KitchenSync

A Pantry and Recipe Companion

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Project Plan 2

Key features

- The user can track their inventory
- The user can manage and share recipes
- The user can plan their meals
- The user can get better deals in shopping
- The admin can remove invalid recipes, reviews, and seed recipes

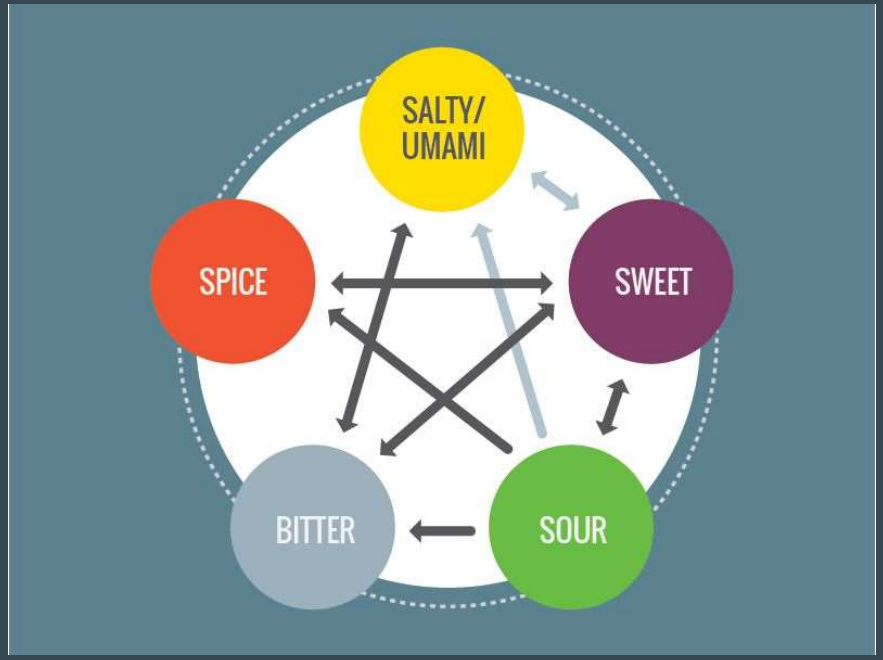
Algorithms and tools

- Tesseract for OCR of the receipts images
- JavaFX for Frontend
- AWS for our Cloud Storage
- Pyzabar for barcode parsing

Novel features

Recipe Suggestions & Customizations

- **Ready to Make**
  - Recipes using ingredients you already have
- **Partly Ready**
  - Recipes needing a few additional ingredients or prep
- **Additional Options**
  - Recipes requiring steps like thawing proteins



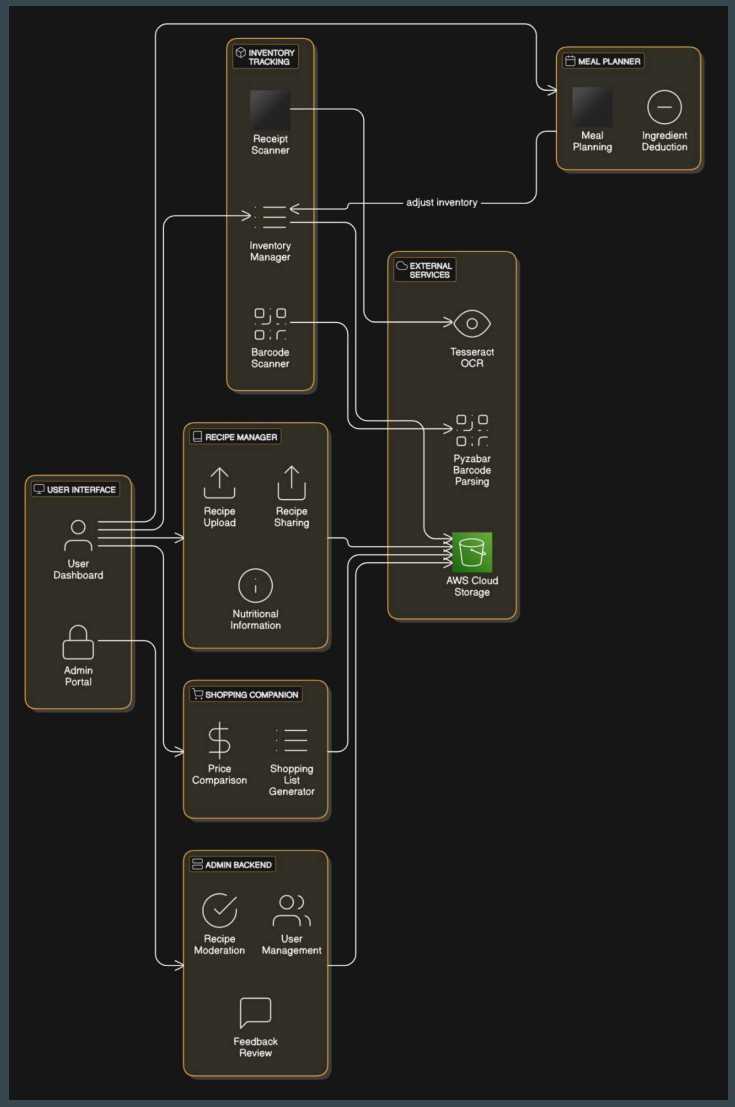
Ingredient Substitutions & Add-Ons

- **Flavor Matrix**
  1. Pair complementary flavors (e.g., salty & sweet, crunchy & creamy)
- **Add-Ons for Enhanced Taste**
  1. Add nuts for texture and saltiness
  2. Drizzle oil for deeper flavor
- **Flexible Substitutions**
  1. Swap milk with plant-based alternatives if needed
- **Unavailable Substitutions**
  1. Highlight when certain swaps aren’t possible (e.g., specific milk for cheese-making)

Technical Challenges

- We plan on having a way to let users share things with nonusers and users such as a recipe, list, or other notifications via their phone but not sure how to get this done.
- Expanding the accepted list of receipts from stores such as Public, Aldis, Fresh Market and so on. Currently our receipt parser only works on receipts with the item upc code on the receipt.
- Getting the prices from stores like Costco and other bulk/clubs that require a sign-in
- Getting product information from the UPC
    1. Kinda have a solution just not fully tested/researched - plug the UPC into the store website as it can search their internal db this way but could become slow if large amounts of items are to be searched

Design


INVENTORY TRACKING
Receipt Scanner
Inventory Manager
Barcode Scanner
MEAL PLANNER
Meal Planning
Ingredient Deduction
adjust inventory
EXTERNAL SERVICES
Tesseract OCR
Pyzabar Barcode Parsing
AWS Cloud Storage
RECIPE MANAGER
Recipe Upload
Recipe Sharing
Nutritional Information
USER INTERFACE
User Dashboard
Admin Portal
SHOPPING COMPANION
Price Comparison
Shopping List Generator
ADMIN BACKEND
Recipe Moderation
User Management
Feedback Review

Progress Summary

Module/feature	Completion %	To do
GUI	70%	User Profile, User Settings, User Notifications, Shopping Lists, Shopping Preferences, Community Reviews/feedback, Community Dashboard, Community Add Recipe, Search Bar, Connect Modules to User Dashboard, Filter popups, Random UI/UX components
Inventory Tracking	80%	Auto Tracking, Item sorting, Item Filters, Item Images
Recipe Manager	80%	Recipe Card Images, Recipe Filters, Recipe Searching, Recipe Notes, Nutrition Calculator, Recipe Cooking Images

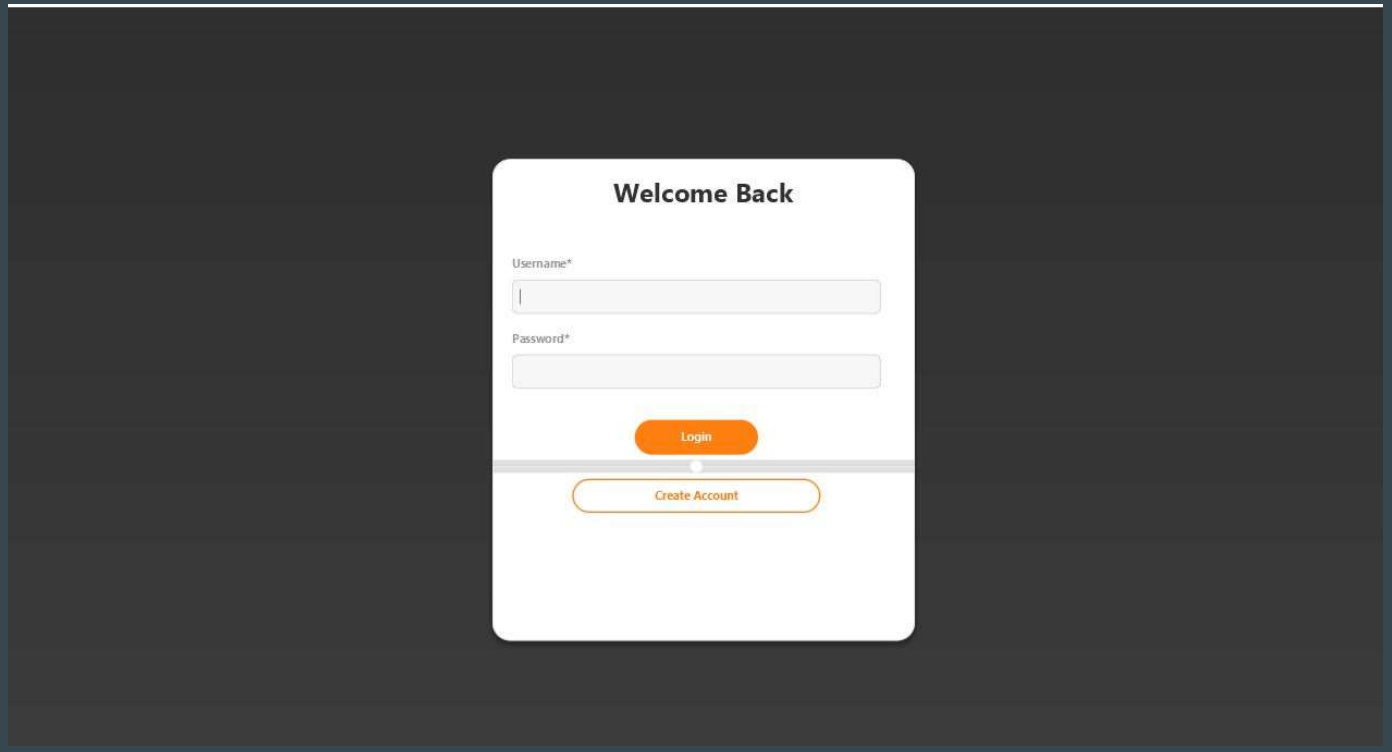
Progress Summary (Cont.)

Community Recipes	10%	Recipe Reviews/Feedback, Populate the Starting Recipe DB, Populate the UI with Recipe Cards, Allow user to Post Recipes, Allow Users to Save Recipes, Allow Users to Remove their Recipes, Allow Users to edit/update their Recipes
Meal Planner	70%	Recipe Sharing to Other users/non-users, Recipe Ingredients added to needed ingredient list, Recipe ingredients removed from list if updated, Recipe ingredients removed from inventory if made, Nutrition Calculator, Daily Meal Summary
Shopping Companion	20%	List Sharing, Item pricing, Price data from retailers, Price data from club stores, Price per unit comparison, Meal cost Estimate

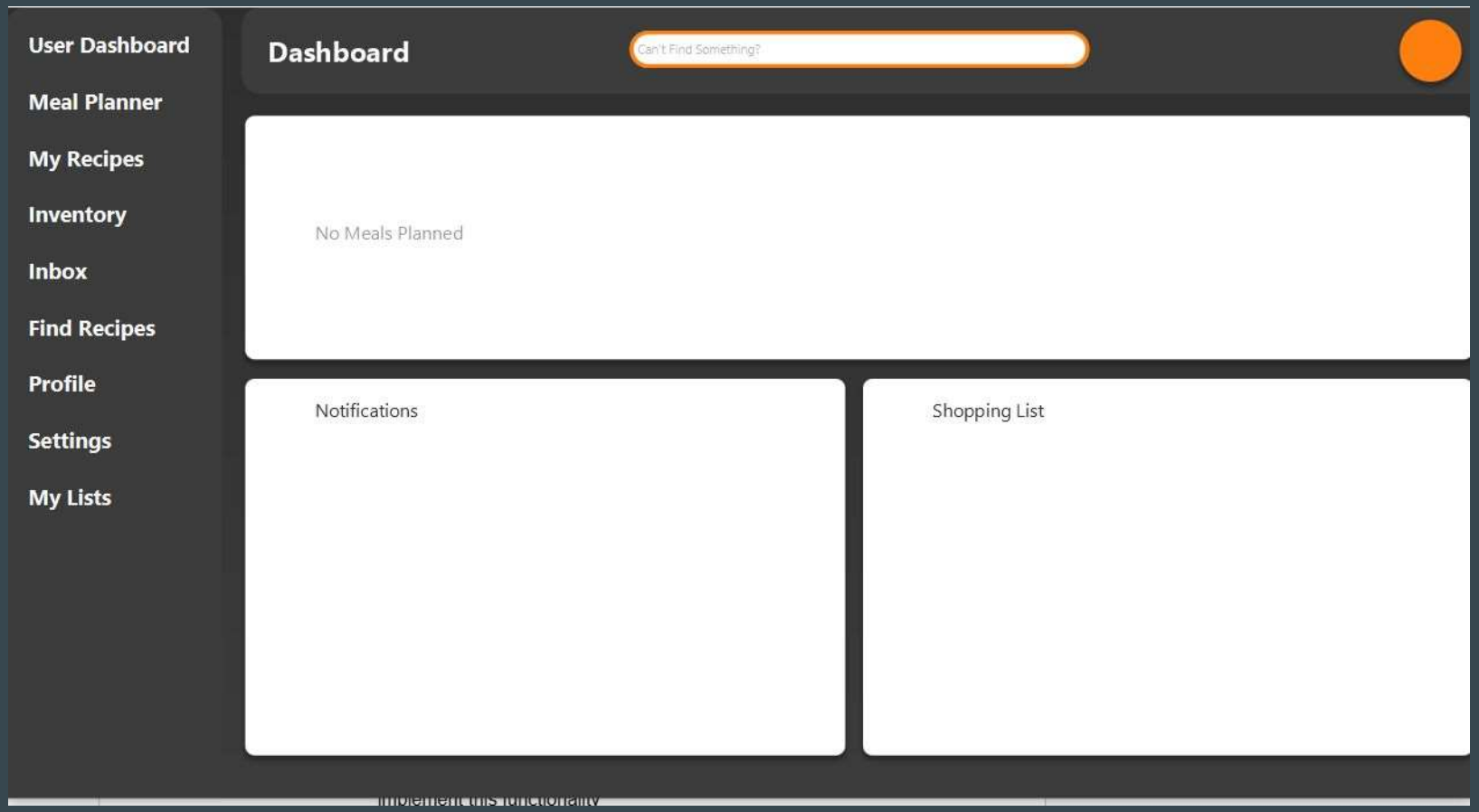
Progress Summary (Cont.)

Admin Backend	10%	User and Admin accounts, Admin Portal, Admin lists of current users, names, feedback, recipes. Admin filters, Admin sorting, Admin ticketing system, Admin controls, Activity Logs, Reporting System

Progress Summary UI



Progress Summary UI (Cont.)



Milestone 4

- Finish implementing all GUI elements needed
  - User Profile
  - User Settings
  - User Inbox
  - Community Review/feedback popup
  - Shopping List Preference Screen
- Complete the Inventory Module
- Complete the Recipe Module
- Set up User Accounts
- Explore ways to expand acceptable receipts, and possibly work to implement this functionality
- Start on the Shopping Companion
- Implement Community Recipe Page
- Implement Reviews/Feedback onto recipes in the community module

Milestone 5

- Implement Recipe ingredient suggestions and substitutions
- Implement Nutritional Information Module
- Implement and Complete Admin Portal
- Implement and Complete Admin Backend as a whole
- Complete Shopping Companion
- Implement New User Guide // Tutorial onboarding process
- Conduct evaluation and analyze results
- Create poster for Senior Design Showcase

Milestone 6

- Test/demo of the entire system
- Conduct evaluation and analyze results
- Create user/developer manual
- Create demo video

Task matrix for Milestone 4

Task	Tyler Son	David Tran	Chris Nederhoed
User Accounts		Create user account creation process, and link user accounts to AWS DB	
User Sub Components (Inbox, Settings, Profiles)	Allows users to customize their settings such as “light mode” vs “dark mode” and users to include profile pictures.		
Frontend Facelift			Polish front-end UI/UX making things look more professional while adhering to good principles. Implement window scaling.

Task matrix for Milestone 4 Continued

Task	Tyler Son	David Tran	Chris Nederhoed
Accepted Receipt Expansion			Use machine learning to parse hard-to-read user images and get the information from them
Shopping Companion	Create a list creation algorithm based on a user shopping list and preferences.	Get item prices from websites and/or api's.	
Feedback/Review System	Create attributes that store user feedback for recipes.		