Low Fi Prototype

Yes& Presenting Fooditude

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Introduction: Problem & Mission

Problem: Cafeterias are home to lots of food, but also food waste. Sometimes, eaters dislike food options or have questions about served dishes. There exist no easy, accessible means for eaters to provide feedback, for chefs to learn from their eaters, and for users to engage with their chefs. Chefs rely on viewing their patrons' plates in order to figure out how well their food is received, but, it is difficult to make accurate conclusions from such limited information. Cafeteria-goers rarely understand the ingredients, time, and effort that chefs employ in creating their dishes, which makes appreciating the dishes more difficult and can prove dangerous with respect to food allergies. To combat these problems, we provide Fooditude: clean plates, empty trashcans, happy eaters.

Mission Statement: Fooditude aims to expand and enhance chef-patron communication beyond the confines of monotonous written forms in order to create a simple, fun, and information-rich feedback mechanism that improves food outcomes and decreases waste at cafeterias. Central to our mission is the notion that communication and understanding are fundamental to the quality and experience of food.

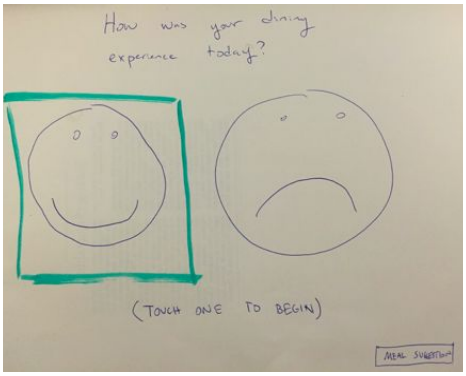
Prototype Description & Sketches

Design Principles: Our prototype reflects the three primary tasks that promote better dining experiences: 1) receiving patron input, 2) enabling chefs to learn from feedback, and 3) allowing chefs to provide information on meals and dishes to patrons. We seek to do this quickly and simply, without losing user interest. We employ a design that requests little information at first, with increasing opportunities for user input and a reward for completion. This model of feedback is

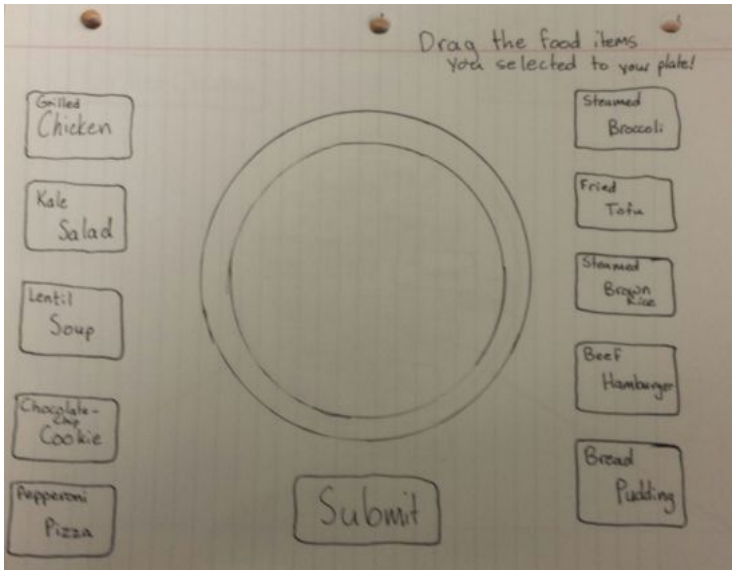
less cumbersome than traditional feedback mechanisms, provides a tangible incentives for use, and conveys ample but relevant information for the Chef.

Interface: We used paper iPad cutouts (8 ½ x 11 inches) to represent the experience of using a smartboard or tablet. The large size of the relevant pages ensured that participants could see all features. Experimenters encouraged participants to simulate dragging of objects on each page, as one might with a tablet.

Feedback Input Design, Task One: We ask the user to simulate a cafeteria patron who has just finished eating. She sees a new public smartboard/tablet which displays a message asking for an opinion regarding her dining experience. A simple screen asks her, “How was your dining experience today?” and entices her to quickly tap a happy or sad face (a good or bad experience respectively).

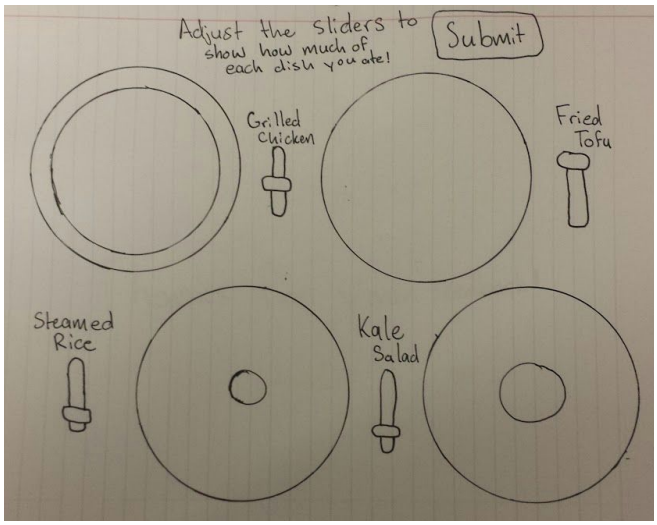


Clicking on either emoticon leads to an additional page requesting more information. The user may drag the names of various food items that were served onto a plate and submit her plate. This task is intended to be exceedingly simple and perhaps even fun to avoid scaring the user away.



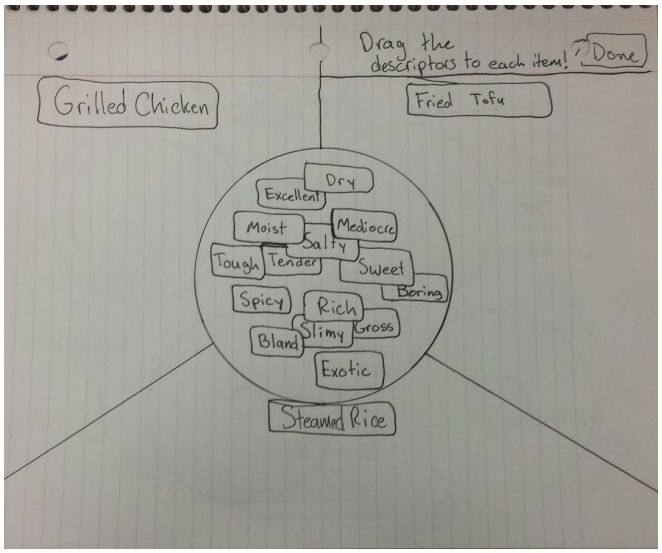
Users drag dishes that they had in a meal onto their plate.

Then, the user populates each plate with selected dishes. She drags slider bars to change sizes on each plate, representing the amount of food consumed.



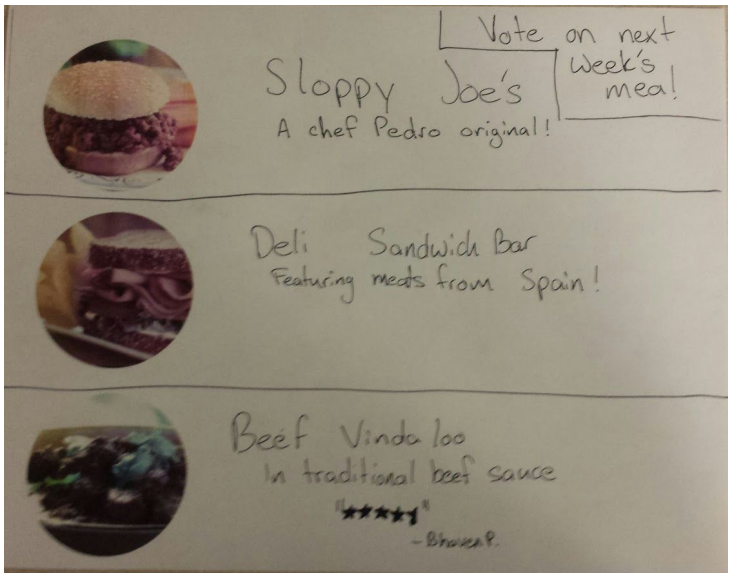
Users drag to indicate to what extent they completed a chosen dish.

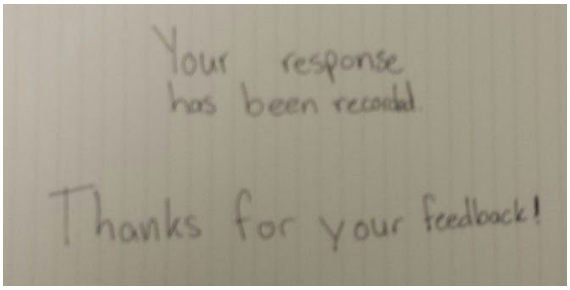
On the following screen, her food selections are narrowed to three. From a word bank she can select specific emotions or tastes that best represent reaction to her food.



Users use a word bank to evaluate dishes.

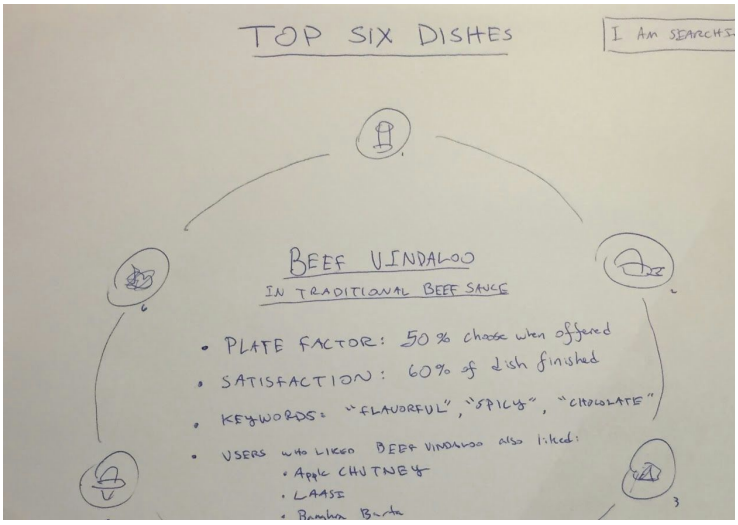
Lastly, she is given the option to vote on a future meal by touching the preferred option, and is thanked for her submission.





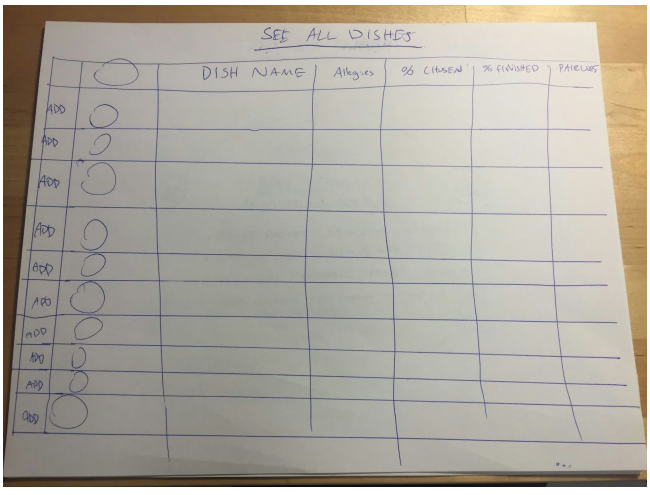
Users vote on meals for the next week (left) and are thanked (right).

Feedback Input Design, Task Two & Three: We ask the Chef to simulate using the interface, after having received feedback from the student users. We gave the Chef two options for interfaces, one (1) a modern, aesthetic interface displaying the day's top dishes, and the other (2) showing a day by day breakdown of the student reviews.



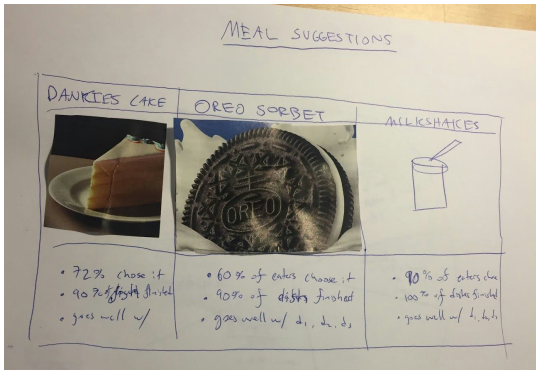
Interface one (1), User views details of top dishes.

Our first interface included information about the six top dishes of the day, with more information available about less popular dishes via a spreadsheet-like page. The user can click on a dish to see specifics about it.



User views details on all dishes

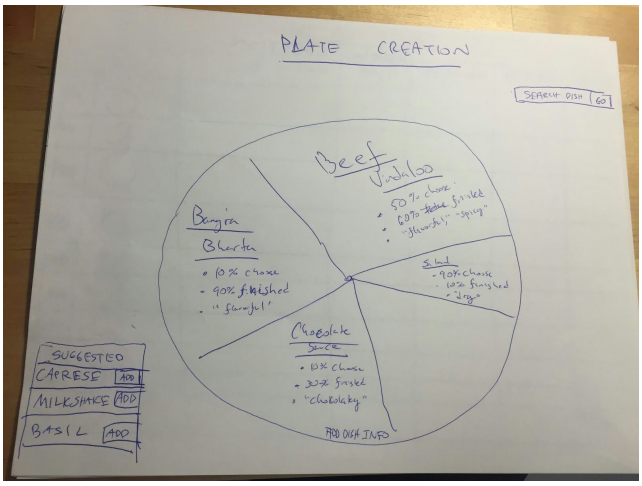
However, our chef later said that the initial page was too wordy, and has a lot of information. The see-all-dishes page was said to be hard to handle, and that he wished he could swipe through each dish page by page. This shows us where we can make improvements in our design idea.



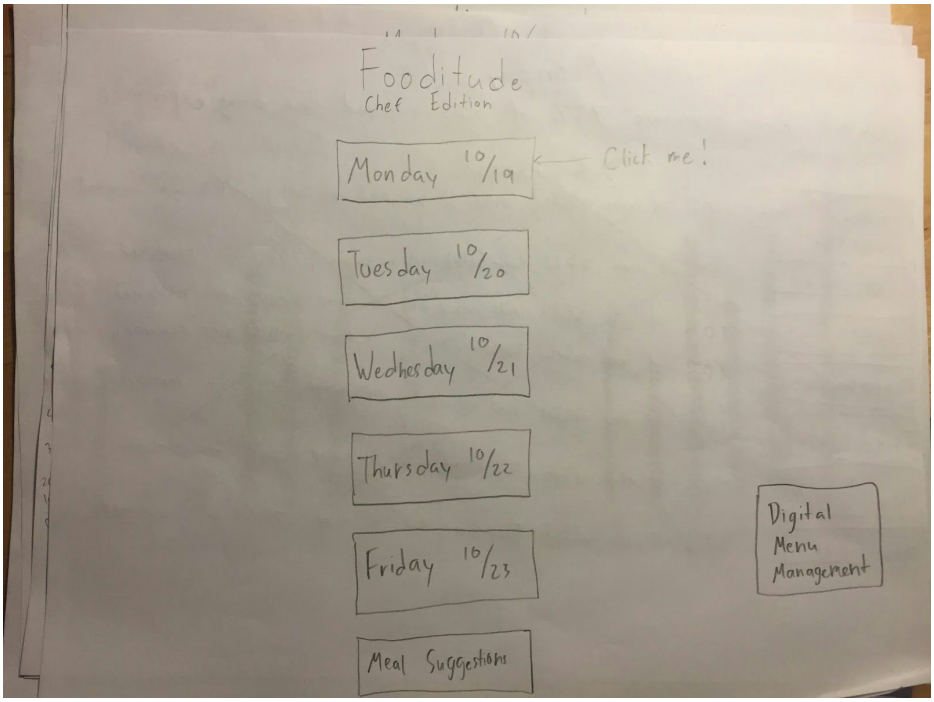
User is suggested meals by the interface

The Meal Suggestions page would use machine learning to suggest meals to the chef. Our chef thought that the meal suggestion was ok, but would rather have actual student suggestions for meals.

Our last component of this interface is a plate creation page for putting together details on specific plates. This would give cooking details on a given dish, so that consumers know exactly what they are eating.

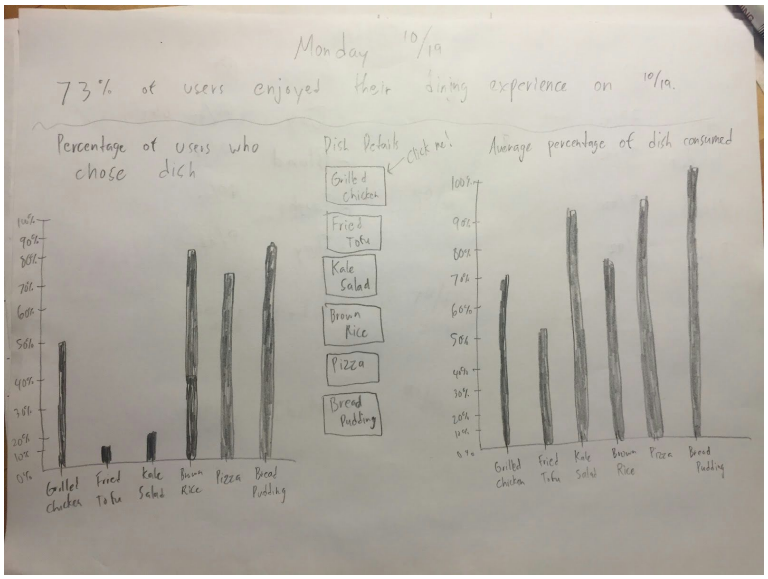


Meal creation interface for cooking details



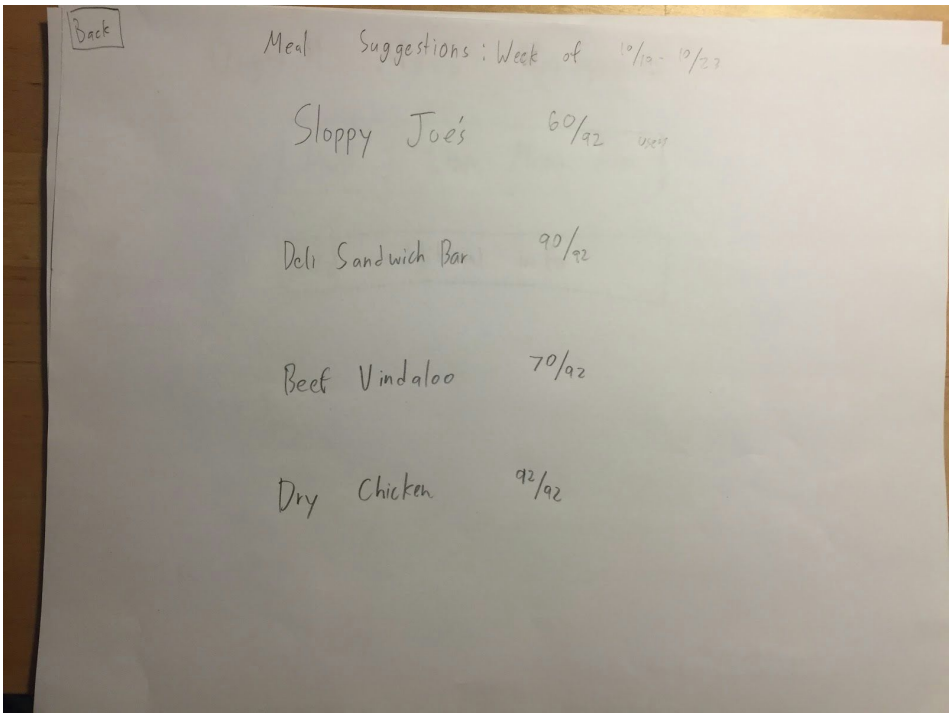
Interface two, with day selection, and voting results for meal suggestions.

To be thorough, we tested a second interface (2), shown above. This interface shows a weekly breakdown of days, where the chef can view all received input for a given day at a time. Our chef liked being able to click on the days.



Daily information of dishes chosen, percentage eaten, and overall enjoyment

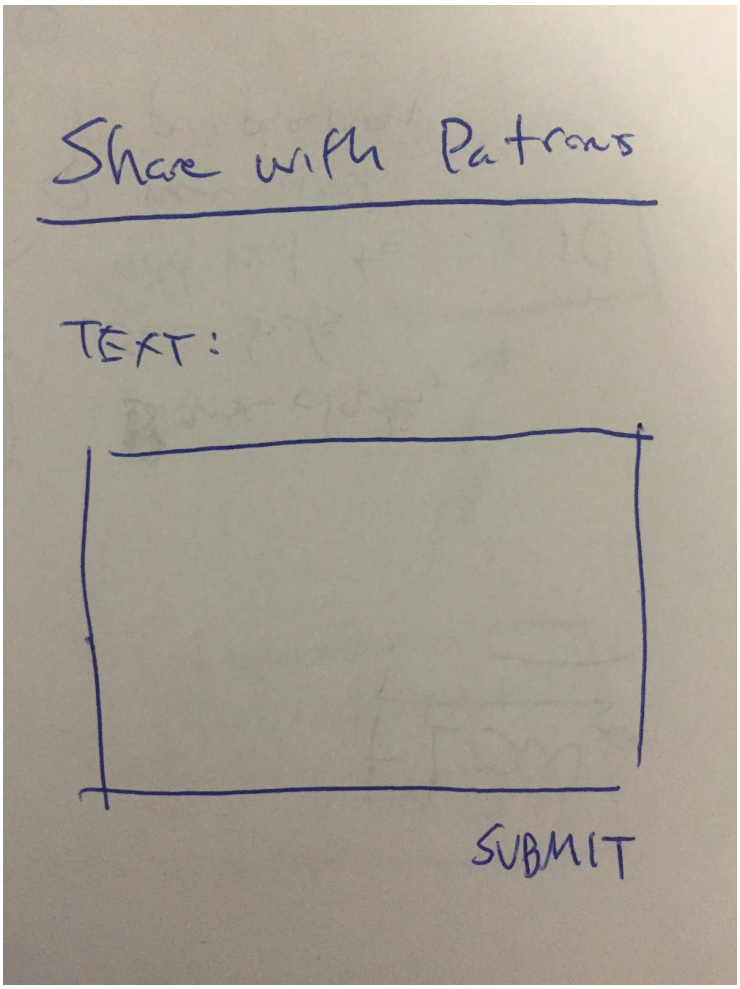
Once the chef clicks on a day, they would be shown the following information: Percentage of consumers who enjoyed their meal, percentage of users who chose a specific dish, average percentage of dish that was consumed, and buttons where they could view “word” details that were reviews from users.



Voting results for next week meal suggestions

Our last page in this interface shows the chef the votes for future meals, made by the students. He wanted each student to only be able to vote once, so that the dishes could be ordered from highest to lowest priority.

For task three, we provide the patron with a simple interface showing them feedback from the chef about their meal.



Chef's feedback to patron

Methods

Participants

For task one, we sought two students — one male who does not workout and one female varsity athlete — to provide a greater diversity of experience and reflect different eating habits.

For tasks two and three, we worked with two chefs, one from a large start-up cafeteria in Palo Alto and another from a row house at Stanford University. We sought this duality of experience in order to account for changes that might occur due to cafeteria size.

Environment:

The interviews occurred in each kitchen following dinner.We approached students in row houses on Stanford Campus where diners might encounter during dinner hours to simulate a real interaction that might take place with the product following a meal. The interviews occurred at Stanford row house dining tables, separated from other eaters to avoid background noise and influence.

In each case, we had the “Computer” adjacent to the participant, and the presenter across the way. Others documented the test through photos, notes, and transcription of quotations, so that each individual had clearly defined roles.

Tasks:

We chose our three primary tasks, which consist of various difficulty levels. The first, which asks users to provide feedback on a meal, was *easy*, as the interface was intentionally simple.

The second, which asked chefs to analyze user feedback, was *difficult*, as it required chefs to read, analyze data, and begin analyzing user feedback systematically.

The final task, which asked chefs to provide users information on meals, was *moderately difficult,* as it required chefs to learn a new skill — inputting information about their meals for public access.

Procedure:

Andrei played the role of the presenter, Dylan as the computer, while Aaron and Adrian observed. Andrei and Adrian searched the dining hall for task one participants, while Dylan and Aaron secured a separate table for the procedure.

Andrei introduced the product as a "chef-engagement interface," and then introduced team members to each participant. He then reviewed the anonymous and voluntary nature of the task.

Afterwards, Andrei showed our users the first screen **(see figure 1)** of the interface and prompted them with the following message.

> "As you get up to leave from the table, you see this tablet nearby. How would you proceed?"

The participant was then asked their thoughts. In particular, Andrei asked what they 1) liked, 2) didn't like, 3) found useful, 4) found confusing, and 5) what they would change, with additional questions following naturally from statements. Interviews generally took 20 minutes. The same fundamental procedures occurred for interview with the chef regarding tasks 2 and 3, however, the script differed (see Appendix).

Test Measures:

We observed users comfort and comprehension during the the procedure. We noted emotional and logical reactions to the three application tasks, and charted them on order of a) severity and b) positive/negative. Our primary concerns were simplicity, usefulness, and understanding. It was vital that patrons provide information easily, and that chefs read results without difficulty. We assumed familiarity with a touch-screen apparatus.

Results

The appendix contains a full description, but we list several key insights below for the sake of brevity.

Task One:

Users expressed a surprising level of enjoyment rating the food, and found the interface to be easy to use. As our user G said, “It’s very clear how to perform everything, simple and much easier than filling out a form.” This indicates that our design principles might have worked well for patrons, if implemented correctly.

Furthermore, users indicated that the proximity of the survey and time until completion mattered significantly. “If the reward was made clear at the beginning then I would probably continue” User G advised. “I would spend two minutes max on this process.”

The underlying problem of incentivization, however, still exists. In particular, if users were unaware of a reward upon beginning, they were less willing to complete the process. “I can’t tell how long it would take, but the descriptor words portion is where I would halfass it,” user G warned. User A echoed that sentiment, saying that “If the reward was made clear at the beginning then I would probably continue.”

Task Two:

For Chefs, however, the results were different. Chef D liked “that it has a lot of information.” However, she indicated that the interface for task two was “hard to handle.” She indicated that in the absence of a simpler design, the Chef-side interface was “too much work,” and more broadly, that she might prefer speaking with students instead.

Chef Q echoed that sentiment, indicating that for small events, he might prefer just speaking with his customers. However, like Chef D, Chef Q suggested that having access to so much data would be useful, especially during times of high attendance at the cafeteria, as getting enough data from individuals is always hard via face-to-face interactions alone.

Discussion

From this data we can infer that the overall interface was easy to use for task one, and difficult to use for task two.

For patrons, the results affirmed the group’s design principles of slowly increasing We employed a design that requests little information at first, with increasing

opportunities for user input and a reward for completion. This model of feedback is less cumbersome than traditional feedback mechanisms, provides a tangible incentives for use, and conveys relevant information for the Chef.

For patrons, the overarching concerns still focus on whether there is enough of an incentive to use the system. Why should a patron spend his or her valuable time completing a survey for an uncertain benefit? One intuitive insight is that the incentive, whatever it may be, must be presented at the beginning of the task in order to entice cooperation. This could be a functional change, by which the "meal suggestion" page is displayed earlier. Or it could be a function of external incentives, such as from the dining hall. Additionally, some tweaks need to be made to account for things like vegetarianism and providing a reward earlier along in the user experience.

For Chefs, the interface proved useful in principle, but difficult to understand as is. This suggests that significant tweaks are necessary to ensure that the Chef-side design is aligned with the design principles of simplicity and increasing, subsequent complexity. In particular, Chefs indicated that they think the service might "do to much," meaning that the meal creation platform is not necessary useful at this point in time. This suggests that the next iteration of our application might seek to simplify or rethink the chef-to-client side of the feedback mechanism.

Appendix

1. Key Quotations
2. Scripts
3. Consent forms
4. Alternative Design

Word Count: 2300

Transcript — Key Quotations

User G:

- "I would spend two minutes max on this process" (G)

- “The dragging is delightful” (G)
- “I can’t tell how long it would take, but the descriptor words portion is where I would halfass it” (G)
- “It’s very clear how to perform everything, simple and much easier than filling out a form.” (G)

User A:

- “I would maybe click on it if it was on my table, but I wouldn’t go up to it” (A)
- “I would have stopped halfway through because I don’t get anything out of this” (A)
- “I’m a vegetarian so voting on these options doesn’t really mean anything for me” (A)
- “Can I only use the words in word bank once?” (G)
- “If the reward was made clear at the beginning then I would probably continue” (G)
- “I would spend two minutes max on this process” (G)

Chef A

- “It is wordy, but I like that it has a lot of information”
- “Navigating it is confusing”
- “Interface is hard to handle”
- “I wish I could swipe through the dishes page by page” [instead of having all the info on one page]
- “It‘s ok, I‘d rather have suggestions from students”

Chef Q:

- “Too much work”

- “I like clicking on the days”
- “I would like to have dish details appear when I click on the button” [instead of every dish showing from the beginning in the graphs]
- “I like the overall percentage shown at the top of the page.”
- “I don‘t like all the information on the page from the start, add them as I click the dishes.”
- “Statistics are more important than comments when I am cooking for the mass.”
- “This would be useful for larger settings.”
- “Only let students vote for one suggested meal, so they can be ordered from most votes to least.”

Consent Form

The Fooditude application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of Fooditude. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Andrei Terentiev, Adrian Leven, Dylan Alip, Aaron Zelinger) or with Professor James Landay, the instructor of CS 147:

James A. Landay

CS Department

Stanford University

650-498-8215

landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the studentresearchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the Fooditude experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time

Name Julian Torres

Participant Number _____

Date 10/22/2015

Signature Julian Torres

Witness name Maxwell Siegelman

Witness signature _____

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Name Jordan Garcia

Participant Number _____

Date 10/22/15

Signature _____

Witness name _____

Witness signature _____

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Name George Bashour

Participant Number _____

Date 10-22-2015

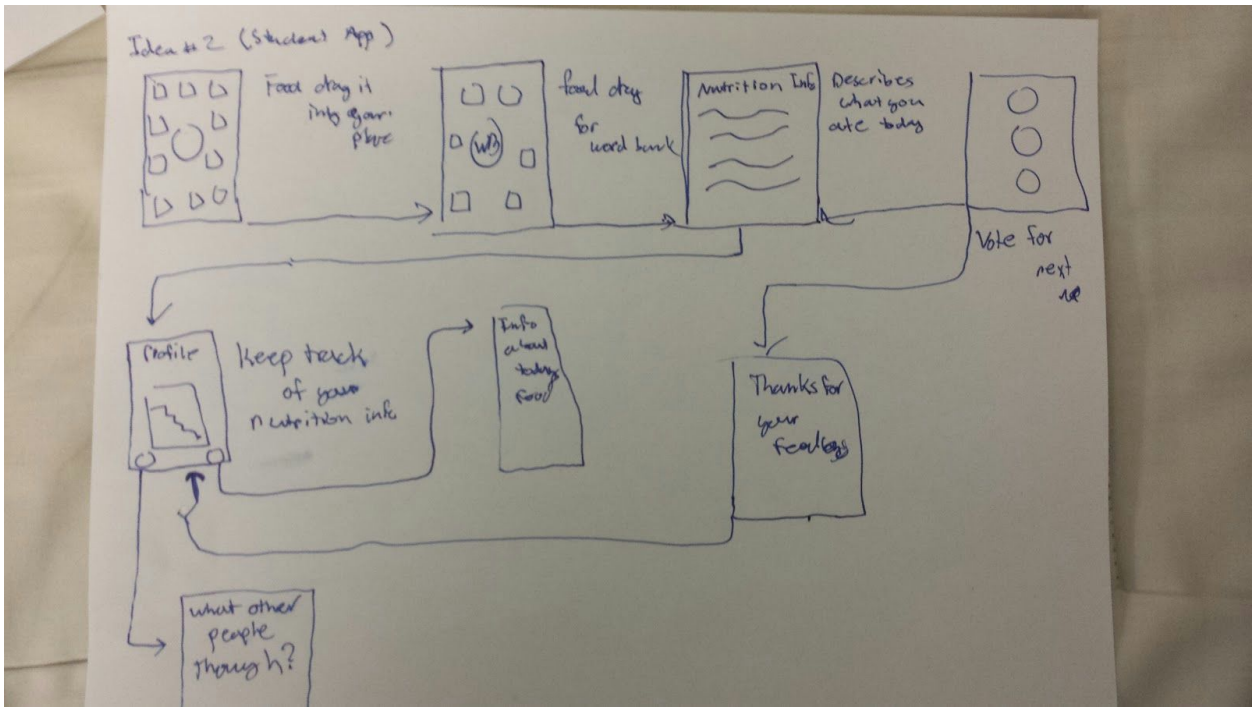
Signature _____

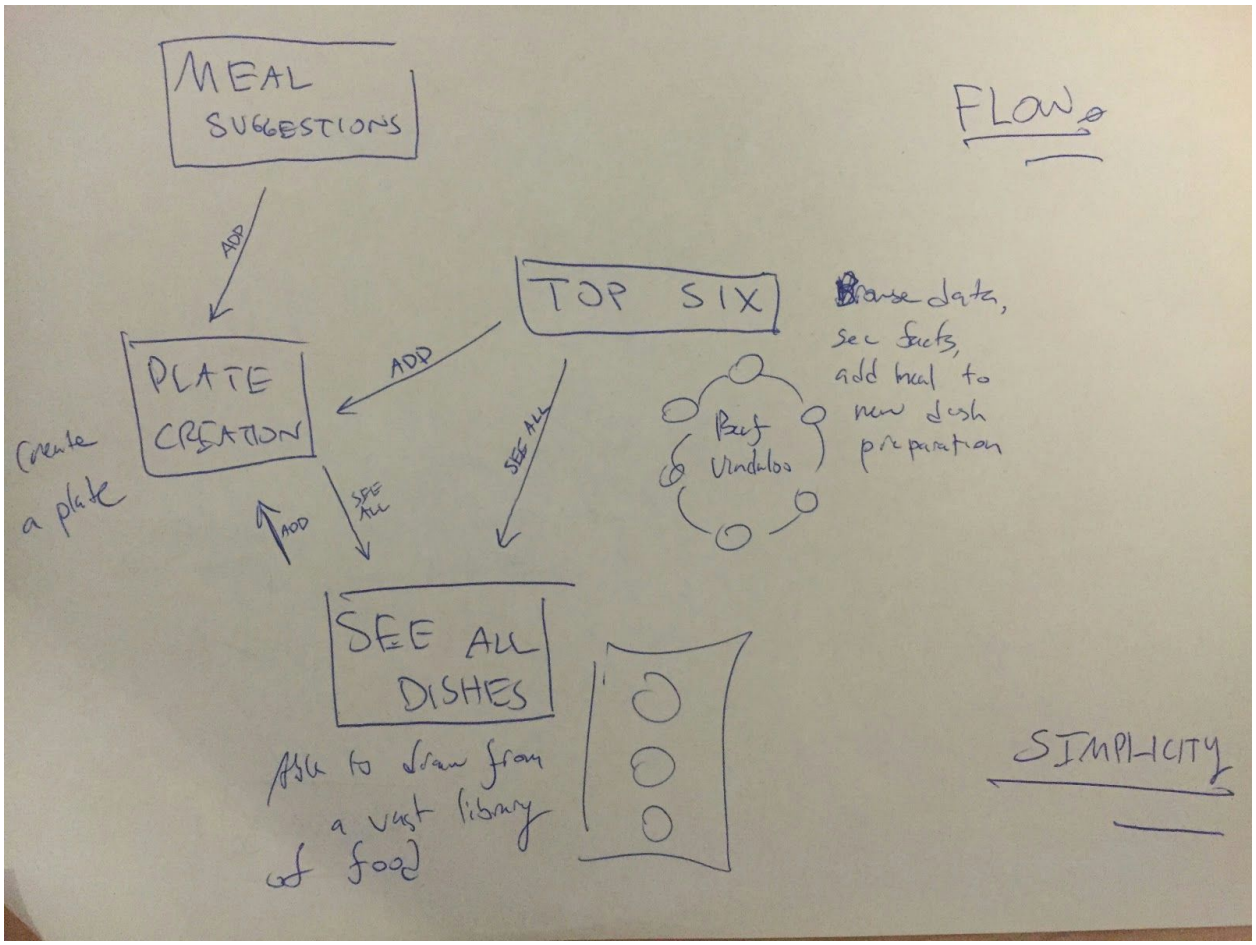
Witness name _____

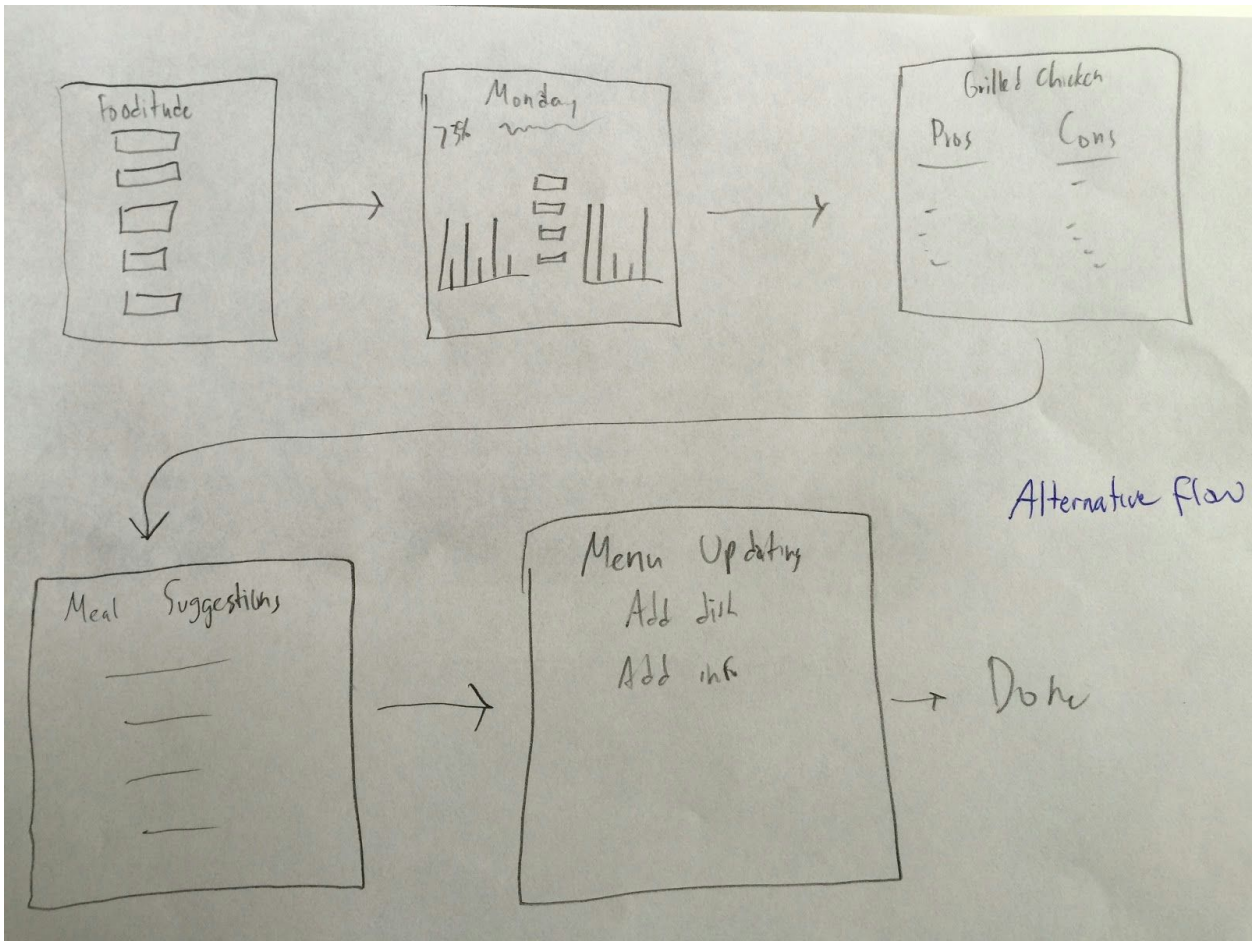
Witness signature _____

Alternative Designs:

Initially we felt that the user would like a more personalized system which be included in some app interface, These features could have included a profile interface where the user could monitor his nutrition and eaten food, keep personalized statistics and goals, and be more health focused. However, we felt these features distracted from our original intent and we decided that focusing on doing one task that the users seemed to indicate they best identified with was the way to go. Below is another concept sketch with extra features included




MEAL SUGGESTIONS
FLOW
ADD
TOP SIX
Browse data, see facts, add meal to new dish preparation
PLATE CREATION
ADD
SEE ALL
Create a plate
ADD
SEE ALL
Beef Vindaloo
SEE ALL DISHES
Able to draw from a vast library of food
SIMPLICITY


Fooditude
Monday
7%
Grilled chicken
Pros
Cons
Alternative flow
Meal Suggestions
Menu Updating
Add dish
Add info
Done