

No screens



Prof. Lydia Chilton COMS 4170 29 April 2019





Goal 1 Build websites that suit the needs and abilities of users

Visual Information Display

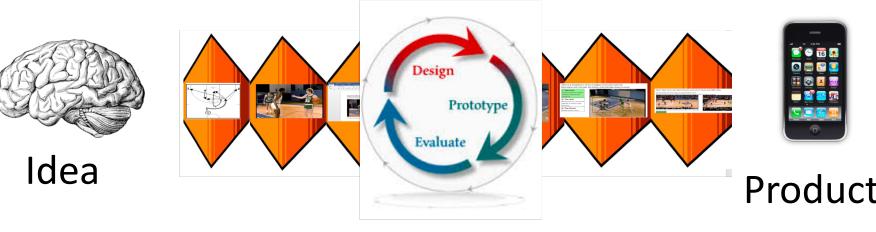


Implementing interactions and feedback

| Col | lum | bia Pap | er Infinity |
|------------|-----------|--------------------------------------|-------------|
| Home | Log Sales | Party Planning Committee | |
| People | | Party Planning Coloria (1: Angela | |
| 2: Dwight | | 1: Phyllis | |
| 3: Oscar | | | |
| 4: Creed | | | |
| 5: Pam | | | |
| 6: Jim | | | |
| 7: Stanley | | | |
| 8: Michael | | | |
| 9: Kevin | | | |
| 10: Kelly | | | |

Goal 2

When the needs and abilities of users are unclear, design systems by **learning from iteration** and experimentation.



Users interact with a system to accomplish a goal

Buy a book

| The Design of | Everyday Things: Revised | and Expanded Editic | on and milli | ons of other books are available for | |
|--------------------|---|---|--------------|---|--|
| | The Design of Expanded Edit | t ion Paperback | | | |
| e DESIGN | by Don Norman ▼ (Aut ★★★★★ ▼ 569 | nor) Customer reviews | | | |
| EVERYDAY THINGS | #1 Best Seller (in Data See all 2 formats and e | | | Qty: 1 🛊 | |
| DON NORMAN | Kindle \$11.99 | Paperback \$12.92 \pri | ب ب | Add to Cart | |
| $\mathbf{\hat{n}}$ | Read with Our Free App | 64 Used from \$7 62 New from \$1 3 Collectible from | | or 1-Click Checkout | |
| | The ultimate guide to | | Ţ. | Buy now with 1-Click® | |
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Set an alarm

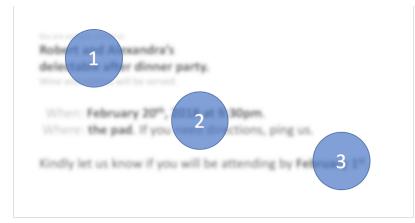


Send an email

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User Interfaces should be designed to help users accomplish a goal.

Guide users' attention to important bits of information Interact with the system in ways that provide clear actions and feedback. Allow users to navigate through the system in to meet their goal.







We have discussed concrete ways of thinking about goals

Grand but not actionable

"world peace"

"bring the world closer together"

"scale and democratize education"

Humble but valuable

"register 100 voters in Selma, Alabama"

"let Harvard students see what dorms their friends are in"

"teach my 12-year old cousin Nadia how to multiply fractions" The designer must create the subgoals and interactions to help them accomplish it.

Goal: Buy a book

Subgoal:Find itAdd to cartEnterInteraction:Type, clickclickType



| Buy New | \$11.33 |
|-------------------|--|
| Qty: 1 🕈 | List Price: \$18.99 |
| | Save: \$7.66 (40%) |
| √ prime | |
| FREE Shippin | g on orders over \$25 |
| | vo-Day Shipping with |
| Amazon Prim | 1e |
| In Stock. | |
| Ships from and s | old by Amazon.com. |
| Gift-wrap availab | ole. |
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| ¥ 4 | Add to Cart |
| Turn on 1-Click o | rdering for this browser |
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| | Jan. 31? Order within choose Same-Day |
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| Add to List | |

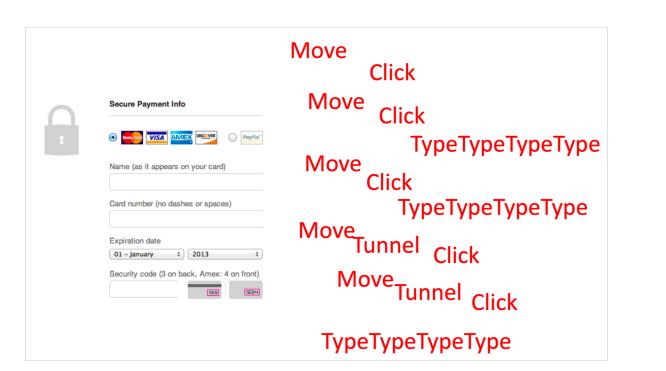
Enter payment info Type, click, point

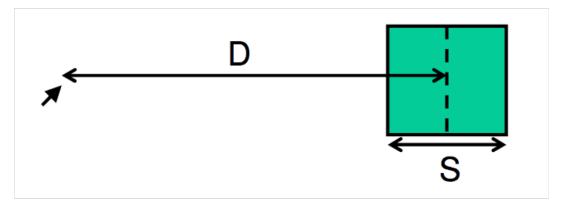
Place order Click

| Name (as it appears on your card) |
|---|
| Card number (no dashes or spaces) |
| Expiration date 01 - January |
| Security code (3 on back, Amex: 4 on front) |

| Order Summ | nary |
|---|----------------|
| Items: | \$29.95 |
| Shipping & Handling: | \$0.00 |
| Total Before Tax: | \$29.95 |
| Estimated Tax To Be Co | lected: \$0.00 |
| Rewards Points | -\$4.58 |
| Order Total: \$ | |
| How are shipping costs | |
| How are shipping costs Amazon Prime Shipping | |

Low-level interactions take time and effort. Minimize them because you do them a lot.

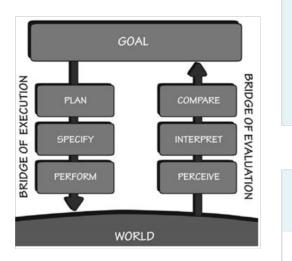


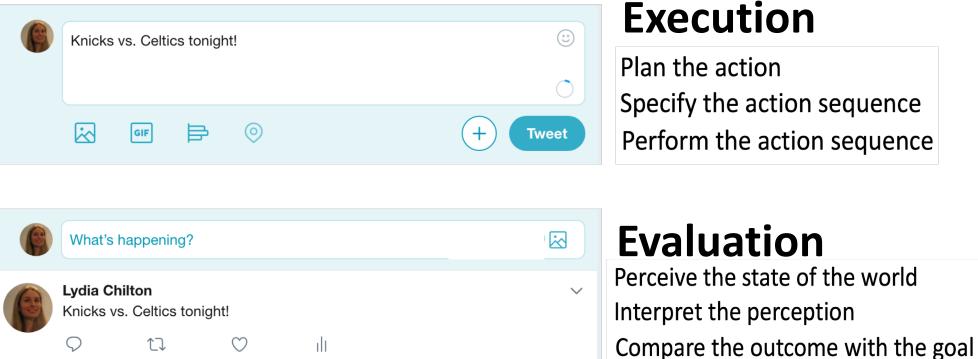


Time to move your pointer to a target

 $= a + b * \log($

Know the users' goals and design interactions as: execution and evaluation

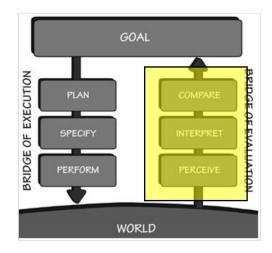




Following instructions sux. Why?

| | Videos | Images | Shopping | News | More | Settings | Tools |
|---|--|---|--|------------------|---------------------------|----------|-------|
| Abou | t 22,600,000 | results (0.59 | seconds) | | | | |
| Clea | n Install | | | | | | |
| 1. Fi | nter your o | omputer's | BIOS | | | | |
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Every time the user executes an action, the interface should provide feedback





| A Payment Information | 1 |
|------------------------------------|------------------|
| The credit card number is invalid. | |
| Card Number * | |
| 1234123412341234 | |
| Expiration Date * | |
| 1220 | |
| ccv* | |
| 999 | |
| | PLACE YOUR ORDER |

High-level actions, like buying a book

Mid-level actions, entering paying information



Low-level virtual actions, like clicking a button

Final Project Rubric

- Interaction:
 - High-level:
 - Mid-level:

- Low-level:
- Technical:
- Visual Information Design:

Final Project Rubric

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 - Are the users able to accomplish the goal?
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 - Does each state have a clear subgoal, options and transitions?
 - Feedback: do users learn from feedback and can they recover from errors?
 - Low-level:
 - Widgets: Are the correct widgets used? (lists/search/hierarchy, autocomplete)
 - Low level Interaction: Are they efficient for the user to execute? (target size, number of clicks)
- Technical:
- Visual Information Design:

High-level Interaction

Idea and persona

Idea and persona

What **person** Uses what **media** And has what **interaction** with it To achieve what **goal**?

Specific Goals are actionable

General Goal: "Clean the house."



Specific Goal: "Fold that basket of laundry."

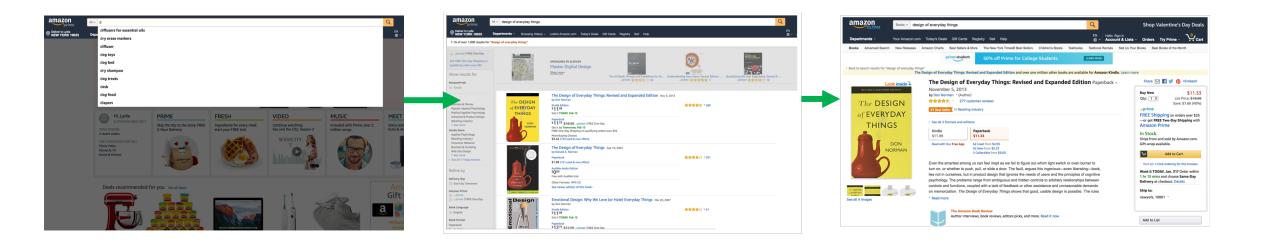


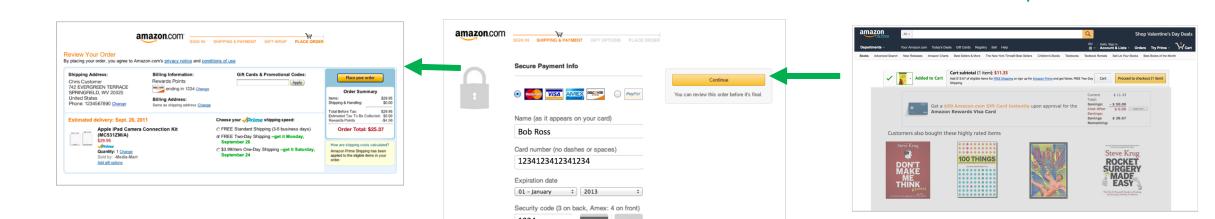
General goals sound appealing, but specific goals are actionable: What **person** is going to execute what **action** on what **object** and get what **benefit**?

Mid-level Interaction

States and transitions

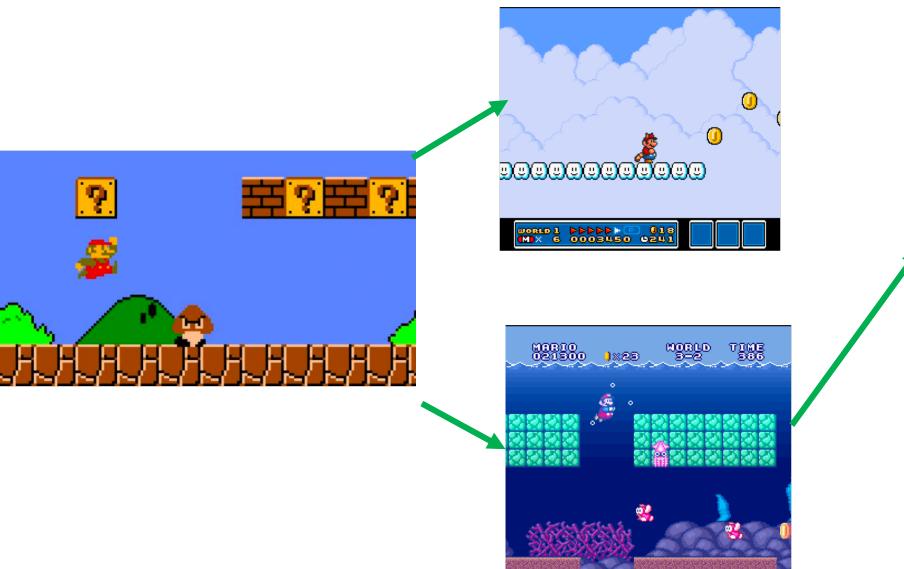
For complex goals, break the task into states, options, and transitions to new states.





Think of it like a video game and You are designing the experience of your user

MARIO



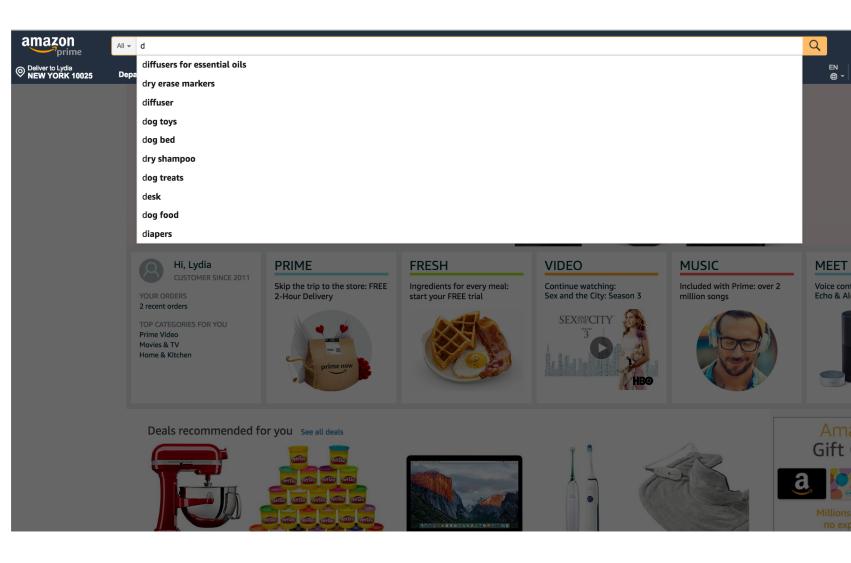
Examples of States, Options and Transitions

Goal: Find "The Design of Everyday Things"

What state am I in? Product Search

What **options** do I have? All the products

How do I **transition**? Select an product name

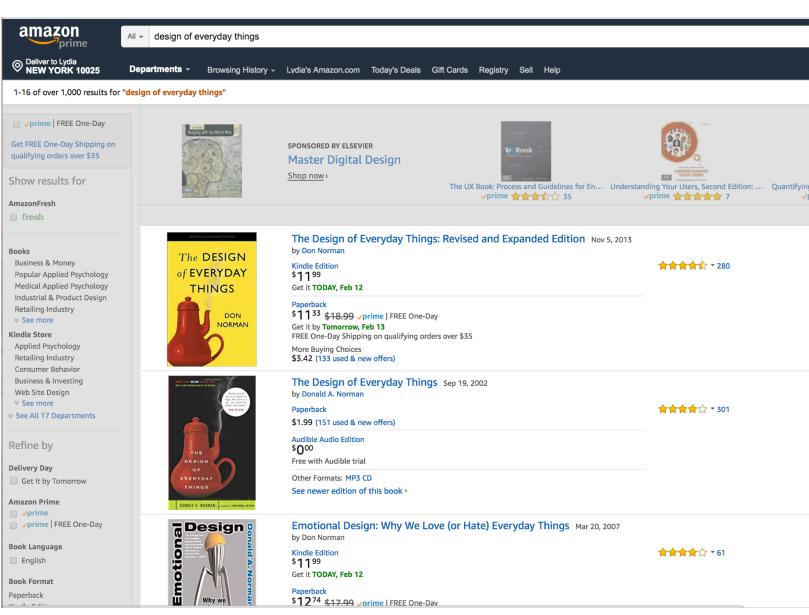


Goal: find "The Design of Everyday Things"

What **state** am I in? **Product search results**

What **options** do I have? All the products – different editions

How do I transition? Select an product name

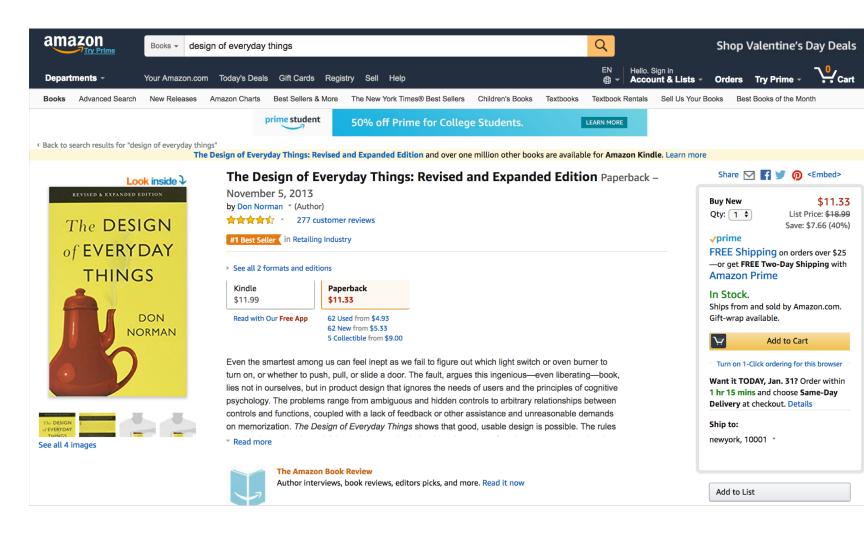


Goal: Decide if I'll buy "The Design of Everyday Things"

What **state** am I in? **Product info page**

What **options** do I have? Kindle/paper back, Look in book, reviews Add to cart

How do I **transition**? Add to cart OR Go back



Goal: Decide if I'm done.

What **state** am I in? "Add to cart" feedback

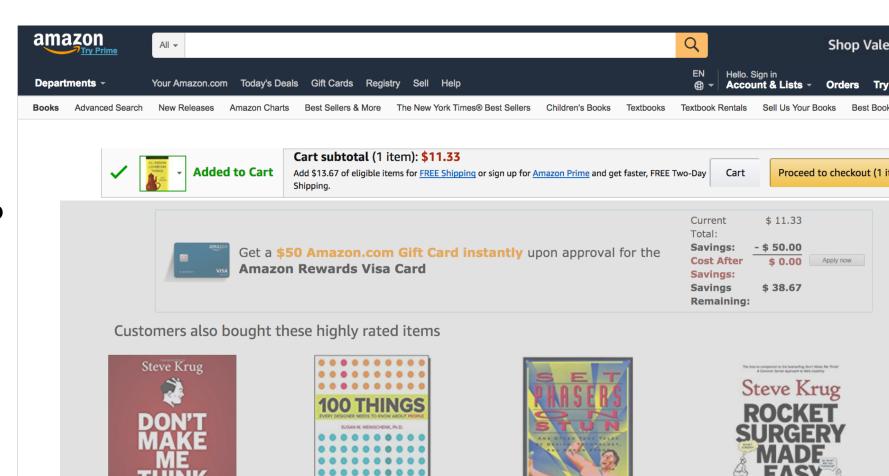
What options do I have?

Check out

See cart

Keep shopping

How do I **transition**? Click one of the options.



The Do-It-Yourself Guide to Findin and Fixing Usability Problems

Goal: Pay for it.

What **state** am I in? Enter payment

What **options** do I have? Which payment methods

How do I transition?

Press Continue

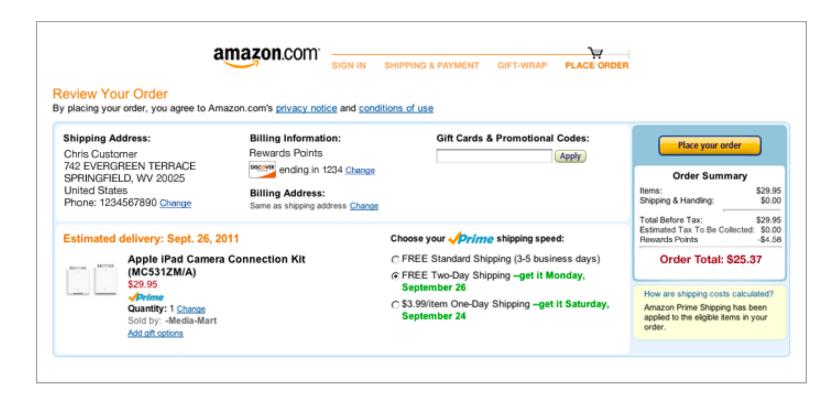
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|-------------------|--|--|
| | Secure Payment Info | |
| $\mathbf{\Omega}$ | | Continue |
| 2 | | You can review this order before it's final. |
| | Name (as it appears on your card) | |
| 5 | Bob Ross | |
| | Card number (no dashes or spaces) | |
| | 123412341234 | |
| | Expiration date | |
| | 01 - January ‡ 2013 ‡ | |
| | Security code (3 on back, Amex: 4 on front) 1234 | |

Goal: Buy it.

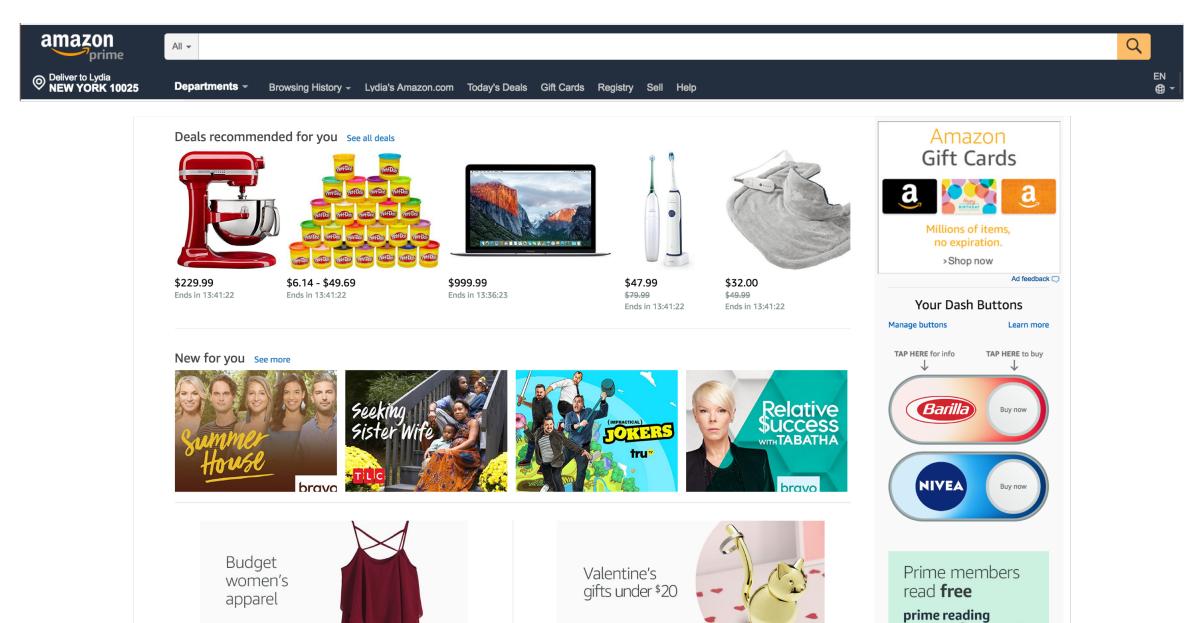
What **state** am I in? Review and place order

What **options** do I have? Shipping options, Change payment options

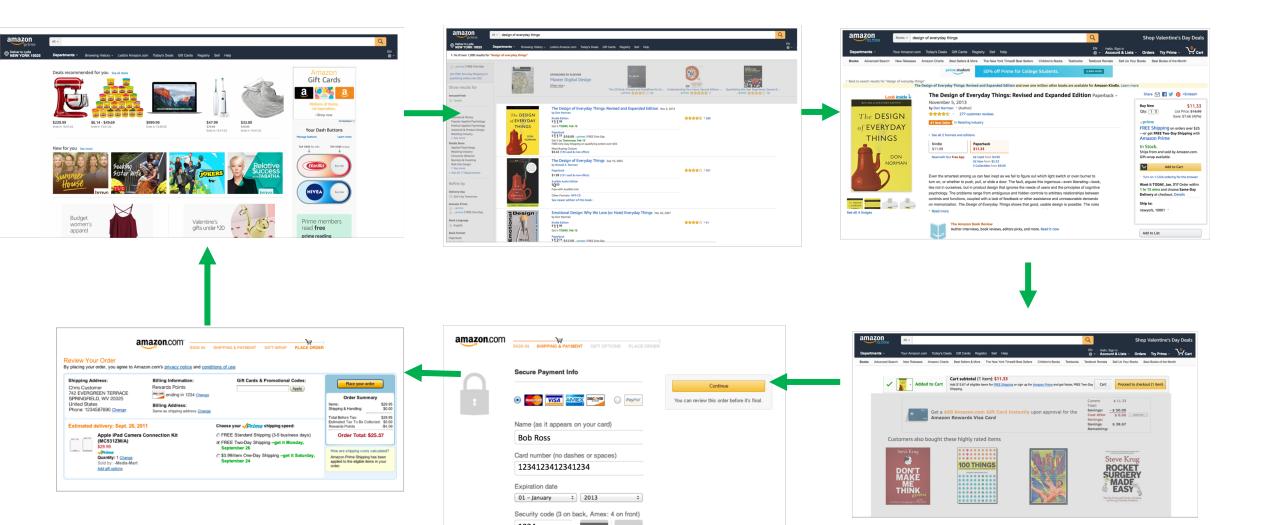
How do I transition? Press "Place your order"



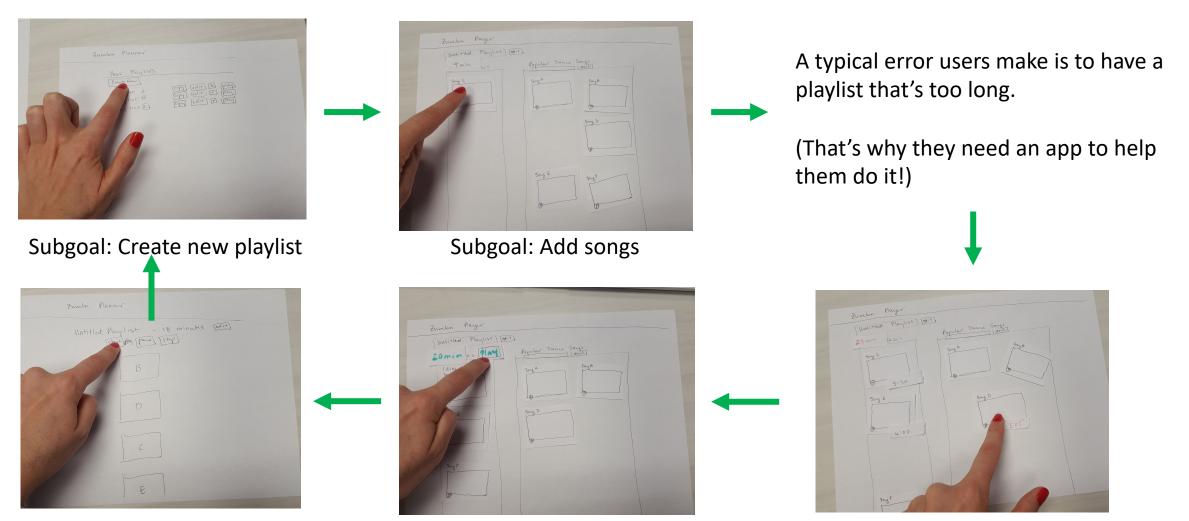
After I buy, what state do I transition to?



For complex goals, break the task into states, options, and transitions to new states.



States for the Zumba Playlist maker



Subgoal: Play the playlist

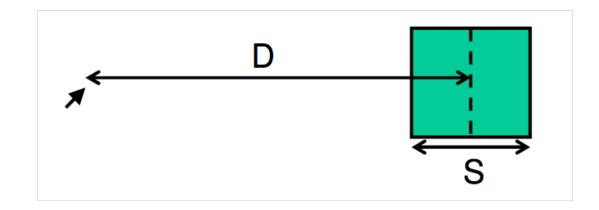
Subgoal: Finalize playlist

Subgoal: Remove songs when it's too long

Low-level Interaction

Presenting users with options, widgets, and clicks

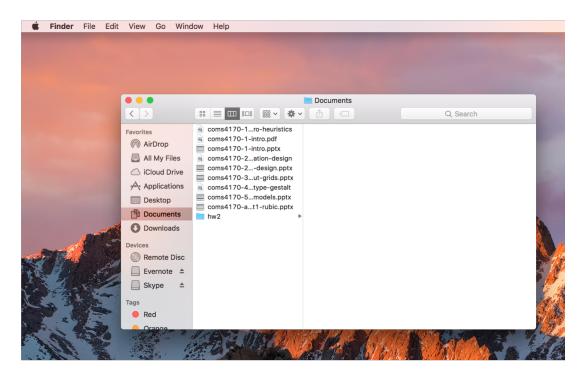
Time to move the pointer: Fitts' Law



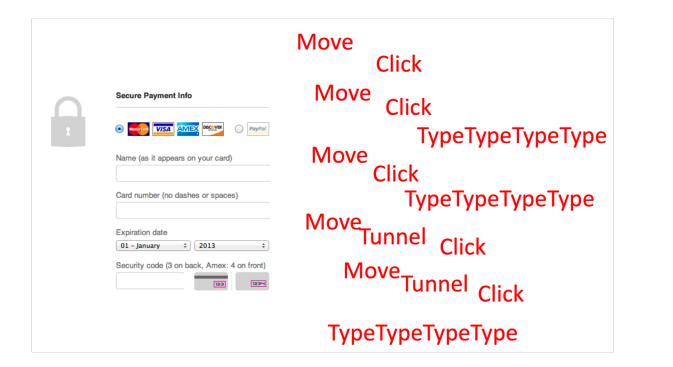
Time to move your pointer to a target

$$= a + b * \log\left(\frac{2D}{S}\right)$$

Buttons on the edges are fast to get to because they have infinite size

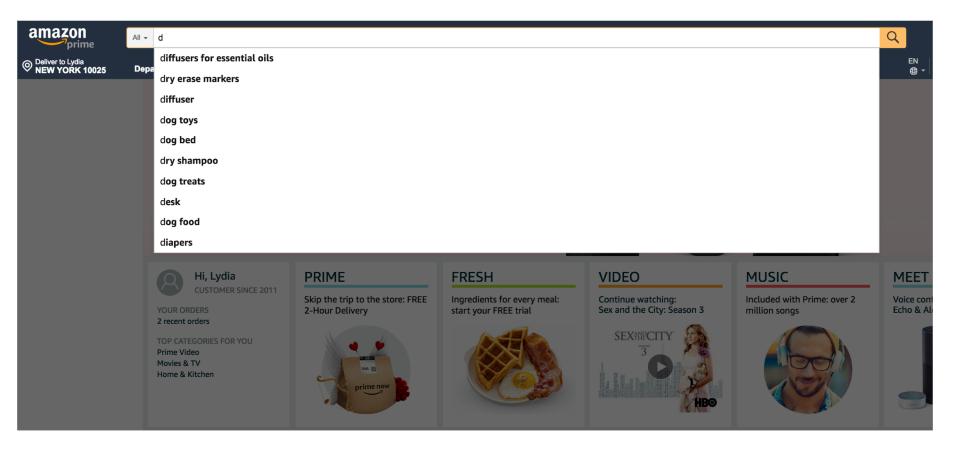


Every low-level action times time and effort. How could use improve it?





Product search: How many options are there?



Billions

Search Results: How many (relevant) options are there?

| amazon | All - design of ev | veryday things | | | | | | | | | C | Q | Q | Q | <u>्</u> |
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Other Formats: Paperback, Audio CD

Amazon Departments: How many options are

there?

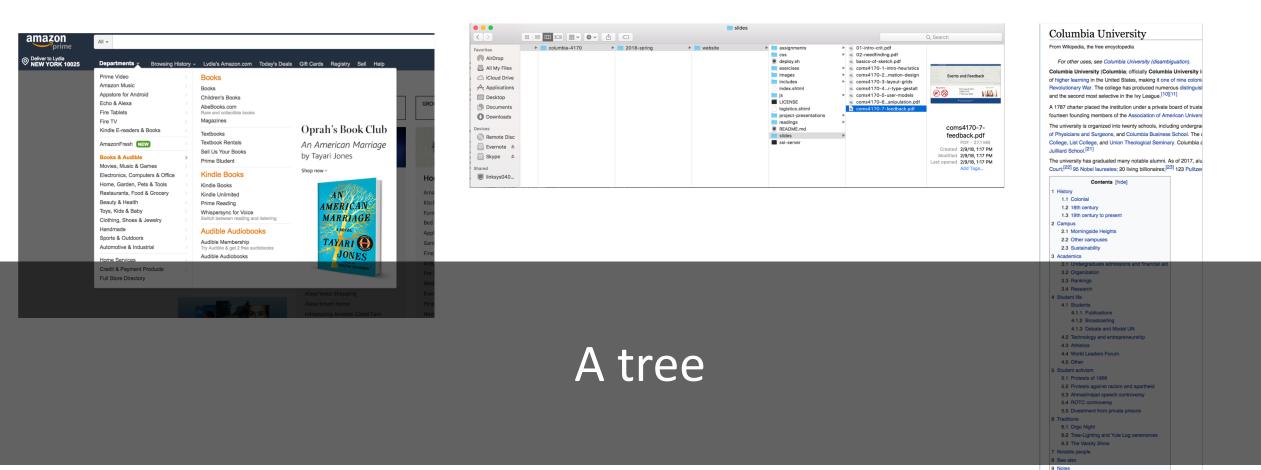
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About 100

When displaying ~10 options, how do you display them to suit the needs and abilities of people?

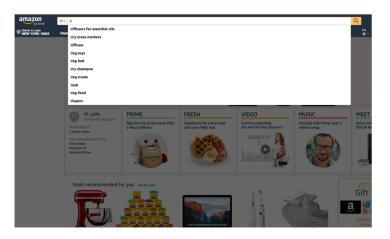
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When displaying ~100 options, how do you display them to suit the needs and abilities of people?



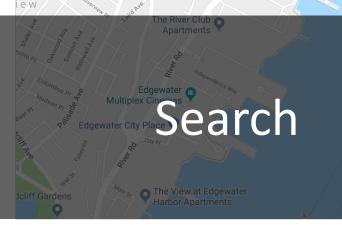
10 References 11 Further reading 12 External links

When displaying ~1000 options, how do you display them to suit the needs and abilities of people?



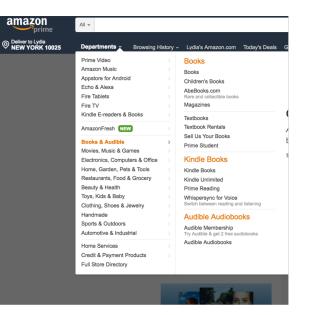
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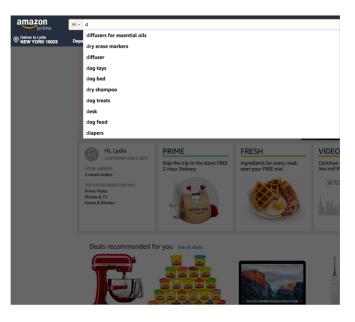
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When displaying options, the number of options determines the interaction style.

| prime | Jobginere | veryday things | | | _ | _ | _ |
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~10 items = list

~100 items = tree

~1000 items = search

Final Project Rubric

- Interaction:
 - High-level:
 - Are the users able to accomplish the goal?
 - Is the persona and goal specific enough to define who the target user is?
 - Mid-level:
 - Navigation:
 - Are there subgoals and interactions that help them accomplish it?
 - Does each state have a clear subgoal, options and transitions?
 - Feedback: do users learn from feedback and can they recover from errors?
 - Low-level:
 - Widgets: Are the correct widgets used? (lists/search/hierarchy, autocomplete)
 - Low level Interaction: Are they efficient for the user to execute? (target size, number of clicks)

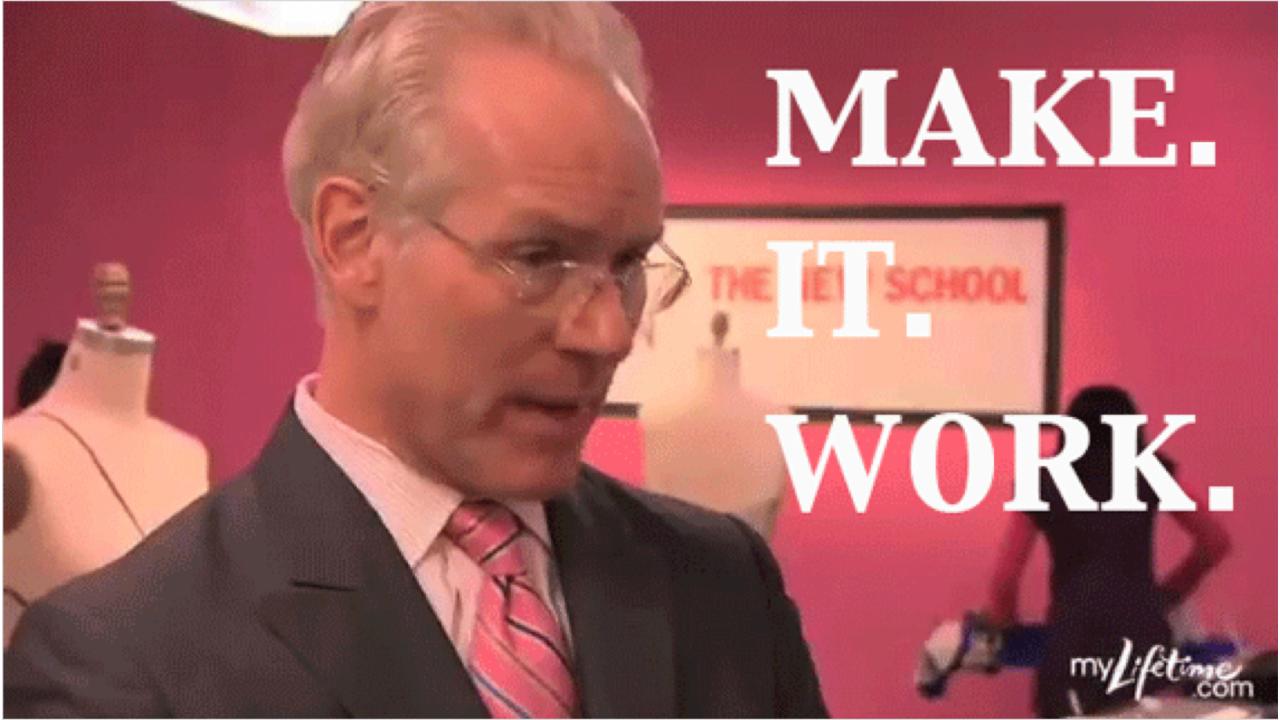
• Technical:

- Is there enough media to accomplish the goal?
- Do the technical elements work?
- Visual Information Design:



"I tried **silk chiffon**, but it didn't work."

"I tried the Google Object Detection, but it didn't work."



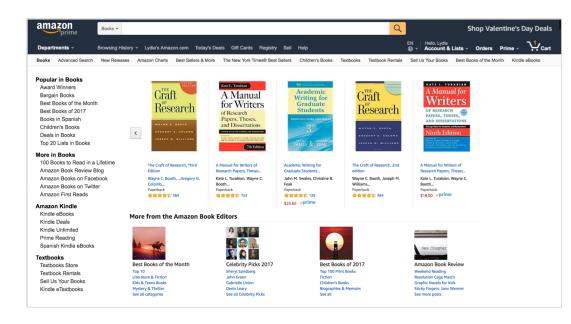
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- Technical:
 - Is there enough media to accomplish the goal?
 - Do the technical elements work?

• Visual Information Design:

- Does the interface guide users attention through the application?
 - **Primary:** Are there appropriate conceptual groupings?
 - Secondary: within groupings are the most important things emphasized in TWO ways, and less important things de-emphasied?

All sites display information

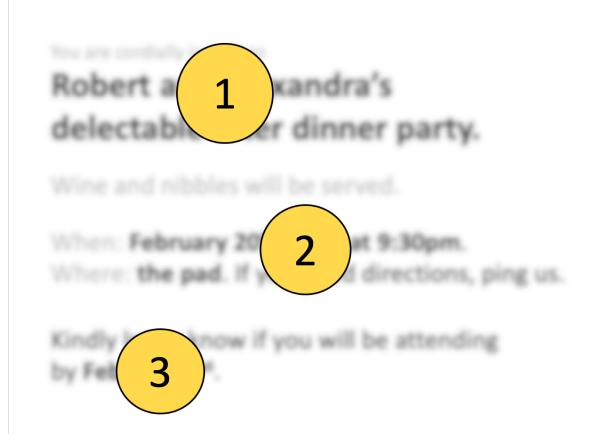


| What i | eCorrect Photography Tips s your Photography-Related New Year's Resolution?? tes ago · Like · Comment |
|--------------|--|
| 🖒 Ad | el Gomaa and Richard Schneider like this. |
| | Sadi Molloy get my business looking more professional: car signed: tick, makeing up portrait folders: tick, stickers & cd covers: still to do its getting there though. 11 minutes ago · Flag |
| IE CO | PictureCorrect Photography Tips My resolution for 2011 is to capture more landscape photos outside the U.S. and add more countries to my portfolio! What is yours? |
| | -Richard 11 minutes ago · Flag |
| AA | James Donnelly Larger concerts to cover and improve my portrait editing style/skill 10 minutes ago · Flag |
| | Jose Antonio Rubido To push my photpography foward full throttle 9 minutes ago • Flag |
| | |

| > C 🔒 https://mail.go | ogle.com/mail/u/0/#inbox | | | | | 🛞 🧖 Q 🏠 💽 🌉 |
|-----------------------------|----------------------------------|--------------------------|---|------------------------------|----------|--|
| Apps 🔛 Imported From Firefo | 🔛 Holiday Guide TVG 🛛 🎦 Web He | Ip Desk Pixabay - Free I | mag: 🖤 Tech Tools For Teach G Ap | ops Status Dashbo | | Cther Bookm |
| CHICAGO CALL | | | Loading | - Q | Jeffre | ay 🗠 III o 🕼 |
| Mail - | C N | Nore * | | | 1–14 of | 14 < > 🕸 - |
| COMPOSE | Primary | Social | Promotions | Updates | + | 🖉 • - 🕜 🖿 |
| Inbox (2) Sent Mail | 🗌 🚖 🕑 Baldwin, BPS (2) | Bloglovin' - | Not that I know of. Sometimes block | ed sites come in on a hug | 11:08 am | Search people Jed Givens |
| Drafts (54) Need to Read | 🗌 🐈 🕑 Feldmann, Ann | Fwd: 21st 0 | entury Classroom Visit? - Ann Fel | dmann District Technolog | 10:18 am | Ann Feldmann Ann Feldmann |
| Technology Coach | 🗌 🚖 💌 me, Lambert (2) | 8th Period - | Hey, Jeff. I am planning on doing the | Mystery Hangout lesson | 8:05 am | Cadwallader, Julie |
| More - | 🗆 🌟 💌 me | (no subject) | Jeffrey Bernadt District Technolo | gy Specialist Bellevue Pu 🕳 | Jan 12 | Christopher Kessell Courtney Saffold |
| | 🗌 🚖 🝺 me, Braasch, Klam | m (3) Visitation & | Observation Request - Good morning | g! The second semester is | Jan 12 | Jeanette Carlson |
| | 🗌 🛨 💌 me, Cox (2) | Bri Cox - Co | aching Doc - Invitation to edit - Jeff, I | I finally was able to read a | Jan 12 | Johnson, Stephanie Kelly Bernadt |
| | 🗌 🛨 💌 Tripple, Todd | 3D Printer - | Hello Amy, I received some informati | ion from a 3D printing exp | Jan 11 | Loomis, Phillip |
| | 🗌 🛨 🗇 donotreply | Education P | review Build Notice - & AppleSeed B | uild Notice Education Pre | Jan 11 | Robert Mason Shannon Gier |
| | 🗌 🛨 💿 🛛 Ann Feldmann | Fwd: [New p | ost] What "Innovative Leadership" Lo | ooks Like - A good read! :- | Jan 11 | Todd Tripple Toledo, Julian (Delor. |
| | 🗌 🚖 💌 me, Campbell (7) | Khan Acade | my Issues - It kept repeating that "ch | anged password 7 month @ | Jan 8 | Tolodo, sullar (Bolor. |
| | 🗌 🚖 🕑 Toelle, me (3) | 6 Word Stor | ies - Hey Jeff! We just returned from | lunch, but still have quite | Jan 8 | |
| | 🗌 🚖 💌 me, Evon (4) | Request to V | /isit on Thursday AM - Hi Jeff, Happy | New Year! We would lov | Jan 6 | |
| | 🗌 ☆ 🍺 Jeffrey Bernadt | Shared from | Twitter: What teachers need to know | w about multicultural educ | 12/23/15 | |
| | | | | | | |

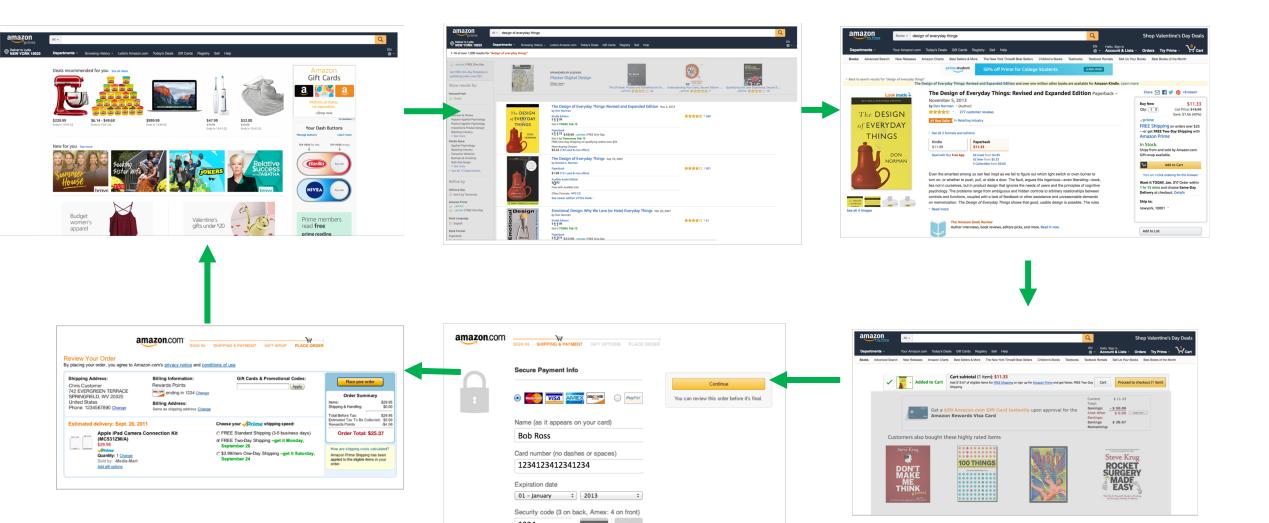
| U | | | | | | | |
|-----------------------------------|--|--|-----------------------------------|-------------------------------------|---------------------|--------------------------------------|--|
| post to classifieds | | communi | ity | | housing | iobs | bakersfield |
| my account | | activities local news artists lost+found | | | | | chico |
| - | | | | apts / housing | | accounting+finance admin / office | fresno |
| search craigslist | | | | housing swap | | | gold country |
| search | childcare musicians | | housing wante | | arch / engineering | hanford | |
| | classes | pets | | office / comm | | art / media / design | humboldt |
| event calendar | events politics general rideshare groups volunteers personals | | | parking / stora | | biotech / science | inland empire klamath falls las vegas los angeles |
| MTWTFSS | | | | real estate for | | business / mgmt customer service | |
| 15 16 17 18 <mark>19 20 21</mark> | | | | rooms / share | - | | |
| 22 23 24 25 26 27 28 | | | | rooms wanted | | education | medford |
| 29 30 31 1 2 3 4 | 3 4 perso | | IS | sublets / temp vacation renta | | food / bev / hosp | mendocino co |
| 5 6 7 8 9 10 11 | strictly pla | strictly platonic | | | ls | general labor | merced |
| | women se | ek women | | | | government | modesto |
| | women se | women seeking men | | | for sale | human resources | monterey |
| help, faq, abuse, legal | men seek | men seeking women men seeking men misc romance | | antiques free | | internet engineers | orange co |
| avoid scams & fraud | men seek | | | appliances furniture | furniture | legal / paralegal | palm springs |
| and the first stars | misc rom | | | | garage sale | manufacturing | redding |
| personal safety tips | casual encounters missed connections rants and raves | | atv/utv/sno ger auto parts hea | general heavy equip household | marketing / pr / ad | reno | |
| terms of use new | | | | | medical / health | roseburg sacramento | |
| privacy policy | | | | | nonprofit sector | san luis obispo | |
| | | discussion forums | | | iewelry | real estate | santa barbara |
| system status | dise | | | beauty+hith | materials | retail / wholesale | santa maria |
| | | | | bikes | motorcycles | sales / biz dev | siskiyou co |
| about craigslist | apple | help | photo | boats | music instr | salon / spa / fitness | stockton |
| | arts atheist | history | p.o.c. | books | photo+video | security | susanville |
| craigslist is hiring in sf | autos | housing jobs | politics | business | rvs+camp | skilled trade / craft | ventura |
| craigslist open source | beauty | iokes | queer | cars+trucks | sporting | software / qa / dba | visalia-tulare |
| craigslist blog | bikes | kink | recover | cds/dvd/vhs | tickets | systems / network | yuba-sutter |
| | celebs | legal | religion | cell phones | tools | technical support | us cities |
| best-of-craigslist | comp | linux | romance | clothes+acc | | transport | us states |
| craigslist TV | crafts | m4m | science | collectibles | toys+games | ty / film / video | canada |
| "craigslist joe" | diet | manners | spirit | | trailers | web / info design | |
| | divorce | marriage | sports | computers | video gaming | writing / editing | cl worldwide |
| craig connects | dying | media | tax | electronics farm+garden | wanted | [ETC] | |

Users have a spotlight of attention.



Use a visual information hierarchy to guide users' attention

Every subgoal should have visual information design to guide users through it



Seven tools for visually indicating importance

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

Wine and nibbles will be served.

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

Kindly let us know if you will be attending by February 1st.

Conceptual grouping

| Priority 1 | Prior | ity 2 | Priority 3 |
|------------|-------|-------|------------|

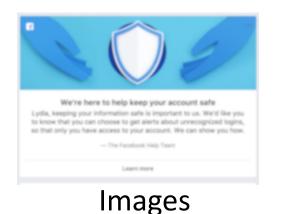
Location





Whitespace

Size



Robert and Alexandra's delectable after dinner party.

Wine and nibbles will be served

A The arrest provided does not appear to be valid

Contrast

Color

Use multiple tools. Use color last.

Use size, whitespace and contrast instead.

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Final Project Rubric

- Interaction:
 - High-level:
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 - Is the persona and goal specific enough to define who the target user is?
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 - Does each state have a clear subgoal, options and transitions?
 - Feedback: do users learn from feedback and can they recover from errors?
 - Low-level:
 - Widgets: Are the correct widgets used? (lists/search/hierarchy, autocomplete)
 - Low level Interaction: Are they efficient for the user to execute? (target size, number of clicks)

• Technical:

- Is there enough media to accomplish the goal?
- Do the technical elements work?

• Visual Information Design:

- Does the interface guide users attention through the application?
 - **Primary:** Are there appropriate conceptual groupings?
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Examples



Minor Third



Step 1: Listen

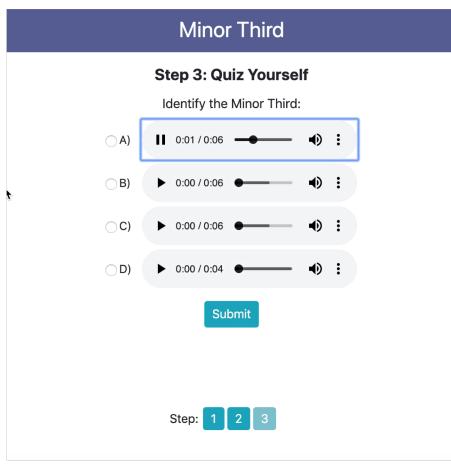


A Minor Third has 3 half steps between the lower note and the higher note. Try counting the number of lines and spaces between the two notes on the image above.

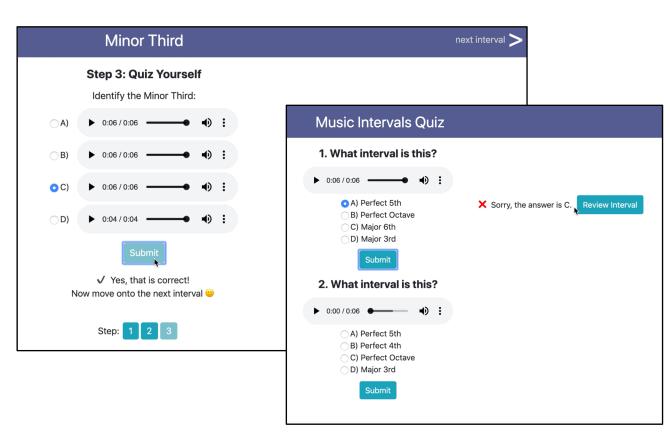
The "minor" quality indicates that this interval comes from the minor scale of its lower note, and that the interval sounds slightly dissonant or unhappy.



I like...

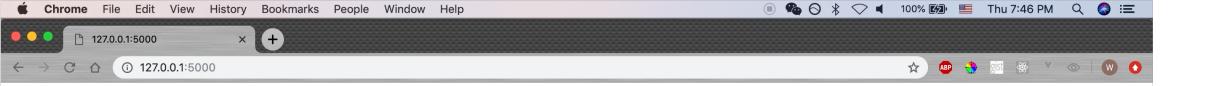


For me..., what if...



I like that there are intermedia quizzes to help me test my knowledge as I learn it.

For me, the navigation wasn't a little constraining, What if you gave user more control for how to get back and forth between intervals?



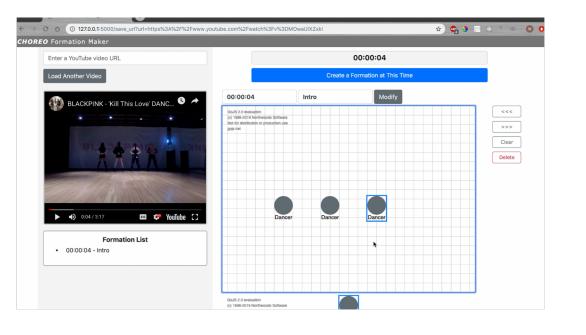
CHOREO Formation Maker

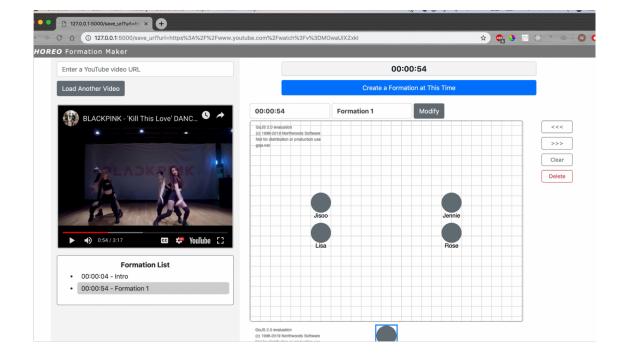
Load a YouTube video. Create formations for your choreography.

https://www.youtube.com/watch?v=MOwaUIXZxkI

I like...

For me..., what if...





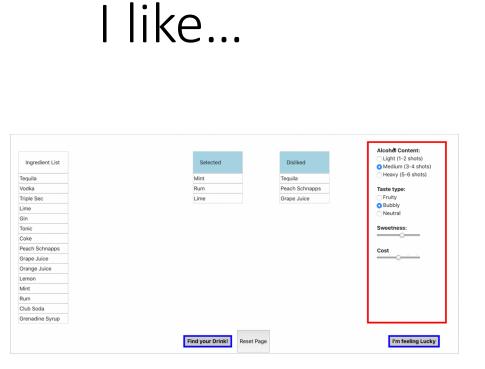
I liked how easy it was to map out the formation. You can see the video, and drag, circles, and name them.

For me, it didn't quite feel done, or like I'd reached my goal.

What if when you're done you could see all the formations in a list?

 $\leftrightarrow \rightarrow$ C \triangle (i) 127.0.0.1:5000

| Ingredient List Fequila | | Selected | Disliked | Alcohol Content: Light (1-2 shots) Medium (3-4 shots) Heavy (5-6 shots) |
|----------------------------|---|----------|----------|--|
| /odka | | | | Taste type: |
| Friple Sec | | | | |
| lime | | | | Bubbly |
| Gin | | | | ◯ Neutral |
| Tonic | | | | Sweetness: |
| Coke | • | | | |
| Peach Schnapps | | | | Cost |
| Grape Juice | | | | |
| Drange Juice | | | | |
| emon | | | | |
| Иint | | | | |
| Rum | | | | |
| Club Soda | | | | |
| Grenadine Syrup | | | | |



I like the interaction of dragging ingredients

For me..., what if...

| Ingredient List | Ingredient Info |
|-----------------|----------------------|
| Tequ | Tequila |
| Vodka | It has |
| Triple Sec | the |
| Lime | flavor |
| | of |
| Gin | Agave |
| Tonic | and |
| Coke | alcohol. |
| Peach Schnapps | If it is aged |
| Grape Juice | it can |
| Orange Juice | also |
| Lemon | have a fruitiness |
| Mint | and |
| Rum | richness. |
| Club Soda 🕻 | lose |
| Grenadine Syrup | |

For me, it was a little hard to read.

What if we used more media and information design here?

Drink: Mojito



Drink details: Mojito is a traditional Cuban hi mint.[1][2] Its combination of sweetness, citr

Ingredients: ['Rum', 'Lime Juice', 'Mint', 'Sug

For me, this output is a little mysterious.

Maybe you could tell me why I'll like this, and give me a ranked list in case I want to change my preferences a little?

ASL for Kids! Learn Mode Quiz Mode

Click around the classroom to learn the signs!

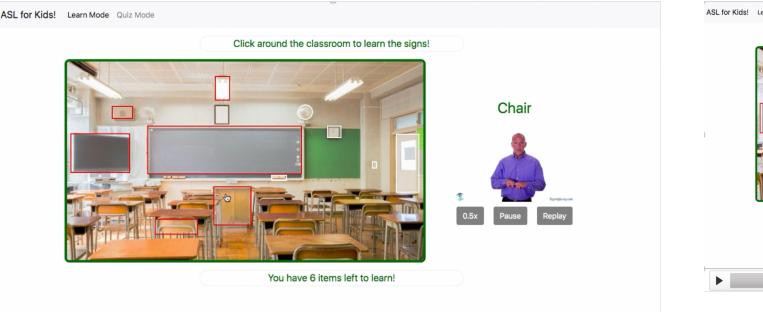


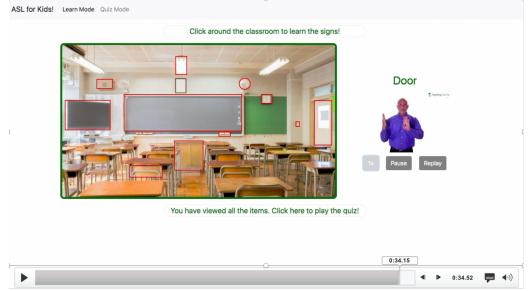
You have 11 items left to learn!



I like...

For me..., what if...



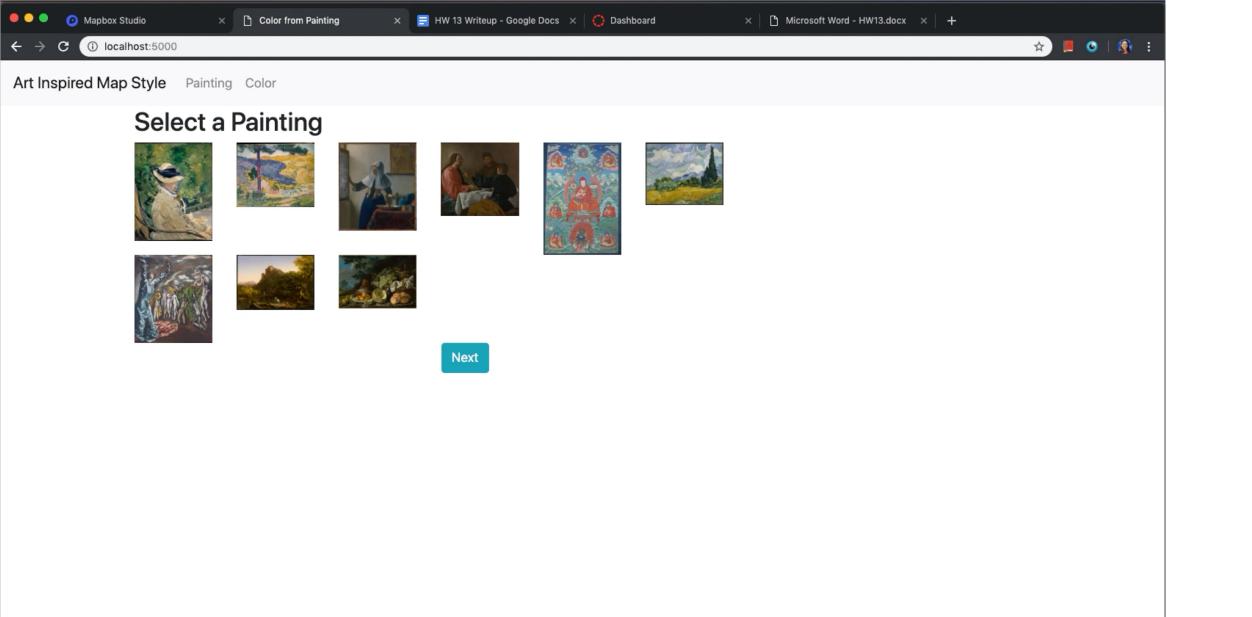


I like the interaction of clicking on the objects, And the feedback about how many items left is good.

It gives me a lot of user control and freedom. (but still guides me with feedback)

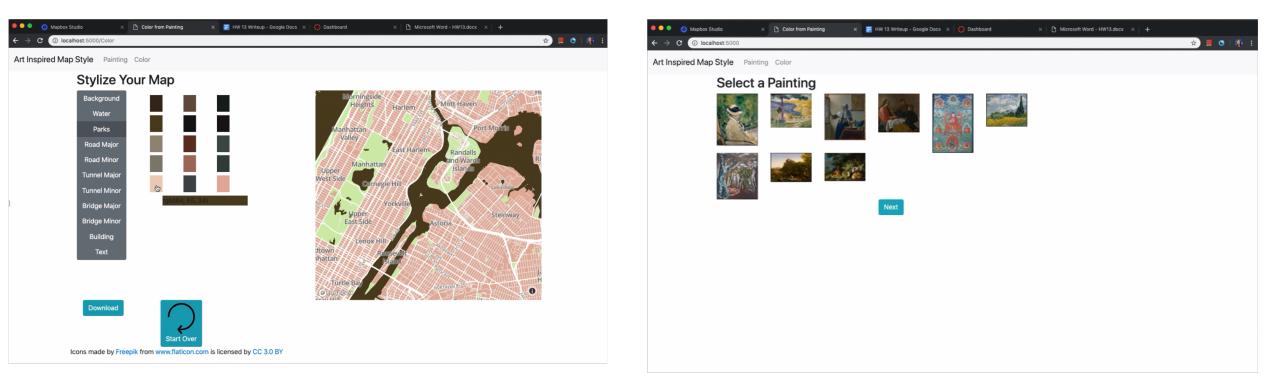
For me, I wasn't sure if I learn them.

What if we had a quiz.



I like...

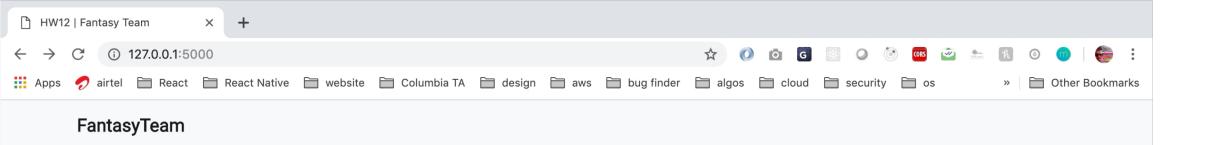
For me..., what if...



The immediate feedback you get when you pick colors And see them on the map.

I can easily tell when two colors are unreadable together (and I can easily fix it)

For me, it was unclear what this site was about. What if you gave more cues to why I'm selecting a painting

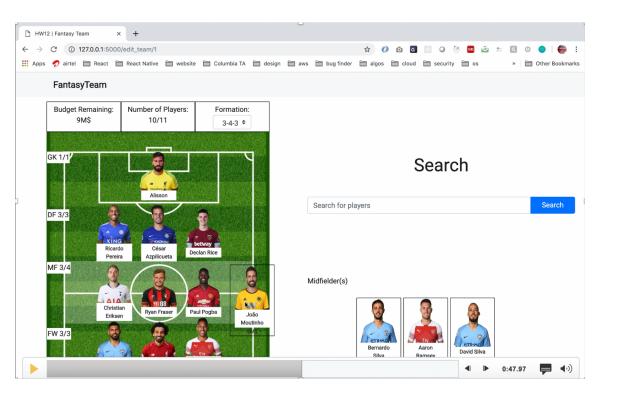


.

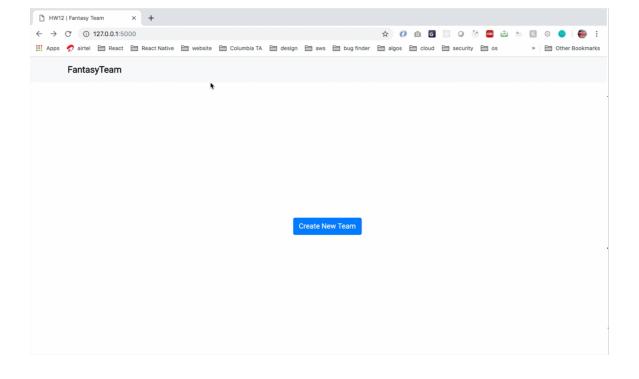
Create New Team

I like...

For me..., what if...



I like the interaction of dropping players into their position



For me, it was unclear what this site is about.. What if you gave more cues to what the starting state is.

Final Project Rubric

- Interaction:
 - High-level:
 - Are the users able to accomplish the goal?
 - Is the persona and goal specific enough to define who the target user is?
 - Mid-level:
 - Navigation:
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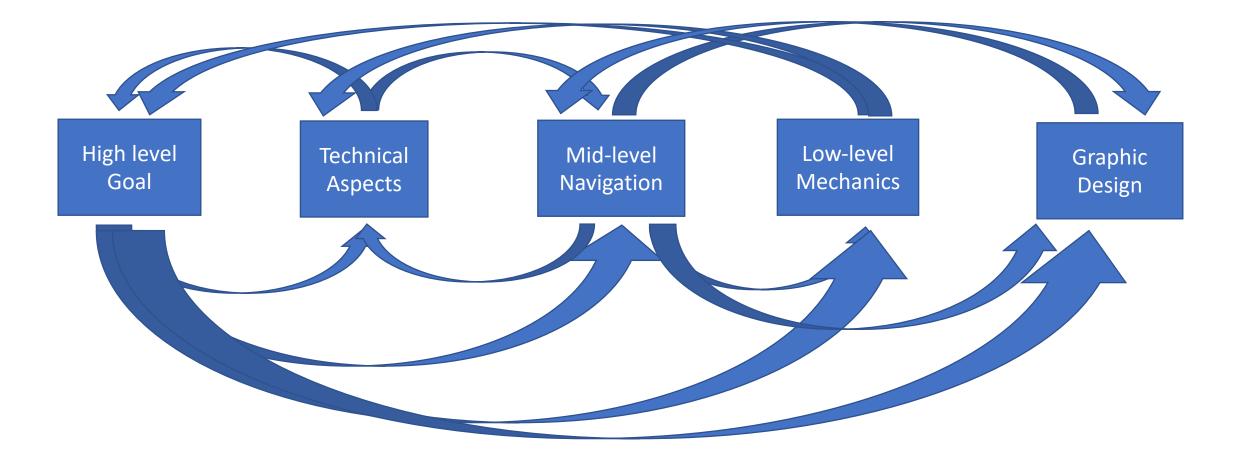
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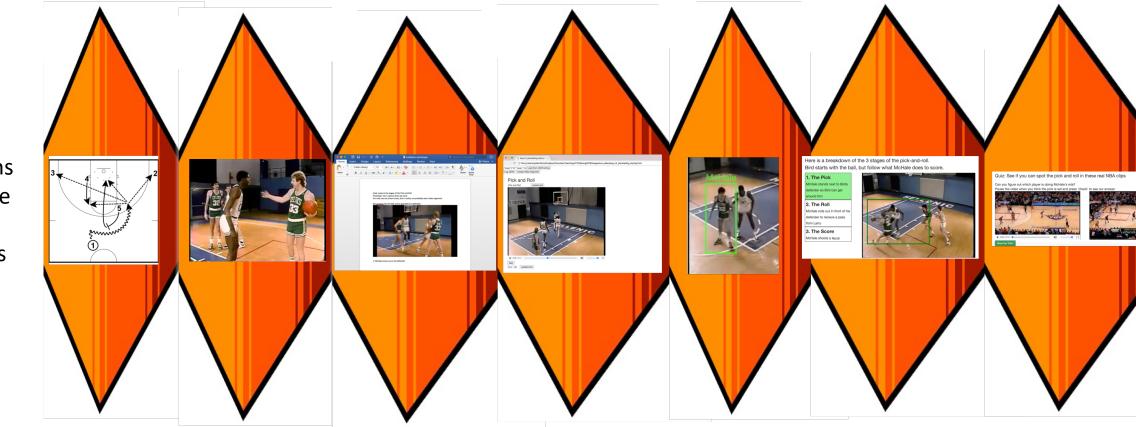
Is design really this hard?

Or are we just stupid?

Design is hard because requires combining many elements that are dependent on each other.



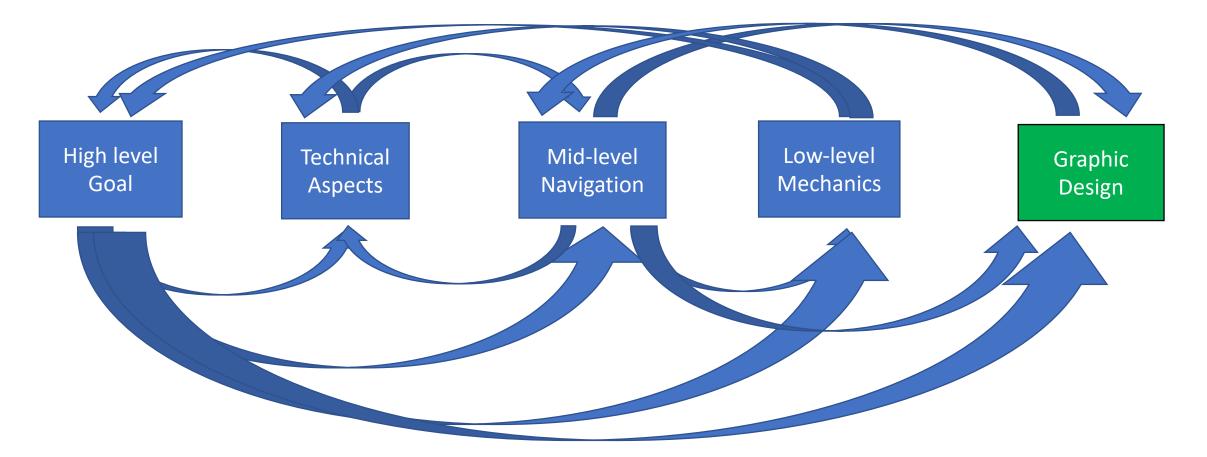
Design requires synthesizing many elements that are completely dependent on each other.



Idea Resources Design Technical Design Idea Design

Idea: Help NBA fans Recognize the strategy during games

Graphic design is the final step for designers. Why?



But what do users perceive first? Graphic Design

Is that everything I need to know to be the next tech unicorn?

Market Research Is there an **audience** I can research that will **pay** for this?

| Search: pe 080 | | Course P | Save Clear All | |
|------------------|-----------------|-------------|----------------|--------------|
| PE 080A | Units 373 ►► | Fall | Winter | Spring |
| Health Advocates | 313 11 | | | |
| 1-1-1 | | Ec 011 | Hum/PI 008 | APh/EE 009B |
| Stapf Fall | | APh/EE 009A | Ph 008B | Ge 001 |
| • | | PE 099 | PE 087B | |
| PE 080B | | Units:42 | Units:42 | Units:39 |
| Health Advocates | Sophomore | PE 099 | Hum/H 003B | Bi 001 |
| 1-1-1 Stapf | | Ma 002 | Ma 003 | PI/HP \$ 183 |
| Winter | | Ph 002A | Ph 002B | Ph 002C |
| PE 080C | | EE 044 | EE 045 | EE 040 |
| Health Advocates | | EE/CS 051 | EE/CS 052A | EE/CS 052B |
| 1-1-1 Stapf | | | | |
| Spring | | Units:45 | Units:48 | Units:42 |
| T | Junior | PE 099 | ACM 095A | ACM 095B |
| | | EE 111 | P \$ 141A | EE 151 |
| | | EE/MedE 124 | EE 001 | EE 090 |
| | | PE 080A | EE 112 | En 128 |

Specific user need:

A student at Columbia trying to pick classes that don't conflict

| BIO001 Test Course 1 🛕 🚢 | Select Meeting | I | |
|--|------------------|-----------------|----------------|
| | Selectivieeting | Pattern For BIC | 0002 |
| BIO002 Test Course 2 | Q Start typing | | |
| BIO1300 General Biology I 😑 🛕 | Mo, We, and Fr 9 | :00 AM-9:50 AN | A A |
| BIO2200 Developmental Biology | ATTRIBUTES | USAGE | PREFERENCE FIT |
| BIO5100 Microbiology In Health And Disea | Non-Prime Time | 0 | 100% |
| BIO5300 Ecology | Mo, We, and Fr 1 | 0:00 AM-10:50 | AM 🔳 |
| | ATTRIBUTES | USAGE | PREFERENCE FIT |
| BIO6100 Research Methods | Prime Time | 2 | 99% |

Specific user need:

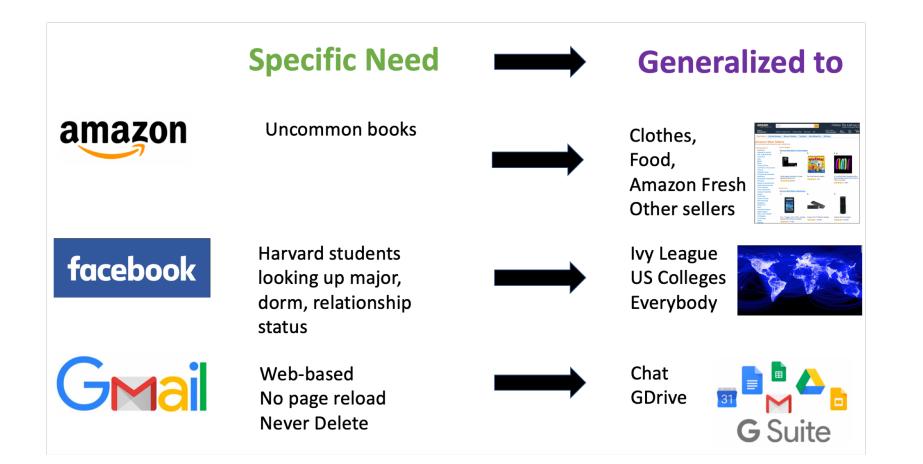
The Columbia Law School Registrar finding the right size classrooms to schedule all their classes

Coursedog

Justin Wenig, COMS 4170 Spr 18

| crunchbase | Solutions ~ Product | ts ∽ Resources ∽ | Pricing | Q | Search Crunchbase | | | |
|-------------------|----------------------------------|------------------------------|--|--------------------|---------------------------------|------------------|--|--|
| 🕫 Crunchbase Pro | 🛅 Coursedo | g | | | | | | |
| SEARCH | < Overview Ur | nlock Charts Funding F | Rounds Investors | Related Hubs | Website Tech Stack by BuiltWith | Web Traffic by S | | |
| People | Overview | | | | | ~ | | |
| ঃ Investors | | | | | | | | |
| \$ Funding Rounds | Total Fundin | g Amount | \$1M | CB Rank (| Company) | 6,647 | | |
| >> Acquisitions | | | | | | | | |
| 🕏 Schools | _ | Coursedog | | | | | | |
| 🖬 Events | | - | og automates administrative tasks for universities, starting with course scheduling. <, New York, United States | | | | | |
| 💢 Hubs | | | | | | | | |
| Q My Searches | Categories | | nformation Systems, Pr | | , Software | | | |
| ≔ My Lists | Headquarters Region Founded Date | ons Greater Ne Mar 14, 20 | w York Area, East Coas | t, Northeastern US | | | | |
| | Founders | Justin Wer | | | | | | |
| 📜 Marketplace | Operating Status | Active | | | | | | |
| ① Add New Profile | Funding Status | Seed | | | | | | |
| | Last Funding Type | Seed | | | | | | |
| | Number of Employe | ees 11-50 | | | | | | |

If you start general, you may never start.



If you start specific, you can usually generalize later.

Don't get stuck.

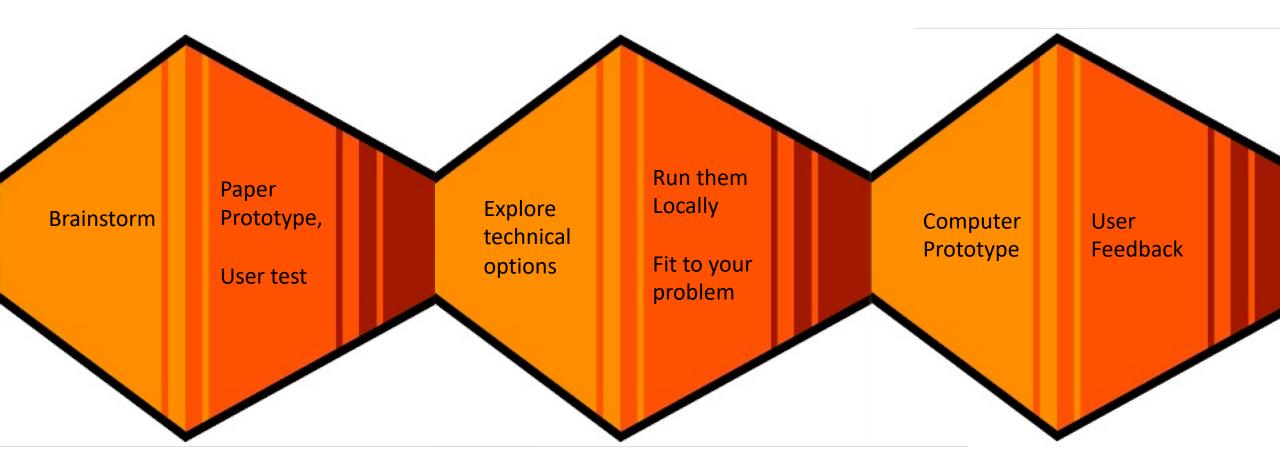
Have more ideas.

Flare and focus: **Explore** many options, **test** them to decide.

Web app ideas



Sequential Flare and Focus



Ideas

Technical Elements

User Interface

Brainstorming: The idea itself is risky. So we have many ideas before picking one.



Don't get too attached to one idea.





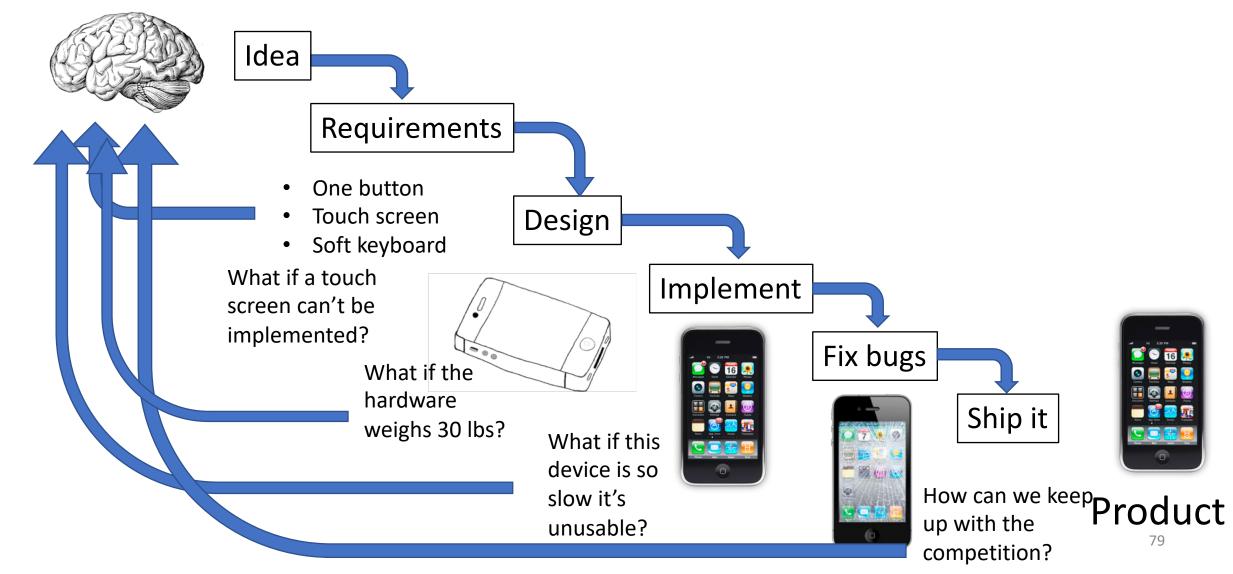
You are not your idea

You are an idea machine.

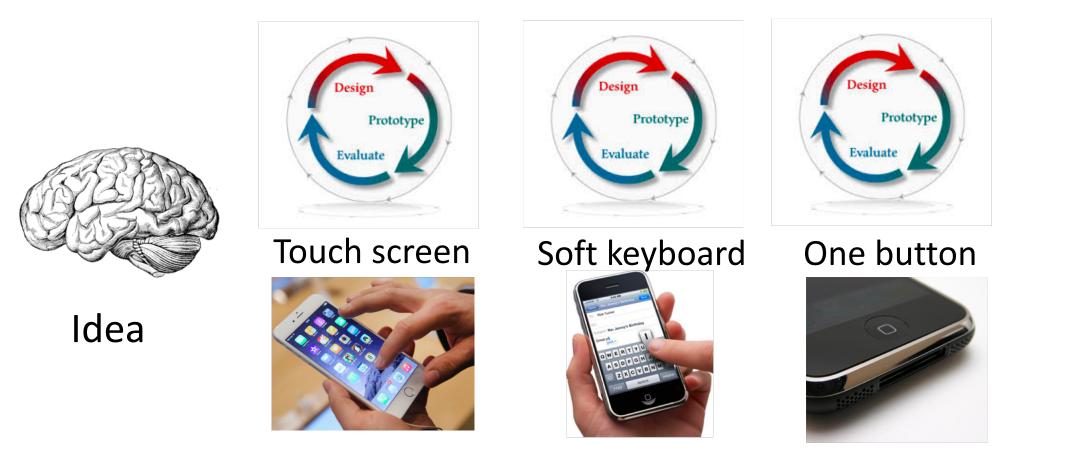
Perfection is impossible.

Iterate to add value and mitigate risk

The Waterfall Model assumes all the the steps will work perfectly. They wont'.



Iterative Design adds value one step at a time by iteratively testing risking features





Advanced Web Design Studio

COMS 6998 · Fall 2018

Home Syllabus

Goals

1. Master front-end and back-end technologies for making interactive websites.

2. Discover specific user needs by developing a low-level, mechanical model of human behavior.

3. Practice iterative design to meet specific user needs.

| Prof. Lydia Chilton |
|-----------------------------|
| OH: Tuesdays 4-5, CEPSR 612 |

INSTRUCTOR

Please contact staff through Piazza only

TAS

Katy Gero OH: Wed 2:30-3:30, CEPSR 603

Savvas Petridis OH: TBA, CS OH room

WEEKLY SCHEDULE

Lecture Friday 2:10–4pm in Mudd 337 (also known as the Engineering Terrace)

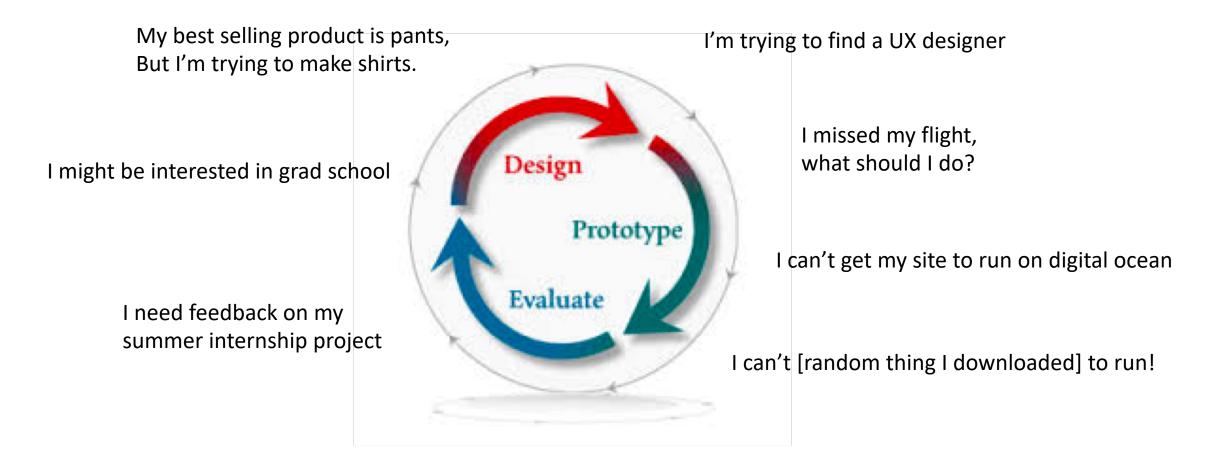
TEACHING METHOD

This is a studio style class in the tradition of art and architecture. Students are expected to already know the fundamental techniques. We will practice these techniques as well as give and recieve critique on a weekly basis. Attendance is mandatory. Any absence, excused or otherwise, must be made up

Piazza

Lastly,

You have always got me.



chilton@cs.columbia.edu