Career Issues

COGS 105, Week 12 Part 2: Industry

Exam 2

- Average: 77%

- Please see your TA's to see the exam and compare your answers for any details.

- **Don't forget**: You can come to office hours before exam to discuss all materials.

- Also: **Extra credit, exam 3, and final paper + labs.**

The Ph.D. vs. M.S.

- Going from your bachelors to a Ph.D., then to something related to science and academic work (**researcher, lecturer, professor**).

  - Most research Ph.D.'s involve a **tuition waiver** and a yearly **stipend** to support you.

- Master's programs are quite different. They are often a kind of "extension" of your undergrad years, with a specialization focus: **more courses**, with **(often) a project thesis**.

  - Most standalone master's programs involve further tuition.

 - **Professional** master's programs can be quite expensive.
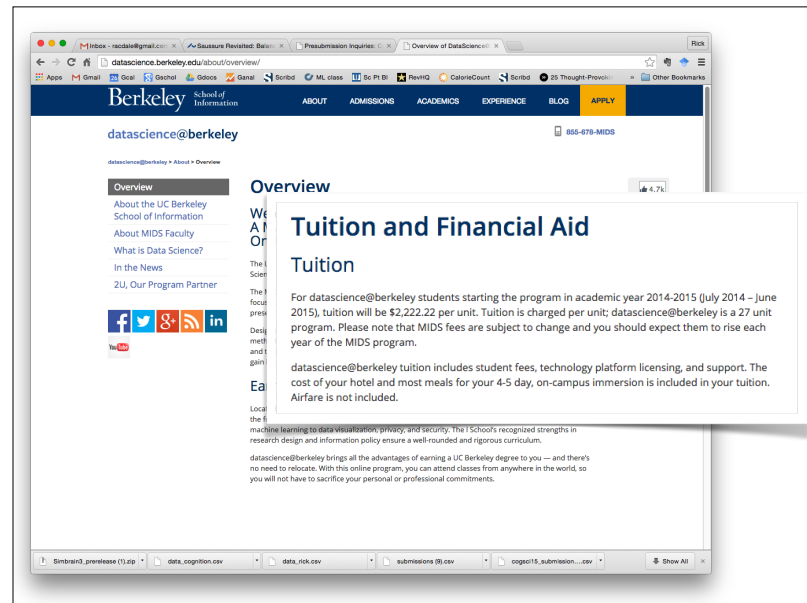
"Industry"

- Often used as a short-form for "anything outside academia and research."

  - Most commonly: Working for a **business** in some fashion.

- Sometimes **"government"** or **"non-profits"** are treated as separate categories.

- All 3 of these categories may involve a research component (often they do not), so you can still get your "research kick" from heading out into the **"real world."**

COGS?

- Examples:

  - **LIWC** and **LSA**: analysis of text

  - **Neurosynth**: meta-analysis of brain function

  - **RT tasks**: design of experiments and research

- All these topics are relevant to real-world applications, from both a skill and content levels.

Example…

linkedin.com
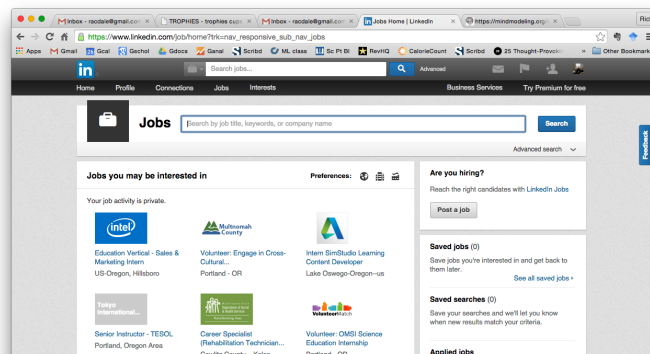
LIWC / LSA

- Forensic analysis of text or meaning in order to explore patterns of language use in various contexts.

Neurosynth

- Exploring data related to brain imagining and cognitive processes or dysfunction. Being able to sift through lots of ideas and data orbiting brain function.

RT and Research Design

- How to carefully setup a study with conditions and control of confounds, how to measure behavior, interpreting results, etc.

data

An Example: Data Science

- An example analytics problem at Yammer (Microsoft-owned social network system for companies).

The Problem

You show up to work Tuesday morning, September 2, 2014. The head of the Product team walks over to your desk and asks you what you think about the latest activity on the user engagement dashboards. You fire them up, and something immediately jumps out:

The Data

Table 1: Users

This table includes one row per user, with descriptive information about that user's account.

This table name in Mode is tutorial.yammer_users

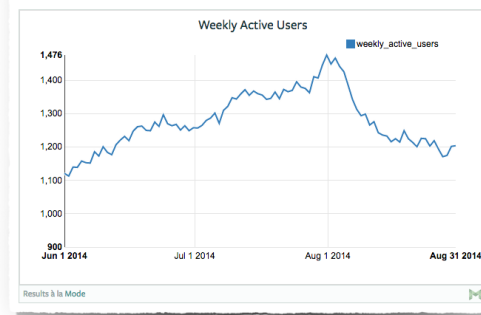| user_id: | A unique ID per user. Can be joined to user_id in either of the other tables. |
created_at:	The time the user was created (first signed up)
state:	The state of the user (active or pending)
activated_at:	The time the user was activated, if they are active
company_id:	The ID of the user's company
language:	The chosen language of the user

Hypotheses

A Drop In Engagement:

Preparation and Prioritizing

Making hypotheses and evaluating them is ofte[n]
problem. If you do this well, you can save yours[elf]
through data. It's impossible to provide an exha[ustive]
kind of problem, but here are some things we c[an]
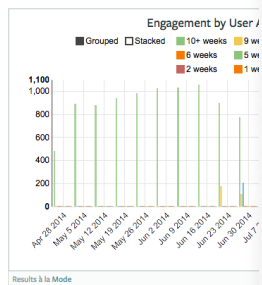session:

- **Holiday:** It's likely that people using a wor[k]
  might engage at a lower rate on holidays.
  lower engagement than others, it's possibl[e]
- **Broken feature:** It is possible that somethi[ng]
  broken, and therefore impossible for peop[le]
  harder to pinpoint because different parts
  show differently in the metrics. For exampl[e]
  signup flow broke, preventing new users f[rom]

1.One of the easiest things to check is growth, both because it's easy to measure and because most companies (Yammer included) track this closely already. In this case, you have to make it yourself, though. You'll notice that nothing has really changed about the growth rate — it continues to be high during the week, low on weekends:

Daily Signups — all_users, activated_users
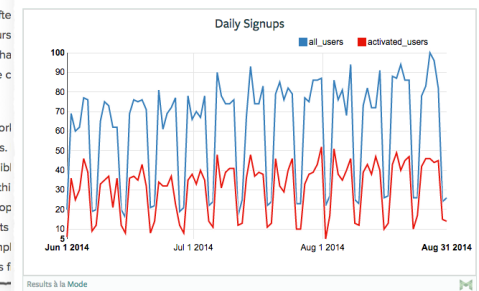
Hypotheses

2.Since growth is normal, it's possible that the [...]
from existing users as opposed to new ones. [...]
look at this is to cohort users based on when [...]
This chart shows a decrease in engagement a[...]
than 10 weeks prior:

Engagement by User A[...] — Grouped, Stacked, 10+ weeks, 9 w[eeks], 6 weeks, 5 w[eeks], 2 weeks, 1 [...]

3.The understanding that the problem is localized to older users leads us to believe that the problem probably isn't related to a one-time spike from marketing traffic or something that is affecting new traffic to the site like being blocked or changing rank on search engines. Now let's take a look at various device types to see if the problem is localized to any particular product:

Weekly Engagement by Device Category — weekly_active_users, computer, phone, tablet
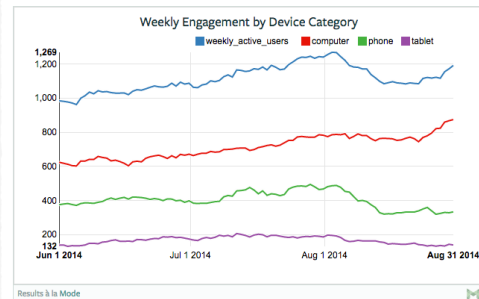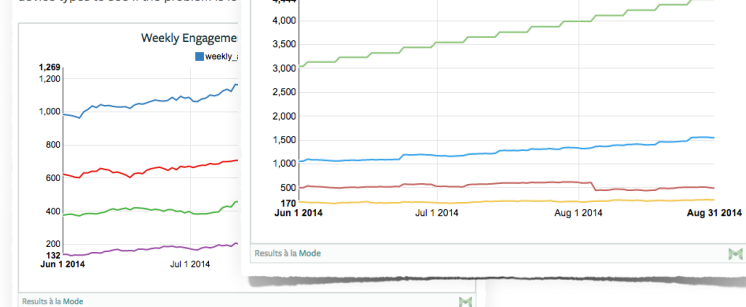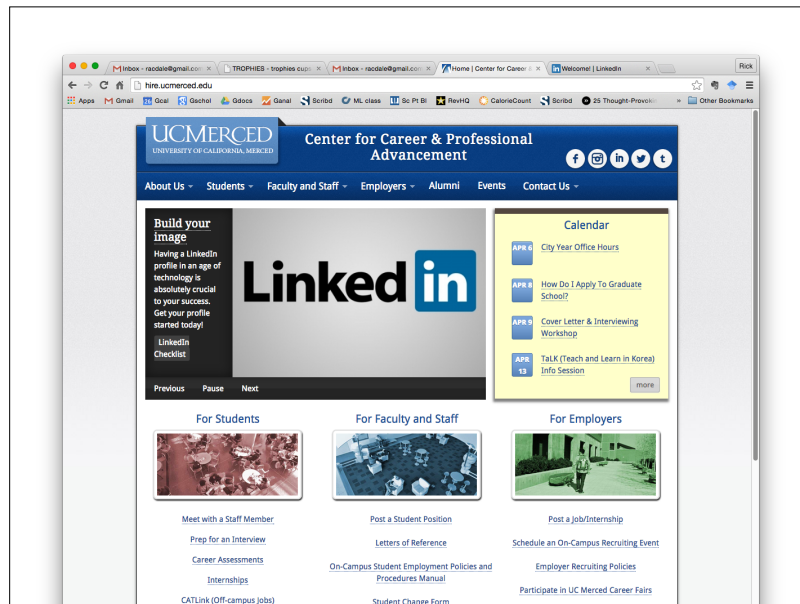
Hypotheses

3.The understanding that the problem is localized to older users leads us to believe that the problem probably isn't related to a one-time spike from marketing traffic or something that is a[...]
blocked or changing rank on search en[...]
device types to see if the problem is lo[...]

Weekly Engageme[nt] — weekly_[...]

Email Actions — weekly_emails, reengagement_emails, email_opens, email_clickthroughs

Result

Follow Through

After investigation, it appears that the problem has to do with mobile use and digest emails. The intended action here should be clear: notify the head of product (who approached you in the first place) that the problem is localized in these areas and that it's worth checking to make sure something isn't broken or poorly implemented. It's not clear from the data *exactly* what the problem is or how it should be solved, but the above work can save other teams a lot of time in figuring out where to look.

CogSci All the Way

- These questions often orbited issues of human cognition:

  - Usability of an interface

  - Interest in the product

  - User access and product behavior

  - …

Final Paper

Next Time

- **Class canceled Tuesday!** I'll be at Stanford for a presentation with a Ph.D. student.

- **Lab next week**: You will work on something to help final paper plans.

- Another extra-credit posted (1-page preliminary final project idea).

- Thursday next week: **Shreya Gupta, UCM COGS B.S.** will discuss User Experience Design research!