

# Final Project Overview

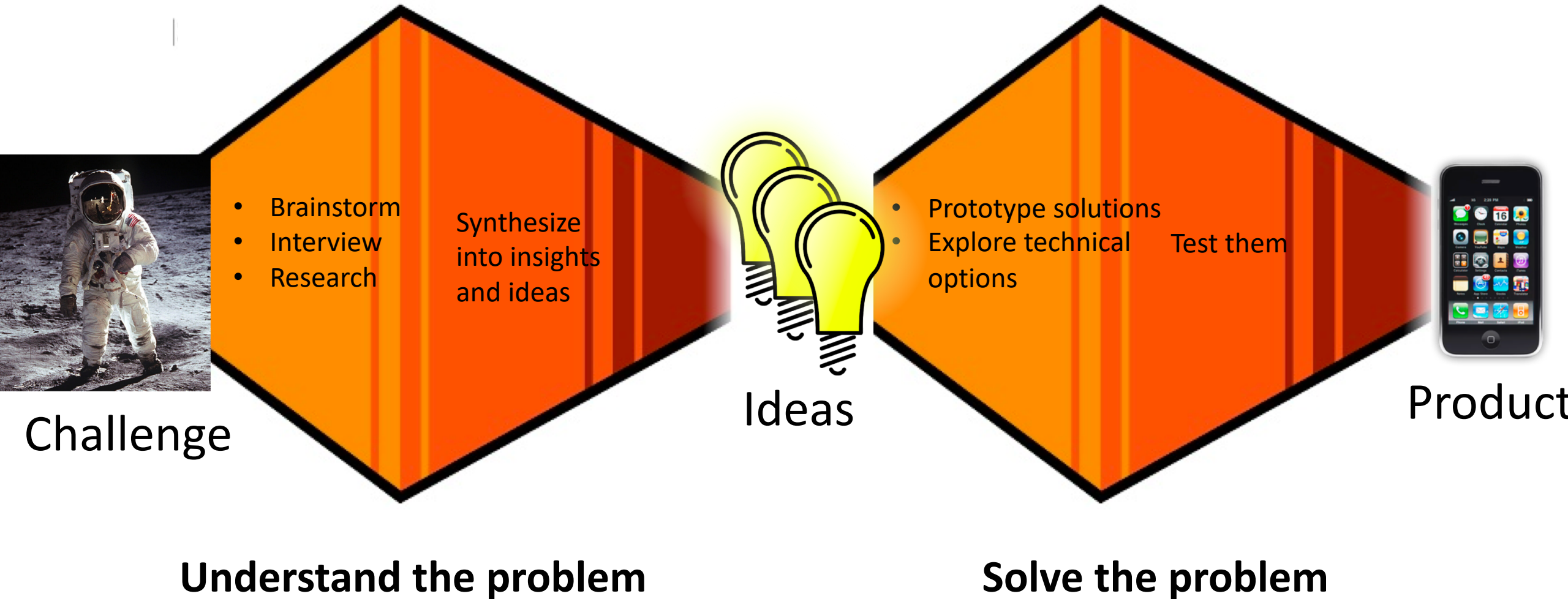
Prof. Lydia Chilton  
COMS 4170  
20 May 2022



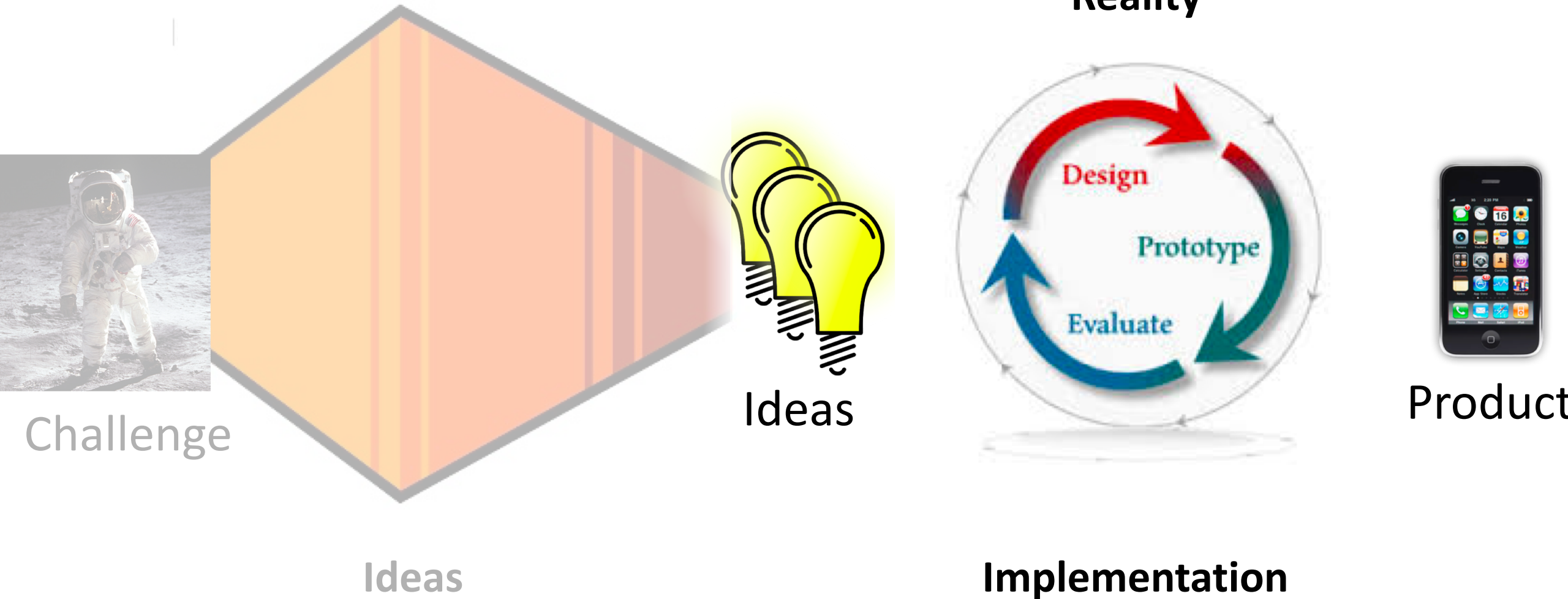
# Design Challenge:

- Design an interface to help a user **learn** an introductory topic **interactively**
- And help them assess themselves with a **quiz**.

# The Double Diamond Process



# Implementation is iterative.



The **user** is at the center of the process



## HW12: Feature Complete Implementation

Warm up due Wednesday at 4pm (grace period until 11:59pm)

Main due Monday at 4pm on Courseworks (no grace period – feedback will be given in class)

Note: if your TA feedback meetings are Tuesdays, then you may have slightly different deadlines. Please turn in assignments according to instructions given by your TA.

### Warm-up:

1. **Group.** What feedback did you get from your TA? Specifically,
  - What's something good about your technical prototype from HW11?
  - What are the things your TA said you still need to work on with regard to implementing a fully functional technical prototype?
2. **Group.** Job assignments. List the roles you plan to have and the names of the people assigned to them. Below are suggested roles
  1. Part 1. Learning portion (including the home page).
    - a. Implementing interactive features
    - b. Bug fixing / finishing implementation of functionality
  2. Part 2. Quiz portion of the app (including the quiz end page)
    - a. Implementing interactive features
    - b. Bug fixing / finishing implementation of functionality
  3. Integration manager/tester.
    - a. In addition to completing the learning and quiz portions separately, somebody should make sure they come together in a seamless experience. **Make sure both parts use the same template layout, and that the user can click through the entire experience seamlessly.**

## Main Assignment

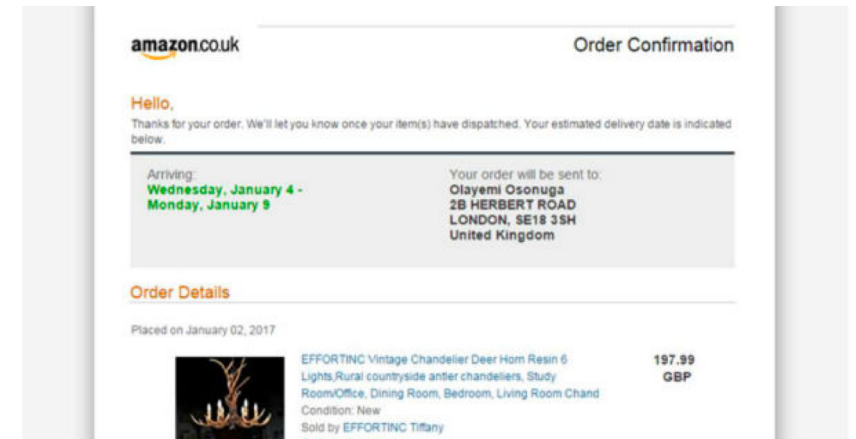
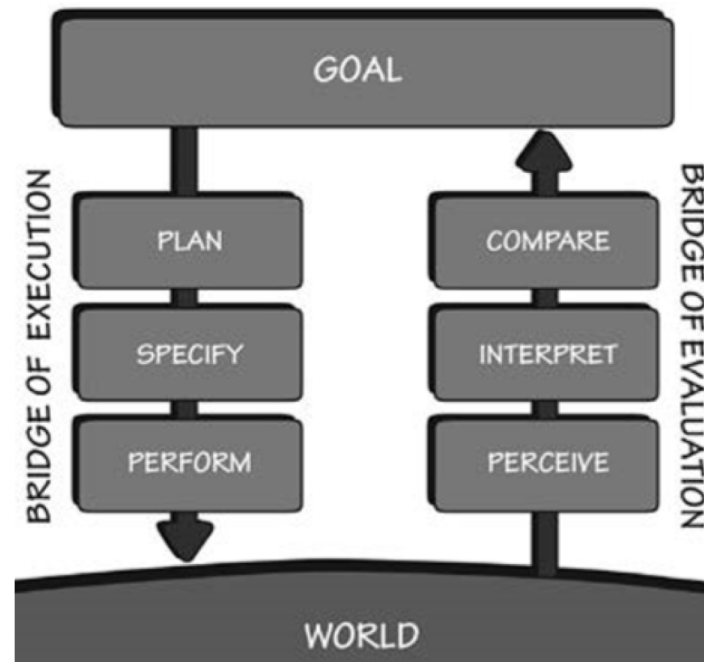
The goal of this week is to iterate on your HW11 functionality and add the implementation of your interactive features. **After this homework, ideally, you'd have nothing but graphic design to implement.** (Although in reality, you'll probably get TA feedback that you'll have to iterate on as well).

During your TA feedback session, every team member needs to have the app running on their laptop.

### What to turn in:

- **Group.** A PDF with a list of the responsibilities of each group member. It's okay if this deviated from what you planned in the warm up.
- **Group.** A short (~1 min video) of you clicking through the prototype and reaching every screen. Please provide a YouTube Link.
- **Individual.** A PDF that describe what you did for the project this week. A short paragraph or bullet points is fine. Show images if they help.
  - Show a screen shot of a commit you made to the github repo.

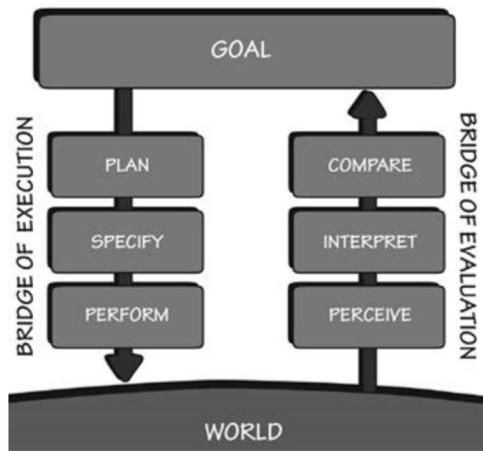
To accomplish a goal, users must **execute** an operation and **evaluate** the result



To help users **evaluate the result**, designers must provide **feedback**.



# Every time the user executes an action, the interface should provide feedback



Low-level physical actions, like pressing a key



Low-level virtual actions, like clicking a button

## Payment Information

The credit card number is invalid.

Card Number \*  
1234123412341234

Expiration Date \*  
1220

CCV \*  
999

PLACE YOUR ORDER

Mid-level actions, like filling out a form



High-level actions, like buying a book

# Feedback is how people learn

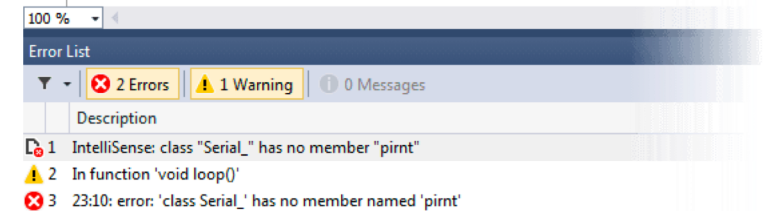


Learning to walk



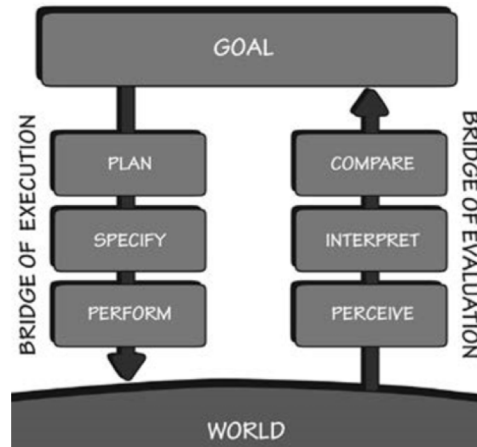
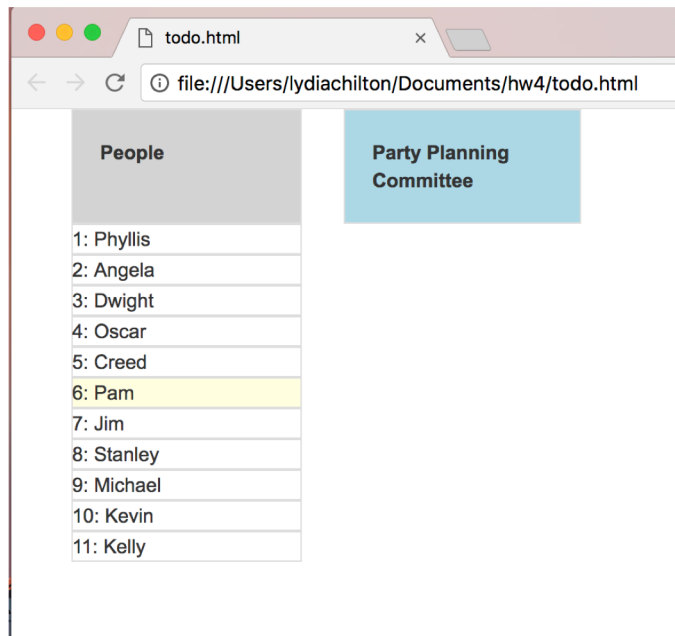
Playing an instrument

```
void loop() {  
  float humidity = 452;  
  for( int counter = 0; counter < 1000; ++counter ) {  
    digitalWrite(13, HIGH); // set the LED on  
    delay( 200 ); // wait for a second  
    digitalWrite(13, LOW); // set the LED off  
    Serial.print( "Hello " );  
    Serial.println( counter );  
    delay(200); // wait for a second  
    humidity += 0.5;  
  }  
}
```



Code

Direct manipulation interfaces help users directly **execute** an action and immediately **evaluate** feedback.



People	Party Planning Committee
1: Angela	1: Phyllis
2: Dwight	
3: Oscar	
4: Creed	
5: Pam	
6: Jim	
7: Stanley	
8: Michael	
9: Kevin	
10: Kelly	

There are visible **actions** the user can **execute**

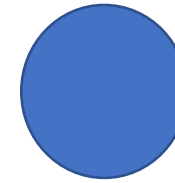
There is visible **feedback** the user can **evaluate**

# Direct Manipulation Properties

1. **Objects** are represented visually



Move to trash



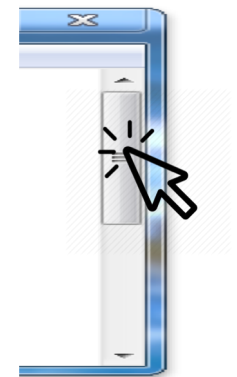
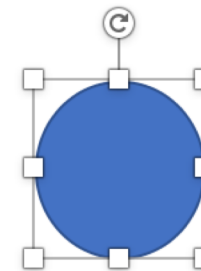
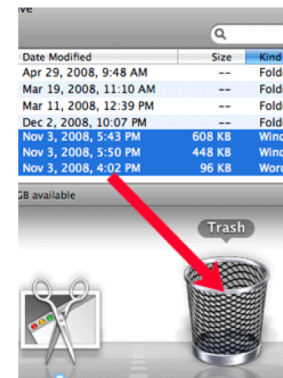
Resize



Move viewport

2. **Actions** are rapid,  
incremental and reversible

3. User interacts  
**directly with object representations**

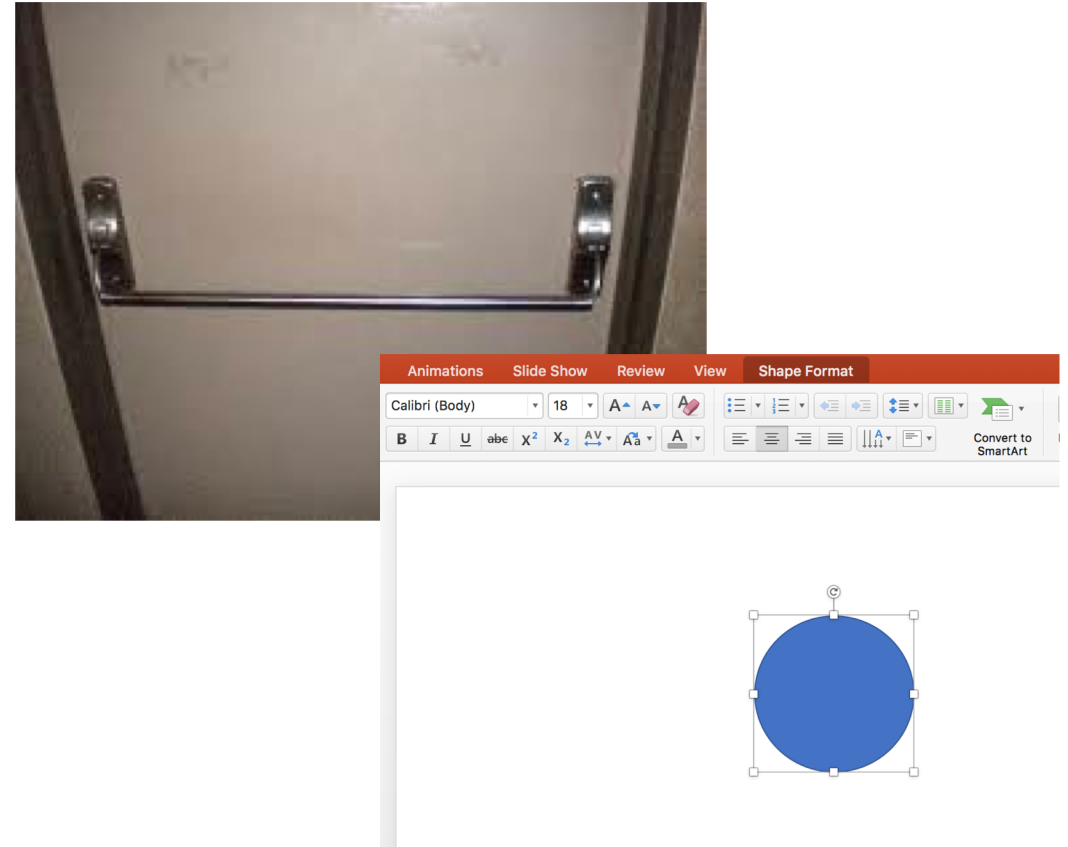


# Design direct manipulation interfaces with good *perceived* affordances.

Bad signifiers / wrong perceived affordances



Good signifiers / correct perceived affordances



# Signifiers help users perceive affordances

## Bad signifiers



Signifier Handle that can be yanked toward you

Perceived affordance **Pull**

Affordance **Push**

## Good signifiers



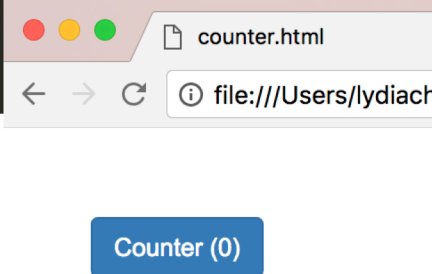
Signifier Handle that can be leaned on

Perceived affordance **Push**

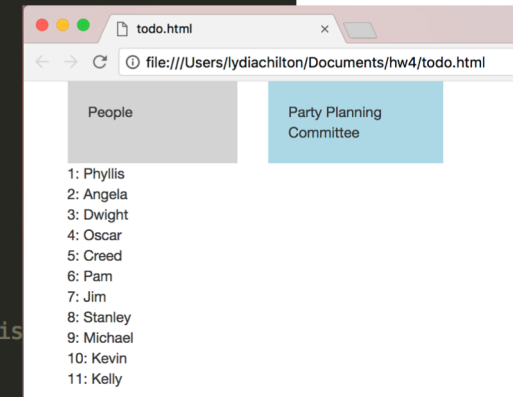
Affordance **Push**

# Good UI programming separates the **data** model from the **view** and **controller**

```
41
42 var count = 0
43
44 function setCount(count){
45     $("#counter").html("Counter (" + count + ")")
46 }
47
48 $(document).ready(function(){
49     setCount(count)
50
51     $("#counter").click(function(){
52         count = count + 1
53         setCount(count)
54     })
55 })
56
```



```
170
171 var names = [
172     "Phyllis",
173     "Angela",
174     "Dwight",
175     "Oscar",
176     "Creed",
177     "Pam"
178 ]
179 var list1 = []
180
181 function makeNames(names){
182     $("#names").empty()
183     $.each(names, function( index, value ) {
184         //make the draggable name object
185     });
186 }
187
188
189
190 $(document).ready(function(){
191     makeNames(names)
192
193     $("#ppc_label").draggable({
194         drop: function( event, ui ) {
195             //get dropped name
196
197             //update names array
198
199             //update list1 array
200
201             //update the interface to dis
202         }
203     });
204 }
205
206
```



# Schedule

- Monday April 25 – TA feedback on your implementation
  - Wednesday April 27 – wrap up lecture.
- Monday May 2 – TA feedback on graphic design and your soft turn-in
- Monday May 9<sup>th</sup> @ 11:59 pm – final projects due on courseworks.
  - No extensions
  - No excuses
  - If your assignment is late, you will receive a zero. Seriously.
  - I HIGHLY recommend turning it in at 9pm, to give yourself enough time to screw up, or to deal with courseworks screwing up.



# Final Project: A demo video.

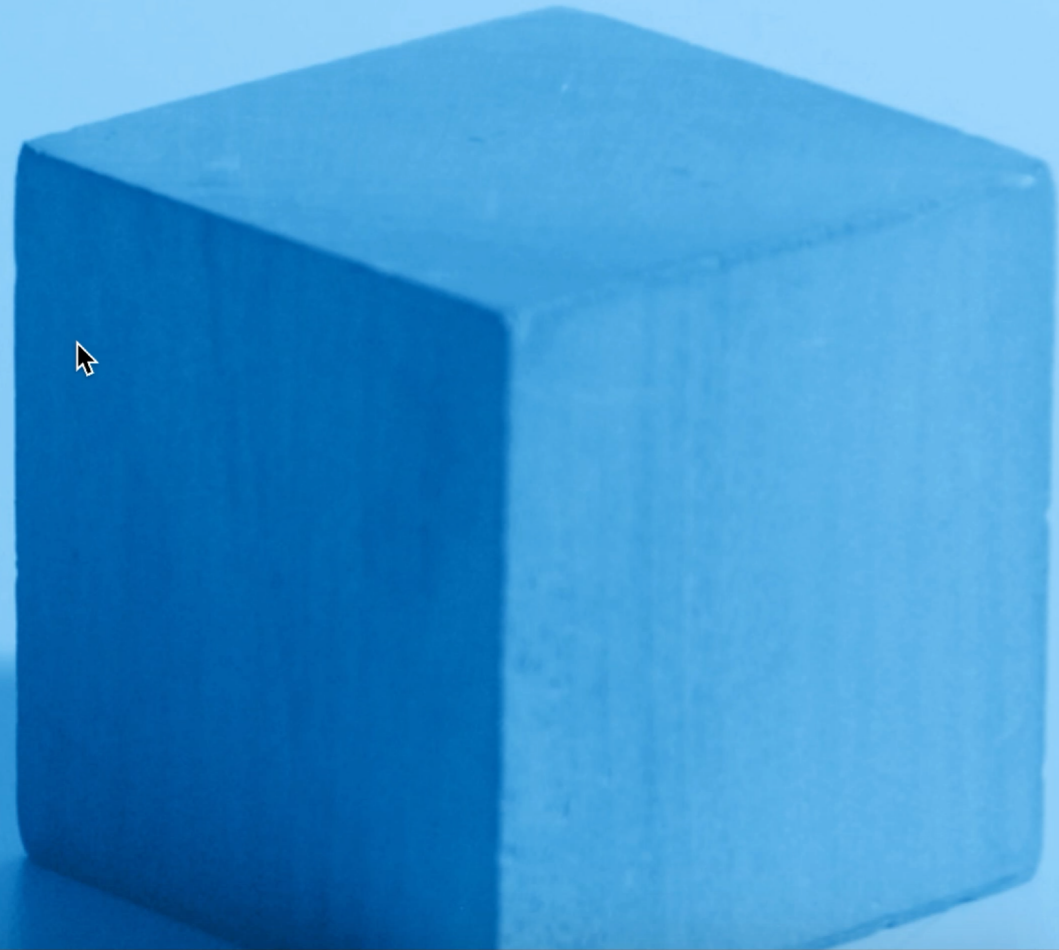
- A narrated YouTube video with a simulated user experience.
- “Show don’t tell”
- Let’s see two examples

Welcome to **Lipreading**, your site for learning to read lips! Use the navbar above or click the button below to learn the how to lipread different sounds. When you're ready, try a test!

[Start With B](#)

# Learning Lighting

Learn how light interacts with a geometric cube model to produce different light and dark values and cast shadows with this interactive tool.

[Learn](#)[Quiz Yourself](#)

# Video Script

- **Introduce goal on Home Screen.**
  - Start the video showing the home screen of the app.
  - Introduce the purpose of the app and who the user is.
  - “This is Lipreading. An app that teaches how to recognize the most common and confusing sound when learning to lip read.”
  - “This is Learning Lighting. An introduction to new photographers learning to place lights.”
- **Demo from user perspective.** Then start using the app exactly as you intend a user to. As you go through every screen, think out loud.
  - Read aloud everything that a real user would read.
  - Think aloud everything a real user would think.
  - Click everything a real user would click.
  - If you think a real user would make a mistake on the quiz, you can make a simulated mistake on the quiz.
- **Reiterate purpose on home screen.**
  - End the video by going back to the homepage and reiterating the purpose
  - “That’s (site name). A site to teach you \_\_\_\_\_( purpose)\_\_\_\_\_.”
- The video should be 8-10 minutes long. That’s about how long it takes a person to do the learning and the quiz.
  - Will we not watch (or grade) the video past the 11 minute mark.

# The video philosophy is “show don’t tell”

- Don’t explain what your app is (beyond 1 sentence about the goal), just show us.
- We **don’t** want to hear things like:
  - *“We’re democratizing lip reading”* -> just show the app
  - *“We use interactive lessons and quizzes to help you assess your learning”* -> just show the app.
  - *“Learn to lip read in under 10 minutes!”* -> just show the app.
- If you want to turn your project into a start up, I can help you make a pitch deck, later. But the heart of a pitch is still the demo.

# Your video will be graded on two things:

- **Did it meet the project requirements?**
  - Teach a topic interactively and allow users to access themselves with a quiz.
- **Did you iterate based on feedback to make a high quality, user-centered product?**
  - Idea
  - Content Design (stuff from google doc prototypes)
    - Clear navigation
    - No walls of text!
  - Technical Implementation
    - Quality of the interactive elements
  - Graphic Design

# Graphic Design

This is due next week (HW13)

# Graphic Design

- Visual Information Hierarchy
- Color
- (fonts)



The way you display information dictates what people will pay most attention to.

And you will read this last

**You will read  
this first**

**And then you will read this**

Then this one

# How do we know if something has good information hierarchy?

You are cordially invited to  
**Robert and Alexandra's**  
**delectable after dinner party.**

Wine and nibbles will be served.

When: **February 20<sup>th</sup>, 2019** at 9:30pm.  
Where: **the pad.** If you need directions, ping us.

Kindly **let us** know if you will be attending  
by **February 17<sup>th</sup>.**

## The squint test!

# Seven tools for visually indicating importance

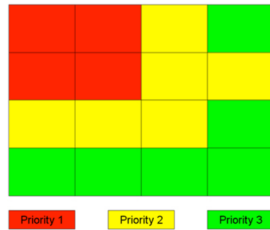
You are cordially invited to  
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party.

Wine and nibbles will be served.

When: February 20<sup>th</sup>, 2018 at 9:30pm.  
Where: the pad. If you need directions, ping us.

Kindly let us know if you will be attending by  
February 1<sup>st</sup>.

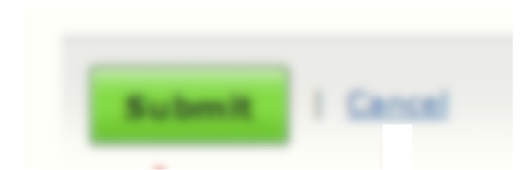
Conceptual grouping



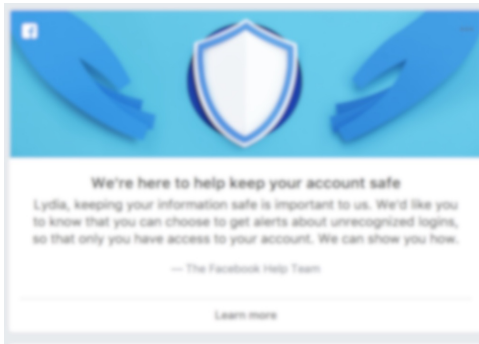
Location



Whitespace



Size



Images

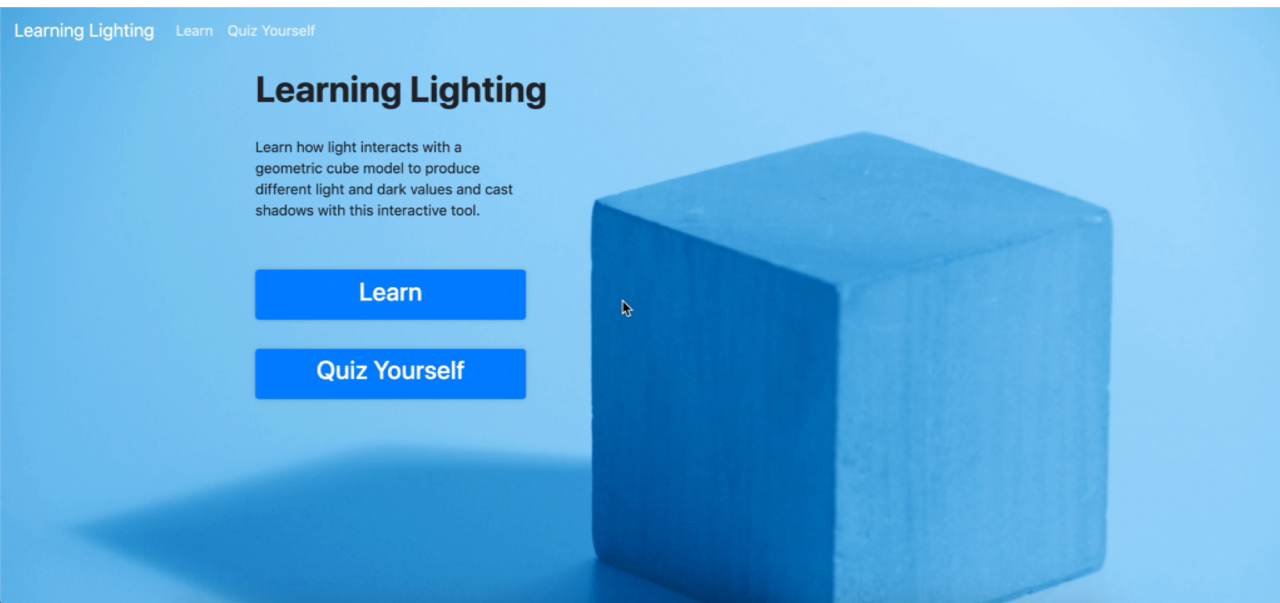
You are cordially invited to  
**Robert and Alexandra's  
delectable after dinner party.**  
Wine and nibbles will be served.

Contrast

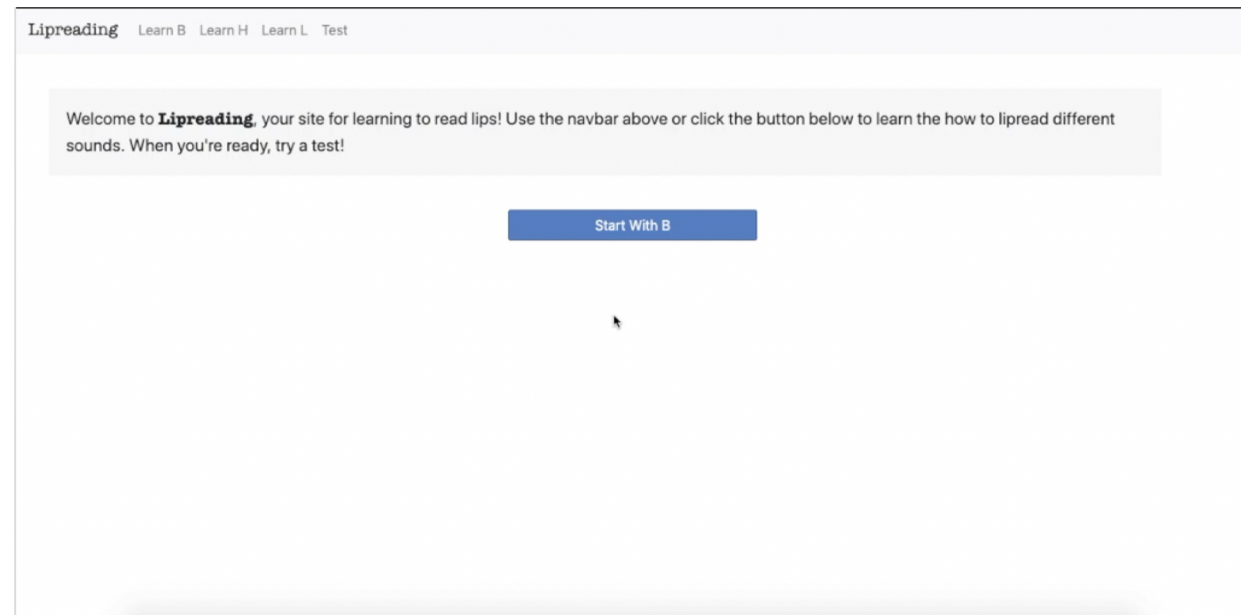


Color

# Does it pass the squint test?



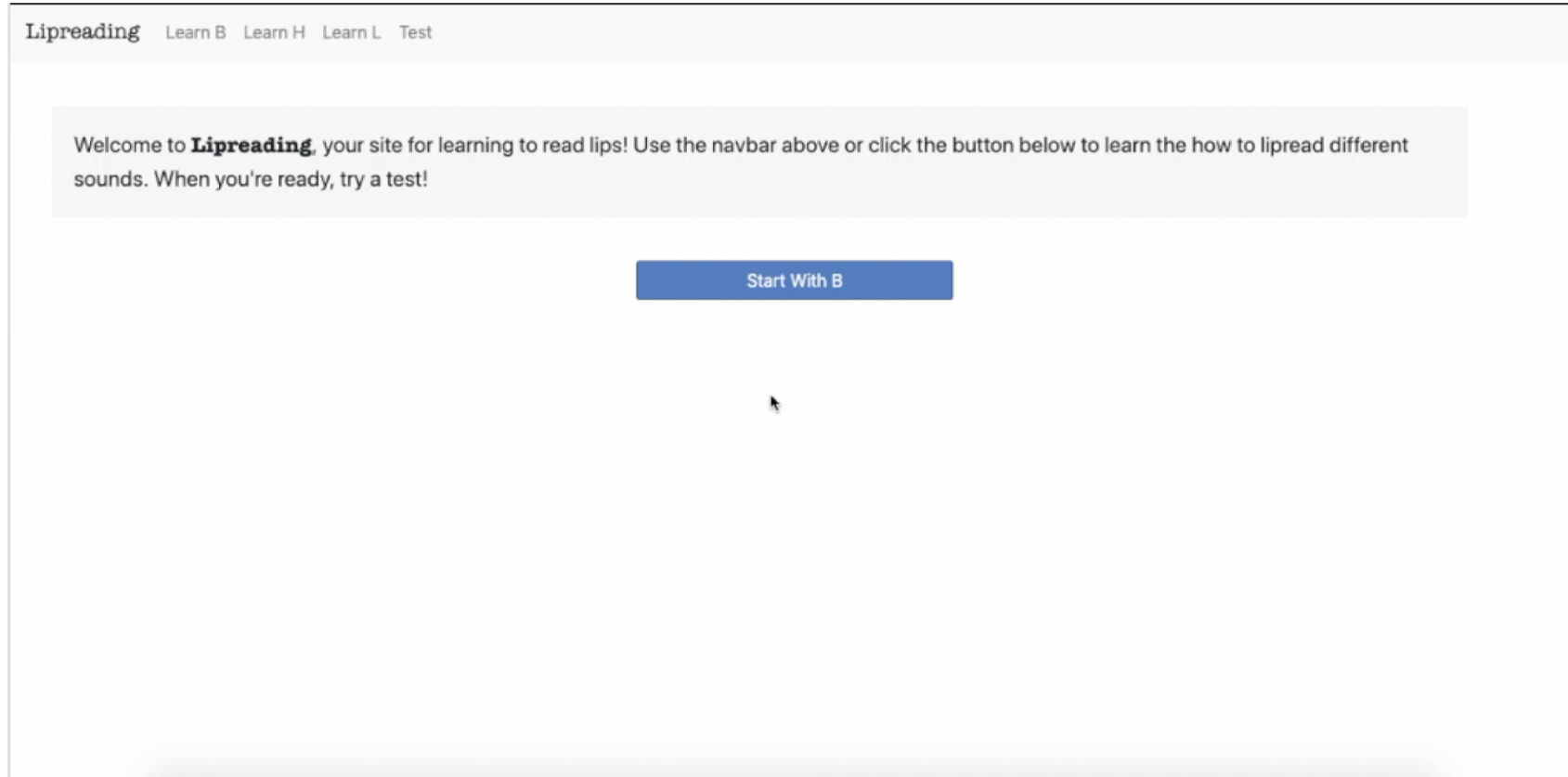
Yes!



No

Let's fix it!

# What's the most important information?

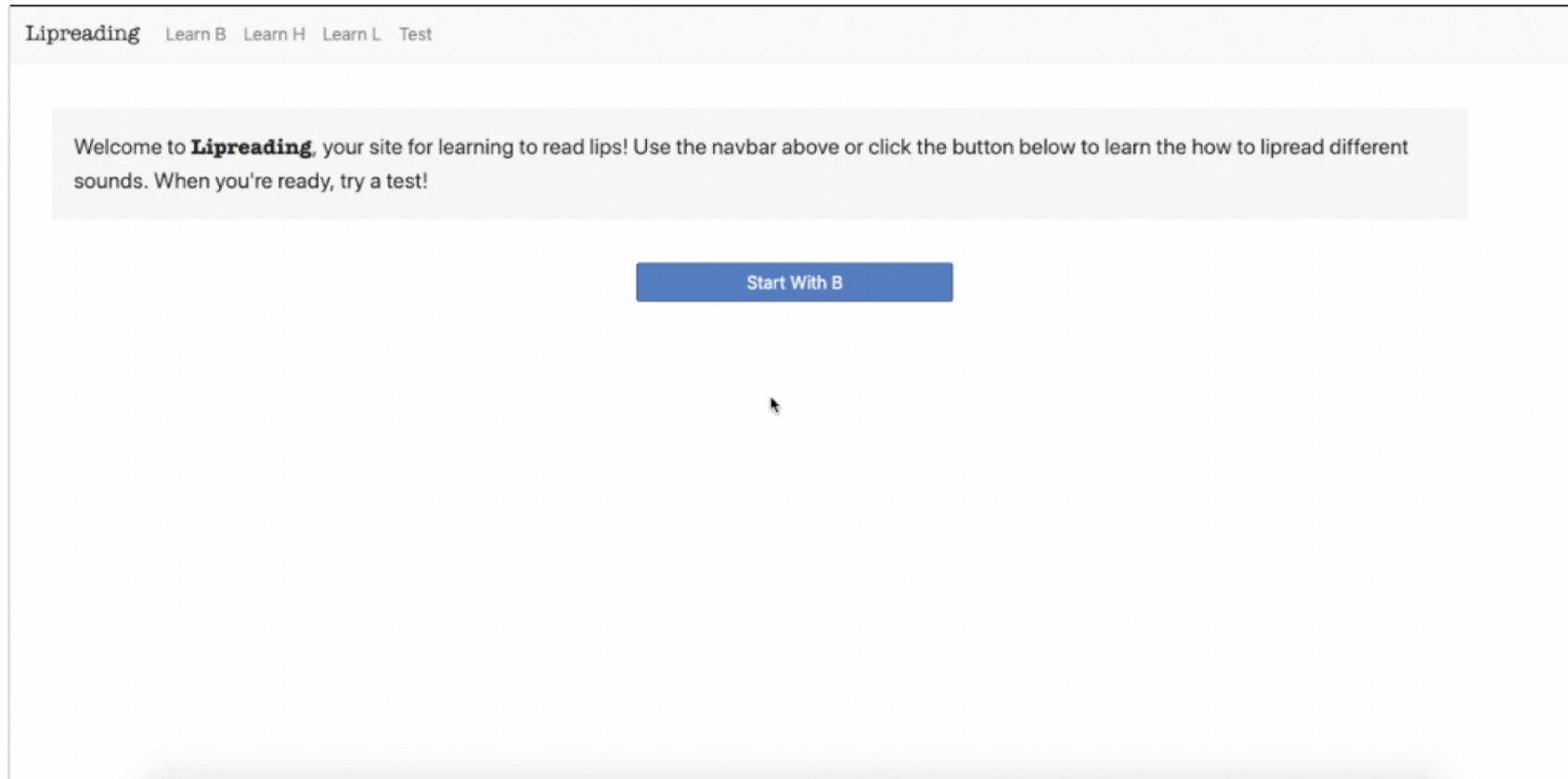


The title "Lipreading"

# Lipreading

Position, size, whitespace, contrast

# What's the next most important information?



## Learn the sounds of B, H, and L



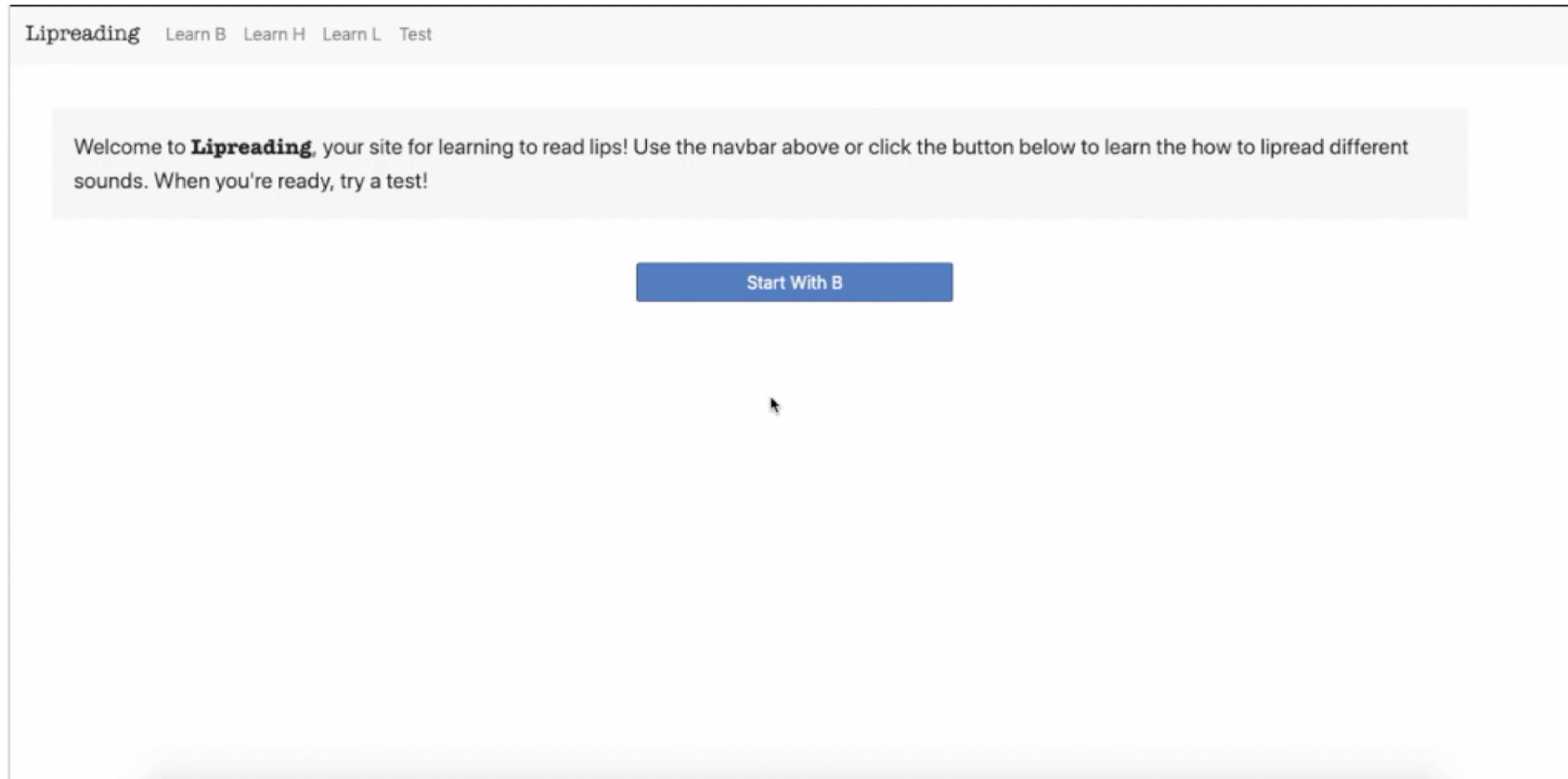
# Lipreading

Learn the sounds of B, H, and L



Position, grouping, images

# What's the next most important information?



## Start with B

# Lipreading

Learn the sounds of B, H, and L



Start With B

Position, size, color

# Conceptual groups

You are cordially invited to Robert and Alexandra's delectable after dinner party. Wine and nibbles will be served. When: February 20<sup>th</sup>, 2018 at 9:30pm. Where: the pad. If you need directions, ping us. Kindly let us know if you will be attending by February 1<sup>st</sup>.

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Kindly let us know if you will be attending by February 1<sup>st</sup>.

What is it?

Logistics

RSVP info

# In each conceptual group, decide what's important to emphasize.

You are cordially invited to  
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dinner party.

Wine and nibbles will be served.

When: February 20<sup>th</sup>, 2019 at 9:30pm.

Where: the pad. If you need dir, ping us.

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Kindly let us know if you will be attending  
by **February 1<sup>st</sup>.**

# What are the three conceptual groups?

The image shows a website layout with a navigation bar at the top containing 'Home', 'Impressionism', 'Post Impressionism', and 'Quiz'. The main content area features a large heading 'Welcome to (Post)-Impressionism!' with a sub-heading 'Learn to differentiate impressionist paintings from post-impressionist paintings'. Below this are two buttons: 'Explore the art movements' and 'Test yourself'. Three red circles highlight these elements, each with a corresponding red annotation:

- 1. explain goal of site (help user decide if they are interested)** - points to the main heading.
- 2. Start now! (entice them to start)** - points to the 'Explore the art movements' button.
- 3. Test yourself (Roadmap to future)** - points to the 'Test yourself' button.

# What is the most important information in each group?

Home Impressionism Post Impressionism Quiz

**Welcome to**  
**(Post)-Impressionism!**  
Learn to differentiate impressionist paintings from post-impressionist paintings

1. explain goal of site  
(help user decide if they are interested)

2. Start now!  
(entice them to start)

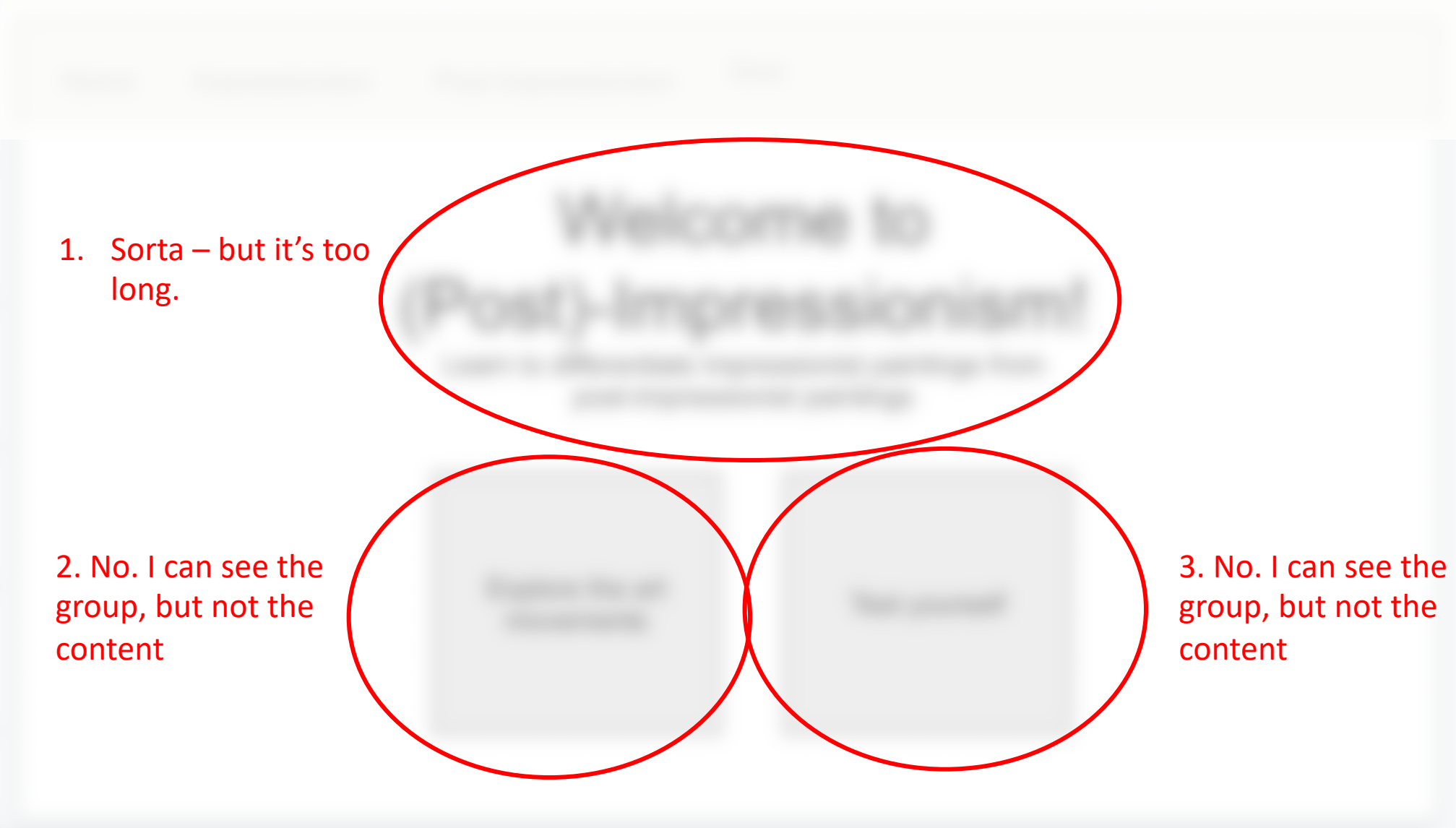
Explore the art movements

Test yourself

3. Test yourself  
(Roadmap to future)

# Does it pass the squint test?

(does the most important information in each group pop out?)



1. Sorta – but it's too long.

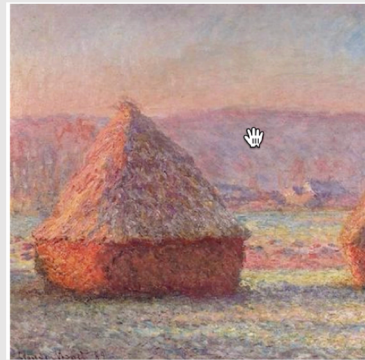
2. No. I can see the group, but not the content

3. No. I can see the group, but not the content



# (Post)-Impressionism

Learn to differentiate impressionist paintings  
from post-impressionist paintings

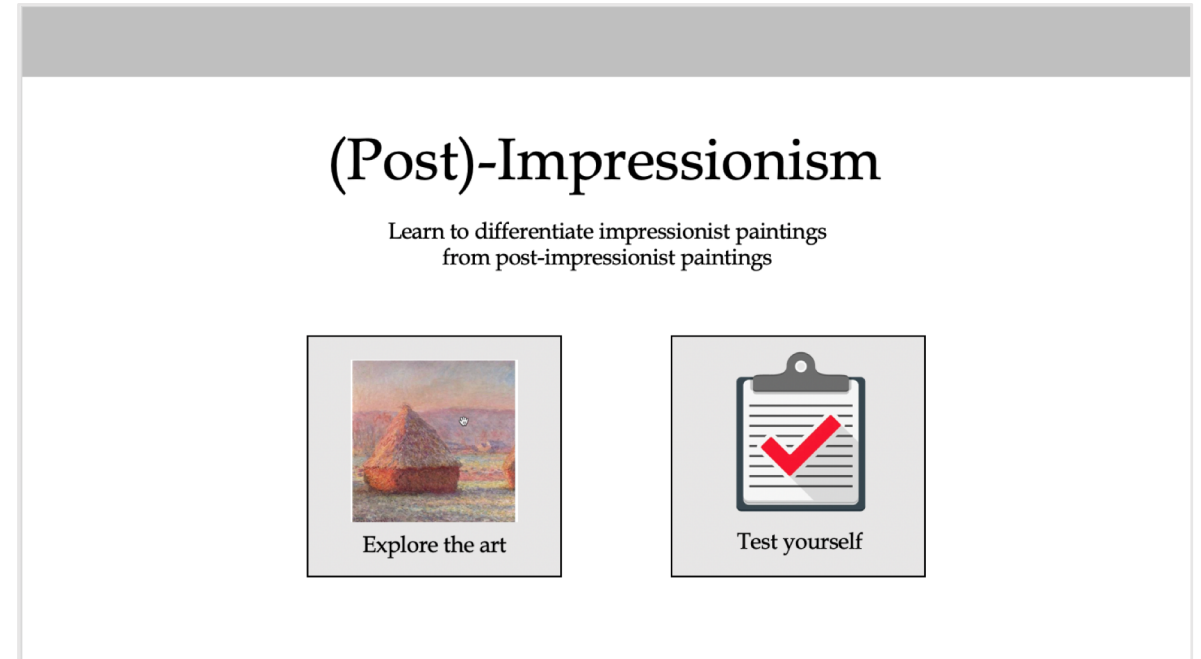
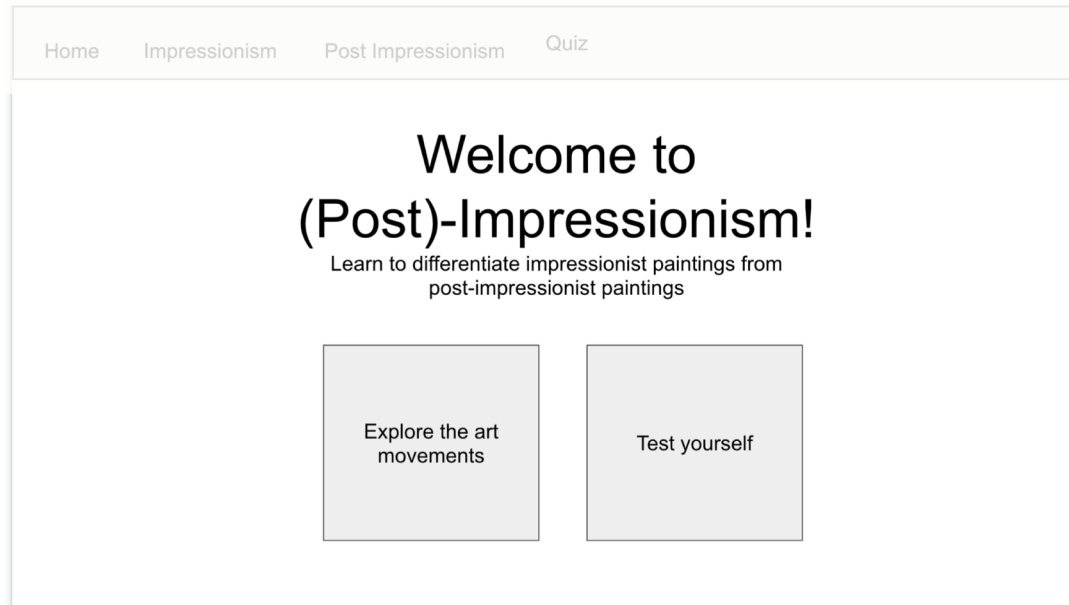


Explore the art



Test yourself

# Much better! What did I do to improve it?



Images!

Use images when something is important, but you don't have more to say

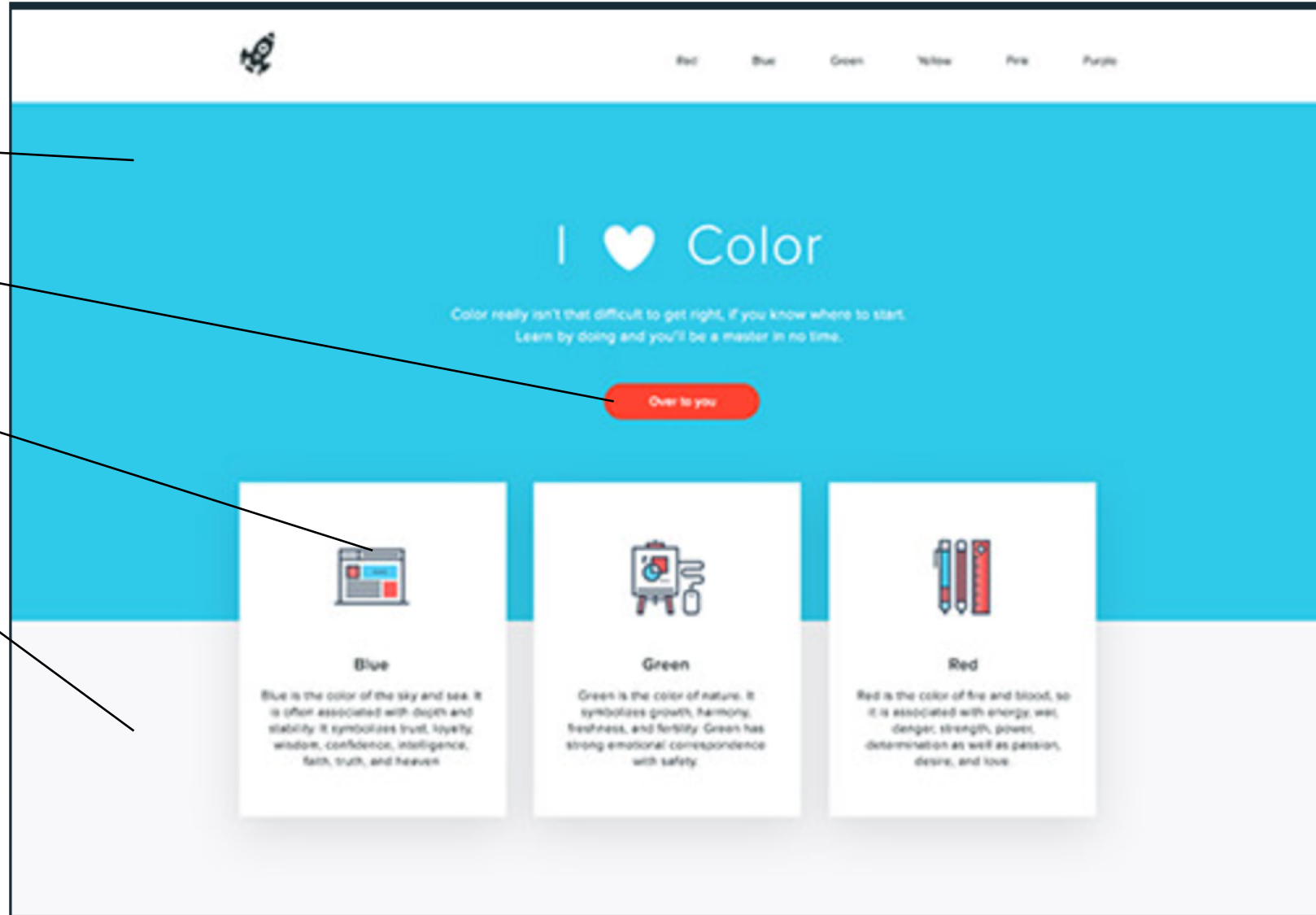
# How do we know it's better?



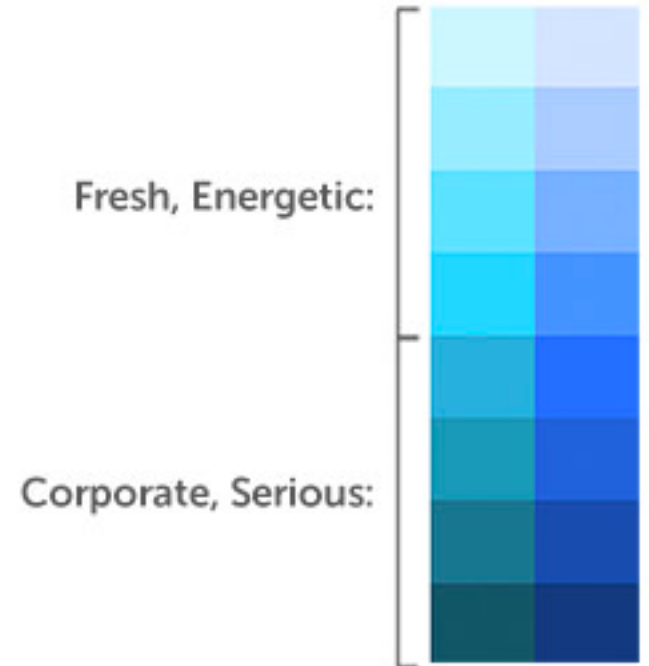
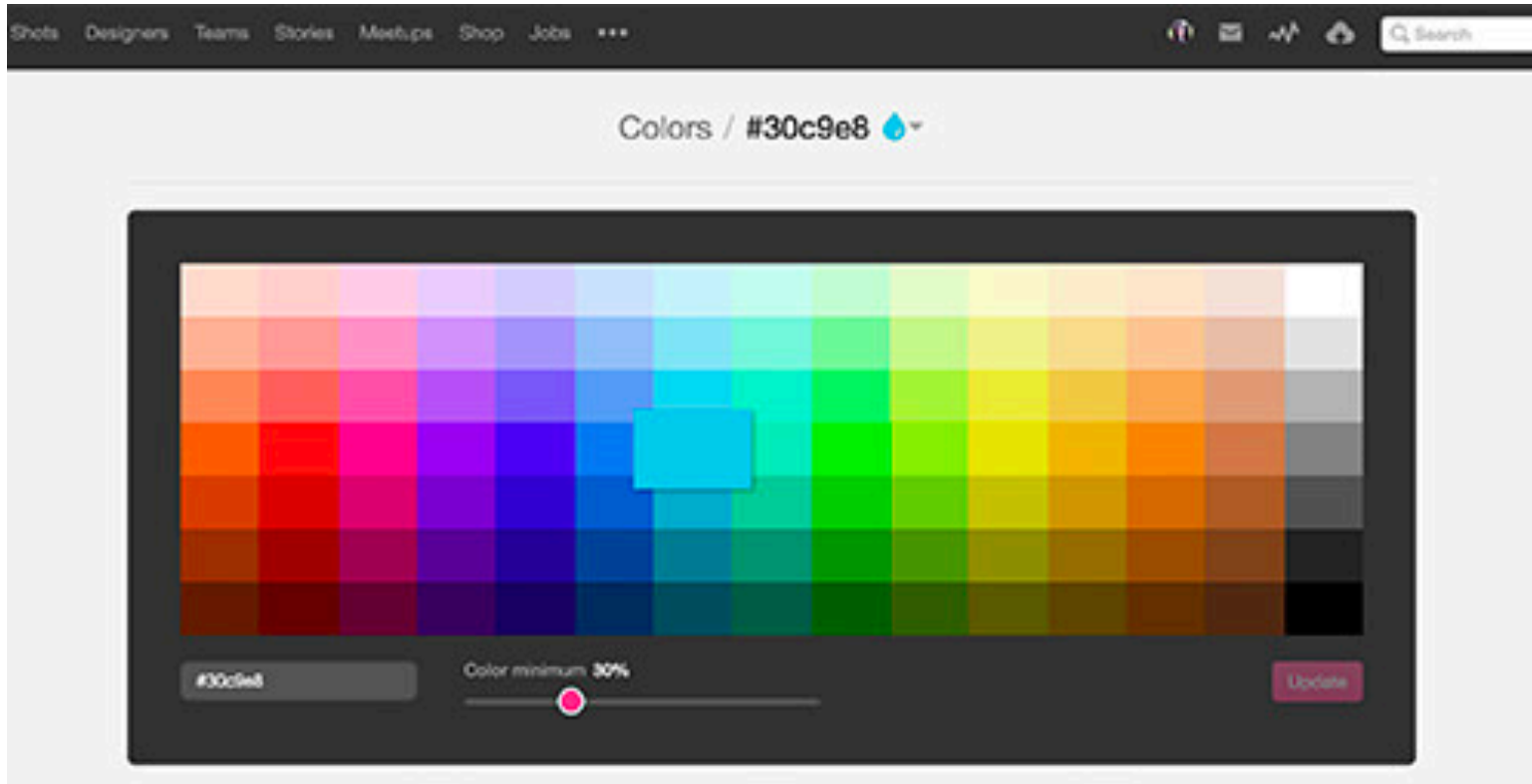
It passes the squint test.

# Pick four colors (and a white background)

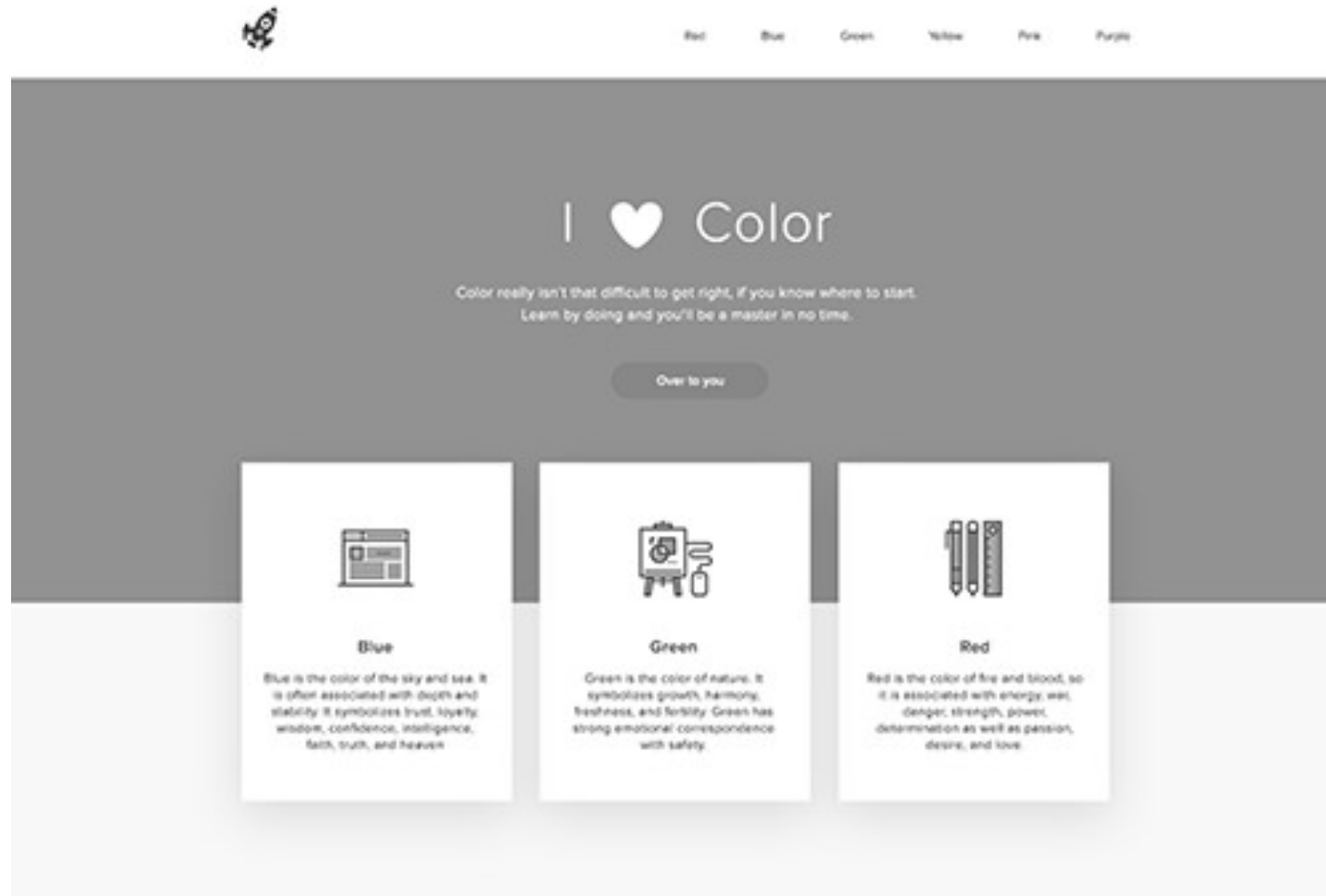
- A base color
- An accent color
- A dark grey
- A light grey



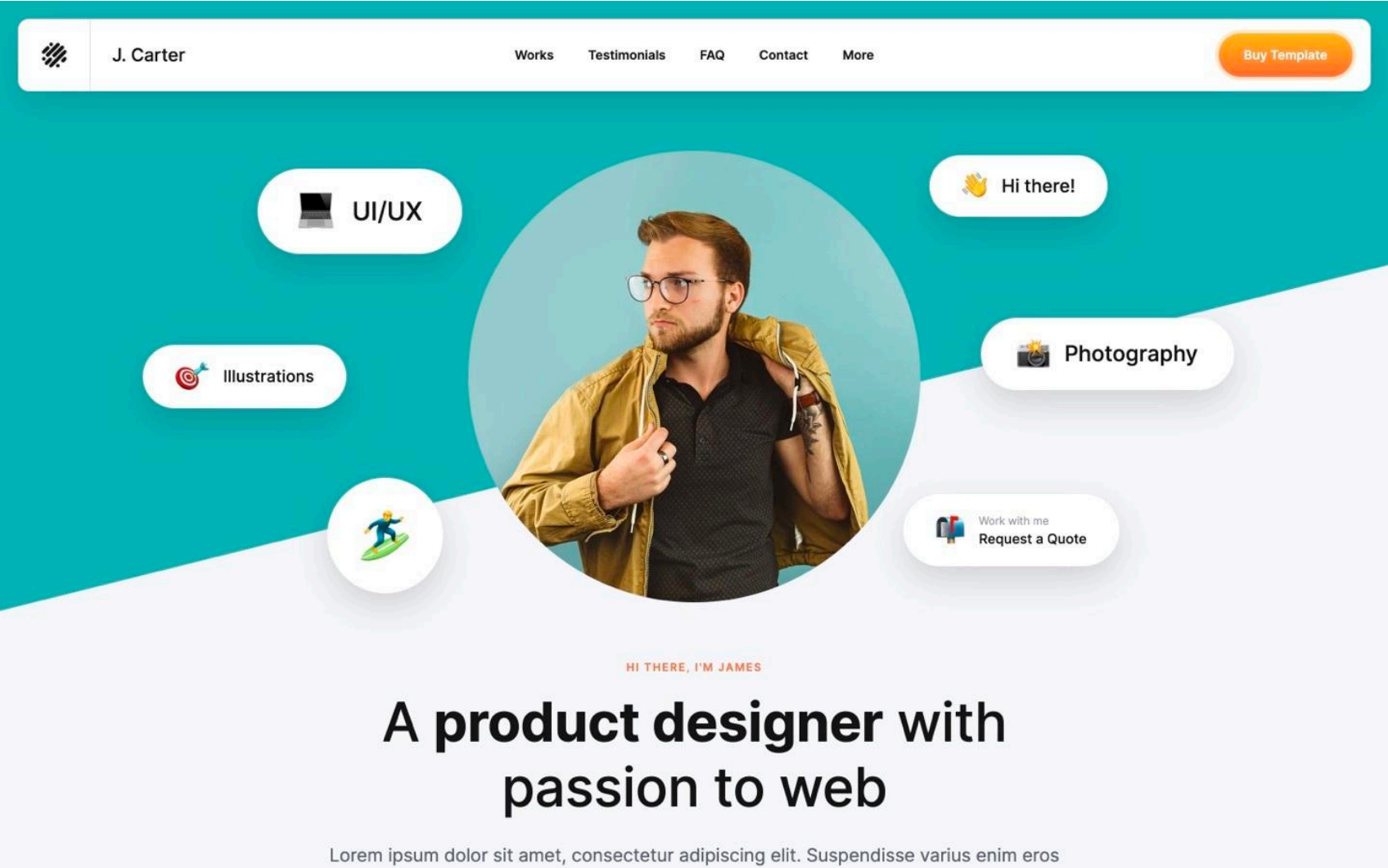
# There are tools to help pick base colors



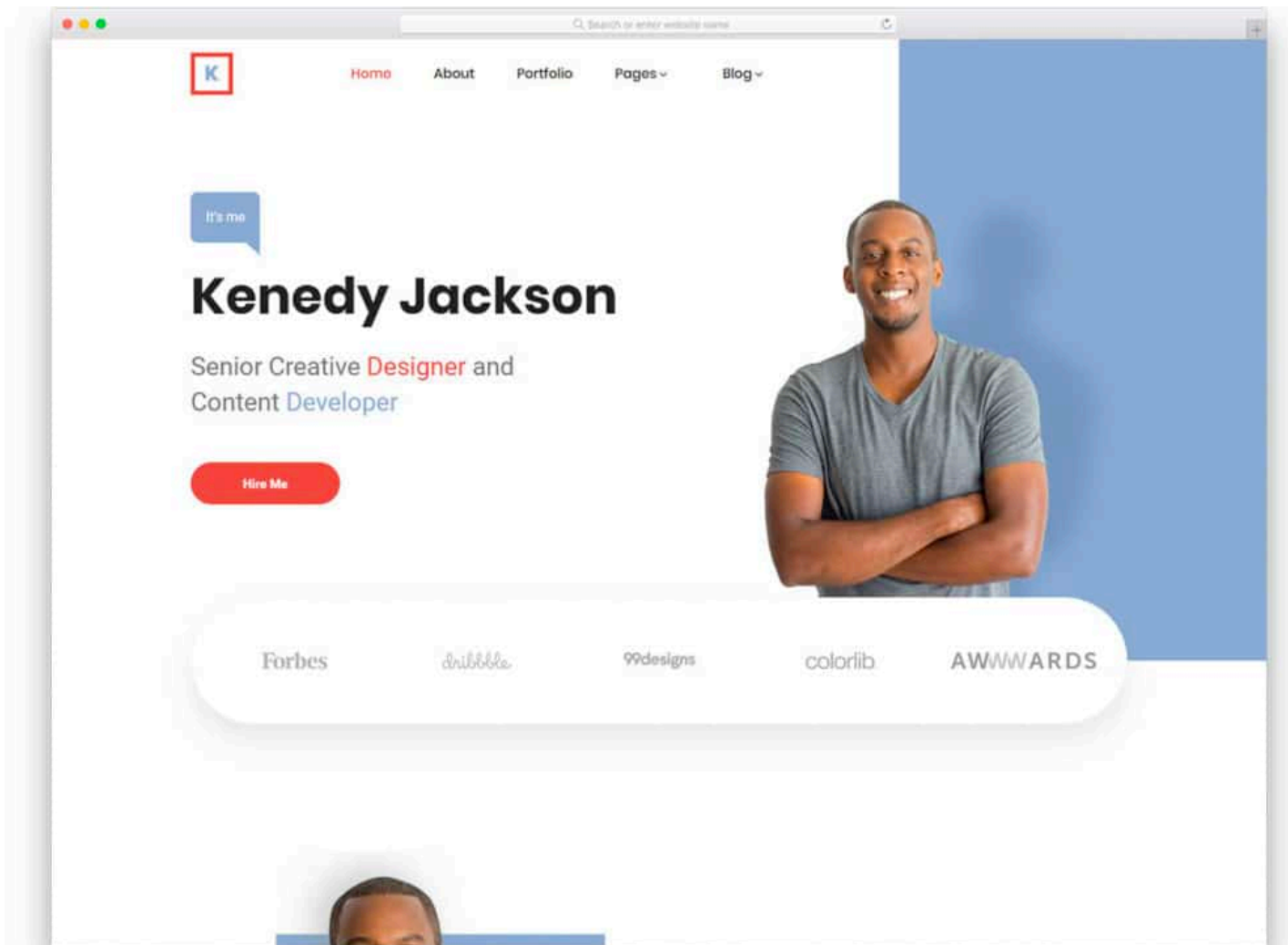
# Make your design in greyscale first!



# Teal and orange

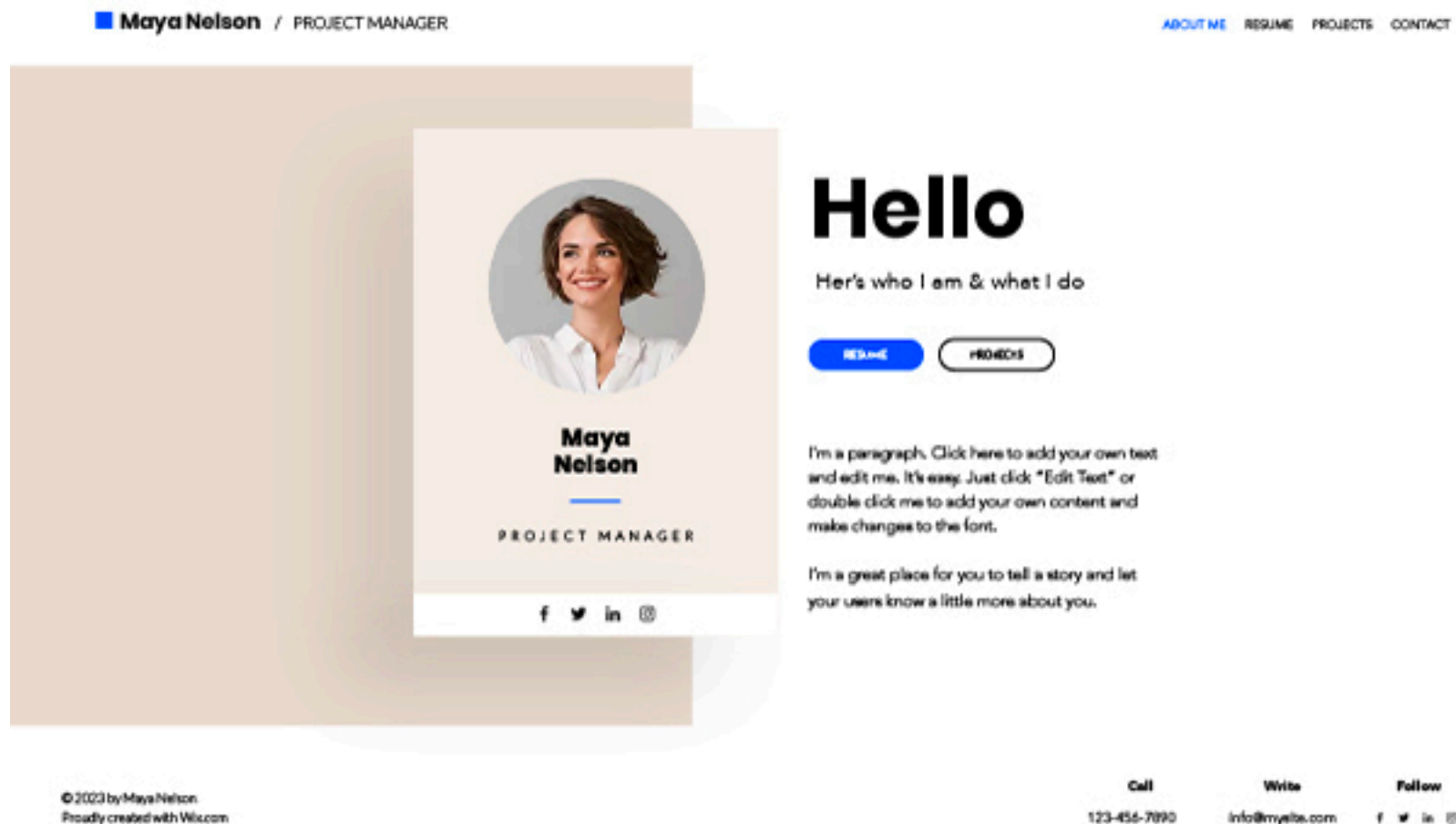


# Periwinkle and coral red

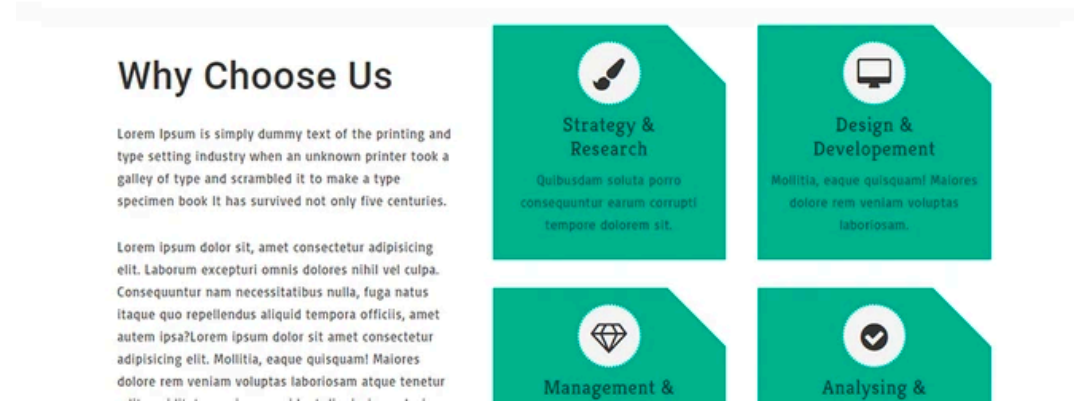
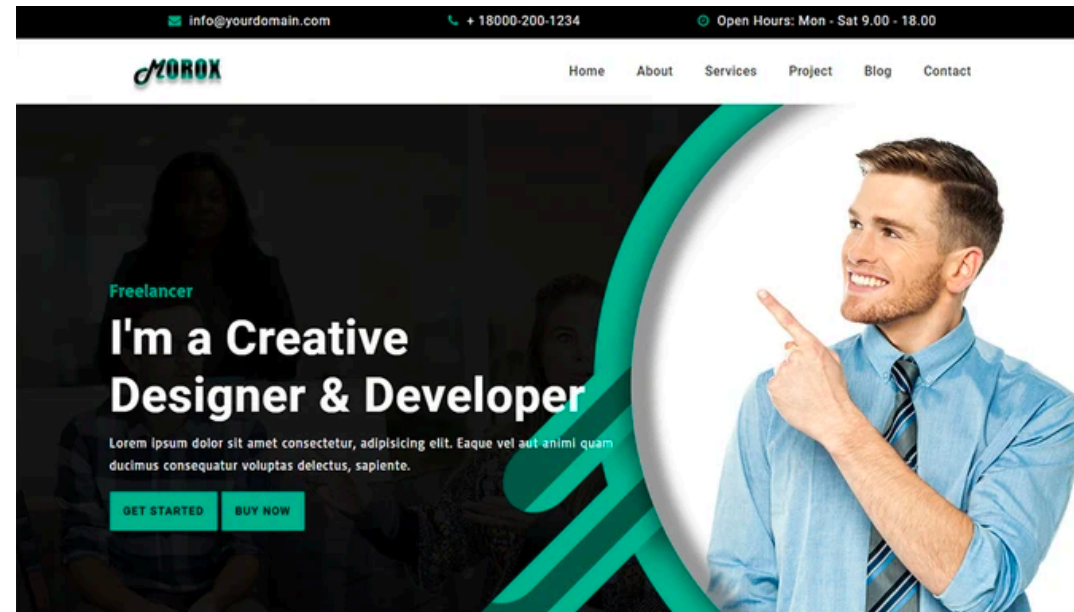




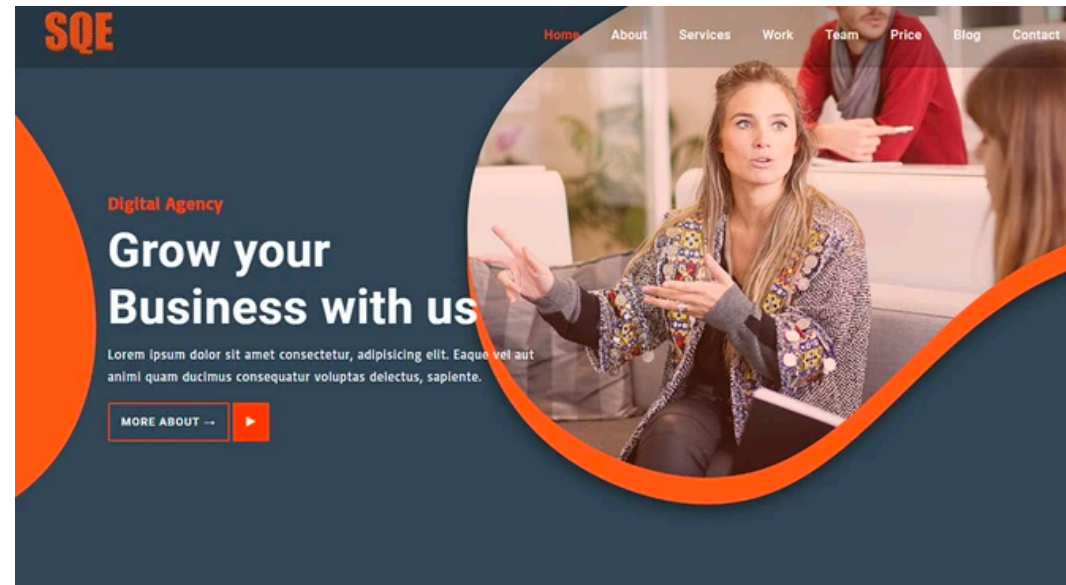
# Beige and Blue



# Green and black



# Grey and orange



## Why Choose Us

Lorem ipsum is simply dummy text of the printing and type setting industry when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries.

Lorem ipsum dolor sit, amet consectetur adipiscing elit. Laborum excepturi omnis dolores nihil vel culpa. Consequuntur nam necessitatibus nulla, fuga natus itaque quo repellendus aliquid tempora officii, amet autem ipsa? Lorem ipsum dolor sit amet consectetur adipiscing elit. Mollitia, eaque quisquam! Maiores



### Strategy & Research

Quibusdam soluta porro consequuntur earum corrupti tempore dolorem sit.



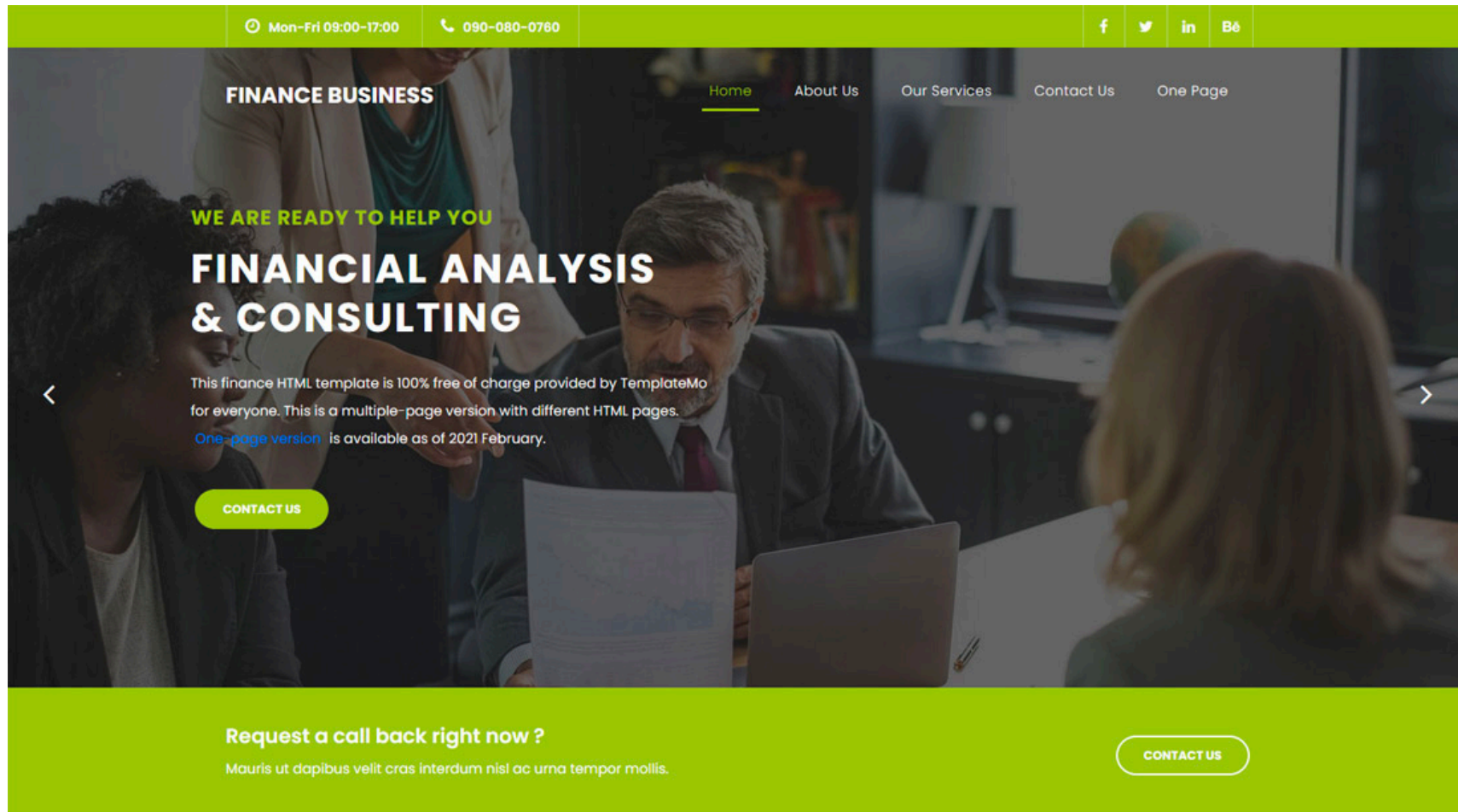
### Design & Development

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

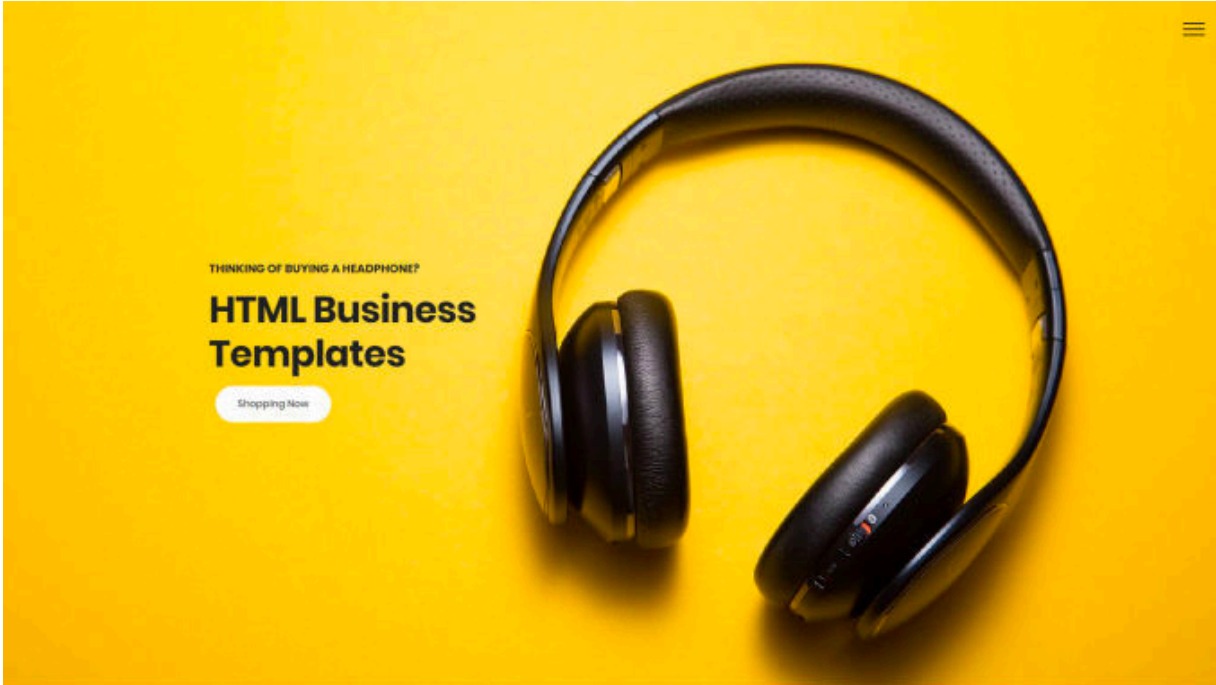


### Analysing &

# Black and green



# Yellow and black

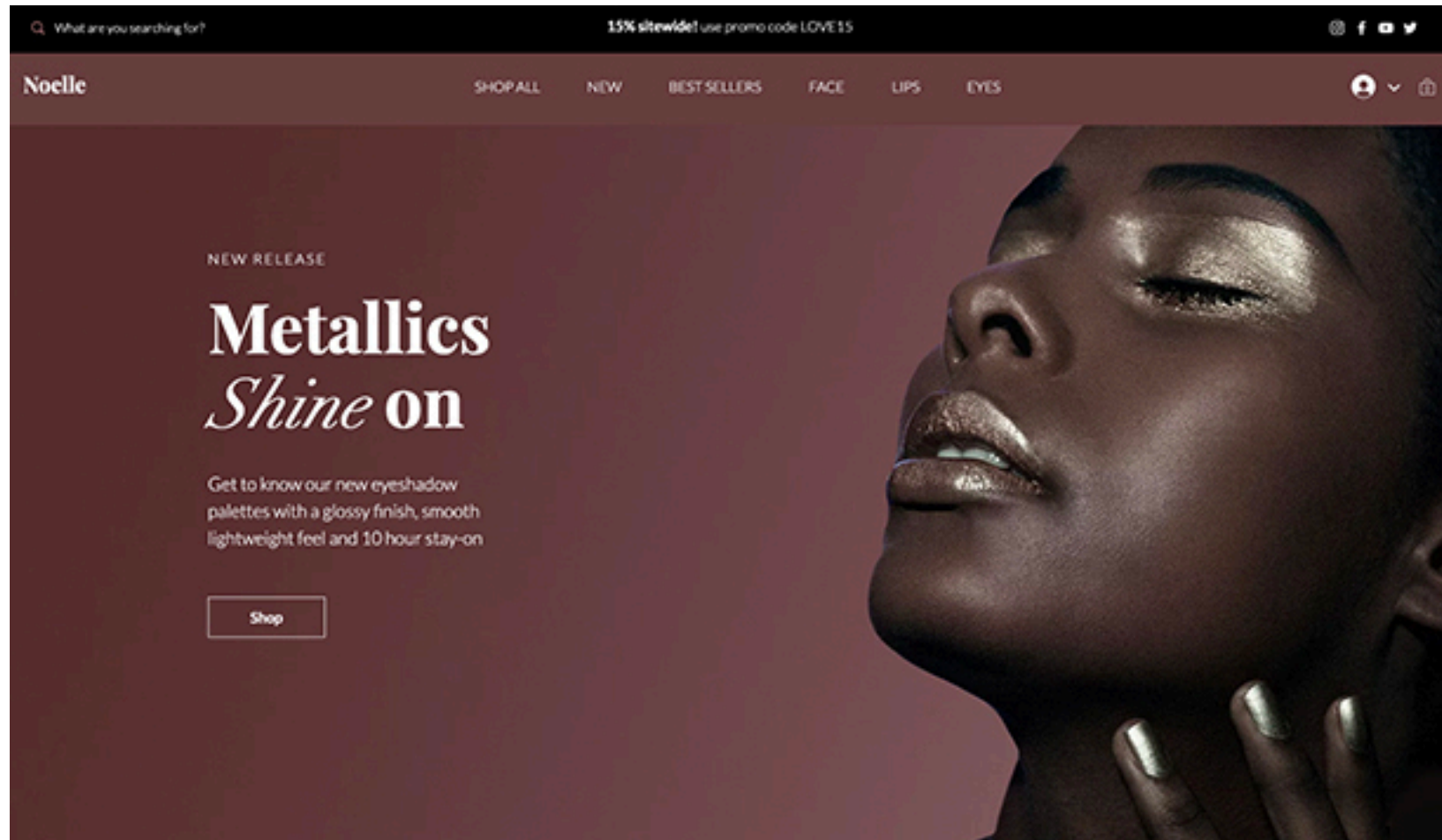


Find a quality and right headphones not easy

**Lorem ipsum dolor** sit amet, consectetur adipiscing elit. Asperiores porro ad eam est voluptates consequatur quam. Qui id illo nisi dolores quidem maxime, ab, nobis consectetur, dolore placeat similique! Animi. A nesciunt, eius dolores magnam facere consectetur totam cupiditate, rem et quam commodi fugit rerum magni debitis sit quasi deleniti. Atque vel consectetur, mollitia repellendus voluptas corrupti odio accusantium architecto! [Learn More...](#)

**Business HTML Templates Free Download**

# Mauve and light mauve



The image shows a screenshot of the Noelle website homepage. The background is a dark, moody photograph of a woman's face in profile, looking upwards, with shimmering metallic makeup on her eyes and lips. The website layout includes a dark header with a search bar on the left containing the text "What are you searching for?", a promotional message "15% sitewide! use promo code LOVE15" in the center, and social media icons on the right. Below the header, the brand name "Noelle" is on the left, and navigation links for "SHOP ALL", "NEW", "BEST SELLERS", "FACE", "LIPS", and "EYES" are in the center. A user account icon and a shopping cart icon are on the right. The main content area features the text "NEW RELEASE" above the headline "Metallics Shine on". Below the headline is a short description: "Get to know our new eyeshadow palettes with a glossy finish, smooth lightweight feel and 10 hour stay-on". A "Shop" button is positioned at the bottom left of the promotional text.

What are you searching for?

15% sitewide! use promo code LOVE15

Noelle

SHOP ALL NEW BEST SELLERS FACE LIPS EYES

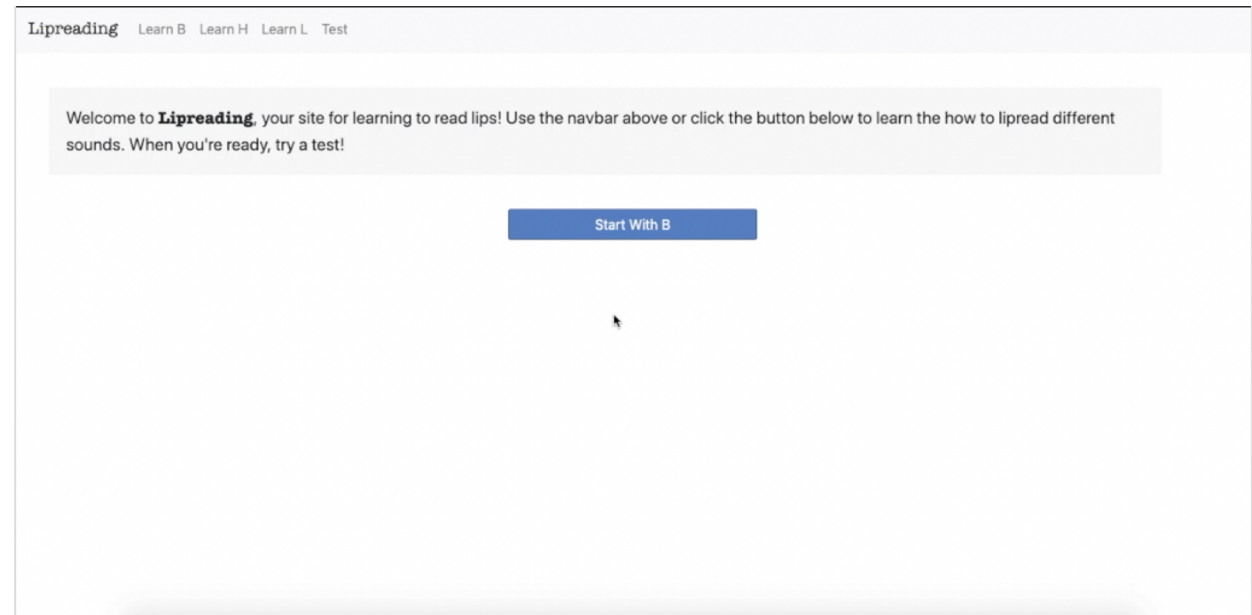
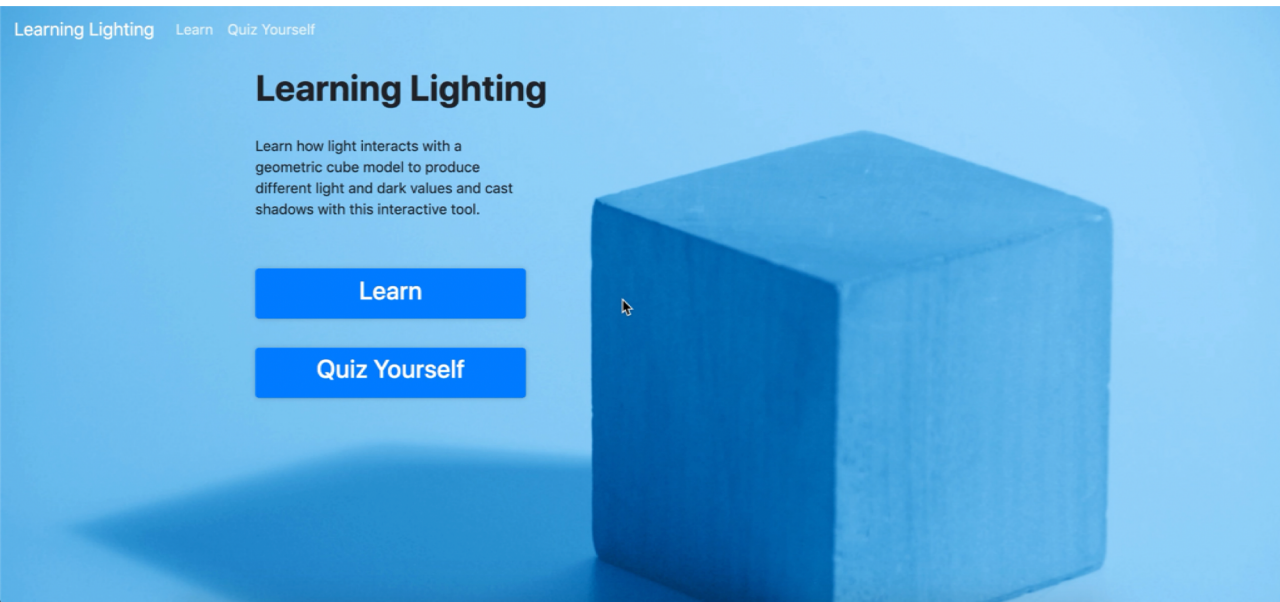
NEW RELEASE

## Metallics *Shine on*

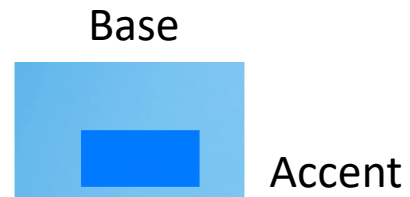
Get to know our new eyeshadow palettes with a glossy finish, smooth lightweight feel and 10 hour stay-on

Shop

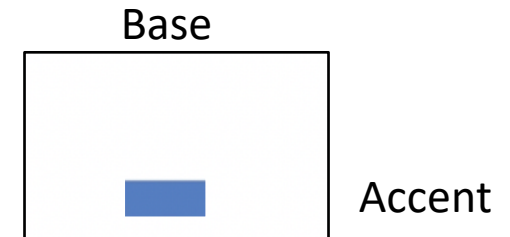
# Does it Have a base color and accent color?



Yes!



No



Let's fix it!

# Lipreading

Learn the sounds of B, H, and L



Start With B



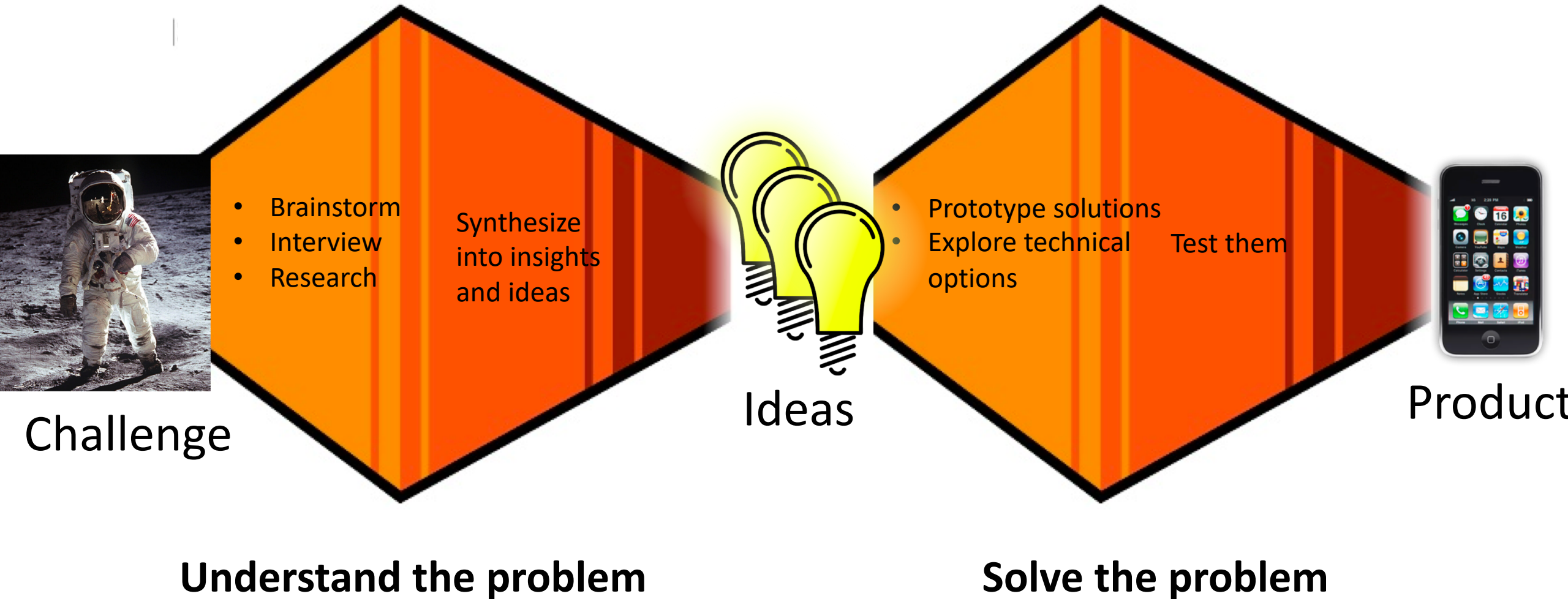
# Schedule

- Monday April 25 – TA feedback on your implementation
  - Wednesday April 27 – wrap up lecture.
- **Monday May 2 – TA feedback on graphic design and your soft turn-in of your demo video**
- Monday May 9<sup>th</sup> @ 11:59 pm – final projects due on courseworks.

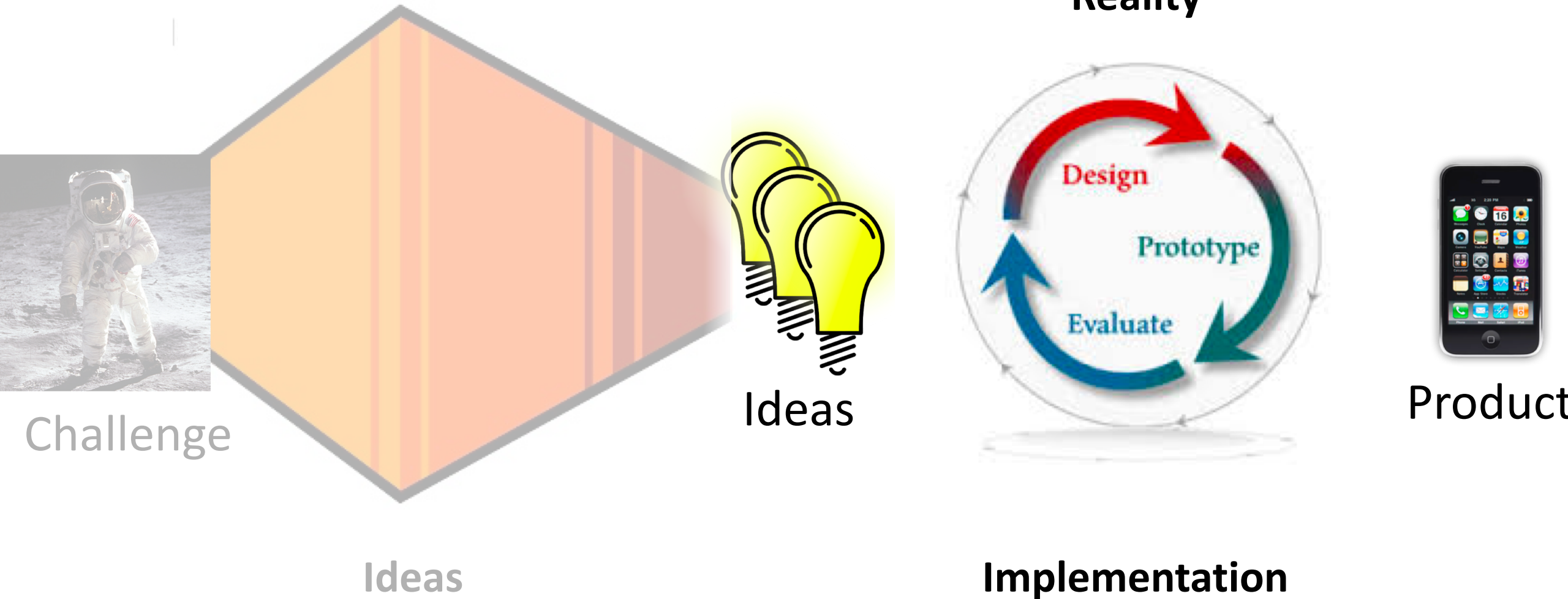
I like this!

What can I learn next?

# The Double Diamond Process



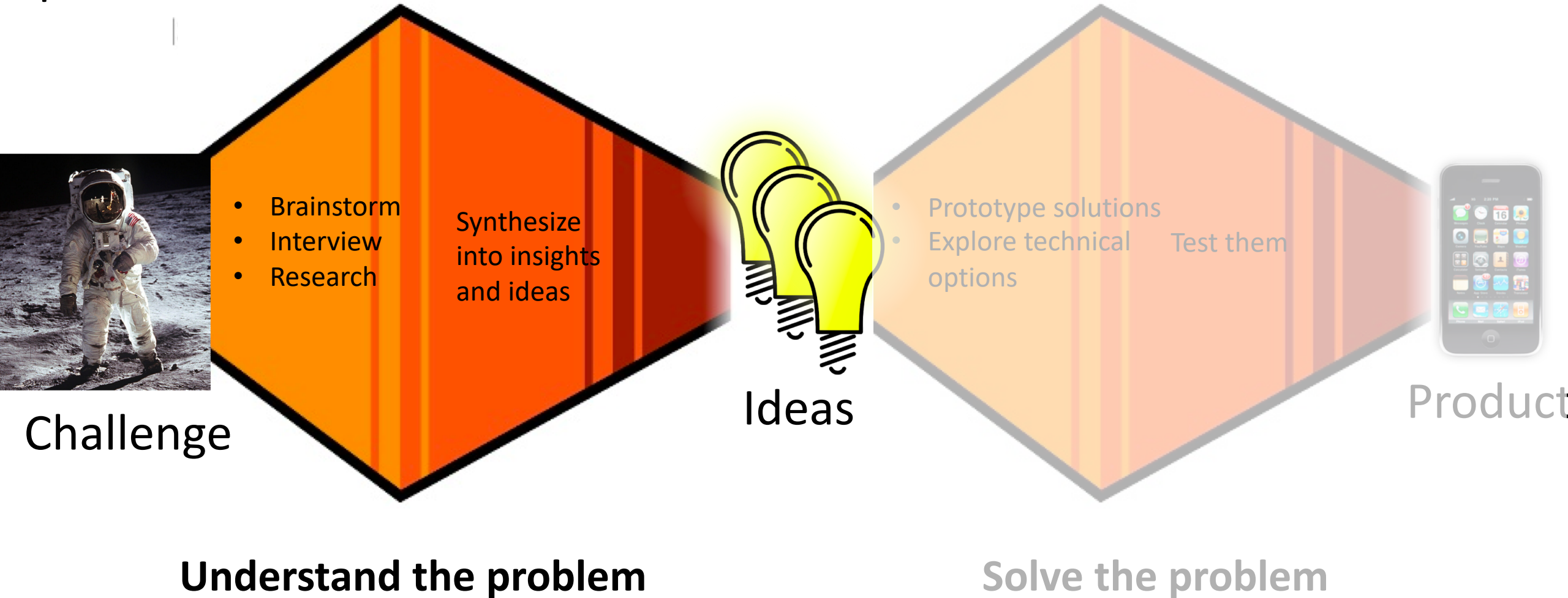
# Implementation is iterative.



The **user** is at the center of the process



This class did not focus on “understanding the problem”.





# Designing for Emerging Technologies

COMS 4170 is the only prerequisite.

Adv Web Design Studio Fall 21  
Prof Lydia Chilton

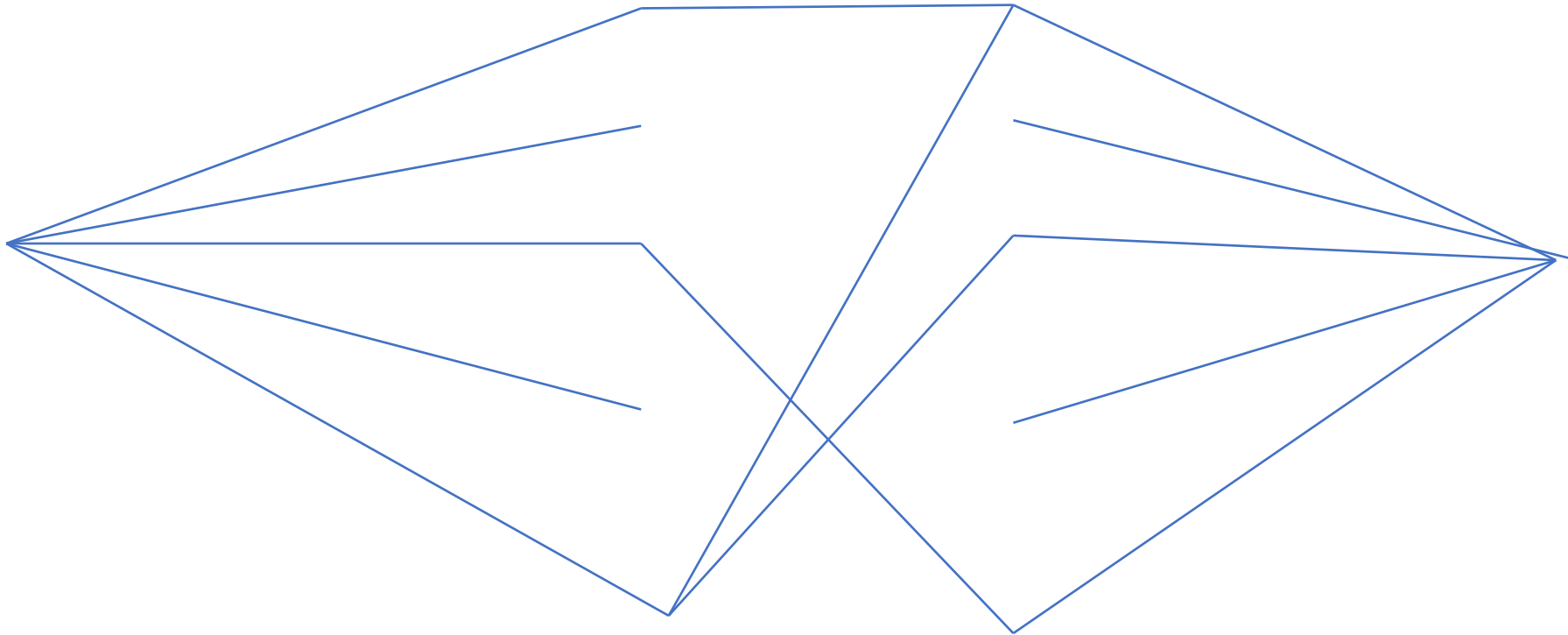
# Designing for Emerging Technology is about matching between tech and people.

What can the tech do?

What do people need?

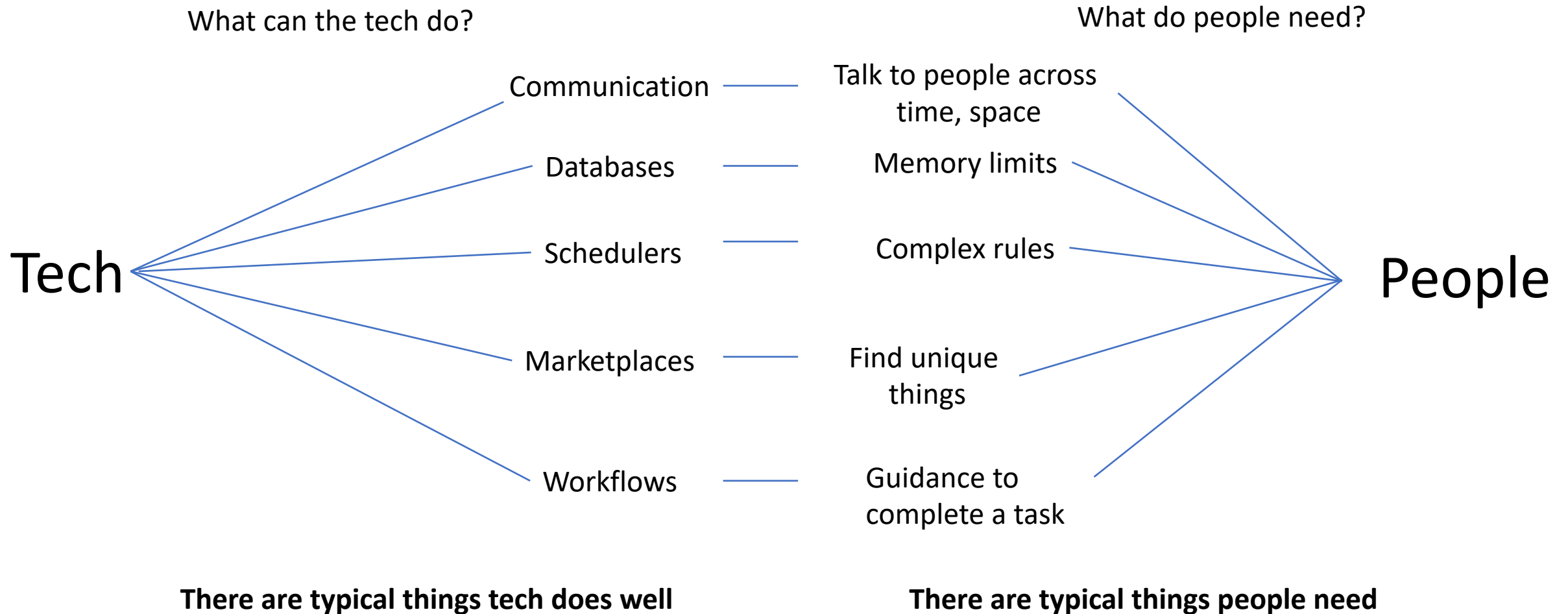
Tech

People





# We analyze fundamental needs of people and fundamental abilities of technology.



# Three Emerging Technologies (Fall 2021)

- Database as a service (Firestore)
- SMS messaging apps (Twilio)
- Voice assistants (Amazon Alexa)

# Database as a service

The screenshot shows a web browser at the URL `friendlychat-adv21.web.app`. The page title is "Friendly Chat". The user is logged in as "Lydia B. Chilton" and has a "SIGN-OUT" button. The chat history includes:

- A message from Lydia Chilton: "I'm running late for dinner" with a profile picture and a photo of a baby.
- A message from Lydia Chilton: "coffee..."
- A message from Lydia Chilton: "hello world"
- A system message from the "Firebase Bot": "Lydia B. Chilton signed in for the first time! Welcome!"
- A message from Lydia Chilton: "thanks!"

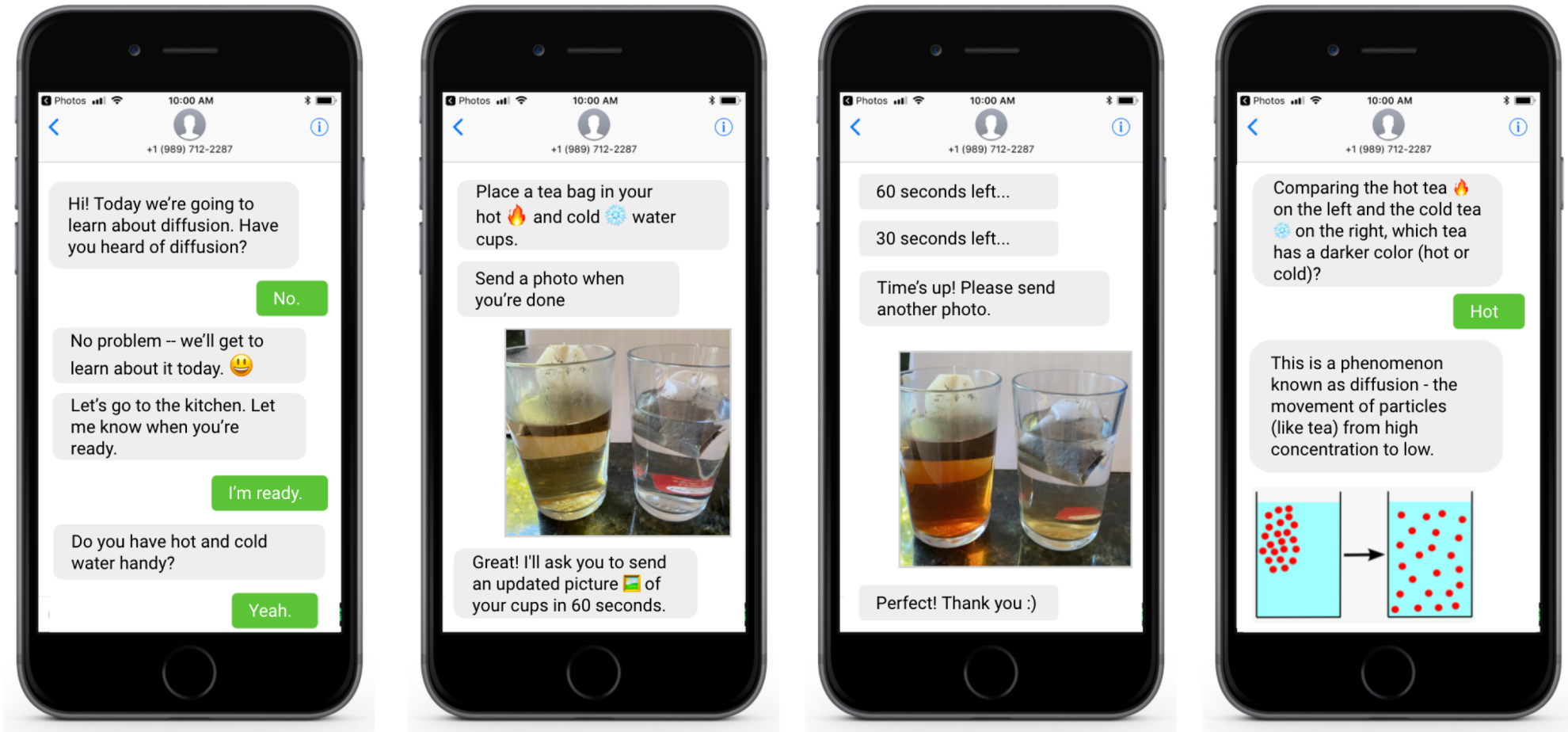
At the bottom, there is a text input field with "Message...", a "SEND" button, and a photo upload icon.

The screenshot shows the Firebase console for the project "friendlychat-adv21". The "Cloud Firestore" section is active, showing the "messages" collection. The left sidebar lists various Firebase services: Project Overview, Build (Authentication, Firestore Database, Realtime Database, Storage, Hosting, Functions, Machine Learning), Release & Monitor, Analytics, Engage, Extensions, and Blaze.

The main view shows the "messages" collection with a document ID "7HU4UBzNNJSsFCG1k1lp". The document contains the following fields:

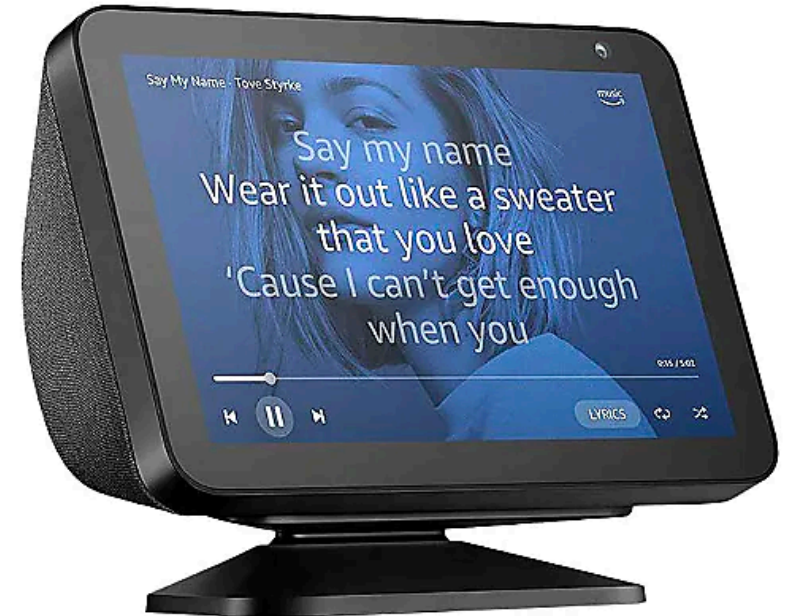
Field Name	Value
name	"Lydia Chilton"
profilePicUrl	"https://lh3.googleusercontent.com/a-/AOh14Gh4Uvgf8H3ehV40w=s96-c"
text	"I'm running late for dinner"
timestamp	September 13, 2021 at 4:40:35 PM UTC-4

# SMS Messaging



Text Messaging for Science at Home

# Alexa: Echo Show



# Fall 2022 Emerging Technologies (Probably)

- Database as a service (Firestore)
- AI Generated Text and Art
- Voice assistants (Amazon Alexa)

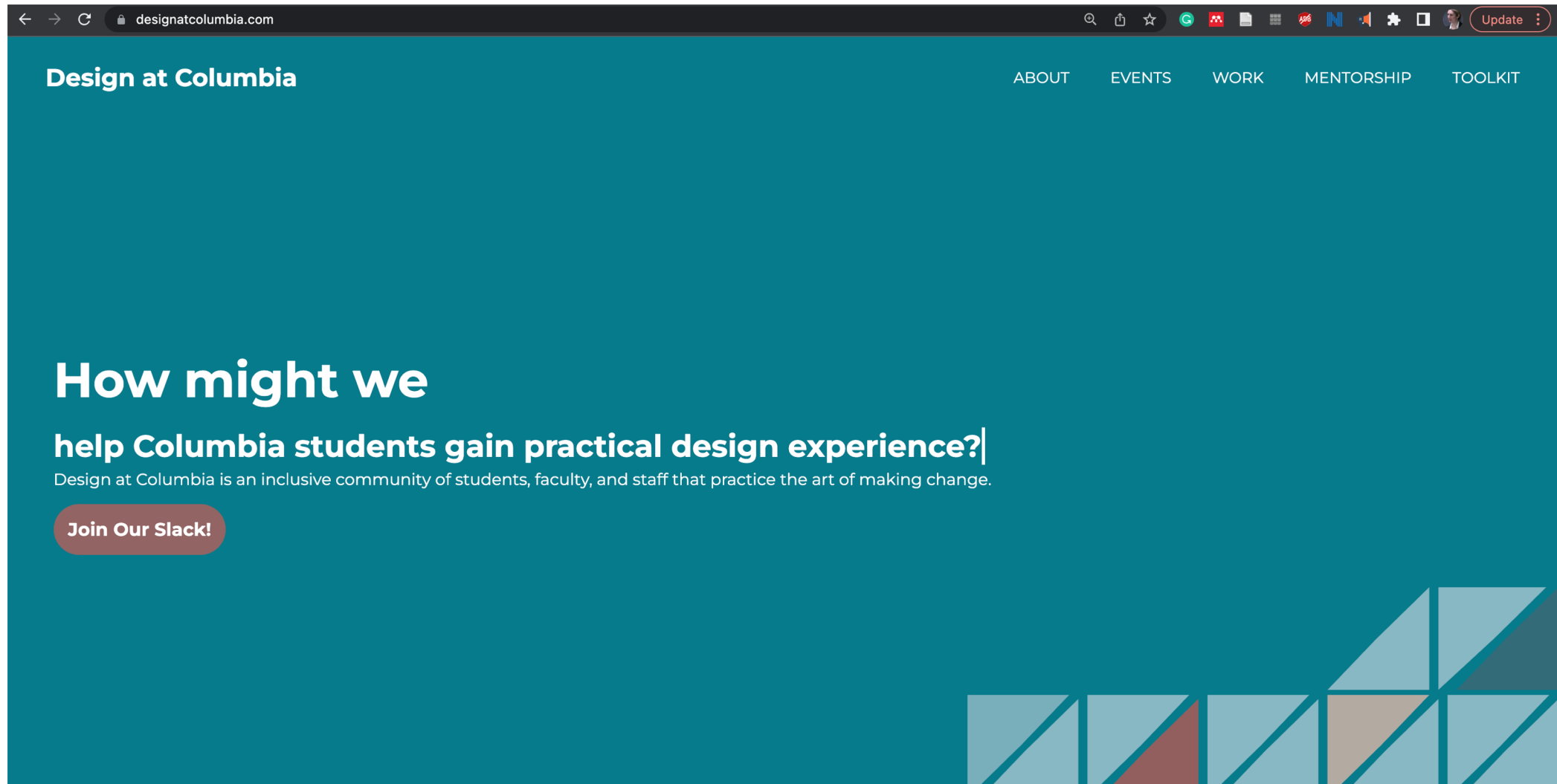
# Half lecture / Half mentoring

- It's like the second half of this class.
- We don't teach (much) coding.
- We do teach qualitative research methods
  - How to interview
  - How to conduct observations
  - How to do competitor analysis
  - How to synthesize results
- We'll try to accommodate as many students as we can.
- You cannot be admitted until you pass COMS 4170.

Other Design Opportunities



# Design@Columbia



# Columbia Build Lab



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[About Us](#)

[Resources](#)

[Apply](#)

Pioneer your ideas and  
talents with us.

Columbia Build Lab, in partnership with the Lang Center, connects MBA founders with an idea to talented Columbia undergraduates who can help create and scale that idea into a minimum viable product (MVP).

[Learn More](#)

# IEME E4200 - Human-Centered Design and Innovation

## Description

Open to SEAS graduate and advanced undergraduate students, Business School, and GSAPP. Students from other schools may apply. Fast-paced introduction to human-centered design. Students learn the vocabulary of design methods, understanding of design process. Small group projects to create prototypes. Design of simple product, more complex systems of products and services, and design of business.

## Credits

2.7

## Recent Professors

[Harry West](#)

## Open Seat Checker

[Get notified when IEME E4200 has an open seat](#)

## Schedule Planner

[Add IEME E4200 to your schedule](#)

## Recent Semesters

Fall 2022, Spring 2022, Fall 2021, Fall 2020, Spring 2020

## Offered

Tu, W, F

## Avg. Class Size

44

## Avg. Sections

2



Be a TA for COMS 4170

# Research Opportunities

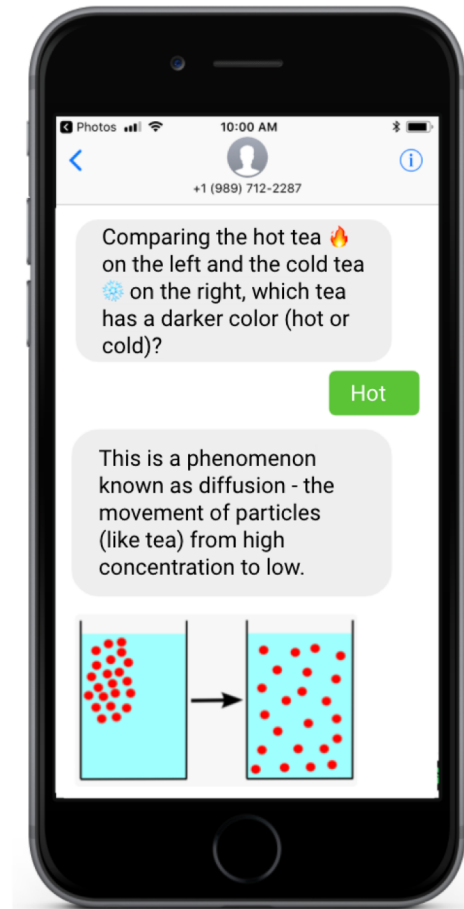
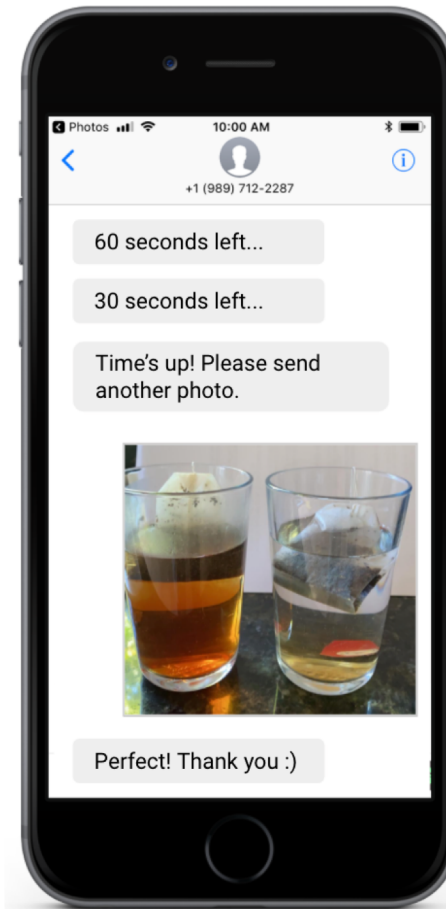
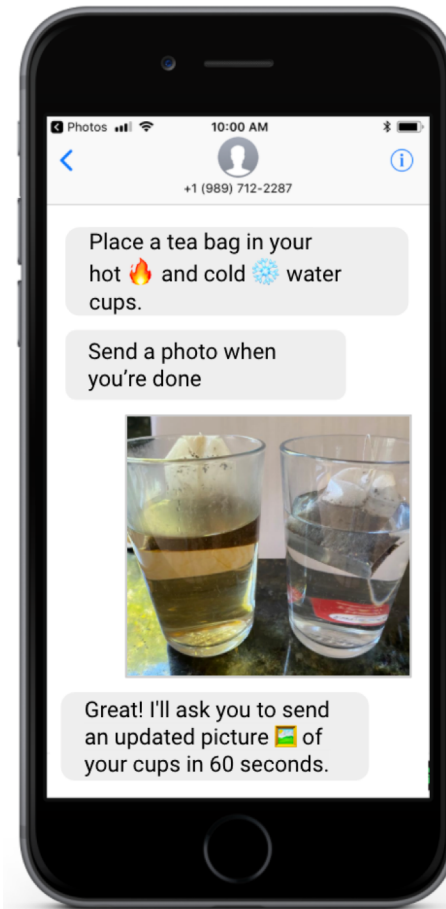
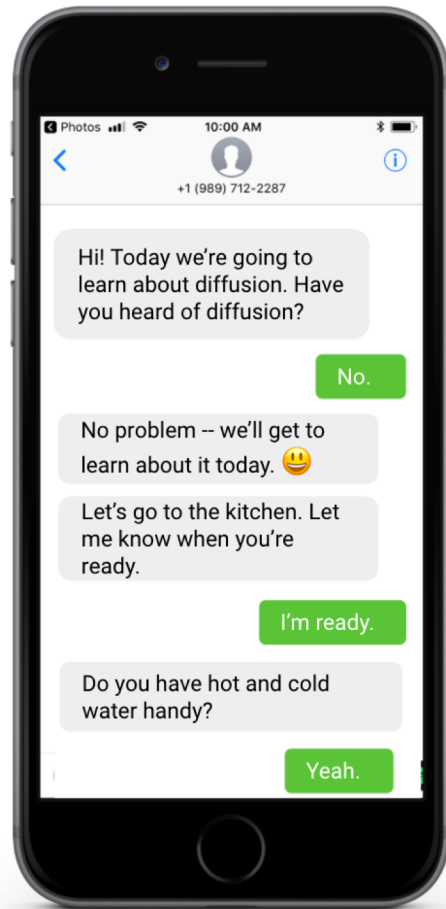
# 1. Human-Computer Interaction

Human-computer interaction (HCI) studies (1) what computers are used for, (2) how people interact with computers, and (3) how either of those should change in the future. Topics include ubiquitous computing, mobile health, interaction techniques, social computing, mixed reality, accessibility, and ethics. Activities include readings, presentations, and discussions of research papers. Substantial HCI research project required.






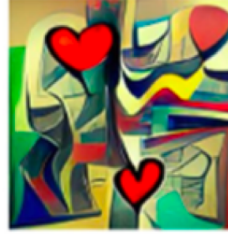




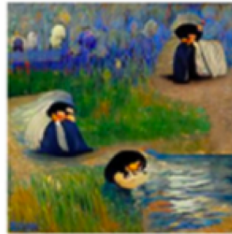









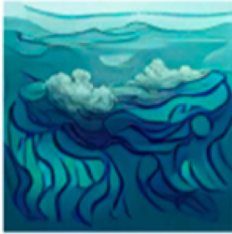



Section	Call Number	Semester	Instructor	Subject	Method of Instruction
001	12458	Spring 2022	Brian A Smith	Computer Science	In-Person

<http://www.columbia.edu/cu/bulletin/uwb/#/cu/bulletin/uwb/subj/COMS/E6178-20221-001>

# Teaching Interactive STEM lessons by texting

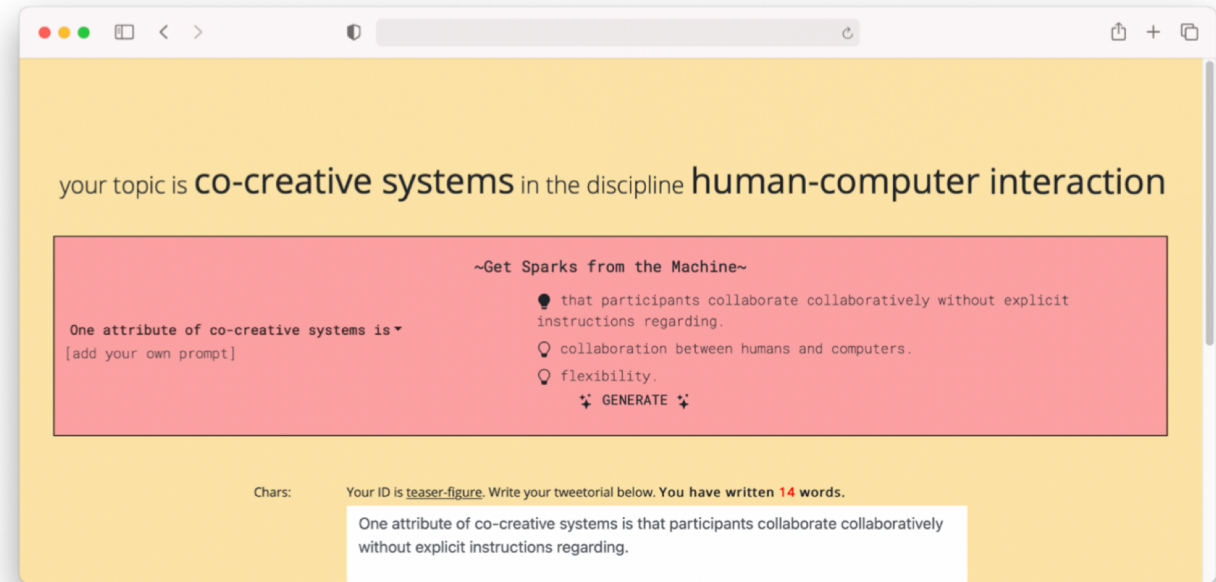


# AI Generated Art

	painting	photo	sketch	cartoon	impressionist	abstract
love						
sadness						
happiness						
ocean						



# AI Text Generation to help scientists explain their work on Twitter



# AI Text Generation to help journalists discover angles for new stories

View site information

> Main points of press release

> Potential sources of controversy

> Potential areas of investigation

> Potential negative outcomes

▼ Related news articles

> Articles about: NYC + **agreement**

▼ Articles about: NYC + **South Brooklyn Marine Terminal**

> [Jacobs Will Redevelop South Brooklyn Marine Terminal](#) (Yahoo Entertainment) ↗

> [GE-BOND Consortium Awarded Landmark Contract to Build High-Voltage Electrical Systems for Empire Offshore Wind 1 in New York](#) (Business Wire) ↗

> [City calls for offshore wind facility dev on Staten Island](#) (The Real Deal) ↗

> [Getting Wind of It: NYC Seeks to Build Offshore Wind Facility on Staten Island](#) (Commercial Observer) ↗

> [Jacobs Will Redevelop South Brooklyn Marine Terminal](#) (PRNewswire) ↗

> Articles about: NYC + **offshore wind**

## Mayor Adams Announces Agreement to Transform South Brooklyn Marine Terminal Into Leading Offshore Wind Hub

released: 03/03/2022

New York City Mayor Eric Adams today announced an agreement that will transform the city-owned South Brooklyn Marine Terminal (SBMT) into one of the largest offshore wind port facilities in the nation. The agreement will help establish New York as a leader in offshore wind and help the New York City meet its nation-leading climate goals of 100 percent clean electricity by 2040.

As part of the deal finalized by the New York City Economic Development Corporation (NYCEDC), Equinor, its partner — bp — and Sustainable South Brooklyn Marine Terminal, L.P. (SSBMT) will upgrade and build out the terminal as an operations and maintenance base. The terminal will become a power interconnection site for the Empire Wind 1 project, and heavy lift platforms will be built on the 39th Street Pier for wind turbine staging and installation for Equinor and other developers. The port will serve as a hub to support the Empire Wind and Beacon Wind offshore wind farms.

NYCEDC also partnered with Equinor and the community to support workforce training for a diverse pool of local residents to bolster opportunities for New Yorkers created by investments in offshore wind infrastructure. The agreement expands the target of minority- and women-owned business enterprise (M/WBE) contractors based in and registered with New York City or New York State, with a 30 percent M/WBE participation goal; and will support technical assistance for M/WBE and Disadvantaged Business Enterprises to create more opportunities for participation in this sustainable growth industry. Additionally, the agreement ensures the development will be a low-emissions facility.

"With this investment, the South Brooklyn Marine Terminal will soon be transformed into one of the largest offshore wind port facilities in the nation," said Mayor Eric Adams. "This site will be the launch of a whole new industry for New York City that will support 13,000 local jobs over time, generate \$1.3 billion in average annual investment citywide, and significantly reduce our carbon footprint so that we can meet our climate goals of 100 percent clean electricity by 2040. This is a transformative moment for New York City and our clean energy future — a future of sustainable power, good-paying jobs, and climate justice."

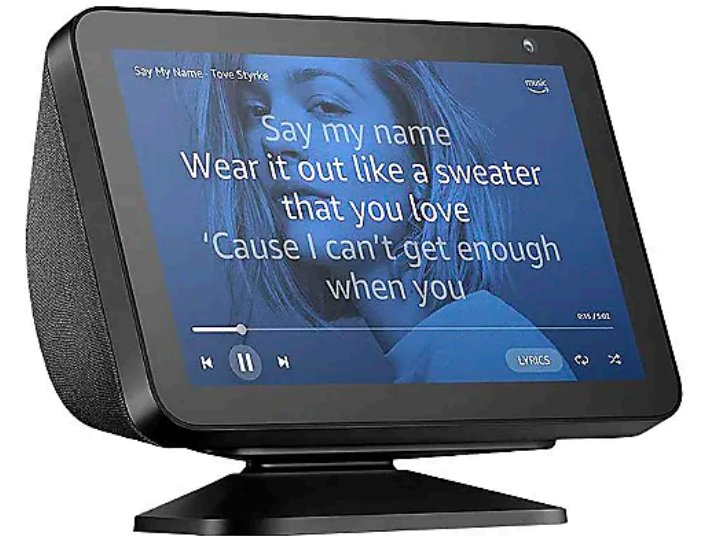
"This first major milestone in New York City's Offshore Wind Vision Plan is a perfect example of how our economic and workforce development objectives must go hand in hand with our clean energy goals. By building this new industry in the right way, we will continue to advance an equitable recovery and make our environment healthier as well," said Deputy Mayor for Economic and Workforce Development Maria Torres-Springer. "We thank NYCEDC and our partners at Equinor, bp, and SSBMT for coming together to transform the South Brooklyn Marine Terminal into a major offshore wind hub and make New York City a leading destination for this important and growing industry."

"Economic, racial, and gender equity is what informs and drives our work every day," said Magalie Desroches Austin, senior advisor to the mayor; and director, Mayor's Office of Minority and Women-Owned Business Enterprises. "We're excited to support and collaborate with our partners at the NYCEDC and at the South Brooklyn Marine Terminal on this highly important initiative. Not only is this a capital investment in New York City's offshore wind energy, its accompanying infrastructure, and the emerging work force critical to the long-term sustainability of the greatest city on earth, but it also helps to meaningfully and positively move the needle on the mayor's commitment to Minority- and Women-Owned Business Enterprises and the diverse workforce they employ. We look forward to the many long-term benefits this investment will have on New York City's environmental footprint, its labor force, and the myriad of M/WBEs that make New York City unique."

Equinor also committed to establishing a \$5 million ecosystem fund to bring more New York City residents into offshore wind careers, propel offshore wind innovation, and support a just transition. Finally, Equinor is working to establish an offshore wind learning center — accessible to the community — within its Brooklyn office.

Today's announcement is critical to the offshore wind priorities and investments of both New York City and New York State. The city has committed \$191 million to offshore wind projects — including \$57 million in support of SBMT and \$134 million in new investments. The city expects these initiatives to remove more than 34 million tons of

# Invisible Design: Insights and Opportunities for Voice Interaction



To master design,  
you don't need more classes,  
you need experience and feedback.

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