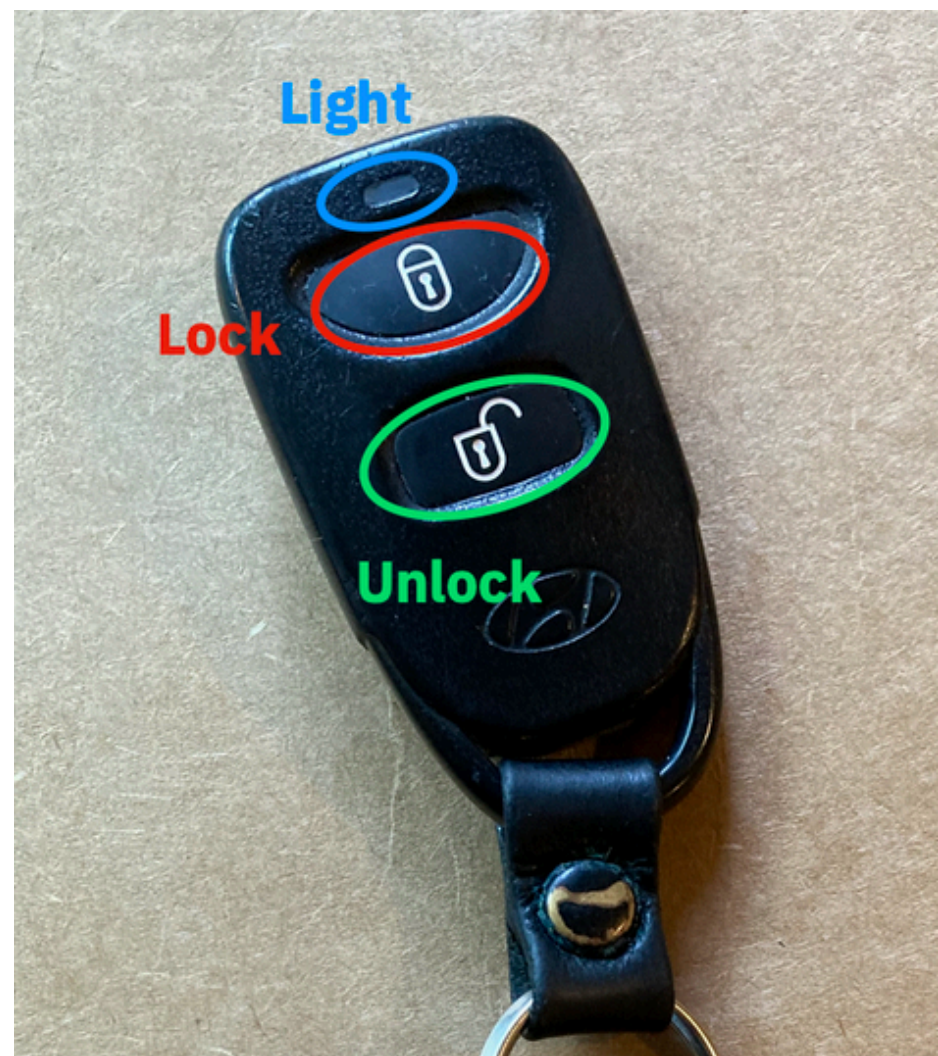


The **5** key elements of design for this class are: signifiers, affordances, feedback, natural patterns, and accessibility. This slide defines each of the elements and gives *physical* examples of each. The next few slides will go in depth on how we can map this to **web development**.

Signifiers

Signals that show what you can do.

For example, on a car fob, the images on the buttons indicate what actions they do. It's pretty explanatory to lock/unlock a car because the lock icon tells us.



Affordances

Physical properties that explain how you can use it.

For example, a chair has a flat surface, so it seems like you can sit on it. A backpack zipper loop seems like a finger can fit into it and be pulled.



Feedback

Indicators of what happened as a result of an action.

For example, when you click the unlock button on the fob, that car locks make a sound and the lights flash. You might also see the locks physically move and that tells you that pressing the 'unlock' button had this effect.

Natural Patterns

Behaviors that have already been ingrained.

For example, when we steer a car, we move the wheel left to go left. This maps on to how we expect to move. Stop signs are red because we've already learned that red means attention, danger, alert, etc.

Accessibility

This has already been talked about/will be discussed in lecture in length.

Signifiers are all around us. Take the following icons:



EXAMPLE 1

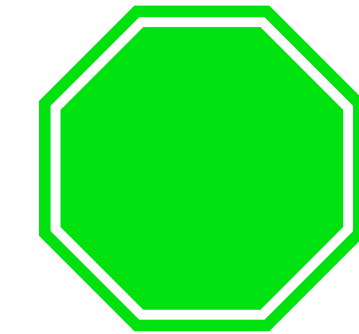
This icon is a trash can. It signifies we can throw something away. It's one of the most recognized icons in all of web development because users see it and *know* what it does.

EXAMPLE 2

Look at our icon b on Slack. Many of you have probably clicked it to create a new message in a channel or a DM. This icon tells us that we can write something. It directs the user. Even look at (a). This might not seem like an intuitive symbol but we now know it's an icon for a drop-down menu. We've trained the user to associate that action with this icon.

EXAMPLE 3

Cursors are probably something you don't think about much but they guide your behavior. When we have the normal arrow (1), we use it to navigate. When we have (2) we know that we can click on the item. When we have (3) we know it's either text or editable. All of these things guide behavior and tell us how to interact or where to interact.



EXAMPLE 4

I hope you looked at the above 2 icons and felt weird. Color is often an overlooked signifier. We're so conditioned to think that **red** indicates stop, alert, alarm, attention, bad, etc. We even associate it with an octagon so seeing it not be red breaks that behavioral pattern. Check marks that are **green** usually indicate done, good, checked, etc. We're very conditioned to see these signs or even colors and have them correspond to specific meanings.

In web development, affordance (how to interact) and feedback (what occurred) are often very intertwined so we'll go through examples that showcase both aspects.

EXAMPLE 1

If you love this slide, check out the class [Slack](#).

In the above example, the word Slack is a link. How do we know that?

First, it's in blue. In 1992, Microsoft set the standard for hyperlinks as being a dark blue and Mosaic for them being underlined.

If you love this slide, check out the class [Slack](#).

<https://app.slack.com>

If we hover over the text, it changes color which indicates clickable. If we hover long enough, we see the link it'll take us to.

All of these indicators tell us we can click it and that it will take us to a link. *If we didn't color it, didn't have it change color on a hover, nor show a link, would we still think it a link?*

EXAMPLE 2

SUBMIT

SUBMIT

SUBMITTED

In the above example, I hope you think it's a button. It is! But how do we know?

First, many buttons have slightly rounded shapes vs 90 degree angles. Second, when we hover, it changes color indicates it can be clicked. For accessibility, we hope a tag will come up explaining what it does.

How do we know that it did something? When we click, the button is greyed out indicating that the action is done and can no longer be clicked.

Alternatively, below: we see an option that indicates it has been submitted *but can be done again*. We know all of this with just aesthetics.

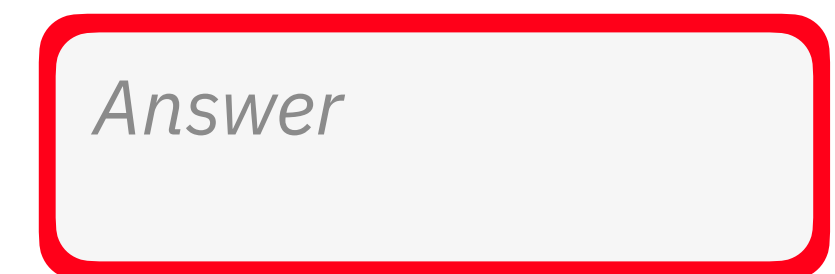
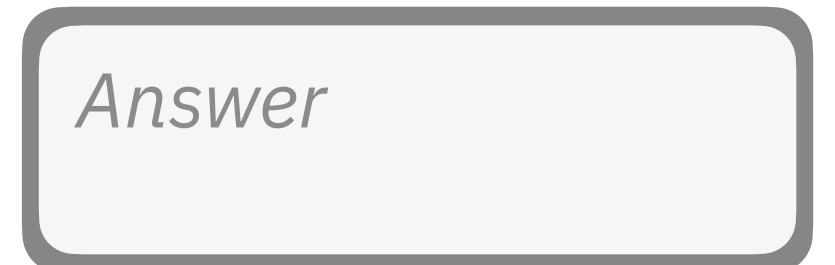
SUBMITTED

We've been using the Web for a while and have actually been groomed to understand certain icons or are trained in how to use them. I recommend you utilize some "universal" icons that you can expect a user to know or rely on natural patterns we see in human behavior. Always remember, instead of trying to make the user work in a way *you want*, rely on how *they* would use it.



PATTERN 1

We need the user to fill in this text box. What can we do to notify them that they've missed it? Use a red border because we naturally know red means error, attend, alert, etc.



PATTERN 2

During a Pomodoro session, the user should be focused and not playing with the settings icon. How do we indicate they shouldn't click it? We've been trained to ignore greyed-out items.



PATTERN 3

Users don't want to be restricted to clicking an 'X' (like the purple cursor) to indicate they want to close a sidebar. They expect that a click anywhere beyond the sidebar (like the pink cursor) says that they're done and it should close. We should match both patterns.

