

CMPT 481 PROJECT REPORT

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PROBLEM & MOTIVATION:

As the world headed further into the COVID-19 pandemic in 2020, it disrupted the daily life of many Canadians. This led to the Government of Canada to take preventive measures and aid its people. Among the measures was the low interest rate for mortgages which led to an increase of demand in the housing market. This created many opportunities for investments in real estate in the forms of short-term rentals, long-term rentals, Airbnbs, and etc.

Now as we are “sort-of” emerging out of this pandemic in 2022, our team noticed a couple problems in-hand with the sudden influx of many rental properties available. As of now, most of the investors are publishing their rental property either on Facebook or Kijiji. However, they are only utilizing what’s available; and truth is there is currently no platform out there that centralizes and focuses on providing service tailored for landlords-tenants.

Another problem caused by the home-buying frenzy is that the properties being bought were houses and this was too much for a single person. The current flow of finding a roommate is quite heartbreaking as there is nothing in place for it. After the first tenant finds a place, they then would have to make a Facebook or Kijiji post to look for a roommate. The whole process can be very long and exhausting.

Our team was motivated by these problems to create a platform that specializes in rental properties. This will provide landlords and tenants a central place to go to when it comes to listings, either you are looking to publish or to rent. Additionally, we want to facilitate the process of consolidation of renting by providing confirmation and communication tools for landlord-tenants, as well as the option to look for roommates to share the rental.

RELATED LITERATURE & BACKGROUND:

The design concept we used for both the medium and high fidelity prototype was based more on Airbnb, Tinder and our creative ideas. We decided to use the

Airbnb design model based on the map and photo view because we wanted to give users more freedom when using the application. The design concept was also based on making the interface easier for user’s to recognize rather than recall. We designed the application using the whole ten heuristic principles in mind so that it would be easier for user’s when navigating through the interface. Also we applied the chatbot assistance because we believe it would be useful for new users that are not familiar with the interface so that the active bot would be able to render assistance for new user’s in order to reduce the workload on the customer support team. We also applied the swiping interface on the design because it would be easier for user’s to have fun while searching for new users rather than just scrolling around the interface endlessly. The dashboard was also designed in mind so that it would give user’s more freedom to the interface when deciding on what type of apartment they are currently interested in because we realized other applications prefer to only display a Photo view of the apartment for the users. We also realized that users find it really hard in renting and buying properties using the existing home management apps due to large information workload and complex presentation on the application that was why we tried redesigning our application so as to make it not to be so much bulky and so that we can pass out the relevant information to users when using the interface on the design application. We simplified every task to make home acquisition very easy for both a new and existing user. We also provided a quick tour menu for new users so that we can get them familiar with the application interface and we also provided a button for the quick tour in the settings page so that existing users could take future tours if they by any means forget the interface design in the future.

We built this app in the first place because other applications restricted users freedom while navigating through the interface and also we wanted

to give users the ability to purchase and rent home on a single application rather than only having one of these features on the application just like how other home management apps work. Lastly, the whole design was built to help landlords in selling their properties and also in getting tenants as quickly as possible when the home is listed, and the application was built to help roommates in locating friends in a particular demographic who are also interested in renting an apartment. The interface was also built in helping individuals to attend live ShowHome events either in-person or through the application interface. We also designed the interface to help roommates to form a group and get to rent an apartment together.

DESCRIPTION OF THE SYSTEM:

Our prototype was made by combining ideas of several different home rental applications and other application types into one big thing that solves the following problems:

- **Lack of communication between renter and rentee:** This was a problem that we found very important, we know that a certain level of transparency is important between these two sides, and as the covid-19 pandemic, struck it showed the importance of virtual communication around the world, as face to face interactions greatly deteriorated. We decided to add a chatting platform where users could contact who they want. I.e. a home renter could choose to chat with a rentee, or one could wish to chat with a potential roommate. The aim of this was to integrate an actual medium scale social communication platform similar to already existing into the app, to annihilate trivial methods such as email and sms, and speed up communication significantly.
- **Application Usability or Understanding:** Not necessarily a motivation as in A above, but this design factor was brought about when other home rental applications were being reviewed. For first time users, it was quite challenging navigating the applications, because there was too much out there. Although all the GUI interfaces had importance behind them, it would still be confusing using them, especially for someone who only wishes to use the application once in a while, not constantly. So in order to cure this, we decided to implement a tour guide for new users, which quickly highlights the major processes of the application, without taking too

much of the users' time. Of Course the tour guide is optional for the user.

- **Canceling bookings:** One major problem that arises with home rental applications, is not how to rent or reserve a home, rather it's how to withdraw from your reservation. It's quite a hassle trying to withdraw applications especially using applications like expedia and what have you. So we designed a simple interface for this where someone could withdraw. Incase the user still finds difficulty, we offer a chatbot for assistance in doing all sort of tasks, including canceling bookings
- **Location rendering of homes:** This was a straightforward implementation design aimed at helping users know the location of the place they wish to rent. We offered two ways to display this information to the users, a photo view, and a map view. The photo view offered photos of how the area including the house looks, so users can know how the place looks. While the map view offered a location grid on google map services of the house.

EVALUATION WITH USER REPORTS:

Goals

Our primary goal is to create a go-to platform for users when they are looking for a place to rent. We determined that in order for the App to be successful we need to ensure that there is a good and continuous flow in the functionality of the platform. In other words, we are aiming to make the booking process as smooth as possible while providing the user with enough information that would make them confident in their decisions within the App.

Our secondary goal was to make sure that the users were confident and comfortable in their actions. This will include the accessibility of making changes to existing listings, bookings, and reservations. As well as, a communication tool for the users in case further discussion or coordination with landlords, tenants, and roommates is required. With this goal, we are hoping to provide the users full control on what they are doing and to not be afraid of miss-clicking or holding back due to lack of access.

Approach and Rationale for the Evaluation

A Questionnaire was sent out to evaluate our planned Goals. The questions were designed to examine the user's experience as they go through the process of renting their own place. The questions revolved

around what elements contributed to the good accessibility of the features and the good flow of the process as well as those that hindered the process. The form of the question will be a rating form from 1 to 10. Here are the user groups that were part of the Evaluation:

- **University Students from the Computer Science Department:** group of participants that have vast experience with mobile apps and technology.
- **Elders:** group of participants that belong to the older demographic who have limited experience with technology.
- **Realtors:** group of participants that have experience and knowledge in the field of Real States.
- **General Public:** group of participants that uses mobile Apps on the daily, but not necessarily well versed in technology.

Divergence from Milestone III

Upon reviewing our goals and our evaluation, we deemed that there were no changes necessary to be made. Our goals stayed the same with no changes:

- The continuous flow of the functionality of the App (***No changes***)
- Accessibility of editing/canceling a Booking (***No changes***)
- Sufficient information on the Listings (***No changes***)
- Accessibility of contact with the Landlord (messaging and call) (***No changes***)

Results and Reports

While examining the results from the Questionnaire that was sent out to 15 users, we are happy to say that based on the ratings given by the great majority of the users were positive given the score of 1.

When they were asked the degree of easiness, 1 being the easiest and 5 being the hardest, of navigating through the App as well as successfully getting onto the next step/page, we found that over 70% of the users rated the process with a rating of 1. The rest of the 30% were split among the ratings of 2, 3, and 4.

When they were asked about the helpfulness of the different tools and features that were being offered such as: feedback, dashboard interface, photo-view, map-view, over 85% of the users found it useful as well as a variety of preferences.

There is a wide variance in opinions when it comes to the efficiency that the chatbot and the articles offered. The rating is even across the board.

Conclusion

The overall feedback from the users were positive and we were able to achieve our main goal which was the continuity of flow in the process of renting. Users were able to perform their tasks in an easy manner and did not have much problem locating features in the App.

On the other hand, there was some ambiguous feedback regarding the miscellaneous features that we decided to add such as *related articles and chatbot*. The original goal of this feature was to further assist the users on their decision regarding a place, but it might have overloaded the user with excess information.

At the end of the questionnaire, most of the users vocal out their concerns and worries when it comes to *renting*. This helps us conclude that our platform has a place in the consumer's market as well as it can greatly improve many lives.

FINAL RECOMMENDATIONS:

Formulate Final Project Conclusions and Design Recommendations

The Quality of Interface Design?

- **Simplicity:** In designing the application, we tried to keep the interface as simple for both new and existing users. For example, in the dashboard screen, we tried not to have excess information on the interface so that users can be able to distinguish the difference between the homes for rent and also homes for sale. We applied a clear visual logo so that it will be easier for users to differentiate each button and also to keep the interface as simple as possible.

- **Encouragement & Satisfaction:** In designing the application, we made the chat messaging interface to have a similar trait just like facebook where the current button is highlighted in a different color from the other buttons so to give the user an idea on what interface they are currently on. We encourage users so that when they leave the current interface and move to the next button, it would still be easier for the user to navigate to the previous button with ease and in terms of satisfaction, we designed the interface to allow users to be able to save available homes in order to keep users coming back and also to give users the maximum satisfaction because we do prioritize the user needs in the interface.

- **Familiarity:** In designing the application, we prioritized trying to make the interface to be familiar for every user so that it will be easy for users to locate an icon on the interface just like facebook and linkedin Menu. In the overall design prototype, we tried to keep the interface familiar for users so that users can easily recognize an icon rather than having to memorize it. For example, in the chat messaging interface, we tried not to clutter the interface with too much information. We clearly labeled the home activity for landlords and active home events so that users would not get so confused with the interface and we also distinguished each button so to give users more clarity on what each button is supposed to perform. We designed the overall interface using the same google font and style so that we can make the design clear for users.

- **Predictability:** We designed the application to fit the expectation of users. In the dashboard for users that created a new account, we included a quick tutorial that would train users on what feature does. We designed the visual logo to greatly explain to users what that application does. We believed that if users require extra training on how to use your application then it is not poorly designed and we believe with the overall prototype we explained to both new and existing users on how to use the application without training.

- **Safety:** We designed the application to help users whenever they make mistakes on the application by asking the user if they want to proceed doing something or performing an action by protecting them when they make an error. For example, in creating a listing page and when creating an account, we do as much to ask the user if they still want to continue with the same action and by doing so we can guide the user action if they make a mistake.

What parts of the design work well and what still needs improvement?

Overall, most of the prototype we designed was accurate and it worked well based on the feedback we received from the surveys filled by users. About roughly 86% of the users really liked the dashboard interface and also found it very easy when creating and logging into their account. One of the interfaces that also stood out for new users based on the questionnaire filled up was the chatbot assistance and the photo view portrait of the home application. If we

still had enough time, we would have liked to improve the overall interface font size and also the Map view interface.

Do you really believe that the system would work well for your identified users and tasks, and what evidence do you have for this?

Yes, I believe that the system would work well for our identified users and their intended tasks because some of the users prefer toggling between the map and photo view and also most of the users would prefer to get homes based on their recommended/previous search for an apartment. And also most of the users found the filter page very helpful when looking for homes. Overall, most of the users did enjoy the design of the application due to its simplicity, user friendly interface and not excessive information on the interface.

Design Process Reflection

Did you actually see your design change under the influence of user involvement?

Yes, our design changed under the influence of user involvement, for example in the chat messaging prototype which was not properly arranged before due to clustering fonts and space and usage of different fonts. But due to user involvement we adjusted the interface and added more spacing and different fonts to help users navigate through the interface smoothly, while obeying design principles such as proximity and simplicity.

Through user involvement most users preferred to toggle between the map and photo view. So instead of having only one option of viewing houses, we gave them an alternative for using the two different views.

Did the methods you chose for your evaluation and prototyping get at what you were looking for?

Yes, all methods used provide the positive response we were looking for. For the low fidelity prototype process we applied the 10 plus 10 method where we sketched major versions of the application from there we were able to decide on the major ideas for the final application at an early stage. Whereas for the medium and high fidelity we used the 10 heuristic evaluation principles to evaluate our interface design.

What were the most, and least, valuable, among the activities we've asked you to try out, either generally or specifically for your project?

The least valuable activity we did was the interview because the majority of users preferred questionnaires to interviews due to being put on the spot and camera focused, also it was very time consuming to conduct an interview because it was hard to find someone who was free at that specific time. The most valuable activities were the questionnaire and the heuristic evaluation.

Having gone through this course, how might you approach your next interface design project (whether for fun/personal or work, large or small) differently?

Having gone through this course we would have preferred to imitate the design from that of facebook and linkedin menu icon below the interface that helps users switch between the prototype interfaces.

APPENDICES

A1 - EVALUATION INSTRUMENTS

Tasks performed by users:

1. Create a new Account
2. Successfully Book a rental place
3. Confirm the Booking
4. Make an edit or cancel a current Booking

The link for the Google Form Questionnaire:
https://docs.google.com/forms/d/1aDPjckTOcQ7ZA2eO2gclkhvQeZsHhPjwpwfd8kPpeyk/viewform?edit_requested=true

Questions from the Questionnaire:

What city do you currently reside in?

How easy was it to login to your account?

How easy was it to create a new account?

How easy did you find it navigating to the next page after entering your account credentials?

Buttons on the Settings page are hard to read

Did you find the Feedback page helpful Do you like the dashboard interface?

How quickly were you able to view homes listed on the marketplace?

Which interface do you prefer to use when you want to view homes on the interface?

Was the chatbot assistance helpful?

How satisfied were you with the Map view?

How satisfied were you with the Photo view?

How easy did you find it moving horizontally when you wanted to view more condo apartments in your region?

How helpful was the Articles on the home listing page

How helpful was the Filter page on the Photo view interface?

How easy did you find it in viewing the homes you saved on the interface?

Did you get stuck on any of the interfaces?

How quickly were you able to locate apartments when using the map view?

Was the Monthly Payment Calculator helpful for the home listing?

How easy did you find it creating a home listing

Were the characters on the listing page visible enough?

How quickly was the chatbot assistance in resolving your queries/questions?

How easy was it for you to locate the messaging box in the interface?

How helpful was the quick tour when you created a new account?

Please Select the Frustrations you encounter when purchasing/renting an apartment using your mobile device?

How quickly did you locate this button on the Map View?

Select the Goals you love to achieve when searching for apartments in your device (You can select more than One)

How helpful was the swipe screen when searching for new roommates?

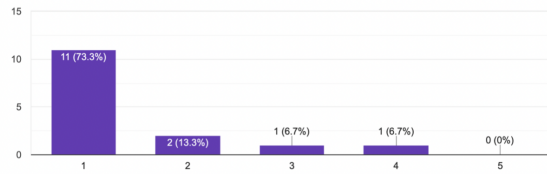
How often do you toggle between the Map and Photo View?

Can you suggest any improvements to the interface?

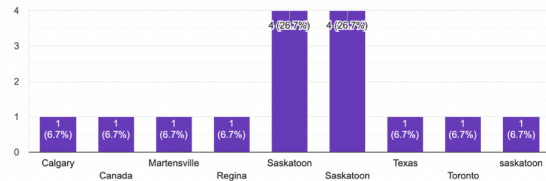
What features really stand out when using the system?

A2 - RAW DATA

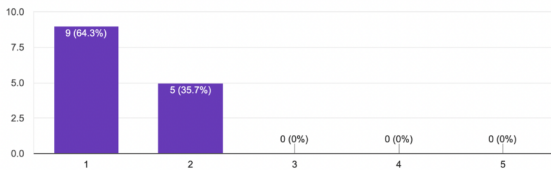
How easy did you find it navigating to the next page after entering your account credentials
15 responses



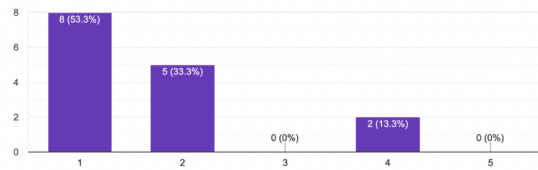
What city do you currently reside in
15 responses



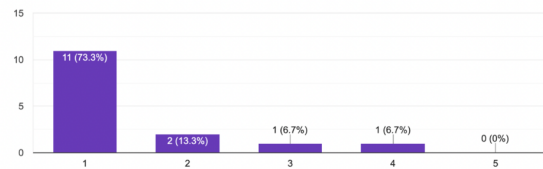
How easy was it to login to your account
14 responses



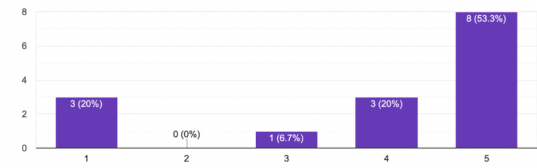
How easy was it to create a new account
15 responses



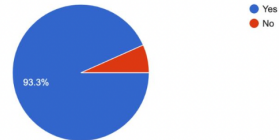
How easy did you find it navigating to the next page after entering your account credentials
15 responses



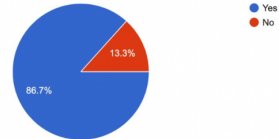
Buttons on the Settings page are hard to read
15 responses



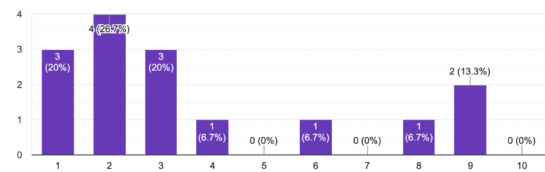
Did you find the Feedback page helpful
15 responses



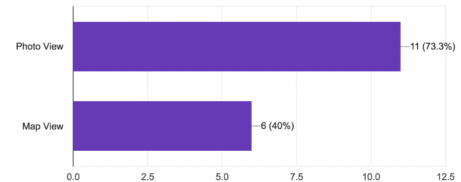
Do you like the dashboard interface?
15 responses



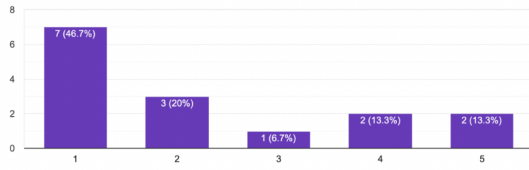
How quickly were you able to view homes listed on the marketplace
15 responses



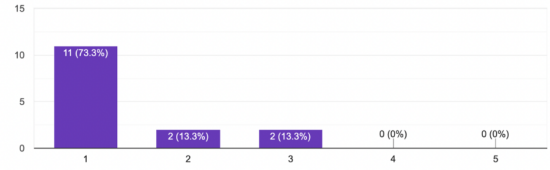
Which interface do you prefer to use when you want to view homes on the interface
15 responses



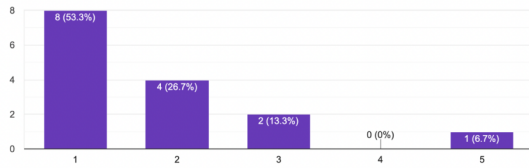
Was the chatbot assistance helpful
15 responses



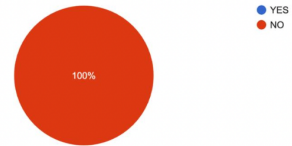
How easy did you find it in viewing the homes you saved on the interface
15 responses



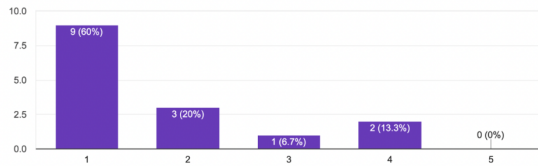
How satisfied were you with the Map view
15 responses



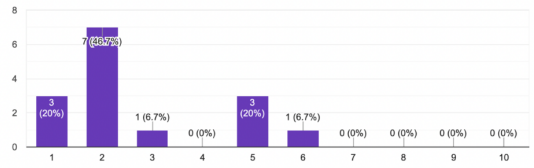
Did you get stuck on any of the interface
15 responses



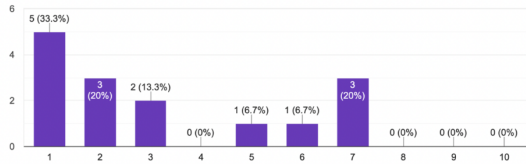
How satisfied were you with the Photo view
15 responses



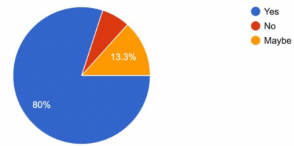
How quickly were you able to locate apartments when using the map view
15 responses



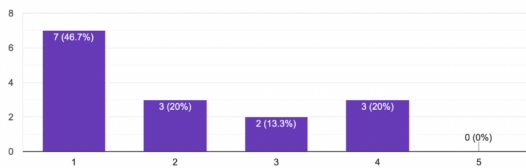
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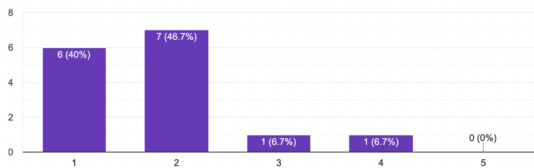
Was the Monthly Payment Calculator helpful for the home listing
15 responses



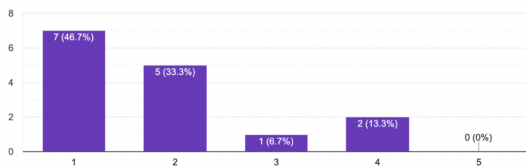
How helpful was the Articles on the home listing page
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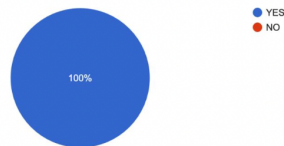
How easy did you find it creating a home listing
15 responses



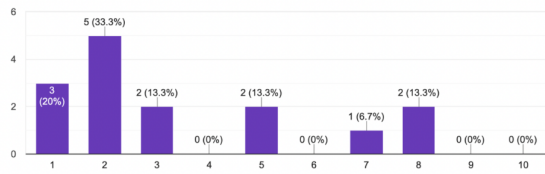
How helpful was the Filter page on the Photo view interface
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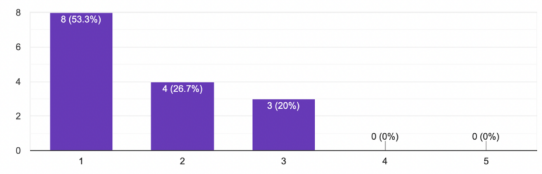
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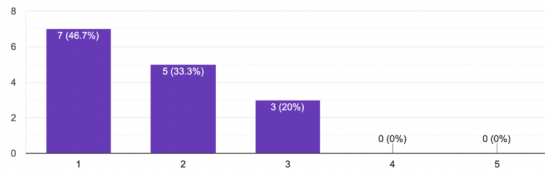
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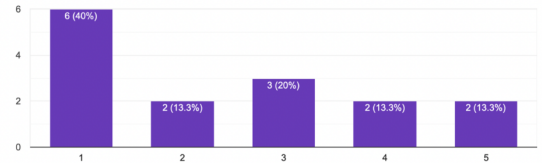
How helpful was the swipe screen when searching for new roommates
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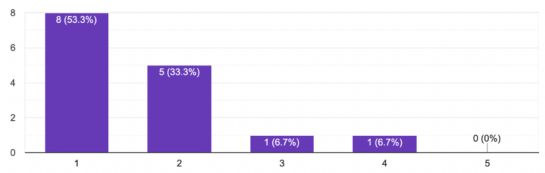
How easy was it for you to locate the messaging box in the interface
15 responses



How often do you toggle between the Map and Photo View
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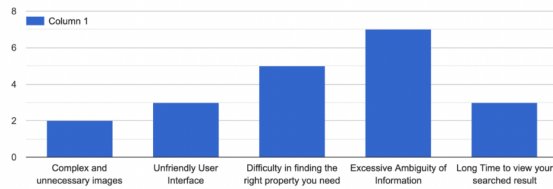
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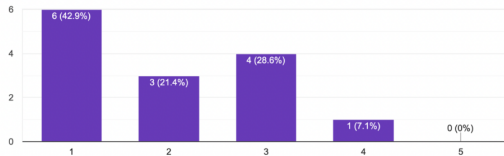
What feature really stand out when using the system?
11 responses

The map view
Photo view and Map view
map view
nil
Map view
Easy to navigate!!
None
Being able to view everything clearly and understanding how to use it.
The dashboard screen was easy to understand and view homes quickly

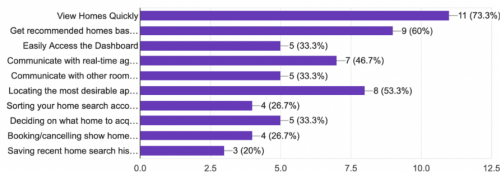
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How quickly did you locate this button on the Map View
14 responses



Select the Goals you love to achieve when searching for apartments in your device (You can select more than One)
15 responses



Can you suggest any improvements to the interface?
9 responses

Nope
Nil
the dashboard
The chatbox
Too much information
Really good interface!
None
Nope!
nil