

Kitchen Assistant and Meal Innovator

AI-BASED RECIPE GENERATOR

By: Noah Addie, Stephen Shuecraft, and Justin Ong

Supervised by: Dr. Al-Shami

CONTENTS

- Problem Statement
- Project Objectives & Contributions
- Development Methodology
- Analysis/Development/Testing
- Live Demo
- Future Development

PROBLEM STATEMENT

Unlike conventional generators, KAMI **uses AI** which accounts for **dietary restrictions** and **ingredient availability**, creating new and random personalized recipes.

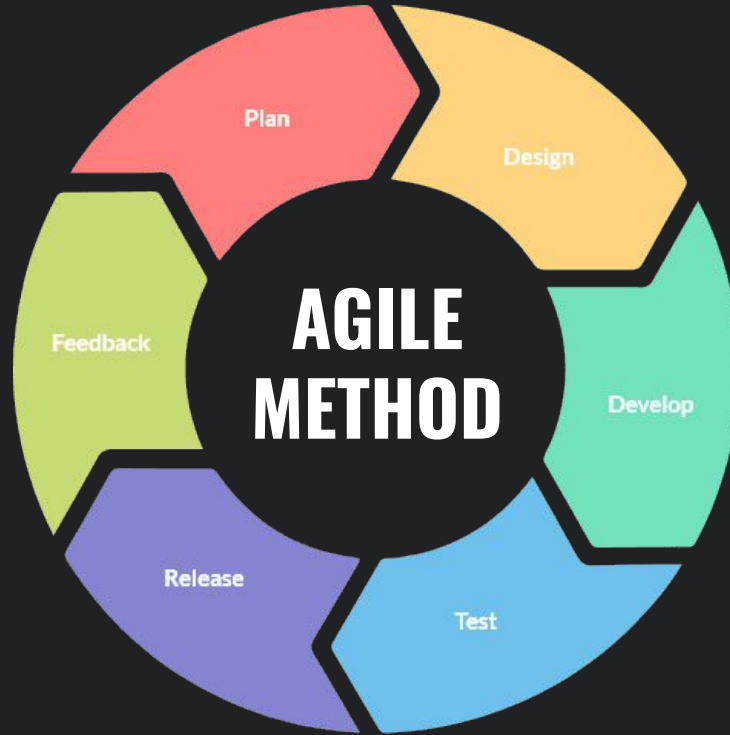
Using the **same software framework**, we can replicate similar systems outside of recipe generation, creating **AI-based systems** that create new ideas rather than drawing from a database of old ones.

PROJECT OBJECTIVES AND CONTRIBUTIONS

- Code for **recipe-recommending AI** [Stephen]
- **Python** and libraries [Stephen]
- **MySql** and **XAMPP** database [Justin]
- **User-friendly interface** [Justin/Noah]
- **Django** web framework [Stephen/Noah]
- **Research analyst** and **report lead** [Noah]

DEVELOPMENT METHODOLOGY

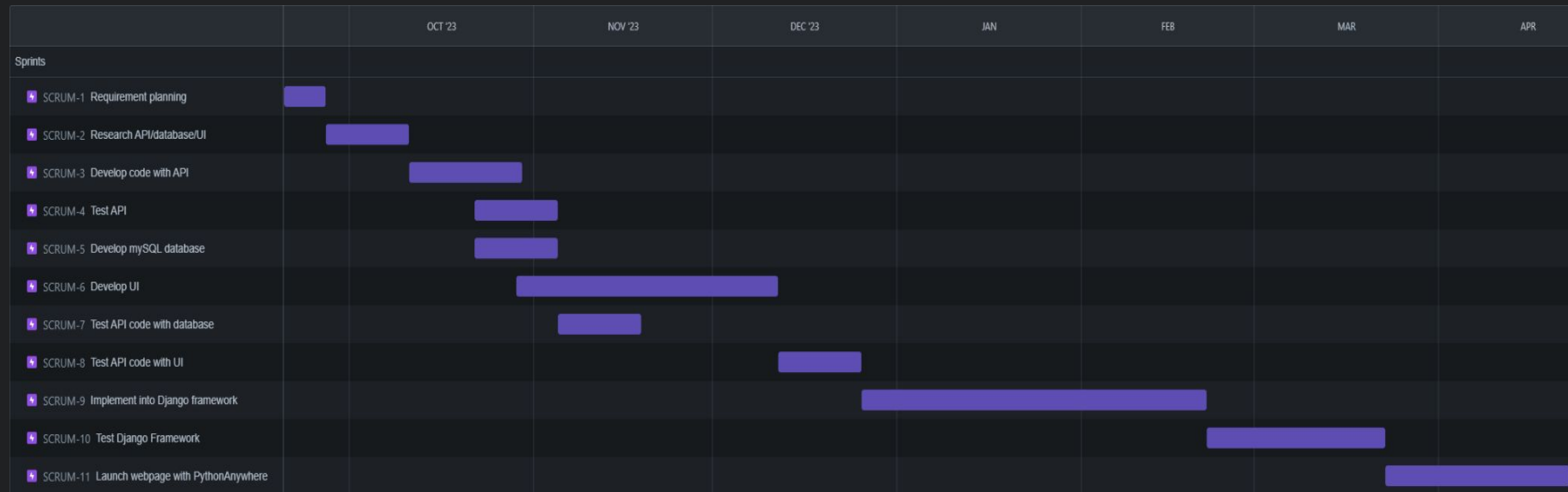
ITERATIVE
PROTOTYPING & TESTING



FLEXIBLE
STRUCTURE & REQUIREMENTS



DEVELOPMENT METHODOLOGY



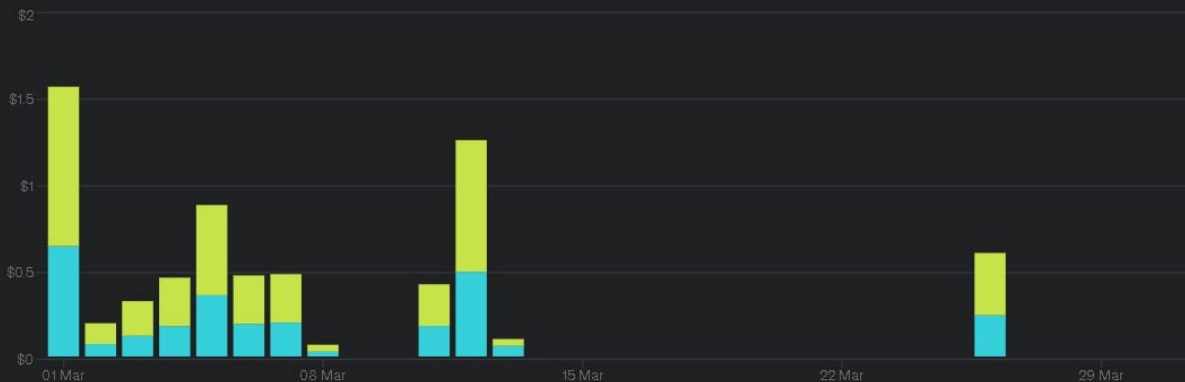
Gantt chart of KAMI project

COST MANAGEMENT

 Image API

 GPT-4 API

Monthly Spend \$6.77



COST MANAGEMENT

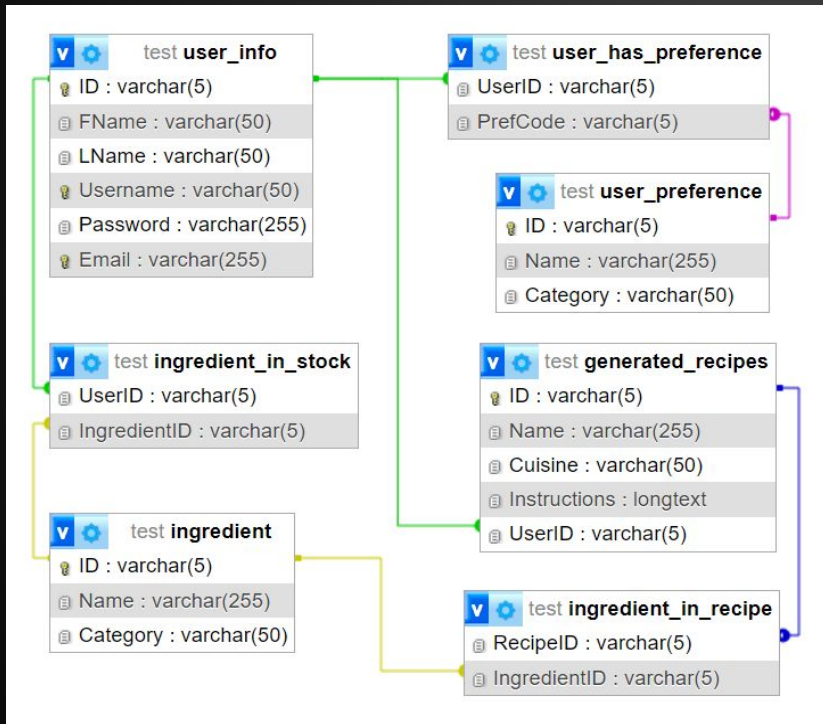
Model	Input	Output
GPT-4	\$0.03 / 1K tokens	\$0.06 / 1K tokens


Model	Quality	Resolution	Price
DALL·E 3	Standard	1024×1024	\$0.04 / image

\$0.065 per API Call.

No costs for database/web framework.

DESIGN




Generate RecipeInventoryAbout Us

+ FILTERS

+ INGREDIENTS

GENERATE RECIPE

CHICKEN ALFREDO PENNE



INGREDIENTS

- 1 lb boneless chicken breasts
- 1 lb penne pasta
- 2 tablespoons olive oil
- 2 cloves garlic, minced
- 1 cup heavy

INSTRUCTIONS

- Start by cutting 1 lb boneless chicken breasts into bite-size pieces, then season them with salt and black pepper to taste. Next, heat 2 tablespoons of olive oil in a large skillet over medium heat.
- Add the seasoned chicken to the hot skillet and cook until it's no longer pink in the center, around 6-7 minutes. Once the chicken is fully cooked, remove it from the skillet and set it aside for now.
- In the same skillet, add 2 minced garlic cloves and sauté until fragrant, about a minute. Pour in 1 cup of heavy cream and stir well.
- Gradually add 1 cup of grated Parmesan cheese to the skillet, continuously stirring to incorporate it into the cream. Continue to stir until the cheese has melted into the cream, forming a creamy Alfredo sauce.
- In a separate pot filled with salted boiling water, cook 1 lb penne pasta according to the package instructions until it's al dente. Drain the pasta well and add it to the

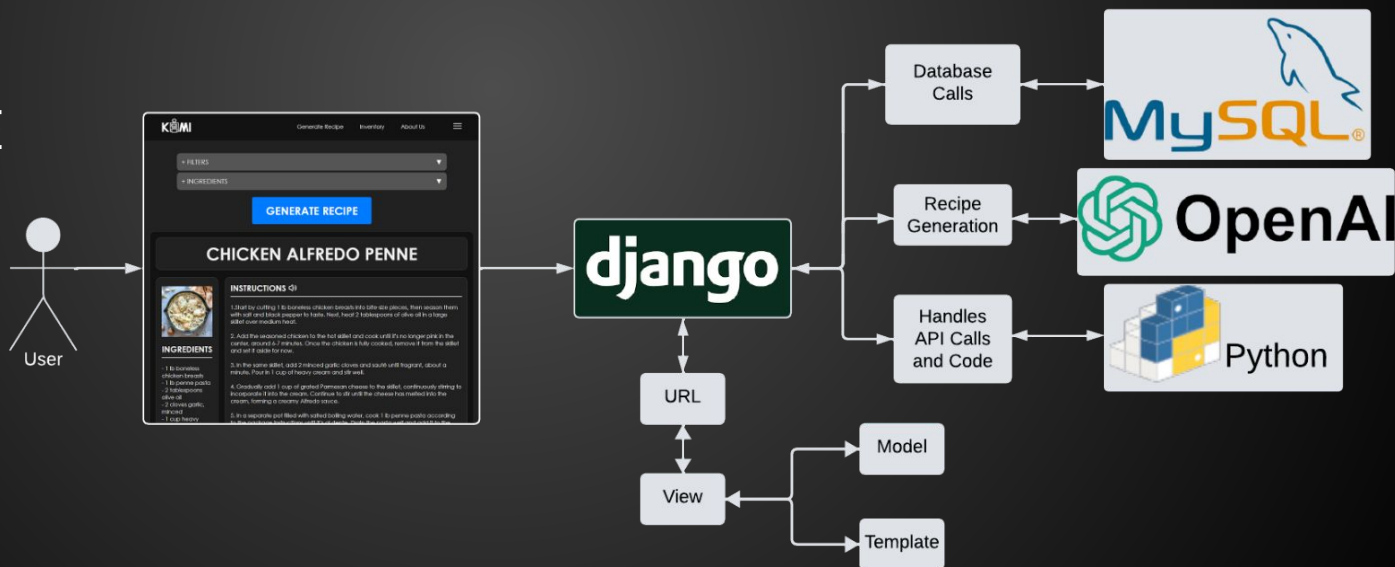
SOFTWARE ARCHITECTURE AND ECOSYSTEM

Web Design: HTML, CSS, JS

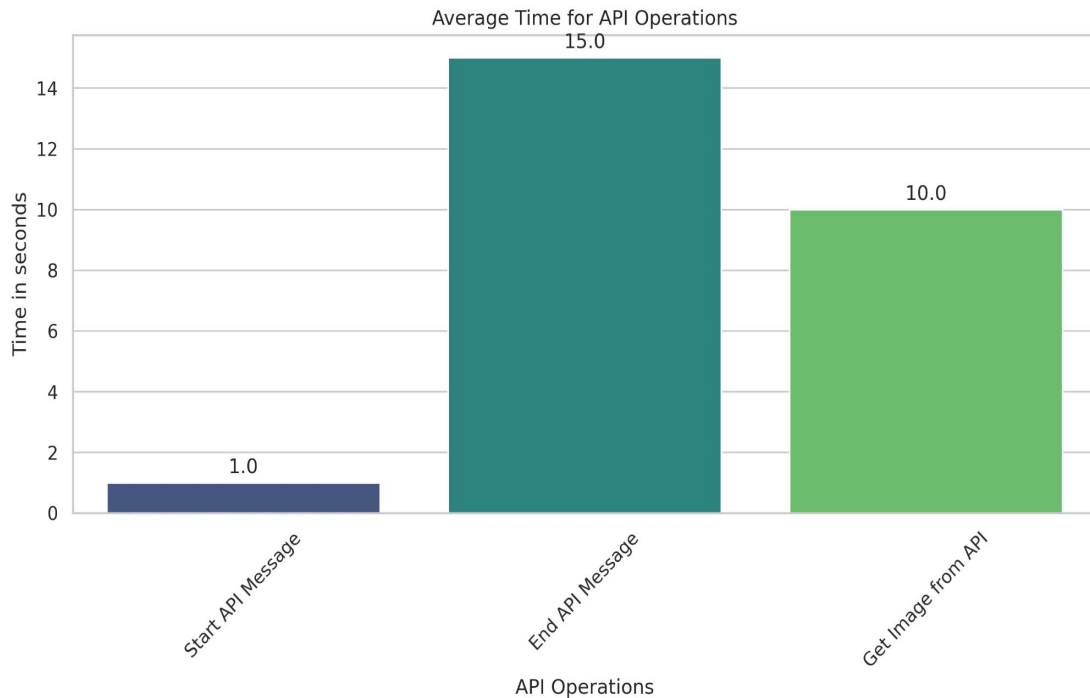
WebApp Code: Django & Python

Database: MySQL

KAMI: OpenAI & Dall-E



GENERATION TIME ANALYSIS



TIME IMPROVED:
26 seconds → 19 seconds

RISK MANAGEMENT

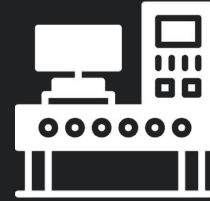


- > User data privacy
- > Secure data transmission
- > No unnecessary personal data
- > Third-parties
- > Inform users about changes

TESTING



INDIVIDUAL UNIT
TESTING



SYSTEM INTEGRATION
TESTING



Test for defect outputs & bugs
to minimize user error cases

DEPLOYMENT

PROTOTYPE DEVELOPMENT

Prioritize refining features and
testing functionalities



DJANGO COMPATIBILITY

Ease of deployment to
PythonAnywhere platform

LIVE DEMO

FUTURE DEVELOPMENT

For KAMI, more features can be implemented, like user accounts, AI-generated cooking tips/videos, text-to-speech, ingredient budgeting, etc.

Or we can focus on **developing AI-Based Web Systems** for clients with specific AI-centered needs, using the same software framework.

Thank You

Questions?

Noah Addie, Stephen Shuecraft, and Justin Ong



TRY KAMI!