

Project 1 - Applying Usability & Accessibility Principles

Zillow is an online real-estate marketplace that popularized accessing real estate listings online, fundamentally changing the way people buy and sell their homes. By improving the design of outdated MLS data websites, previously only accessible to real estate agents, Zillow makes searching for a home more accessible and less complicated for the average homeowner/buyer. To accomplish this, [Zillow's website](#) (from a desktop browser view) makes use of usability and accessibility principles. The usability principles Zillow uses highlighted by this project are informative feedback, striving for consistency, easy reversal of actions, and reduction of short-term memory load. The accessibility principles Zillow uses are perceivable, operable, and understandable.

The Eight Golden Rules of Interface Design

Offer Informative feedback

Informative feedback is one of the most important ways for an interactive system to intuitively communicate with the user. The principle states that every user action should elicit feedback from the interface (Shneiderman, Ben, et al. 71). The feedback given to users should be responsive and informative about what the action triggers or if it was even registered at all. The amount of feedback that should be given should depend on the frequency and importance of the user action. Minor, frequent actions receive minimal feedback while major, non frequent actions should have clear, attention-grabbing feedback (Shneiderman, Ben, et al. 71). On Zillow's home page, when the user hovers their mouse over any of the top menu items, the selected text is highlighted by turning blue, indicating to the user that the item can be clicked (Fig 1). For menu items that have further action options or more related features, a hovering mouse also triggers a drop down menu to appear displaying such resources(Fig 1).

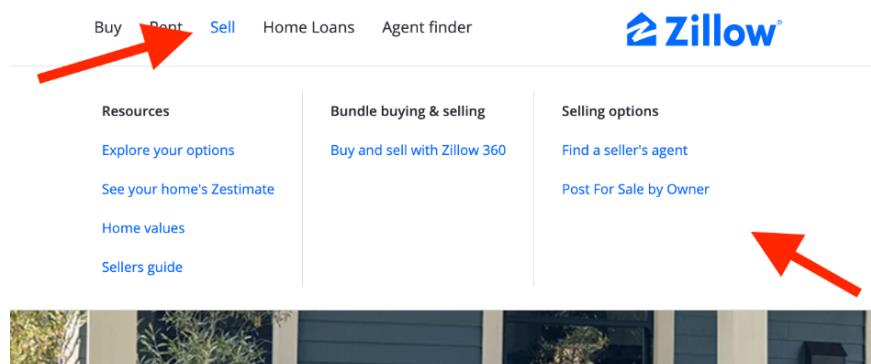


Fig 1. Zillow's home page menu after the mouse hovers over the “Sell” text, turning it blue and triggering a drop-down menu with more related options to appear.

Permit Easy Reversal of Actions

Allowing reversible actions is a key component to facilitate user exploration and engagement with an interface. The principle states that letting actions be reversible reduces the

stress users can experience trying to make sure they choose the correct action rather than feeling free to explore unfamiliar options (Shneiderman, Ben, et al. 72). Reversible actions should be implemented as much as possible and can vary from a single to multiple actions. On Zillow's "Buy" page, users can enter different search filters like areas, price, the number of beds and/or baths, and whether the home is for rent or for sale. If the user sets a filter they regret, they can use the browser's back arrow to go back one action. In Fig 2 the selection is "For Sale" but after selecting the back button it returns to the option selected right before, "For Rent", as seen in Fig 3. The user can keep reversing this selection until it is back to the default selection and cannot go back any further.

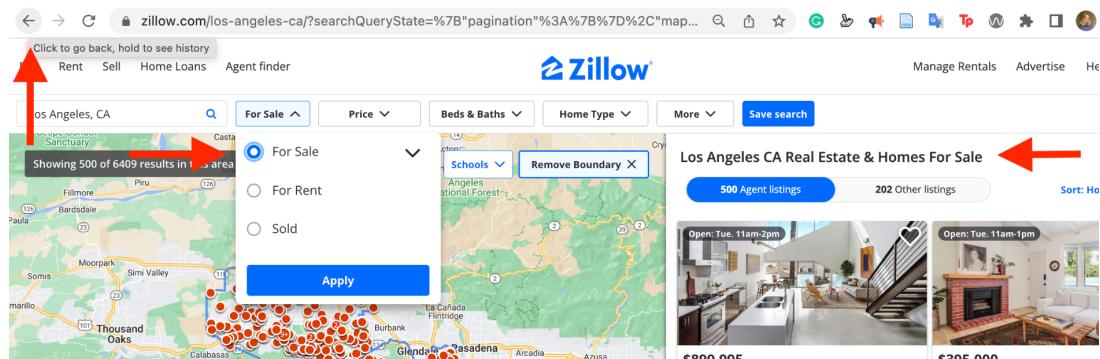


Fig 2. Zillow's "Buy" page under the "For Sale" section before selecting the browser's back arrow.

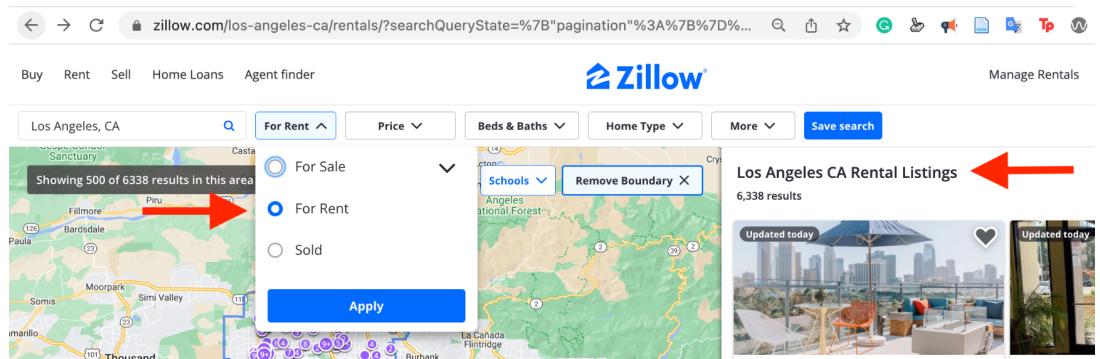


Fig 3. Zillow's "Buy" page under the "For Rent" section after selecting the browser's back arrow.

Reduce Short-Term Memory Load

Building an interface that is forgiving to its user's short-term memory increases the likelihood of a pleasurable user experience (Shneiderman, Ben, et al. 72). By keeping information visibly on hand for the user they feel freer to explore the interface without the burden of having to reenter tedious information. Zillow's home page search bar is where users can get started looking for a home by entering an address, neighborhood, or zip code. When the bar is selected a drop-down menu appears showing the user's previous searches and current location as selectable input options (Fig 4). This feature allows users to search multiple neighborhoods, going back and forth between them, without having to re-enter locations over and over again.

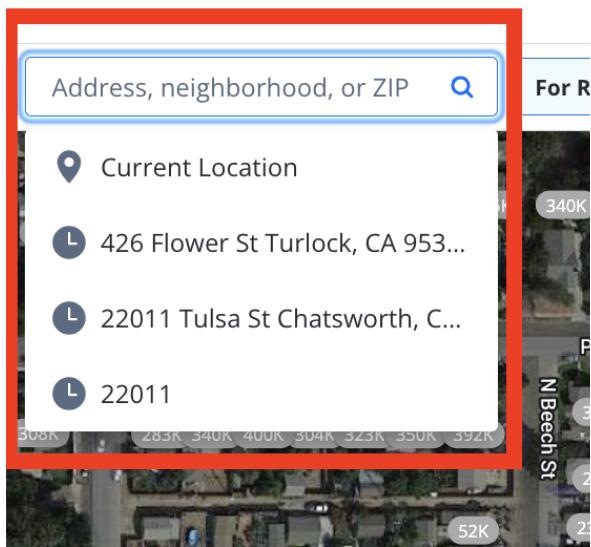


Fig 4. Zillow’s home page search bar after being selected displays past searches and current location as selectable input options in a drop-down menu.

Strive for Consistency

Implementing a consistent design is key to making consumers more comfortable and familiar with the interface. Internally, having a consistent color scheme, layout, and font helps the user better understand the relationship of different interface sections and translate that knowledge to the interface’s other features (Shneiderman, Ben, et al. 71). Across Zillow’s web pages, the interface uses a consistent blue accent color for its logo, buttons, and certain text (Fig 5).

Externally, using naming conventions and icons consistent with other interfaces, such as other web applications, makes it easier for the user to navigate the interface because of their familiarity with similarly used conventions (Shneiderman, Ben, et al. 71). Zillow’s “Buy” page uses consistent icons like a down arrow on a button to indicate that clicking will trigger a drop-down menu. It also uses a heart-shaped button on home listing cards to indicate to users that clicking will save the home listings they “like” to their account.

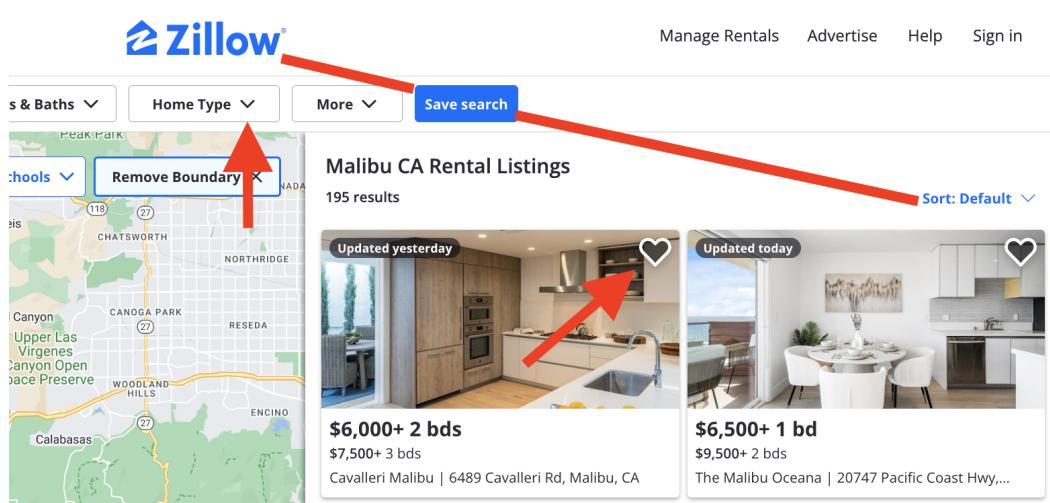


Fig 5. Zillow's "Buy" page displays blue text color accents, blue, and familiar icons like the down arrow to indicate a drop-down menu and a heart to save a home listing.

W3C's WCAG 2.1 Standard Accessibility Principles

Perceivable

People with disabilities affecting their ability to see and hear need alternative ways to perceive information from an interface. Such alternatives have to appeal to sight, hearing, or touch (*WebAIM: Constructing a POUR Website - Perceivable*). An implementation of this is having a minimum contrast ratio of 4.5:1¹. Even better is having an enhanced contrast ratio of 7:1². According to the web accessibility evaluation tool powered by WebAIM, WAVE, Zillow's webpage has a contrast of 8.59:1 (Fig 6).

The screenshot shows the WAVE web accessibility evaluation tool interface. On the left, there is a sidebar with various accessibility settings and a summary of findings. A red arrow points to the 'Contrast' section, which shows a 'Contrast Ratio: 8.59:1'. The main content area shows the Zillow homepage with various UI elements highlighted with accessibility labels. Labels include 'Zillow logo*', 'h1', 'h2', 'h3', 'aria-label="main"', 'aria-label="Search Suggestions appear below"', 'role="combobox"', 'aria-label="Search Suggestions appear below"', and 'aria-autocomplete="list"'. The Zillow logo is also labeled 'Zillow logo*'.

¹ [WebAIM: WebAIM's WCAG 2 Checklist - Distinguishable - Contrast \(Minimum\), 1.4.3](#)

² [WebAIM: WebAIM's WCAG 2 Checklist - Distinguishable - Contrast \(Enhanced\), 1.4.6](#)

Fig 6. Web accessibility evaluation tool, WAVE, powered by WebAIM showing a contrast ratio of 8.59:1 after being applied to Zillow's home page.

Operable

It is important to ensure interface components and navigation is operable for those whose disabilities limit their abilities to use standard physical controls. When an interface is mainly meant to be operated with a combination of mouse and keyboard actions, it should also provide the option to be solely keyboard accessible³. Implementing keyboard accessibility can be taken a step further by also including a visible indication of where the keyboard focus is on the web page⁴.

Tabbing on Zillow's web page visibly shows what page element has the current focus of the keyboard. This allows users to solely use the keyboard's tab and enter keys to find and select an otherwise solely mouse-clickable page element (Fig 7).

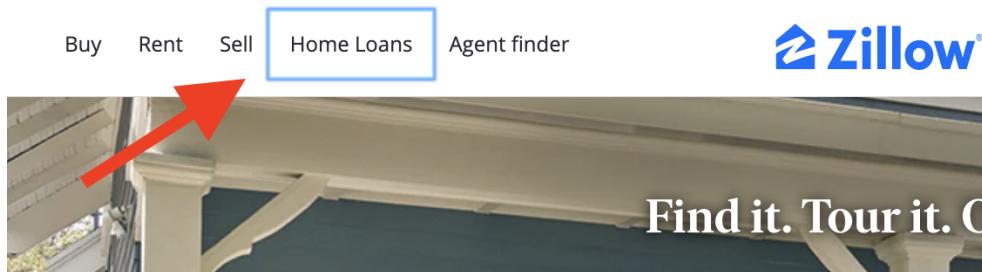


Fig 7. Zillow's home page where the tab key is being used to navigate the top menu options. The keyboard focus is indicated by a blue outline appearing around the text of the page element being focused on.

Understandable

It should be expected that an interface is designed to be understandable to its users regardless of age and/or cognitive or learning disabilities (*WebAIM: Constructing a POUR Website - Understandable*). A big part of making an interface understandable is by providing instructions. Instructions include examples, properly positioned form labels, and/or fieldsets/labels for interactive elements that can be very helpful in specific situations where users need more than their intuition to understand what's expected of them⁵. On Zillow's home page the main search bar displays instructions in the text field telling the user to "Enter an address, neighborhood, city, or ZIP code" (Fig 8). This gives the user a clear idea of what input is expected of them for their search to work as intended.

³ [Web Content Accessibility Guidelines \(WCAG\) 2.1 - Keyboard Accessible - Keyboard. 2.1.1](#)

⁴ [Web Content Accessibility Guidelines \(WCAG\) 2.1 - Navigable - Focus Visible. 2.4.7](#)

⁵ [WebAIM: WebAIM's WCAG 2 Checklist - Input Assistance - Help. 3.3.5](#)

Agent finder



Manage Rentals



Fig 8. Zillow's home page search bar displays instructions in the text field telling the user to “Enter an address, neighborhood, city, or ZIP code”.

Bibliography

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