Meal Maven

A Comprehensive Meal Planning App
Case Study

John Harris

Project Overview

The Product:

Meal Maven, a **one-stop-shop meal planning app** with the following functionalities: recipe browser; cookbook/manager (with cooking mode); shared calendar of planned meals; shopping list, exportable lists to external grocery store app cart for order pick up goals; and a pantry tracker.

Project Duration:

This part-time and self-guided educational project was conducted on and off during May 2024 to March 2025, as part of the Google User Experience Design (Coursera) course.

Target Audience

- Millennial traveling early career professional singles
- Millennial professional families with children at home
- Baby Boomer empty-nesters, retirees, stay-at-homes, and DYI-ers

Role and Responsibilities:

- User Experience Designer – All phases
- User Experience Researcher – Exploratory and Testing research

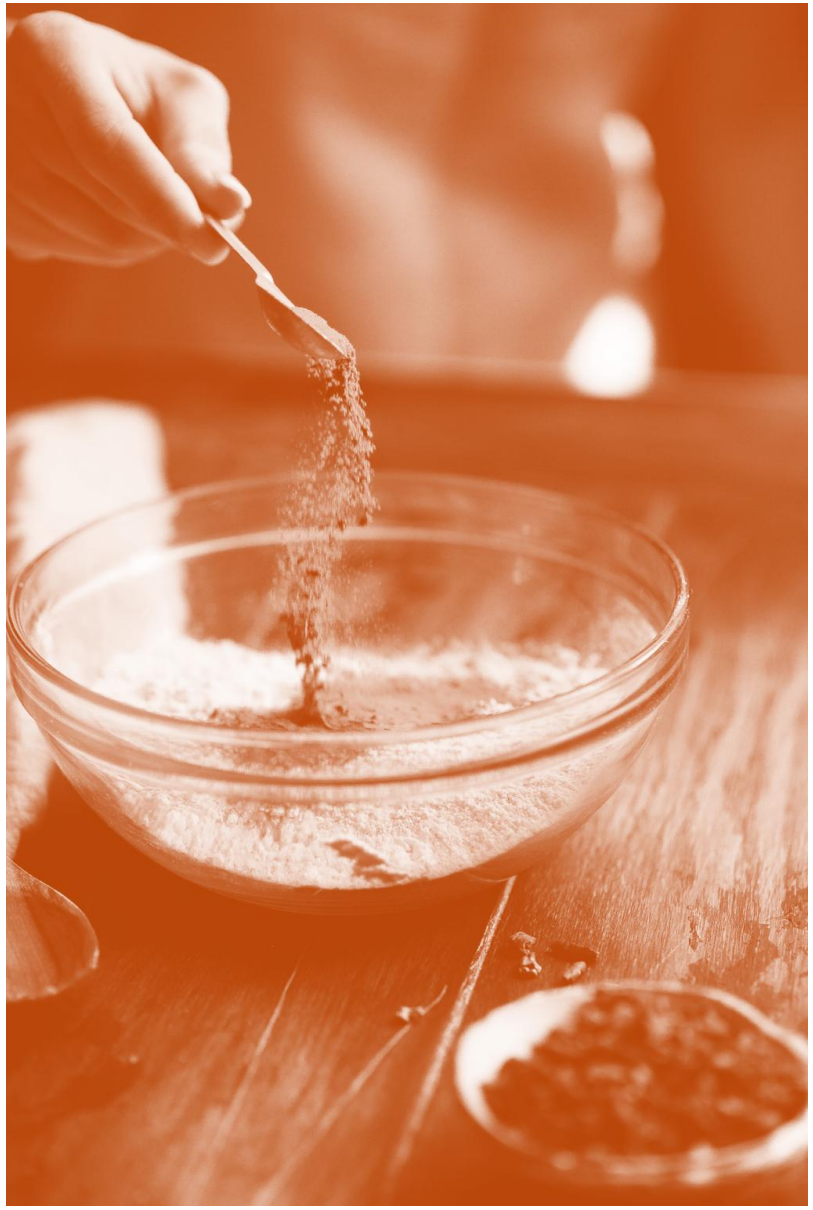
Project Overview Continued

The Problem

There are many meal planning-related apps on the market, but **few are comprehensive and intelligently work cohesively** between functionalities (e.g., pantry informing recipe browser choices) to save users time by having to jump between completely different facets of the planning process (e.g., grocery cart and Pinterest). The available comprehensive apps are also **often lacking thorough filtering options** for health concerns, personal preferences, religious restrictions, and various lifestyle routine needs.

The Goals:

Understand the demographics, preferences, and challenges of food app users to develop **strategic solutions** and improve **user satisfaction**, focusing on intuitive design and ease of navigation. Compare Meal Maven to Cooklist, refining the app based on success metrics, user feedback, and competitive analysis to **meet the needs of users with complex meal planning requirements**.



Understanding the user

- User research
  - Competitive audit
  - Questionnaire
  - Interview
  - Empathy mapping
  - Affinity mapping
- Personas and Problem statements
- User journey mapping

User Research: Summary

Types of Research Methods Used:

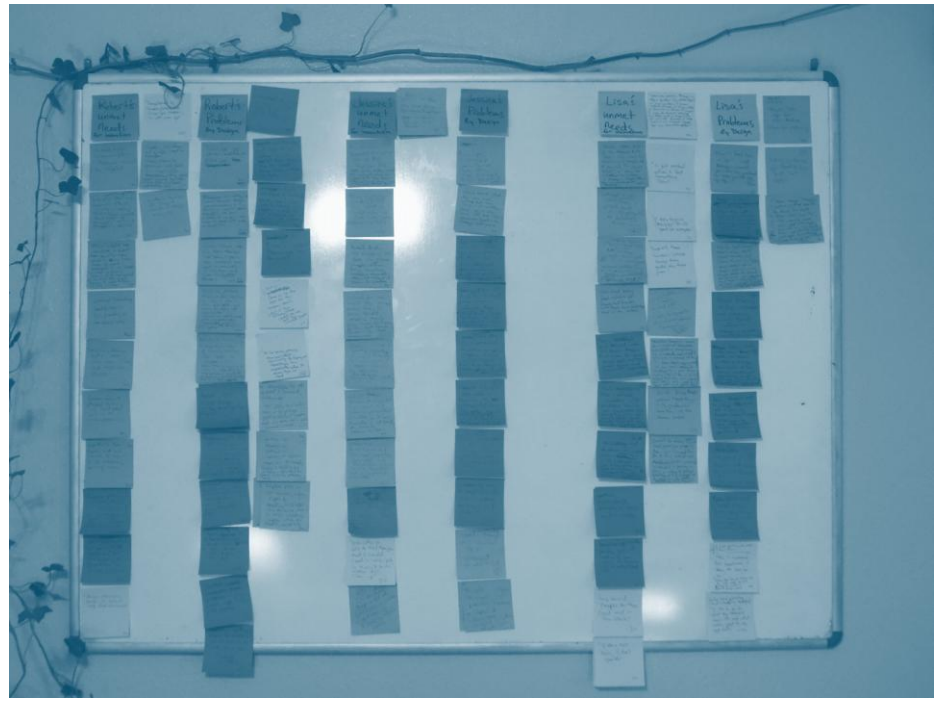
- Survey
- Interview
- Empathy Mapping
- Affinity Mapping
- 4 User Personas (including 1 non-human non-user)
- User Journey Mapping
- Competitive Audit Analysis

Original Assumptions:

- Key user groups would be variations on parents with children at home
- Food-app users are either motivated by time scarcity, health concerns, or affordability concerns
- Generations of users would be fairly static in their habits, and Baby Boomers would be a marginal user group with very structured and organized in their meal planning behavior by experience
- Recipe browsing variety and customizability would the greatest way of distinguishing Meal Plan apps

Challenged Assumptions:

- Busy professionals and fitness younger generations, including traveling professionals also face meal planning needs, which greatly differ in habits and needs
- A single individual may progress from one user group to another through their life, given their circumstances.
- Motivations in food-app use and shopping behavior are more complex than thought
- Baby Boomers may take on more flexible reactive approaches than thought
- The synergy between comprehensive apps' functionalities garnered the great desirability among meal planning apps, especially if it offered users flexibility in substitutions for ingredients or pivoting recipes based on what was in-stock



User Research: Pain Points

1

Meal planning is a time sink

Users eat homemade meals most of the week, and spend between 20-32% of their free time every week in meal prep and planning, sacrificing valuable time and mental space. Diverse family health needs and family schedules complicate matters.

2

Lack of accountability and transparency in food quality

Grocery pick-ups and meal delivery services often lack accountability for poor quality ingredients picks. Online grocery shopping doesn't make it easy to know what additives or certifications an ingredient has.

3

Pantry tracking is unmanageable

Users wished for an efficient pantry tracking system to avoid imbalances in ingredients, prevent running out of essentials, and reduce the hassle of checking inventory manually.

4

Challenges with learning curve and variety in meal rotations, while in budget

Users desired effortless ways to add new meals to their rotation, avoiding significant time and planning while using familiar ingredients to prevent monotony and staying within the food budget.

5

Lack of easy inter-app navigation for meal planning

Users were frustrated with the complexity of inter-app navigation for meal planning and grocery ordering, preferring simpler methods like writing notes and taking pictures. They find certain apps confusing and ineffective, leading to a preference for websites over apps and skepticism toward tech's auto-dictation accuracy.

Persona: Jessica Moore

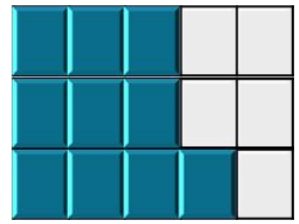
Problem statement:

Jessica is a time starved full-time working mom of three with full schedules and diverse dietary needs. She wants to reclaim some free time and mental load in meal planning and preparation activities, which already take a third of her free time, just to find time to "exist."

Jessica Moore

Age: 39
Education: master's degree
Location: Cedar Park, TX
Occupation: Educ. Diagnostician
Family:

Home Cooked Meals:
Personally Cooks:
Food App Use:



"I'd rather find recipes that I could cook in one pot so there'd be no extra dish clean up."

Goals

- Need to find ways to **find time** to just exist
- Recipes that are easy to plan; **dietarily sensitive; convienent** to pick up and quick to make; and affordable.
- Keeping the family on track with the **schedule**
- Stocking the family with all its dietary restrictions, preferences, and different event schedules
- **Balancing** work and family life

Frustrations

- **No idea what's in the pantry**, fridge, or freezer, or what has expired or not, finds its just quicker to add things to the cart.
- **Trying to overlap with and coordinate** with husband and kids different meal needs and preferences for the coming week
- **Having to drive a lot** back and forth between kids practice, school, work, and home
- Navigating back and forth between Pinterest and grocery store ordering app on the phone

Persona: Lisa Andersen

Problem statement:

Lisa, an empty nester with limited tech savviness and a preference for visual over text-heavy content, enjoys entertaining guests with novel, aesthetically pleasing dishes made from her garden vegetables. She seeks recipes that visually present ingredients and include step-by-step video instructions. This allows her to take pride in the source of her food and create memorable, visually stunning dining experiences for her guests.

Lisa Andersen

Age: 60
Education: bachelor's degree
Location: Missoula, MT
Occupation: Nurse
Family:

Home Cooked Meals:
Personally Cooks:
Food App Use:

"I like to know where my food comes from, go for what looks good, but what's good for everyone."

Goals

- Exploration of **novel, healthy,** and **aesthetically memorable** foods
- Collecting tried and true recipes everyone is bound to love
- Using food to make memories and social **bonding**
- **Inclusively** remembering everyone's needs and the different categories of staples
- Recipes that are **seasonal** and incorporate **homegrown**/harvested foods, farmer's market picks, and help with self-sufficiency lifestyle
- **Flexible** ingredients that can work in a variety of recipes, and be cooked a variety of ways, to avoid extra store-trips
- Ability to coordinate planning and shopping with spouse
- Supporting the **local** community with consumer choices

Frustrations

- Cookbooks **lacking illustrations** or finds the print hard to read, and directions not upfront.
- Finding small **portions** sizes in grocery store and recipe portions, as an empty-nester
- Stores'/delivery services without accountability in grocery store pick-up or meal delivery apps
- **Not knowing** what novel or new things are available in-store if not going in-person, fear of missing out when husband shops instead.
- Skeptical of security/**privacy** of apps and developer's data use or identity theft
- High **learning curves** with little pay-off of app use, and inability to voice frustrations
- **Traffic** on the roads or store aisles
- Apps are harder to use than websites
- **Checking for additives**

Persona: Robert Wilson

Problem statement:

Robert is a new career professional who spends significant time honing his craft and frequently travels for work. With a tight budget and special dietary needs, he needs a straightforward way to find recipes he can make without access to a full kitchen—while staying within budget, maintaining his health, and minimizing the time spent adapting to new meal routines. This will allow him to feel secure about his meals and focus his mental energy on his professional growth and higher pursuits.

Robert Wilson

Age: 42
Education: master's degree
Location: Ft. Lauderdale, FL
Occupation: Archaeologist
Family:

Home Cooked Meals:
Personally Cooks:
Food App Use:

"My food armory gives me security in the face of power outages, Sharknado, or whatever."

Goals

- Finding the best affordable **nutritious deals** on food
- Stocking up on **flexible ingredients** usable in many recipes
- Making sure nothing goes to waste
- **Penny pinching**, taking advantage of every rebate, coupon, and discount.
- **Fighting lonliness** and making someone else's week, making conversation at store
- Finding stores which carry foods which he can eat with his **dietary restrictions**

Frustrations

- Not knowing where he can both find the **best deals** and recipes
- Not knowing **what he can make with what stores are available** to him in his local area or on the road for work
- Knowing **substitutions** for ingredients or cooking alternatives for recipes on the road (in a hotel) that he can make with what grocery stores are available in unfamiliar or **remote places and make in his hotel room.**
- **Feeling invisible** at work functions, conferences, restaurants, and grocery stores when there are no options which he can eat.
- Not knowing some new healthy recipes to **mix up his routine** staples
- Check-out clerks who don't properly ring up his coupons

Non-Human Persona: Mirage Lake

Problem statement:

Mirage, a non-human stakeholder lake, plays a vital role in supporting and being impacted by its human users, who prioritize quality and safe food. Mirage needs to help its human users make informed, eco-friendly shopping choices, ensuring the lake remains a thriving resource. By empowering humans to protect its waters from run-off, pollutants, and eutrophication, Mirage can remain a vibrant, accessible environment for both people and non human life to enjoy.

- 90% of research interview participants' food shopping decisions are shaped by the perceived quality, healthiness, safety, or knowledge of where their food comes from.
- It's socially and environmentally responsible, and serves the interests of users to have a product's design consider effects on non-humans and non-users

Mirage Lake

Age: 60
Actant Type: Artificial lake
Location: Texas
Relationship to Users: Direct

"... I've got herbicides runnin' through my veins, plastic trash floatin' by, causin me pains...."

Goals

- Support **biodiversity** and to avoid eutrophication
- Be **replenishable** to all users and to avoid drying up
- Be respected, transparency, and to see **accountability**

Frustrations

- Single-use food packaging, plastic bag, and plastic water bottle **littering** in watershed leaching microplastics into water supply, which is not filtered out in water treatment
- Fertilizers, herbicides, and pesticides **contaminants** in water supply
- **Run-off** from tilling practices among producers in watershed, causing silt to choke up water treatment system and making treatment ineffective leading to boiling notices
- **Lack of reusable containers options** for bulk food shopping at grocery stores
- **Wasted water** on lawns and inefficient irrigation
- Really **lax regulatory system**, which isn't seriously invested in safe food, accountability, or transparency.

User Journey Map

Distilled **survey**, **interview**, and **field data** into journey map of primary user.

Followed not just the tasks of the meal planning journey through the week, but understanding the contexts of interactions with certain objects, people, emotional journey, and challenges to propose improvement opportunities.

Persona: Jessica

Goal: meal planning and preparation activities

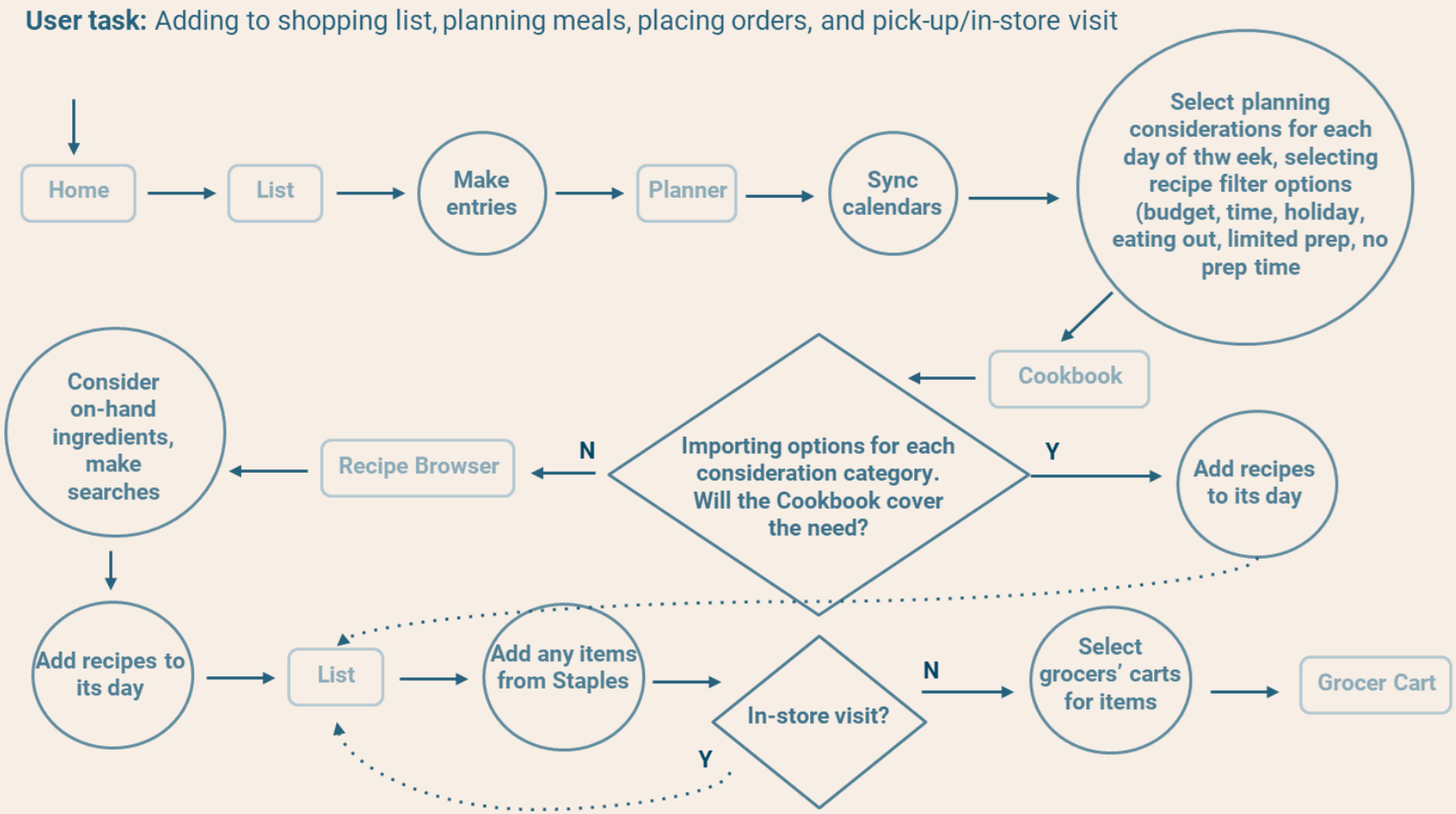
ACTION	Track staples out-of-stock during the week	Check calendars for meal planning needs	Search recipes fitting planning needs	Assess what's on-hand and order what's missing	Curbside pick-up and communicate week's meal plan and recipes	Prepare and cook
TASK LIST	• Write down and exchange sticky notes, chalkboard notes, list updates, or notes app entries for later adding to cart • Communicate, share, and inquire on what to add to shopping list	• Communicate and mutually mark calendars for work events, dr. apts, social visits (where eating out is anticipated) or kid activities will require time-out or quick and easy homemade recipes • Note blocks of meal types needed	• Brainstorm and communicate preferences taste and holiday-specific or guests' tastes considerations for recipes • Google search, Pinterest, and cookbook searches for meal type blocky slots with various qualifiers (filters) • List certainly needed ingredients for shopping list based on chosen recipes	• Might check some ingredients or inquire with partner about availability of a given or simply assume its out-of-stock and add recipes ingredient list to car and add week's shopping list • Check coupons and deals for new things or staples or meal kits in grocery app • Add kid snacks and lunch items, and staples to cart • Add other snacks and household supplies to cart • Communicate and plan for pick-up or time delivery	• Might bring bags (reusable bags) if picking up or going in-store • Pick-up or collaborate with partner for pick-up on way from home • Put away groceries • Might communicate meal plan with recipes • Relocate recipes with cook as needed • Consider Special holidays or special date needs	• Find meal plan recipe • Search for ingredient list and browse instructions for kitchen equipment • Pull needed ingredients and kitchen equipment • Reread or watch cooking steps • Prepare ingredients (e.g., wash, chop, slice, etc.) • Set aside ingredients as needed • Reread or watch cooking steps • Cook
FEELING ADJECTIVE	• Productive • Proud • Forward-thinking	• Worried • Uncertain	• Productive • Fulfilled • Impatient • Overwhelm	• Overwhelm • Hesitancy • Amused (feels like a game) • Annoyed • Apprehensive • Proud	• Anxious • Guilt • Fulfilled • Proud • Irritated • Worried	• Hopeful • Playful • Inspired • Worried • Confused
IMPROVEMENT OPPORTUNITIES	• Import shopping list into grocery apps • Have shared shopping list	• Suggest meals/recipes or meal types by calendars • Shared calendar events codable by needed meal type	• Ability to suggest recipes based on what is expected to b on-hand • (pantry app) or plan around using an ingredient • Ease of inter-app toggling • Complex recipe search options • Share meal plan in-process • Calendar + plan share or import	• Search stores by values and geography • Budgeting balance being updated from cart check-out • Filter choices by certifications, ethics, values, and ingredients • Pantry list automated with ordering and updated by expiration and meal plan date • Store remembering previous for list patterns and staples ease of adding • Ability to scan barcodes of items in-stock note already inventoried	• Shares and saves meal plan with recipes and saves recipes into cookbook and grocery shopping cart • Reminders to bring bags and to get holiday goods • Notification to take things out to defrost for planned meal needing it	• Need cookbook manager to store and recall recipes connected to meal plan • Need the screen lock to not time out and lock screen while reading or watching cooking steps • Pictures and/or videos of cooking steps

Task Map

Converted tasks from user journey into a map showing how these processes would be overlaid on an app in terms of screens, actions, and decisions.

More specific maps were developed focusing on each functionality's tasks.

Used to design screen pages and interactions needed in wireframes.



User Research: Opportunities

1

Pantry Inventory Management

Implementing scannable pantry item tracking and automatic updates to inventory when items are used or nearing expiration can help users manage their food supplies more efficiently.

2

Intelligence Recipe Integration

Tailoring recipe suggestions to pantry items and user preferences, along with a personalized index, enhances meal planning.

As Jessica put it, "I'd rather be able to find recipes that I could cook in one-pot, so there'd be no extra dish clean up."

3

Smart Grocery Planning and Shopping

Generating smart shopping lists that cross reference pantry inventory and planned meals, along with integration with grocery apps, can streamline the shopping process.

4

AI-Driven Assistance

Using AI to tailor meal plans based on user location, calendar events, and dietary needs can provide personalized meal recommendations and support.

One “Jessica” remarked, “An AI assistant could help in ways that only a traditional family wife could, freeing her up to do more.”

5

Community and Inspiration

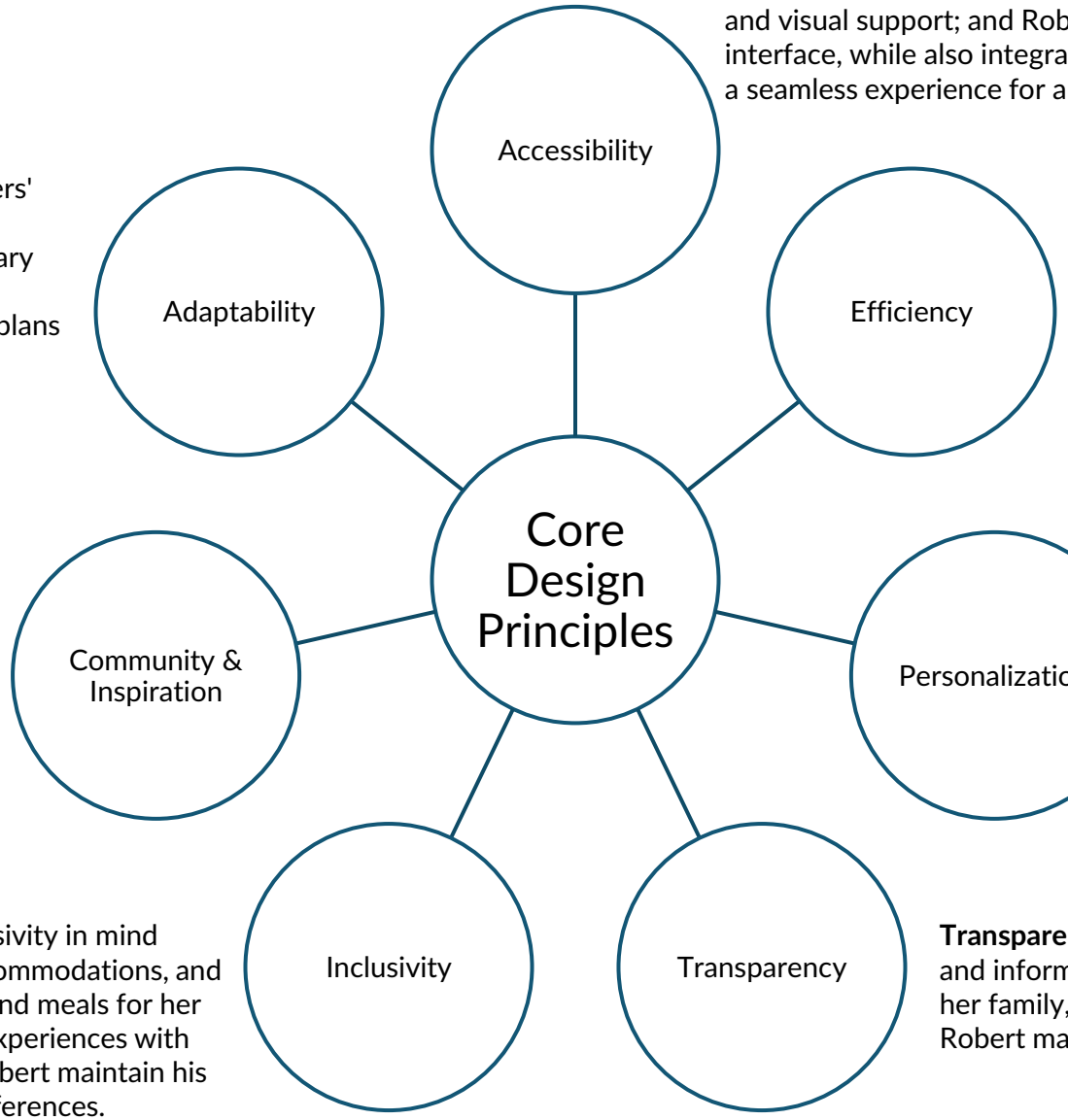
Fostering a sense of community among users by allowing them to share recipes, meal plans, and tips, along with providing inspiration through curated recipe ideas and cooking videos, can make meal planning more enjoyable and engaging.

One “Lisa” preferring to tap into our social circle’s tried and true recipes for something new said, “I like a sure thing, I don't like to gamble.”

User Research: Core Design Principles

Accessibility means incorporating features like larger text, high-contrast colors, and text-to-speech to accommodate diverse abilities, benefiting users like Jessica, who needs quick navigation; Lisa, who relies on audio and visual support; and Robert, who prefers a minimalist, intuitive interface, while also integrating neurodiversity-friendly design to create a seamless experience for all.

Adaptability means ensuring it evolves with users' changing needs and life stages, helping Jessica manage her family's shifting schedules and dietary requirements, Lisa tailor meal planning to her preferences, and Robert maintain flexible meal plans that fit his busy lifestyle and travel demands



Efficiency means integrating pantry inventory management, recipe suggestions, and grocery lists into one streamlined app, users like Jessica can save time and reduce mental load, Lisa can focus on creating memorable dining experiences, and Robert can efficiently manage his budget and meal planning with tools that track pantry items and find affordable recipes

Community & Inspiration means fostering a sense of community and inspiration, the app allows users to share recipes, meal plans, and tips, helping Jessica connect with like-minded individuals, Lisa explore curated recipe ideas and cooking videos for visually appealing meals, and Robert find support and motivation to make meal planning more enjoyable

Personalization enhances the app by tailoring AI-powered meal recommendations, recipe suggestions, and customizable meal plans to individual preferences, helping Jessica find quick, affordable meals that fit her family's dietary needs, Lisa discover recipes aligned with her health goals and seasonal produce, and Robert manage his meal planning with options suited to his dietary needs and available kitchen equipment.

Inclusivity means designing the app with inclusivity in mind ensures a diverse range of recipes, dietary accommodations, and ethically sourced ingredients, helping Jessica find meals for her family's needs, Lisa create meaningful dining experiences with culturally diverse and sustainable food, and Robert maintain his health while enjoying meals tailored to his preferences.

Transparency in ingredients, sourcing, and pricing fosters trust and informed decision-making, helping Jessica choose meals for her family, Lisa prioritize ethical and sustainable ingredients, and Robert manage his budget and dietary needs with confidence

Starting The Design

- Moderate open card sort
- Paper and digital wireframes
- Low Fidelity Prototype
- Usability studies
  - Remote moderated
  - Remote unmoderated
- Affinity mapping and analysis

Card Sort Insights

Overall information architecture

- Validated navigation bar hot buttons along functionality built from primary user journey

Planner

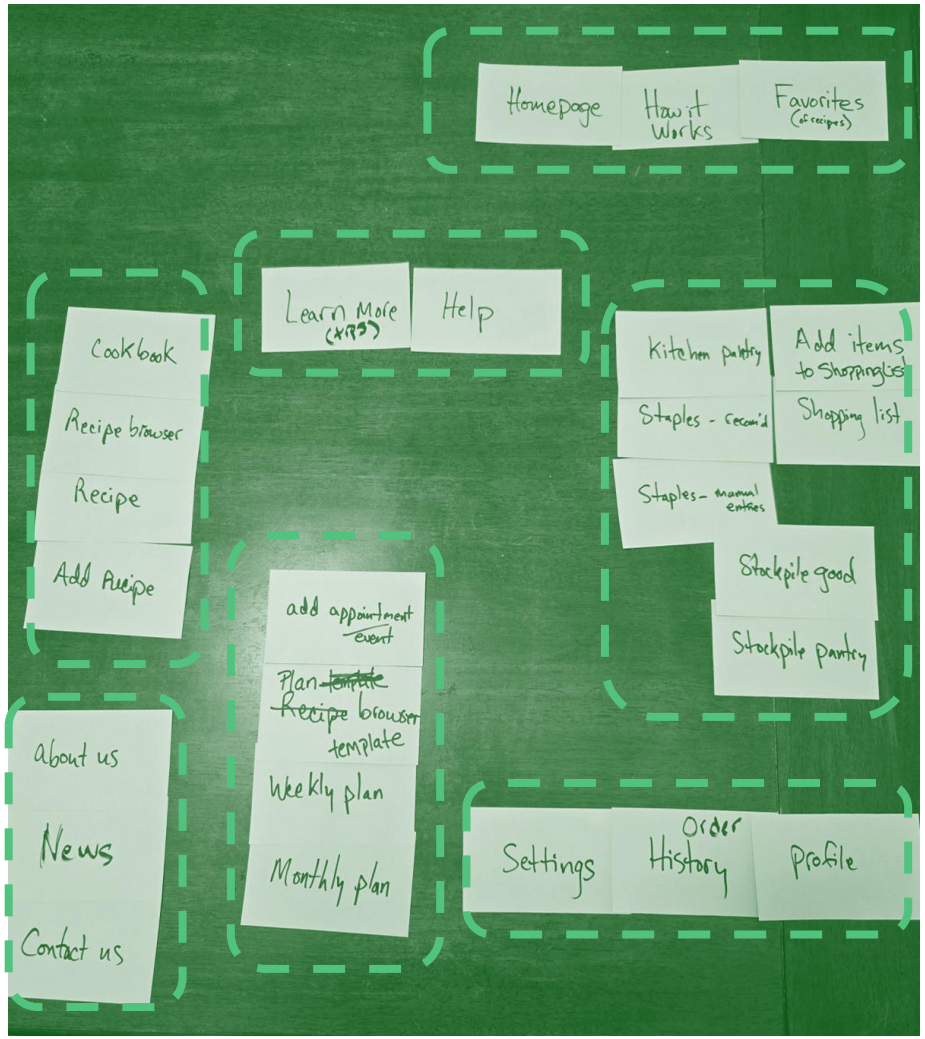
- User expectations of planner's info architecture was shaped by Outlook calendars
- Monthly view is better to start with in a tabular monthly calendar view
- Plans might not be a weeklong or start on a Monday

Recipe

- Ability to add missing ingredients from pantry should not just exist in the Planner, but also at the recipe page

Global page footer

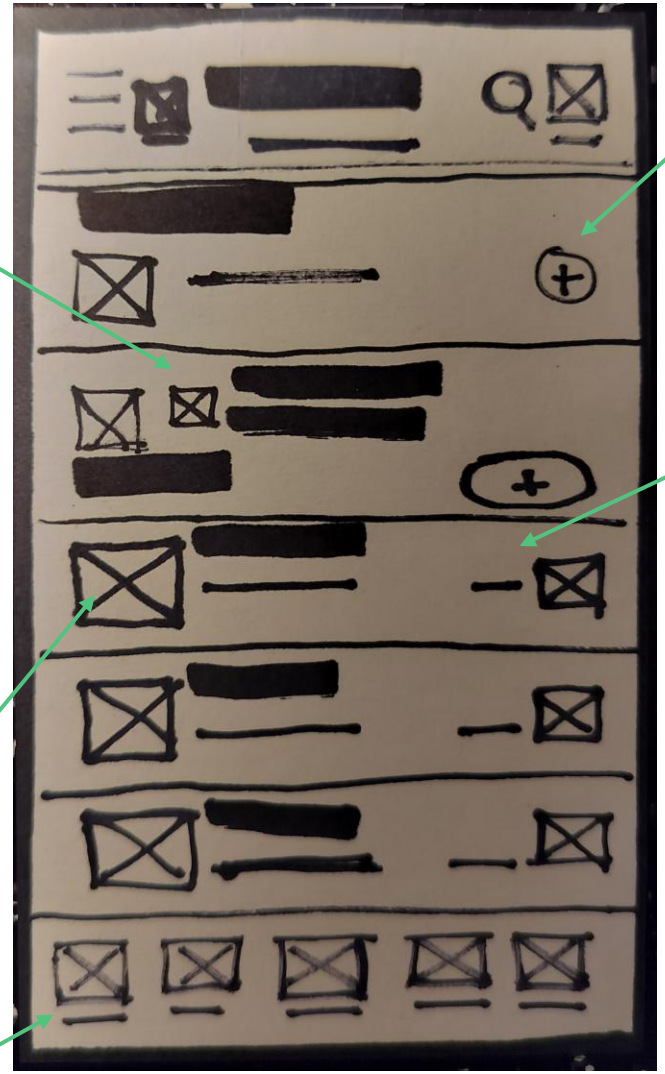
- Users expressed interest in the following links at the bottom of pages, at least on a desktop version: add appointment, adding to shopping list, FAQ, Learn More, and settings for browsing recipes



Paper Wireframes

Pain Point 2's design challenge was to address the lack of transparency in food quality/ingredients.

Pain Point 4's design challenge was to address frustration at the learning curve and lack of variety in meal rotations, users needed a way to remix on-hand ingredients into easy to find recipes and stay within budget.



Digital Wireframes

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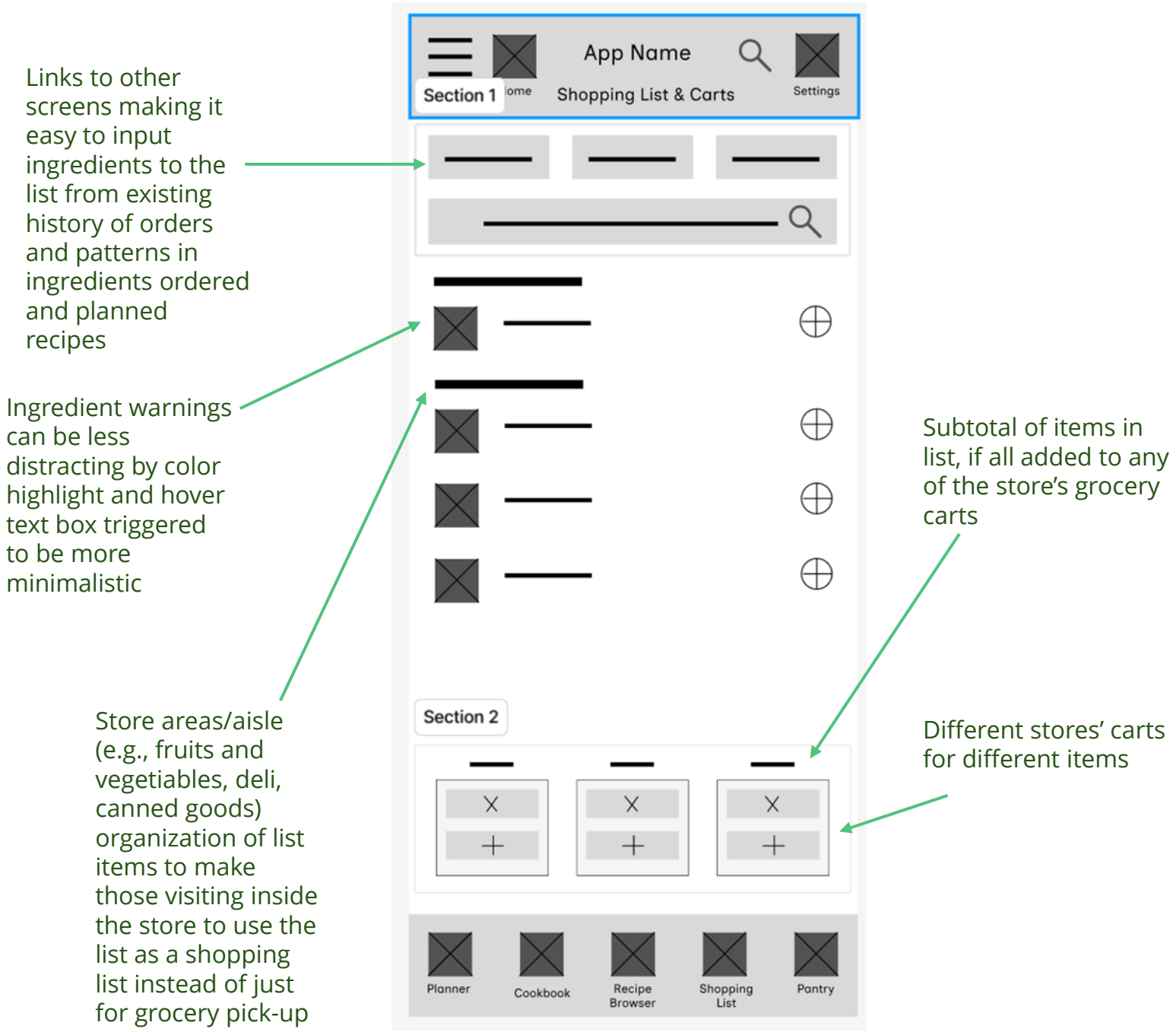

Low-Fidelity Prototype

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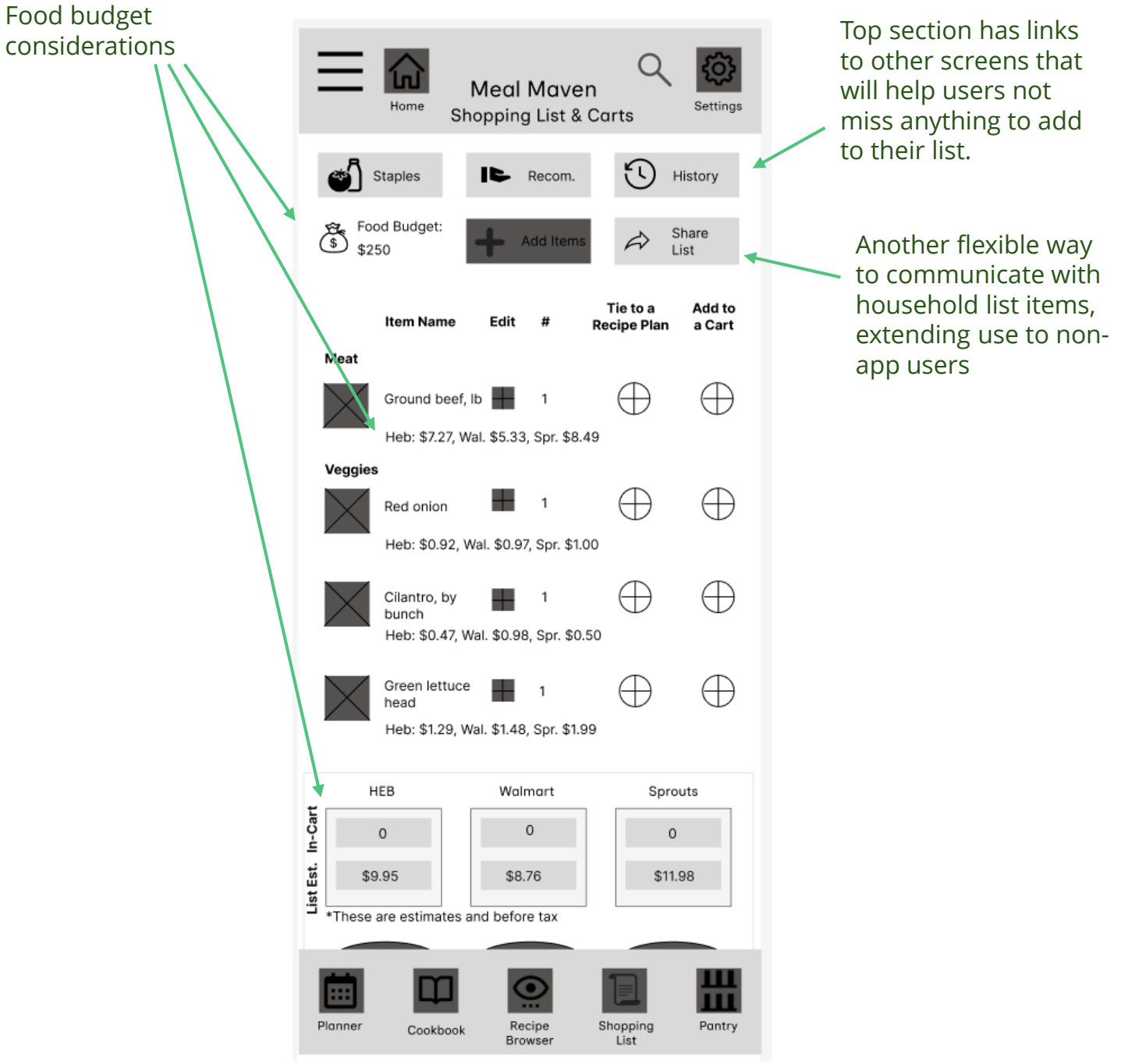
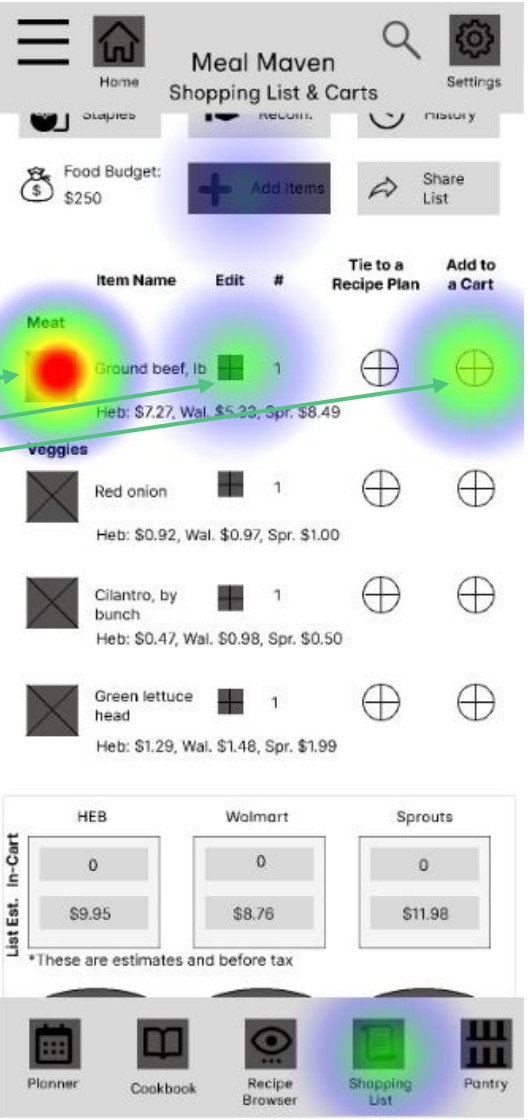


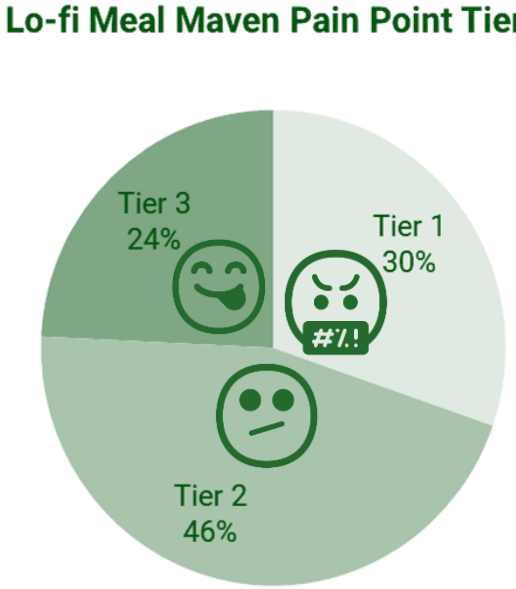
Lo-fi Usability Study: Findings

Through low-fidelity usability testing, we uncovered key pain points and user behaviors, guiding iterative design improvements to enhance clarity, efficiency, and overall user experience

1. **User satisfaction doesn't always reflect usability**, ratings raised progressively despite critical usability issues in T4.
2. **Most of the errors preventing task comption were in T4**, in contrast T3 and T5 had the lowest error rates.
3. **Time-based analyis revealed friction points** with T4 and T2 taking 270% longer, but T5 was 40% faster.
4. **Paint Point Tier system allowed data-driven prioritization**, ensuring critical usability blockers were first addressed.
5. **Users valued seamless integration & workflow efficiency**, which reduced cognitive load (e.g. planner meal types & sharable dinner plans)
6. **Minor usability friction points impacted navigation clarity**, like search functions, cart visbility, and homepage buttons



User's indecision on how to add an item to a cart



More slides coming soon!