🍽️ SmartMeal – Meal Suggestion & Dynamic Pricing App

SmartMeal is a Python-based web application built with Streamlit that leverages the Spoonacular API to suggest meals, display key nutritional information, capture user ratings, and apply a dynamic pricing algorithm based on meal popularity. The goal is to provide macro-aware recipe recommendations for health-conscious users, especially those interested in high-protein diets.

🔗 Open the app: https://smartmeal-ytgekabzxzawf8zgfkfwms.streamlit.app/

💡 Features

- 🔍 Meal search via Spoonacular API: Filter recipes based on protein and calorie ranges.
- 📊 Display key nutritional metrics: Including protein, calories, carbohydrates, and fat.
- ⭐ User rating system: Rate meals on a 1–5 star scale.
- 💸 Dynamic pricing logic: Adjust prices depending on the average rating (Bayesian weighted).
- 📈 Visual analytics: Track rated meals and visualize preferences over time.
- 🎲 "Surprise me" mode: Discover similar recipes based on past favorites.
- 🌟 Dish of the Day: Based on a composite score (nutrition, price, rating).

🖥️ How to Use

No installation required — simply open the app in your browser:
🔗 https://smartmeal-ytgekabzxzawf8zgfkfwms.streamlit.app/

If the hosted version doesn't work or you want to run it locally:

1. Clone the repository:
   git clone https://github.com/your-org/smartmeal.git
2. Install dependencies:
   pip install -r requirements.txt
3. Add your Spoonacular API key in the script (API_KEY). You can use the placeholder key found in the code comments. A valid key will be provided upon project submission.
4. Run the app:
   streamlit run smartmeal.py

🧪 Example Use Case

1. Set your dietary preferences: Use the sidebar sliders to define your desired range of protein and calorie intake. This allows you to focus on high-protein, balanced, or low-calorie meals, depending on your goals.

2. Discover new meals: After adjusting the filters, click the "🔍 Search meals with filters" button. SmartMeal will fetch and display meals that match your criteria, including images, titles, nutritional facts, and estimated base price.
3. Rate meals interactively: For each displayed recipe, you can assign a star rating (1–5). This will dynamically influence the adjusted price based on popularity, offering a unique pricing perspective tied to user satisfaction.
4. Save favorites: Mark meals as favorites to build your personal library. These saved dishes are used as a basis for 'Surprise Me' recommendations, making the experience more tailored over time.
5. Visualize your preferences: Charts will show how your meal ratings evolve, how your choices compare in terms of protein, calories, and cost, and which dishes perform best overall.
6. Explore 'Dish of the Day': The app highlights the top-performing meal based on a weighted composite score that considers rating, price, and calories. It's your go-to suggestion when indecisive.
7. Learn from macros: An advanced visualization breaks down each meal's calories by macronutrients (protein, fat, carbs), helping users make more informed nutritional decisions.
8. This use case reflects a typical user journey from searching for meals, interacting with results, and using the insights SmartMeal provides to eat more consciously.

🛠️ Tech Stack

- Python 3.10+
- Streamlit – UI framework
- Spoonacular API – Meal data source
- Altair – Interactive data visualization
- Pandas – Data manipulation