# SW Engineering CSC 648/848 Fall 2014

## "Listed"

**Local Group:** 04

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## Milestone 1

**History Table:**

| Date | Comments | Version |
|---|---|---|
| 9/26/14 | First initial writeup by the team | 1.0 |
| 10/5/14 | Revisions by the team after Marc's comments on 9/29/14 | 1.1 |
| 10/15/14 | Final freeze by the team, following Dr.Petkovic's comments on 10/06/14 | 1.2 |

## Table of Contents

**Bold Letters:**  Words will be found in Glossary/Definitions.

## Executive Summary:

"Listed" is a real estate web application built for a particular real estate company, allowing them to manage their listed properties. This application allows the real estate company to post the contents of residential listings, which will later be seen by potential future homeowners. These future homeowners will be able to contact the realtor once they pick a home.

Buyers will be able to browse all property listings on the site or search for properties based on various attributes like zip code, city, etc. They will also be able to contact a specific realtor if they come across a desirable property. It also allows the current homeowner to contact the realtor with information about the home, which the realtor will then post online.

In addition, buyers will be able to determine the exact location of each property with the assistance of Maps. They will have access to a picture of the home, as well as a general description of the home itself and its surrounding neighborhood. Buyers will also have the option of connecting their Listed account to another social network account.

This web application is the real estate application for the experienced and inexperienced, with functionality for both. The website can be easily navigated by those without experience looking for homes. It displays the location of the properties being looked at, allowing the user to determine if the neighborhood they'd be living in fits their lifestyle. It provides contact information for multiple realtors, more than capable of assisting with the process of buying property.

Realtors will also get substantial usage out of this web application. By using various social media accounts, realtors are able to access more information about the client. This will help the realtor stay in the loop. Lastly, one of the more important features of the website is the "Open House" Calendar. This will let users keep track of what homes they would like to see over the course of several days.

"Listed" is a well designed interface for both the client and the realtor. With the integration of Maps, Social Media, and Open House Calendar, "Listed" will be the future of property listing.

## Use Cases:

**Owner of Real Estate Company**

David runs a **Real Estate** Company in Northern California. His company is quite successful, so he wants to make a brand new website for it. He wants it to be powerful enough to manage all his listings day in and day out.

As an Owner, he wants to take his real estate business to next level. He wants to allow his customers to access the realtor-managed listings online.

**Buyer**

John is a math teacher at San Francisco State University, looking to purchase a property before he gets married. Since he works everyday, he's keeping his options open: a studio, apartment or full-size home are all possibilities for him.

John goes to our website and searches for properties near SFSU by entering a zip code in the search box. As an **unregistered user**, he can sort the listing by price and number of bedrooms.

Shawn is a car dealer. He is trying to invest in the property. As an investment he chooses to buy house. He want to see the house personally. As **registered user** he will be able to see the **Open House calendar** of the current month.

Ashley is a Doctor at UCSF. She is looking for a house in San Francisco. Ashley is looking for her dream home, so she visit the website and look at all the listings in San Francisco. Unfortunately, she did not like any of them. So, as a **registered user**, she can choose to receive emails regarding any new listings that match her criteria.

**Seller**

Yash is trying to invest in a business and is looking to sell his property. He is having a difficult time locating a website that best fits that needs when he comes across our website. He quickly becomes a **registered user** using some **basic information** like his name, email, and phone number. He is made explicitly aware that all of this information will be private and not shared with anyone **without his permission**. After becoming a **registered user,** he is able to connect with the **realtors.**

**Admin**

Dhruv is the **administrator** of the website. He is looking over the business and security aspects of the site. He has the ability to accept or reject property pictures that are uploaded by the **registered user**. He has complete control over the website's listings, content management system and monitor security configuration.

**House-Flipper**

Jordan is a wealthy entrepreneur who flips houses for a living. He is looking for a website that allows him to use social networking sites to improve his business. As a **registered user**, he will be able to connect his social networking sites in order to increase his prominence in business by the realtor.

## Data Definition/Glossary:

**Buyer:**
Any person who is interested in purchasing a property and pays money to the seller to buy it. Can be either registered or unregistered.

**Seller:**
Any person interested in selling real property.

**Realtor:**
A real estate agent who is a member of the National Association of Realtors. Realtors conduct their business and activities in accordance with a strict Code of Ethics. They can assist customers in both the buying and selling of their homes.

**Unregistered User:**
Can access all listings. Does not need to login/register.

**Registered User:**
Can access all listings as well. Can also access open house times, specify attributes of listings they would be interested in, contact realtors about given listings and connect directly to their various social media accounts. Needs to login/register.

**Public Listings:**
These listings can be viewed by any user (registered or unregistered). It will have at least one image of property. The listing contains information about the property, for e.g its price, location, size etc.

**Administrator:**

A person who controls the activities/listings of the website, content management system, access rights of different users, and security configuration. He can access all content and delete what's inappropriate, but can not modify content whatsoever. He will be also responsible for managing the database. He needs to login to perform above actions.

**Open House:**

Available exclusively to registered users, an open house allows buyers to physically observe the listing during specific times provided by the realtor.

## List of Functional Specs:

1. Listings shall contain a picture of the home, a description of the property and the neighborhood it lies in.

2. Unregistered users shall be able to browse all listings on the website.

3. Unregistered users shall be able to search listings by zip code and city.

4. Unregistered users shall be able to determine house locations with Maps.

5. Unregistered users shall be able to create a personal profile on the website, thereby becoming registered users.

6. Registered users shall be able to specifically describe attributes of homes they find interesting.

7. Registered users shall be able to contact realtors about properties they're seriously considering.

8. Registered users shall have access to open house times for listings of their choosing.

9. Registered users shall be able to connect their personal profiles to their various social media accounts.

10. A search engine shall be available within the context of the home page.

11. Sellers shall be able to provide realtors with information about their home.

12. Realtors shall be able to post listings.

13. Realtors shall be able to modify and delete listings.

14. Using the Open House Calendar, realtors shall be able to specify times for their listings to be physically viewable.

15. Realtors shall have access to vital client information through various social media outlets.

16. Admin will have comprehensive access to all listings and security details excluding users' passwords.

17. Admin will have access to social media accounts of users.

18. All users can read the website's privacy policy.

## List of Non-Functional Specs:

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 the two latest versions of all major browsers: Mozilla, Chrome and IE.

3. Application shall render well on portable devices.

4. Application shall be deployed on Amazon Web Services as specified in 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 shall 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"

## Competitive Analysis:

| Features | Listed | Intero<br>interorealestate.com | Zephyr<br>Zephyrsf.com | Hill & Co.<br>hill-co.com | Shamrock<br>shamrocksf.com |
|---|---|---|---|---|---|
| Contact Form | ++ | ++ | ++ | + | ++ |
| Social Integration (Linkedin) | ++ | ++ | - | - | - |
| Property Search | + | ++ | ++ | + | + |
| Google Analytics | + | - | + | + | - |
| Open Home Listing | ++ | + | + | + | - |

**+ Feature exists; ++ superior; - does not exist**

In this competitive analysis, we have chosen four successful competitors: Intero, Zephyr, Hill & Co., and Shamrock. Those comparable features across all these websites are Contact Form, Social Integration, Property Search, Google Analytics, and Open Home Listing. First, our website will make available a Contact Form, so buyers can easily contact realtors if they have an interest in any property. Our Contact Form

has almost the same feature as the one that Intero, Zephyr, and Shamrock has. Unlike HIll & Co, who only provides contact information about their own company, buyers can leave their contact information or messages when browsing on our website.

Then we compare the Social Integration feature. Only Intero and our website will have this feature. We will use social media to connect people and make the users buying/selling experience more joyful. For those people who want to join us as a member, they can simply use their social media sites' accounts to join us.

Next, on bases of Property Search, which Intero and Zephyr have a relatively strong grasp on. However, our website will most definitely match the Property Search capabilities of Hill & Co. and Shamrock. Buyers using our website will still be able to search and browse properties according to different criteria (city, zip-code, price, etc.).

We are also integrate the Google Analytics to our website. As Zephyr and Hill & Co., we will use Google Analytics to track visitors from all referrers too.

Last but not least, our website will have an Open Home Listing feature for potential buyers, and our Open Home Listing feature will be almost the same as the one on Intero, Zephyr, and Hill & Co.

## High-Level System Architecture:

The basis for our system architecture is the widely used LAMP stack. The stack is an aggregation of 4 categories of software necessary for creating a website. A Linux-based operating system, Ubuntu, is the one we will be using. Apache will be used for web serving documents and receiving/responding to requests. MySQL is the database management system used to manage records for our website. PHP is the programming language used to generate HTML code for web serving.

For front-end development we decided to use jQuery for a JavaScript library and Bootstrap for HTML and CSS templates. This will provide us with a foundation to quickly create a functioning website.

We are also considering are the Google Maps API for real estate lookup, and Linkedin social login API integration will be added.

Our application shall be supported by the three most frequently used web browsers: Firefox, Chrome, and Internet Explorer.

**LAMP Stack**
- Linux Kernel/Ubuntu v.12.04.3
- Apache Web server v2.2.22
- MySQL Database Management v14.14
- PHP Server-side scripting v5.3.10

**JavaScript Library for Front-End Scripting**
- jQuery v1.11.1

**Front-End Templates**
- Bootstrap v3.2.0

**Web Application Framework**
- PHP v.2.5.4

**APIs**
- Google Maps Embed
- Social Network Login (LinkedIn)

**Supported Browsers**
- Latest: Firefox/Chrome/Internet Explorer

## **Team:**

**Dhruv:**      -Team Lead
               - API & front-end developer

**Gilbert:**    - SVN admin
               - Back-end developer

**Kumari:**    - Database Management
               - QA tester

**Kevin:**      - Back-end developer

**Jordan:**    - Documentation
               - Front-end developer