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User Requirements Elicitation Plan & Instruments

For this elicitation, we focused on two stakeholder groups: first-time home buyers aged 25–32 and previously owned home buyers aged 45–55. First-time buyers were selected as the primary group because they typically have limited familiarity with real-estate platforms and the overall home buying process. This lack of experience means they are more likely to encounter usability issues, feel uncertainty, and require greater support during their search, making them essential for understanding pain points and onboarding needs. This group is highly comfortable with technology and has strong expectations for UI, making their feedback very valuable. Previously owned home buyers were included as a secondary group because they bring prior experience and established expectations. Their input provides contrast, helping us identify accessibility considerations, feature expectations, and workflow differences compared to novice users. Prioritizing these groups allows us to capture both the beginner perspective with amazing technology skills and insights from users with more experience in home buying, supporting a well-rounded understanding of user needs.

During our elicitation process, we plan to gather information related to how users currently search for homes and interact with real-estate tools. Specifically, we will explore what platforms and resources they rely on, what pain points or frustrations they experience during the search process, and how they organize or track potential listings. We also aim to understand the context in which they complete these tasks, such as they use mobile or desktop devices. Additionally, we are interested in emotional aspects of the experience, including feelings of confidence, stress, or uncertainty, as these can influence user engagement and decision-making. Collecting these insights will help us build a clear picture of the users' environment, behaviors, and challenges.

To collect this information, we considered several elicitation methods, including questionnaires, structured interviews, semi-structured interviews, narration/think-aloud protocols, and observation. While questionnaires and fully structured interviews offer consistency, we did not select them as primary methods because they can limit depth and may prevent us from uncovering nuanced behaviors or unexpected insights. Instead, we chose semi-structured interviews, which allow us to follow a flexible conversation structure and dig deeper into user experiences as needed. We then considered narration/think-aloud methods as well but determined they may be difficult to apply naturally in this context. We decided to also do an observational study (with structured follow-up questions –a researcher notes template - to validate what we see and capture). An observation gives us insight visually into how they use different platforms and what their pain points are.

Semi Structured Interview Plan/Instrument

The semi-structured format for our user elicitation interview method is beneficial for gathering information about the user's demographics and general usage impressions. This format specifically gives us control of how much we want to specifically lead the users answers with our questions, or how open-ended we want the discussion to be. The semi-structured format gives us the best of both worlds in terms of structured and unstructured interviews without narrowing or opening the space for answers too much. Additionally, we can gather information from the user after their usage experience, which will most likely provide more unbiased responses when compared to real-time observation methods such as online observation.

The goals of gathering data from this user elicitation method are to obtain as much information as possible about the user's usage patterns and impressions. At the same time, we want to allow a bit of room, if desired, for open discussion about possible frustrations and pain-points, good parts about the experience, and ideas on desired improvements. Coming back to the semi-structured format of this elicitation method, our data gathering goals are much more achievable with the nature of this format. To accomplish this data elicitation, we selected an in-person questionnaire as the instrument. This allows us to construct our questionnaire with a mix of both narrow-ended and open-ended questions, all while capturing the users answers in their rawest form in an in-person environment. To effectively elicit data from our two main intended stakeholder groups, our user recruitment process involves gathering people who we know have either been recently searching for homes, recently bought their first home, or long-term homeowners. As mentioned above, this elicitation method will take place in an in-person casual sit-down environment, with us interviewers having a questionnaire template with our questions written down and room to write down answers in our preferred note-taking formats. Additionally, the audio from each interview will be recorded to allow the interviewers to refine their questionnaire answers afterward if needed.

Our initial pilot interview questionnaire contained more of an imbalance towards more narrow-scoped questions. When we attempted to pilot our initial set of questions, we were presented with the main challenge of obtaining enough mock user elicitation information from the peer group. As a group we hypothesized that this was due to the close-ended nature of the majority of the questions we were asking, which meant we were not providing enough room for open-ended discussion. This is especially crucial to allow opportunities gathering crucial information that maybe we weren't necessarily expecting to gather. Therefore, we redeveloped the questions we used to guide us during the semi-structured interviews to maintain a more equal balance of narrow-scoped and open-ended questions, slightly leaning towards having more open-ended questions. This was the only update done to the semi-structured interview instrument after piloting.

The following is the questionnaire guide we used to conduct our semi-structured interviews:

1. How do you normally start your search?

- Want to look for:
 - Questions to drive convo:
2. How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?
 - Want to look for: if filters are relevant/useful
 - Qs to drive: are the amenities you would search for available as filters?
 3. Is the information in listings easy to understand?
 - Want to look for: impressions on how easy it is to read and parse information
 4. Are the listings missing any important information?
 - Want to look for: if listings have the most important information
 5. What were your least favourite parts about your online house-shopping experience?
 - Want to look for: what the subject brings up can help narrow down the most important problems/changes to make
 6. Rate your overall online house-shopping experience from 1-5.
 - Pairs well with above to gauge whether the problems are dealbreakers.

Observation Interview Plan/Instrument

For the observation method, we will have two research plans in place, one in person, and one online. During the Pilot for this method, the peer group supported the implementation of the observation method into the data collection segment of this project. This confirmed the valuable information this method is capable of providing and encouraged the use of it in the project plan. The pilot also confirmed that the instruments suggested were feasible.

Goals:

We want to use the observation method to better understand how users interact with current real estate searching tools. We want to locate pain points and usability challenges that people face with solutions that already exist. By using both online and in-person observation methods, we will be able to get a full range of data on how different home-buyers from the different methods.

Observed User Groups:

- First-time Home Buyers (aged 25-32): Focus on more tech-savvy user and their approach to these websites. (**Primary User Group**)
- Previously Owned Home Buyers (aged 45-55): More focus on individuals who bought houses before the digital era. (**Secondary User Group**)

Observation Settings:

- In-Person
 - o For both first-time and previously owned home buyers
 - o Conducted in a quiet room with a laptop and/or phone with internet access
 - o Researchers take note on how the user interacts with the home buying sites
 - o Encourage participants to think out loud while they perform tasks

Observation Tasks (For In-Person):

1. Ask user to search for a 3-bedroom house within a set budget range (\$500k-\$700k)
2. Apply filters for location and property type
3. Open and look through two listings
4. Compare and save one listing
5. Contact the realtor
6. Repeat steps with a mobile device
- Follow up questions

Instruments Used:

- Researcher Notes Template:
 - o Context (Online vs In-Person and Device Type)
 - o User actions
 - o Time to complete tasks
 - o User errors
 - o User's comments
 - o Emotional responses

User Requirements Elicitation & Report

Semi Structured Interview

Semi-Structured Interview 1

Person 1, 26F, Recent First-Time Home Buyer

1:14PM – 1:32PM on Wednesday, October 15th 2025.

How do you normally start your search?

- Opens Realtor.ca as most well-known realtor website
- Types in a general location, specific to Person 1's area of interest
- Navigates listings on the map of the area and selects listing when happy with house properties

How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?

- Satisfactory, had everything a first-time homeowner looks for
- “There were way more filters than I knew what to do with. I didn’t even touch a quarter of them”

Did the unused filter hinder your experience in any way, such as adding too much visual clutter (Follow-Up Question)?

- I asked this with the intent of finding out if the amount of search filter options was negatively impacting the user experience
- They had no negative effects on anything

Is the information in listings easy to understand?

- Information itself is easy to understand when reading from listings
- “It’s annoying when you need to spend more time actually trying to find what you’re looking for instead of understanding what you’re reading”
- Fonts and color of headings and body text too similar, easy to get lost in the information
- Some visual structured formatting issues in listings made things confusing
- Some search filter layouts also confusing with how they work

Are the listings missing any important information?

- Everything needed to choose a new home is there

What were your least favorite parts about your online house-shopping experience?

- The amount of time it takes to understand and get used to where all the relevant information is in listings
- Visual overload with how much information is thrown at you all at once

Rate your overall online house-shopping experience from 1-5.

3

Semi-Structured Interview 2

Person 2, 53M, Multiple-Time Homeowner

10:30AM – 10:52AM on Sunday, October 19th 2025.

How do you normally start your search?

- Begins with a general location of interest to get an idea of number of listings in area
- Apply filters to narrow options based on home preferences such as price, number of bedrooms
- Select a suitable listing from narrowed options, otherwise restart

How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?

- Satisfactory filters to help narrow down options when searching
- Everything important except for one thing is there as a filter option.
 - o Missing filter is for finished or unfinished basements.

Did you know about the existence of the keywords section in the search filters (Follow-Up Question)?

- I asked this because here you can type some things that aren't available as filters, such as finished basement

- No, wasn't aware.

Is the information in listings easy to understand?

- Everything needed to know to decide on a home is there before you contact a broker
- "There is even info that helps you go towards your next step of contacting a broker such as their details and contact information, and even the broker agency"

Are the listings missing any important information?

- The listings weren't missing any important information

What were your least favourite parts about your online house-shopping experience?

- Lacking some search filters as mentioned previously
- Certain amenities sometimes require looking through details of each listing individually which is time consuming

Touching on the keyword section, it's in the advanced filters section. Why do you think you weren't aware of its existence (Follow-Up Question)?

- I asked this question to know if it's a visibility issue, or if it could be something else
- Never noticed or forgot its existence, not memorable enough to clearly recall
- Advanced filters section isn't always needed when searching

Rate your overall online house-shopping experience from 1-5.

5

Semi-Structured Interview 3

Person 3 (First time homebuyer, actively searching, age 31).

Friday, October 10th, 2025. 6:07pm – 6:36pm

How do you normally start your search?

- Search for best websites
- Decide to look at recommended site (realtor.ca)
- Open realtor.ca
- P3 had a specific area requirement, so searched within desired location

How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?

- Map area was very helpful since for this user location was a requirement, search within city boundary was helpful
- Price filter helpful
- Keywords filter not optimal, **no set option for garage/pool etc. did not inspire confidence that matching listings would be returned**
- TLDR: location, price, beds/baths filters satisfactory. Amenities not satisfactory

Is the information in listings easy to understand?

- Sometimes images don't show how rooms connect; walkthrough videos and floor plans are helpful but often require leaving the site
- Most important info was available, little strain on the eyes to read (wall of black text on white background, colours would make separation easier)
 - o "Feels like a strain on my eyes to try to find anything, it would be nice if there were at least some headers or something"

Are the listings missing any important information?

- Could be more info but it would be a lot to put on the page (ex. How old is that carpeting? All things considered not as important as the showed info)
- SAFETY and INSPECTION info should be easily accessible.
 - o "Isn't that the most important part?"

What were your least favourite parts about your online house-shopping experience?

- The prices
- Safety and other things P3 wanted to know required talking to a realtor.
- Did not enjoy finding something they liked, asking a question to a realtor and immediately getting a dealbreaker answer that would have been easy to communicate on the listing page
- Feeling of being sold to

Rate your overall online house-shopping experience from 1-5.

- 3
- Not bad experience, would do again and will continue, but some things could be improved

Semi-Structured Interview 4

Person 4 (Experienced homebuyer, not actively searching, age 55)

Thursday, October 16th, 2025. 2:38pm - 3:10pm

- Note that this person is not actively searching, this questionnaire handled how they "would" if they were searching for another property having already bought one.

How do you normally start your search?

- Realtor.ca since it's the governed site
- Search based on location

How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?

- Appreciated ability to filter by building type (house, townhouse, apartment)
- Map area was helpful
 - o Did not appreciate the zooming of the map "moving" listings

- Price filter helpful
- Confusion on bed/bath filters (whether 2+ meant two and a half baths, or just any option more than 2)
- Appreciated keywords option for common amenities

Is the information in listings easy to understand?

- Pictures helpful, “It would be nice if they were sorted by room, like here are all the bedroom pics, here are all the backyard pics”). Not helpful when there’s a picture of a closet and you don’t know where it is
- Annoying to read all the text, not visually easy to flow through to find desired info
- Map less visible inside listing is annoying. P4 reports that they filtered by location then used the list on the left side to choose a listing, which means they didn’t know exactly where it was and it’s hard to find that information within the listing
- Appreciated that the info is presented in a uniform format between listings (IF) the info is present

Are the listings missing any important information?

- Depends on the listing. Some missing pictures
- Would like a maintenance history of renovations/work
- “I want something like a car’s maintenance history. When was the kitchen renovated? When was the hot water heater replaced?”
- If you leave the realtor.ca site to go to the broker’s proprietary site sometimes they have more information (extra photos, videos, listed amenities, etc)
 - o For the example that P4 looked at, the external site had MUCH more info and they would go to them first in the future

What were your least favourite parts about your online house-shopping experience?

- Harder than talking to a realtor
- Info that should be there sometimes isn’t

- Nice that there is a solution for this but doesn't feel streamlined

Rate your overall online house-shopping experience from 1-5.

- 2.5
- P4 understands that it is the standard it just seemed like it could be optimized

Semi-Structured Interview 5

Person 5 (First time homebuyer, recently purchased, age 29).

Friday, October 17th, 2025. 8:15pm – 8:40pm

How did you start looking for your house?

* slightly different from original due to P5's circumstance

- Would browse realtor.ca since it was recommended by P5's parents
- Knew they wanted to live in Ottawa but were not picky on neighborhood

How well do the search filters (price, location, number of rooms, amenities, etc.) satisfy your needs?

- Appreciated the option to filter by map area around the city, then use the “search within city boundaries” filter
 - o “I would have liked a way to kind of filter out everything except two separate neighborhoods close to my and [their partner’s] work but it worked we ended up with something in the middle anyway”
- No complaints about filtering system otherwise

Is the information in listings easy to understand?

- Yes, some terms P5 was unfamiliar with when starting their search
 - o Usually it was easy to figure out with a quick google search, but it would be nice if there was an option for newer users to figure out some of the information that is available on the site

Are the listings missing any important information?

- P5 mentions that they went to view a house that had loud trains running behind it once an hour, which was not communicated in the listing
- Rarely encountered a floor plan in the listing, which would be nice information to have

What were your least favourite parts about your online house-shopping experience?

- “Honestly sucked having to make offers and not get the house but that’s not related to the online part. Online I thought it served its purpose and then the rest is in person or through the realtor”
- Mentioned that starting searching for the first time had a bit of a skill curve to finding and understanding everything relevant on the site

Rate your overall online house-shopping experience from 1-5.

- 4, worked well and had minimal issues, but starting off was tricky

Semi-Structured Interview Results

The goal for the interview process was to gauge users' experiences throughout a typical housing search, by listening to their answers and recollection when asked questions, as well as observing their tone and body language to infer further meaning. The team was conflicted originally; semi-structured interviews and questionnaires were considered, and the team analyzed the positives and negatives of all options. The team decided to use semi-structured interviews, as they allowed a natural flow of conversation which can be helpful when describing personal experiences. The prompts we wanted to use also fit the length requirements for both time and complexity of a semi-structured interview. This method also catered to both of the user groups as it did not involve any prerequisite skill other than some prior experience in the area for the older group. An alternate method that the team considered was questionnaires. This method as an example was quickly dismissed, due to the data we are trying to gather being most related to feelings, and that a more open-ended method provided more opportunity to learn things that may have been unexpected before administering the questionnaire. There was no way to create a questionnaire that was both rigid enough to encourage short answers, and that we could truly learn from. The semi-structured interviews also allowed both interviewers to branch off and/or modify the suggested questions, as noted in the interview notes.

The interviews were conducted by Claire and Tim. Both interviewed one person from each user group and Claire interviewed an additional user from the younger demographic. Some themes that appeared across both user groups:

- All of Claire and Tim's interviewees used realtor.ca
- All of Claire's interviewees searched based on location. The map area was helpful to visualize listing locations, and options to search within city boundaries were appreciated.
- Filters for price, location, number of beds/baths were apparently satisfactory.
 - P2 was not aware of the keyword search for amenities which apparently did not hinder their experience; worth noting that it is less visually accessible than other filtering options
 - P3 had less confidence in the keyword search for amenities
 - P4 appreciated the option for amenities and were less skeptical, however cited some confusion with the bath filter (does 2+ baths mean 2 or more, or 2 baths and a powder room?)
- Pictures in listings are usually helpful
 - P4 states: "It would be nice if they were sorted by room, like here are all the bedroom pics, here are all the backyard pics"
- Parsing information in the listing was challenging due to the formatting of the apparent "wall of text"
 - "It's annoying when you need to spend more time actually trying to find what you're looking for instead of understanding what you're reading" (P1)
 - P3 states: "Feels like a strain on my eyes to find anything, it would be nice if there were at least some headers or something"
 - P5 mentioned the learning curve for a new user to understand all the given information and know where to find it
- P1 and P2 were satisfied with the information present, including the contact information for the broker for follow-up questions
- P3, P4 and P5 found that there was some information missing:
 - P3 cited safety/inspection records as something they'd like added, because "isn't that the most important part?" (P3)
 - P4 mentioned maintenance history, floor plans, as well as safety/inspection information. "I want something like a car's maintenance history. When was the kitchen renovated? When was the hot water heater replaced?" (P4)
- The most common "least favourite parts" included insufficient filter options (P2), missing information in listings (P3, P4), and visual/information overload (P1, P5)

Table: Interviewees and their overall rating of their online shopping experience

	P1	P2	P3	P4	P5	# of participants per user group
(25-32)	3		3		4	3
(45-60)		5		2.5		2

Overall, there are common themes present across each user group, as well as some themes unique to each age range. Both groups experienced mild displeasure with the filtering system; with the options available and the communication of what the options do. There was almost unanimous aversion to the “wall of text” of information inside a listing, making it tiresome to find useful information, and both groups highlighted a lack of available information as one of their least favourite parts. In terms of technological challenges, both groups seemed to be quite literate and able to navigate the website (or so it seemed in their recollection). The interviewers acknowledge that there may be some unconscious factors that could affect the gathered data, including but not limited to their lack of interviewing experience and potential bias towards “understanding” the younger demographic and asking fewer follow-up questions.

For our project, we can take the themes we observed to make key design choices for the project. The concerns with the filtering system confirm the team’s hypothesis (that the filtering system is a key function in the online homebuying experience and can always be improved). The team will prioritize changes to the filtering system, endeavouring to make it cater to every need of both user groups as much as it can. This could include changes to the bathroom count filter and amenities filter, as mentioned above. The team will also prioritize a more digestible format for listing content, to ensure that it is less strenuous on the eyes and as easy as possible to find what a user needs from the information. This also confirms the hypothesis that listings can be long and it can be difficult/tiring to gain the information you need from them. It is worth noting that some of these observations could be affected by external factors, such as depth of experience with a similar website (ex. Airbnb, similar map-area search, price, amenities) as well as how motivated a user is (P3 for example may be feeling dejected due to the prices, and have even less motivation to parse the aforementioned wall of text).

Observational Study Method

Observation 1

Group: First time home buyer

Participant: Person A (26M)

Duration: 45 minutes total

1. Search for a 3-Bedroom House (\$500k–\$700k)

- Immediately opened Google and searched “500k home Ontario 3 bedroom.”
- Selected Realtor.ca because it looked “more official” than others.
- Quickly set the price filter but initially missed the “Apply” button because thought it would auto-update.
- Disliked that you couldn’t type the min and max price.

2. Apply Filters (Location & Property Type)

- Unsure which city to pick; typed “Ontario” but got overwhelmed by too many results.
- Seemed to dislike the realtor feature where it shows you a map and how many listings are in each area
- Tried filtering by “distance from Oakville” but couldn’t find that option.
- Tried to choose multiple cities because they were undecided on which city they want to live in but that wasn’t an option.
- Ended up just choosing Thorold Ontario.
- Selected “Detached” property type.
- Accidentally clicked “reset filters” instead of “apply,” losing previous inputs.
- Mentioned that “the layout feels busy” and “there’s too many dropdowns”.

3. Open & Review Two Listings

- Opened the first listing but was confused why you couldn’t press the back button (because clicking on a listing pops out another tab)
- Commented that “there’s so much text, I just want bullet points, especially for the description”
- Focused mainly on pictures, scrolled quickly through gallery.
- Said, “I wish I could just swipe through listings instead of opening new tabs.”

4. Compare & Save One Listing

- Couldn’t find an obvious save icon, tried the heart but it prompted to make an account, just saved link instead.
- Tried to compare two houses with a split screen, said “would be much easier with compare feature”

5. Contact the Realtor

- Clicked “Contact Agent” but was taken to a long contact form that looked generic.
- Thought the button would open a chat or quick message option (“why can’t I just text them?”).

- Didn't fill out the form, assuming it would send him marketing emails.

6. Repeat Steps on Mobile

- Began again with Google; selected Realtor.ca mobile version.
- Clicked dismiss for cookies pop up.
- Listings loaded slower on mobile; commented that "too many ads"
- Disliked that when choosing between filters there was no scroll option, half the screen was a map and the bottom you manually had to tap through houses without even seeing the actual home, just the front and the price.
- Finally noticed the list option, opted for that instead of map option
- Opened multiple tabs where he repeated the same process on each to find separate listings to compare
- Saved link again instead of making an account

First impression of the site(s)?	"Looks fine but feels cluttered."
Ease of figuring out where to start?	"Yes, there was a textbox saying where do you want to buy a home"
Usual way of beginning search?	"I just Google it I don't know any specific websites."
Search filters usability?	"There are too many filters. I just want the important ones up front."
Any frustrations with search options?	"Wish I could pick multiple locations at once and couldn't search by commute distance."
Most important listing details?	"Price, photos, neighborhood"
Clarity/relevance of listing info?	"Feels like too much text. Needs more visual info."
Usefulness of saving/sharing/comp arison tools?	"Couldn't find the save option easily, and no way to compare side by side."
Example of frustration while browsing?	"Accidentally reset filters, disliked opening multiple tabs to compare."

Confusing, slow, or inconvenient steps?	“Opening up multiple tabs to compare listings”
Difference between desktop and mobile experience?	“Mobile was way to small to use, and very inconvenient for opening tabs and looking through listings, also found it was harder to find buttons because everything was even more cluttered on the phone”
One change to make process easier?	“Make it more visually appealing”
Desired additional features?	“Compare feature”

Instruments Used

- Researcher Notes Template
 - Context: In-person session (desktop + mobile).
 - User Actions: Documented above.
 - Time to Complete Tasks: Documented above.
 - User Errors: Documented above.
 - User Comments: Very fast at navigating but lots of trial and error and disliked a lot of things.
 - Emotional Responses: Frustrated

Observation 2

Group: Experienced home buyer

Participant: Person B (56F)

Duration: 60 minutes total

1. Search for a 3-Bedroom House (\$500k–\$700k)

- Opened Google and searched “3 bedroom houses for sale”
- Selected realtor.ca because user had used it before.
- Successfully set the price filter, but had to scroll through to select it
- Struggled to update the search parameters to see the filtered houses

2. Apply Filters (Location & Property Type)

- Had to use where google lead to filter location (ended up with Kingston because of this)
- Used the large filter panel, but disliked how it took over the whole screen, and the filters did not update live with the search

- Chose detached property type
- Used keyword feature (fence, garage, deck), but tried to search for keywords that weren't available
- Could not select keywords as no signifier for how to enter them (enter key is the implementation)
- Mentioned that "page is overwhelming" and "some of these filters are redundant".

3. Open & Review Two Listings

- Was surprised that the homes opened in new tabs, found the description but too much text to read.
- Worried to close the new tab that opened as they might lose the home they had found
- Commented that "these property taxes and extra costs and details need to be more clear, they are trying to hide them or something"
- Commented that "Age of building is too big a range (16 to 30 yrs old)"
- Didn't dismiss the cookies notice, just left it sitting at the bottom blocking the page
- Had to click through the image gallery, not arrow keys or buttons, complained about this
- First house took 12 mins to look through
- Said "There is no clear indication of how many pictures there were before clicking into gallery"
- Thinks the AI generated pictures are real furniture – no indicators that they were AI
- Second house took 7 mins to look through
- Selected first house they viewed

4. Compare & Save One Listing

- Clicked the heart to save but prompted to make an account, so printed the page as a pdf instead
- Tried using Facebook to compare listings, but found Facebook for only the realtor app, not the realtor for the house themselves.

5. Contact the Realtor

- Email buttons open a little panel that the user had no problem with.
- User explains "I like being able to use email, that is convenient"

Mobile Session

6. Repeat Steps on Mobile

- Started with google like last time, selected realtor.ca again
- Figured out filter button, same comments as last time

- Used price range again
- Strongly disliked calendar selection, no year drop down they could find, very hard for user to select date built
- Webpage prompted to install app, used website instead
- It provided different houses as options (4 were same, 2 were switched out)
- Decided to look at the new house, and wondered “where was this house on my laptop?”
- Found information on realtor, buttons were the same, call button was different, “may have popped up because I am on a phone”
- Took 10 mins to look through on phone, but less time was spent looking at the other houses
- Clicked into the photos gallery and could scroll “the images are easier to swipe through on a phone”
- No signifier on save option, unclear ability to save on mobile, “how am I supposed to save now?”
- Decided to share a link to laptop over Airdrop, and then print page on laptop (hoop jumping)

First impression of the site(s)? “Easy enough to navigate, but confusing

Ease of figuring out where to start? “Filter button did the job”

Usual way of beginning search? “Used google search for 3 bedroom home”

Search filters usability? “There were lots of filters, that I figured out, brought 214 homes down to 5”

Any frustrations with search options? “Would have preferred if more house came up after filters”

Most important listing details? “Type of home, price, location”

Clarity/relevance of listing info? “Some pictures were misleading

Usefulness of saving/sharing/comparison tools? “I Had to save in different ways outside of website functionality, and there was no clear comparison feature”

Example of frustration while browsing? “Sometimes houses are seemingly not listed from device to device, which is annoying”

Confusing, slow, or inconvenient steps?	“Saving, and opening houses in a new tab, and changing locations would have been a pain”
Difference between desktop and mobile experience?	“The phone was better than expected, saving seemed different though, the text was pretty small”
One change to make process easier?	“I’d like more obvious information about what is in proximity to the area, distance to closest airport, train station, information about the city”
Desired additional features?	“Provide a city/neighborhood information summary so I can get an idea of the area I may live”

Instruments Used

- Researcher Notes Template
 - Context: In-person session (desktop + mobile).
 - User Actions: Documented above.
 - Time to Complete Tasks: Documented above.
 - User Errors: Documented above.
 - User Comments: Very interested in the homes, had many verbal comments on what they liked/didn’t like.
 - Emotional Responses: Moderately confused, but did find houses.

Observation 3

Group: First-Time Home Buyer

Participant: Person C (24M)

Duration: 22 minutes total (Laptop: 12 min, Mobile: 10 min)

1. Search for Homes in Budget (\$500k-\$700k)

- Opened Google and searched “homes for sale in Oakville under \$700k.”
- Clicked on Realtor.ca as the top result.
- Set filters: Oakville, price range \$500k-\$700k, property type “Condo/Apartment.”
- Initially selected “House” instead of “Condo,” resulting in no results, then corrected it.
- Mentioned “there are too many similar listings” and focused mainly on images.

2. Apply Filters & Browse Listings

- Scrolled through listings, viewing photos first.
- Clicked one listing, skimmed details such as square footage, amenities, and maintenance fees.
- Opened a second listing in a new tab for comparison.
- Attempted to compare listings side-by-side but couldn’t find an easy way to do so.

- Commented that filters reset every time he went back to the main page: “It’s annoying how you have to reapply filters every time.”
- Expressed a desire for quicker access to amenities like parking and laundry info.

3. Save & Attempt Contact

- Logged into Realtor.ca using Google account to use the “Save” function.
- Attempted to contact the realtor through the site’s form but hesitated, saying he didn’t want “spam calls.”
- Did not complete contact submission due to privacy and pressure concerns.

4. Laptop Session Summary

- Total time: 12 minutes
 - Finding and setting filters: 3 min
 - Browsing and comparing listings: 6 min
 - Saving and attempting contact: 3 min
- Errors: Wrong property type initially selected, difficulty finding comparison feature.
- Comments:
 - “I wish there was a feature that shows me if a place has parking or laundry faster.”
 - “I like the map, but it loads kinda slow.”
 - “Feels overwhelming, there are so many similar listings.”
- Emotional Responses: Calm and analytical at first; frustrated when filters reset; excited when viewing listings with appealing photos; hesitant about realtor contact.

Mobile Session

5. Repeat Search on Mobile (Safari)

- Opened Realtor.ca on Safari.
- Re-applied same filters (Oakville, condos, \$500k–\$700k) but found dropdown menus difficult to use.
- Zoomed in/out frequently due to cluttered map interface.
- Opened two listings and scrolled quickly through photos.
- Tried saving a listing but was asked to re-login, appeared mildly annoyed.
- Did not contact realtor; said he’d “just save it and check again later on laptop.”

6. Mobile Session Summary

- Total time: 10 minutes
 - Filtering/searching: 4 min
 - Browsing: 4 min
 - Saving: 2 min
- Errors: Accidentally tapped ads while scrolling; mis-tapped “Sort by” instead of “Filter” twice.
- Comments:
 - “It’s harder to see the details on the phone.”

- “Why do I have to log in again?”
- “Wish there was an app that just showed new listings in my range automatically.”
- Emotional Responses: Mild frustration with small buttons and repeated logins; curiosity about property features; more impatient than during laptop session.

Overall Impressions

First impression of the site(s)?	“Good visuals, but repetitive and slow.”
Ease of figuring out where to start?	“Searching was easy, but filters were confusing sometimes.”
Usual way of beginning search?	“Google search, then click Realtor.ca.”
Search filters usability?	“Filters work but reset too often.”
Any frustrations with search options?	“Wish it saved filters automatically.”
Most important listing details?	“Photos, layout, and maintenance fees.”
Clarity/relevance of listing info?	“Too many similar listings, it’s overwhelming.”
Usefulness of saving/sharing/comparison tools?	“Saving is fine but comparing is hard, and logging in again is annoying.”
Example of frustration while browsing?	“Having to reapply filters every time.”
Confusing, slow, or inconvenient steps?	“Filter resets, login repetition, and cluttered mobile map.”
Difference between desktop and mobile experience?	“Laptop is easier for comparing; phone is fine for quick browsing.”
One change to make process easier?	“Add quick filters for key amenities like parking and laundry.”
Desired additional features?	“An app or alert system for new listings in my range.”

Instruments Used

- Researcher Notes Template
 - Context: In-person observation (desktop + mobile).
 - User Actions: Documented above.
 - Time to Complete Tasks: Documented above.
 - User Errors: Filter mistakes, navigation and login repetition.
 - User Comments: Focused on visuals and convenience, avoided realtor contact.
 - Emotional Responses: Calm and analytical initially, mild frustration with UI repetition, excitement for visually appealing listings.

Observation Results

The purpose of gathering data through the observation method with the primary user group was to identify usability challenges faced by first-time home buyers, especially younger users who are comfortable with technology but unfamiliar with real estate platforms. For the secondary user group, it was essential to gain knowledge about how those that have less experience with technology approach navigating current real estate options, and what filters and options are the priority for these users.

Instruments used:

- Observation Task List (searching, filtering, saving, contacting)
- Researcher Notes Template (actions, comments, emotions, errors)

Completed in each observation was an in-person session while completing seven key home-searching tasks on both desktop and mobile. This specific method and instrument were used as through a pilot it was confirmed that observing the user groups in these scenarios would be valuable to see what features need improvement; and what homebuyers are specifically looking for (without directly asking the users).

This method was used with the First-Time and Experienced Homebuyers to strengthen the research and understanding of how users interact with the currently available websites so that certain features can be used or inspired in this project's solution. Observation captured real-time usability issues that younger and older users experience when moving quickly through interfaces, something surveys or interviews would miss. Other methods we considered were survey, but this was deemed too general. The survey method was also considered, but the observation method was optimal to see each user's interaction specifically with the products that will inspire the design. The data was recorded with a pre-determined note template to run the observed user through a scenario. Notes were taken manually during the session, focusing on user quotes, emotions and steps taken.

We had 3 participants, with the following demographic data (table below):

	Participant	Age	Gender	User Experience	Key Tech Profile
Person A	27	Male		First-Time Home Buyer	High technical skills; impatient; prefers intuitive and fast design.
Person B	56	Female		Previous Home Buyer	Moderate technical skills; struggles with non-intuitive or cluttered interfaces.

Participant	Age	Gender	User Experience	Key Tech Profile
Person C	24	Male	First-Time Home Buyer	High technical skills; analytical; values convenience and efficiency.

Summary of data/quotes from participants:

Person A:

Demographics:

- Age: 27
- Gender: Male
- Experience: First-time home buyer
- Tech Skills: High, but impatient and prefers quick, intuitive design

Key Quotes:

- “There’s too much text; I just want bullet points.”
- “Wish I could pick multiple locations at once.”
- “Why can’t I just text the realtor?”
- “I wish there was an easier way to compare homes”
- “Mobile was way too small to use.”

Key Observations:

- Moved quickly through the site, missing small buttons and features.
- Accidentally reset filters due to unclear button labels.
- Overwhelmed by dropdown menus and map filters.
- Relied heavily on visuals over written descriptions.
- Avoided signing up to save listings, preferring to copy links manually.
- Had to re-do the steps for every home because assumed opening multiple tabs of realtor was the way to go (although its better to let the website pop out a home for you when you click on it)
- Found the mobile version cluttered and hard to navigate.

Person B:

Demographics:

- Age: 56
- Gender: Female
- Experience: Previous experience with realtor.ca.

- Tech Skills: Low, struggles with non-intuitive design elements and overwhelming interfaces.

Key Quotes:

- “The page is overwhelming, and some of these filters are redundant.”
- “These property taxes and extra costs and details need to be more clear; they are trying to hide them or something.”
- “There is no clear indication of how many pictures there were before clicking into the gallery.”
- “Where was this house on my laptop?”
- “How am I supposed to save now?”
- “I’d like more obvious information about what is in proximity to the area... information about the city.”

Key Observations:

- Started the search on Google and chose a familiar website (realtor.ca).
- Struggled with filter application, disliking the full-screen panel and non-live updates.
- Frustrated by unclear UI, such as how to enter keywords and navigate the desktop photo gallery.
- Confused and worried by listings opening in new tabs, fearing she would lose her main search page.
- Avoided creating an account, choosing to print a PDF to "save" a listing.
- Encountered different listings on desktop versus mobile, causing confusion.
- Found the mobile experience better for browsing photos ("easier to swipe") but worse for saving listings.
- Resorted to "hoop jumping" (Airdropping a link to a laptop to print) to save a listing from mobile.
- Wanted more integrated information about the neighborhood and local amenities.

Person C:

Demographics:

- Age: 24
- Gender: Male
- Experience: First-time homebuyer
- Tech Skills: High, analytical and expects convenience from technology.

Key Quotes:

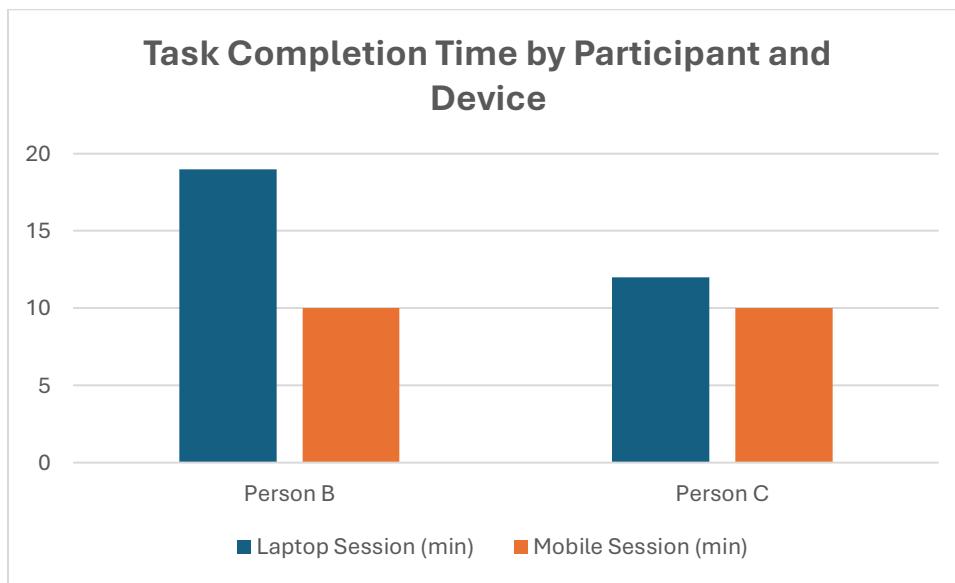
- “It’s annoying how you have to reapply filters every time you go back.”
- “I wish there was a feature that shows me if a place has parking or laundry faster.”
- “I didn’t want spam calls.”

- “It’s harder to see the details on the phone.”
- “Why do I have to log in again?”

Key Observations:

- Relied heavily on visual elements like photos over written details.
- Became frustrated with repetitive actions, such as reapplying filters or logging in again on mobile.
- Avoided direct realtor contact due to a fear of being "pressured or spammed."
- Opened multiple tabs to compare listings manually as he couldn't find a built-in comparison tool.
- Found the mobile experience more difficult for viewing details and navigating the map.
- Initially made errors with filters (selecting "house" instead of "condo"), which skewed his search results.
- Preferred using his laptop for detailed tasks and his phone for more casual browsing.

The following is a graph comparing Person B to Person C (Inexperienced vs experienced with technology) by their completion times for tasks



Conditions that may have impacted on the results include whether the task of finding this house for the price range was too broad, maybe specifying the city in the future could be more specific and provide better results. If the environment was different, and the user was completely unaware that the observation was taking place, they may have acted in a different way as well. If the users were given a more challenging a specific task like finding a specific placeholder (fake) home this could also lend a more specific assessment.

Valuable information was learned from these unique users from various groups. Each user had different areas where they were stronger or weaker; and different priorities while using the current available websites. The younger users were impatient but efficient, and valued speed and visuals

over detail. They would become frustrated by extra steps or cluttered layouts. Older users could float through the pages but miss many features simply because they didn't even understand they existed at all. These users had a 32-year gap between the younger and oldest, and they said some interesting comments during observations. Frustrations like "I didn't want to log in again" could be comical to see. It was important to maintain professionalism during these observations. Some common themes and problems, design implications, and features that can be implemented are summarized below.

There were some themes made clear from the observations made. Users found themselves overloaded by cluttered interfaces, redundant filters, and unclear button functions. The lack of a visual comparison tool creates challenges for users and driving them to use workarounds. Inconsistencies between desktop and mobile experiences frustrated users, leading them to pause their search to fix the issues on these sites. Some users avoid direct contact forms due to a fear of spam and high-pressure sales tactics. One key theme is that the process to save listings is usually gated by account creation, which users rarely want to do. Also, critical information like taxes, extra costs, and neighborhood amenities can be hard to find. Like many people, users seem to prioritize images over text. They often find themselves frustrated by poor photo galleries and unlabeled AI-staged photos.

Some key observations became evident during the observation phase. It seemed that there is a need to simplify the mobile design, improve map usability, and optimize filters. To reduce communication barriers, an opportunity exists to add low-pressure, in-app messaging to realtors. Next, the saving process could be simplified with a one-click favorite function that works across devices. On top of this, a dedicated feature could be developed for side-by-side listing comparisons. User would benefit from filter logic improving so that it updates results in real time and retains user selections. The platform can be enhanced by integrating summaries of neighborhood information and amenities.

Features that should be considered based off the findings from the observation method are noted below:

- The design should support searching in multiple locations at once and provide a comparison interface.
- An intuitive swipe-to-save gesture on mobile would make browsing and saving faster.
- Visual summaries with icons and bullet points should be used instead of long paragraphs.
- Photo galleries should be improved by showing the total image count and clearly labeling AI content.
- Design and functionality should be consistent whether the user is on a desktop or mobile device.

Users from all focus groups will benefit from the aforementioned implementation. Whether a user is exploring homes across several different cities or neighborhoods in one session or wanting to compare the features and costs of a few different properties directly, a new implementation would be useful. Users who save listings on their phone to review later on a larger

screen would enjoy a convenient save feature. Cautious users who want to ask a simple question without committing to a phone call could communicate while taking less risks. Even users who want to understand the lifestyle and amenities of an area before considering a home could make use of a neighbourhood summary. Overall, the observation method yielded valuable results that will be valued and considered as the final solution grows.

Primary Persona, Scenarios, & Hierarchical Task Analysis

Primary Persona

Evidence of Connection to User Requirements Elicitation Report

Primary Persona – “Jenny Yu” (First-Time Home Buyer, Ages 25-32)

Demographic Profile



Age: 28

Occupation: Marketing Coordinator

Location: Hamilton, ON

Technology Skill Level: High

Status: Looking for her first home with her partner

Devices: Mainly uses her mobile devices, occasionally uses laptop

Background & Behaviors

Jenny has been renting her apartment in downtown Hamilton for 5 years, and now she wants to buy her first home in the Westdale North neighborhood in Hamilton. Jenny is confident in her ability to use technology from her occupation working as a marketing coordinator. She is always using her work mobile phone to do her job and occasionally uses a laptop for final decisions. While being confident in using technology, Jenny is not the most experienced with real-estate jargon and processes. With her technological prowess and constant experience with fluid and intuitive UI at work, she moves fast when browsing on her mobile device which sometimes leads to her accidentally clicking the wrong thing.

Key Personality Quotes

- “I just want to find a home that feels without making any mistakes.”

- “I don’t want to find a home to be a tedious process, I don’t want to spend hours figuring out how the website works.”

Goals

- Search, compare, and save potential home interests that match lifestyle and budget in a seamless and efficient manner
- Understand key information, such as the safety or neighborhood of the home without having to use more than one website
- Contact realtors easily – ideally through messaging integrated into realtor platform
- Avoid information overload while at the same time digesting enough important information

Motivations

- Independence with partner, and pride in purchasing her first home
- Wants quick results and responses with lack of overhead
- Wants trustworthy and transparent information presented in a clear manner

Frustrations/Pain Points

- Overly cluttered webpages and “walls of text”
- Excessive and confusing filters
- Poorly structured information on webpages
- Dislike of unnecessary new tab openings

Connections to User Requirements Elicitation Report

The primary persona’s specific age and age group directly matches the defined primary user group for buyers aged 25-32. The context that this persona is a first-time home buyer also matches the targeted primary user group we outlined. The persona’s high technology skill, fast-paced yet impatient navigation is supported by the user comments in Observation 1, describing quick navigation but lots of trial and error. The persona’s frustrations with cluttered webpages and walls of text stems from Semi-Structured Interviews P1, P3, and Observation 1. Direct quotes, such as “Feels like a strain on my eyes to find anything, it would be nice if there were at least some headers or something” (P3), or “There’s so much text, I just want bullet points, especially for the description” (Observation 1) directly support this. Similarly, the frustrations with excessive and confusing filters were inspired by Semi-Structured Interviews P1, P3, and Observation 1, with quotes such as “There are too many filters. I just want the important ones up front” (Observation 1) supporting this. The persona’s device usage context is also inspired from Observation 1, where the observation included both mobile and desktop tests and the participant found the mobile experience worse. Lastly, there was a strong trend of visual overload and poor readability across Semi-Structured Interviews P1, P3, P5, and Observation 1, which is why these key pain-points were included in the primary persona.

Story Scenario

On a Sunday morning in downtown Hamilton, Jenny Yu is sitting by the window of a cafe with her laptop beside her. Jenny and her partner have both been saving on a down payment for three years, and she finally feels ready to look at buying her first home with her partner.

Jenny opens a tab using Google and searches “homes for sale in Westdale North, Hamilton, under \$700k”. As usual she clicks the top link result, which is a page on Realtor.ca. The page feels familiar, she’s either seen it on some advertisement or browsed it before. Jenny begins with feelings of excitement. She begins by entering her budget range and selects her house preference to have three bedrooms. The screen suddenly floods with filters, there are so many things to choose such as different amenities, property types, and tons of advanced settings. Her eyes jump between the filters and the interactive map, “Why are there so many filters?”. She selects a few filters and clicks the “apply” button only to realize no changes were made. After a few seconds of confusion, Jenny sees the small button saying “Apply Filters” at the bottom. She clicks the button, and the listings refresh. Phew, relief!

Jenny chooses a nice-looking listing in the Westdale North neighborhood, and immediately she is shown some nice pictures and videos to scroll through with information on contacting a realtor on the side. As she scrolls down the listing, her energy fades. Long and poorly structured paragraphs of text cover the screen with fonts that are barely discernible. She sighs, skimming through words like “stainless-steel appliances” and “family-friendly neighborhood.” Jenny decides to scroll through all the photos and videos. She loves the rooms, but she has no idea how they connect! “I wish this had a floor plan,” she says quietly.

Still, the listing is nice and interesting, and Jenny decides she wants to save it. She spots the “save” button and clicks it, but a sign-up window appears. “I can’t believe I have to sign up for this to save a listing”. Instead, she opens a Word document and copy and pastes the links there. Jenny repeats this process a few times, constantly juggling multiple tabs and switching between them. She feels as though this process is wasting a lot of her time. After an hour and a half of this, Jenny decides to take a break right as her partner texts her: “How’s it going?”. Jenny replies: “It’s fine, but it’s too overwhelming”. Regardless of her frustration, she chooses a listing she likes the most and proceeds to try to contact a realtor. She clicks on the contact link, but instead she’s just redirected to a long contact form. “Why can’t I just message them through the website?”, she says, and finally closes the tab.

Finally, Jenny leaves the café with an air of discouragement. She walks away knowing she’s able to search for homes but also knowing that she’s not searching for them efficiently. At the end of the day, she’s frustrated because she feels like the site is not designed in the way best to be used a first-time homeowner like her, someone who requires as much clarity and transparency as possible instead of cluttered options and information.

Link to Persona

As demonstrated in the story scenario, Jenny Yu faces some annoyance at the drawbacks to shopping for a home we have identified in this report. Armed with enthusiasm and desire to find the perfect home, she begins her online house search only to encounter needless issues with the website. She feels bombarded by the filtering options and has some difficulty using them to their potential. Some issues we've commonly seen in our observations arise for Jenny. She notices the lack of floorplan and has considerable difficulty parsing the poorly separated text information. Listing information aside, she dislikes the fact that saving a listing requires a sign up, and that contacting the associated broker requires a lengthy and daunting form. She states that the whole experience is "a bit too overwhelming" and later recognizes the many drawbacks of the site make it incredibly difficult to search efficiently. There should be a solution in place that is more catered to first-time homebuyers, which would involve more clarity in the information presented and less clutter.

Link to Requirements Elicitation Report

This story scenario was created and inspired by insights from across observations and interviews. The frustrations she faces are common to some of the team's observed pain points in the online homebuying experience. Jenny experiences the same aversion to the "wall of text" as mentioned by P1. She also notes the lack of floor plan, which came up in interviews as well. She also has trouble understanding and applying filters, which was a common theme. Younger users observed by the team frequently had similar issues navigating the site due to cluttered layout, juggling multiple tabs, and a lack of a saving feature, which inspired Jenny's ordeal and desire for a more intuitive experience. These themes present across observed personas came together into Jenny's story, which embodies the key challenges encountered in first-time homebuyers' experiences.

Conceptual Scenario

In this section, the scenario chosen is a conceptual scenario to abstract and generalize the persona's key activities and goals. The scenario highlights the core intentions and needs of a first-time homebuyer, without providing specifics or how functions will be carried out. A conceptual scenario was chosen as there were no constraints that would be used for concrete scenarios and only a general use case.

People that are looking to purchase their first home want the ability to browse and compare properties to find the ones that best match their dream home on their personal device. With limited time in their daily routines, they want to be able to use trustworthy information and avoid the complexity of current real-estate browsing tools to streamline the house hunting process. They value simplicity and transparency throughout the process, preferring to focus on meaningful details rather than navigating through excessive or confusing information. They have access at anytime and anywhere to filter listings, check for new listings, updates to listings, or

communications from realtors, making people feel confident in their search, while keeping them calm by stripping away frustrations/complexity. Satisfied with their results, they are then able to save/remove listings or contact realtors about listings to move forward with the homebuying process.

Link to Persona

Jenny Yu is a hard-working young adult living in Hamilton, ON, who is looking to purchase her first home. With her busy schedule, ability to use technology, and understanding of real estate, she wants to find her dream home without making mistakes and by quickly and efficiently searching for houses. She faces frustration with cluttered/poorly structured websites, excessive filters, and dislikes unnecessary new tab openings, stating “I don’t want to find a home to be a tedious process, I don’t want to spend hours figuring out how the website works.”. Ideally, she would be able to use a simple and intuitive tool to feel calmer and more confident in her search for her first home.

Link to Requirements Elicitation Report

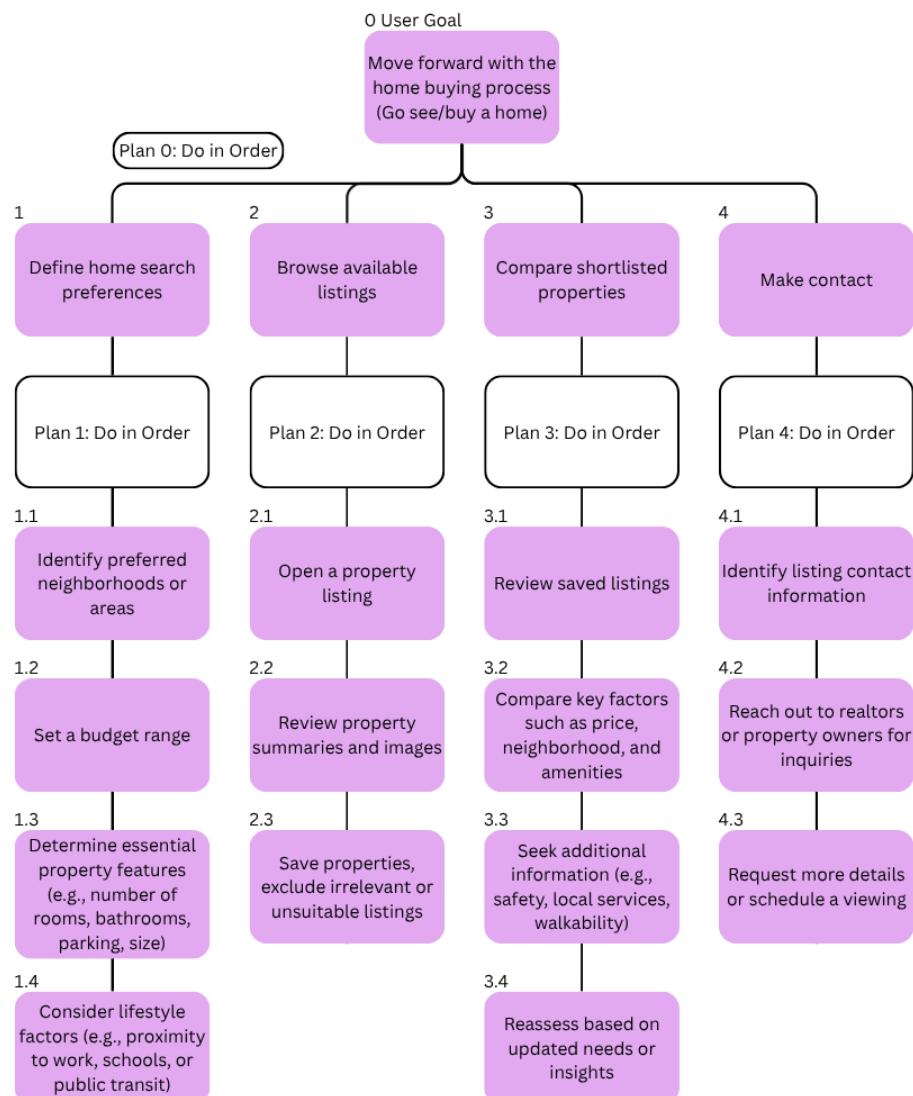
The conceptual scenario is derived from insights from participants P1, P3, and P5, and Observation 1 in the requirements elicitation report. The findings, when taken together, emphasize users’ desire for a straightforward and trustworthy home-search process.

P1 highlighted their frustration with the lengthy, text-heavy listings, noting their disapproval with the wall of text. This finding informed the scenario’s focus on clear and digestible presentation of information. P3 expressed low confidence in the completeness of listings and found it difficult to find critical details about the homes. The scenario therefore emphasized transparency and trustworthy information. P5’s finding supported the need for an intuitive and easy-to-use platform by criticizing the learning curve associated with navigating complex interfaces.

These interview insights align closely with Observation 1, where younger participants more adapted to technology were seen moving haphazardly through cluttered interfaces, overlooking small buttons, and resetting filters due to unclear labeling. This behavior directly informed the scenario’s focus on more streamlined and simplified filtering, as well as mobile accessibility to reduce frustration and cognitive load.

These findings informed a scenario focused on first-time homebuyers seeking clarity and ease when searching for homes.

Hierarchical Task Analysis (HTA)



Plan:

User Goal 0: Find and evaluate suitable homes to support the decision of purchasing a first property.

1. Define home search preferences

1.1 Identify preferred neighborhoods or areas

1.2 Set a budget range

1.3 Determine essential property features (e.g., number of rooms, bathrooms, parking, size)
1.4 Consider lifestyle factors (e.g., proximity to work, schools, or public transit)

2. Explore available listings

2.1 Open a property listing

2.2 Review property summaries and images

2.3 Exclude irrelevant or unsuitable listings

3. Compare shortlisted properties

3.1 Review saved listings

3.2 Compare key factors such as price, neighborhood, and amenities

3.3 Seek additional information (e.g., safety, local services, walkability)

3.4 Reassess based on updated needs or insights

4. Make contact or seek clarification

4.1 Identify listing contact information

4.2 Reach out to realtors or property owners for inquiries

4.3 Request more details or schedule a viewing

Plan 0:

Do 1–2–3–4 in sequence.

Repeat steps 2–4 iteratively as new information or listings become available until a suitable home is identified.

The hierarchical task analysis (HTA) directly aligns with Jenny Yu's goals, motivations, and frustrations that were mentioned in the primary persona, as well as with the findings from the user requirements elicitation report. Jenny's main goal is to search, compare, and save potential homes efficiently and confidently, which is represented throughout the HTA's structure. For example, Task 1 and 2 reflects her desire to quickly identify properties that match her budget and lifestyle without the unnecessary complexity. Task 3 reflects her motivation to understand key information, such as neighborhood safety and amenities, without having to rely on multiple platforms, addressing her need for clarity, trustworthiness, and reduced cognitive load.

The HTA also integrates the concerns and behavioral patterns observed in the user research. Insights from Semi-Structured Interviews P1, P3, and P5, as well as Observation 1 and 3, emphasized users' difficulties with information overload on real-estate websites, their cluttered interfaces, and confusing filters. These findings inform Task 2.4 (Exclude irrelevant or unsuitable listings) and Task 5 (Manage and refine ongoing search), which ensure the process remains efficient, streamlined and visually manageable for them. Furthermore, Task 4 (Make contact or

seek clarification) addresses the repeated user request for direct, simple communication with realtors, avoiding disjointed or multi-step messaging systems.

User Requirements Definition

Stakeholder Requirements/Needs

- **SR1:** System shall support users in confidently identifying, saving and comparing homes that match their needs
 - Metric: In system survey reports that more than 90% of users feel more confident in their home search decision
 - Reason: *Users expressed feeling overwhelmed and unsure how to evaluate homes without guidance*
 - From observation elicitation.

Environmental Requirements

- **ER1:** System shall be installable on both IOS and Android systems
 - Metric: System runs with 0 errors on both operating systems.
 - Reason: Users have different operating systems.
 - From semi structured interview elicitation.
- **ER2:** System shall operate under typical mobile network conditions (4G/LTE and WIFI)
 - Metric: System loads on device within 5 seconds
 - Reason: Users access system from different places not just on WIFI at home.
 - From persona.

Functional Requirements

- **FR1:** The system shall allow users to compare different listings.
 - Metric: System allows 2+ listings to be compared at once.
 - Reason: Users struggled to manually compare homes across tabs.
 - From observation and semi structured interview elicitation, and primary persona.
- **FR2:** The system shall allow users to contact realtors and message within the app.
 - Metric: Messaging supports minimum 1-to-1 conversations and sends/receives messages <2 seconds
 - Reason: Users struggled to contact realtor through current tools
 - From observation elicitation and primary persona.
- **FR3:** The system shall provide easy to use filtering options for homes, including distance from location and area.

- Metric: System supports minimum of 20 filter parameters.
 - Reason: Users disliked limited filtering, especially around neighborhoods and distance from a location.
 - From observation and semi structured interview elicitations.
- **FR4:** The system shall support swipe-to-save or discard browsing.
 - Metric: Users can swipe in both directions and list state updates instantly (lag < 0.5s)
 - Reason: Users wish decision making process was faster.
 - From conceptual scenario.
- **FR5:** The system shall notify user when a saved listing has changed
 - Metric: Time between realtor updating listing and user getting notified is <= 30 seconds.
 - Reason: Users want a reliable tool and key things like price change need to be made known to the buyer.
 - From semi structured interview elicitations.

Data/Technical Requirements

- **DTR1:** The system shall provide secure user authentication and persistent storage of saved listings tied to user accounts.
 - Metric: Users can successfully log in within <5 seconds.
 - Reason: Users want to go back and see what listings they liked.
 - From observation elicitations.
- **DTR2:** System shall update listings after realtor submission
 - Metric: New listings appear within 24 hours.
 - Reason: Users chose tool based on reputation and not updating options can hinder that.
 - From semi structured interviews elicitations.
- **DTR3:** System shall store and encrypt personal information
 - Metric: Encryption meets industry standard (AES-256 or equivalent)
 - Reason: Users provide personal information and want a system that's reliable and secure.
 - From observation and semi structured interview elicitations.

Usability Requirements

- **UR1:** System shall provide an intuitive scrolling and browsing interface.
 - Metric: 90% of FTHB test participants can complete a basic search within 2 minutes.
 - Reason: Users reported frustration with cluttered listing layouts.
 - From HTA, primary persona, conceptual scenario, observation elicitations

- **UR2:** System shall use accessible design for readability and navigation.
 - Metric: Text meets WCAG AA contrast guidelines and key actions are reachable within 2 taps
 - Reason: Users need clear visual for fast access and important actions.
 - From observation elicitations, and primary persona.