

Campus Nosh

**PROJECT A Mid-term Report**

**“CAMPUS NOSH” FOR COLLEGE STUDENTS**

Prepared for Professor Lynn Dombrowski  
H541 Human-Computer Interaction I  
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**Group F:**

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# 1. Project Summary



Campus Nosh

## 1.1. Project Summary

After completing ethnographic studies, observations, an online questionnaire and interviews of campus students regarding food procurement, we concluded that we needed to devise a way to help students get food more quickly and efficiently.

## 1.2. Key Features of “Campus Nosh” App:

1. A system that networks all campus food options
2. Allows people to pre-order their food for quick and easy pick-up
3. Ability to track readiness time, ratings and a nutrition log
4. All food vendors will sign into the system and upload menus and track food readiness

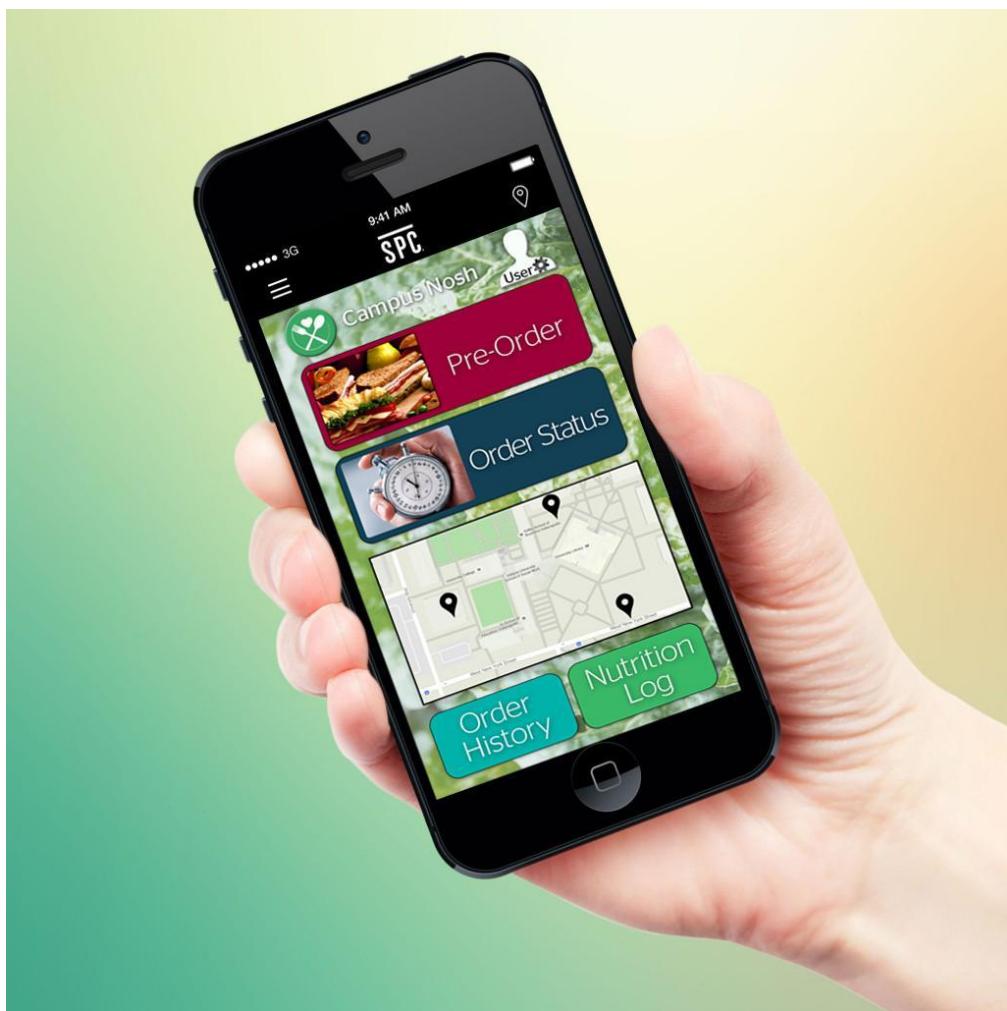


Figure 1: “Homepage” Mock-up

## 2. Prototyping



Campus Nosh

## 2.1. Prototyping Executive Summary

Using Paper Prototyping method for low fidelity prototyping was our choice for our design as it allowed us to rapidly prototype, make changes easily, and work collaboratively. It allowed us to get a good idea about the solidness of our design before we got into the high fidelity phase.

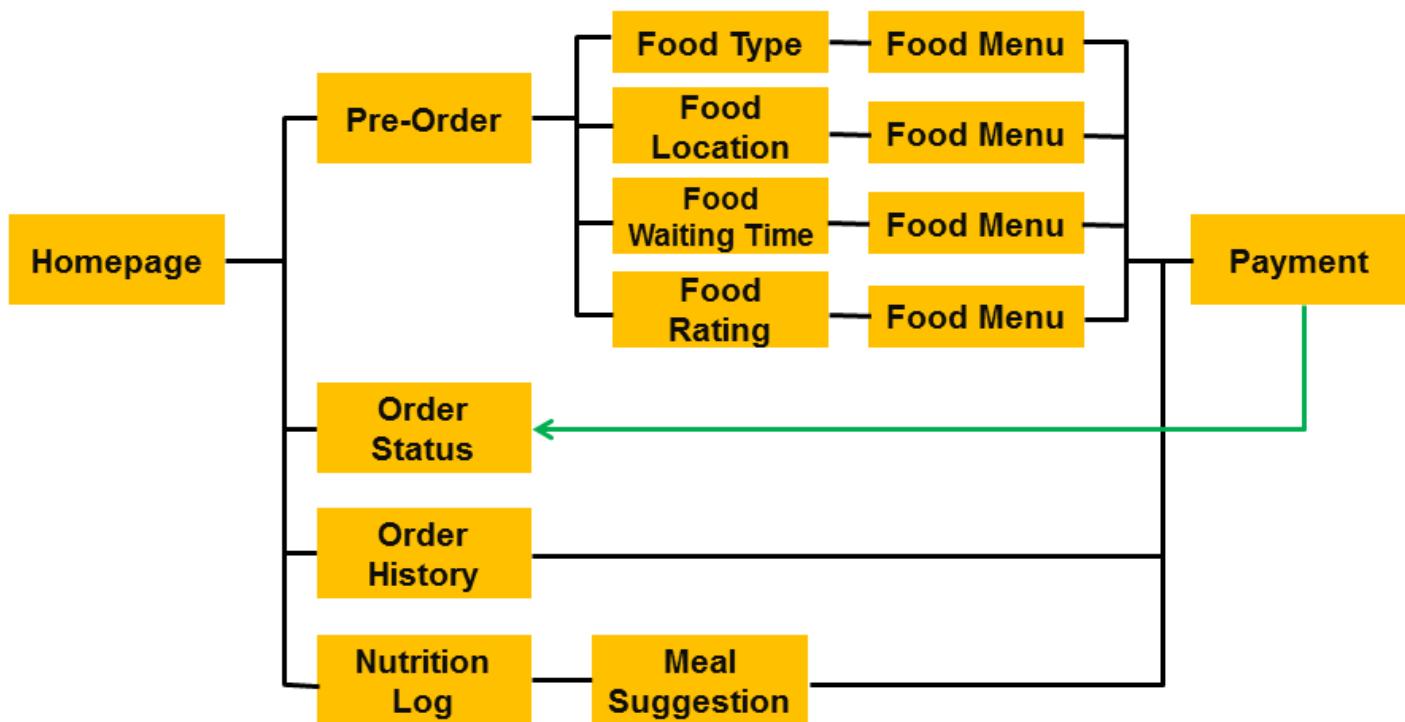


Figure 2: Site Map of “Campus Nosh” App

## 2.2. Process of Prototyping

- Step 1: Brainstormed, did mind-map diagram, and flow diagram;
- Step 2: Used Google Docs to create a rough wireframe;
- Step 3: Created the final wireframe in "Balsalmiq" application;
- Step 4: Print-outs were made on paper for a walk-through.

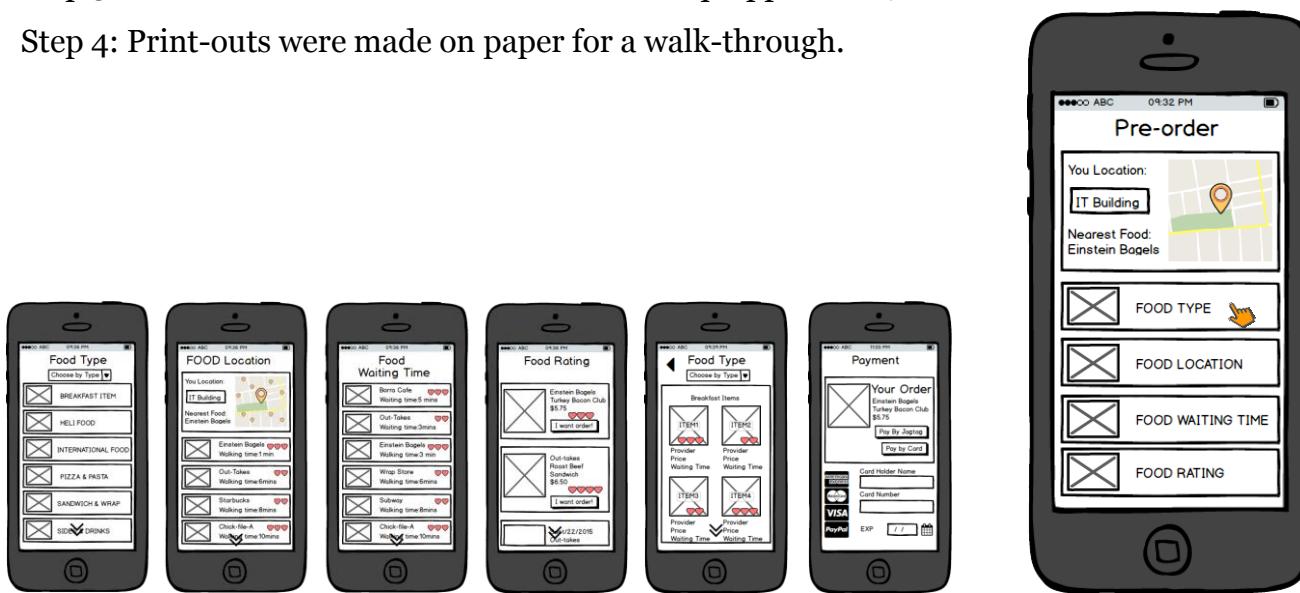


Figure 2: Wireframe created by "Balsalmiq" app



Figure 3: Photos of Paper Prototyping Testing

## 2.3. Mock-Ups

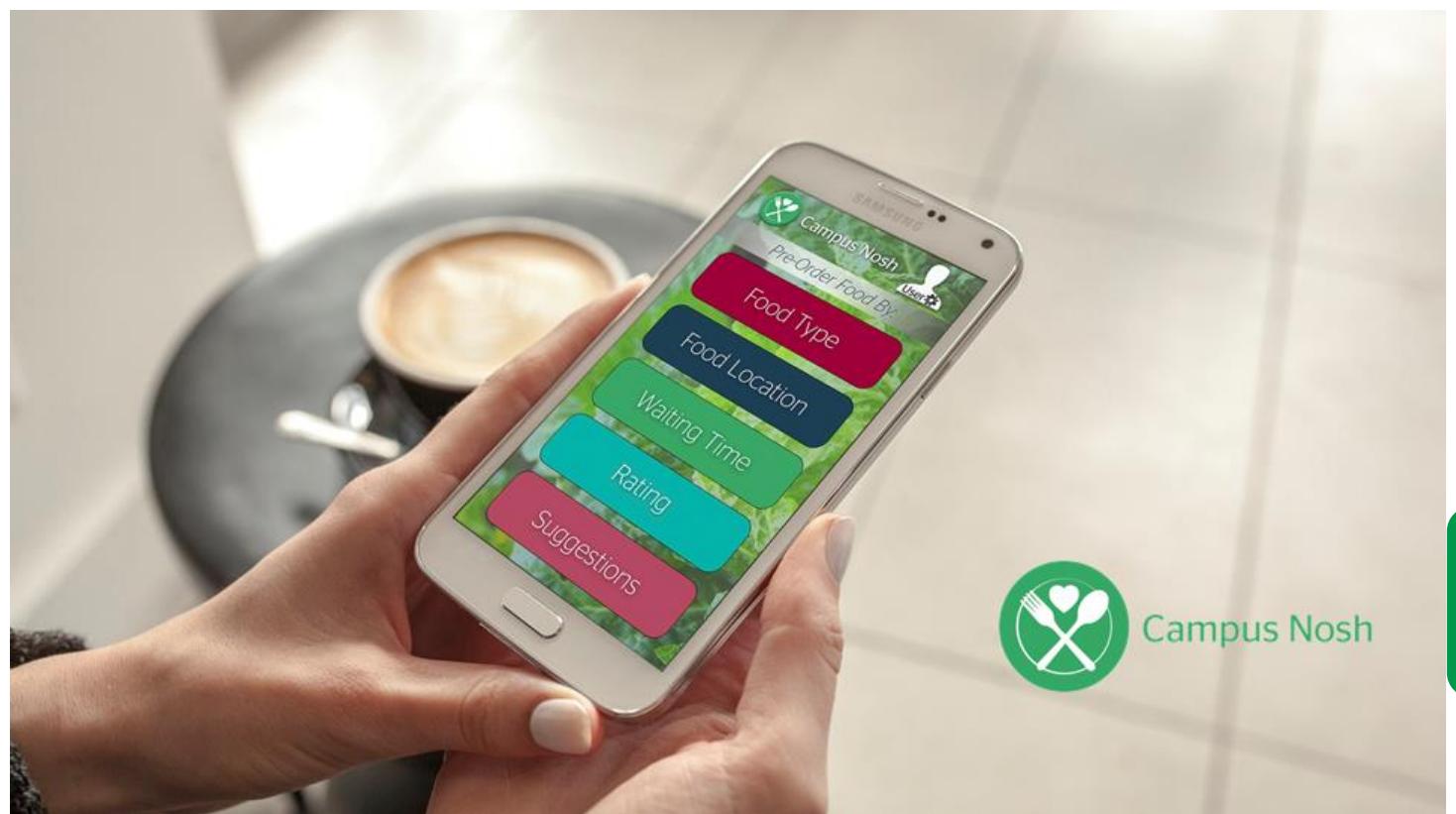


Figure 4: High fidelity mockup made in Photoshop

## 2.4. Reflection on the experience of prototyping

We met as a group and rapidly brainstormed everything that should go into the app. Some of our best ideas came after the brainstorming exercises – each of us would get an “aha” moment at later times. Using a mind-mapping diagram to organize our thoughts helped us organize everything that we had brainstormed and bring order from chaos.

After brainstorming we communicated via SMS (Whatsapp) to refine our ideas. We did a rough wireframe using Google Docs because multiple team members could access and modify the document. The final wireframe that we used for usability testing was refined and created in the Balsamiq app. Print-outs were made on paper for a walk-through.

We felt this form of prototyping worked well because we could develop the prototype rapidly and collaboratively, even across distances. It was easy to make changes if needed. There were some limitations, as this type of prototyping is not highly interactive, but we would definitely use this type of prototype as part of our process again.

# 3. Evaluations



Campus Nosh

### 3.1. Usability Aspect Report ----Think Aloud Session

<b>UAR Number: 001</b>
"Campus Nosh" Group F – Usability Aspect Report
<b>Product Name:</b>
Campus Nosh Mobile App
<b>Date and Time of Study:</b>
Oct. 15, 2015
<b>Experimenters' Names:</b>
Michele Walker
<b>Subject ID:</b>
Students C, N, & B
<b>Subject Details:</b>
All three test subjects were students who used food services on campus. Age range was 18-22.

No. 001 User Evaluation	Good aspect
<b>Food Habits Group F</b>	
<b>Name: Ratings</b>	
<b>Evidence:</b> Two testers said they liked the idea of having a ratings system.	
<b>Explanation:</b> Having a ratings system next to food orders allows users to rate the foods and give feedback to others who use the system and ultimately the providers of the foods.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 4 Benefit	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>	
A must-have feature	
<b>Possible solution and/or Trade-offs:</b>	
Put rating system on pre-order screen and order history. Suggestion to change heart symbol to something else, like stars.	
<b>Relationships:</b> N/A	
No. 002 User Evaluation	Good aspect
<b>Food Habits Group F</b>	
<b>Name: Easy to understand</b>	
<b>Evidence:</b> Two testers said they liked the interface because it was simple and easy to understand.	
<b>Explanation:</b> Keeping the buttons/UI simple and self-explanatory makes it easier and more enjoyable for the user.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 4 Benefit	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>	
Ease of use is crucial to user satisfaction.	
<b>Possible solution and/or Trade-offs:</b>	
We should always keep ease of use in mind.	
<b>Relationships:</b> N/A	

No. 003 User Evaluation	Problem
<b>Food Habits Group F</b>	
<b>Name:</b> Suggestions button on nutrition log	
<b>Evidence:</b> One tester said they didn't understand what the Suggestion button was for.	
<b>Explanation:</b> We included a suggestion button to guide people to choose healthier options, but that wasn't apparent to the tester.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 2 Severity	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>	
Once someone presses the button to go to the Suggestions screen, it becomes more self-apparent with use.	
<b>Possible solution and/or Trade-offs:</b>	
Add the word "healthy" to the suggestions button	
<b>Relationships:</b> N/A	

No. 004 User Evaluation	Problem
<b>Food Habits Group F</b>	
<b>Name:</b> Need for food suggestions on pre-order menu	
<b>Evidence:</b> One tester said they would like to see the Food Suggestions at the time he places his order.	
<b>Explanation:</b> The user felt that having the Food Suggestions button on the Nutrition Log wasn't helpful enough – they wanted Suggestions closer to the act of ordering.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 3 Severity	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>	
Not having the Food Suggestions button closer to the act of Pre-Ordering would make the whole point of having suggestions seem less useful.	
<b>Possible solution and/or Trade-offs:</b>	
Add a Suggestions button to the Pre-Order screen.	
<b>Relationships:</b> N/A	

### **3.1.1. Summary of think-aloud exercise:**

We used Think Aloud Protocol for usability testing with a paper prototype. We explained the process to the test users and asked users to think aloud as they walked through the choices in the prototype app menu. We video recorded each session so we could take notes later. The users we chose fit our demographic of typical college students. The exercise allowed us to note things that may have been confusing or could be improved. One benefit of this testing was we refined our choice of home screen from three down to one choice by asking users their preference.

### **3.1.2. Other notes:**

1. We didn't have screens for every choice - prototype was not fully complete
2. Users unsure about ratings heart symbol - possibly replace with different symbol
3. Users unsure about understanding suggestions on nutrition log
4. Users asked, “If you place an order, does it automatically show you nutrition log?”

### **3.1.3. People liked:**

1. Ratings
2. Easy to understand, user friendly & self-explanatory
3. Estimated available time order is ready
4. Map on home screen & tracking
5. Nutrition log- calories

### **3.1.4. Suggestions:**

1. For track order, show a meter like a dial or bar that filled up
2. Place button for food suggestion on pre-order menu

### 3.2. Cognitive Walkthrough

<b>CWR Number 001:</b>
“Campus Nosh” Group F – Cognitive Walkthrough
<b>Product Name:</b>
Campus Nosh Mobile App
<b>Task Name: Aanvi’s First Pre-Order</b>
To test the general process to pre-order food on campus through “Campus Nosh Mobile App”.
<b>Date and Time of Study:</b>
Oct, 18 <sup>th</sup> , 2015
<b>Experimenters’ Names:</b>
Shanglei Zhang

### **3.2.1. Strategy of Cognitive Walkthrough:**

A cognitive walkthrough is a usability inspection method with an emphasis on analyzing how a user would go about completing common tasks. The idea is to identify users' goals, how they attempt them in the interface, and then meticulously identify problems users would have as they learn to use an interface. (Jeff Sauro) Here is a general outline for conducting a Cognitive Walkthrough:

1. Define the users and their goals;
2. Define the tasks they would attempt;
3. Walk-through the tasks step-by-step through the lens of the user;
4. Look for and identify problems based on a set of Heuristics;
5. Specify where in the interface the problem is, how severe it is and possible design fixes.

Once the goals and list of actions are defined the reviewers work together to talk through the story constantly asking four basic questions (Wharton et al, 1994):

- (1) Will the user be trying to achieve the right effect?
- (2) Will the user know that the correct action is available?
- (3) Will the user know that the correct action will achieve the desired effect?
- (4) If the correct action is taken, will the user see that things are going ok?

### **3.2.2. Scenario:**

Aanvi is a 2nd Year Graduate Student, 23 years old. She usually has her lunch on campus because she doesn't have time to go home to eat. She likes to eat healthy food, but there aren't a lot of healthy options. She wants to use “Campus Nosh App” to order Caesar Salad, and get food in 15 mins after she places the order.

### 3.2.3. Task Action Sequence:

<b>STEP</b> <b>1</b>	User	Open the “Campus Nosh App” on smartphone
	App	Show the “homepage”

<b>CW Question (Step 1)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	No issue	
Will the user know that the correct action is available?	No issue	
Will the user know that the correct action will achieve the desired effect?	No issue	
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	No problem in step 1. The user will see the “homepage” directly after she opens the app in her phone. However, a proper “welcome” interface might be great idea to attract users.	

<b>STEP</b> <b>2</b>	User	Click “Pre-order” button
	App	Link to “Pre-order” page

<b>CW Question (Step2)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	No issue	
Will the user know that the correct action is available?	No issue	
Will the user know that the correct action will achieve the desired effect?	No issue	
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	No problem in step 2. “Pre-order” button is very obvious in “homepage”.	

<b>STEP</b> <b>3</b>	User	Click "Food Type"
	App	Link to "Food Type" page

<b>CW Question (Step3)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	No issue	
Will the user know that the correct action is available?	yes	The title of "Food Type" page is "Food Menu", which is not namely consistent.
Will the user know that the correct action will achieve the desired effect?	No issue	
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	The titles should keep consistency. Inconsistent names may cause confusion.	

<b>STEP</b> <b>4</b>	User	Pick "Healthy Food" in "Food Type" page
	App	Link to "Healthy Food" page

<b>CW Question (Step4)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	No issue	
Will the user know that the correct action is available?	No issue	
Will the user know that the correct action will achieve the desired effect?	No issue	
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	No problem in step 4.	

<b>STEP 5</b>	User	Choose Caesar Salad and food provider in "Healthy Food" Page and make payment.
	App	Record user's order and send confirmation to both user and food provider.

<b>CW Question (Step5)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	No issue	
Will the user know that the correct action is available?	No issue	
Will the user know that the correct action will achieve the desired effect?	No issue	
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	No problem with food selection process and payment. However, proper "back" button should be provided.	

<b>STEP 6</b>	User	Get message to map attached, showing the food is available to pick-up
	App	Send message to user when food is ready

<b>CW Question (Step6)</b>	<b>Issue?</b>	<b>Notes</b>
Will the user be trying to achieve the right effect?	yes	
Will the user know that the correct action is available?	No issue	
Will the user know that the correct action will achieve the desired effect?	yes	User may be confused how to track her order, since there is no direct link to "Order Status".
If the correct action is taken, will the user see that things are going ok?	No issue	
General Notes:	There is direct link for users to track their order, and bottom tabs should be provided to return to homepage and link to user account.	

### 3.2.4. Problem descriptions & recommendations:

<b>Problem description 1</b>	When users open “Campus Nosh” app, they have no option to create account or sign-in.
<b>Severity</b>	<b>Critical</b>
<b>Recommendation</b>	Should provide direct access at the homepage to create user’s account.
<b>Problem description 2</b>	What does “Order Status” page look like? And how does it work?
<b>Severity</b>	<b>Average</b>
<b>Recommendation</b>	Further development and design required for “Order Status”. The current design is yet to be completed.
<b>Problem description 3</b>	After clicking “Food Type,” the app links to the page of “Food Menu” which is not namely consistent.
<b>Severity</b>	<b>Low</b>
<b>Recommendation</b>	Change the page title “Food Menu” to “Food Type”. The page title should be consistent to avoid confusion.
<b>Problem description 4</b>	It’s hard for user to return main menu or change selection.
<b>Severity</b>	<b>Critical</b>
<b>Recommendation</b>	Should provide “back” button in every page, offering the chances for user to change their mind during ordering.
<b>Problem description 5</b>	Have no access to create and manage the user account.
<b>Severity</b>	<b>Average</b>
<b>Recommendation</b>	Add side tabs or bottom tabs in the interfaces of every page, proving shortcut to track order status, order history, go back to homepage, etc.

### 3.2.5. Summary of Cognitive Walkthrough

It's hard for designers to figure out the issues of a design product while they are developing it. It's much easier to identify the problems users have as they learn to use the interfaces and complete the tasks step by step. This is the main reason why a cognitive walkthrough is a necessary part of the whole process of an app design.

There are two phases of the cognitive walkthrough we conducted for “Campus Nosh” app. The first phase involved the identification of the input conditions, including a series of sequence actions for a task and the description of the app's responses for every single action. In the second phase, based on the records of the first phase, we analyzed the user's actions and the obstructions and confusions user had during the walkthrough. The severity of problems and the suggestions of design revision are also provided in the second phase.

Cognitive Walkthrough is a useful usability testing method, and easy to be conducted. If we have a chance to develop the “Campus Nosh” app further, we will use Cognitive Walkthrough more times to help us figure out the design issues and find the solutions.

### 3.3. Heuristic Evaluation

<b>HE Number 001:</b>
“Campus Nosh” Group F – Heuristic Evaluation
<b>Product Name:</b>
Campus Nosh Mobile App
<b>Date and Time of Study:</b>
20/10/2015 12:30 AM
<b>Experimenters’ Names:</b>
Onkar Borgaonkar
<b>Heuristic List:</b>
Jakob Nielsen 10 Usability Heuristics for User Interface Design

No. 1	Problem
<b>Name:</b> No indication of progress	
<b>Evidence:</b> Visibility of system status	
<b>Explanation:</b>  There's no indication of how many steps more or at what step is the user from placing an order.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 4	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  The User needs to have a clear idea of how many more steps are needed to successfully place an order. This avoids confusion and false positives.	
<b>Possible solution and/or Trade-offs:</b>  A very simple addition of indicators such as 'Step # of #' to the pages will give the user a clear directive.	
<b>Relationships:</b>	

No. 2	Problem
<b>Name:</b> No navigation buttons	
<b>Evidence:</b> Flexibility and efficiency of use  Help users recognize, diagnose, and recover from errors	
<b>Explanation:</b>  There's no back button of any kind to help the user undo a selection or go back to previous selection screen.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 4	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  If the user chooses to proceed with a selection but later decides to switch to another line of selections, the user needs to be provided with means to undo all current selections and head to the choice menu. Using the mobile hard button to go back is not advisable.	
<b>Possible solution and/or Trade-offs:</b>  Provide a BACK button or a HOME button on every screen.	
<b>Relationships:</b>	

No. 3	Problem
<b>Name:</b> Track your food Title	
<b>Evidence:</b> Match between system and the real world	
<b>Explanation:</b>  The title suggests the user can track the location of the order. The map also suggests relative location.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 3	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  The title and the map might confuse the user into thinking the food item might be delivered to them, and the interface is offering them relative location.	
<b>Possible solution and/or Trade-offs:</b>  Changing the Title to something related to preparation status might make it clear for the user.	
<b>Relationships:</b> N/A	

No. 4	Problem
<b>Name:</b> Using Hearts for food rating	
<b>Evidence:</b> Match between system and the real world	
<b>Explanation:</b>  Hearts mainly symbolize love. Using hearts to rate food might not be appropriate.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 3	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  Users might find it confusing to rate food items by hearts. The traditional method is to use Stars and is just as effective and more relatable.	
<b>Possible solution and/or Trade-offs:</b>  Use Stars instead of Hearts.	
<b>Relationships:</b> N/A	

No. 5	Problem
<b>Name:</b> Absence of sorting	
<b>Evidence:</b> User control and freedom	
<b>Explanation:</b>  There seems to be no order in which a certain list is displayed in any specific selection. E.g. Order by Food Rating has no order if the top 5 elements in the list have same ratings.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 3	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  The user might have to still search for nearest location even after selecting Food by Rating. Or selecting food items based on Waiting Time doesn't help user select the most Rated location if the wait times are within the same range.	
<b>Possible solution and/or Trade-offs:</b>  Allowing user to sort the list using a secondary preference might help speed up the process of finding a specific item.	
<b>Relationships:</b> N/A	

No. 6	Problem
<b>Name:</b> No provision for stack or cart.	
<b>Evidence:</b> Match between system and the real world	
<b>Explanation:</b>  The user might order more than one food item.	
<b>Severity or Benefit:</b>	
<b>Rating:</b> 4	
<b>Justification (Frequency, Impact, Persistence, Weights):</b>  The user might order more than one food item and repeating the whole process multiple times seems redundant and time inefficient.	
<b>Possible solution and/or Trade-offs:</b>  The interface could allow users to seamlessly order and pay for multiple food items, or at least allow to user to tack the orders in a cart.	
<b>Relationships:</b>	

### 3.3.1. Summary of Heuristic Evaluation

Performing Heuristic Evaluation on a prototype was bound to produce a few major flaws in the design. This Evaluation revealed a few features our design lacked which will make the user experience much better. Ranging from navigation to features such as a cart, some of the features are easy to apply and will make the user experience much better.

### 3.4. Report for Evaluation

We conducted two Think-aloud sessions and two Reflective Evaluations, a Cognitive Walkthrough and a Heuristic Evaluation.

We received a lot of good insights into our design. All the evaluations gave us multiple points consider. Think-Aloud sessions gave us indicators to what the users liked about our design overall, which features they liked and which features caused confusion. Although the Think-Aloud sessions did not identify the Navigation problems, both Cognitive Walkthrough and Heuristic Evaluation did. The Think-Aloud sessions revealed that our prototype was incomplete and not every choice made by the user had a screen.

The Cognitive Walkthrough revealed that the users expected completely different things while clicking on a few buttons. Noticing their errors, the users would find it hard to navigate back to the previous page due to the absence of navigations buttons.

The Heuristic Evaluation also revealed we needed to add Navigation Buttons. It also showed that we needed to add the feature to order multiple items using a cart. Also, we needed to improve the payment procedure to handle payments for multiple orders which might become a complex process.

### 3.4.1. What were the key problems that you identified?

1. **Lack of Navigation Buttons:** We noticed we were missing the Navigation Buttons to help user return to the previous page or to jump to the Home Page easily. The user would have had to depend on the Mobile devices Back Button to perform this task and would have violated a number of Heuristics in the process.
2. **Consistency of Button Text names and pages:** We noticed we needed to be consistent with the text we used on a Button and what page it linked to. Users would get a wrong idea of what a button would do. Their confusion is apparent after the new page title indicates a different functionality than what they had expected.
3. **Absence of User Profile settings and Payment Options:** We noticed we needed to add more thought into creating a User Profile. Also, we saw a need to design a secure and safe payment option for the user. The proper association of user details and the payment process was critical for maintaining security and consistency.
4. **Absence of a Cart for multiple items order:** A key feature we missed was a cart or a stack that will enable the user to order multiple items. This had to be done in a cautious manner as multiple order from different locations would have risen sever complications during the payment process.
5. **The Food Providers Interface:** In the future we need to work on a phase two of design to develop an interface for the food providers to receive orders, track order status and keep the menus updated. This would help us make a fast and reliable system which is necessary as the target audience, the students, is very large.

### 3.4.2.

#### **What would you change in response to feedback?**

The first change we would implement would be making the button texts consistent with the page titles they lead to. The main and more severe changes would include adding user login screen, navigation buttons and payment options. These changes would make a significant change in the user’s experience. Along with addition of a cart and an interface for the food providers can be implemented with careful planning.

#### **What would you not change?**

We designed multiple versions of the Home Screen, and asked the users which they found to be most appealing. We received a variety of responses, and we will stick to the one that was selected by number of users preference. The Home Page creates a first impression of the application and changing the Home Page would require to change the look of the rest of the application to maintain consistency.

#### **Would you want to conduct more evaluations before iterating the design or are you ready to change things now?**

We are ready to implement the changes in our design now. We conducted a number of evaluations and think-aloud sessions which gave us a good idea of how we should proceed with the design. We would plan to move forward with development and design changes and additions to the app, then go through another iteration of evaluations.

### 3.4.3 Reflection on Evaluation

The Evaluation process was really enlightening and gave us good feedback on our design. Being simple and iterative, it was a dependable and a quick procedure to detect and fix flaws in our design without having to invest time in implementing and modifying the design.

The User Evaluation helped us reveal a lot of flaws in our design that we had not considered initially. It was interesting to watch the users explore the design and follow the same thinking we expected them to follow. What was more interesting was when they took a detour from the path we laid in front of them but it made just as much sense to take the detour. We decided to make our design more robust and clear to understand based on these observations.

We came to many more observations while we conducted the Cognitive Walkthrough and Heuristic Evaluation. We used the personas we developed during storyboarding and conducted the cognitive walkthrough for our design. We could observe for ourselves the confusions faced by the users and how we could make it simpler for the user.

The Heuristic Evaluation helped us evaluate our interfaces, and test if they comply with the user's expectation.

# 4. Appendix



Campus Nosh

# A1 Interviews and Observation Report

**FOOD HABITS OF COLLEGE STUDENTS**

## Food Habits

### H541-INTERACTION DESIGN PRACTICE

## Executive Summary

We selected the topic "**Food Habits**", and chose to study a small, but more accessible population of **college students**. We wanted to study the level of satisfaction students have with the food services provided on campus. Whether students bring food from home, and if so, why? We wanted to get an idea of the general opinion of students regarding the campus food and its variety and options.

We conducted Observations in a few places most common to students for during lunch hours. We also wanted to take into account a few food provisions not used by the students and the reasons behind that.

"**The Den**" **café** on IU East campus (Richmond, IN) , The Einstein Bros Bagel, the corridor with a vending machine & "**Brewfus**" **coffee bar** on IU East campus (Richmond, IN)

We spent considerable amount of time observing people and their behavior, their food choices and their timings.

Like, even on a bright calm day, students did not prefer sitting outside on the tables.

As most students were in a hurry, no one liked the idea of limited option and a queue to stand in for 20 mins. Neha said: "**I prefer going home for lunch and returning back. It takes me almost the same time as standing in this queue**" Due to these restriction, some students started preferring alternatives to having lunch in the cafeteria,

Alita said:"**If I bring my own food, I just like to have my food at my desk (Grad Studio@IT). Because it helps me reduce time, I can work while eat.**"

On asking about additional facilities, students gave a positive feedback for introducing storage facilities, but a mixed feedback was gathered about food delivery systems.

Neha said:"**I would like to use that facility in case I have to stay back in my department for long hours.**".

We also noticed some students prefered certain spots for reasons other than crowd , food services and food quality.

Jason said, "**The coffee shop is more convenient and quick, and I like the atmosphere.**"

Cole said he likes the coffee shop also. "**It's nice here. I just wish they served cheeseburgers.**"

Most students said they were satisfied with the quality of food, although they expected more options and more variety. Most students said their special diets were take care of and they did not expect any increased facilities in or around the campus for their diets.

Some of the directions we came up with for exploration were:

- Food Delivery systems: Many International students, who aren't acquainted with the local food, or comfortable with the local staple food, can order their choice of food. It will be delivered to them at their selected time and place. This ensures the student enjoying fresh food and get to choose when to receive it.

This idea met with a mixed feedback, as many graduate level students were far more comfortable cooking their food at home, rather than ordering food. Many students also liked the idea, and mentioned they'll go for such an option once in awhile.

- Increment in options: Most students who have lunch on campus, gather at the nearest cafeteria. And although there are many vending machines present in many areas of the buildings, Most students don't go for vending machines.

## Food Habits

### H541-INTERACTION DESIGN PRACTICE

What we observed led us to believe, that during peak hours, the singular cafeteria staff were not sufficiently quick to serve all students on time. And though students forming a queue is expected, the length of the queue does not decrease fast enough. We believe, this is a bottleneck. This leads to frustration and dissatisfaction among most students. The quality of food is satisfactory for most students, the wait period is not.

We believe, Increasing the number of options will help a lot of students to get on their way faster and with less hassle.

- More relaxed environment: Many students reported they preferred a laid back and relaxed environments for lunch breaks. The term is 'Lunch Break' and having a hurried lunch does not serve the purpose. The students were specific that the services need to be quick, but the environment should be laid back.

This will help them relax between classes and still have their lunch.

- Pre-booking of tables: Some students felt the cafeterias were too crowded and the tables always occupied, sometimes even by students working on laptops, not having lunch.

A mobile app to book tables would be very helpful for students wanting to have their lunch at the cafeteria tables, but drop the idea as there are no free tables, and just hurry on for their next class.

Another help provided by the mobile app could be of pre-ordering food items, to reduce wait times even further.

**Food Habits****H541-INTERACTION DESIGN PRACTICE****Interview Information****INTERVIEW #1**

Hanan (second year graduate) 15 mins

We interviewed Hanan on Sept, 14<sup>th</sup>, 2015, 6PM, outside the main entrance of SOIC building. She often has lunch on campus.

Sr no.	Questions	Answers
1	<b>Do you often eat on campus?</b> (Including you purchase food on campus or bring your own food eating on campus)	Either eat on campus or go back home and cook. (It doesn't matter you purchase food on campus or bring food to campus...totally, how many times you eat on campus per week?) It will be.....two or three times.
2	<b>Which place on campus is your favorite place to eat?</b> (Might be a catering service spot or not)	Campus Center. Because I working in Campus Hall. So it's the nearest building for me.
3	<b>What type of food would you like?</b>	Spicy chicken-file-A burger.
4	<b>How much of your monthly budget do you spend on eating on campus?</b> (Based on 20 meals per month purchased on campus)	I don't have budget....the burger is 3 or 4 dollars only. (Can I say less than 100 dollars per month, or 100 to 200 dollars?) Less than 100 dollars.
5	<b>Do you want Special diet on campus?</b> (If the answer is yes, please answer the next question)	I don't drink alcohol, and I don't eat park, that's it.
6	<b>Are you satisfied with the service of special diet on campus?</b>	Yes.
7	<b>How often do you bring your own food to campus?</b>	None.
8	<b>Are you satisfied with the kitchen equipment (microwave, fridge, etc) &amp; eating environment (student lounge, food court, outdoor, etc) provided on campus?</b>	yes..... but sometimes like...., all the tables are crowded, and no space for me to sit....Yes, satisfied, somewhat.

*Food Habits**H541-INTERACTION DESIGN PRACTICE*

9	<b>If the price is reasonable, how likely is it that you would choose food delivery service?</b>	Ya, I would like that...Very likely!
10	<b>How would you rate your overall satisfaction with catering service on campus?</b>	En, good, somewhat satisfied. (Not very satisfied?) No, not very.
11	<b>Do you have any suggestions about for improving the catering service on campus?</b>	1. Cook more food. Because people are standing lines there, especially the graduates have less time between classes to eat lunch. The eat places are always very crowded from noon to 2pm, and you'll see the lines are very very long. They are just waiting and these lines are not moving, because there are not enough burgers or fries to display. So if they cook more and faster, during the rush hours, the lines go faster, so we don't have to wait.2. If I can reserve my own table before I come to the campus, like online reservation system. I can see...no one sit there...or no one eat here....That's good!

**INTERVIEW #2**

Alita (First year graduate) 15 mins

We interviewed Alita on Sept, 15<sup>th</sup>, 2015, 2PM, in the graduate Studio (IT460) of SOIC building. She has lunch on campus.

No.	Question	Answer
1	<b>Do you often eat on campus?</b> (Including you purchase food on campus or bring your own food eating on campus)	Well, I don't often eat on campus, I usually get my lunch box. but when I come to do that, yes, I do come to campus to eat food. (Do you bring your own food but physically eat on campus?) Yes, I get my own food, but I bring it and eat on campus. I could say 2~3 times a week.

## Food Habits

## H541-INTERACTION DESIGN PRACTICE

2	<b>Which place on campus is your favorite place to eat?</b> (Might be a catering service spot or not)	For food stalls, I really like the Vietnamese food in Campus Center. (If you bring your own food, which place is your favorite?) If I bring my own food, I just like to have my food at my desk (Grad Studio@IT). Because it helps me reduce time, I can work while eat.
3	<b>What type of food would you like?</b>	I like heli food. I always go for salad, and ya, I go for salad mainly, and if it's possible, I probably cooperate salad with sandwich, because it's convenient.
4	<b>How much of your monthly budget do you spend on eating on campus?</b> (Based on 20 meals per month purchased on campus)	First, I wouldn't want spend more than 7 dollars per meal, so let's say 3 times per week, it will be 21. So per month, it will be less than 100.
5	<b>Do you want Special diet on campus?</b> (If the answer is yes, please answer the next question)	I won't say it's special, it's need to be heli. I won't have something....it has cheese in it, or has a lot of oil.
6	<b>Are you satisfied with the service of special diet on campus?</b>	Er, not too many, there's a lot of them do have a lot un-heli food. As I said, the Vietnamese food is very good, there is a lot vegetables. It's good!(Can I say you can find some places, but not many choices?) Yes, not many, that's right.
7	<b>How often do you bring your own food to campus?</b>	I'll say 2~3 times a week. (can I say almost all the times you bring you own food?) Yes, unless I cannot make my own food, I have to eat(purchase food) on campus.
8	<b>Are you satisfied with the kitchen equipment (microwave, fridge, etc) &amp; eating environment (student lounge, food court, outdoor, etc) provided on campus?</b>	yes, I am quite satisfied. Basically, the cafeteria or careen shuts down at 5pm, I think. I will definitely wish it open longer.

*Food Habits**H541-INTERACTION DESIGN PRACTICE*

9	<b>If the price is reasonable, how likely is it that you would choose food delivery service?</b>	Ya, why not. I think it's quite convenient. (Did you try delivery service before?) Ya, I did. (Could you describe the experience you used the service?) Yes, the service is an online application, basically, allow people and the chef enter the food or drink online. If.... suppose you want to make your own food, you can make your food and display online, and people who interest that food on that day, they can order the food.
10	<b>How would you rate your overall satisfaction with catering service on campus?</b>	Out of 10, I will say 5. Only because I don't use it very often, this is the only reason. (If you bring your own food, how would you rate the kitchen equipment & eating environment?) I will say 7 of 10, quite satisfied.
11	<b>Do you have any suggestions about for improving the catering service on campus?</b>	Nothing else, I think your questions covered almost all.

**INTERVIEW #3****Erika** (Senior) 15 mins

Eats at café fairly often – 4 days a week, usually twice a day because she has long hours. Her favorite place is the Den café, because it is the only place that serves cooked food. She would prefer to bring her own lunch more often because she would save money and make better food choices. She does bring her own food for snacks almost every day, but because there are no convenient facilities to store or cook food, her choices are limited. She would prefer to stick to a special diet for health reasons – she and her boyfriend are very into competitive fitness events and eating healthy. She does not know of any microwave or kitchenette services available. She would not choose a food delivery service because she wouldn't spend the money on it and thinks it's easier to just grab a salad than to have to order and wait for something. She is somewhat but not entirely satisfied with the food choices on campus.

**INTERVIEW #4****Jason** (grad student) 20 mins

Eats at café or coffee bar once a day four days a week because it is more convenient than leaving campus to get food or bring food from home. This day he actually sat down to eat for 20 mins, but usually doesn't stay. He does have access to a kitchenette/lounge area, but doesn't like the hassle of bringing his own food – he doesn't want to have to plan ahead. He grabs food

**Food Habits****H541-INTERACTION DESIGN PRACTICE**

as an impulse in between classes whenever he has time. He is always in a hurry and usually gets food to go. He prefers the coffee bar just because it is closer to his office, but he also likes the atmosphere. He usually grabs a quick meal – usually a sandwich and soup. He is not interested in food delivery because he just wants to run and get food quickly and wouldn't want to plan ahead and wait for delivery. He wishes the hours were more convenient (open later).

**INTERVIEW #5**

**Lindsay** (sophomore) 10 mins

She was in coffee bar waiting for friends to work on a group project. While waiting she ordered a specialty coffee. She actually prefers the café to the coffee bar because it is less crowded but her friends wanted to meet at the coffee bar. The noise doesn't bother her but the crowded tables do. She eats twice a week in the café. She has never brought her own food. It is not something she thinks about. She is satisfied with the food choices available on campus. She likes to look for healthy food so often has salads and smoothies. She wishes the hours were more convenient – open later.

**INTERVIEW #6**

**Matt** (sophomore) 15 mins

He was in the coffee bar very briefly, about 10 mins. He prefers the more relaxed, laid back atmosphere of the coffee bar. He would like to see more variety of foods and thinks a pizza buffet would be awesome. He says a food delivery service does not make sense, because there is no address to deliver to – there are no dorms or apartments on campus. He lives five minutes from campus. He is satisfied with the food choices except that he'd like them to change it up more.

**INTERVIEW #7**

**Cole** (freshman) 10 mins

He lives about 10 minutes drive from campus and enjoys the atmosphere of the coffee bar. He rarely eats in the café and instead gets snacks to go. He said he would be more likely to eat meals there if they offered cheeseburgers. He would prefer more of a fast-food service on campus. He often grabs something from the fast food places when he leaves campus to go back home. He thinks the prices on campus seem reasonable.

Note: both Matt and Cole said if there was an app that showed all the food choices on campus on a map they would use it.

**INTERVIEW #8**

**Chequina** (Sophomore) 10 mins

Usually has Lunch at Campus Center. Today at Einstein's Bangles because had to hurry home. After classes, she has lunch on campus, because going home for lunch is too long a wait, and she gets hungry after classes. Usually has food on campus whenever she has classes. Almost never gets food from home. Spends less than \$100 on food per month. Has no special diet, no plans for a diet. Fairly satisfied with campus center services. Doesn't have any interest in delivery of food on campus, but likes the idea.

**Food Habits****H541-INTERACTION DESIGN PRACTICE****INTERVIEW #9****Neha (Graduate) 15 mins**

Prefers coffee shops, closer to work and home. Prefers healthy food. Does not find many healthy food items on campus. Rarely eats on campus. Spends less than \$100. Usually goes back home for lunch, does not get food to campus. Not aware of facilities on campus. Likes the idea of food storage facilities on campus, in case she has to work for long hours on campus. Food delivery service not preferred. Deficient trust on such services. Suggested that Einstein's Bagels is too small for the whole building. There should be more such services nearby. Doesn't mind joining friends for on campus lunch sometimes, but not on regular basis.

**Interview reflection:**

Respondents #1 & #2 rated "somewhat satisfied" with their overall satisfaction of the catering service on campus, which means there are some spaces to be improved.

Regarding the interview conversation recorded above, here are some key points raised by respondents, which include:

1. There are not many food choices. Like Respondent #2 said, she preferred heli food, however, she just found one Vietnamese food in Campus Center meeting her expectations. It might be more options for her (eg: Outtakes quick cuisine @ Library), however, she doesn't know.
2. Food supply cannot meet the demand in the peak times. Respondent #1 told us, she has to wait for the burger or fries ready, so the line became very long, especially in the lunch time (12~2pm).
3. It's not easy to get a table during peak times, if you want to eat in cafeteria or food court. Respondent #1 shared her idea of online table reservation system.
4. The food stalls is distributed unfair. Respondent #1 said she prefer eating @ campus center because it's near to her working place. However, in the opinion of Respondent #2, she doesn't want to walk long distance which is the reason she eats at her table in the studio lab.
5. The two Respondent #1 & #2 like food delivery service. It's probably a potential market.

By interviewing people to get their opinions and thoughts we were able to form a more objective picture of how students made choices regarding food on campus, and what systems were available to users to procure food. Most said they were somewhat satisfied with the choices available to them, but when asked if they would change anything, most of them had suggestions about increased options and more variety. Many felt that the fact that the campus is a small commuter campus limited food choices.

By interviewing people, we understood that most students who have food on campus are either in a hurry to leave for classes or too hungry to go home for lunch. Although they aren't looking for a big change, they need more options time to time. Though they aren't interested in delivery services.

*Food Habits*

*H541-INTERACTION DESIGN PRACTICE*

## Observation Information

The theme of our team is **Food Habits and behavior**, and our target population is **College Students**, mainly undergraduate students and graduates. We want know the student satisfaction with catering service on campus, their problems & concerns, and the aspects could be improved.

### Observation #1 (40 mins)

Observation Place: Einstein Bros Bagels @ IT Building First Floor

Date & Time: September 15, 2015, 1:30PM~2:10PM



## Food Habits

## H541-INTERACTION DESIGN PRACTICE

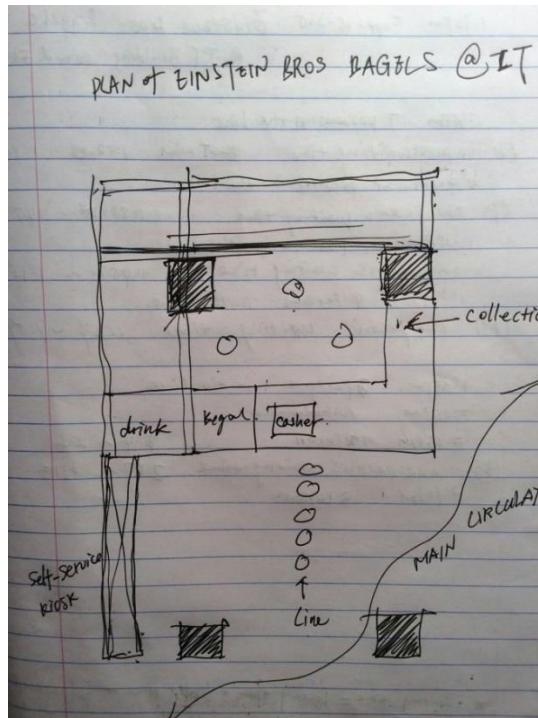


1:30PM. Sept-15-2015. Einstein Bros. Bagels  
@ IT Building Ground Fl.

1:40PM. 7 persons in the line.  
(B) one person's waiting time ~~wait~~ min. 1:30 ~ 1:40.  
1:40PM. 2 persons in the line  
(F) one person's waiting time. 1:38 ~ 1:47.  
1:45PM. 4 persons in the line  
one person's waiting time 1:48:00 ~ 1:45.  
1:50PM. 4 persons in the line.  
(M) one person's waiting time 1:54 ~ 1:59

1:55PM. 3 persons in the line  
2:00PM. nobody there  
2:05PM. 1 person. 204 ~ 206.  
(F) one person's waiting time 2:07 ~ 2:13  
2:10PM. 3 persons.

\* Waiting time = lining time + Order time + Preparation time  
+ self-collection Bar time, if applicable



Einstein Bros Bagels @ IT Building locates at first floor, near main entrance and corridor. It provides bagels, sandwiches, snacks, and beverages. There is a row of sofas and high tables

**Food Habits****H541-INTERACTION DESIGN PRACTICE**

near the stall, for people to use.

We counted the queuing people every 5 mins, and randomly picked one customer in line and recorded the time he/she spent @ Einstein Bros Bagels.

TIME	HOW MANY QUEUING PEOPLE	AVERAGE WAITING TIME*
1:35PM	7	11MINS
1:40PM	2	9MINS
1:45PM	4	10MINS
1:50PM	4	6MINS
1:55PM	3	5MINS
2:00PM	0	N.A.
2:05PM	1	3MINS
2:10PM	3	6MINS

\* **AVERAGE WAITING TIME:** We randomly picked one customer and recorded his/her waiting time\*.

\* Waiting time includes the customer queuing time, order time, food preparation time and collection time.

**Observation #2 (20 mins)**

Observation Place: Vending Machine near IT167 @ IT Building First Floor

Date & Time: September 15, 2015, 2:10PM~2:30PM



The vending machine offers only drinks. When we started the observation, the vending machine was half-empty. We recorded every 5 mins. However, during the 20 minutes, no one came to use the vending machine.

A total of 7 persons passed by the vending machine within the 20 minutes, and 3 of them stopped along the way at the machine and tried to find something they want. However, none of them purchased any drinks.

**Food Habits****H541-INTERACTION DESIGN PRACTICE****Observation #3**

Tues, Sept 15, 2015, 12 – 1 p.m.



Location: “**The Den**” café on IU East campus (Richmond, IN) This is a small satellite campus that houses IU East, Purdue Richmond and Ivy Tech. It is known as a “commuter campus.”

Patrons (users) seems to come in at peak rush times – up to 15 people at a time on the hour and half hour mark, then numbers would dwindle down to about 5 or so in between peak times. About half the people utilized the café features (grill, soup & salad bar) and half used the grab-n-go cooler for ready-made convenience food.

People who sat down to eat tended to stay for about 15-20 minutes at a time; very few stayed much longer than that. The number of people who sat alone was about equal to those who sat with a friend or two. (Very few people met in groups larger than three). All of those who sat alone were using their phone while they ate.

Items available in the café section included a Chicken Tandoori entrée (at the grill), a salad & protein bar (fruit, cold chicken breast meat, tuna salad, various salad greens, and pasta salad) and two kinds of soup. Items available in the “grab-n-go” cooler section included prepared sandwiches, salads and yogurt parfaits.

Customers have to pay with cash or their “Wolf Card” (an IU East debit card that you transfer money to.) IU East Den café and Brewfus coffee bar do not accept debit cards due to processing fees.

**Food Habits****H541-INTERACTION DESIGN PRACTICE****Observation #4**

Location: “Brewfus” coffee bar on IU East campus (Richmond, IN)



This is more like a student lounge with lots of seating configurations (tables and bar areas), plus a ping-pong table and computer stations. There is a grab-n-go cooler for pre-packaged sandwiches, salads and yogurt parfaits, a vending machine for drinks, and a full service coffee bar. The coffee bar also serves smoothies and quick microwave food like nachos.

The coffee bar is more social than the café. There is loud talking, games and music playing - lots of activity. People tended to use it as a meeting place rather than just to get food. Several of the people had their laptops out and seemed to be working or studying.

*Food Habits**H541-INTERACTION DESIGN PRACTICE*

Note: although it was a perfectly beautiful day, no one was sitting outside enjoying lunch. A ceramics student was using one of the tables to dry pots.

**Observation #5**

Observation Place: Einstein Bros Bagels @ IT Building First Floor

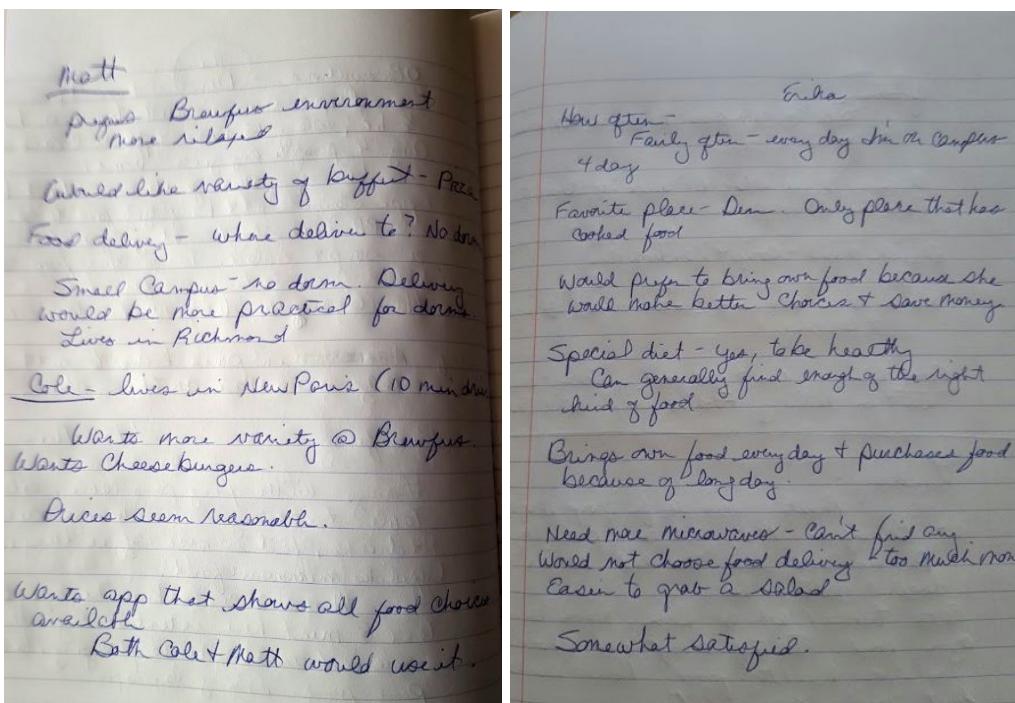
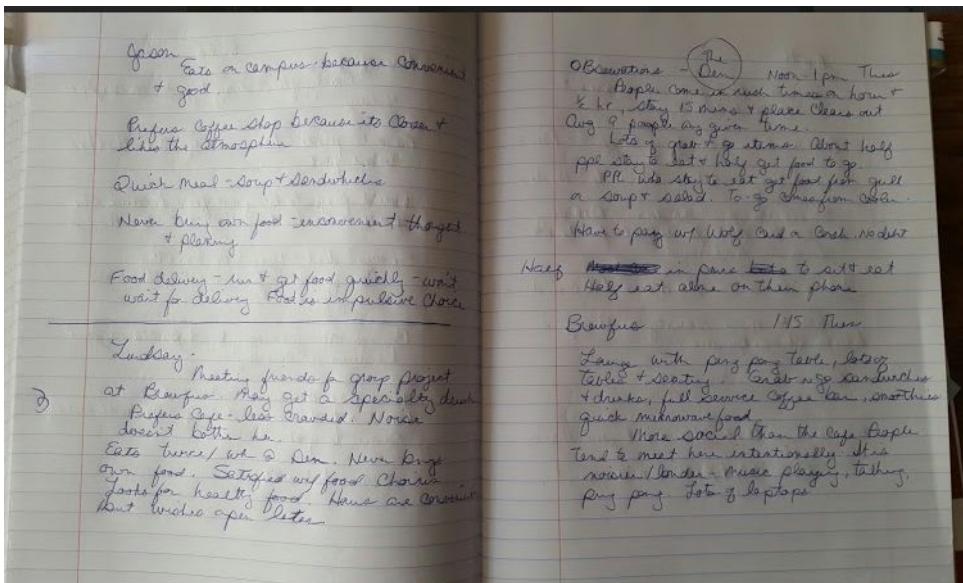
Date & Time: September 15, 2015, 2:30PM - 3:00PM

- Queue size has increased from an average of 8 to an average of 12
- Throughout the time, there was a queue. Sometimes the queue would contain more than 15 people,
- People usually looked like they were in a hurry
- They would immediately leave after picking their order
- Only 1 in 5 stayed back to have lunch at the tables
- The queue consisted of people ordering alone, group orders were rare.
- People would order as soon as they reached the front of the line, seemed to be regular customers
- The tables near the area were nearly empty , people would mostly work on laptops. Not used for having lunch.
- Average wait time ~ 10 mins

## Food Habits

## H541-INTERACTION DESIGN PRACTICE

## Observation Reflection



At first we were uncomfortable with the process. A couple of people saw me snapping photos and frowned. Once we began to ask random people for interviews it became easier than we thought it would be, because everyone was nice and willing to give a few minutes of their time to talk. We explained briefly my project and asked if they would answer a few brief questions and they all said yes.

*Food Habits**H541-INTERACTION DESIGN PRACTICE*

we felt that we were able to step back and objectively view things in terms of systems, rather than subjectively just getting food for myself. We realized that many of the respondent's answers were very different from what mine would be. "You are not the user – the user is not like you." We wasn't surprised that many of the respondents said they wanted more variety of food available, but we were surprised that not one single person thought food delivery service was a good idea. This proves that just because one or two people have what they think is a good idea, it might not be successful if you haven't done your research.

we are trying to understand where and how students purchase food in their own department.

Here are some key points we got from the 1 hour, 2sites observation.

1. Before the peak time, there are 7~10 customers waiting in the Einstein Bros Bagels queuing area, and the approximate waiting time is around 10 minutes or more, on average.
2. If the customer ordered handcraft coffee, he/she might wait longer time.
3. Some customers would like to stop along the self-service kiosk more than 3 mins.
4. After lunch peak time, the vending machine was half-empty. Need to be restocked more frequently.
5. Vending machine only provides Coca Cola and purified water, should provide more options.
6. During peak time, the queue size would increase to more than twice in size
7. Although most customers would prefer to leave immediately rather than sit and have lunch there itself.
8. Most people seemed to be in a hurry to leave and wouldn't linger around.

# A2 PROBLEM STATEMENT & PERSONAS

## FOOD HABITS OF COLLEGE STUDENTS

**TEAM F:**

Onkar Borgaonkar  
Shanglei Zhang  
Michele Walker

# CONTENTS

Affinity Diagram & Cognitive Mapping

Problem Statement

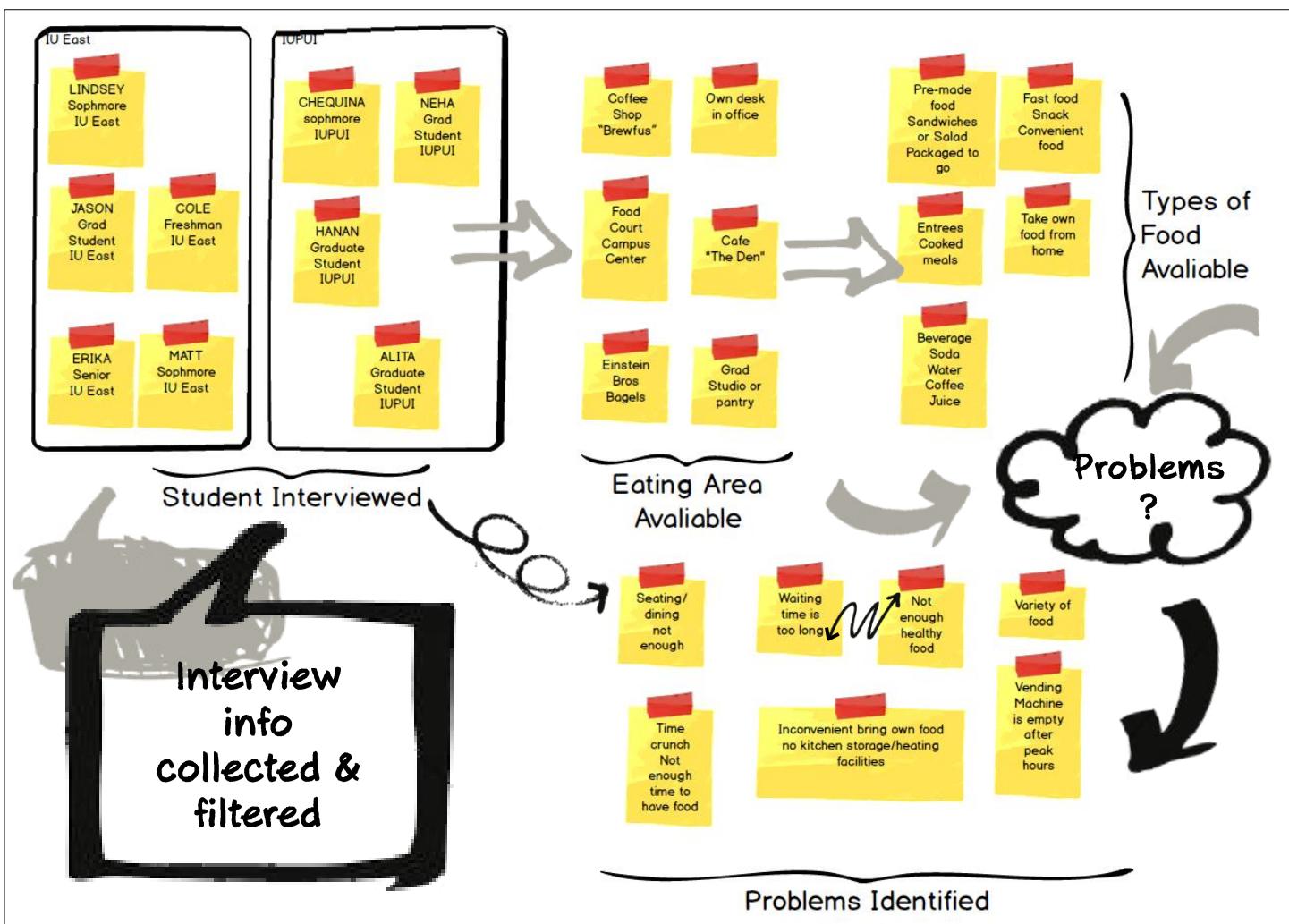
Personas

## 1. Affinity Diagram & Cognitive Mapping

### 1.1 Affinity Diagram

We did the affinity diagram and discussion in the class dated on Sept, 17<sup>th</sup>, 2015, and we used "Balsamiq" to mock up a bit.

Here are some photos and the outcomes.



## 1. Affinity Diagram & Cognitive Mapping

### 1.2 Cognitive Mapping

**Q:** What diagram did your team choose to make?

**A:** Cognitive Mapping.

**Q:** Why you chose this diagram?

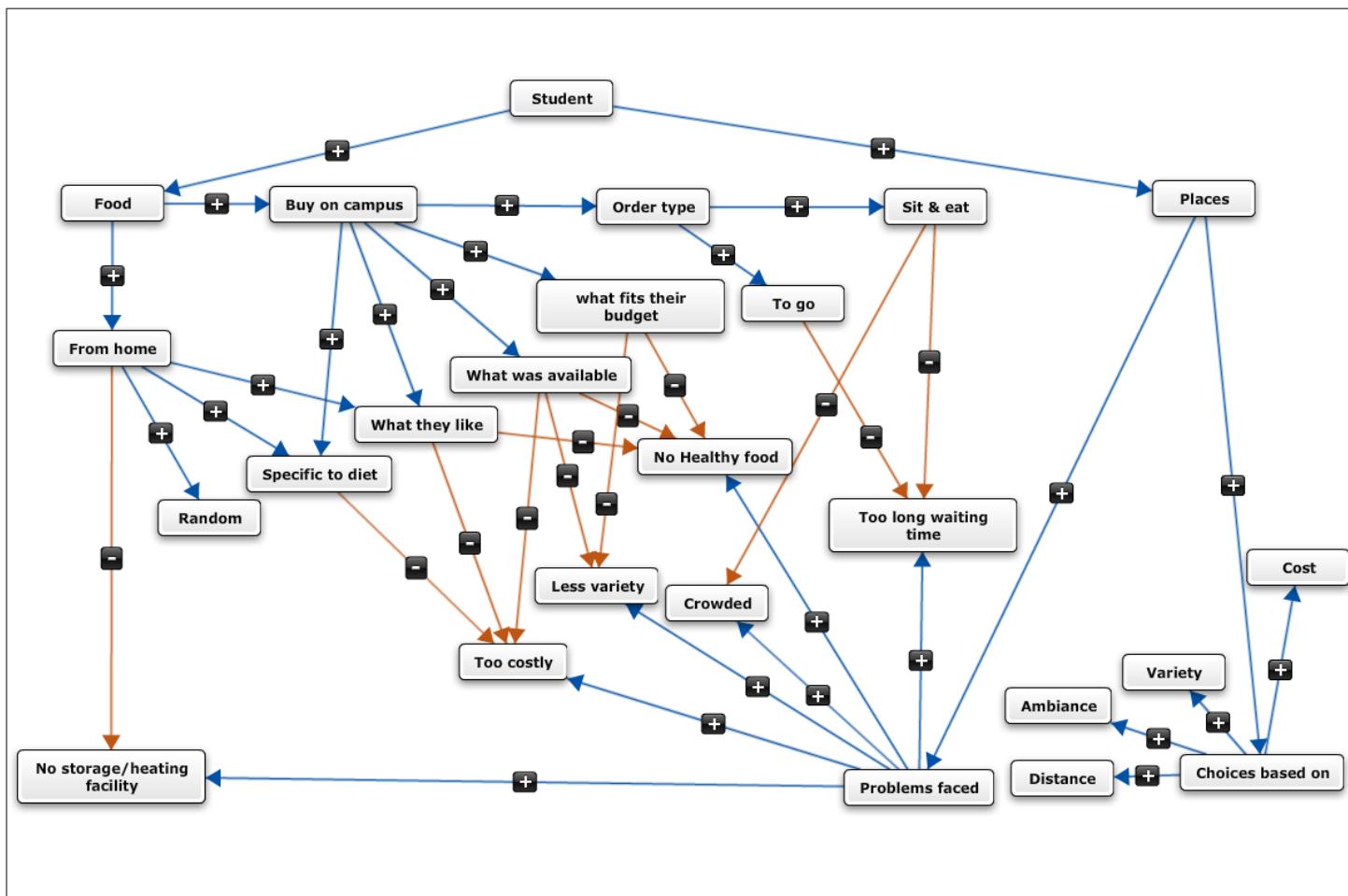
**A:** Cognitive mapping would help us focus our attention to the areas which seemed to be unrelated but are the most common issues faced by the majority of college students.

**Q:** Who participated in the diagramming activity?

**A:** Onkar Borgaonkar / Shanglei Zhang / Michele Walker.

**Q:** How did this activity differ from affinity diagramming?

**A:** While an affinity diagram was representation and clustering of data, cognitive diagram is about making sense and decisions, i.e. thoughts process and experience of users.



## 2. Problem Statement

Based on the interviews and observations we conducted, there are several main issues raised up by the majority of interviewees. How can we improve the experience students have getting food on campus by creating ways to offer a wider variety of food choices (including healthy choices) in a quick, convenient and affordable way? Factors to consider include wait times, pleasant eating areas, special diets, wider assortment, costs and convenience.

1. As most students are in a hurry, no one likes the idea of limited options and a queue to stand in for 20 mins. **Time-efficient food solution** with **various selections** are listed as the top expectations of the college students.
2. From 12pm to 2pm is the peak time for lunch. More than one interviewee complained they couldn't find clean tables or seats in short time. Due to the reason, some of them prefer to eat in the student office or go back home. **Sufficient pleasant eating areas** will help to improve student satisfaction.
3. **Healthy food** with proper portions can help support a healthy campus life. Providing high fiber, low calories meals could meet greater expectation of wider assortment.
4. Almost half of those interviewed are very likely to use **food delivery service**, if the price is reasonable. Delivery service saves time, provides more choices, and might be a great value-for-money solution. As also, **pre-order online** is a possibility.
5. For those students who like bring their own food, **Kitchen storage and heating facilities** should be distributed fairly and within certain walking distances. The **vending machines** require **restocking** more frequently, especially after lunch time.

### 3. Personas

#### 3.1 Persona Data Sheet

As a prerequisite to problem positioning of the theme “Food Habits of College Students”, we interviewed 9 students studying at IU East and IUPUI, with a wide range from freshman to 3<sup>rd</sup> year graduate. Every interview took ten to twenty minutes, and each participant answered the same questions to standardize the results.

The table showing below is the summary information collected from the interviews.

Name	Age	College level	Favorite place to eat	Brings food from home	Values & Motivations	Goals re: food or diet	Primary Uses	Problems	Fears or concerns	Opportunities
Hanan	29	2 <sup>nd</sup> yr grad	Campus center	No	Convenience, quick, low cost	No alcohol or pork	Fast food	Tables crowded, nowhere to sit, long lines,	Being late because took too long to get food	Get more food into hands of students faster. Would like delivery.
Alita	24	1 <sup>st</sup> yr grad	Campus center or at desk	Yes, often	Healthy food that doesn't take too much time, needs to get back to work	Healthy & convenient	Place to eat at desk or pick up salads	Not many healthy choices	Food with lots of oil & cheese	Would like delivery service
Erika	21	Senior	Café	Yes, often	Competitive, likes to work out and get good grades	Healthy food, eating regularly	Café and brings food from home	Not enough places to eat/cook food from home	It's not easy or convenient to eat healthy food	Better way to deliver quick, healthy food
Jason	29	3 <sup>rd</sup> yr grad	Coffee bar	Never	Speed, amount of work he can accomplish	Quick and cheap	Café and coffee bar pre-packaged food	Not enough time; gets food on impulse	Worries he'll be late	Food in his hands almost before he knows he needs it
Lindsay	19	Sophomore	Café	No	Quiet, less crowded place to eat	Healthy food	Entrees in café or smoothies in coffee bar	Doesn't like crowds	Worries that she chooses convenience over health	Less crowded, healthier options
Matt	20	Sophomore	Coffee bar	No	Spending time with friends, finishing homework	Convenient, cheap	Pre-packaged or quickly prepared food	Wants more options	Gets bored easily	Buffet
Cole	18	Freshman	Coffee bar	No	Friends, homework	Convenient, cheap	Snacks or fast food	Not enough fast food	Running out of time	More fast food (cheeseburgers)
Chequiana	N.A.	Sophomore	Campus Center	No	Convenient food that fits her schedule	Convenient	Fast food	Getting food in between classes	Time	Possibly delivery
Neha	28	1st yr grad	Coffee shop	Goes home to eat	Food she can trust that is healthy	Healthy, convenient & less time spent	Goes home to eat	Doesn't like food on campus	Lack of trust, not enough healthy options	Increased trust in healthy food options

Personas Breakdown Data Sheet



## 3.2 Personas

### Aanvi

2nd Year Graduate Student

23 years old

*"I usually eat my meals on campus because I don't have time to go home to eat, but sometimes it's too crowded, and there aren't a lot of healthy options."*

**Eats at:**

Campus Center

**Likes:**

Vegetables, rice

**Dislikes:**

Greasy, unhealthy

**Primary values regarding food:**

Convenient, healthy food that is affordable

**Pain points:**

- Lack of choices
- Not enough time for nutritious meal
- Eating areas too crowded
- Having to wait in long lines

**Goal:**

To eat healthy food that is convenient to her busy school and work schedule but priced within her budget.

**Work, lifestyle & activities:**

Aanvi is a grad student but also works part-time as a teaching assistant. She has a very tight schedule of classes, and doesn't have a lot of time to prepare meals. She usually gets take-out food on campus and eats in campus center or takes food to her desk. She tries to stay active by walking and doing yoga when she can. She likes to eat vegetables and fruit because she knows they are more healthy than greasy fried foods. She is somewhat shy and doesn't like loud, crowded eating areas.

**Frequent tasks:**

Aanvi uses her laptop and smartphone to do homework, stay on top of her schedule, check email and stay in touch with friends on social media. She is usually either doing homework or helping other students with their homework.

**Resources used:**

Aanvi uses a combination of Campus Center quick-service restaurants and grab-n-go pre-packaged food items for her meals.

**Motivations:**

She wants to stay healthy while working hard to get good grades and help others do well in school.



## 3.2 Personas

Daniel

College Sophomore

20 years old

*"I like typical fast food. My friends and I just grab a quick bite between classes. I wish there were more options for food on campus - we all get bored eating the same stuff."*

**Eats at:**

Coffee bar or  
grab-n-go cooler

**Likes:**

Cheeseburgers, pizza

**Dislikes:**

Bland food

**Primary values regarding food:**

Cheap, convenient and  
quick to eat on the go

**Pain points:**

- Lack of choices
- Not enough variety
- Having to wait in long lines
- Doesn't have a lot of extra money to spend on food

**Goal:**

To eat quickly and cheaply in between work and classes.

**Work, lifestyle & activities:**

Daniel is a college sophomore who lives at home with his parents while attending school full time and also works part time at a retail store. It takes him 15 minutes to drive from home to school, which doesn't give him time in between classes to run home to eat, so he eats on campus most days. He doesn't have a lot of money to spend on food so he usually grabs a sandwich and chips for lunch. In his spare time he likes to play sports with friends.

**Frequent tasks:**

Daniel uses his smartphone to check email, news and social media. He does homework in the school computer labs or at home on his desktop PC.

**Resources used:**

Daniel uses the coffee shop quick-service foods like nachos or eats grab-n-go pre-packaged sandwiches and chips.

**Motivations:**

Daniel hopes to do well in school so he can graduate and get a good job and buy a new car, and also likes to spend time with friends.

# A3 Brainstorming Report

FOOD HABITS OF COLLEGE STUDENTS

TEAM F:  
Onkar Borgaonkar  
Shanglei Zhang  
Michele Walker

# CONTENTS

Brainstorming

User Needs

Design  
Alternatives

## Brainstorming User Needs

We gathered in the hall to brainstorm.  
We came up with 20 user needs.



- 20 User Needs
1. Healthy food - Less calories, less grease
  2. Affordable
  3. Short wait time
  4. Close to Class or Work
  5. Sturdy packaging for hot / cold, beverages etc
  6. Environmental friendly packaging
  7. Wide variety of choices
  8. Easy to use
  9. Easy to access from a variety of devices
  10. Eat wherever they want
  11. Food storage, utensils
  12. ☀ Available convenient bus (early / late)
  13. Easy to tell friends about product / service
  14. Safe food
  15. Need to know ingredients + nutrition information
  16. Ability to track what food was ordered / calories
  17. Order according to special diet
  18. Multiple pick up points
  19. Feel good / trust provider of food
  20. Time when food is available for pick up / delivery

## Identifying 4 Key Requirements

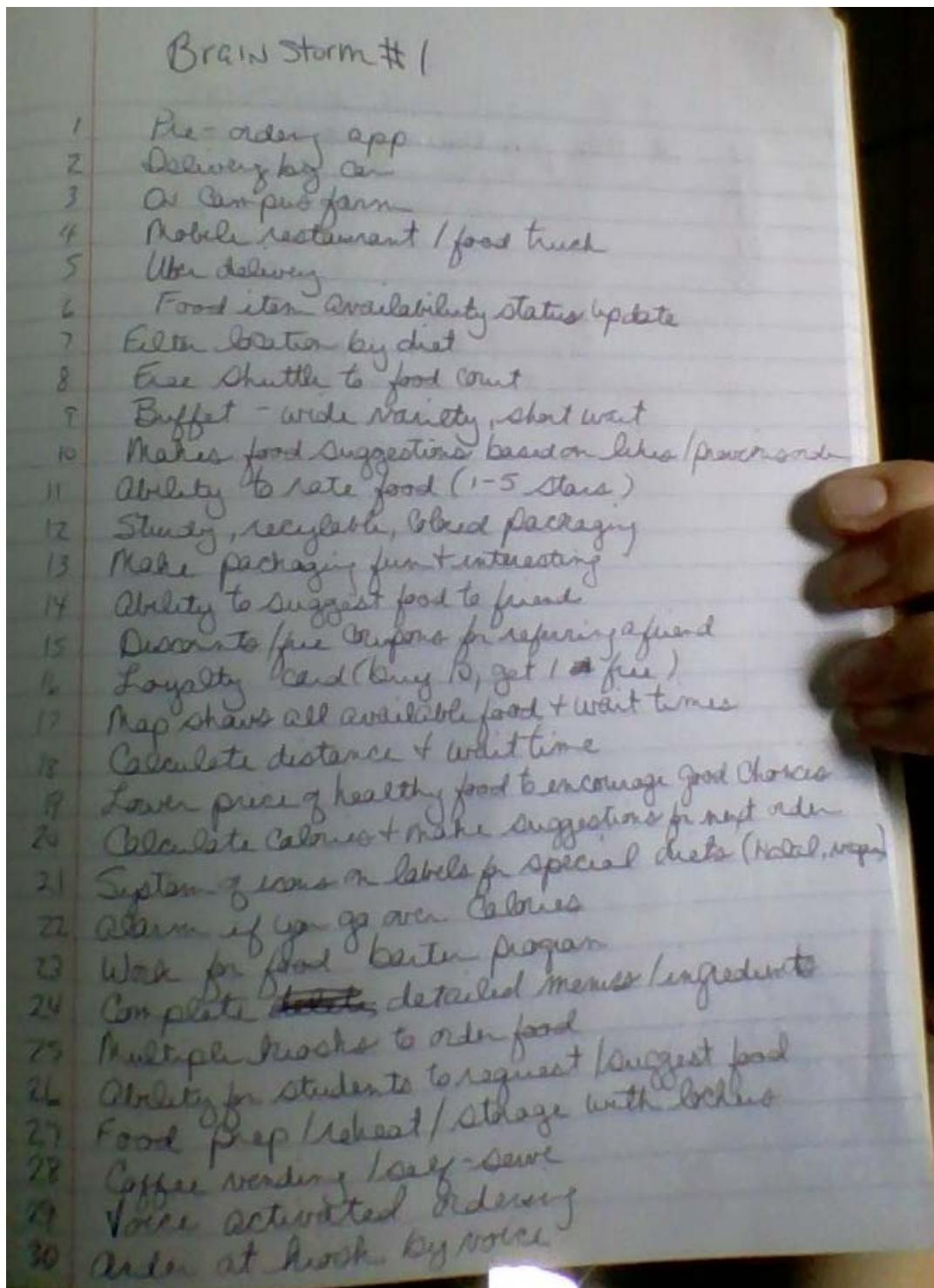


- 4 Key Requirements
- Time - pick-up/delivery time, Short wait  
Close distance to class / work  
Least time to acquire food, Maximum  
time for eating
  - Specialized diets - Ability to order  
according to diet / Variety
  - Affordability - prices college students  
can afford
  - Ability to know & log nutrition: Calories,

These requirements help focus our design solutions.

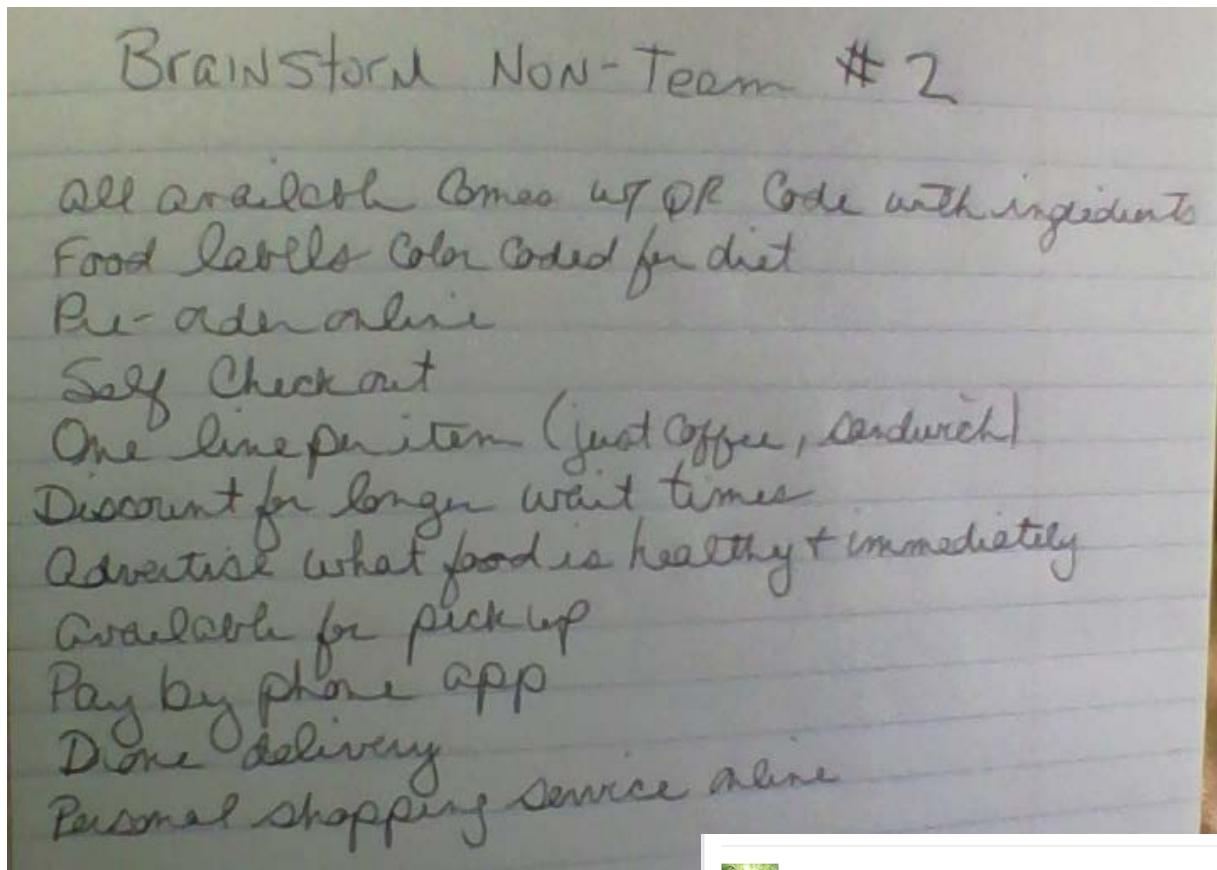
## Brainstorming Design Ideas &amp; Solutions - #1

We spent apprx. ½ hour coming up with 35 different solutions.



## Brainstorming Design Ideas &amp; Solutions - #2

We solicited idea solutions from others who weren't our team members.



 Michele A. Walker  
1 hr · 

Hey friends, I could use some help with collective brainstorming for a project. My class team is studying how to improve ways for students to get food on campus. Some of the current issues are to help reduce time spent getting food, increasing variety, need to accommodate special diets, know nutritional info/calories, and be affordable. Some of the ideas have been to offer a buffet, an app or kiosk that lets you pre-order your food, self-checkout, and delivery monkeys (OK, I wasn't serious about that last one - maybe.) Can you help me come up with other ideas? All suggestions welcomed!

 Like  Comment  Share

 Stacie Gren Food trucks so you don't have to stop long in a building? LoL. Love me some food trucks.

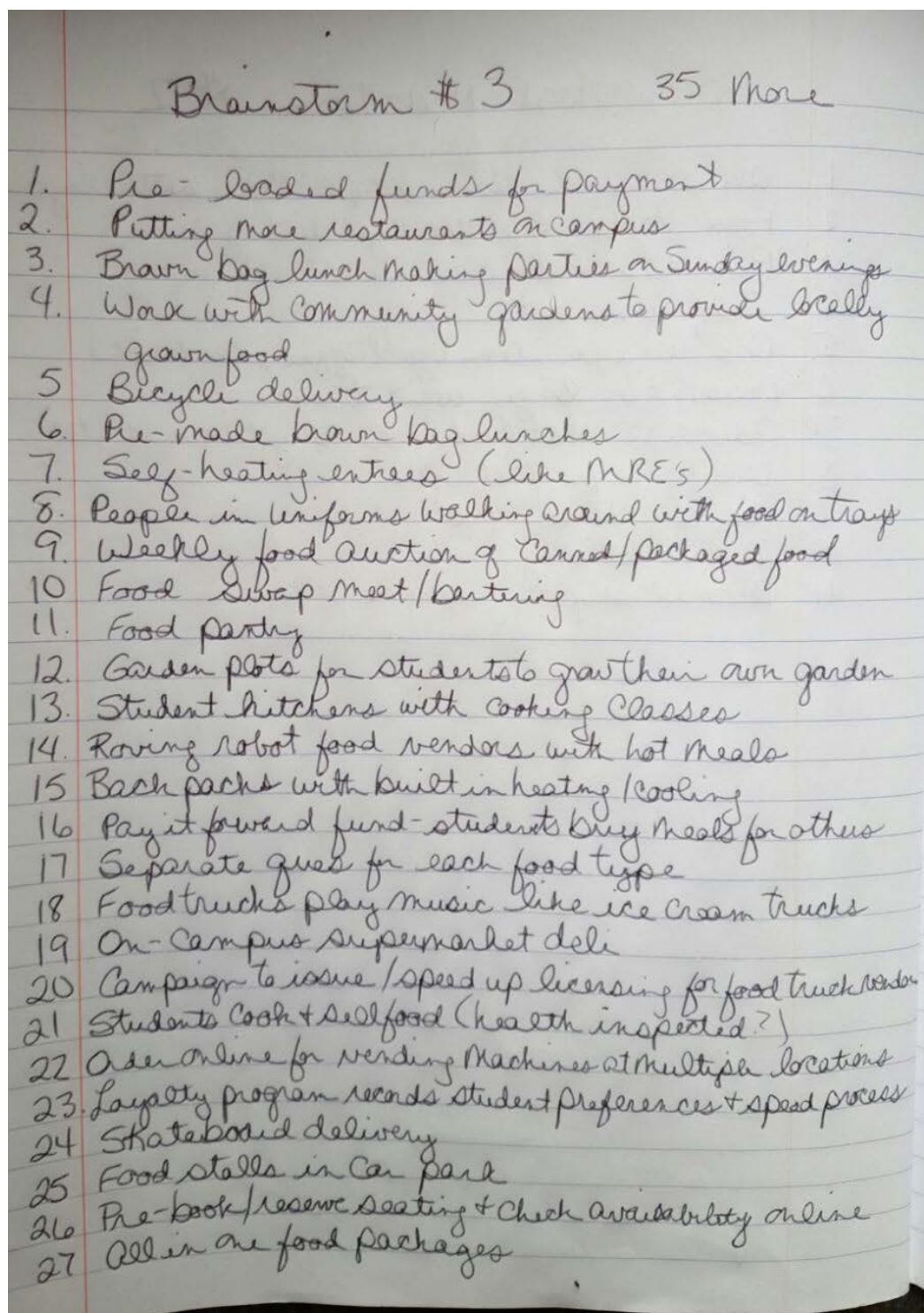
 Like · Reply · 1 hr

 Judi Willett I really think you should explore delivery monkeys. Don't be so quick to rule it out! Definitely like the app idea. That could include pre-loading funds for payment. And gives you the best opportunity to offer nutritional info and accommodate special diets. Food trucks?

 Like · Reply · 44 mins

## Brainstorming Design Ideas &amp; Solutions - #3

More ideas listed.

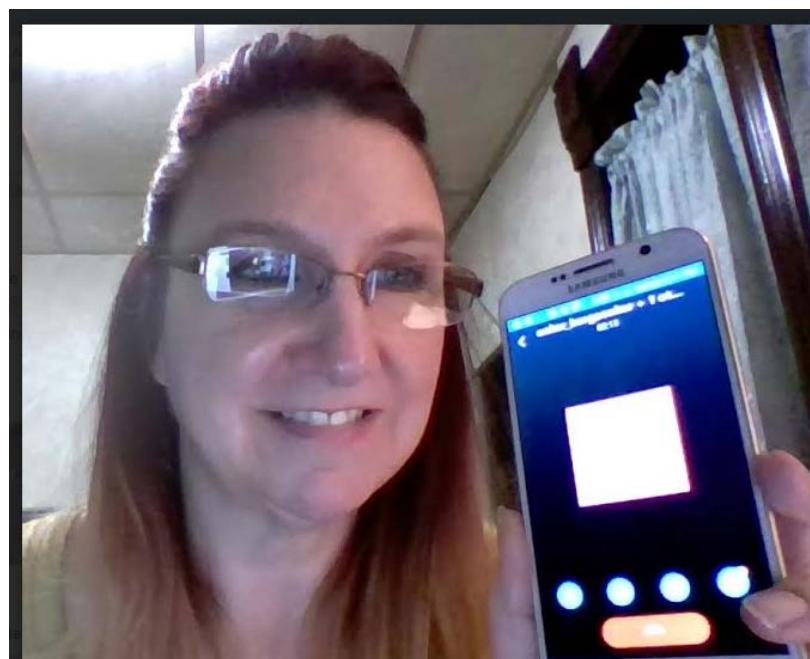


## Brainstorming Design Ideas &amp; Solutions - #3

continued

- 28 Meal plans - Students collect packed meals - no wait
- 29 Weekly menu to plan ahead
- 30 App tells students current wait/wait times
- 31 On-Campus supermarket w/ self check-out
- 32 Meal replacement shakes sold in vending
- 33 Network all restaurants into pre-order app w/  
nutrition tracker
- 34 Meal replacement bars
- 35 Work with local culinary schools to provide  
gourmet meals.
- 36 Food Coupons - Helps budget and pre-plan nutrition.  
Coupons are given as a set for a month of  
healthy meal options.

### Brainstorming #3 Skype session



## Reflection on Brainstorming Sessions #2 & #3

Interview and observation stage gave us a generally feeling that current campus food service is not meeting student's expectations. All the interviewees provided some insight on how to improve the service.

The 2<sup>nd</sup> stage (affinity diagram & cognitive mapping) let us understand the problems more clearly. At this stage, we were starting to form our targets and focus on the main issues.

At our second brainstorming session, we asked some other (mostly classmates) who weren't our team members for their ideas. We explained our theme and population group, and our user requirements. Some of the ideas they gave us were an overlap of ideas we had already brainstormed, but we would spontaneously come up with new ideas when hearing theirs – something they would say would jog an idea.

Session #3 was much more difficult. We felt we had exhausted all the best or most obvious ideas. There were a few more innovative ones, but it was difficult not to overlap ideas which had already been generated.

Brainstorming actually runs through the whole process, started from Interview and observation stage. This is the most valuable method, and the "wild" ideas inspired us to work out the solutions.

Next time, we will improve the questionnaires used for interview. Because it's face-to-face interview and we don't have any expectations for the interview results, so we should design more open-ended questions, and encourage participants talk more about their concerns and thoughts. We may get more useful information for the subsequent stages.

Also, brainstorming with non-team members gave us a variety of ideas from a different point of view. Next time it would be helpful to have more sessions that involved people who are not related to the project.

## Choose 3-4 User Needs/Requirements

### 1. Reduce time spent acquiring food

*By making it easier and less time consuming to get food, we help maximize the time students have to enjoy the food and their other activities.*

### 2. Increase variety of options, especially to accommodate special diets

*By making more options available, especially for those on special diets for health/medical, religious or other reasons, we increase the likelihood that students will choose healthy, nutritious options that make them feel better and increase user satisfaction.*

*Keep costs affordable for students on a budget*

*If the food costs too much, the project will fail because students won't be willing to spend the extra money.*

### 3. Provide a way for students to know and keep a log of the ingredients and nutritional value of foods (calories, vitamins, etc.)

*Allowing students to keep a log of the food provides a whole set of additional features, including the ability to see what they have eaten in the past, rate foods on a scale, education about nutrition, and being empowered to make better decisions about food.*

## How we chose those requirements as being the most important

Our decision was largely based on our interviews and observations, which informed our first brainstorming session (20 user needs). Listening to the users discuss their needs during the interview process helped us identify the key requirements. Several users repeated similar needs (less wait time, more variety, special diets, affordability) so those "rose to the top" of importance. Also, during our brainstorming session we began to see overlaps that could be aggregated, such as ease of use, easy access, short wait times and multiple pick-up points could all be grouped under "Reduce time spent acquiring food."

## 3 Design Alternatives

### Choose 3 design alternatives to pursue further

#1 Pre-order app + moving food truck service.

#2 Networked restaurants + app for food tracking, rating & pre-order.

#3 Ready made meal packs + self checkout.

### How did you choose these three alternatives?

As stated in our "Problem Statement" part of the A2 report, college students need **Time-efficient food solution** and **various selections (including healthy choices)**, and the solution should be also meet their **budget limitation**.

### Give a brief description of each solution and how it addresses your chosen problem.

#### #1 App + Food Truck

1. Pre-order app reduces the ordering time, without queueing. Moving food truck would deliver to your department or nearby, saving waiting time and walking time.
2. It's easy to adjust truck food menu every week/month, to provide various choices.
3. Food truck license fee is much cheaper than storefront rental, and labor fee is also reduced a lot.
4. Pre-order app helps the operator to pre-determine the quantities of ingredients to purchase, which also contribute to cost-control.
5. Real time status update of the waiting time and table/seat availability of crowd density will help spread the crowd around the campus and help students avoid crowded areas or plan ahead.

### How will this solution satisfy your identified requirements?

Time-efficiency, various selections (including healthy choices), and budget friendly are the main requirements we set up for the solutions.

## 3 Design Alternatives

### #2 – Networked Restaurants + food ordering/tracking app

1. All restaurants on campus would be able to login to the system and upload menus, list ingredients, and take pre-orders
2. Students could use the app to track their eating habits, nutrition, calories, etc.
3. Students could rate the foods on a scale of 1-5 to give feedback to restaurants and other students

#### How will this solution satisfy your identified requirements?

There would be shorter lines for students picking up pre-ordered food. They could also request healthier options or avoid certain foods (allergies, religious reasons, etc.) by being able to special order food rather than relying on pre-packaged food that has no choices.

### #3 – Ready made meal packs + self checkout.

1. An on-campus supermarket where students can choose from a variety of ready-made food items.
2. Students can roam around in the supermarket and pick their choice item.
3. Students can checkout their purchased item and leave.

#### How will this solution satisfy your identified requirements?

There would be minimum waiting time and a variety of food items available for students. The food items can be fresh and/or pre-cooked. Students can choose any food item according to their diet choices at one location.

# A4 Storyboards & Design Solution

## FOOD HABITS OF COLLEGE STUDENTS

**TEAM F:**

Onkar Borgaonkar  
Shanglei Zhang  
Michele Walker

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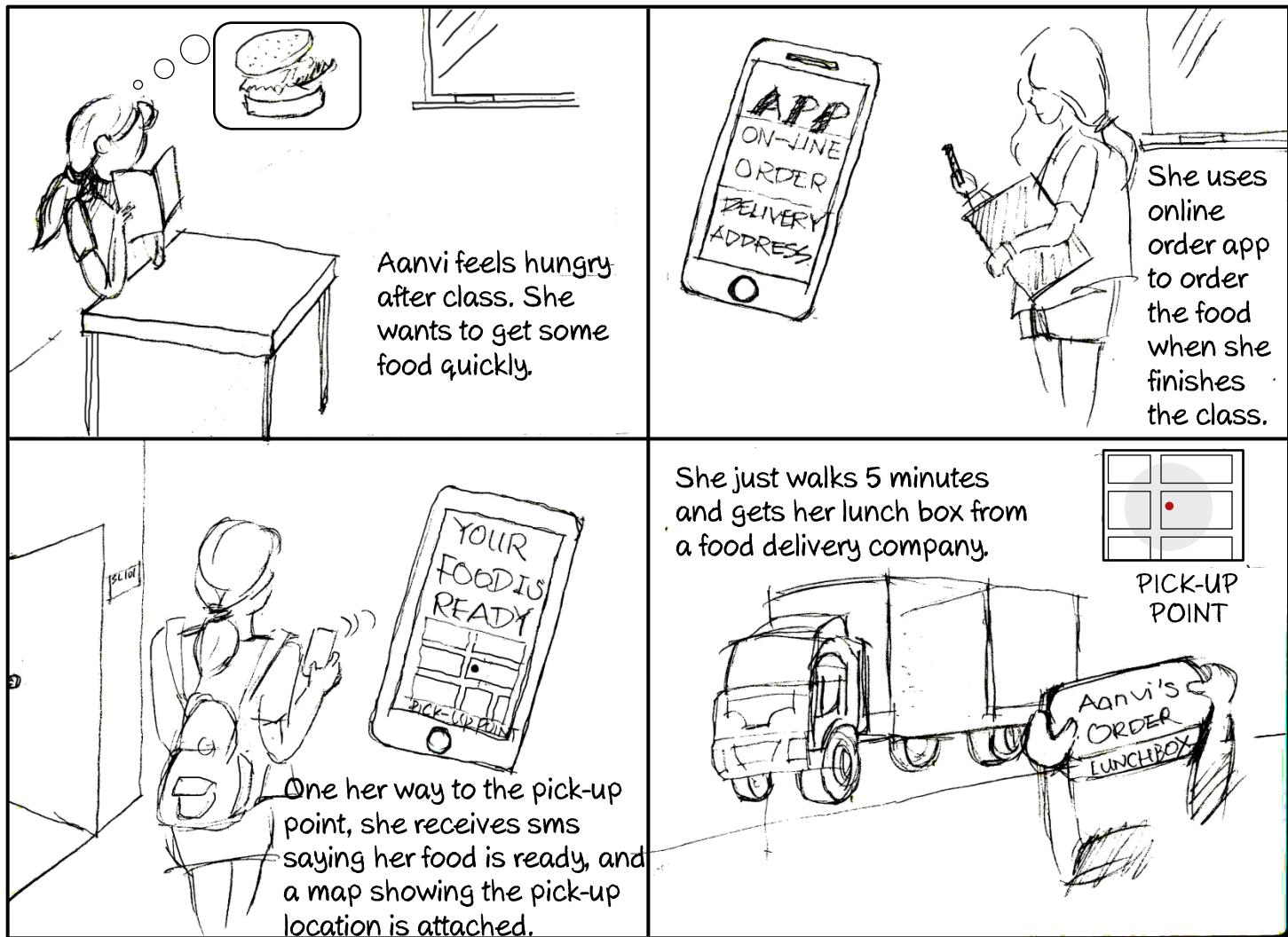
**6 Storyboards**

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**Design Solution Choice**

## Solution #1: App + Food Delivery Truck

Storyboard page 1



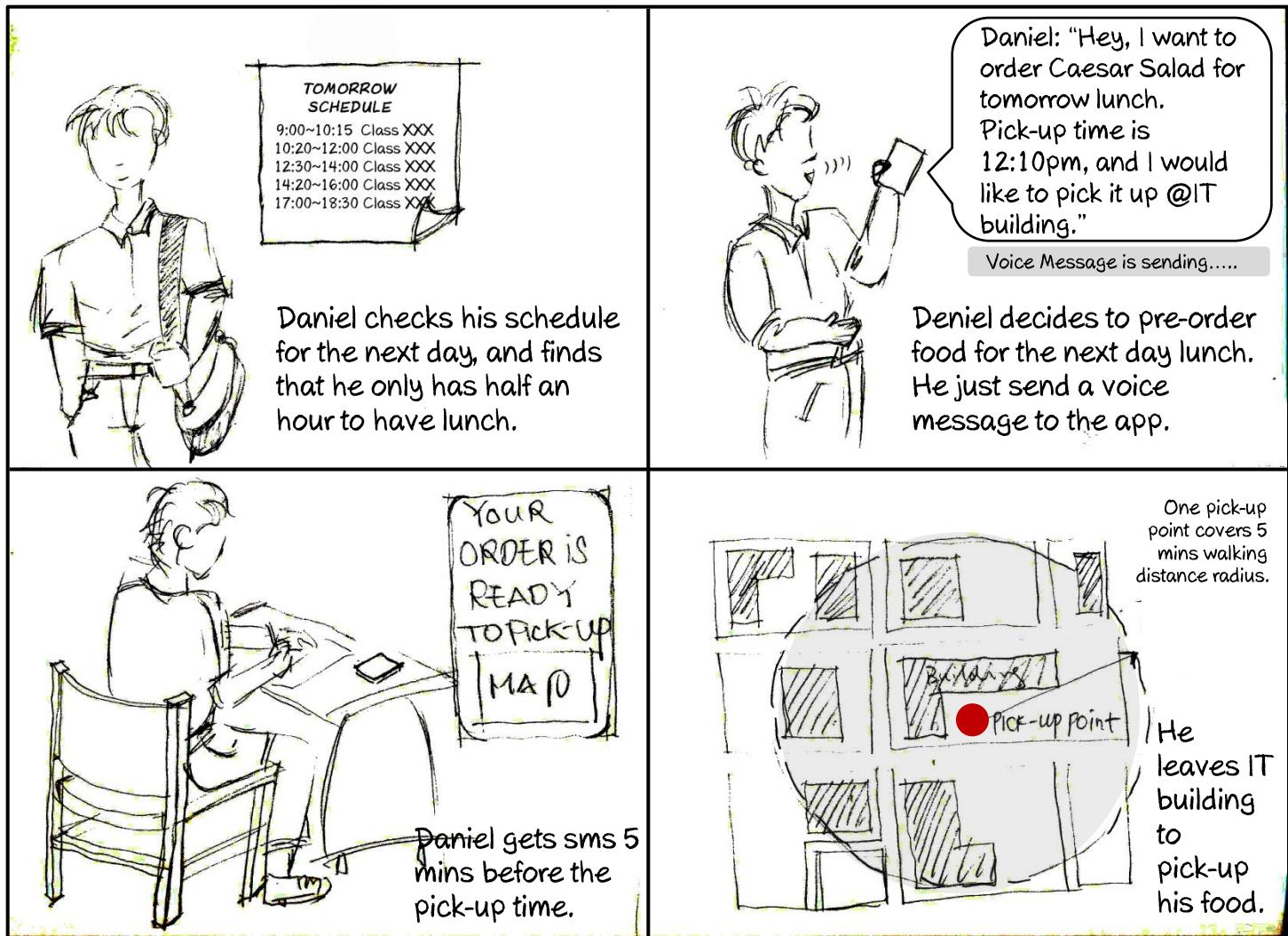
### Case Use Description

**Aanvi** feels starving after class, and she wants to grab something to eat ASAP. Before she leaves the classroom, she places an order via the online order app.

After she packs her bag and leaves the classroom, she receives a message saying her food is ready for pick-up, and a map is showing the location. She walks 5 mins, and get her lunch box from a delivery truck.

## Solution #1: App + Food Truck

Storyboard page 2



### Case Use Description

**Daniel** wants to pre-plan for the next day. After he checks the next day's schedule, he finds that he will be very busy and only has a half hour for lunch. He uses the pre-order app to order food for next day.

The next day he gets message with a map attached, saying his lunch is ready to be picked up. He walks out of the building and gets his lunch within 5 mins walk.

**Solution #2: Networked Restaurants + food ordering/tracking app**

Storyboard page 1

**Case Use Description**

**Aanvi** is hungry but doesn't have much time between classes. She likes to customize her order to avoid allergies, so she uses an app that has a list of menus from all restaurants on campus. She can order ahead using the app and pick up her custom order with little waiting.

## Solution #2: Networked Restaurants + food ordering/tracking app

Storyboard page 2

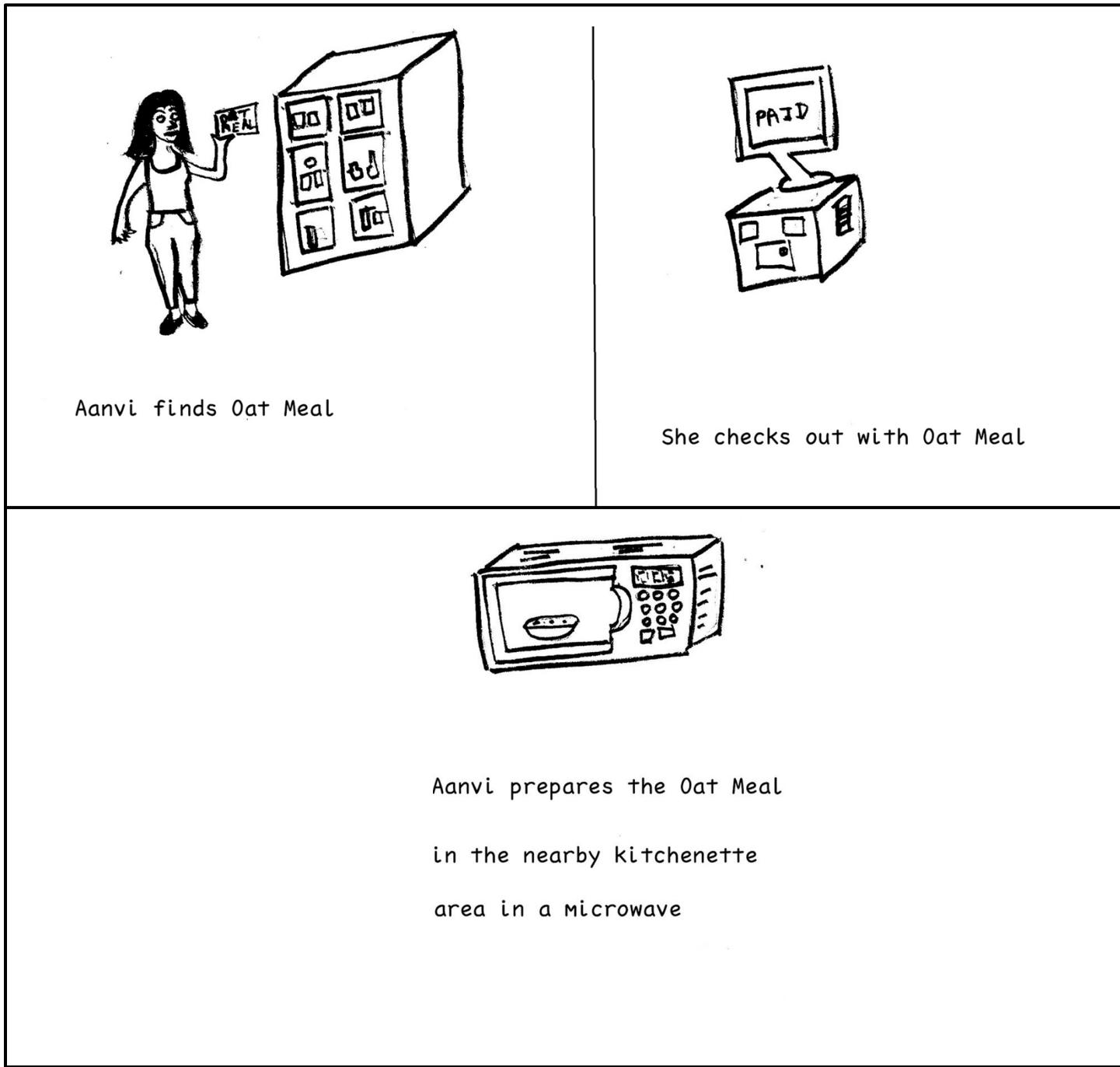


### Case Use Description

**Daniel** is tired of eating the same old food. He consults his app which has a map. He realizes he has enough time to go to a different restaurant not much further from his classroom. He still has time to pick up his order and eat with his friends.

## Solution #3: Supermarket with Ready made meal packs + self checkout

Storyboard page 1



### Case Use Description

Aanvi prefers healthy food. She looks around in the healthy food section and finds Oat Meal. She heads for the self check-out system and goes over to the kitchenette area nearby to prepare her Oat Meal.

**Solution #3: Supermarket with Ready made meal packs + self checkout**  
Storyboard page 2**Case Use Description**

**Daniel** enters the supermarket and goes directly to the fast foods section. He finds a cheeseburger ready for him to take away. He uses the self check out system and makes his way out of the supermarket.

## Design Solution Choice

Based on the initial interview, observation and brainstorming, we target to solve 3 problems:

1. Reduce time spent acquiring food;
2. Increase variety of options, especially to accommodate special diets;
3. Provide a way for students to know and keep a log of the ingredients and nutritional value of foods (calories, vitamins, etc.).

So our final solution is **an app** called "**Food Habits**", and it will be mainly used on campus. We ultimately chose to combine all three of our solutions into one, for the following reasons:

1. All three ideas had merit;
2. All three solutions could be managed by an app;
3. Having a variety of solutions would make more of an impact in addressing the problems identified in our research.



## Key Features of “Food Habits” app

**“Food Habits” app** has **two main functions: pre-order and food availability reminder**. These two functions would save a large amount of time to acquire food, either queueing time (order) or waiting time (food preparation).

**“Food Habits” app** is an efficient way to seamlessly connect with current campus food stalls and on campus restaurants, and it is also attractive to those F&B companies off campus if they would like to provide online order and delivery service to college students. Students will have more various options within their budgets.

**“Food Habits” app** is also link to Jagtag card and fitness tracker devices, such as Fitbit, iWatch & Jawbone, etc. It will track students' food orders, the ingredients and nutritional value of foods, and provide order / fitness suggestions based on the data collected. It also allows students to rate the foods they eat on a scale of 1-5.