

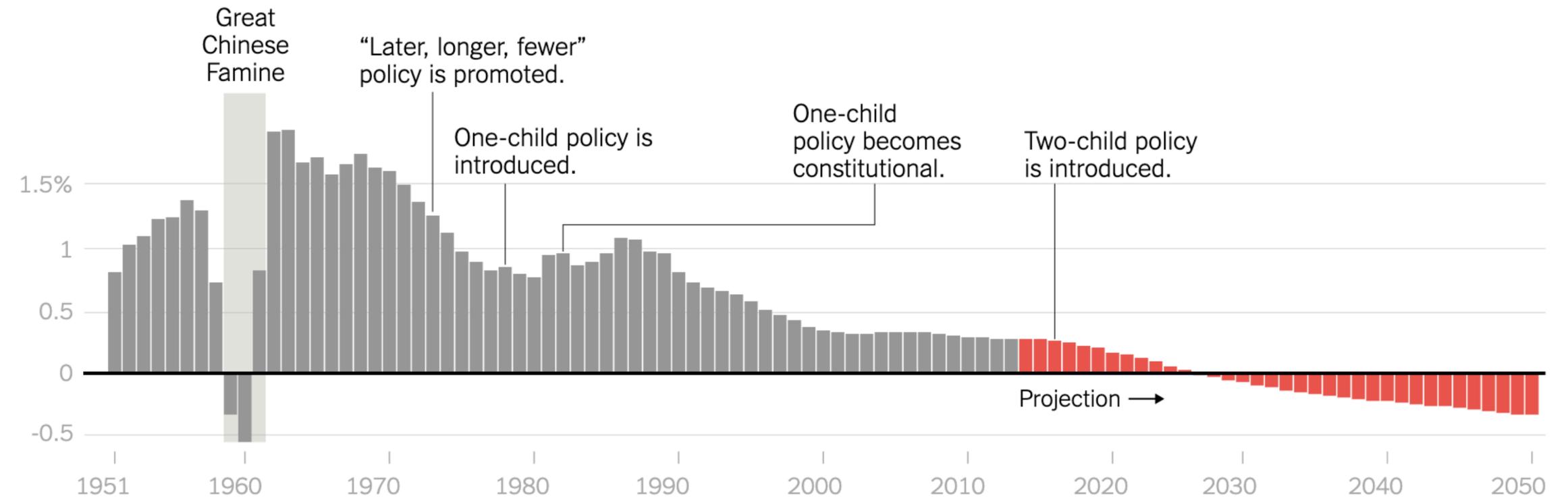
# Healthy Eating for Elder Adults in China

*Healthy Eating & Community Sharing*

# Current Status

# Aging Problem

## Annual population growth

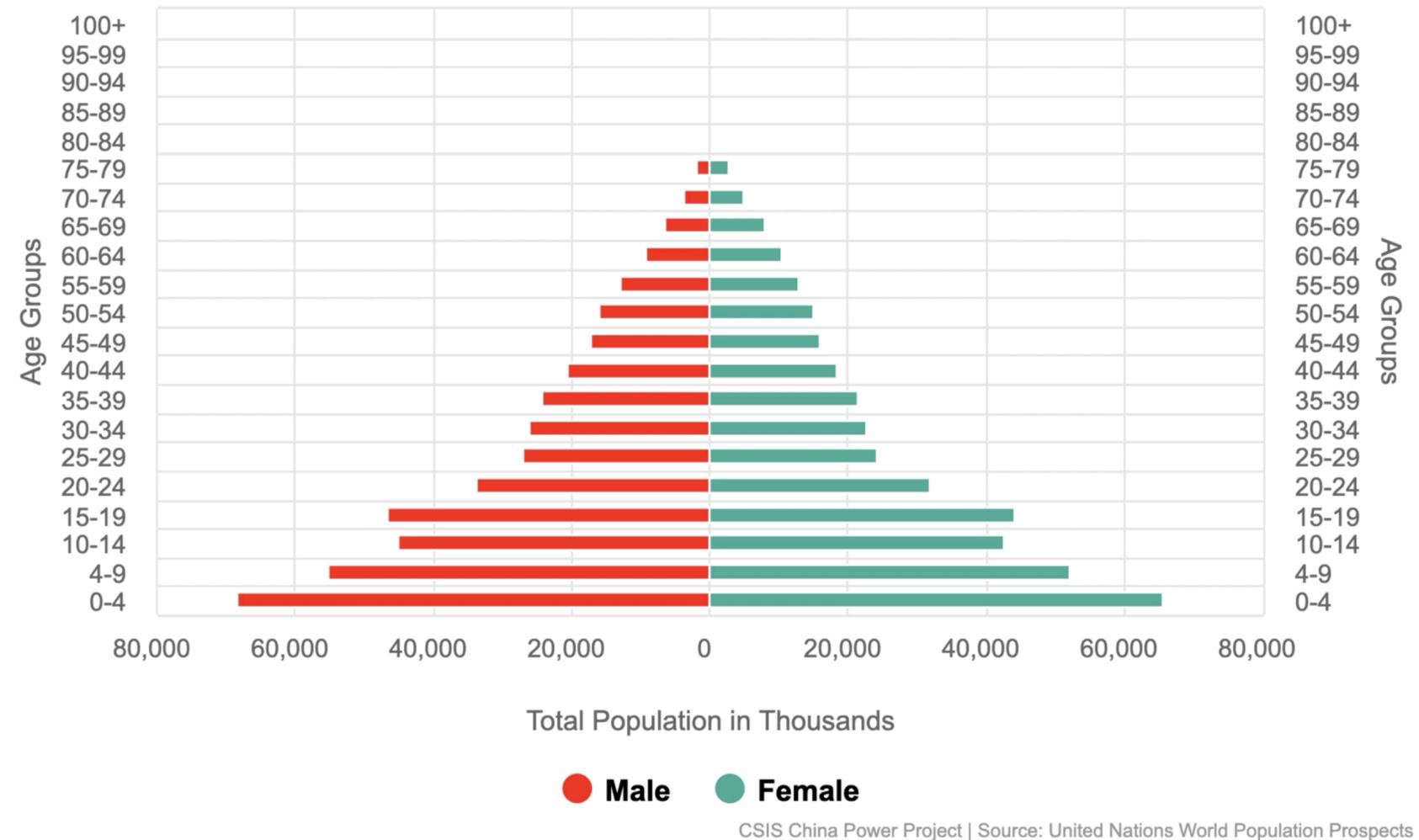


Source: U.S. Census International Data Base

“One child” policy results in a decline in the birth rate and an increase in life expectancy. This means there will soon be too few workers able to support an enormous and aging population. <sup>1</sup>

# Aging Problem

## Population History and Projections for China



1970

China is aging at a more rapid rate than other countries. According to the UN, it will take China just 20 years for the proportion of the elderly population to double from 10% to 20% (between 2017-2037).<sup>2</sup>

# Health Patterns

**Table 1**

Illustrative Health Differences in CHARLS by Age

<b>Age Group</b>	<b>Poor or very poor health</b>	<b>High Depressive symptoms</b>	<b>ADL/IA DL difficulty</b>	<b>Body pain</b>	<b>Total hyper-tension</b>	<b>% Undiagnosed hypertension</b>	<b>Get treatment if hypertensive</b>
<b>Men</b>							
45–59	17.0	24.8	13.5	22.9	32.6	48.5	37.1
60–74	26.5	31.6	27.1	26.7	46.9	37.0	50.5
75+	39.2	34.4	52.1	30.1	58.5	43.0	50.0
Total (45+)	22.4	28.1	21.8	24.9	40.3	42.8	44.6
<b>Women</b>							
45–59	22.4	35.7	19.3	34.7	32.7	39.9	47.8
60–74	33.1	46.6	36.3	39.7	55.1	37.4	50.9
75+	37.7	51.0	63.7	37.4	69.0	44.3	46.5
Total (45+)	27.5	40.7	29.6	36.6	43.9	39.6	48.8

Source: CHARLS 2011 baseline sample

The “problem” of population aging is easy to state—to provide income and health security at older ages and to do so at affordable budgets (Smith, 2012; Lee and Mason, 2010).

# Health Patterns

**Table 2**

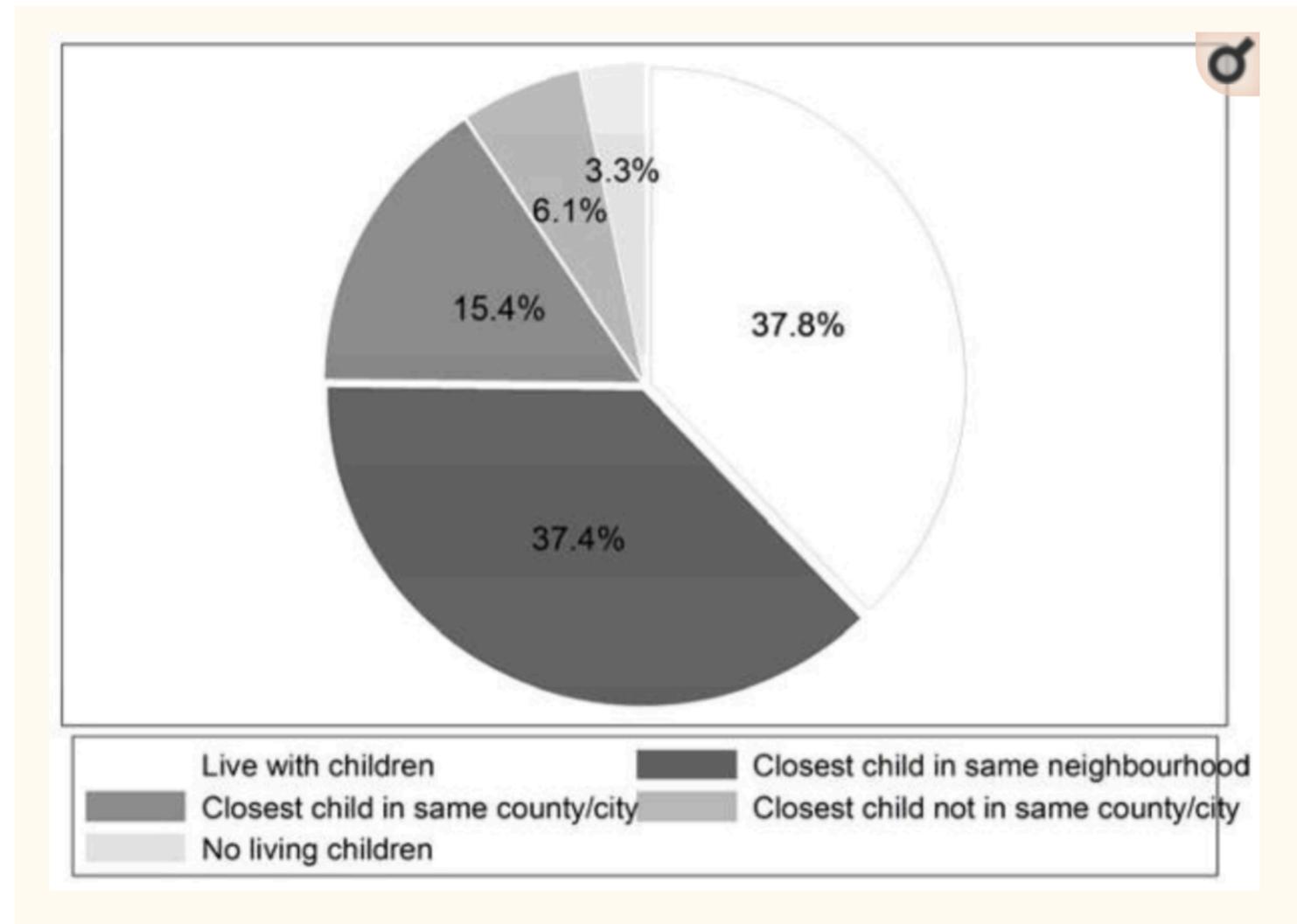
Illustrative Health Behavior Differences in CHARLS by Age

Age Group	Ever Smoked	Currently Smoked	Over weight (BMI $\geq$ 25)	Fraction saw a doctor last month	Fraction Insured	Number of Children ever born	Number of Living Children
<b>Men</b>							
45–59	74.7	58.3	29.6	14.1	92.4	2.0	2.0
60–74	72.2	50.2	27.6	18.4	95.0	3.1	2.9
75+	63.3	34.2	19.8	28.8	93.5	4.0	3.6
Total (45+)	72.8	53.2	28.1	17.0	93.4	2.6	2.5
<b>Women</b>							
45–59	4.9	3.7	40.1	21.9	92.6	2.2	2.1
60–74	10.1	7.2	38.1	22.7	93.8	3.4	3.2
75+	14.1	7.0	25.1	21.1	87.3	4.6	4.0
Total (45+)	7.5	5.2	37.9	22.0	92.4	2.8	2.7

Source: CHARLS 2011 baseline sample.

As we see high levels of being overweight now for both men and women alike with particularly high rates among the youngest age group where 38% of the Chinese women and 28% of the Chinese men are overweight.

# Living Arrangement



The consequence of these fertility and migration patterns is that elderly parents will be increasingly geographically separated from their adult children.

# Current Technology

# IoT & Healthy Lifestyle



- The Internet of Things (IoT) – a technology paradigm anticipated to be a global network of machines and devices capable of interacting with the internet and each other – has been hyped by many academics and manufactures as a new wave of technological advancements that will improve, or at least change, many aspects of modern life.
- There have already been some early attempts at creating Smart Fridges intended for household use however, though many thought of the Smart Fridge as a seemingly obvious opportunity to introduce such technology into homes, these attempts have been branded as commercial flops (Kuniavsky, 2010).

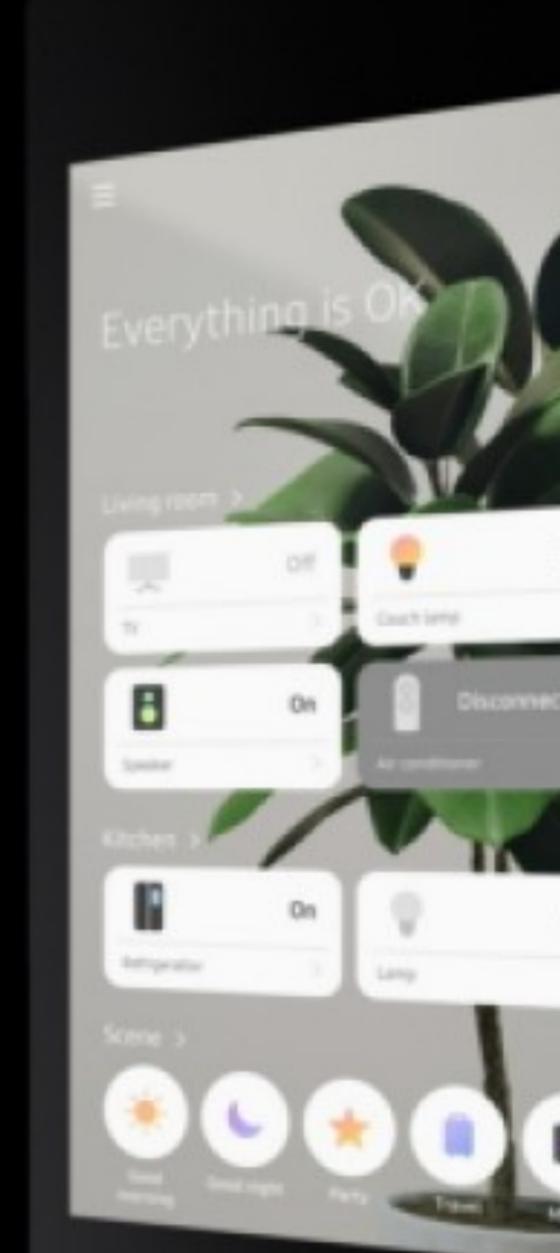
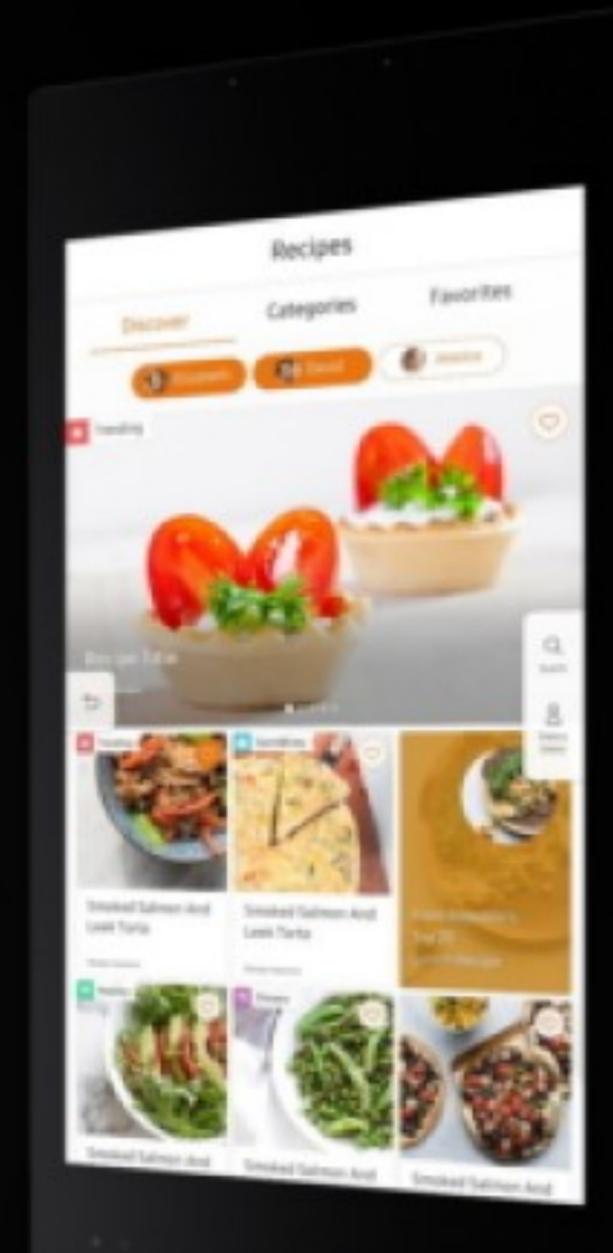
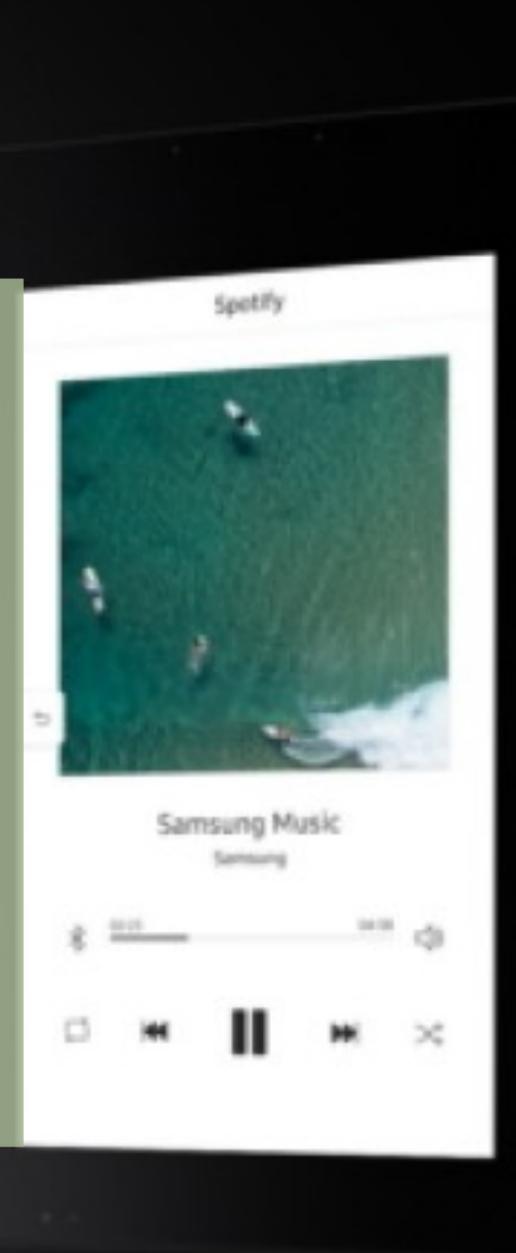
## Current Market - Basic fridge



Basic fridges are often hard to organize and can easily become cluttered. It is sometimes confusing whose food is whose or what food is in the back of the fridge. Users may often find themselves labelling their food or containers but still having their food stolen – a likely case if this fridge is in student accommodation. The lack of organization also means we often find some food has forgotten and expired. Leftovers especially, are hard to estimate when it bounds to be out of date. It is common that a member of a household does the weekly shopping, thus it requires a lot of time on meal planning. Also they may forget what is in the fridge when at the supermarket, leading buying duplicate products. Basic fridges require a constant check if there is enough food in the fridge – it is estimated that the average person visits their fridge 20 times a day.

## Current Market - Samsung Smart Fridge

The internet fridge though existing has limited functionality and visual appeal. This product has been unsuccessful because the consumers had seen it as unnecessary and expensive accessory. There are many features that not needed to be added on a fridge, making it complicated and time consuming for user, which is contradictory to the aims of a smart fridge.



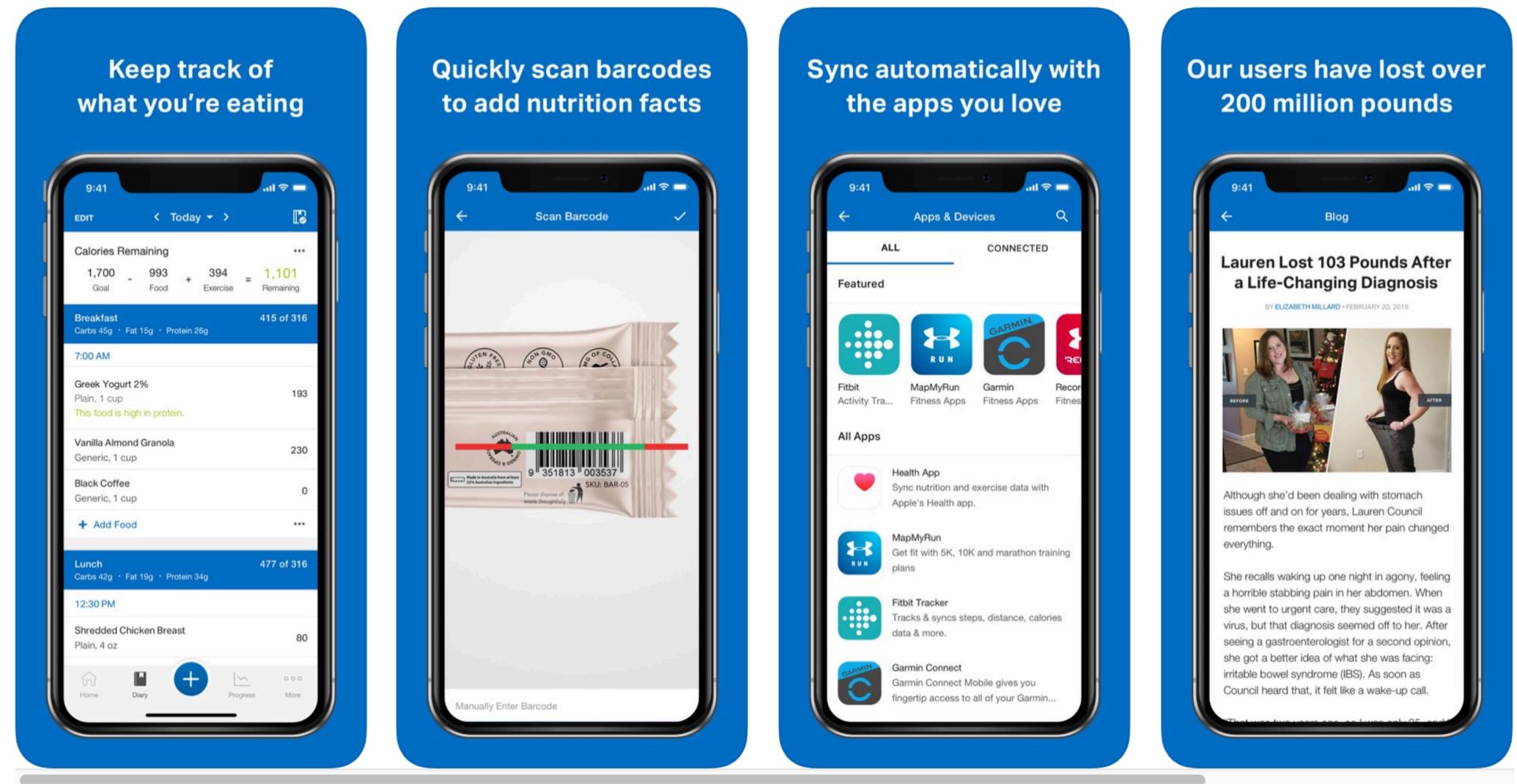
## Current Market - LG Internet Refrigerator



This refrigerator launched in 2000 was also an unsuccessful product. The problems solved were obscure. For example, many juice bottles are transparent, providing a visual reminder that a purchase is needed eventually; vegetable drawers are similarly transparent and contain items often removed from packages, thus this was the reason why bar codes were eliminated for inventory. Moreover, the ability of the device to remind users of upcoming purchases when there are often multiple buyers in a household who communicate informally is not typically addressable as a use case.

## Current Market- My Fitness Pal App

Having this feature on a smart fridge would reduce the time and dedication, by introducing a built in scanner that does not require manual product keying. Also the idea of a mobile app means that people can access information about their fridge on the go allowing for a greater range of possible functions. As the smart fridge will also be used to track users diets, it make sense to have a connected mobile app as users will not always be eating meals at home or from the food stored in their fridge.



# Primary Research

# Hypothesis

We believe that **elderly retired people** who **enjoy cooking** but sometimes feel **lonely** have a need for **exploring new menus** and **sharing achievements** with friends and relatives

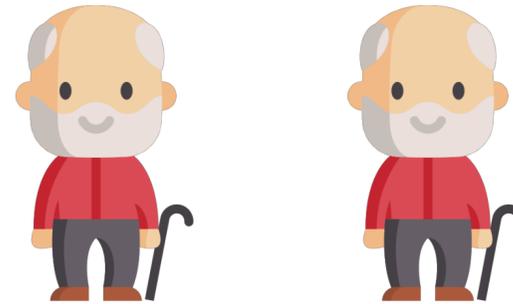
# Molecule



# Interviews

5 elderly retired people in total  
(including participants in the last week)

2 males



3 females





62, a retired primary school math teacher

My daughter usually blames me of eating expired food. Actually I know it is not healthy but I just do not want to waste food. If the food still looks good, I'd rather eat it instead of through it away.



60, a retired primary school art teacher

Sometimes, I go dinning out with my friends. I want to learn how to cook the dishes which taste really good by myself after I back to home. But the thing is that it is hard to learn without any professional instructions.



74, a retired company training teacher

I don't think retired life is boring. My life has a lot of fun. I treat cooking as a pleasure. I feel self-fulfilling especially when my daughter and grandson praise the food during our weekly family dinner time.



56, a retired accountant

We hold party to communicate with each other and have fun together every Saturday. We like sharing what we cook and learn from each other.



69, a retired company employee

I have high blood pressure and hyperlipidemia. So I need to be careful about my dietary habit. I care about the nutrition fact and want some tips for how to eat more healthier.

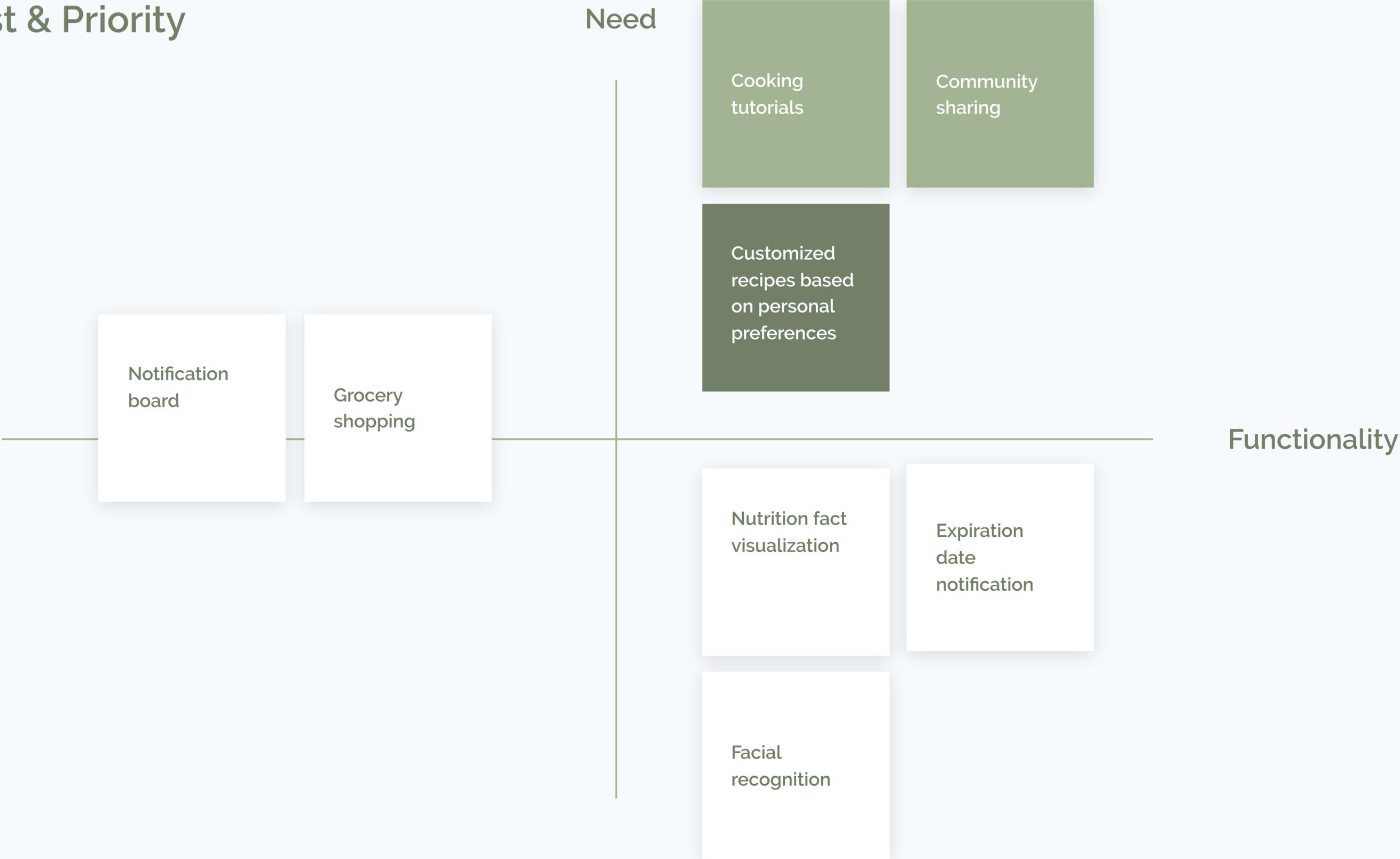
Elderly retired people **treat cooking as a hobby** and **self-fulfilling** while being **praised** by relatives and friends.

Retired elderly people **learn from each other (their community)** about cooking.

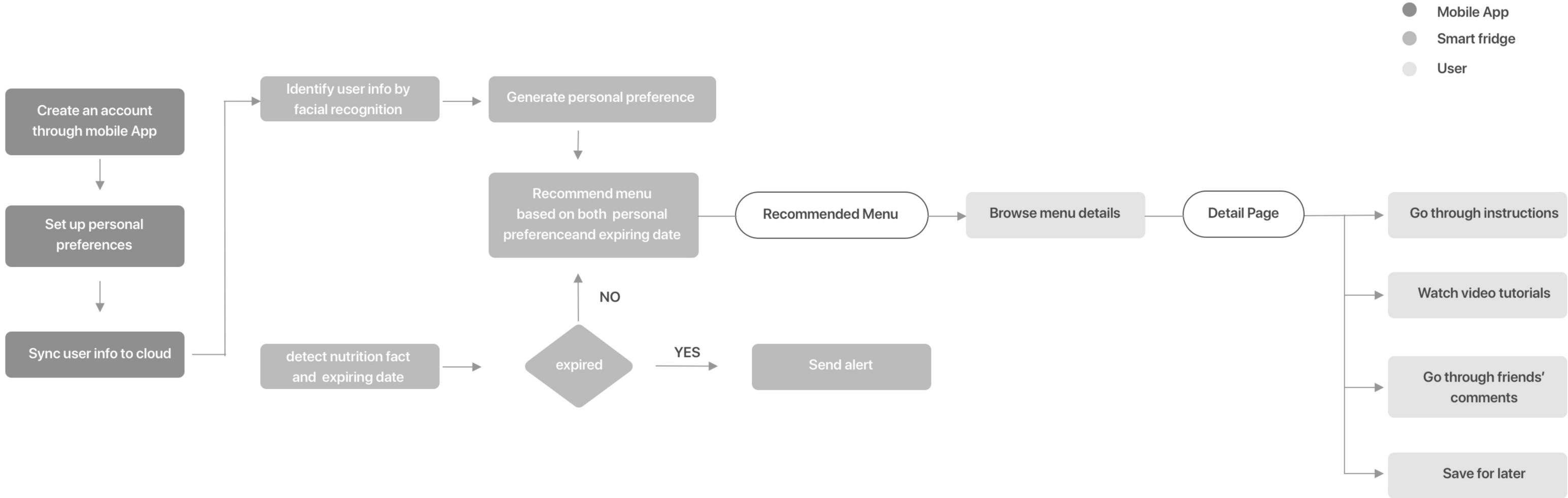
**While dining in the restaurants,**  
retired elderly people would like to learn how  
to **cook the dishes by themselves**  
**back home.**

# Updated MVP

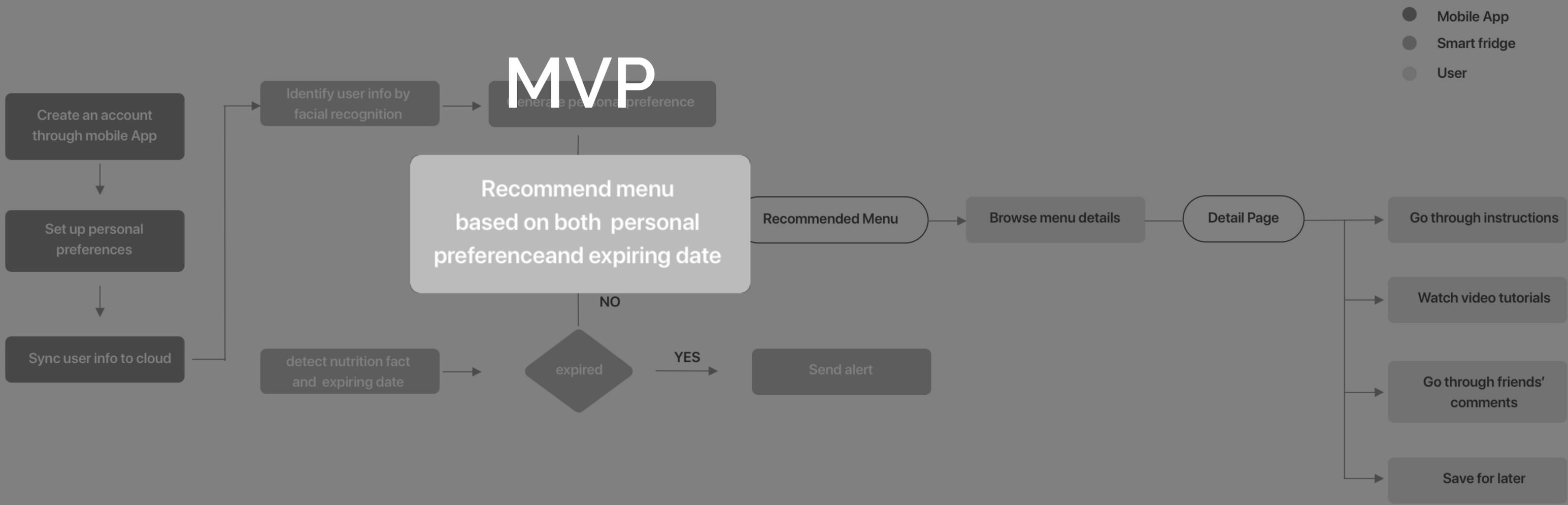
# Feature List & Priority



# Updated Workflow



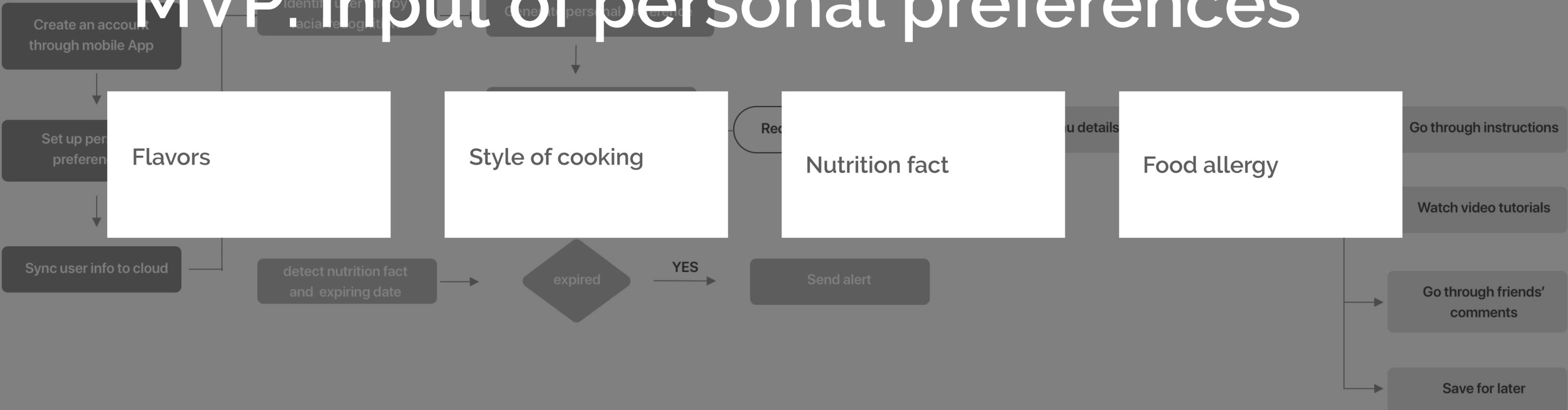
# Updated Workflow



# Updated Workflow

## MVP: input of personal preferences

- Mobile App
- Smart fridge
- User



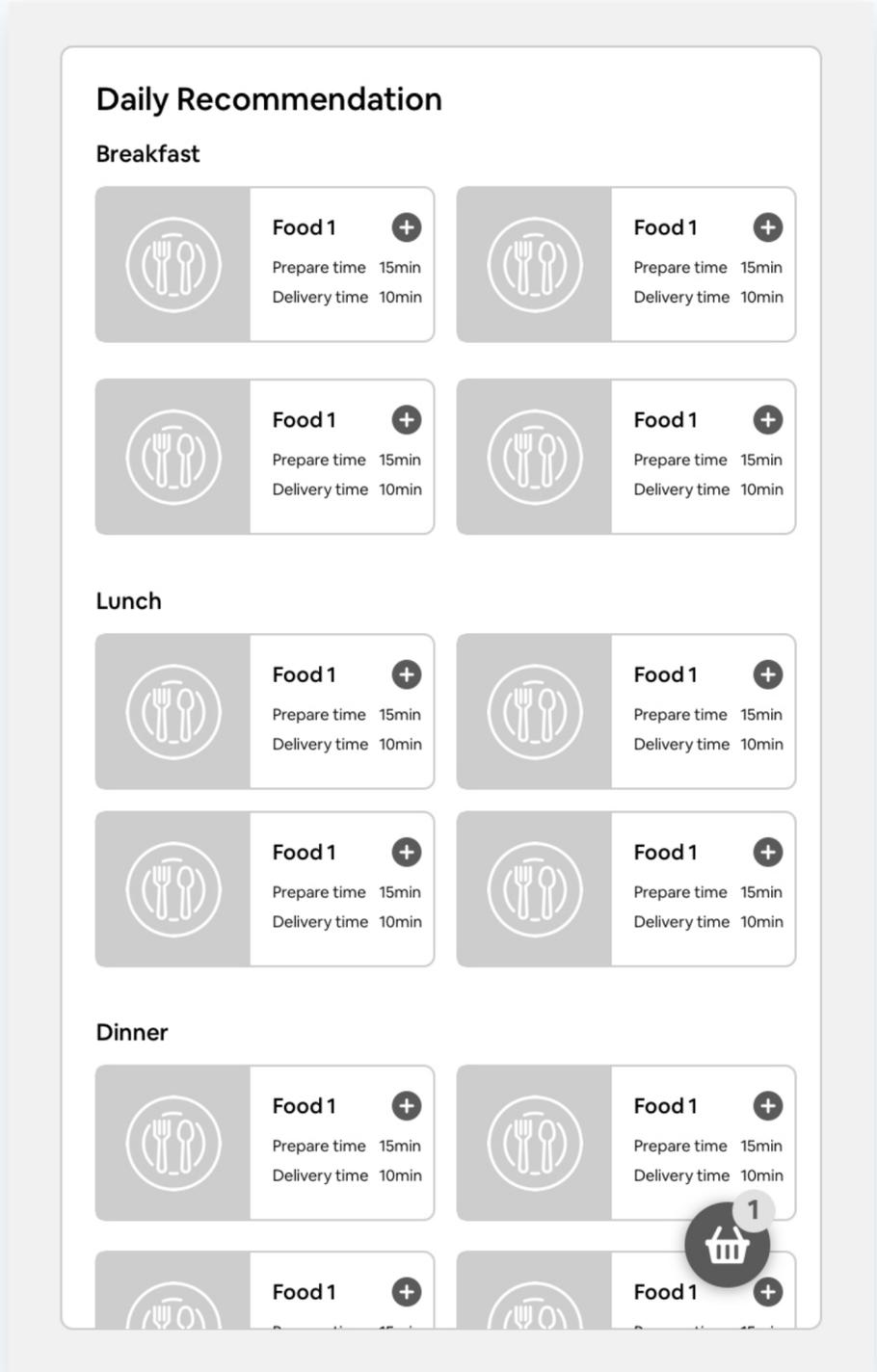
# Test Plan

# MVP Test Plan - Customized Menu based on personal preferences

## Step 1: Gather data about participants' preferences of food

<p>1. How old are you?</p> <p><input type="radio"/> &lt; 50</p> <p><input type="radio"/> 50-60</p> <p><input type="radio"/> 60-70</p> <p><input type="radio"/> &gt; 70</p>	<p>2. Any food allergy do you have?</p> <p><input type="checkbox"/> Cow's milk</p> <p><input type="checkbox"/> Eggs</p> <p><input type="checkbox"/> Tree Nuts</p> <p><input type="checkbox"/> Peanuts</p> <p><input type="checkbox"/> Shellfish</p> <p><input type="checkbox"/> Wheat</p> <p><input type="checkbox"/> Soy</p> <p><input type="checkbox"/> Fish</p>	<p>3. What type of staple do you prefer?</p> <p><input type="checkbox"/> Rice</p> <p><input type="checkbox"/> Noodle</p> <p><input type="checkbox"/> Porridge</p>	<p>4. What type of protein do you prefer?</p> <p><input type="checkbox"/> Pork</p> <p><input type="checkbox"/> Beef</p> <p><input type="checkbox"/> Chicken</p> <p><input type="checkbox"/> Fish</p> <p><input type="checkbox"/> Mutton</p> <p><input type="radio"/> None</p>	<p>5. What ways of cooking do you prefer?</p> <p><input type="checkbox"/> Steam</p> <p><input type="checkbox"/> Boil</p> <p><input type="checkbox"/> Braise</p> <p><input type="checkbox"/> Stew</p> <p><input type="checkbox"/> Fry</p> <p><input type="checkbox"/> Grill</p>	<p>6. How long do you usually prepare for food?</p> <p><input type="radio"/> &lt; 30min</p> <p><input type="radio"/> 30min - 1hr</p> <p><input type="radio"/> 1hr - 2hr</p> <p><input type="radio"/> &gt;2hr</p>	<p></p> <p>Your personalized menu is generated</p>
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# MVP Test Plan - Customized Menu based on personal preferences



Step 2: Customize the menu for the participant based on their preferences

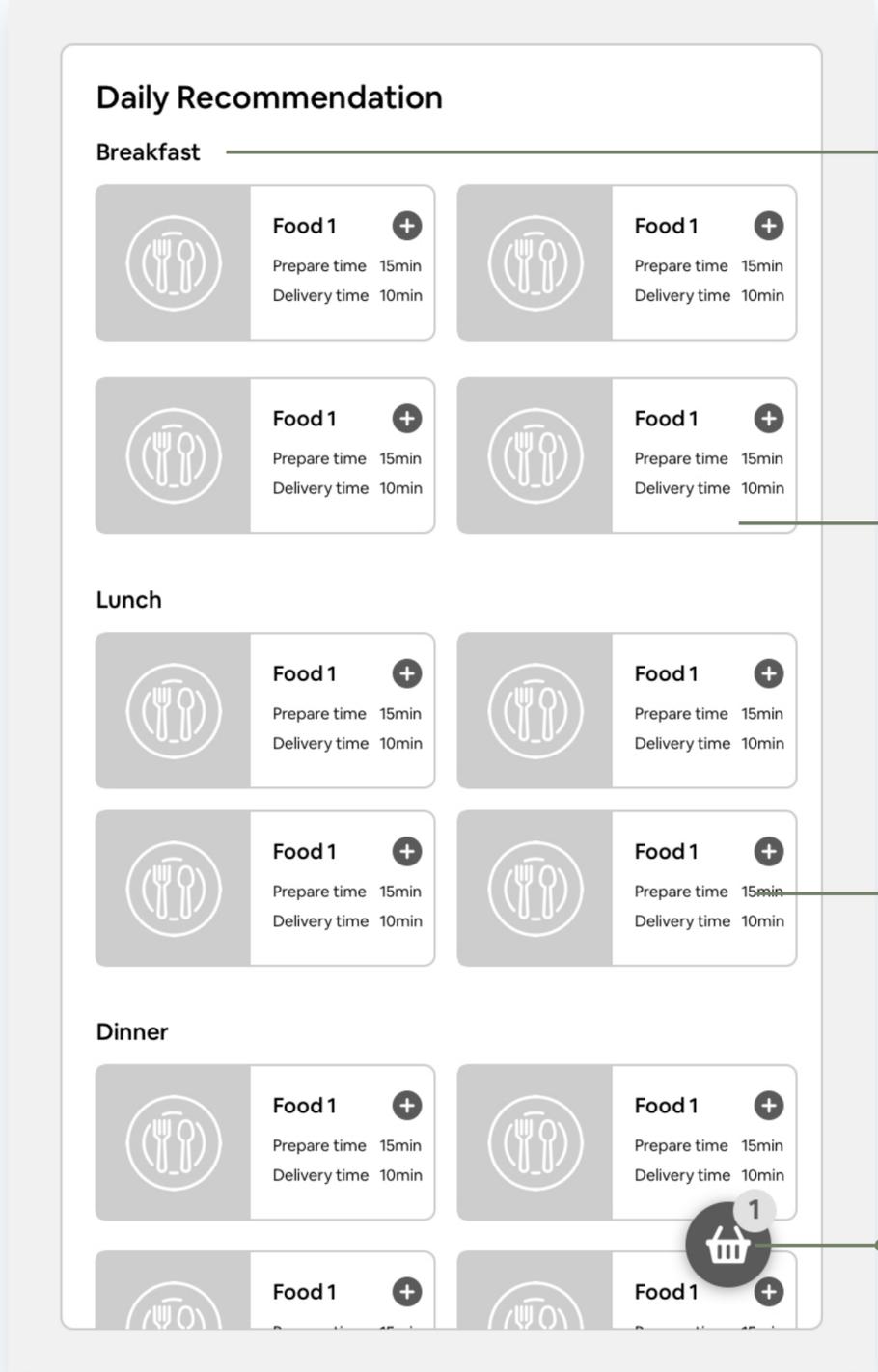
# MVP Test Plan - Customized Menu based on personal preferences

Step 3: Ask them how do they feel about the customized menu?



# Round 1 User Test

# Feedback from Round 1 User Test



“Usually, I don't think breakfast recommendation is important, since I always eat certain kinds of food, such as bun, eggs, soy milk...”

“If I could learn how to cook it, maybe some instructions, which would be great.”

“I personally think ingredients are more important for me when considering what to eat”

“Why should I buy food here without knowing any details about it?”

# Iteration

# Rough Sketch



### Recommended Menu

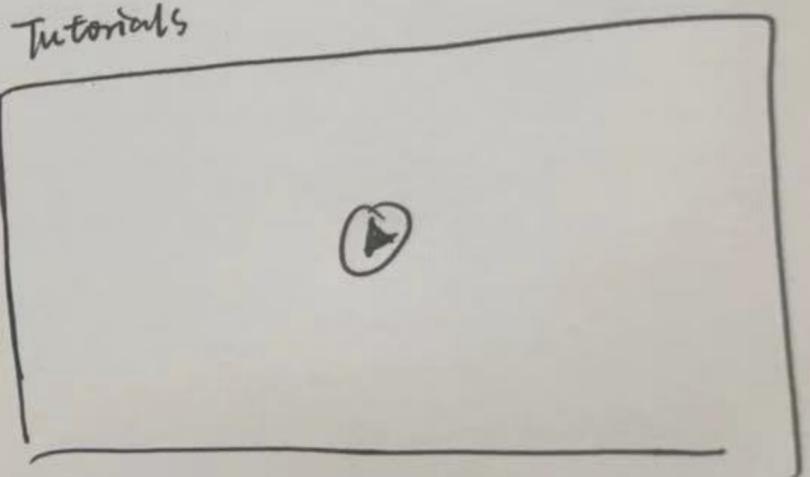
Menu 1	Menu 2	Menu 3
Menu 4	Menu 5	Menu 6
...		

- ### Expiring date
-  1 day
  -  2 days
  -  3 days

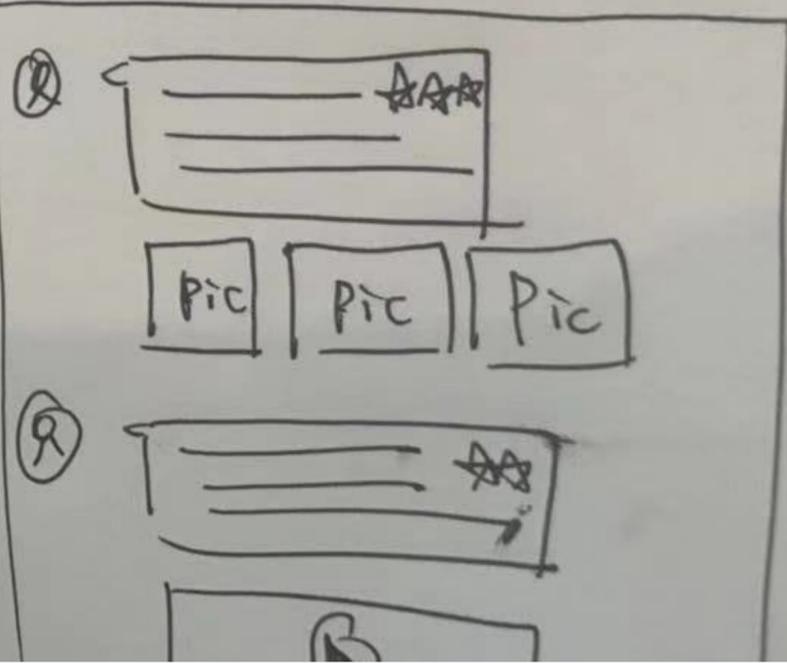
### Food Pic

Ingredient   
Instruction   
  


### Tutorials



A large rectangular area representing a tutorial player, featuring a central play button icon.



A recipe card layout with a title, a list of ingredients, three "Pic" placeholders, and a bottom section with a play button icon.

# Low-fi prototype

## Good morning, Judy!

**This is your health reports**



**Recommended menu based on your health reports**

- Food 1
- Food 2
- Food 3
- Food 4
- Food 5
- Food 6

...

**Expiring date**

1 day	1 days
1 day	2 days
2 days	2 days
3 days	3 days

**Weekly activities**

- Fri 19:00 Family Dinner
- Sat 09:00 Fishing
- Sun Community Lunch

[< Back](#) Recommended menu



**Food 1**

- Ingredient 1
- Ingredient 2
- Ingredient 3
- Ingredient 4
- Ingredient 5

**Tutorials**

**Step 1**  
This is intruction. This is intruction.

**Step 2**  
This is intruction. This is intruction.



**Friends reviews**

Andy ★★★★★  
This is a really good menu for the family dinner! Check it out!

Andy  ★★★  
This is my customizing menu :) Check it out!

## Low-fi prototype



Facial Recognition



User Profile Matching...



User Profile Matched