

# Navbar Widgets Habit Formation

No screens



Prof. Lydia Chilton  
COMS 4170  
4 March 2020

Say your name



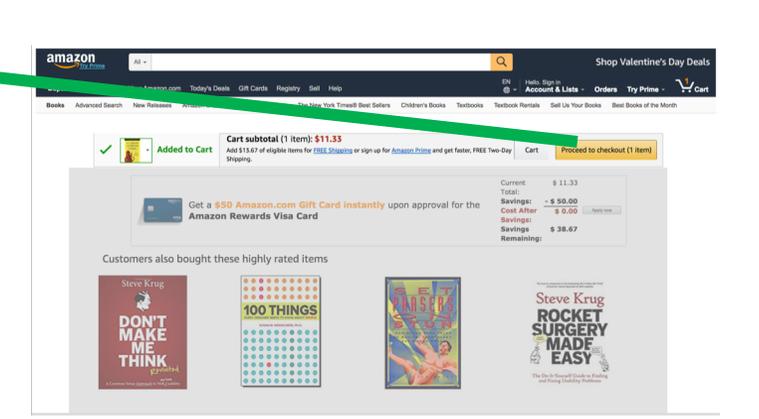
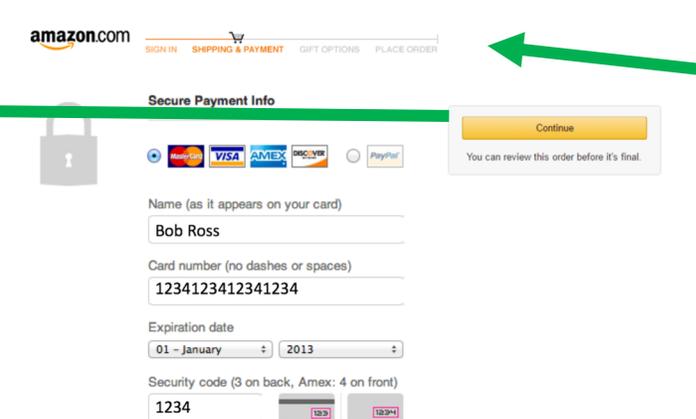
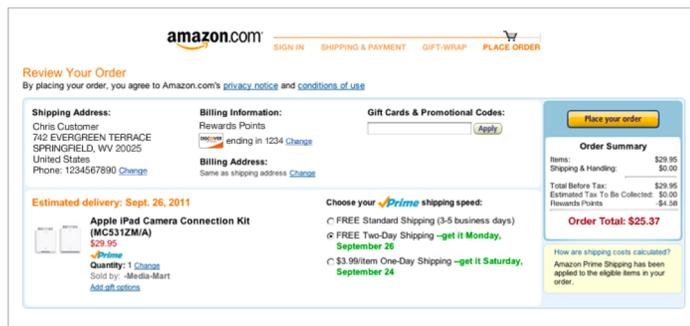
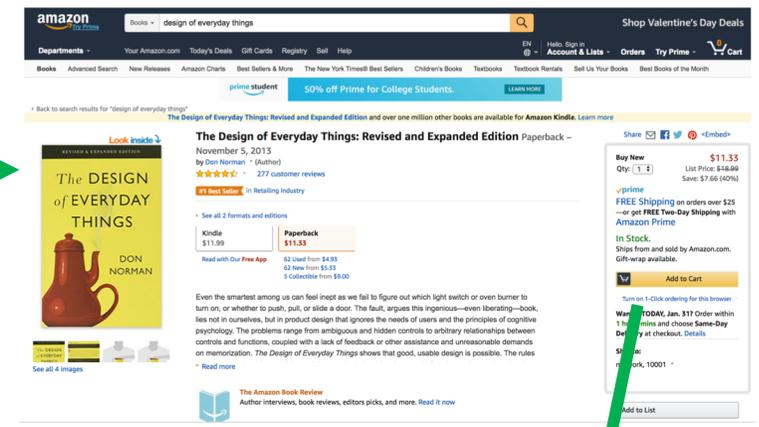
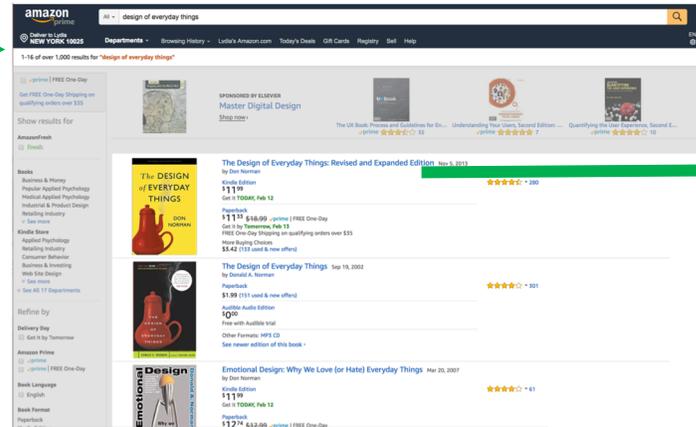
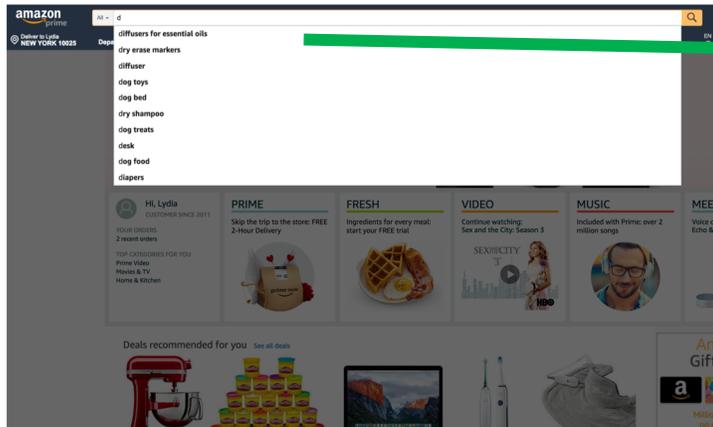
HW6 focused on functionality

HW7 focuses on usability

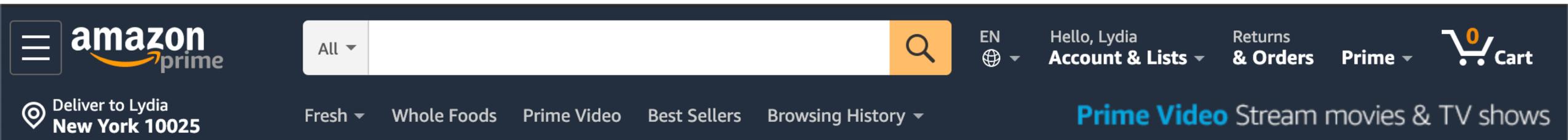
Today we're going to turn back to thinking about users and their experience.

But there is one more technical thing to learn.

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

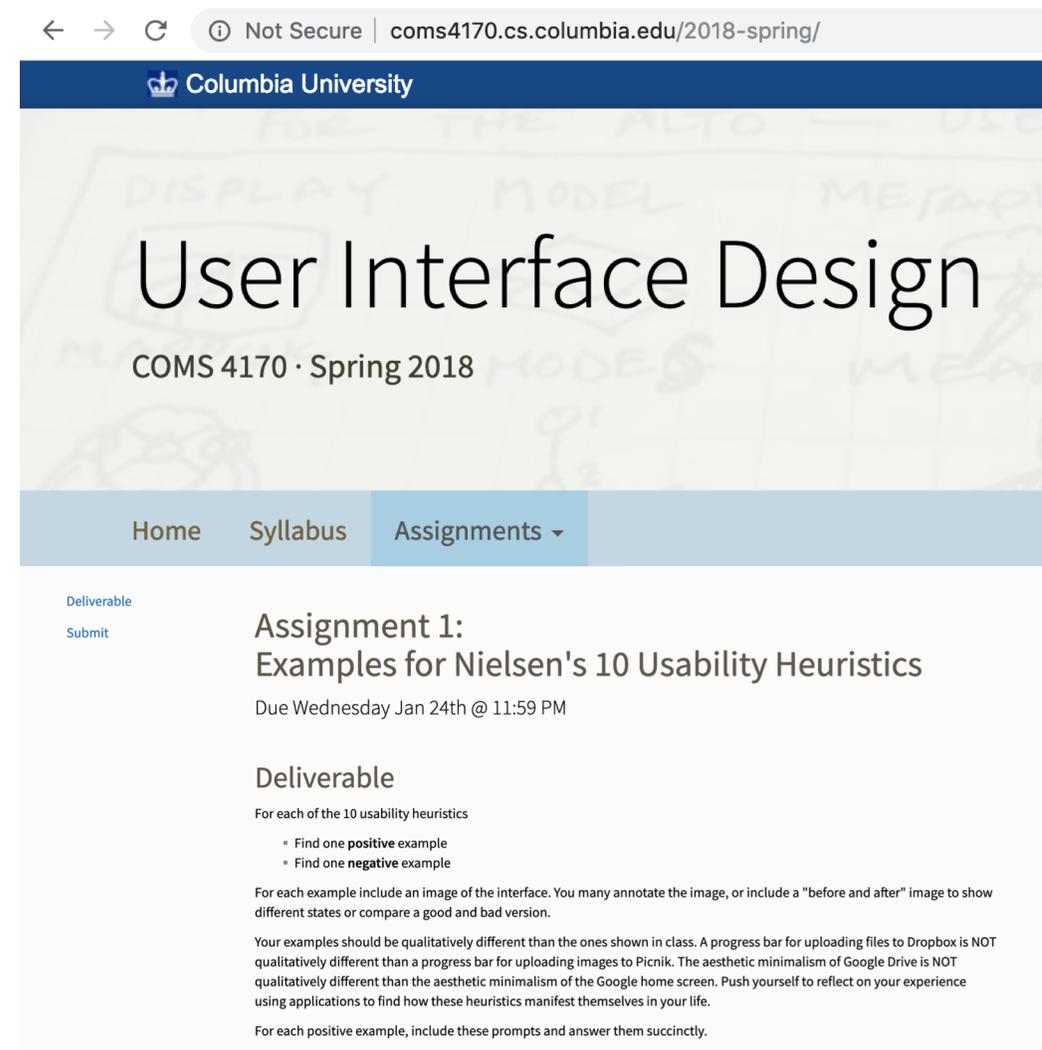
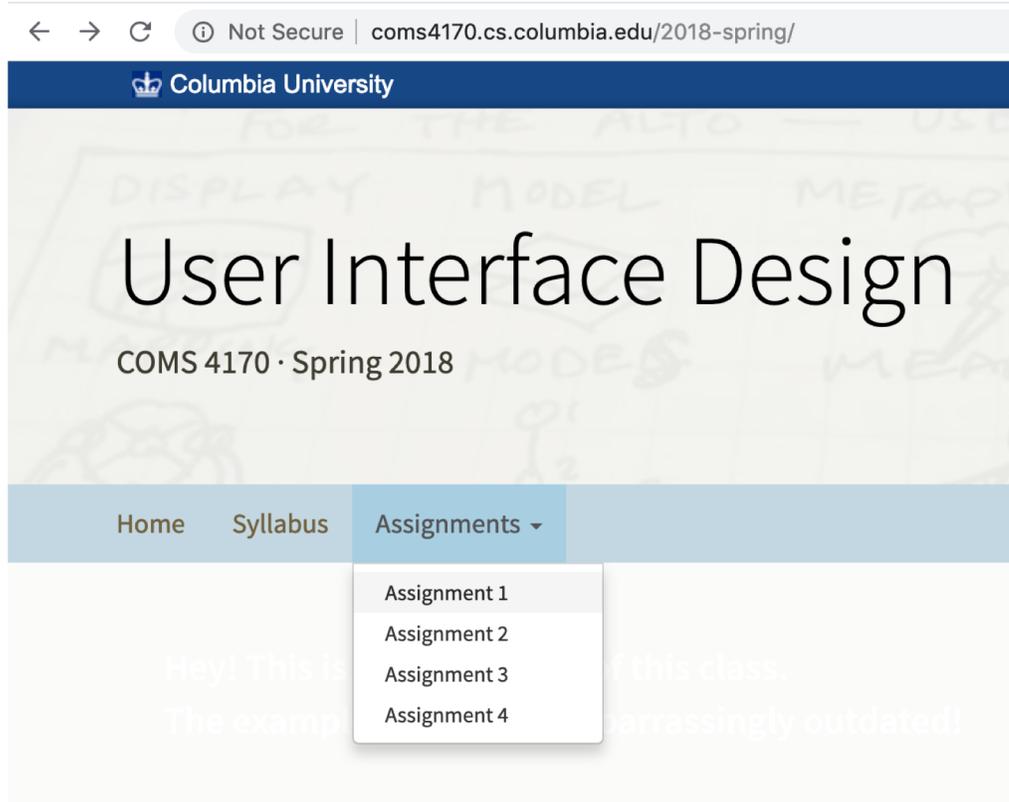


But across each state, there is something that is consistent, and given the user great control and freedom.

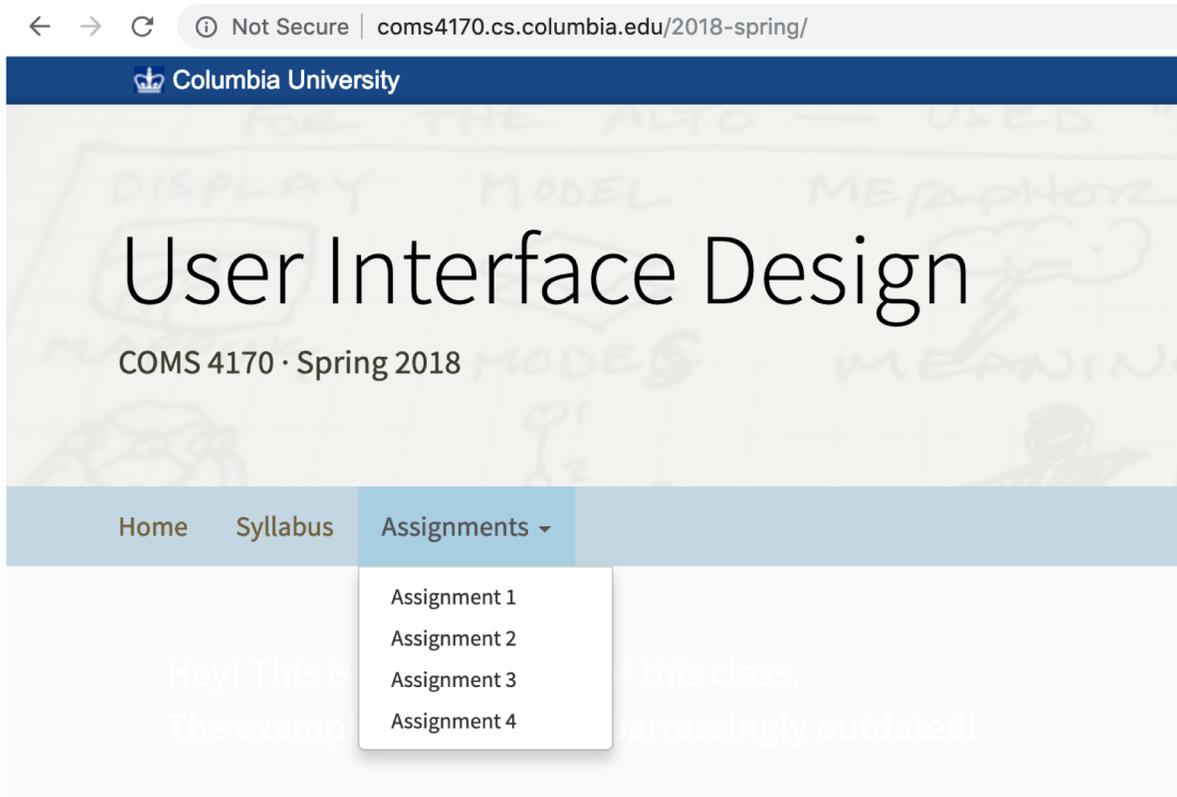


## The Navigation Bar (Navbar)

# NavBars are Widgets that are the same across all your pages.



# Bootstrap makes a very widely used Navbar widget

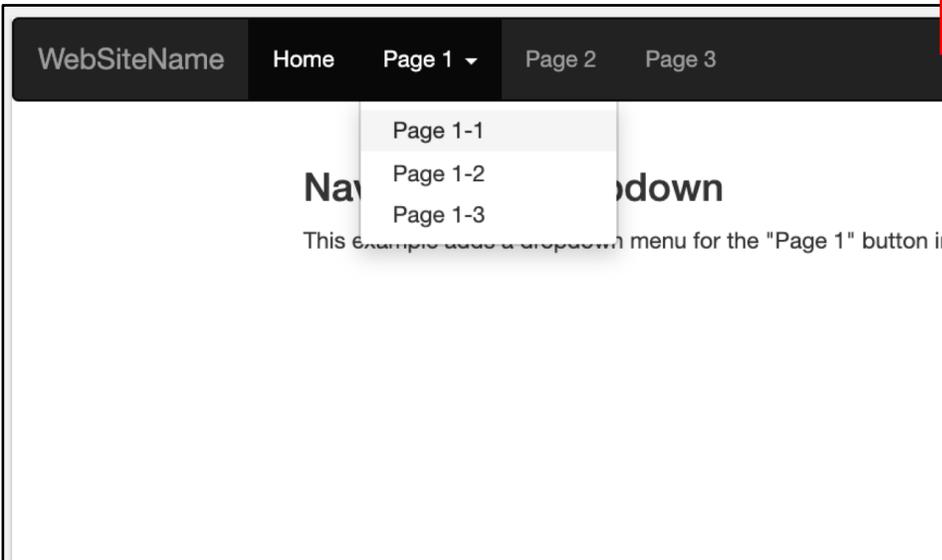


```
<nav class="navbar navbar-default navbar-static-top" role="navigation">
  <div class="container">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle" data-toggle="collapse" data-target=".navbar-collapse">
        <span class="sr-only">Toggle navigation</span>
        <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>
```

# Bootstrap Navbar Implementation

Navbars have interaction, then need JavaScript packages.



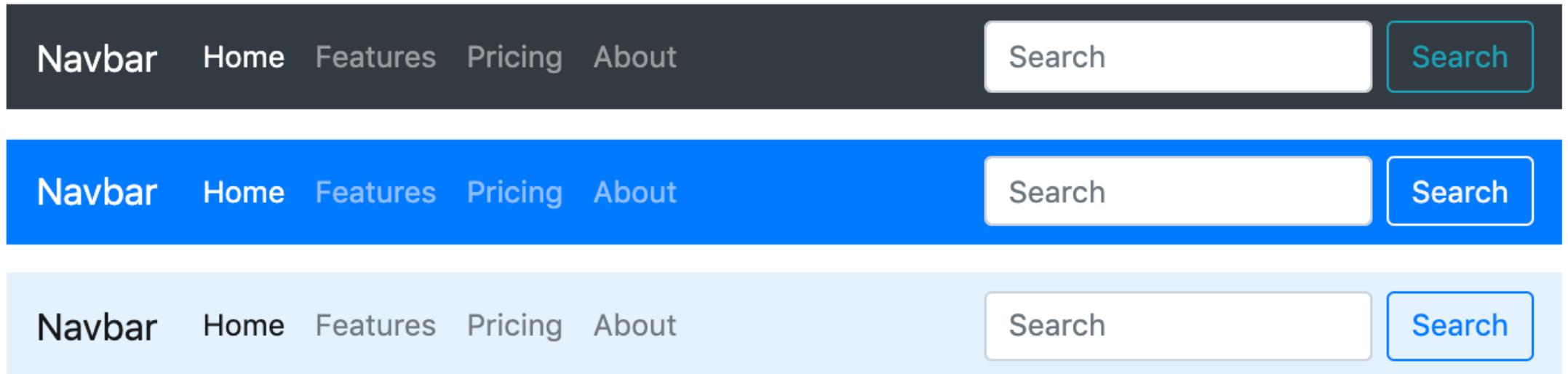
```
<head>
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<nav class="navbar navbar-inverse">
  <div class="container-fluid">
    <div class="navbar-header">
      <a class="navbar-brand" href="#">WebSiteName</a>
    </div>
    <ul class="nav navbar-nav">
      <li class="active"><a href="#">Home</a></li>
      <li class="dropdown"><a class="dropdown-toggle" data-toggle="dropdown" href="#">Page 1 <span class="
        <ul class="dropdown-menu">
          <li><a href="#">Page 1-1</a></li>
          <li><a href="#">Page 1-2</a></li>
          <li><a href="#">Page 1-3</a></li>
        </ul>
      </li>
      <li><a href="#">Page 2</a></li>
      <li><a href="#">Page 3</a></li>
    </ul>
  </div>
</nav>

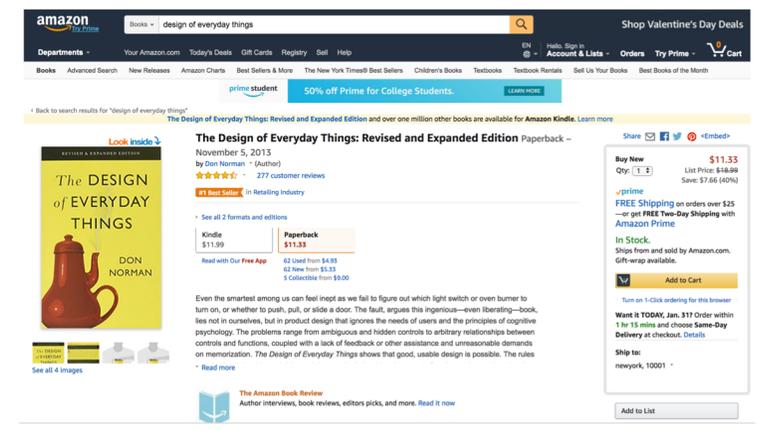
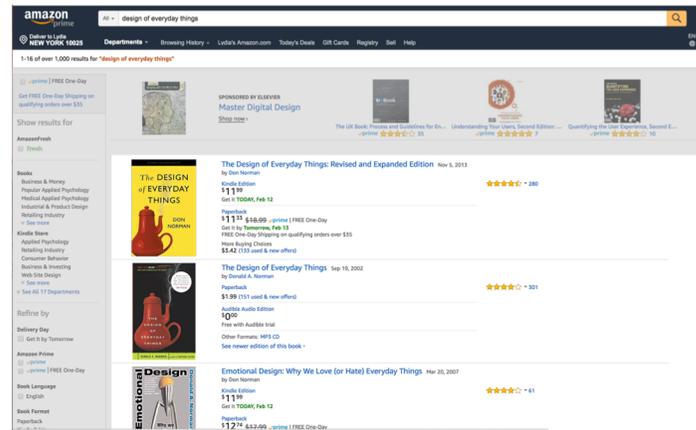
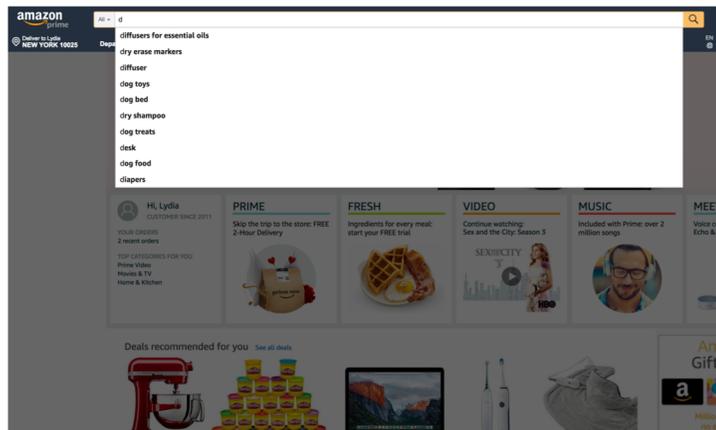
<div class="container">
  <h3>Navbar With Dropdown</h3>
  <p>This example adds a dropdown menu for the "Page 1" button in the navigation bar.</p>
</div>

</body>
</html>
```

# Many more examples in the Bootstrap docs

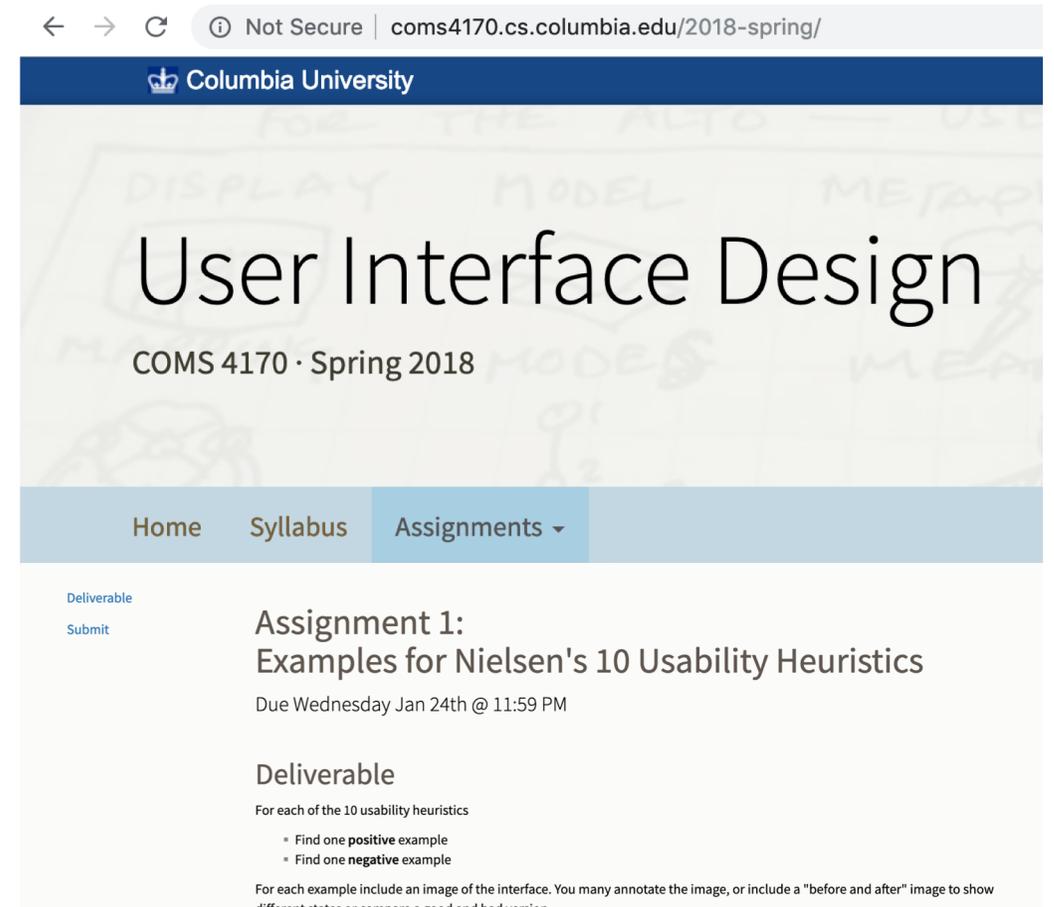
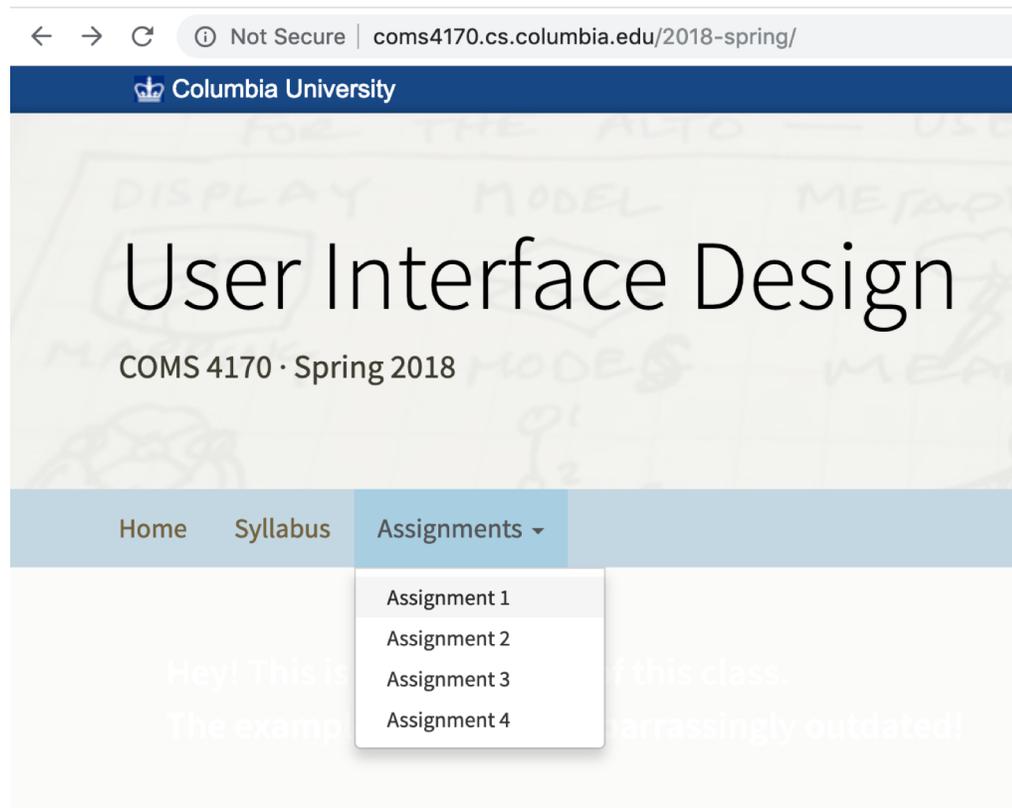


# How do you create the same HTML on three different pages?

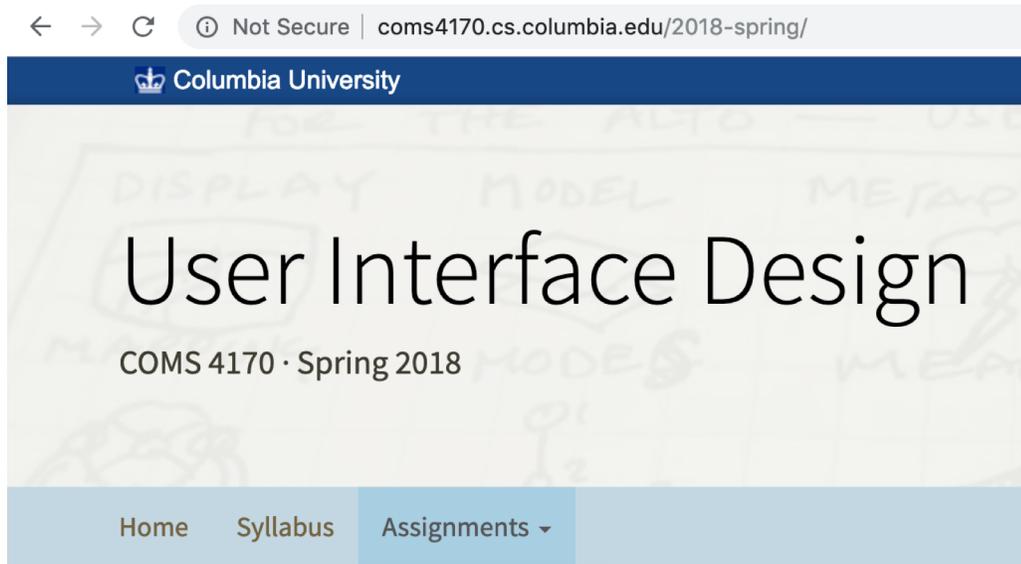


Use Flask/Jinja `{% extends %}` to reuse HTML.

Even the course website (that does not use Flask) uses server-side includes for this. Gross!



# Step 1. Define layout.html



Indicate where code can be injected into layout.html

```
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
21 <div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">
22 <ul class="nav navbar-nav navbar-right">
23 <li><a href="#">Link</a></li>
24 <li class="dropdown">
25 <a href="#" class="dropdown-toggle" data-toggle="dropdown">Dropdown <b class="caret"></b></a>
26 <ul class="dropdown-menu">
27 <li><a href="#">Action</a></li>
28 <li><a href="#">Another action</a></li>
29 <li><a href="#">Something else here</a></li>
30 <li class="divider"></li>
31 <li><a href="#">Separated link</a></li>
32 </ul>
33 </li>
34 </ul>
35 </div><!-- /.navbar-collapse -->
36 </div><!-- /.container-fluid -->
37
38 </nav>
39 <div class="container">
40 {% block content %}
41
42 {% endblock %}
43 </div>
44
45 </body>
46 </html>
```

# Step 2. Write the content html

← → ↻ ⓘ Not Secure | coms4170.cs.columbia.edu/2018-spring/

Columbia University

# User Interface Design

COMS 4170 · Spring 2018

Home Syllabus Assignments ▾

Deliverable  
Submit

## Assignment 1: Examples for Nielsen's 10 Usability Heuristics

Due Wednesday Jan 24th @ 11:59 PM

### Deliverable

For each of the 10 usability heuristics

- Find one **positive** example
- Find one **negative** example

For each example include an image of the interface. You may annotate the image, or include a "before and after" image to show different states or compare a good and bad version.

Your examples should be qualitatively different than the ones shown in class. A progress bar for uploading files to Dropbox is NOT qualitatively different than a progress bar for uploading images to Picnik. The aesthetic minimalism of Google Drive is NOT qualitatively different than the aesthetic minimalism of the Google home screen. Push yourself to reflect on your experience using applications to find how these heuristics manifest themselves in your life.

For each positive example, include these prompts and answer them succinctly.

- What is the interface?
- How does it meet the heuristic?
- What needs and/or abilities does it serve?

For each negative example, include these prompts and answer them succinctly.

```
home-test.html layout-test.html x
{% extends "layout.html" %}

{% block content %}
<div>
  <h1> Assignment 1</h1>

  <p>
    Your assignment for this week is to ...
  </p>
</div>
{% endblock %}
```

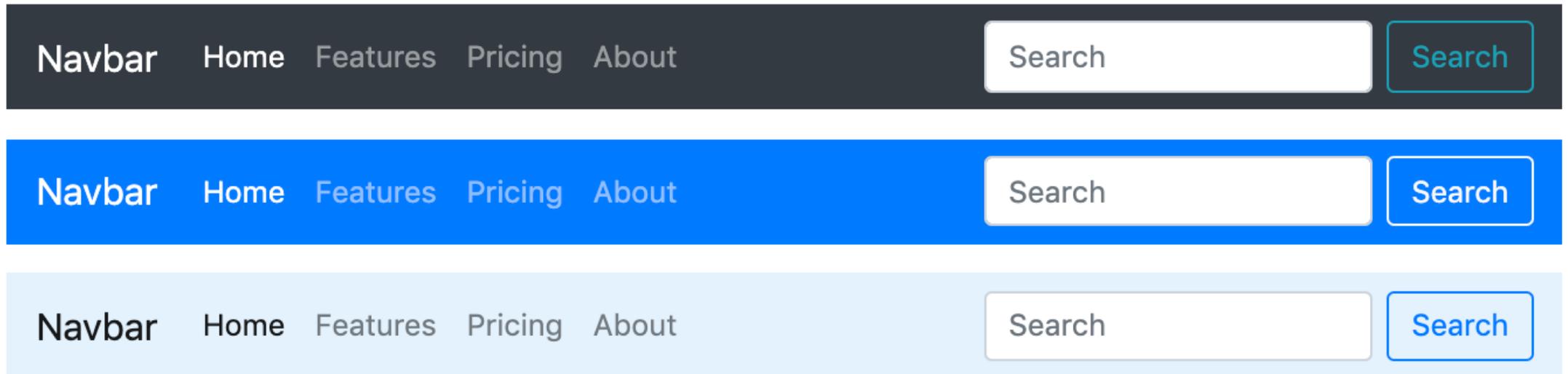
“home.html” extends “layout.html”

```
home-test.html layout-test.html x
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
```

“layout.html” specifies where to add the content block

```
layout-test.html x home-test.html x
1
2 <html>
3 <head>
4 <link href="http://netdna.bootstrapcdn.com/bootstrap/3.0.0/css/bootstrap.min.css" >
5 </head>
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">
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35 </div><!-- /.container-fluid -->
36 </nav>
37 <div class="container">
38   {% block content %}
39
40
41   {% endblock %}
42
43 </div>
44
45 </body>
46 </html>
47
```

# NavBars are the only new functionality in HW7





# Habit Formation

No screens

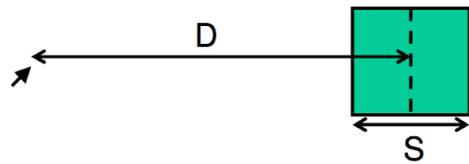


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4 March 2020

Say your name



# Users interact with the system to accomplish a goal.



Low-level goals:  
**Clicking, Typing**

## Secure Payment Info

Secure Payment Info

MasterCard VISA AMEX DISCOVER PayPal

Name (as it appears on your card)

Card number (no dashes or spaces)

Expiration date  
01 - January 2013

Security code (3 on back, Amex: 4 on front)  
 1234

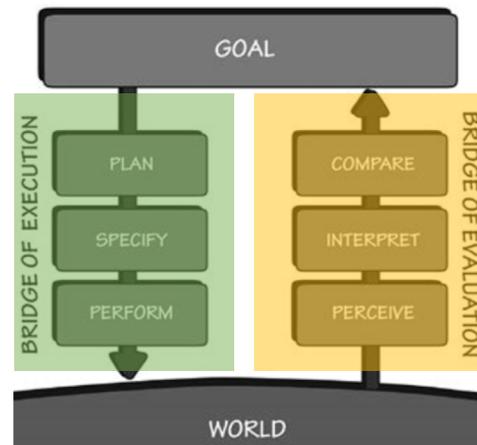
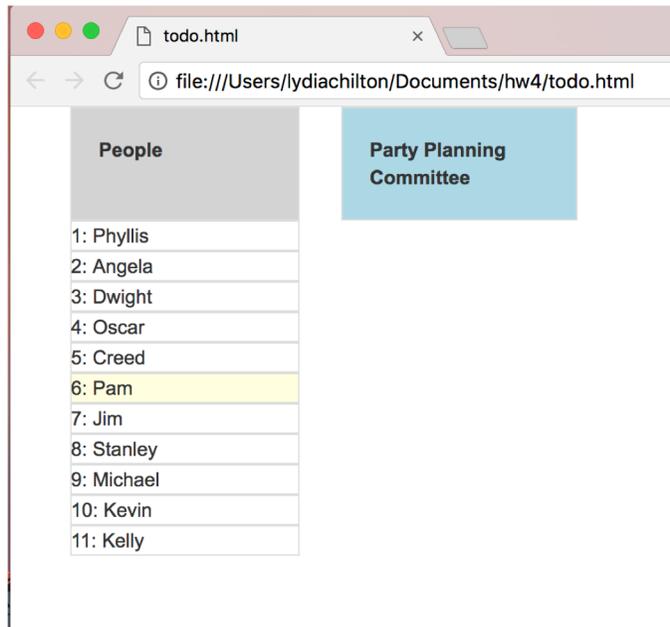
Intermediate goals:  
**Filling out forms**



High-level goals:  
**Buying a book**

# Low level user model of how people achieve the goal

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



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

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	

# What brings people to your app?

The screenshot shows the Amazon product page for the book "The Design of Everyday Things: Revised and Expanded Edition" by Don Norman. The page is viewed on a desktop browser. At the top, the Amazon logo and search bar are visible, with the search term "design of everyday things". The navigation bar includes "Departments", "Your Amazon.com", "Today's Deals", "Gift Cards", "Registry", "Sell", and "Help". A "prime student" banner offers "50% off Prime for College Students." Below the search results, a yellow banner states "The Design of Everyday Things: Revised and Expanded Edition and over one million other books are available for Amazon Kindle." The main product listing features the book cover, which shows a red teapot. The title is "The DESIGN of EVERYDAY THINGS" by DON NORMAN. The publication date is November 5, 2013. The book has a 4.5-star rating from 277 customer reviews and is a "#1 Best Seller" in the Retailing Industry. The price for the paperback is \$11.33, with a list price of \$18.99. The page also shows the "Add to Cart" button, shipping information, and a promotional message: "Want it TODAY, Jan. 31? Order within 1 hr 15 mins and choose Same-Day Delivery at checkout." The page is well-organized and provides clear information about the product, including pricing, shipping, and promotional offers.

And how do you get them to come back tomorrow?

# Habit Formation Theory

# People have lots of goals they want to achieve



Eat Healthy



Learn French



Play in the NBA



Watch less TV



Get up when the alarm goes off the first time.  
Not after pressing snooze so many times you  
are late

Good Intentions  $\neq$  Success

Why do some people succeed?

Good habits.

# Definition of Habit

The choices that all of us deliberately make at some point, and then **stop thinking about** but continue doing, often every day.

# Two theories of action: Conscious Control vs. Habits

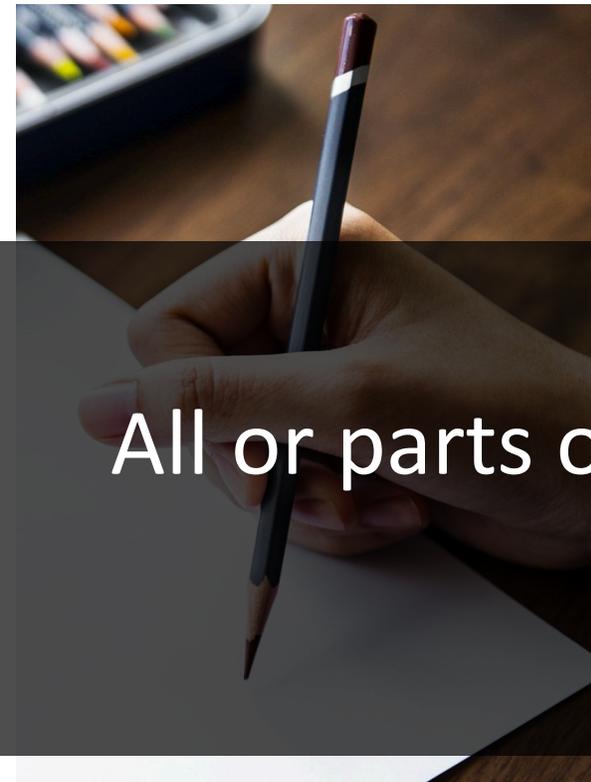
Many people model themselves as agents in control of our decisions.

- “intention”
- “personal responsibility”
- “will power”
- “executive control”

Habits are **unconscious** and determine at least **40% of our behavior.**

# Conscious or unconscious?

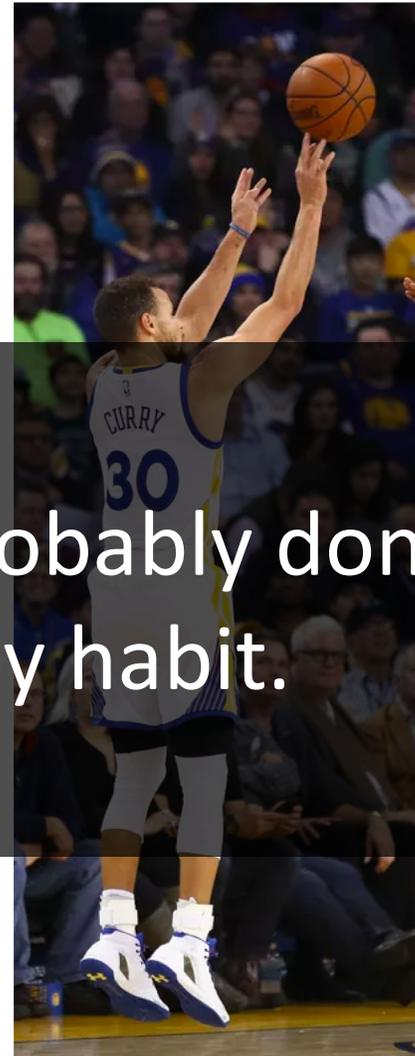
The angle you hold your pencil at?



The way you brush your hair?



Shooting a basketball



Your "decision" to check email



All or parts of these tasks are probably done subconsciously, governed by habit.

How you walk, smile, plan each step



Your "decision" where to eat?

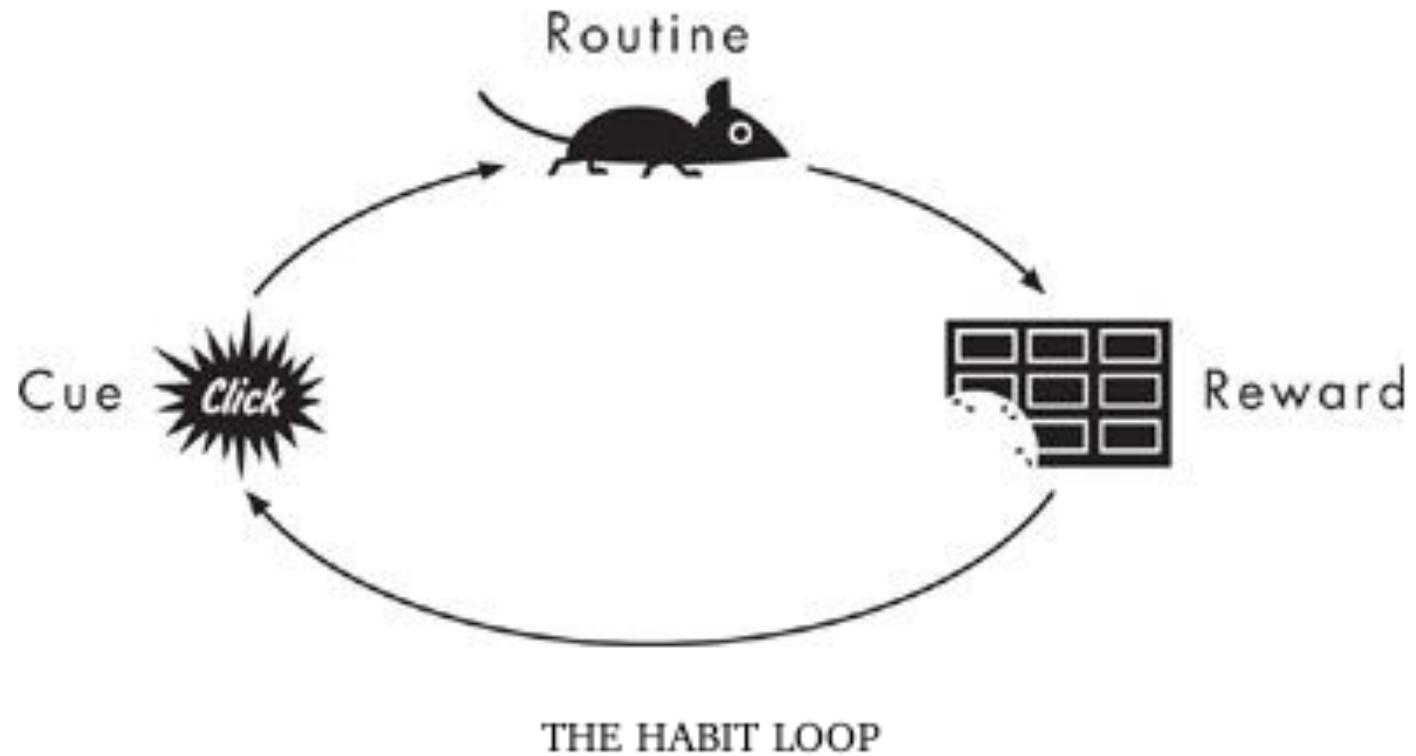


# Why do we have habits?

- Habits **save energy** by cutting down on decisions.
- Allows us to do **multiple tasks** (like walk and talk) because we don't have to focus on each one.
- To make **quick decisions**.
  - People are paralyzed by indecision about small things.
  - (Me: when I give talk: What should I do with my arms???)
- Our brains had **existing infrastructure** for it.
  - Habits are stores in the oldest reptilian part of the brain (basal ganglia) to control automatic behavior like breaking and swallowing.

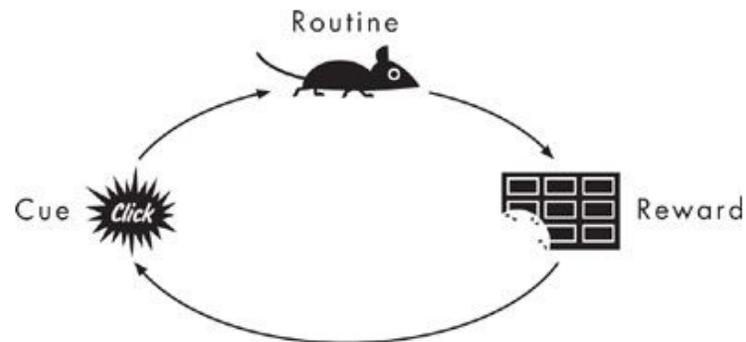
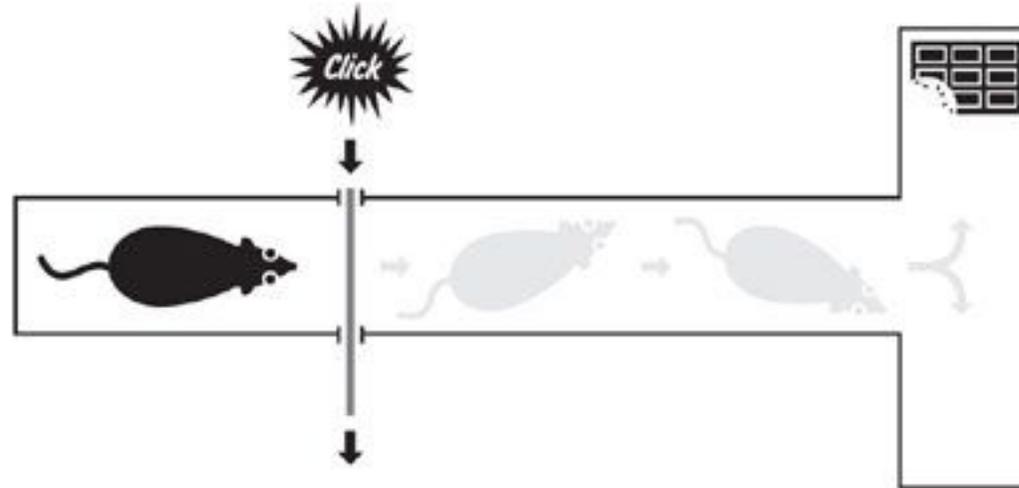
# The Habit Loop

# Mechanism of Habits



# Teaching rats to run a maze:

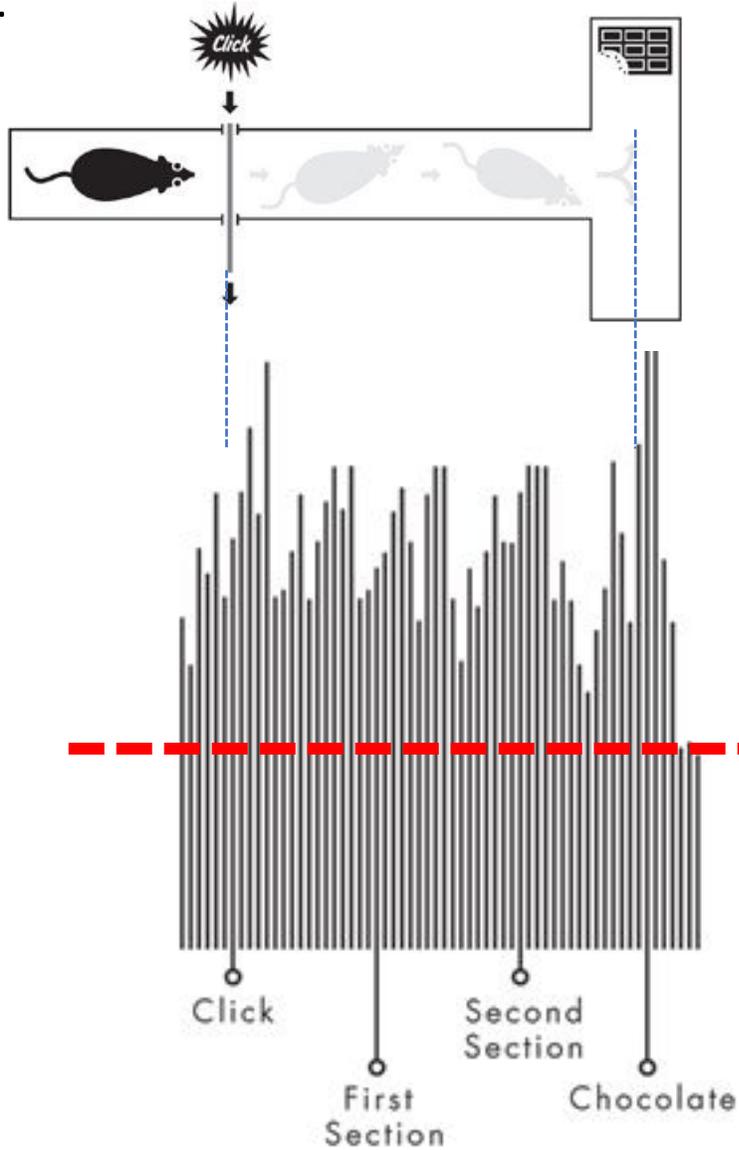
## Cue, Routine, Reward



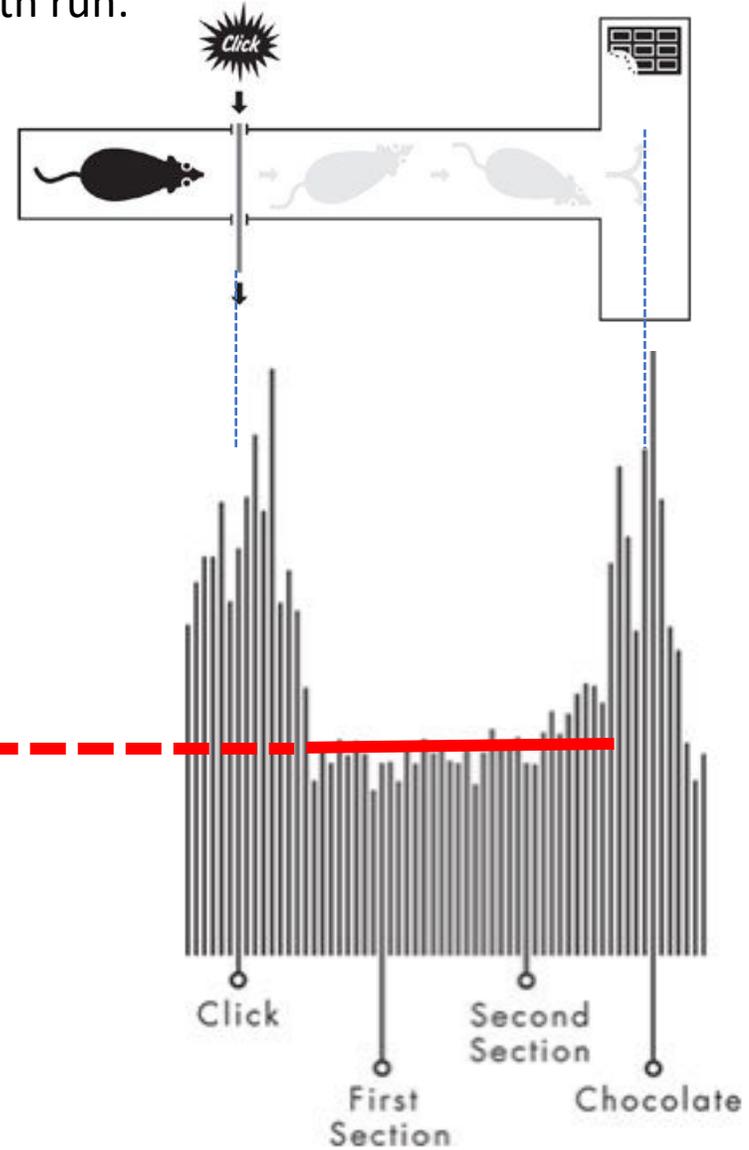
THE HABIT LOOP

# Rat brain activity levels

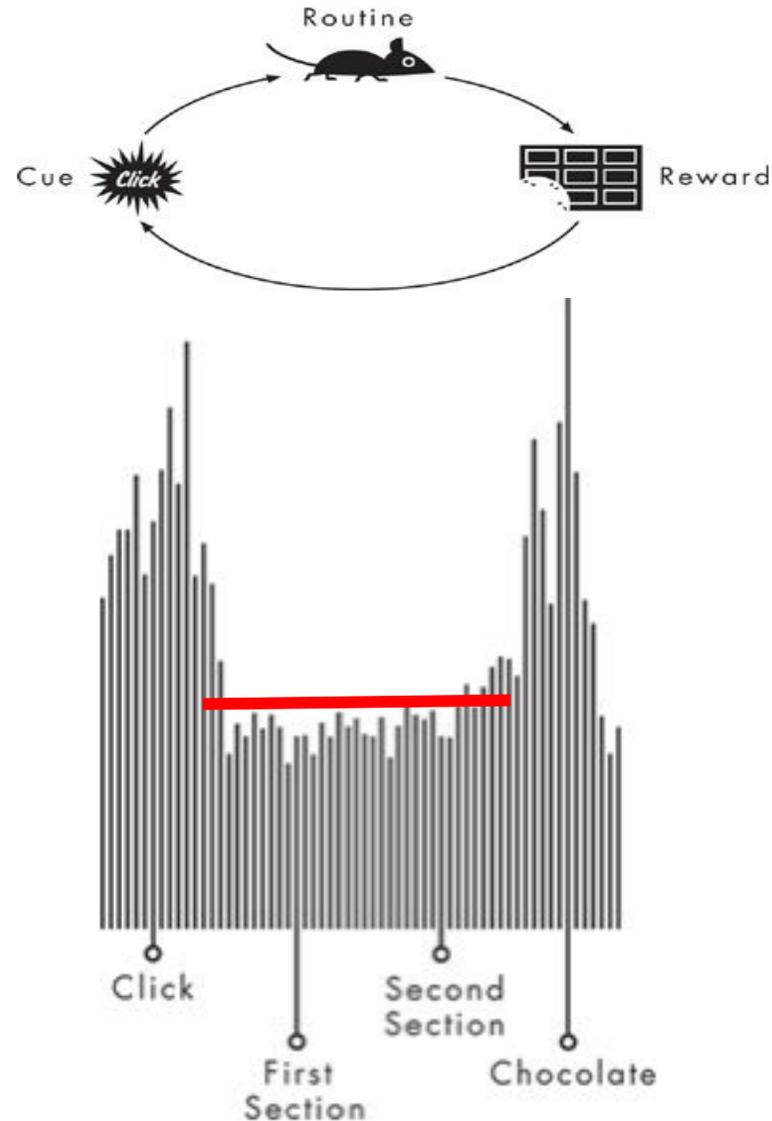
First run:



100th run:

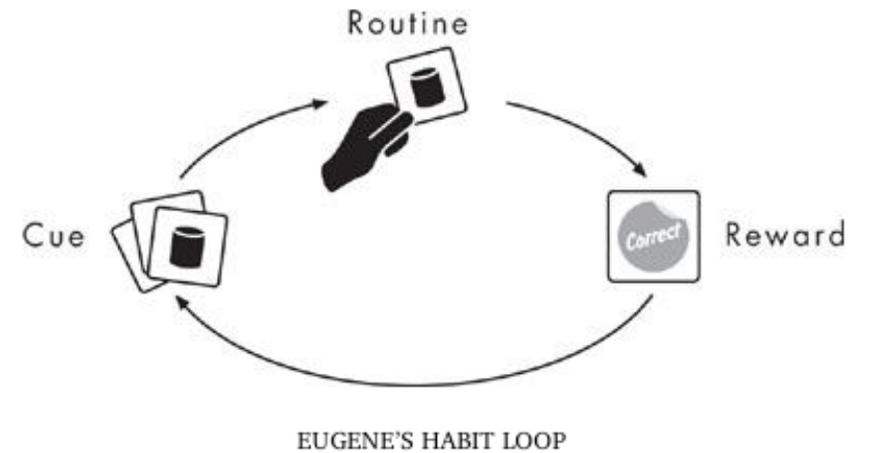


During habitual behavior: the Action becomes routine, and the agent stops thinking about it.



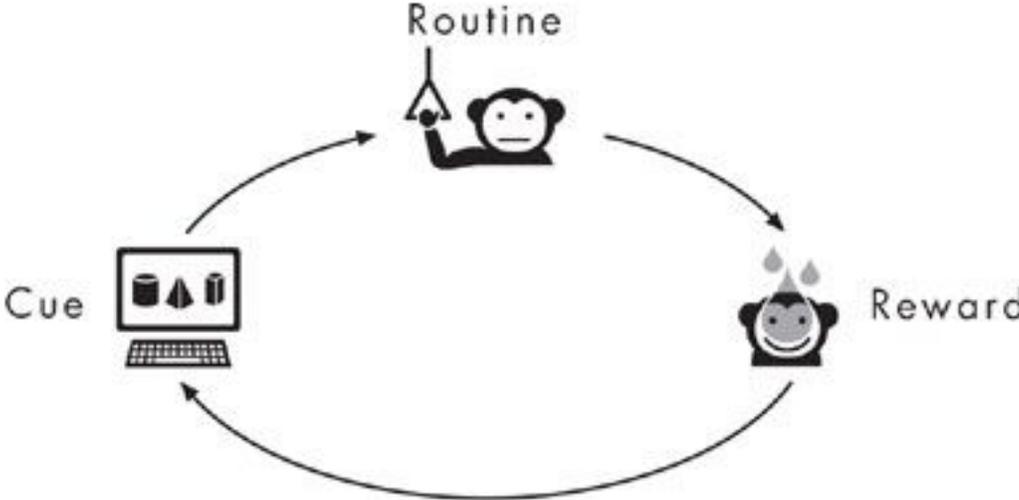
# Human Patient: “Eugene”

- Only has a basal ganglia
- No new memory formation
  - Still able to learn



# How to Create a Habit

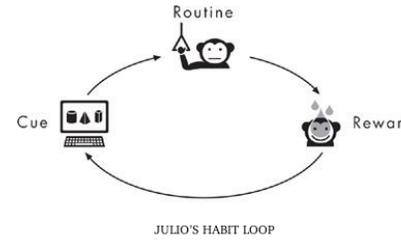
# Monkey Experiments on Creating Habits



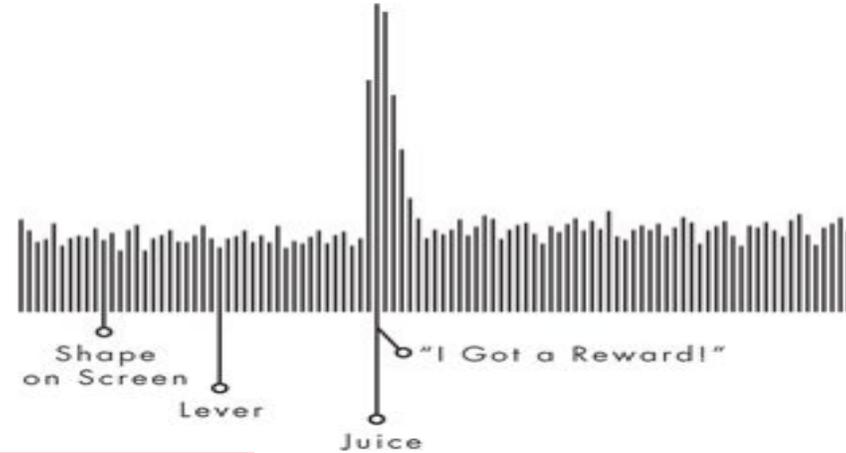
JULIO'S HABIT LOOP



# Monkey Experiments: Neural Firing



Early Iterations



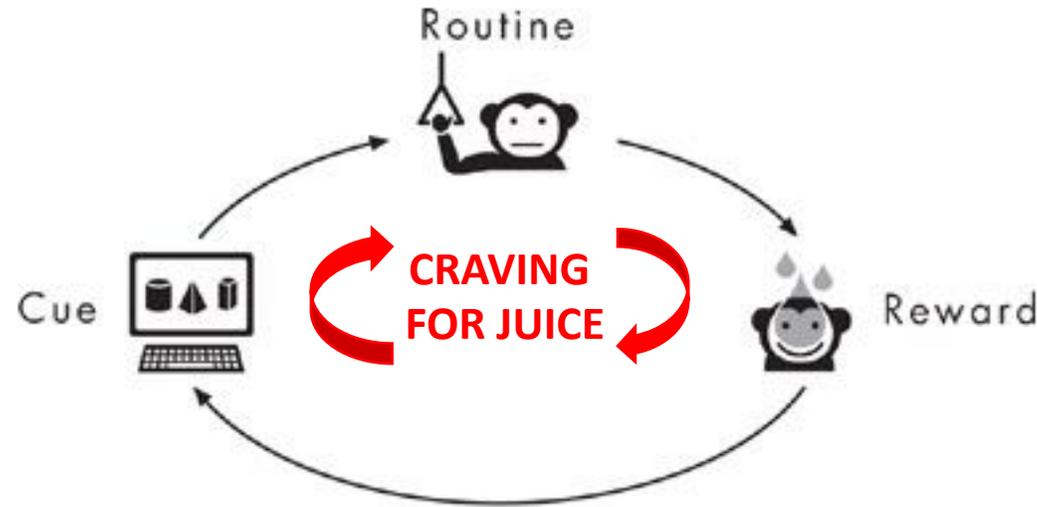
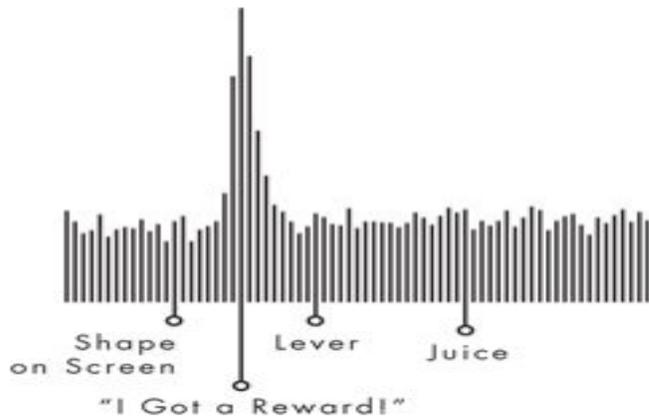
Rational response  
to incentives

Late Iterations

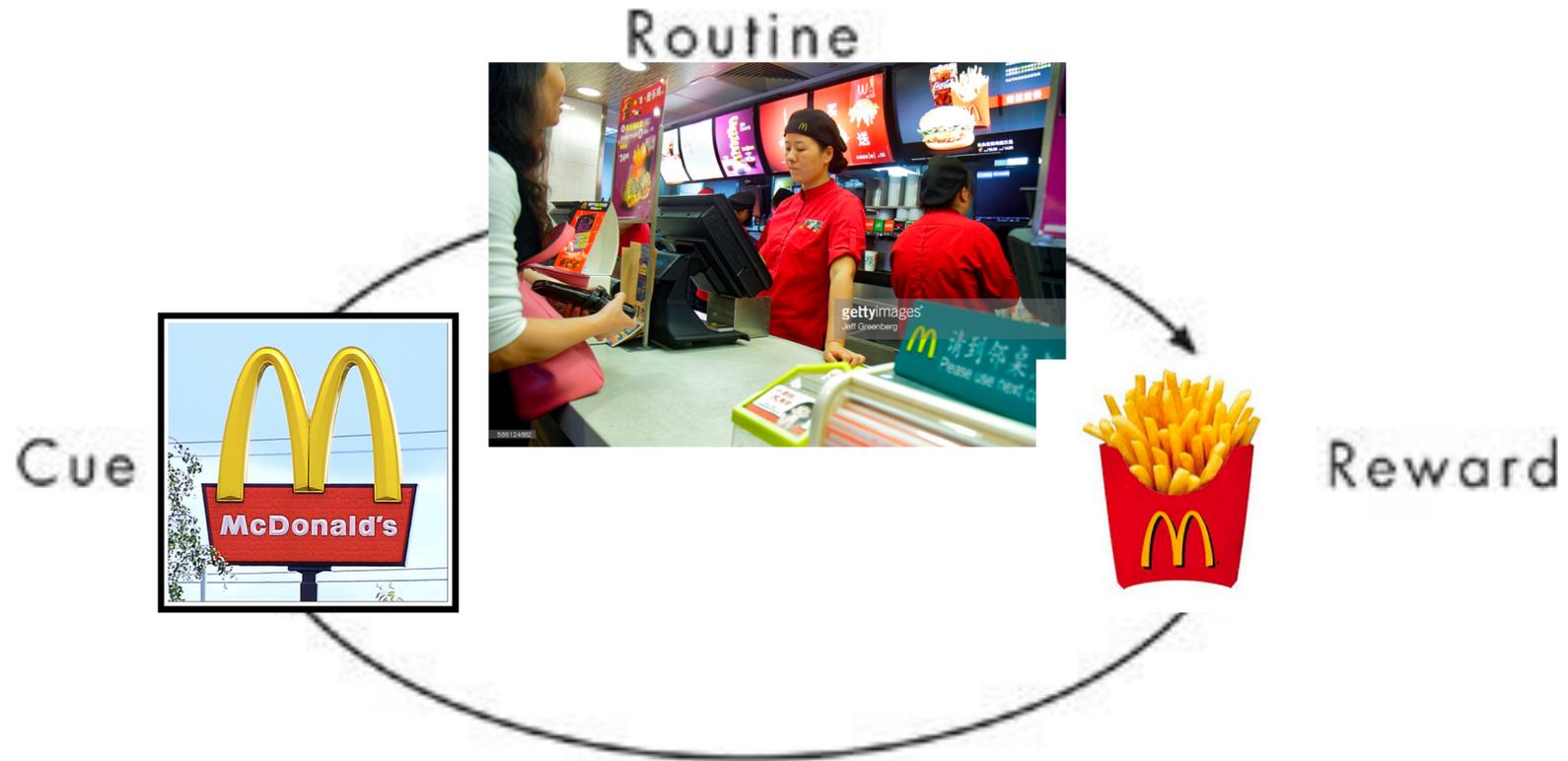


Habit – actions we take in  
response to cues  
*without thinking*

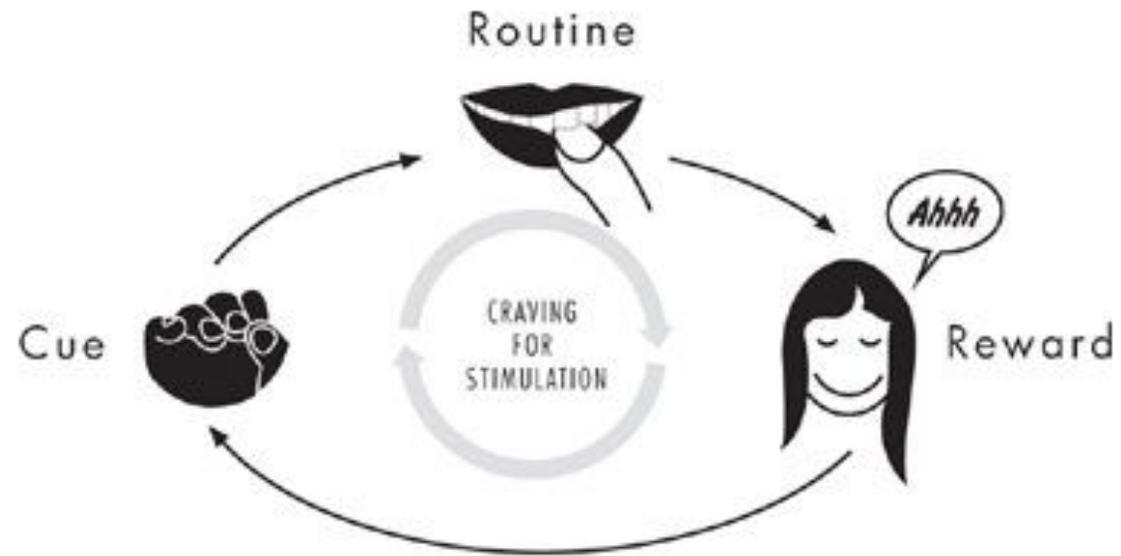
# Craving: A strong feeling of desire for something before you get it.



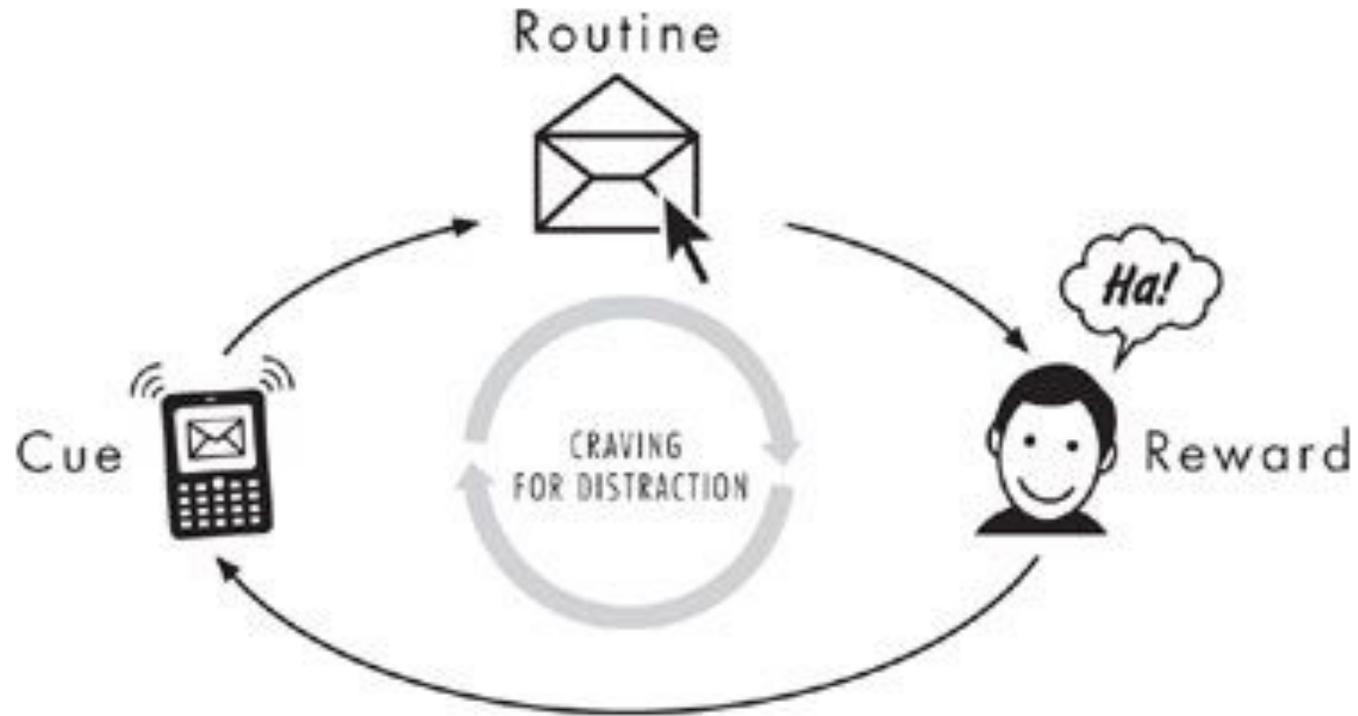
# McDonalds: Craving for Taste



# Nail Biting: Craving for Stimulation

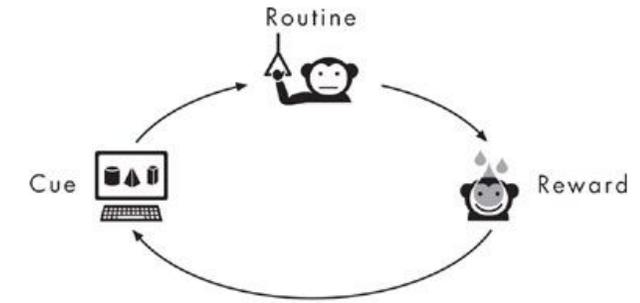


# Email: Craving for distraction



# Variable rewards:

What happens if you give him juice sometimes but not others?



What draws us to act is **not the sensation** we receive from the reward itself,

but the need to **alleviate the craving** for that reward.

# What else in life has Variable Rewards?



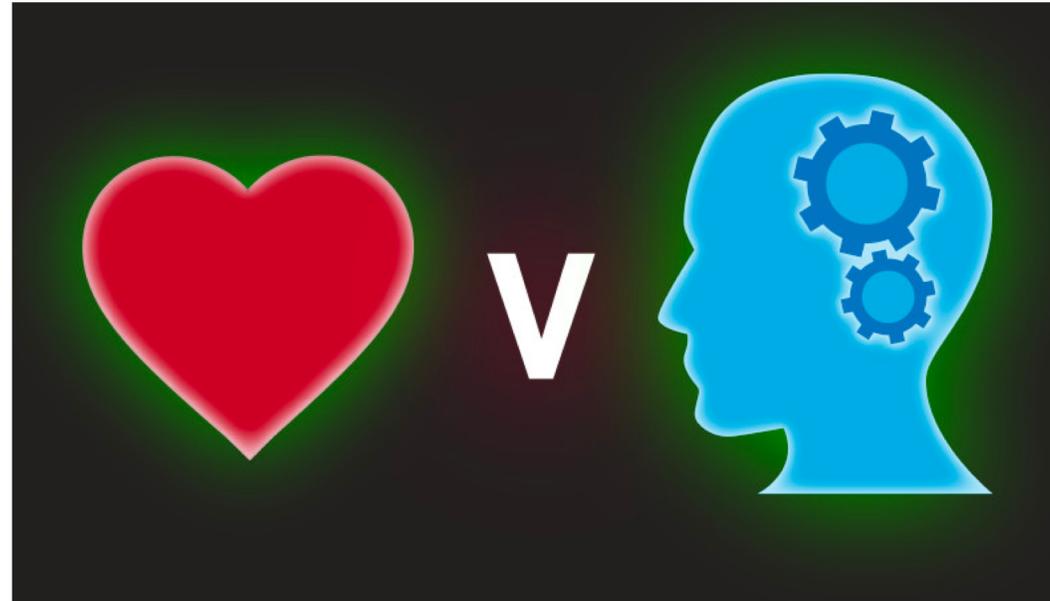
# Types of Variable Reward

- Social Acceptance (Group)
- Material Goods, money, information (Hunt)
- Mastery, Competency, Completion, Consistency (Self)

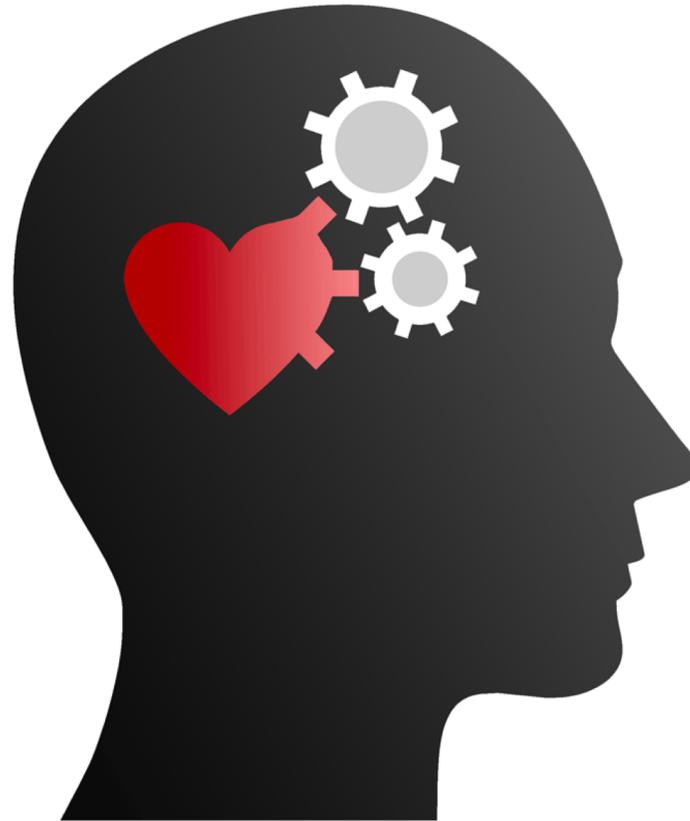


Feelings drive actions

There is a common false notion that **feelings** and **thinking** (rationality) are opposites



Feelings are actually an important part of rational decision making and action



# How do you know when to sleep?



**You feel tired**

How do you know when to run away?



**You feel scared**

How do you know when to eat?



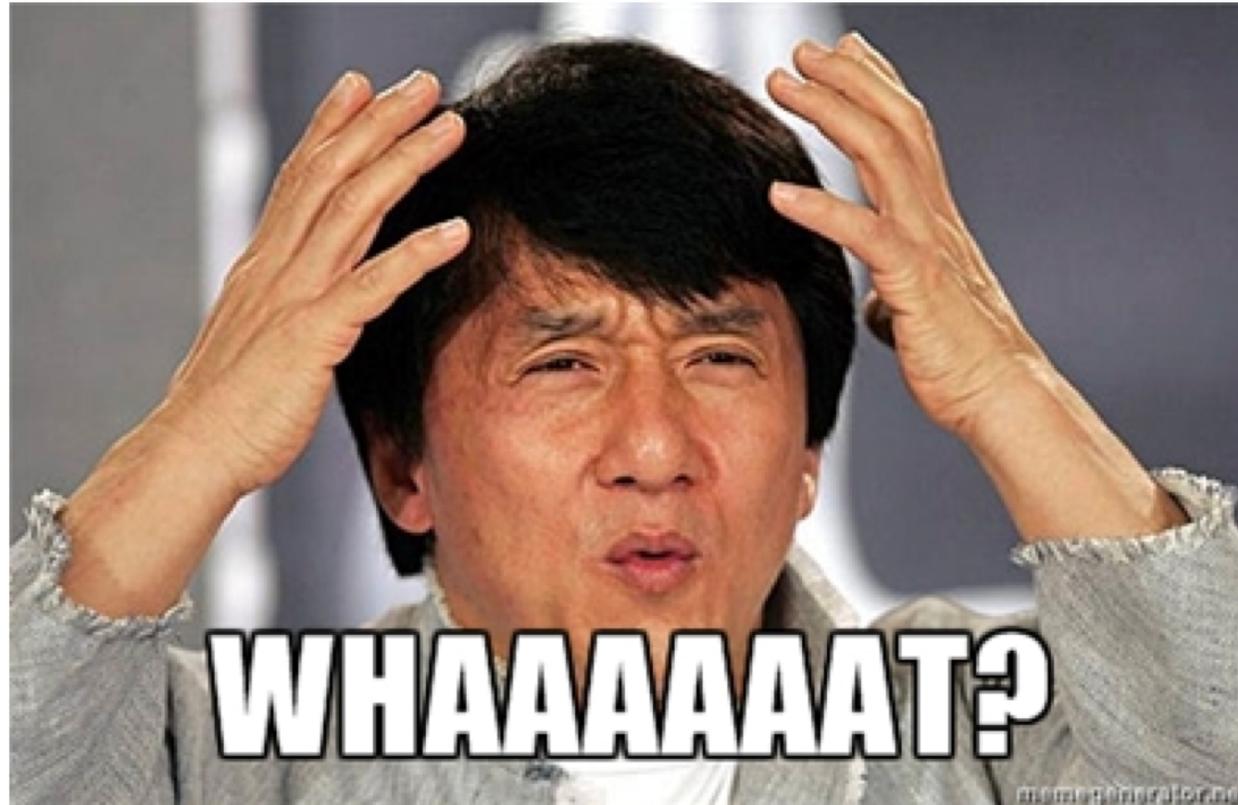
**You feel hungry**

How do you know when to pee?



**You feel antsy?**

How do you know when to ask a question?



You feel **confused**

# Feelings drive basic behavior



Hungry

Eat



Tired

Sleep



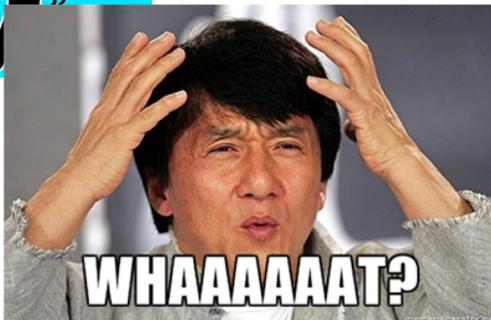
Fear

Run away



Antsy

Pee



Confusion

Ask

# Feelings drive *complex* behavior, too.



Stressed

Escape: TV, facebook  
Comfort: food, friends



Bored

Seek entertainment,  
Seek attention



Happy

Celebrate, tell people!

# How to build habit-forming products

# Goal of a Habit-Forming Product

To solve the user's **pain**  
by creating an **association**  
so that the user **identifies** the product  
as the source of **relief**.

# Sources of Pain

- Stanford Habit Psychologist BJ Fogg states that all humans are motivated to:
  - seek **pleasure** and avoid **pain**,
  - seek **hope** and avoid **fear**,
  - seek **social acceptance** and avoid **rejection**.

# Examples of Triggers

Boredom
Loneliness
Frustration
Confusion
Indecisiveness
Validation of importance
Fear of missing out

# Examples of triggers (pain sources)

	Facebook/Twitter
Boredom	
Loneliness	
Frustration	
Confusion	
Indecisiveness	
Validation of importance	
Fear of missing out	

# Examples of triggers (pain sources)

	Facebook/Twitter
Boredom	
Loneliness	
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Validation of importance	
Fear of missing out	

# Examples of triggers (pain sources)

	Facebook/Twitter	Google
Boredom		
Loneliness		
Frustration		
Confusion		
Indecisiveness		
Validation of importance		
Fear of missing out		

# Examples of triggers (pain sources)

	Facebook/Twitter	Google
Boredom		
Loneliness		
Frustration		
Confusion		
Indecisiveness		
Validation of importance		
Fear of missing out		

# Examples of triggers (pain sources)

	Facebook/Twitter	Google	News
Boredom			
Loneliness			
Frustration			
Confusion			
Indecisiveness			
Validation of importance			
Fear of missing out			

# Examples of triggers (pain sources)

	Facebook/Twitter	Google	News
Boredom			
Loneliness			
Frustration			
Confusion			
Indecisiveness			
Validation of importance			
Fear of missing out			

# Examples of triggers (pain sources)

	Facebook/Twitter	Google	News	Email
Boredom				
Loneliness				
Frustration				
Confusion				
Indecisiveness				
Validation of importance				
Fear of missing out				

# Examples of triggers (pain sources)

	Facebook/Twitter	Google	News	Email
Boredom				
Loneliness				
Frustration				
Confusion				
Indecisiveness				
Validation of importance				
Fear of missing out				

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# What others?

Are there other applications you suspect are use underlying needs to trigger engagement?

	Facebook/Twitter	Google	News	Email
Boredom				
Loneliness				
Frustration				
Confusion				
Indecisiveness				
Validation of importance				
Fear of missing out				

# Are these sites “just for browsing”?

columbia

All Maps News Images Shopping More Settings Tools

About 1,450,000,000 results (1.21 seconds)

Columbia.com | Official Columbia® Site | Outdoor Apparel & Products  
www.columbia.com/

★★★★★ Rating for columbia.com: 4.8 - Order accuracy: 95-100%  
Save at the Official Columbia Site. Free Shipping & More for Members! 70+ Years. Tested Tough. Largest Selection. Types: Jackets, Vests, Shirts, Pants, Shorts, Footwear, Accessories, Backpacks.  
Winter Sale: 50% off Select Gear - Valid Jan 23 - Feb 28

Women's Gear  
Head-to-Toe Gear for the Months Ahead.

Men's Gear  
Gear Up for Epic Adventures Ahead. Shop Apparel & Accessories!

50% off Select Gear  
Save 50% on Select Gear. Shop the Winter Sale Today!

Outdry Extreme Eco  
Made with 100% Recycled Materials. Stay Dry with Earth-Smart Rainwear!

Columbia Sportswear: Outdoor Clothing, Outerwear & Accessories  
https://www.columbia.com/

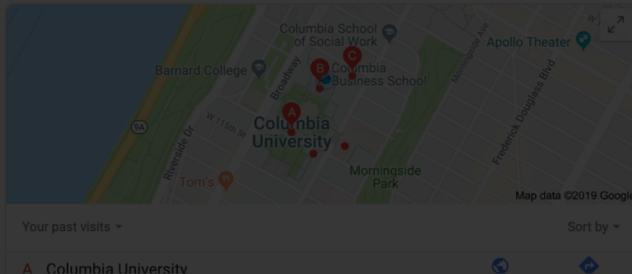
Shop direct from Columbia Sportswear. Our Outerwear is Tested Tough in the Pacific Northwest. Shop for Jackets, Pants, Shirts, Shoes & more.

Women  
Buy Columbia Sportswear® women's apparel and ...

Men  
Shop online for rugged & durable Columbia Sportswear outdoor ...

Sale  
Great deals on Columbia jackets, shirts, pants and more. Take ...

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craigslist

create a posting  
my account

search craigslist

event calendar

M	T	W	T	F	S	S
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	1	2	3

help, faq, abuse, legal  
avoid scams & fraud  
personal safety tips  
terms of use <sup>new</sup>  
privacy policy  
system status

craigslist is hiring in sf  
craigslist open source  
craigslist blog  
best-of-craigslist  
craigslist TV  
"craigslist joe"  
craig connects

new york city mnh brk que

community

activities  
artists  
childcare  
classes  
events  
general groups  
local news

lost+found  
missed connections  
musicians  
pets  
politics  
rants & raves  
rideshare  
volunteers

services

automotive  
beauty  
cell/mobile  
computer  
creative  
cycle  
event  
farm+garden  
financial  
frustration  
household  
household

labor/move  
legal  
lessons  
marine  
pet  
real estate  
skilled trade  
sm biz ads  
travel/vac  
write an ad

discussion forums

android  
apple  
arts  
atheist  
autos  
beauty  
bikes  
celebs  
comp  
cosmos  
diet  
divorce  
dying  
eco

frugal  
gaming  
garden  
haiku  
help  
history  
housing  
jobs  
jokes  
legal  
linux  
manners  
marriage  
money

pets  
philos  
photo  
politics  
psych  
recover  
religion  
rofo  
science  
spirit  
sports  
super  
tax  
travel

facebook

RECO PictureCorrect Photography Tips  
What is your Photography-Related New Year's Resolution??  
15 minutes ago · Like · Comment

Adel Gomaa and Richard Schneider like this.

Sadi Holloy get my business looking more professional: car signed: tick, making up portrait folders: tick, stickers & cd covers: still to do... its getting there though.  
11 minutes ago · Flag

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

James Donnelly Larger concerts to cover and improve my portrait editing style/skill  
10 minutes ago · Flag

Deacon Jonathan Jerome Johnson To push my photpography forward full throttle  
5 minutes ago · Flag

Latu Peti Vimahi Manulua-hafoka learn learn learn!!!  
4 minutes ago · Flag

Tina Taylor Hammer Get my new business moving and have it pay for that lens and other equipment that I want (and a little for me too).  
2 minutes ago · Flag

Stefanie Bakewell get a website up so that i can get clients full steam ahead  
about a minute ago · Flag

No. They alleviate a source of pain.

# Are we slaves to our unconscious behavior?

Hungry



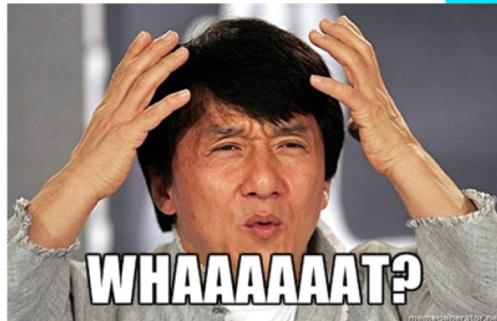
Tired



Fear



Antsy



Confusion



	Facebook/Twitter	Google	News	Email
Boredom				
Loneliness				
Frustration				
Confusion				
Indecisiveness				
Validation of importance				
Fear of missing out				

# The Ethics of Building Habit-forming apps

As a developer, you will be in situations where you have to decide whether it's ethical to build an app

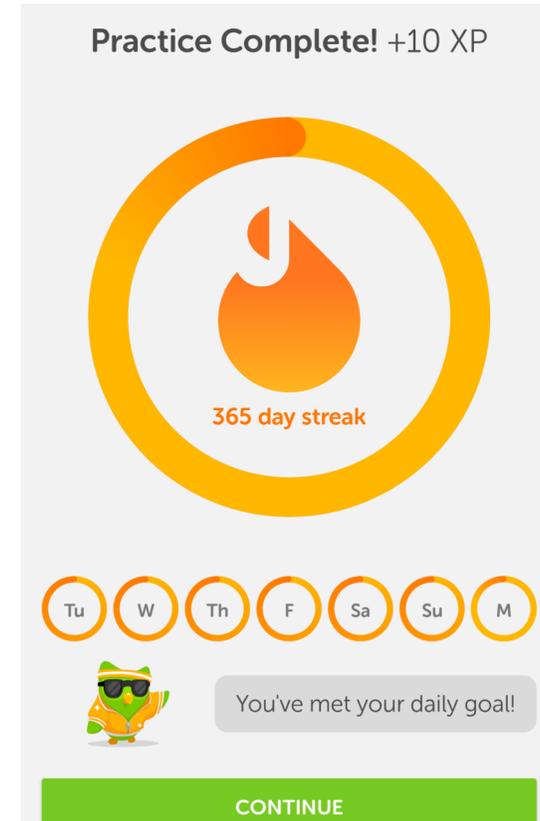


What are the pro's and con's for all stakeholders?

Would you want it on the front page of the New York times?

# Snapchat vs. Duolingo - Streaks

- ▶ **Alec**  
Delivered just now      844 🔥😎😏
- ▶ **Mathew Labrador**  
Delivered just now      4 🔥😁😏
- ▶ **Megan Peterson**  
Delivered just now      6 🔥😏
- ▶ **Antonio**  
Delivered just now      31 🔥😏



# Why do **developers** implement streaks?

- Create incentives for users to engage with the app every day.

# What are the Pros and Cons of Streaks for Users?

## Snapchat

### Pros

- Quicker engagement
- Social feedback

### Cons

- Uses social pressure to get you to use the app

## Duolingo

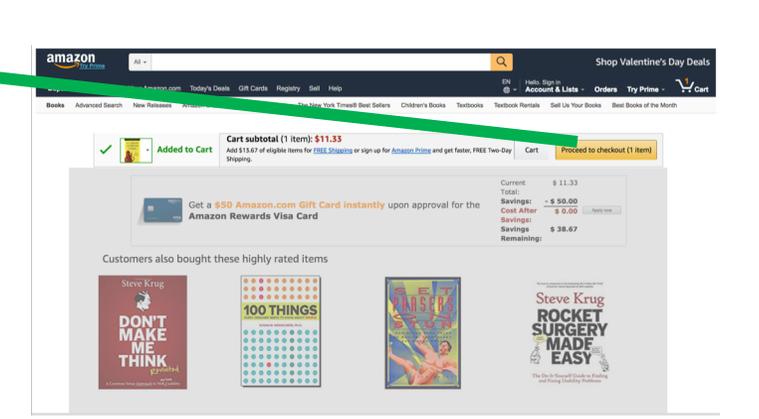
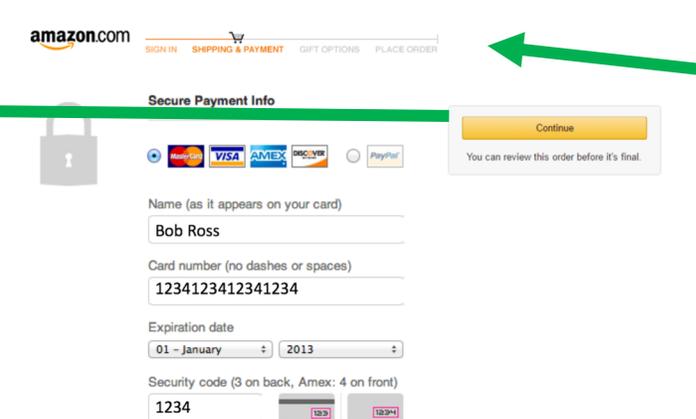
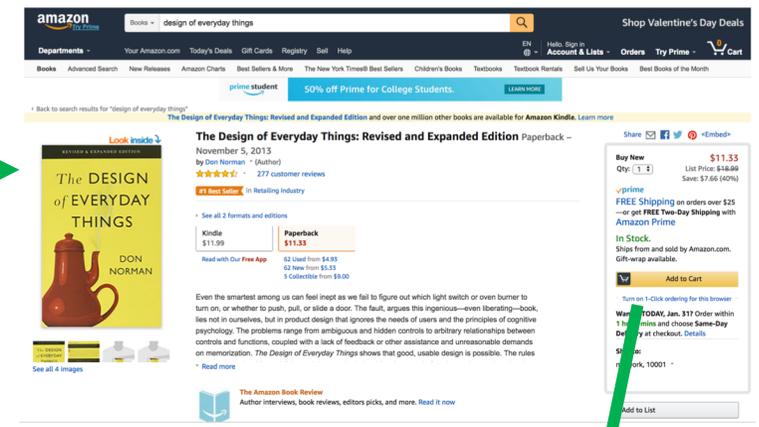
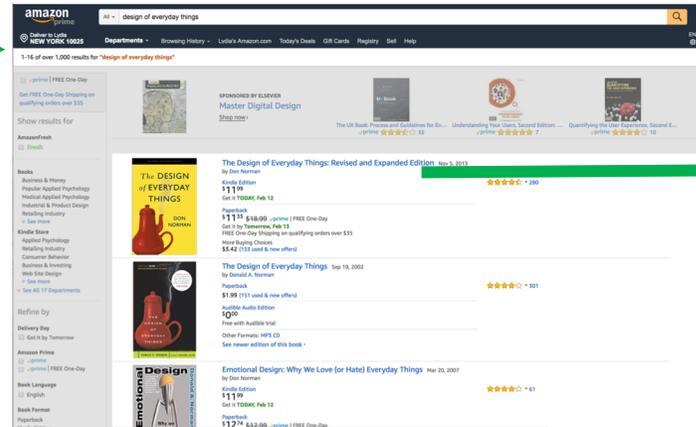
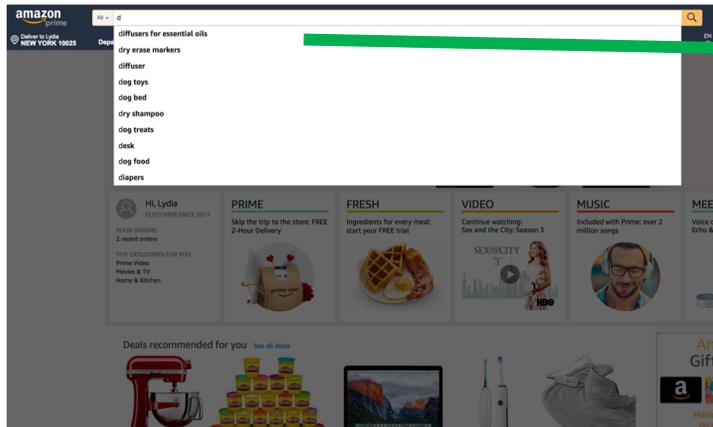
- Don't need to remember to log on.
- You learn Greek.

- Stress and guilt
- Losing a streak feels bad and disincentivizes logging on

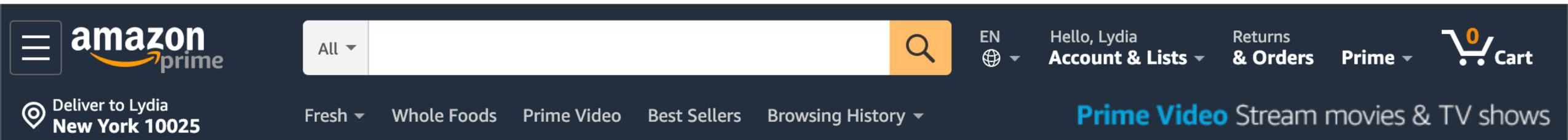
Will you implement streaks in  
your app?

# Summary

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

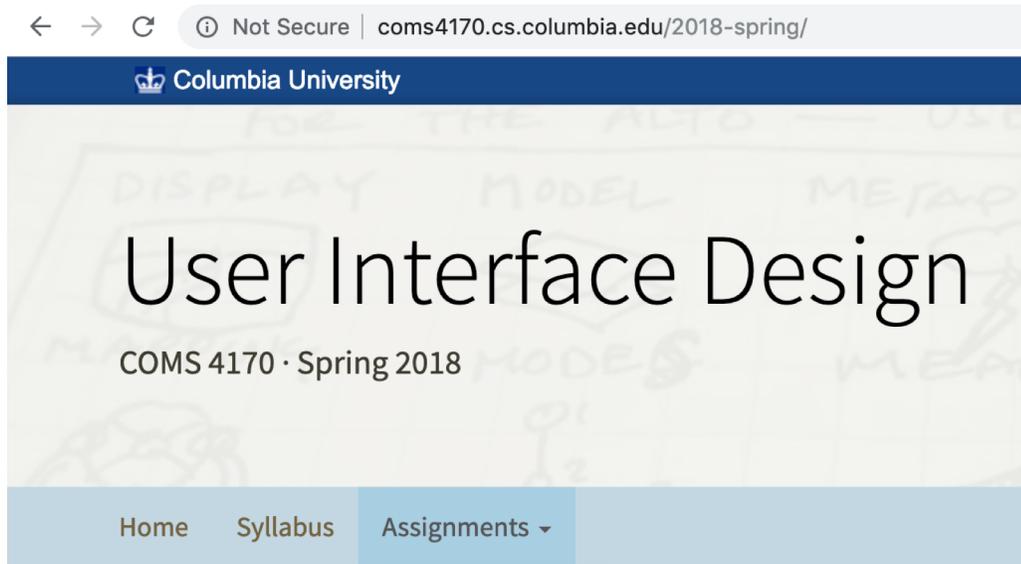


But across each state, there is something that is consistent, and given the user great control and freedom.



## The Navigation Bar (Navbar)

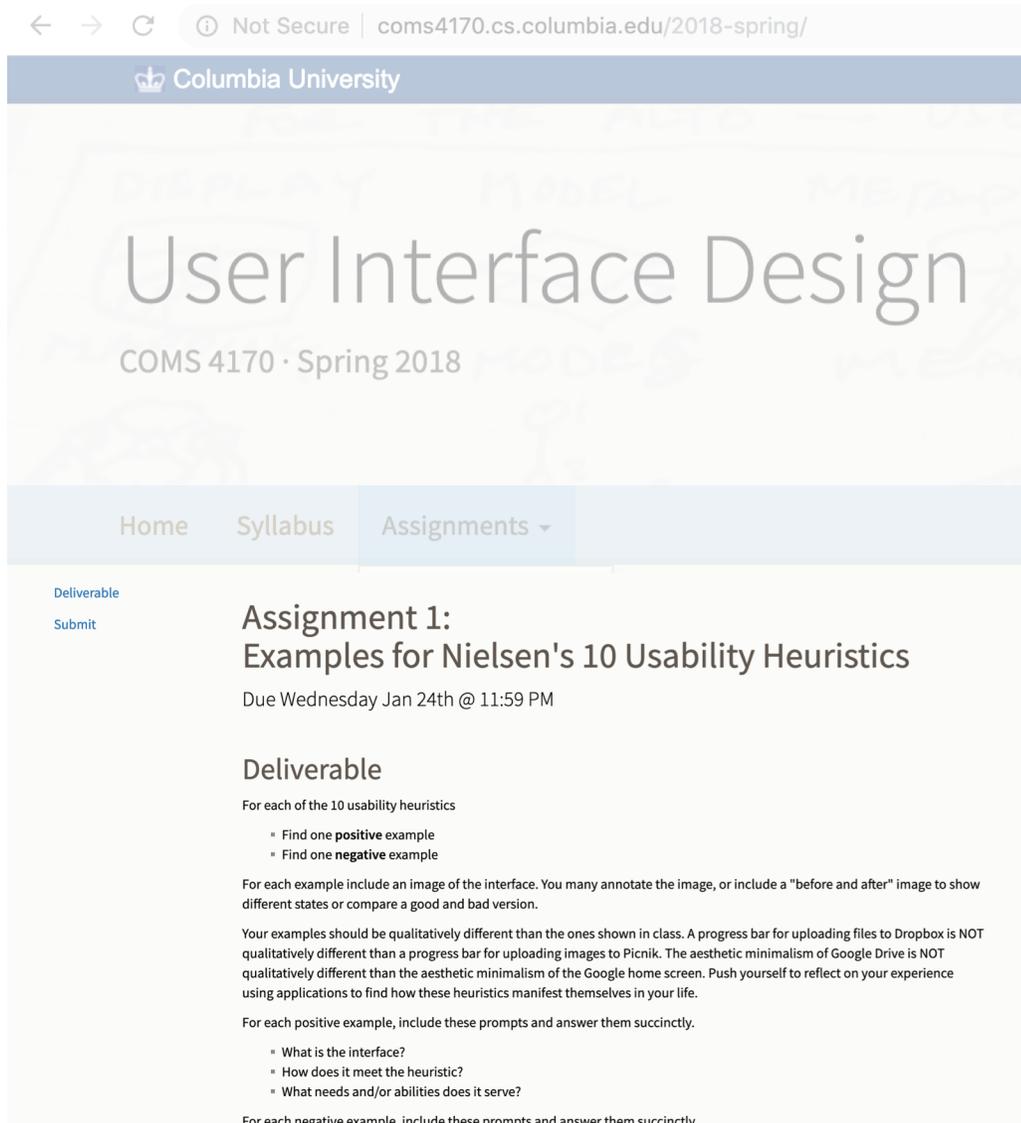
# Step 1. Define layout.html



Indicate where code can be injected into layout.html

```
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
21 <div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">
22 <ul class="nav navbar-nav navbar-right">
23 <li><a href="#">Link</a></li>
24 <li class="dropdown">
25 <a href="#" class="dropdown-toggle" data-toggle="dropdown">Dropdown <b class="caret"></b></a>
26 <ul class="dropdown-menu">
27 <li><a href="#">Action</a></li>
28 <li><a href="#">Another action</a></li>
29 <li><a href="#">Something else here</a></li>
30 <li class="divider"></li>
31 <li><a href="#">Separated link</a></li>
32 </ul>
33 </li>
34 </ul>
35 </div><!-- /.navbar-collapse -->
36 </div><!-- /.container-fluid -->
37
38 </nav>
39 <div class="container">
40 {% block content %}
41
42 {% endblock %}
43
44 </div>
45
46 </body>
47 </html>
```

# Step 2. Write the content html



← → ↻ ⓘ Not Secure | coms4170.cs.columbia.edu/2018-spring/

Columbia University

# User Interface Design

COMS 4170 · Spring 2018

Home Syllabus Assignments ▾

Deliverable  
Submit

## Assignment 1: Examples for Nielsen's 10 Usability Heuristics

Due Wednesday Jan 24th @ 11:59 PM

### Deliverable

For each of the 10 usability heuristics

- Find one **positive** example
- Find one **negative** example

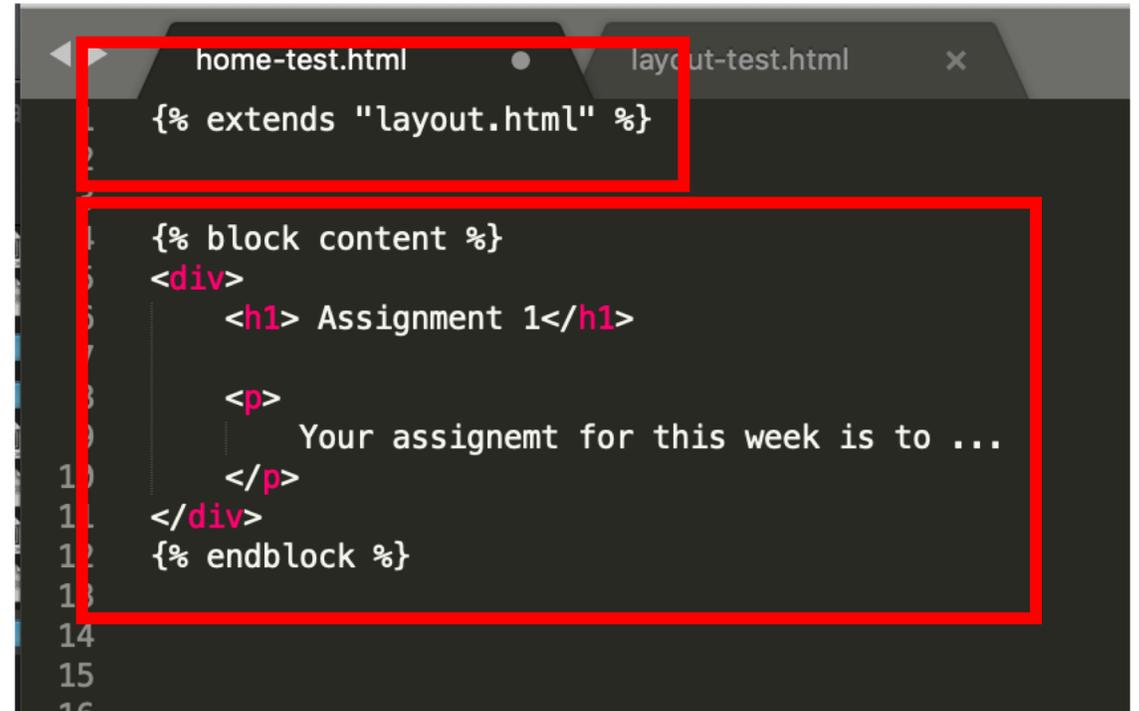
For each example include an image of the interface. You may annotate the image, or include a "before and after" image to show different states or compare a good and bad version.

Your examples should be qualitatively different than the ones shown in class. A progress bar for uploading files to Dropbox is NOT qualitatively different than a progress bar for uploading images to Picnik. The aesthetic minimalism of Google Drive is NOT qualitatively different than the aesthetic minimalism of the Google home screen. Push yourself to reflect on your experience using applications to find how these heuristics manifest themselves in your life.

For each positive example, include these prompts and answer them succinctly.

- What is the interface?
- How does it meet the heuristic?
- What needs and/or abilities does it serve?

For each negative example, include these prompts and answer them succinctly.

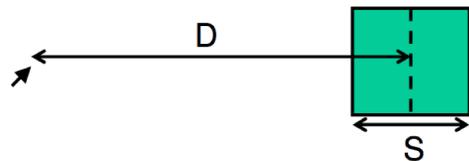


```
home-test.html layout-test.html x
{% extends "layout.html" %}

{% block content %}
<div>
  <h1> Assignment 1</h1>

  <p>
    Your assignment for this week is to ...
  </p>
</div>
{% endblock %}
```

# Users interact with the system to accomplish a goal.



Low-level goals:  
**Clicking, Typing**

## Secure Payment Info

Secure Payment Info

MasterCard VISA AMEX DISCOVER PayPal

Name (as it appears on your card)

Card number (no dashes or spaces)

Expiration date  
01 - January 2013

Security code (3 on back, Amex: 4 on front)  
 1234

Intermediate goals:  
**Filling out forms**

A screenshot of the Amazon product page for 'The Design of Everyday Things: Revised and Expanded Edition' by Don Norman. The page shows the book cover, price (\$11.33), and purchase options (Kindle, Paperback). The right sidebar displays the 'Buy New' price, shipping information, and an 'Add to Cart' button.

High-level goals:  
**Buying a book**

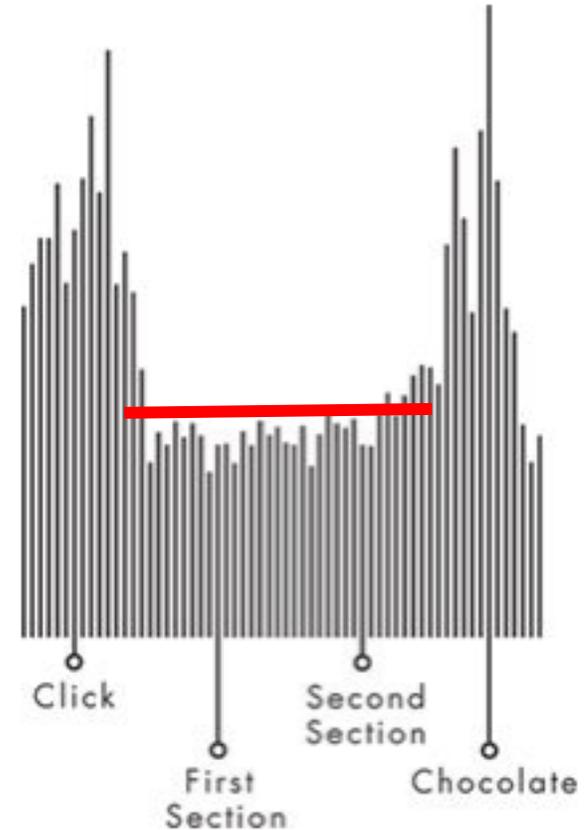
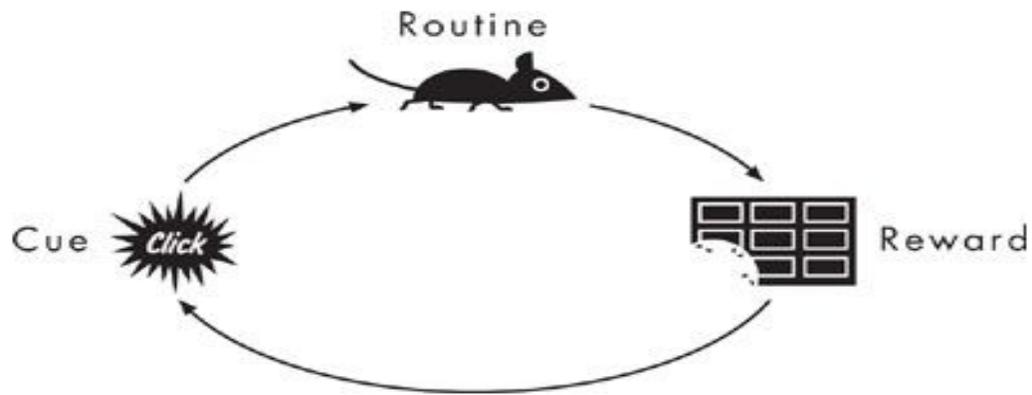
# What brings people to your app?

The screenshot shows the Amazon product page for the book "The Design of Everyday Things: Revised and Expanded Edition" by Don Norman. The page features a search bar at the top with the text "design of everyday things". Below the search bar, there are navigation links for "Departments", "Your Amazon.com", "Today's Deals", "Gift Cards", "Registry", "Sell", and "Help". A "prime student" banner offers "50% off Prime for College Students." The product title is "The Design of Everyday Things: Revised and Expanded Edition Paperback". The author is "Don Norman" and the publication date is "November 5, 2013". The book has a 4.5-star rating from 277 customer reviews and is a "#1 Best Seller" in the Retailing Industry. The price for the paperback is \$11.33, with a list price of \$18.99. The page also shows the Kindle version for \$11.99 and a "Free App" option. A "Look inside" feature is available. The product description states: "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". The page also includes a "Share" button, a "Buy New" button with a price of \$11.33, a "FREE Shipping" offer, and an "Add to Cart" button. A "Turn on 1-Click ordering for this browser" option is also visible.

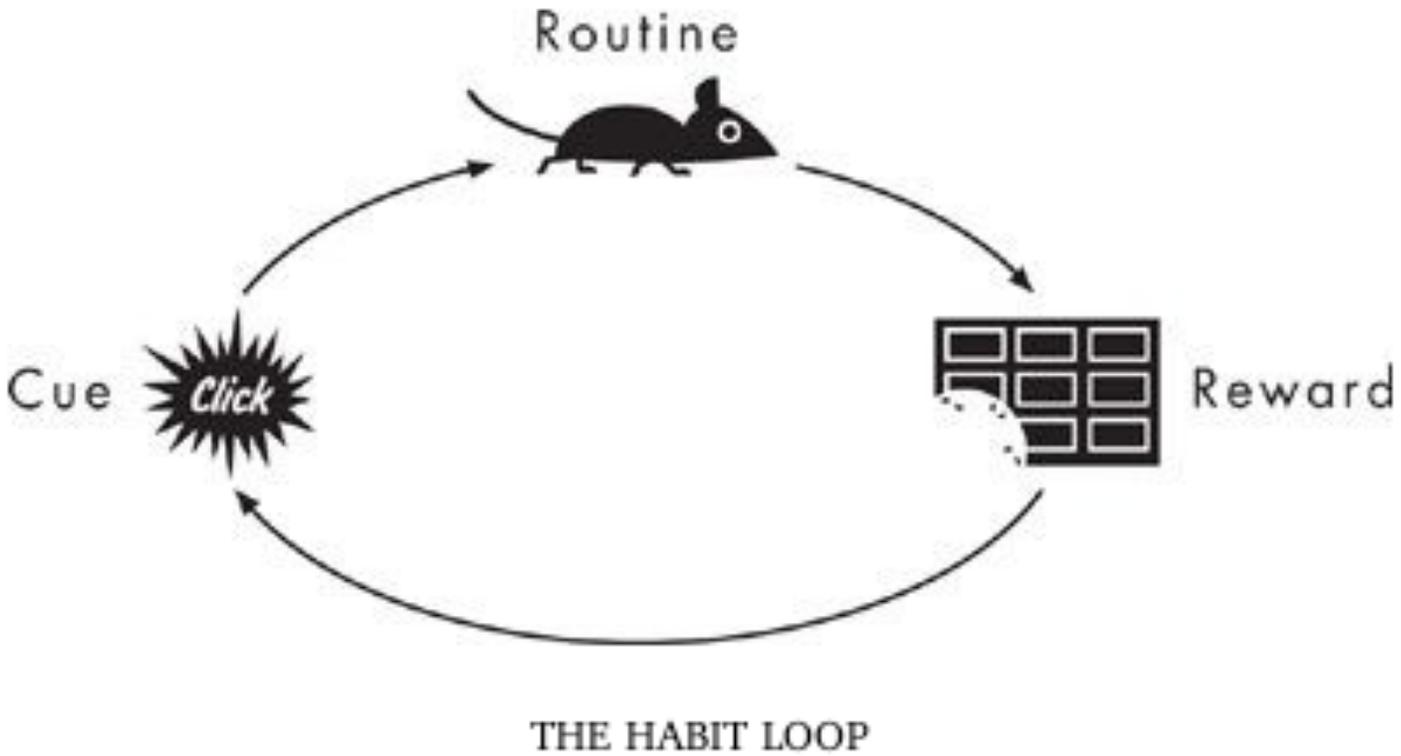
And how do you get them to come back tomorrow?

# Habits:

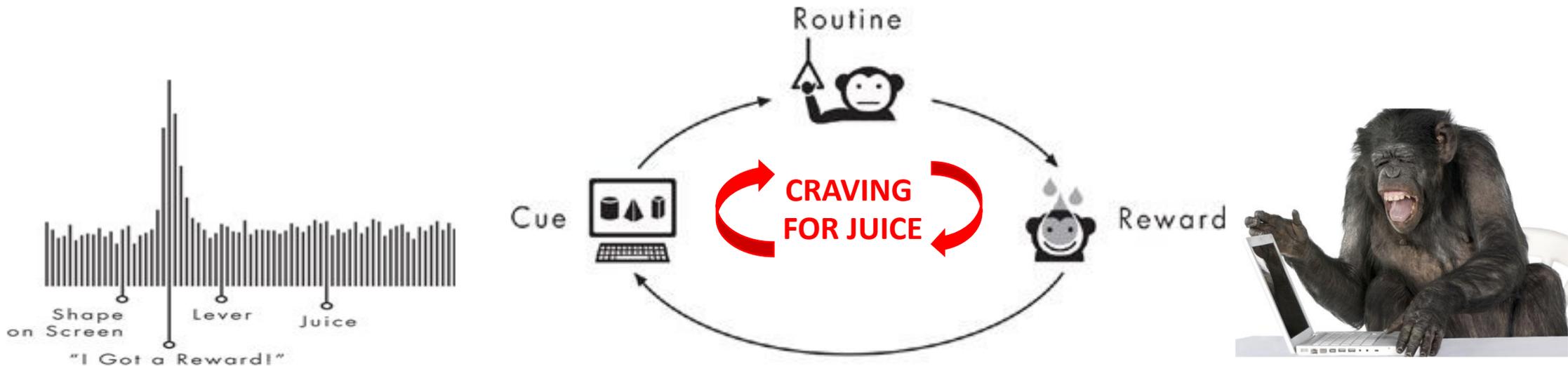
The choices that all of us deliberately make at some point, and then **stop thinking about** but continue doing, often every day.



# The Habit Loop



# The Habit Loop is Driven By Cravings



What draws us to act is **not the sensation** we receive from the reward itself,  
but the need to **alleviate the craving** for that reward.

# Feelings drive basic behavior



Hungry

Eat



Tired

Sleep



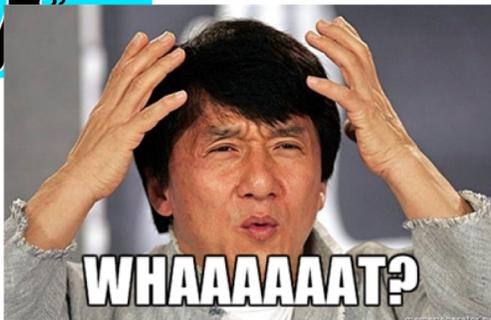
Fear

Run away



Antsy

Pee



Confusion

Ask

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Bored

Seek entertainment,  
Seek attention



Happy

Celebrate, tell people!

# Building Habit Forming-Products

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by creating an **association**  
so that the user **identifies** the product  
as the source of **relief**.

	Facebook/Twitter	Google	News, Instagram	Email
Boredom				
Loneliness				
Frustration				
Confusion				
Indecisiveness				
Validation of importance				
Fear of missing out				

Ethics: As a developer, you will be in situations where you have to decide whether it's ethical to build an app



What are the pro's and con's for all stakeholders?

Would you want it on the front page of the New York times?

HW7 is out. Due **\*Friday\*** 3/13 4pm

Participation form!

Columbia University

# User Interface Design

COMS 4170 · Spring 2020

Home Grading Syllabus **Piazza**

7	<b>MARCH 2</b> <a href="#">Participation Form</a> <a href="#">Homework 5 review</a> <a href="#">Accessibility</a>	<b>MARCH 4</b> <a href="#">Homework 6 due @ 4pm</a> <a href="#">Participation Form</a> <a href="#">Homework 7 out</a>
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note @462

## Participation Link for 3/4

Since the course website is hard to find today,  
The course webpage can be found at: (note: no www)  
<https://coms4170.cs.columbia.edu/2020-spring/>

here's the link to today's participation form:  
<https://forms.gle/g5YgerQhqv5dfrzDA>