

The Art of Rapid Prototyping

Building Useful Prototypes

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Download these slides at tinyurl.com/PrototypeMore

Prototypes

“A prototype is an **early sample** or model built to **test a concept** or process or to act as a thing to be replicated or **learned from**.”

-Wikipedia

Rapid Prototypes

A “Just Good Enough”
representation of a design that
answers a specific question.

Rapid Prototypes

Mitigate Risk

Make Informed Decisions

Gather High-Fidelity Feedback

Four Principles

Know Your Goal

Use the Right Tools

Do Just Enough

Lather, Rinse, Repeat

Know Your Goal

Define what you are trying to test.

Razor sharp precision.

Use The Right Tools

Choose the tools with the least overhead to start and the most flexibility for iteration

Do Just Enough

Cut Corners Always

Ask “What value does this
add to my goal”

Lather, Rinse, Repeat

Throw It Away!

Lather, Rinse, Repeat

Goal of Prototype is
Improved Design

Different design

=

Different Code Architecture

Lather, Rinse, Repeat

Prototype Early,
Prototype Often

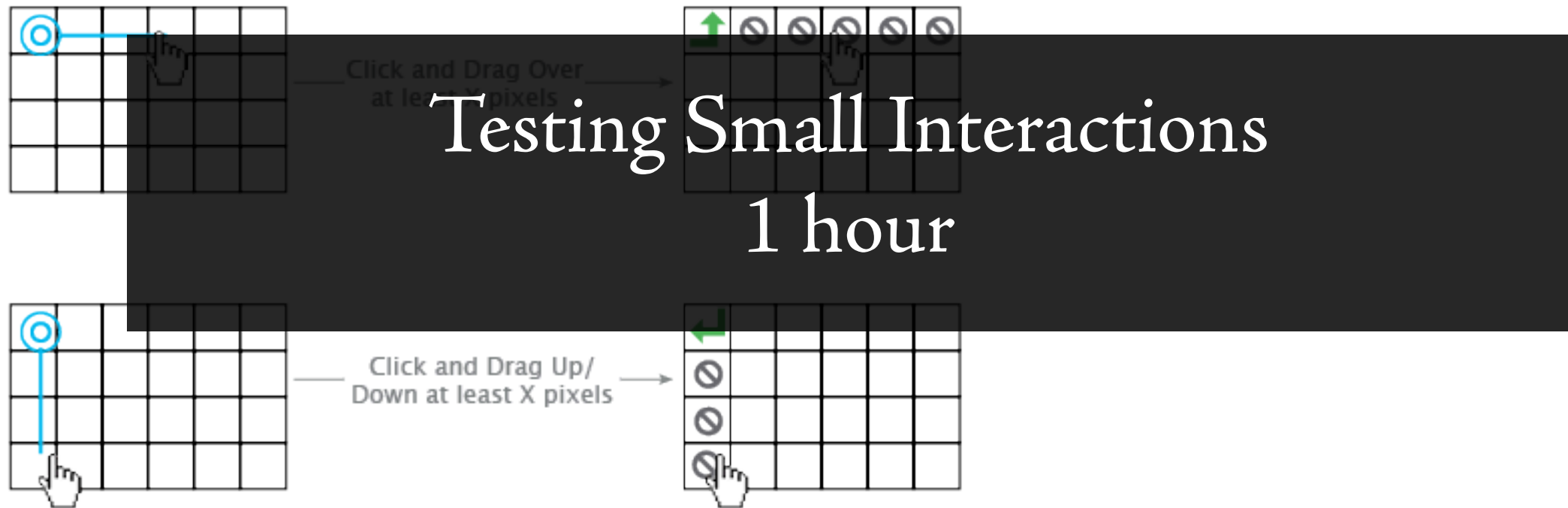
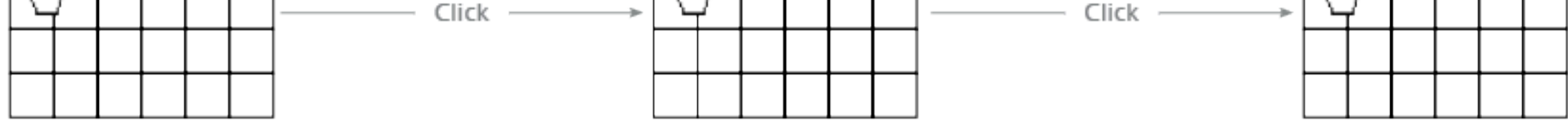
My Typical Tools

HTML5 for Layout

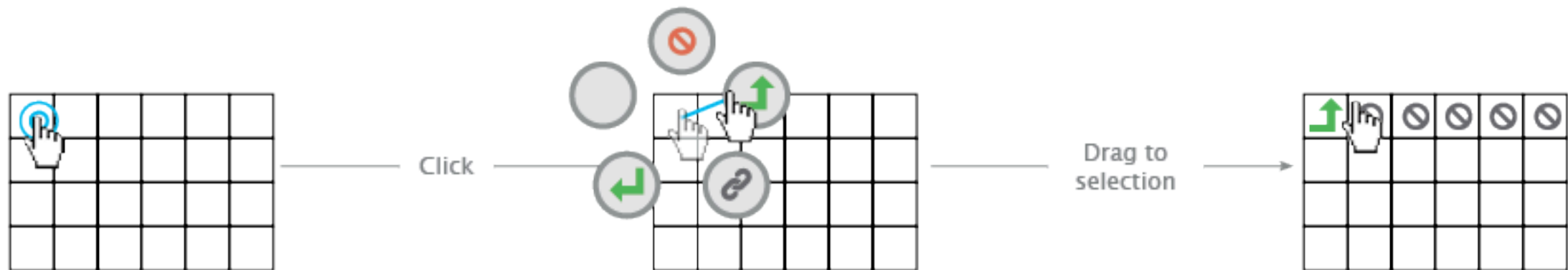
Javascript for Interaction

CSS3 for Basic Styling

Static images for anything complex



8 TABLE INTERACTION – CLICK AND SELECT



Slow breathing animation to make the drag interaction more discoverable

Goal

Is it an awkward interaction in a desktop?

Answer

No.

What's Good

Quick access to tools

Long click is discoverable

What's Bad

Obtrusive if the interaction is triggered by accident

Know Your Goal

Is it an awkward interaction in a desktop?

Use the Right Tools

Basic HTML/JS/CSS

Images for anything complex

Do Just Enough

No focus on styling or context

Lather, Rinse, Repeat

Tested alternative interactions

Profile Creation and Editing on Touch Devices

Drawing and Editing a Profile

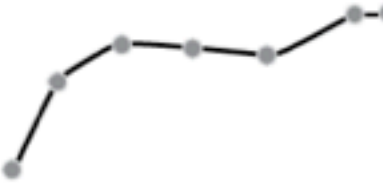
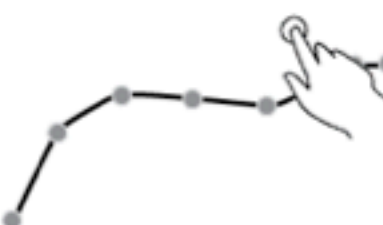

- 1 Draw a profile with your finger

- 2 On release, profile is "simplified"

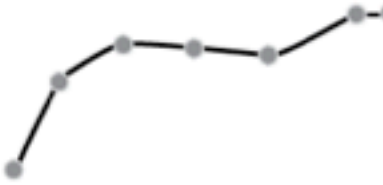


- 3 Drag a point

- 4 Feedback on where the point was and where it will be on release.


Adding a point

- 1 Begin with simplified profile.

- 2 Tap at new point location.

- 3 New Point is created


Adding a series of points

- 1 Begin with simplified profile.

- 2 Drag new portion of curve

- 3 Points along x axis are replaced


Prototyping Curve Drawing
3 hours

This one definitely needs to be prototyped. It could be really powerful but could also be really weird.

Goal

Is it weird to edit curves in a different way than I drew?

Answer

Not really.

What's Good

The simplification of curves makes it much easier to edit.
Drawing with my finger is fun.

What's Bad

When I click near a point, I want it to be replaced.
The “trash” area needs to be wide and central.

Know Your Goal

Is it weird to edit curves in a different way than I drew?

Use the Right Tools

HTML/JS/CSS. Not native Objective C.

Adapted an example from PaperJS library

Do Just Enough

No focus on styling or context

Lather, Rinse, Repeat

Built v2 completely from scratch

CL > boston > boston/camb/brook > housing [help] [post]

[all boston](#) [boston/camb/brook](#) [northwest/merrimack](#) [metro west](#) [north shore](#) [south shore](#)

housing

search for: in: [all housing](#) ☐ title ☒ entire post

rent: min max ☐ cats ☐ dogs ☐ has image

[list view](#) [pic view](#) [grid view](#) [map view](#)

[[housing forum](#)] [[fair housing](#)] [[EFF](#)] [[avoiding scams](#)]
[[personal safety](#)] [[CL {tv}](#)] [[blog](#)]

Wed Jun 26

☒ Liked ☐ Disliked ☐ Waiting on You ☐ All Reviewed

- Avail 8/1...Marlborough St Penthouse, Laundry in Unit, Storage - \$2795 / 1br - (Back Bay - Boston) [pic](#) [map](#) [apts broker fee](#)
- ★ YOU [Eric](#) CENTRAL AIR. 2 BATHS. FIRE PLACE. nex to RT-60, Rt-16. JUL 1. 1/2 FEE - \$2400 / 4br - [img](#) [apts broker fee](#)
- ★ [Eric](#) Hug 2 Bed split with 3 large rooms in palace rd avail 9/1 - \$3150 / 2br - (Fenway,Boston,Simmons,Berklee,Mcpchs) [apts broker fee](#)
- 2 Bd, 2 Bath, Avail Now, Carpet, Parking For Rent - \$4242 / 2br - (Cambridge - Kendall Square) [img](#) [apts broker fee](#)
- ★ [Eric](#) 2 Bd, 2 Bath, Avail 09/15, Bike Storage, Fitness Center, Microwave - \$3750 / 2br - (Fenway) [img](#) [apts broker fee](#)
- 3 Bd, Avail Now, Shared Yard, Separate Kitchen, Laundry in Building - \$2400 / 3br - (Medford) [img](#) [apts broker fee](#)
- [Eric](#) 1 bedroom in a 3 bedroom apartment for July and August - \$650 / 1br - (Jamaica Plain) [sublets & temporary](#)
- Can U ImaginarLo: Sunny Home 4 U. My Fav 4 Bed. BEST VALUE! Why you... - \$3000 / 4br - (Oak Square) [img](#) [apts broker fee](#)
- BACK ON MARKET! Cozy BackBay Studio, Steps to Newbury ST AV 9/1 - \$1225 (Backbay) [pic](#) [apts broker fee](#)

Social Browsing of Craigslist
2 days

Goal

Does Social Craigslist browsing simplify the apartment hunting process?

Answer

Kind of, but not unless I control Craigslist.

What's Good

Data curation lets me quickly identify what's important

What's Bad

Data curation is not visible after ~ 1 hour

Need complete control of the process to go forward

Know Your Goal

Does Social Craigslist browsing simplify the apartment hunting process?

Use the Right Tools

Chrome Extension

Sinatra (instead of Rails)

Bootstrap for styles

Do Just Enough

Most basic set of functionality

Lather, Rinse, Repeat

Take only insights.

Brewing Coffee





Hot Water

Coffee

Scale



Brew Recipe
28g Coffee
340 ml Water
2:30 Pour



Brew Recipe
28g Coffee
340 ml Water
2:30 Pour

Shouldn't this
be a flow rate?

Proof of Concept Prototype - 2 Days



Goal

Does real time flow rate feedback help a barista?

Answer

Yes.

What's Good
Form Factor

What's Bad
Data Quality
Data Presentation

Data Viz Prototype - 2 Weeks

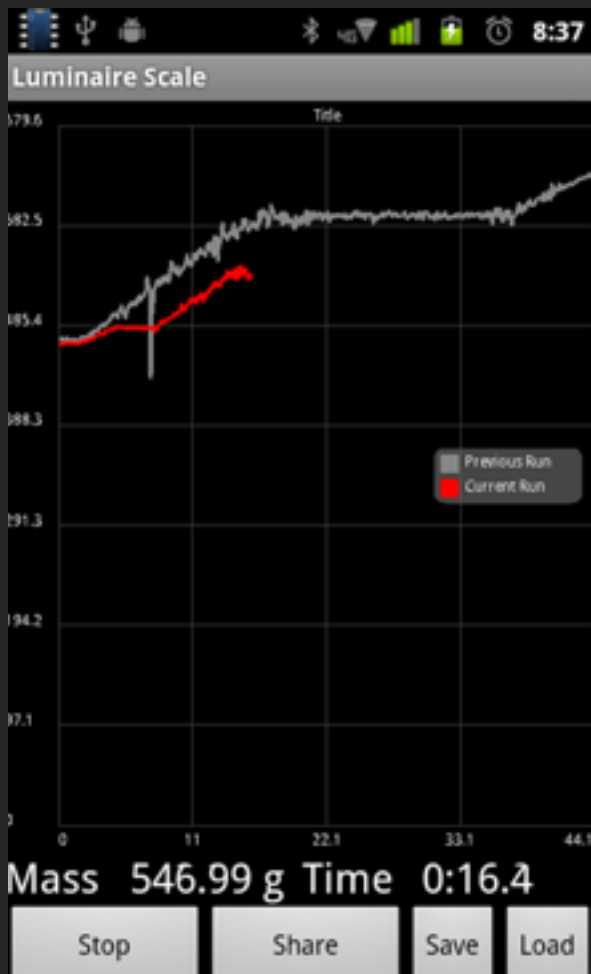


Goal

Does workflow with graph + recording profiles fit the workflow?

Answer

Yes.



What's Good

Data Presentation

High Resolution Graphs

What's Bad

Data Quality

More Complete Prototype - 2 Months



Goal

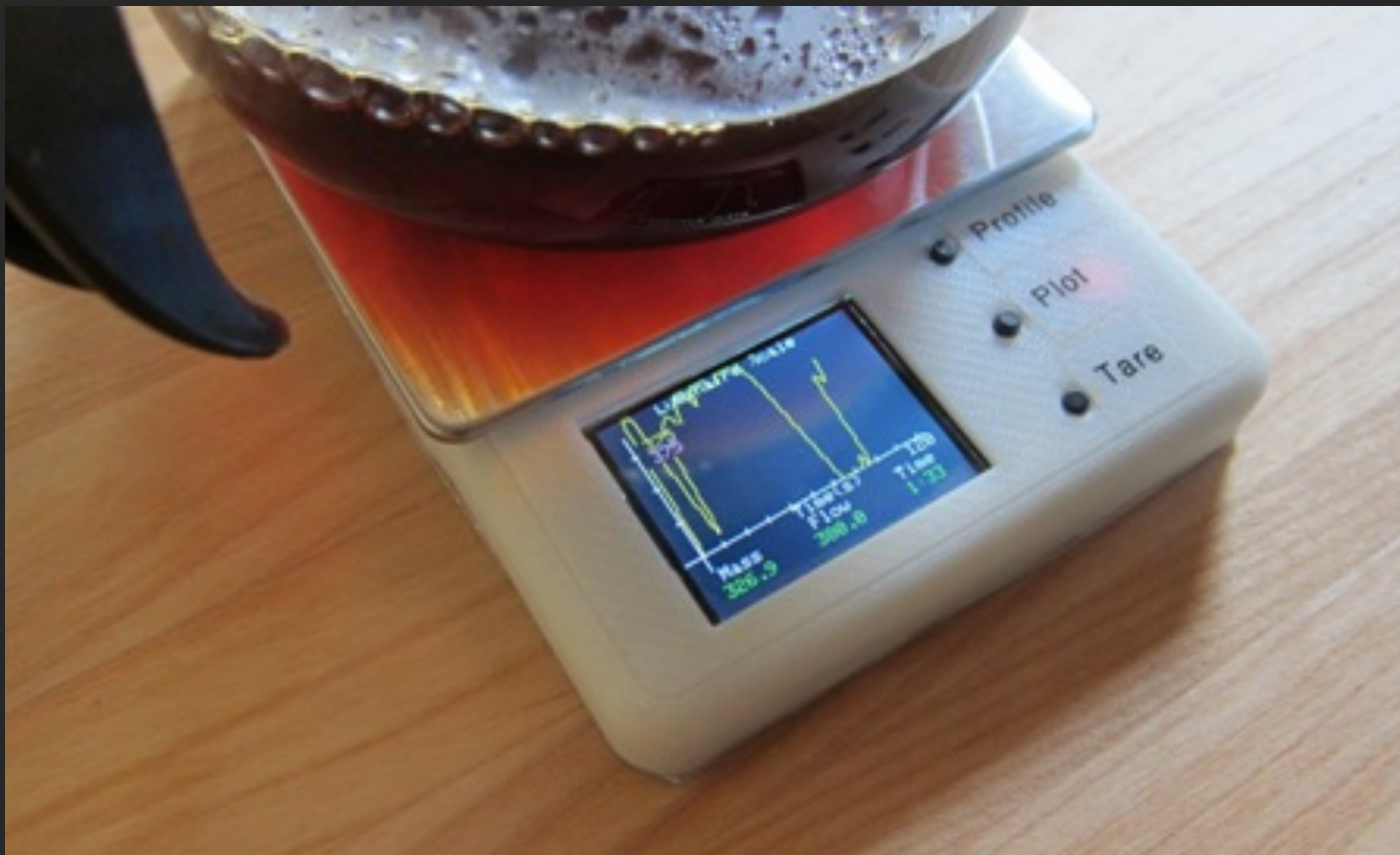
Does this fit into a coffee shop workflow?

What's Good

Compact Form Factor
Dedicated Device
Battery Powered

What's Bad

No Profile Editing
Small Screen



With Prototypes



Without Prototypes

Timeline >6 Months

Resulting Product Would Be Worse

Four Principles

Know Your Goal

Use the Right Tools

Do Just Enough

Lather, Rinse, Repeat

Let's Get Practical

My Process

1. Gather Data

2. Massage the Data

3. Make the Data Visual

4. Add Interaction

5. Learn and Improve



50% of my time



10% of my time



20% of my time



20% of my time

Data Formats

```
Label,Impressions,Actions,Spend,CPA
12/1/2012,53373,68,311.3521811,4.608125
12/2/2012,54908,64,312.2052007,4.90725
12/3/2012,47936,72,321.5961719,4.47975
12/4/2012,45627,58,279.6663775,4.86675
12/5/2012,45368,53,257.5343943,4.891375
12/6/2012,50576,64,301.2710395,4.736875
12/7/2012,49981,70,293.4542773,4.2275
```



CSV for editing
and processing



```
[{  "Label": "12/1/2012",
    "Impressions": "53373",
    "Actions": "68",
    "Spend": "311.3521811",
    "CPA": "4.608125"
},
{  "Label": "12/2/2012",
    "Impressions": "54908",
    "Actions": "64",
```



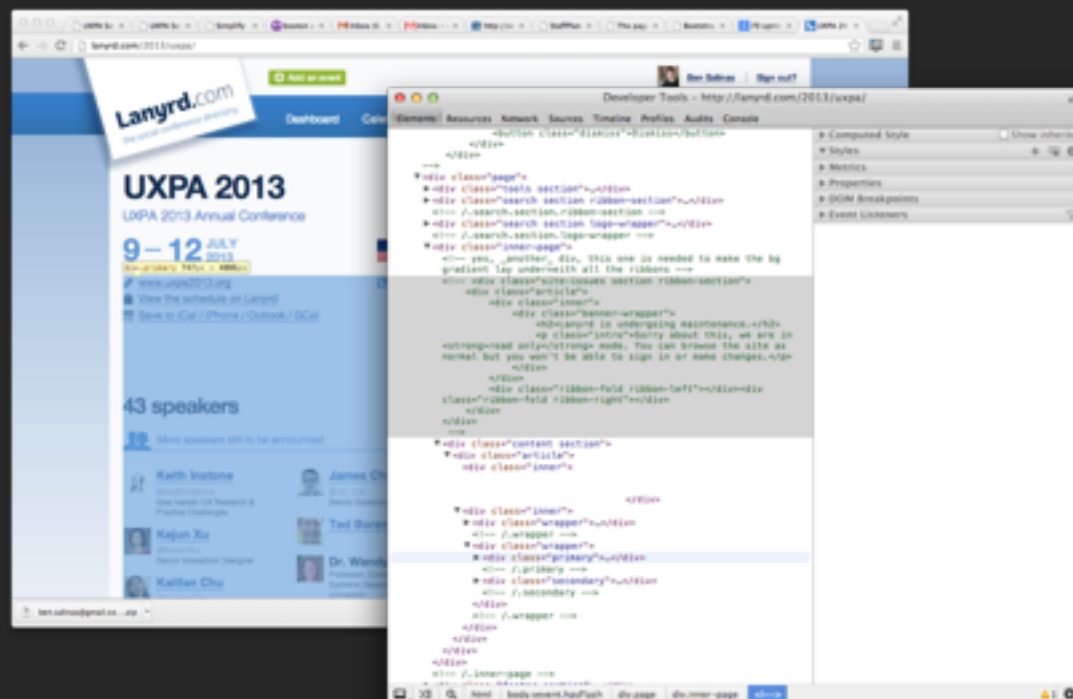
JSON for
consuming and
small changes

Gathering Data

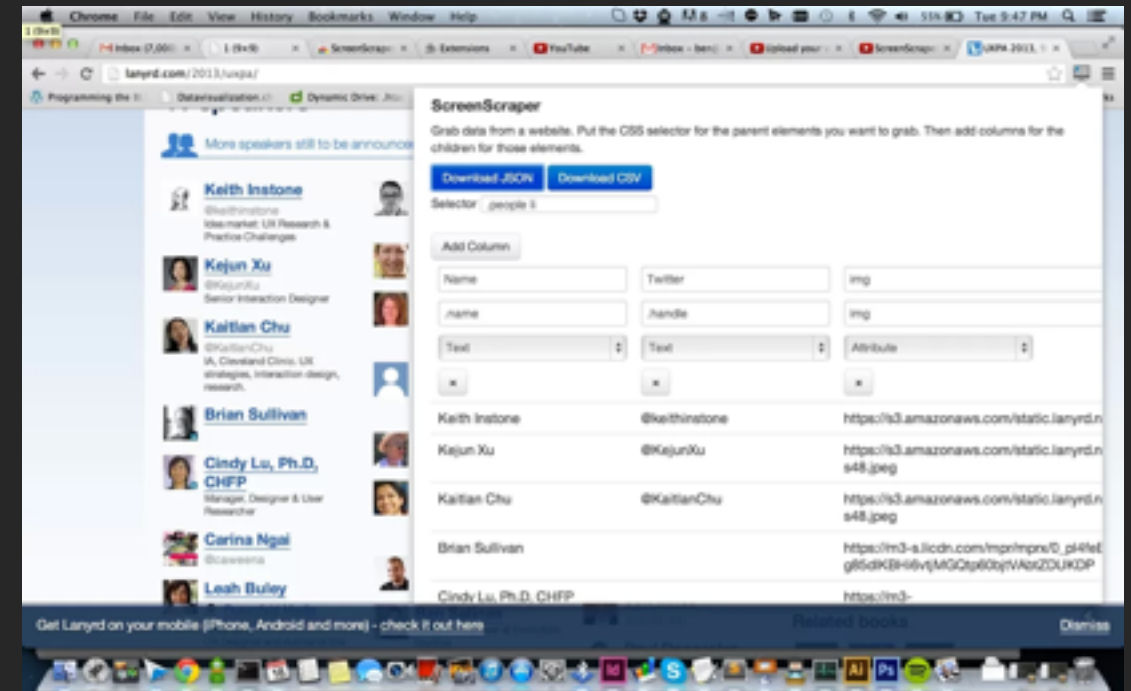
Steal JSON over the wire

Scrape the screen

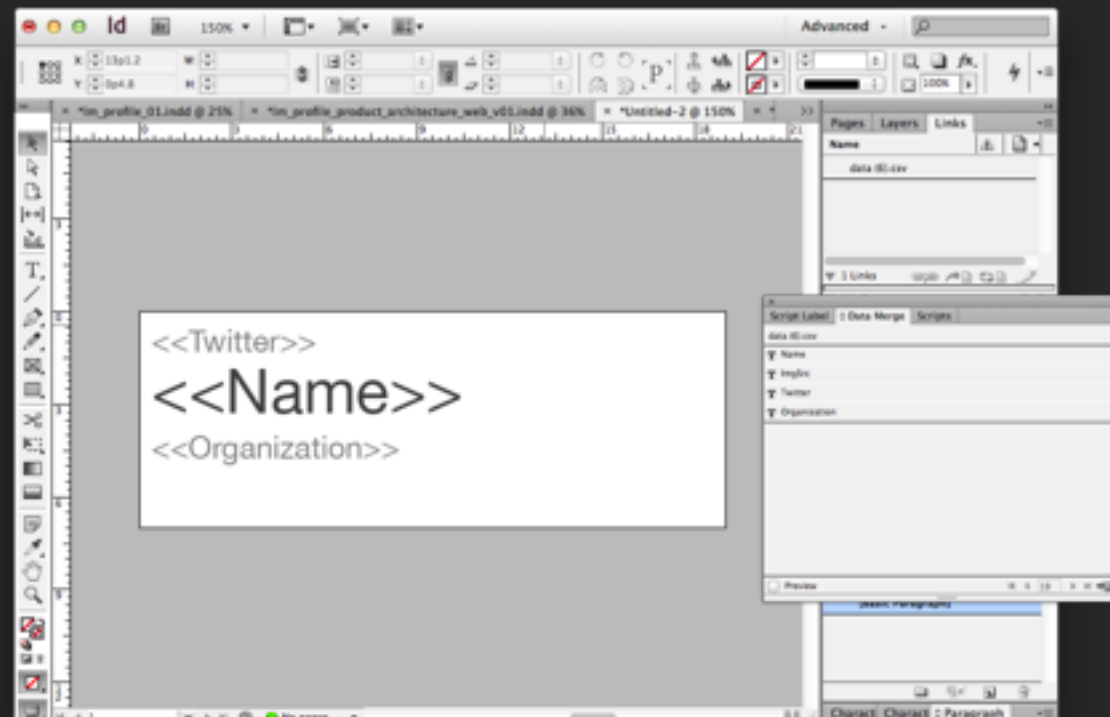
Type it up



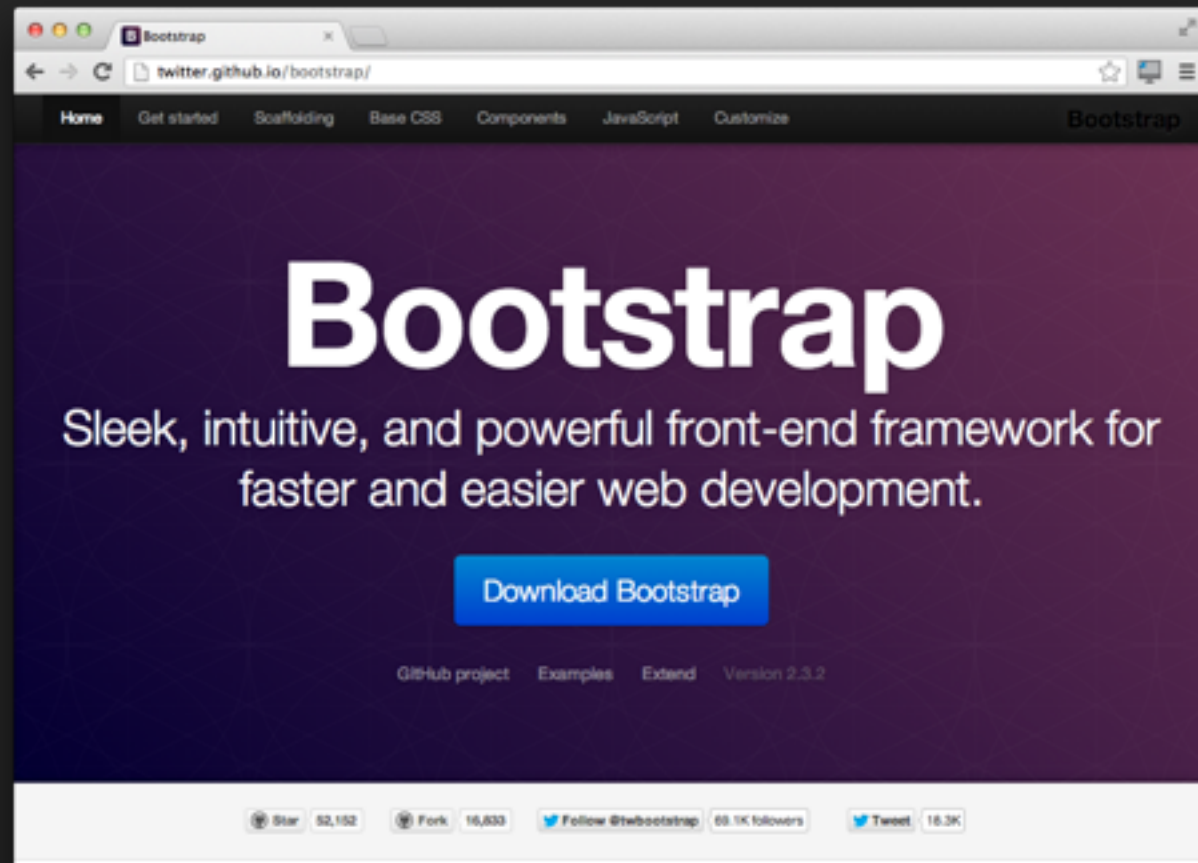
Chrome Inspector



ScreenScraper



InDesign Data Merge

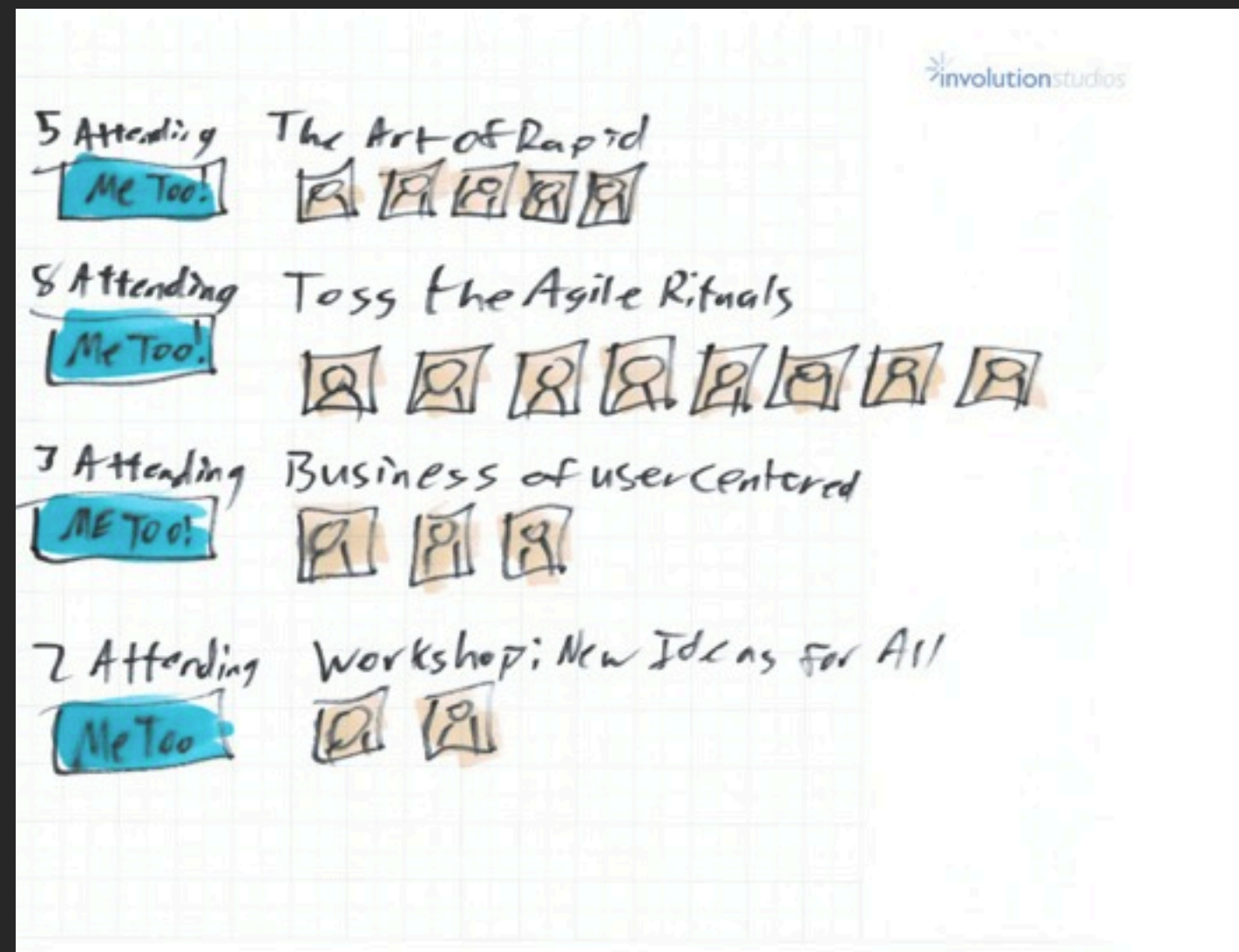


Twitter Bootstrap

Mustache Templates

```
<script type="text/html" id="eachPresentation">
  <div class="presentation">
    <span class="label count" data-id="{{i}}">
      <span class="number">{{number}}</span> Attendees</span>
    </img>
    <ul class="attendees thumbnails" data-id="{{i}}">
      <li class="attendee">
        <a class="btn btn-primary attendBtn" data-id="{{i}}" data-attending="no">
          {{#people}}
            <li class="attendee thumbnail">
              </img>
            </li>
          </people>
        </li>
      </ul>
    </div>
  </script>
```

Prototype a version of the Lanyrd site that lets me understand what sessions I am going to.



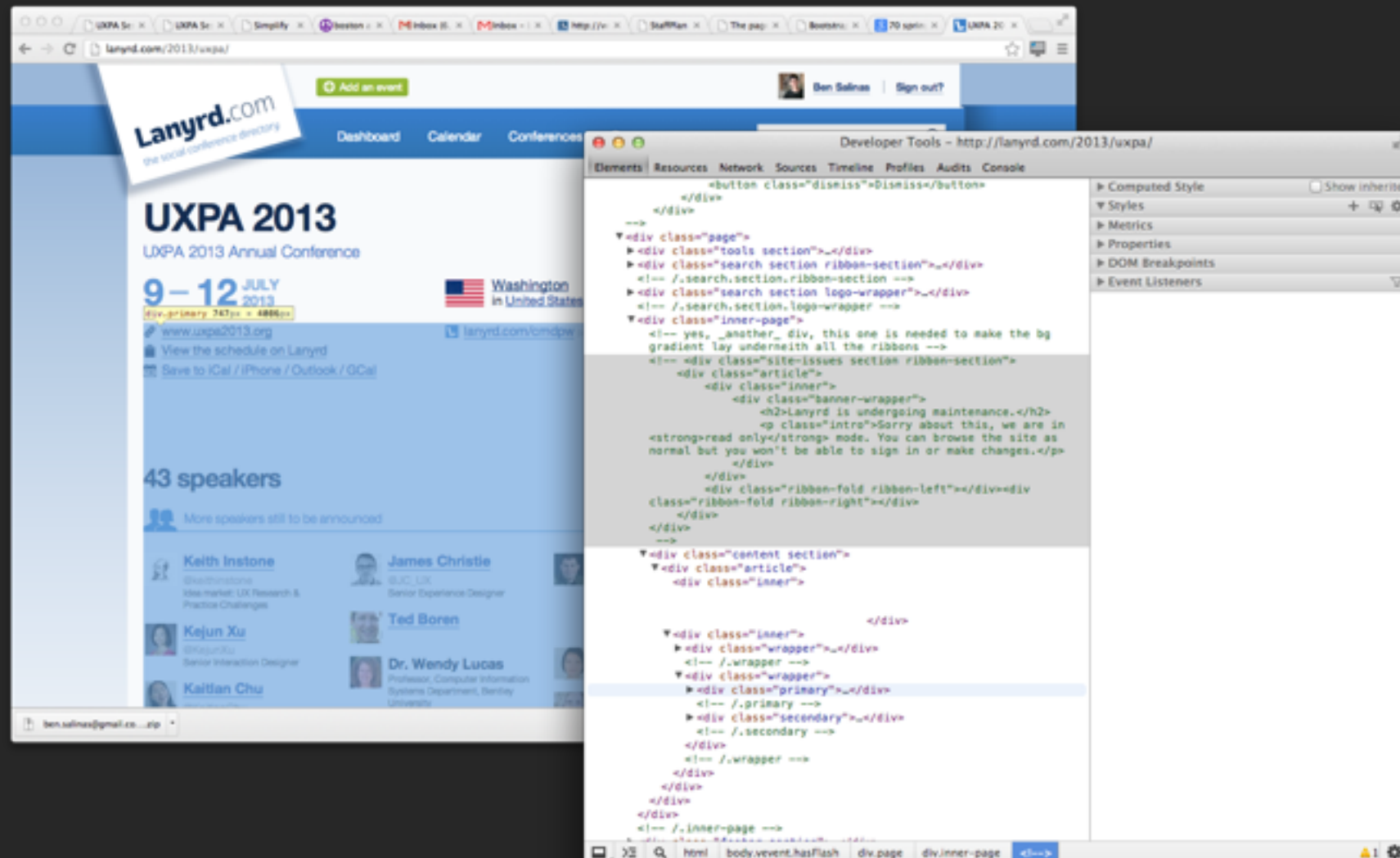
Goal: Does this presentation and interaction make it easy to select sessions to attend?

Live Demo

View code at

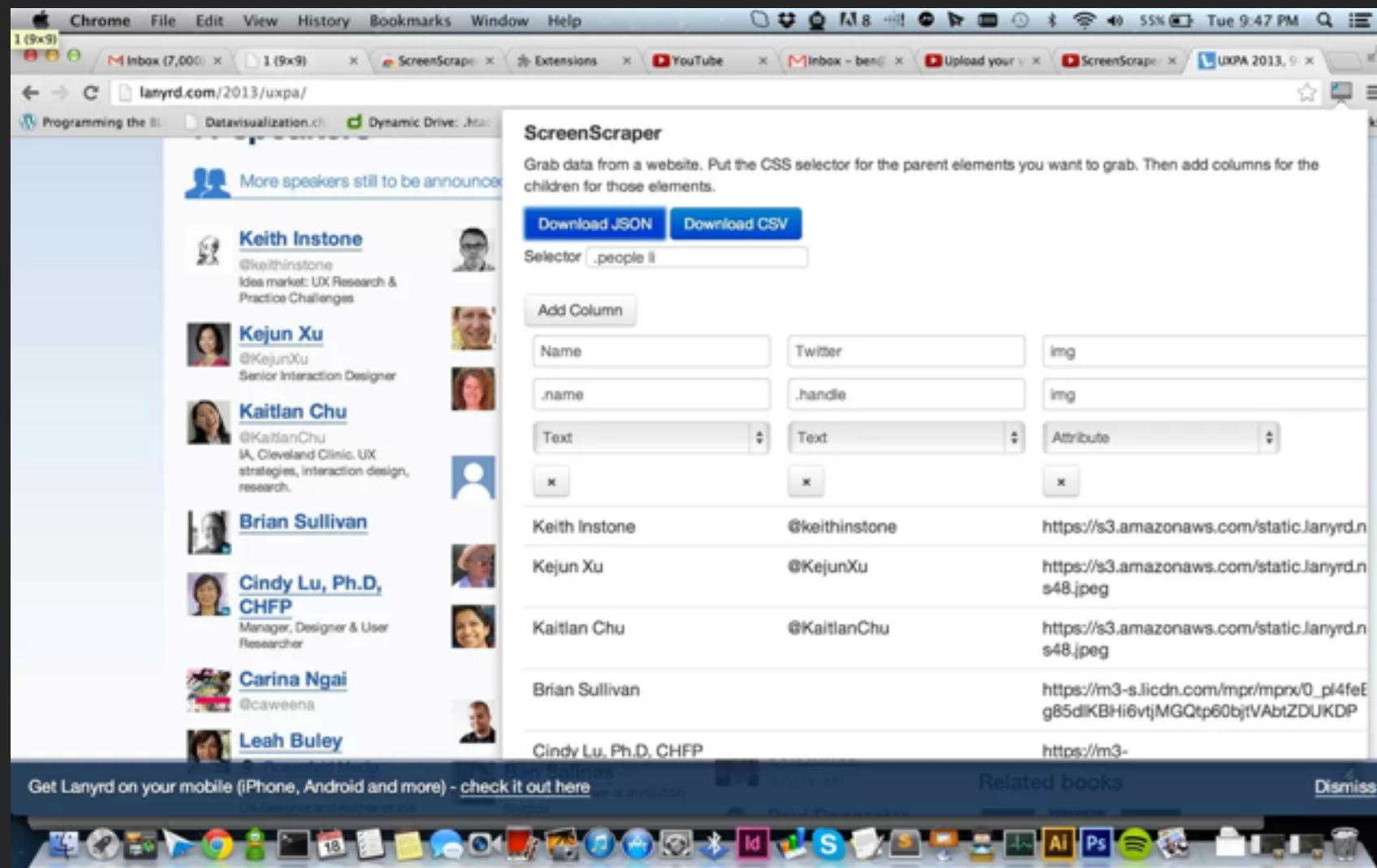
<https://github.com/bsalinas/RapidPrototypingTalk>

Chrome Inspector



View a Website Structure, make CSS changes, and run Javascript snippets.

ScreenScraper

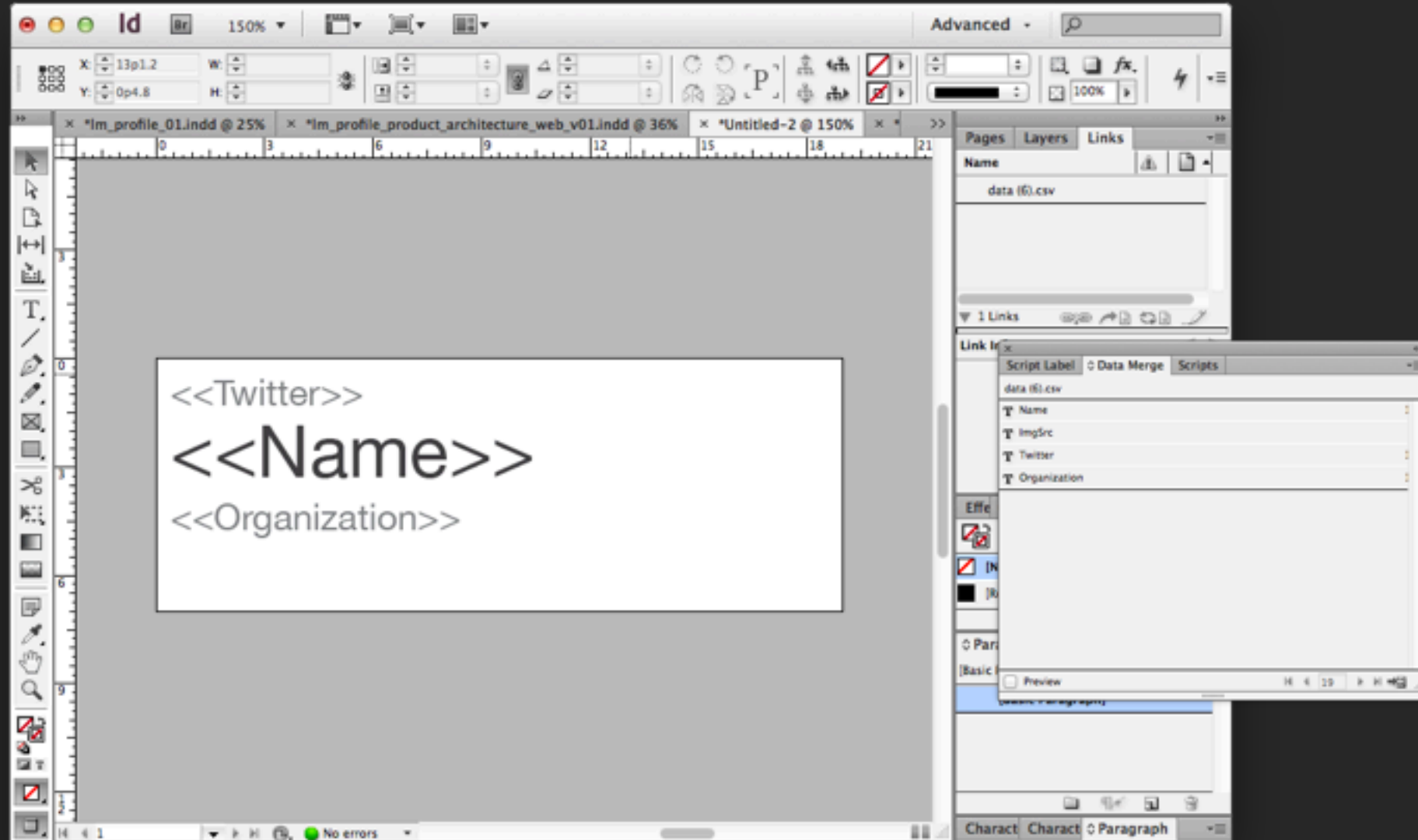


Grab data from a website in a structured format.

bit.ly/15RgURg

(or search Screen Scraper on Chrome Web Store)

InDesign Data Merge



Embed CSV data directly into a design.
Make your design real.

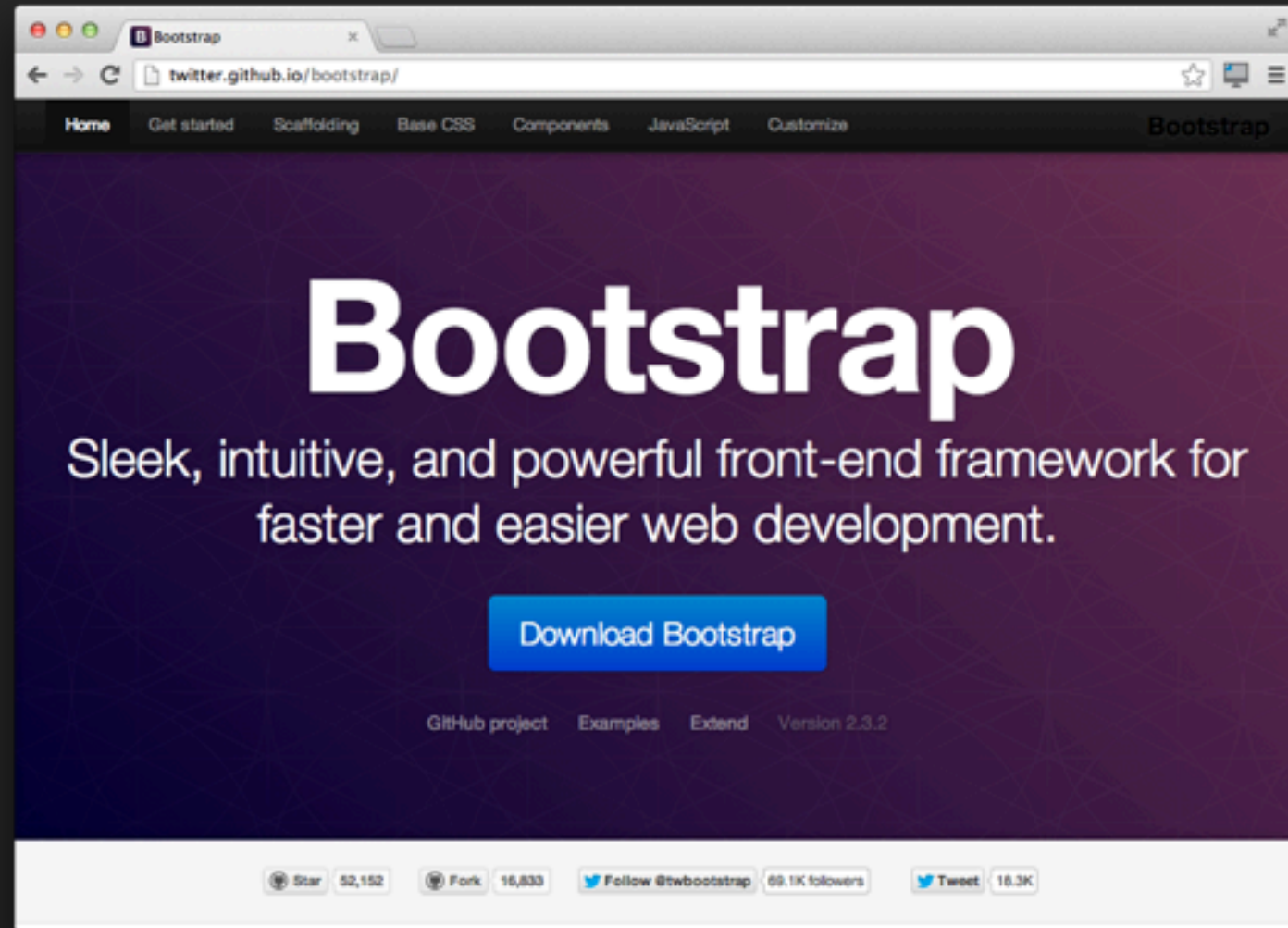
Mustache Templates

```
<script type="text/html" id="eachPresentation">
  <div class="presentation">
    <span class="label count" data-id="{{i}}">
      <span class="number">{{number}}</span> Attendees</span>
    </img>
    |
    <ul class="attendees thumbnails" data-id="{{i}}">
      <li class="attendee">
        <a class="btn btn-primary attendBtn" data-id="{{i}}" data-attending="no">Me Too!</a>
      </li>
      {{#people}}
        <li class="attendee thumbnail">
          </img>
        </li>
      {{/people}}
    </ul>
  </div>
</script>
```

Embed JSON data into an HTML Template

<http://mustache.github.io>

CSS/JS/HTML Libraries



CSS + JS for buttons, forms, layout, tables,
autocomplete, alerts, modals ++

Some Other Tools

Mr. Data Converter

I will convert your Excel data into one of several web-friendly formats, including HTML, JSON and XML.

Fork me on [github](#).

SETTINGS

Delimiter: ☒ Auto ☐ Comma ☐ Tab

☒ First row is the header

Transform: ☐ lowercase ☐ uppercase ☒ none

☒ Include white space in output

Indent with: ☐ tabs ☒ spaces

Input CSV or tab-delimited data. Using Excel? Simply copy and paste. No data on hand? [Use sample](#)

NAME	VALUE	COLOR	DATE
Alan	12	blue	Sep. 25, 2009
Shan	13	green/blue	Sep. 27, 2009
John	45	orange	Sep. 29, 2009
Kiana	27	teal	Sep. 30, 2009

Output as: **JSON - Properties**

```
[{"NAME": "Alan", "VALUE": 12, "COLOR": "blue", "DATE": "Sep. 25, 2009"}, {"NAME": "Shan", "VALUE": 13, "COLOR": "green/blue", "DATE": "Sep. 27, 2009"}, {"NAME": "John", "VALUE": 45, "COLOR": "orange", "DATE": "Sep. 29, 2009"}, {"NAME": "Kiana", "VALUE": 27, "COLOR": "teal", "DATE": "Sep. 30, 2009"}]
```

<http://shancarter.github.io/mr-data-converter/>

curious CONCEPT

JSON Formatter & Validator

821 647 423 1.8K

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About

The **JSON Formatter** was created to help with debugging. As data expressed as **JSON** is often written without line breaks to save space, it became extremely difficult to actually read and make sense of it. This tool hopes to solve the problem by formatting and **validating** JSON data so that it is easy to read and debug by human beings.

This **third major iteration** of the JSON Formatter & Validator has been immensely improved by users suggestions. Thanks everyone. If you have any other requests, be sure to [pass them along](#).

JSON Formatter & Validator

JSON Data:

JSON Template: **Default (Three Space Tab)**

Validate JSON: ☒

DISRUPT THE MARKET

WITHOUT DISRUPTING YOUR APPLICATION

[See more >](#)

rockspace the open cloud company

JSON Data URL:

[Close](#) [Process](#)

Learn About JSON

To learn more about JSON check out some of the links below.

- [json.org](#)
- [Wikipedia:JSON](#)

<http://jsonformatter.curiousconcept.com/>



Adding Interaction

Click Events

Javascript Hide/Show/Animate

Changing img src to another pre-rendered piece of content

Data Attributes to save state

CSS Classes with styling

CSS/JS/HTML Libraries

Rule of Thumb:

If the library does exactly what you want and you aren't super worried about styling, use it.

Otherwise, think really hard.

Four Principles

Know Your Goal

Use the Right Tools

Do Just Enough

Lather, Rinse, Repeat

Why Use Rapid Prototypes

High Fidelity Feedback

Some decisions can't be made without
experiencing the design.

Make the right decisions at the right time.

Mitigate Risk

Your Design Will Live in Code

If you wait until the build phase, it
will be too late to fix.

Complete The Design

You will make design decisions
while prototyping

You want to be around to
make them

Questions/Comments:
ben@goinvo.com

Thanks to:

Eric Benoit, Juhan Sonin, Involution Studios

Download slides at tinyurl.com/PrototypeMore