

NUTRICHEF AI

AI- PERSONAL CHEF

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PROJECT OVERVIEW

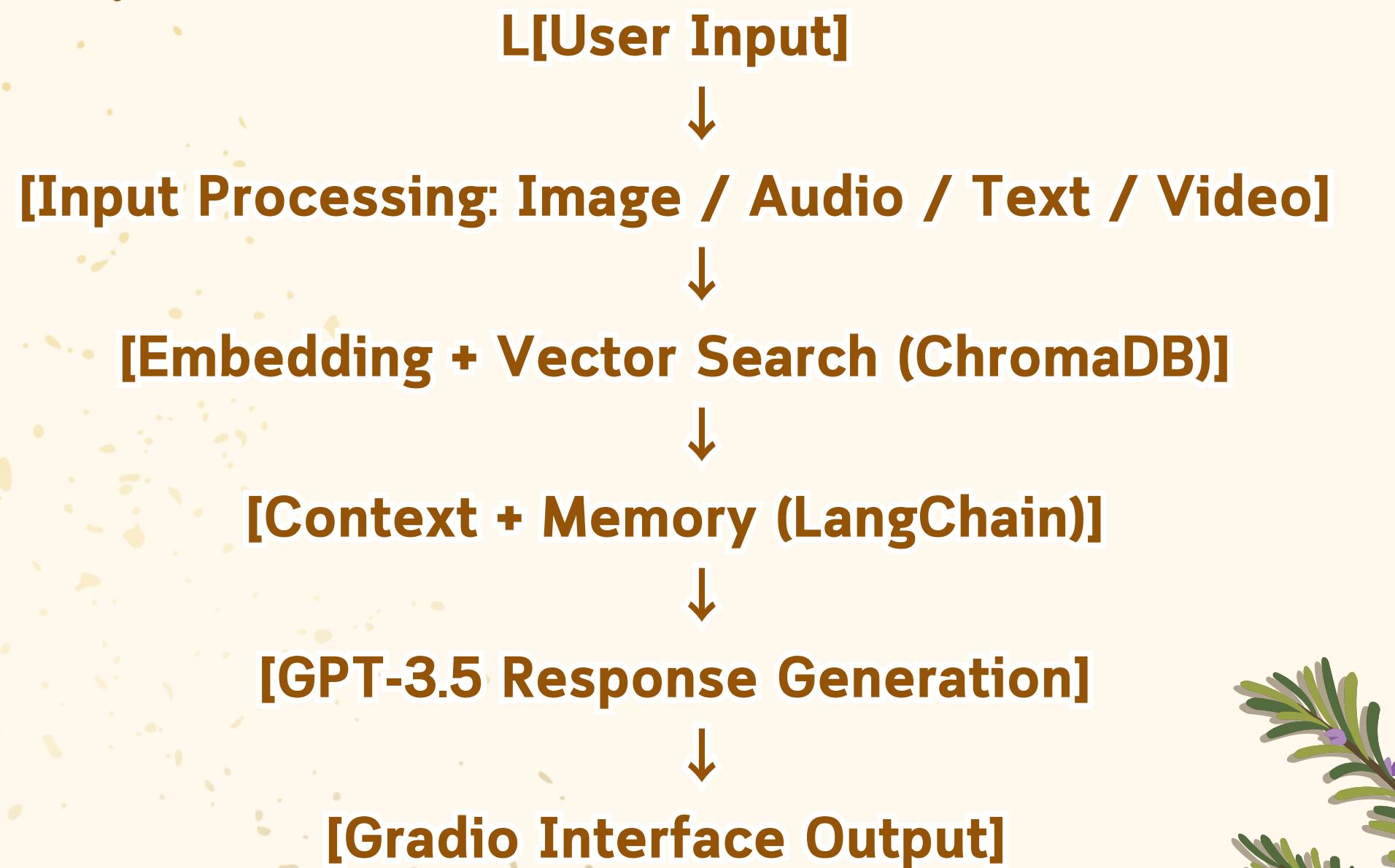
WHY NUTRICHEF?

- People usually struggle to find what to eat or make from such simple ingredients
- Not everything rises to there senses of taste or preference of food
- Cooking videos don't always answer our simple questions

WHAT IS NUTRICHEF AI?

- AI assistant that suggests meals based on your ingredients
- Provides meal plans, recipes, and nutritional advice
- Works with text, images, audio, and videos
- Can chat with you like a human chef!

PROJECT PIPELINE OVERVIEW!



INPUT MODALITIES

TEXT CHAT

like asking for a
recipes or asking
for an advice

IMAGE

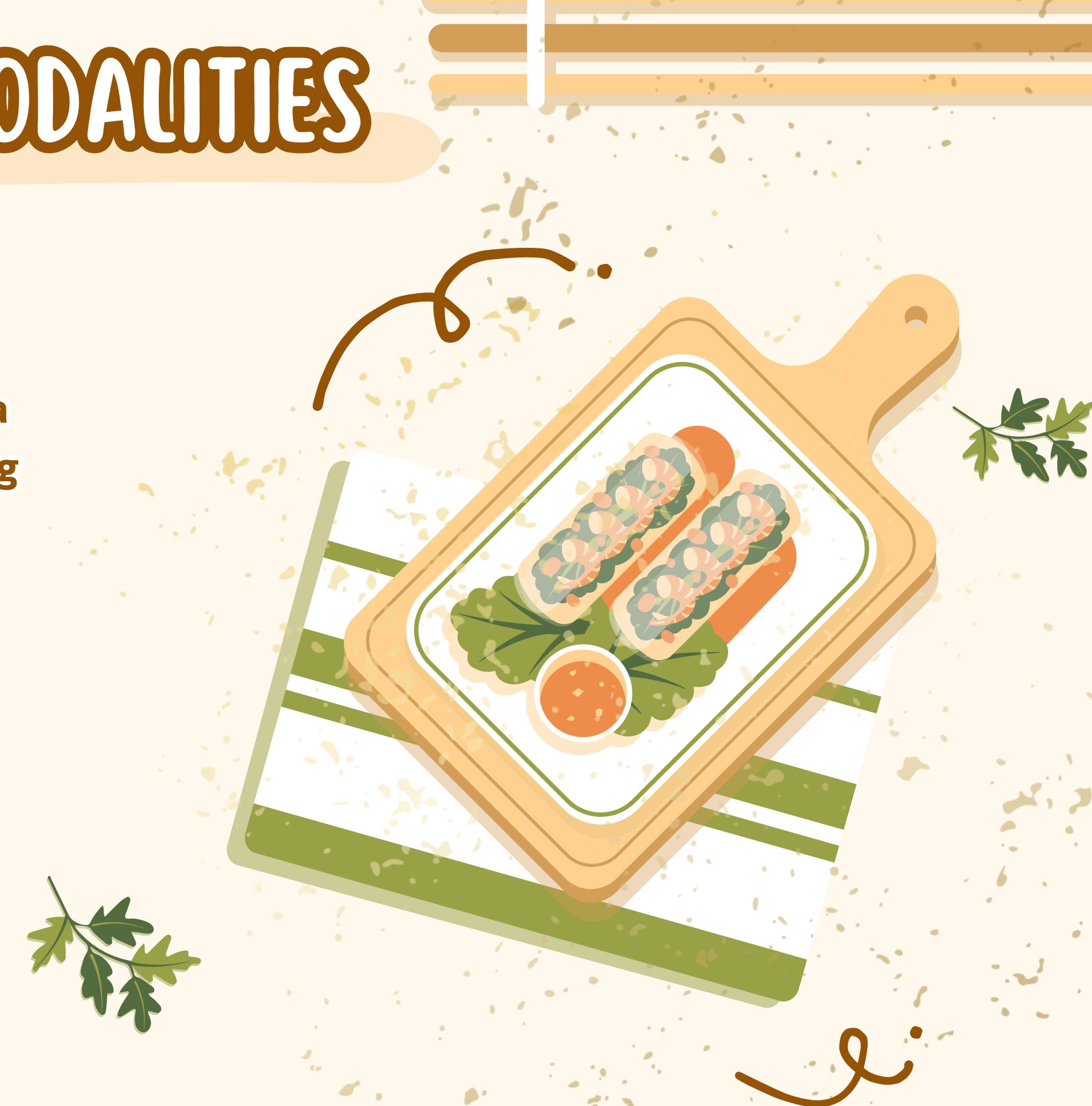
uploading a
photo of your
fridge or the
ingredients u
got

AUDIO

describe the
ingredients you
have or asking
simple questions

YOUTUBE VIDEO

analyze
cooking videos



INPUT PROCESSING & UNDERSTANDING

input type	model/method	output
image	BLIP (salesforce)	caption + list of detected ingredients
audio	whisper + GPT	transcription + extracted ingredients
text	GPT	dish name, intent, ingredients
video	whisper + chunking	transcript split into searchable chunks



EMBEDDINGS & VECTOR SEARCH

RECIPE RETRIEVAL

Ingredient or dish name is embedded using
SentenceTransformers

Query goes to ChromaDB used as a vector store

Retrieves similar recipes as context

MEMORY MANAGEMENT WITH LANGCHAIN

To make the chatbot more intelligent and context-aware, I used LangChain's memory system.

This allows the assistant to remember previous interactions during a session, so it can respond more naturally and follow the flow of conversation. Instead of treating each message separately, it understands what has already been discussed



LLM REASONING & RESPONSE GENERATION

In this step, the GPT-3.5-turbo model processes three key inputs:

- the user's message,
- relevant recipe context retrieved from the vector store (ChromaDB),
- and the memory of past messages.

Based on this, it generates a smart and relevant response. The assistant can reply with full recipes and cooking steps – depending on what the user asks.



EVALUATION

used langsmith for evaluation :

NutriChefAI

ID Data Retention 14d Add Rule

Runs Threads Monitor Alerts New Setup

1 filter Last 7 days Root Runs LLM Calls All Runs Columns

Name	Input	Output	Error
RunnableWithMessage...	when was the Battle o...	ai: The Battle of S...	
RunnableWithMessage...	stir fry with steak and...	ai: Stir fry with st...	
RunnableWithMessage...	can you provide me w...	ai: Of course! Ste...	
RunnableWithMessage...	what could I do with s...	ai: You can make ...	
AnswerVideoQuestion	what are the ingredie...	The ingredients u...	
HandleYouTubeDown...	https://youtu.be/hblls...	Hi everyone welc...	
ProcessAudioPipeline	/tmp/gradio/9be92ed...	**Detected In...	
ProcessImagePipeline	<PIL.Image.Image im...	**Detected In...	
CriteriaEvalChain	{"input":{"ingredients...}	{"reasoning":"Rel...	
AgentExecutor	What are the nutrition...	Nutrition data not...	

Stats
Last 7 days
RUN COUNT 428
TOTAL TOKENS 97,846 / \$0.08 ⓘ
MEDIAN TOKENS 355
ERROR RATE 0%
% STREAMING 0%
LATENCY P50: 1.75s P99: 29.88s

Filter Shortcuts
Input Key Mode



**THANK YOU
FOR YOUR
ATTENTION**

