



CSE 428

Human Computer Interaction

Yasin Sazid
Lecturer
Department of CSE
East West University

Visual Design

Why now?

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

How much space should I put 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.



graphic design is my passion

NO...

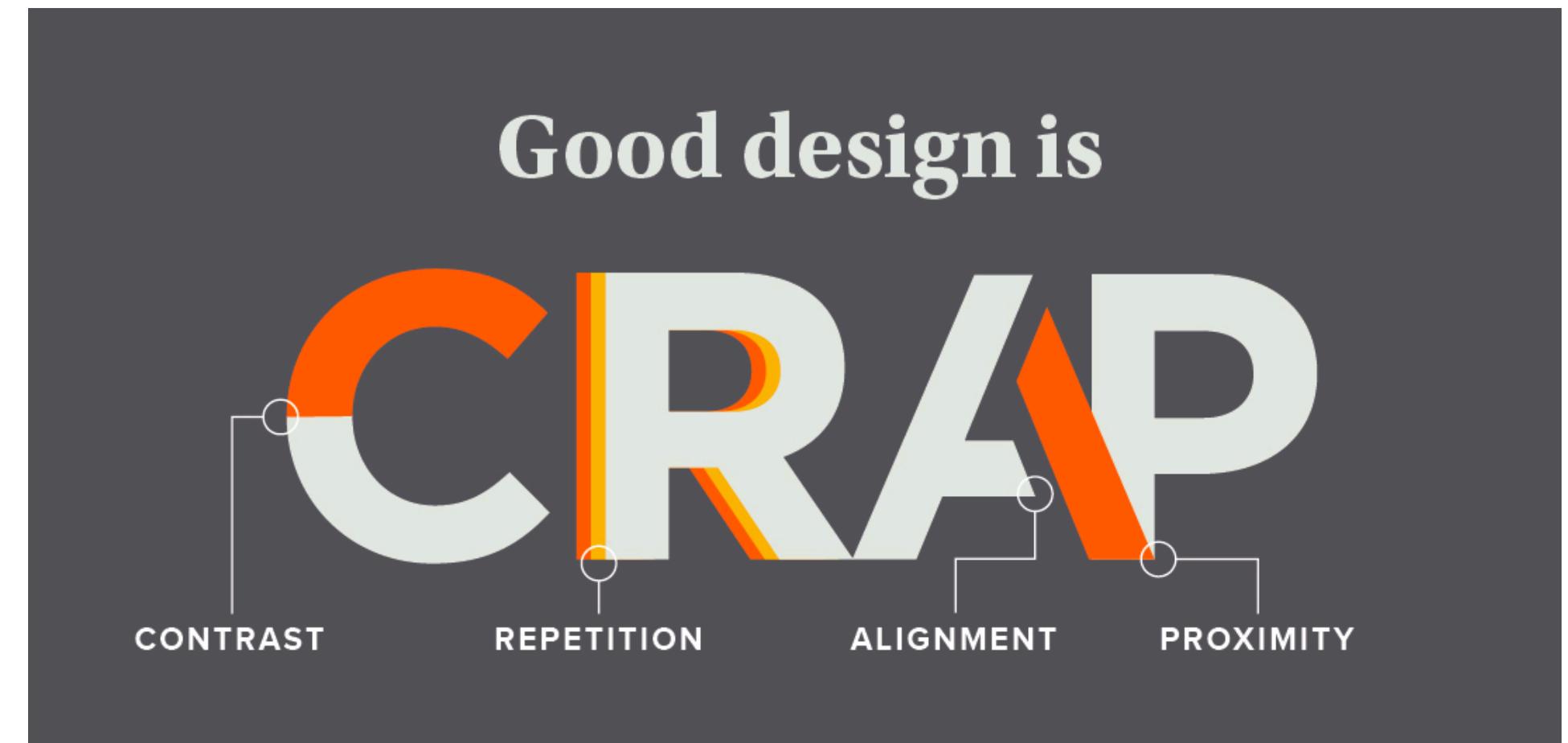


graphic design is **OUR** passion

Graphic Design Principles

C.R.A.P. Design Principles

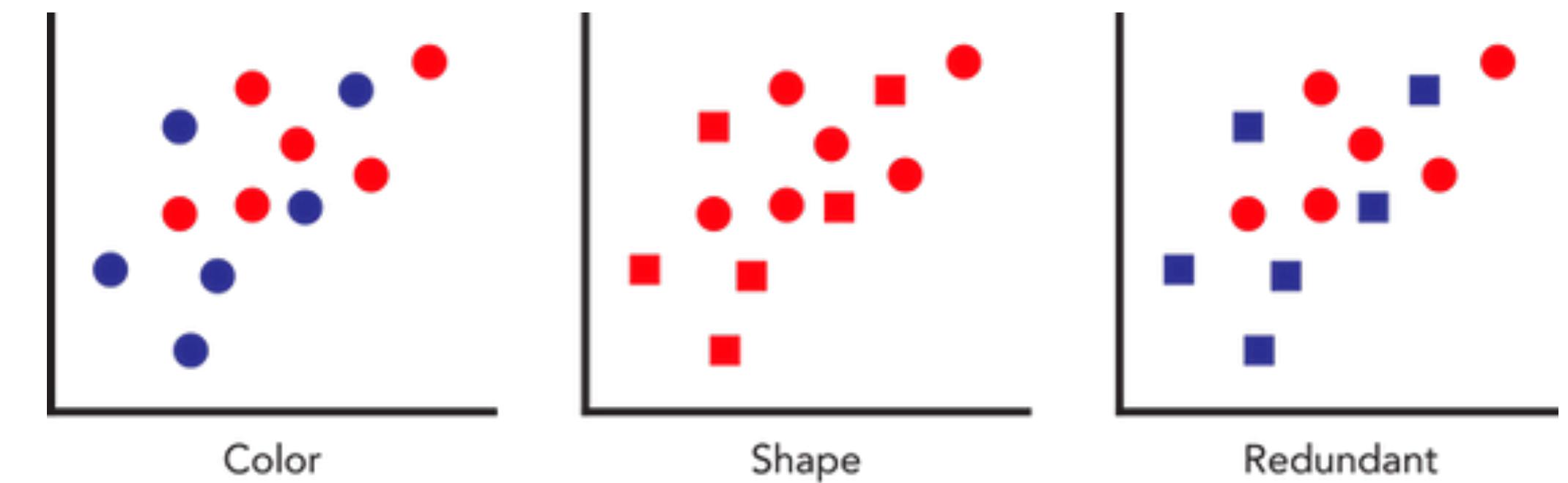
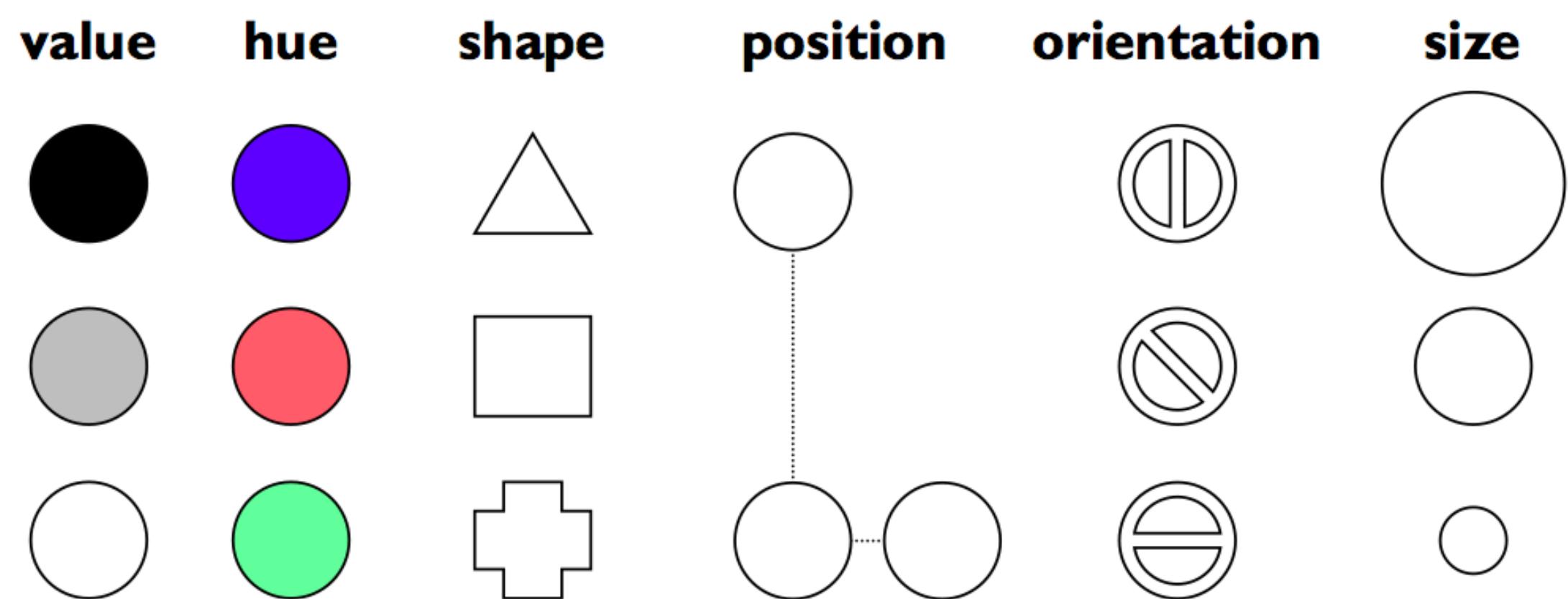
- A main goal of design is *simplicity*. By following these principles, we reduce inessential features until we're left with something that is easier to learn and faster to use.
- **Contrast:** Imply a difference in meaning by a difference in style
- **Repetition:** Repeat visual elements to create unity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



Contrast

- **Contrast:** imply a difference in meaning by a difference in style
- Visual objects have several visual dimensions
- Elements that are meant to be the same should not look “slightly different”
 - Unimportant differences reduce simplicity and increase confusion
- Elements that are not the same should look very different
 - Perhaps along multiple dimensions — this is called redundant coding

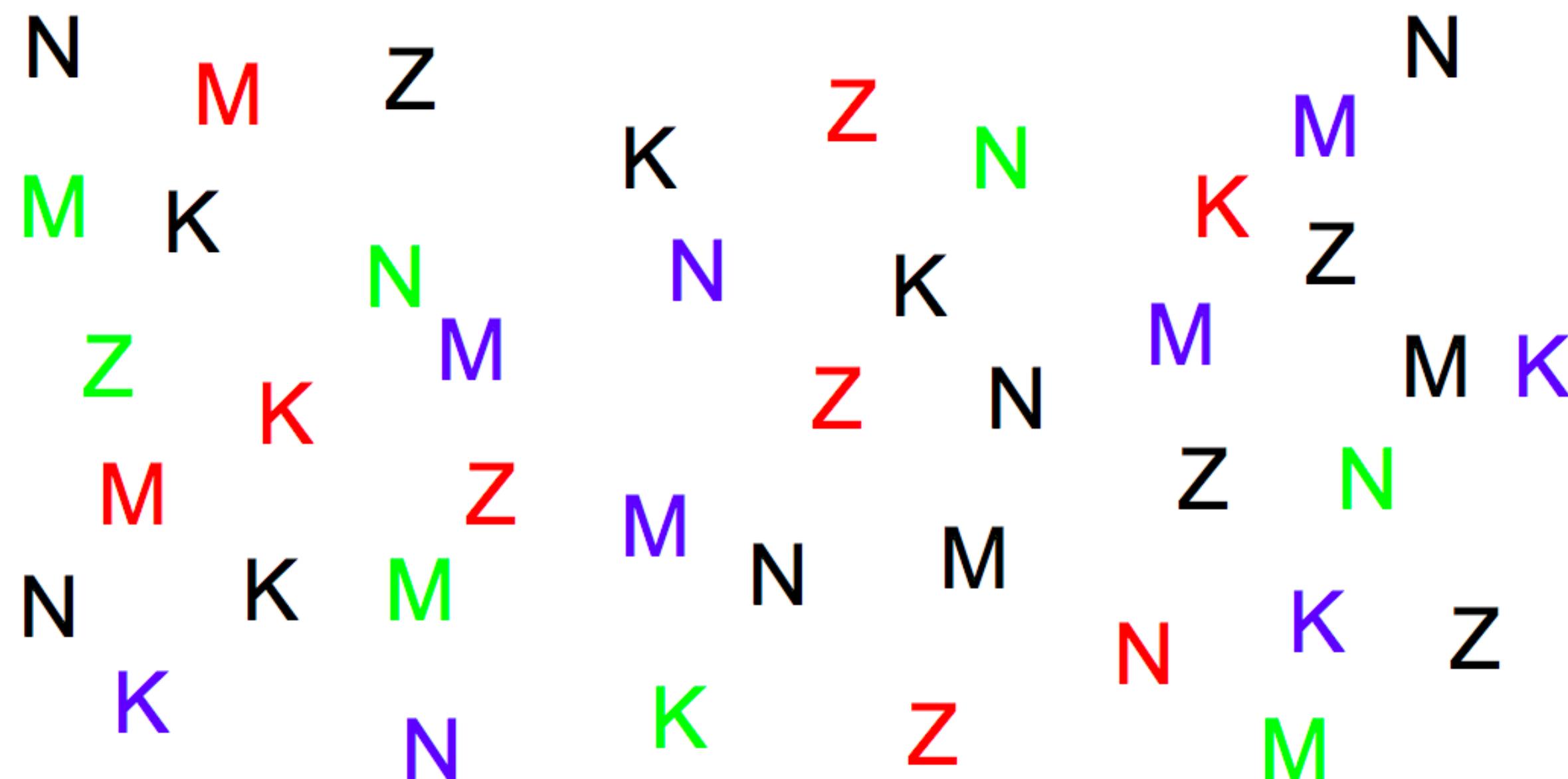
Six Visual Dimensions



Visual Variables and Perception

- **Selectivity:** the degree to which a single level of the variable can be selected
 - E.g.: value, hue, position, orient, size
- **Associativity:** how easy it is to ignore the variable
 - E.g.: all variables but size and value
 - These are **dissociative** since they interfere with your ability to perceive other variables
 - Selectivity and associativity are not mutually exclusive!

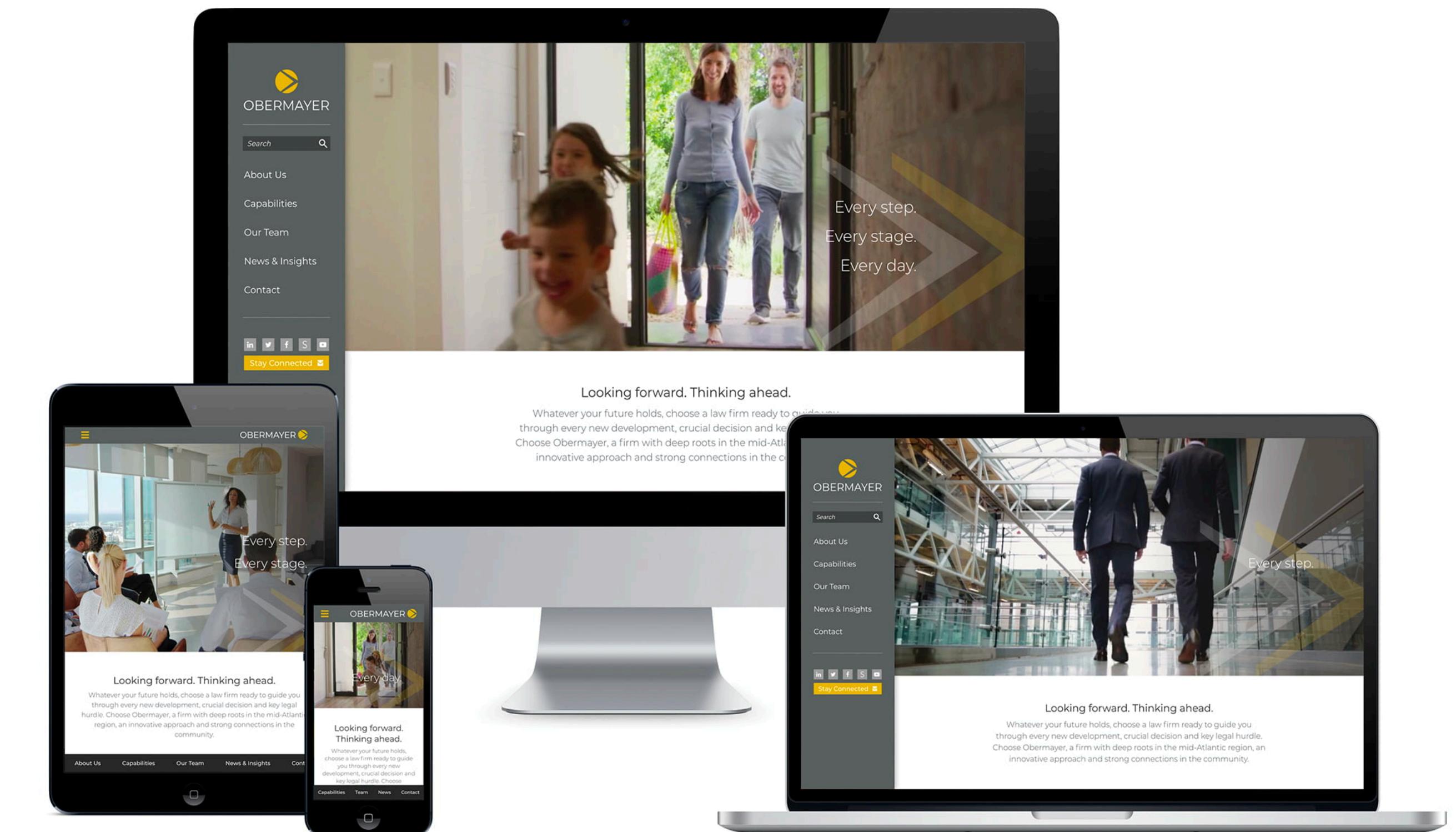
Visual Variables and Perception



- Find all the letters on the left edge (**position**)
 - Find all the red letters (**hue**)
 - Find all the K's (**shape**)
- Which of these questions were easy to answer and which were hard? The easy ones are **selective** visual variables.

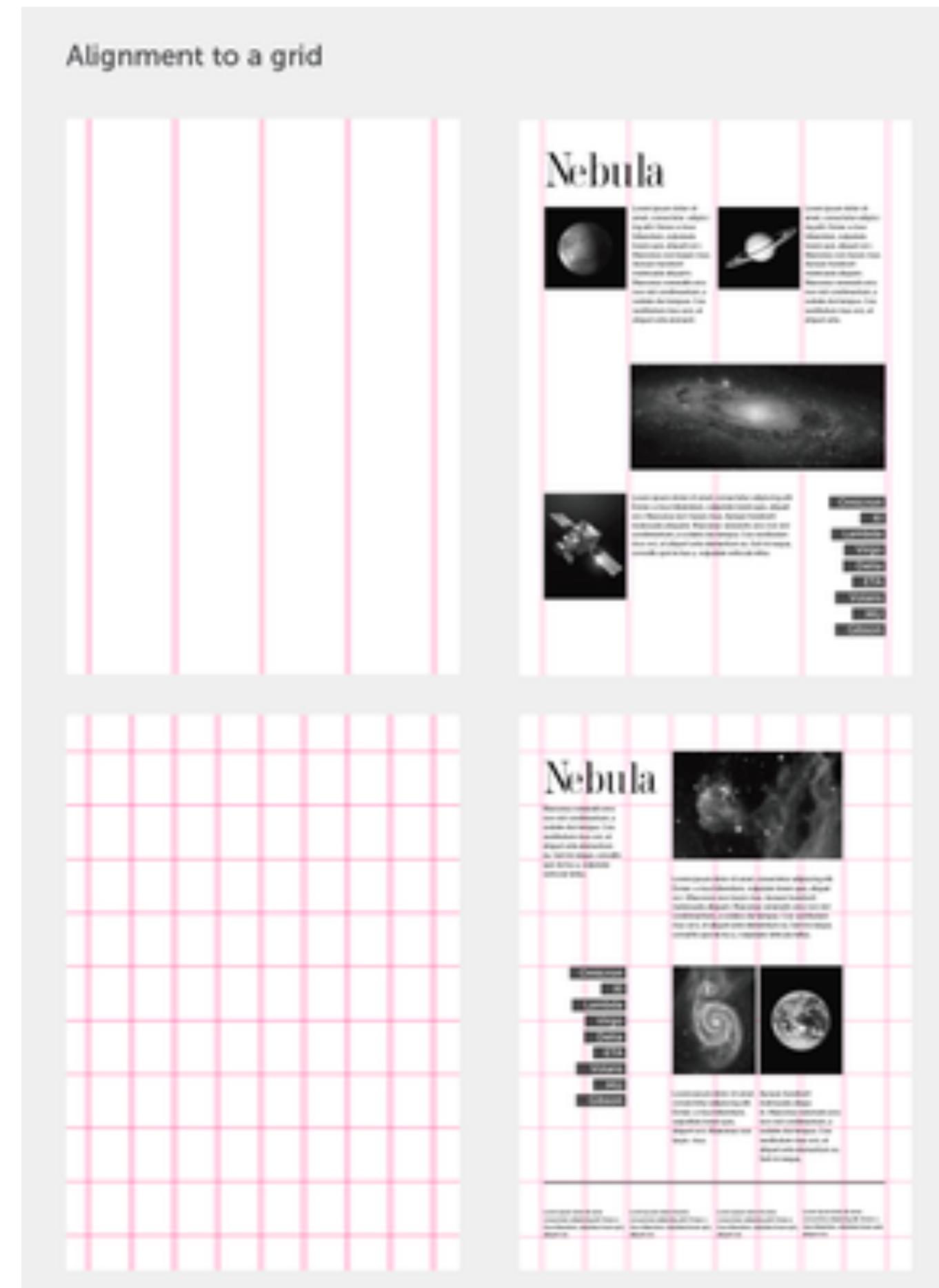
Repetition

- **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.
- Be wary of too much repetition!



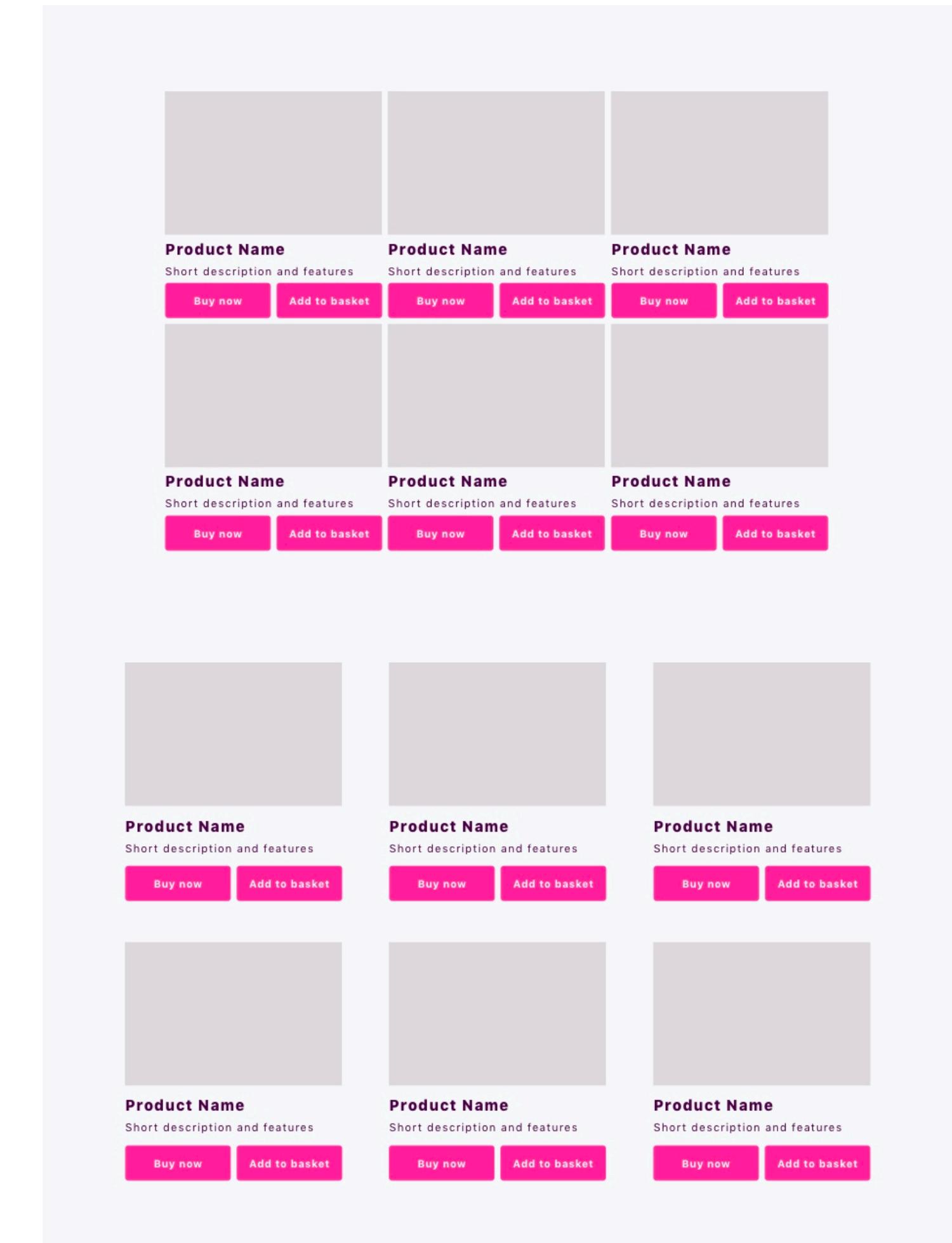
Alignment

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



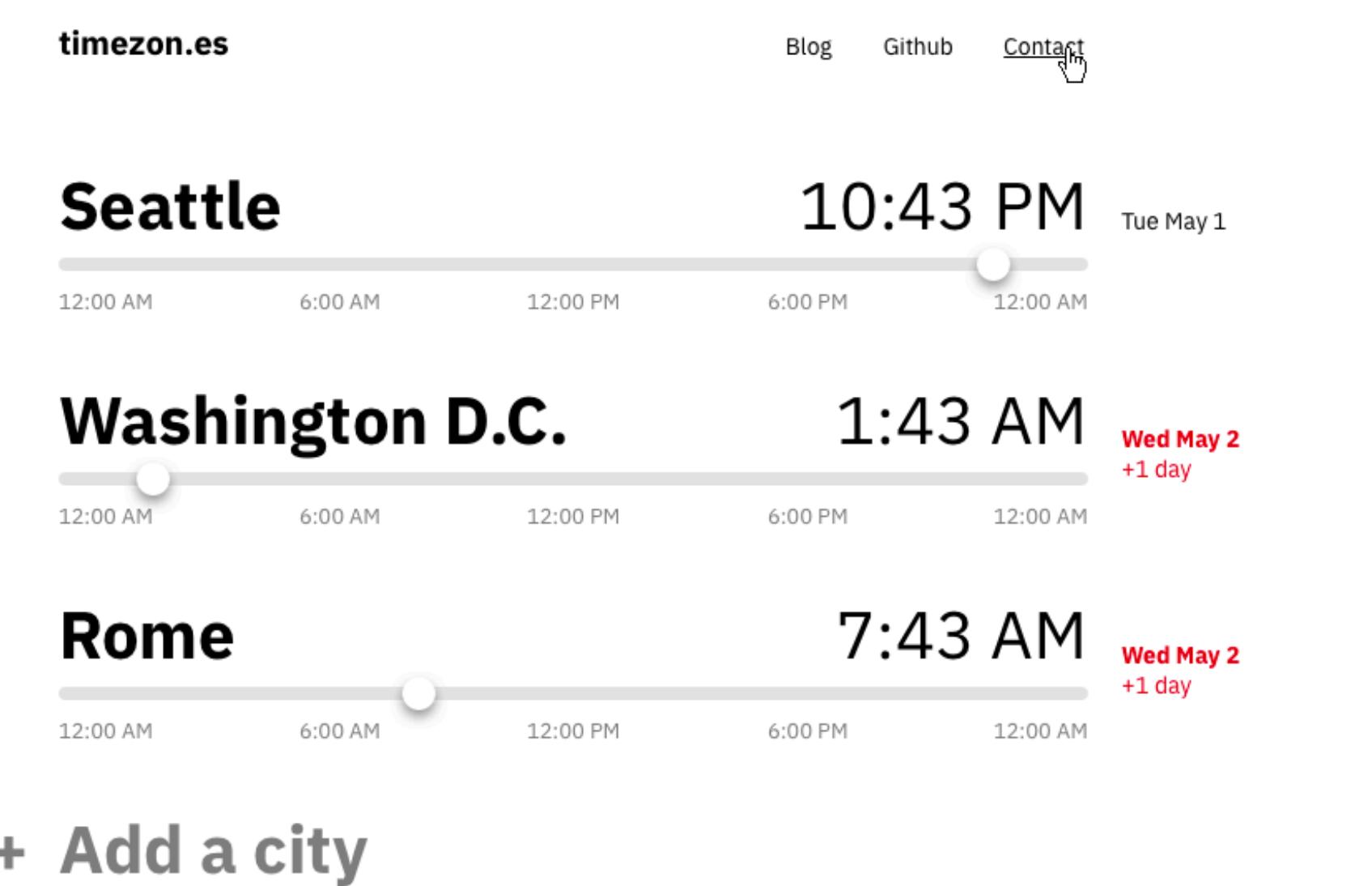
Proximity

- **Proximity:** group related elements, put unrelated things far apart
- Group related items together to create a visual unit rather than separate items
- Keep space between unrelated items
 - Users should not be confused or have to work hard to figure out a relation
- 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?



+ Add a city

Gestalt Principles

Gestalt Principles of Visual Perception

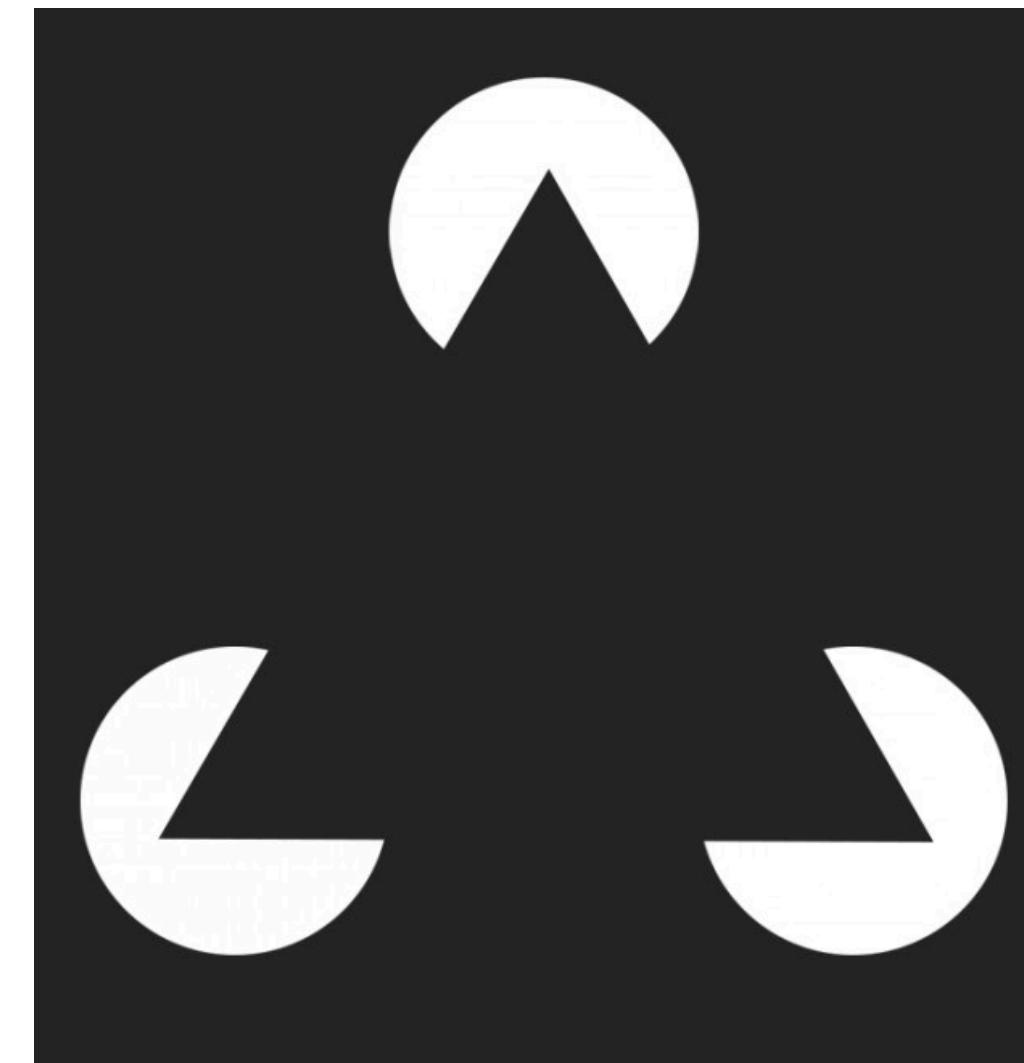
Gestalt theory: the human brain simplifies and organizes designs that consist of many elements, by subconsciously arranging parts into an organized whole, rather than just a series of disparate elements.

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**.

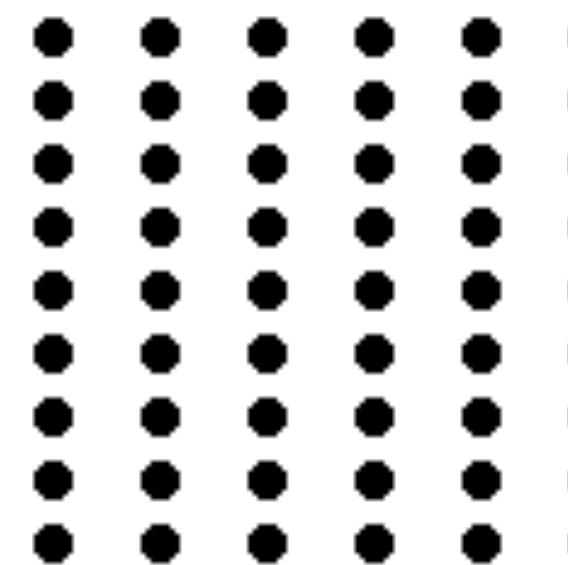
Gestalt Principles

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

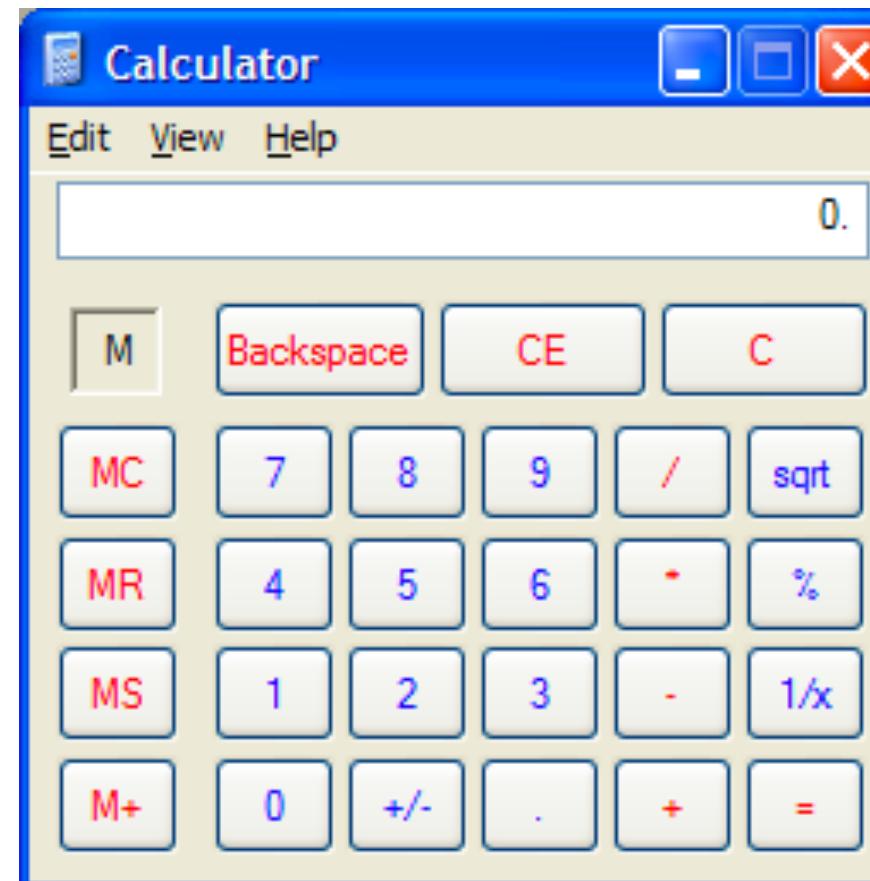
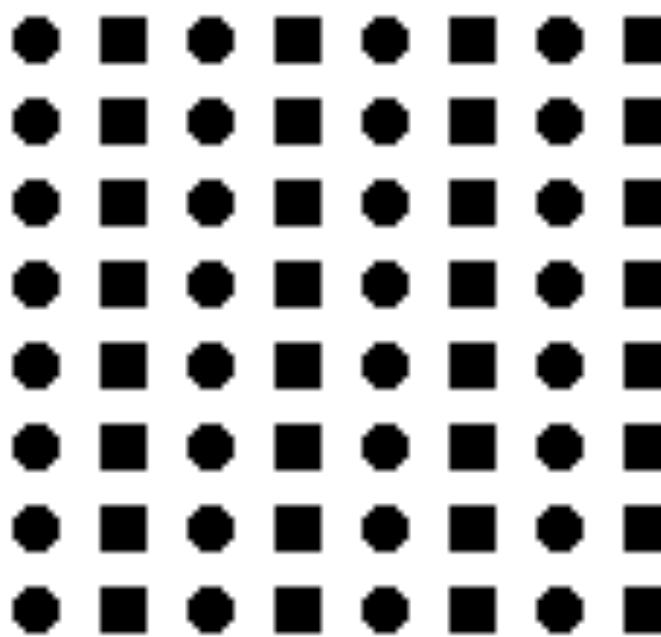
By Paul Seys • February 24, 2011

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

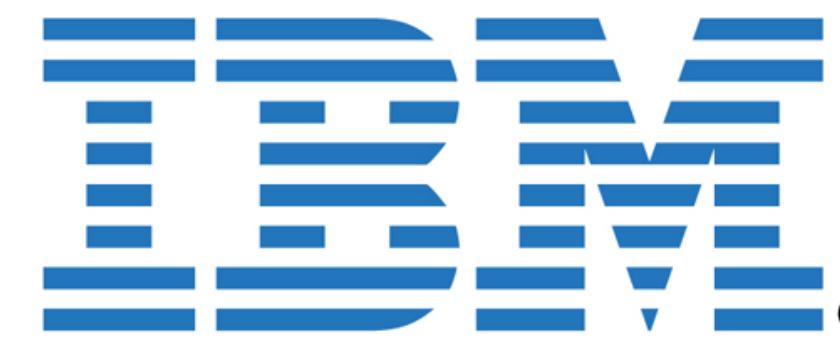
Similarity: objects that are similar form a group
(related to contrast in C.R.A.P.)



A screenshot of the GitHub sign-up page. The header features the GitHub logo, a search bar, and navigation links for "Explore", "Features", "Enterprise", and "Pricing". There are "Sign up" and "Sign in" buttons. The main content area has a dark background with a repeating pattern of white icons. It features the text "Where software is built", "Powerful collaboration, code review, and code management for open source and private projects. Public projects are always free.", "Private plans start at \$7/mo.", and a sign-up form with fields for "Pick a username", "Your email", and "Create a password". A note states "Use at least one lowercase letter, one numeral, and seven characters." A green "Sign up for GitHub" button is at the bottom, with a smaller note below it: "By clicking \"Sign up for GitHub\", you agree to our terms of service and privacy policy. We will send you account related emails occasionally." At the bottom of the page is a blue banner with the text "Want to use GitHub on your servers?"

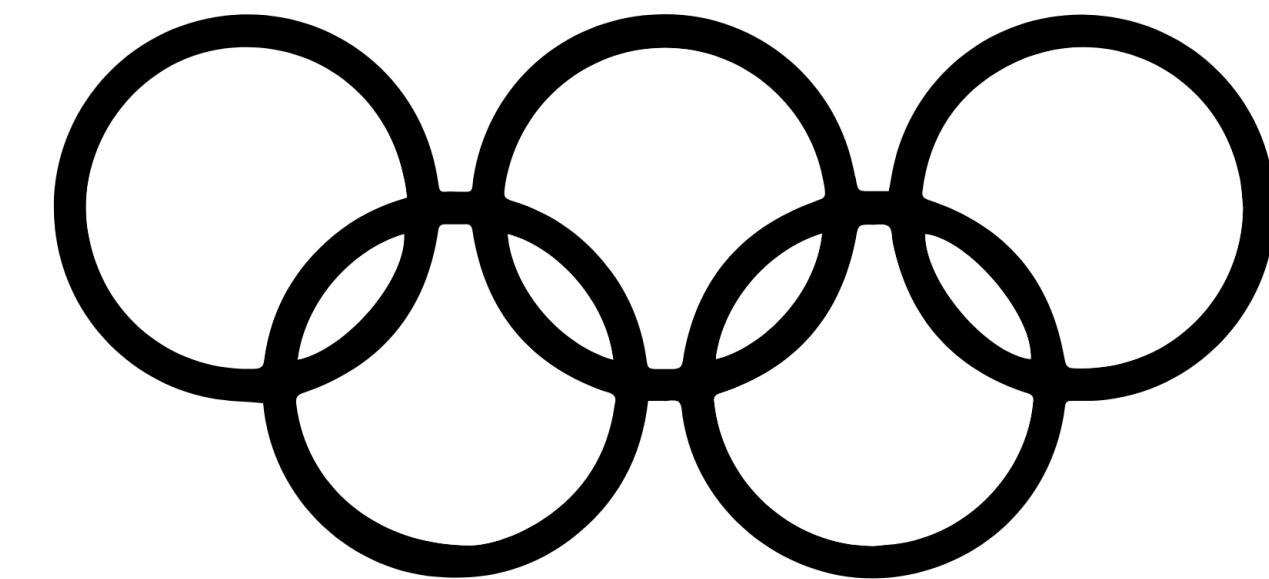
Gestalt Principles

Closure: even incomplete objects are perceived as whole



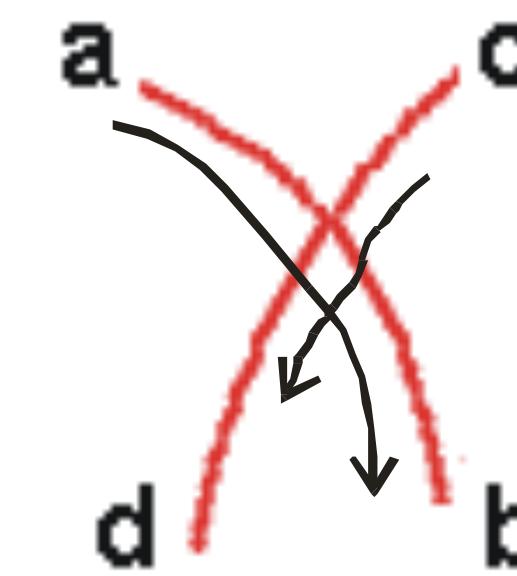
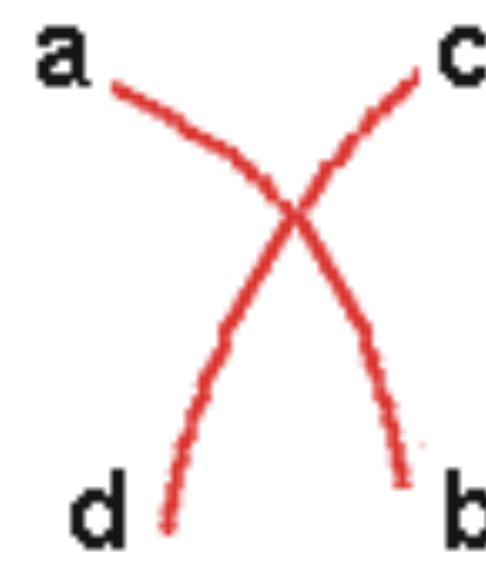
Gestalt Principles

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

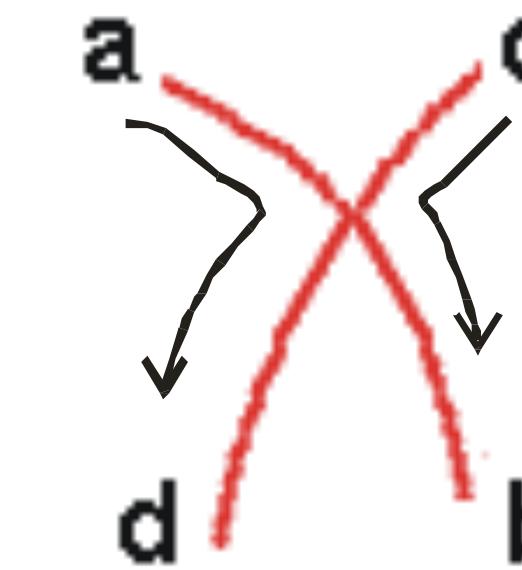


Gestalt Principles

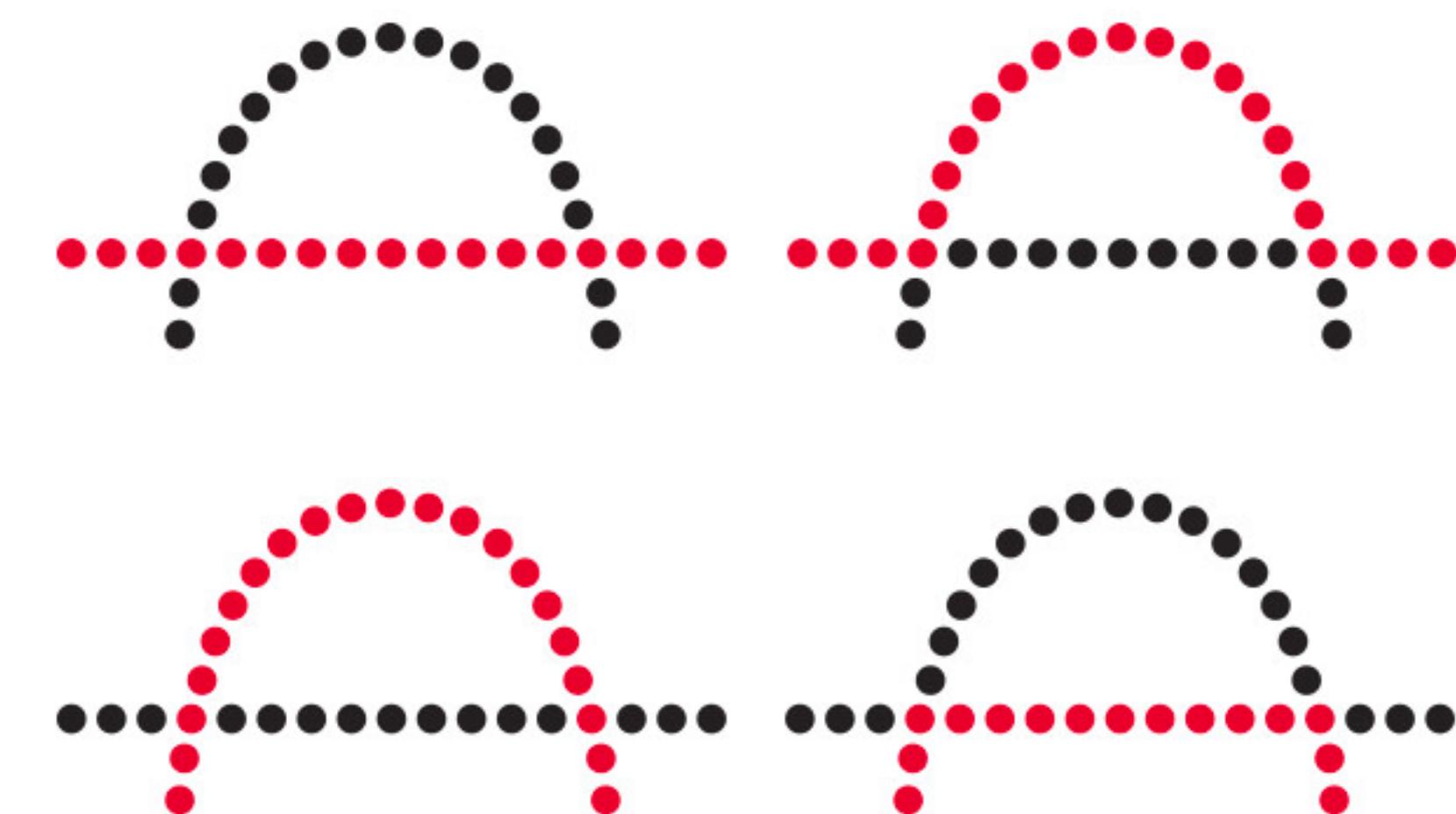
Continuity: objects are perceived as grouped when they align



what most
people see

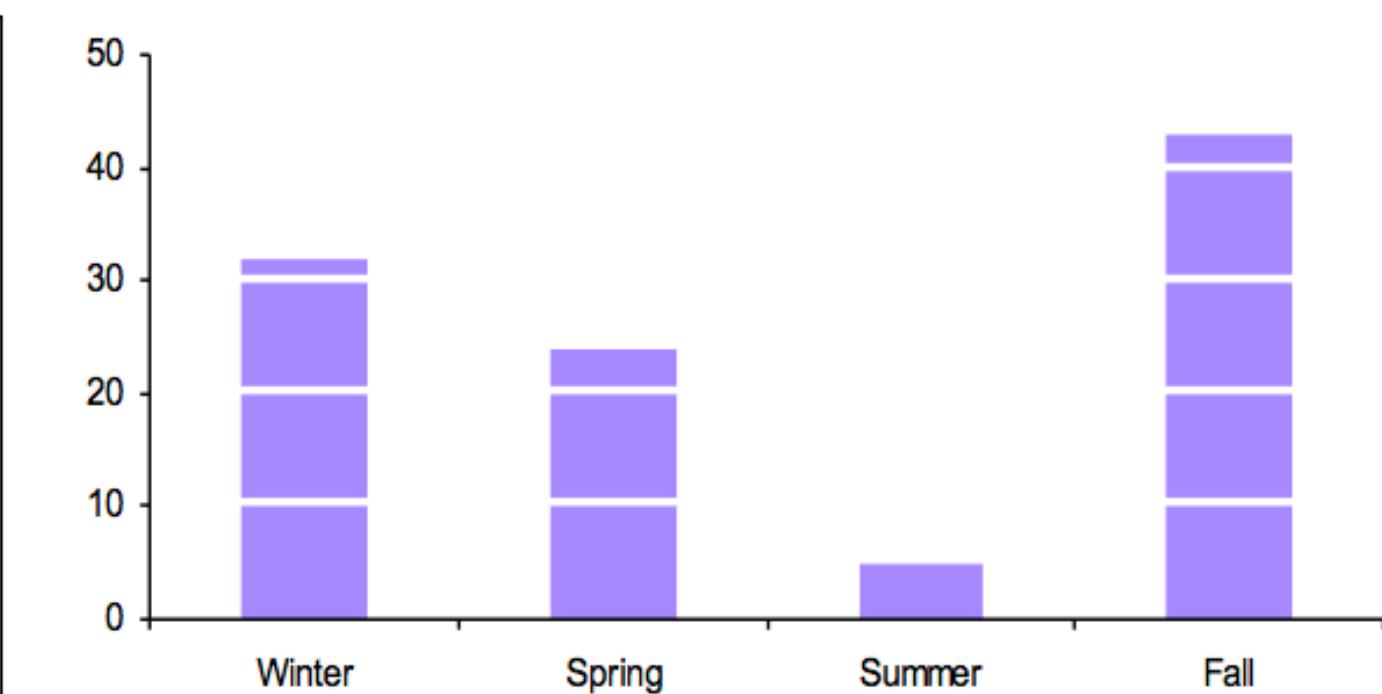
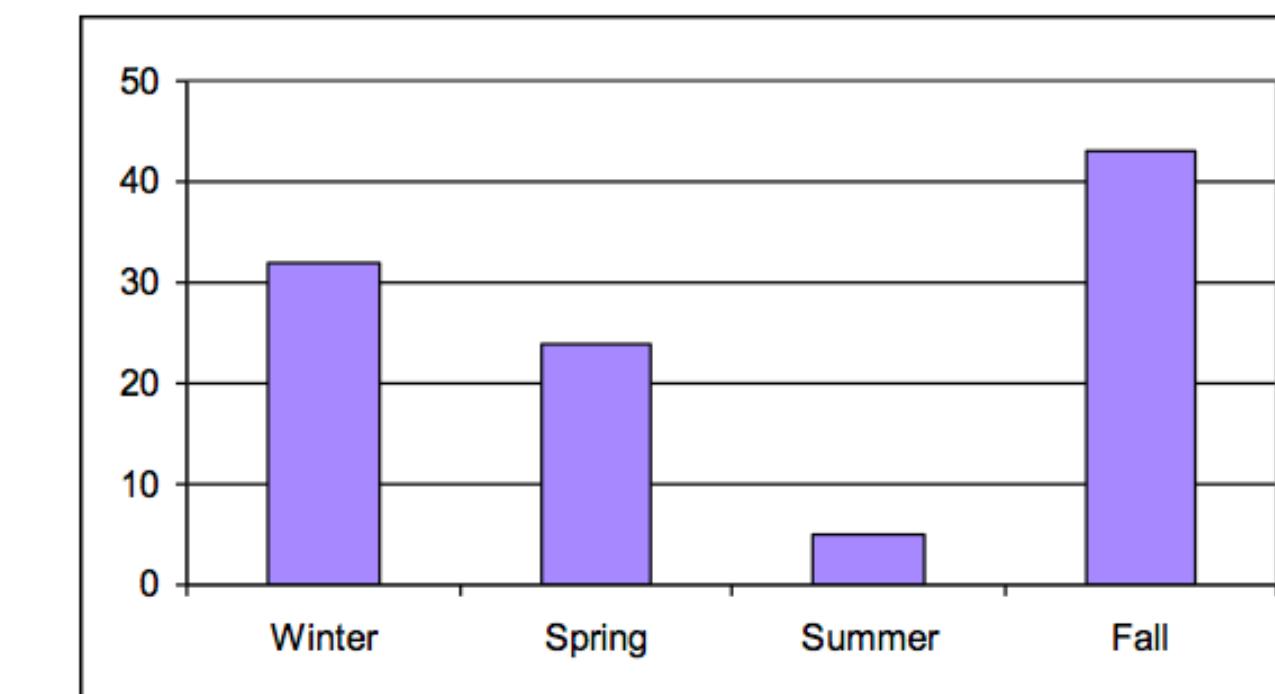
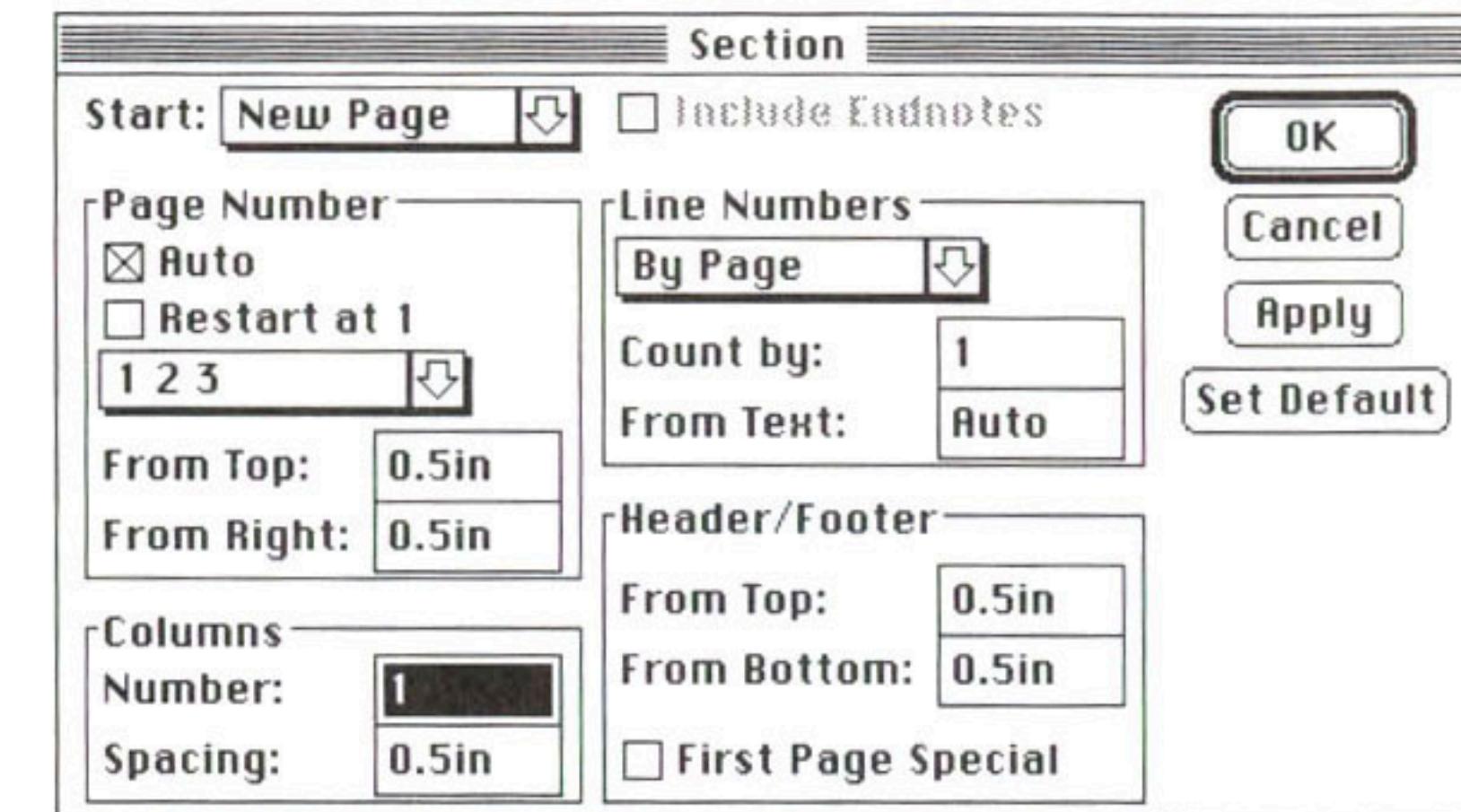


not this



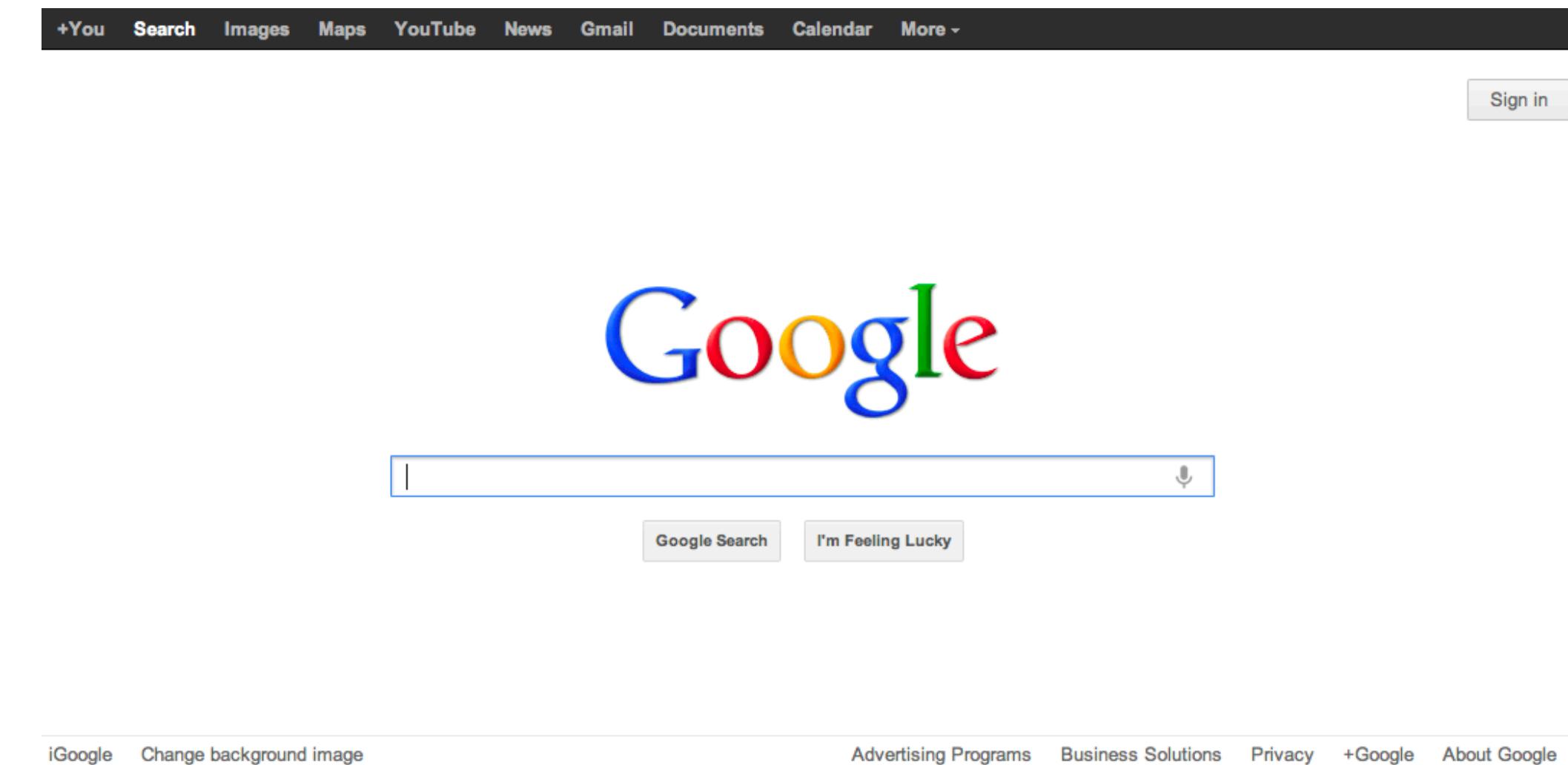
Negative Space

- Use **negative space** (also known as white space) for grouping, instead of lines
- Use margins to draw your eye around a design
- Don't crowd controls together
 - Crowding creates spatial tension and inhibits scanning



Balance and Symmetry

- On a small scale, symmetry might mean exact, mirror-image equivalence (think logos, like the ones shown previously)
- On a larger scale, symmetry means **balance**: is there the same amount of “stuff” on each axis of symmetry?
 - “Stuff” can be measured by **mass** (quantity of nonwhite pixels) and **extent** (area covered by the pixels)
 - Both mass and extent should be balanced
 - Axis of symmetry is usually vertical



Color

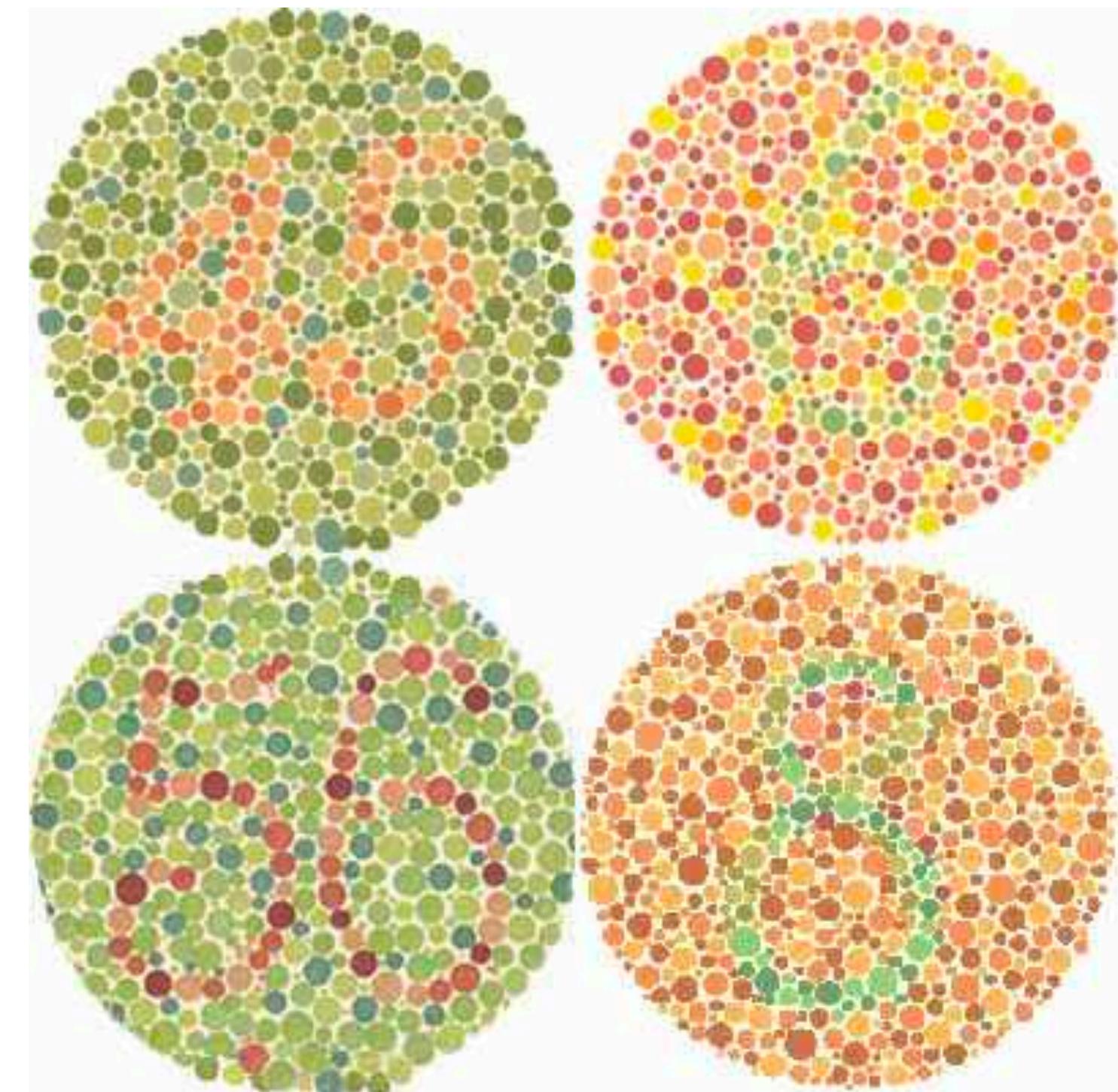
Saturation

- Avoid saturated colors



Color Vision Deficiency

- Color deficiency is common
 - Red-green color deficiency affects ~8% of the population (typically more in people with XY chromosomes)
 - Blue-yellow deficiency is much more rare
- Don't depend just on color, use redundant coding to distinguish elements
- Also don't depend on red-green distinctions



Color Guidelines

- Use few colors (simplicity)
- One common technique is to use just one weakly saturated hue 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)



▼ Chat

Search, add, or invite

● Rob Miller
Set status here ▾

[Options](#) ▾ [Add Contact](#)

▼ Labels

[Edit labels](#)

Color Guidelines

- There are lots of tools to pick color palettes
 - Personal favorite: coolors.co
 - If you want to make your own, you can pick one primary color and use analogous colors for some variation
 - Make sure that your color palette has **high contrast**, that overlapping the colors **does not clash**, and that it is **color vision deficiency-friendly!**
- To test your color-matching skills (just for fun!):
color.method.ac



Typography

Typography

- **Typography:** the art and science of displaying text
 - **Font:** the shapes of letters and other characters
 - **Spacing:** the white space around letters, words, lines, and paragraphs
 - **Kerning:** the process of adjusting character spacing for particular pairs of characters

Georgia

Vott

Times New Roman

Vott

kerning

Arial

rnm

Text Spacing

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

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

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

20/28 Four score and seven years ago,
our forefathers brought forth upon
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)



Putting it All Together

Using all of the principles that we've learned about visual design, critique and subsequently improve this interface.

Reminder of principles:

- Gestalt Principles (closure, balance and symmetry, negative space, continuity)
- Color
- Typography

YouTube - Penguins - BBC - Mozilla Firefox

File Edit View History Bookmarks Tools Help  

BBC News | News Fro... The Star Online: Most ...

http://www.youtube.com/watch?v=9dfWzp7rYR4

Sign Up | QuickList (0) | Help | Sign In

YouTube Worldwide (All) | English

Home Videos Channels Community

Search Videos Search advanced Upload

Penguins - BBC



0:00 / 1:30 watch in high quality

Rate: ★★★★★ 752 ratings

Views: 327,463

Share Favorite Playlists Flag

Transferring data from v12.cache.googlevideo.com...

MORE VIDEOS...

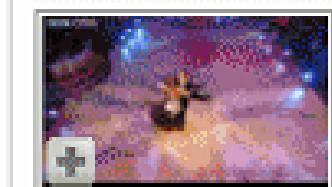
From: BBC Added: March 31, 2008 (more info) Subscribe

Film maker and writer Terry Jones discovers a colony of penguins, which are unlike any other penguins in the world. Making of: <http://www.youtube.com/watch?v=9dfWzp7rYR4>

URL: http://www.youtube.com/watch?v=9dfWzp7rYR4

Embed: <object width="425" height="344"><param name="mo...

More From: BBC

-  Heather or Rachel? - Strictly Come Dancing 2008 Round 8 Result - BBC One
01:19 From: BBC Views: 17,190
-  Zammo Cracks It - Celebrity Scissorhands 2008 - BBC Three
02:21 From: BBC Views: 5,998
-  Lisa and Brendan - Strictly Come Dancing 2008 Round 8 - BBC One
01:34 From: BBC Views: 18,830

veoh 1 0

**THANK
YOU**