

# Low-Fi Prototype & Usability Test

Team Spice Rack

Jeanette Han, Kevin Song, Maya Chandra, Megan Mou





# OUR TEAM



Jeanette Han  
*Buffalo*



Kevin Song  
*Pesto*



Maya Chandra  
*Ranch*



Megan Mou  
*Chipotle Mayo*

## + OUR FAVORITE SAUCES





# Our Problem & Solution

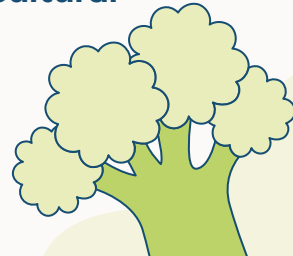


## Problem

Most people **love food** but find culinary exploration difficult — they're too **busy, not confident** in their skills, or generally **unmotivated** to do so.

## Solution

With FoodDex, home cooks can harness the **nostalgia of collecting** badges and **food-related memories** to widen their culinary cultural horizons by **cooking** (or otherwise encountering) **diverse cultural dishes to fill their FoodDex.**

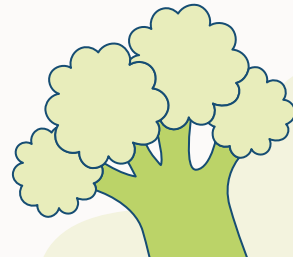




# Value Proposition



*Cooking. Cultures. Community.*





# Presentation Overview

## 01 Sketching

Concept sketches & realizations

## 02 Low-Fi Prototype

Construction & task flows

## 03 Testing

Methodology & results

## 04 Discussion

Implications & changes



# 1 Sketching





# Mobile Sketches



Notifications

- Foodbox Your friend earned a badge
- NEW badges dropped!
- 2 day streak!

APP Home screen

badges to complete

- location location location
- level 2 level 3 level 4

Owned collection

- 4 4 4
- 4 4 4

Friends/social

MAP

Unlocking Badge

Japanese (II) recipe

recipe

3 4

↓

cooking → upload picture → unlocked

Friends

1. share picture? share badge?

2. Following

my profile 31 friends 22 restaurants

10/18 kev → Unlocked Mexican lvl 2

10/20 MAVA → visited Ethiopian restaurant

Yearly recap in badges

000 00 0000

JAN FEB MAR

Restaurant Recommendation

- New Italian 2.1mi away. Earn badge now!
- SPECIAL promotion!! Olive's has limited Cuban panini badge! LIMITED!
- Discount promotion! 10% off pecking duck at Chefchu's

Recipe Tutorial

Pasta Alfredo w/ Chicken

1. Embedded video step 1.

2. Embedded video step 2.

3. Embedded video step 3.

AI chat box

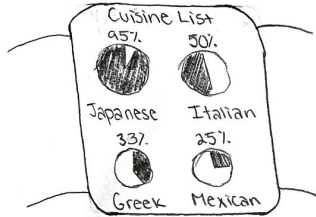




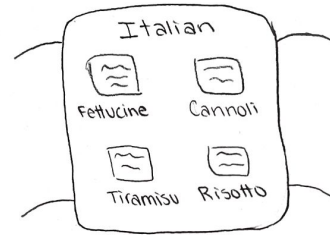
# Wearable Sketches

Wearable (Apple Watch)

Look through cuisines



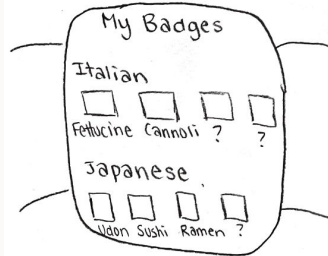
Look at recipes



Earn a badge



Look at badge collection



Share a photo w/ friends



Look at leaderboard

My friends

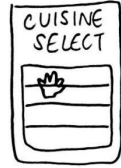
Kevin	50 badges
Jeanette	42 badges
Megan	39 badges
Me	35 badges





# AR Sketches

FOODDEX



hard  
medium  
easy

you selected: MEXICAN  
+ EASY → carne asada tacos

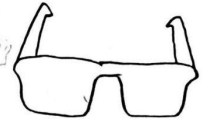
RECIPE  
OVERVIEW  
1) ~~~~~  
2) ~~~~~  
3) ~~~~~

GO BACK?

yes

No

COLLECTING  
INGREDIENTS...



AR GLASSES  
experience

STEP 1: Marinate  
beef



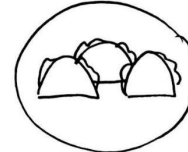
Tip: looks like you  
could use some  
more garlic!

FINAL STEP: Assemble



TAKE A PIC?

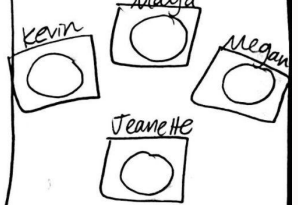
yes  No



Share w/friends?

Yes  No

VIRTUAL GALLERY



How helpful  
was my  
assistance  
today?

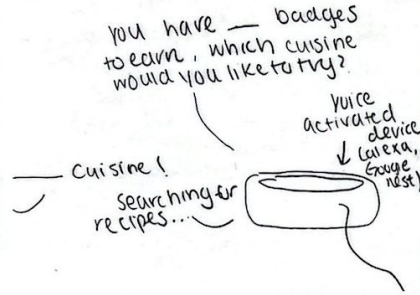


Scanned with CamScanner

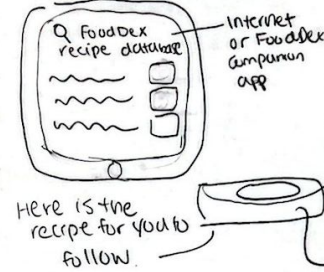


# Voice Activation Sketches

## Speech Activation



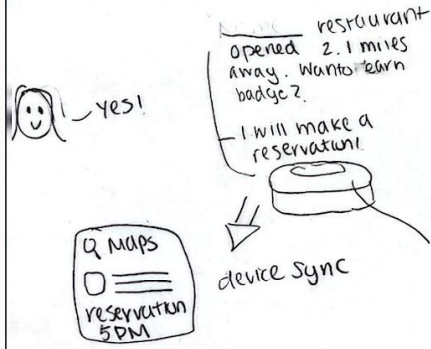
## Phone / tablet sync



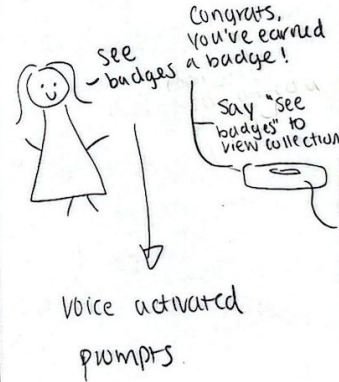
## Guiding Through Steps



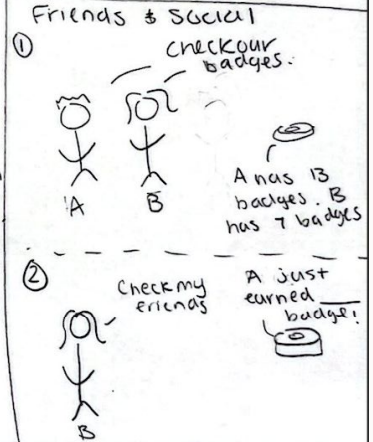
## Restaurant Recommendation



## Earning Reward



## Cooking step by step



# Chosen Realizations





# Mobile Key Screens

## NATIVE mobile APP

### HOME

Achievements to UNLOCK

Thai (1) Mexican (1) Ethiopian (1)

Thai (11) Mexican (11) Ethiopian (11)

Scroll for more!

Achievements Unlocked

CHINESE (1) JAPANESE (1) HAWAII (1)

Scroll for more!

HOME MAP Share TAP for map!

### MAP

MAP

(TAP for badge info)

Your last badge was on \_\_\_\_\_!

Click on a pin to see the dish you ate!

### Recipe Instructions

Beef Birria Tacos

Mexican (1)

1. Julienne onions

2. Marinate meat

3. Wavy line

Finished?

### Restaurant & Friends screen

ME 24 followers 27 following

SHARE

UPDATES

Kevin earned a new badge 10/13

New Korean restaurant opened

Earn new limited edition badge!!

### Unlocking Badge

BADGE ADDED!

Upload picture

Added to collection!

TAP TO see

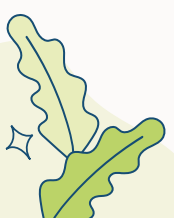
### NOTIFICATIONS

11:11 AM

Your friend earned a badge

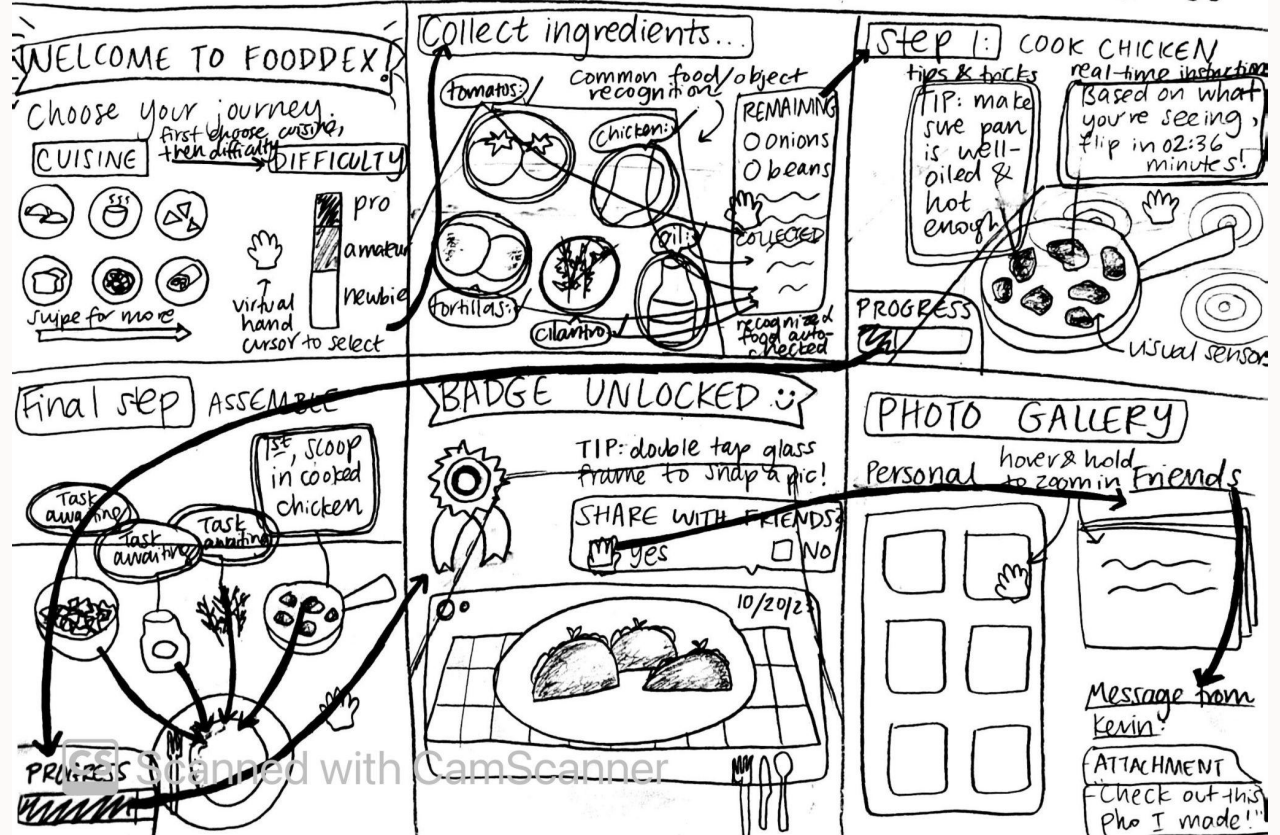
New badges dropped!

You're on a 3 day streak!





# AR Key Screens





# Choosing a Realization



## Mobile

Pros	Cons
Integrates more intuitively into cooking routines — people are familiar with mobile apps	Less immersive than AR; not as sensory
Users can check their progress at any time — visual / physical representation of progress	May be difficult / annoying to move between cooking and mobile device (vs AR you just see)

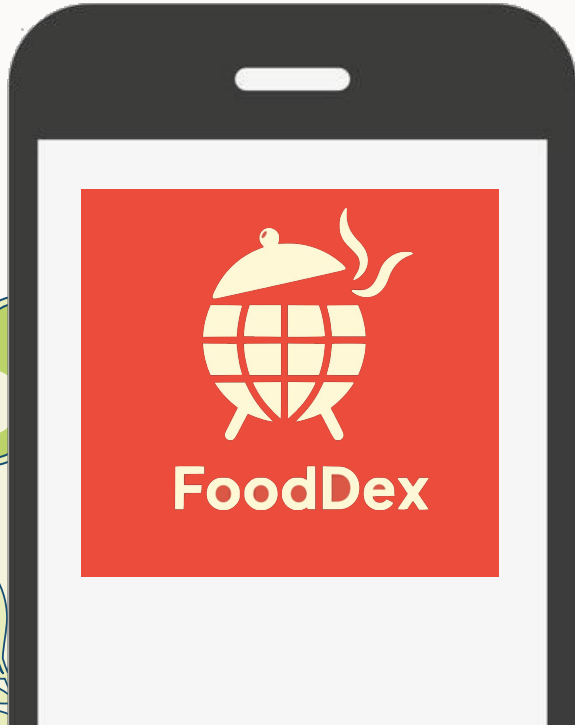
## AR

Pros	Cons
More interactive for the user — see cooking tips based on visual sensors in real time	Users who already have difficulty with cooking may be overwhelmed by additional AR aspect
Users will be able to see instructions projected and ingredients labeled as they cook, streamlining process	Extended exposure to AR can have negative health effects (e.g. headaches, eye strain)





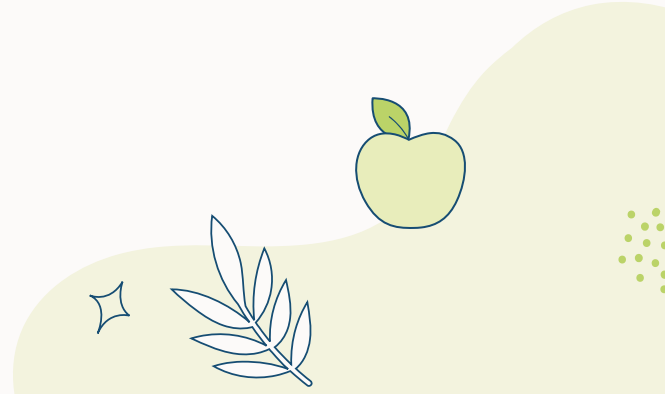
# Selected Interface: Mobile



- While **AR** would have been a more immersive option, it would be significantly **more expensive and technically challenging** to accurately implement, and potentially **overwhelming for new cooks**.
- A **mobile app** allows for higher **user convenience and adaptability** (people can check their FoodDex journal and share their creations with friends anytime!), as well as **integrates more easily with existing cooking workflows**.

2

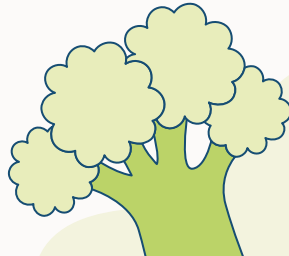
# Low-Fi Prototype





# Prototype Construction

- Hand-drawn on iPad → transcribed to Figma for virtual interviews
- Workflow transitions are represented by hand-drawn arrows on iPad and shown to users on paper in corresponding order → virtual workflow feature added in Figma



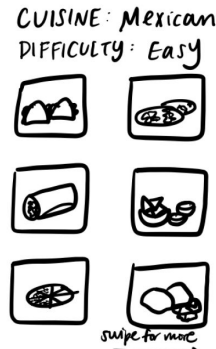
# Home, Cuisine, & Recipe Discovery

- **Home / landing page** displays different cultural food icons as the starting point to **discovering a new recipe** (via icon or map feature)
- Select both **cuisine** and **difficulty**, then **dishes** in those categories' intersection
- **Preview** of recipe before proceeding to begin cooking guide



YOU SELECTED:  
Mexican  
← go back

SELECT DIFFICULTY  
    
easy medium hard  
(11) (20) (13)



YOU SELECTED:  
Mexican + Easy  
↓  
**Carne Asada Tacos**  
**Recipe Preview**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
 confirm selection  
← go back

**READY TO COOK!**  
**Carne Asada Tacos**  
• Estimated time:  
30 min  
• Average rating:  
☆☆☆☆  
**Ingredients** **Preview**  
← go back start →

# Food Journal

MEXICO



completed ▼

EASY



guac burrito quesadilla

MEDIUM



MEXICO


COMPLETED RECIPES

mexican corn      +acos



1/3/22      1/7/22

1/7/22

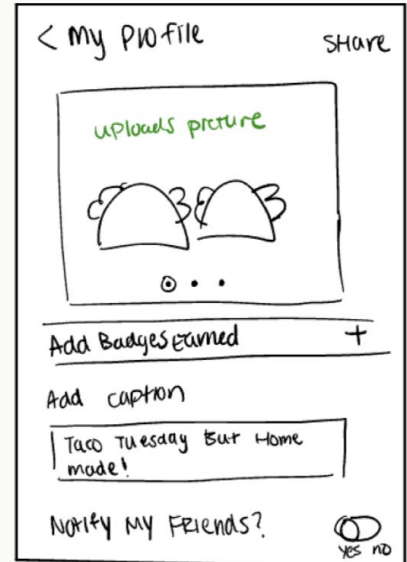
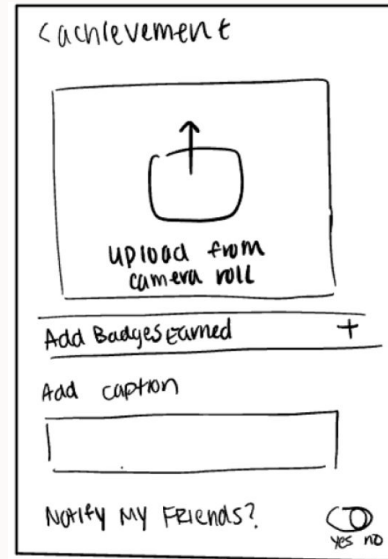
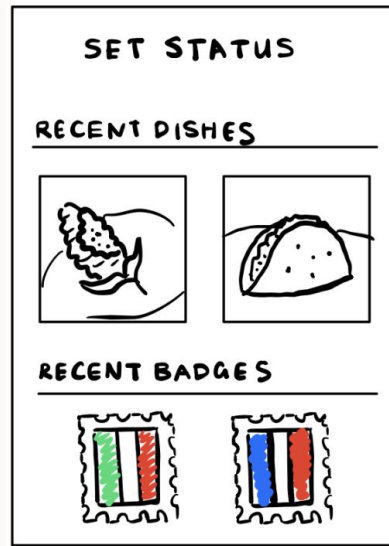
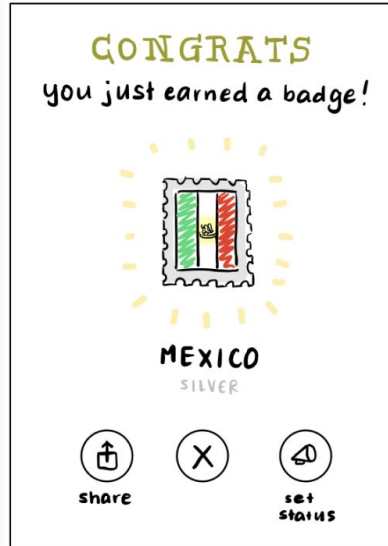


+acos

" Made for Faith's bday. she loved "

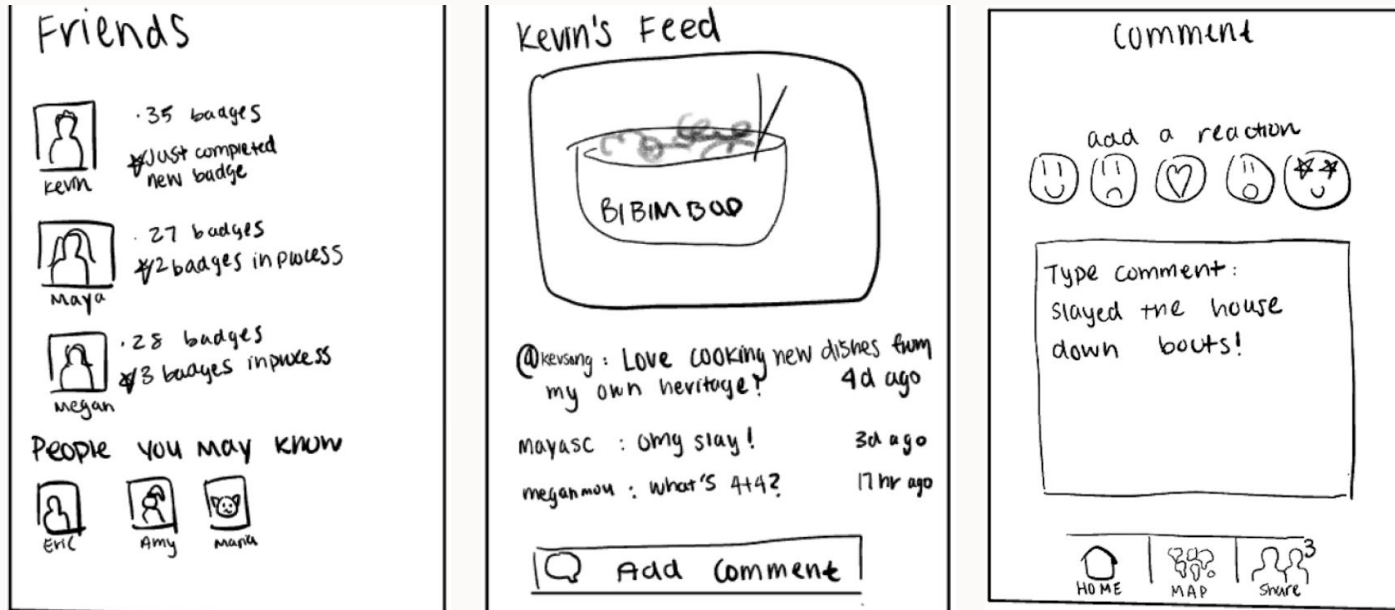
- Navigate to **all previously completed dishes** of a certain cuisine
- Can view info of past cooked dishes (**picture, date, caption**) that you logged

# Earning Badges & Sharing Dishes



- Earn badges for completing dishes within a cuisine → **set status** with badges
- Upload and **share / post creations** with community of **friends**

# Viewing Friends' Dishes

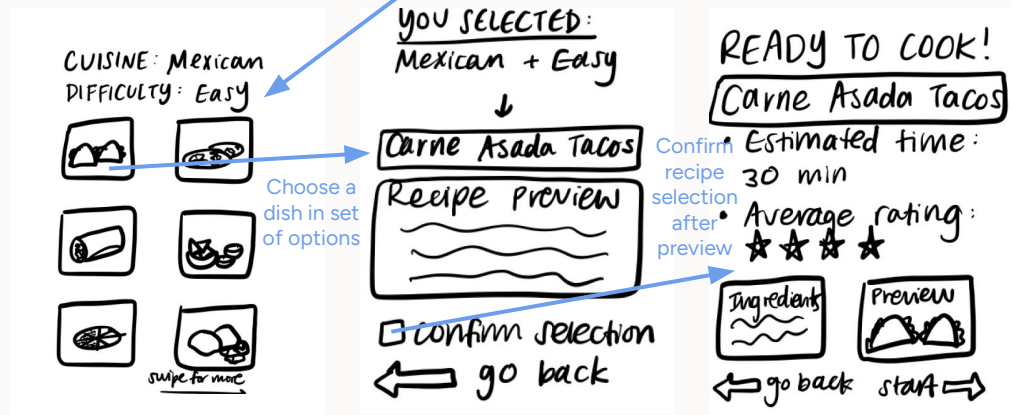
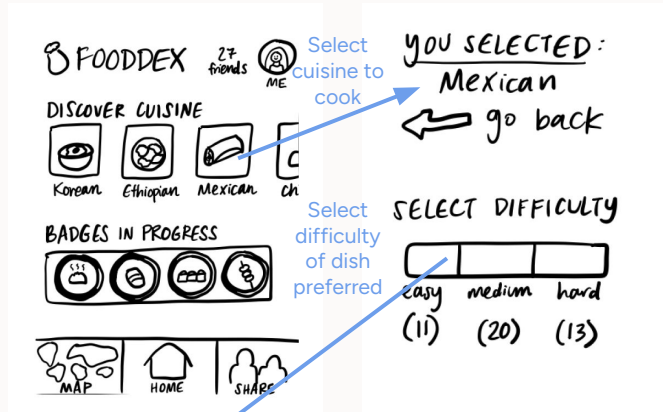


- **Friends view** displays all friends and their status updates
- **View, react, and comment** on individual posts of **dishes made by friends**



# Simple Task Flow

Discover a new recipe to cook from a specific culture.





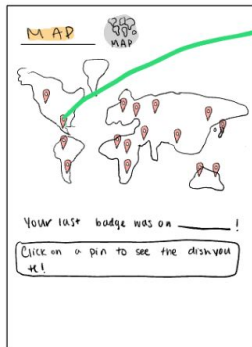
# Moderate Task Flow

Earn badges and view entries in your food journal.



## MODERATE - earning badges for completion

map (access countries)

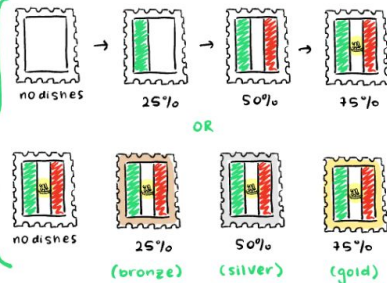


country



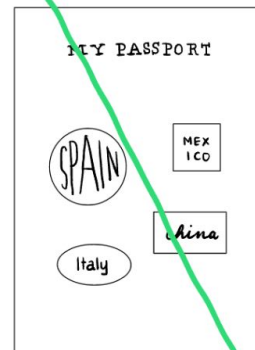
progress on badge doesn't need to be 100%  
→ choice = more satisfaction less pressure

potential badge progression?



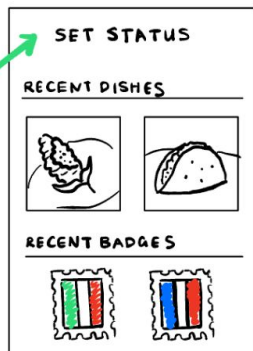
(collapsible)

passport



end game, for completionists (100% or close to)?

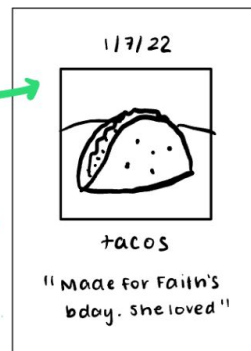
earn badge



pick recent achievement as status



pictures



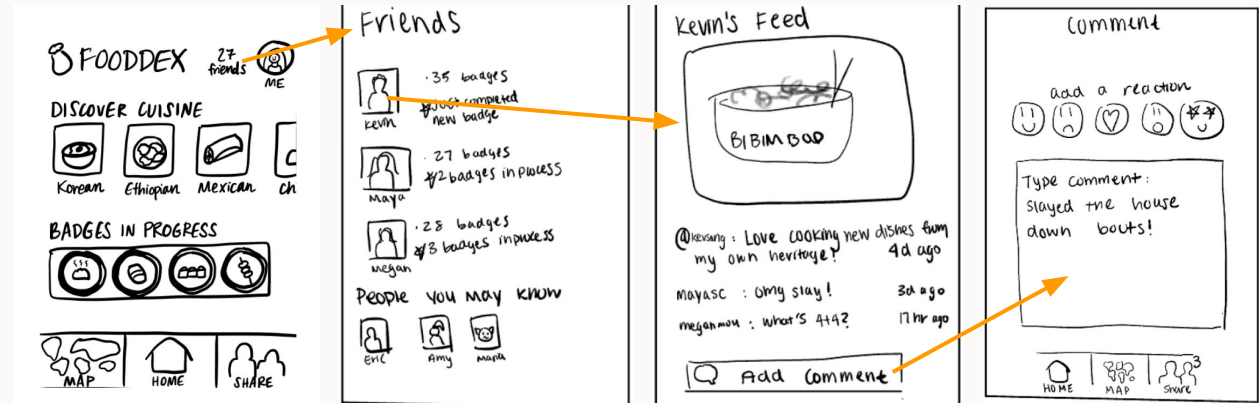
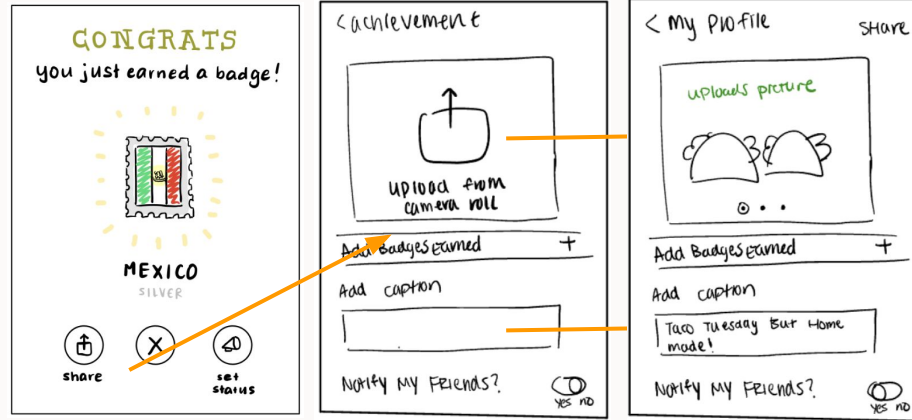
write custom notes



# Complex Task Flow

Share photos of your achievements with friends and comment on their photos.

Starting with the earned achievement page  
→ share option embedded



Go back to the home screen after sharing to find friend's profiles

Interact with friend's posts and comment after clicking into their profile





# 3

# Testing Methodology & Findings





# Interview Roles



Jeanette

Note-Taker



Kevin

Facilitator



Maya

Computer



Megan

Facilitator



# Participants

## Hamdiya (44 y.o.)

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- **Travels often** for work — was visiting Stanford for the first time
- Has a 16-y.o. **daughter**
- Works in **impact investing** (African venture philanthropy)



## Erik (20 y.o.)

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- **Loves cooking** — “would open [his] own restaurant” if not for his current tech job
- Enjoys **global cuisine** — favorite is Taiwanese food
- Has **long-distance girlfriend**



# Participants

## Morgan (50 y.o.)

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- **Rarely cooks** — wife does most of the cooking for the family
- Has 2 **young kids**
- Software information **technology manager**



## Jackie (16 y.o.)

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- **Self-described foodie** — loves to “try new restaurants with friends on the weekends”
- **Local high school student** who enjoys studying on Stanford campus



# Participants

## Lauren (26 y.o.)

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- **Doesn't like to cook** — typically “picks food from the work cafeteria for dinner”
- **Self-described “safe eater”** — sticks to her favorites
- Lives **alone**



*\* across the board, participants were not compensated (besides copious verbal thanks!)*

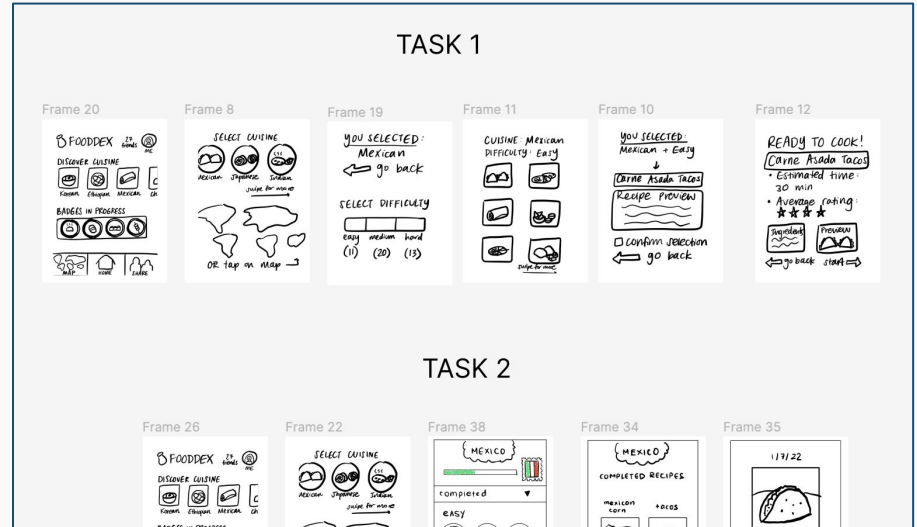
# Environment & Apparatus (1)

## Virtual

- Interviews conducted using Zoom
- Sent link for our Figma setup and asked user to screenshare with their device

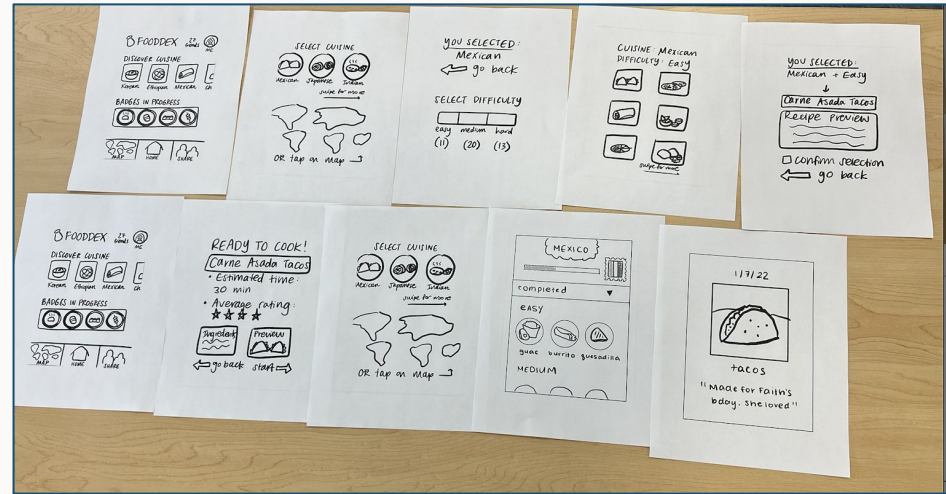
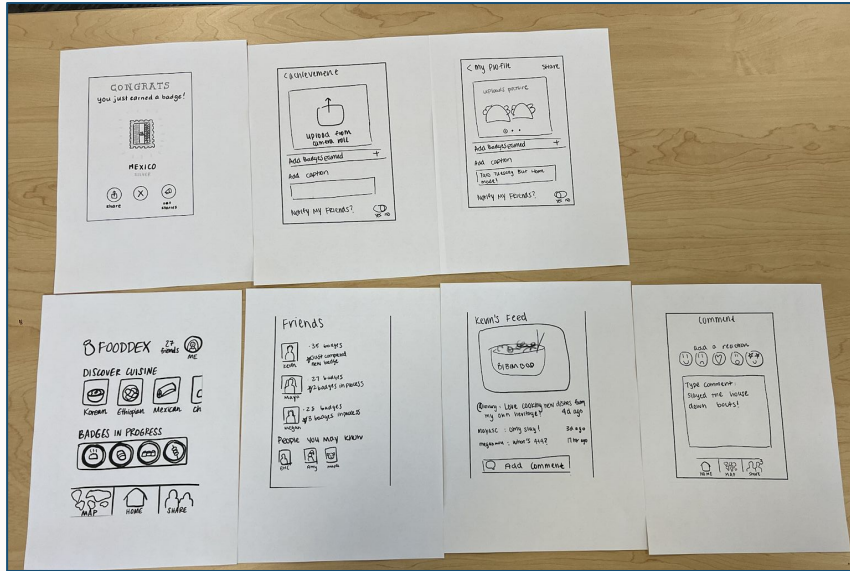
## In Person

- Printed out paper cutouts of screen maps and manually moved based on user actions
- Displayed on a flat surface for ease of viewing



*Figma adaptation of screen maps*

# Environment & Apparatus (2)



Paper adaptation of screen maps

# Usability Goals & Measurements



## Efficient

Can the user perform tasks quickly?

- **Time** how long it takes to perform each task and complete workflow

## Robust

Can the user perform tasks with minimal errors?

- **Count errors** made for each task
- Take note of significant or consistent **points of friction or clarity** during tests





# Procedure



1. We began by **explaining the goal / concept of FoodDex** to provide our testers with better context and motivation of its usage.
2. We encouraged users to **think out loud** and talk us through each step of the process while completing the upcoming tasks, as well as **raise any questions** they might have.
3. Next, we presented each of the **3 tasks** one at a time, **taking detailed notes** of incidents and observations and **timing** how long each took.
4. After each task, we paused for **intermediate questions and feedback**.
5. Finally, we asked 3 questions for **overall feedback**:  
What about using the app was easy? Difficult? What recommendations would you make to improve the user experience?



# Process Data



- Most (4) participants found it more difficult to **get started** (i.e. finding the right icon to initiate a task workflow) than following the steps afterward to follow through with the task
  - Testers spent ~25% of their time before making any initial selection
- **Task 1 was the most straightforward** for almost all users, despite getting used to our app for the first time.
  - Confusing: Discovering a new cuisine from Home vs. Map screens.
- **Task 2 was the most confusing initially**, as there was no icon on the home screen that led to a food journal or past dishes made.
  - Users were split between clicking on “Me” (own profile), badges in progress, and discover cuisines.
- **Task 3 was the most enjoyable**. Testers felt that it was “fun” to upload their creation and comment on a friend’s dish too – the only ambiguous part was “Friends” vs. “Share”.

# Key Process Data



Hamdiya



Erik



Morgan



Jackie



Lauren



Having multiple ways to navigate to a specific country's cuisines (either *Home* → *Discover Cuisines*, or directly via *Map*) was initially confusing.

- Across the board, the biggest delay for Task 1 was testers picking between the two ways.
- **Define *Map* Identity:** Need to differentiate the two, i.e. *Home* is for discovering new cuisines, *Map* visualizes world badge progress + quick linking to specific countries.
- **Rework Content Progression:** Map unlocks after a tutorial / a badge is earned?

# Key Process Data



**Clearer iconography and labels would make navigation more intuitive.**

Hamdiya's only major mistake during all 3 tasks was selecting the wrong dish (Quesadilla instead of Tacos) based on icons. 3/5 testers wanted better labels for badges and journal specifically.  
→ **Reduce Clutter:** Fewer buttons and **more white space**. **Clear icons will be so important.**



**Accessing *Journal* entries for previous dishes (via *Map*) felt very unintuitive.**

4/5 testers were visibly and audibly confused and/or frustrated by the lack of a centralized location for all aggregate journal entries.  
→ **Define *Journal* Identity:** Originally intended as a "nostalgic" element but is more of a side feature. Needs to (1) be more solidly incorporated and have a clear identity, or (2) be removed.

# Other Process Data



I want to see some of my social feed in the *Home* screen.



I wish I could see the ingredients for the dishes more easily to prepare beforehand.



The app concept is fun.

4/5 testers said they would download the app themselves.



Sharing cooked dishes via social feed incentivizes cooking.

# Usability Measurements: Efficient

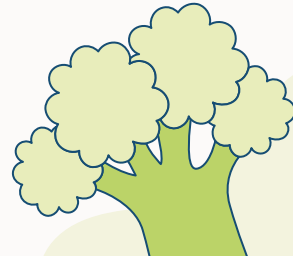
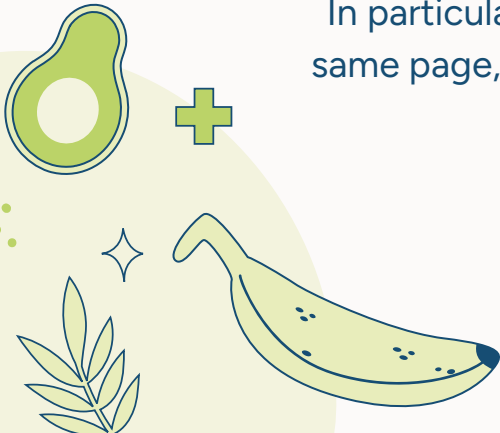
**Simple:** 32 sec

**Moderate:** 1 min, 6 sec

**Complex:** 1 min, 20 sec

**Overall times** are good and **reasonable**, especially for the simple task. However, there is **room for improvement** with both the moderate and complex tasks.

In particular, **adding labels** to navigation, **reducing duplicate** ways to get to the same page, and overall **streamlining** the process to make things easier to find will help us improve user efficiency.



# Usability Measurements: Robust

**Simple:** 0 errors

**Moderate:** 1.8 errors

**Complex:** 1.4 errors

Overall, **error rates** were **generally low**. Every tester was able to perform the simple task without issue, but there is **room for improvement** with the moderate and complex tasks.

The moderate task was the **most confusing initially**, which led to the highest error rate. The complex task had a **single point of confusion** that led to some errors.

The **labeling** and **simplification** changes planned to increase user efficiency will also reduce user error.



# 4

# Discussion





# Implications of Our Findings

1.

Having the fundamental task of **discovering** new recipes as the **front page** is most **helpful** (it's the main action user has to take to fully make the most out of other parts of our app)!

2.

Adding **straightforward** labels to existing **icons** and **reducing duplicate** ways to navigate to the same page helps **reduce confusion** → users achieve better efficiency

3.

Viewing personal **food journal** of a past dish was the most **confusing** part → the way users access the **first step** of a task workflow should be **more clear**

# Changes to Our Design: Homescreen

FOODDEX <sup>27</sup> friends   
ME

DISCOVER CUISINE



Korean



Ethiopian



Mexican



ch

BADGES IN PROGRESS



1.

Rename “Map” icon in the bottom navigation bar to “Collection” → easier to connect to past cooked recipes and journal entries

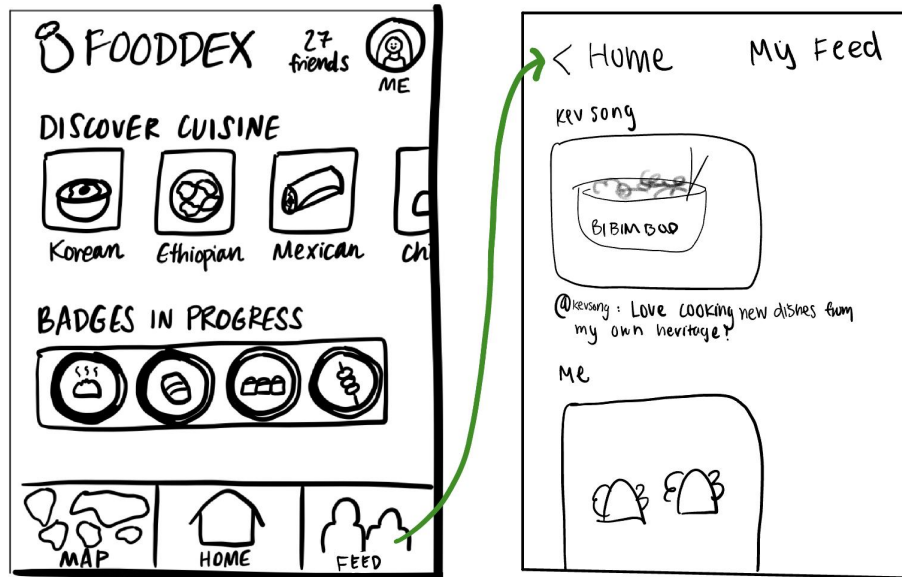


2.

Move the “Home” button to the **left** of navigation bar → **match** the most important screen to where the **thumb would naturally lie** on mobile



# Changes to Our Design: Navigation



3.

Add **“feed”** to bottom bar to show updates and posts from network  
→ access individual friend **profiles** through **“friends”** instead

# What Testing Couldn't Reveal

1.

**Emotions** and feeling of **satisfaction** from the cooking process that drive **motivation** for earning badges → Would task completion be faster with added emotion **incentive**?

2.

How **accessibility** of the interface would change if a user had **many** previously cooked recipes → Would each individual recipe be **easy** to find on the map and how long would it take to **navigate**?

3.

True time for testing since **extra time** was taken to answer small **clarifications** from testers → How long would it take if testers could not ask the facilitator?

**Thank You!**

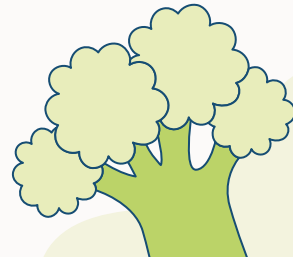
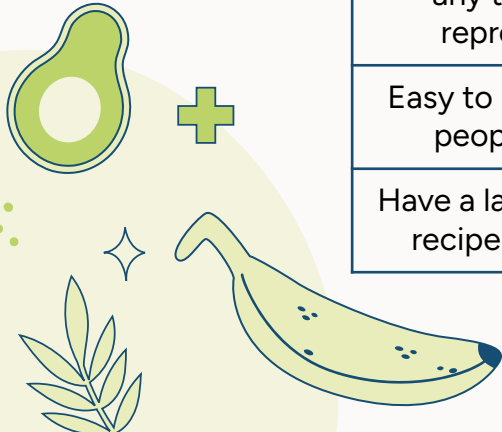


# Appendix



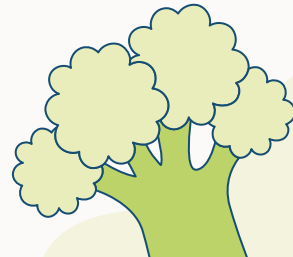
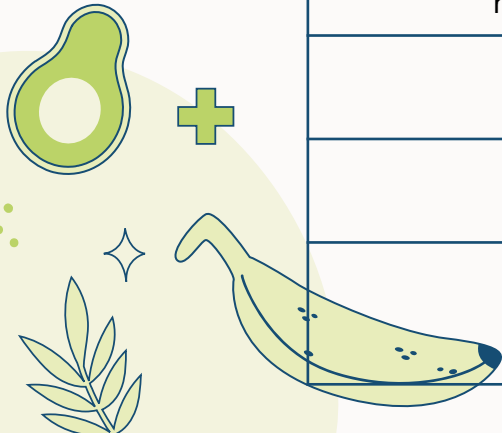
# Full Pros & Cons List: Mobile

Pros	Cons
Very easy and convenient to use	Less immersive than AR; not as sensory
Much easier to just pick up and use — people are more familiar with mobile apps	No in-person interaction component while the user is cooking
Users can check their progress at any time — visual / physical representation of progress	May be difficult / annoying to move between cooking and mobile device (vs AR you just see)
Easy to share with friends as most people have mobile devices	Mobile market somewhat saturated with cooking-related apps
Have a large range of UI options for recipe instructions and badges	



# Full Pros & Cons List: AR

Pros	Cons
More interactive for the user — get tips based on visual sensors in real time	Will be hard for us to design / implement on different systems
Users will be able to see instructions projected and ingredients labeled as they cook	Users who already have difficulty with cooking may be overwhelmed by additional AR aspect
More innately intuitive once you get past initial hump of learning AR (just like regular cooking)	Extended exposure to AR can have negative health effects (e.g. headaches, eye strain)
	Wearable may restrict senses needed for cooking
	Tech/setup required to enable AR may be inaccessible and/or costly
	UI likely to be very cluttered with cooking instructions, social, badges, and journal features





# Testing Script

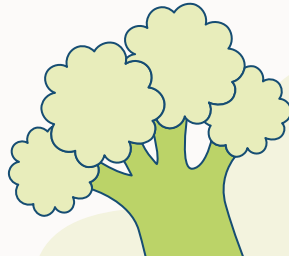
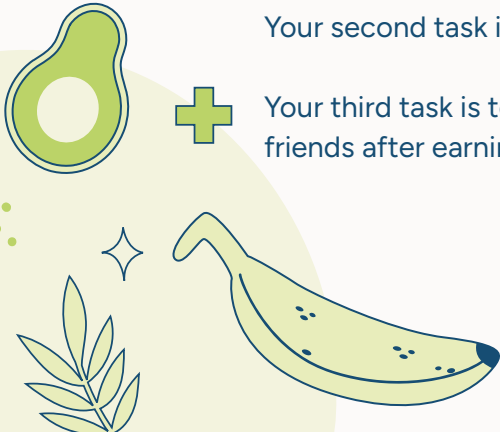
Today, you will be testing an initial prototype of our app FoodDex. Through our needfinding research, we found that many people love food but find culinary exploration difficult — they are too busy, lack confidence in their skills, or are generally unmotivated. With FoodDex, people can collect badges as they cook diverse cultural dishes to fill their FoodDex, and they can share their progress with friends and family.

We are going to ask you to complete a few tasks using our prototype. As you go through the tasks, please try to think out loud and talk us through each step of the process. Please let us know if you have questions at any time.

Your first task is to discover a new recipe to cook from a specific culture. For the test, please select Mexican.

Your second task is to view the journal entry and associated badge you earned for tacos you made.

Your third task is to interact with your community in the following ways: 1) upload a photo of the tacos for your friends after earning a badge and 2) comment on Kevin's post.



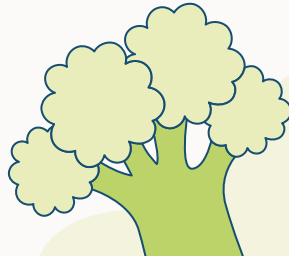
# Usability Goal Measurements – Jackie

## Goal #1: Efficient

- Task 1 Time – 20 sec
- Task 2 Time – 1 min, 24 sec
- Task 3 Time – 1 min, 50 sec

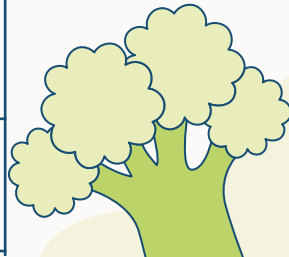
## Goal #2: Robust

- Task 1 Error Count – 0
- Task 2 Error Count – 2
- Task 3 Error Count – 2



# Critical Incidents Log – Jackie

Incident	Severity
Initially clicked profile (“Me”) for second task “Wouldn’t I find my recipes under me?”	3
Confused about where to click on map. Clicked on wrong area/country of map at first	4
Hesitated for longer before deciding to click on “share” to find friends	1
Easily found the recipe “This seemed really easy to get”	0
Was confused about why the recipe template we had was “easy” after she specifically chose “medium” difficulty level (we clarified the recipe was easy after)	1
Successfully commented on Kevin’s recipe “this is intuitive – just like a social media app”	0



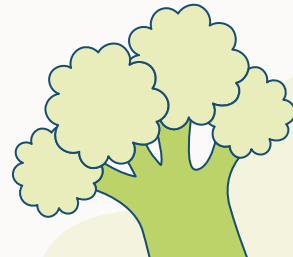
# Usability Goal Measurements – Morgan

## Goal #1: Efficient

- Task 1 Time – 49 sec
- Task 2 Time – 1 min, 12 sec
- Task 3 Time – 1 min, 37 sec

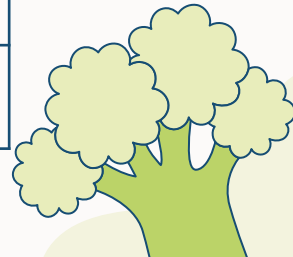
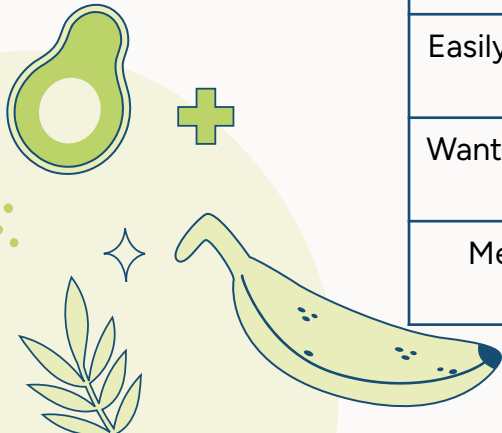
## Goal #2: Robust

- Task 1 Error Count – 0
- Task 2 Error Count – 1
- Task 3 Error Count – 1



# Critical Incidents Log – Morgan

Incident	Severity
Successfully navigated to Mexican dishes and clicked on a difficulty level	0
Got stuck trying to find a completed recipe – clicked on a new one instead	3
Confused by layout of interface that shows progress for one country	3
Easily able to find friends list and click on Kevin's profile	0
Wanted clearer labels on the interface to share a post	2
Mentioned that we should add a privacy notice	1



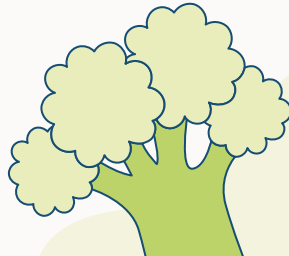
# Usability Goal Measurements – Hamdiya

## Goal #1: Efficient

- Task 1 Time – 8 sec
- Task 2 Time – 25 sec
- Task 3 Time – 30 sec

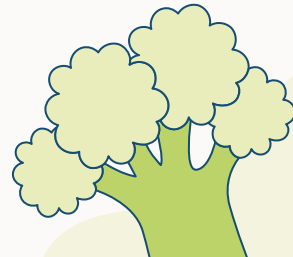
## Goal #2: Robust

- Task 1 Error Count – 0
- Task 2 Error Count – 1
- Task 3 Error Count – 1



# Critical Incidents Log – Hamdiya

Incident	Severity
Successfully navigated towards the taco recipe "this task is super direct"	0
Misidentified the quesadilla as the taco	1
Clicked on the "friends" rather than the share to navigate to Kevin's post	3
Clicked on the map first try for the recipe log "if I had to guess it would be under map"	0
Thought that in order to finish the recipe needed some aspect of ingredients	2



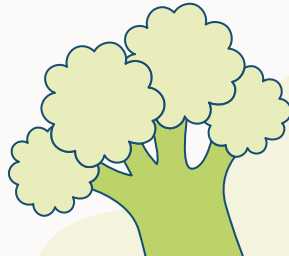
# Usability Goal Measurements – Eric

## Goal #1: Efficient

- Task 1 Time – 1 min, 8 sec
- Task 2 Time – 1 min, 42 sec
- Task 3 Time – 1 min, 55 sec

## Goal #2: Robust

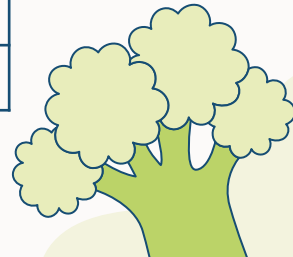
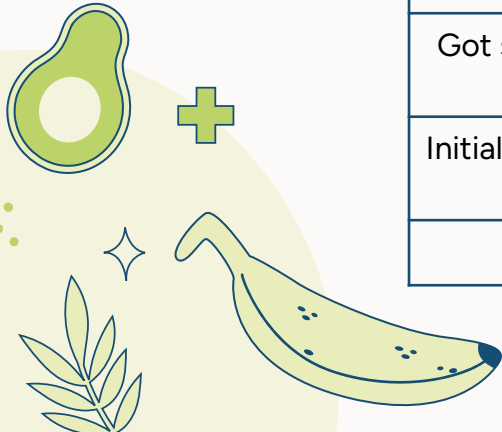
- Task 1 Error Count – 0
- Task 2 Error Count – 2
- Task 3 Error Count – 1





# Critical Incidents Log – Eric

Incident	Severity
Not sure what the numbers meant under recipe difficulty levels	2
Wanted labels under the dishes, not just pictures	1
Took 3 tries to find where completed recipes would be located	4
Got stuck trying to find a completed recipe	3
Initially clicked on wrong button when trying to find friends list	2
Easily able to share a photo	0



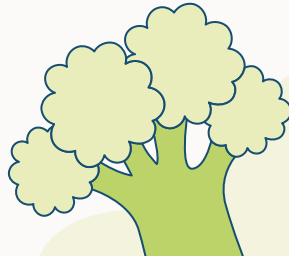
# Usability Goal Measurements – Lauren

## Goal #1: Efficient

- Task 1 Time – 15 sec
- Task 2 Time – 49 sec
- Task 3 Time – 50 sec

## Goal #2: Robust

- Task 1 Error Count – 0
- Task 2 Error Count – 3
- Task 3 Error Count – 2



# Critical Incidents Log – Lauren

Incident	Severity
Unable to find the journal section “would you go to “me” and would there be a journal entry section?”	4
Easily navigated to the taco dish “obviously you would scroll left and right for the discover cuisine”	0
Clicked the “friends” button instead of the share screen to get to kevin’s profile	2
Assumed journal would be its own section	3
Associated map with places travelled rather than foods cooked initially	1
Immediately was able to post photo and add to feed	0

