

# AI-Based Recipe Generator

## Background

This project addresses the struggles of meal planning by using Artificial Intelligence (AI) to create new and random personalized recipes. Unlike conventional generators, KAMI accounts for dietary restrictions and ingredient availability. The flexibility of AI aims to give users personalized and customizable recipes and also simplify their home cooking experience.



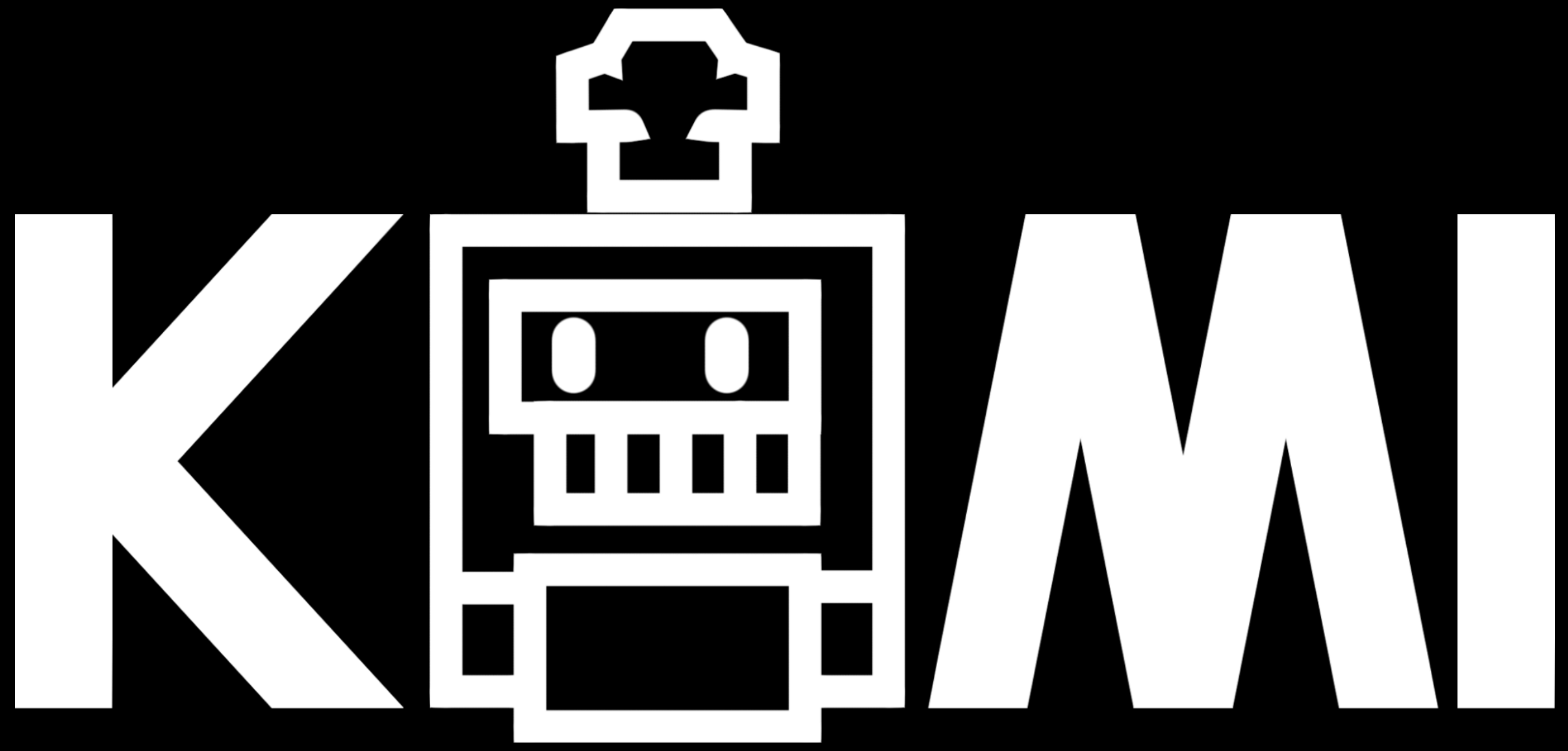
AI-generated images of the generated recipes

## Hosting APIs on a Django framework

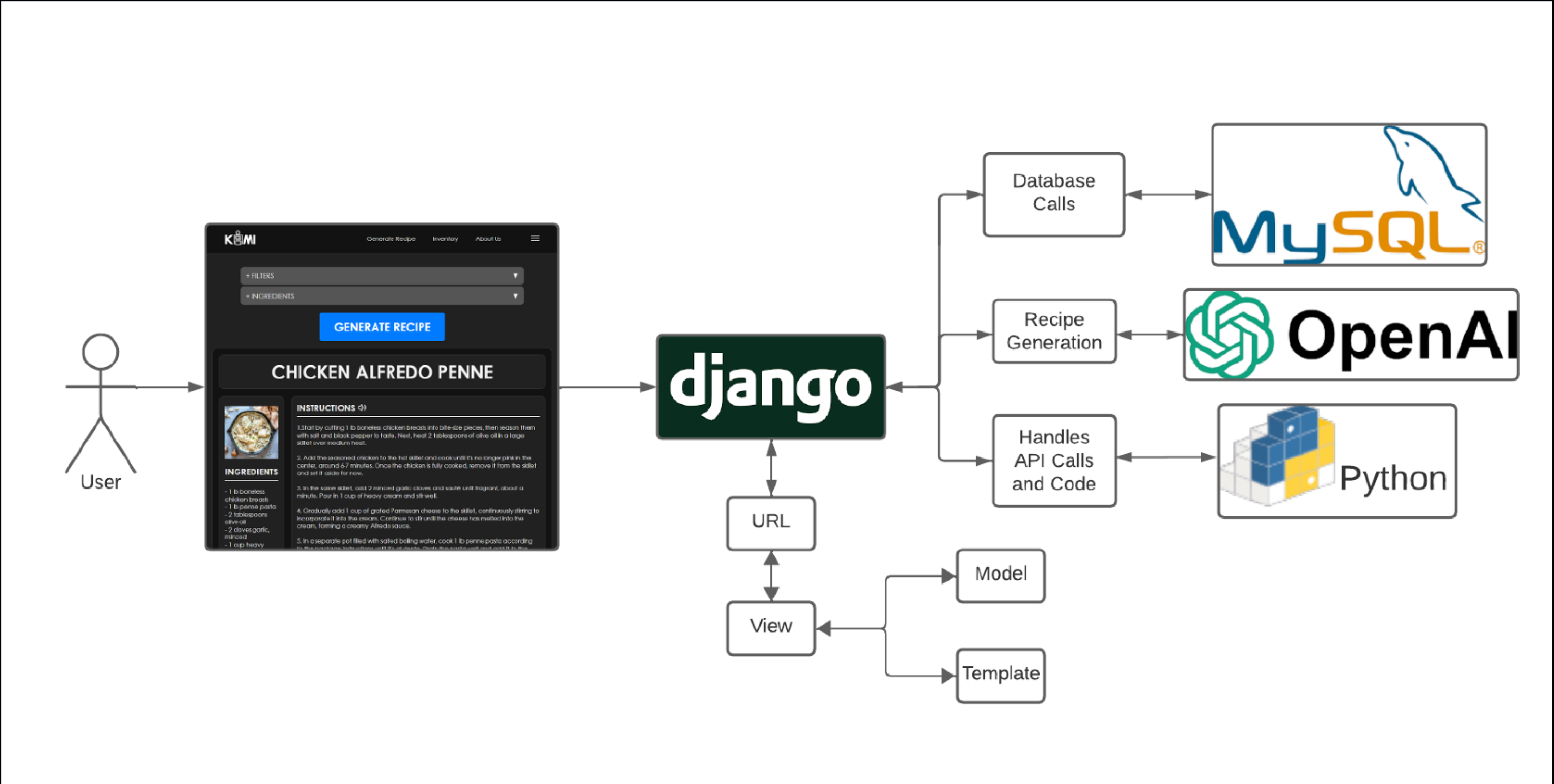
We used Python as a link between multiple APIs: GPT-4 as our Large Language Model (LLM), DALLE-3 to generate AI images, and MySQL/XAMPP as the database. They are hosted on the Django web framework and displayed to the user on a webpage developed using HTML/CSS/JS. Django is compatible with Hostinger, a web-hosting domain, which we will be using to deploy the webpage for demonstration and testing purposes.



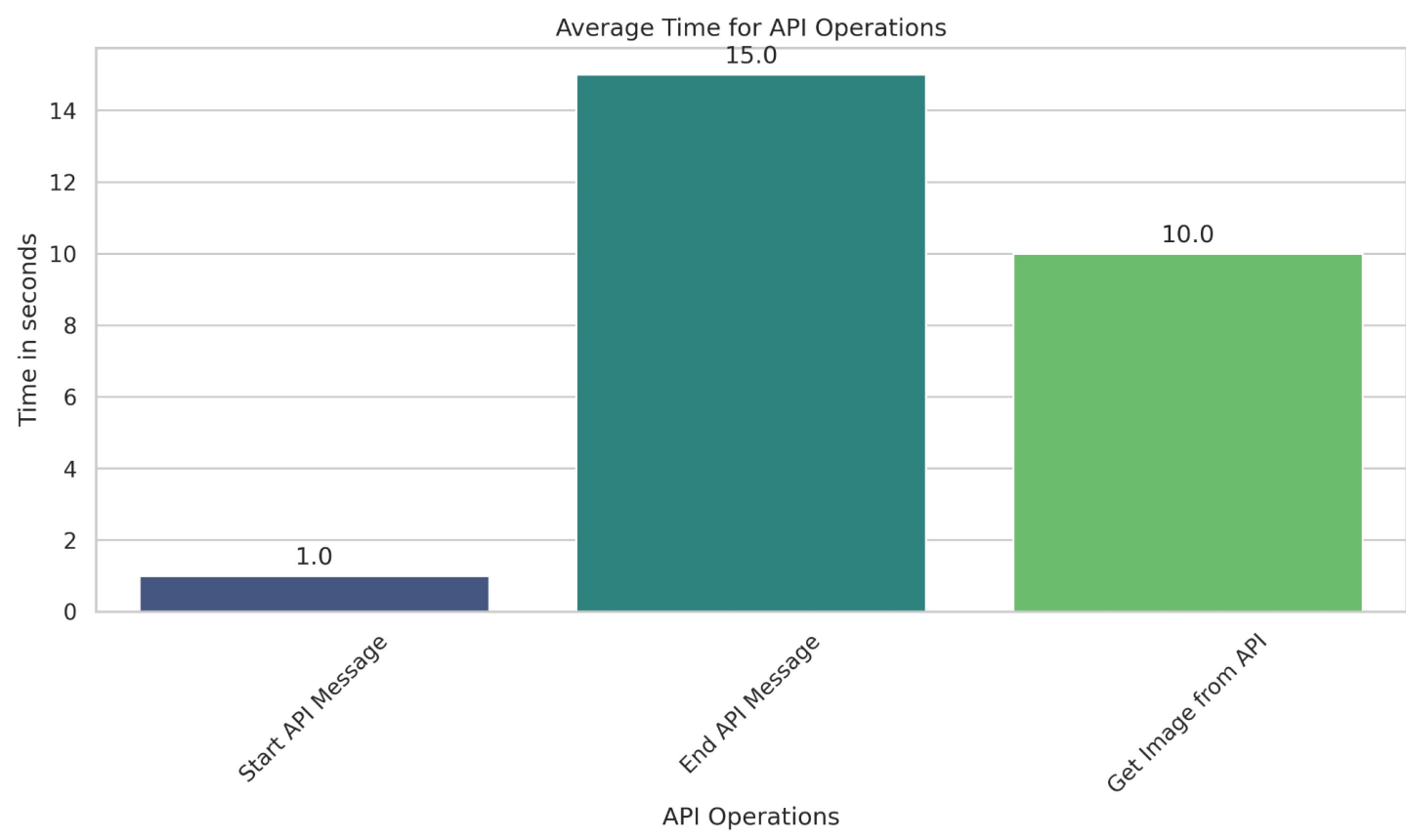
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# The Kitchen Assistant and Meal Innovator is designed to create new recipes based on a user's preferences and dietary needs



## Time analysis of recipe generation



After some code/API calling optimization, we cut down the generation time from 26 seconds → 19 seconds.

## Cost Management of KAMI system

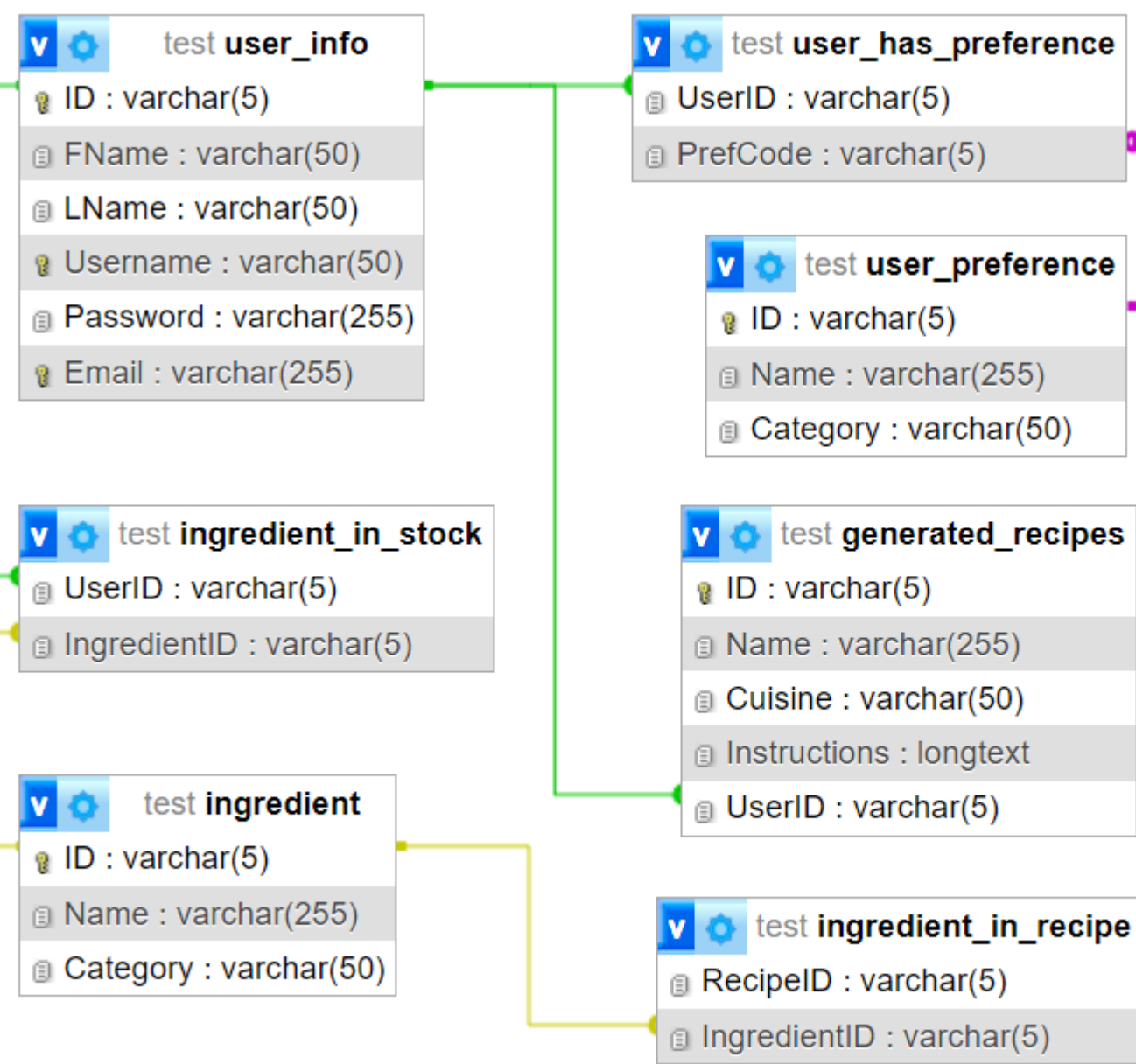
| Model | Input              | Output             |
|-------|--------------------|--------------------|
| GPT-4 | \$0.03 / 1K tokens | \$0.06 / 1K tokens |

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

An average of \$0.065 per API Call.  
No costs for database/web framework.

## Database

3NF Entity Relationship diagram



References:

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- Introduction - OpenAI API. (n.d.). Platform OpenAI.
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- Overview of MySQL Storage Engine Architecture. (n.d.). MySQL.
- Mettler, A. (2023, May 2). Food waste in restaurants: What we know — Fourth. Fourth.
- Django Project MVT Structure. (2021, August 16). GeeksforGeeks.



The flexibility of AI adapts to the needs and wants of each individual.