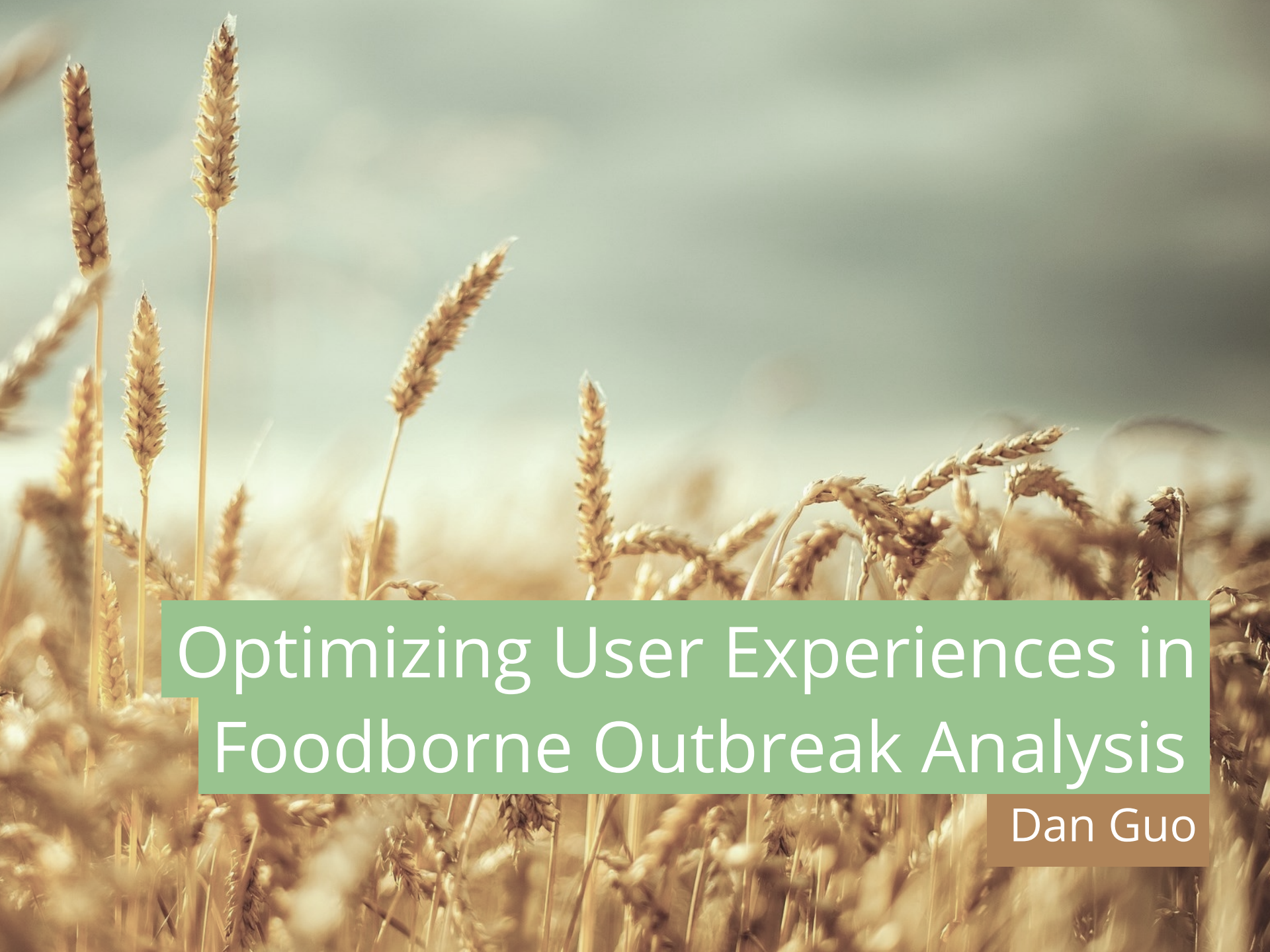


Optimizing User Experiences in Foodborne Outbreak Analysis

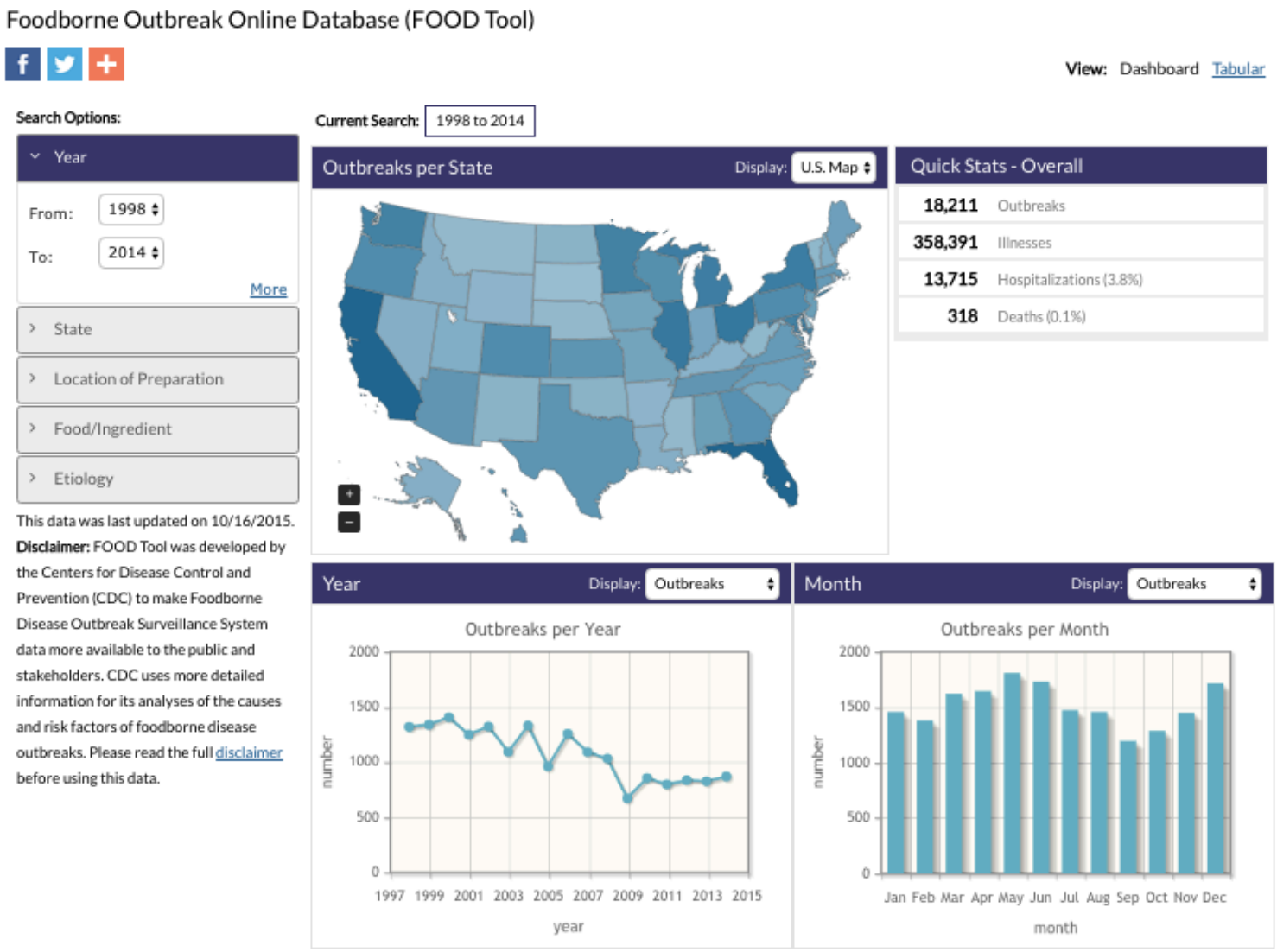
Dan Guo

Goal

Personalize data visualization experience by leveraging data from previous users.

For a particular user, the system will suggest specific views of the data that have been well-received in similar users.

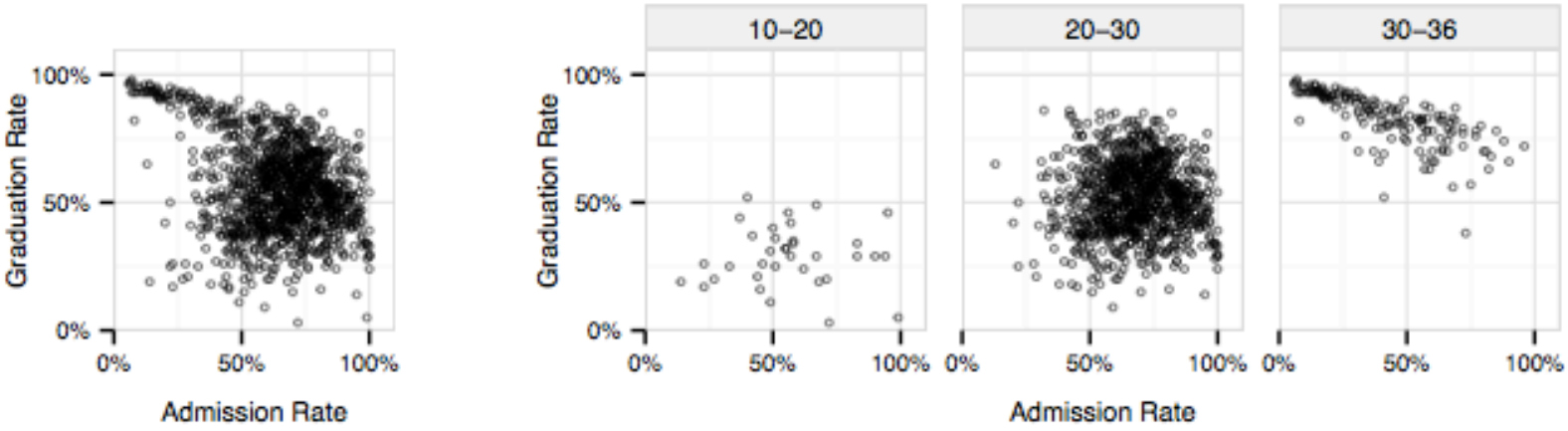
Motivation: FOOD Tool [CDC]



Previous Works

Automatic Selection of Partitioning Variables for Small Multiple Displays

Anushka Anand and Justin Talbot



(a) Input scatterplot

(b) Output small multiple display partitioned on admit ACT scores

Fig. 1: On the left is an input plot showing the complex relationship between admission and graduation rates at US universities. On the right is the top ranked small multiple display automatically picked by our algorithm to help explain this data. It partitions the data on aggregate admit ACT scores, revealing that for universities with very high ACT scores, there is a strong linear relationship between selectivity and graduation, while for other universities, there is no clear relationship.

Amazon.com [Linden 2003]

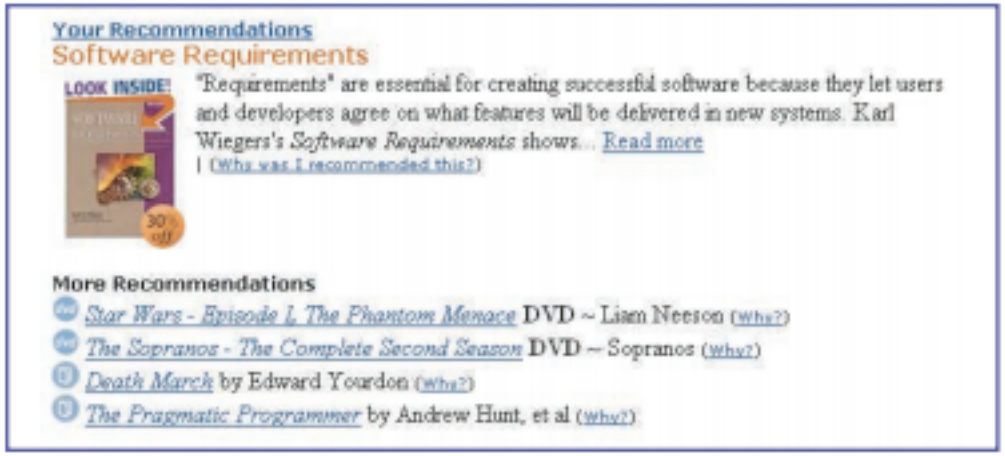
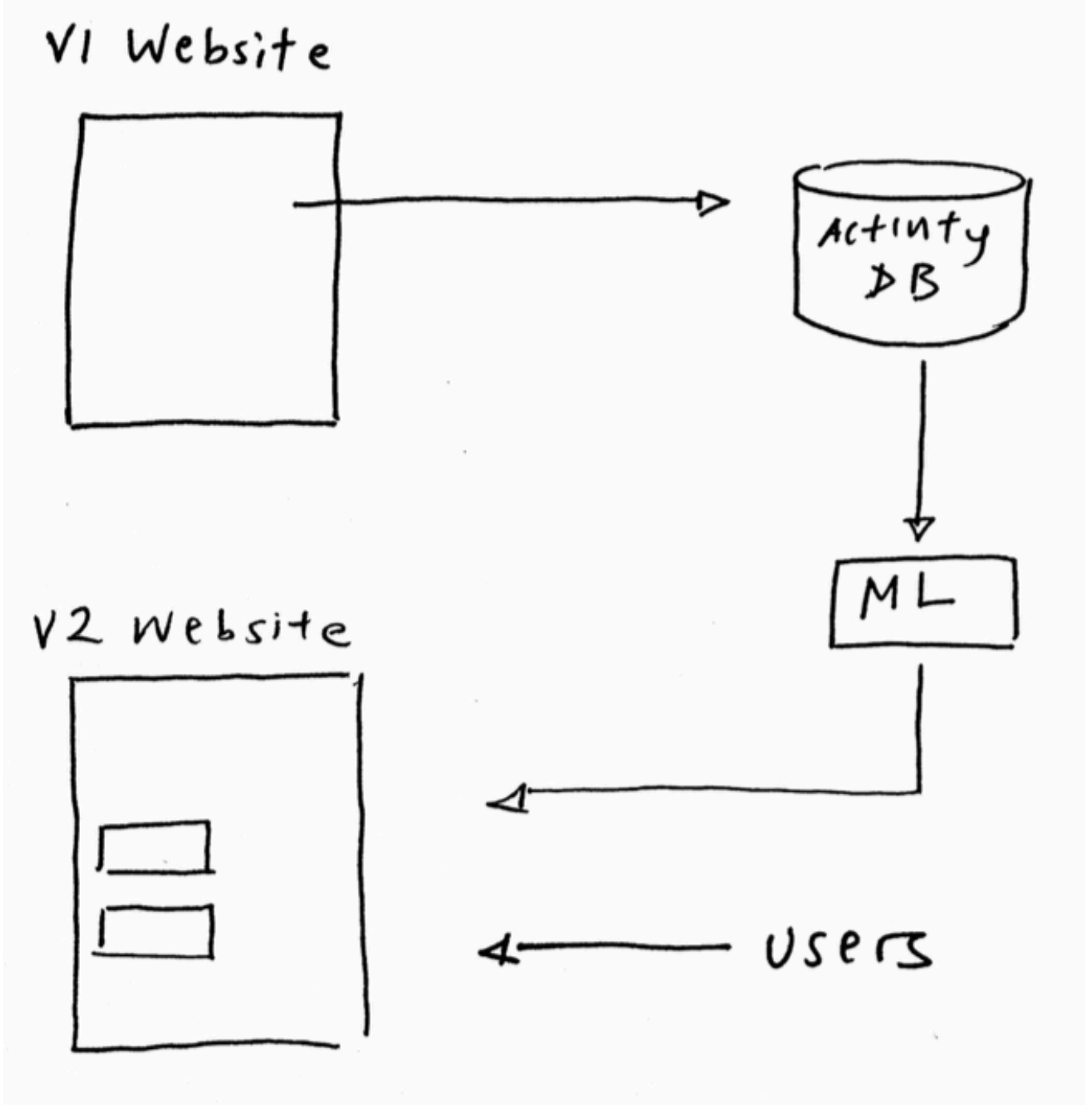


Figure 1. The "Your Recommendations" feature on the Amazon.com homepage. Using this feature, customers can sort recommendations and add their own product ratings.

Figure 2. Amazon.com shopping cart recommendations. The recommendations are based on the items in the customer's cart: The Pragmatic Programmer *and* Physics for Game Developers.

Current Works

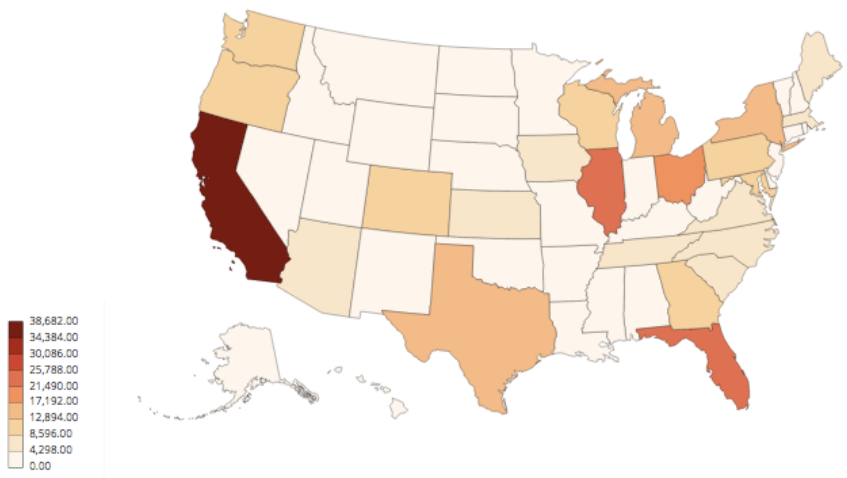

V1 Website
Actinty DB
ML
V2 Website
Users

Milestone 1: Subset of FOOD Tool

Top Level Control

- (•) Choropleth
- ( ) Breakdown by Time

US Map View



Adjust Incidents by Population

- (•) Unadjusted
- ( ) Population Adjusted

Incident Metric

- (•) Illnesses
- ( ) Hospitalizations
- ( ) Deaths

Foods

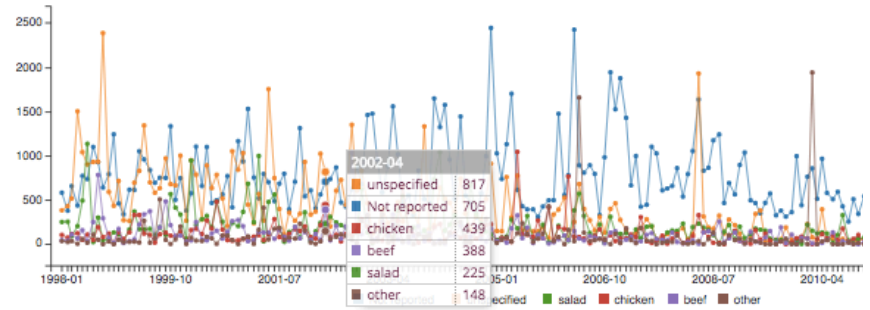
State

Genus

Top Level Control

- ( ) Choropleth
- (•) Breakdown by Time

Breakdown of Disease by Time



Incident Metric

- (•) Illnesses
- ( ) Hospitalizations
- ( ) Deaths

Time Granularity

- (•) Month
- ( ) Year

Breakdown of Variable

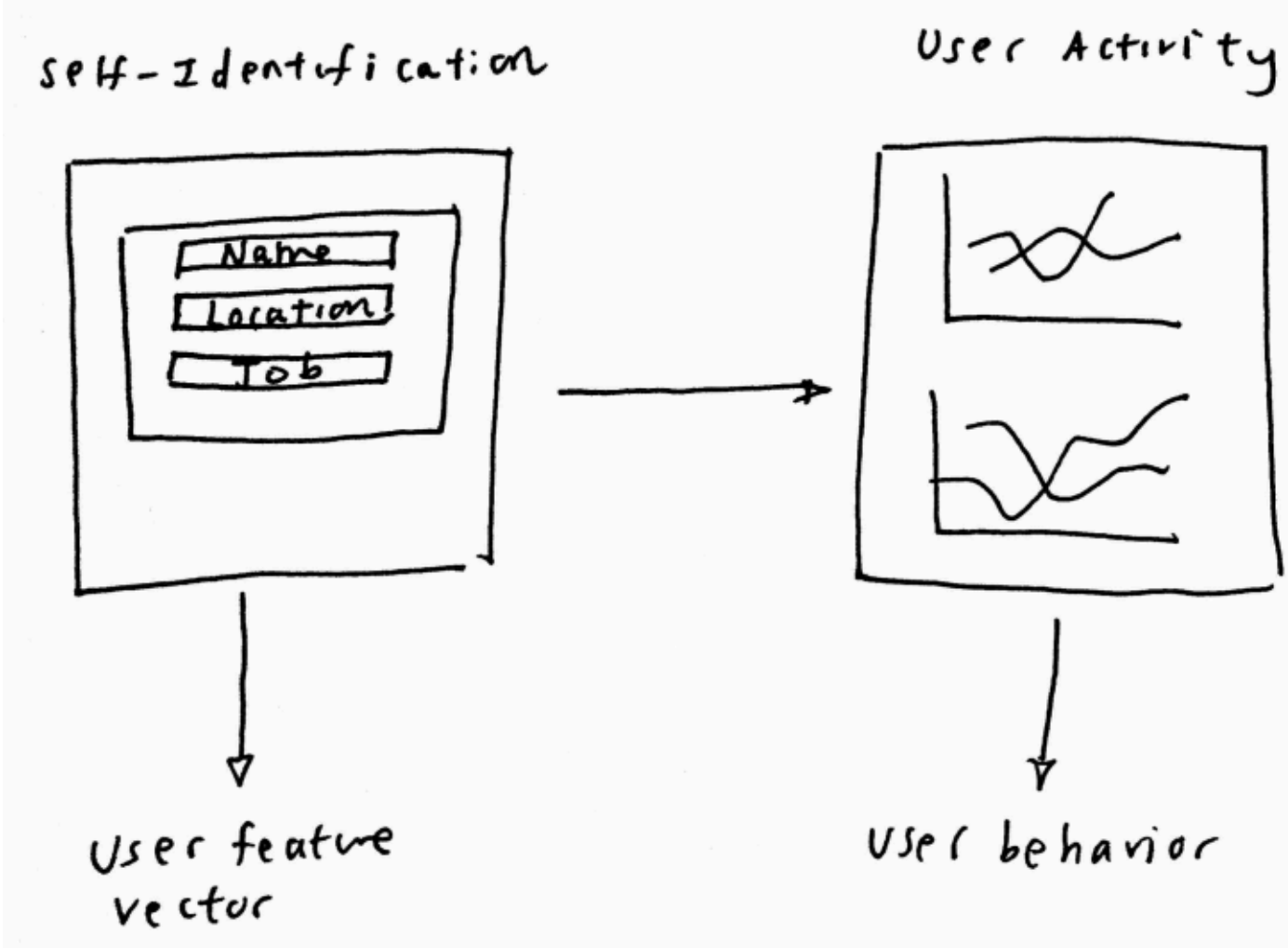
- (•) Foods
- ( ) Genus Tag
- ( ) State

Foods

State

Genus

Milestone 2: Short Survey for Users
Milestone 3: Activity Recording system



Future Milestones

- Milestone 4: Public website
- Milestone 5: Machine Learning Algorithm
- Milestone 6: Final website

Feedback Questions

- Any particular ML algorithms seem promising for this task?
- Any other relevant works to look into?
- Any guidance on how to design the recommendation system?
- Most meaningful way to test the system and collect data?