Usability Evaluation of Zillow

Team 4

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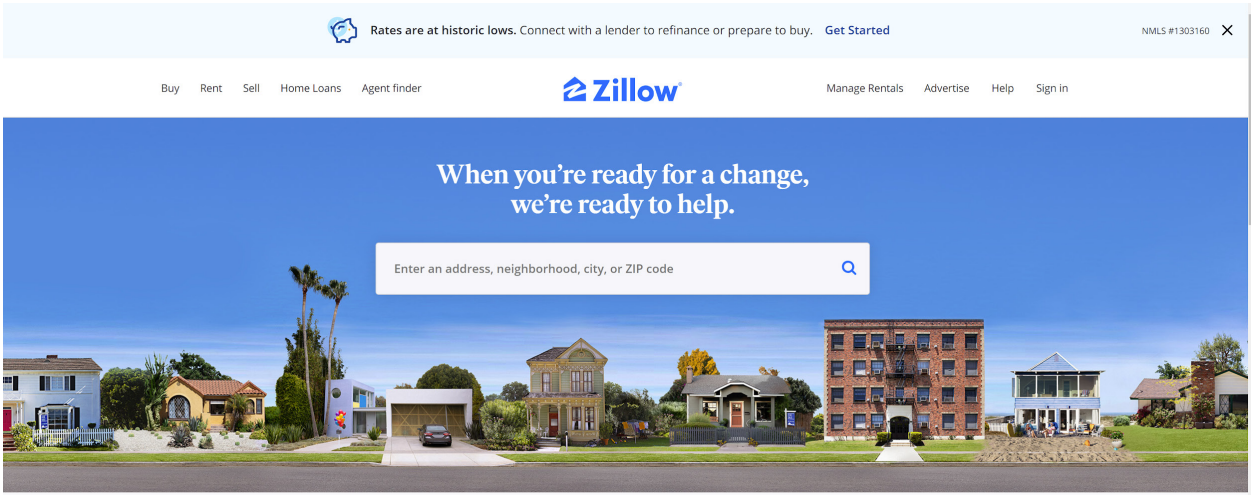
May 2, 2021



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1. Executive Summary

This project evaluated the usability of and provided design recommendations for Zillow.com, which is a real estate website designed to enhance the user experience in the buying, renting, selling, and financing process. The focus was on the home buyer's experience to understand the target audience's interaction, experience, and satisfaction with the system.

Usability testing with seven tasks was performed on 12 participants using the monitored remote testing method over video conferencing. Overall, the seven tasks were relatively easy and quick to complete except for one task. The average task completion rate was 87% including those completed with difficulty. Participants rated the tasks at 85% with ease and on average, completed the tasks in 75 seconds. Participants made five errors on average, but six tasks had five or fewer total errors. Participant satisfaction and overall rating of usability were captured in the SUS scores, which had an average of 79.38. This SUS score suggests above-average satisfaction and Zillow as a relatively usable system.

Design recommendations include the following:

- Include a "clear all" option to reset all search criteria filters.
- Include smaller increments of $50k for filtering home prices at lower price points.
- Clearly define the "use exact match" checkbox under the "Beds & Baths" filter is only for beds or also include this option for baths. Also include an option to select fewer beds or multiple selections for the number of beds.
- When searching for real estate agents, modify the advanced search features to include multiple selections of filter options.

2. Technology Description, Goals, and Questions

2.1 Technology Description

Zillow is an application that facilitates buying, selling, and renting homes. Users can search the apps on their desktop or mobile device and filter their search based on price, number of rooms, age of the house, and square footage. Zillow allows users to see photos of the house without physically visiting the location.

For this usability test, the focus was on the home buying experience.

2.2 Goals

To test the usability of Zillow, Team Four conducted a usability test using seven identified tasks that are realistic, action-oriented, and directional/specific without giving away any clues (McCloskey, 2014). The objective of the usability test was to determine the extent of how usable Zillow is for the homebuyer and the homebuyer's overall experience of the website. This test also revealed the likes and dislikes of the website/system based on the representative target audience.

Overall Goals:

1. Explore participant's interaction with the system
2. Determine participant's usability experience and satisfaction with using the system
3. Collect feedback from participants to provide design recommendations

2.3 Questions

Evaluation / Research Questions:

1. What are the major usability issues that prevent users from completing common tasks for this system?
2. Does the system navigation flow in a way that is natural to the user?

Task-specific Questions:

1. How easily can users find home listings based on price and zip code?
2. How easily can users find home listings based on property features (ex. Bedroom/Bathroom count, in-unit laundry, etc.)?
3. How easily can users search for homes based on a certain school district?
4. How easily can users share homes/listings they found with a family member or friend?
5. How easily can users add a listing to their account favorites?
6. How easily can users find an agent/property manager to assist with a home search or home buying experience?
7. How easily can users request a property tour of a listing they are interested in?

3. Methodology

To conduct the usability test, Team 4 first developed seven tasks, determined what metrics to use to measure usability, developed a standardized script and data collection forms, and recruited participants. The following section will be presented in that described order.

3.1 User Tasks

Seven tasks were developed by Team 4 and peer-reviewed for feedback before conducting the usability test. Minor edits were made to the original tasks after Team 4 reviewed and discussed the feedback received. The following tasks were used in the usability test:

1. Check home prices in zip code 94112.
2. Find homes listed between $250k - $400k in the zip code 29803 and select the first listing.
3. Find four-bedroom homes under $350,000 in the Hanover High School district in Mechanicsville, Virginia (23111), and select the first listing.
4. Find listings of homes in Portland, Maine. Then show where you would go to share the first listing with a friend or partner.
5. Add the current listing that you found to your favorites.
6. Locate a listing of agents in the 71613 zip code who represents the buyer, focuses on homes up to $400K, and speaks English.
7. Request a virtual viewing of the first property listed in Park City, Utah for the following day at 12PM.

See Appendix A for additional details on the task scenario, rationale, and success criteria for each of the seven tasks.

3.2 Metrics

To evaluate user performance on the above seven tasks, the following metrics were applied (Misfud, 2015):

- Effectiveness, operationally defined by the number of tasks that were completed successfully. This was calculated by the percentage of the total number of tasks completed successfully compared to the total number of tasks undertaken. Task success was denoted with a ‘2’, task completed but with difficulty was denoted with a ‘1’, and task failure was denoted with a ‘0.’ Task completed but with difficulty occurred when a participant completed a

task with the assistance of the moderator (team member) providing prompts or clues. Task failure occurred when the participant stated he/she is unable to complete the task or if he/she announced task completion but was incorrect.

- Efficiency, operationally defined as the time to complete the task (ToT) measured in seconds. This was summarized using the average time, in seconds, from task start to task completion for all participants on each task. The timer began after the participant was given the task (start time) and ended once he/she completed the task or was asked to move to the next task due to task difficulty (end time). Task time was then calculated by "Start time" subtracted from "End Time".
- Errors, operationally defined as when the participant made a "wrong turn". This occurred if the participant clicked on the "back" button or took an incorrect path and had to revert steps to "start over." The number of errors was counted per task. This was then analyzed by total, average, and maximum across all participants for each task.
- Difficulty, operationally defined using the Single Ease Question (SEQ) (Sauro, 2012), which is based on a 7-point Likert scale asking the participant the question " Overall, how difficult or easy was the task?". A 1-point indicates 'very difficult' and a 7-point indicates 'very easy'. Participants answered this question following the conclusion of each task. Participant scores were then averaged for each task to evaluate each task's satisfaction rating.
- Satisfaction, operationally defined using the 10-item System Usability Scale (SUS) (Sauro, 2011). This questionnaire was completed at the end of the test and has a total score of 0 to 100, with higher scores indicating higher usability. Average SUS scores from all participants were used to determine overall system usability. The SUS was selected due to being accurate, short, and most popularly used.

The following demographic questions were also collected from the participants:

- Length of time looking for a home (less than three months, three to six months, six months to a year, longer than a year)
- Age group (30s, 40s, 50s, 60s)
- Familiarity with technology and navigating websites (beginner, intermediate, advanced)
- Device and browser used for the test (free fill)

3.3 Test Procedure Description

This usability test was conducted using the monitored remote method over video conferencing. Before the test, recruited participants were informed of the usability test's purpose and 30-minute virtual meetings were set up between each participant and the team member. Participants were informed of the need to share screens, be on camera, and be recorded before the test so they can feel comfortable before agreeing to participate. These steps were necessary for the team member to observe the participant's nonverbal expressions and mouse movements/clicks and to accurately record the time to complete each task.

During the usability test, each team member followed a standardized script (See Appendix B) to ensure systematic data collection. Each task was also posted into the chat feature of the video call to assist the participants in remembering details such as zip code and filters as they worked through the task. Participants were asked to provide honest feedback on the system despite their relationship with the team. As participants completed each task, team members tracked task completion to measure effectiveness, time taken to complete each task to measure efficiency, and ease of completing each task using the SEQ to measure task difficulty. In addition, participants were asked to clarify actions using the concurrent think-aloud method. Team members were mindful not to ask too many questions, as this method could extend the time to complete the task and decrease efficiency.

At the post-test session, participants filled out the SUS questionnaire and provided any comments and feedback to evaluate overall Zillow usability via follow-up interviews. This was brief and open-ended and used to gain participant's overall experience and additional feedback, including any likes or dislikes of the system as well as frustrations encountered during the test.

During and after the test, concurrent think-aloud and follow-up interviews, respectively, were kept to a minimum to prevent test fatigue or exhaustion and to be respectful of the participant's time. This qualitative data provided additional clarification of the "why" behind the participant's mouse and eye movements and the thought/cognitive processes as he/she completed the tasks. Themes were identified that were not captured through the effectiveness, efficiency, or satisfaction methods that provides the quantitative measurements. (Rubin & Chisnell, 2008)

3.4 Instruments for Data Collection and Analysis

Zoom was the video conferencing platform used to view participants and collect data. The team chose Zoom over other video conferencing tools due to its simple set-up and free access for all users (Lobe et al., 2020). Sessions were recorded so the team

member could time the start to finish with each task. This ensured accuracy in data collection and yielded more reliable results.

Data was collected throughout the process using forms to help see patterns (Rubin & Chisnell, 2008, p. 247). Team 4 used three fillable PDF forms to gather data from participants:

1. Demographic information
2. Task completion, time on task, and ease of use (SEQ question)
3. SUS satisfaction survey

Throughout the test, think-aloud was encouraged and team members took notes and wrote down any memorable quotes or observations from participants. These were recorded in the forms. After all data were collected from the participants, that data was entered into Google Sheets for storage and analysis.
See Appendix C for the PDF forms.

3.5 Participants

3.5.1 Recruitment

A total of 12 participants were recruited for the usability test. Each team member identified four participants who were representative of the target user population and contacted those participants for the usability test. These participants were recruited using the team member's social networks and included friends, coworkers, social media contacts, neighbors, or acquaintances. Participants were contacted through email and/or text and informed before the test that their session would be recorded. Sessions occurred over ten days. Refer to Table 2 for testing dates.

3.5.2 Target Audience

The identified target audience was homebuyers currently looking to buy a new home. Homebuyers may be of any age group, but the team focused on those between ages 30-60 years. This age group was selected because the median homebuyer age is 41 years. Additionally, Millennials account for 42% of homebuyers while Gen X account for 26% and Baby Boomers account for 24% (Zillow.com, n.d.). Homebuyers may be looking for homes on the market for as little as a day to more than a year due to the current competitive housing market. This time period was chosen because almost "41% of people who visited Zillow... in the past 12 months [were] planning to buy and/or sell a home in the next 12 months." (Zillow Premier Agent, n.d., para 1). The target audience may concurrently be using other similar home buying sites, but have heard of or used Zillow at least once during their home search. Renters and occasional home browsers were excluded.

3.5.3 Participant Testing

Participant data were collected before beginning the first task and presented in Table 1. A majority of participants have been searching for homes for less than 3 months (41%) and are in their 30s (67%). Half of the participants rated their technical knowledge and experience level as intermediate and the other half rated themselves as advanced. There were no participants who were newer or beginners to technology. Most participants used a PC laptop (75%) and Google Chrome (67%) to complete the usability test.

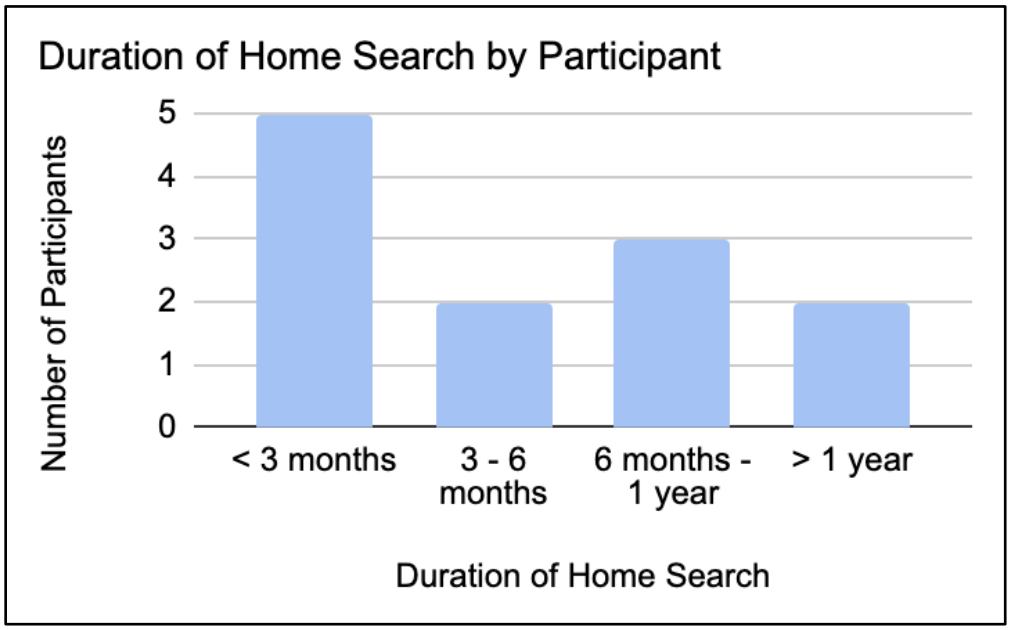

Figure 1. Duration of Home Search by Participant

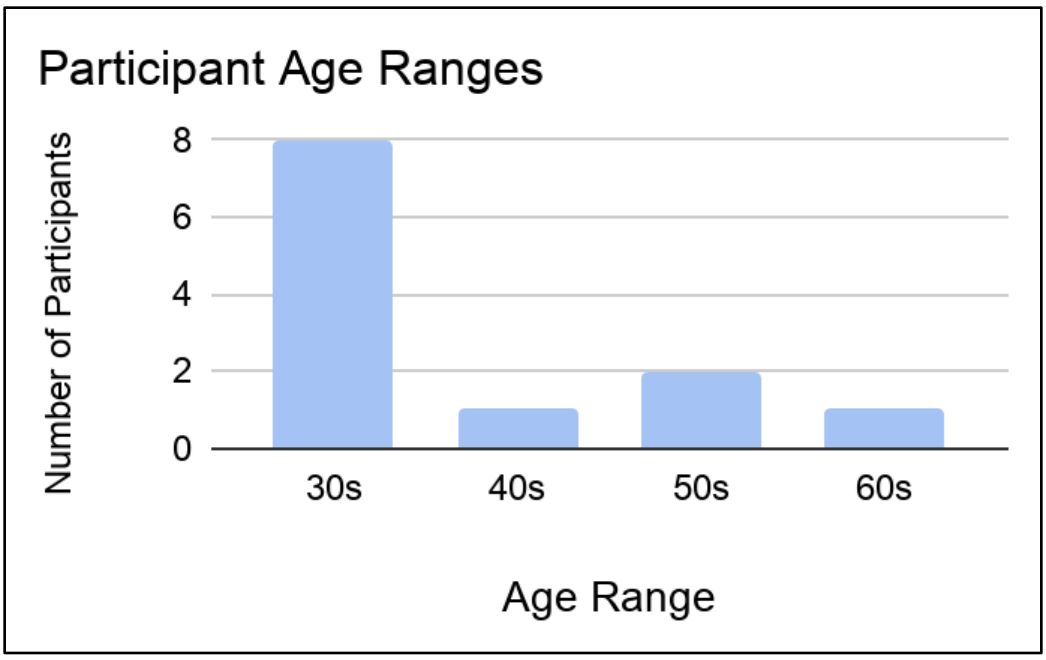

Figure 2. Participant Age Ranges

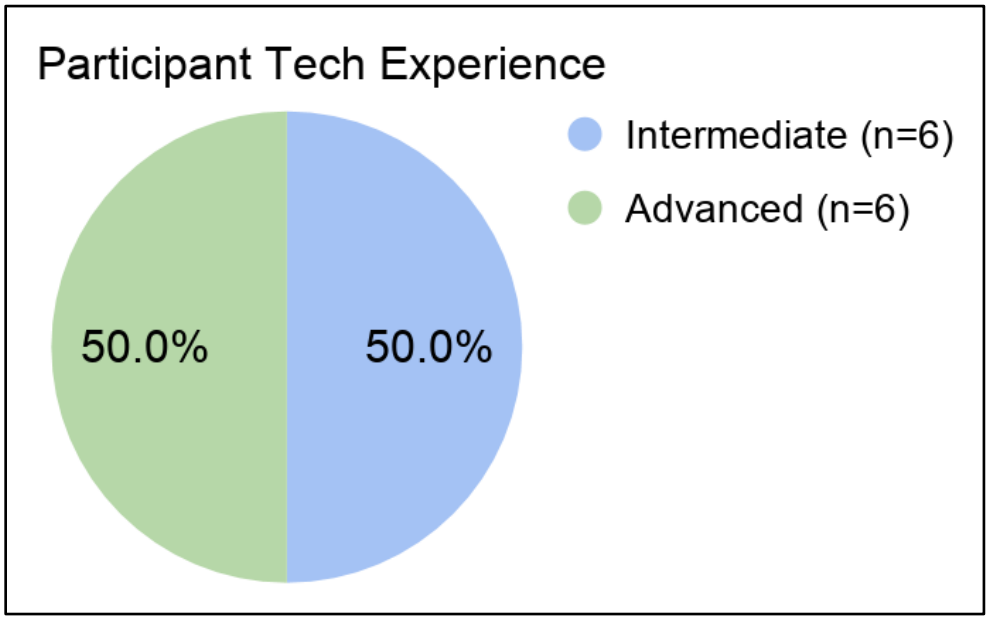

Figure 3. Participant Tech Experience

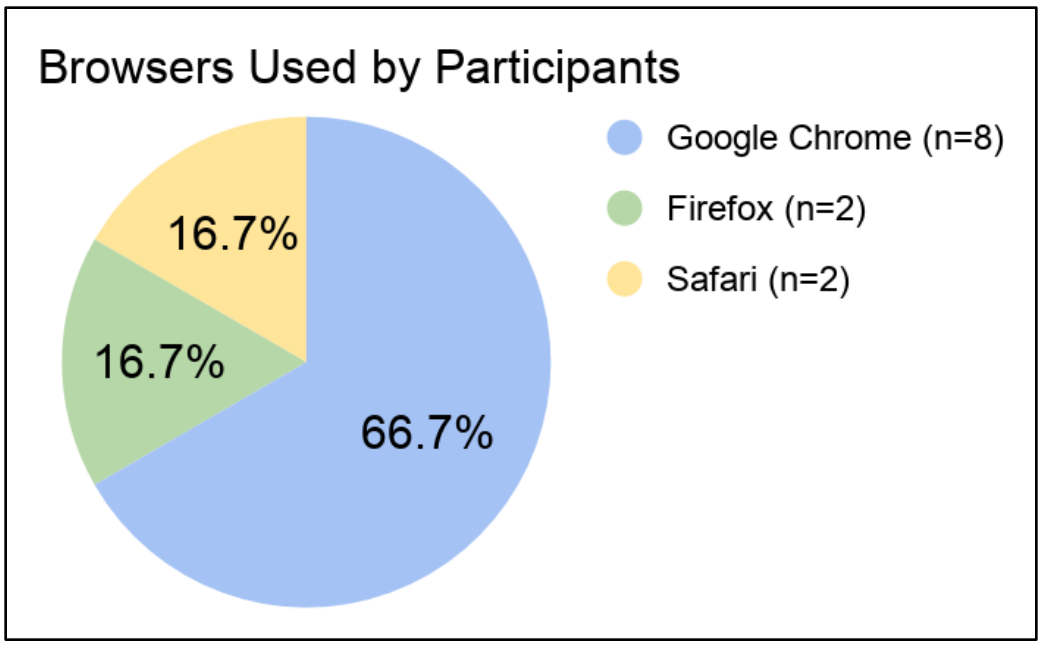

Figure 4. Browsers Used by Participants

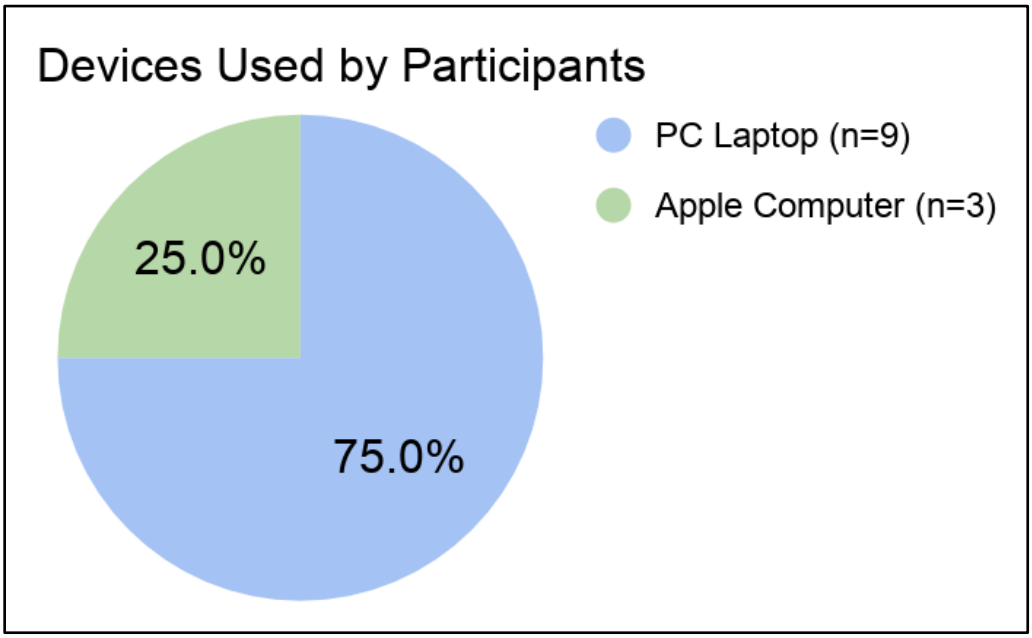

Figure 5. Devices Used by Participants

Participant testing took place over ten days beginning from April 20, 2021 until April 29, 2021. Most participants were tested on April 25, 2021.

Table 2. Participant number and date of testing

Participant	Testing Date
P1	4/20/21
P2	4/22/21
P3	4/23/21
P4	4/27/21
P5	4/25/21
P6	4/25/21
P7	4/25/21
P8	4/25/21
P9	4/27/21
P10	4/28/21
P11	4/28/21
P12	4/29/21

4. Results

Results from the usability test are first presented using quantitative performance measures followed by recommendations based on qualitative comments and observations.

4.1 Task Completion Success Rate

All participants successfully completed Task 1 (find home prices in a given zip code), Task 2 (find homes between a certain price range in a zip code), and Task 5 (add a home listing to favorites). Eleven of the 12 participants (92%) successfully completed Task 7 (request a virtual tour) with the remaining participant completing that task with difficulty. Nine participants (75%) completed Task 4 (share a listing) successfully with three participants completing that task with difficulty. Eight participants (67%) completed Task 6 (find an agent with certain criteria) successfully and the remaining four completed that task with difficulty. Task 3 (finding a 4-bedroom home in a certain school district) had the lowest completion rate with three participants completing successfully (25%), four participants completing with difficulty (33.3%), and five participants failing to complete the task (42%).

Table 3. Task Completion Rates

Participant	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7
P1	2	2	1	2	2	1	2
P2	2	2	0	1	2	2	2
P3	2	2	2	2	2	1	2
P4	2	2	0	2	2	2	2
P5	2	2	1	2	2	2	2
P6	2	2	1	1	2	1	2
P7	2	2	1	2	2	2	2
P8	2	2	2	2	2	2	2
P9	2	2	0	1	2	1	1
P10	2	2	2	2	2	2	2
P11	2	2	0	2	2	2	2
P12	2	2	0	2	2	2	2
Total	24	24	10	21	24	20	23
Total Success Points (Per Task)	**24/24**	**24/24**	**10/24**	**21/24**	**24/24**	**20/24**	**23/24**
Task Completion Rates	**100%**	**100%**	**42%**	**88%**	**100%**	**83%**	**96%**

Notes. Participant success was observed by moderators and rated between 0 to 2 for each task, with a score of 2 indicating task completion based on success criteria per task, a score of 1 indicating task completion with difficulty, and a score of 0 indicating failure to complete the task.

4.2 Task Ratings

After the completion of each task, participants rated the ease or difficulty in completing the task using the SEQ. This 7-point rating scale ranged from 1 (very difficult) to 7 (very easy) with 4 being the "neutral point." Therefore, ratings of 5, 6, or 7 indicate that the task was relatively easy to complete.

All participants strongly agreed and rated a '7' that finding a home within the given zip code (Task 1) was extremely easy from the main Zillow.com homepage. This task had the highest mean rating of 7 out of 7. A majority of participants found adding a listing to one's favorites (Task 5) the second easiest task followed by sharing a listing with someone (Task 4) and filtering homes based on a price range in a given zip code (Task 2). Ten participants found the request for a virtual tour of a home (Task 7) to be easy

by giving a rating of ‘6’ or ‘7’. Locating a list of agents with certain criteria (Task 6) gave participants a little more difficulty with five participants rating the task a 5. The most difficult rated task was finding a four-bedroom home in the Hanover High School district with more than half of participants (7 out of 12) giving a rating of a ‘1’ or ‘2’. This task had a mean rating of 3.29 out of 7.

Table 4. Mean Task Ratings on Level of Ease in Conducting the Task

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Avg. Score	Average Ease of Task (%)
Task 1	7	7	7	7	7	7	7	7	7	7	7	7	**7.00**	**100.00%**
Task 2	7	7	6	6	7	6	7	7	5	7	7	7	**6.58**	**94.05%**
Task 3	6	1	5	2	5.5	5	2	7	1	2	1	2	**3.29**	**47.02%**
Task 4	7	5	6	7	7	6	7	7	7	7	7	7	**6.67**	**95.24%**
Task 5	7	7	6	7	7	7	7	7	7	6	7	7	**6.83**	**97.62%**
Task 6	5	7	3	4	6	5	5	7	5	5	6	6	**5.33**	**76.19%**
Task 7	6	7	4	6	6	6	3	7	6	7	7	7	**6.00**	**85.71%**

Note. Average Ease of Task calculated as average rating per task over maximum ease score (out of 7). The percentage indicates how easy participants found each task as compared to a 100% score of highest usability.

4.3 Time on Task

Zoom was used to record each session. Team members then calculated the time on task for each participant by reviewing the recorded sessions. Some tasks were more difficult to complete than others and are reflected by the average time on task.

Most tasks were completed within a minute, on average, across participants. Task 3, which was to find a 4-bedroom home within a school district, took the longest time to complete (mean = 206.67 seconds), but ranged significantly from as little as 25 seconds to 771 seconds (more than 12 minutes). The task that was quickest to complete was when participants had to save a listing to their favorites (Task 5), which had an average of 24 seconds and ranged from 3 to 155 seconds.

Table 5. Time on Task (in seconds)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Avg. ToT
Task 1	16	21	21	12	**77**	23	**45**	14	**120**	30	16	**78**	**39.42**
Task 2	19	23	21	21	31	**42**	**80**	18	23	30	**59**	**40**	**33.92**
Task 3	43	162	43	240	75	135	136	25	**771**	87	**307**	**456**	**206.67**
Task 4	15	62	19	15	41	**116**	**80**	20	**155**	60	**85**	**64**	**61.00**
Task 5	7	6	15	10	**29**	16	8	4	**155**	23	11	3	**23.92**
Task 6	**83**	27	45	50	44	**114**	**78**	23	**131**	56	36	**64**	**62.58**
Task 7	113	24	30	44	37	**129**	**379**	59	**157**	46	84	68	**97.50**

Notes. Bold fonts indicate longer than average task times. Red fonts indicate the maximum number of seconds taken to complete the task.

4.4 Errors

Each team member captured the number of errors participants made while completing the task scenarios. Errors were counted regardless of successful completion or failure to complete the task.

Task 3 (finding a 4-bedroom house in a specified school district) had the highest number of errors (total = 23, max = 4, average = 2); nine of the 12 participants (75%) made at least one error on this task. No participants made any errors on two tasks, Task 1 (finding homes in a specified zip code) and Task 5 (adding a listing to one's favorite).

Table 6. Task Errors

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Avg. Errors	Total Errors
Task 1	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Task 2	0	0	0	0	0	1	0	0	0	0	0	0	**0**	**1**
Task 3	1	3	0	3	3	2	2	0	4	0	2	3	**2**	**23**
Task 4	0	1	0	0	0	2	0	0	1	0	0	0	**0**	**4**
Task 5	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Task 6	1	1	1	0	0	1	0	0	1	0	0	0	**0**	**5**
Task 7	0	0	0	0	0	0	1	1	1	0	0	0	**0**	**3**

4.5 Summary of Data

The table below displays a summary of the test data.

The overall task completion rate for the seven tasks was 87%, which included those completed with difficulty. Task 3 (searching within a school district) had the lowest task completion at 42% while all other tasks had completion ratings above 80%. Overall, it can be concluded that task completion was successful with little difficulty.

Task rating on ease showed that participants rated their experience with Zillow at 85% with ease, which means task difficulty levels across the seven tasks were relatively easy. Task 3 was rated the most difficult at 47% with ease while Task 1 (finding homes in a zip code) was unanimously rated as the easiest at 100% with ease. The other five tasks were rated between 75% and 98%.

The average time taken to complete the tasks was 75 seconds (one minute and 15 seconds). This indicates that the participants were relatively quick to complete the tasks. Most tasks were completed within 100 seconds (one minute 40 seconds) except for Task 3, which took an average of 207 seconds (3 minutes 27 seconds).

Total errors across the seven tasks ranged from 0 to 23, with 5 being the average. Task 3 had the highest number of total errors at 23, followed by Task 6 (find an agent with certain criteria) at 5 total errors.

Based on the summary of these results, Task 3 was ranked as the highest priority for further analysis based on having the lowest task completion rate, the lowest rating on ease, the highest mean task time, and the highest number of total errors. Task 6 was ranked second highest followed by Task 4 (share a listing) and then Task 7 (request a virtual tour). The remaining three tasks (Task1, Task 2, Task 5) did not show any significant issues and were deemed to be easy and satisfactory.

Table 7. Summary of Completion, Errors, Time on Task, Ease of Use

Task	Task Completion (%)	Task Rating on Ease (%)	Mean Time on Task	Total Errors Across Participants
Task 1	100%	100%	39	0
Task 2	100%	94%	34	1
Task 3	42%	47%	207	23
Task 4	88%	95%	61	4
Task 5	100%	98%	24	0
Task 6	83%	76%	63	5
Task 7	96%	86%	98	3
Avg.	**87%**	**85%**	**75**	**5**

Notes. Low completion rates and satisfaction ratings and high errors and time on tasks are highlighted in red.

4.6 Overall Measure of Usability

After all tasks were completed, participants rated Zillow using the SUS. Ten out of the 12 participants (83%) rated Zillow's usability above the average score of 68 as described by Sauro (2011). These scores were considered as acceptable or above. Two participants found Zillow to not be in the acceptable range (Participant 9 rating of 35; Participant 12 rating of 52.5). Overall, the average SUS score of 79.38 suggests that Zillow is a relatively usable system.

Table 8. System Usability Scale (SUS) Scores for Zillow

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	AVG Score
SUS Score	85	82.5	77.5	75	97.5	97.5	82.5	80	35	95	92.5	52.5	**79.38**
Acceptable Range (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	**N**	Y	Y	**N**	**Y**

Notes. Acceptable range based on the average SUS score of 68 (Sauro, 2011).

4.7 Likes, Dislikes, Participant Recommendations (Interviews/Comments)

Upon completion of each task and after all tasks, participants provided feedback and comments. These were then analyzed by the team members and categorized into three

themes: what was liked most, what was least liked, and recommendations for improving Zillow.

4.7.1. Theme 1: Liked Most

The following comments capture what the participants **liked most**:

Layout and Design of Zillow (n=4)

- Optimal layout/design of the search results allows the user to view both the home location on a map to the left and the houses' main picture, price, bed/bath information, square footage, and address to the right. (P4, P7)
- The home listings page provides good details about the home in an organized fashion on the right while the user can look through the home pictures to the left. (P1, P10)

Search and Filter Features (n=10)

- Searching for a home by entering zip or city from the Zillow.com homepage was easy and intuitive. (P1, P2, P3, P6, P8, P9, P10, P11)
- Filter options to narrow search criteria are self-explanatory and located in a spot that is easy to find without interfering with the layout of the search results. (P2, P5)

Saving and Sharing Features (n=10)

- Saving and sharing listings are easy to use and find at the top right-hand corner of the listing page. (P1, P2, P6, P7, P8, P9, P11, P12)
- The heart icon is useful because it is sort of universal and is intuitive as a favorite. (P1, P4)

4.7.2. Theme 2: Liked Least

The following comments capture what the participants liked **the least**:

Layout and Design of Zillow (n=8)

- The school icon was not obvious and being on the map rather than the criteria options on the top horizontal bar with the other filters made it hard to find. (P2, P4)
- Contacting the agent or requesting a tour can be missed including other important information such as the "see more facts and features" expansion link for more home details. (P1, P2, P8)

- While it is helpful to have the home facts split with the home pictures when wanting details about a listing, it can be difficult to read all the home facts on the right side of the page in such condensed space. (P4, P7, P12)

Search and Filter Features (n=1)

- Sometimes the search results are inconsistent where the same search done twice within seconds of each other yields different results. (P3)

4.7.3 Theme 3: Recommendations for Improvement

a) Search and Filter Features (n=10)

Problems:

- Filters from the previous task had to be manually cleared each time.
- When filtering prices, increments are only by $100K.
- Under the “Beds & Bath” filter options, there is a checkbox for “use exact match” that only applies to beds and not baths.
- There is no option to select fewer than a certain number of beds. For example, if a user wants only 2 or 3 beds, one cannot select “3 or fewer beds” or multiple select ‘2’ and ‘3’ using the “exact match” checkbox.
- When searching for real estate agents, only one filter option can be chosen per criteria under the advanced search function for home type and languages. For example, if looking for a bilingual real estate agent, the user cannot choose both English and another language. Only one language can be chosen.
- Can’t do more that one special filter (i.e. has A/C or dishwasher) at a time.
- Participant could not tell if the search had executed already since they could not find a “search” button.
- The school filter is not intuitive and does not clearly show school zones.

Suggestions:

- Have a “clear all” option to reset filters. (P3, P10, P6)
- Have smaller increments of $50k to decrease the need to type into the box. (P4, P9, P11)
- Include a “use exact match” button for baths or make it clearer to the user that the option is only for beds. (P9, P12)
- Recommendation to add a feature to select multiple options under “exact match”. (P9, P12)
- Create a “select all that apply” ability so users can check multiple filter options.
- Allow selection of more than one special filter at a time. (P11)
- Add a “search” button to prevent the page from refreshing each time a filter is added and allow users to know when the search is happening. (P6)

- Create a school zones map that allows users to easily see which zone the homes they are viewing are in. (P1, P2, P3, P6, P8)

b) Other (n=2)

Problem:

- It is not clear which listings do not offer virtual tours.

Suggestion:

- Indicate clearly on a listing if virtual tours are not offered. (P3, P7)

5. Design Recommendations

The following are design recommendations for Zillow based on incorporating the qualitative and quantitative results. The severity was rated low, medium, or high. Changes with a high severity level rated low have little to no effect on the operation of the app. Changes with a severity level of medium have some effect on the operation of the app. Changes with a severity level of high are critical to the operation of the app and must be fixed immediately in order for users to be able to complete the task.

Task 1. Find home listings based on zip code

Task 1 Description: Check home prices in zip code 94112.

Change	Justification	Severity
No change recommended.	This task was consistently rated as a 7 on the SEQ by all participants and was completed by all participants without difficulty. Searching for homes by zip code using the search box is simple and intuitive.	N/A

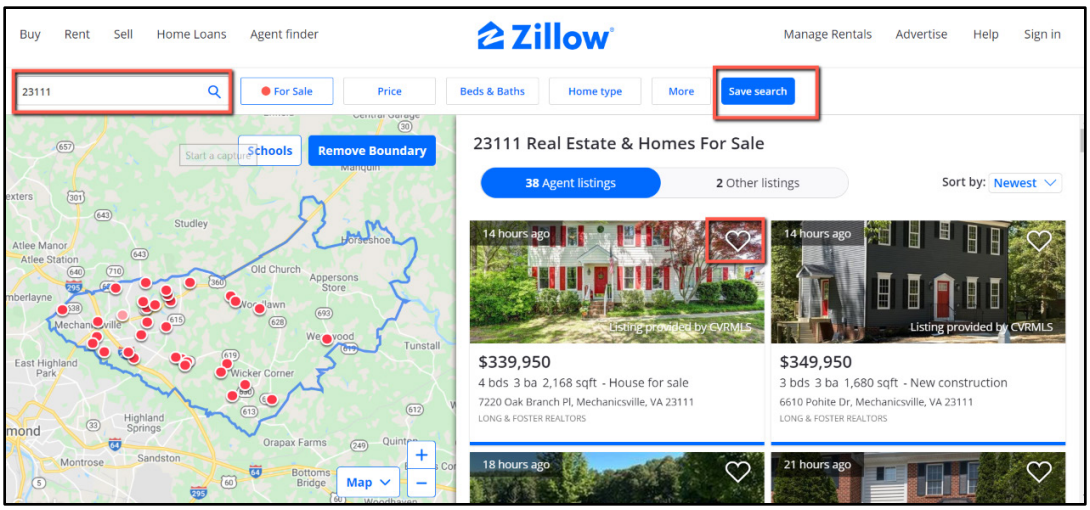

Figure 1. Screenshot of Task 1.

Task 2. Find home listings based on price

Task 2 Description: Find homes listed between $250k - $400k in the zip code 29803 and select the first listing.

Change	Justification	Severity
Change the dropdown to show increments of $50,000 Change price menus to be dropdowns so users do not have to enter data	Although this design recommendation did not prevent any participant from completing the task, this change may help the search process be more efficient. P9, P10, and P12 pointed out that not all home buyers may be looking for homes by the 100K increment, and offering more options, especially at the lower price can make it easier for the user to choose minimum and maximum home price options without the need to type in.	Low

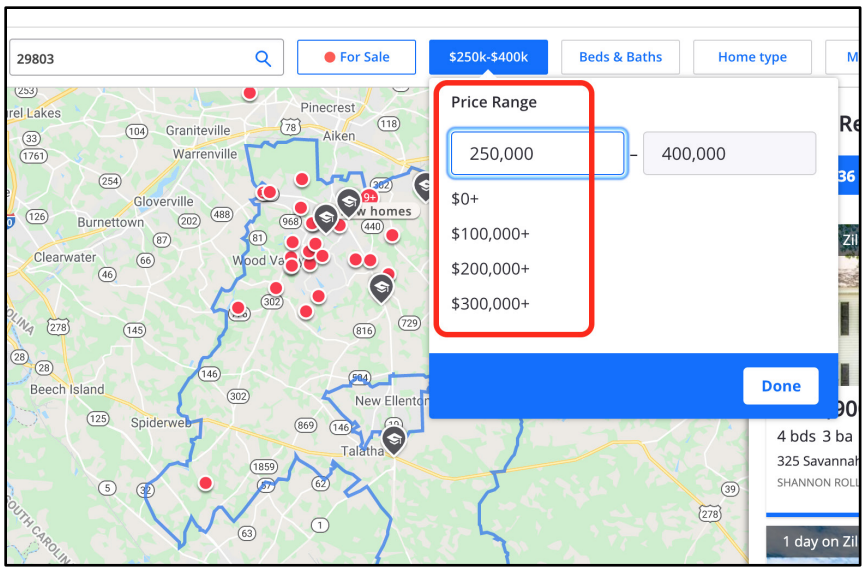

Figure 2. Screenshot of Task 2.

Task 3. Find home listings based on bedroom count and school district
Task 3 Description: Find four-bedroom homes under $350,000 in the Hanover High School district in Mechanicsville, Virginia (23111) and select the first listing.

Change	Justification	Severity
Change to show all school markers	P9 and P11 verbally indicated that they were clicking on markers but could not find the school listed in the task. They found the marker for the other schools in the county, but not the high school listed in the task. So they were unable to determine if a house was in a district without clicking on the house and scrolling to the bottom to find information on the home. **Figure 3. (a)**	High
Change Show school boundaries	P9 and P11 verbally indicated that they did not know if the boundary that appeared was for the desired school or the zip code	Medium
Create a search by school	Users may be unfamiliar with the area and have a specific school or school district in mind. Based on P9 and P12's interactions, the best option would be to allow users to select a school based on zip code and get a list of results based on their school of choice.	High

Give users the options to filter how they search for the number of bedrooms. Options should include: • exactly • or fewer • or more	P9 and P12 indicated that users can only search for four or more bedrooms or exactly four bedrooms instead of four or fewer. Different users may have different needs. **Figure 3. (b)**	Medium

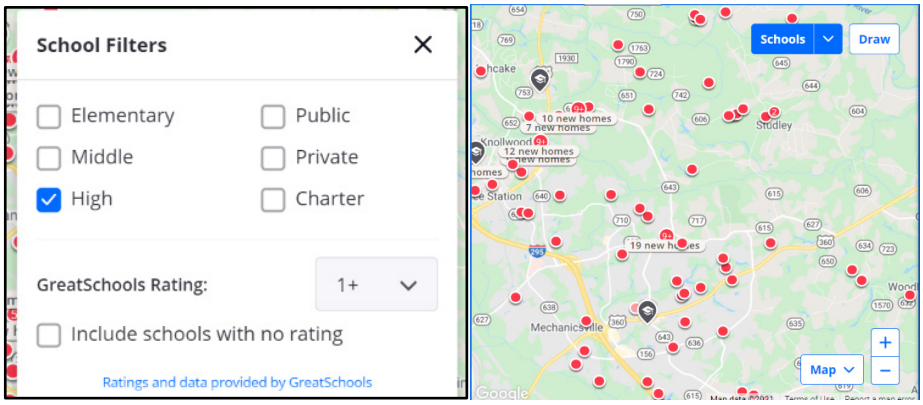

Figure 3a. Screenshot of Task 3.

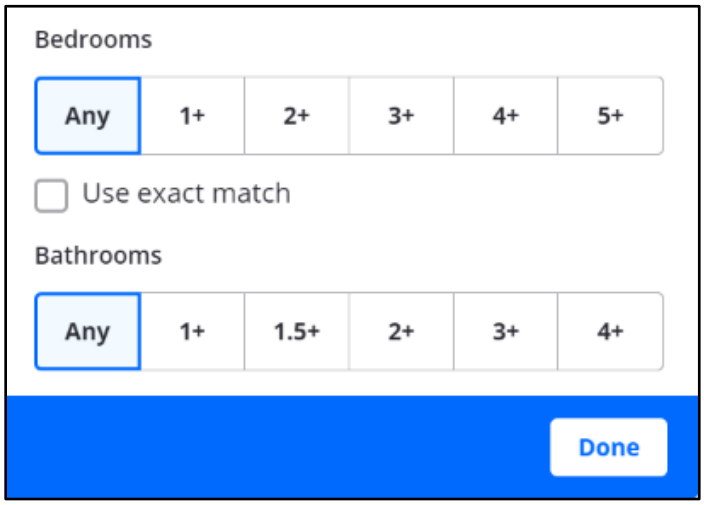

Figure 3b. Screenshot of Task 3.

Task 4. Share a home listing

Task 4 Description: Find listings of homes in Portland, Maine. Then show where you would go to share the first listing with a friend or partner.

Change	Justification	Severity
Add a shortcut icon to “share” listings from the results page.	Adding a shortcut to share a listing directly from the results page makes it easier to send without having to click into the listing itself. P6 stated that they felt it would be quicker to share if extra navigation was not required.	Low

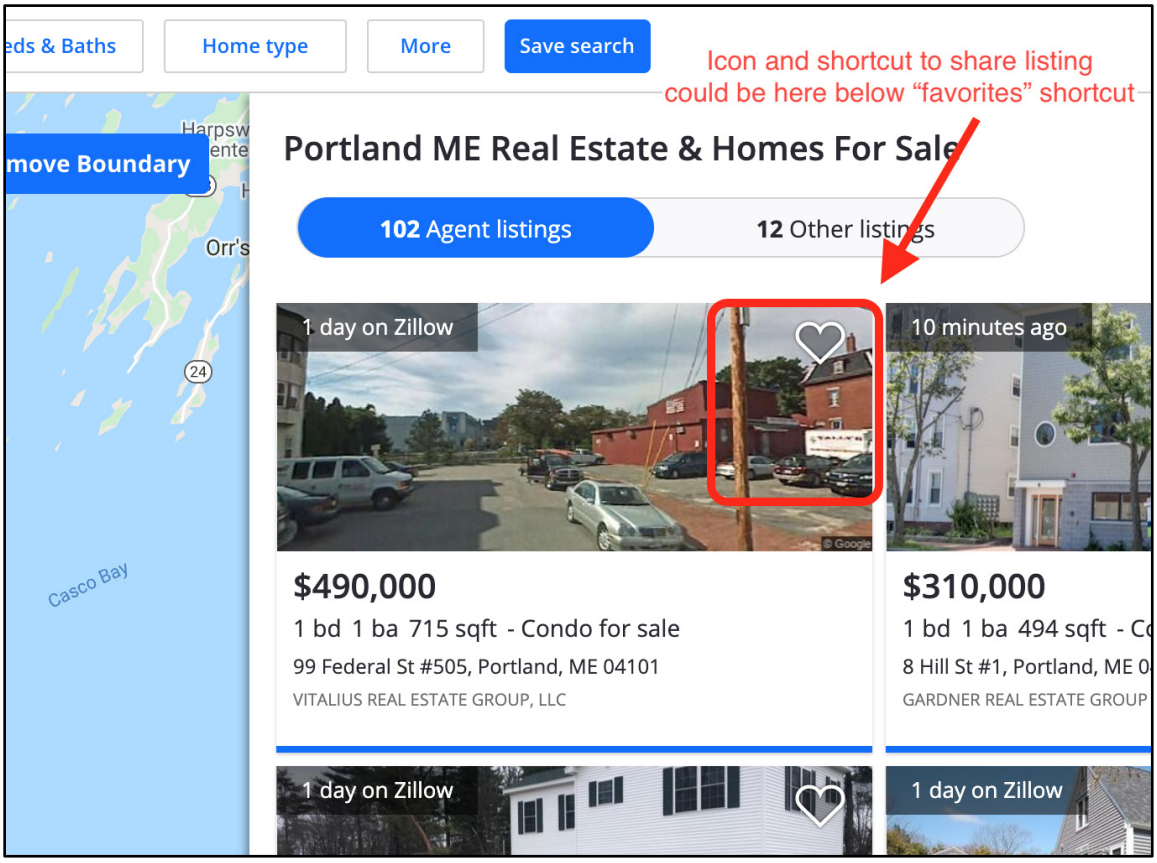

Figure 4. Screenshot of Task 4.

Task 5. Add a home listing to account favorites

Task 5 Description: Add the current listing that you found to your favorites.

Change	Justification	Severity
No change is recommended for Zillow.	The majority of participants found this task easy to complete and did not provide any suggestions for improvement.	N/A

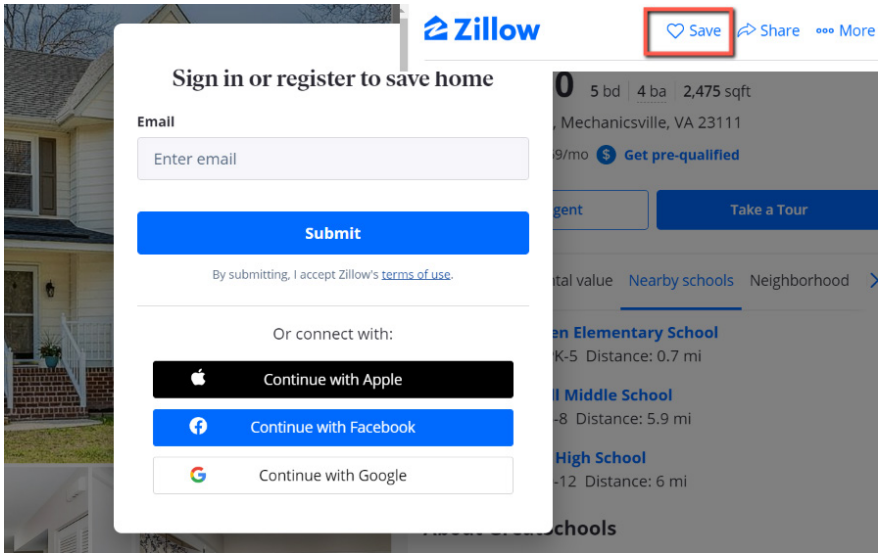

Figure 5. Screenshot of Task 5.

Task 6. Find an agent based on specific criteria

Task 6 description: Locate a listing of agents in the 71613 zip code who represents the buyer, focuses on homes up to $400K and speaks English.

Change	Justification	Severity
Allow users to fill out all search criteria before updating the search. Add a “Submit” button for the search.	The test moderators observed that the participants had to wait for the search to update after each filter was changed. This slowed down efficiency but did not appear to affect the ease of use overall during the test. This is a more significant issue for users requiring the use of multiple filters. Using a “Submit” button, as recommended by P10, would allow users to enter all search criteria and only update the search once when they are ready.	High
Allow users to select more than one option in the filter such as language, specialty, etc.	Participants are not able to select more than one item in each filter, For example, a user would not be able to search for an Agent that speaks English and Spanish.	Low

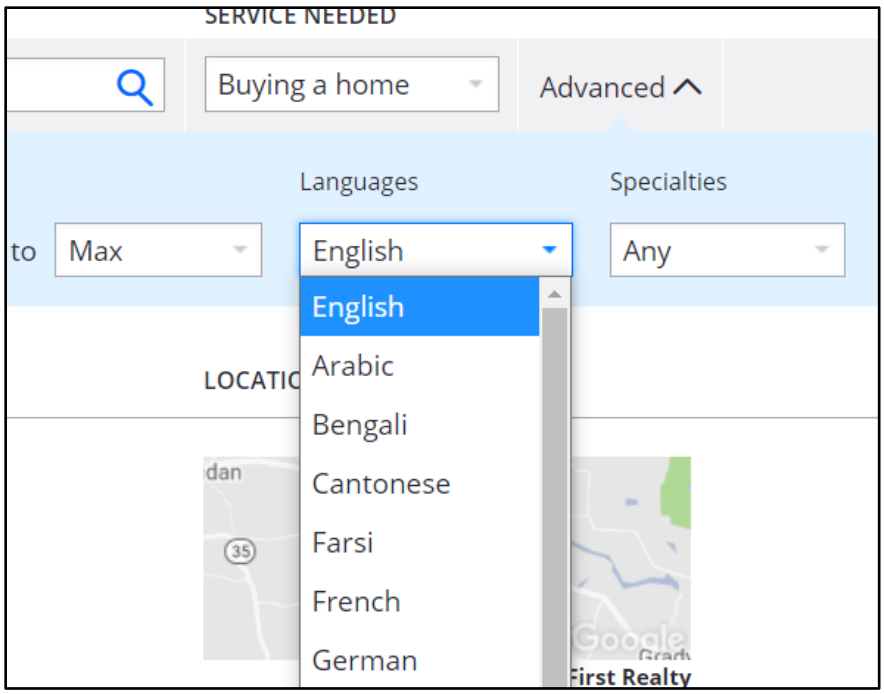

Figure 6. Screenshot of Task 6.

Task 7. Request a virtual viewing of a home listing

Task 7 Description: Request a virtual viewing of the first property listed in Park City, Utah for the following day at 12PM.

Change	Justification	Severity
Change the wording from “Take a Tour” to “View Touring Options”	P6 scrolled past the “Take a Tour” button because it did not mention a virtual option. Adding the word “Options” to that button indicates that a virtual viewing may be possible.	Low

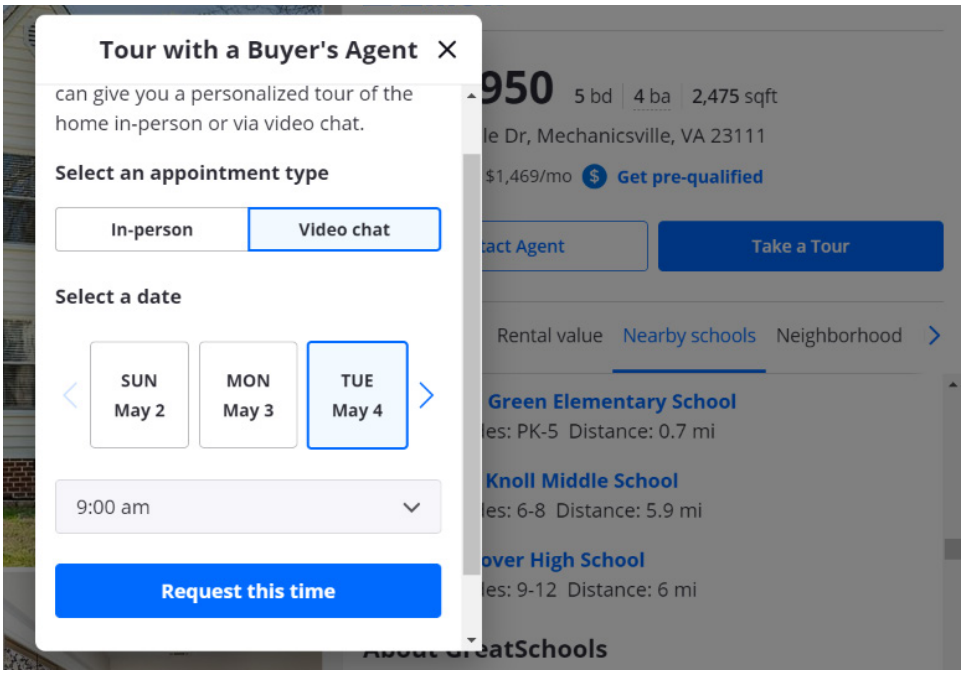

Figure 7. Screenshot of Task 7.

6. Limitations

There are several limitations to this usability project to consider:

- Participants were selected using convenience sampling methods for users known by the team member. This could introduce potential bias due to preexisting relationships. Additionally, small sample sizes limit the ability to generalize to the larger target audience despite participants meeting eligibility criteria.
- Internet connection issues during Zoom usability testing could have delayed task times to completion, resulting in longer task times.
- Participants were tested using computers only and thus mobile devices, including cell phones and tablets, were not tested. Features, layouts, designs, and overall usability could differ on mobile devices.
- Length of tasks were inconsistent. Some tasks involved more step than others, which could have affected time to task completion as those with few steps may have been simpler and quicker to complete.
- Only 7 tasks were tested and this limited number of tasks do not represent all home buying experience/functions of Zillow.com.

7. Conclusion

Team 4 conducted a usability test on Zillow.com with 12 participants. The results showed that this system is overall relatively easy to use, as reflected by an average SUS score of 79. With the exception of one task, which asked participants to look for homes in a certain school district, the remaining six tasks (on average) were completed successfully, took approximately one minute to complete, rated above easy on the SEQ, and had no errors. Despite this system's relatively high usability, participants and team members felt design recommendations were needed, which were to enhance various filtering options to improve ease of use and satisfaction in the home buying experience.

8. Project Reflections in the team

This usability evaluation implementation report required extensive teamwork and communication to be successful. Communication occurred mostly through asynchronous messaging and we kept each other accountable to ensure that the project moved along and everyone's input was included. We also capitalized on our strengths, which complimented each other's weaknesses as we worked through the project. For example, some members were strong writers while another was more comfortable with data analysis and spreadsheets. Understanding each other's comfort levels and strengths allowed us to "divide and conquer" different parts of the project while also maintaining a "check and balance" in which team members reviewed and commented on each other's work. Teamwork was perhaps one of the most important lessons gained in doing this project.

As for the project itself and our lessons learned, there were quite a few unforeseen and unplanned challenges that occurred as we created the plan, conducted participant testing, and analyzed the results. These provided us valuable lessons learned and prompted us to think about how we would approach this same project differently if we had more time to redo this again.

First, when we were creating the plan, we had to choose a different system because two of our team members did not have enough Mizzou student contacts to recruit participants for a usability test on MyZou. Once we agreed to test Zillow.com, we created tasks that changed throughout the test and failed to test enough of the multiple features that the system, Zillow.com, offered. As we developed and even began testing, we realized that some tasks were too easy and required the participant to perform few steps (i.e. Task 1) while others required multiple filtering of criteria (i.e. Task 6). Task 5 was also the only task that did not begin on the Zillow.com homepage. This inconsistency was voiced as a dissatisfaction by some participants.

Second, during participant testing, there were internet connection issues that created problems with task times, even when sessions were recorded. Also, with less than two weeks of testing, recruitment and scheduling were a little challenging as some participants had to reschedule.

Third, during post-test analysis, we realized that there was some disconnect between our tasks and the system even though task questions were well written. For example, Task 3 asked participants to find a four-bedroom home in a certain school district, but Zillow only allows users to search for homes with four or more bedrooms, not only four or four and fewer bedrooms. Rewriting this task to say "four or more bedrooms" would have been less confusing. This disconnect made us question how Zillow's search works and this aspect of usability may need further study. Additionally, home searches were not based on the participant's local area and may have influenced the test outcomes. Using Task 3 again as the example, if participants were more familiar with their school district, they may have searched the area and completed this task quicker.

Based on these above challenges, this project could be improved in several ways. First, the tasks could be adjusted to explore Zillow's sorting features. Tasks could also be more consistent by ensuring that they all started on the home page and required a similar number of steps and clicks to complete. Second, while the test script was thorough and clear, an additional prompt to clear filters between tasks would have prevented additional time spent by the participant clearing filters on the next task, which could have inadvertently increased task times. Third, during the posttest, there could be additional scripting to prompt participants of their likes, dislikes, and suggested improvements. Feedback gathered during the test was very open-ended and inconsistent between team members, which led to disorganized responses. Fourth, if there was access to an unmonitored remote method of testing, such as User Zoom Go, the use of such a usability testing tool could have prevented scheduling conflicts and unstable internet connection during the monitored remote sessions. Lastly, more participant demographic information would have been helpful to better understand the results in context. For example, many participants had trouble completing Task 3 and this could be because they do not have children or are not familiar with searching for a house by the school district. Knowing extra information about whether participants had children could have helped us interpret why Task 3 had the most difficulty.

9. Individual Reflections

9.1. Karen

This project taught me the importance of careful planning. First, we had to define our goals to give the usability test some direction. Then we created easy-to-understand (hopefully) tasks that would normally be carried out using Zillow. Then we determined the measures of success and had to figure out how to analyze the data. All of this planning took careful consideration and I was thankful to have a team to negotiate these decisions. This process made me realize that usability testing is probably best administered using a group. Each person has strengths and weaknesses and one person might catch something that another misses. The careful planning of the project helped this running to run in an organized manner.

I also learned that even with careful planning, things will not always go as planned. Participants had particular trouble with #3 and it was very difficult to remain silent and not help them with the tasks. Helping them would have compromised the test so, many of our users failed to complete task #3.

When things don’t go as planned, it’s not always negative. There is much to be learned from the successes as well as the failures. I consider task #3 to be a failure because several participants failed to complete the task. Even though this task was a failure, I learned a lot about usability testing from observing participants complete this task.

First, we had to analyze the task to understand why so many people failed. This is partially due to the way the question is worded and partly a usability issue.

Overall, I learned that being organized helps the test to run smoothly and that the way tasks are worded can have an effect on participant performance. Even the best-written tasks can have usability problems. It's up to the evaluators to analyze and identify these usability problems. I do not doubt that this process becomes easier with more experience.

9.2. Elise

This project opened my eyes to the layers of work required to do a full usability report. It also emphasized the importance of testing and re-testing the tasks as we created them to make sure they worked together and would make sense each time we modified the wording. I now understand the importance of clearly indicating that participants must start from the home page or landing page of the tool being tested before each new task. Here specifically, the previous search criteria were still there when they entered new items in for the next task. It confused participants when certain criteria were still there and they were unsure if they needed to go through and remove each filter. This then affected ToT when some participants spent time clearing the filters.

When designing the test, we felt that we were exploring the most common features that would be used by the target audience, but based on participant feedback, there were many features that they used in the past (such as washer and dryer required on the property) that we did not test.

I felt that the main issue with Task 3 was a combination of our wording and not checking the results of that search shortly before testing. It was difficult to determine whether participants had successfully completed the task due to the variations between listings of the school district. That feature seems to be filled in by the group or individual listing the unit rather than it being built into the map.

Overall, my take-home message would be to step back often during the test creation process to make sure the tasks still align with the study goals and questions. It is very easy to change the wording of a task to be more clear or focus on a specific feature, but end up veering away from the original purpose of the test.

9.3. Lisa

This project taught me a lot about the steps it takes to conduct a usability test from beginning to end. I got to experience the amount of effort it takes to create tasks and test procedures, conduct usability testing with participants, and analyze test results to come up with conclusions and design recommendations. Zillow.com is a "big system" that has many functions and determining our goals and target audience was key to

making this project manageable. The peer review and comments were extremely helpful in identifying “missed” aspects, such as the suggestion to have the tasks written through Zoom chat because some tasks were lengthy and required many steps. We incorporated this and it helped a lot during testing as many of the participants voiced the need to refer to the criteria several times during those longer tasks.

I learned during participant testing how difficult using a monitored remote method was. I had to reschedule a few sessions with participants and faced internet connection instability. An unmonitored remote method of testing, such as User Zoom Go rather than Zoom, would have probably helped mitigate these challenges and perhaps yielded better results. I also learned how that systematic data collection was not easy to do despite careful planning and agreed-upon metrics. For example, completing a task with difficulty can still have some subjectivity even though we agreed on the definition before testing. Also, I was not sure if I made enough notes during my observations and some participants did not give comments after the tasks despite me asking for feedback.

Overall, my take-home message would be that planning and communication are key to a successful usability test. Having everything ready and organized before the test made testing more efficient with the participants. Communication with team members about any changes to tasks, the definition of metrics, scripting, etc. was also extremely important to ensure that we all conducted the test systematically so we got reliable and valid results.

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11. Appendices

Appendix A: Detailed User Tasks

Task 1:

Scenario: You are starting to look for a home to buy and really like the homes in a neighborhood near where you live. You want to get an idea of pricing for homes in that area.
Task: Check home prices in the zip code 94112.
Rationale: One of the first steps in home buying is surveying the prices of the homes in the area of interest. In this task, the user becomes aware of how much to expect to spend on a home in the neighborhood.
Success Criteria: The task is complete when the participant enters the provided zip code and lands on a page showing all homes available there.

Task 2:

Scenario: You just got a new job in a different state, South Carolina, and need to find a home near where you will be working.
Task: Find homes listed between $250k - $400k in the zip code 29803 and select the first listing.
Rationale: One of the main functions of Zillow is to assist the homebuyer to find a home that is currently on sale in the housing market. Home prices can range significantly and in different areas. Being specific to a price range and zip code can help homebuyers narrow their search and find homes that fit their budget and location of interest. The task asks the user to select the first home because houses available for sale may change from day to day; therefore, specifying a home for this task may not be realistic since the usability test is conducted over a few weeks.
Success Criteria: The task is complete when the participant inputs the given zip code into the search tool and opens the page for a home listed in the price range of $250 - $400k. The user then selects the first home listed in the search results. If no homes are listed under the specified criteria, completion is marked if the participant notes that none are available. This indicates that they understood that the search worked but the criteria were too specific for that area.

Task 3:

Scenario: You are looking for a larger house and want to stay within your high schooler's attendance zone so they do not have to switch schools.
Task: Find four-bedroom homes under $350,000 in the Hanover High School district in Mechanicsville, Virginia (23111) and select the first listing.

Rationale: Users may want to search for a house in a certain school district or a specific school attendance zone. They may want their child to participate in specific programs a school offers or they may want their child to remain in the same school if they move. Because home listing fluctuates day to day, specifying a home for this task is not realistic. Therefore, the participant is to select the first home listed to ensure consistency.
Success Criteria: The task is complete when the participant finds a house within the Hanover High attendance zone that has at least 4 bedrooms and is $350,000 or less. If no homes are listed under the specified criteria, the task is complete when participant notes that no houses are available, indicating that they completed the search and understand that they need to change their search criteria by looking at houses in a different price range or going outside their desired school district.

Task 4:

Scenario: You like a home you just found on Zillow and want to show your friend or partner.
Task: Find listings of homes in Portland, Maine. Then show where you would go to share the first listing with a friend or partner.
Rationale: The home buying experience may involve others in the decision, such as that of a friend, partner, or another family member. The ability to share listings that the homebuyer is interested in is important when making the big decision to purchase a new home. Because home listings may change day by day depending on the fluctuations of the housing market, the participant will select the first available listing. This prevents participants from scrolling to find different homes or searching for a particular home that may have been available at the time this plan was created but no longer available at the time of testing, creating more reliable results.
Success Criteria: The task is complete when the participant pulls up the “email this home” screen for the listing. Completion does not require sending the listing to someone.

Task 5:

Scenario: You want to save this listing to view later.
Task: Add the current listing that you found to your favorites.
Rationale: Homebuying is similar to purchasing a product. There are many options available to the buyer and homebuyers may want to “shop around” before narrowing their options and making a decision on the home to buy.
Success Criteria: The task is complete when the participant clicks on the “save” button for the listing they are currently viewing. Completion is not dependent on whether the listing is successfully added to their favorites as some participants may not have an account with Zillow.

Task 6:

Scenario: You would like help narrowing down the search for a home that suits your preferences.
Task: Locate a listing of agents in the 71613 zip code who represents the buyer, focuses on homes up to $400K, and speaks English.
Rationale: Most home buying transactions occur through a third party or realtor. Rarely are homes listed directly by the home seller. Often, the realtors listed on home buying websites represent the buyer and can assist the buyer in answering additional questions about the home and setting up an appointment to view the home. Sometimes, the buyer may already have a realtor or agent, but Zillow can assist those who do not; therefore, it is an important task for homebuyers to be able to connect with a realtor.
Success Criteria: Task is complete when the participant uses the “Agent Finder” page and lands on a page showing agents in the 71613 zip code who serves the buyer for homes up to $400k and speaks English.

Task 7:

Scenario: You really like the home you have found on Zillow and want to explore it in detail. Due to the pandemic, however, you prefer not to “see” the home in person.
Task: Request a virtual viewing of the first property listed in Park City, Utah for the following day at 12PM.
Rationale: Homebuying is an experience that often involves the viewing, or touring, of homes that the buyer is interested in. This task allows the buyer to directly request a tour if he/she is not working with a realtor or agent.
Success Criteria: The task is complete when the participant selects a “video chat” for the next day at 12:00 pm on the “Tour with a Buyer’s Agent” page. Completion does not require scheduling a tour date and time.

Appendix B: Orientation script for participant

Introduction: Thank you for agreeing to participate in this usability test. Today, you will be testing Zillow.com. I will be providing you with seven tasks to complete. During this test, I will need you to share your screen and be on camera. This session will be recorded. I will also be taking notes and asking questions as you think through the tasks. Please discuss your thoughts as you work through each task. This allows me to better understand the usability of the system from a user's perspective. Once you complete a task, I will provide you with the next task. If you get stuck or are unable to complete a task, announce that you have completed as much of the task as you are able, and we will conclude that task. After all seven tasks are complete, you will complete a 10-question satisfaction survey. Please also provide any other comments or feedback at that time. As you work through this test, please provide your honest opinion. You will remain anonymous and any data gathered during this test will not be used outside this class assignment.

Participant characteristics: Before we begin, please answer the following questions to help us understand our users. Select your age from the following options: 30s, 40s, 50s, 60s. *Note response.* How would you describe your experience level with technology: beginner, intermediate, or advanced? *Note response.* How long have you been in the market for a home: less than three months, three to six months, six months to a year, or longer than a year? *Note response.* What device and browser are you using to complete the tasks? *Note response.* Thank you, we will now begin the test.

Task 1. You are starting to look for a home to buy and really like the homes in a neighborhood near where you live. You want to get an idea of pricing for homes in that area. Task: Check home prices in the zip code 94112.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 2. You just got a new job in a different state, South Carolina, and need to find a home near where you will be working. Task: Find homes listed between $250k - $400k in the zip code 29803 and select the first listing.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 3. You are looking for a larger house and want to stay within your high schooler's attendance zone so they do not have to switch schools. Task: Find four-bedroom homes under $350,000 in the Hanover High School district in Mechanicsville, Virginia (23111) and select the first listing.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 4. You like a home you just found on Zillow and want to show your friend or partner. Task: Using Zillow, find listings of homes in Portland, Maine. Then show where you would go to share the first listing with a friend or partner.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 5. You want to save this listing to view later. Task: Add the listing that you found to your favorites.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 6. You would like help narrowing down the search for a home that suits your preferences. Task: Using Zillow, locate a listing of agents in the 71613 zip code who represents the buyer, focuses on homes up to $400K, and speaks English.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

Task 7. You really like the home you have found on Zillow and want to explore it in detail. Due to the pandemic, however, you prefer not to "see" the home in person. Task: Request a virtual viewing of the first property listed in Park City, UT for the following day at 12PM.

Track ToT and completion. When the participant either completes the task or asks to move on to the next one, record the answer to the following question. Overall, how

difficult or easy was the task to complete? Rate based on a scale of one to seven, with one being very difficult and seven being very easy. *Note response.*

You have finished the task portion of the test. Please answer the following questions with regard to the overall test. Rate the following questions on a scale from one to five, with one being “strongly disagree” and five being “strongly agree.” *Note responses.*

1. I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

That concludes the test. Thank you for your participation. Please provide any feedback or comments you have at this time.

Zillow Usability Test Demographic Information

1. What is the length of time you have been looking for a home?
   - ◯ Less than 3 months
   - ◯ 3-6 months
   - ◯ 6 months-a year
   - ◯ More than a year
2. What is your age group?
   - ◯ 30s
   - ◯ 40s
   - ◯ 50s
3. What is your familiarity with technology?
   - ◯ Beginner
   - ◯ Intermediate
   - ◯ Advanced

What device are you using?

What browser are you using?

Student#

Tasks

Task 1: Check the home prices in zip code 94112						
Time on Task				**Completion** ◉ **Task Completed** ○ **Task completed with difficulty** ○ **Task failure**		
Ease of use						
1 ○	**2** ○	**3** ○	**4** ○	**5** ○	**6** ○	**7** ○
Task 2: Find homes listed between $250k-400k in the zip code 29803 and select the first listing.						
Time on Task				**Completion** ○ **Task Completed** ○ **Task completed with difficulty** ○ **Task failure**		
Ease-of-use						
1 ○	**2** ○	**3** ○	**4** ○	**5** ○	**6** ○	**7** ○
Task 3: Find four bedroom homes under $350k in the Hanover High School district in Mechanicsville, Virginia (23111) and select the first listing						
Time on Task				**Completion** ○ **Task Completed** ○ **Task completed with difficulty** ○ **Task failure**		
Ease-of-Use						

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

Task 4: Find listings in Portland, Maine. Then show where you would go to share the first listing with a friend or partner.

Time on Task	**Completion** ◯ **Task Completed** ◯ **Task completed with difficulty** ◯ **Task failure**

Ease-of-Use

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

Task 5: Add the current listing you found to your favorites.

Time on Task	**Completion** ◯ **Task Completed** ◯ **Task completed with difficulty** ◯ **Task failure**

Ease-of-use

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

Task 6: Locate a listing of agents in the 71613 zip code who represents the buyer, focuses on homes up to $400k, and speaks English

Time on Task	**Completion** ◯ **Task Completed** ◯ **Task completed with difficulty** ◯ **Task failure**

Task 7: Request a virtual viewing of the first property listed in Park City, Utah for the following day at 12 p.m.						
Time on Task			**Completion** ○ **Task Completed** ○ **Task completed with difficulty** ○ **Task failure**			
Ease-of-Use						
1 ○	**2** ○	**3** ○	**4** ○	**5** ○	**6** ○	**7** ○

Notes:

Student #

Post-test

Directions:

You have finished the task portion of the test. Please answer the following questions with regard to the overall test. Rate the following on a scale from one to five.

1. I would like to use this system frequently.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
2. I found the system unnecessarily complex.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
3. I thought the system was easy to use.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
4. I think that I would need the support of a technical person to be able to use this system.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
5. I found the various functions in this system were well integrated.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
6. I thought there was too much inconsistency in this system.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
7. I would imagine that most people would learn to use this system very quickly.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree

8. I found the system very cumbersome to use.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
9. I feel very confident using the system.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree
10. I needed to learn a lot of things before I could get going with this system.				
○ 1 Strongly disagree	○ 2 Disagree	○ 3 Neither agree or disagree	○ 4 Agree	○ 5 Strongly agree

Comments: