SW Engineering CSC648/848 Section 01 Fall 2017

Milestone 1- Team 10
Future Homes

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Executive Summary

Our new product, Future Homes, is a real estate website that allows users to buy, sell, and rent houses and apartments. Users have the capability to browse local listings for local homes and apartments sale/rent, add listings to their favorites list (which can be viewed at any time), and contact local real estate agents and landlords to inquire about listings. Future Homes works with actual real estate agents and landlords in several locations with the purpose of bringing users a pain-free home purchasing/renting experience.

The main features of our site include: a search bar that shall prompt the user to enter an area (city/zip code) to search for homes; a features bar which shall provide additional features for the user to specify which listings they would like to see; and a sorting bar, which shall allow the user to sort based on price/bedrooms/bathrooms/features. Each individual listing shall have a map showing the location of the property relative to the search area, as well as pictures of the actual property.

Here at Future Homes, we pride ourselves on providing our users features that are not available with other competing services. For example, Craigslist has listings that do not always have pictures of the property, nor is there a feature for comparing your top choices. On the Future Homes website, users will be able to select up to four houses and receive a side by side comparison of the specs of each home. This will allow users to easily decide which listing they like best.

Future Homes is comprised of senior Computer Science students at San Francisco State University. The team lead and CEO is Raymie Michael. The lead back-end developer is Justin Zhu, and the backend developer is Peter Cruz. The lead front-end developer is Sohaib Syed, and the front-end developer is Dilraj Singh. The Senior Developer is Mrinalini Garre. Together, they created Future Homes with the purpose of filling a need in the real estate market that is not found nowadays - a product that displays local housing, backed by local real estate agents and local landlords.

Use Cases

Seller: Sally is a real estate agent. She wants an easy and convenient way to advertise her houses for sale. Using an online platform such as Future Homes for her listings will widen her clientele. Since she is an agent from a reputable firm, she can log on by following the simple ***step-by-step guide*** to create an ***account***. She now has the ability to upload images and edits information about her property listings to Future Homes' website. Now, if a potential buyer uses a search engine to look for houses for sale in his or her desired area, Future Homes' listings will appear and the buyer is aware of Sally and her firm.

Unregistered User: David is on the market for a new home that will be large enough for his family of four. He uses Future Homes' diverse ***features bar*** to sort through the many homes in his area. After David has entered his desired city in the ***search bar***, he then increases the ***minimum number of rooms*** in order to limit his search to homes with the right number of bedrooms. Now David does not need to look at unnecessary homes. David's family tells him that they really want a pool in their new home, and with Future Homes' website, he can search through homes that have a pool. If David is interested in a home, he can contact the real estate agent and provide his information in order to set up a meeting.

Registered User: Tom is a transfer student at SFSU; he is new to San Francisco so he is searching for a house to rent. He searched through the Future Homes' website ***search bar*** for a room to rent near campus. As the search results provided many homes near SFSU, he ***sorted*** the search by number of rooms. Tom wants to make sure if he will meet his expenses and filtered the search by adding the range of his budget. According to his search the houses appeared in an increasing order with minimum number of rooms and which are of low price. Tom had his priorities so he finalized one by searching a house with lease length of 1 year. Tom cannot decide between three rooms, so he makes a ***side-by-side comparison*** on the Future Homes' website.

Administration: Sara is a software engineer at Future Homes' company. She is the one in company who has all the permissions for the Future Homes' website. She manages the

accounts of sellers, buyers, renters by providing the necessary ***permissions*** to them. Sara is busy every Wednesdays working on the maintenance of website and checking accounts. She found unnecessary data in the listings and performed a ***clean-up*** to improve the user experience. The manager of the Future Homes' company asked Sara to secure the website from frauds who are posting fake information about the houses. Sara found a way by allowing users to ***flag*** an inappropriate post so she will be notified about post. Whenever Sara gets notified about a post she removes the permissions for the account holder to access the website.

Data Definitions

a. ***account:*** Real estate agents, real estate firms, and buyers/browsers are able to create an account which will include features unavailable to those without an account (i.e. contact agent if you are a buyer or upload photos if you are a seller)
b. ***administration:*** the hired administration of our site will have the ability to view flagged listings and remove them if necessary
c. ***buyer:*** a user who is looking to potentially buy/rent a listing on our website
d. ***clean-up:*** if a listing is inappropriate, then there will be a removal of the inappropriate listing
e. ***features bar:*** allows the user to specify the type of homes that will appear in a more detailed way
f. ***flag:*** any user will be able to flag a listing if he or she deems it inappropriate
g. ***maximum price:*** Another feature of the search tools which will allow the user to choose from some list of prices making it the maximum price the list of homes will have.
h. ***minimum number of rooms:*** A feature of the search tools which can prompt the user to add or subtract the minimum number of rooms.
i. ***permissions:*** depending on if a user if registered or not, there will be special features available to each.
j. ***search bar:*** shown when the website is initially launched; used for entering a city or zip code.
k. ***property listings***: this website will list many different types of property such as homes, apartments, condos, town homes, homes for rent, and land.
l. ***registered user:*** a user with an account (see account)
m. ***seller:*** a registered user who can be either a licensed real-estate agent or individual landlord
n. ***side-by-side comparison:*** a feature of Future Homes which consists of a specs page of up to four favorited homes of a registered or unregistered user. The user will be shown the price, square footage, address, number of rooms, number of bathrooms, and year built of every home side-by-side to easily choose their future home.

o. ***step-by-step guide***: when a user is making an account, there will be a set of instructions to follow. This guide is integrated into the steps of signing up; a description for each step is only written when the user can actually do the step.
p. ***unregistered user:*** a user is allowed to browse through all of our listings without creating account; however, they will not have the ability to contact the real-estate agent or landlord

Initial List of Functional Requirements

1. Users shall be prompted to enter a city or zip code into the search bar.
2. Users shall have access to a features bar which will further sort the listed homes.
3. Users shall specify their desired minimum number of rooms of a home and see those homes first.
4. Users shall specify their desired maximum or minimum price of a home and see those homes first.
5. Users shall be able to sort the homes from lowest to highest price, highest to lowest price, most recently added, or most to least amount of rooms.
6. Users shall have access to information about the listing's real estate agent.
7. Users shall be able to submit a form providing their name, phone number or email, and additional comments if preferred in order to send to a real estate agent.
8. Sellers shall have an inbox of forms submitted by potential buyers.
9. Future Homes' website shall list homes, rooms for rent, pieces of land, condominiums, apartments, and town homes that are available or have been recently sold.
10. Future Homes' website shall enable users to register for an account if desired.
11. Future Homes' website shall provide additional features for a registered user such as a save-for-later feature, pictures of sold homes, and more.
12. Sellers shall be required to register before uploading listings.
13. Users shall have the ability to flag an inappropriate listing.
14. Admins shall have the ability to view flagged listings and take them down if necessary.
15. Users shall use the side-by-side comparison feature to compare specs/previews of up to four homes all on one page.

List of Non-Functional Requirements

1. Application shall be developed and deployed using class provided deployment stack.
2. Application shall be developed using pre-approved set of SW development and collaborative tools provided in the class. Any other tools or frameworks must be explicitly approved by Anthony Souza on a case by case basis.
3. Application shall be hosted and deployed on Amazon Web Services as specified in the class.
4. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of all major browsers: Mozilla, Safari, Chrome.
5. Application shall have responsive UI code so it can be adequately rendered on mobile devices but no mobile native app is to be developed.
6. Data shall be stored in the MySQL database on the class server in the team's account.
7. Application shall provide real-estate images and optionally video.
8. Maps showing real-estate location shall be required.
9. Application shall be deployed from the team's account on AWS.
10. No more than 50 concurrent users shall be accessing the application at any time.
11. Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
12. The language used shall be English.
13. Application shall be very easy to use and intuitive. No prior training shall be required to use the website.
14. Google analytics shall be added.
15. Messaging between users shall be done only by class approved methods and not via e-mail clients in order to avoid issues of security with e-mail services.
16. Pay functionality (how to pay for goods and services) shall not be implemented.
17. Site security: basic best practices shall be applied (as covered in the class).
18. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.

19. The website shall prominently display the following text on all pages *"SFSU Software Engineering Project, Fall 2017. For Demonstration Only"*. (Important so as to not confuse this with a real application).

Competitive Analysis

website / feature	*Future Homes*	Realtors	New Home Source	KBHome	See Bay Area Houses
Rental	✓	✓	×	×	×
Side-by-Side Comparison	✓	×	×	×	×
Communication	✓	✓	✓	✓	✓
News	×	✓	×	×	×
Home-Value Estimator	×	✓	×	✓	×
Maps	✓	✓	✓	✓	✓
Unregisters browsing	✓	✓	✓	×	×
Featured Listings	✓	✓	✓	×	✓
Mortgage Calculator	×	✓	×	✓	×

✓	Indicates that the feature is available on specified website.
×	Indicates that the feature is not available on specified website.

High-Level System Architecture

Tools:
Git, (version 2.7.4)
GitHub

API:
Google Maps
Google Analytics

Front End:
AngularJS (version 1.6.6)
HTML
CSS
SASS (481)
LESS (3.4.21)
Bootstrap (version 4.0.0)

Back End:
node.js, (v8.4.0)
Express (4.16.1)
npm (3.5.2)
pm2 (2.6.1)
Host: Amazon Cloud
Operating System: Ubuntu Server, (version 16.04)
NGINX, (version 1.12.1)
database: MySQL, (version 5.7.19)

Supported Browsers:
Most recent two versions of the following:
Google Chrome, Mozilla Firefox, Apple Safari

Team

Team Lead: Raymie Michael

Front End Lead: Sohaib Syed

Front End Developer: Dilraj Singh

Back End Lead: Justin Zhu

Back End Developer: Peter Cruz

Front/Back End Developer: Mrinalini Garre

Checklist

- Team decided on basic means of communications - DONE
- Team found a time slot to meet outside of the class- ON TRACK
- Front and back end team leads chosen- DONE
- Github master chosen- DONE
- Team ready and able to use the chosen back and front end frameworks- ON TRACK
- Skills of each team member defined and known to all- DONE
- Team lead ensured that all team members read the final M1 and agree/understand it before submission- DONE