

Information Design

Professor Danne Woo

infodesign.dannewoo.com

ARTS 269

Spring 2020

Wednesday 1:40 PM – 5:30 PM

Klapper 107

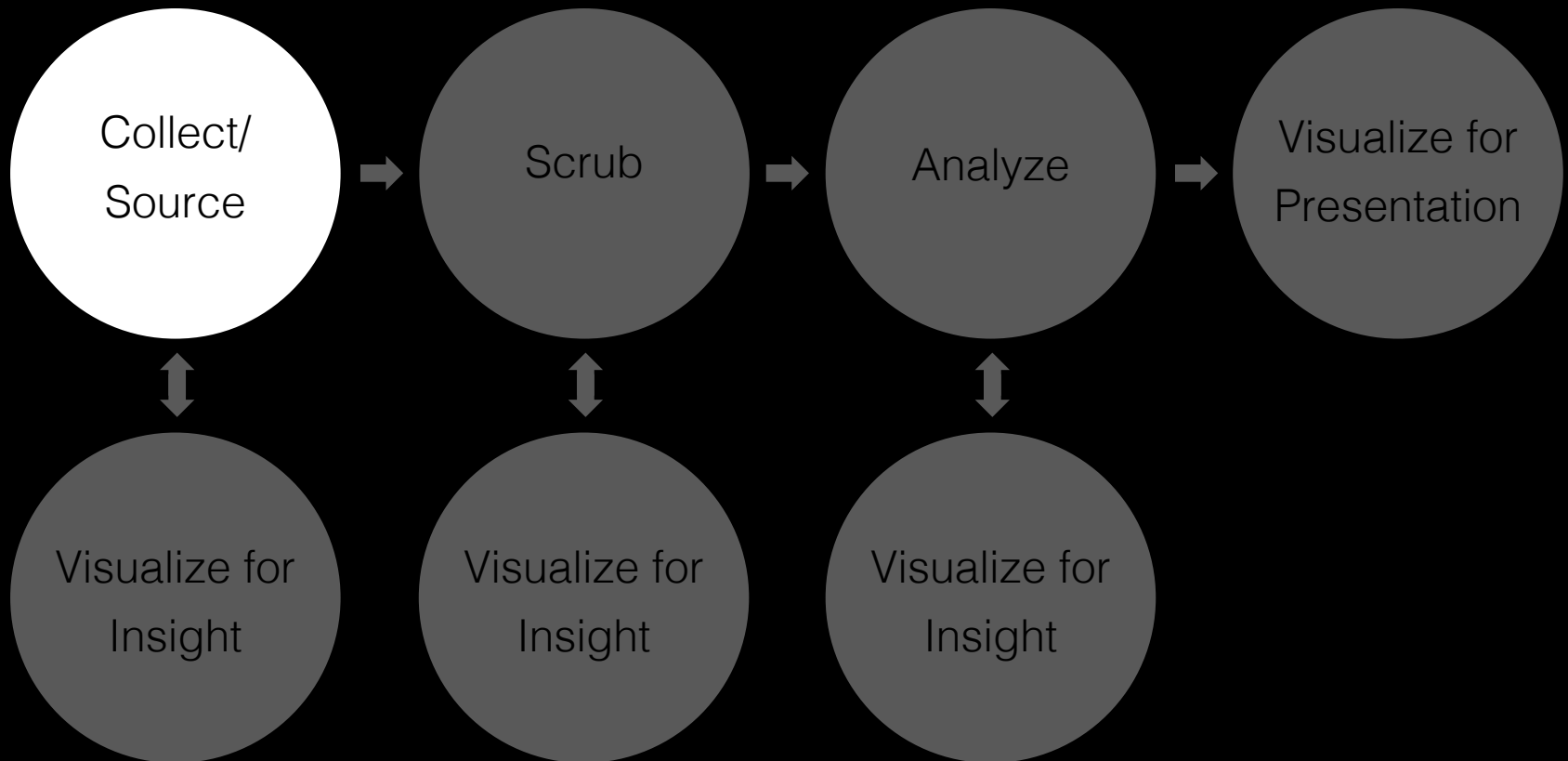
Source, Scrub, Analyze

Week 01: Introduction to the Data Pipeline: Source, Scrub, Analyze,
Visualize for Insight and Visualize for Presentation

Week 02: Collecting Data, Sourcing Data and Big Data

Week 03: Scrubbing and Analysis

Data Pipeline



What is Data?

A collection of facts.

Numbers

Words

Measurements

Descriptions

Observations

Pictures

Videos

Audio

Data

Data Types – Structured vs Unstructured

| Rank This Week | Song | Artist |
|----------------|---------------------------------|---|
| 1 | Despacito | Luis Fonsi & Daddy Yankee Featuring Justin Bieber |
| 2 | Wild Thoughts | DJ Khaled Featuring Rihanna & Bryson Tiller |
| 3 | Bodak Yellow (Money Moves) | Cardi B |
| 4 | Believer | Imagine Dragons |
| 5 | Attention | Charlie Puth |
| 6 | Unforgettable | French Montana Featuring Swae Lee |
| 7 | There's Nothing Holdin' Me Back | Shawn Mendes |
| 8 | That's What I Like | Bruno Mars |
| 9 | Shape Of You | Ed Sheeran |
| 10 | Rake It Up | Yo Gotti Featuring Nicki Minaj |
| 11 | Strip That Down | Liam Payne Featuring Quavo |
| 12 | Bank Account | 21 Savage |
| 13 | Body Like A Back Road | Sam Hunt |
| 14 | Slow Hands | Niall Horan |
| 15 | Congratulations | Post Malone Featuring Quavo |
| 16 | I'm The One | DJ Khaled Featuring Justin Bieber, Quavo, Chance The Rapper & Lil Wayne |
| 17 | Redbone | Childish Gambino |
| 18 | Sorry Not Sorry | Demi Lovato |
| 19 | Humble. | Kendrick Lamar |
| 20 | Friends | Justin Bieber + BloodPop |
| 21 | Something Just Like This | The Chainsmokers & Coldplay |
| 22 | Feels | Calvin Harris Featuring Pharrell Williams, Katy Perry & Big Sean |
| 23 | Feel It Still | Portugal. The Man |

Comin' over in my direction

So thankful for that, it's such a blessin', yeah

Turn every situation into heaven, yeah

Oh-oh, you are

My sunrise on the darkest day

Got me feelin' some kind of way

Data

Structured or Unstructured?

Cincinnati Reds vs. San Diego Padres

espn.go.com/mlb/boxscore?gameId=350811125


Danne


GAMEHQ
Scores for Aug 11, 2015

Final OAK 2 TOR 4 Final in 16 NYY 4 CLE 5 Final COL 0 NYM 4 Final in 10 BOS 4 MIA 5 Final ATL 0 TB 2 Final MIL 3 CHC 6 Final DET 1 KC 6 Final LAA 0 CHW 3 Final TEX 2 MIN 3 Final PIT 3 STL 4 Final PHI 3 ARI 1

Final

Series: Game 2 of 3

**Reds 6**
(49-62, 21-36 away)

**Padres 11**
(54-60, 26-28 home)

Watch Highlights

10:10 PM ET, August 11, 2015
Petco Park, San Diego, California

| | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|----|----|---|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | R | H | E | |
| CIN | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 3 | 6 | 11 | 2 | W: C. Rea (1-0) |
| SD | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | - | 11 | 11 | 1 | L: M. Lorenzen (3-8) |


Recap

Box Score


Play-By-Play

Photos 40

Conversation 24

**Cincinnati Reds**

| Hitters | AB | R | H | RBI | BB | SO | #P | AVG | OBP | SLG |
|--------------|----|---|---|-----|----|----|----|------|------|------|
| Phillips 2B | 4 | 0 | 2 | 0 | 1 | 0 | 15 | .286 | .325 | .378 |
| Schumaker LF | 3 | 0 | 0 | 1 | 1 | 1 | 19 | .213 | .296 | .287 |
| Votto 1B | 4 | 1 | 1 | 0 | 0 | 2 | 15 | .299 | .430 | .515 |
| Frazier 3B | 4 | 1 | 3 | 2 | 0 | 0 | 17 | .260 | .313 | .530 |
| Bruce RF | 4 | 0 | 0 | 0 | 0 | 1 | 18 | .246 | .324 | .468 |
| De Jesús SS | 4 | 0 | 0 | 0 | 0 | 1 | 15 | .276 | .339 | .438 |
| Barnhart C | 4 | 2 | 3 | 0 | 0 | 0 | 9 | .259 | .338 | .353 |
| Lorenzen P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .276 | .276 | .345 |
| Axelrod P | 2 | 0 | 0 | 0 | 0 | 1 | 6 | .000 | .000 | .000 |
| a-Byrd PH | 1 | 0 | 0 | 0 | 0 | 1 | 6 | .243 | .296 | .468 |
| Badenhop P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .000 | .000 | .000 |
| Parra P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .000 | .000 | .000 |

**San Diego Padres**

| Hitters | AB | R | H | RBI | BB | SO | #P | AVG | OBP | SLG |
|-----------------|----|---|---|-----|----|----|----|------|------|------|
| Solarte 3B | 4 | 3 | 2 | 0 | 1 | 0 | 21 | .270 | .324 | .414 |
| B. Norris P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .000 | .000 | .000 |
| Garcés P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .000 | .000 | .000 |
| Alonso 1B | 5 | 2 | 2 | 2 | 0 | 0 | 13 | .272 | .353 | .366 |
| Kemp RF | 3 | 2 | 1 | 0 | 1 | 1 | 17 | .256 | .304 | .392 |
| M. Upton Jr. CF | 1 | 0 | 0 | 0 | 0 | 0 | 5 | .222 | .294 | .361 |
| J. Upton LF | 4 | 2 | 1 | 1 | 1 | 0 | 18 | .252 | .332 | .447 |
| Gyorko 2B | 4 | 1 | 2 | 4 | 1 | 0 | 15 | .235 | .296 | .356 |
| Venable CF-RF | 3 | 0 | 0 | 0 | 1 | 1 | 18 | .255 | .317 | .378 |
| Hedges C | 4 | 0 | 2 | 1 | 0 | 1 | 14 | .200 | .244 | .293 |
| Amarista SS | 4 | 0 | 0 | 0 | 0 | 0 | 18 | .204 | .261 | .304 |
| Rea P | 3 | 1 | 1 | 0 | 0 | 2 | 13 | .333 | .333 | .333 |

Data

Structured or Unstructured?

```
19:03:46, 12ZH1bPJZDGHYUThjQgYvUqXq87LqrGRKp, 9294716,  
1B2YvBPW23S8v5ouPdKm4kozSzYNzmGb43, 240370,  
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19:03:45, 1LwtxmX13HZTDDcUEzmoW2Av2GxDBHeAMD, 399980000,  
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19:03:44, 12BApnQD51QcqsjrBR8DCjcLdiHjHoDAs7P, 81342236,  
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438dae53f595c20dc51e972ebfcb6cf96046272608e4fa1d6ef2f593a20c82bb  
19:03:42, 1BAyaPneSPVheVYvX2p4Qrm9BygtWyGVx2, 306651770,
```

Data

Structured or Unstructured?

KATY PERRY on Twitter: "NEW ZEALAND Tickets & VIP packages for both #WITNESSTHETOUR Auckland shows are on sale now bit.ly/KatyPerry_NZ"

KATY PERRY @katyperry

NEW ZEALAND Tickets & VIP packages for both #WITNESSTHETOUR Auckland shows are on sale now bit.ly/KatyPerry_NZ



KATY PERRY @katyperry katyperry.com Joined February

3

Data

Structured or Unstructured?

Ken: I have "heard" from two sources in this office that Enron will announce my successor today. I have not been advised of the selection and am concerned that this announcement will not treat my retirement in an appropriate and deserving manner...

Frankly, I think this matter has not been handled in a caring way and I have been accused of giving information on the selection to Tom DeLay, which is untrue. My office mates are all more aware of the candidates and their status than I have been.

I regret having to contact you on this matter but feel that despite my total cooperation, allegiance and dedication to Enron, I am not being treated with the courtesy and sensitivity that this matter deserves.

Data

Structured or Unstructured?

```
Delivered-To: kenneth.lay@enron.com
Received: by 10.112.161.231 with SMTP id xv7csp295280lbb; Tue, 25 Sep 2000 01:01:10 -0800 (PST)
Return-Path: <bounce+a5dle6.0977-kenneth.lay=enron.com@enron.com>
Received: from mail-s83.mailgun.info (mail-s83.mailgun.info. [184.173.153.211]) by mx.enron.com with ESMTP id
z8sil471337yhb.134.2013.11.19.01.01.08 for <kenneth.lay@enron.com>; Tue, 25 Sep 2000 01:01:08 -0800 (PST)
Received-SPF: pass (enron.com: domain of bounce+a5dle6.0977-kenneth.lay=enron.
com@enron.com designates 184.173.153.211 as permitted sender) client-ip=184.173.153.211;
Date: Tue, 25 Sep 2000 09:00:03 +0000
From: joe.hillings@enron.com
To: kenneth.lay@enron.com
Subject: Selection of My Successor — My Concern
Message-Id: <528b2893.J26eP57xAov4mdbI%joe.hillings@enron.com>
User-Agent: Mozilla/4.0 (compatible; Lotus-Notes/5.0; Windows-NT)
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
X-Mailgun-Sid: WyI2M2M0NyIsICJhbWVfkZXVzQGRlY29kZWQuY28iLCAiMDk3NyJd
Sender: joe.hillings@enron.com
Content-Transfer-Encoding: 7bit
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Data

Structured or Unstructured?



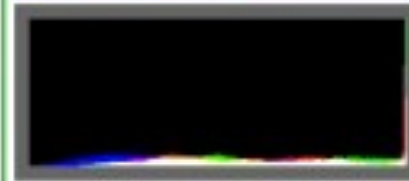
Data

Structured or Unstructured?

Basic Image Information

| | |
|-----------------|--|
| Camera: | Apple iPhone 4S |
| Lens: | 4.3 mm |
| Exposure: | Auto exposure, Program AE, 1/20 sec, f2.4, ISO 125 |
| Flash: | Off, Did not fire |
| Date: | December 3, 2012 12:26:00PM (timezone not specified) (2 hours, 44 minutes, 59 seconds ago, assuming image timezone of 6 hours behind GMT) |
| Location: | Latitude/longitude: 15° 39' 29.4" North, 88° 59' 31.8" West (15.658167, -88.992167) Photos on Jeffrey's blog that are near this location . Map via embedded coordinates at: Google , Yahoo , WikiMapia , OpenStreetMap , Bing (also see the Google Maps pane below) Altitude: 7.152159468 m Timezone guess from earthtools.org : 6 hours behind GMT |
| File: | 480 × 640 JPEG 132,481 bytes (0.13 megabytes) Image compression: 88% 4% crop of the 3,264 × 2,448 (8.0 megapixel) original |
| Color Encoding: | WARNING: Color space tagged as sRGB, without an embedded color profile. Windows and Mac browsers and apps treat the colors randomly. <hr/> Images for the web are most widely viewable when in the sRGB color space and with an embedded color profile. See my Introduction to Digital-Image Color Spaces for more information. |
| Image URL: | http://assets.vice.com/content-images/contentimage/mo-shag/1b1cd71e0012775d7d0621b7491b573.jpg Apply other tools to this image via ImgOps.com. |

© ⓘ ⓘ ⓘ ⓘ Main image displayed here at 70% width (49% the area of the original)






Collecting Data

Blombos Ocher Plaque – 75000BC



John Graunt – 1662

LONDON'S Dreadful Visitation:
Or, A COLLECTION of All the
Bills of Mortality
For this Present Year:
Beginning the 27th of December 1664. and
ending the 19th of December following:
As also, The GENERAL or Whole years BILL:
According to the Report made to the
KING'S Most Excellent Majesty,
By the Company of Parish-Clerks of London. &c

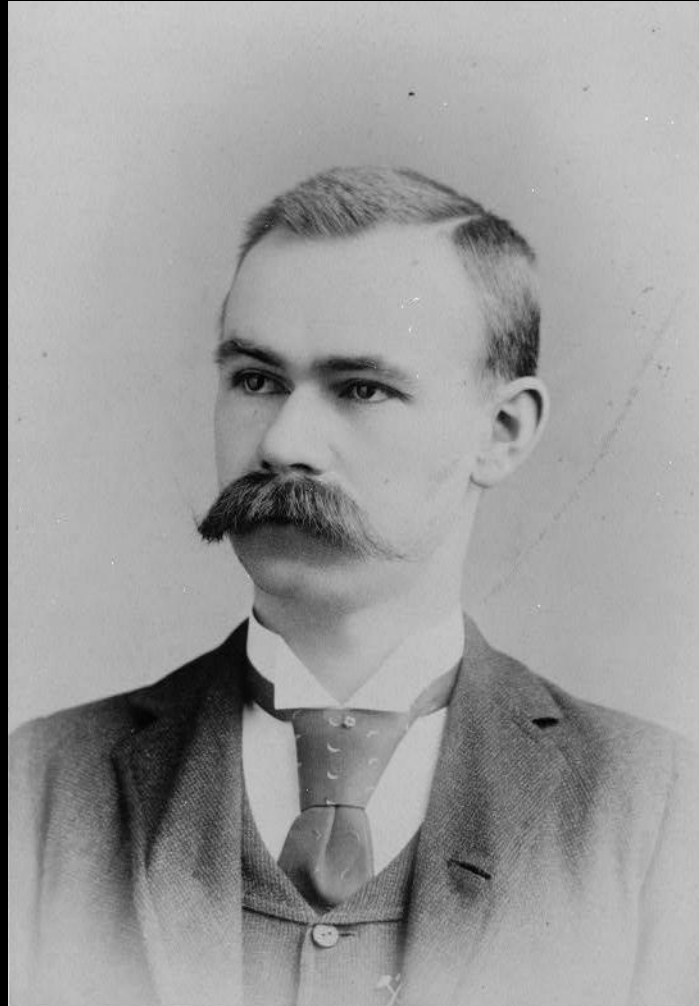


L O N D O N:
Printed and are to be sold by E. Cotes living in *Altersgate-street*.
Printer to the said Company 1665.

[illegible]

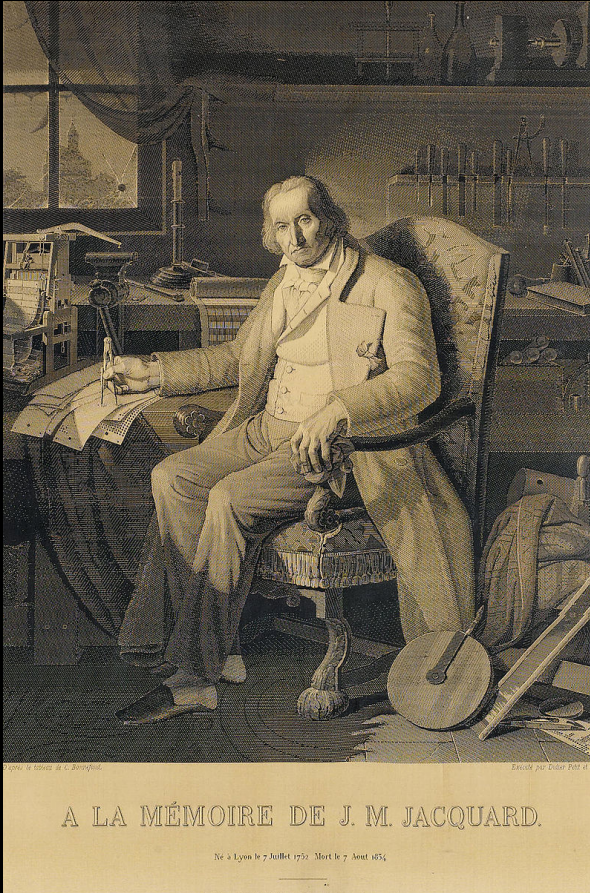
Collecting Data

Herman Hollerith – 1890



Collecting Data

Jacquard Loom



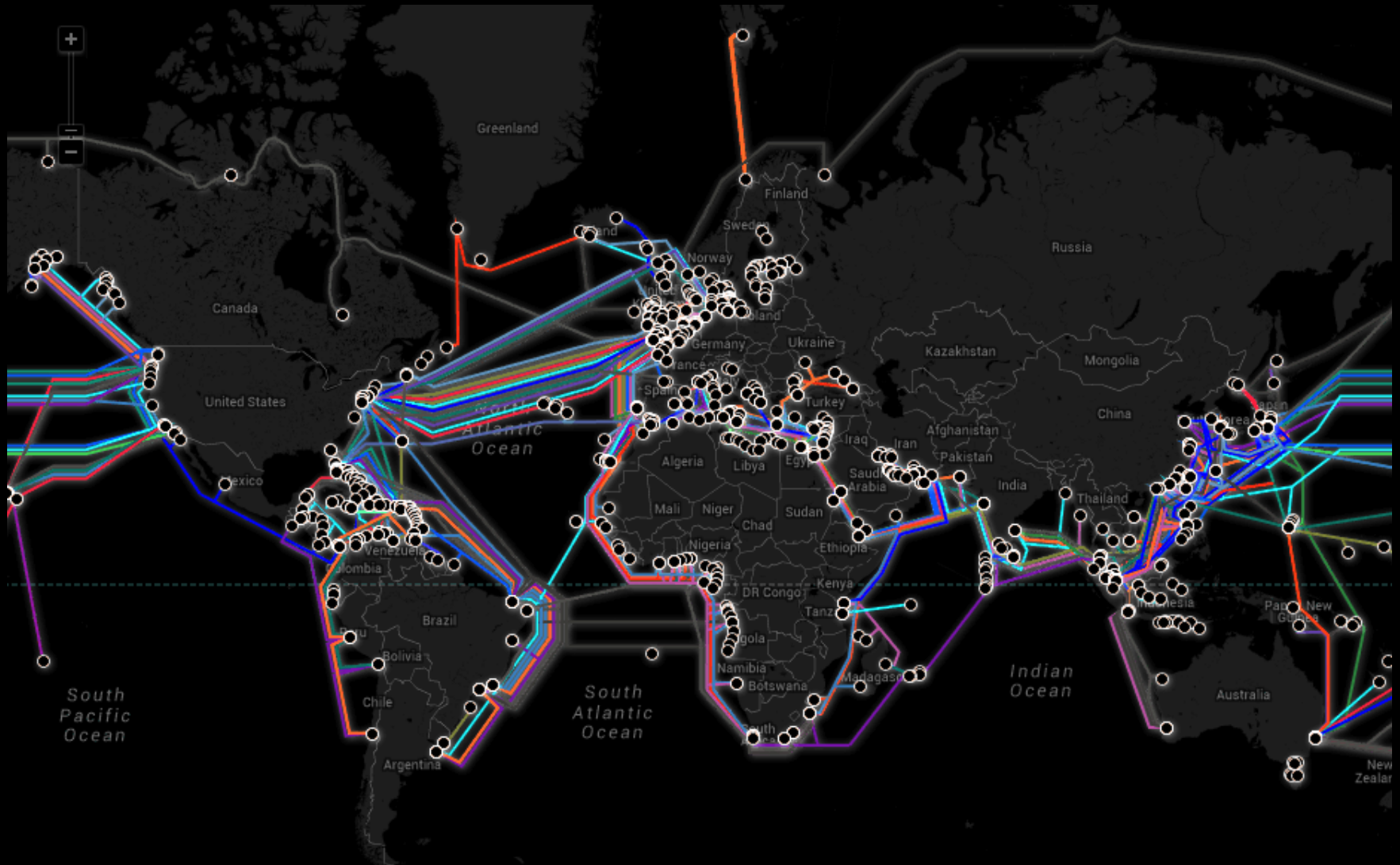
Collecting Data

Herman Hollerith – 1890



Collecting Data

The Internet – 1982



Collecting Data

World Wide Web – 1989



Collecting Data

How the Web Works



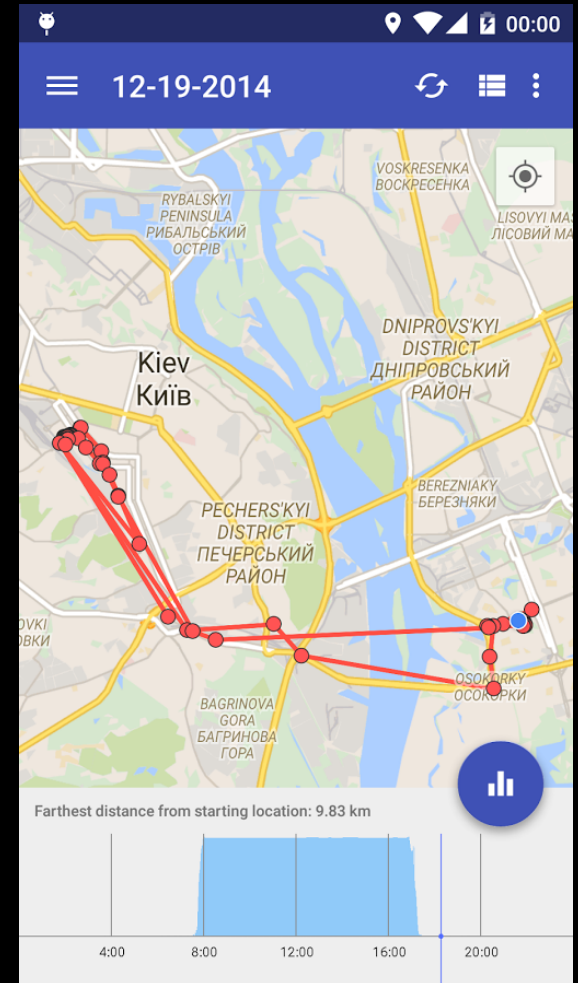
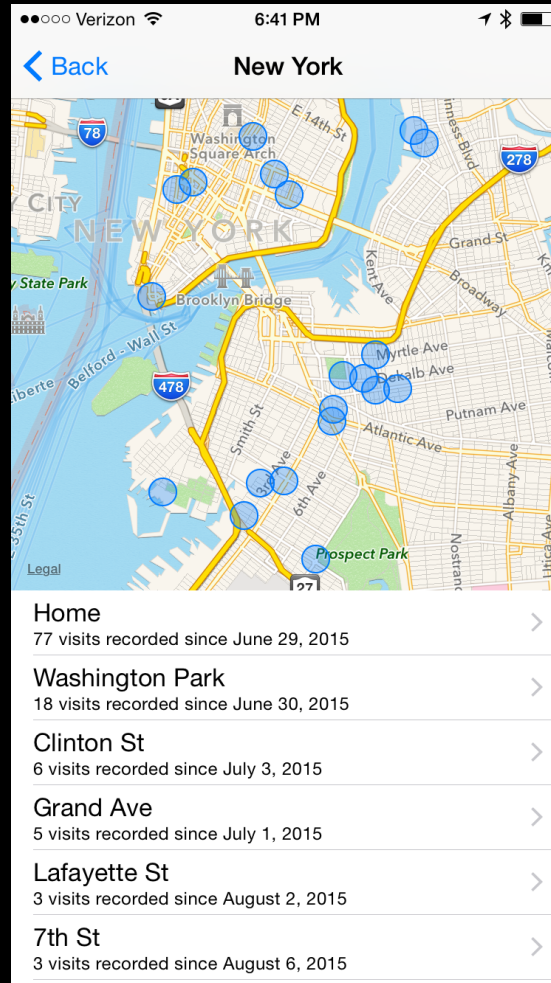
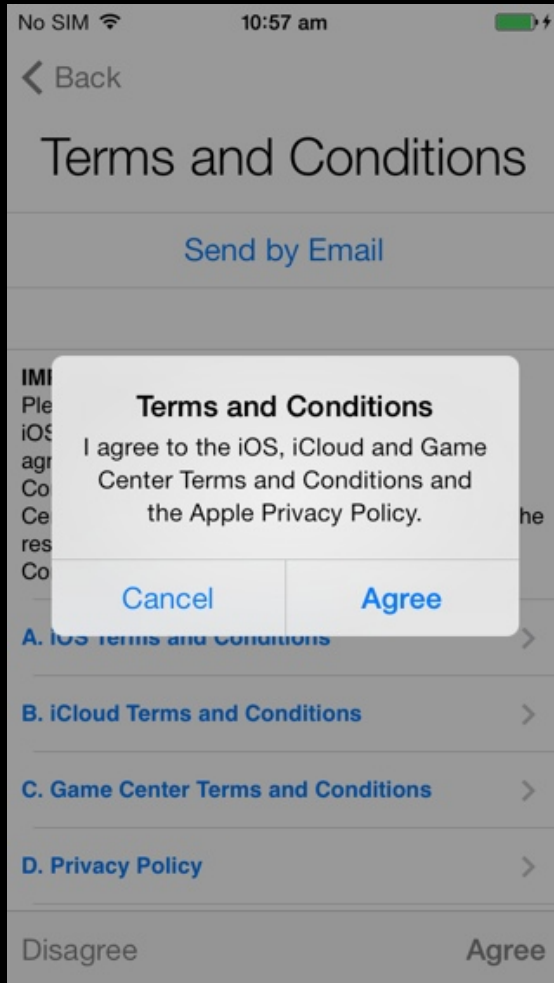
Collecting Data

Every Company is a Data Company



Collecting Data

Every Company is a Data Company



Collecting Data


Take Back Your Data

A bite of Me

by Federico Zannier

Home Updates 0 Backers 111 Comments 1

New York, NY Conceptual Art



Federico Zannier

111 backers

\$1,271

pledged of \$500 goal

22 days to go

Back This Project

\$1 minimum pledge

This project will be funded on Wednesday Jun 5, 10:44am EDT.

Like 263 people like this. Sign Up to see what your friends like.

Tweet Embed http://xkcd.at/Yz058y

I've data mined myself. I've violated my own privacy. Now I am selling it all. But how much am I worth?

Launched: May 6, 2013
Funding ends: Jun 5, 2013

Remind me

Project by **Federico Zannier**
Brooklyn, NY

Contact me

First created 0 backed

Federico Zannier 704 friends

Website: myprivacy.info

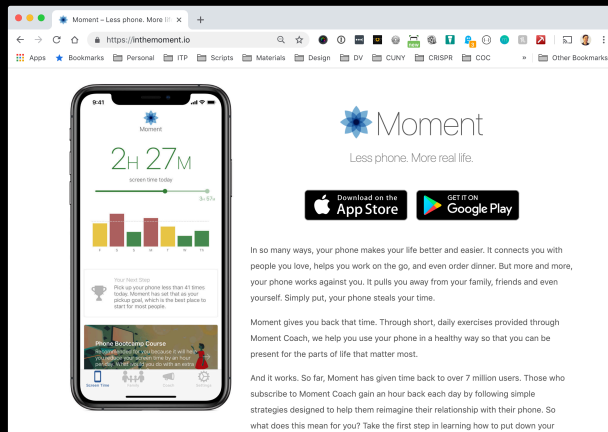
Collecting Data

Nicholas Felton

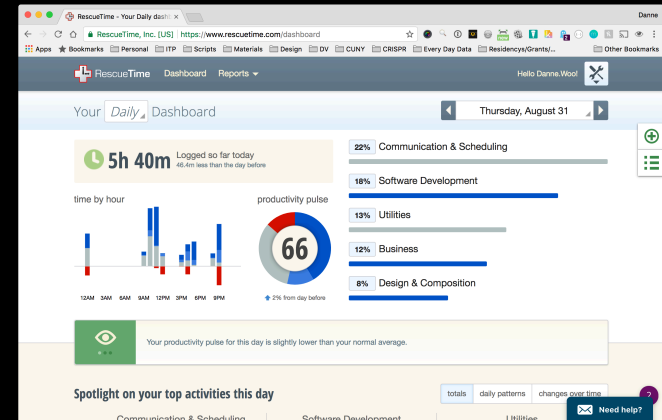


Collecting Data

Personal Data – Software



Moment App



Rescue Time



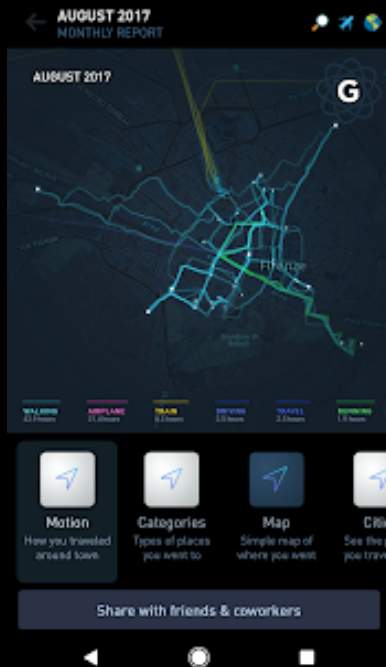
Feltron Reporter App



Apple iPhone Health Sensors

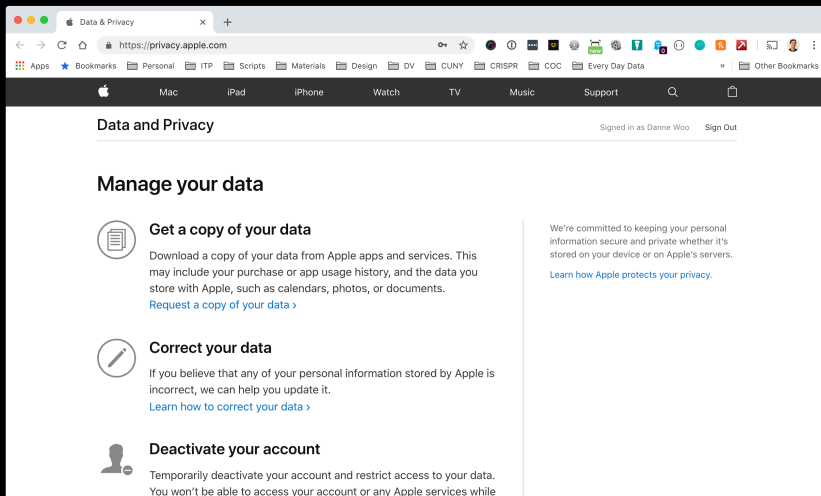
Collecting Data

Personal Data – Software

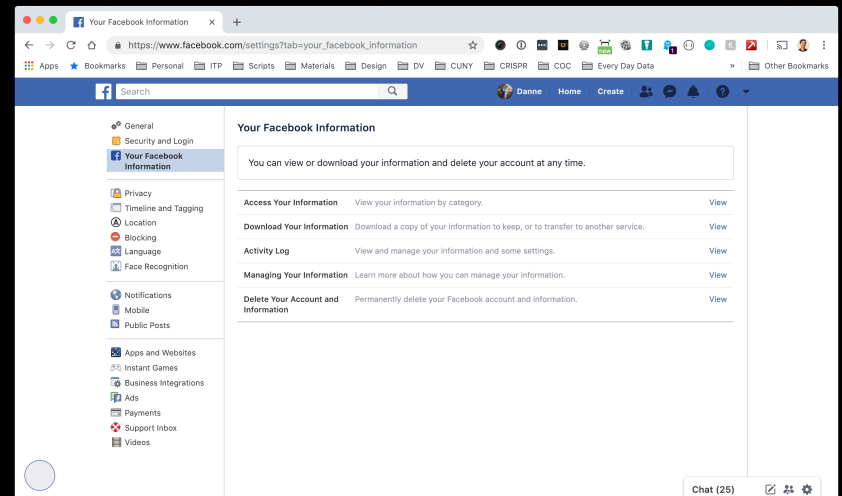


Collecting Data

Personal Data – Apple and Facebook Data



Apple Data
privacy.apple.com



Facebook Data
https://www.facebook.com/settings?tab=your_facebook_information

Collecting Data

Personal Data – Hardware



Fitbit



Jawbone



Nike Fuelband



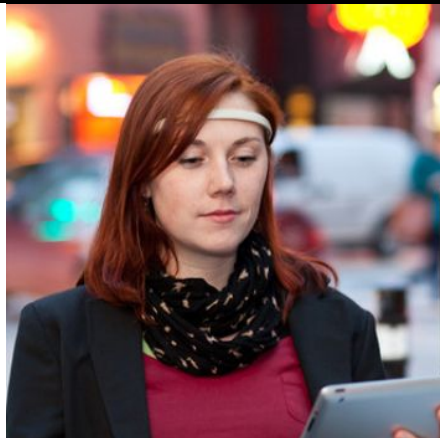
Apple Watch

Collecting Data

Personal Data – Hardware



Automatic



Muse Headband



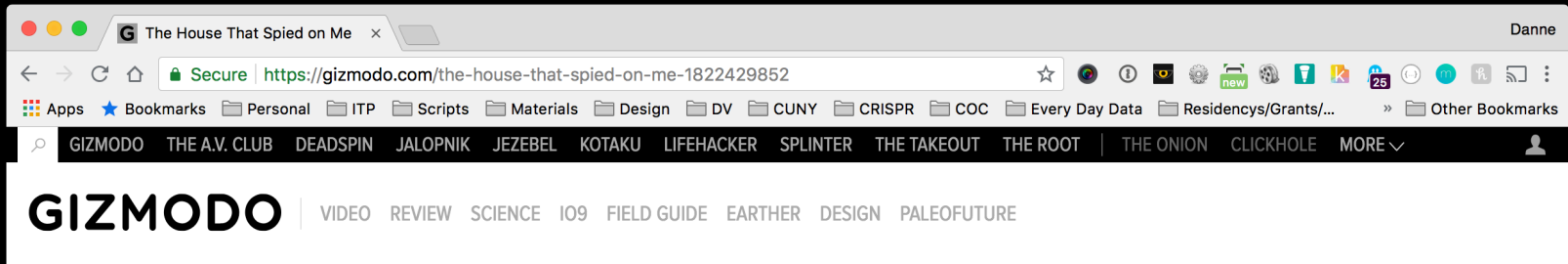
Nest



Vessyl

Collecting Data

Tracking the Trackers



The House That Spied on Me



<https://gizmodo.com/the-house-that-spied-on-me-1822429852>

Collecting Data

The Connected Us

vocativ

Thursdays at 11pm **SHOWTIME**



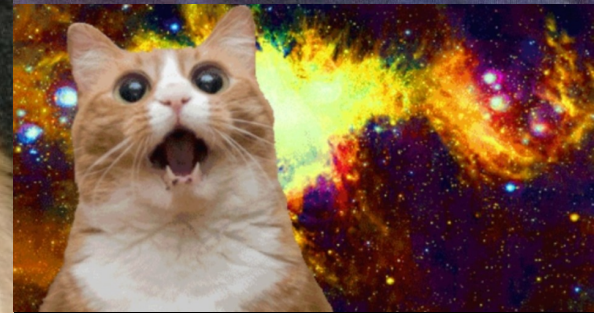
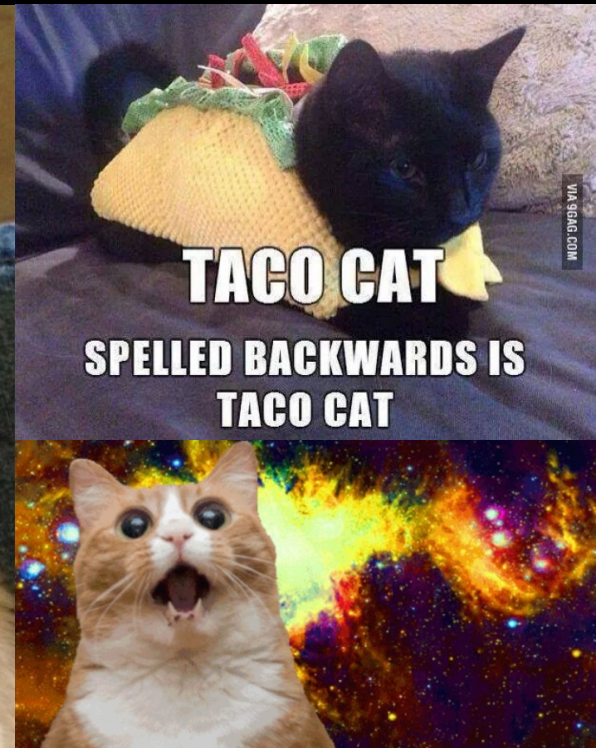
Collecting Data

Rodrigo Narciso – CH4



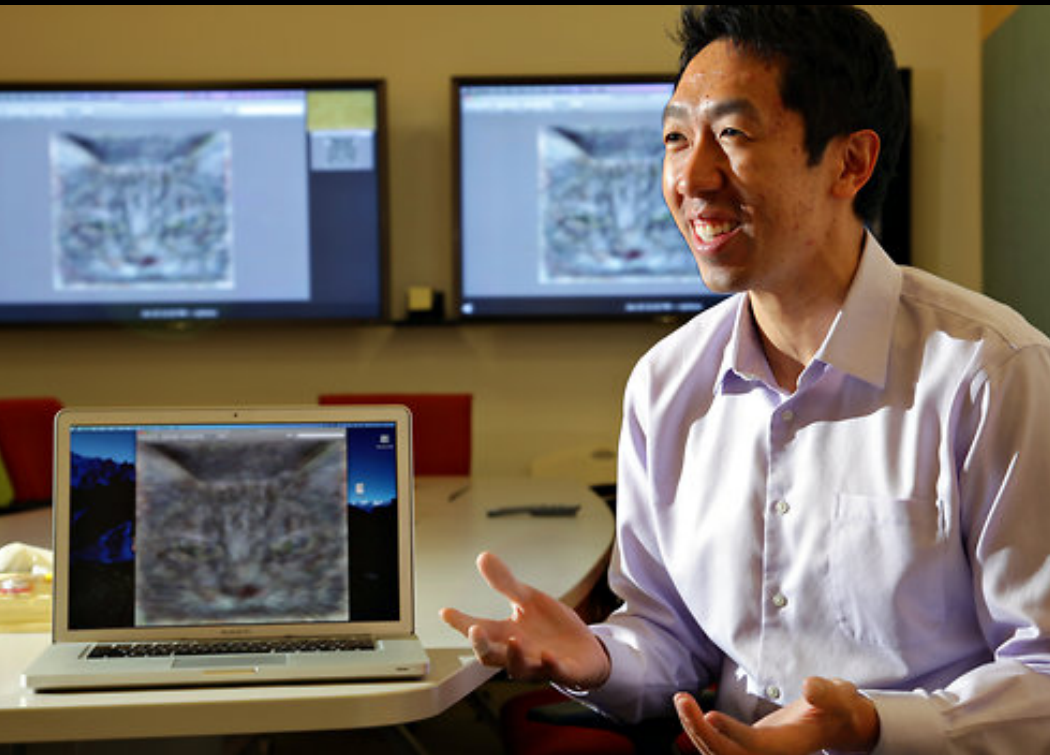
Sourcing Data

The Internet (Not Just Cat Memes)



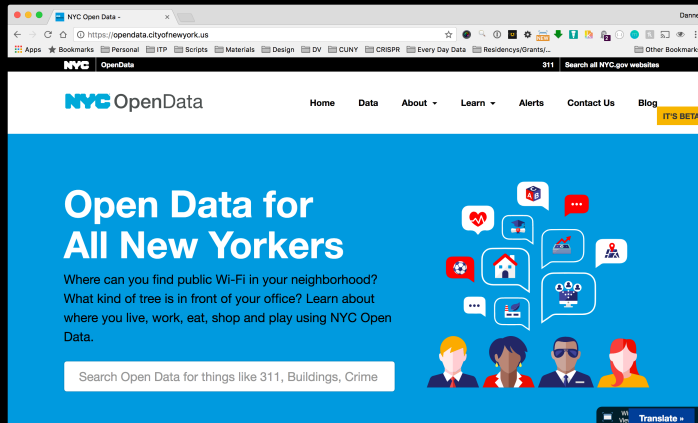
Sourcing Data

But mostly cat memes

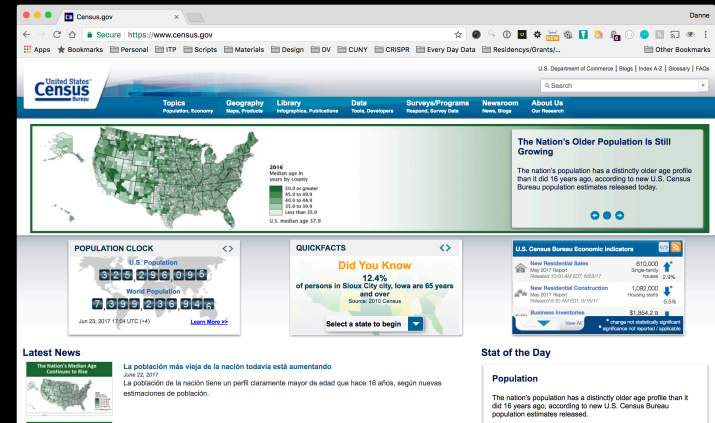


Sourcing Data

Open Datasets



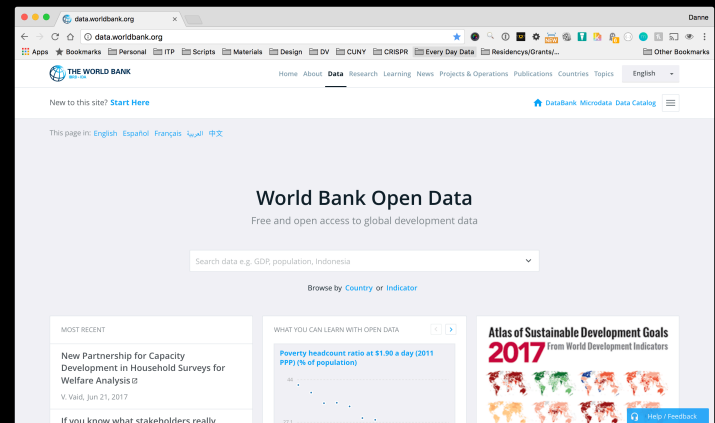
data.cityofnewyork.us



www.census.gov



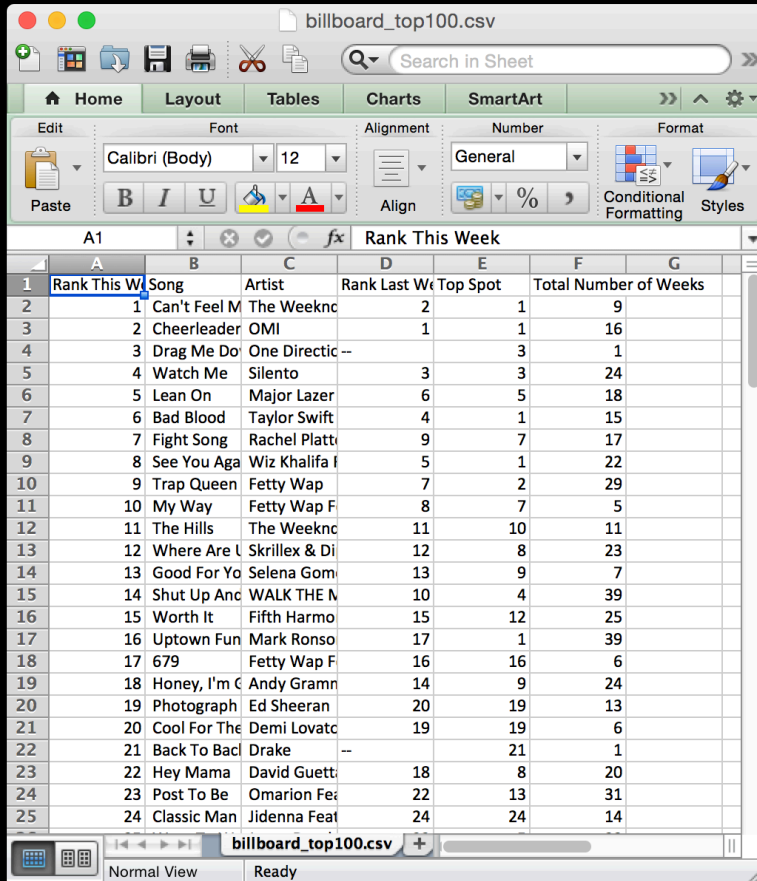
ucr.fbi.gov



data.worldbank.org

Sourcing Data

Data Formats - Tabular



| | A | B | C | D | E | F | G |
|----|----------------|--------------|---------------|----------------|----------|-----------------------|---|
| | Rank This Week | Song | Artist | Rank Last Week | Top Spot | Total Number of Weeks | |
| 1 | 1 | Can't Feel M | The Weeknd | 2 | 1 | 9 | |
| 2 | 2 | Cheerleader | OMI | 1 | 1 | 16 | |
| 3 | 3 | Drag Me Do | One Directio | | 3 | 1 | |
| 4 | 4 | Watch Me | Silento | 3 | 3 | 24 | |
| 5 | 5 | Lean On | Major Lazer | 6 | 5 | 18 | |
| 6 | 6 | Bad Blood | Taylor Swift | 4 | 1 | 15 | |
| 7 | 7 | Fight Song | Rachel Platts | 9 | 7 | 17 | |
| 8 | 8 | See You Aga | Wiz Khalifa f | 5 | 1 | 22 | |
| 9 | 9 | Trap Queen | Fetty Wap | 7 | 2 | 29 | |
| 10 | 10 | My Way | Fetty Wap F | 8 | 7 | 5 | |
| 11 | 11 | The Hills | The Weeknd | 11 | 10 | 11 | |
| 12 | 12 | Where Are U | Skrillex & Di | 12 | 8 | 23 | |
| 13 | 13 | Good For Yo | Selena Gome | 13 | 9 | 7 | |
| 14 | 14 | Shut Up And | WALK THE M | 10 | 4 | 39 | |
| 15 | 15 | Worth It | Fifth Harmo | 15 | 12 | 25 | |
| 16 | 16 | Uptown Fun | Mark Ronso | 17 | 1 | 39 | |
| 17 | 17 | 679 | Fetty Wap F | 16 | 16 | 6 | |
| 18 | 18 | Honey, I'm C | Andy Gramr | 14 | 9 | 24 | |
| 19 | 19 | Photograph | Ed Sheeran | 20 | 19 | 13 | |
| 20 | 20 | Cool For The | Demi Lovato | 19 | 19 | 6 | |
| 21 | 21 | Back To Back | Drake | -- | 21 | 1 | |
| 22 | 22 | Hey Mama | David Guett | 18 | 8 | 20 | |
| 23 | 23 | Post To Be | Omarion Fea | 22 | 13 | 31 | |
| 24 | 24 | Classic Man | Jidenna Feat | 24 | 24 | 14 | |

CSV – Comma Separated Value

TSV – Tab Separated Value

XLS – Excel

Sourcing Data

HTML

Tables

Easily Copy and Paste

The screenshot shows the Baseball-Reference.com website. The header includes the site logo, navigation links (play index, players, teams, seasons, managers, leaders, awards, postseason, boxes, japan, nlb, minors, draft, more), and a search bar. The main content area is divided into several sections: 'Today's Games (all times ET)' with a table of games, 'The Daily Recap (top performers below)' with a table of player statistics, 'Simple Rating System Top 10' with a list of teams, and '2014 Postseason' with links to the American League and National League Championship Series. The website is cluttered with many links and text, making it difficult to find specific data.

<http://www.baseball-reference.com/>

Complex Layout

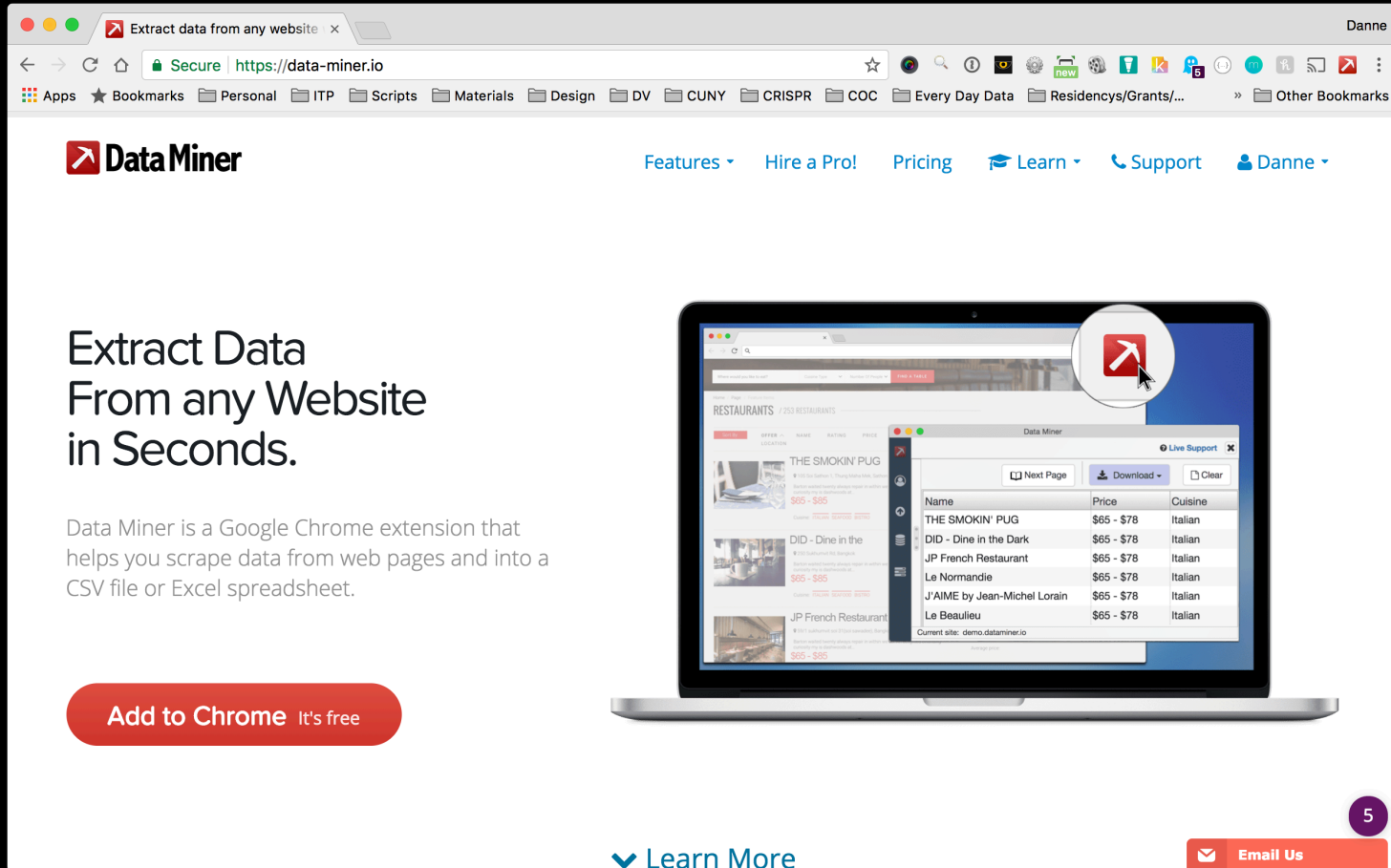
HTML Web Scrapping – Data-miner or Python

The screenshot shows the Billboard.com website, specifically the Hot 100 chart page. The header includes the Billboard logo, navigation links (Photos, Lists, Reviews, Artists, Podcasts, Pop-Shop, The Juice, Chart Beat, Business, Back to College), and a search bar. The main content area features the 'THE HOT 100' chart, which lists the top 100 songs. The chart is visually appealing with large text and images of the top artists. The layout is clean and easy to navigate, with clear sections for the chart, news, and promotional content.

<http://www.billboard.com/charts/hot-100>

Sourcing Data

Web Scraping



The screenshot shows the Data Miner website in a browser. The browser's address bar displays "Secure | https://data-miner.io". The website's navigation bar includes links for "Features", "Hire a Pro!", "Pricing", "Learn", "Support", and a user profile "Danne". The main heading reads "Extract Data From any Website in Seconds." Below this, a paragraph states: "Data Miner is a Google Chrome extension that helps you scrape data from web pages and into a CSV file or Excel spreadsheet." A red button labeled "Add to Chrome" with the text "It's free" is positioned below the paragraph. To the right, a laptop displays a demo of the Data Miner Chrome extension. The extension interface shows a "Next Page" button, a "Download" button, and a "Clear" button. A table of restaurant data is visible, with columns for "Name", "Price", and "Cuisine". A red circle with a white arrow points to the Data Miner icon in the browser's extension bar. In the bottom right corner of the website, there is a purple circle with the number "5" and a red button labeled "Email Us".

Data Miner

Features ▾ Hire a Pro! Pricing Learn ▾ Support Danne ▾

Extract Data From any Website in Seconds.

Data Miner is a Google Chrome extension that helps you scrape data from web pages and into a CSV file or Excel spreadsheet.

Add to Chrome It's free

Next Page Download Clear

| Name | Price | Cuisine |
|------------------------------|-------------|---------|
| THE SMOKIN' PUG | \$65 - \$78 | Italian |
| DID - Dine in the Dark | \$65 - \$78 | Italian |
| JP French Restaurant | \$65 - \$78 | Italian |
| Le Normandie | \$65 - \$78 | Italian |
| J'AIME by Jean-Michel Lorain | \$65 - \$78 | Italian |
| Le Beaulieu | \$65 - \$78 | Italian |

Current site: demo.dataminer.io

5

Learn More

Email Us

Sourcing Data

HTML based Data Tables (Tabula Free Software)

2006-2015.pdf

Home Tools 2006-2015.pdf x 1 / 12 82.5%

World Disasters Report 2016

ANNEX Disaster data

232

TABLE 1 Total number of reported disasters,¹ by continent and by year (2006-2015)

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total ² |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------------|
| Africa | 202 | 184 | 173 | 156 | 135 | 165 | 124 | 115 | 101 | 116 | 1,471 |
| Americas | 105 | 133 | 143 | 115 | 146 | 131 | 114 | 106 | 116 | 124 | 1,233 |
| Asia | 308 | 262 | 240 | 233 | 253 | 235 | 210 | 228 | 228 | 240 | 2,437 |
| Europe | 98 | 104 | 58 | 75 | 99 | 49 | 91 | 69 | 80 | 70 | 793 |
| Oceania | 18 | 11 | 13 | 19 | 18 | 15 | 14 | 12 | 12 | 24 | 156 |
| Very high human development ³ | 124 | 118 | 104 | 99 | 113 | 94 | 119 | 123 | 112 | 113 | 1,119 |
| High human development | 202 | 224 | 193 | 183 | 213 | 159 | 165 | 155 | 192 | 183 | 1,869 |
| Medium human development | 199 | 158 | 170 | 154 | 161 | 165 | 126 | 130 | 126 | 146 | 1,535 |
| Low human development | 206 | 194 | 160 | 162 | 164 | 177 | 143 | 122 | 107 | 132 | 1,567 |
| Total | 731 | 694 | 627 | 598 | 651 | 595 | 553 | 530 | 537 | 574 | 6,090 |

Source: EM-DAT, CRED, University of Louvain, Belgium

¹ In Tables 1–13, 'disasters' refer to those with a natural and/or technological trigger only, and do not include wars, conflict-related famines, diseases or epidemics.

² See note on UNDP's Human Development Index country status in the disaster definitions section in the introduction to this annex.

³ Since slow-onset disasters can affect the same country for a number of years, it is best to use figures on total numbers to calculate annual averages over a decade rather than as absolute totals (see the data definitions and methodology section in the introduction to this annex).

Note: Some totals in the table may not correspond due to rounding.

With 574 disasters reported, 2015 is the year of the decade with the fourth lowest number of disasters, very far below the peak of 2006.

Among continents, the number of disasters was the third lowest of the decade in Africa and the fourth lowest in Europe. In contrast, this number was the fourth highest of the decade in the Americas and in Asia; and Oceania suffered its highest number of disasters of the decade.

In 2015, the number of disasters was at its third lowest level in countries with low human development and at its fourth lowest in medium and high human development countries.

In countries with very high human development, the number of disasters was, in 2014, the fifth lowest in the decade.

The distribution of disasters among continents is, in 2015, very similar to the annual average for the decade.

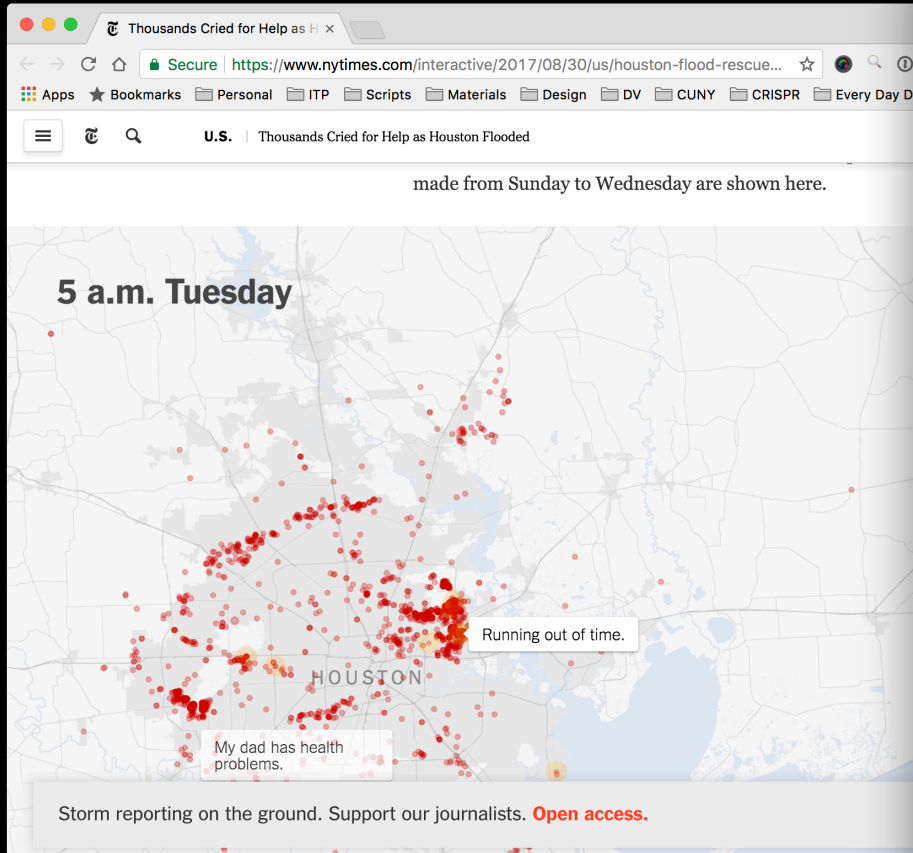
Resilience: saving lives today, investing for tomorrow

PDF



Sourcing Data

Interactive Data Visualizations (Look at the code, view source)



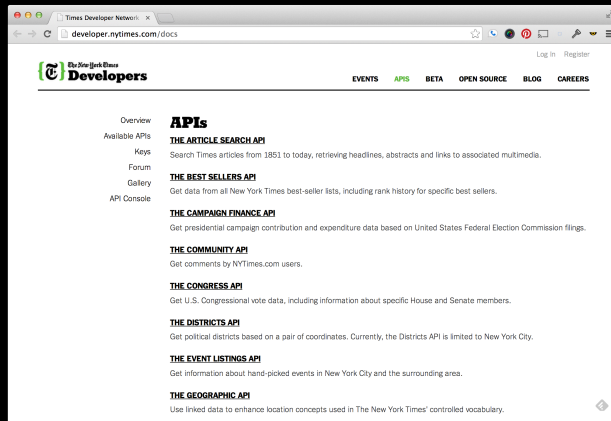
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1042   font-family: 'nyt-franklin', arial, sans-serif;
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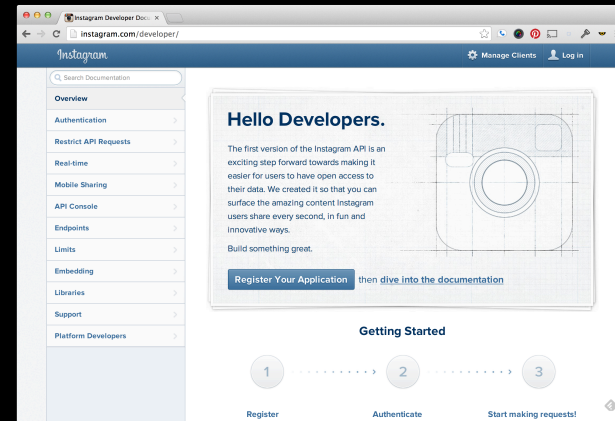
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Sourcing Data

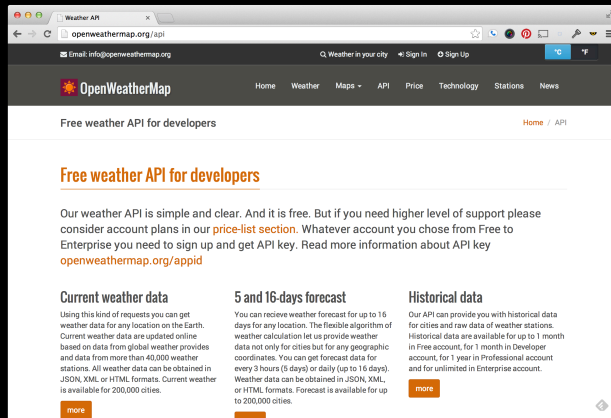
APIs (Application Programming Interfaces)



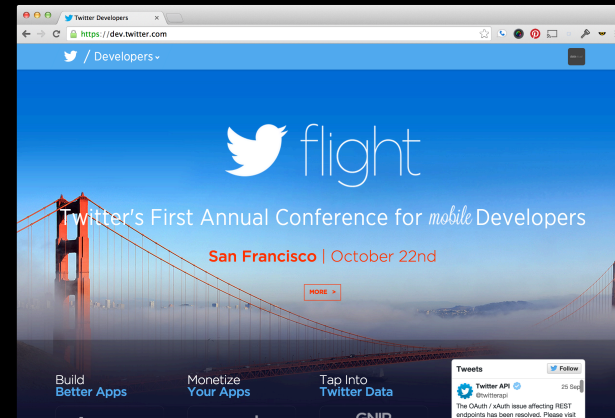
developer.nytimes.com



instagram.com/developer



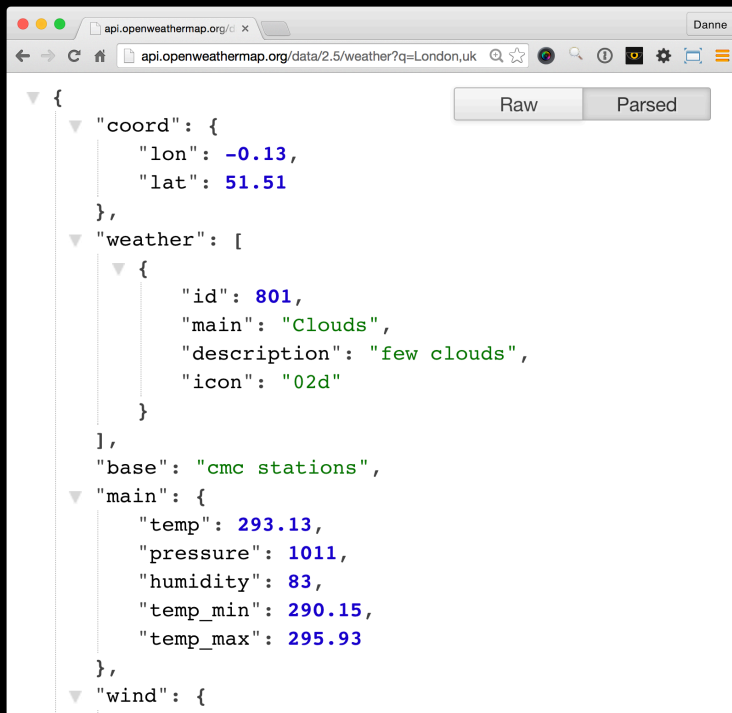
openweathermap.org/api



dev.twitter.com

Sourcing Data

Data Formats - Nested



```
{
  "coord": {
    "lon": -0.13,
    "lat": 51.51
  },
  "weather": [
    {
      "id": 801,
      "main": "Clouds",
      "description": "few clouds",
      "icon": "02d"
    }
  ],
  "base": "cmc stations",
  "main": {
    "temp": 293.13,
    "pressure": 1011,
    "humidity": 83,
    "temp_min": 290.15,
    "temp_max": 295.93
  },
  "wind": {
```

JSON – JavaScript Object Notation

XML – Extensible Markup Language

Sourcing Data

APIs (Application Programming Interfaces)



10,000+ Apps

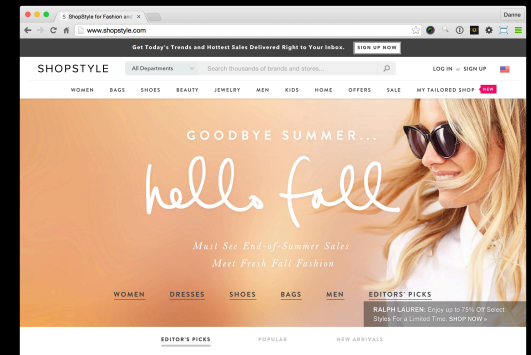
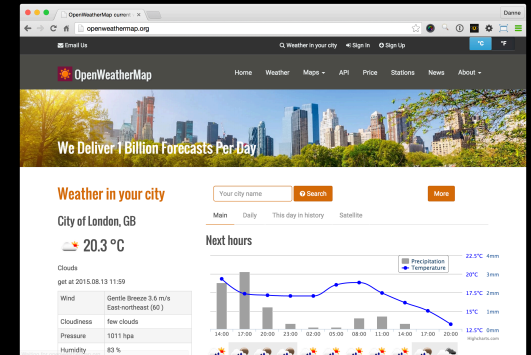
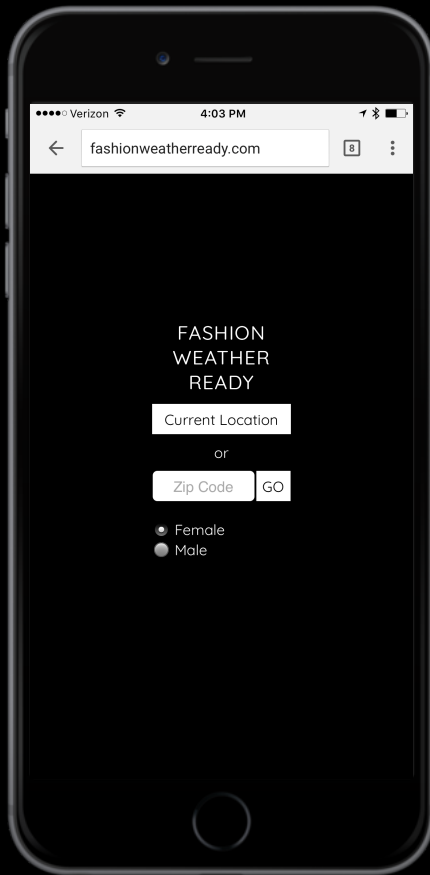
Using Foursquares

Location Data API



Sourcing Data

APIs (Application Programming Interfaces)



fashionweatherready.com

Big Data

John Mashey – 1998

sgi

Big Data ... **and the Next Wave of *InfraStress***

John R. Mashey
Chief Scientist, SGI

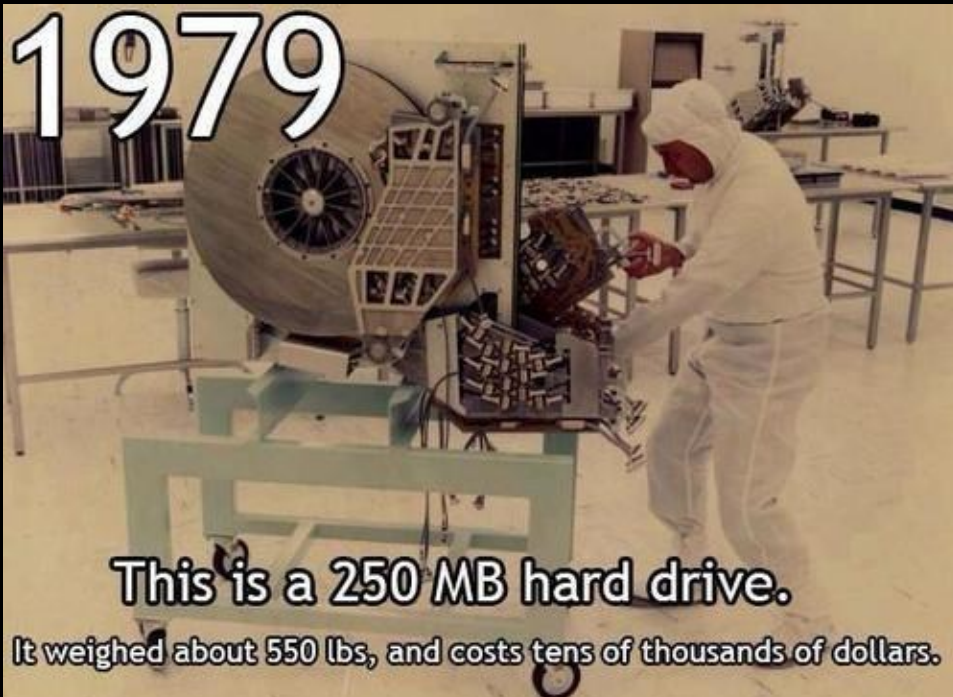
Technology Waves:
NOT technology for technology's sake
IT'S WHAT YOU DO WITH IT
But if you don't understand the trends
IT'S WHAT IT WILL DO TO YOU ←

Uh-oh!



Big Data

More Storage Capabilities



Big Data

Needs more than one computer



In Class Assignment

In groups of two, find a story in the news of interest to you and use that topic to find an interesting open data set. Present it to the class giving your reasons why you chose it and what interesting data points you noticed in it.

This can be a website or open data set, lets avoid APIs for now.

Tip: Google the topic + “statistics” or “data”.

Homework

Continue collecting your own personal data which you can use in your final project.

Some examples could be location data, exercise data, type of food you eat, who you interact with, what time you wake up and go to sleep, your mood for the day, etc.

Here are a few tools to help you do this:

Gyroscope tracking location data, health, mood, etc.

Reporter App simple diary app created by Nicholas Felton.

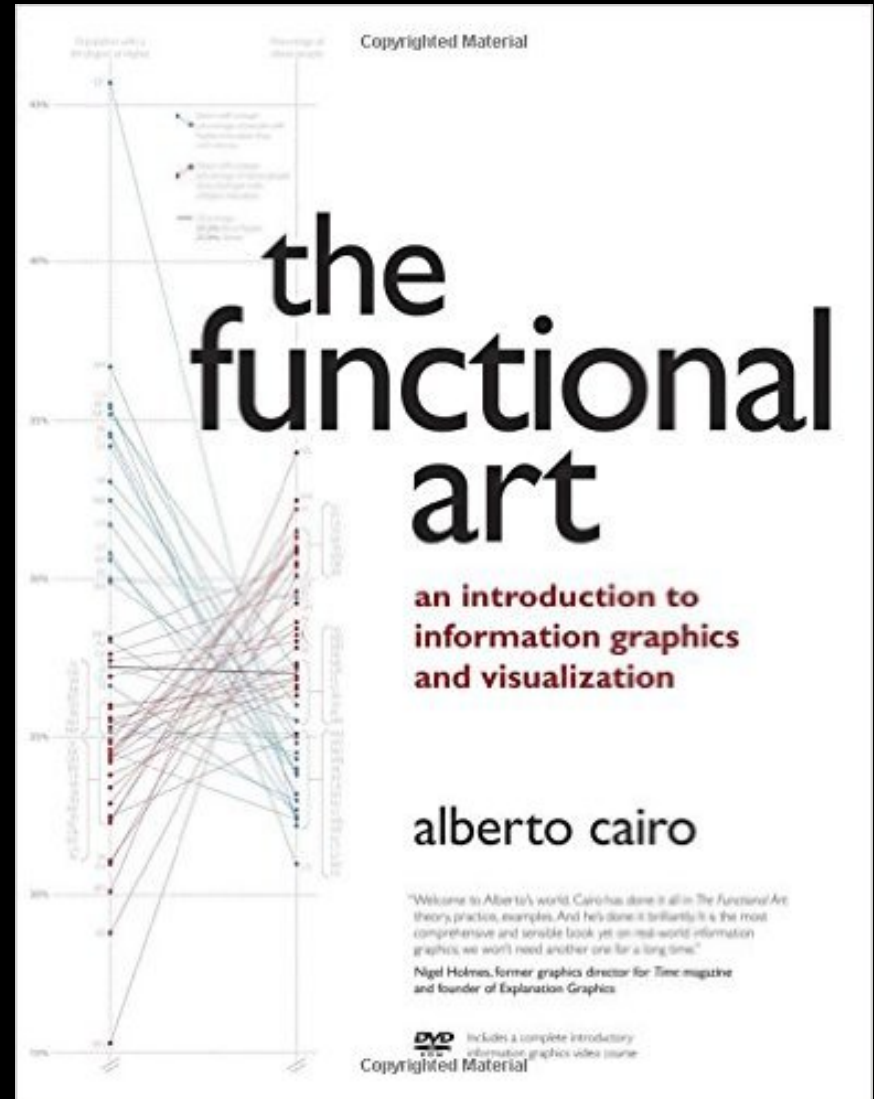
iPhone Health track steps, calories burned, goals, etc.

Rescue Time tracks everything you do on your computer

And of course devices like the **Apple Watch, FitBit, Nike Fuelband**, etc.

Homework

Read pages 5-19 in
The Functional Art



Information Design

Professor Danne Woo

dwoo@qc.cuny.edu

infodesign.dannewoo.com