

Analytics is the discovery and communication of meaningful patterns in data.

Today's Agenda:

1. Some context on big data & analytics
2. What is the goal of your app?
3. Event data
4. Common analytics methods
5. Analyze some data

First: some context on big data and analytics

Every company is becoming a **software company**.
Every software company is becoming a **data company**.

“Big Data” and “Analytics” are kind of a thing right now.

WSJ WSJ LIVE MARKETWATCH BARRON'S ALLTHINGS.DI FACTIVA RISK & COMPLIANCE

THE WALL STREET JOURNAL.

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Big Data's Big Problem: Little Talent

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It seems that the markets are as much in love with "Big Data"—the ability to acquire, process and sort vast quantities of data in real time—as the technology industry.



Hilary Mason, chief scientist for the URL shortening service Bitly, outlines the key skills that data scientists must have.

The first Big Data initial public offering hit the market last week to roaring approval. [Splunk Inc., SPLK +0.31%](#) which helps businesses organize and make sense of all the information they gather, soared 109% on its first day of trading. Big Data, big price.

And this week, in cities in the U.S. and the U.K., Big Data Week events are being held to proselytize the unbelievers.

Big Data refers to the idea that an organization can mine all the data it collects right

Harvard Business Review

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THE MAGAZINE October 2012

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Data Scientist: The Sexiest Job of the 21st Century

by Thomas H. Davenport and D.J. Patil

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Artwork: Tamar Cohen, Andrew J. Buboltz, 2011, silk screen on a page from a high school yearbook, 8.5" x 12"

When Jonathan Goldman arrived for work in June 2006 at LinkedIn, the business networking site, the place still felt like a start-up. The company had just under 8 million accounts, and the number was growing quickly as existing members invited their friends and colleagues to join. But users weren't seeking out connections with the people who were already on the site at the rate executives



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Michael Young @michaelyoungMBN

2 Dec

"@mbnrecruitment: #Jobs Senior Analytics & Optimization Manager -
£50000 - £60000 pa bit.ly/VgoB3L" #bigdata #sql #SAS #Analytics
from Glasgow City, Glasgow City

job security.

Cool data stories



Tycho Brahe



Johannes Kepler



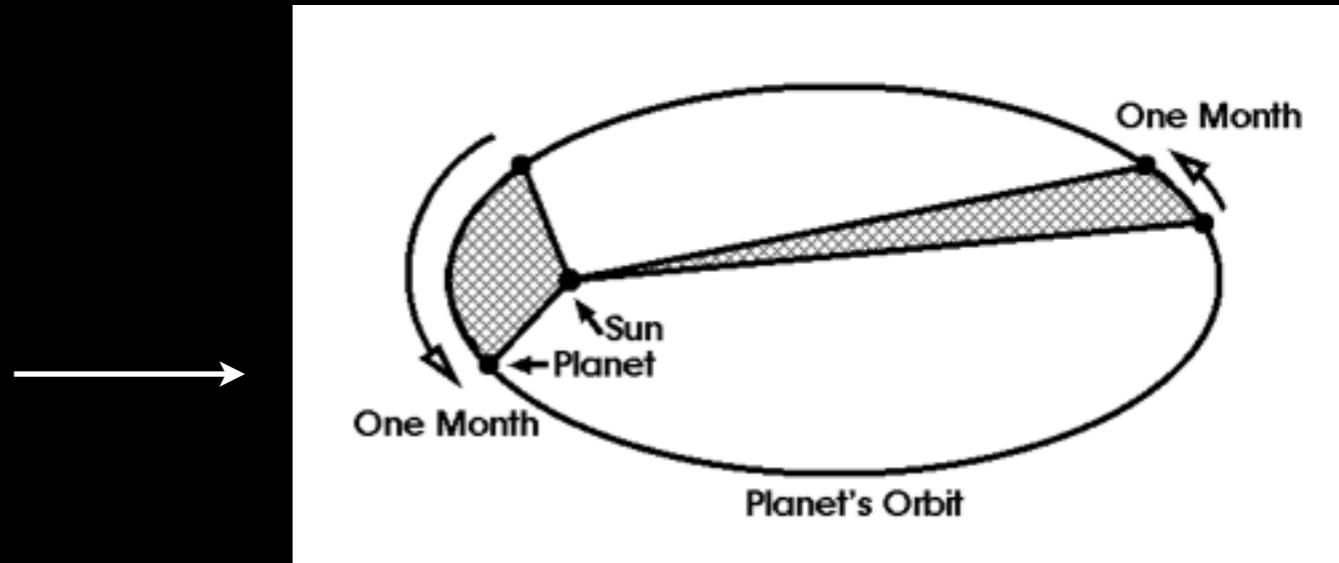
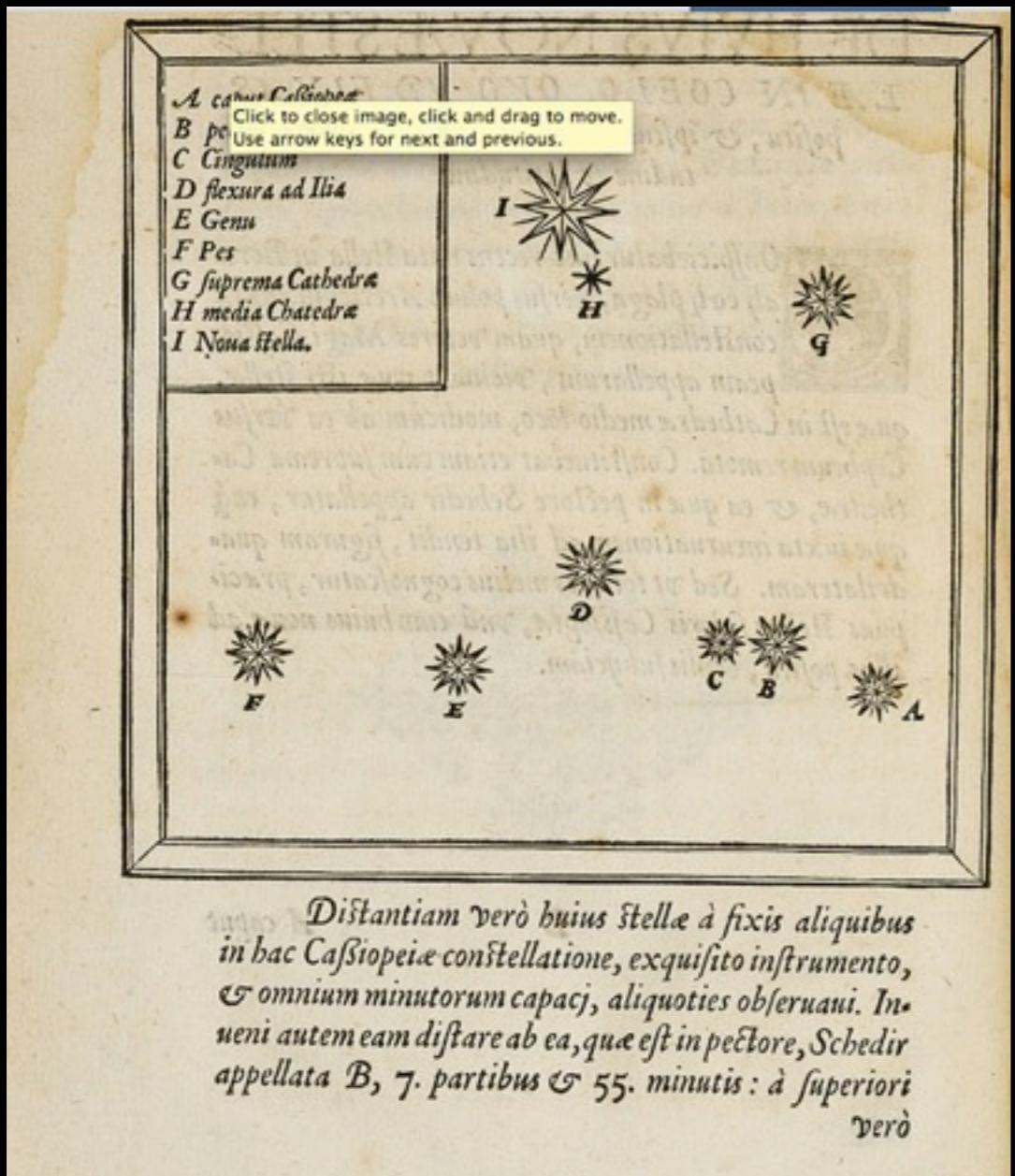
Tycho Brahe



Johannes Kepler



aka science walrus



*Distantiam verò huius Stellæ à fixis aliquibus
 in bac Cassiopeiæ constellatione, exquisito instrumento,
 & omnium minutorum capacj, aliquoties obseruani. In-
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 verò*

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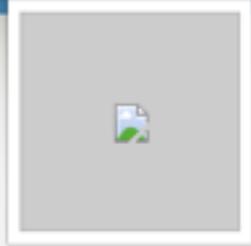
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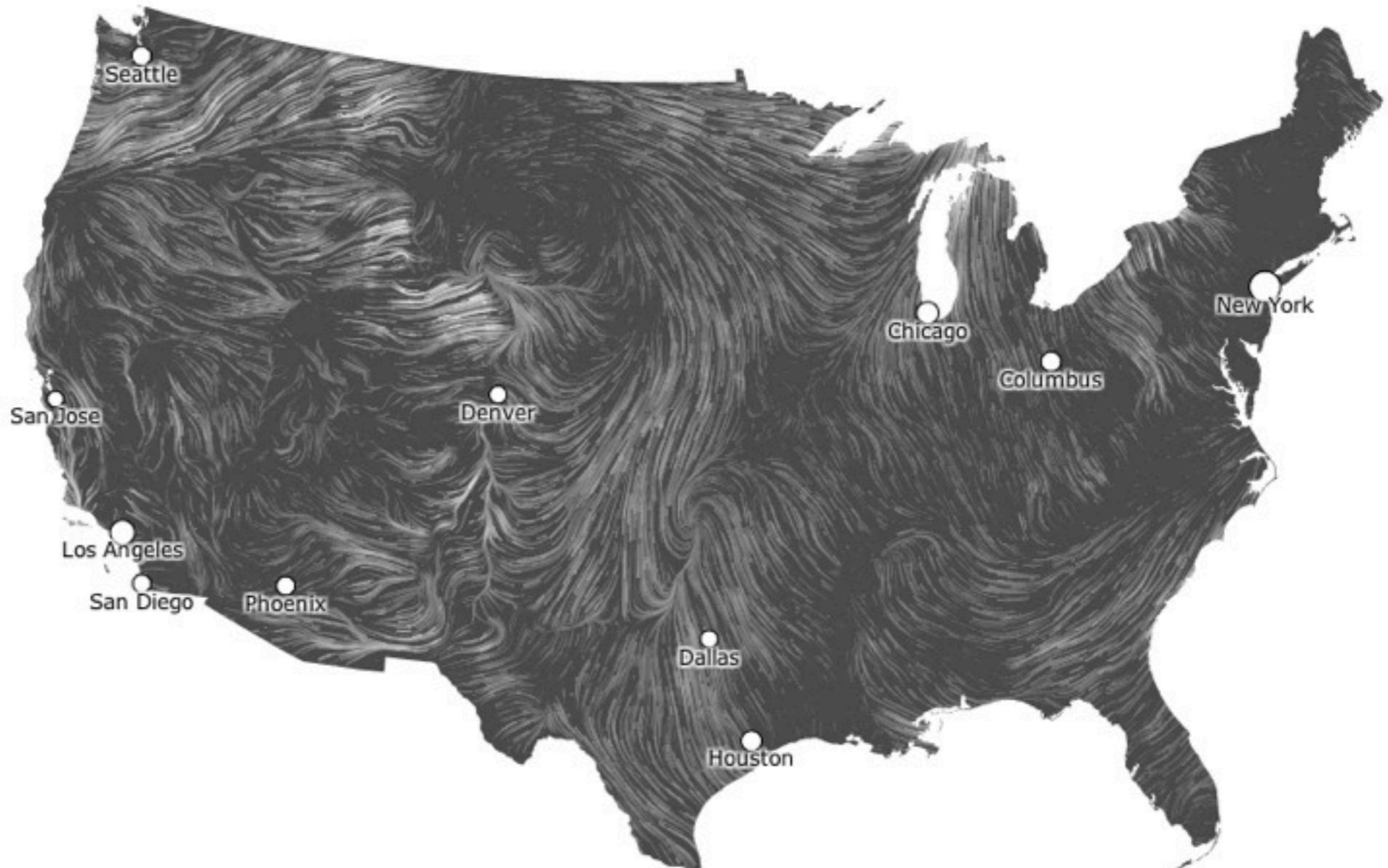
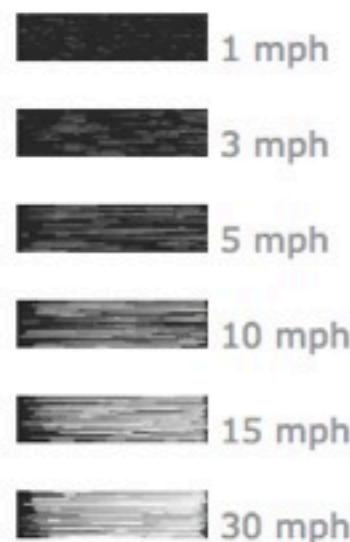
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Dec. 6, 2012

5:59 pm EST

(time of forecast download)

top speed: **30.2 mph**
average: **6.2 mph**



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	PAR MOIS	EN AN
SEINE ET SEINE-ET-OISE	2 fr.	24 fr. 80
DÉPARTEMENTS	2 fr.	4 fr. *
ÉTRANGERS	2.80	32 fr. *



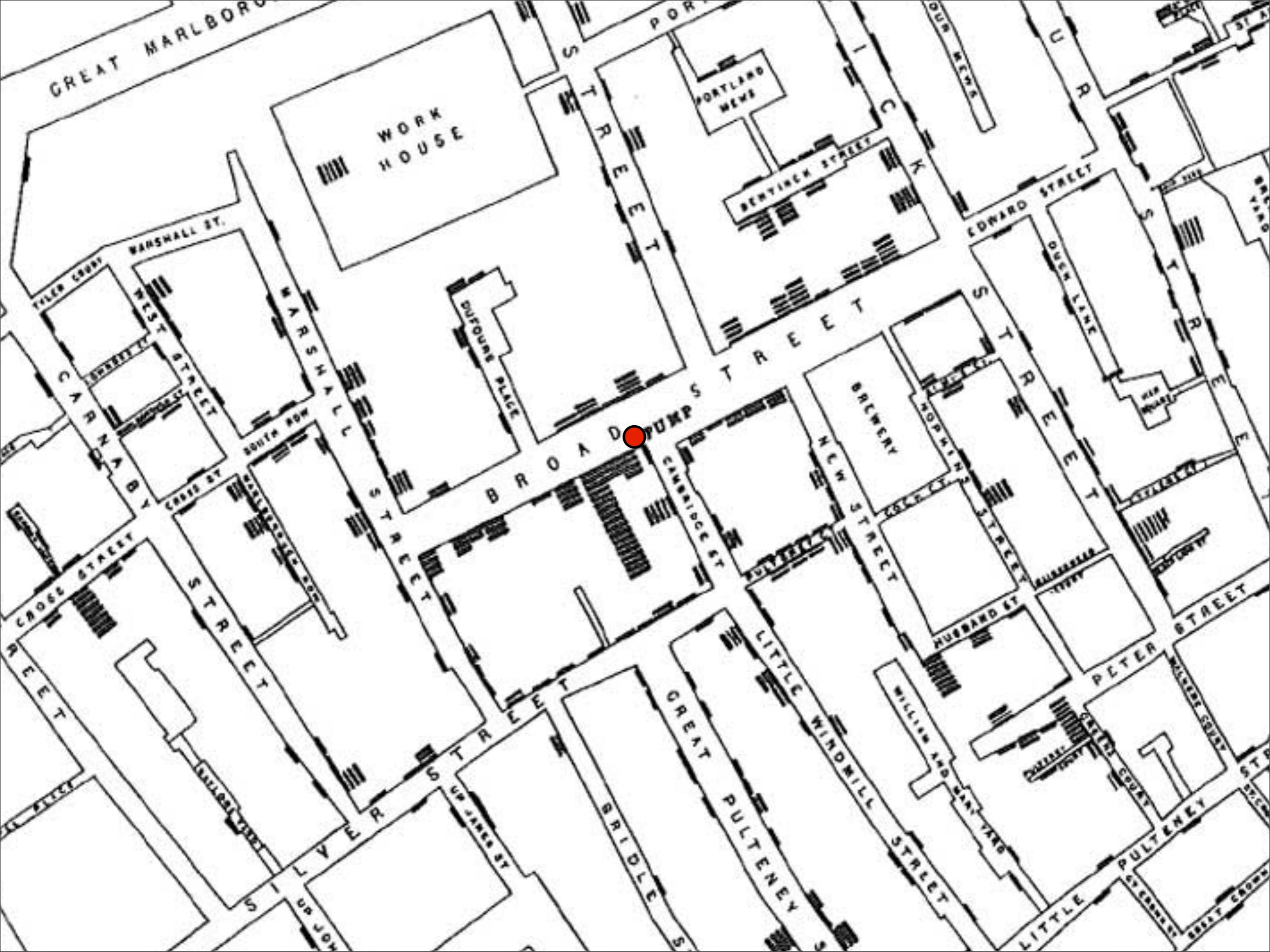
LE CHOLÉRA



John Snow

Figured out Cholera
spreads through water.

No one believed him :(



Next: applying analytics to your business

Use analytics to measure progress toward a goal.
Use analytics to test new hypotheses.
Use analytics to explore.

Exercise! - 1 minute

What is the goal of your app?

Write down at least one goal for an app.
Be prepared to share it with the class.

A common goal: engagement

- Purchases
- Downloads
- App Launches
- Account creations
- Views
- Posts
- Shares/Tweets/Likes

Introducing Event Data



Actions & State + Time

```
purchase = {  
    timestamp: 2012-06-06T19:10:39.205000,  
    item: "sophisticated orange turtleneck with deer on it",  
    cost: 469.5,  
    payment_method: "Bank Simple VISA",  
    customer: {  
        name: "Francis Woodbury",  
        age: 28,  
        personality: "sullen",  
    },  
    store: {  
        name: "Yupster Things",  
        city: "San Francisco",  
        state: "California"  
        address: : "467 West Portal Ave",  
    }  
};
```

Action (verb)

```
purchase = {  
    timestamp: 2012-06-06T19:10:39.205000,  
    item: "sophisticated orange turtleneck with deer on it",  
    cost: 469.5,  
    payment_method: "Bank Simple VISA",  
    customer: {  
        name: "Francis Woodbury",  
        age: 28,  
        personality: "sullen",  
    },  
    store: {  
        name: "Yupster Things",  
        city: "San Francisco",  
        state: "California"  
        address: : "467 West Portal Ave",  
    }  
};
```

Time

State
(nouns)

Example Data Model

- App: Vine
- Events: Start Recording, Complete Recording, Upload, Tag, Share, Favorite, Comment, Delete
- Nouns: User, Session, App, Device/Platform, Video, Comment, Tag

More Examples

Verbs: Signup, Login, Upgrade, Submit, Scroll, Send, Share, Search, Check-In, Vote, Update, Purchase, Level Up, Fail, Favorite, Vote, Crash, Rate, Start, Modify, Check, View, Capture

Nouns: User, Company, Organization, Team, Platform, Device, App, Level, Garden, Favorites, Interests, Inventory, Cart, Video, Location, Item, Record, Product, Account, Form, Picture, Story

Rules of thumb for event data

- Describe your app to a stranger and listen to the words you use.
- Verbs are the actions you should record.
- Nouns are the important contextual information you should include in your data model.
- Most apps can be very robustly described by 5-10 key events and 5-10 key nouns.

Exercise! - 2 minutes

Recall your goal from the previous exercise.

What events & properties should you record to measure your progress toward your goal?

Exercise! - 10 minutes

Pair with the person next to you.

Pick 1 event (action) in your app (or theirs) and create a data model for it. What nouns and properties can you record for this event?

Prepare to share your results with the class.

Next: Common Analytics Techniques

Segmentation / Filtering

- Sorting data into buckets. Commonly used to sort users into groups.
- Examples: Gender, Age, Location, Department, Referrer, Version, Device
- Any property you record with an event can be used in filtering.

Country / Territory	Visits	% Visits
1. United States	33,399	59.17%
2. Canada	3,578	6.34%
3. United Kingdom	3,244	5.75%
4. Australia	1,588	2.81%
5. India	1,384	2.45%
6. Germany	1,183	2.10%
7. (not set)	1,153	2.04%
8. France	838	1.48%

Exercise! - 2 minutes

Recall the event you modeled in the previous exercise.

Think of at least one property you would like to use for filtering or segmentation. Be prepared to share it with the class.

A/B Testing aka Split Testing

The image shows two identical landing pages for 'Performable' side-by-side, demonstrating an A/B test. Both pages have a white header with the Performable logo and a phone number. The main headline is 'Stop closing the door on potential customers. Get your message right with Performable.' Below the headline is a subtext: 'Create beautiful landing pages, measure your conversions, and continuously improve your message over time.' Each has a large green 'Get Started Now!' button at the bottom.

Left Side (Control Version):

- Headline:** Stop closing the door on potential customers. Get your message right with Performable.
- Subtext:** Create beautiful landing pages, measure your conversions, and continuously improve your message over time.
- Call-to-action:** Get Started Now!

Right Side (Variant Version):

- Headline:** Stop closing the door on potential customers. Get your message right with Performable.
- Subtext:** Create beautiful landing pages, measure your conversions, and continuously improve your message over time.
- Call-to-action:** Get Started Now!

The only difference between the two pages is the color of the 'Get Started Now!' button: green on the left and red on the right.

A/B Testing aka Split Testing

The image displays two side-by-side versions of a landing page for the company Performable. Both pages have identical top sections, including the Performable logo, a phone number (888-288-8015), and links for 'Beta Customers', 'Sign Up', and 'Log In'.

Left Version (Green Button):

- Headline:** Stop closing the door on potential customers. Get your message right with Performable.
- Text below headline:** Create beautiful landing pages, measure your conversions, and continuously improve your message over time.
- Call-to-action button:** Get Started Now! (green)
- Image:** A screenshot of a landing page editor interface showing a green 'HOME Corporation' button.
- Text below image:** With Performable's powerful editing features, you can create & publish landing pages in minutes. Test page elements & copy to find out what message works best for your business. [Enlarge](#)
- Section:** What can you do with Performable?
 - Make more money from your ad traffic
 - Sell more products using targeted video pages
 - Acquire more business leads
 - Optimize your Google Adwords campaigns
 - Get more subscribers to your newsletter
- Call-to-action button:** Get Started Now! (large green button)

Right Version (Red Button):

- Headline:** Stop closing the door on potential customers. Get your message right with Performable.
- Text below headline:** Create beautiful landing pages, measure your conversions, and continuously improve your message over time.
- Call-to-action button:** Get Started Now! (red)
- Image:** A screenshot of a landing page editor interface showing a red 'CRM Corporation' button.
- Text below image:** With Performable's powerful editing features, you can create & publish landing pages in minutes. Test page elements & copy to find out what message works best for your business. [Enlarge](#)
- Section:** What can you do with Performable?
 - Make more money from your ad traffic
 - Sell more products using targeted video pages
 - Acquire more business leads
 - Optimize your Google Adwords campaigns
 - Get more subscribers to your newsletter
- Call-to-action button:** Get Started Now! (large red button)

21% more people clicked on the red button than on the green button!

Example of split testing data

user.name.first	user.name.last	form.version	form.fields
zach	morris	A	[first name, middle name, last name, organization]
kelly	kapowski	B	[email, password]
screech	powers	A	[first name, middle name, last name, organization]
lisa	turtle	A	[first name, middle name, last name, organization]
ac	slater	B	[email, password]
jessie	spano	B	[email, password]
mr.	belding	B	[email, password]
mrs.	culpepper	B	[email, password]
stacey	carosi	A	[first name, middle name, last name, organization]
allison	fox	B	[email, password]
tori	scott	B	[email, password]
mr.	dewey	B	[email, password]
ollie	creeky	B	[email, password]
violet	bickerstaff	B	[email, password]
rhonda	robistelli	B	[email, password]

Which version of the form was more effective?

Exercise! - 1 minute

Think of something in your app you would like to A/B test.

Be prepared to share it with the class.

Funnels

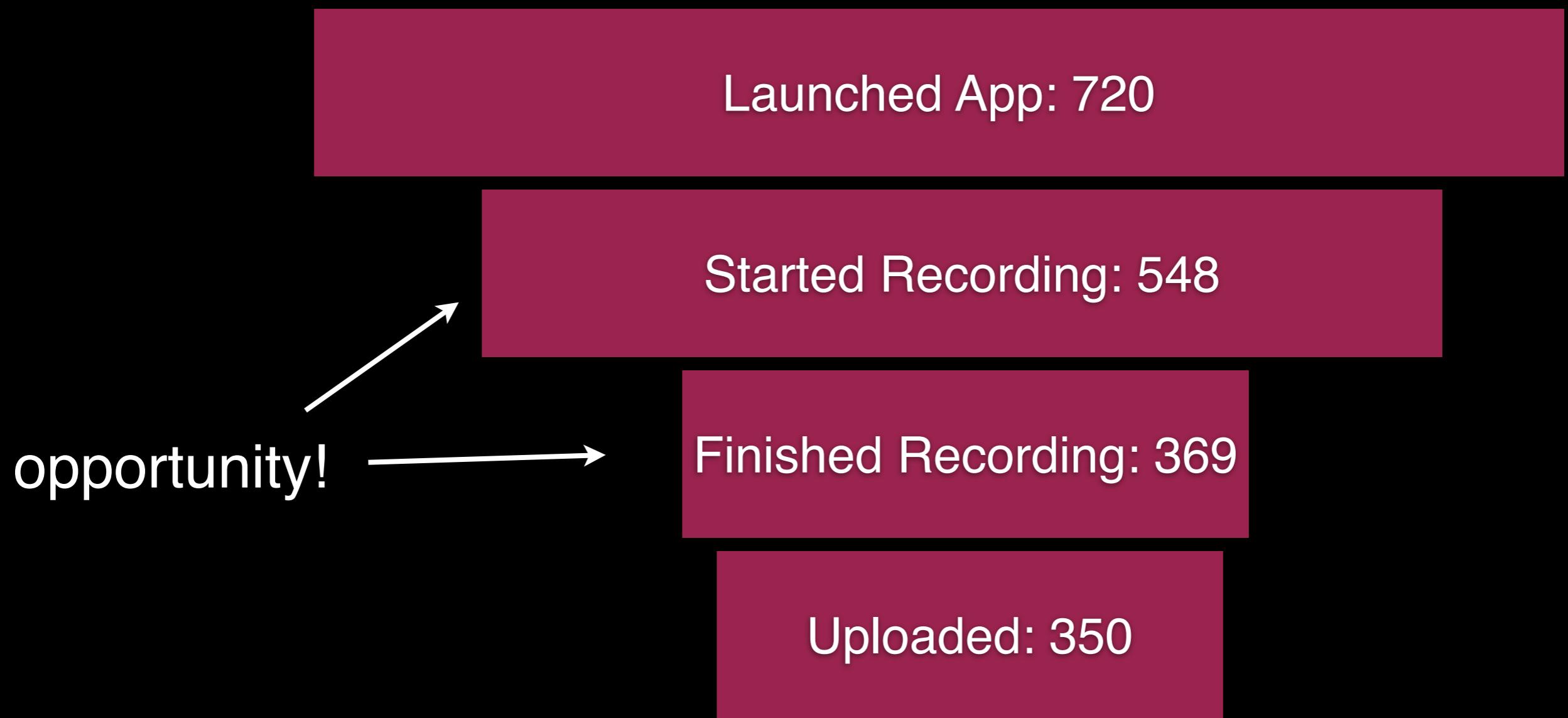
Launched App: 720

Started Recording: 548

Finished Recording: 369

Uploaded: 350

Funnels



Frequently used terms

Conversion

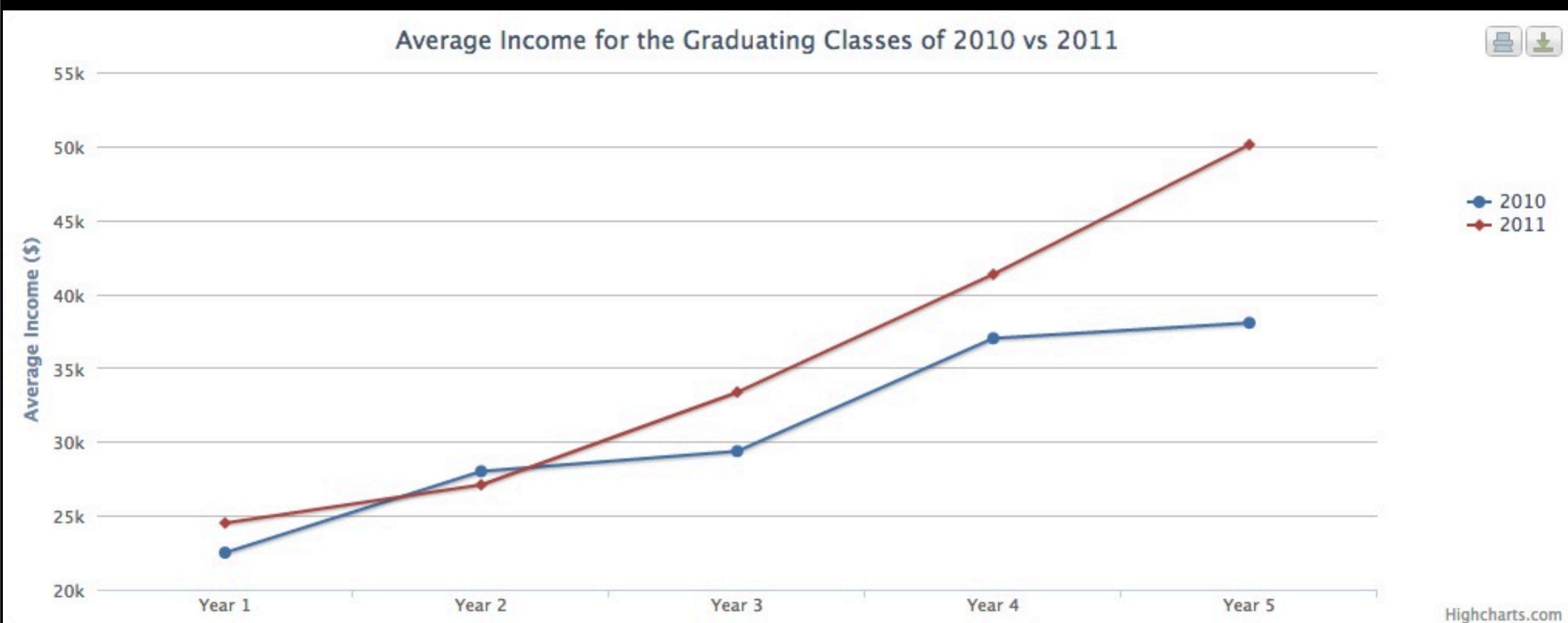
Retention

Churn

DAU/MAU

Cohort Analysis

A cohort is a group of people who share a common characteristic over a certain period of time.

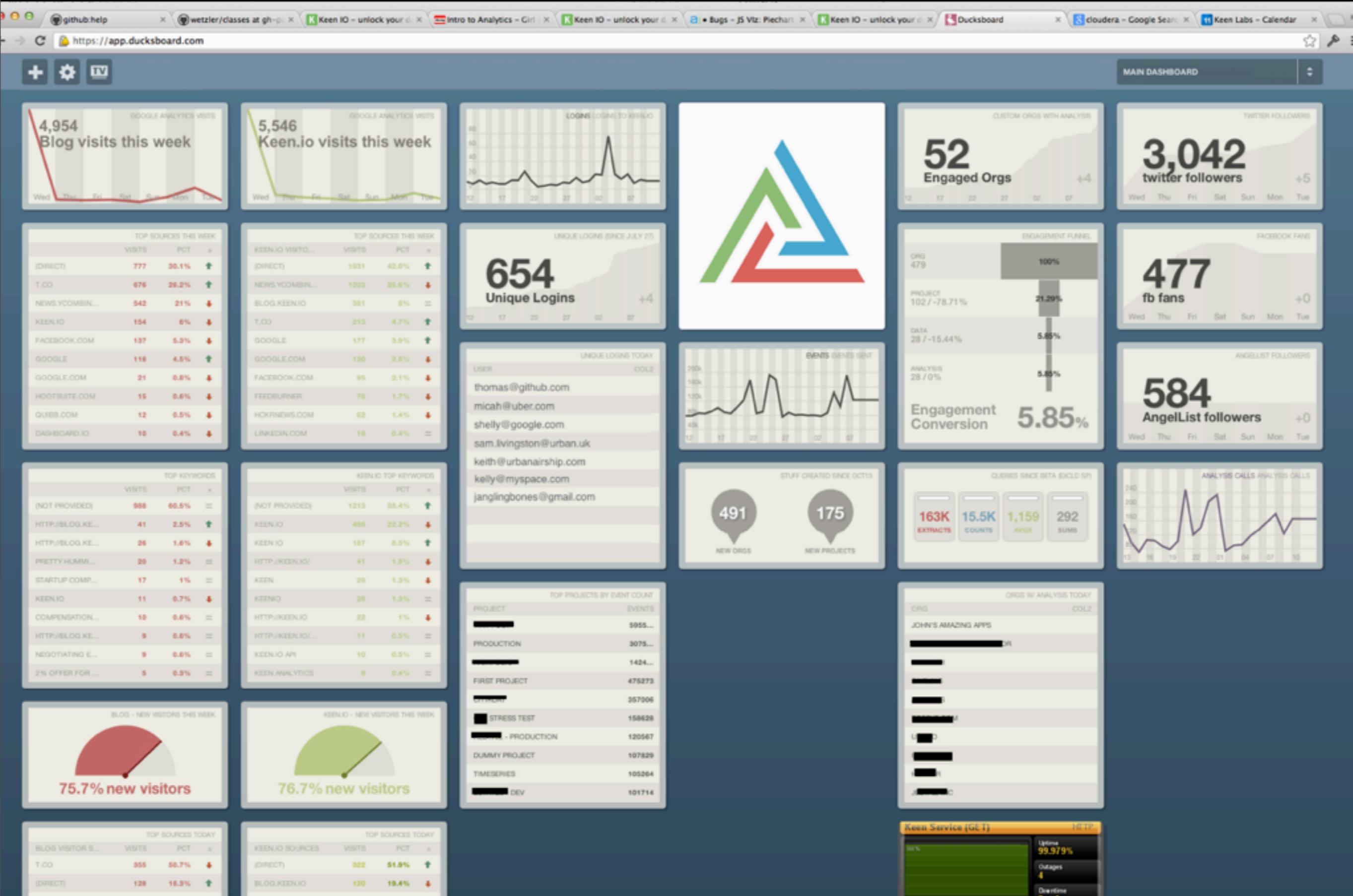


Cohort Analysis

Engagement over time

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
(Joined in) January	100%	20%	19%	13%	13%	10%	12%	11%	7%	7%	7%	?
February	100%	21%	16%	13%	11%	9%	9%	7%	7%	7%	?	
March	100%	24%	20%	17%	15%	13%	11%	10%	10%	?		
April	100%	31%	27%	24%	19%	15%	12%	12%	?			
May	100%	31%	27%	25%	21%	18%	16%	?				
June	100%	39%	28%	24%	20%	19%	?					
July	100%	40%	33%	27%	23%	?						
August	100%	47%	41%	32%	?							
September	100%	52%	43%	?								
October	100%	53%	?									
November	100%	?										
December	?											

In this case engagement is improving nicely.
Of the January cohort, only 20% were engaged in month 2.
Of the October cohort, 53% were engaged in month 2.



Email Analytics

