Final Exercise
The Path to Become an AI Engineer

For decades, TastyAI (formerly *TastyMonthly*) was a well-known publisher of recipe magazines, delivering curated meal ideas to thousands of households. Their printed magazines featured recipes, meal plans, and culinary tips, but with the shift toward digital content and personalized recommendations, the company has decided to modernize its approach.

Now, TastyAI is launching a smart, AI-powered meal recommendation platform that provides users with personalized meal suggestions based on their dietary preferences and constraints. Instead of flipping through static magazine pages, users can describe what they want to eat in natural language, and the system will generate tailored meal recommendations, complete with structured recipes, translation options, and AI-generated images of the dish.

Objective

Your task is to develop the core recommendation engine for TastyAI's new platform. The system should allow users to input meal preferences in natural language—such as *"I want a sugared meal that does not contain too much sugar and that I can share with my husband"*—and receive personalized meal suggestions. Each recommendation must include a structured recipe, translation into at least two languages, and an AI-generated image that visually represents the dish.

Requirements

1. **Meal Recommendation System**
    - The system should allow users to input their meal preferences in natural language.
    - It should process constraints such as dietary preferences, sugar content, and sharing suitability.
    - Example input:
      "I want a sugared meal that does not contain too much sugar and that I can share with my husband."
    - The system should return one or more suitable meal recommendations.
2. **Recipe Generation and Translation**

    - Each recommended meal must include a structured recipe (ingredients and preparation steps).
    - The application should support automatic translation of the recipe into at least two different languages.
3. **Image Generation**
    - The system should generate an AI-generated image of the recommended meal.
    - The image does not need to be highly realistic, but it should visually represent the content of the recipe.
4. **Dataset Usage**
    - Students must use this dataset as their primary data source.
    - They may perform data augmentation, cleaning, or preprocessing as needed.

Students are free to use pre-trained models for NLP and image generation and may fine-tune them if necessary.

Submission Format

Students must submit a repository link containing:

- Codebase (with README instructions).
- Explanation of models used and methodology (Markdown or PDF).
- Example queries and outputs (screenshots or JSON responses).