

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation!

Lecture 16: Communication and Visual Design

Instructor: Amy Zhang, 2/25/2021

Today's Topics

- Tips for the virtual poster session and your digital mockup
 - Pitch 101—communicating your design
 - Visual Design
 - Graphic Design Principles
 - Gestalt Principles
 - Color
 - Typography
 - What makes a good poster
- Paired group presentation on 3c to get feedback before deadline tonight

Communication = Telling a Story

**You should tell the most compelling story
about your design solution and process.**

Elevator Pitch

Short, prepared speech

Includes “why” and “how”

Maximum 30 seconds!

What does that translate into?

30 seconds

Most people speak 120-200 words per minute

That means you should aim for a comfortable and comprehensible 75 words for your 30-second pitch (slightly slower than the average speaking speed)

Elevator Pitch Tips

For every point you add to your pitch, ask yourself:

What is this adding to our story?

Delete if the answer is “not much”!

Elevator Pitch Tips

Use the prototype and/or poster to help you tell the story.

Use visual cues. Point. Demo.

Show me, don't just tell.

Elevator Pitch Tips

Balancing process vs. outcome

Think about who you are presenting to

You might need 2-3 elevator pitches!

Elevator Pitch Tips

Don't memorize it or read it off

Instead: Personalize it! Use words you would normally use

4 team members = 4 slightly different elevator pitches

Examples

“Ranchers are often frustrated by the effort it takes to hand-shear their angora alpacas. DroneClip eliminates the need to chase, restrain, and trim these beautiful beasts. For over 5 years, alpaca farmers have trusted DroneClip to provide the best solutions in alpaca ranching. With our safe and reliable drone aircraft, you can spend less time shearing and manage a larger herd.”

Examples

Description of the population

Problem Statement

“Ranchers are often frustrated by the effort it takes to hand-shear their angora alpacas. DroneClip eliminates the need to chase, restrain, and trim these beautiful beasts. For over 5 years, alpaca farmers have trusted DroneClip to provide the best solutions in alpaca ranching. With our safe and reliable drone aircraft, you can spend less time shearing and manage a larger herd.”

Examples

Solution

“Ranchers are often frustrated by the effort it takes to hand-shear their angora alpacas. **DroneClip eliminates the need to chase, restrain, and trim these beautiful beasts.** For over 5 years, alpaca farmers have trusted DroneClip to provide the best solutions in alpaca ranching. With our safe and reliable drone aircraft, you can spend less time shearing and manage a larger herd.”

Examples

Why your solution?

“Ranchers are often frustrated by the effort it takes to hand-shear their angora alpacas. DroneClip eliminates the need to chase, restrain, and trim these beautiful beasts. **For over 5 years, alpaca farmers have trusted DroneClip to provide the best solutions in alpaca ranching.** With our safe and reliable drone aircraft, you can spend less time shearing and manage a larger herd.”

Examples

“Ranchers are often frustrated by the effort it takes to hand-shear their angora alpacas. DroneClip eliminates the need to chase, restrain, and trim these beautiful beasts. For over 5 years, alpaca farmers have trusted DroneClip to provide the best solutions in alpaca ranching. **With our safe and reliable drone aircraft, you can spend less time shearing and manage a larger herd.**”

Value proposition

Examples

Do you hate shearing stubborn alpacas by hand? I'm Joe Neely from DroneClip. I enjoy connecting animal lovers to technologies like our DroneScoop waste solution. I'm here at the Alpaca Festival to learn from you, the experts. Our hands-free DroneClip shearing system outperforms hand-shears so you can limit your employee hours. We saved one rancher, Bob Mikabob, over 40 weekly work-hours.

Don't do this

Hi – I'm Joe Neely and I want you to—I mean, if you want to, you can... Buy the DroneClip right now, my friend. You don't need to see how it works – trust me when I say it solves all your problems, champ. I hope you like this product, sweetie, because I don't know if... I meant to say DroneClip is the best alpaca hair solution and you'll save a lot with it. Just ask your neighbors – in fact, my man, buy one for each of them!"

Pitch Activity

Write up a pitch that explains the need and how your prototype addresses it.

No more than 30 seconds (~75 words)!

Start with the need/problem (Numbers can help, e.g., "More than 80% of CS students feel....")

Red pen it! (Eliminate any unnecessary information, words, jargon etc)

When you're done, copy it to your team's Google Doc (each team should have as many pitches as team members!) and also submit it here: www.yellkey.com/prove

Discuss later as a group and use these as a starting point when you're thinking about presentations.

Visual Design

Why now?

Unlike most of the design principles we've covered so far, we're now delving into graphic design.

How much whitespace between these items?

What color scheme should I use?

How many fonts should I use?

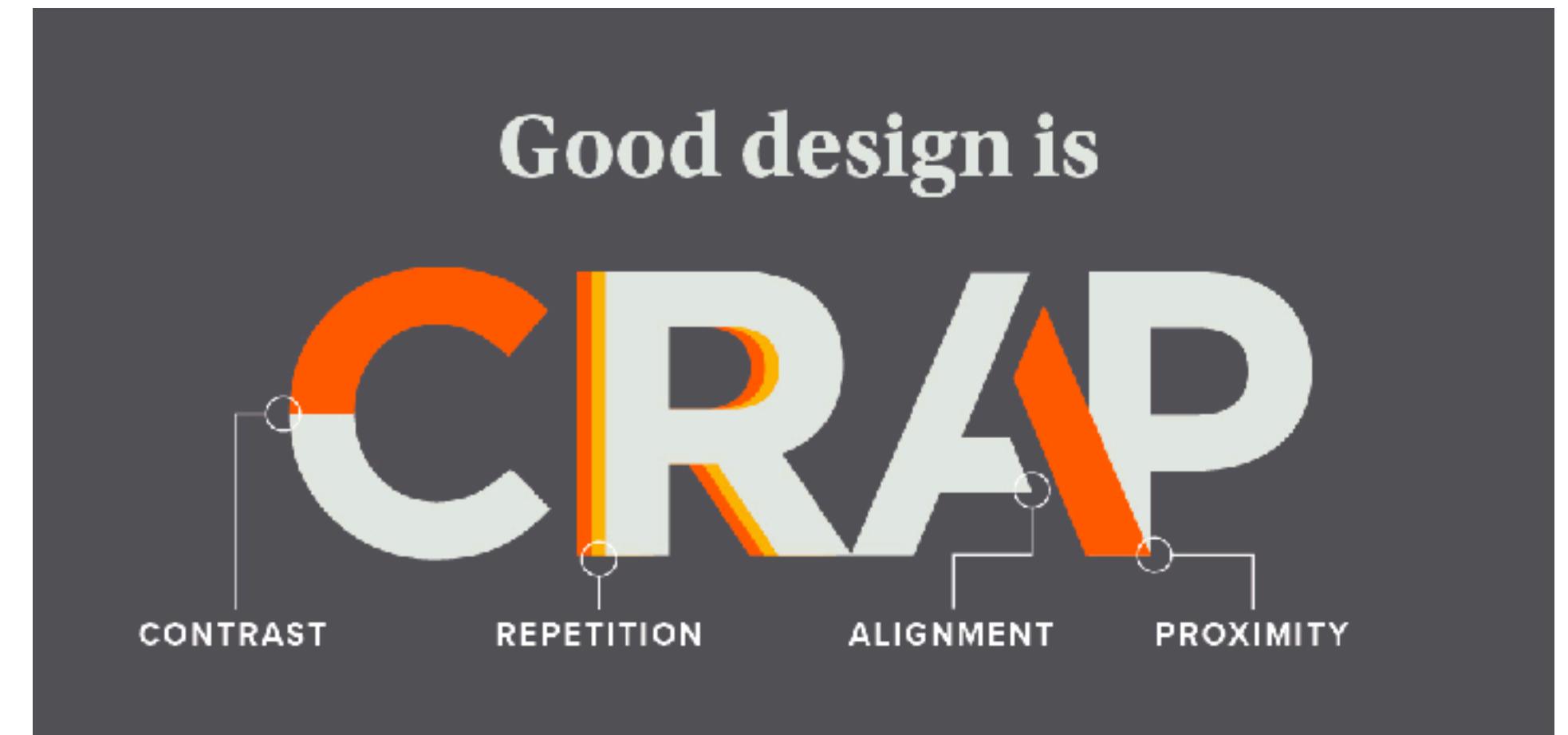
You should not be thinking about these questions until you get to digital mockups! Your paper prototype cannot answer these questions.

These tips apply equally to your final poster and your digital mockup

Graphic Design Principles

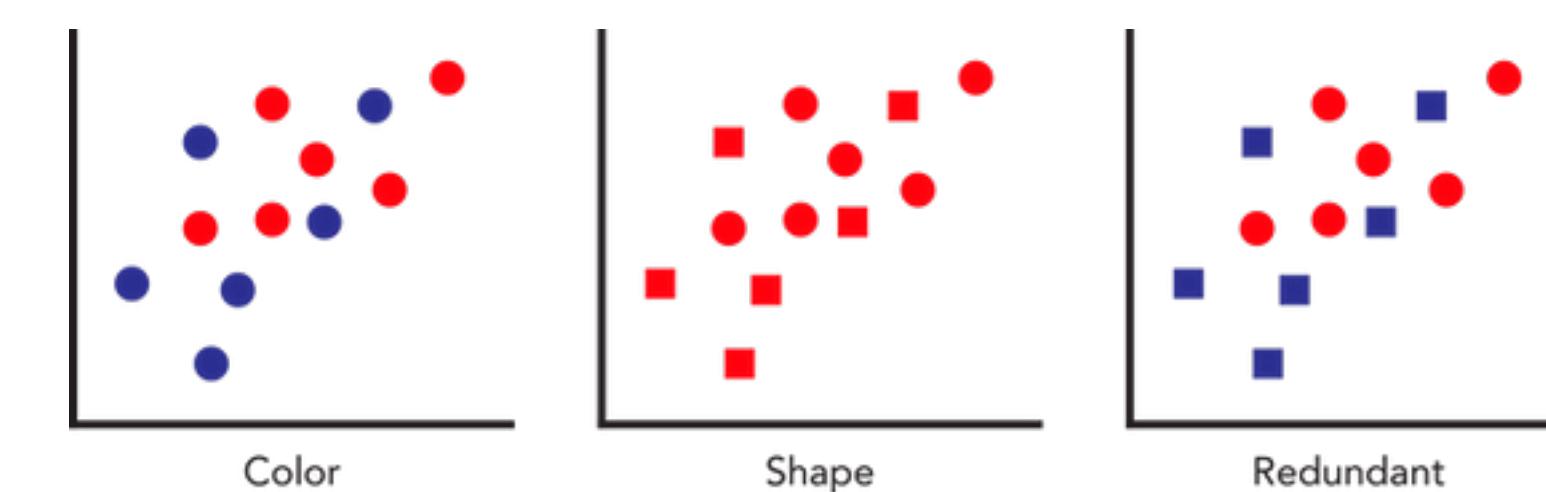
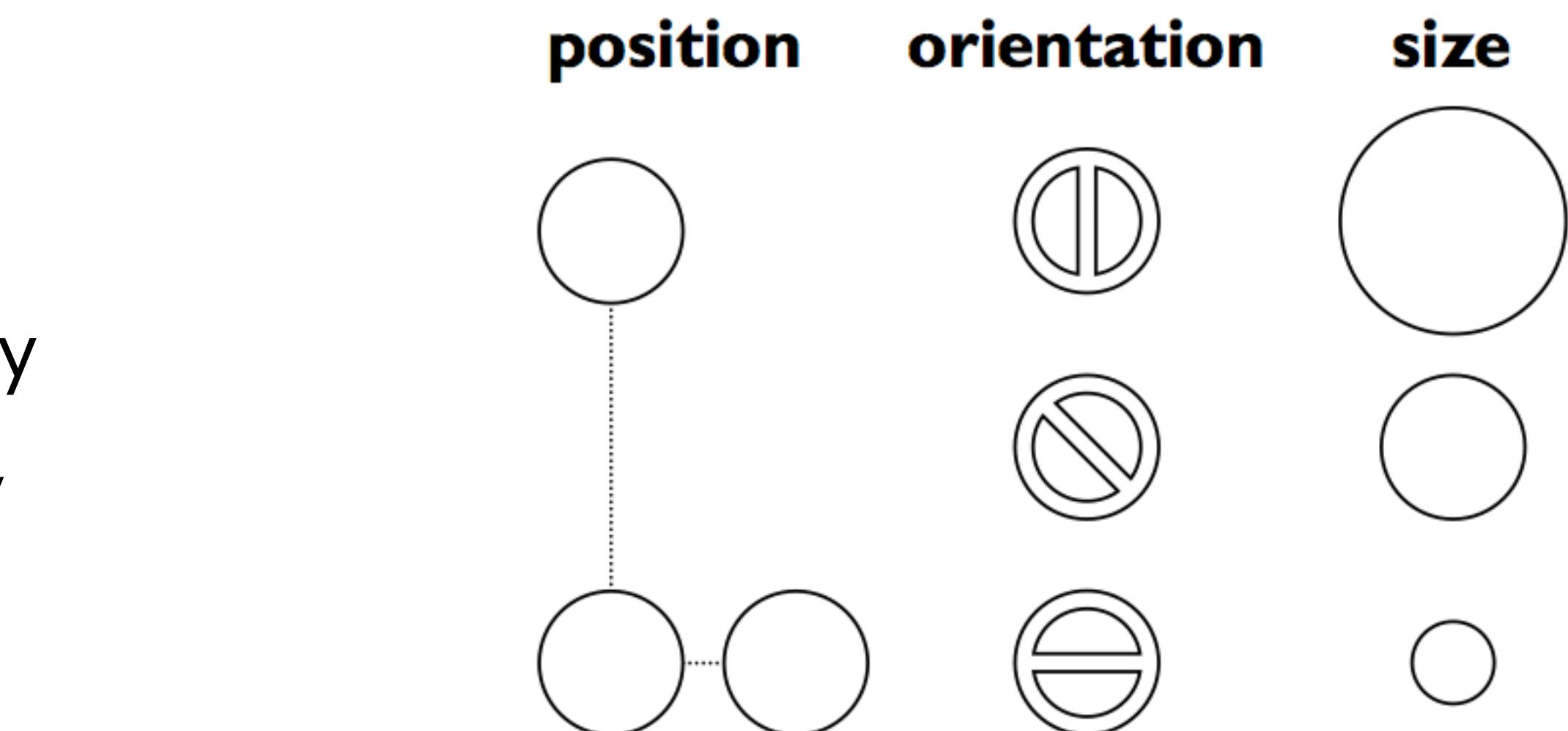
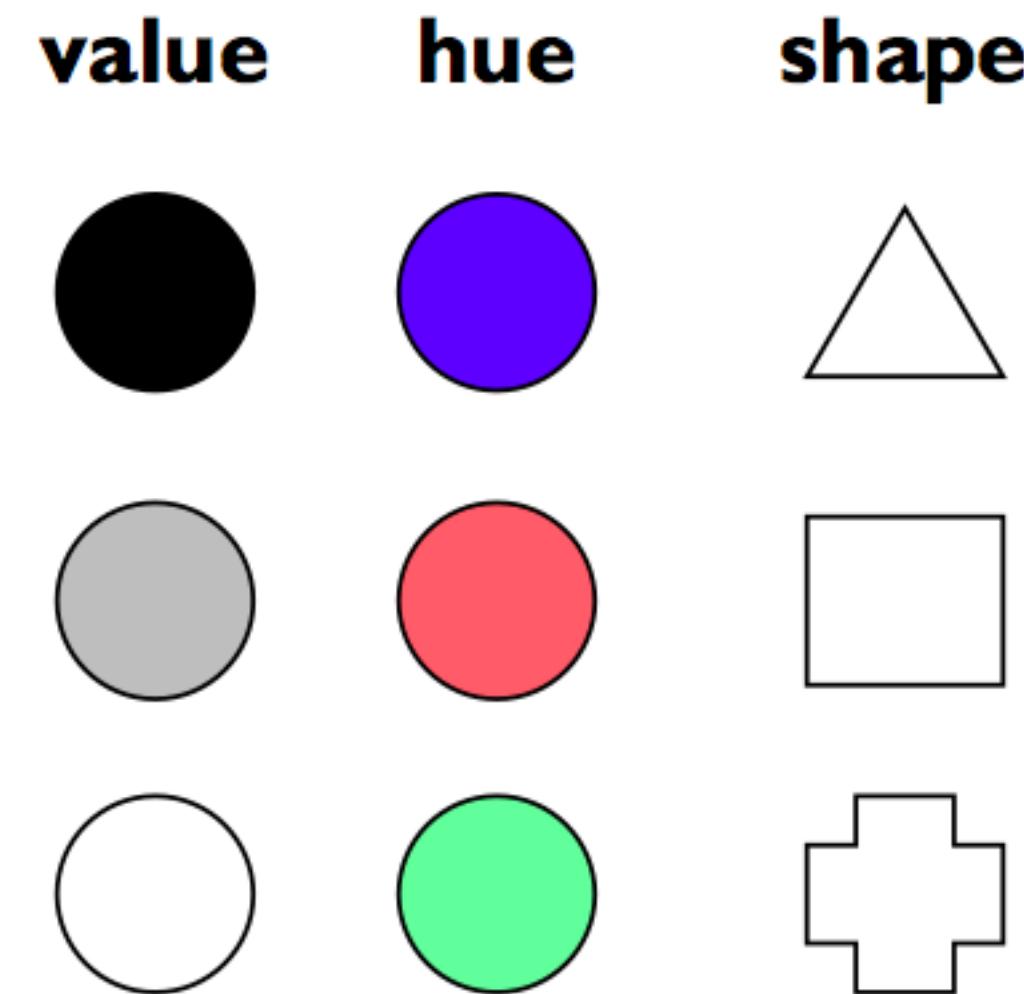
C.R.A.P. Design Principles

- A main goal of design is *simplicity*. By following these principles, we reduce inessential features until we're left with something that is easier to learn and faster to use.
- **Contrast:** Difference in style implies difference in meaning
- **Repetition:** Repeat visual elements to create unity and cohesiveness
- **Alignment:** Align elements to create visual connections and unity
- **Proximity:** Group related elements, put unrelated things far apart



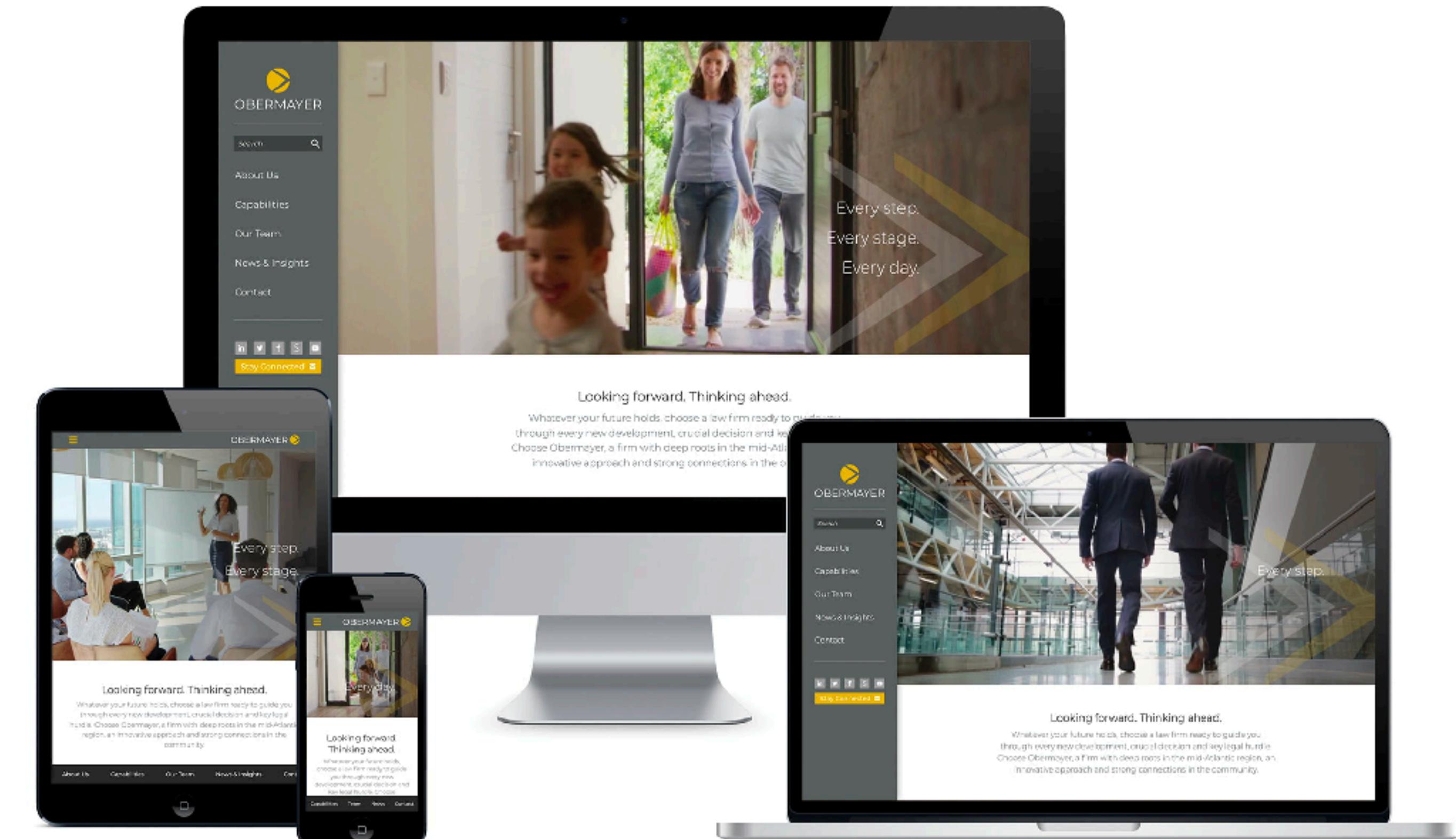
Contrast

- **Contrast:** Difference in style implies difference in meaning
- Visual objects have several visual dimensions
- Elements that are meant to be the same should not look “slightly different”
 - unimportant differences that reduce simplicity
- Elements that are not the same should look very different
 - perhaps along multiple dimensions—this is called redundant coding



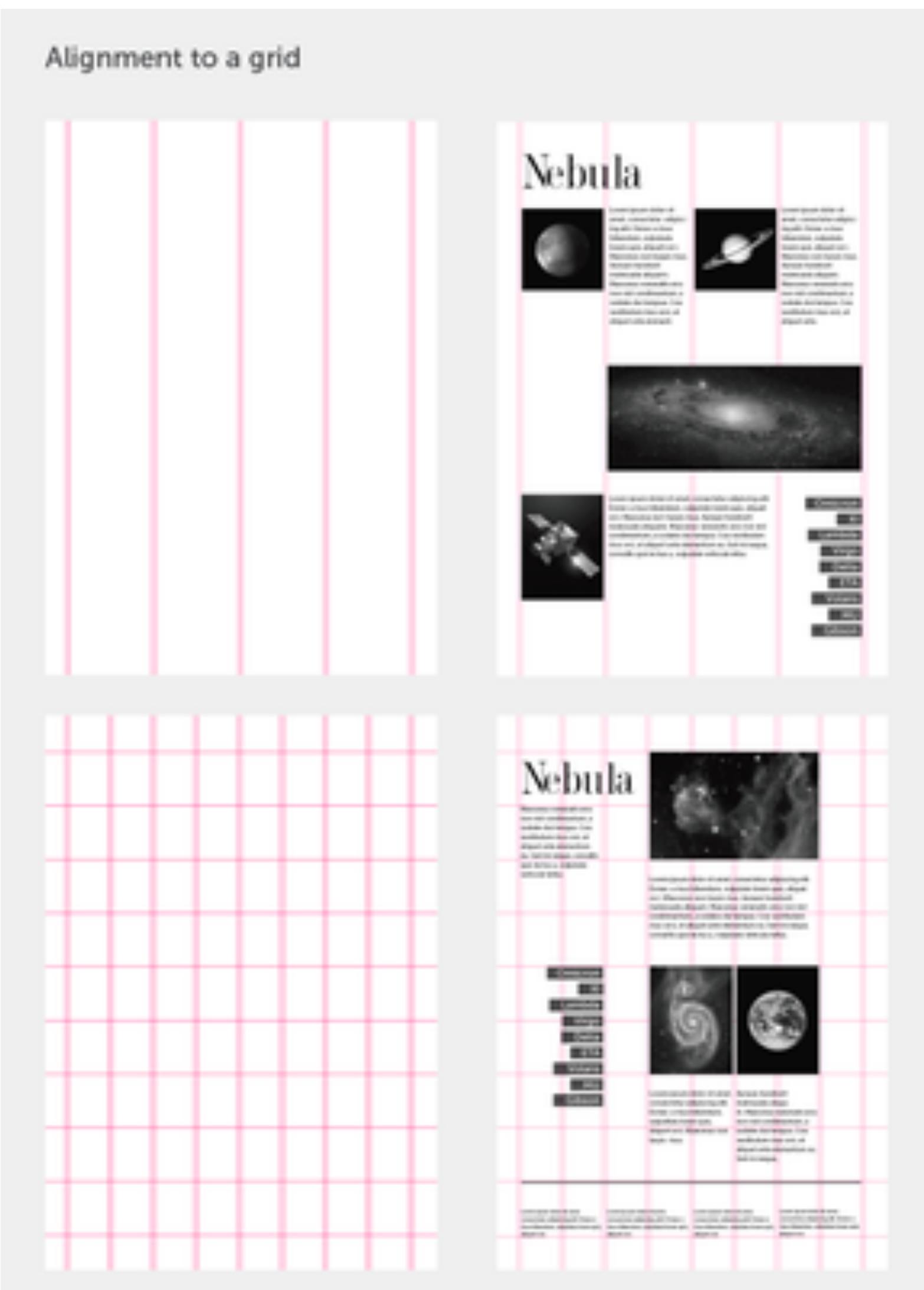
Repetition

- **Repetition:** Repeat visual elements to create unity and cohesiveness
- Good candidates to repeat: color palette, typefaces, graphic styles
- Where contrast is about showing differences, repetition is about subtly using elements to make sure the design is viewed as being part of a larger whole.



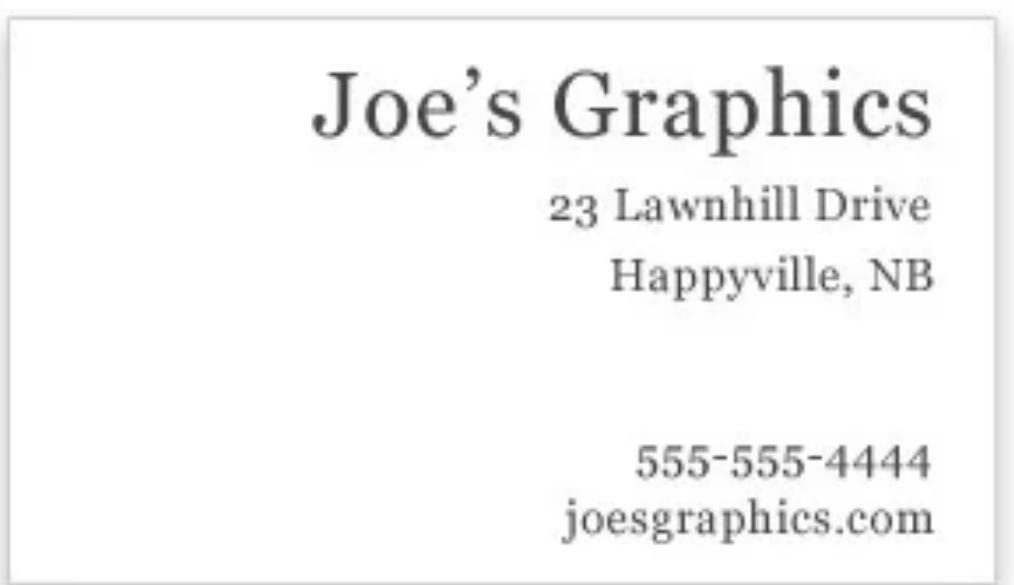
Alignment

- **Alignment:** Align elements to create visual connections and unity
- Nothing should be placed on a page arbitrarily
- Columns within a page makes it easier to scan horizontally
- Grids are very useful for achieving good alignment. This will give your design a clean, well-organized look.



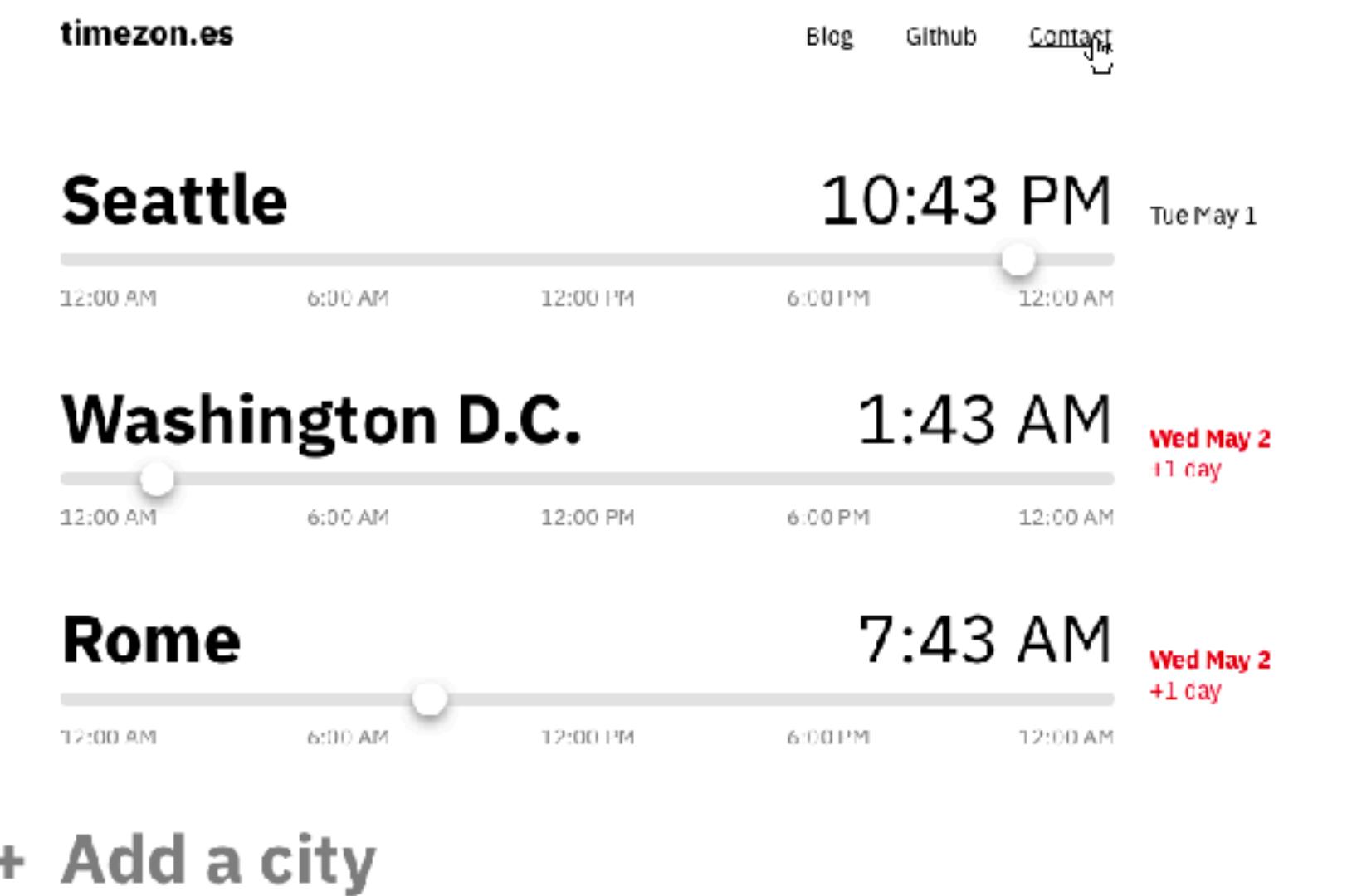
Proximity

- **Proximity:** Group related elements, put unrelated things far apart
- Group related items together to create a visual unit (remember chunking?)
- Keep space between unrelated items
- Be aware of unintentional groupings



Test for Simplicity

- Use the “**squint test**” to simulate how you interpret a design at a glance - close one eye and squint the other.
- What stands out? Is it what’s actually important in your design?



Gestalt Principles

Gestalt Principles of visual perception

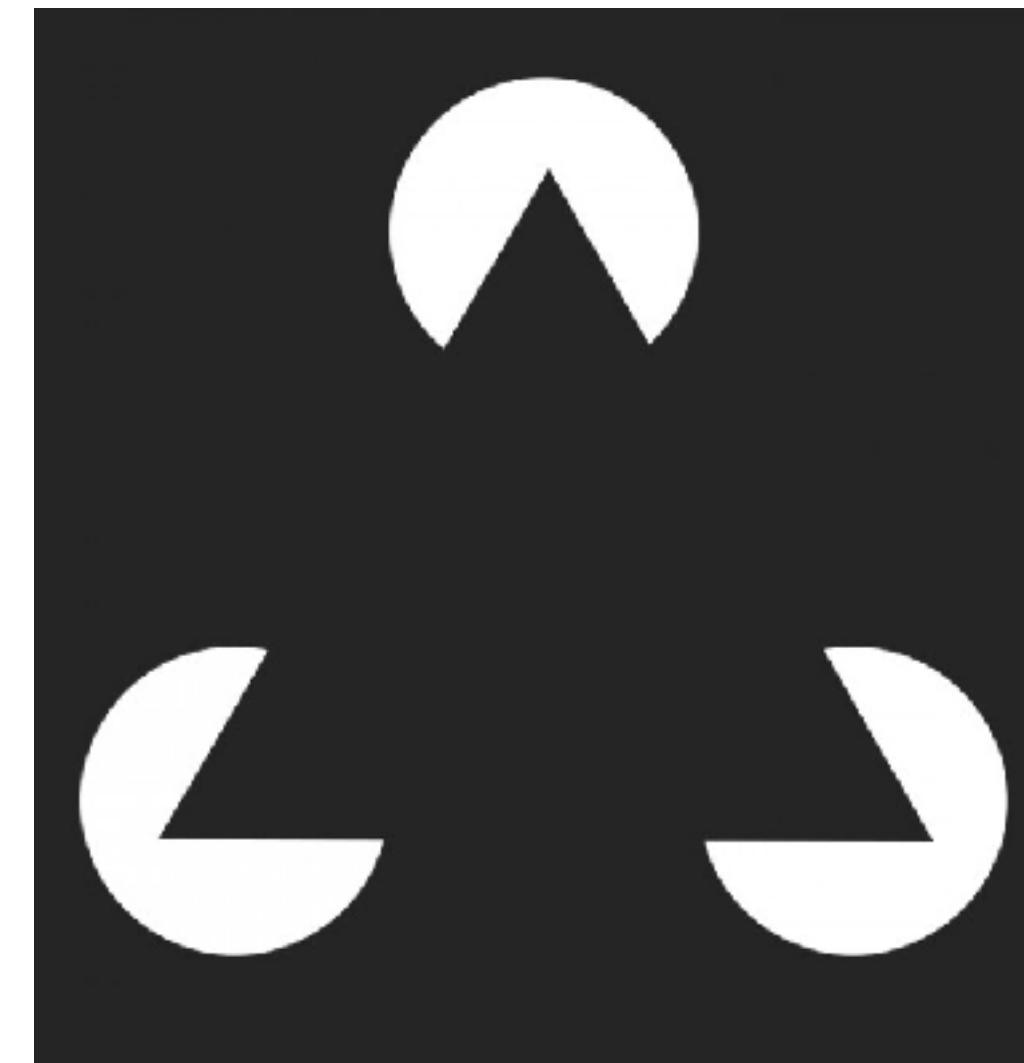
Gestalt theory: the human brain simplifies and organizes designs that consist of many elements, by subconsciously arranging parts into an organized whole, rather than just a series of disparate elements.

Our brains are built to see **structure and patterns** in order for us to better understand the environment that we're living in.

Following gestalt principles helps us convey **meaning at a glance**.

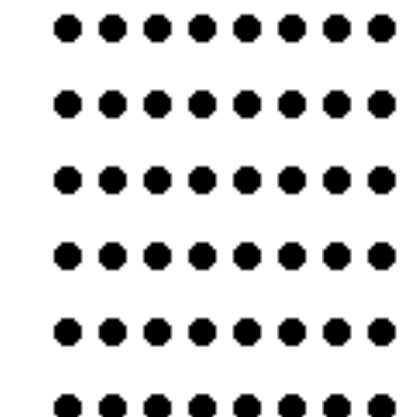
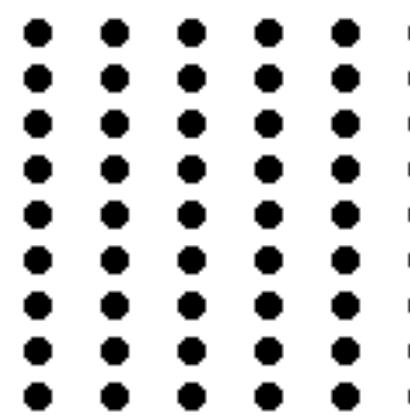
Gestalt Principles

We fill in broken lines and create continuities guided by recognition



Gestalt Principles

Proximity: objects close to each other are perceived as grouped
Already covered in C.R.A.P.!



Using Lies in Research

By Nate Bolt • March 8, 2011

While it might be an uncomfortable topic, uncovering the lies behind a product or interface can be one of the most effective ways to turn ailing projects around.

[Read More](#)

Considerations for Mobile Design (Part 2): Dimensions

By David Leggett • March 1, 2011

In part two of this series, David helps readers adapt their design regimes to the (typically) small screens of mobile devices. Using responsive design, our experiences adapt to a variety of conditions.

[Read More](#)

A Simple, Usable Review

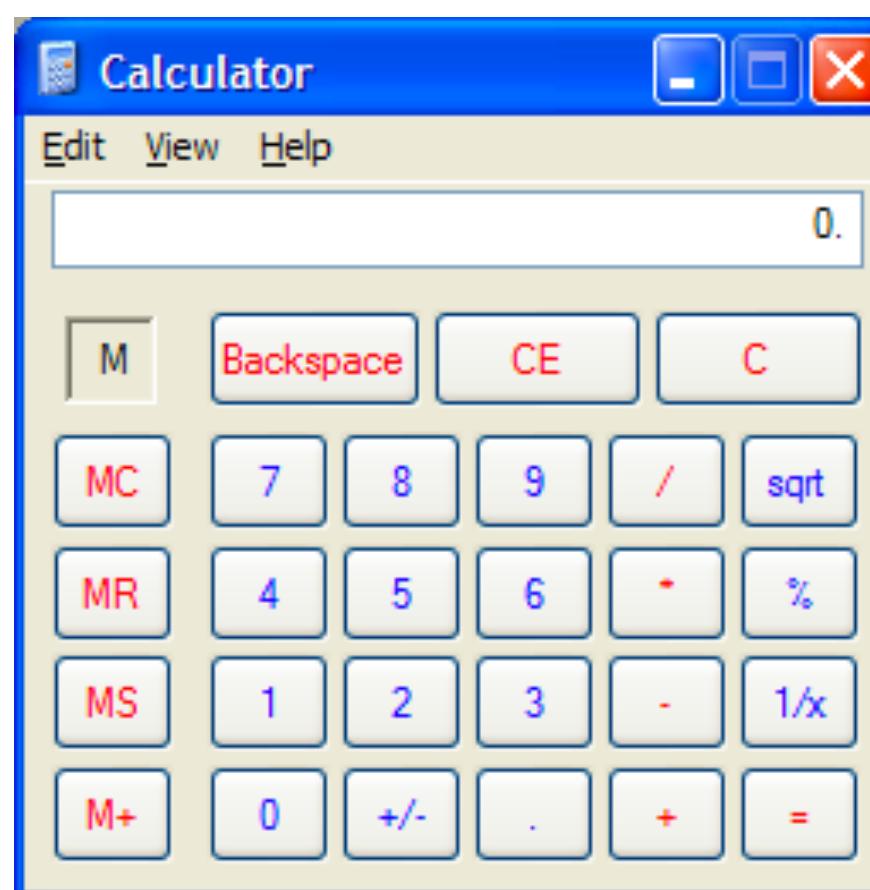
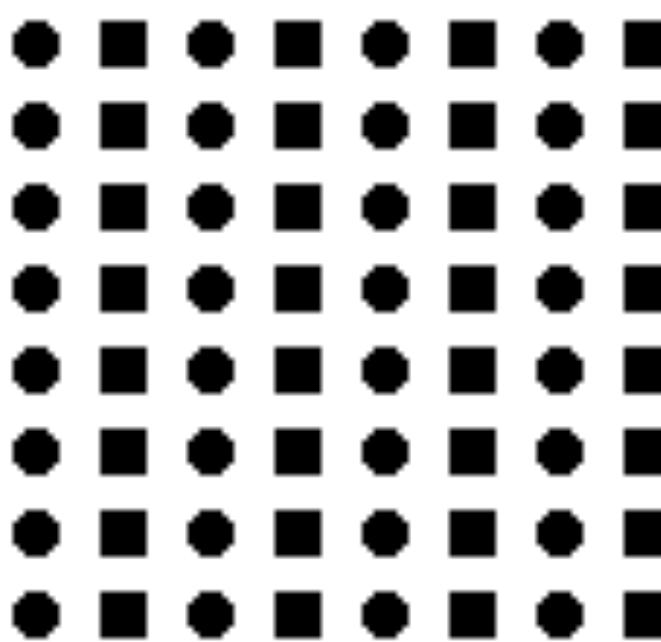
By Paul Seys • February 24, 2011

In this detailed review, Paul Seys describes an up-and-coming UX title that's jam-packed with lessons for designers both new and established. Follow along to learn how author Giles Colborne's teaches his readers the essence of great design.

[Read More](#)

Gestalt Principles

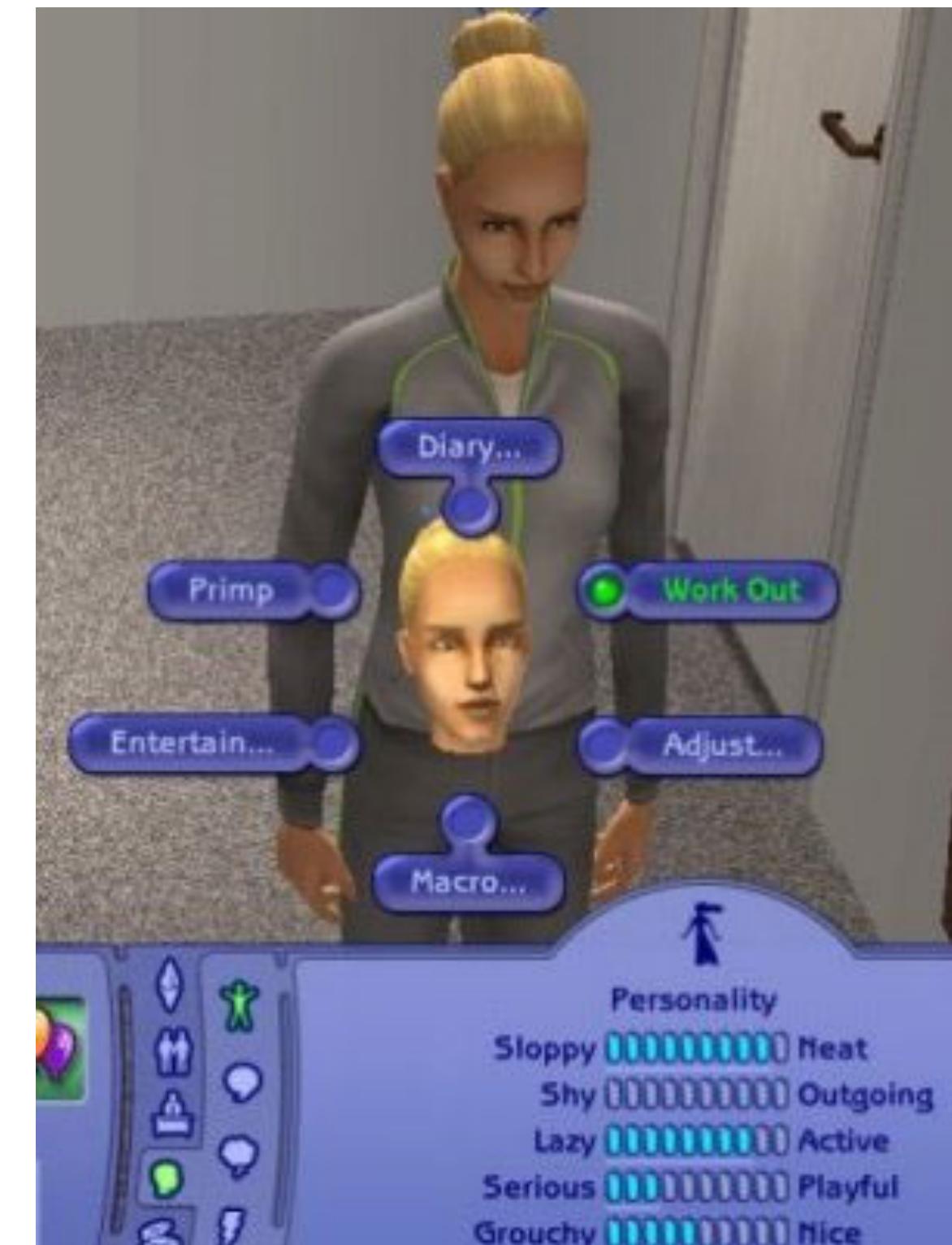
Similarity: Objects that are similar form a group
(related to contrast in C.R.A.P.)



The GitHub sign-up page. At the top, there is a navigation bar with links for "Explore", "Features", "Enterprise", "Pricing", "Sign up" (in green), and "Sign in". The main heading is "Where software is built". Below it, text reads: "Powerful collaboration, code review, and code management for open source and private projects. Public projects are always free. Private plans start at \$7/mo." A "Sign up for GitHub" button is located on the right. At the bottom, a blue banner asks "Want to use GitHub on your servers?" with a "Get started" button.

Gestalt Principles

Closure: Even incomplete objects are perceived as whole



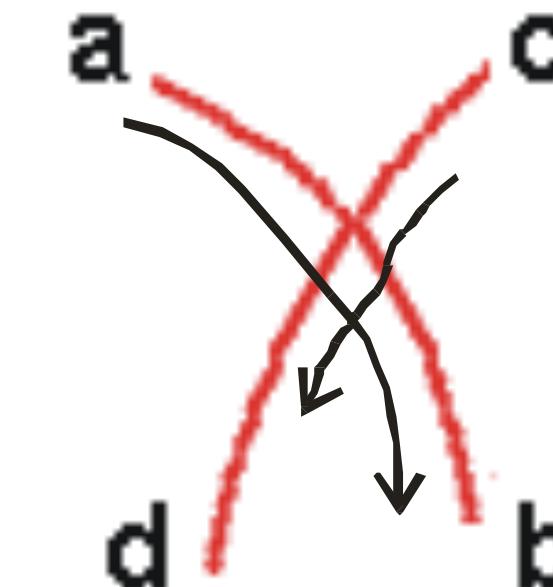
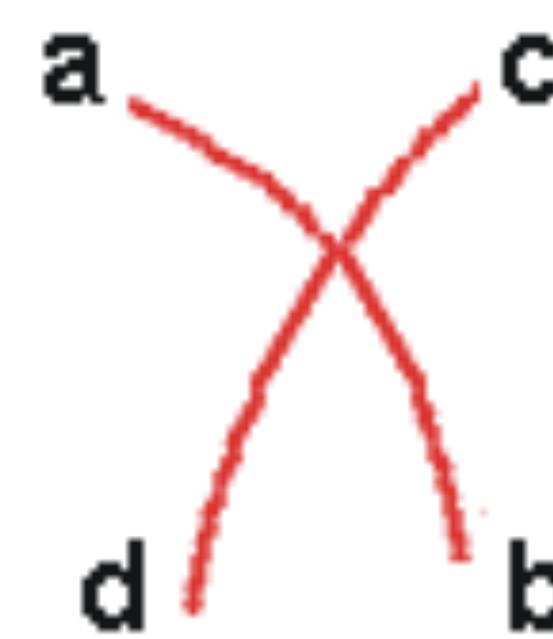
Gestalt Principles

Symmetry and Order: Objects are perceived as symmetrical and forming around a center point

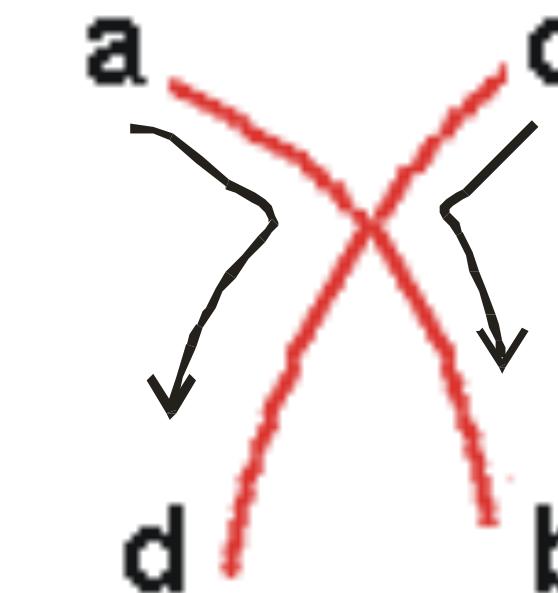


Gestalt Principles

Continuity: Objects are perceived as grouped when they align



what most
people see



not this

Color

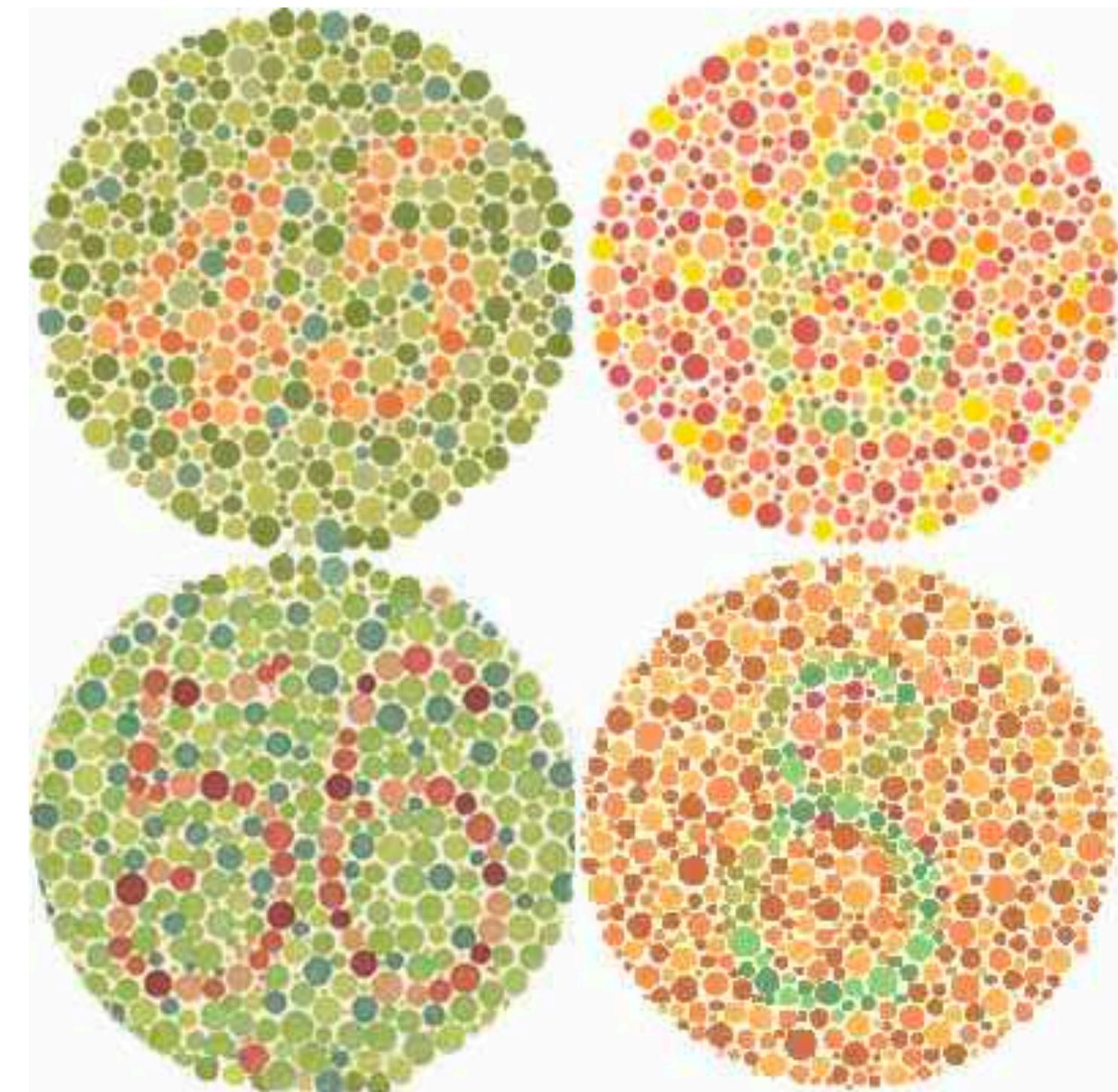
Color Guidelines

- Avoid saturated colors



Color Guidelines

- Color deficiency is common among people
 - red-green color deficiency affects ~8% of the population (typically more in men)
 - blue-yellow deficiency is much more rare
- Don't depend just on color, use redundant coding
- Don't depend on red-green distinctions



Color Guidelines

- Use few colors (simplicity)
- One common technique is to use just one hue weakly saturated and in varying values combined with white/black/gray,
 - Combine that with an accent color for when you want something to pop out
- Red=error, Green=Go, Yellow=caution (at least in Western countries)



Typography

Text Spacing

- Use whitespace
 - Always leave margins around body text; never pack it tightly against an edge
- Use generous leading
 - Make sure body text is not overcrowded
- Keep text paragraphs narrow
 - About 60-75 characters / 12-15 words

Four score and seven years ago,
our forefathers brought forth upon
20/20 this continent a new nation, conceived in
liberty and dedicated to the proposition
that all men are created equal.

Four score and seven years ago,
our forefathers brought forth upon
20/24 this continent a new nation, conceived in
liberty and dedicated to the proposition
that all men are created equal.

Four score and seven years ago,
our forefathers brought forth upon
20/28 this continent a new nation, conceived in
liberty and dedicated to the proposition
that all men are created equal.

Font Selection

- Use the same principles of simplicity and contrast
- Don't use more than 2 or 3 typefaces
 - e.g., one for body text, one for display text
- Don't use two faces from the same font category
 - e.g., only one sans serif
- Use size, weight, style (e.g., italic/small caps), hue to establish essential contrasts
 - But 4-5 font varieties at the very most (and less if your design doesn't use font much)

What makes a good poster?

Last day of class: Virtual Poster+pitch session (3/11)

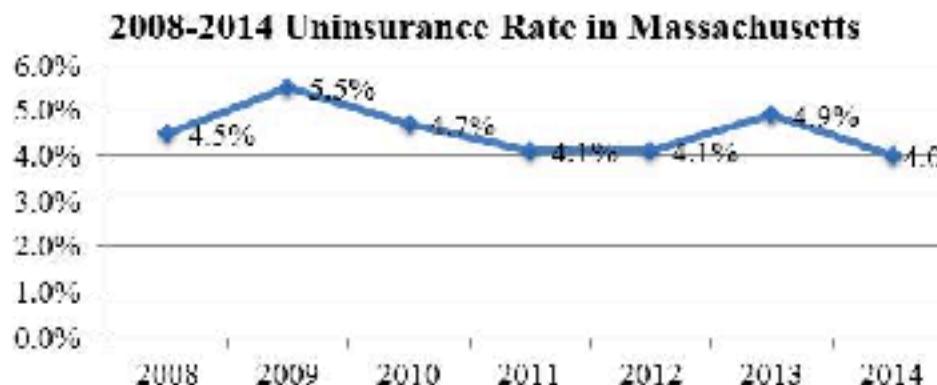
Outreach & Enrollment

Reaching Those That Need to Re-Enroll in Health Insurance

Student Author

Massachusetts Health Connector

Background



While Massachusetts has the lowest rate of uninsurance in the nation, in the last 6 years the uninsurance rate has remained near 4% of the population.

In order to successfully decrease the uninsurance rate in the state Massachusetts Health Connector* should focus outreach and enrollment efforts on both those who are uninsured and those who are insured but need to re-enroll into a new health plan. Unless those who are insured re-enroll, they will be uninsured after the end of Open Enrollment 2015.

For the 2015 Open Enrollment the focus was on re-enrolling individuals and families in health insurance plans since 7% of the population (slightly under half a million individuals) were currently insured but needed to reapply for health insurance.

Outreach & Enrollment Stage 1 – Open Enrollment 2015

The 2015 Open Enrollment period ran from November 1, 2014 to February 15, 2015. During this period individuals and families could enroll in health insurance.

To encourage enrollment in a health insurance plan the Massachusetts Health Connector

sent out notices regularly to those who were currently insured but needed to re-enroll in a health insurance plan.



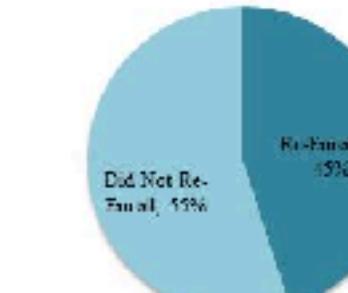
In addition to sending out notices, the Health Connector planned and participated in a number of enrollment events to assist individuals and families apply and enroll in health insurance. Patrice Bergeron, famous Boston Bruins hockey star, promoted and attended an enrollment event in Boston.

Furthermore, during Open Enrollment the Health Connector staff worked with Navigator organizations (Navigators are grantees of the Health Connector who work in the community enrolling people into health insurance) and Application Assistants to ensure that as many people as possible submitted an application and re-enrolled in health insurance.

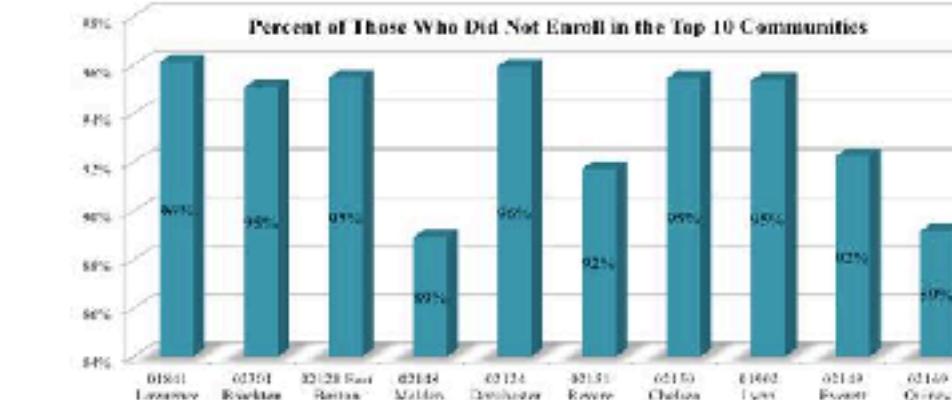
Outreach & Enrollment Stage 2 – Understanding Who Did Not Re-Enroll

While Open Enrollment was considered successful overall with over 400,000 people signing up for health insurance, of the 440,000 people who needed to re-enroll *only* 45% re-enrolled in a health insurance plan.

Percent that Did Not Re-enroll



The next step was to understand who the people were that did not enroll and identify ways to strengthen the current outreach and enrollment strategy to reach those who did not re-enroll in health insurance.



Even though the above 10 zip codes account for 15% of those who needed to re-enroll in a plan during Open Enrollment, together they account for 25% of the population that did not re-enroll in a plan.

Language preferences of those who did not re-enroll were reflective of the geographic locations in which people lived. Despite early hypotheses that those who did not re-enroll were non-English speakers, the data shows different with 50% of those who did not re-enroll speaking English. It appears that the common factor across those who did not re-enroll is geographic location and not language.

One of the barriers that may have caused large percentages of the insured population in these geographic areas not to re-enroll was a lack of Health Connector assister organizations in many of these communities. Other barrier are outlined below:

Barriers

Technology	Some consumers do not have email addresses which are necessary to start and complete an online application for health insurance
Health Literacy	Many people do not understand terms like premium, deductible, co-pay, co-insurance or maximum out of pocket
Literacy	Example: The Cape Verdean immigrant population has a low general literacy rate in Massachusetts
Language	The online application is only available in English with a paper application version in Spanish
Cultural	Fears that signing up for health insurance will allow the Immigration and Customs Enforcement Agency to identify deport undocumented individuals

Outreach & Enrollment Stage 3 – Open Enrollment 2016

Using the results of the enrollment data analysis will allow the outreach and communication team to focus their outreach strategy to specific geographic regions for the 2016 Open Enrollment period which starts in November of 2016.

The following areas are areas that outreach and enrollment efforts should focus on for the 2016 Open Enrollment period:



This can be done in a number of ways as is outlined in the recommendations below.

Recommendations



1. The Health Connector needs to develop partnerships with community organizations and faith based organizations in these communities to strengthen future outreach campaigns and reach those that did not re-enroll.



2. Choose Navigator Organizations in these top 10 areas so that they can assist with the online application and help people enroll in health insurance. (In 2015, seven of these areas did not have a Navigator organization in them.)

*Massachusetts Health Connector

The Massachusetts Health Connector is the state based health insurance marketplace in Massachusetts. It runs the state's health insurance exchange which sells subsidized health insurance plans.



Human Computer Interaction

Member: Jack Wu

Jiang Yucheng

Wilson Lee

1 Main Page

- Navigation Bar boosts exploring experience and make it more convenient for users to explore back and forward.
- Tabs make what users are doing more explicit.
- Help button navigates users to help and documentation page.

2 Booking

- Enjoyable for users to select different tabs/page.
- Drop box constraints to make it safe.
- Constrain on user input making it safe and enjoyable to select dates.

3 Search Page

- Search box making it more efficient for users to filter results.
- Check box used to make users efficient to filter results.
- Users can sort results on various categories.

4 Payment Page

- Credit Card and PayPal payment options.
- For all the entries of credit card there are easily learnable illustrations showing user where to find the information.
- Click to subscribe special offers.
- Trip summary lists all the information related to the booking user have made.

User Interface of Mobile Application

The mobile application interface includes:

- EasyTravel**: Register account, Flights, Hotel, Experience.
- Hotel**: Shows Singapore as the location, Number of Guests (1), Room (1), Day to check in (24 Oct 2013), Day to check out (29 Oct 2013), and a Find button.
- Flights**: Shows From (Sydney Airport), To (Changi Airport), Date (24 Oct 2013 to 29 Oct 2013), Number of Passengers (1), Class (Economy), and a Find button.

Annotations for the mobile application:

- The visibility of Register and Sign in is very good.
- The main services Easytravel provided are clear and obvious once user enter the app.
- Plus and minus sign is a good use of neuralmapping.
- The user interface is tapped based. For Day to check in and check out there is going to be a drop-down calendar when each of the rectangle is tapped . To choose from calendar is to prevent potential input error.



Empowering teachers and administrators to recognize bullying related behavior trends and create and evaluate effective solutions.

Problem

Bullying is most prevalent among middle school-aged children. 30% of U.S. students have experienced bullying directed at them, 70-80% are affected at some time by bullying either as the bully, the bullied, or a bystander. Effects can be severe and last into adulthood. Issues, such as anxiety disorders and depression.

Feature

SchoolView allows teachers and administrators to manually enter a new trend to track, to enter a new policy's performance to be tracked, and to subscribe to a system-suggested trend.

Trend Tracking



Policy Monitoring



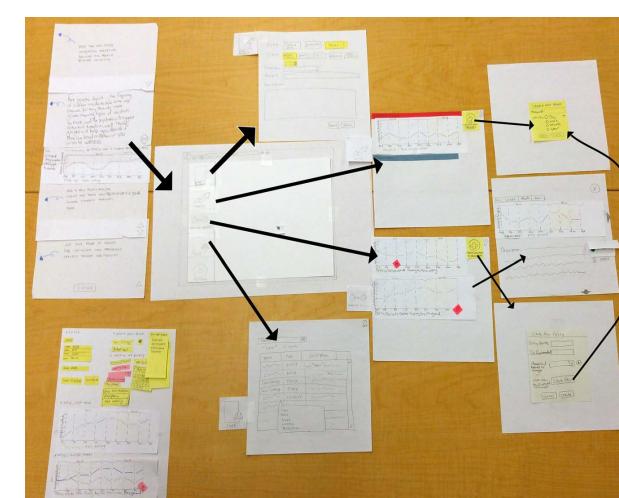
Design Process

1. Contextual Inquiry

Our iterative design process began with four contextual inquiries to inform our team of specific issues surrounding bullying in middle schools.

We interviewed professionals in the education field ranging from middle school- to high school level.

2. Paper Prototype



3. Heuristic Evaluation and Usability test

Later, we performed two heuristics evaluations and three usability tests to evaluate the functionality and user-friendliness of our initial and final paper prototypes. The participants of our heuristic and usability studies were UW students.

4. Digital Mockup



POLISCOPE

THE NEWS YOU WANT, IN ONE PLACE

JANET GAO
KIM LE
KIYANA SALKELD
IAN TURNER

OVERVIEW

Gaining a well rounded perspective on a news story or political issue often necessitates sifting through multiple news outlets, which is a laborious and tedious process.

TARGET AUDIENCE

Our intended target audience is comprised of college students who are interested in reading the news, but view this activity as being extremely time intensive. These individuals want to stay abreast of the news in the most efficient manner possible.

SOLUTION

Our proposed solution is a smartphone application that will aggregate personally relevant news stories from multiple outlets into a single location. Additionally, users will be able to keep track of the news their friends are interested in.

View news stories aggregated based on topics and news outlets you follow

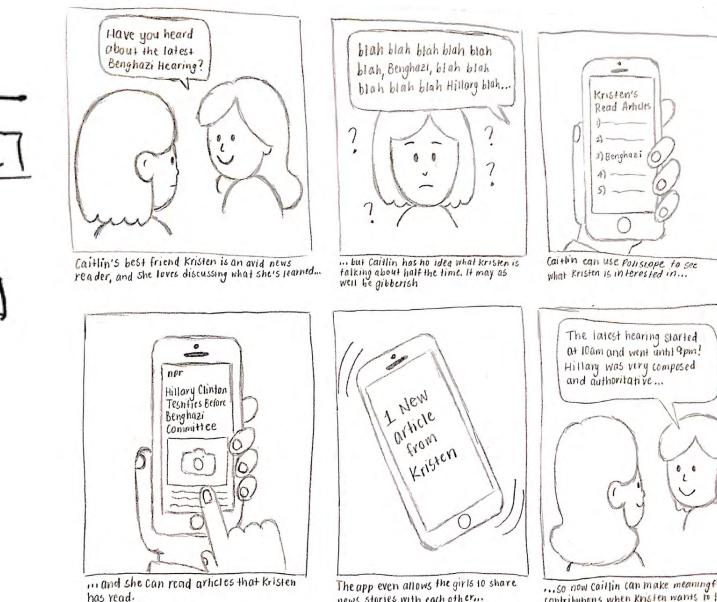
See the news stories that your friends are reading and sharing

Read articles, and share them with your friends as well

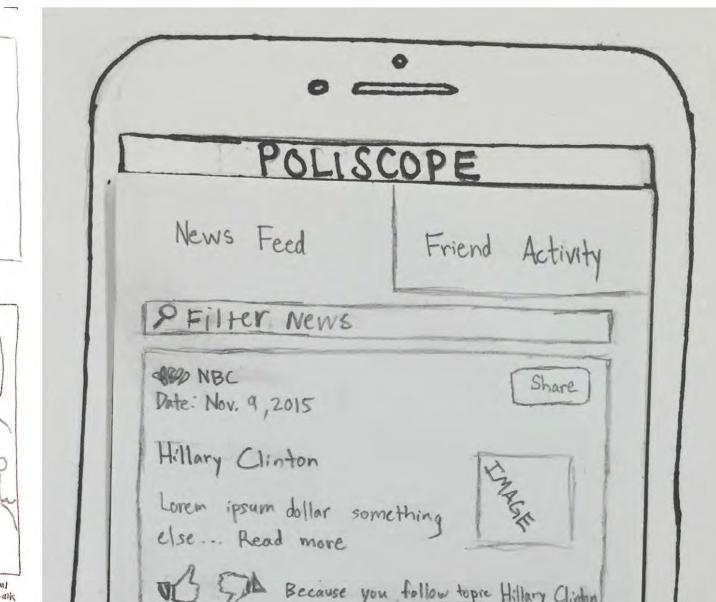
PROCESS



Sketches quickly communicate ideas



Storyboards provide context



Paper prototypes allow design to change in response to usability testing

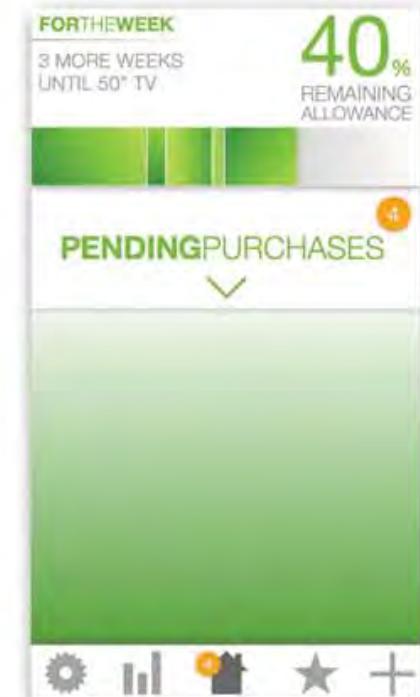
KA-CHING

CONTROL WHERE YOUR MONEY GOES

ACACIO DOMAR
WANLIN LI
ANDREA MARTIN
ELISE NEROUTSOS

PROBLEM

Spending on small discretionary items adds up resulting in people not being able to spend on larger items that they actually want.



Review application summary and purchase notifications.

SOLUTION

A mobile application that solely tracks discretionary spending, highlights a concrete goal to save towards, and helps visualize the impact of smaller purchases.



Designate single items or whole purchases as discretionary.

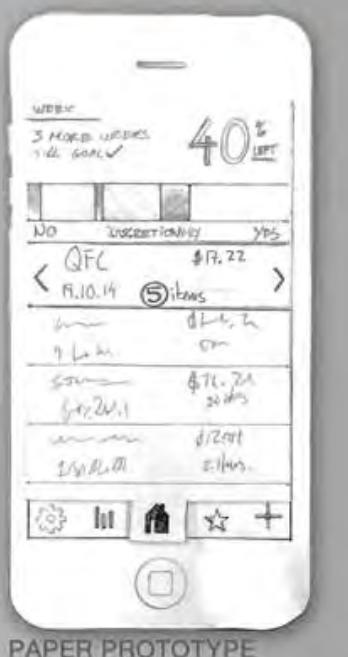
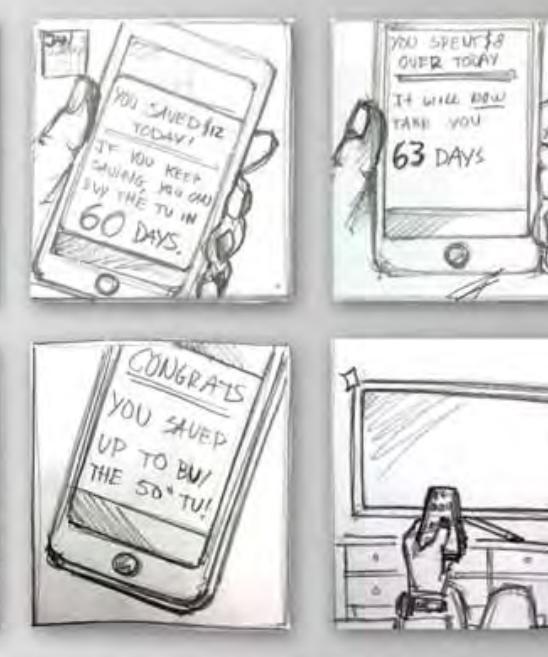
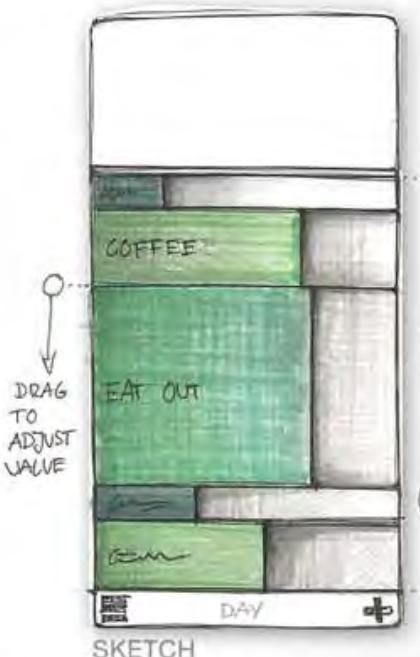


Add goals and monitor progress towards goal completion.



Reflect and improve on spending habits.

PROCESS



What makes a good poster?

- Considers target audience and context (e.g., landscape format for online poster presentations)
- Follows design principles, C.R.A.P., and Gestalt principles
- Minimizes text
- Uses a relevant color scheme (repetition) without too many colors
- Uses high-quality images
- Use a simple grid to minimize horizontal and vertical lines
- Break the monotony with your most interesting artifact. Use the squint test to make sure what's interesting is what stands out!

Group Presentations of your usability testing and final paper prototype

Describe how your prototype has changed and what usability tests have uncovered.

Last chance to get feedback from classmates on your design before starting on your digital mockup!

You should have come to an agreement with the team about the design BEFORE you begin working on the digital mockup (since it's hard to change at that point).

3c is due tonight at 8PM. Feedback from TAs will be returned before section tomorrow. You'll have all of section time to work on your preliminary digital prototype (3d), due next Monday at 8PM.