	Property Information	Only valid data can be entered in each of the fields	FAIL	Validation is not 100%	0006
Ongoing	Overall Spelling and Grammar	Site is free of grammar and spelling mistakes	PASS		
Ongoing	Overall Site Cosmetic	Site is cosmetically appealing and congruent	PASS	New Template.	

Table 6. A Table of the User Interface Testing Plan

Conclusion

We all learned a lot over the course of this project. Some of the key takeaways were the importance of planning and scope, the importance of testing thoroughly, the joys and pains of source control (Github) on this scale, and time management.

In conclusion, word of mouth is a poor way to communicate information about landlords and their properties. With Rate My Landlord, we hope that potential tenants will learn from previous tenant's experiences and make more informed decisions when renting from a landlord around the University of Cincinnati. The creation of the application gave tenants the ability to no longer rely on word of mouth, by letting tenants record and rate their experiences. Rate My Landlord helps alleviate the stress of finding a landlord and rental property that's right for you.

Bibliography

BestColleges. "Student Renter's Guide | BestColleges.com." Best Colleges. 2016. Accessed November 18, 2016. <http://www.bestcolleges.com/resources/student-renters-guide/>.