

5. Evaluation

Testing the prototype with users

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Introduction

In the first challenge, we defined user profiles, analyzed the competitors and explored the fundamental principles of human-computer interaction.

In the second challenge, we used two methods to analyze an interface. In the flowchart we defined the step-by-step process necessary to complete some tasks. In the second, we used real users to view live usage and detect possible errors or things to improve.

In the third challenge, we worked on universal design, accessibility, and re- fined the improvement proposal to meet the *WCAG* level *A*.

In the fourth challenge, we implemented a prototype to complete a given task. Finally, in this fifth and final challenge, the objectives are:

1. Evaluating our prototype with users.
2. Evaluating the accessibility of our prototype.
3. Preparing a report on the work done.

Again, we will do a user test to evaluate our prototype and see if they perceive improvements. We will apply the *WCAG* guidelines to see if we achieve level *A* of accessibility. And finally, we will prepare a report on the work done and the results of the evaluations, to see if we have achieved an improvement in functionality. We will detail the aspects improved and how we have improved them. And in the event of not having achieved a noticeable improvement, we will detail what aspects we would have to modify for a theoretical second iteration.

User Testing

In this section, we will be contacting the same two people we interviewed in challenge 2: synthesis of the proposal. This time, the two users Pablo and Patricia will test our low-fidelity prototype live and will then answer a couple of questions. We will then analyze the results of the two users and draw some conclusions as to what needs to be changed or improved in future iterations of the prototyping process.

Disclaimers:

- For privacy reasons, I will use fake names instead of their real names.
- I didn't record the interviews; I only took some notes on the answers, so the conversations don't show *exactly* the answers in the interview.
- For reference, the script from the previous interview is also added, and new content appears below the text **NEW**.

User 1

- Description

Name: Pablo

Age: 23

Marital Status: not married, not in a relationship

Location: Lives with his parents in Madrid

Interests: all things technology, cryptocurrencies, animals

Budget: High Budget

Needs: Apartment (shared or not) closer to where he is doing his studies

Personal Goals: work out more

- Interview script

Alex: Hello, thank you for agreeing to make this short interview.

Pablo: Pleasure, hope it helps!

Alex: Hope so. Okay, first question: How would you search for a house based on the area where you want to buy it?

Pablo: I maybe would look for an area that interests me, but I personally like to find houses straight from the map. It helps me to see other places nearby such as shops, libraries or restaurants.

Alex: Thank you. Would you use filtering options for your house, like price ranges, how old the house is, how many floors it has, whether or not it has parking, accessibility entrances, and so forth?

Pablo: I would set a maximum price I am willing to pay. I want a flat, preferably without roommates, so I would set the number of floors to 1 and number of roommates to 0. I do want more than one bedroom in case I bring friends over to sleep.

Alex: Okay, last question. Describe how you would go about sharing a house as favorite.

Pablo: Assuming I have an account, I would expect to see a "Favorite" button, possibly with a "heart" on it. I would also expect it to be a personal list I could add it to. Say I want to buy a house but I am still deciding between two places. I would save many places as favorite, but it would be awesome to save them in different categories or under different tags I would create.

NEW

Alex: Was it easy for you to perform the task of saving a house as favorite? Was there anything in the process that was unexpected or could be improved?

Pablo: Saving a house as favorite was not a hard thing to do. I found that heart icon I expected next to the house I wanted to save, and it filled up red once I saved the house. Something which could be improved in this regard is that the buttons to save as favorite, contact seller and share on social media are all inside the image, which makes the buttons contrast poorly depending on the image behind them. One solution would be to dynamically adjust the border of the buttons so that they always contrast well with the background colors behind, but the easiest solution would probably be to just place those buttons outside the image, where managing that color contrast is much easier.

Alex: Name something else that could be improved for a future iteration of a prototype.

Pablo: Regarding those same buttons, I missed them on the search results. I usually expect to bulk select many results (houses), and save all of them, or turn price-drop alerts for all of them at once, instead of going inside each result one by one and saving them as favorite or enabling price-drop alerts.

Alex: That's a wrap! Thank you so much for this interview. I will let you know how it goes once I finish it.

Pablo: Perfect, see ya!

User 2

- Description

Name: Patricia

Age: 42

Marital Status: married to Juan, has 2 small kids

Location: Lives with his husband and kids in a small house
Interests: minimalism, keeping things organized, fashion design
Budget: Medium Budget
Needs: Larger house in the outer part of Madrid, where their kids attend school
Personal Goals: swim with dolphins

- Interview script

Alex: Hello, thank you for agreeing to make this short interview.

Patricia: Oh, absolutely.

Alex: Okay, first question: How would you search for a house based on the area where you want to buy it?

Patricia: I would simply enter the name of the town I'm looking for on the site and press enter. Then I would look at the pictures to see which ones I like the most, and make a decision based on their price and services.

Alex: Thank you. Would you use filtering options for your house, like price ranges, how old the house is, how many floors it has, whether or not it has parking, accessibility entrances, and so forth?

Patricia: Oh for sure. My house must have a garden for our dog and so my kids can play. It should also have good connectivity since I work from home most of the time. Maybe also I would prefer that the house had a parking spot, but it is not a priority.

Alex: Okay, last question. Describe how you would set price-drop alerts for houses you are interested in.

Patricia: I'm not very techie as you know, but maybe I would press a button somewhere that would send me those notifications when their prices drop. Oh, I think I've seen a bell icon on other sites, so that's probably what I'd look for.

Alex: Great, but what if the site says you need an account?

Patricia: Right! In that case I would create an account with an email and a very secure password and then try again.

NEW

Alex: How was your experience enabling price-drop alerts? Was it stupid-simple, or was it overcomplicated.

Patricia: I have mixed feelings about it. It is quite intuitive and quick to toggle on/off. There was a sort of persistent banner at the bottom of the page asking whether or not I wanted to be notified. That worked great, but it is not the way I expected. I didn't see that small bell we talked about last time, and it seems out of place. Like it is separate from other useful buttons like sharing on Facebook, sending an email, and so on.

Alex: I see, thank you for that feedback. Was there anything else you did not like about the prototype or you think could otherwise be improved?

Patricia: Another thing I found odd was how the map feature just disappeared on every page other than the homescreen. I mean, suppose I really needed that feature? If that were the case I would certainly expect quick access to the feature from every page, just like the search bar can be accessed from every page.

Alex: That's all folks! Thank you so much for this interview. I will let you

know how it goes once I finish it.
Patricia: You're welcome.

Reflections

Following the user tests and the interview, here are some thoughts on the good, the bad and the ugly aspects of the prototype:

- [GOOD] Both users seem to find their way around the UI without trouble
- [BAD] The map feature is not so useful if it only accessible from the homescreen. It should be accessible (in full size, or a button) on every page just like the search bar.
- [BAD] It is not ideal to keep buttons inside the images as their background color may not contrast well with the button's outline color.
- [GOOD] The icons for buttons are universally easy to understand: a heart means you like something and save it for later, an envelope represents sending an email, and so on.
- [BAD] The entire result card should be clickable to open a house result, rather than only the image opening it.
- [GOOD] The little animations that enlarges an image when hovering over it lets the user know that the house from the image can be clicked to open.
- [GOOD] The buttons and images have good screen reader compatibility with informative descriptions of what they represent.
- [BAD] The layout of elements is not great, there is much wasted space where useful information may be added.

Usability of a Colleague's Proposal

After testing Àlex's prototype, here are some remarks:

- **Simple and minimal design:** The site appears generally simple, though it also may feel bloated with too many elements by some users. It is quite good nonetheless.
- **Equality of Use:** The site is not responsive and thus rescaling only makes the elements smaller, to the point they may be hard to read. This is probably out of the scope of the prototype anyway, and other than that the interface is well adapted for every type of user, as long as it uses a desktop form factor. Additionally, it seems like the black heart button does not contrast well when the background is red (this is the outline color when an element is marked as favorite).
- **Perceptible Information:** all elements on the screen follow the same design with a minimal UI, rounded corners and well thought out icons which are self-explanatory.

Huge thanks to Àlex for this awesome prototype, keep it up! Here are a couple of screenshots of the UI:

Logo_placeholder

Rent

Buy

Price: to

Rooms:

Bathrooms:

M^2:

+ More

PICTURE LISTING 1

EXACT LOCATION LISTING 1

PRICE LISTING 1

Rooms

Bathrooms

House m^2

+ Other

SHORT DESCRIPTION LISTING 1: Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and...

PICTURE LISTING 2

EXACT LOCATION LISTING 2

PRICE LISTING 2

Rooms

Bathrooms

House m^2

+ Other

SHORT DESCRIPTION LISTING 2: Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and...

EXACT LOCATION LISTING 3

PRICE LISTING 3

Figure 1: Search Results

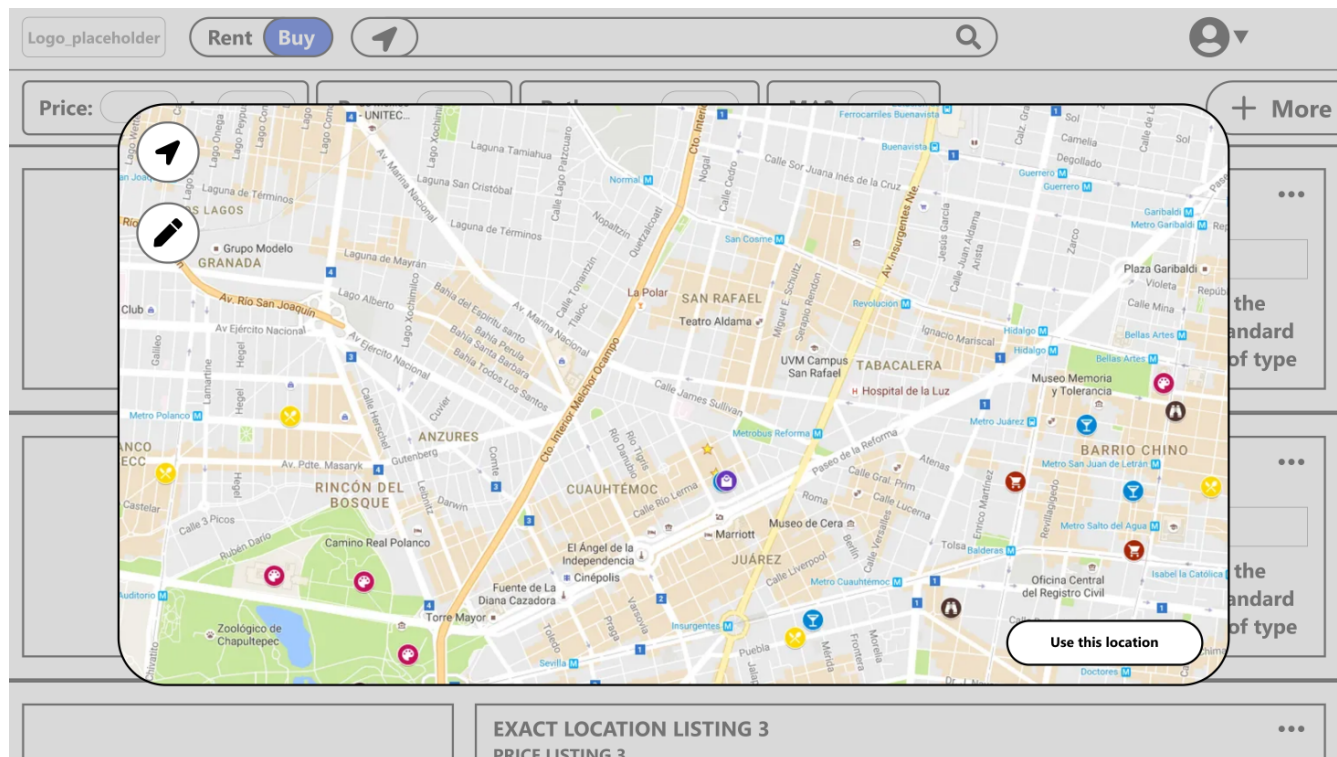


Figure 2: Map View

SIMILAR PROPERTIES SOLD AROUND THE AREA:			PROPERTY HISTORY:	
	EXACT LOCATION LISTING 1 PRICE LISTING 1 -10.000\$		Changed the price to 250.000\$ 01/01/1111	
	EXACT LOCATION LISTING 2 PRICE LISTING 2 +10.000\$		Created a new listing for 300.000\$ 01/01/1111	
	EXACT LOCATION LISTING 3 PRICE LISTING 3 +10.000\$		Sold 01/01/1111	
			Created a new listing for 300.000\$ 01/01/1111	

	This property	Neighbourhood avg.
Price	250.000\$	269.000\$
House area	100m ²	120m ²
Number of rooms	2	3
Number of bathrooms	1	1
Type of construction	Apartment	Standalone house

Figure 3: Result Page - Top

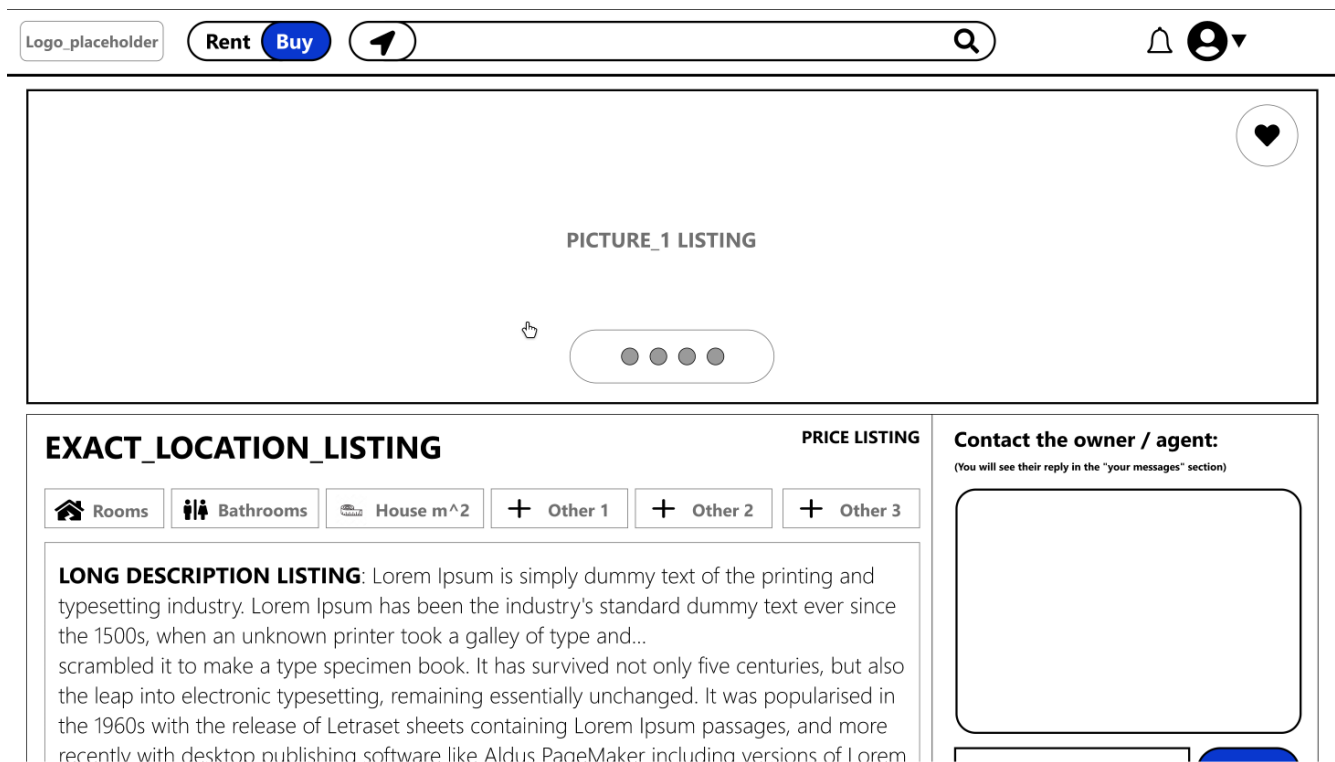


Figure 4: Result Page - Bottom

Accessibility Evaluation

To analyze the accessibility of the low-fidelity prototype created in challenge 4, let us go over the *Universal Design Principles* to verify if the prototype meets each of them:

- **Equality of Use:** the prototype has almost no responsible elements, so they will look weird on non-desktop displays. This should not be the case.
- **Flexibility in Use:** the site allows for few user configurations: other than the endless combination of filters the user can enable, the user cannot do things like collapse the filter sidebar, enable a dark mode or change the default font size.
- **Simple and Intuitive Design:** this principle is already present in my current interface proposal, as the main page displays a simple search bar with not too many confusing options, as well as icons for common actions like saving, sharing or contacting display the common icons.
- **Perceptible Information:** the icons on the interface are all very much self-explanatory and all menus on the interface follow the same design language. Not much to improve here.
- **Tolerance of Error:** not currently implemented in the prototype, should be added for cases like *search yields no results*, *user not logged in*, or *invalid filter combination selected*.
- **Low Physical Effort:** All elements are displayed in the center of the page, with no menus crawling to the sides where it is harder for users to reach with a mouse. Good job on this part.
- **Size and Space for Approach and Use:** The UI is simple and intuitive to use, but the layout could be redesigned a little bit, since there is a lot of space between elements which is wasted, and the interview suggests that some information was missing.

With all this done, in order to reach level A of accessibility it is important to improve these areas:

- Add alternative text and titles to images, in case some image does not load properly.
- Fix the issues with responsiveness, though it may be out of the scope of a prototype of this kind.
- Add error messages when a user wants to perform a user-specific action such as saving as favorite without being logged in, or when a search result returns no results.
- Future prototypes should target wasted space and add missing information.

- Adding a short *undo* button after un-saving a house.

Final Report

See the file Final-Report-aperez-b.pdf

Summary

In this fifth and final challenge, we have evaluated our prototype to see if we have achieved substantial improvements or not. We have assessed the improvement, both qualitatively and quantitatively, through the user test. Through the *WCAG* accessibility guides, we have been able to assess whether we are making the design accessible or not, noting the improvements and changes so that they are not lost in future iterations of the prototype. And finally, we have made a formal document to present our work.