

NUTRI-CRAFT

PERSONALIZED FOOD AND DIET RECOMMENDATION SYSTEM

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PROJECT OVERVIEW

Problem Statement

- Businesses in the food industry face challenges in retaining customers and boosting sales due to generic food recommendations that fail to meet individual preferences. This results in missed opportunities for upselling and cross-selling.
- On the other hand, individuals seeking healthier lifestyles often struggle with overwhelming food choices and a lack of personalized recommendations. Without suitable tools to explore tailored recipes, users face difficulty finding meals that match their dietary needs, preferences, and goals.



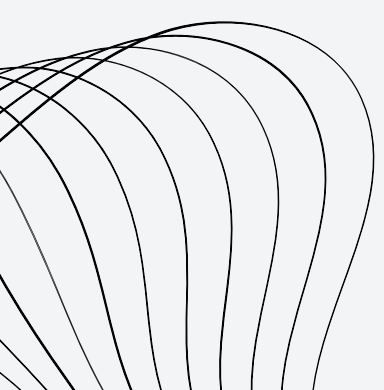
Solution Provided

A Personalized Food and Diet Recommendation System that leverages machine learning to offer tailored meal suggestions.

For Businesses:

- Provides personalized menu recommendations to improve customer retention and boost sales.
- Helps drive upselling by suggesting dishes aligned with user preferences.

For Consumers:

- Delivers customized meal plans based on dietary needs and health goals.
 - Offers flexible ingredient selection and clear nutritional insights for informed choices.
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SYSTEM DEMO




<https://github.com/Rajeev-08/Nutri-Craft>

TECHNICAL IMPLEMENTATION



Tools Used

- Frontend: Streamlit for interactive and intuitive UI.
 - Backend: FastAPI for efficient request/response handling.
 - Machine Learning: Content-based recommendation system powered by Scikit-learn.
 - Data Management: Pandas for data manipulation and processing.
 - Image Retrieval: Web scraping techniques via BeautifulSoup.
 - Visualization: streamlit_echarts for graphical representation of nutritional data.
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Challenges Overcome

- **Ineffective Distance Metric:**

Challenge: Euclidean distance was inaccurate for comparing nutritional profiles.

Solution: Switched to cosine distance for improved accuracy.

- **Complex Data Management:**

Challenge: Managing filtering, scaling, and k-NN prediction separately increased complexity.

Solution: Implemented scikit-learn's Pipeline to streamline these steps.

- **Race Conditions in Streamlit:**

Challenge: Streamlit's behavior triggered multiple recommendation requests during rapid interactions.

Solution: Added a session state flag to block new requests during ongoing processes.

- **Data Format Errors:**

Challenge: Ensuring correct data format for FastAPI requests.

Solution: Used Pydantic models to enforce proper input validation.

Completed

Pending

PROJECT ROADMAP

