

Smart Grocery Tracker

CS501 Final Project

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Introduction

As a group, we realized that grocery shopping can be a frustrating experience. We often found ourselves dreading the task, unsure of how much money we would spend, and overwhelmed by fluctuating prices. These common pain points inspired us to create the Smart Grocery Tracker, an innovative solution designed to simplify grocery management, improve budgeting, and reduce food waste.



Problems/Challenges

- Difficulty in manually tracking groceries
- Forgetting item prices or recurring purchases
- Overspending/overbuying groceries
- Price fluctuations and budgeting concerns
- Difficulty in determining how long groceries will last before running out
- Lack of visibility into overall spending habits



Main Objectives

Our app aims to

- Simplify grocery management and tracking
- Reduce food waste by identifying the correct amount of groceries you need
- Estimate the cost of groceries for budgeting purposes
- Enhance meal planning by suggesting recipes based on current inventory and plan grocery lists for future recipes
- Provide a user-friendly interface for effortless grocery organization and management



App Concept & Purpose

- Groceries/Food inventory tracker with Barcode Scanning capabilities
 - This allows you to track the groceries that you have at home by easily scanning the product's barcode with the device's camera
 - Manual Input is also available for groceries that don't have a barcode
 - Helpful for identifying the groceries you may need on your next trip
 - Can alert you when you are running low on certain items
 - Makes it easier to identify potential recipes that can be made with your grocery inventory
- Grocery List tracker with price estimator
 - Allows you to track groceries to buy on your next trip to the store
 - Allows for price estimates to estimate the cost of your groceries using real-time price information



Potential Use-Cases

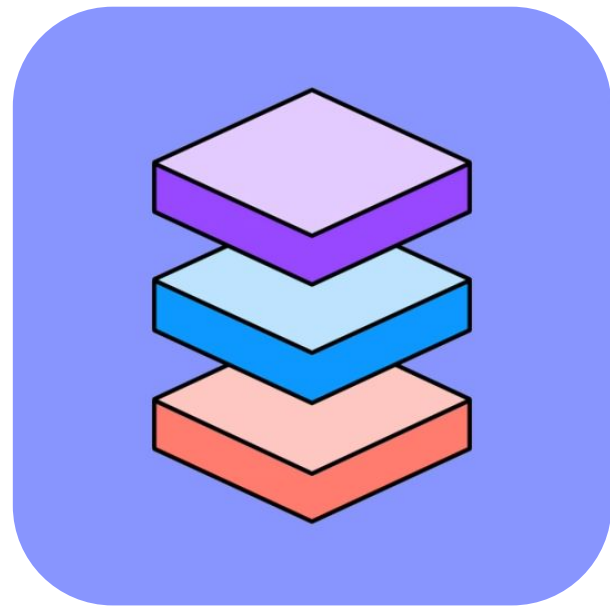
- "I often lose track of individual prices because I forget to keep the receipt."
- "Tracking recurring purchases is hard, and I want to make sure I don't overspend."
- "Grocery prices seem to change every time I visit the store; I want to plan better."
- "I want to know what I can cook with what I already have instead of buying more ingredients."



Don't Worry! This app fixes all of these problems 🔥

Tech Stack Overview

- Framework: Kotlin with Jetpack Compose
- Database: MongoDB Atlas
- API Calls: Retrofit & Moshi for JSON parsing
- Authentication: Google OAuth for sign-in/ tracking users



Database

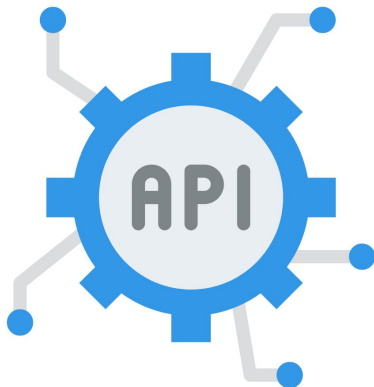
We plan to use MongoDB Atlas as our database

- This would store pantry inventory and shopping lists
- Would also store info on item usage and expected run-out dates
- Flexible, scalable and easy to use
- Strong integration with modern tech stacks
- Its free!*



APIs

- Retrofit and Moshi for fetching and parsing requests
- Grocery Prices:
 - API to Find Grocery Prices (Yes thats literally what its called)
 - <https://rapidapi.com/mahmudulhasandev/api/api-to-find-grocery-prices>
- Barcode Scanning:
 - ML Kit Vision API for adding items via camera + barcode scanning
 - <https://developers.google.com/ml-kit/vision/barcode-scanning/android>
- Recipe Suggestions:
 - Edamam Recipe Search API for looking up recipes
 - <https://developer.edamam.com/edamam-recipe-api>



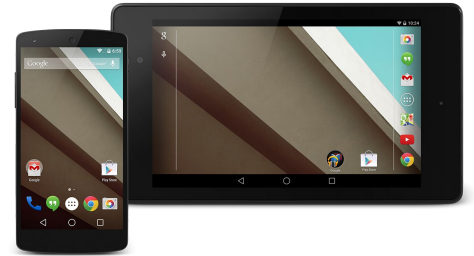
Device Types for testing

Platforms:

- Android (Medium Phone & Medium Tablet APIs within Android Studio)
- Testing both landscape and portrait mode for screen adaptability

Why These Devices:

- Covers a range of screen sizes
- Ensures ease of use on both small and larger screens



Wireframes/Sketches

Inventory Screen:

- A Big UI to Display the current groceries, should have add/delete button to manage the state (Similar to Notion, but have state management)
- An import button that should pop out the barcode Scanner or manual input
- Tracker that track the percentage usage since the last supply, given specific usage digest and provide an expected run out date

inventory



inventory used



grocery list

status

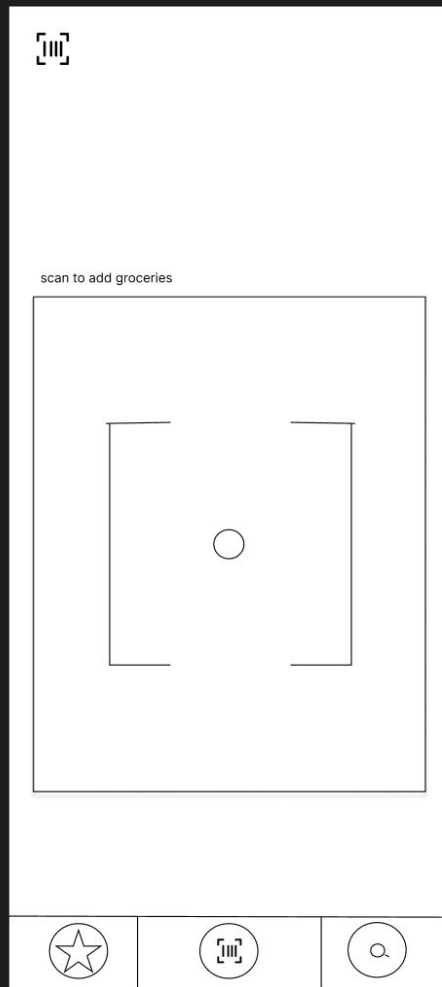
watermelon	✓
eggs	✓
bread	
milk	
+ add new grocery ...	



Wireframes/Sketches

Barcode Scanner/Add Item Screen:

- Back facing camera view with box overlay to position barcode for scanning
- It should have a clear, easy UI that leads user to form when the barcode is scanned, this form would be pre-filled by the barcode
- Should support users manually inputting items without barcodes and modifying form fields

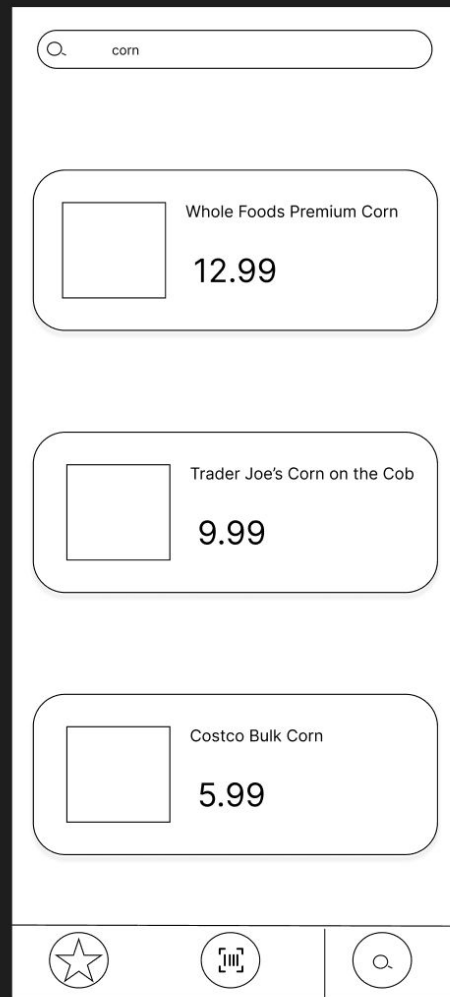


Wireframes/Sketches

Shopping List Screen:

- Clean list UI that helps users select or search for groceries for their next shopping trip
- Will display prices alongside items and provide a cumulative total price for all the groceries

shopping list



The End

