

# PrimeEstate Project Specifications

SW Engineering CSC648/848 Fall 2014

Milestone #2

Group #3

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## **1. Executive Summary**

PrimeEstate provides sleek customized solutions in web design and we will create and maintain an interactive and dynamic real estate website. Outlined in this document you will find our proposed design and our suggested website format. We will create a professional, competitive, and dependable website that resonates with our users' high expectations. We are committed to working with the users to create a product which streamlines the home buying experience. Website sections, design concepts, and the user experience 'flow' will all be central to our product development.

The website will begin as a basic, yet competitive real estate website. We intend to integrate standard features that will ensure its reliability and ease of use. These features include: registration for realtor and customers, search ability for current listings, listing options for realtor, listings featuring pictures, listing descriptions, and realtor contact information. All of these features will be executed in a way to ensure our product is a competitive alternative to current real estate websites.

Once we have established ourselves in the market as a trustworthy, easy-to-use, and reliable alternative, we will consider more novel features that separate us from the competition. We have future plans to implement a 'favorite' option where customers can add houses they like to a personalized list -- but we want to ensure that our product reflects our users' needs first and foremost. As our team is extremely capable, we intend to make sure that our product's features are reliable and future feature development will be driven by our users' needs.

## 2. Data Definitions and Glossary

**User** Any viewer of the website: **customer**, **realtor**, or **guest**. All **registered users** have a username and password stored in the **user** table.

**Customers** Buyers, Users interested in buying a house. Customers are allowed to create a profile involving housing specifications which meet their criteria. They are also allowed to contact **realtors** to express interest in a house and request more information

**Realtors** Sellers, Users interested in listing a house. Realtors are able to create/modify/delete **listings** and access the e-mail address and user names of **customers** who are interested in their **listings**.

**Guests** Unregistered User. Guests are allowed access to the search box and search results. They are also able to register to become a **customer**.

**Profile** Any profile for either a customer or a realtor. All profiles are associated with a login and password entry in the **user** table in the SQL database.

**Customer Profile** Settings associated with a user involving their housing preferences. The customer profile will also include a listing of the houses they have expressed interest in. All **customer profile** data will be stored in a **customer** table in the SQL database

**Realtor Profile** Listings associated with a realtor's account. The realtor's profile will include a listing of users who have expressed interest in an associated estate. All **realtor profile** data will be stored in a **realtor** table in the SQL database.

**Administrator** Party responsible for the content of the website. The administrator has the ability to create and delete **realtor** accounts.

**Favorite** A privilege of becoming a Customer, a customer has the ability to **favorite** a property and have it saved to a list associated with their profile. They will be able to access their **favorite listings** in their **customer profile**. **Favorite listing** data is stored in the **customer** table in the SQL database.

## *PrimeEstate Requirements Specification*

- Listing** House Listing - includes photo, number of rooms, price, street address, zip code, state, city, and house specifications. The listings will be stored in a **listings** table in the SQL database.
- Registration** Process in which a **Guest** becomes a **Customer**. Involves creating a username and password. Registration information will be stored in the **user** table in the SQL database.

### 3. Use Cases

The principal users in the use cases are the **customers** and the **realtors**, the goal being creation of a platform for the **customers** and the **realtors**. The use cases for the website have been decided upon as:

#### 3.1 Add Listings (**Realtor**)

The real estate agency through its research and leads obtains a list of houses that are up for sale. This data is passed on to the realtor who is in charge of putting up each of the houses on the website. Each house will have a unique **listing**. The **listing** will also contain all the relevant information about the house:

- address of the house
- number of bedrooms
- number of bathrooms
- square footage
- photos

All of these details are to be entered by the **realtor**, since this will ensure that the house is capable of being found when browsing through the **listings**.

Larry, a **user** of the PrimeEstate website in the capacity of a **realtor**. After signing up for an account on the website, and signing in, I want to add **listings** of houses that are available to me on to the website. This will enable potential **customers** to access information regarding the property at any time and any place. I must be able to add details of the house such as the number of bedrooms, number of bathrooms, the square foot area, photos of the house, and the address of the location. I do not want these to be in form of a paragraph. They should be neatly formatted in a way such that it is easy for the **customers** to read, rather than have them face a wall of text. The number of bedrooms, bathrooms, and square footage should only allow the entry of a positive number. I also hope that when I upload a photo, the program checks to make sure I uploaded an actual photo! Once I am finished entering the information, I would like to be able to review the **listing** to make sure that it appears correctly.

#### 3.2 Modify/Review Listings (**Realtor**)

Once the houses are on the website, there is a possibility that some details of the house may need to be edited. It is also important to be able to identify and review **customers** who are interested in listed properties.

## *PrimeEstate Requirements Specification*

Peter, a **user** of the PrimeEstate website in the capacity of a **realtor**. I want to edit and review my **listings** of houses on to the website. When I log into my account I want to be able to see a list of my current properties. Often, the value of the property fluctuates with market conditions and I need to be able to edit the **listing** after it is posted. The edit feature will enable our customers to see updated information regarding the property at any time and any place. Also, it is a required feature since I could make errors while filling out the form! I must be able to edit details of the house such as the number of bedrooms, number of bathrooms, the square foot area, photos, and the address of the location. On the page which has my **listings**, it is essential that I can see the level of interest my postings are getting 'at-a-glance'. I want to be able to tell how many **customers** are interested in a specific property and be able to get more information about **customers** who are requesting more information in a separate window.

### 3.3 Delete Listings (**Realtor**)

Deleting **listings** of houses from the website which are no longer on sale or have been sold.

Max, a **user** of the PrimeEstate website in the capacity of a **realtor**. It could so happen that I change my mind and need to pull a listed property off the market. In this case I want the **listing** to be removed from the website so that **customers** are not confused with the **listing**. Similarly, once a property has been sold, it must be removed from the website. I want this function to be displayed where I am able to edit the details of the house. I also want to make sure that I don't accidentally hit this button and lose all of my hard work -- so it would be nice to have a second-chance warning when the delete button is hit, to make sure I don't regret it afterwards.

### 3.4 Browse Listings (**Guest**)

The **customers** access the website where they can search for homes. They need not be registered members of the website to view the homes. They can view the homes based on the criteria they prefer, that is:

- zip code
- city
- state

This use case is heavily dependent on Use Case 2.1. If the data entered is incorrect or incomplete, the customers will not be shown the listing in their search results.

## *PrimeEstate Requirements Specification*

John Doe, a **user** of the PrimeEstate website in the capacity of an unregistered **guest**. I would like to be able to access and easily navigate the posted **listings**. When I arrive at the entry page I would like to be able to register or be able to search the **listings** available. I would like to be able to filter the **listings** according to my requirements such as city, state, and zip code. It is important that the search is powerful and that when I enter a search which doesn't return any listings I don't get an error. It is important to me that I be able to register before and after the search is completed. If I am impressed with the results, I may want to become a PrimeEstate **customer** in order to get more information on a **listing**.

### 3.5 Contact Realtor to Sell House (**Guest**)

Sue, a **user** of the PrimeEstate website in the capacity of an unregistered **guest**. I came to the site looking for a place to sell my home. I am impressed with the **listings** I've seen and I was hoping to be able to find out more information regarding how to get my home on the website. I would like to be able to quickly contact PrimeEstate and get information about the process and find out what is required from me to start the **listing** process.

### 3.6 Create a profile (**Customer**)

**Customers** can register on the website to gain certain privileges. Registration will allow the **customers** to create a personalized **profile** where they can enter their favored search parameters like budget and number of bedrooms. By doing so, the system shall use these saved entries to show properties which are relevant to the **customer**. Thus, this targeted advertising leads to a higher percentage of conversion from the potential **customers** to that of **customers**. Registration also allows the **customers** to contact the **realtors**.

Getting the potential **customers** to register is very important to the agency. This is because it allows the **realtor** to communicate with the **customer**. As and when the properties which suit a particular **customer** hit the market, the **realtor** can immediately contact the **customer** by means of an email address. Thus by reducing the time taken to make a sale, the overall productivity of the workforce can be improved.

It is also a measurement of growth for agency. A **user** base that keeps growing implies that the agency is doing a good job with respect to advertising and marketing.

Joe, a user of the PrimeEstate website in the capacity of a **Customer**. After I register myself with the website I need to be able to create profile indicating properties which interest me. I must be able to indicate key preferences such as number of bedrooms, price range, and zip code - so that when I sign in, I have access to a special list of houses



## *PrimeEstate Requirements Specification*

that match my **profile**. I will also be able to change these settings after my **profile** is initially created, incase my needs change.

### 3.7 Contact a realtor (**Customer**)

Saving a property that a **customer** is interested in is important, as it will serve as a basis for **realtors** to reach out and contact interested potential **customers**.

Carl O'Connor, a user of the PrimeEstate website in the capacity of a **Customer**. It is important for me that I am able to contact **realtors** about properties I am interested in. When I search for properties or my **profile** returns a list of properties it is important that I be able to click a button to contact the **realtor** or **favorite** a **listing**. I would also like to review the **listings** which I have contacted the **realtor** for more information.

### 3.8 Delete Realtor Account (**Administrator**)

There are instances in which a user's account must be deleted or created. If a realtor is abusing their privileges and posting inappropriate material, it is necessary for the Administrator to be able to remove their account.

Abraham, an **Administrator** for the PrimeEstate website. This morning we found that there is a **realtor** who has been posting inappropriate images to her **listings** and I have to remove her account. It is important that I be able to go to the homepage and be able to login. Once I am logged in I should be brought to a list of **realtors** and be able to delete their **profile** with a click. We cannot afford to accidentally delete the wrong **profile** so I would appreciate a verification popup to make sure I am deleting the correct **profile**.

### 3.9 Add Realtor Account (**Administrator**)

When PrimeEstate hires a new **realtor**, a new **profile** needs to be added to the website in order to allow them to post listings.

Arya, an **Administrator** for the PrimeEstate website. We recently hired a new realtor and I need to create a realtor profile for her. I want to be able to add new **realtors** with relative ease, especially because we usually hire new **realtors** in groups so I don't want the process to require redundant actions.

## 4. Functional Specification

### Priority #1: Essential Functional Requirements

1. **Users** shall be able to search by types of properties categories.
2. **Users** shall be able to search by property features.
3. **Users** shall be able to search by city and zip codes.
4. **Users** shall be able to search by market price of properties.
5. **Customers** shall be able to register as a customer and save preferences.
6. **Customers** shall be able to enter their contact information.
7. **Customers** shall be able to contact agent to express interest in a property.
8. **Customers** shall be given to option to not receive notifications
9. **Customers** shall have personal profile kept private and unaccessible from third parties
10. **Realtor** shall be able to post listings.
11. **Realtor** shall be able to manage their listings (modify and delete).
12. **Realtor** shall be able to view list of interested customers.
13. **Administrators** shall be able to remove **realtor** accounts.
14. **Administrators** shall be able to add **realtor** accounts.

## *PrimeEstate Requirements Specification*

### Priority #2: Desirable Functional Requirements

1. **Customers** shall be able to review **listings** which match their **profile** and **listings** for which they have expressed interest.
2. Text suggestion in the search box - When a **user** begins to type a city or a zip code text suggestion fills in below the box.
3. **Favorite** feature where **customers** can add **listings** they are interested in, to a special list of properties they can review at a later time through their **profile**.
4. **Realtor** and **Customer** shall be able to contact the **administrator** (have e-mail posted)

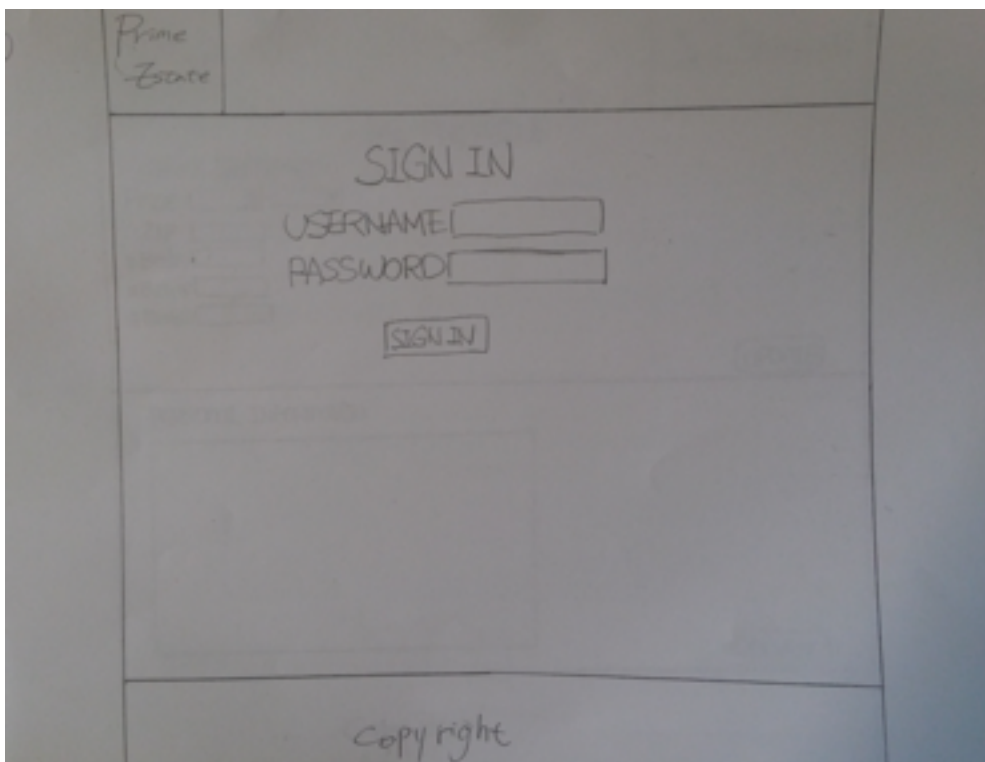
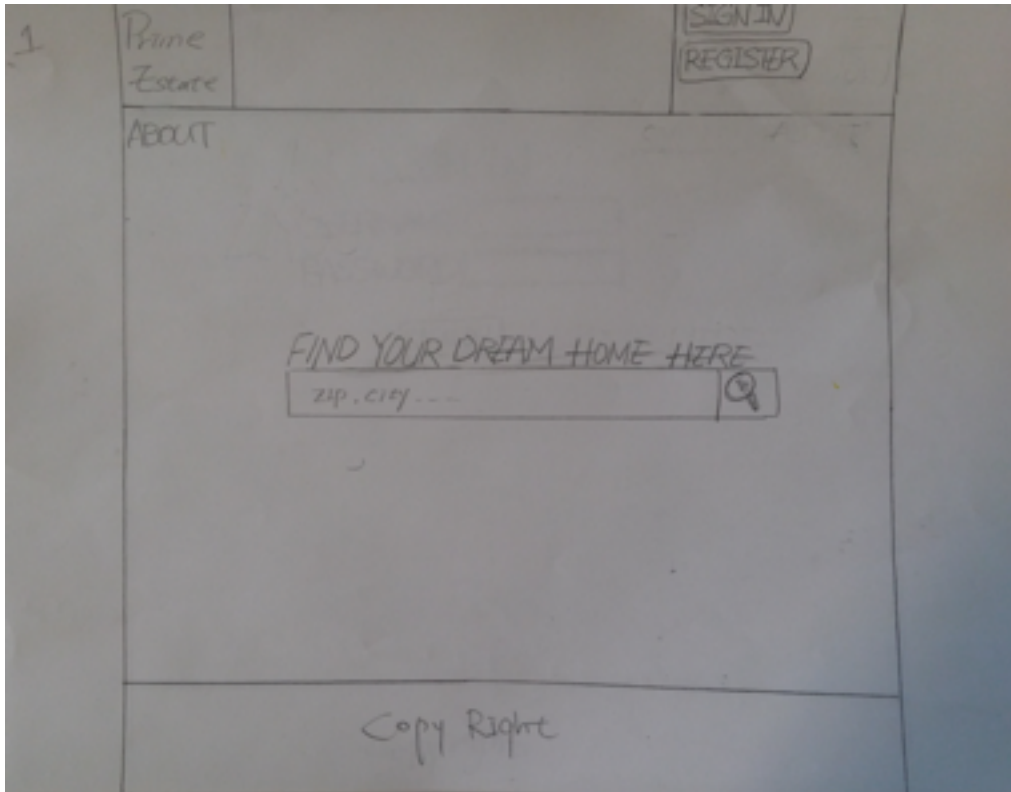
### Priority #3: Opportunistic Functional Requirements

1. Map feature - Using open street/google API the **listings**' address will be mapped in the **listing**
2. Sorting the listings that are returned by a query
3. When images are clicked on in the profile, the pictures open in a gallery.
4. **Registration** popup box - When you click sign in on the page (in the right corner), a small box appears in front of the page to take login information. The Sign in/sign up are on the small box.
5. On mobile devices when a **customer** logs in they are automatically brought to **favorites** and the **listing** address can integrate with the phone's mapping software.

## **5. Non-Functional Specifications**

1. Application shall be developed using class provided LAMP stack.
2. Application shall be viewable in a standard desktop/laptop/mobile browsers, and shall render correctly on version 37 of Chrome and version 32 of Firefox.
3. Application shall render well on portable devices.
4. Application shall be deployed on Amazon Web Services as specified in the class.
5. Data shall be stored in the database on the class server in the team's account.
6. No more than 50 concurrent users shall be accessing the application at any time.
7. Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
8. The language used shall be English.
9. Application shall be very easy to use and intuitive. No prior training shall be required to use the website.
10. Google analytics shall be added for major site functions.
11. The website shall prominently display the following text on all pages "SFSU/FAU/ Fulda Software Engineering Project, Fall 2014. For Demonstration Only".

## 6. UI Mockups and Storyboards



Prime Estate	Joe Shmack
--------------	------------

## My PROFILE

### SEARCH INFORMATION

Price  -   
ZIP   
# Beds   
# Baths   
# Rooms

UPDATE

### PERSONAL INFORMATION

UPDATE

Copy Right

4

Prime Estate

## REGISTRATION

USERNAME

PASSWORD

RETYPE PASSWORD

FIRST NAME

LAST NAME

EMAIL

Why Register?

Your Dream Home will be here!

CANCEL

SAVE

Privacy

Copy Right

## PrimeEstate Requirements Specification

Prime Estate Joe Shmack

SEARCH RESULT 10 of 1000

# 1		
PHOTO	PRICE \$1000,000	BEDROOM(S)
	ADDRESS	
		BATHROOM(S)
		[CONTACT]

# 2		
PHOTO	PRICE \$1000,000	BEDROOM(S)
	ADDRESS	
		BATHROOM(S)
		[CONTACT]

PREV < 1, 2, 3 ... 100 > NEXT

copyright

Prime Estate PETER REALTOR

SEARCH RESULT 10 of 1000

# 1		
PHOTO	PRICE \$1000,000	BEDROOM(S)
	ADDRESS	
		BATHROOM(S)
		[EDIT]

# 2		
PHOTO	PRICE \$1000,000	BEDROOM(S)
	ADDRESS	
		BATHROOM(S)
		[EDIT]

PREV < 1, 2, 3 ... 100 > NEXT

copyright

## PrimeEstate Requirements Specification

-2 Prime Estate PETER REALTOR®

PEOPLE INTERESTED

NAME(S)	E-mails	Message	DATE
Jon	Jon@gmail.com		
KIM	kim@gmail.com		
Ann	Ann@gmail.com		

copyright

LOGO Peter REALTOR®

EDIT LISTING

PRICE

ADDRESS

#Bedroom(s)

#Bathroom(s)

DESCRIPTION

IMAGE(S)

SELECT MENU

PIC 1	PIC 2	PIC 3	PIC 4	PIC 5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CopyRight



## PrimeEstate Requirements Specification

5a-1 PrimeEstate

### EDIT PROFILE

FIRST NAME

LAST NAME

PHONE ( )-

ADDRESS

copyright

5a-2 PrimeEstate

### CHANGE PASSWORD

OLD

NEW

RETYPE

copyright

## **7. System Architecture and Database Organization**

The following is a list of the products, external API, and tools we tentatively intend to deliver our final project:

### **7.1 System Architecture**

#### **1 LAMP**

##### **2 Amazon Web Server:**

- We will be using Amazon Web Server for hosting and deployment

##### **3 Bootstrap:**

- We will use bootstrap for the front end development and allow it to dynamically manage mobile formatting

##### **4 jQuery:**

- front end interface development. We will use it to load content dynamically into the page, to make web page more interactive (ie autocomplete in the search bar)

##### **5 SVN:**

- version control tool

##### **6 Google analytics:**

- optimize our features

##### **7 Recaptcha:**

- use to block robots from registering for an account

## **7.2 Primary Classes**

- 1 Guest**
- 2 Realtor**
- 3 Administrator**
- 4 Customer**
- 5 Browser**
- 6 View**
- 7 Database**

## **7.3 Database Schema**

- 1 User**
- 2 Realtor**
- 3 Customer**
- 4 Listings**

## **7.4 Media Management**

### **Photos**

- Photos will be uploaded by **realtors** and stored on the server
- The upload process will allow photos with either the jpg extension
- The photo size must be less than 1mb each
- Photos will be renamed upon uploading by the system

## **7.5 Algorithms and Processes**

### **Search**

- The listing search tool will query the database either through zip code or city.

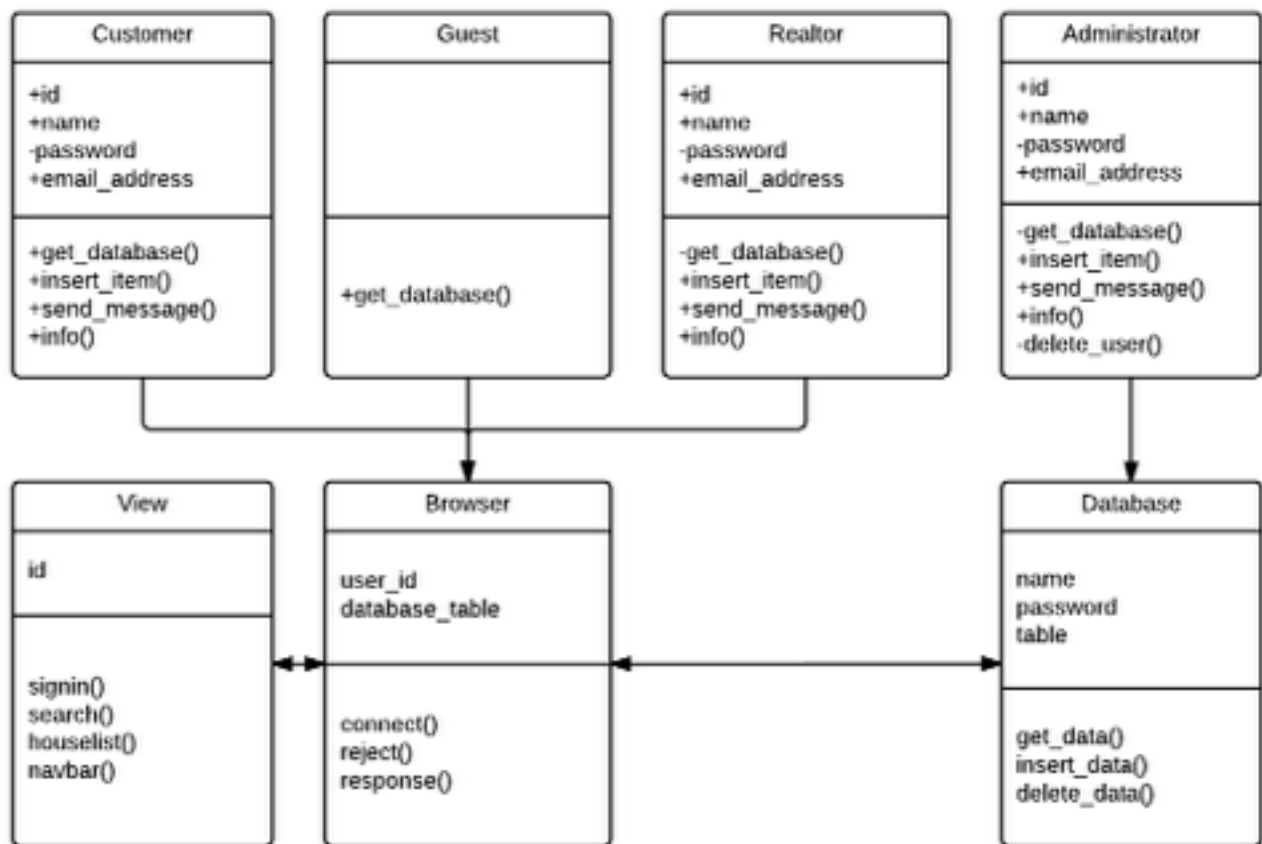
### **Sorting Search Results**

- Search results will automatically be sorted by most recent posted

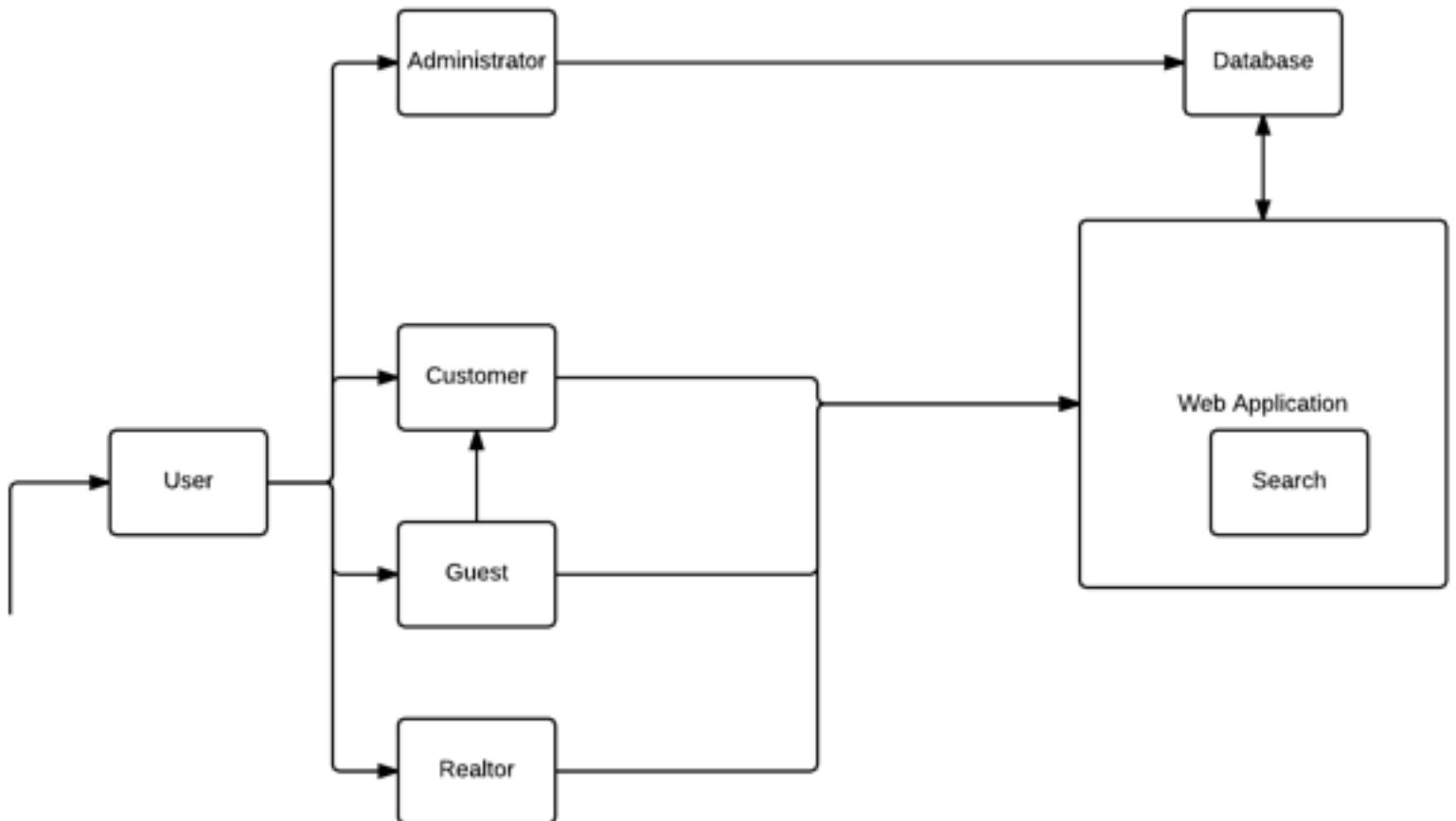
We will support/test our product on version 37.0.2062.124 of Chrome and version 32.0.3 of Firefox.

## 8. UML Diagrams

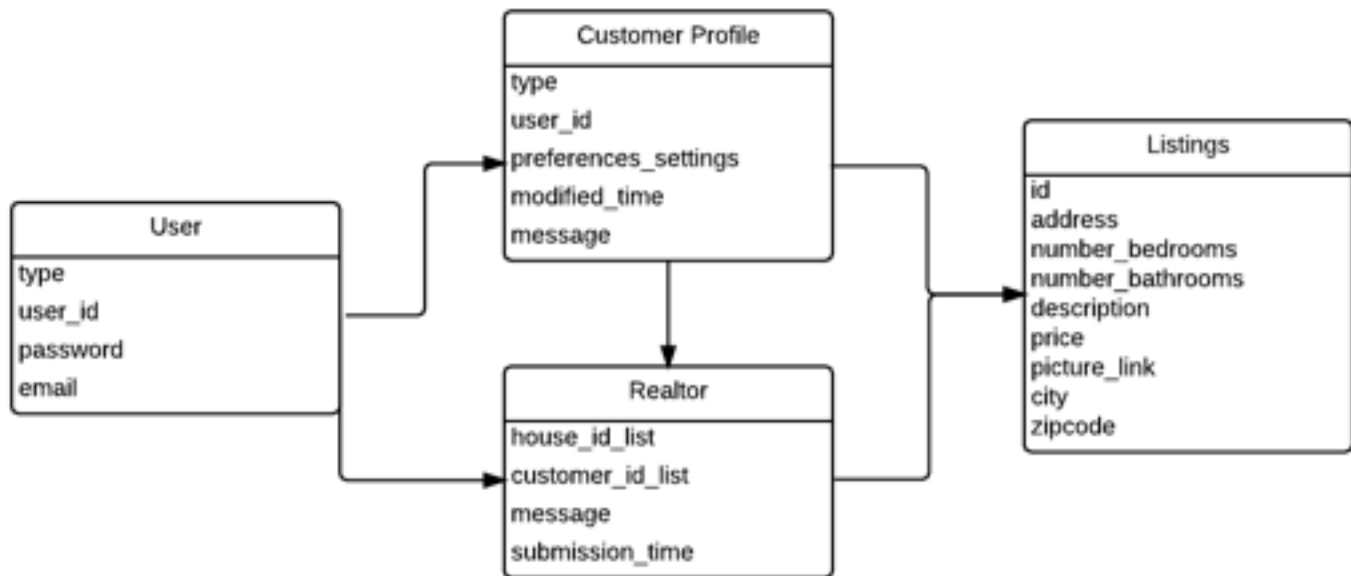
### 8.1 Class Diagram



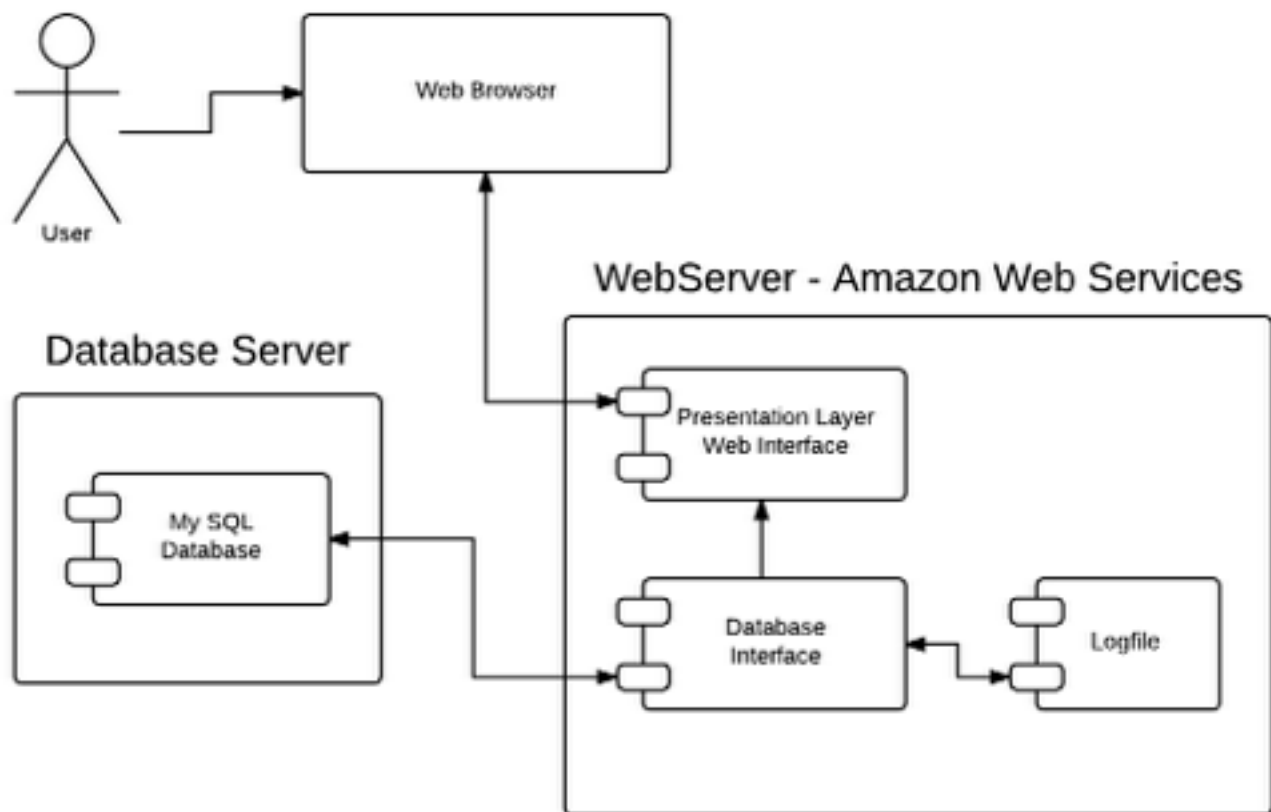
## 8.2 Component Diagram



## 8.3 Database Schema



## 8.4 Deployment Diagram





## 9. Key Risks

### 9.1 Skills risks

**Risk:** Our team doesn't have much experience with website development, design, or deployment. We don't have a specialist with any of the toolsets we will be working with.

**Solution:** We have worked through a number of tutorials on the toolsets we intend to use and we are working within the team to make sure that we are able to learn and gain the skills required to address our lack of experience.

### 9.2 Schedule Risks

**Risk:** Our group has 5 members with very different schedules for this semester. We understand that there is a limited amount of time we need to develop and deploy the site on time and to specification even though the semester is already half over.

**Solution:** We plan to stick to the suggested schedule of meeting twice a week and follow the required steps in completing the milestones while trying to not over-commit.

### 9.3 Technical Risks

**Risk:** We have been considering mapping our listings on our site but we haven't figured out what would be the best tool to accomplish this task. We also are not sure the best way to accomplish formatting of the website across platforms (ie making sure that the website appears clearly on a desktop and a mobile device).

**Solution:** We have assigned research to our team members in order to research these areas to determine the best plan. By assigning research tasks we will be able to hope to be able to better analyze the cost associated with learning and implementing these features.

## **9.4 Teamwork Risks**

**Risk:** We have a variety of personality types in the group, which is to be expected in such a diverse group. We also have a mix of undergraduate students and graduate students which have the potential to cause disagreements in our perceived target objective.

**Solution:** We have agreed to work together and align our objectives for the purpose of deploying a successful product. We try make decisions as a group and ensure that everyone has a voice in the decisions.

## **9.5 Legal Risks**

**Risk:** Whenever working with software and using other libraries there is always a risk that the library we choose to use has a security risk. If we are collecting user information and someone were to sign up for an account — thinking that it were an actual real estate website — and someone was able to access the user's information, we could be held legally responsible.

**Solution:** To avoid this issue and other issues relating to this, we will not collect credit card information from users in the beginning phase of our project. We will also be sure to prominently display "SFSU/FAU/Fulda Software Engineering Project, Fall 2014. For Demonstration Only".

## 10. Team Organization

Name	Position
Jonathan Olson	Team Lead/Backend
Alex Lyshevyich	Backend Lead/Database Specialist
Dong Li	Frontend/Scripting
Rushab Indi	Frontend Lead/Subversion Administrator
Yi-Hsien Chen	Frontend/User Experience