

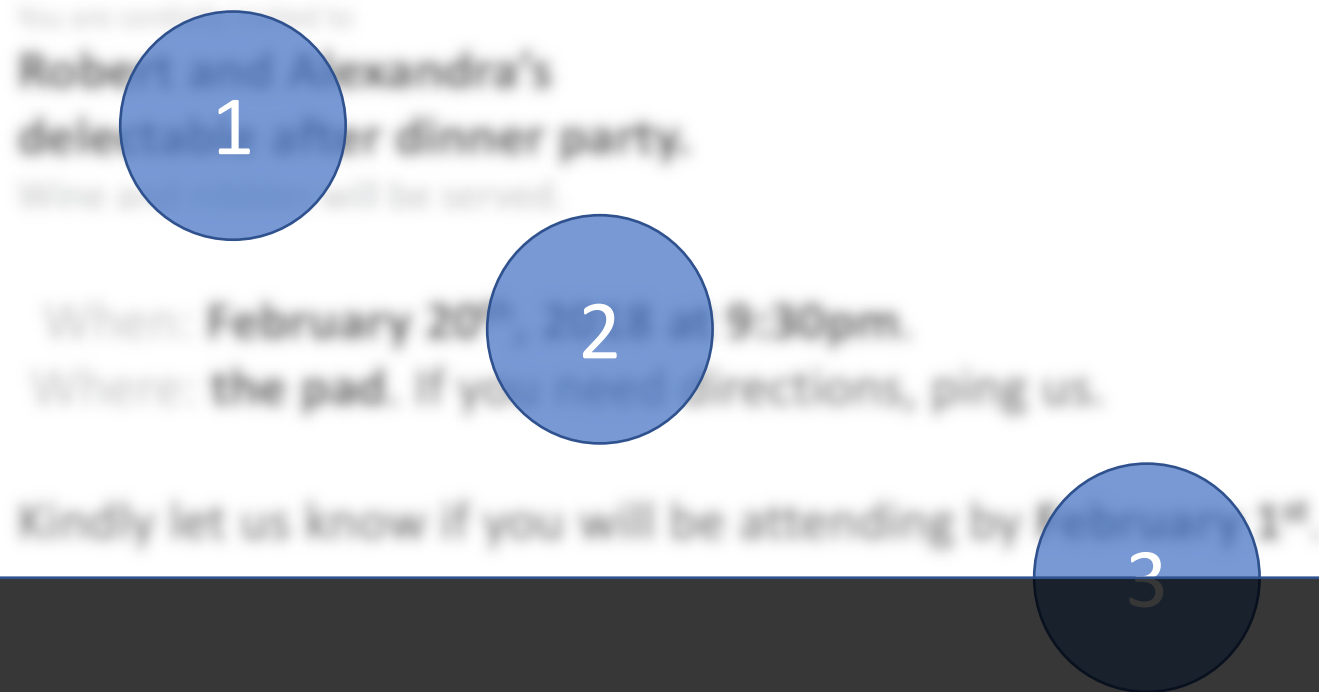
Menus and Navigation

Prof. Lydia Chilton
COMS 4170
14 February 2022

Raise your hand or type in zoom



Users can't focus on everything at once.
They have a spotlight of attention.



The design must **guide users' attention.**

Feedback:

Communicate

full and continuous information about
the results of an action and
the **current state of the system**

to help people achieve their goal

Even low-level events have full and continuous feedback about actions and states



Click!
Depress!

Normal state

COMPOSE

Mouseover

COMPOSE

Mousedown

COMPOSE

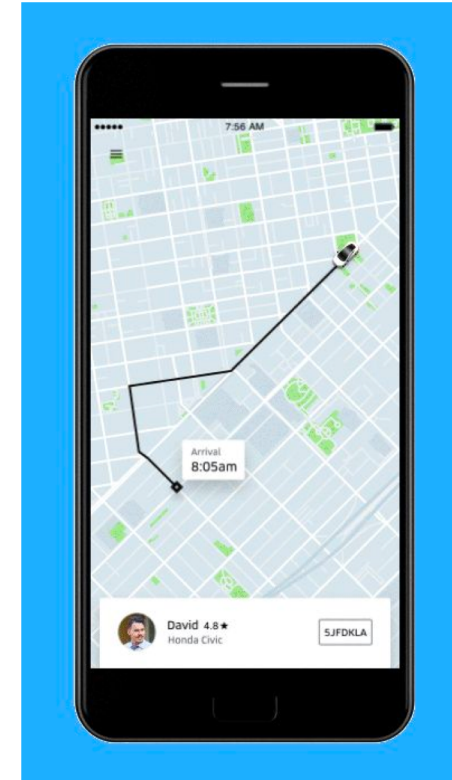
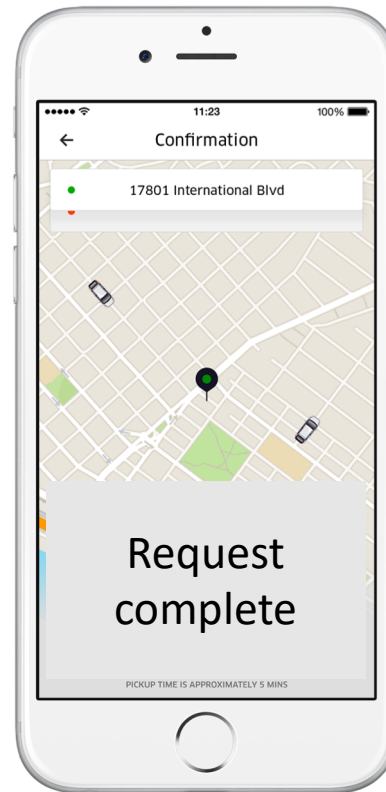
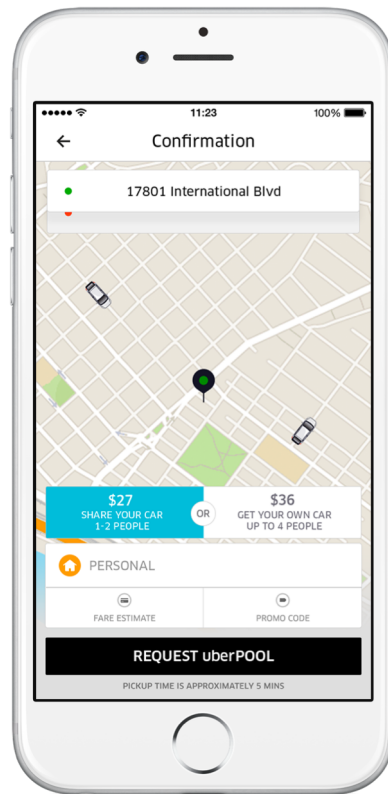
Mouseup

COMPOSE

Normal state

COMPOSE

What goes wrong when feedback acknowledges the action but **does not communicate the new state**?

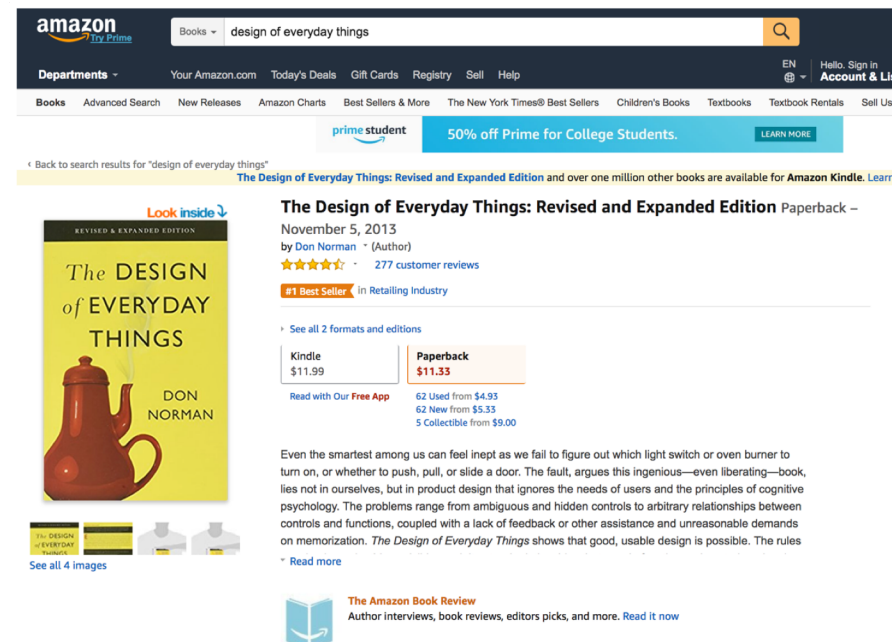


Thought: Users will think they are still in the old state.

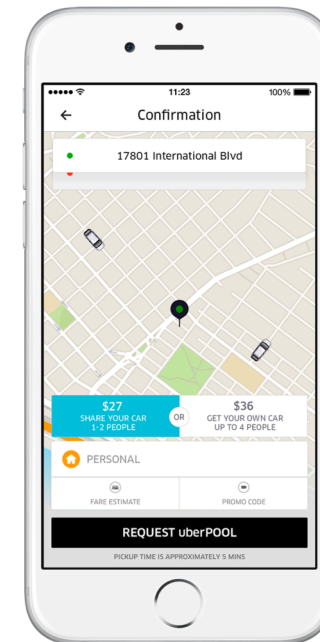
Action: Users will continue to perform actions from the previous state

We are designing applications that help people achieve fairly complex goals.

Buy a book



Hail a cab to JFK



Can we put it all the information on one big page?

But for complex tasks, there is too much information to fit in one screen.

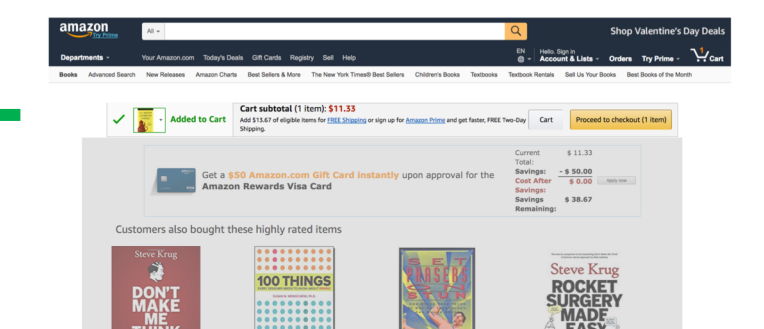
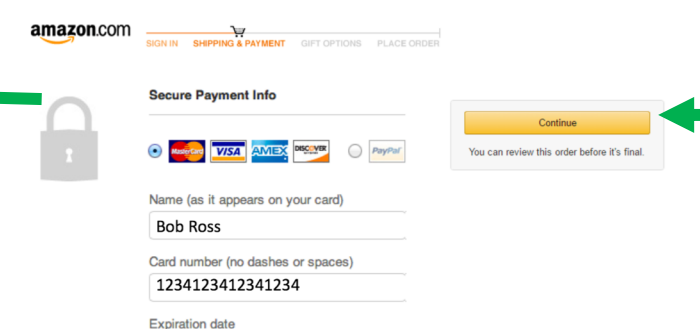
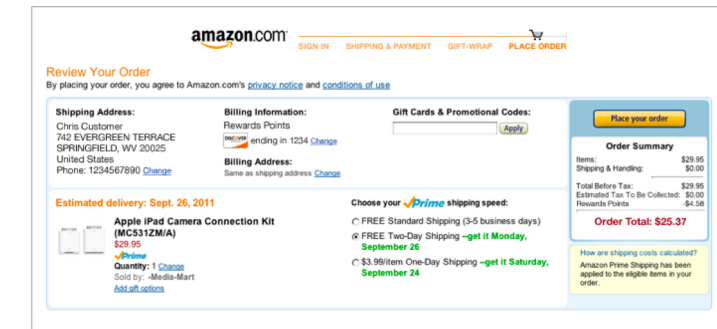
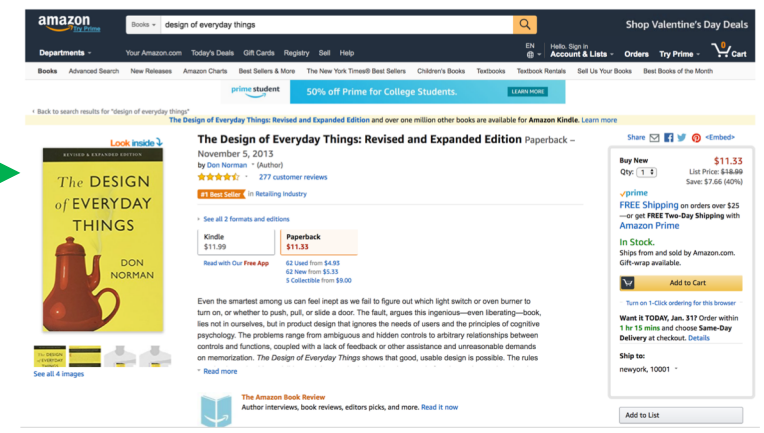
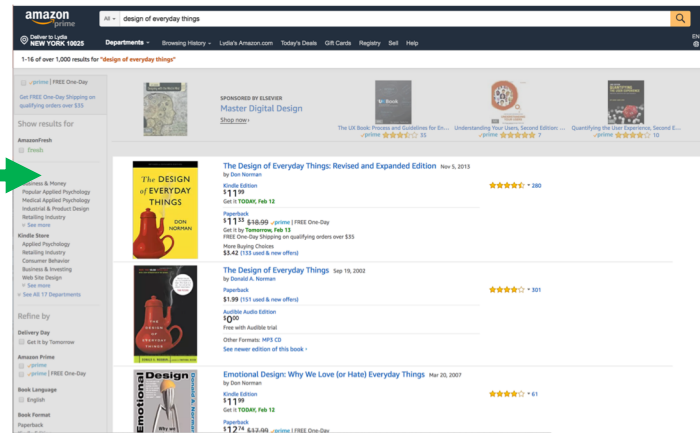
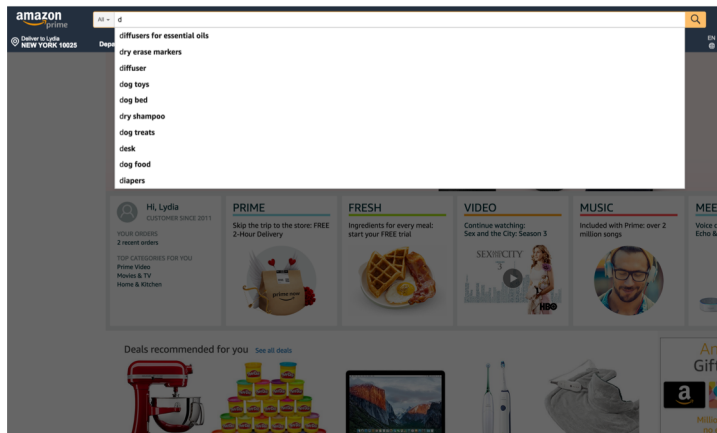
Buying a book on Amazon:

- Search for the book
- Select the edition
- See the reviews
- Look at the index
- How many pages does it have?
- Put it in your cart
- Shop around for other things
- Select a payment method

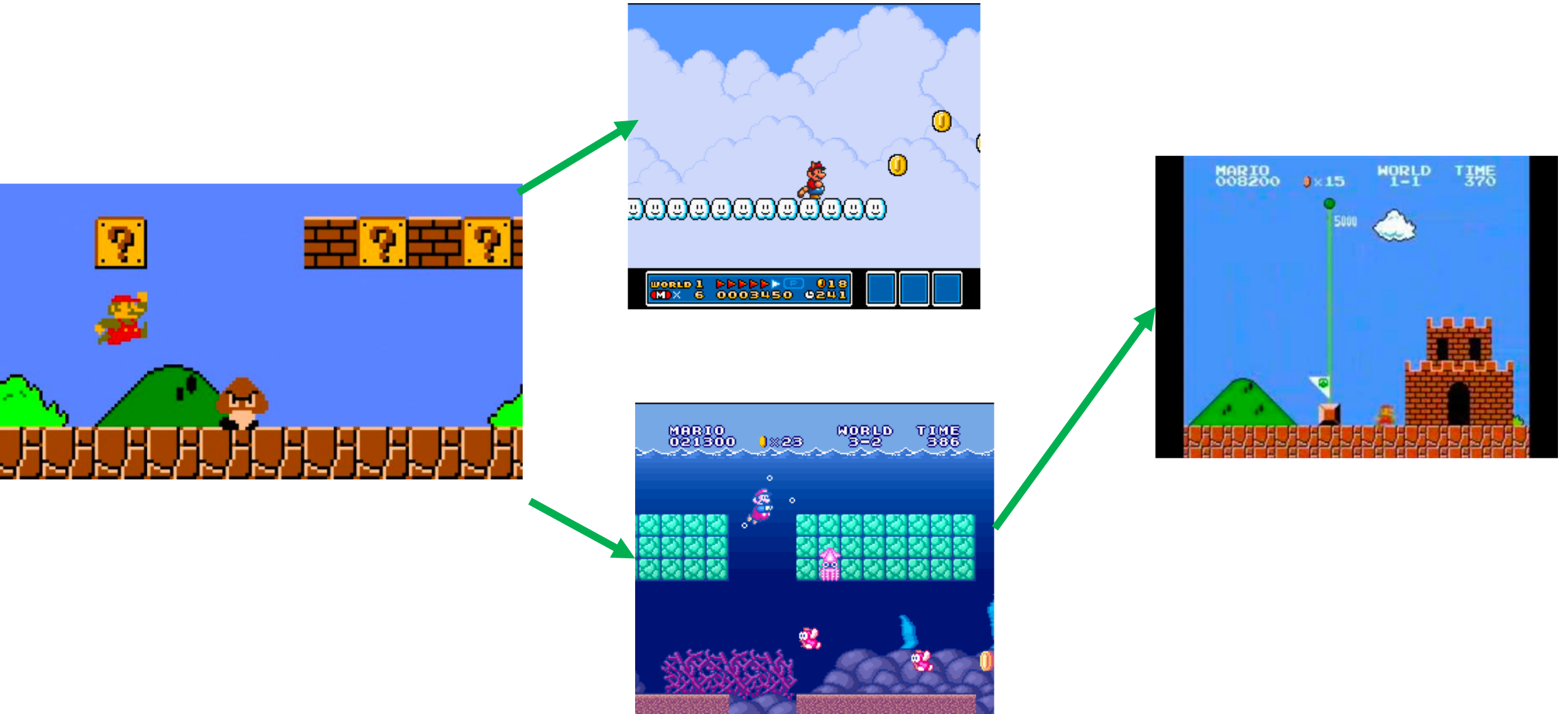
How should we break it up?

- Enter payment method information
- Enter shipping information
- Go back and put something else in the cart
- Change to rush delivery
- Remove something from the cart

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



Examples of

States, Options and Transitions

Goal: Find “The Design of Everyday Things”

What **state** am I in?

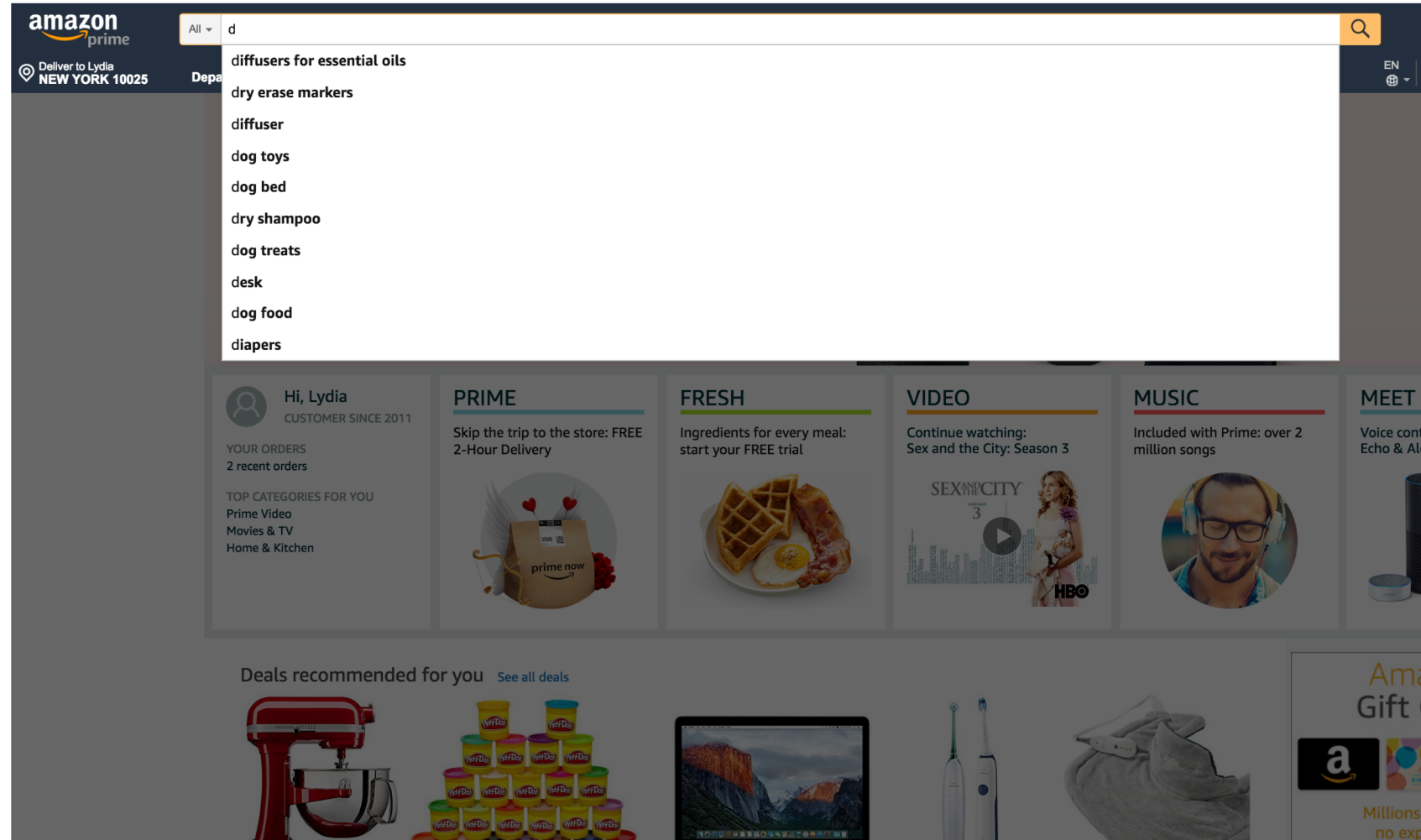
Product Search

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

The screenshot shows the Amazon website interface for a search query "design of everyday things". The top navigation bar includes the Amazon Prime logo, a search bar with the query, and various utility links like "Deliver to Lydia NEW YORK 10025", "Departments", "Browsing History", "Lydia's Amazon.com", "Today's Deals", "Gift Cards", "Registry", "Sell", and "Help". Below the search bar, it indicates "1-16 of over 1,000 results for 'design of everyday things'".

On the left side, there are filters for "prime | FREE One-Day" shipping, "AmazonFresh", and "Books" categories. The "Books" filter is expanded to show sub-categories like "Business & Money", "Popular Applied Psychology", "Medical Applied Psychology", "Industrial & Product Design", "Retailing Industry", and "Kindle Store".

The main content area displays three search results:

- Top result:** "The Design of Everyday Things: Revised and Expanded Edition" by Don Norman, published Nov 5, 2013. It is available in Kindle Edition for \$11.99 and Paperback for \$11.33 (originally \$19.99). It has a 5-star rating and 280 reviews.
- Second result:** "The Design of Everyday Things" by Donald A. Norman, published Sep 19, 2002. It is available in Paperback for \$1.99 (151 used & new offers) and Audible Audio Edition for \$0.00 (free with Audible trial). It has a 5-star rating and 301 reviews.
- Third result:** "Emotional Design: Why We Love (or Hate) Everyday Things" by Don Norman, published Mar 20, 2007. It is available in Kindle Edition for \$11.99 and Paperback for \$12.74 (originally \$17.99). It has a 5-star rating and 61 reviews.

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

The screenshot shows the Amazon product page for the book "The Design of Everyday Things: Revised and Expanded Edition" by Don Norman. The page includes the Amazon logo, search bar, navigation menu, and product details. The book cover features a red teapot on a yellow background. The price is \$11.33 for the paperback edition. The page also displays customer reviews, a "Look inside" feature, and an "Add to Cart" button.

amazon
Books design of everyday things

Departments Your Amazon.com Today's Deals Gift Cards Registry Sell Help

Books Advanced Search New Releases Amazon Charts Best Sellers & More The New York Times® Best Sellers Children's Books Textbooks Textbook Rentals Sell Us Your Books Best Books of the Month

prime student 50% off Prime for College Students. LEARN MORE

Back to search results for "design of everyday things"

The Design of Everyday Things: Revised and Expanded Edition and over one million other books are available for Amazon Kindle. Learn more

Look inside

REVISED & EXPANDED EDITION

The DESIGN of EVERYDAY THINGS

DON NORMAN

The Design of Everyday Things: Revised and Expanded Edition Paperback – November 5, 2013
by Don Norman (Author)
★★★★☆ 277 customer reviews
#1 Best Seller in Retailing Industry

See all 2 formats and editions

Kindle \$11.99 Read with Our Free App	Paperback \$11.33 62 Used from \$4.93 62 New from \$5.33 5 Collectible from \$9.00
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Even the smartest among us can feel inept as we fail to figure out which light switch or oven burner to turn on, or whether to push, pull, or slide a door. The fault, argues this ingenious—even liberating—book, lies not in ourselves, but in product design that ignores the needs of users and the principles of cognitive psychology. The problems range from ambiguous and hidden controls to arbitrary relationships between controls and functions, coupled with a lack of feedback or other assistance and unreasonable demands on memorization. *The Design of Everyday Things* shows that good, usable design is possible. The rules

Read more

The Amazon Book Review
Author interviews, book reviews, editors picks, and more. Read it now

Buy New \$11.33
Qty: 1 List Price: \$18.99 Save: \$7.66 (40%)
FREE Shipping on orders over \$25 —or get FREE Two-Day Shipping with Amazon Prime
In Stock. Ships from and sold by Amazon.com. Gift-wrap available.
Add to Cart
Turn on 1-Click ordering for this browser
Want it TODAY, Jan. 31? Order within 1 hr 15 mins and choose Same-Day Delivery at checkout. Details
Ship to: newyork, 10001
Add to List

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 screenshot shows the Amazon checkout process. At the top, the Amazon logo and navigation links are visible. The cart subtotal is \$11.33. A promotional banner offers a \$50 Amazon Rewards Visa Card. Below this, a table shows the current total of \$11.33, a savings of \$50.00, and a cost after savings of \$0.00. A remaining amount of \$38.67 is also shown. The bottom section features a grid of recommended items, including books like 'Don't Make Me Think' and 'Rocket Surgery Made Easy'.

amazon Try Prime


All

Shop Vale

Departments ▼ Your Amazon.com Today's Deals Gift Cards Registry Sell Help


EN ▼ Hello. Sign in **Account & Lists** ▼ **Orders** ▼ **Try**

Books Advanced Search New Releases Amazon Charts Best Sellers & More The New York Times® Best Sellers Children's Books Textbooks Textbook Rentals Sell Us Your Books Best Book

✓  **Added to Cart**

Cart subtotal (1 item): \$11.33
Add \$13.67 of eligible items for [FREE Shipping](#) or sign up for [Amazon Prime](#) and get faster, FREE Two-Day Shipping.

Cart **Proceed to checkout (1 item)**

 Get a **\$50 Amazon.com Gift Card instantly** upon approval for the **Amazon Rewards Visa Card**

Current	\$ 11.33
Total:	
Savings:	- \$ 50.00
Cost After	\$ 0.00 Apply now
Savings:	
Savings	\$ 38.67
Remaining:	

Customers also bought these highly rated items

Steve Krug
DON'T MAKE ME THINK
persited
A Common Sense Approach to Web Usability

100 THINGS
EVERY DESIGNER NEEDS TO KNOW ABOUT PEOPLE
SUSAN M. WEINSHENK, Ph.D.

SET PHASERS ON STUN
AND OTHER TALK TALES OF DESIGN TECHNOLOGY AND WEB DESIGN

Steve Krug
ROCKET SURGERY MADE EASY
The Do-It-Yourself Guide to Finding 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

amazon.com

SIGN IN SHIPPING & PAYMENT GIFT OPTIONS PLACE ORDER



Secure Payment Info



Name (as it appears on your card)

Bob Ross

Card number (no dashes or spaces)

1234123412341234

Expiration date

01 - January

2013

Security code (3 on back, Amex: 4 on front)

1234

123

1234

Continue

You can review this order before it's final.

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”

amazon.com [SIGN IN](#) [SHIPPING & PAYMENT](#) [GIFT-WRAP](#) [PLACE ORDER](#)

Review Your Order

By placing your order, you agree to Amazon.com's [privacy notice](#) and [conditions of use](#)

Shipping Address: Chris Customer 742 EVERGREEN TERRACE SPRINGFIELD, WV 20025 United States Phone: 1234567890 Change	Billing Information: Rewards Points ending in 1234 Change Billing Address: Same as shipping address Change	Gift Cards & Promotional Codes: <input type="text"/> Apply	Place your order
---	--	--	----------------------------------

Estimated delivery: Sept. 26, 2011

 Apple iPad Camera Connection Kit (MC531ZM/A) \$29.95 Prime Quantity: 1 Change Sold by: -Media-Mart Add gift options	Choose your Prime shipping speed: <input type="radio"/> FREE Standard Shipping (3-5 business days) <input checked="" type="radio"/> FREE Two-Day Shipping —get it Monday, September 26 <input type="radio"/> \$3.99/item One-Day Shipping —get it Saturday, September 24
---	---

Order Summary	
Items:	\$29.95
Shipping & Handling:	\$0.00
<hr/>	
Total Before Tax:	\$29.95
Estimated Tax To Be Collected:	\$0.00
Rewards Points:	-\$4.58
<hr/>	
Order Total: \$25.37	

[How are shipping costs calculated?](#)
Amazon Prime Shipping has been applied to the eligible items in your order.

After I buy, what state do I transition to?

amazon prime

Deliver to Lydia
NEW YORK 10025

All ▾

Departments ▾ Browsing History ▾ Lydia's Amazon.com Today's Deals Gift Cards Registry Sell Help

EN

Deals recommended for you [See all deals](#)



\$229.99
Ends in 13:41:22



\$6.14 - \$49.69
Ends in 13:41:22



\$999.99
Ends in 13:36:23



\$47.99
\$79.99
Ends in 13:41:22



\$32.00
\$49.99
Ends in 13:41:22

Amazon Gift Cards

Millions of items,
no expiration.

> Shop now

[Ad feedback](#)

Your Dash Buttons

[Manage buttons](#)

[Learn more](#)

TAP HERE for info

TAP HERE to buy



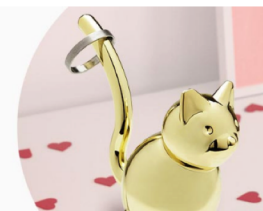
New for you [See more](#)



Budget women's apparel

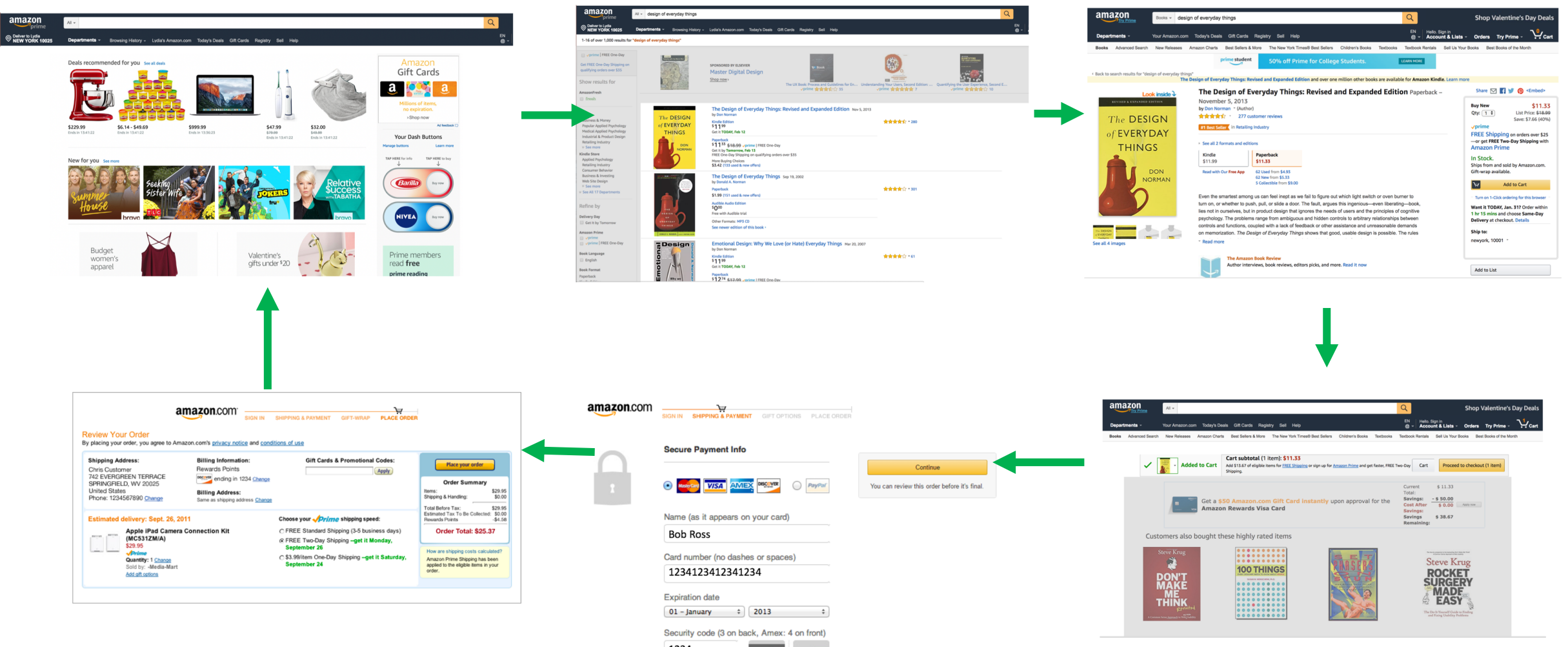


Valentine's gifts under \$20



Prime members read **free** prime reading

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



Goal: Tell Uber where to find me.

What **state** am I in?

Set pickup location

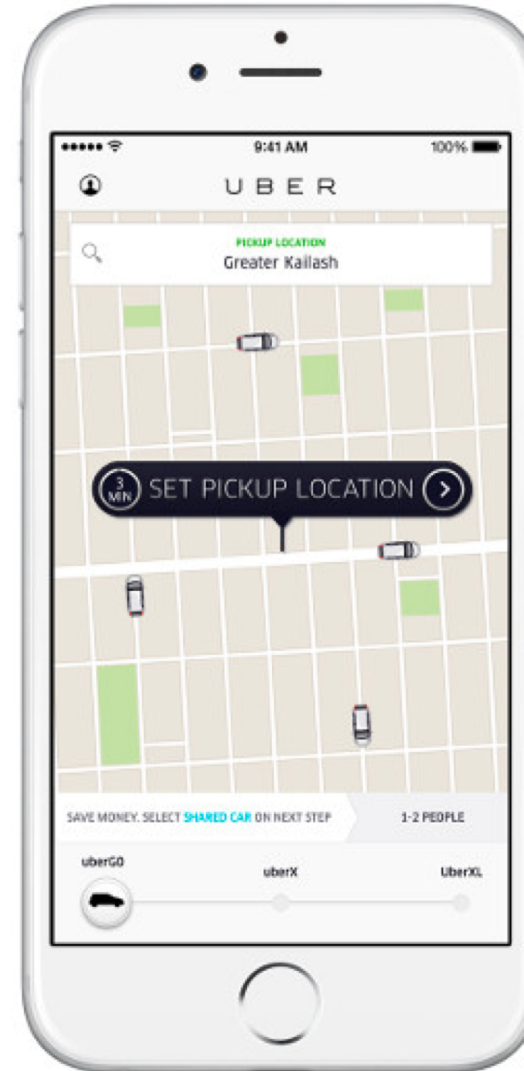
What **options** do I have?

Move pin to different location

What size car: pool/X/XL

How do I **transition**?

Press “Set Pickup location”



Goal: Pay for it.

What **state** am I in?

Payment/Confirmation

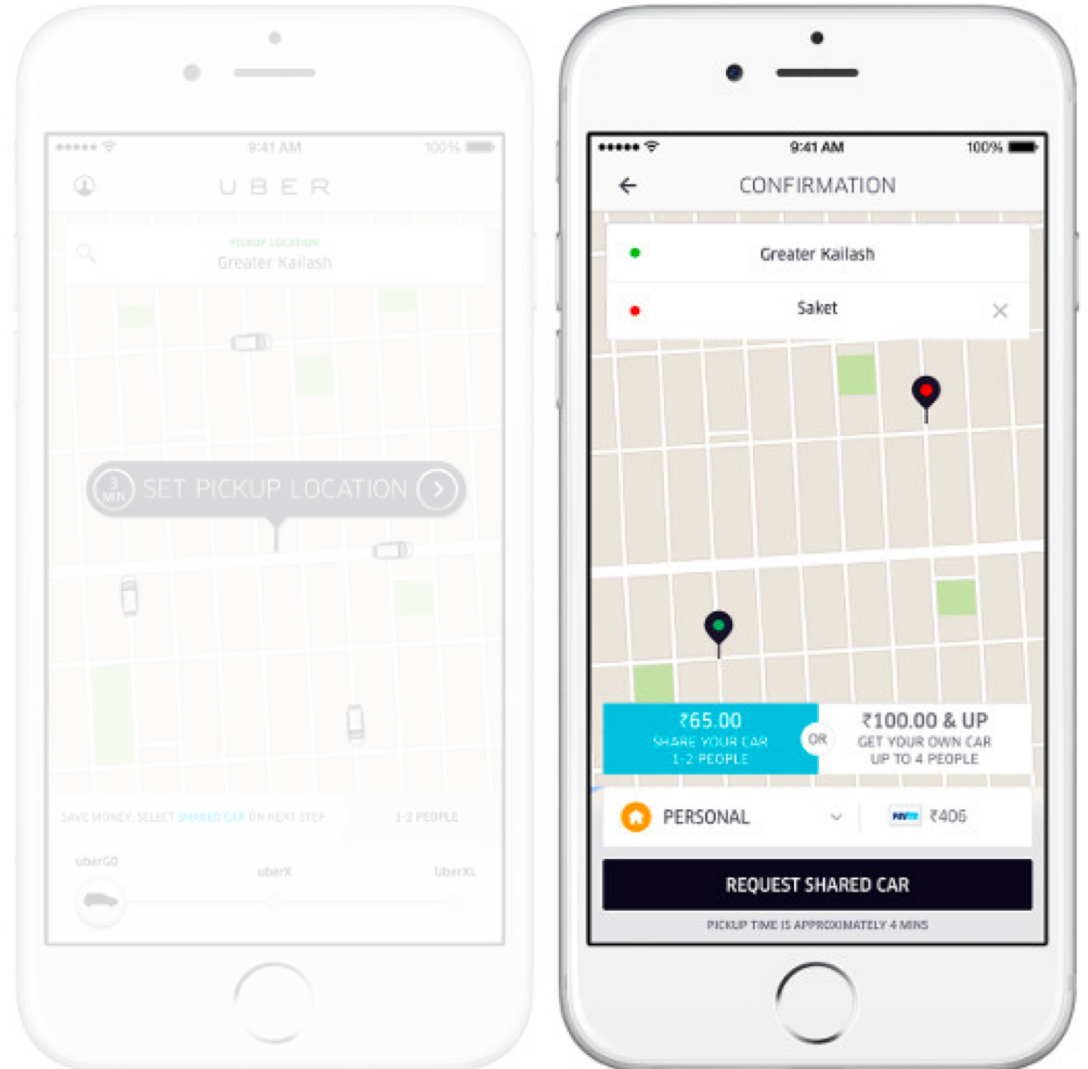
What **options** do I have?

Switch credit cards

Upgrade to your

How do I **transition**?

Press “Request shared car”



Goal: Find car

What **state** am I in?

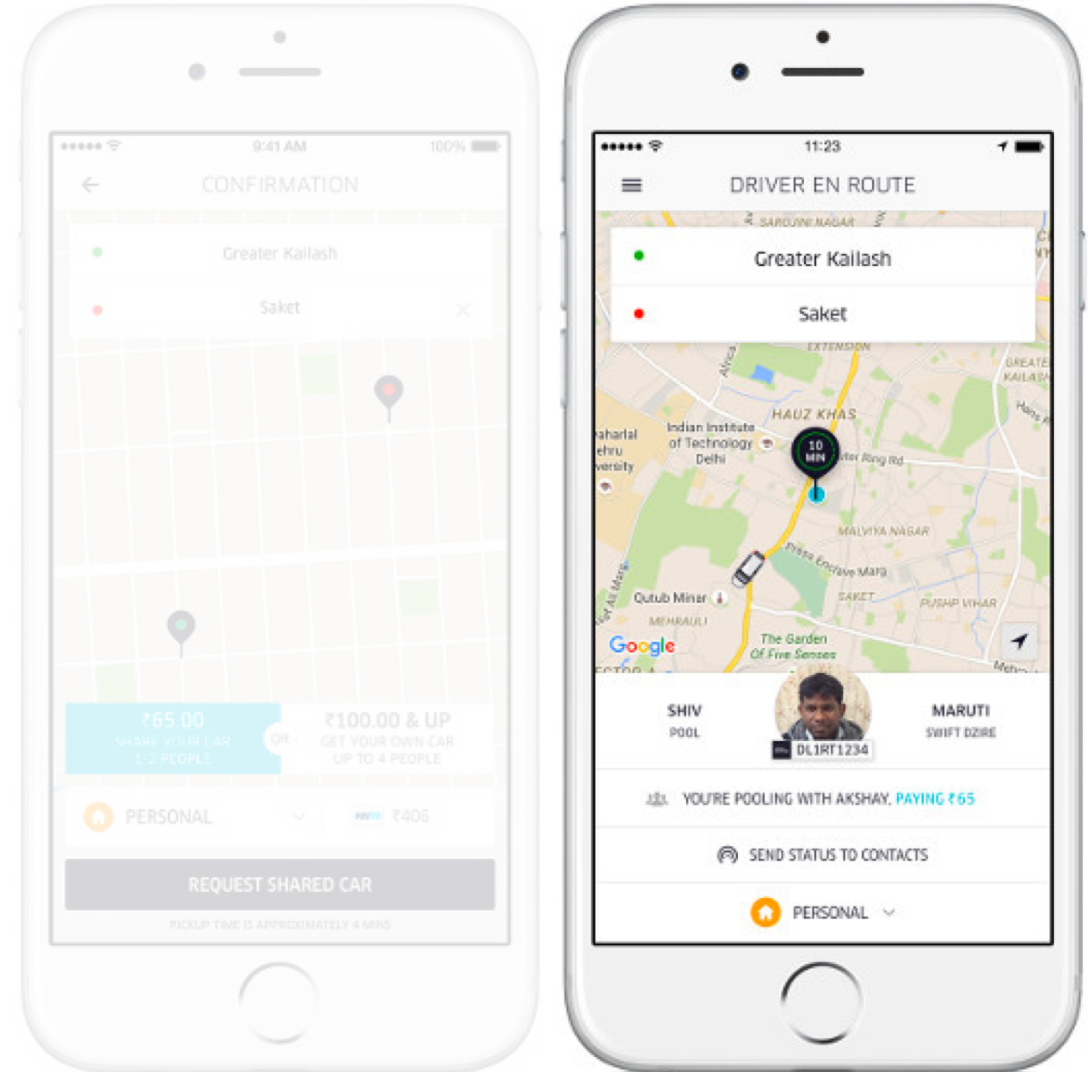
Waiting/"Driver en route"

What **options** do I have?

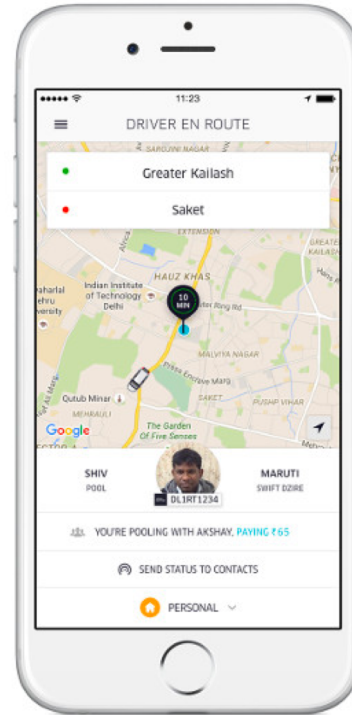
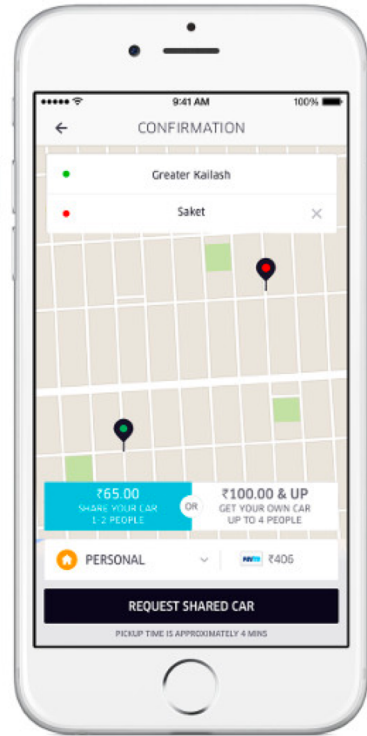
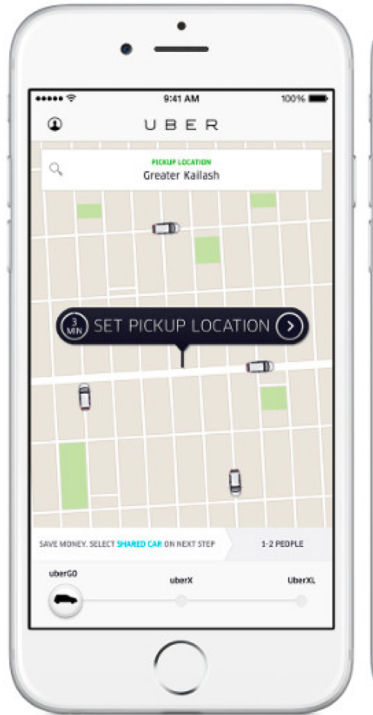
Contact driver

How do I **transition**?

Just wait



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



Goal: Change the font

What **state** am I in?

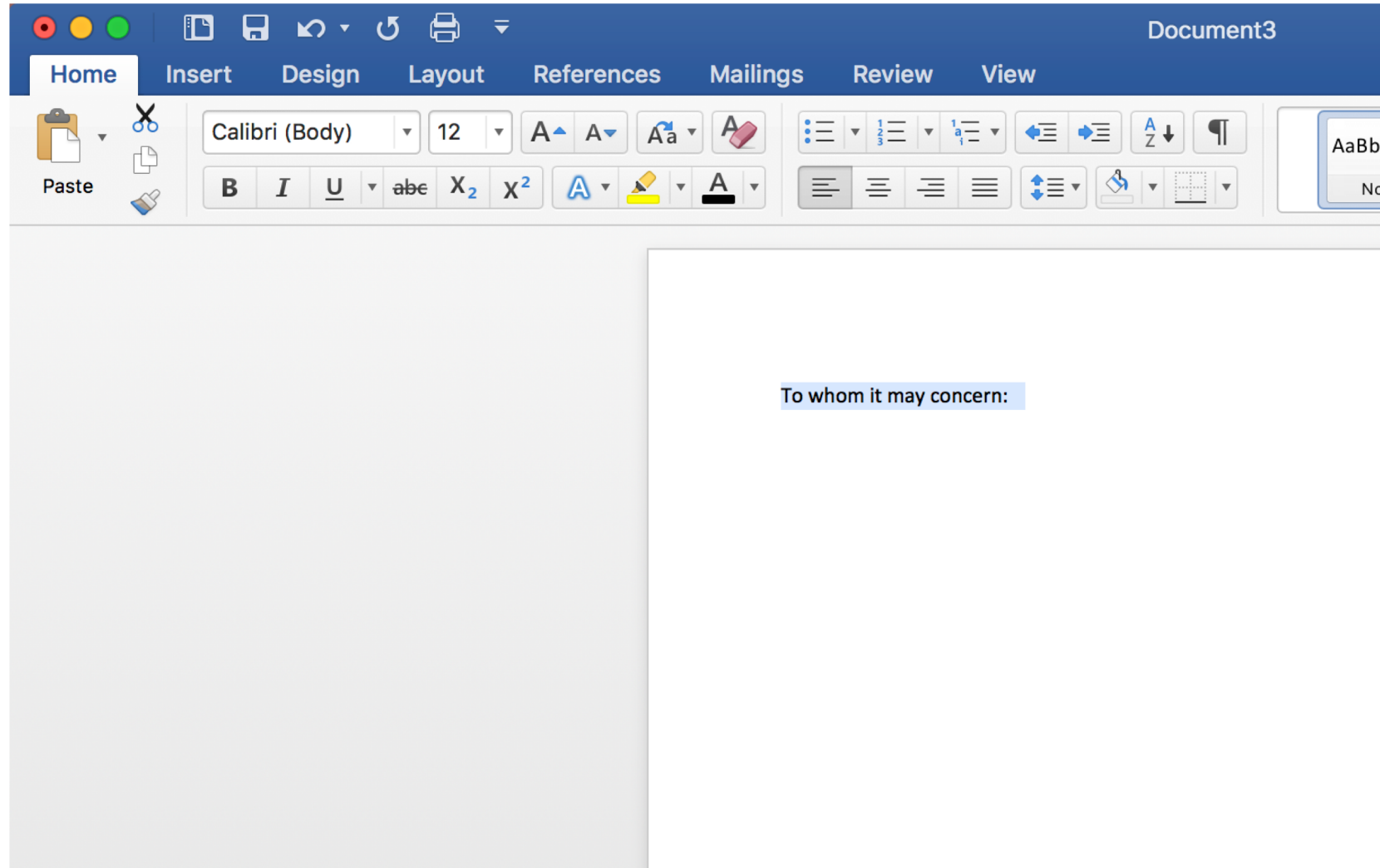
Selected Text

What **options** do I have?

All the menu options –
Font, size, color, bullet pts

How do I **transition**?

Select a menu option OR
Click outside the selection



Goal: Find a font I like

What **state** am I in?

Font selection

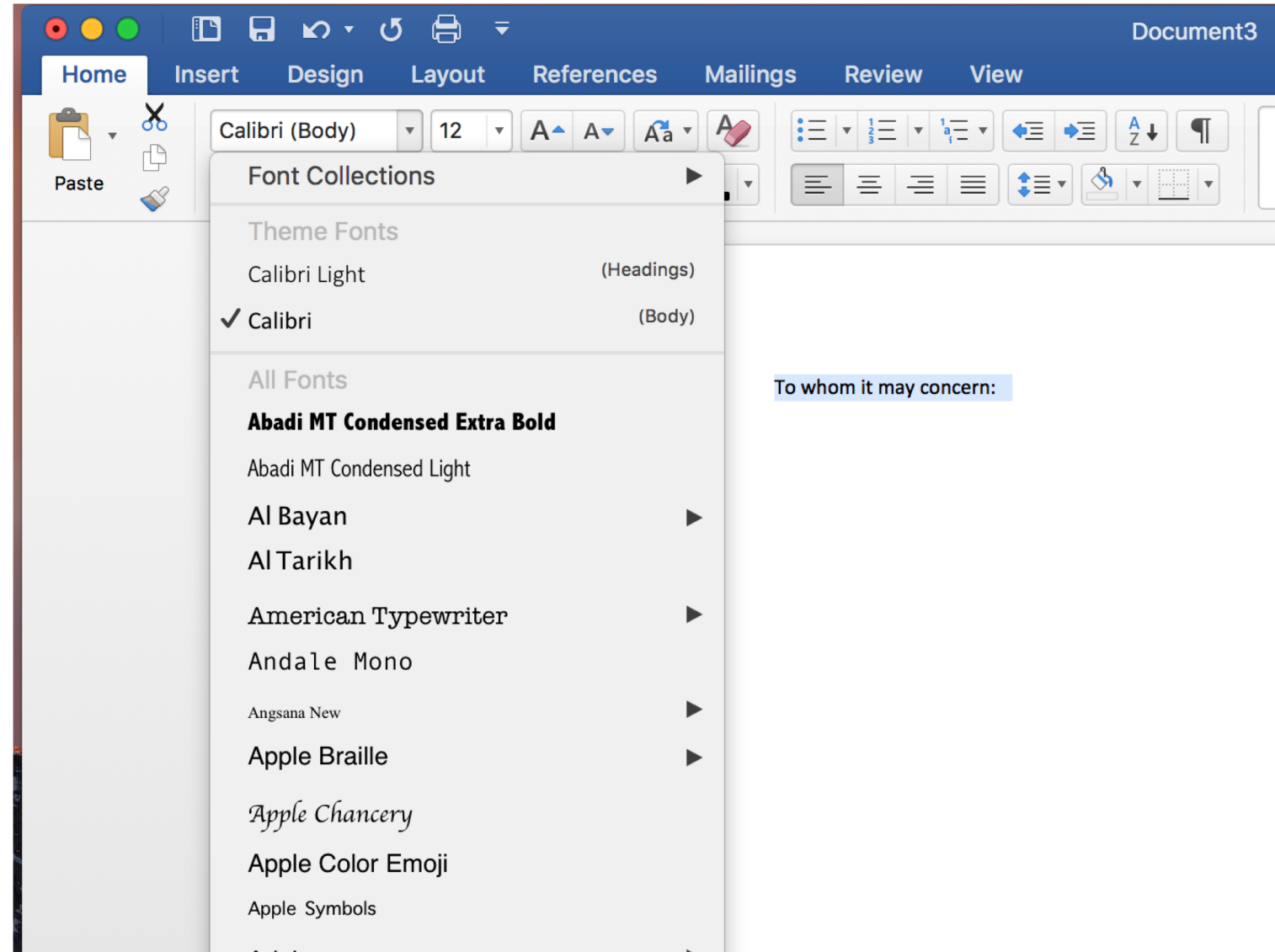
What **options** do I have?

Hundreds of fonts

How do I **transition**?

Select a font OR

Click outside the font menu.



Goal: ?

What **state** am I in?

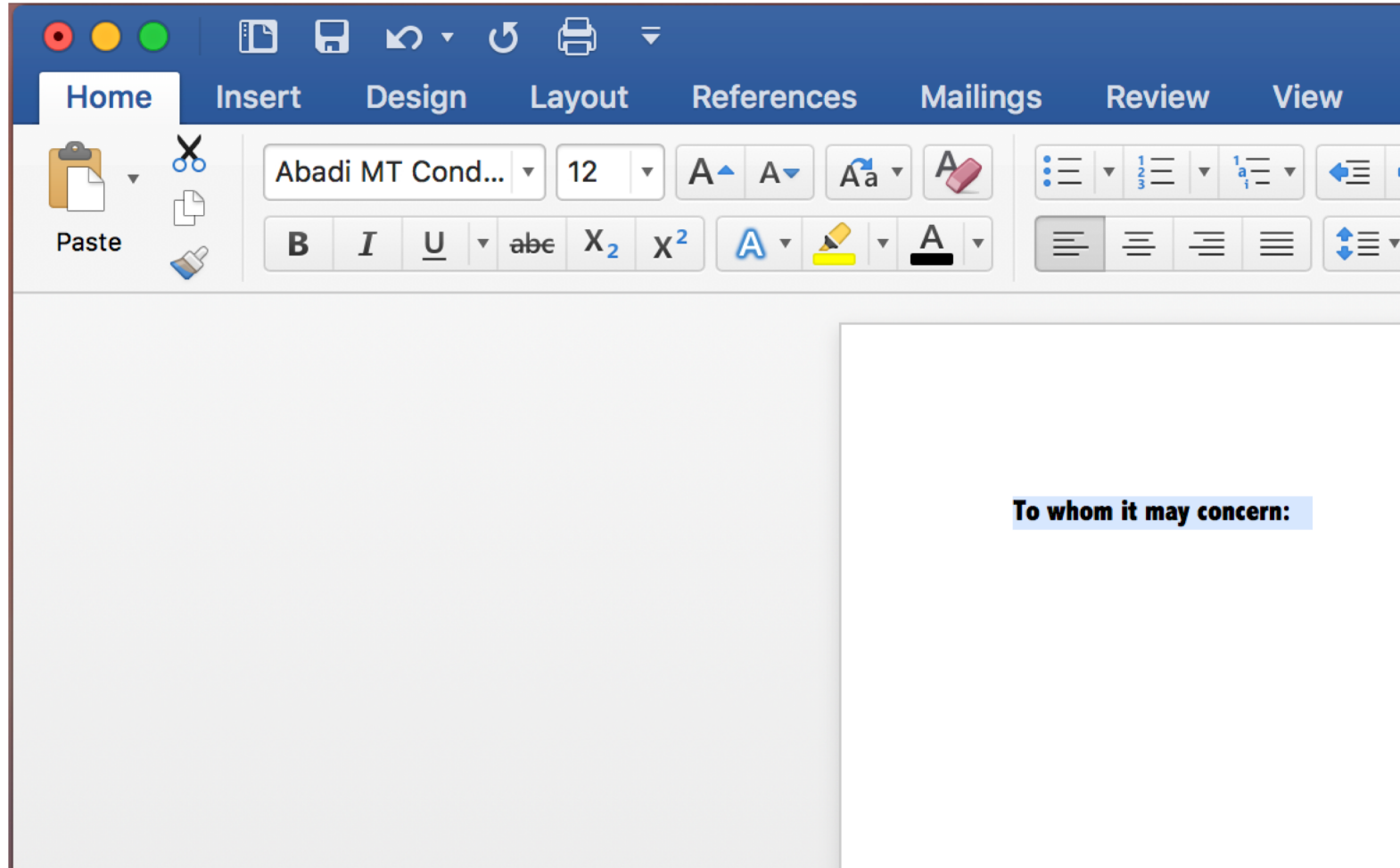
Selected Text

What **options** do I have?

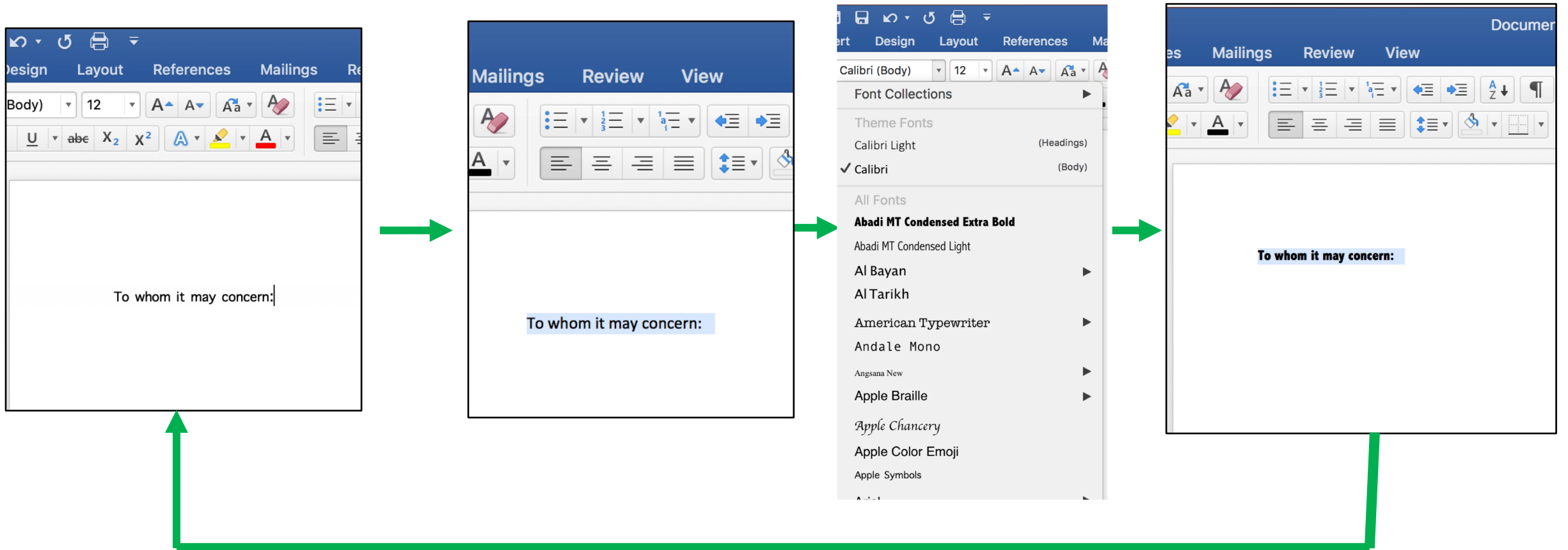
All the menu options

How do I **transition**?

Select a new menu option OR
Click outside the selection



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

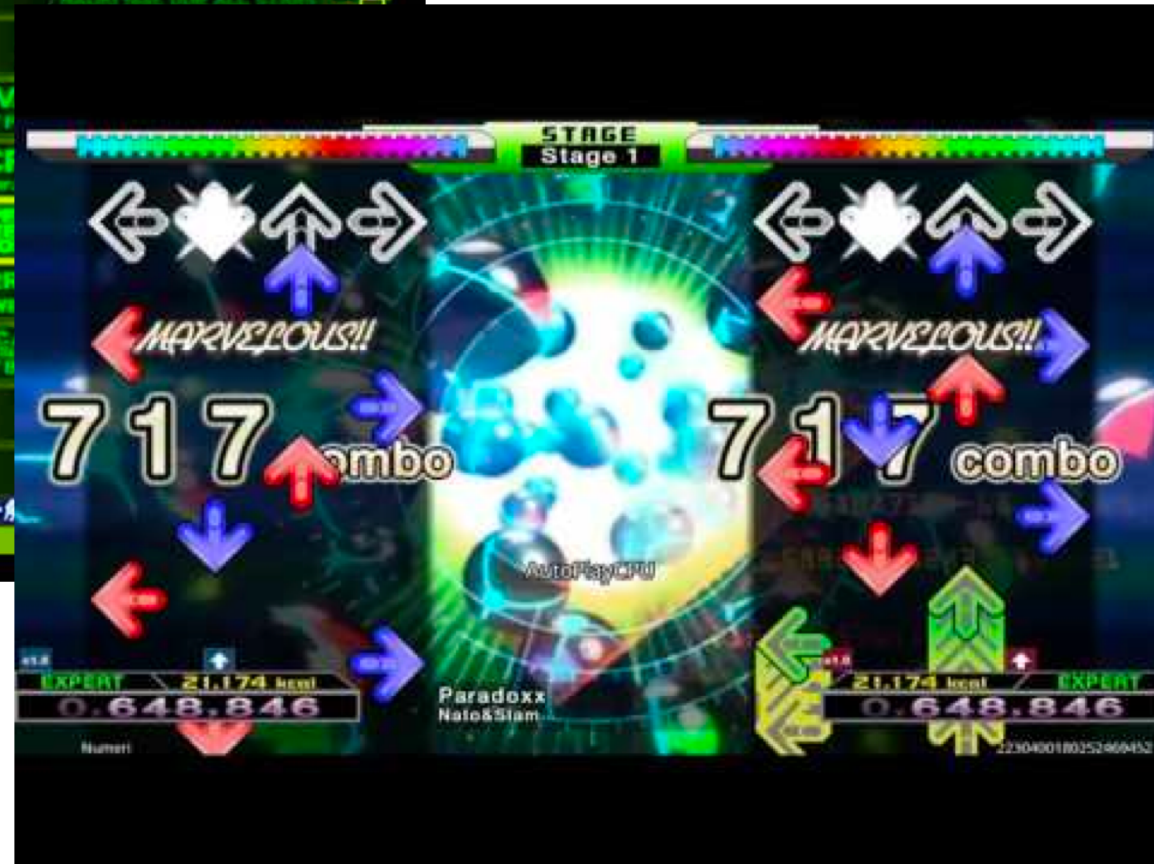


DDR: What state are we in?

What are the options in this state?



DDR: What state are we in?



DDR: What state are we in? What state will we transition to?

The image displays three overlapping screenshots from the game Dance Dance Revolution (DDR). The top-left screenshot shows the 'Select Music' screen for 'SPEED OVER BEETHOVEN' by FROSE, with a stage speed of 169bpm. The middle screenshot shows a dance play sequence with a 'MARVELOUS!!' hit and a '717' combo. The bottom-right screenshot shows the 'RESULTS EXTRA STAGE' screen for 'New Century' by Sota F., featuring AAA grades and scores of 991,650 for Player 1 and 995,420 for Player 2.

RESULTS EXTRA STAGE

PLAYER 1 VERSUS CHALLENGE 18 **AAA** score *It's a New Record!* 991,650

PLAYER 2 VERSUS CHALLENGE 18 **AAA** score *It's a New Record!* 995,420

New Century
Sota F.

PLAYER 1		PLAYER 2	
MAX COMBO	639	MAX COMBO	467
MARVELOUS	554	MARVELOUS	611
PERFECT	103	PERFECT	52
GREAT	11	GREAT	5
GOOD	0	GOOD	0
O.K.	80	O.K.	80
Miss	1	Miss	1
EX SCORE	2119	EX SCORE	2182

FAST 97, SLOW 17 (Player 1); FAST 36, SLOW 21 (Player 2)

※保存した画像は一定期間で期限切れとなります。 テンキー 1 でeAMUSEMENTアプリに画像を送信します。

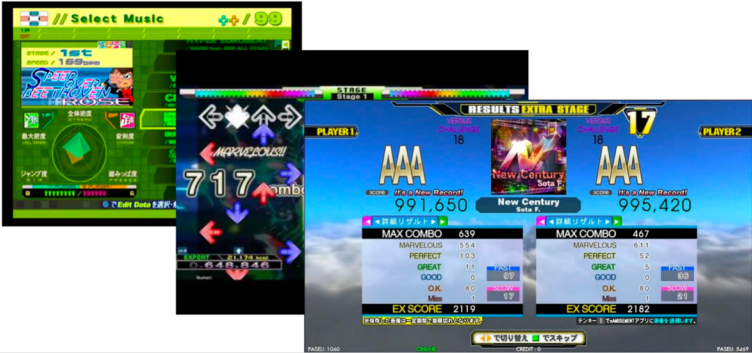
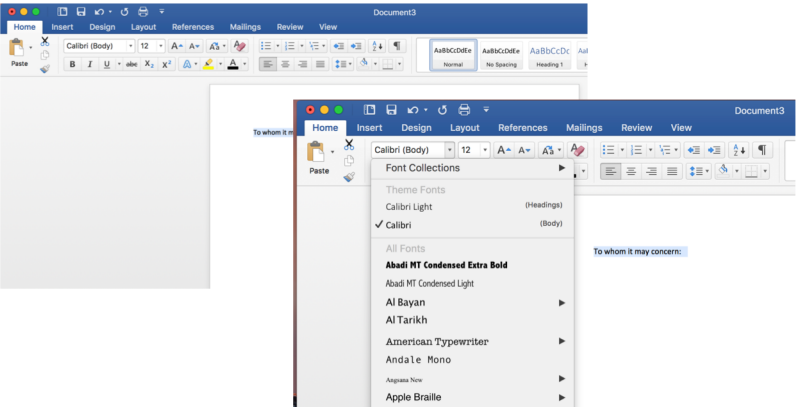
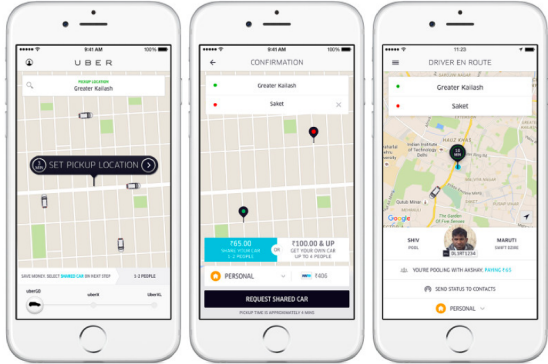
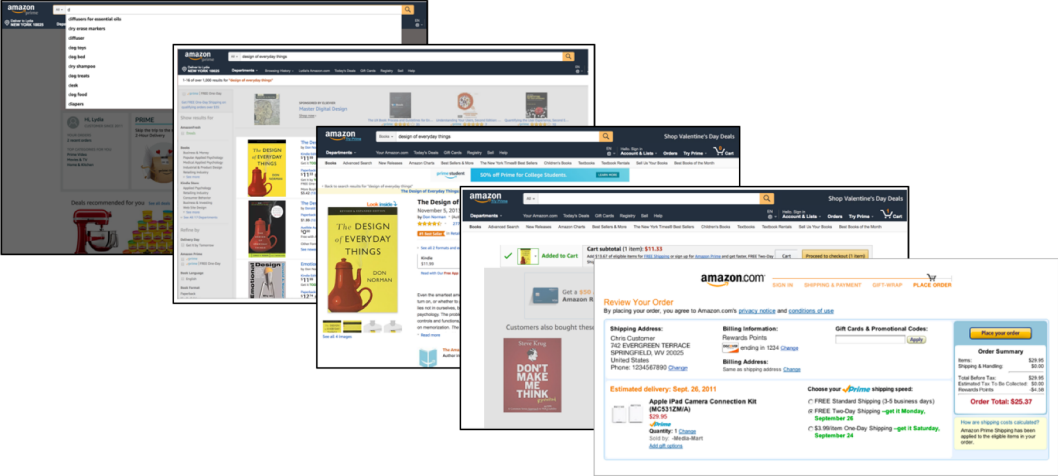
で切り替え ■ でスキップ

PASEL: 1060 ONLINE CREDIT: 0 PASEL: 5469

DDR: Returns users to the song selection state.

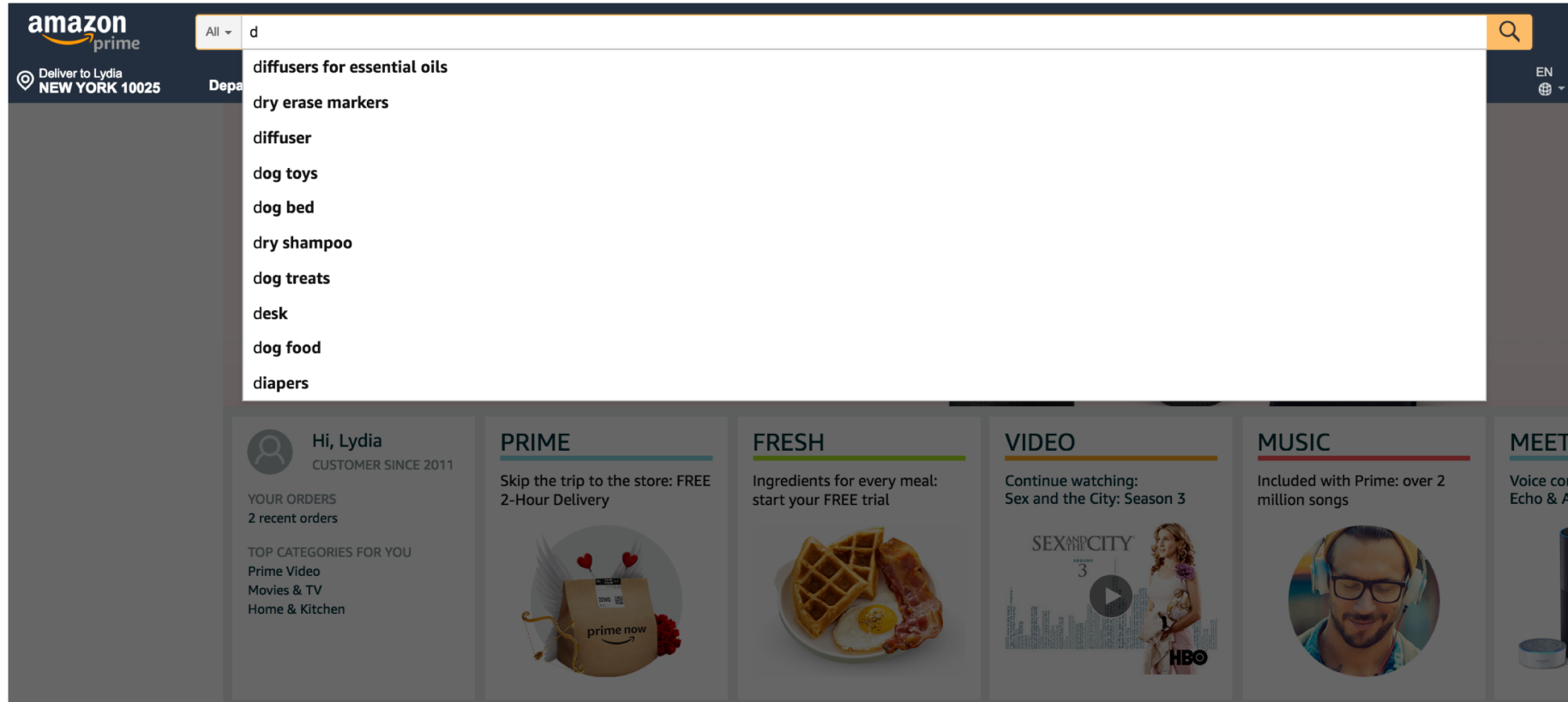


When you have too much information for one screen, design states, options and transitions for the user to navigate through to complete their goal.



Presenting users with options

Product search: How many options are there?



Billions

Search Results: How many options are presented?

amazon prime

Deliver to Lydia NEW YORK 10025

Departments Browsing History Lydia's Amazon.com Today's Deals Gift Cards Registry Sell Help

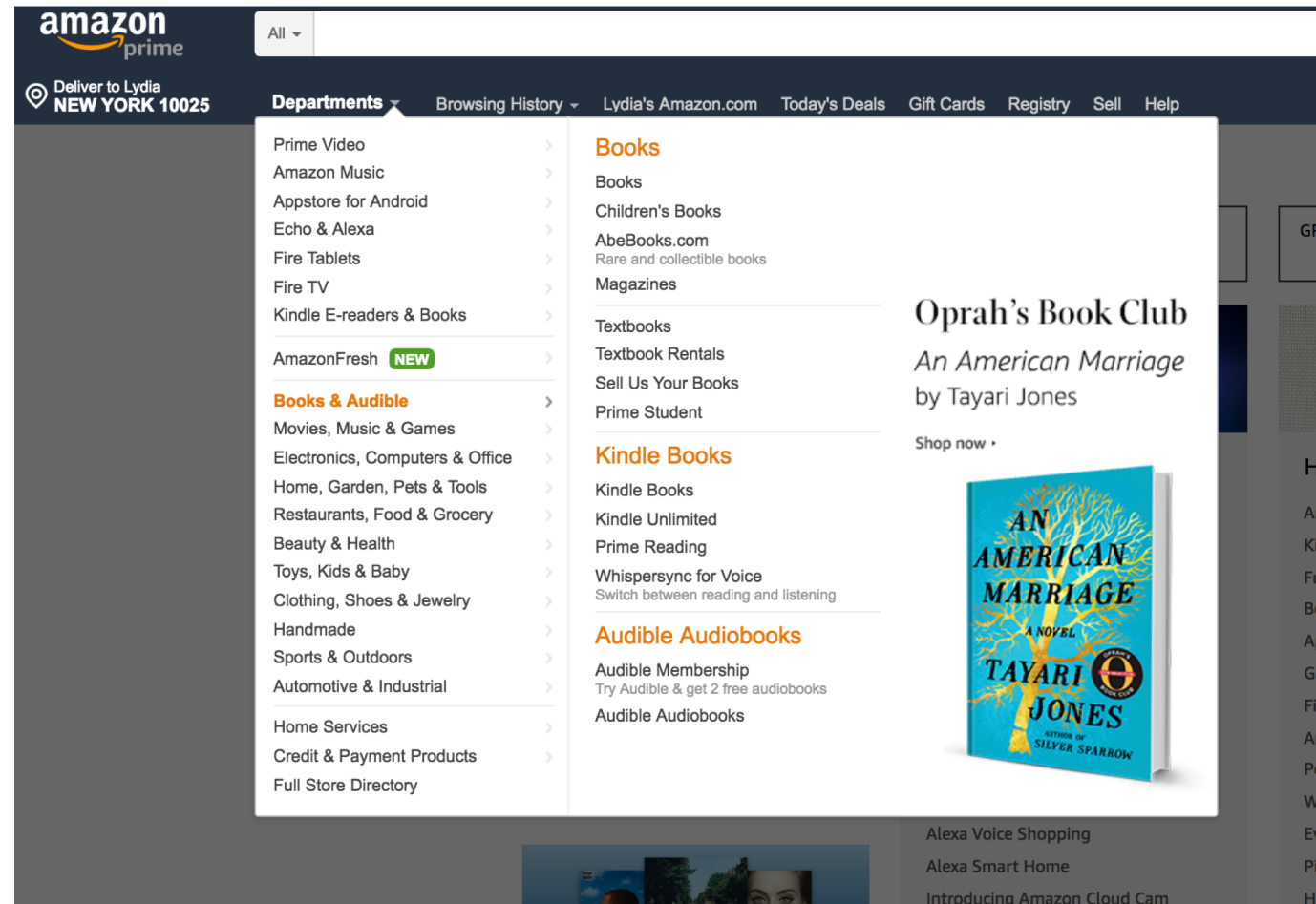
EN

1-16 of over 1,000 results for "design of everyday things"

Book Title	Author	Release Date	Rating	Reviews
The Design of Everyday Things: Revised and Expanded Edition	Don Norman	Nov 5, 2013	★★★★★	280
The Design of Everyday Things	Donald A. Norman	Sep 19, 2002	★★★★☆	301
Emotional Design: Why We Love (or Hate) Everyday Things	Don Norman	Mar 20, 2007	★★★★☆	61
100 Things Every Designer Needs to Know About People (Voices That Matter)	Susan Weinschenk	Apr 14, 2011	★★★★★	168
The Psychology Of Everyday Things	Don Norman	Jun 15, 1988	★★★★☆	301
Hooked: How to Build Habit-Forming Products	Nir Eyal and Ryan Hoover	Nov 4, 2014	★★★★☆	~

About 10

Amazon Departments: How many options are there?

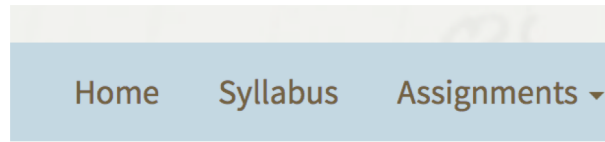
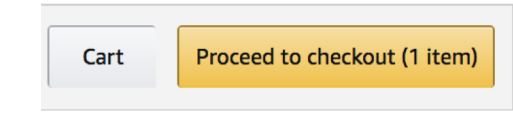
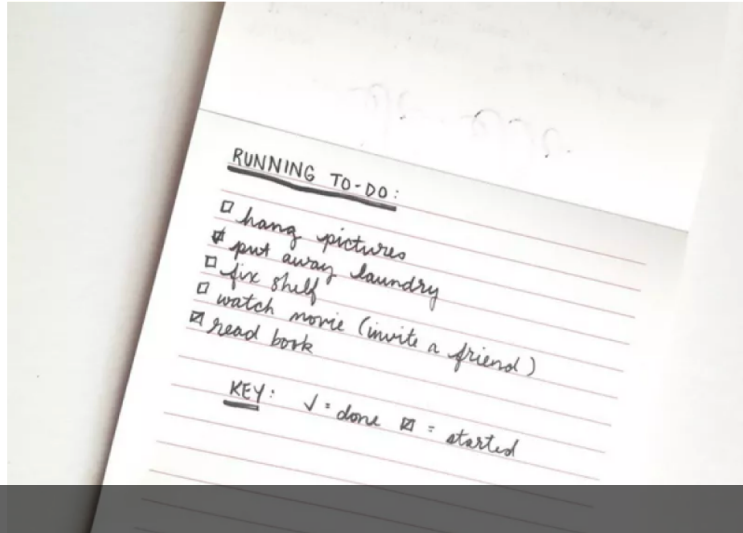
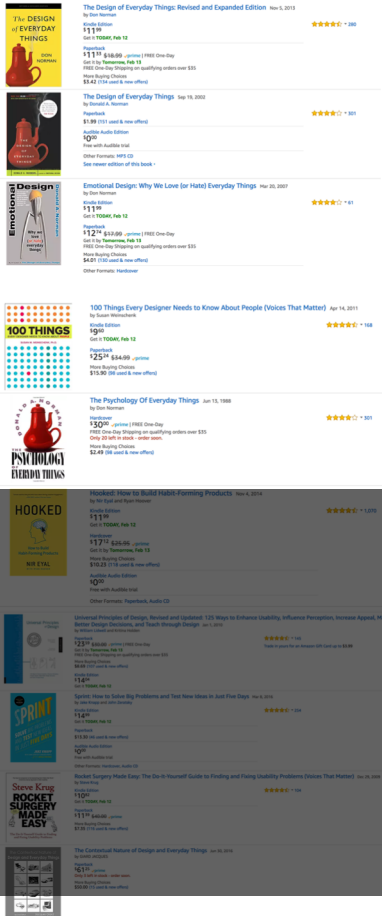


About 100

We display options different depending on how many options there are

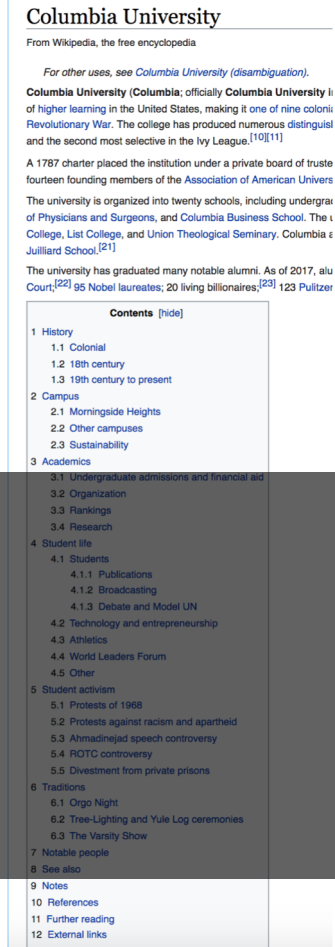
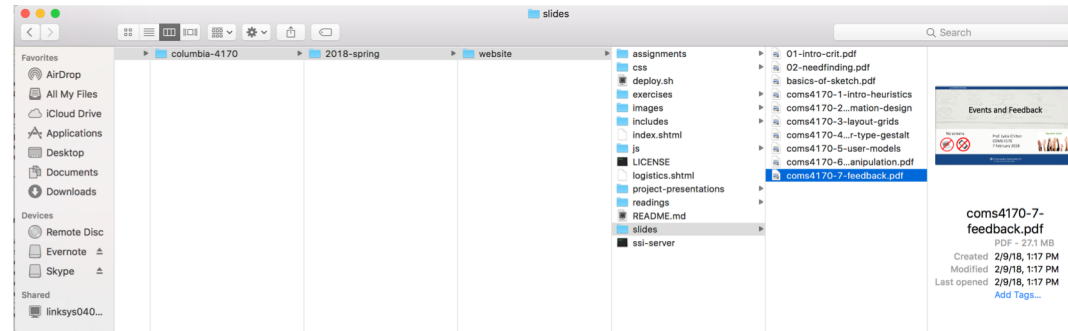
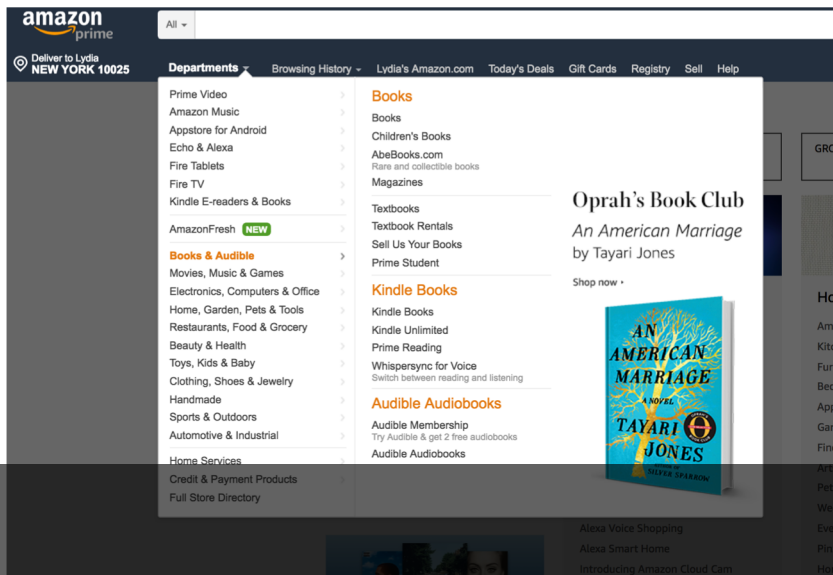
- Orders of magnitude
 - 1 (no options, just a single choice)
 - 10
 - 100
 - 1000+

For ~10 options, how do you display them?



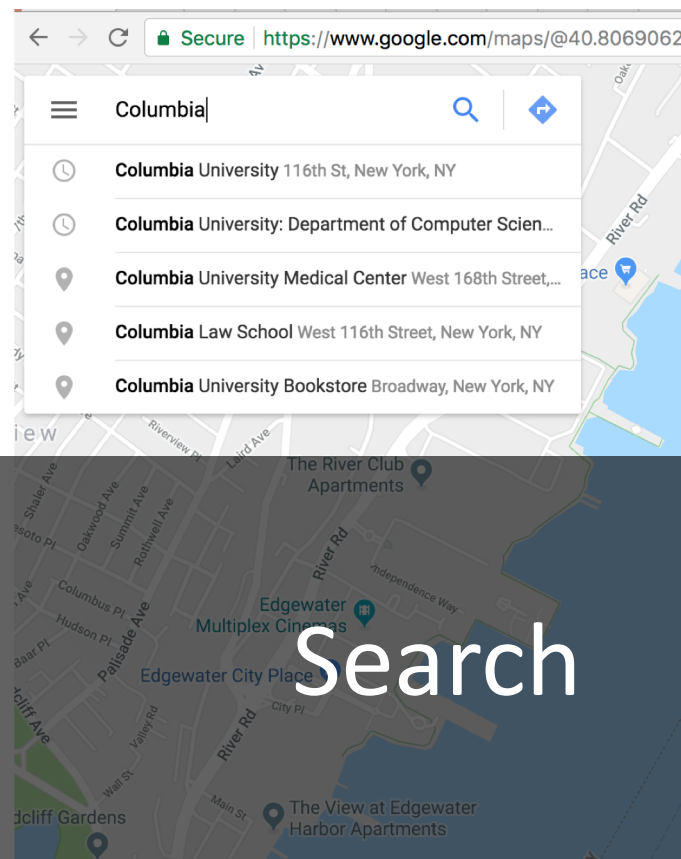
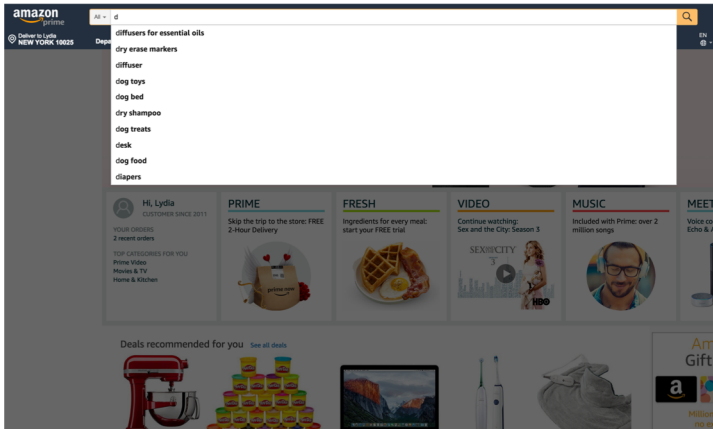
List

For ~100 options, how do you display them?



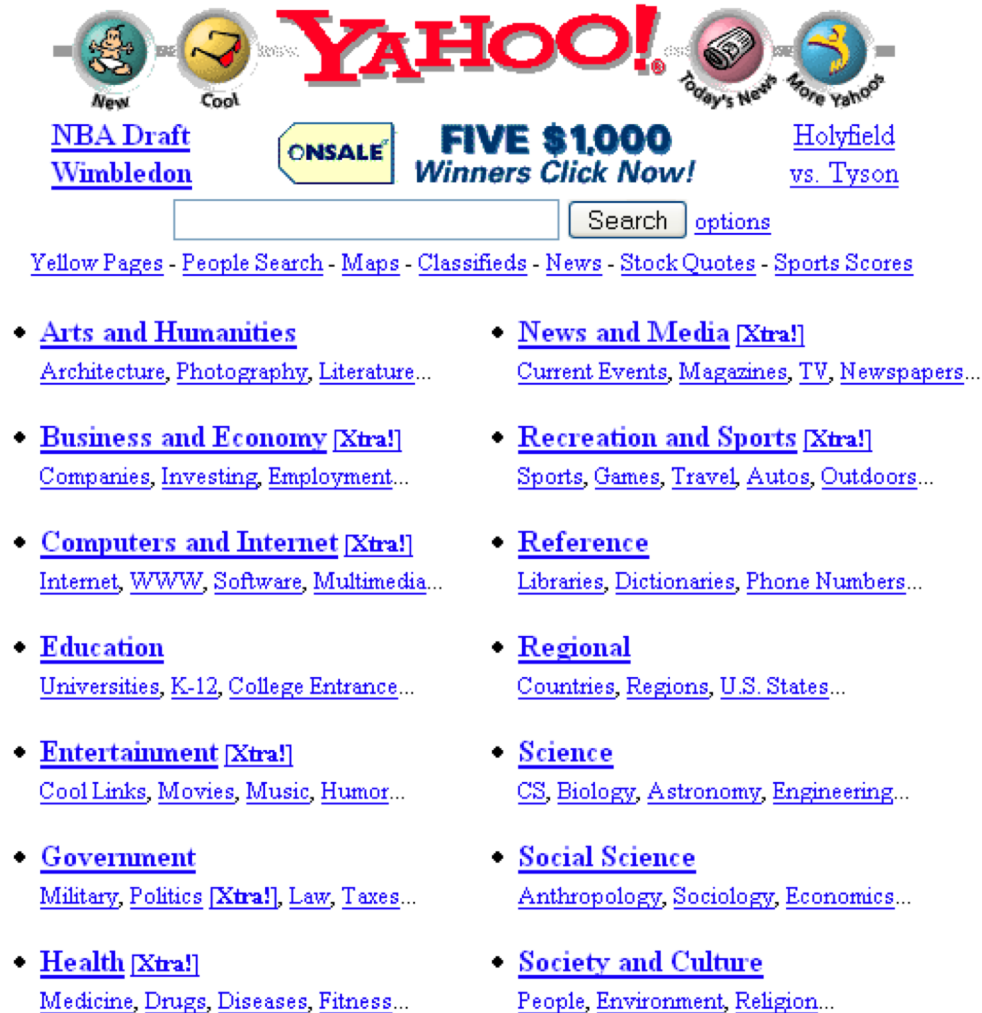
A tree

For ~1000 options, how do you display them?



```
135
136
137   $(document).ready(function(){
138     window.website = new Website();
139     window.website.loadCodeEditor();
140     website.setCurrentPageElement($("#home"));
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```

Yahoo 1995: What interaction style is this?



The image shows a screenshot of the 1995 Yahoo! homepage. At the top, the word "YAHOO!" is written in large, red, bold letters. To the left of the logo are two circular icons: one with a baby and the word "New" below it, and another with a red ribbon and the word "Cool" below it. To the right of the logo are two more circular icons: one with a newspaper and the words "Today's News" below it, and another with a blue figure and the words "More Yahoos" below it. Below the logo, there are several links: "NBA Draft", "Wimbledon", "ONSALE" (in a yellow box), "FIVE \$1,000 Winners Click Now!", "Holyfield vs. Tyson", and a search bar with a "Search" button and a link to "options". Below the search bar, there is a horizontal menu with links to "Yellow Pages", "People Search", "Maps", "Classifieds", "News", "Stock Quotes", and "Sports Scores". The main content area is a grid of category links, each starting with a diamond symbol and followed by a category name and a list of sub-links.

[NBA Draft](#)
[Wimbledon](#)

ONSALE **FIVE \$1,000**
Winners Click Now!

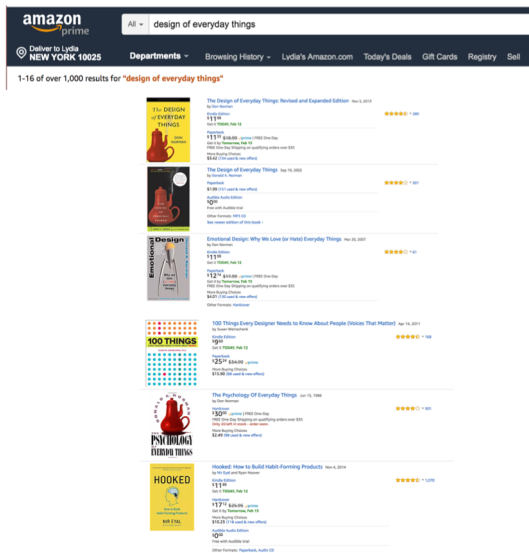
[Holyfield vs. Tyson](#)

[options](#)

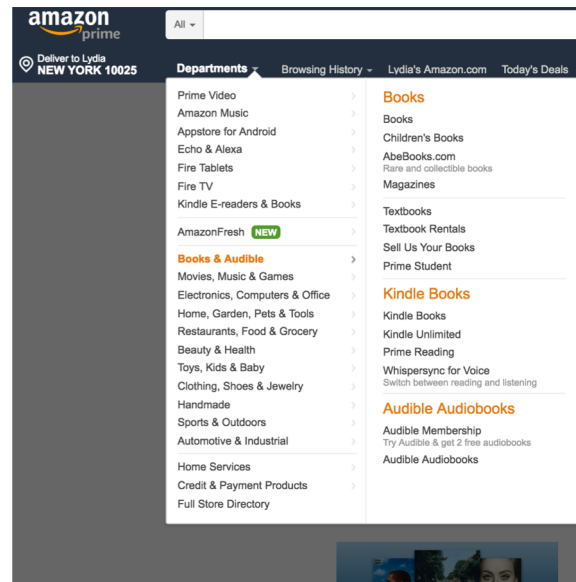
[Yellow Pages](#) - [People Search](#) - [Maps](#) - [Classifieds](#) - [News](#) - [Stock Quotes](#) - [Sports Scores](#)

- ◆ [Arts and Humanities](#)
[Architecture](#), [Photography](#), [Literature](#)...
- ◆ [Business and Economy \[Xtra!\]](#)
[Companies](#), [Investing](#), [Employment](#)...
- ◆ [Computers and Internet \[Xtra!\]](#)
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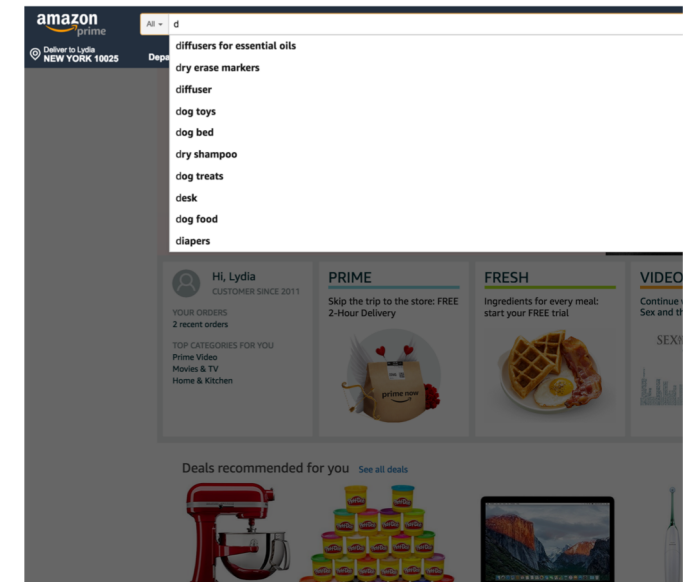
When displaying options, the number of options determines the interaction style.



~10 items = list



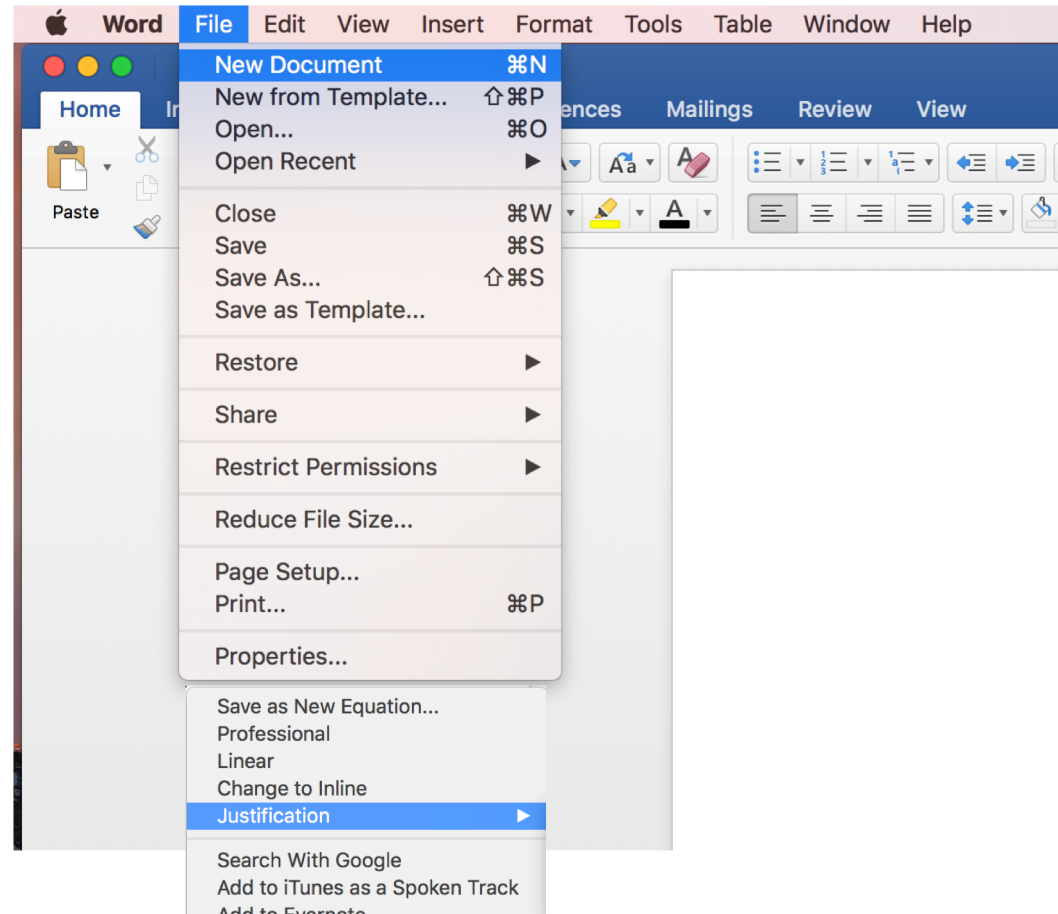
~100 items = tree



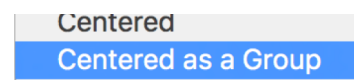
~1000 items = search

Designing Menu Options

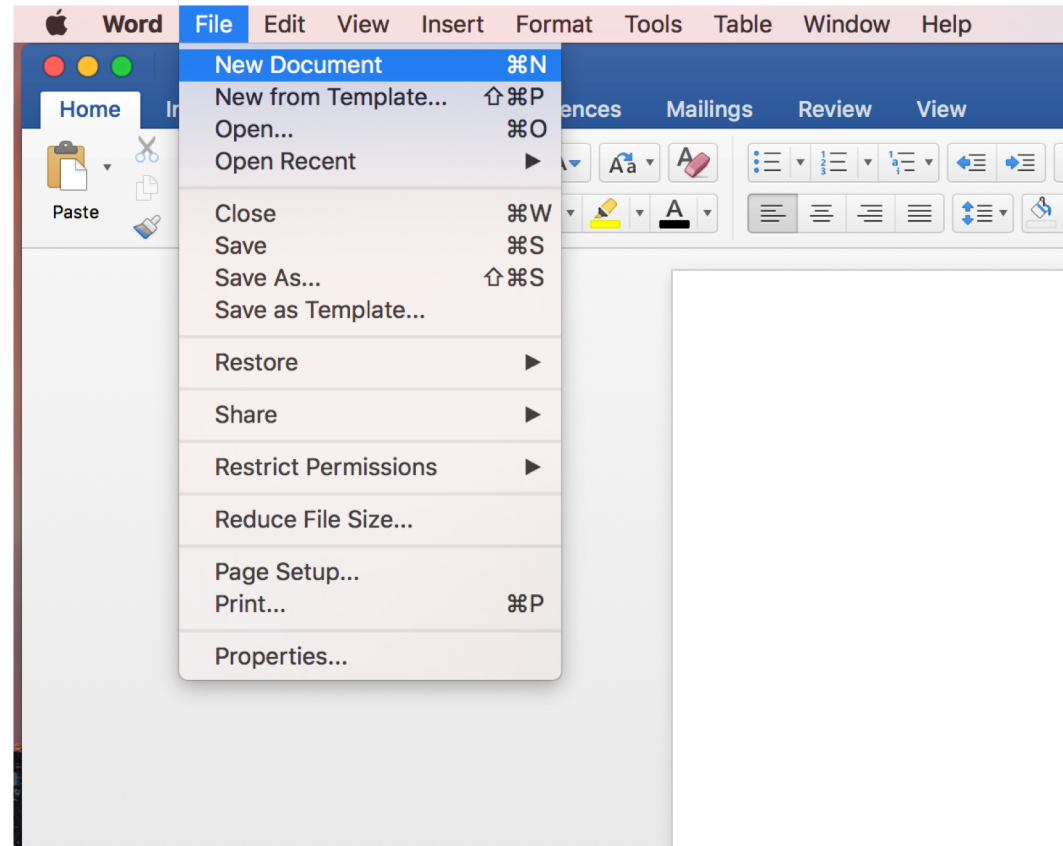
What would happen if one menu listed all the commands?



Items that are **infrequently** used can be more **difficult** to access

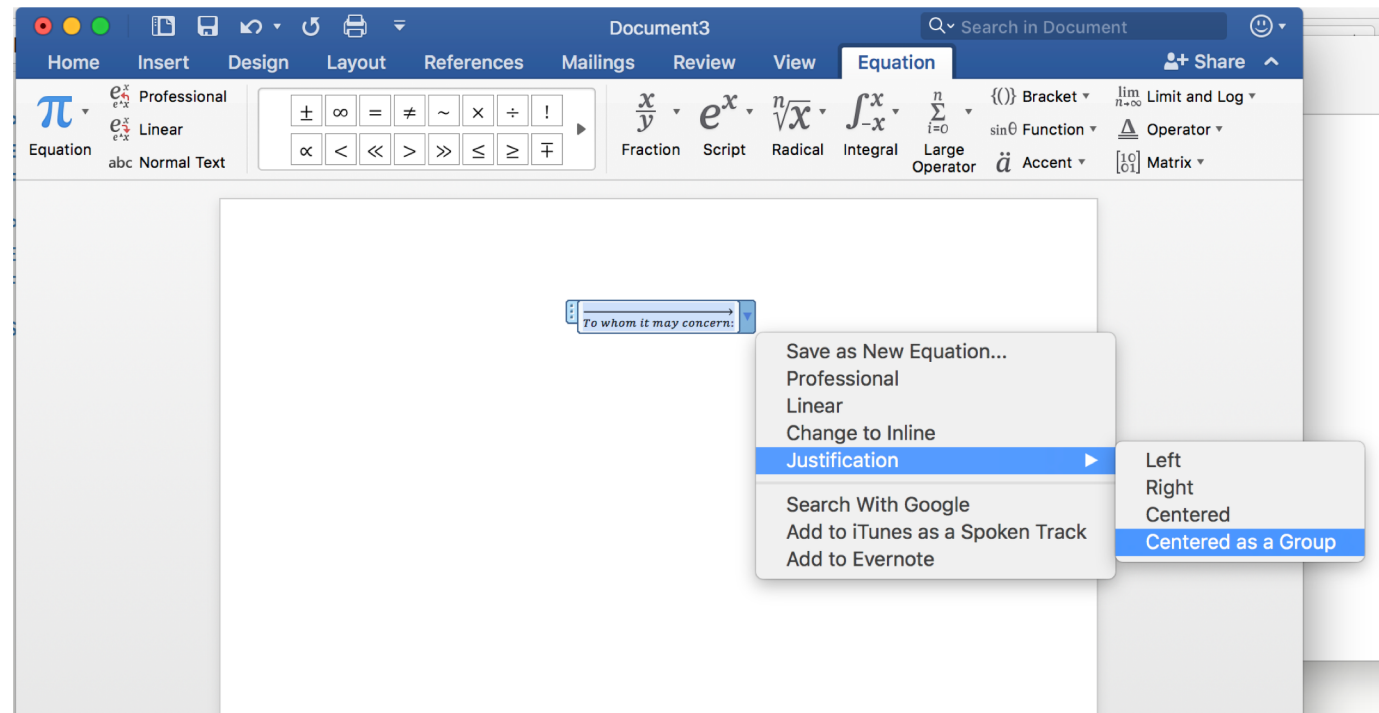


Why is “New Document” the first menu item?



Items that are **frequently** used should be **easy** to access

Why is the function “*Word Equation -> Fraction -> Denominator -> Justification -> Centered as a Group*” buried 4 levels deep in the menu?

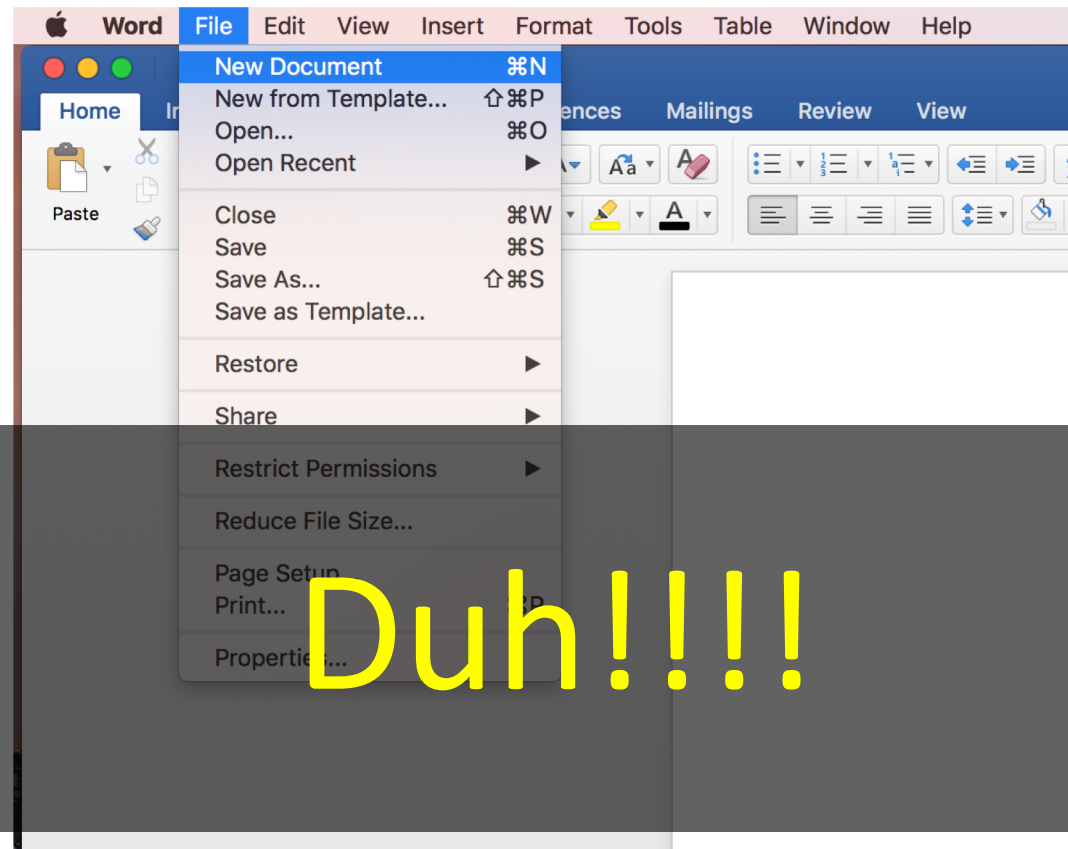


Items that are **infrequently** used can be more **difficult** to access

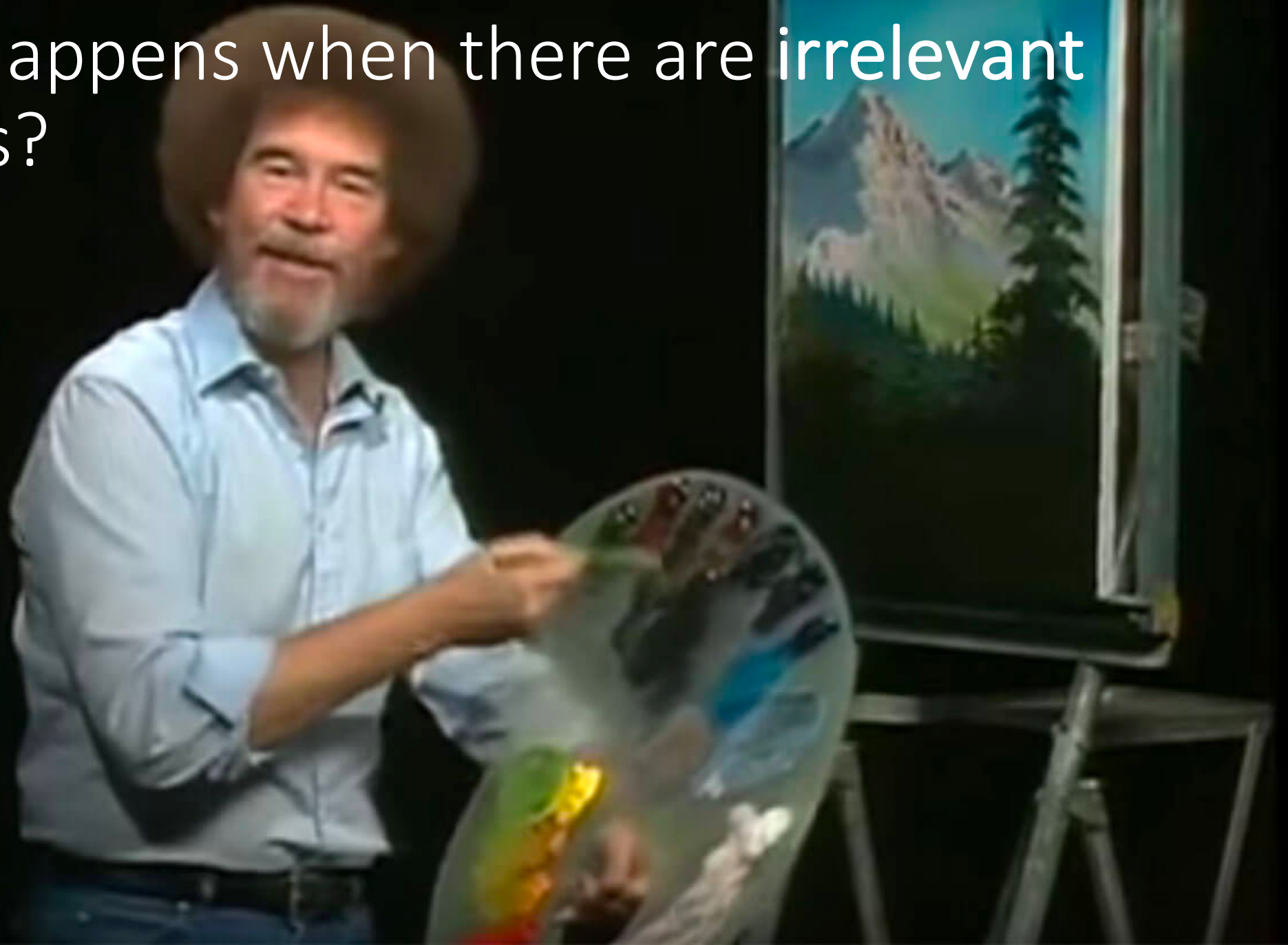
People have limited time.

Make frequently used options easier to access

Make rarely used options harder to access



What happens when there are irrelevant options?

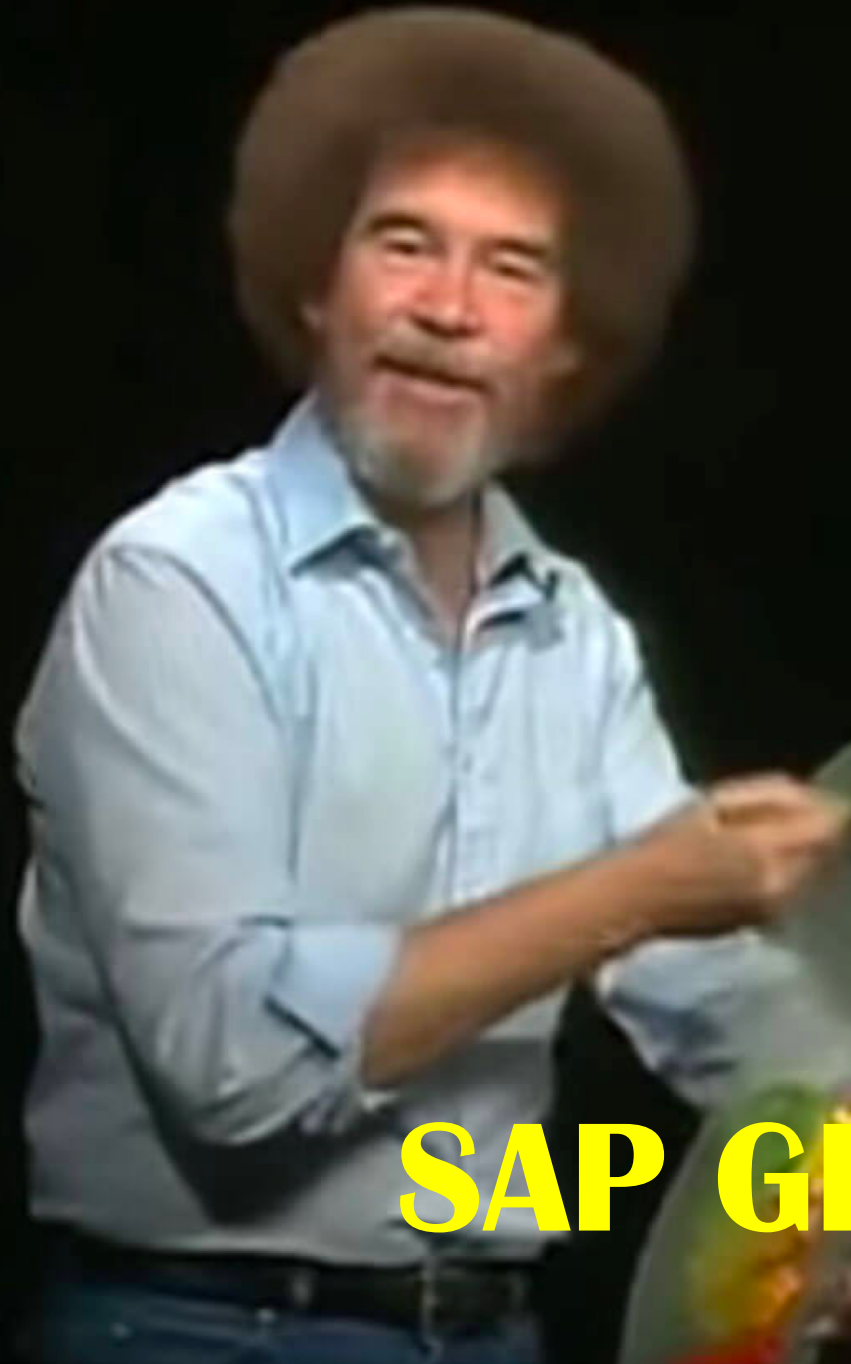


A man with a large afro hairstyle, wearing a light blue button-down shirt and jeans, is painting a landscape on a canvas. He is holding a palette with various colors of paint. The painting depicts a mountain range with a large evergreen tree in the foreground. The text "TITANIUM WHITE" is overlaid in yellow at the bottom of the image.

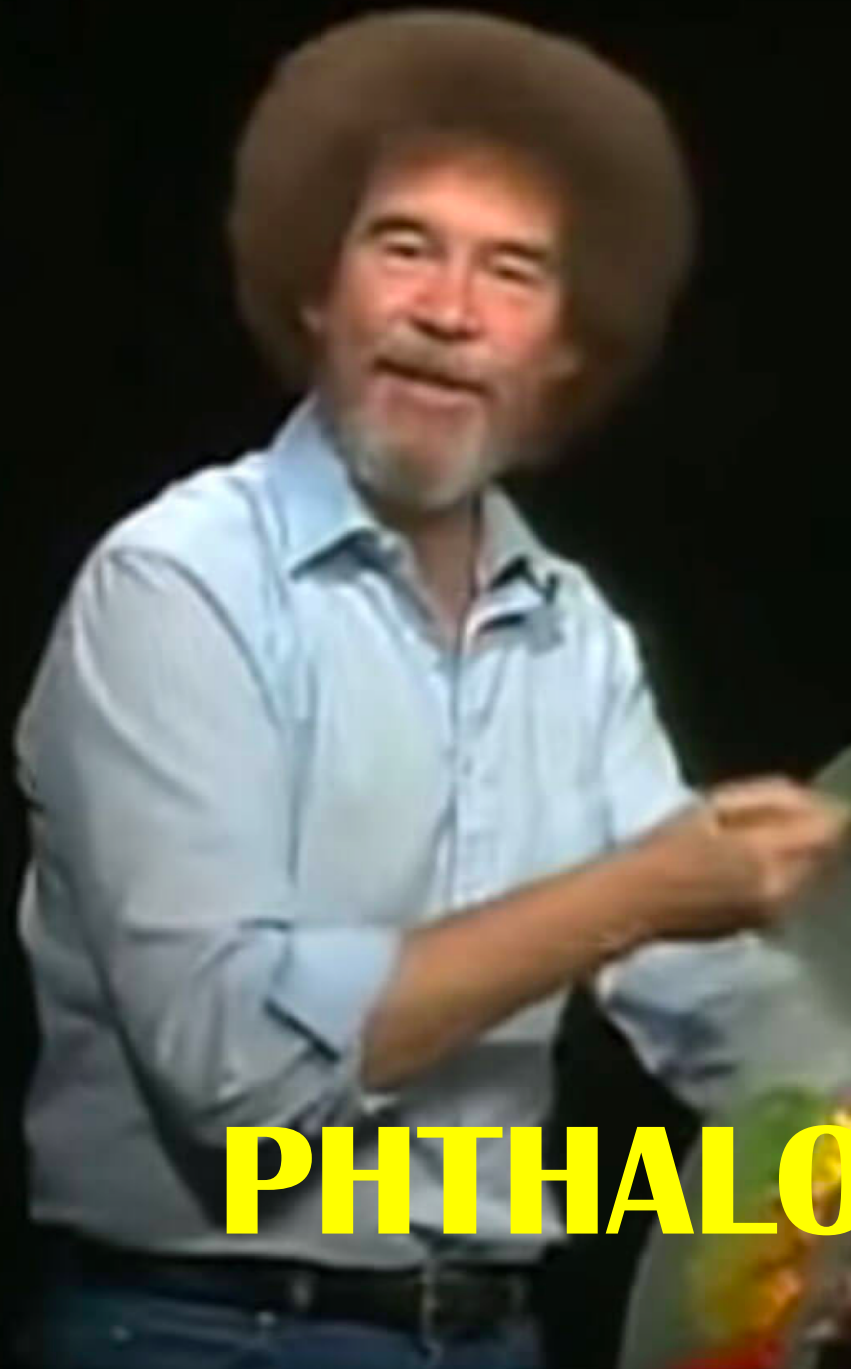
TITANIUM WHITE

A man with a large afro hairstyle, wearing a light blue button-down shirt and jeans, is painting a landscape on a canvas. He is holding a palette with various colors of paint. The painting on the canvas depicts a mountain range with a large evergreen tree in the foreground. The text "CADMIUM YELLOW" is overlaid in large, bold, yellow letters at the bottom of the image.

CADMIUM YELLOW



SAP GREEN



PHTHALO BLUE

Why not do this?



4

ELECTRIC PINK

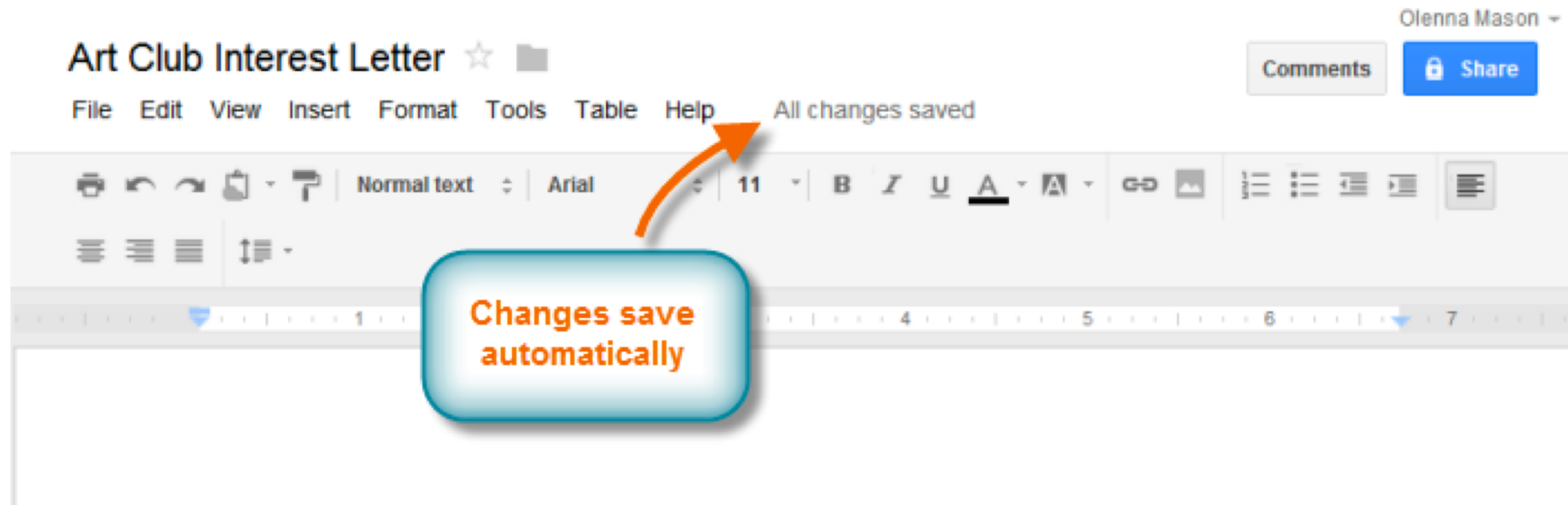
Irrelevant options create distractions



Users will expend energy to focus.
OR make mistakes

5. Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place.



People have limited focus.

Within a state, provide options that are relevant to the user completing their goal.

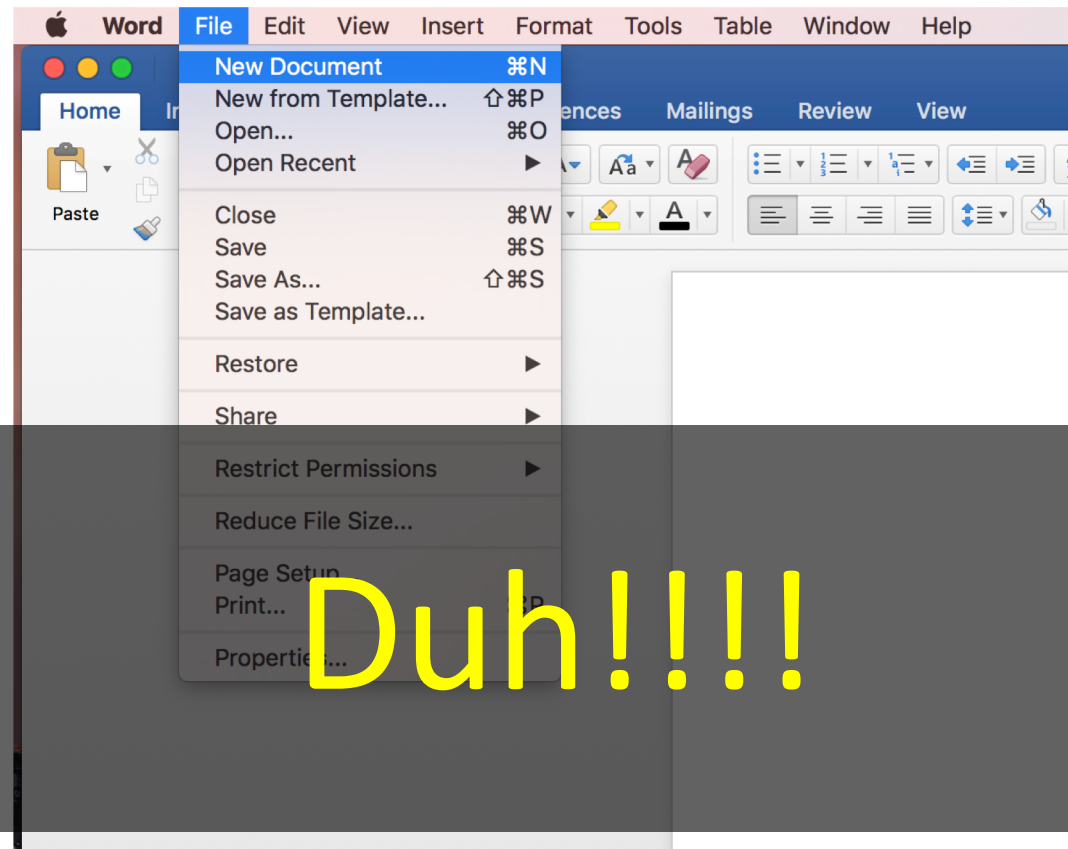
YES



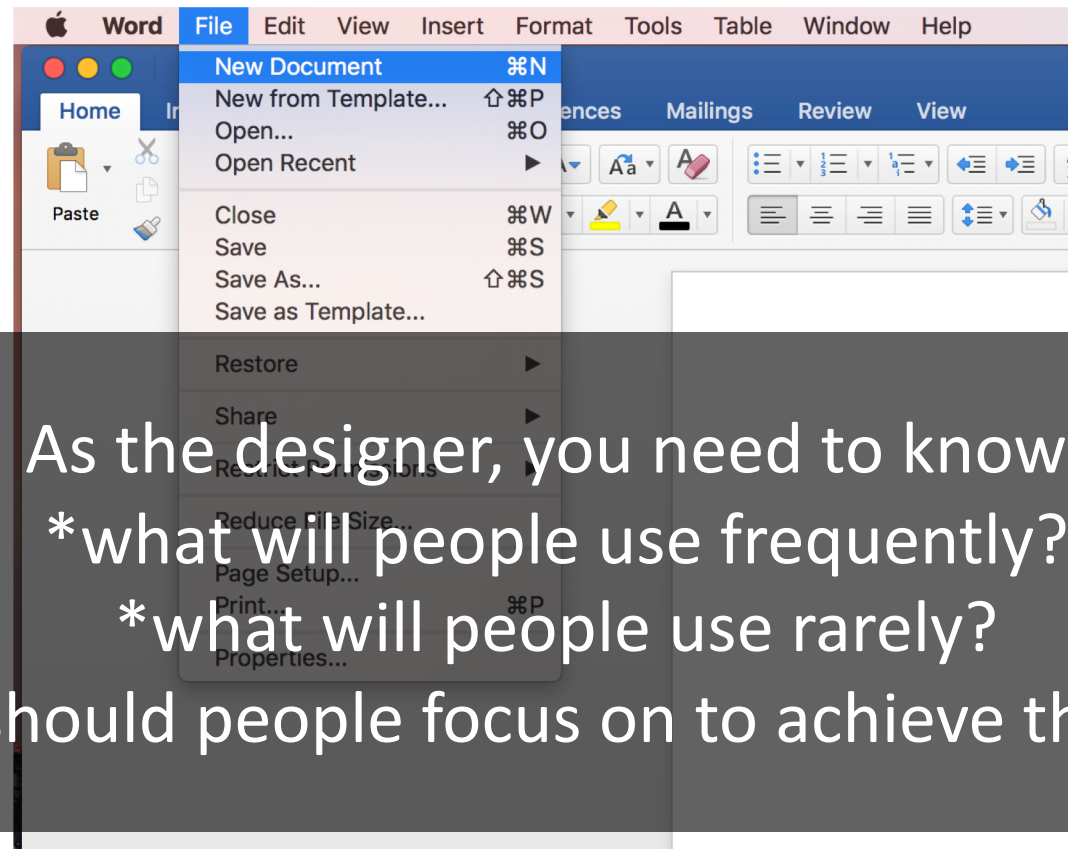
NO



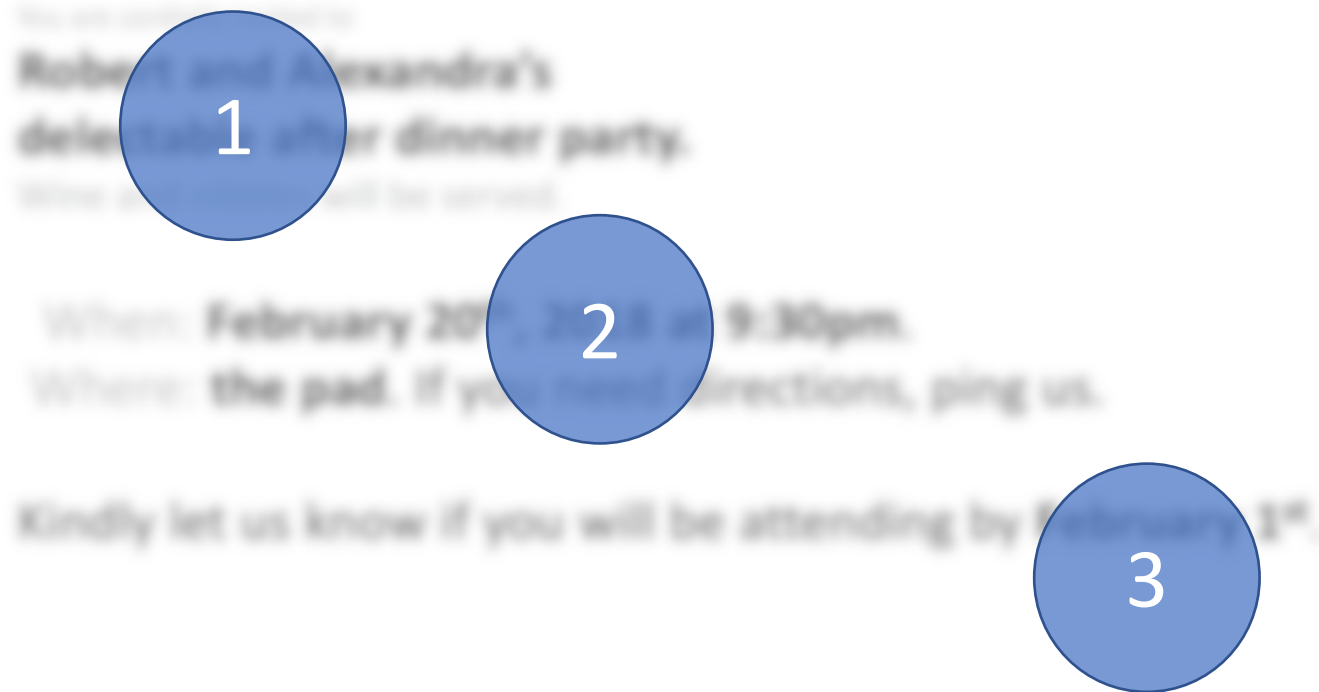
Make frequently used options easier to access
Make rarely used options harder to access



People have limited time and focus.



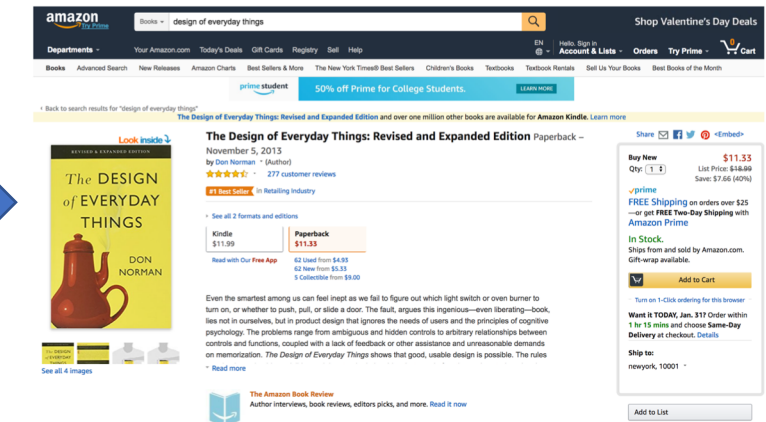
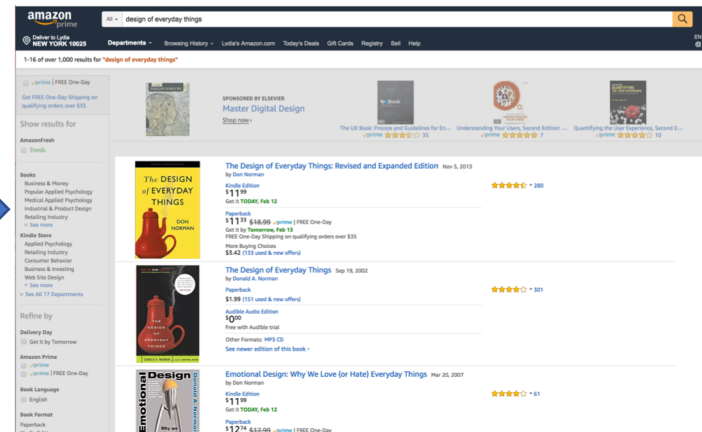
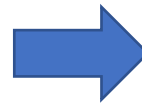
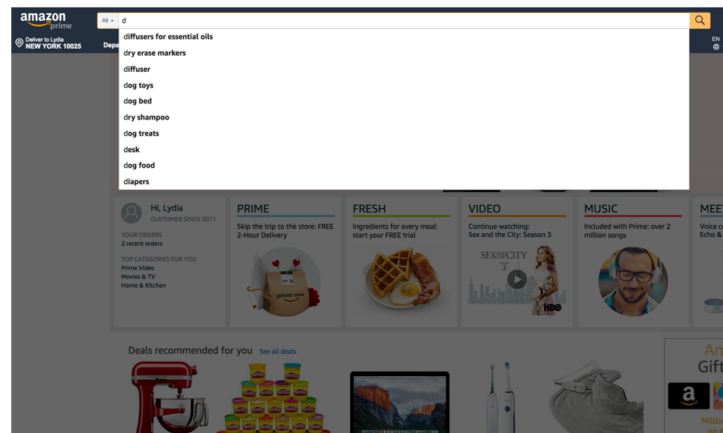
Sound familiar?



The designer must **guide users' attention.**

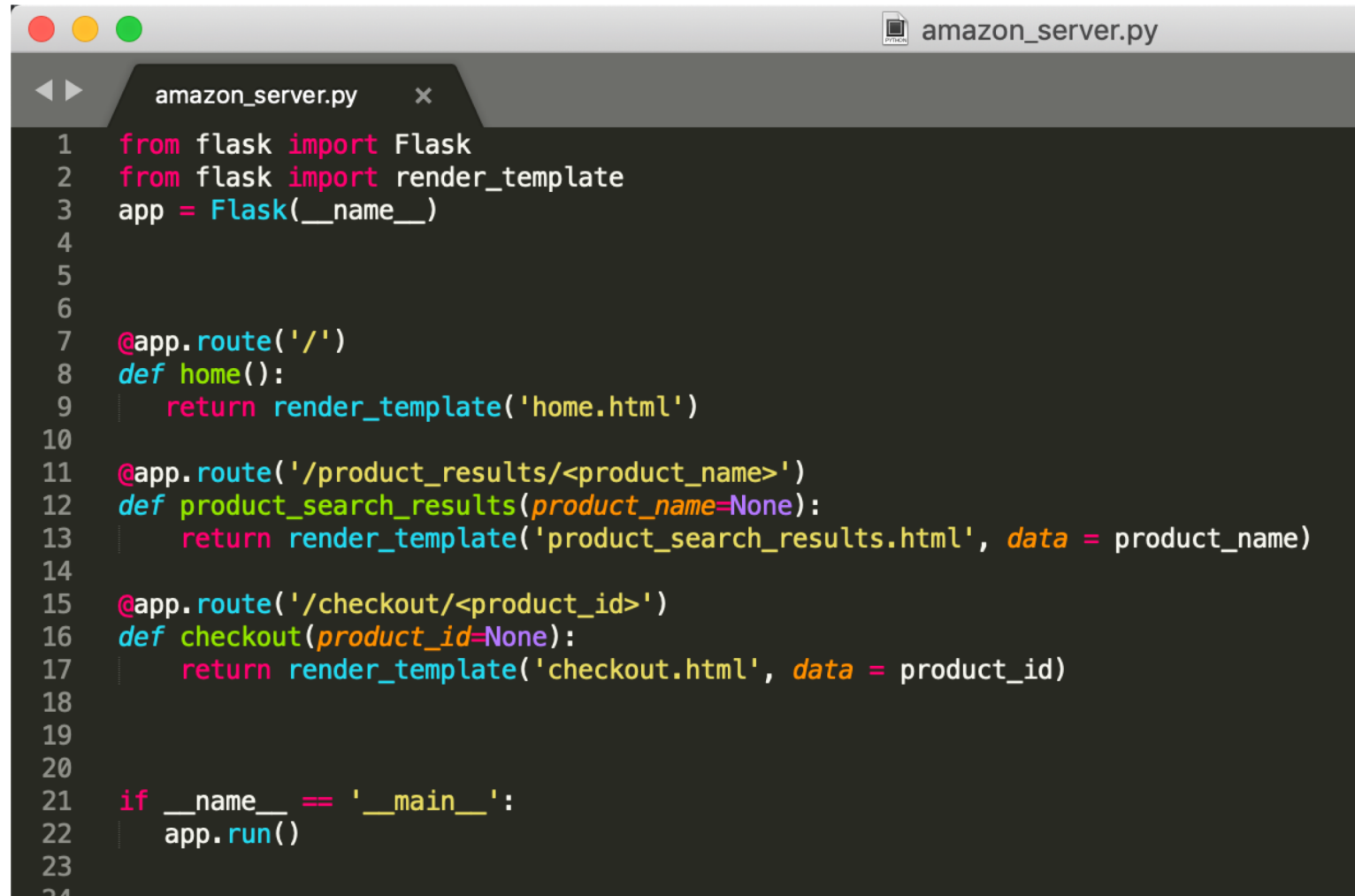
Implementing navigation on the
web

How is each state instantiated?



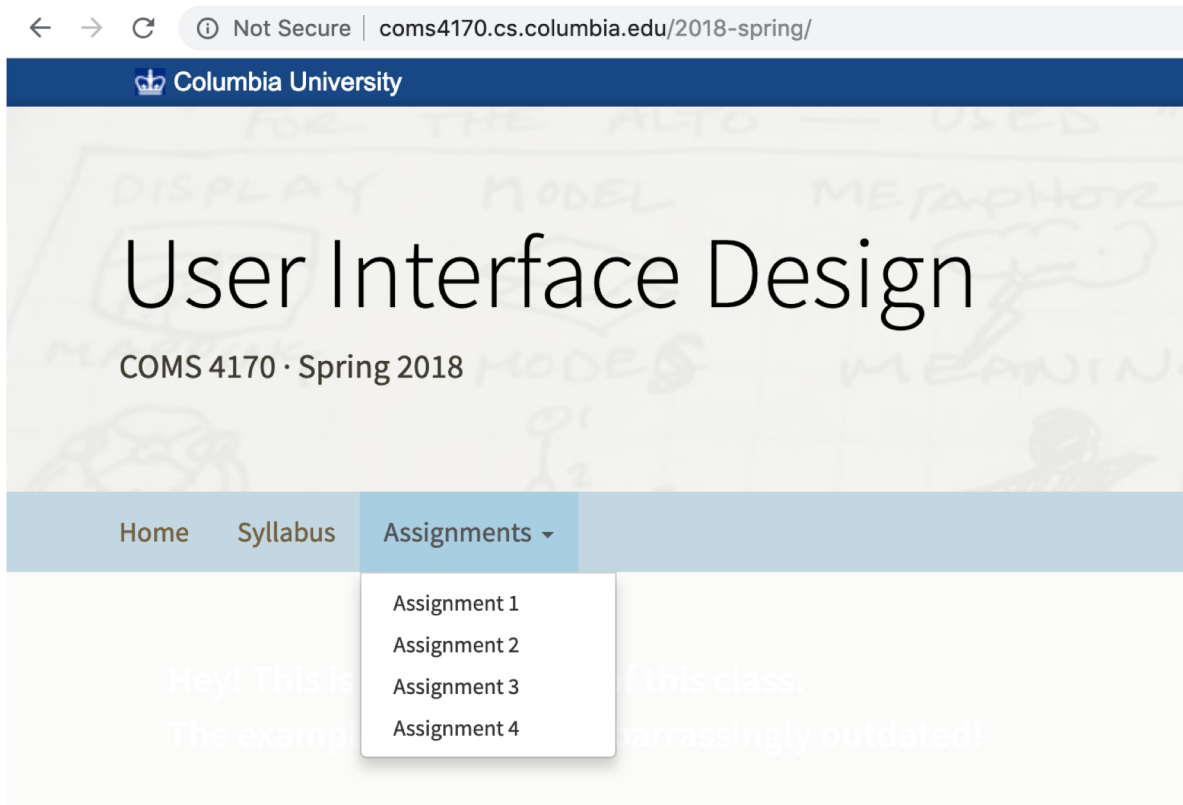
Typically, each page is a state

To create a website with multiple pages we need a **server** on the backend.



```
amazon_server.py
1 from flask import Flask
2 from flask import render_template
3 app = Flask(__name__)
4
5
6
7 @app.route('/')
8 def home():
9     return render_template('home.html')
10
11 @app.route('/product_results/<product_name>')
12 def product_search_results(product_name=None):
13     return render_template('product_search_results.html', data = product_name)
14
15 @app.route('/checkout/<product_id>')
16 def checkout(product_id=None):
17     return render_template('checkout.html', data = product_id)
18
19
20
21 if __name__ == '__main__':
22     app.run()
23
24
```

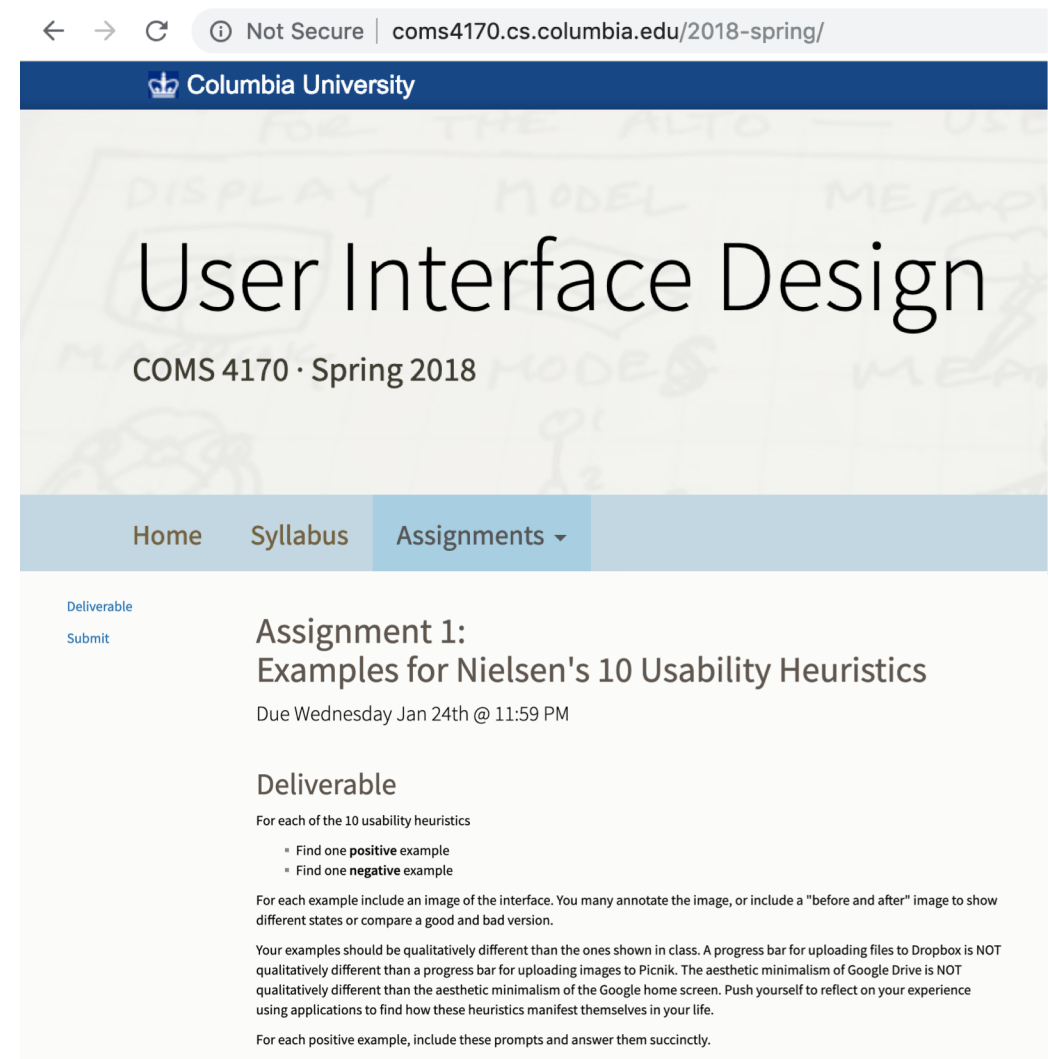
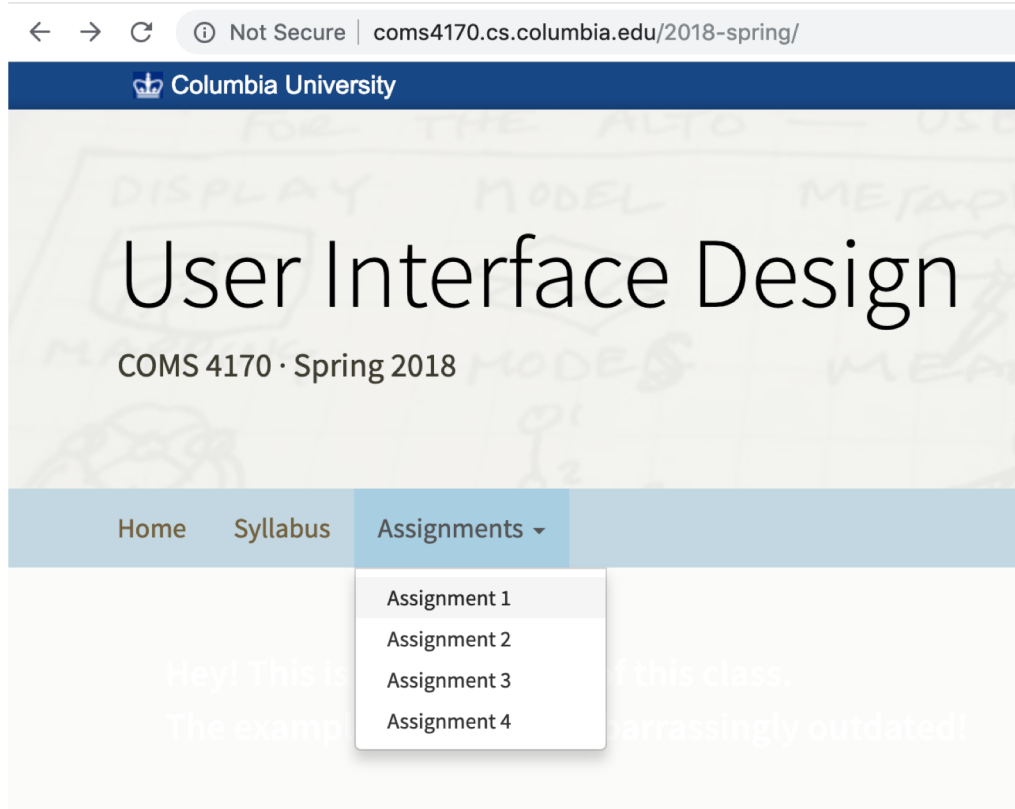
Menus are implemented as Bootstrap NavBars



```
<nav class="navbar navbar-default navbar-static-top" role="navigation">
  <div class="container">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle" data-toggle="collapse" data-target=".navbar-collapse">
        <span class="sr-only">Toggle navigation</span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
      </button>
      <a class="navbar-brand" href="/2018-spring/index.shtml">Home</a>
    </div>
    <div class="navbar-collapse collapse">
      <ul class="nav navbar-nav">
        <li><a href="/2018-spring/index.shtml#calendar">Syllabus</a></li>

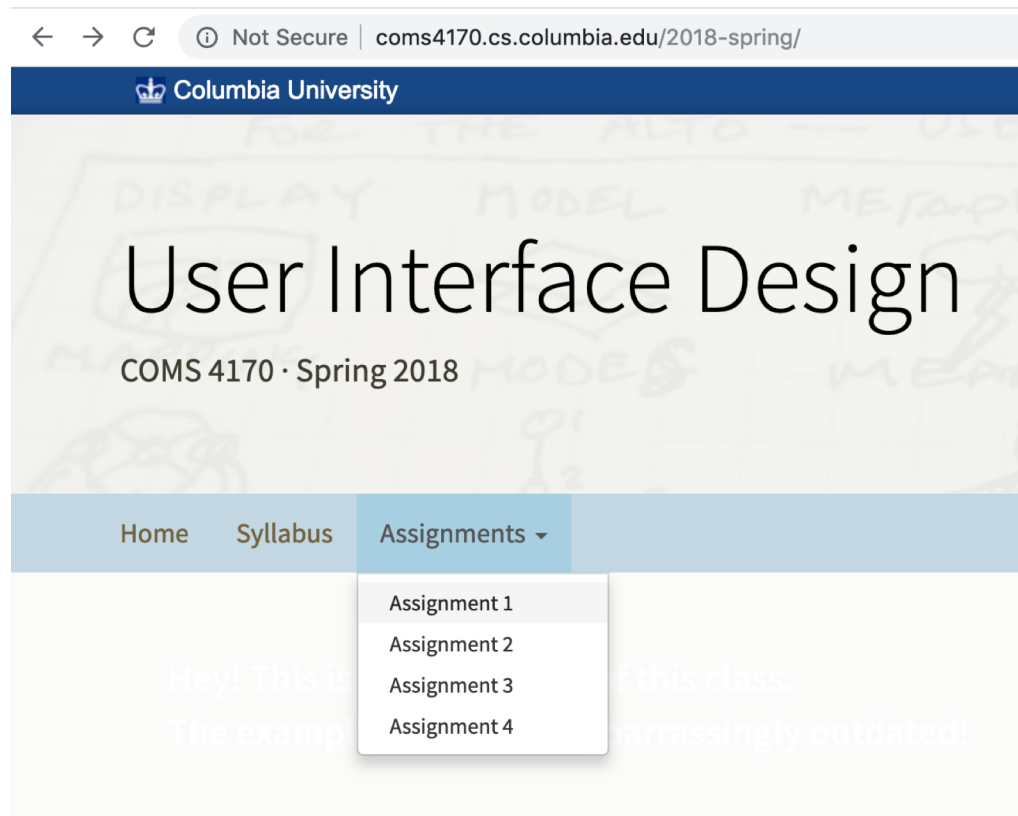
        <li class="dropdown">
          <a href="#" class="dropdown-toggle" data-toggle="dropdown" role="button" aria-haspopup="true"
            aria-expanded="false">Assignments <span class="caret"></span></a>
          <ul id="assignments" class="dropdown-menu">
            <!--<li class="disabled"><a href="">coming soon!</a></li-->
            <li><a href="/2018-spring/assignments/a1.shtml">Assignment 1</a></li>
            <li><a href="/2018-spring/assignments/a2.shtml">Assignment 2</a></li>
            <li><a href="/2018-spring/assignments/a3.shtml">Assignment 3</a></li>
            <li><a href="/2018-spring/assignments/a4.shtml">Assignment 4</a></li>
          </ul>
        </li>
        <!--
        <li><a href="/2018-spring/project-presentations/index.shtml">Project Presentations</a></li>
        -->
      </ul>
      <ul class="nav navbar-nav navbar-right">
        <a class="navbar-link" href="http://piazza.com/columbia/
          spring2018/comsw4170_001_2018_userinterfacedesign/home"><button type="button" class="btn btn-default
            btn-su navbar-btn">Piazza</button></a>
      </ul>
    </div>
  </div>
</nav>
```

NavBars are the same across all your pages.

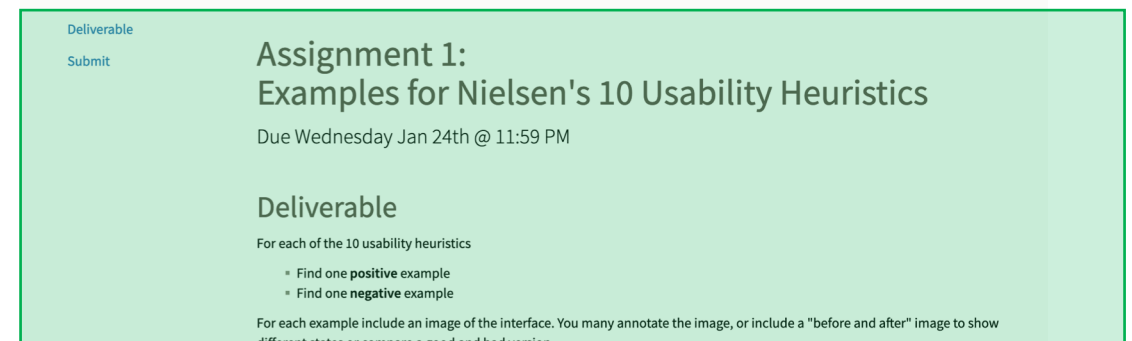
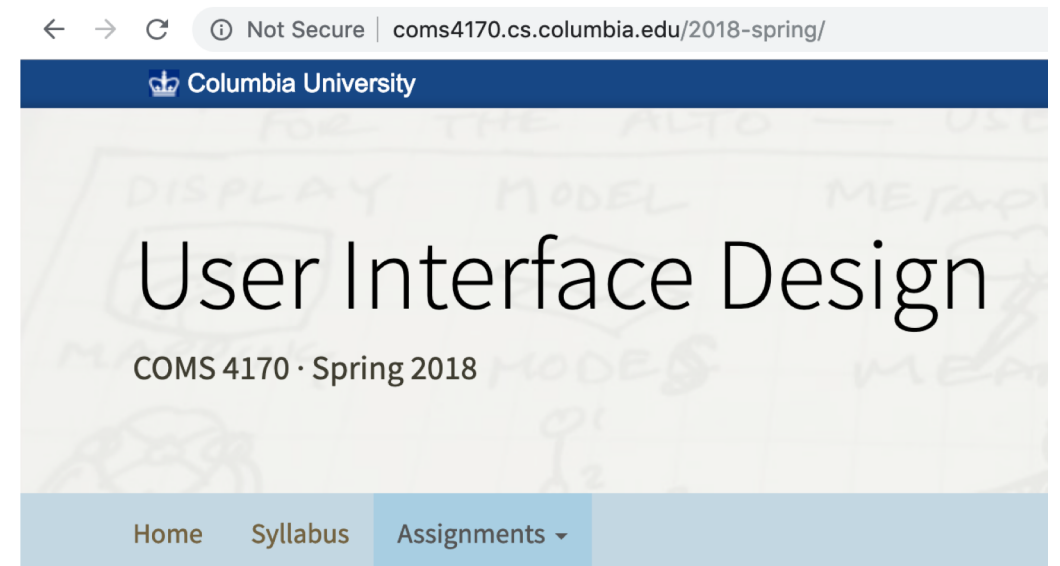


NavBars HTML is not copied across pages.
NavBars is part of the *layout*.

layout



Content block



Create "layout.html" that has the common HTML (headers, navs bars, etc)

```
1 <html>
2 <head>
3 <link href="http://netdna.bootstrapcdn.com/bootstrap/3.0.0/css/bootstrap.min.css" >
4 </head>
5
6
7 <body>
8 <nav class="navbar navbar-inverse" role="navigation">
9 <div class="container-fluid">
10 <div class="navbar-header">
11 <button type="button" class="navbar-toggle" data-toggle="collapse" data-target="#"
12 #bs-example-navbar-collapse-1>
13 <span class="sr-only">Toggle navigation</span>
14 <span class="icon-bar"></span>
15 <span class="icon-bar"></span>
16 <span class="icon-bar"></span>
17 </button>
18 <a class="navbar-brand" href="#">Home</a>
19 </div>
20 <div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">
21 <ul class="nav navbar-nav navbar-right">
22 <li><a href="#">Link</a></li>
23 <li class="dropdown">
24 <a href="#" class="dropdown-toggle" data-toggle="dropdown">Dropdown <b class="caret"></b></a>
25 <ul class="dropdown-menu">
26 <li><a href="#">Action</a></li>
27 <li><a href="#">Another action</a></li>
28 <li><a href="#">Something else here</a></li>
29 <li class="divider"></li>
30 <li><a href="#">Separated link</a></li>
31 </ul>
32 </li>
33 </ul>
34 </div><!-- /.navbar-collapse -->
35 </div><!-- /.container-fluid -->
36 </nav>
37 <div class="container">
38 <div class="container">
39 <div class="container">
40 <div class="container">
41 <div class="container">
42 <div class="container">
43 <div class="container">
44 <div class="container">
45 <div class="container">
46 <div class="container">
47 </div>
</body>
</html>
```

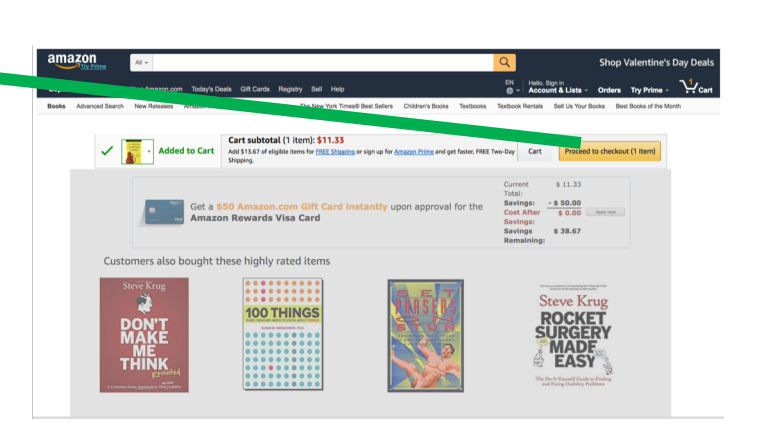
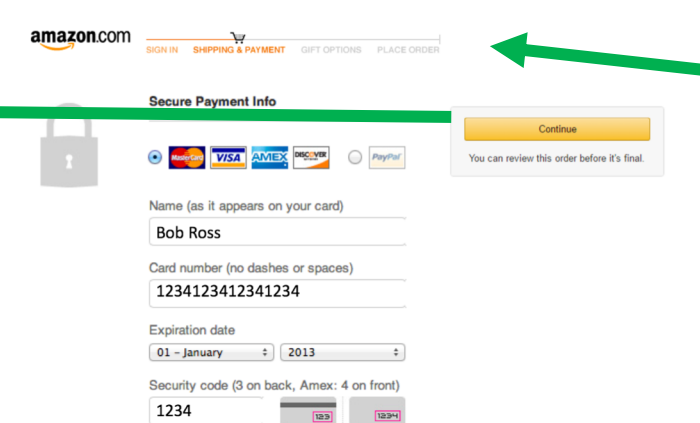
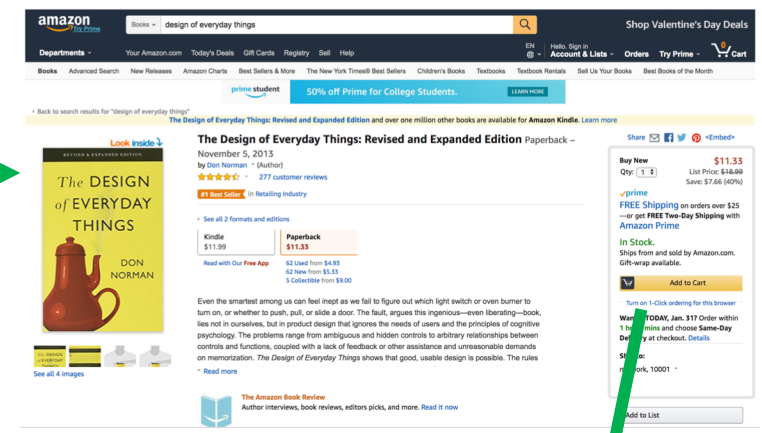
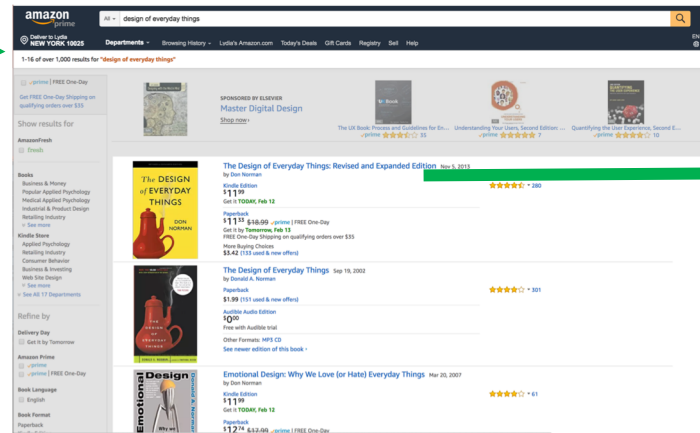
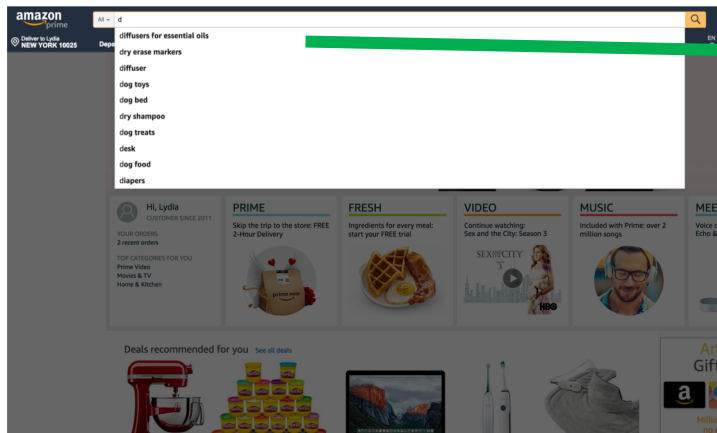
Create each page (like "home.html") by extending "layout.html"

```
1 {% extends "layout.html" %}
2
3
4 {% block content %}
5 <div>
6 <h1> Assignment 1</h1>
7
8 <p>
9 Your assignment for this week is to ...
10 </p>
11 </div>
12 {% endblock %}
13
14
15
16
```

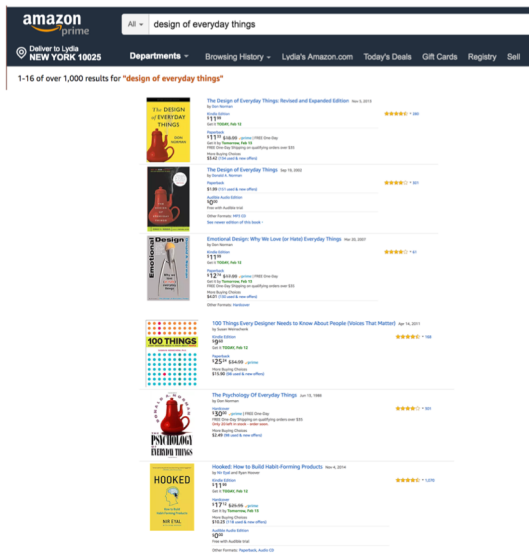
Code block containing HTML content for the home page: `<div>`, `<h1> Assignment 1</h1>`, `<p>`, `Your assignment for this week is to ...`, `</p>`, `</div>`

Summary

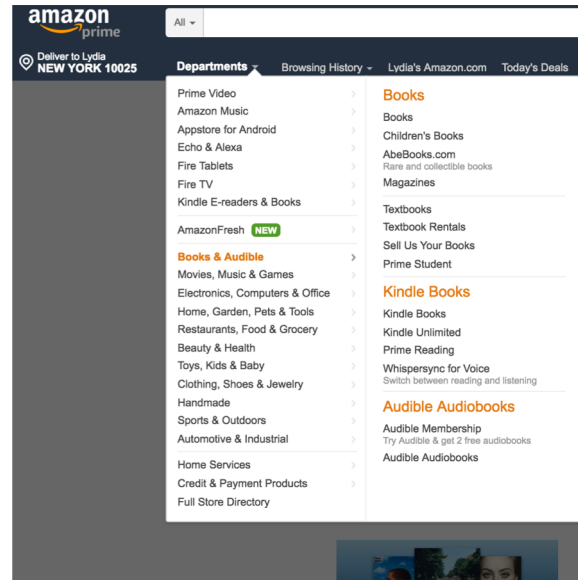
For complex tasks, guide users attention by breaking the task into: states, options, and transitions to new states.



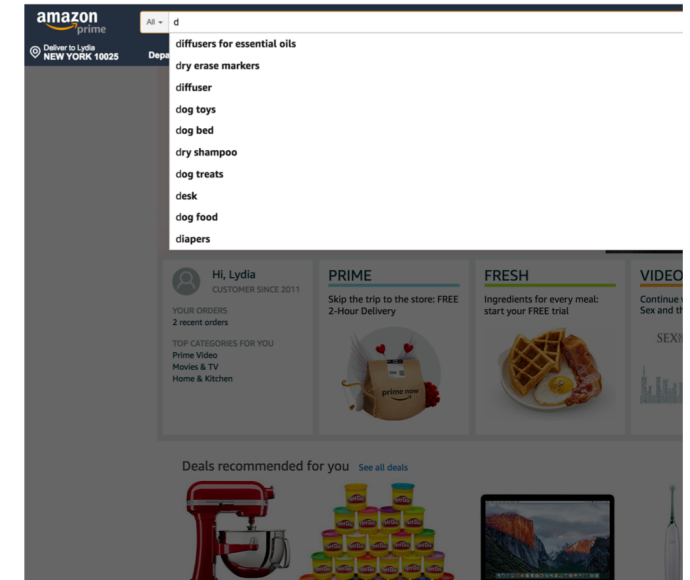
When displaying options, the number of options determines the interaction style.



~10 items = **list**



~100 items = **tree**

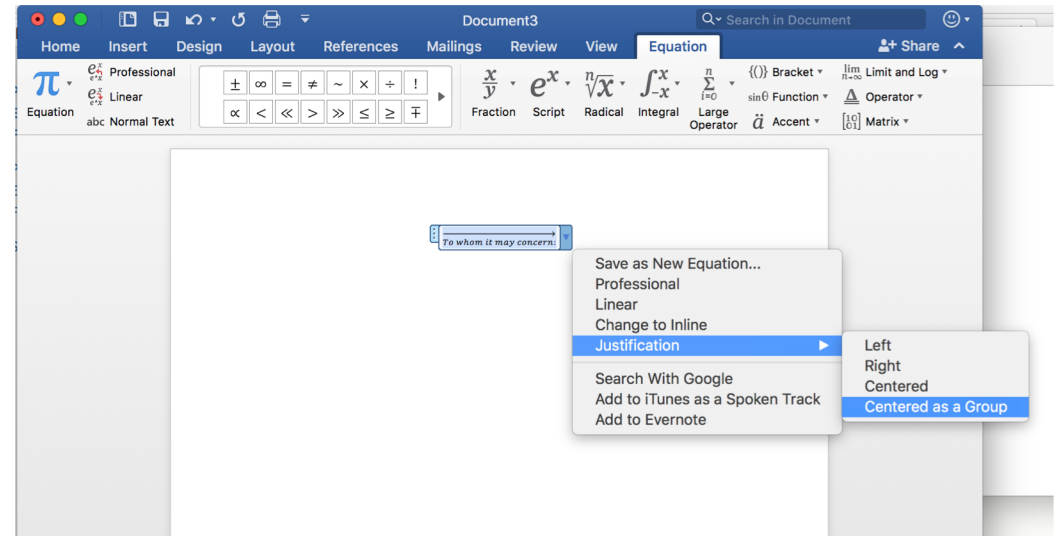
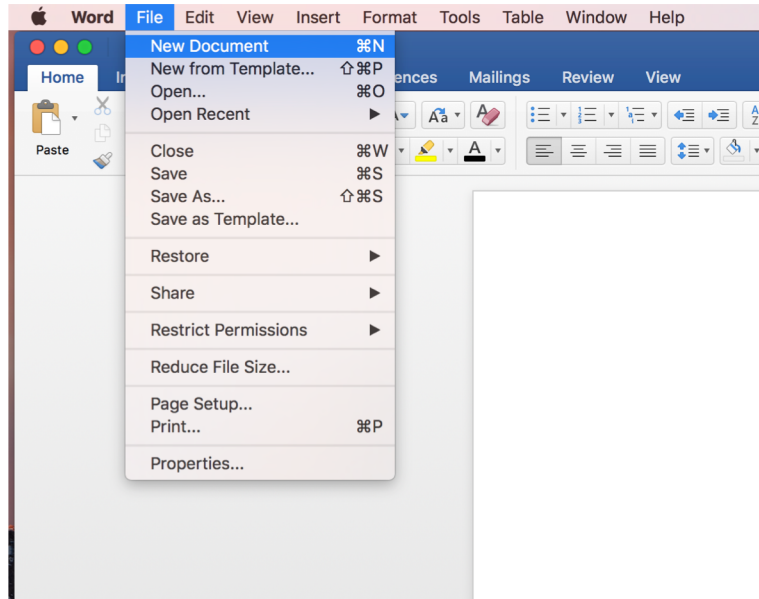


~1000 items = **search**

People have limited time.

Make frequently used options easier to access

Make rarely used options harder to access



People have limited focus.

Within a state, provide options that are relevant to the user completing their goal.

YES

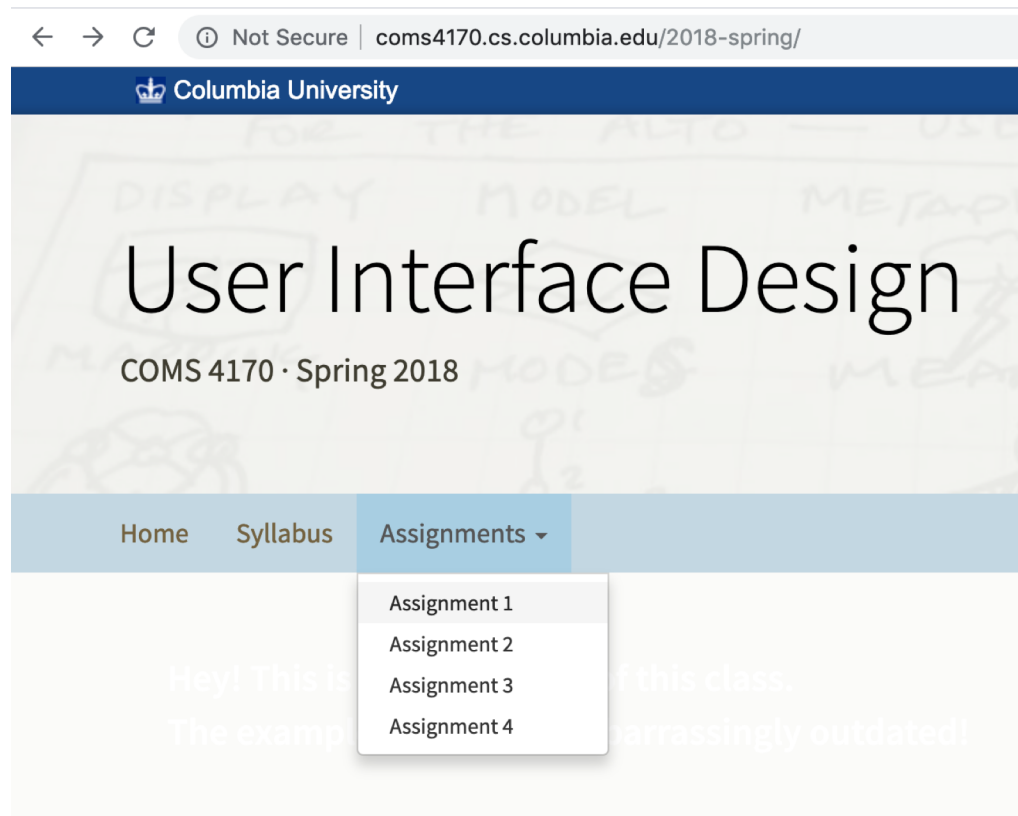


NO



Implement navigation as a shared layout page.
Insert a content block for unique content

Layout



Content block

