



FLAVORFINDER

EASY AND CONVENIENT

NAMES:

HETAL GADA
DRISTI DANI
VISHWA SHAH



TABLE OF CONTENTS

- Introduction
- Project Description
- Project Architecture
- Data Collection and Preprocessing
- RAG Pipeline Implementation
- Performance Metrics
- Deployment Plan
- Future Work
- Conclusion
- Q&A



OVERVIEW



This project develops a food recommendation system that integrates recipes, ingredients, and local restaurant information. Users can input available ingredients to receive tailored recipe suggestions and find nearby restaurants offering similar dishes. This seamless integration enhances convenience and enriches the culinary experience by connecting home cooking with dining out.



OBJECTIVES

RECIPE DISCOVERY

Enable users to input their available ingredients and receive personalized recipe recommendations that maximize the use of those ingredients.

RESTAURANT RECOMMENDATIONS

Suggest local restaurants that offer dishes matching the recommended recipes, enhancing dining options for users.

USER ENGAGEMENT

Create an interactive platform that allows users to rate recipes and restaurants, fostering a community of food lovers.

ENHANCED SEARCH FUNCTIONALITY

Implement filtering options based on dietary preferences (e.g., vegetarian, gluten-free), cuisine types, and cooking times to cater to diverse user needs.



IMPORTANCE

CULINARY EXPLORATION

The system encourages users to experiment with different recipes and ingredients, fostering a culture of culinary creativity and exploration.

CONVENIENCE FOR USERS

By connecting recipes with local dining options, users can easily transition from cooking at home to enjoying meals out, making dining decisions more efficient.

INDUSTRY RELEVANCE

The project addresses growing trends in food technology and personalized dining experiences, appealing to both consumers and businesses in the food and hospitality sectors.

NUTRITIONAL AWARENESS

Users can discover recipes that fit their dietary needs and preferences, promoting healthier eating habits while still enjoying diverse cuisines.



IMPORTANCE AND RELEVANCE OF THE PROJECT

This project is vital for enhancing culinary innovation and consumer convenience by seamlessly integrating recipes, ingredients, and local restaurant information.

By allowing users to find tailored recipe suggestions based on available ingredients, it addresses the growing demand for personalized dining experiences and simplifies meal planning.

Additionally, the project promotes healthier eating habits by encouraging users to explore diverse recipes that fit their dietary preferences.

Its alignment with industry trends and focus on data-driven solutions highlight its relevance in the evolving food and hospitality sectors, preparing users for future opportunities in this space.

GAMECHANGER!



DETAILED PROJECT OVERVIEW

This project focuses on developing a comprehensive food recommendation system that integrates **three** key datasets:

Recipes, Ingredients, & Local Restaurant information

Users can input available ingredients to receive personalized recipe suggestions that maximize their resources. Additionally, the system identifies nearby restaurants that offer similar dishes, creating a seamless connection between home cooking and dining out. The user-friendly interface will facilitate easy navigation and interaction, ensuring an engaging culinary experience.

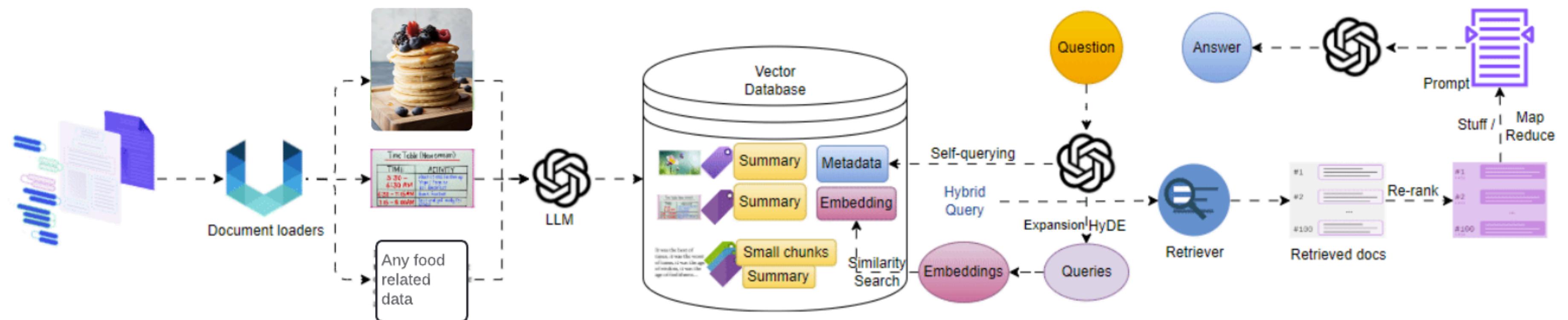


SPECIFIC PROBLEM ADDRESSED

- Many individuals struggle to find recipes that utilize the ingredients they have on hand, often leading to food waste and frustration
- Additionally, users may find it challenging to locate restaurants that serve dishes they are interested in
- This project addresses these issues by providing tailored recommendations that not only suggest recipes based on available ingredients but also highlight nearby dining options
- This dual approach simplifies *meal planning* and *dining decisions*, enhancing overall satisfaction



DIAGRAM OF THE PROJECT ARCHITECTURE



EXPLANATION OF THE COMPONENTS AND THEIR INTERACTIONS

Document Loaders: Ingest data from recipes, ingredients, and restaurant datasets

LLM (Large Language Model): Process and generate embeddings for these data points

Vector Database: Store the embeddings and metadata, enabling similarity search

User Query Handling: Process user queries for recommendations

Retriever: Retrieve relevant data points using hybrid query methods

Re-Ranking: Rank retrieved documents for relevance

Answer Generation: Generate and present recommendations to the user

TECHNOLOGIES & TOOLS USED

Programming Languages: Python

Libraries: Pandas, NumPy, Scikit-learn, TensorFlow

Tools: Jupyter Notebook, SQL, Docker

Platforms: AWS, Google Cloud

DATA COLLECTION



Ingredients Dataset

Provides ingredient names and quantities



Recipes Dataset

Contains recipe details, ingredients, prep time and cooking instructions.

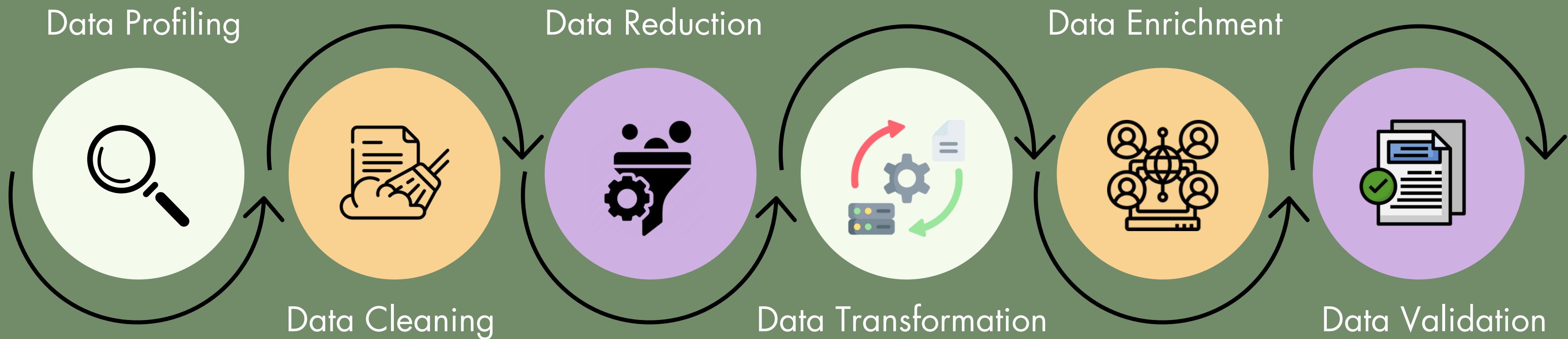


Restaurants Dataset

Includes restaurant details, ratings, approx. cost and location information.



DATA PREPROCESSING



RAG PIPELINE : Overview

01

WHAT IS RAG?

Retrieval augmented generation, or RAG, is an architectural approach that can improve the efficacy of large language model (LLM) applications by leveraging custom data.

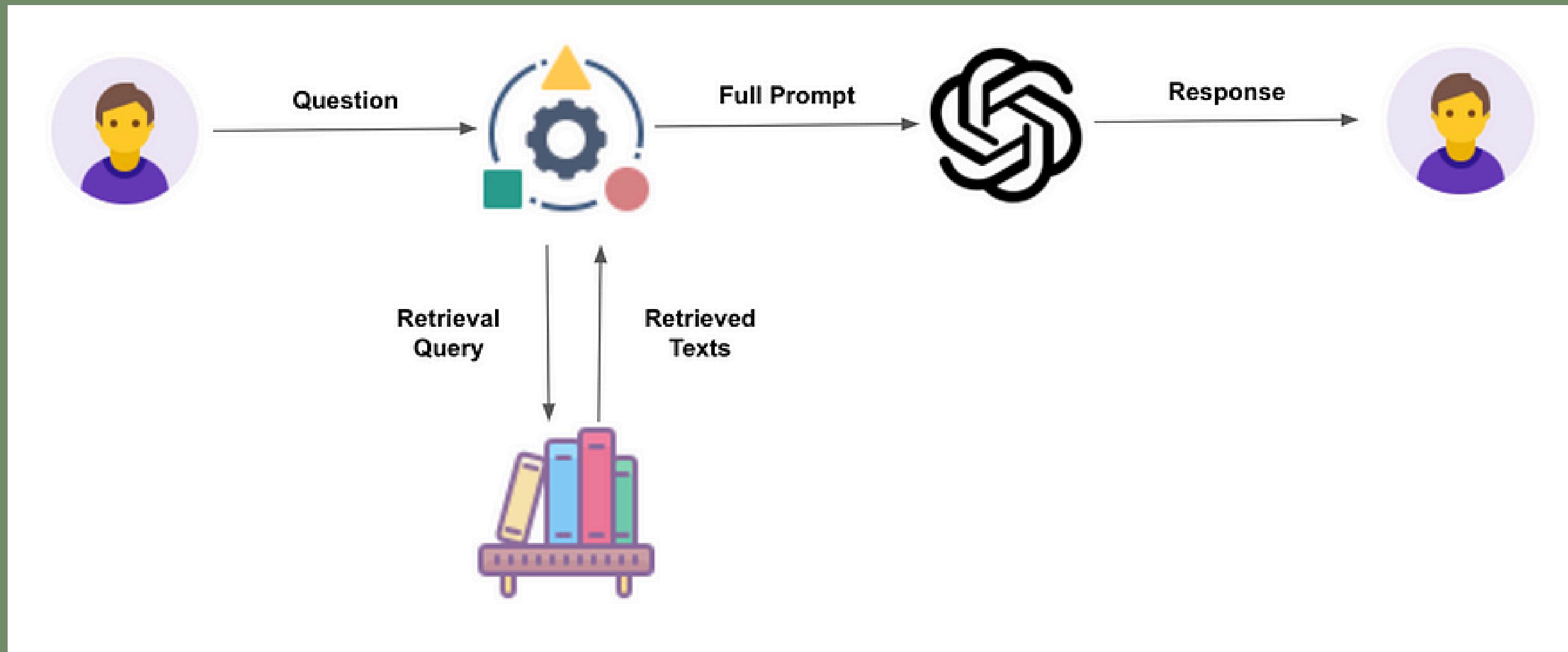
02

COMPONENTS

1. Retrieval: Fetches relevant documents or data points
2. Generation: Produces recommendations using the retrieved information



STEPS INVOLVED IN RAG



CHALLENGES WE MIGHT FACE



01

Integrating
Diverse Datasets

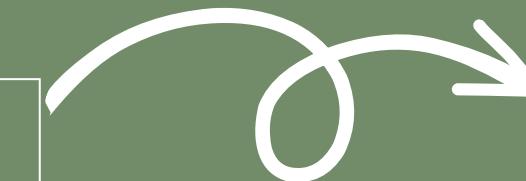
02

Ensuring Real-time
performance



KEY METRICS

Precision
Recall
F1 score
Mean Reciprocal Rank



IMPORTANCE

1. Measures the accuracy of the recommendations
2. Measures the coverage of the recommendations
3. Balances precision and recall to give a single performance score
4. Evaluates the ranking quality of recommendations

DEPLOYMENT PLAN



Final Testing:

- Conduct comprehensive user acceptance testing.

Deployment Setup:

- Use cloud services (AWS, Azure, GCP).
- Configure necessary resources.

Deployment Execution:

- Package the application with Docker.
- Implement CI/CD pipelines.

Monitoring and Maintenance:

- Set up monitoring tools (Prometheus, Grafana).
- Plan for regular updates and maintenance.



FUTURE WORK

01

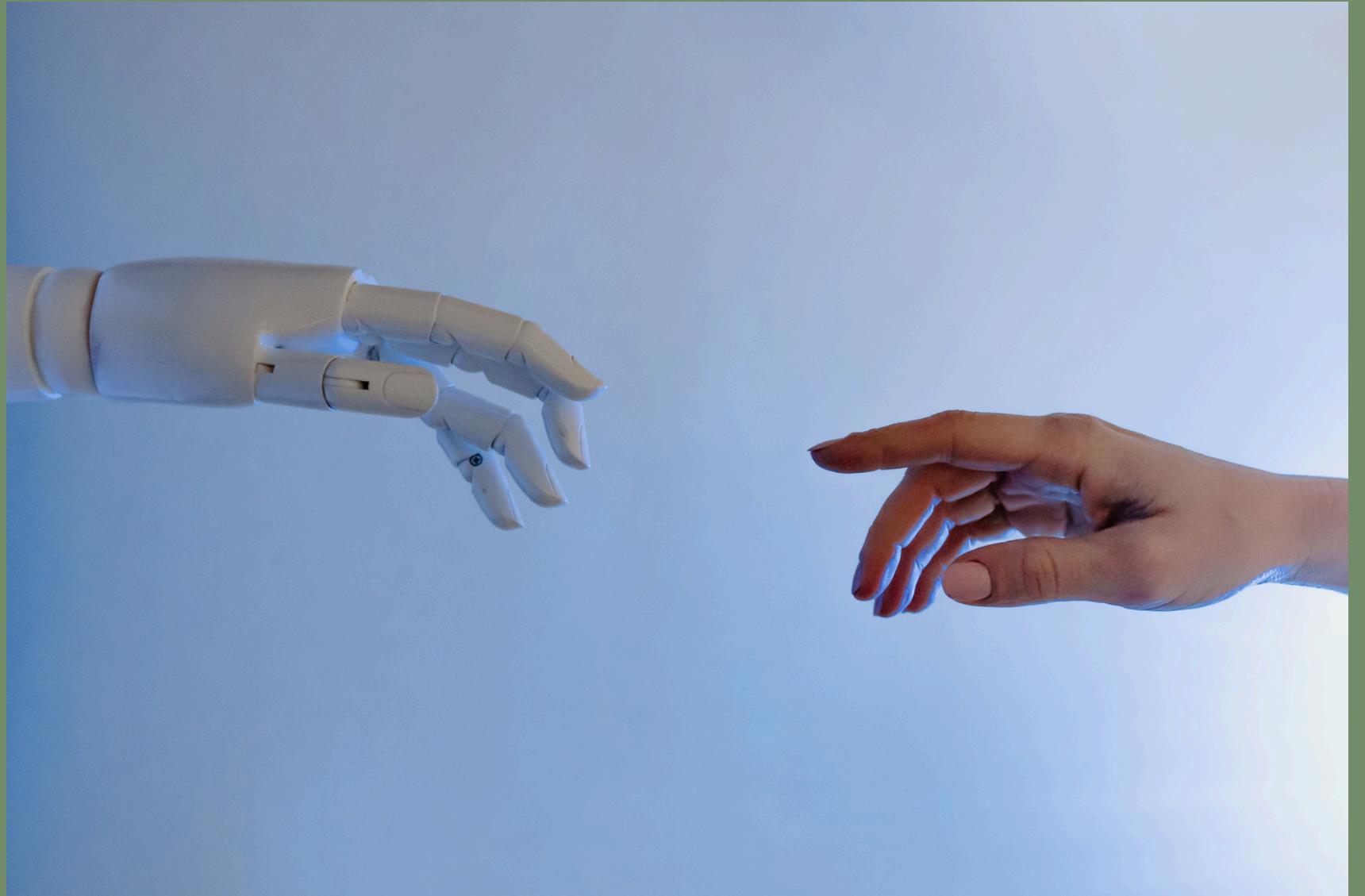
Mobile Application

02

Voice Integration

03

Advanced Personalization



CONCLUSION



- Developed a food recipe recommendation app based on user-provided ingredients.
 - Implemented using advanced technologies and a robust architecture.
 - Aimed to provide personalized and accurate recipe suggestions to users.

Takeaways

- The project demonstrated the application of machine learning and data processing in real-world scenarios.
 - Highlighted the importance of user feedback and iterative development.
 - Showed the potential for expanding the app with additional features and improvements.





QUESTIONS & ANSWERS

"THANK YOU FOR YOUR ATTENTION. WE
WILL BE HAPPY TO ANSWER ANY QUESTIONS
YOU HAVE ABOUT THE PROJECT."

