

Steve Sanghi College of Engineering

MealsMyWay

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Motivation

Meal prepping encourages healthier habits, saves time, and reduces waste-but managing recipes, ingredients, and grocery lists can be a lot to handle without help. Sadly, this is not realistic for everyone as it can be overwhelming to keep track of all the recipes you want and correctly organize the steps required to make each meal into one large executable process. Thankfully, MealsMyWay comes in to fix this.

Calendar Page

Users schedule meals for each day of the week and generate a grocery list based on missing ingredients. The calendar offers an organized view of planned recipes and supports easy updates.



Challenges

Automatic Pantry Management:

- Problem: Recipes call for many different units of measurement, some that are impossible to automatically compare. (2 Onions to 6oz Onions)
- Solution: Implemented a Measurement Converter that adjusts all known measurements to ounces, and a pop up appears when comparing whole ingredients to measurements.

Hosting Frontend on EC2:

- Problem: Needed to host an Ionic frontend on a remote EC2 instance to enable 24/7 access.
- Solution: Configured server settings to allow the Ionic app to integrate seamlessly with the Express backend, enabling round-the-clock site availability.



Outcomes

Users can schedule multiple meals. generate prep lists/grocery lists, and manage all their ingredients for a smoother experience.



Future Work

MealsMyWay sets a solid foundation for extended functionality in future iterations. Key areas for future development include:

- Incorporating AI for smart recipe recommendations
- · Allergy-based filtering and dietary preference settings
- · Extensive usability testing and final cosmetic polishing
- · Introduce a dedicated database table for standardized ingredient entries to enable uniform storage, reduce duplication, and support structured querying across recipes.

Architecture

access profile

The MealsMyWay system follows a layered service-oriented architecture consisting of three major components:

- Frontend (UI): Interface is built with the Ionic framework; it provides a responsive and user-friendly experience across web and mobile platforms.
- Backend Services: Services such as Node.js and Express handle RESTful API endpoints and business logic.
- Database: PostgreSQL database stores user data, pantry items, recipe information, and calendar plans.

AWS EC2 is used for backend hosting, and secure IAM roles allow the client to access and manage services.

Recipe Page

Displays recipes submitted by users in a list format. Users can view details, filter by tags, and add recipes to their meal plan.

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Key Features

- Personalized Adjustable Calendar
- Customize and Create Recipes
- Generative Pantry/Freezer Management
- Grocery and Prep List Generation
- Shareable Meal Plans

Pantry/Freezer Page

Users manage their current inventory by adding or removing pantry, freezer, and spice rack items. This page powers grocery list generation.



Solution Overview

MealsMyWay is a web and mobile application that helps users create efficient, personalized meal plans. Users can schedule meals on a weekly calendar, generate smart grocery lists, and generate specialized prep lists for each calendar. The platform simplifies planning and supports social sharing to encourage healthy, timesaving habits.

Users navigate through the three main pages: Pantry/Freezer, Recipe, and Calendar; to manage ingredients, explore recipes, and organize meals.

Testing

The application was tested using both manual and automated strategies:

- Front-End Unit Testing: Verified the integrity of pantry input, recipe generation, and calendar updates.
- · Integration Testing: Ensured correct interaction between frontend, backend, and database components.
- · Usability Testing: Ongoing usability feedback from our client shaped improvements in UI/UX and feature responsiveness.

Technologies

