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Mental Models, Interfaces, & User Goals

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ac4d

How do you start the engine?

Interface: Fuel &
Pistons

Interface: Spark
Plugs

Interface: Distributor
Cap

Interface: Battery,
wiring, & starter

Interface: Computer
Ignition Sequence

Interface: Key &
Ignition Switch



How do you start the engine?

Increased level of abstraction
between human and
technology

Increased
convenience

Increased role
of design

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How do you start the engine?



A Control



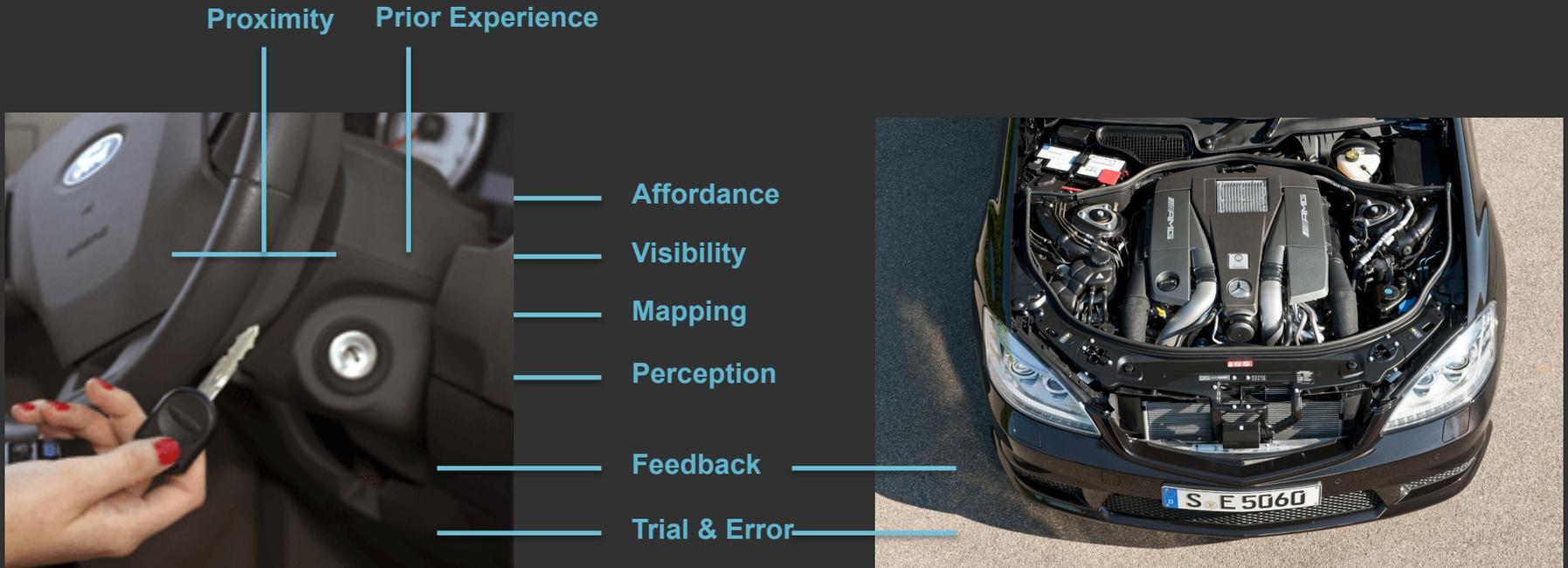
How do you start the engine?



A Control



How do you know how to start the engine?



We have a Mental Model of how to start the engine.

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“A mental model can be thought of as an inaccurate yet helpful representation of how something in the world works.... Mental models, as the name implies, are stored in our memory.”

Jon Kolko – Exposing the magic of design

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“If the person carries a ‘small-scale model’ of external reality and of his own possible actions within his head, he is able to try out various alternatives, conclude which is [the] best of them, react to future situations before they arise.

Kenneth Craik – 1967

A Mental Model:

Is a representation of how things work and exist in the real world.



Mental models are often technically wrong or incomplete.

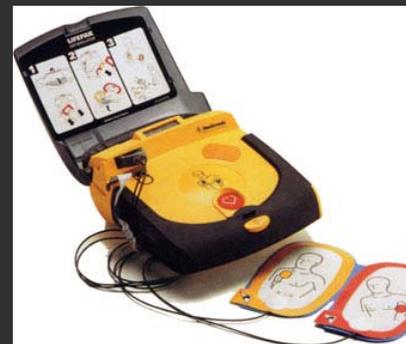
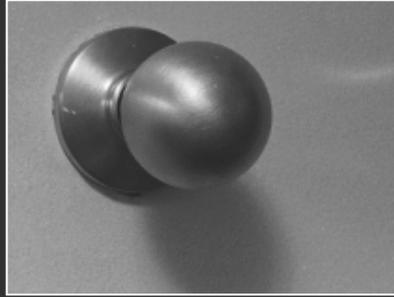
Our mental models are shaped by:

**Prior
Experience
Analogous
situations
Feedback
Trial & Error**

**Affordance
Visibility
Mapping
Perception
Proximity**

Describe these, using this new vocabulary:

Prior Experience
Analogous
situations
Feedback
Trial & Error
Affordance
Visibility
Mapping
Perception
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**Our mental models help us solve problems,
perform tasks & achieve goal(s).**

**They are the framework behind our
ability to reason through complexity.**

Our mental models are different from our user's mental models..

We can cause *chaos & hysteria* if we don't take
the time to understand and design for our
user's perception of the world...



BMW introduced a new metaphor for starting a vehicle.

Prior Experience

Analogous situations

Feedback

Trial & Error

Affordance

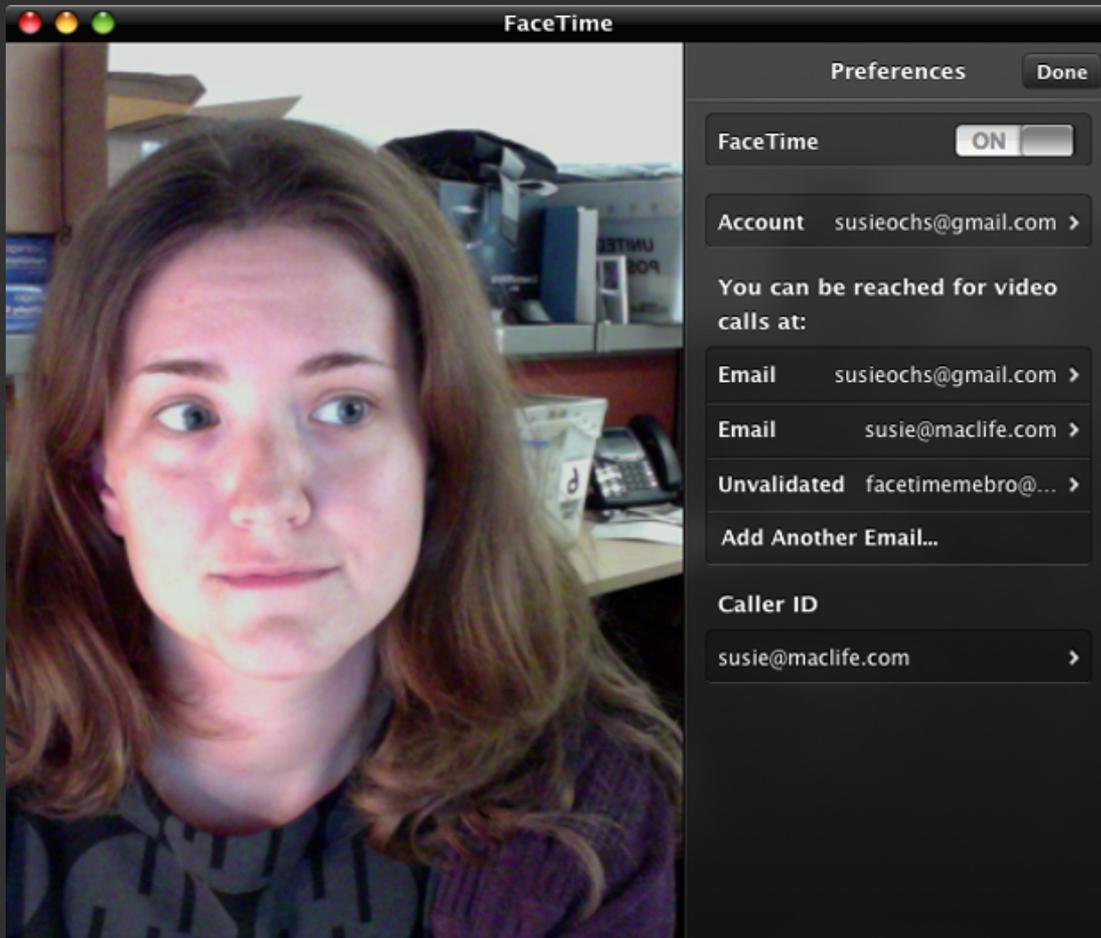
Visibility

Mapping

Perception

Proximity

Metaphor



The first version of FaceTime was a stand-alone application; in which you “dialed” an email address...

Prior Experience

Analogous

situations

Feedback

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Electric cars are extremely quiet!

Prior Experience

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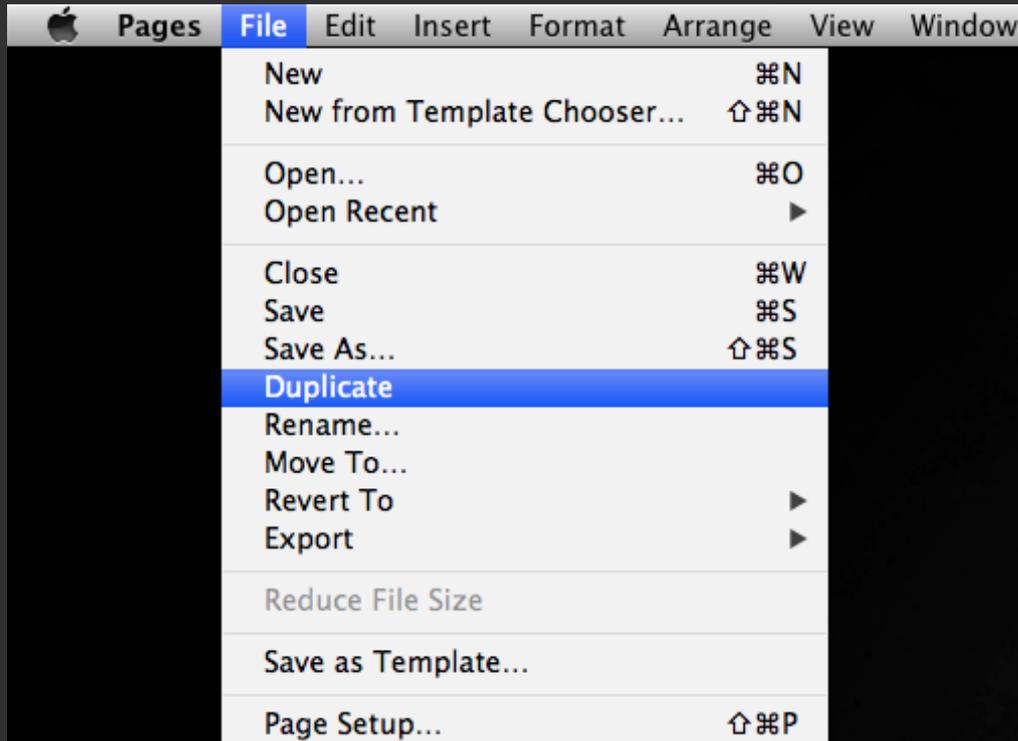
Mapping

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In OSX, “Duplicate” replaced Save As

Prior Experience

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Interaction Design is the creation of a dialogue between a person and a product, service or system. This dialogue is usually found in the world of behavior; an interaction that exists over time...

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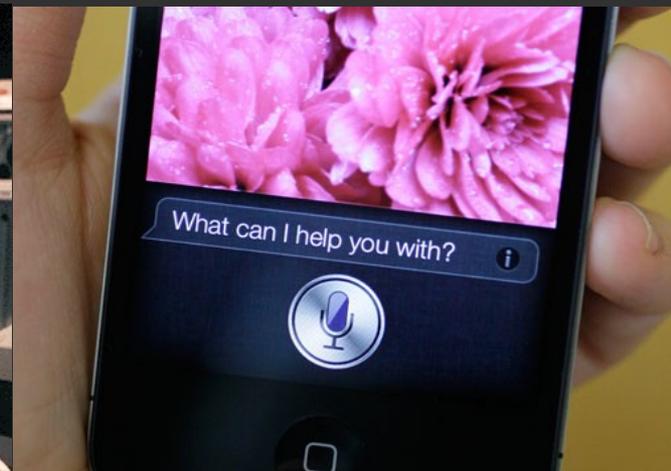
To design behavior requires an understanding of the fluidity of natural dialogue, which is both reactionary and anticipatory at the same time.

To design behavior requires an understanding of technology, such that the use and outcome can be applied in a humanistic and relevant manner.



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Advances in
technology

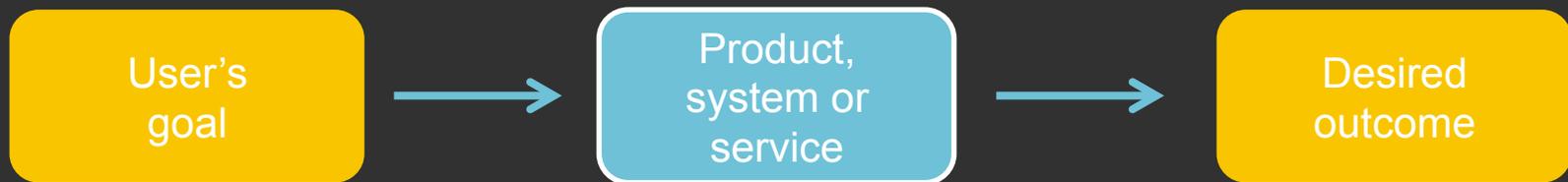


A 1 to 1 relationship between the controls and the outcome.

The function is no longer obvious, as the mechanics are no longer visible

The product, system, and controls can be separated and created independently of each other

**We must balance the technical capability (what “it” can do) with the user’s goal (“what I want”, “how I want to feel”)
and the user’s perception of the world (“how I expect to achieve this”).**



This is a work of function, and form, and language, and meaning.

As interaction designers, our role is to understand how a person views the world, so that we can create something that helps them achieve a goal.

In this class, we'll be focusing on digital interfaces

Example:

My goal is to call my mother...



Describe the dialogue that exists between person and the phone.

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How does the user track the progress toward their goal?

What tasks must be completed, and in what sequence, to achieve the goal?

What interface elements are used to complete each task?

Example:

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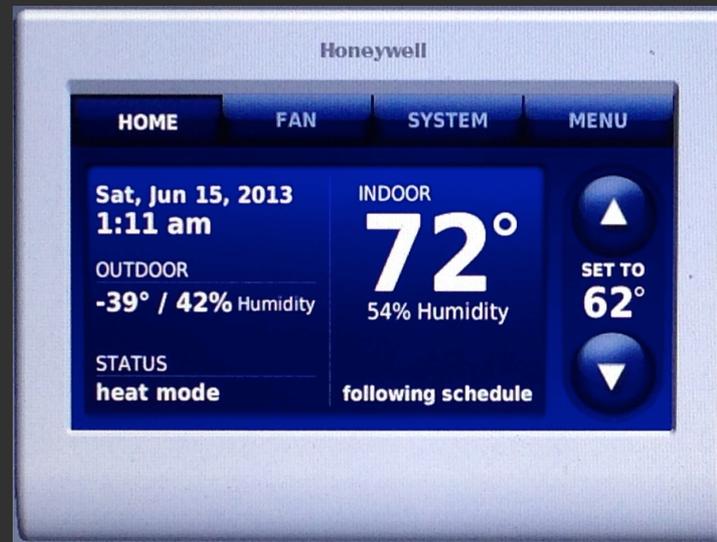


Questions so far?

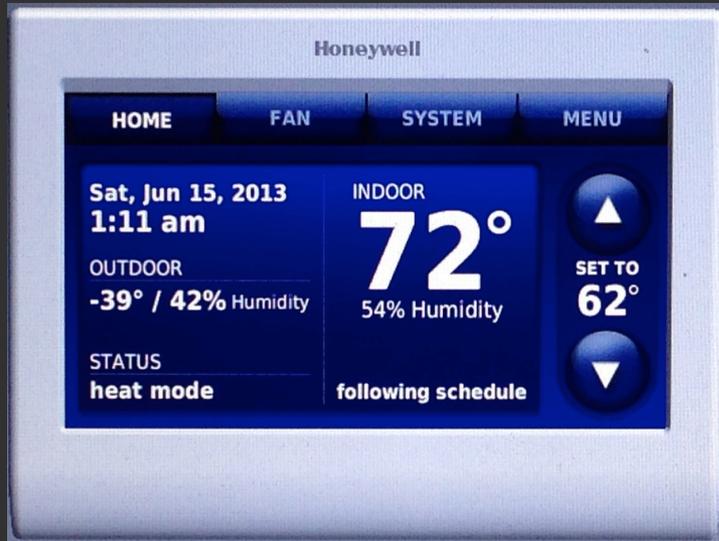
Lets take a 5 min break...

Your assignment..

Is to re-design the interface of this programmable thermostat.



Honeywell Prestige 2.0

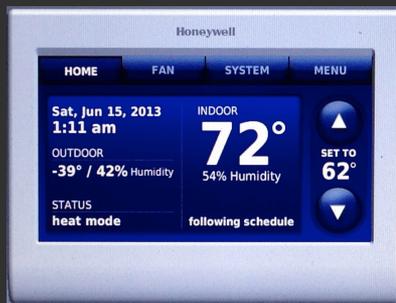


Honeywell Prestige 2.0

This thermostat is:

- a touch screen thermostat
- considered to be top of the line marketed and sold to contractors (not the end user)
- now being sold with voice activated technology (not a joke)
- extremely difficult to program
- utilizes uncommon vocabulary, controls, and metaphors

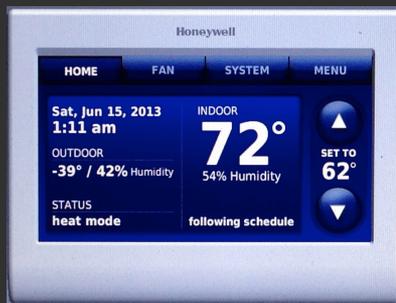
<http://www.forwardthinking.honeywell.com/new/Prestige%20IAQ.exe.zip>



Honeywell Prestige 2.0

At a minimum, you're user must be able to achieve the following:

- Adjust the temperature (warmer / colder)
- Switch between heating & cooling
- Turn the system off and on
- Turn the fan on and off
- Set / edit a 7 day schedule
- Interrupt the schedule to adjust the temperature



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You can change the form factor of the thermostat

Your hardware is “gesture” friendly

You are designing for “the average consumer” ;
i.e. can it “pass the mom test”?

Before we start making screens..

We are going to model the existing system,
as a means to understand its complexity.

A Concept Model..

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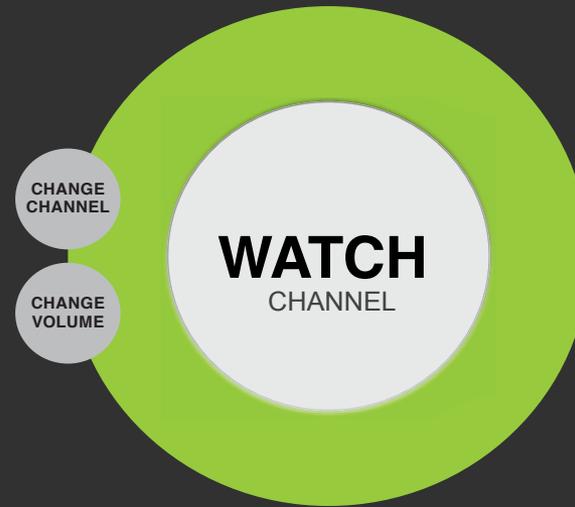
- allows you to explore the range, scope, and depth of the system without getting bogged down into the details of the interface
- allows you to experiment with varying hierarchies & organization schemes
- will shift and change over time (is a working document)
- doesn't have to be complex to be powerful (error on the side of simplicity)

Lets look at an example..

For a television interface

Instant On

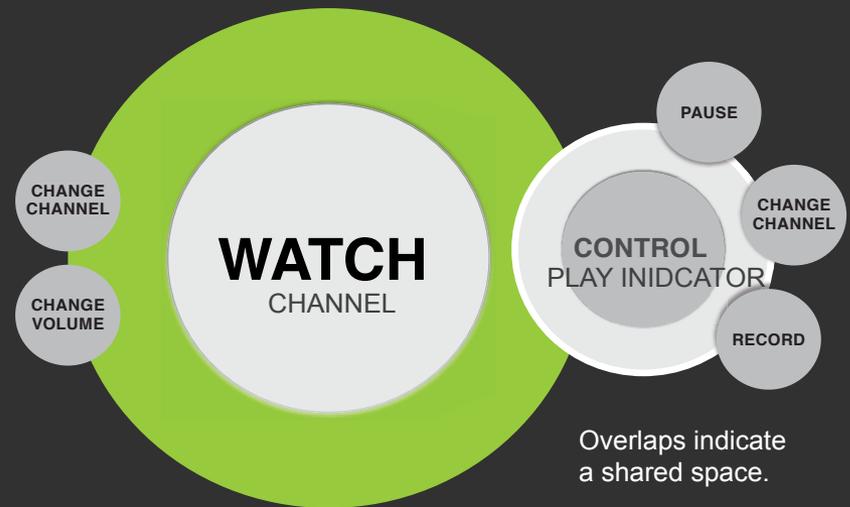
The user is immediately immersed into 1 of thousands of channels. Each channel contains a variety of custom programs.



Nouns and verbs describe content and actions

Contextual Controls

Users can display contextual controls without interrupting the channel they are watching. These controls allow for asymmetrical channel browsing & channel manipulation (pause, play, etc..)



Program Guide

Users can view a program guide to discover what's playing on each channel.



Program Details

User can get additional program details by diving into the details area.



Settings

Users can access the system settings at any moment by pressing the settings button. The settings page will remove users from any watching / discovering experience.



Concept Model

For a television interface

What might be the user's primary and secondary goals when using this interface?



Concept Model

For a television interface

How has the concept of on demand Programming started to change “our” mental model of watching television?



Questions so far?

Note: A guide to the formal process of concept mapping can be found:
Exposing the magic of design; 104 - 124

Let's try it..

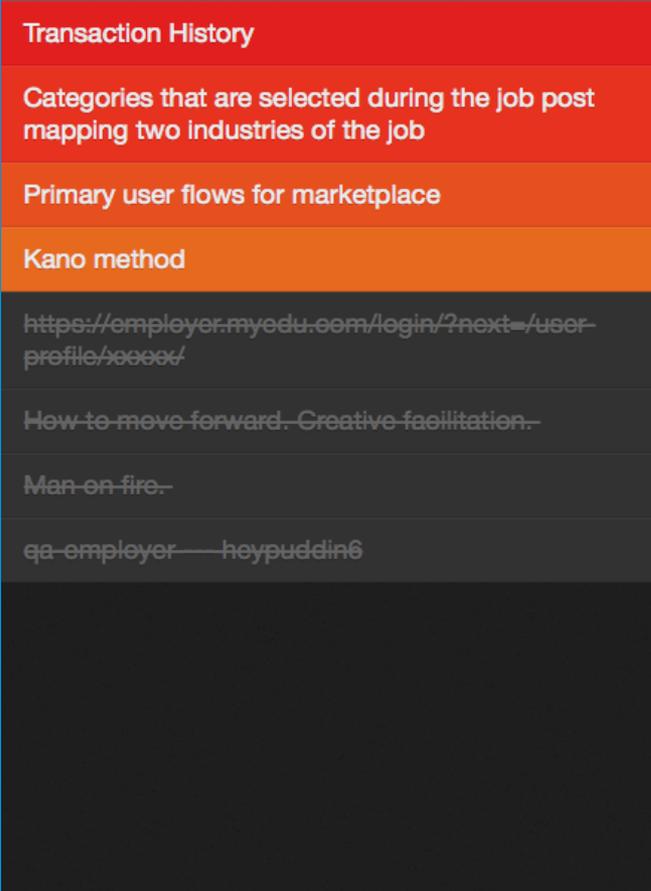
As a group, let's create a concept model of the clear checklist application.

Transaction History
Categories that are selected during the job post mapping two industries of the job
Primary user flows for marketplace
Kano method
https://employer.myedu.com/login/?next=/user-profile/xxxxx/
How to move forward. Creative faoilitation.
Man-on-fire.
qa-employer — heypuddin6

Let's try it..

As a group, let's create a concept model of the clear checklist application.

In addition, let's outline the primary and secondary user goals in this system.



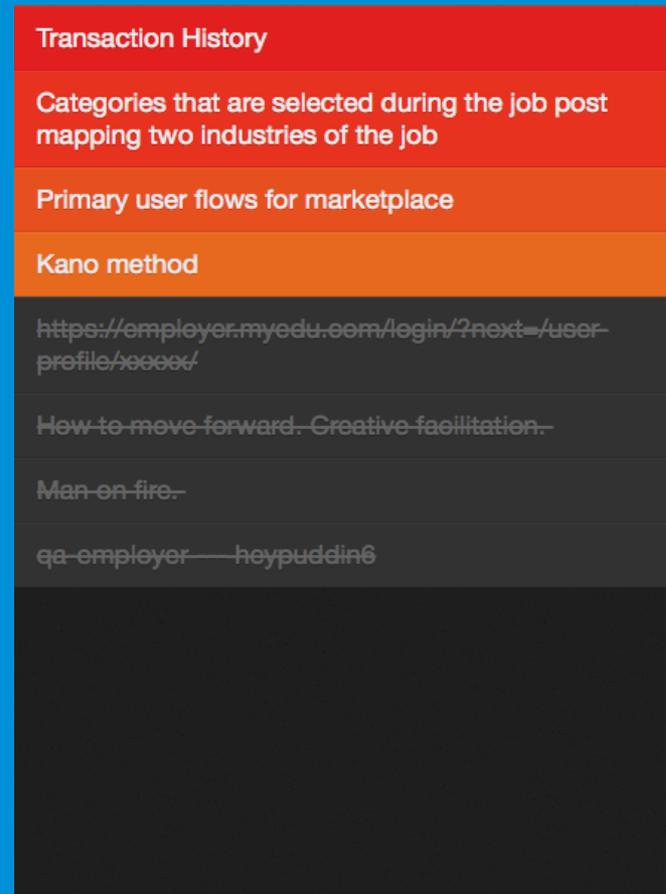
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Let's try it..

As a group, let's create a concept model of the clear checklist application.

In addition, let's outline the primary and secondary user goals in this system.

Finally, let's map out the tasks that must be completed to achieve the primary user goals.



For next class:

Micro Interactions – Section 2.0; Triggers
Exposing the magic of design; 13 - 22

You're first assignment..

Due Monday – 11/4 (one week from today)



Honeywell Prestige 2.0

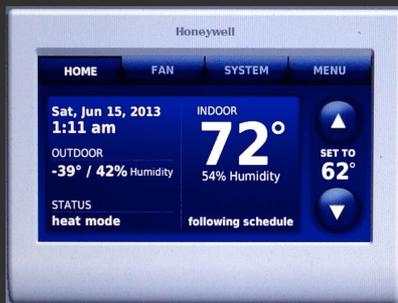
Concept Model 1

Translate the existing interface into a high fidelity concept model.

List all of the primary and secondary user goals that are implied by the system.

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Honeywell Prestige 2.0

Concept Model 1

Translate the existing interface into a high fidelity concept model.

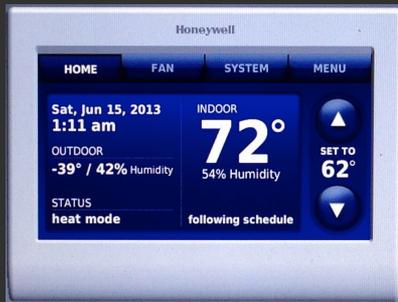
List all of the primary and secondary user goals that are implied by the system.

Keep an eye out for the following, as these can be indications of usability issues:

- Are there “weird” interactions? Why do they feel unnatural?
- Is there overly technical vocabulary?
- Does the system rely upon any unusual metaphors?
- Is there an appropriate hierarchy of data & controls, or is it unclear as to what I can / should do at any given moment?

You're first assignment..

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Honeywell Prestige 2.0

Concept Model 2

Re-design the system. Try to balance your understanding of the user's mental model, the system requirements outlined earlier, and any relation / hierarchy issues you find in the existing system.

Edit and/or re-prioritize the primary and secondary user goals as well.

- Remember, you are designing for “the average consumer” ; i.e. can it “pass the mom test”?
- Formal research is not required, but might help you establish a frame for how your user views the world

You're first assignment..

Due Monday – 11/4 (one week from today)

Concept Model 1  Concept Model 2

Please have a rough draft of concept model 1 for next class – 10/30

- The high fidelity models must be digital
- Stick with B&W or Grey-Scale
- Pick a font family; be consistent with size, weight, color, etc..
- Your goal is to visually simplify technical complexity

Questions so far?

Let's try it..



<http://www.lynxtouch.com/demo.html>

ac4d

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