
Pivotal®

SafeMeds

Experience Report for the GSA

(RFQ #4QTFHS150004)

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Contents

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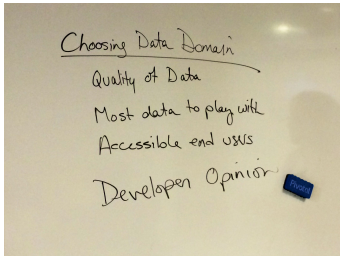
User Research and Product Definition

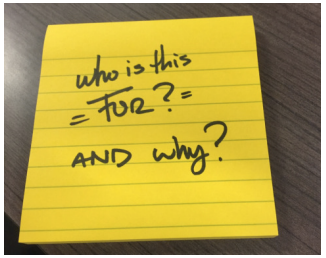
Gaining Focus

How we got from “Make something with OpenFDA data” to “a Product with a Customer” in One Day

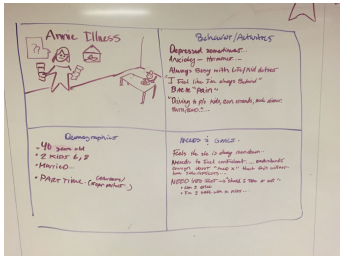
We started the project by convening the team and **evaluating the data** we would be working with.



At kickoff, we **narrowed the possibilities** by evaluating the datasets for quality, quantity, and reliability of data, as well as its usefulness to consumers.



An agile coach led an **ideation session** to develop 5 distinct product concepts (Person-Problem-Solution), within the selected data domain.



From there we developed a **provisional persona named “Annie”**. This focus tool helped us prepare for generative customer interviews and begin development on basic functionality, such as Search.

Four interviews with targeted customers helped validate and correct the persona & product vision.

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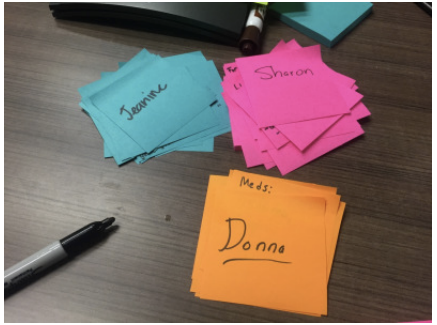
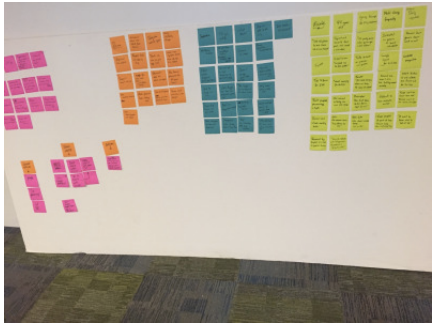
User Research

Talking with users invalidated one of our assumptions and revealed one real need.





Who We Interviewed

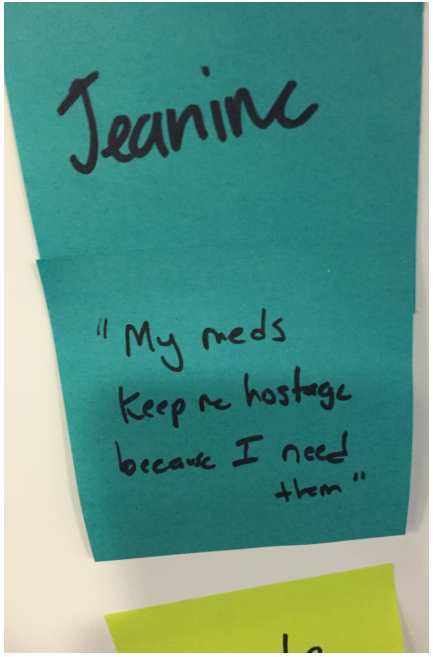
4 telephone interviews

Women, 40-70 years old

All take multiple medications daily for chronic conditions

Geographically distributed:

Ft. Myers, FL
San Francisco, CA
Minneapolis, MN
Las Vegas, NV



What We Learned

DISPROVED: **Medication instructions are not perceived as valuable** to these women; rarely used again after first reading.

NEW INSIGHT: When asked about OTC medication they immediately (unprompted) jumped to discussing worries over interactions.

Participants understood their daily meds very well but were **concerned about interactions with OTC drugs**.

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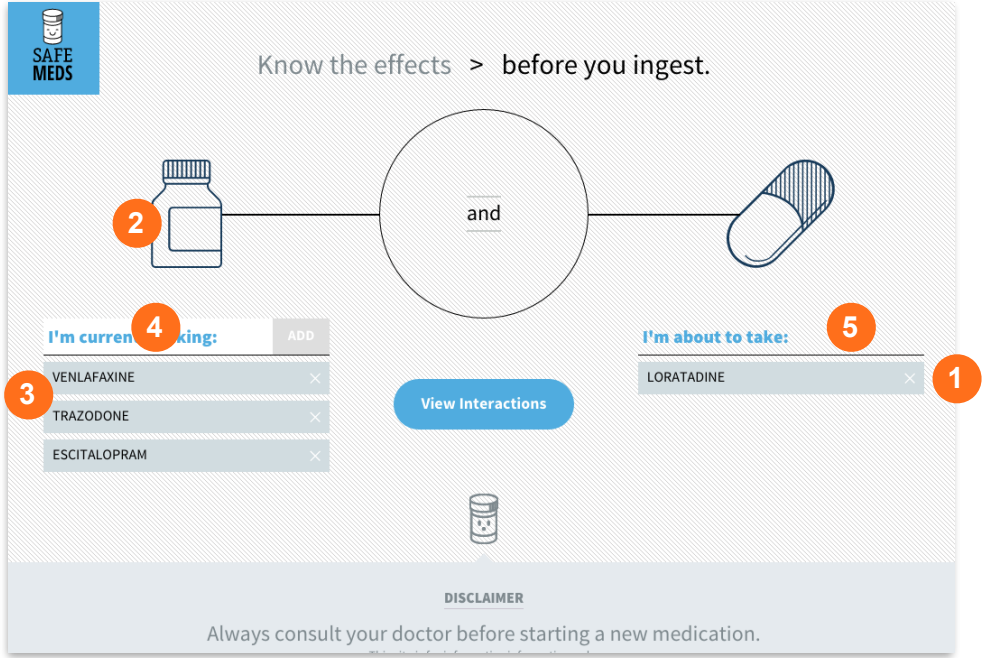
Usability Testing

On this early version, usability testing revealed a few problems:

1. It was not clear that you could only compare one item to your regimen.
2. Unclear what was clickable when the home page loads.
3. Unsure if the auto-correct to the scientific name was accurate.
4. Multiple requests for “Auto-Suggest” while typing drug names.
5. The fields for typing drug names did not appear to be interactive.



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Product Narrative

Meet Annie

Annie takes several medications daily.

It took a while for Annie and her doctor to get the combination and doses right, and she knows what to expect from her regimen.

Occasionally she has to add something else, like when she gets a cold or has a migraine, but doing anything that would affect her medication or add new side effects feels like a big risk.

Annie needs to feel confident that she can still manage her complex life, even when taking occasional over-the-counter medication.

ANNIE ILLNESS

"My meds keep me hostage because I need them"

ABOUT

40 Years old

2 Kids

Married

Works Part-time

BEHAVIORS

Annie is managing a chronic illness and takes multiple prescription medications.

Google searches "specific" meds to find info regarding side effects, severity, time, and dosage.

Always busy with life duties (feels behind).

Common events include driving to p/u kids, make dinner, bath time, bed.

NEEDS & GOALS

Unsure if a new medicine will affect the current ones.

Doesn't feel in control of her schedule. Has to plan around medicine consumption.

Doesn't know the severity of potential side effects/interactions if/when taking OTC or new prescription drug.

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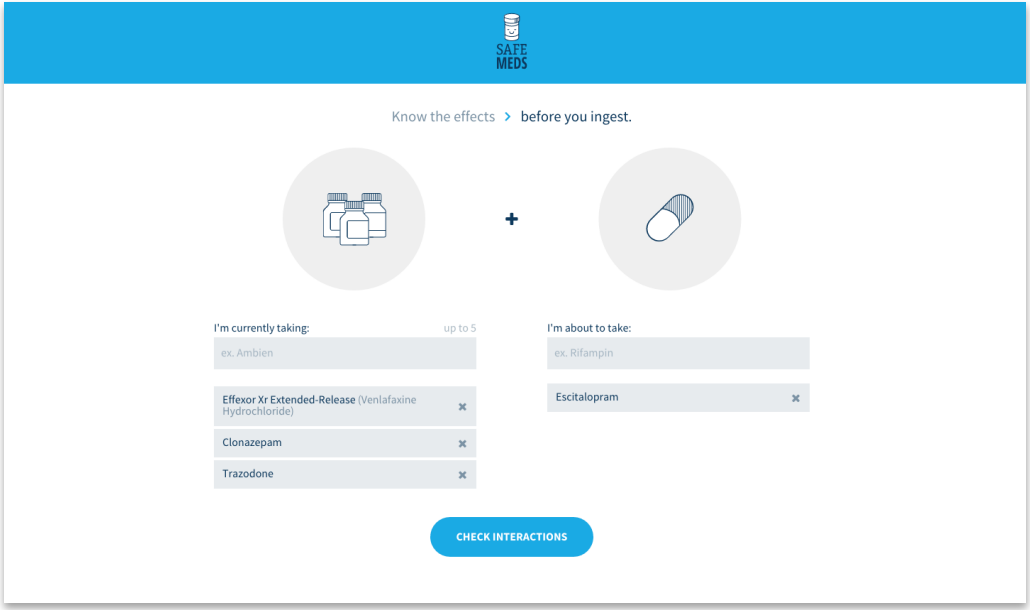
This is SafeMeds

With SafeMeds, Annie can see whether her daily pharmaceutical regimen will be affected by a new over-the-counter or prescription medication.

It provides the features Annie needs most:

- List her current medications (multiple)
- Enter a new medication (single)
- See interactions between the single new medication and what she's already taking
- Scan interactions data for a highlighted drug name
- Choose from a list of auto-suggested medications based on typed text



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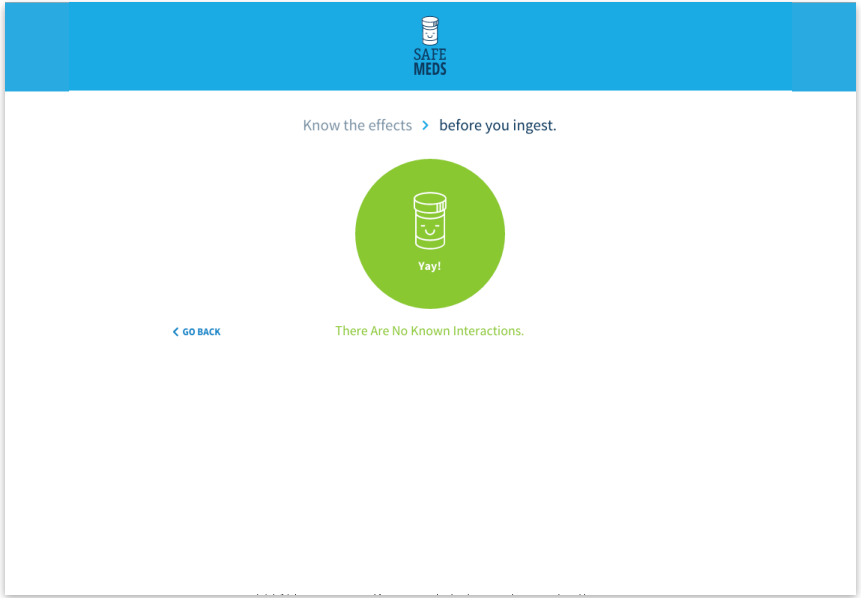
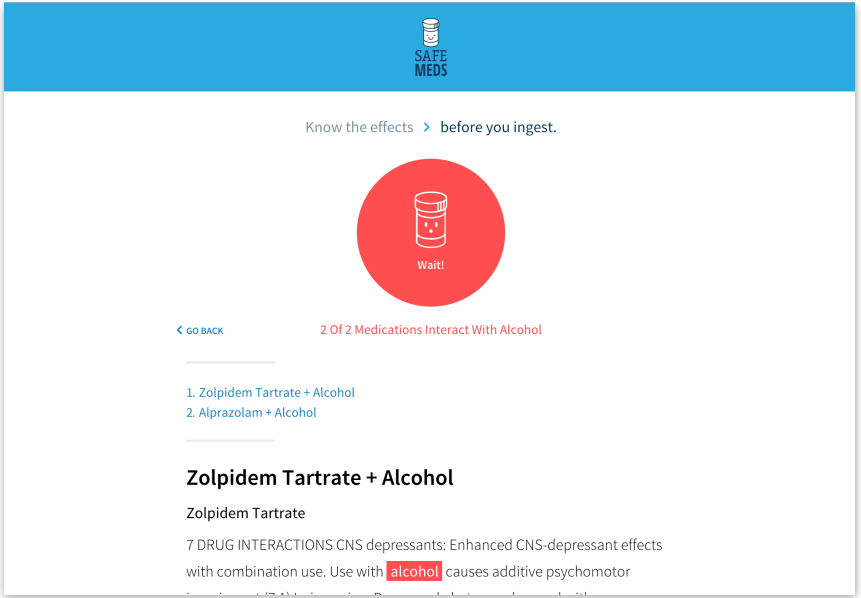
Search Results





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Project Timeline

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DAY 1

Summary of Day 1:

We have working software! We assembled a team, evaluated APIs, selected a User Problem to solve, and completed User Research. Developers stood up environment and deployed a hello world by 2pm. By End of Day we deployed a front end with a search box that we could use to enter a drug name and get all drug label information back from the FDA's API and display it. A good day's work.

11:00AM PDT: PROJECT KICK OFF MEETING BEGINS

11:15am PDT: Git Repo set up

12:30pm PDT: Dev environment and Production environment set up (PWS)

12:25 pm PDT: Devs looking at API responses right now to see results and performing first deploy

1:20pm PDT: Backlog starting

1:30pm PDT: Hello world deployed

5:30pm PDT: Working software! Enter medication name into search box and get results displayed on page.

12:40pm PDT: Created **multiple (5) user scenarios**. Confirming feasibility with developers

1:00pm PDT: Scenarios chosen, setting up parameters for user research

2:20pm PDT: Persona complete, screener for user research in development

3-5pm PDT: Staging and conducting **user interviews**

5:00pm PDT: Review synthesis results from user research and identify first user task for Devs to deliver

6:00PM PDT: RETRO ENDS

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DAY 2

9:15AM PDT: Project Standup

9:45AM PDT: Identified User Goal, Product Goal, Problem, and Value Proposition

10:00AM PDT: Basic wireframes done.

12-5:00PM PDT: Working through difficulties with API responses. The API limited search responses to 5000 entries so devs **had to throw away the auto-complete** design and devise another approach.

3:00PM PDT: Design & Dev work together to find a customer-focused solution to this limitation. Refined wireframes and clickable prototype.

5:00PM PDT: Iteration Planning Meeting, where we discussed and pointed User Stories for execution tomorrow.

6:00PM PDT: Retro Ends

DAY 3

9:15AM PDT: Project Standup

10:00AM PDT Created designs for responsive mobile

10:30 PM PDT Searches aren't working when they contain commas. Filed bug. Lower (priority) in the backlog because most drugs don't contain commas.

11:30AM PDT Usability testing with two users.

12:30PM PDT We did it! Delivered end-to-end happy path that tells user if there are interactions between drugs!

1:30PM PDT Researched (1) common drug interactions and (2) drugs most people *think* would have interactions, but are harmless. Tested app for accuracy.

4:00PM PDT Started working on auto-suggest. **Auto Suggest was the largest request in usability testing**, but it has the most technical complexity given API restrictions (instead we need to download a multi-GB XML file, parse, store, and index).

6:00PM PDT: Retro Ends

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DAY 4

9:15AM PDT: Project Standup

Today's focus: How to use the extended timeline.

10:00AM PDT: Whole team ideation session (dev, design, PM). Came up with 90 ideas, chose 8 to move forward with. Emphasis on deepening and refining, rather than adding features. **Autosuggest is now in-scope.**

12:30PM PDT: Quick discussion on how we'll validate the new ideas by getting user feedback before building.

1:30PM PDT: Back and forth with developers over autosuggest. **Dataset from the FDA doesn't match API**, so we've written a quick script to find the largest subset.

3:30PM PDT: Design Jam and review for new scope. Designer pairs with Dev on the 'Loading' spinner.

5:30PM PDT: Retro focuses on API rate limiting, search query construction.

6:00PM PDT: Retro Ends

DAYS 5-8 (Last Day)

Just another day:

Standup, pairing, design, usability testing, feature prioritization, backlog management, Retro.

Enhancements include animations, mobile support, IE support, and the decision not to expand scope again, just because we have an extension.

Day 8 is July 1, the second "due date". Although we have an extension, we believe that we've met the challenge. We have completed all of the stories in the backlog, and opt not to expand scope.

The team decides to ship.

6:00PM PDT: Eight working days after kickoff, the project ends.

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Technical Challenges

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Technical Challenges

Natural Language parsing to find drug interactions

To deliver on the value proposition to the user, we needed to figure out which drug interacts with another drug, from an unstructured blob of text. We accomplished that by applying natural language parsing to the unstructured API data.

Auto-Complete

To deliver Auto-Complete we needed to process large amounts of data offline, and then send that data to the client and load it over a long period of time, to remove lag time in the UI. To create a seamless experience for the user, we did a significant amount of validation processing on the backend to make sure that it was accurate.

Responsive Web

The way we implemented “Responsive” behavior was to divorce the presentation layer from the logic by using CSS exclusively to change the way in which the data was displayed based on the device in use. When we needed to add device-specific behaviors, we found a way to do that without changing the presentation.

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How We Worked

Efficient Routines

We ran this project just like any other at Pivotal.

Standup

We held a standup meeting every day; usually lasting less than 5 minutes.

The Agenda:
What I did yesterday
What I'm working on today.
Blockers.

Inception

Inception is where we reviewed the user's "happy path", and the major chunks of work ("epics") were identified and sequenced.

The Agenda:
Goals, risks, assumptions, happy path, epics.

Iteration Planning Meeting

At the IPM, the team reviewed the "user stories" in the backlog, and the developers assigned "points" to represent the complexity of each story.

This is where plans became actionable by the developer team.

Ping Pong

Pair programming is an efficient but intense way to work. To provide relief from the demands of heads-down pair programming, we play ping pong.

It refreshes the eyes, stretches large muscle groups, and clears the mind.

Retro

We did a retrospective daily. This 30-minute meeting ensures that we closed every day with clarity across the whole team, bubbling up issues.

The Agenda:
Happy, Meh, Sad.

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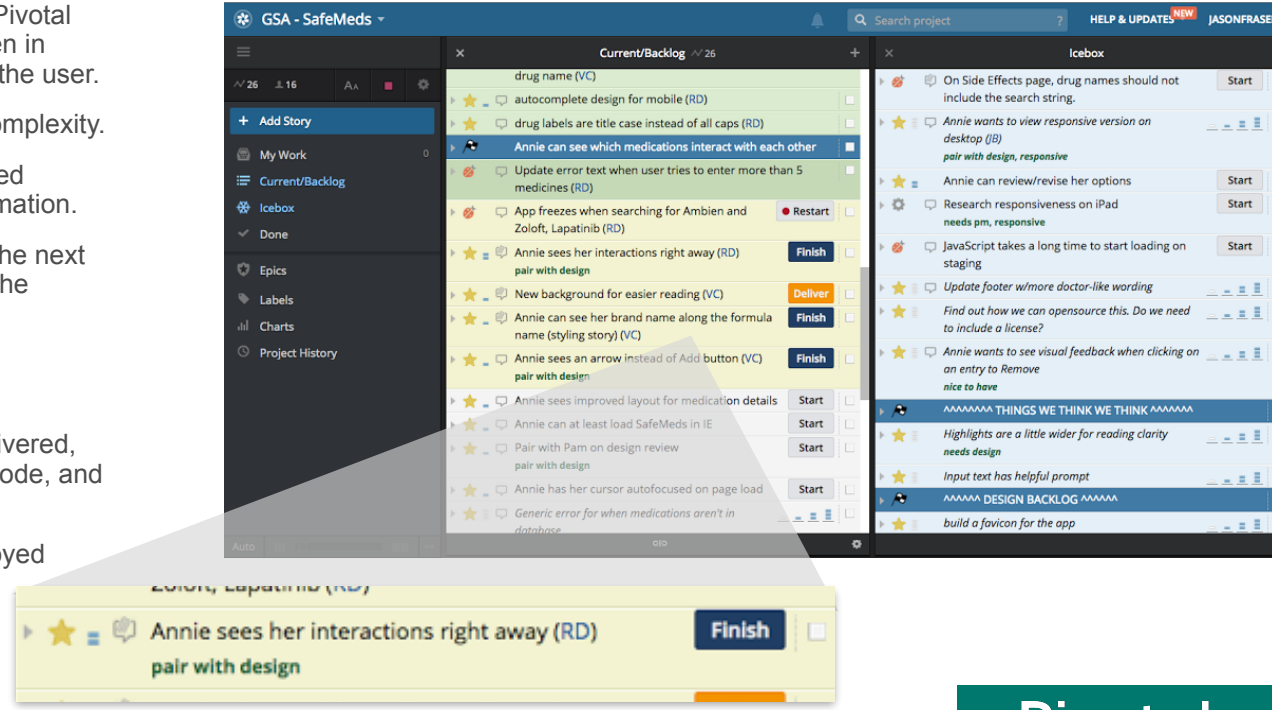
Self-Managing Project

The team used Pivotal Tracker to organize work for the developers.

- The development effort was articulated in Pivotal Tracker as User Stories. Stories were written in terms of the smallest increment of value to the user.
- Developers assigned points to represent complexity.
- The product manager rewrote and re-ordered stories as needed in response to new information.
- As work progressed, developers ready for the next increment of work started the next story in the backlog.
- For each story, work began by writing the automated test for that story.
- When finished, stories were marked as Delivered, the Product Manager tested the delivered code, and marked the story as Accepted or Rejected.
- Accepted stories were integrated and deployed immediately.



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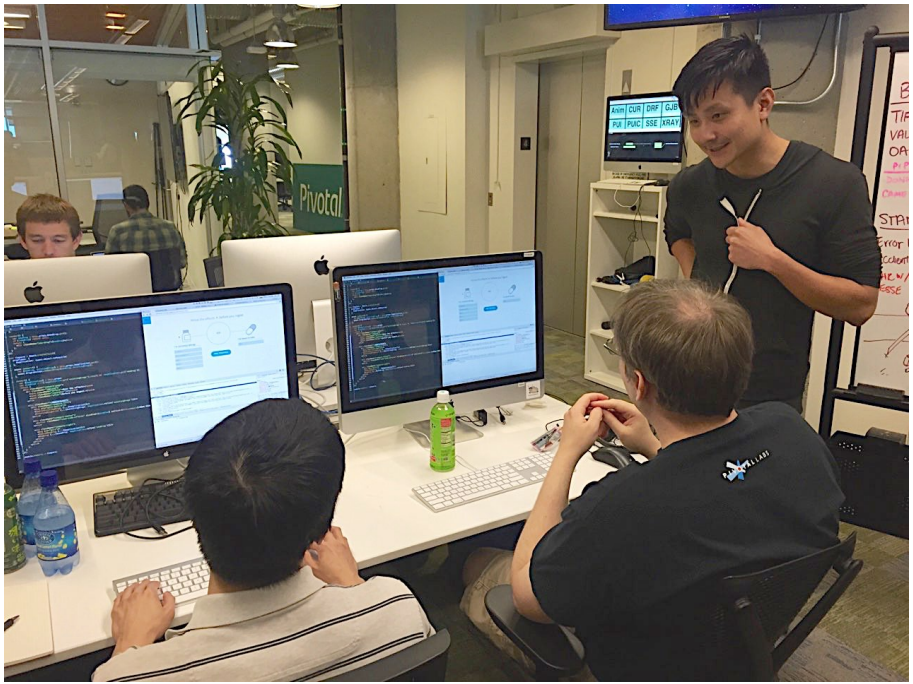
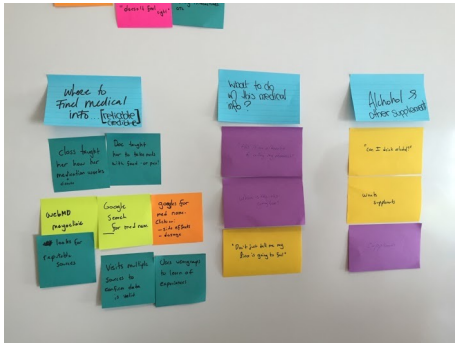
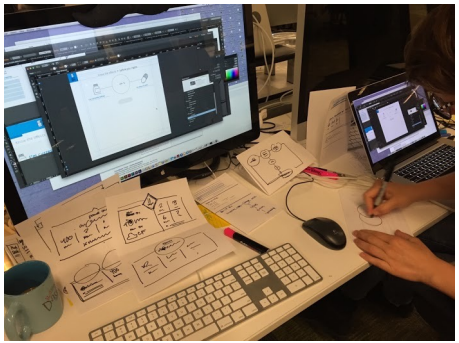
For more insight, visit our project Tumblr

http://pivotalsafemeds.tumblr.com/







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