

Home Clear

Bringing Transparency to Real Estate

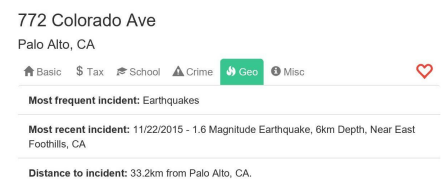
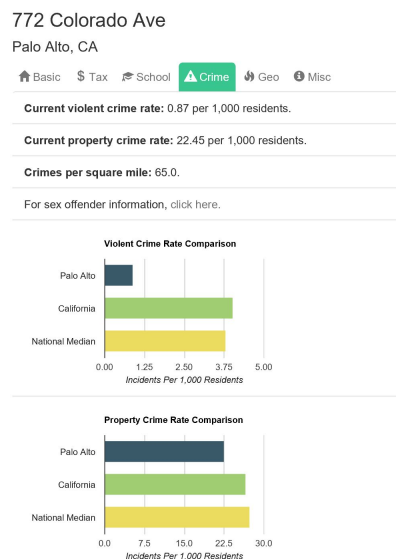
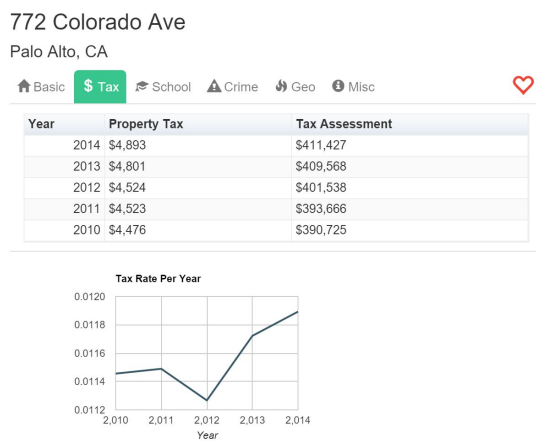
By Team Soupy Good Cup:

Alexei Bastidas - Back-end
Austin Connelly - Front-end
John Valentine - Public Relations

Prototype Available at: <http://104.131.145.11/>
Source Code at: <https://github.com/chonbas/homeclear>

Problem and Solution Overview:

Moving into a new home is a critical part of people's lives. Unfortunately, it is also an extremely stressful stage as buyers and renters are faced with uncertainty and conflicting information regarding their future home. At Home Clear, we strive to remove this stress by aggregating any and all information relevant to a home and providing it as a service to buyers. In doing so, we hope to empower buyers to make well-informed decisions, without having to worry about unexpected surprises.



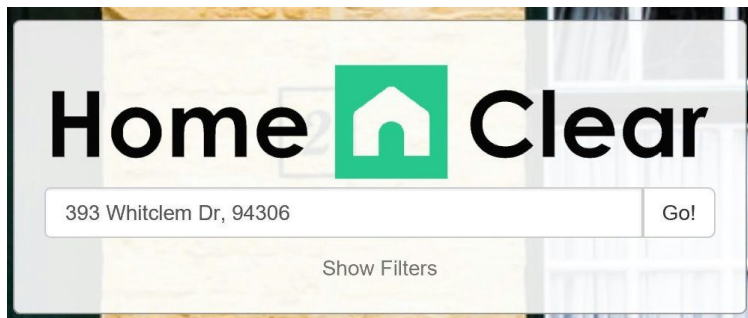
Samples of different data tabs in our Report View

Tasks & Final Interface Scenarios:

1. Find a report for a specific home:

- Low Complexity task wherein a buyer already has a house picked out and wants to verify and supplement information they already gathered from a realtor.
- We chose this task as often times individuals use both online tools as well as realtors to manage their home buying experience. Because of this, many buyers already have a specific house in mind when they start their research.

Simply search for a specific address and our built-in search parser will redirect you to the specific report.



prev next

393 Whitclem Dr

Palo Alto, CA

Basic Tax School Crime Geo Misc



Listed price: \$1,998,000.00

Area: 1871sq.ft.

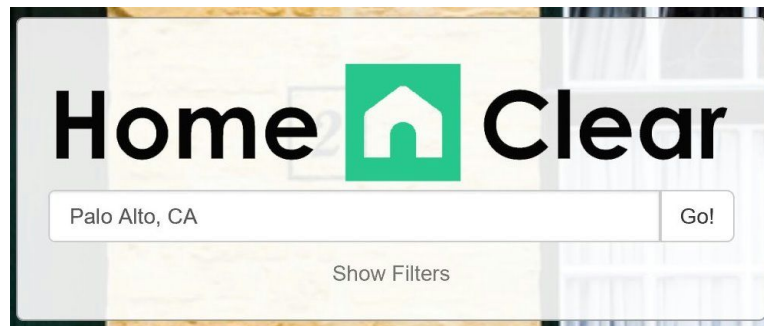
Lot Area: 5427sq.ft.

Bedrooms: 3

2. Find listings in an area:

- Medium Complexity task wherein a buyer is starting their research process and wants to find listings in a city or zipcode.
- We chose this task as it is the most commonly used feature of real-estate based applications - searching for a new home.

Simply search for a city name and state, or a zipcode and the built-in search parser will direct you to listings view:







HomeClear

Login Register Enter an address or zipcode Go! Filters Favorites

Map Satellite

48 search results for Palo Alto, Ca

Sort View Lots

-  1. 2088 Channing Ave
Palo Alto, CA
\$2,888,000.00
3308 sq.ft
BedRms: 4 BthRms: 4
-  2. 3851 Nathan Way
Palo Alto, CA
\$2,450,000.00
1880 sq.ft
BedRms: 4 BthRms: 3
-  3. 3289 Berryessa St #405
Palo Alto, CA
\$1,058,888.00
1047 sq.ft
BedRms: 1 BthRms: 1
-  4. 3105 Louis Rd
Palo Alto, CA
\$2,898,000.00

3. Find lots in an area:

- Medium-high Complexity task where rather than looking for a home, a buyer is looking for lots of land to develop into either their own dream home, or potentially a business venture.
- We chose this task as we realize part of the real-estate market is interested in developing land rather than buying a pre-built home. Notably, one of the inspirations for our application was a land-developer we interviewed during our need-finding round that let us know of his experience using five different pieces of software to research a potential buy.


Simply search for a city name and state, or zipcode to generate listings. From listings view, click on 'View Lots' to filter the listings and see only those that have land attached.

Home Clear

East Palo Alto, CA

Listings 12 search results for East Palo Alto, Ca


Sort ▾


 1. 2288 Tuscany Ct
East Palo Alto, CA
\$990,888.00
1856 sq.ft
BedRms: 4 BthRms: 2.5


Map Satellite


Lots 9 search results for East Palo Alto, Ca

Sort ▾

 1. 2288 Tuscany Ct
East Palo Alto, CA
3381 sq.ft
\$990,888.00

 2. 2290 Pulgas Ave
East Palo Alto, CA
5096 sq.ft
\$767,000.00

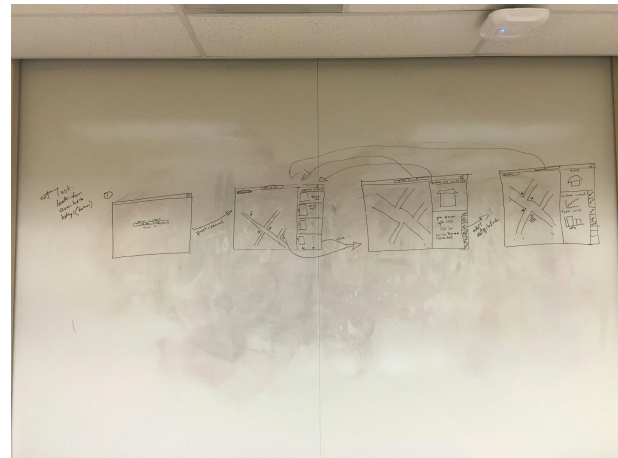
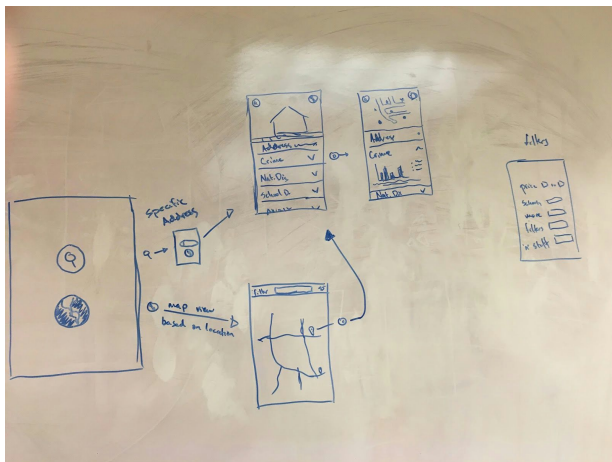
 3. 2238 Lincoln St
East Palo Alto, CA
10454 sq.ft
\$1,500,000.00

 4. 2647 Gonzaga St

Design Evolution

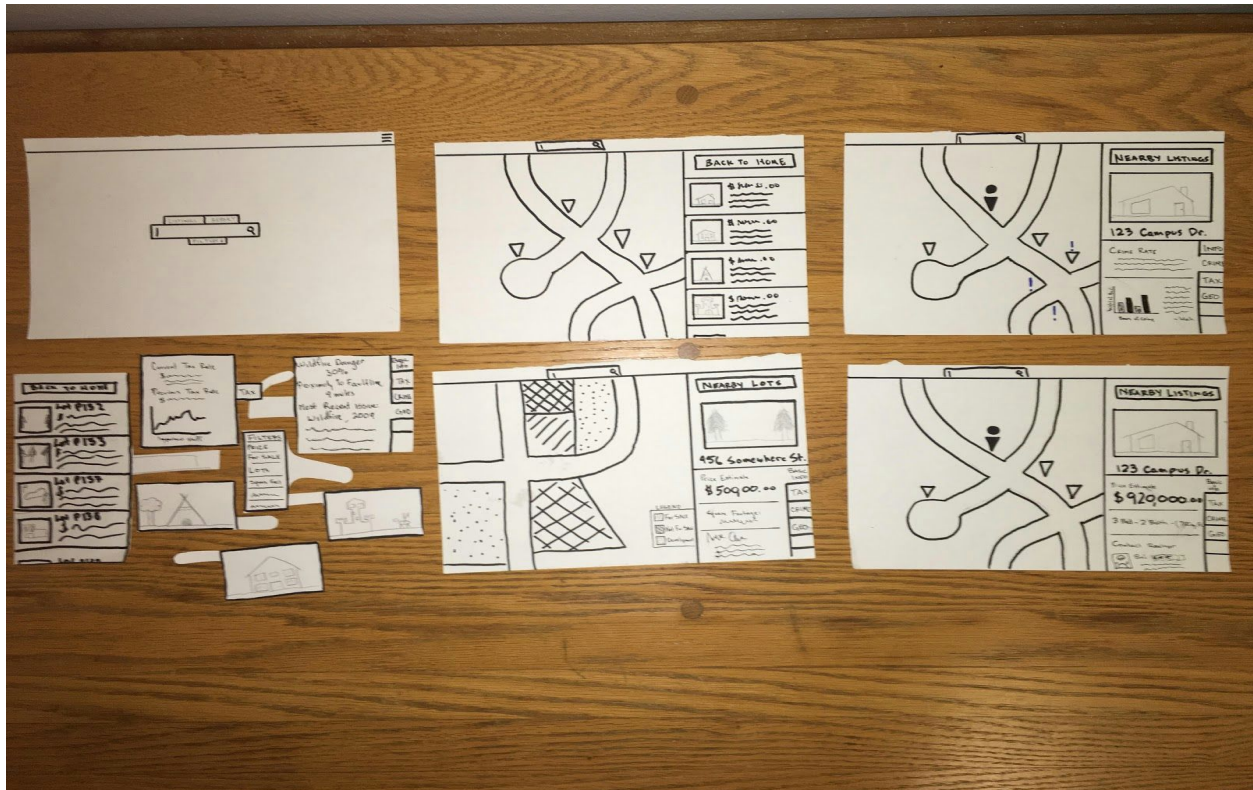
Initial Sketches:

When creating our preliminary sketches, we set out to explore as many options as possible. We sketched designs for tablets, phones, and web apps. We opted to leave in as many features as we could, knowing that we could streamline the product in future iterations. After sketching out everything our team came up with, we put our heads together and settled on a web-based design that set the foundation for (and reflected most of) our final product. We chose to build a website because exploring Home Clear on a desktop made the most logical sense from the user's perspective. More information can be displayed in a browser, and users might often be viewing the product with spouses or family members.



Lo-fi Prototype

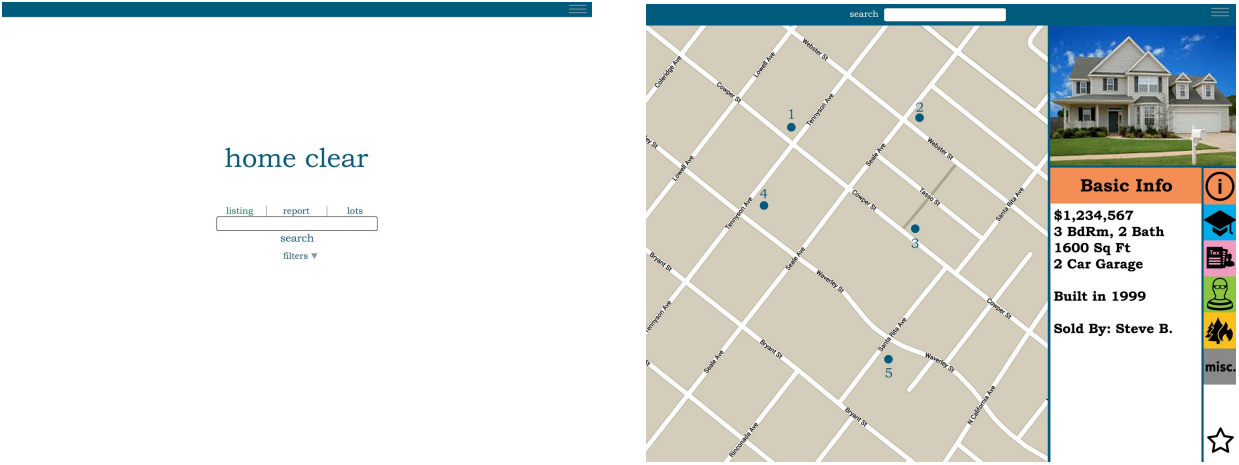
Once we had decided on a design, we chose the features we thought most important, and drew up a lo-fi prototype. Our sketches were drawn with the lo-fi prototype in mind, so it closely resembles our latter sketches.

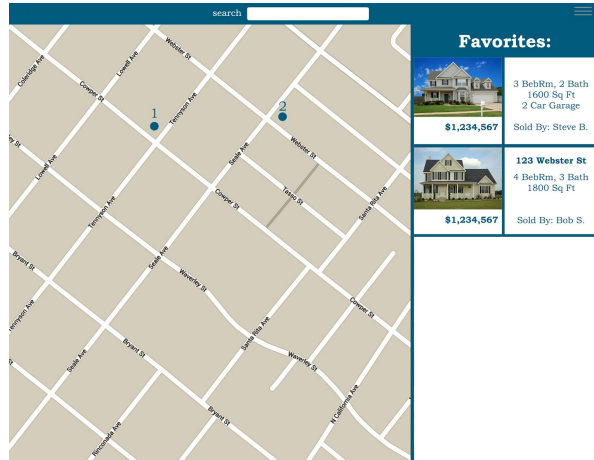
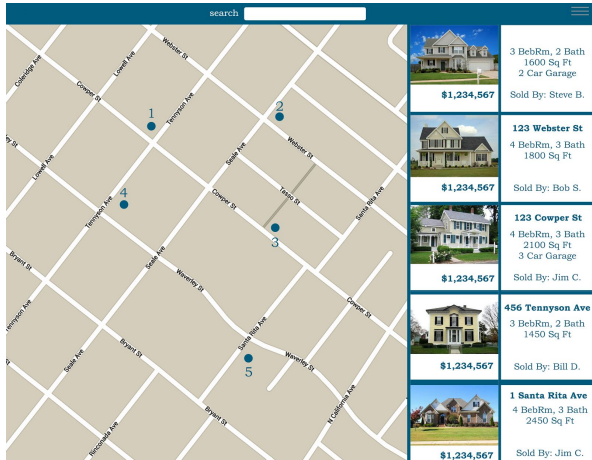


We chose to include four main screens. A home page, a report page for an individual home/lot, and two pages to show search results—one for homes and the other for lots. Perhaps the largest design decision we made during the sketching and lo-fi prototyping stages was the decision to keep our UI as consistent as possible. Rather than have multiple views that show either a full screen map and a full screen report, we chose to only have split views. To users, this meant a website that was more intuitive and easy to navigate. To our team, a consistent interface meant saving development time and more streamlined task flows.

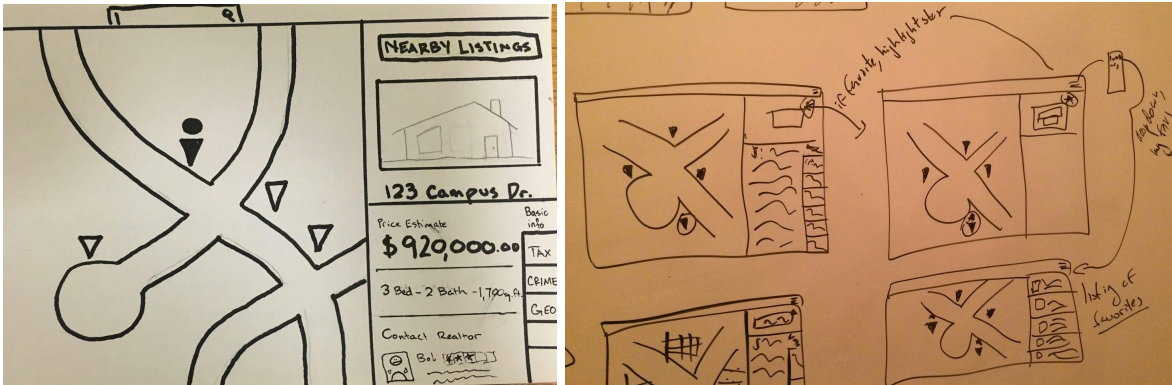
Medium-Fi Prototype

After testing our first prototype, we took into consideration all of the feedback we received, incorporating it into the medium-fi prototype below.





Our first addition to this iteration and the most significant piece of feedback on our paper prototype we received regarded a favoriting system and the ability to compare homes side-by-side. The resulting design changes were implemented with stars on a report page that lets users ‘favorite’ any home to view later in a listings-style view of all their favorite homes.



Another important design change was made to the home screen. Our testers had trouble filtering their search for lots, so our medium-fi prototype included a tab above the search bar that let users search directly for lots. This made logical sense as we already had “reports” and “listings” tabs in our previous prototype, and adding a third seemed the simplest way to solve this problem.

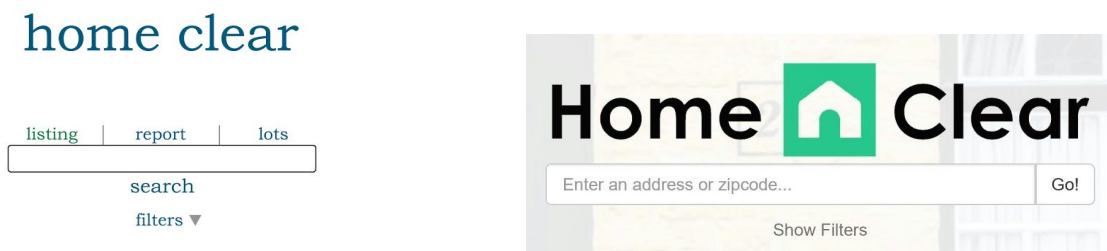


Major Usability Problems Addressed:

During our iterative process as well as based on feedback from our Heuristic Evaluation, we discovered there were three key categories in which our Medium-Fi prototype was lacking.

Streamlined Search:

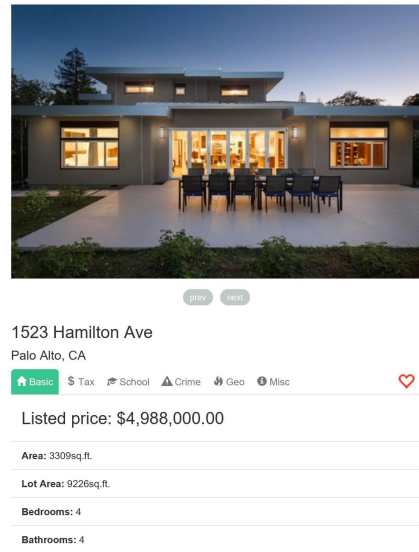
The search screen in our Medium-Fi prototype involved three tabs to direct a search into either listing, report, or lot view. Both our Heuristic Evaluators and us felt that this was an unnecessary interface element as we could use parsing to detect the user's search intention. We also felt that 'Lots' view would be such a small case for searching that rather than include it as a filter or search tab, we could make a toggle in listings view to go back and forth between listings and lots.



Launch Screen: Medium fi on left, High fi on right

Inconsistent Information:

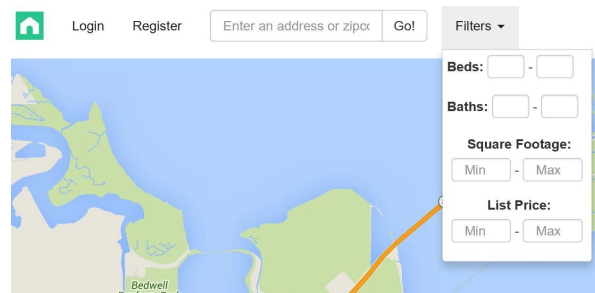
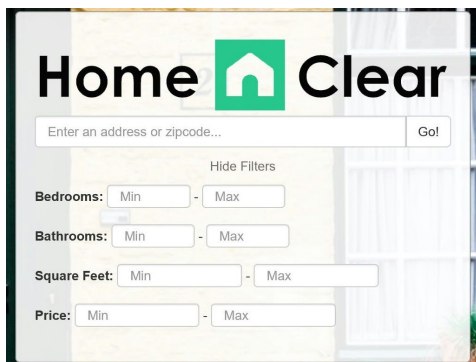
Our Medium-fi report view was overly cluttered with icons, bulky fonts, and didn't even display the address of a listing. In particular, evaluators noted the icon for 'Basic Info' resembled that of a 'Misc Info' icon, and the grey bar behind the section headings was overly distracting. These were all duly noted during our review of our heuristic evaluation, and as we crafted the report page for our high-fidelity prototype we re-designed the look of it. The new report page is cleaner, with a color scheme that is consistent across the entire site.



Report View : Medium fi on left, High fi on right

User Control and Freedom:

One of the biggest criticisms in our Heuristic Evaluation was the lack of sorting and filtering in the medium-fi prototype. We completely agreed with these criticisms and fully implemented them for our high-fidelity prototype. By adding both filtering and sorting we streamline the research process for potential buyers by allowing them to limit and parse their own search results based on their needs and limitations.




Filters are included in the home screen and navbar. Sorting is implemented into all list-based views such as listings, lots, and favorites:

Listings 2 search results for 94305

Sort View Lots

- Price - ↑
- Price - ↓
- Square Footage - ↑
- Square Footage - ↓
- Bedrooms - ↑
- Bedrooms - ↓
- Bathrooms - ↑
- Bathrooms - ↓



1. 787 Mitchell Ave
Stanford, CA
\$2,495,000.00
2602 sq.ft
BedRms: 4 BthRms: 3


Editing Favorites:


Our medium-fi prototype did not allow for editing of favorites from favorites view. To fix this issue, and maintain a consistent interface, our new favorites page is a modified listings/lots view. This way, favorites are presented on the map and in a list, but you also have the ability to sort them and remove them by simply clicking on the heart.


This functionality is preserved across all views -- you can add and remove from your favorites from the report, listings, lots, and favorites screens.


Favorites 7

Sort View Lots

- 

1. 1932 Emerson St
Palo Alto, CA
\$7,988,000.00
5310 sq.ft
BedRms: 6 BthRms: 6
- 

2. 1130 University Ave
Palo Alto, CA
\$3,398,000.00
2925 sq.ft
BedRms: 5 BthRms: 3
- 

3. 2719 Greer Rd
Palo Alto, CA
\$2,200,000.00
1906 sq.ft
BedRms: 4 BthRms: 3
- 

4. 344 Grant Ave
Palo Alto, CA
\$995,000.00

Prototype Implementation:

Our high fidelity prototype was implemented for the web and available at <http://104.131.145.11>. In order to implement it we utilized Flask, a web framework for Python, to build the back-end, and Bootstrap with jQuery to create the front-end functionality.

Tools:

Flask proved to be a great choice in a web-framework as it is extremely



modular, lightweight, and easy to learn.

For our database, we used the ORM SQLAlchemy along with a SQLite database. SQLAlchemy allows us to



abstract away a lot of the database maintenance and need for using the SQL language by providing an easy to use Python interface. We are using a SQLite database at this time as since we are still in the prototyping phase, the database undergoes frequent changes. By using SQLite we can just wipe the database and reinitiate it as needed instead of migrating and joining.



Front-end wise, Bootstrap provided us a great starting point by providing a grid based responsive system. This allowed us to create the site layout and test functionality in a straight-forward manner. Once we had settled on a good layout, our front-end developer, Austin, was able to go through and re-style the different Bootstrap classes to give our site a more personalized look.

jQuery and Javascript allowed us to implement client-side sorting as well as a photo-carousel to flesh out our features in a non-intrusive manner. In particular, we used Tiny sort to implement our sorting and Owl-Carousel for the photo carousels.



To implement our search feature as well as the map view, we relied on the Google Maps API. Upon receiving a

search string, we parse it using the Python Usaddress module. Usaddress uses natural language processing methods to parse a string and specifies if it is a specific address or an area address. If the address is a specific address, we can make a request to Google to get the latitude and longitude coordinates and try to match it to the listings in our database. Else, we make a query to our database to pull all listings that match the city name or zipcode.

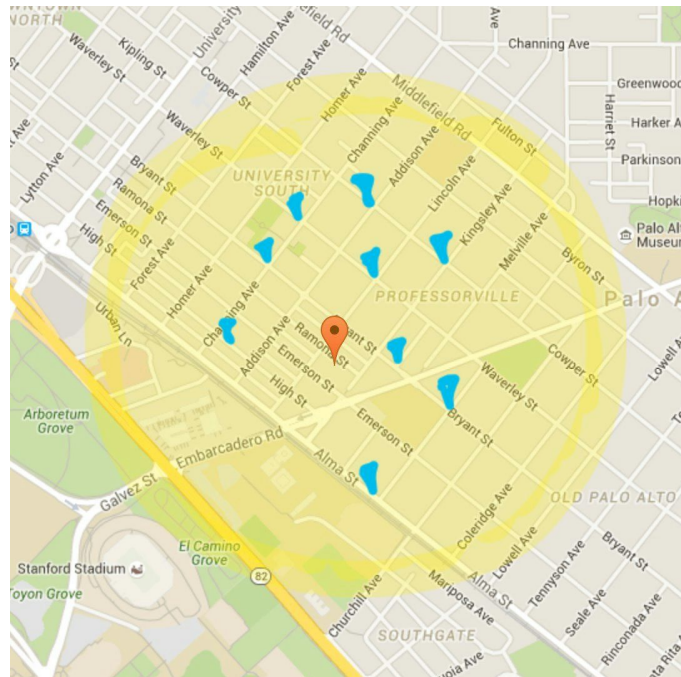
Data:

```
1 ; 1116 Ramona St ; Palo Alto ; CA ; 94301 ; 2789 ; 5619 ; 4 ; 4 ; 4,500,000 ; Michael Dreyfus ;  
2 ; 280 Waverley St ; Palo Alto ; CA ; 94301 ; 865 ; 1250 ; 2 ; 1 ; 1,049,900 ; Kim Connor ; 1973 ;  
3 ; 725 Center Dr ; Palo Alto ; CA ; 94301 ; 3424 ; 9374 ; 5 ; 5 ; 4,998,000 ; Michael Dreyfus ;  
4 ; 405 Marlowe St ; Palo Alto ; CA ; 94301 ; 6075 ; 10,454 ; 6 ; 7 ; 9,495,000 ; Zach Trailer ;
```

We don't have any Wizard of Oz techniques, but we did hardcode all the 80+ listings in the Palo Alto / East Palo Alto Area. In order to do this, we wrote a few Python scrapers to pull data and images on listings from multiple sites and build a text file with all the information related to specific listings. We then import this file directly into our SQLite database. Even though this data is hard-coded, it is all actual data - including the tax information as well as crime data. Similarly, all the images are actual images of the home and are stored on the server.

Future Iterations:

Moving forward, we would like to fine-tune our data aggregation and display methods. As noted above, the data was scraped from multiple sites but it is not as specific as we would like. In particular, we would like to tailor the data down to a small radius around the home and plot recent events onto the map. By creating a series of overlays for crime, school, and geographic information we believe we can truly create a full picture about the home and the neighborhood.



Other features we could add would be additional data tabs, for things such as public transportation, neighborhood activities and events, utilities, etc. Moreover, in terms of monetizing, we would rather not resort to ads but rather integration with other neighborhood based apps such as MeetUp, Yelp, FourSquare, etc. This way we could provide future home buyers information not just about the safety and quality of their neighborhood, but also information on what they could do in a particular area of town.

Summary:

Overall, we feel that our high-fidelity prototype was a success. From a technical standpoint, we implemented: search parsing, user logins, sorting, filtering, favoriting (both by user and through browser cookies), and a full back-end that preserves our data. While the prototype can certainly benefit from more iterations, particularly for data aggregation and localization, we believe the current state is a faithful representation of our vision for the product. We are excited to potentially keep working on the project, especially since the feedback we received during the Project Fair was all positive. In fact, our conversations during the Fair solidified our position that our product is viable in the market and is something people could and would use during their homebuying experience.