# Heuristic Evaluation of HomeClear

## 1. Problem

The HomeClear medium-fi prototype, hosted by InVision and designed for a tablet interface, is a house- and land-focused search engine for potential home-buyers.

## 2. Violations Found

**1. [H2-5: Error Prevention] [Severity 4] [Found by: A, B, C]**
It is unclear what should be inputted by the user in the 'search' bar on the home screen for each task. Users unfamiliar with your application could search anything from location to price to house characteristics. We suggest having default grayed text to tell the user what to input (i.e. address for the 'report' option and 'zip code' for the lots/listings options)

**2. [H2-8: Aesthetic & Minimalist Design] [Severity 1] [Found by: A, C]**
Some screens were too large for the iPad format due to the number of listings and you had to scroll to get to the top or bottom. This impairs user efficiency, especially in the case where a search returns a large number of results. We recommend keeping the top blue bar with the drop down menu fixed to the top and making the listings/favorites bars scrollable.

**3. [H2-5: Error Prevention] [Severity 2] [Found by: B, C]**
It was unclear how the filters could be used for the 'report' and 'lots' options. We recommend only having the filters option appear in the 'listing' mode. If there are filters available for the 'lots' mode, We also suggest having a different set of filters pop up when in 'lots' mode.

**4. [H2-2: Match Sys & World] [Severity 2] [Found by: B, C]**
Tapping the 'favorite' star should not take you away from the current listing as it is not a recognized behavior that is standard in other applications. It also prematurely takes the user out of their search, without providing an option to return. Tapping the 'favorite' should only color the star and let the user continue to browse that listing.

**5. [H2-8: Aesthetic & Minimalist Design] [Severity 1] [Found by: C]**
There should be borders between the first listing and the top of the screen and the last listing and the bottom of the screen so that all of the listings look the same.

**6. [H2-4: Consistency & Standards] [Severity 2] [Found by: C]**
The very first listing in does not show the address. All listings should have consistent formatting.

**7. [H2-6: Recognition not Recall] [Severity 3] [Found by: A, C]**
There is no way to know the address of the current listing in detailed view without having to explicitly remember the address from the previous listings page. We recommend including the

address of the current listing being view somewhere on the screen as well as highlighting or circling the associated number of the listing on the map. An example would be, "Searched for: Palos Verdes, CA, 2 bedrooms"

**8. [H2-2: Match Sys & World] [Severity 4] [Found by: A, C]**
Tapping the search button on the report page takes you to the 'listings' search result page, regardless of what tab the user was originally in. The user is given no indication of the tab change. Add functionality that supports user searches with results found within the same tab.

**9. [H2-4: Match Sys & World] [Severity 1] [Found by: B, C]**
The information on the listings don't follow the common{attribute: information} style found in other apps. We suggest marking attributes like "Bath 3" instead of "3 Bath." We also recommend distinguishing the attribute name from the attribute description to make it clear that this is information to be found in every detailed report (maybe putting the attribute name in bold font, and the attribute description in regular font).

**10. [H2-2: Match Sys & World] [Severity 3] [Found by: A, B, C]**
The 'Sign In' option on the drop down menu does not take you to a sign in page, but rather the home page. We recommend changing that option name to 'Home'.

**11. [H2-2: Match Sys & World] [Severity 4] [Found by: A, C]**
In 'reports' mode, there are multiple numbers on the map. It is unclear what these numbers refer to if 'reports' mode is address specific. We recommend either showing only the address entered in the search when in 'report mode' or labeling the listings with their corresponding numbers.

**12. [H2-4: Consistency & Standards] [Severity 2] [Found by: C]**
The 'lots' listing page pairs each lot with its number on the map while the 'reports'/'listings' listing pages do not. We recommend associating every listing with its number on the map on every screen.

**13. [H2-3: User Control & Freedom] [Severity 3] [Found by: C]**
It is unclear how something can be removed from favorites. We recommend having an unfavorite functionality that requires simply retapping a colored star as well as well has having an 'edit' option in the favorites tab.

**14. [H2-7: Flexibility & Efficiency of Use] [Severity 2] [Found by: C]**
Favorites cannot be ordered. We recommend numbering the favorites, as house hunters usually rank their favorites.

**15. [H2-3: User Control & Freedom] [Severity 4] [Found by: A, B, C]**
The only way to get back to see all of the search results in 'listing' mode is to reenter a search. We recommend implementing a 'back' or 'see all results' feature that lets the user return to see all the listings after going into the detailed view.

**16. [H2-3: User Control & Freedom] [Severity 3] [Found by: B, C]**
To alter the filter criteria, the user must start the search completely over. There should be a dropdown menu next to the 'search' bar on the results page in 'listing' mode that lets the user alter some of the filters without having to go back to the home screen.

**17. [H2-4: Consistency & Standards] [Severity 1] [Found by: C]**
The 'misc.' tab in the detailed view does not conform to the formatting of all the other tabs. We recommend either adding text descriptions to all of the tabs or finding some sort of image to incorporate the 'misc' tab similar to how the word 'tax' is embedded in the 'tax' tab icon.

**18. [H2-2: Match Sys & World] [Severity 1] [Found by: B]**
The info icon looks like a button to get more information about the product, not about the house listing. We recommend using a different icon that's more relevant to home listings, such as a home icon.

**19. [H2-10: Help & Documentation] [Severity 2] [Found by: C]**
It's not initially obvious that you can click on the image of the home to see more images. We recommend making that functionality more explicitly, either through a tooltip or some other informative measure.

**20. [H2-1 Visibility of system status] [Severity 2] [Found by: A]**
When clicking through the pictures when verifying information on a specific home, the transition between pictures removes all visual parts of the slideshow. That leaves no indicator to differentiate between two system states: the wait for the next picture to load and the end of the entire slideshow. Modify the features so that the slideshow buttons remain on screen while the next picture loads, so that the user knows when to expect a new picture to pop up.

**21. [H2-8: Aesthetic & Minimalist Design] [Severity 1] [Found by: A, C]**
The color scheme on the 'lots' map is not aesthetically clean. There are 8 different colors on the same screen. We recommend choosing to use only 2-3 colors. Alternatively, you could copy the format of the 'listings' page and only worry about coloring lots that are available for sale/viewing and are numbered.

**22. [H2-4: Consistency & Standards] [Severity 3] [Found by: C]**
The lots do not have addresses associated with them. We recommend including the address of each lot in the 'lots' search result page.

**23. [H2-4: Consistency & Standards] [Severity 2] [Found by: A, B, C]**
 When in 'lots' mode, tapping the drop down menu makes the menu appear in the middle of the screen. This is not consistent with the behavior of the drop down menus in other modes, and we suggest making the behavior of the drop down menu in 'lots' mode mirror the behavior in the other modes.

**24. [H2-7: Flexibility & Efficiency of Use] [Severity 3] [Found by: B, C]**
Tapping view favorites in 'lots' mode brings you back to favorites from other modes and changes screens entirely. We recommend having different tabs in favorites for each mode so that when the user goes to the favorites from 'lots' mode, the user sees only favorited lots but also has the option of viewing favorites from other modes if he/she so desires.

**25. [H2-6: Recognition not Recall] [Severity 3] [Found by: C]**
Favorited items only appear in the 'favorites' list. We recommend having favorited items starred in the 'listings' and 'lots' search results pages as well so a user does not try to favorite a listing more than once.

**26. [H2-8: Aesthetic & Minimalist Design] [Severity 1] [Found by: A, C]**
On the home screen, selecting a tab changes the color of the tab to green. It is hard to distinguish between the blue and the green, and we recommend either changing color schemes completely (ex. black and gray), or making it much more obvious which category has been selected by altering the font size and font weight of the selected category.

**27. [H2-6 Recognition rather than recall] [Severity 3] [Found by: A]**
There is no label on the map interface identifying whether the user is using the "Listing", "Report", or "Lot" tab. As the "Listing" and "Report" screens look remarkably similar, users can become confused with which features they have access to depending on what tab they selected. Add the tab name to the top of the map interface, next to the search bar.

**28. [H2-7 Flexibility and efficiency of use] [Severity 3] [Found by: A]**
An expert user of the application would complete multiple search queries, sometimes many in a row to par down to the best results. Information on an user's previous search queries would allow flexibility in how the user returns to listings he/she had viewed before. Consider adding a breadcrumbs header to the top of the screen.

**29. [H2-8 Aesthetic and minimalist design] [Severity 1] [Found by: A]**
The gray menu button at the top right hand corner of the screen blends into the gray-ish blue background, making it difficult to navigate back to the search bar on the home page or see Favorites. The would prevent users from completing the desired tasks. Either change the color of the menu button to white, or use a more obvious menu button, such as one that says "Menu."

**30. [H2-2 Match Sys & World] [Severity 2] [Found by: A]**
The term "Sold by" used in the home listings in the "Listings" tab is misleading to the user. It insinuates that the home has already been sold, but in fact, the home is on market to be sold. Change the term to "Being sold by" or "Brokered by".

**31. [H2-4 Consistency and standards] [Severity 3] [Found by: A, B]**
In the information tabs on a specific home, there are two graphs, one on taxes and the other on crime. The graphs lack titles and legend, leaving users unsure about (1) what the graphs are showing and (2) whether or not their information are related. Design graphs that are clearly labeled and concise.

**32. [H2-8 Aesthetic and minimalist design] [Severity 1] [Found by: A]**
The black text of "Basic Info" on the information tabs for a specific home is muted by its dark gray background, making it difficult for some users to read. Consider choosing a lighter gray for the background, or make the background black and the text white.

**33. [H2-8 Aesthetic and minimalist design] [Severity 4] [Found by: A, B]**
The information contained within the "Listings" and "Reports" tab overlap and it's difficult to distinguish the difference between the two; all information under "Reports" can be accessed through "Listings". To maximize simplicity and user-friendliness, consider removing the "Reports" tab entirely.

**34. [H2-4 Consistency and standards] [Severity 1] [Found by: A]**

The text for listings on the interface for the "Lots" tab is navy blue, while the text for listings on the interface for the "Listing" or "Report" tabs is black. To keep the colors consistent, change the text color for the "Lots" interface to black.

### 35. [H2-10 Help and documentation] [Severity 3] [Found by: A]
The map interface for the "Lots" tab utilizes many different colors, yet there is no information on what the colors symbolize. The multitude of different shapes in various colors is difficult to digest. Some help in the form of a color key could help users understand the interface.

### 36. [H2-2. Match Sys & World] [Severity 3] [Found by: B]
On the map view, the clickable text "search" is to the left of the search bar. This makes it different from common search experiences where such button is on the right. If the text is needed, then have the "search" text be a grey "search here" placeholder text inside the actual bar, and then add a button to the right of the textbar as submit button.

### 37. [H2-2. Match Sys & World][Severity 3] [Found by: B]
After clicking twice on any combinations of left/right arrows on the photostream, the photostream will exit, even if they clicked right then left. This is an unexpected result that will interrupt the user's tasks. Allow the user to keep scrolling through photos when clicking on the left/right arrows. or stop them at the first/last photos but don't exit the photostream.

### 38. [H2-4. Consistency and standards] [Severity 2] [Found by: B]
The current tax rate is shown along with a graph of the tax history, but the crime info section only shows a graph without the current values. This is inconsistent. Fix by adding the current values above the graph, like in the tax rate section.

### 39. [H2-7. Flexibility and efficiency of use] [Severity 2] [Found by: B]
There is no way to sort the listings based on preference, even though there is a filter system. This would restricts the users, and should be fixed by having an option for sorting above the listings.

### 40. [H2-8. Aesthetic and minimalist design] [Severity 1] [Found by: B]
The input selections in the filter don't align very well, so it looks disorganized. This will be frowned upon by the users. Fix it by aligning the inputs.

### 41. [H2-7: Flexibility & Efficiency of Use] [Severity 0] [Found by: C]
Currently, the user can either see images of the listing or see information about the listing. The user should be able to simultaneously scroll the different views of the house while also looking at information about that house.

## 3. Summary of Violations

| Category | # Viol. (sev 0) | # Viol. (sev 1) | # Viol. (sev 2) | # Viol. (sev 3) | # Viol. (sev 4) | # Viol. (total) |
|---|---|---|---|---|---|---|
| [H2-1: Visibility of Status] | | | 1 | | | **1** |
| [H2-2: Match Sys & World] | | 1 | 2 | 3 | 2 | **8** |

| | A | B | C | D | E | Total |
|---|---|---|---|---|---|---|
| [H2-3: User Control] | | | | 2 | 1 | **3** |
| [H2-4: Consistency] | | 3 | 4 | 2 | | **9** |
| [H2-5: Error Prevention] | | | 1 | | 1 | **2** |
| [H2-6: Recognition not Recall] | | | | 3 | | **3** |
| [H2-7: Efficiency of Use] | 1 | | 2 | 2 | | **5** |
| [H2-8: Minimalist Design] | | 7 | | | 1 | **8** |
| [H2-9: Help Users with Errors] | | | | | | **0** |
| [H2-10: Documentation] | | | 1 | 1 | | **2** |
| **Total Violations by Severity** | | | | | | **41** |
| **Note: check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)** | | | | | | |

## 4. Evaluation Statistics

| Severity / Evaluator | Evaluator A | Evaluator B | Evaluator C | Evaluator D | Evaluator E |
|---|---|---|---|---|---|
| sev. 0 | 0 | 0 | | | |
| sev. 1 | 4 | 3 | | | |
| sev. 2 | 5 | 5 | | | |
| sev. 3 | 9 | 8 | | | |
| sev. 4 | 3 | 1 | | | |
| **total  (sev.  3 & 4)** | | 9 | | | |
| **total (all severity levels)** | 20 | 17 | | | |

## 5. Summary Recommendations

Our general impression when using HomeClear is that it is fairly simple, with some problems with consistency and intuitiveness here and there. This has resulted in 3 main areas of recommendation: handling extreme data cases, getting rid of redundancy, and supporting user searches.

Handling Extreme Data Cases

Having to scroll through the entire screen to see all listings is aggravating. We recommend looking into ways to parse down large results. This can be through creating more robust filter options, or choosing an interface that is responsive and supports viewership of both large and small data returns. The connection between the current map interface with the numbered circles and the house listings needs to be strengthened as well.

Getting Rid of Redundancy

A search engine returns complex information, but it should not be complex in itself. Through completing the 3 tasks on the prototype, we found the separate categorization of "Reports" from "Listings" to be redundant. In addition, the confusing transitions between the different tabs (in favorites and in the search bar) can be circumvented by eliminated by simply deleted a tab. Eliminating redundancy by merging the categorizations of reports and listings would strengthen the minimalist design and consistency between the screens.

Supporting User Searches

The user will not be able to memorize all the information utilized during searches within the application. Areas where users would appreciate recognition features are: the search query text, the search flow, and labeled listings on the map interface. We believe that trying to incorporate more reminder-like features into the application will result in an overall minimization to reduce the load of users' memories.

*General Guidlines:*

*Severity Ratings*

      0 - don't agree that this is a usability problem
      1 - cosmetic problem
      2 - minor usability problem
      3 - major usability problem; important to fix
      4 - usability catastrophe; imperative to fix

*Heuristics*

**[H2-1: Visibility of System Status]**
- keep users informed about what is going on

**[H2-2: Match Between System & Real World]**
- speak the users' language
- follow real world conventions

**[H2-3: User Control & Freedom]**
- "exits" for mistaken choices, undo, redo
- don't force down fixed paths

**[H2-4: Consistency & Standards]**

**[H2-5: Error Prevention]**

**[H2-6: Recognition Rather Than Recall]**
- make objects, actions, options, & directions visible or easily retrievable

**[H2-7: Flexibility & Efficiency of Use]**
- accelerators for experts (e.g., gestures, kb shortcuts)
- allow users to tailor frequent actions (e.g., macros)

**[H2-8: Aesthetic & Minimalist Design]**
- no irrelevant information in dialogues

**[H2-9: Help Users Recognize, Diagnose, & Recover from Errors]**
- error messages in plain language
- precisely indicate the problem
- constructively suggest a solution

**[H2-10: Help & Documentation]**
- easy to search
- focused on the user's task
- list concrete steps to carry out
- not too large