

# SMARTSCAN DESIGN PROJECT

...so we can all do our part to minimize food waste!!

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# INTRODUCTION

- Growing up
  - Large family
  - Financial challenges
  - Food was 2<sup>nd</sup> highest expense
    - Quick grabs
    - Waste due to spoilage
- Adulthood
  - Habits carried over
  - Cultural issue
  - Shopping patterns
- Nationwide problem
  - Health epidemic
  - Climate change
  - Hunger
- The search for a solution

# PROJECT PLANNING – NEEDS FINDING

- Food waste stats
  - 30% worldwide
  - 614 kcal/day/person
- Land / water waste
  - Animal agriculture / farming
  - Irrigation
  - 8-10% greenhouse gas emissions

# PROJECT PLANNING – NEEDS FINDING

## INTERVIEW SUMMARY & ANALYSIS

- Biggest contributors
  - Lack of order
  - Leftovers get forgotten about
  - Lack of creativity - using single ingredient leftovers, i.e. a cut open bell pepper
  - Refrigerator design - makes forgetting easy; foods cannot be seen
  - Existing foods get pushed aside or to the back when new groceries come home

# PROJECT PLANNING - DELIVERABLES

## SMARTSCAN

- Downloadable Application
- PLU Code Reader
- Interactive component
- Database – store uploaded information
- Notifications via text alerts
- Chat Box - a ready assistant to users needing help with the application

# PROJECT PLANNING – NEEDS FINDING

Reason for design choice

- Smart refrigerators
  - Do not own due to cost
  - Limited functionality around food waste prevention

# PROJECT PLANNING – SUCCESS MEASUREMENT

Based on food waste interview

- SmartScan application will help with
  - Remembering what they have at home
  - Buying more fresh foods, less processed
  - Preparing meal at home
  - Finishing leftovers
  - Wastefulness / healthy eating
  - Saving money

# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## PERSONA - CHERYSE

### CHERYSE



"Life is too beautiful to live it in disorganization"

#### SCENARIO

Cheryse is a married 41 year-old mother of 4 who quit her job with corporate America to be a stay-at-home mom. She currently resides in rural Pennsylvania and raises chickens and a few sheep. She struggles everyday to maintain order in her home which is especially challenging since she homeschools her 2 youngest boys. Keeping up with daily chores and finding ways to maintain balance between her childrens' schoolwork and leisure time, while carrying out wifely duties leaves her with very little time to focus on selfcare. Cheryse's biggest challenge is keeping track of groceries she has stored in her refrigerator and always ends up purchasing foods she already has at home. Because of this, the old food ends up spoiling and has to be thrown away. Cheryse decided to download SmartScan and go through her refrigerator, and manually entering all the fruits, vegetables, and meats she has, and giving them expiration dates.

#### BEHAVIORS

- ~ Tends to farm animals
- ~ Streams on YouTube to look up recipes
- ~ Attends church on Sundays

#### GOALS

- ~ Getting children through grade school
- ~ Starting her own YouTube cooking channel
- ~ Patenting her own kitchen spices

#### FRUSTRATIONS

- ~ Cheryse struggles with her mental health due to lack of time to decompress

#### PERSONALITY



#### MOTIVATIONS



#### BRANDS





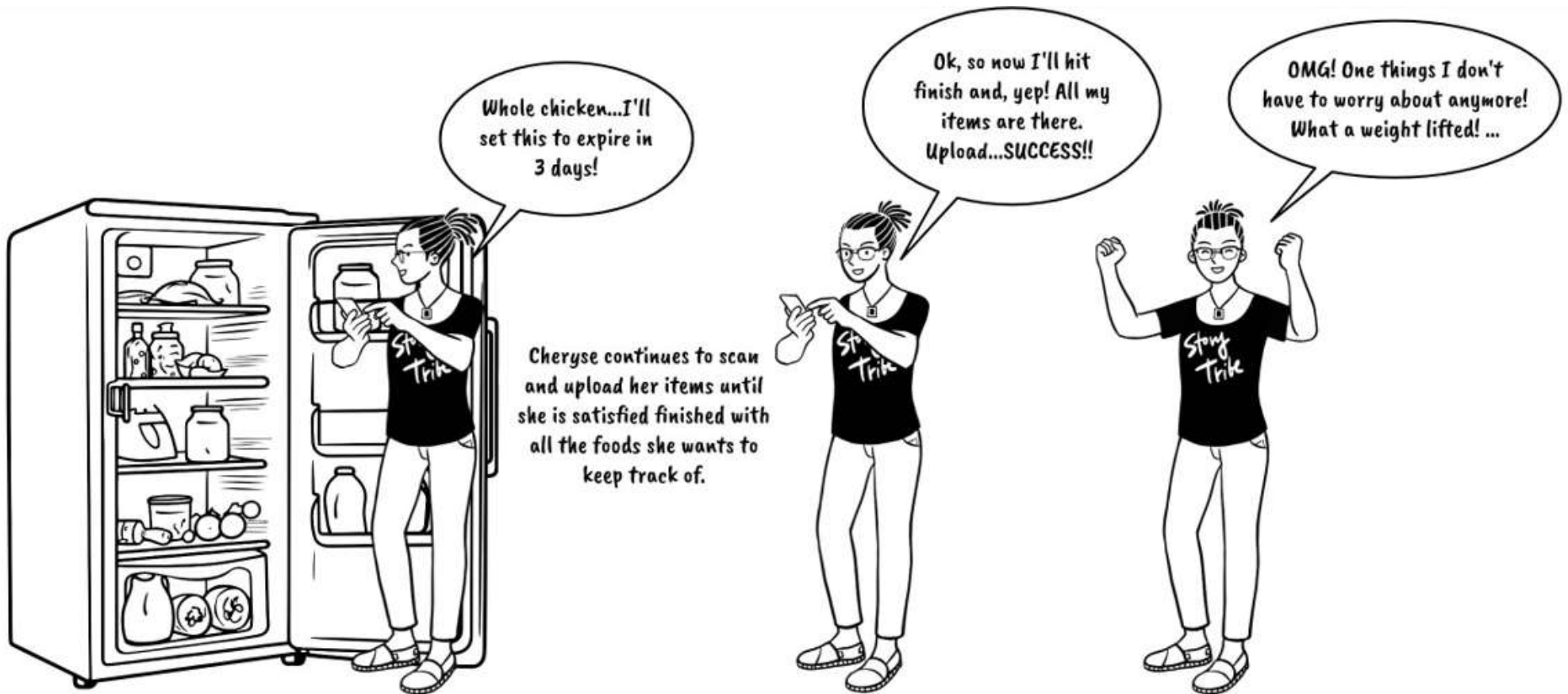
# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (CHERYSE)



# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (CHERYSE CONT'D)



# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## PERSONA – VIRGINIA

### VIRGINIA



"The goal is to get old!"

#### SCENARIO

Virginia is an empty-nester currently residing in Queens, NY with her husband. She lives a very active life decorating for special occasion events and writing plays for her church's various holiday productions. She tries to practice eating well and exercising. Dining out is something Virginia does pretty regularly because much too often she lets food in her refrigerator go bad. Her busy schedule makes it difficult for her to remember to eat what's at home. To solve this problem, she decided to download SmartScan, and the next time she went grocery shopping she used it to upload her perishable items and set expiration dates. That way, she could get text alerts about the foods that she needs to prioritize eating.

#### BEHAVIORS

- ~ Scrolling Pinterest for decorating ideas
- ~ Checking and sending social media to solicit and maintain clientele
- ~ Streaming on YouTube to study playwriting

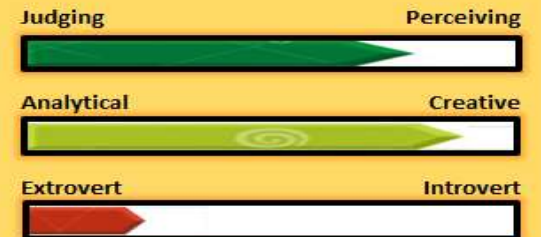
#### GOALS

- ~ Getting contracted to decorate for high-end celebrity homes
- ~ Turning her plays into big-screen films

#### FRUSTRATIONS

- ~ Virginia struggles find an assistant to assist with her various job demands
- ~ Her husband's declining health and lack of mobility make it difficult for her to focus enough on keeping her home organized and which makes it hard to concentrate on her work

#### PERSONALITY



#### MOTIVATIONS



#### BRANDS



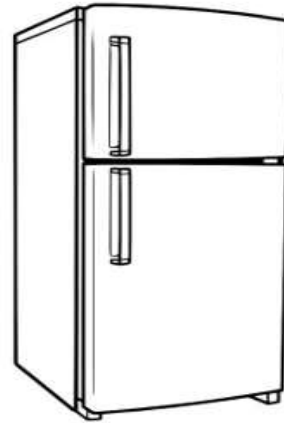
# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (VIRGINIA)

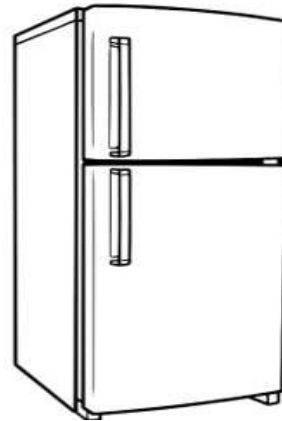


# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (VIRGINIA CONT'D)



Virginia scans her perishable foods, sets their expiration dates, and places them in the refrigerator





# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## PERSONA – ANDREW

### ANDREW



"You don't fall behind. You fail forward."

#### SCENARIO

Andrew is a 26 year-old ambitious bachelor who works as an Elementary School teacher and personal fitness trainer. He recently relocated to Houston, TX and is trying to attract new clientele at the LA Fitness gym in his town, but is finding difficulty with competing with other trainers who have already achieved popularity at the facility. Looking the part is one way Andrew knows he will attract business, and to ensure this, he does a lot of juicing, making smoothies, and eating salads. He buys mostly organic non-GMO produce to make sure he gets as many nutrients as possible. The problem is, Andrew does not organize his foods in the refrigerator and often doesn't know ones to prioritize. So, much of his produce gets forgotten about long enough to grow moldy, and into the trash it goes. He decided the best thing he could do to help himself is utilize SmartScan.

#### BEHAVIORS

- ~ Working out
- ~ Grading students' homework
- ~ Creating curriculum-based assignments for students
- ~ Navigating social media pages to solicit new clientele

#### GOALS

- ~ Starting his own fitness club
- ~ Starting a YouTube channel and podcast to promote healthy living

#### FRUSTRATIONS

- ~ Struggles to pay his bills due to low-paying job as an Elementary School teacher
- ~ Sees peers exceling in their careers while he faces challenges trying to establish himself in a new town

#### PERSONALITY



#### MOTIVATIONS

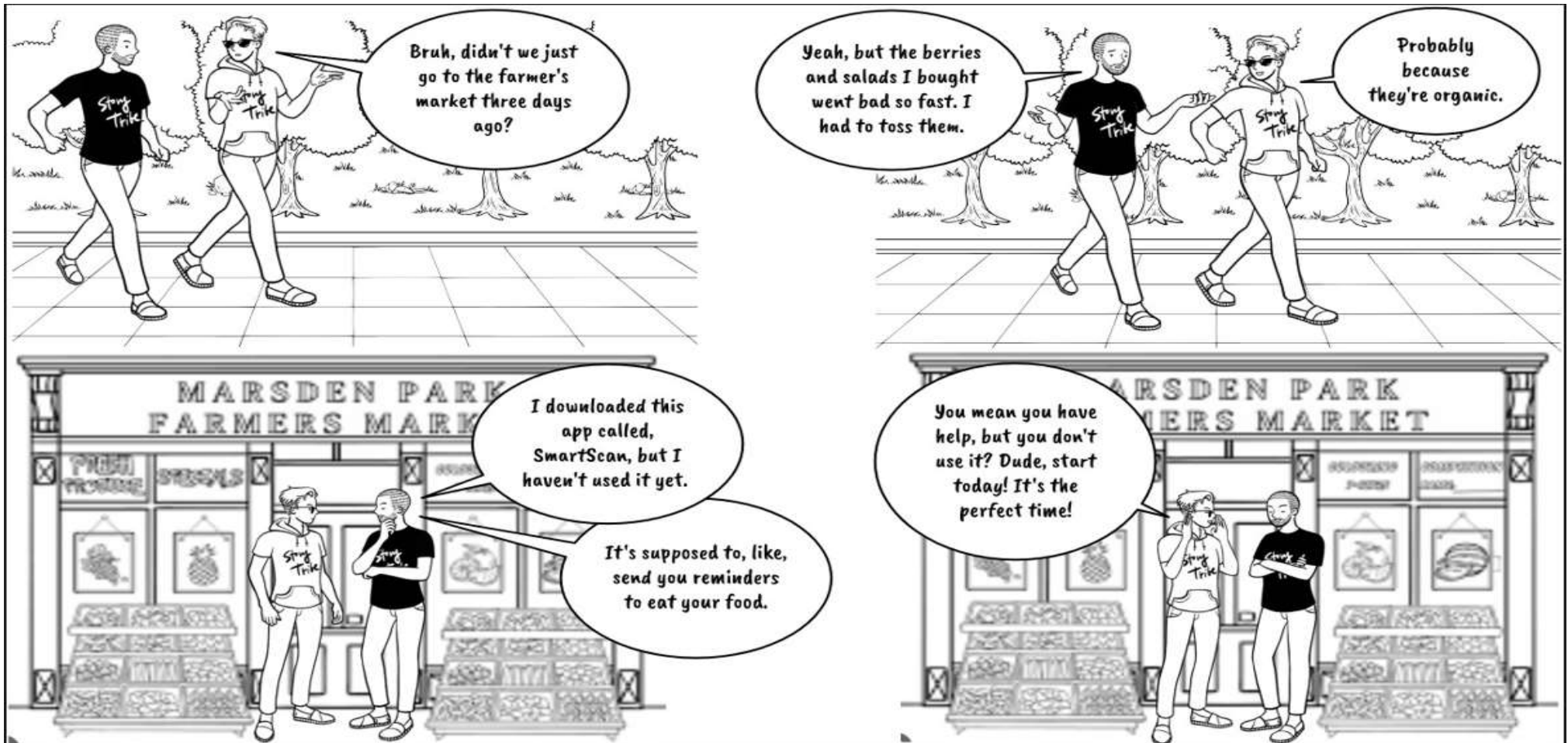


#### BRANDS



# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (ANDREW)



# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## STORYBOARD (ANDREW CONT'D)

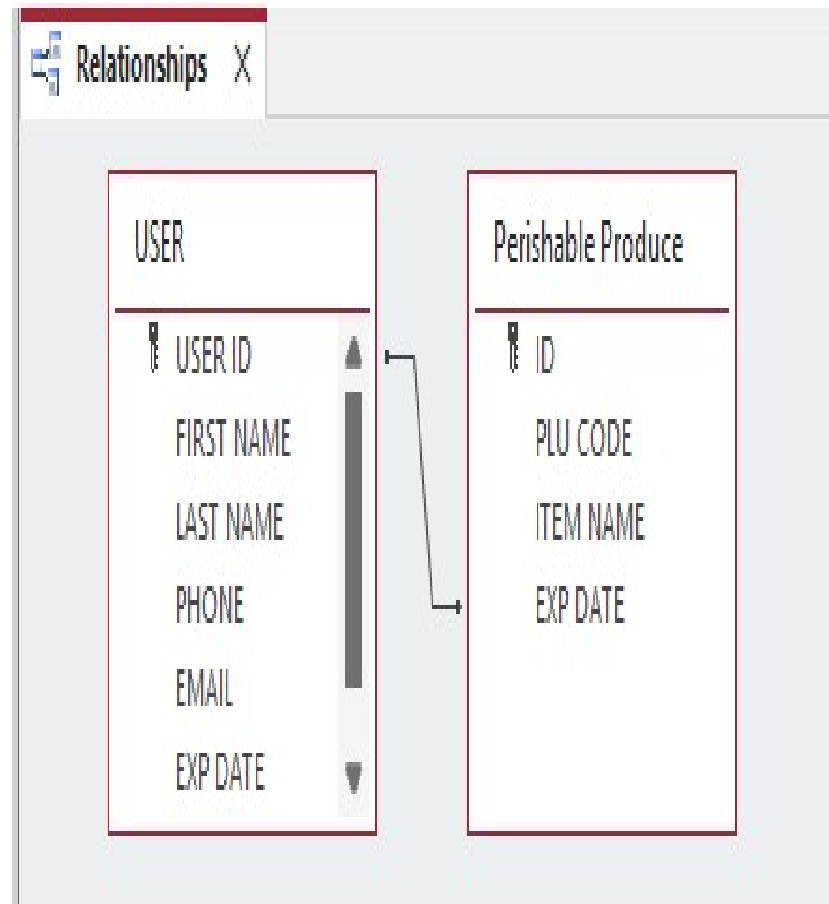
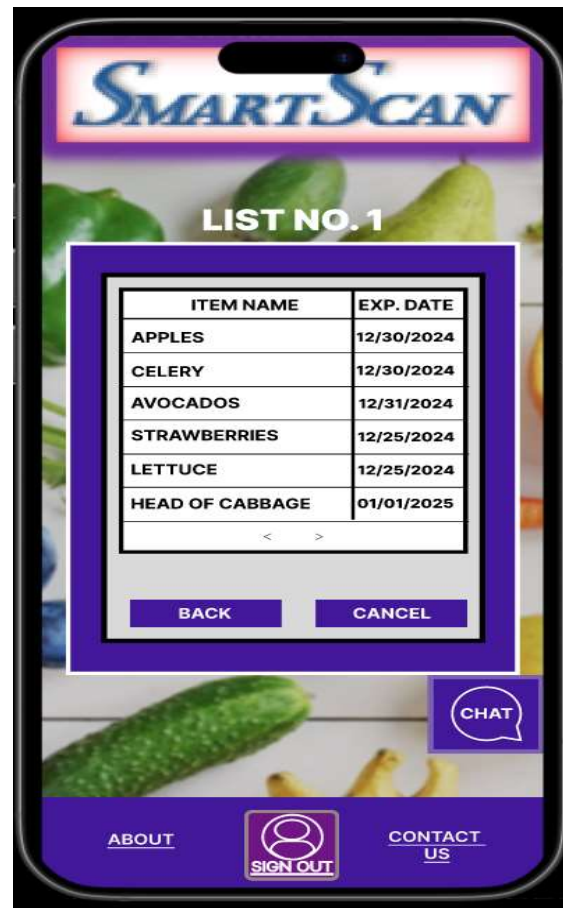




# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

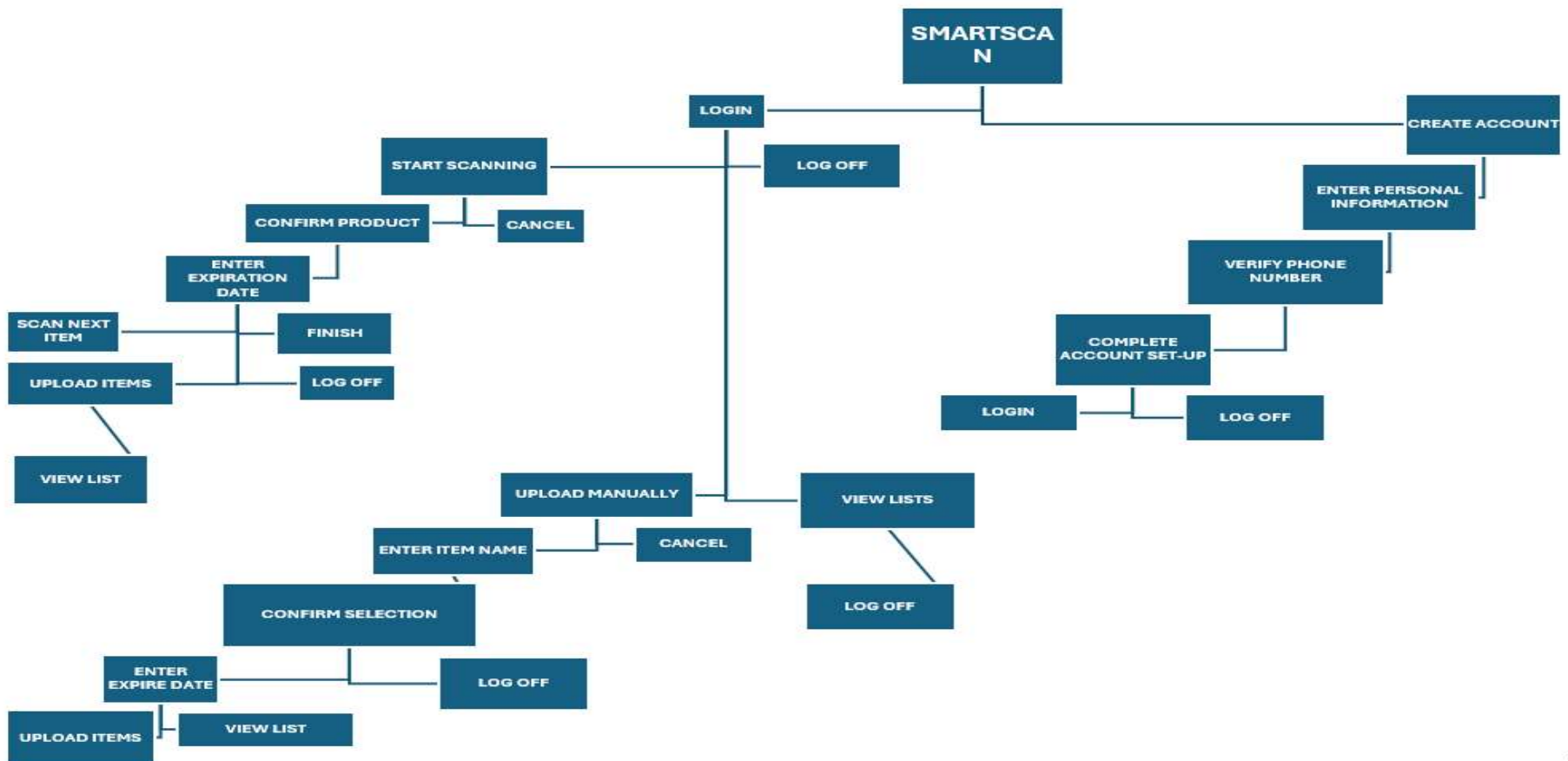
## DATABASE DESIGN

User & Perishables:  
As shown on the right this user and their expiration dates have a one to many relationship in the system database.



# TECHNOLOGY SOLUTION DESIGN AND DEVELOPMENT 1.0

## SMARTSCAN SITE STRUCTURE



# TESTING AND USABILITY STUDY

## USABILITY STUDY METHODOLOGY

### **TASKS:**

1. User will download the app and create an account – 5/5
2. User will sign in to the app - 5/5
3. User will scan their groceries then assign expiration date – 5/5
4. User will upload grocery list - 3/5
5. User will manually enter items then assign expiration date – 3/5
6. User will upload grocery list – 3/5
7. User will view their stored lists – 5/5
8. User will sign out – 5/5

# TESTING AND USABILITY STUDY

## USABILITY STUDY METHODOLOGY

### INTERVIEW RESULTS

- Positives
  - Seamless navigation
  - Fun to use
  - Aesthetically pleasing
- Negatives
  - Background interfered with wording (make wording more visible)
  - Some commands not visible enough
  - Some buttons too similar
  - Unclear about whether process was completed (user errors)

# CONCLUSION

SmartScan in its current state, is just the beginning of the solution to the problem of individual food waste. I will continue to build on my design to make it as optimal as possible. Taking your phone out and logging into SmartScan will become standard behavior for grocery shoppers across the country and, hopefully, around the world. After all, food waste is a global issue.

Creating this design wasn't just challenging; it was inspiring. I have more motivation to see it through than I had at the outset of this project, and I have every intention of protecting and nurturing it so that by the time it is rolled out as an official Smart phone application, I will already have design updates and improvements underway.

If you took nothing else from this project, remember this. Home is where the food is!



[SmartScan Prototype](#) (copy and paste link address in your browser if clicking does not open it)

THANK YOU

# REFERENCES

- *Fighting Food Waste and hunger through Food Rescue*. Feeding America. (2024). <https://www.feedingamerica.org/our-work/reduce-food-waste>
- *Food waste: We need to stop wasting 30% of our food: Climatescience*. Learn How To Solve Climate Change. (n.d.). <https://climatescience.org/advanced-food-waste>
- Kanade, V. (2022, July 7). *What Is HCI (Human-Computer Interaction)? Meaning, Importance, Examples, and Goals*. Spiceworks. <https://www.spiceworks.com/tech/artificial-intelligence/articles/what-is-hci/>