Microsoft

Intro to AI with .NET, OpenAI, and Semantic Kernel

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Phil.About()

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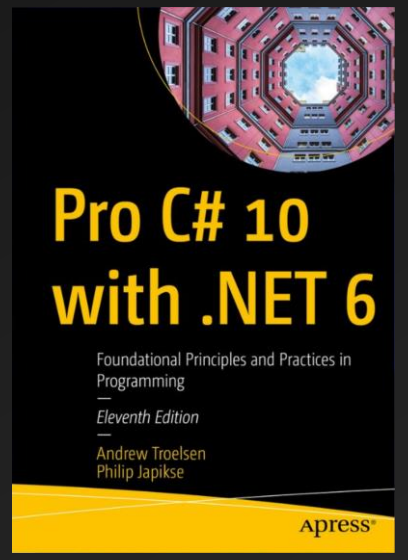


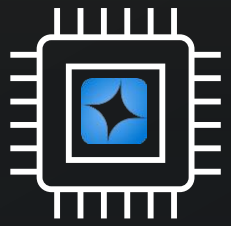
CAN'T AI WRITE
THE TALK FOR YOU
imgflip.com

Generative AI

Large Language Models (LLMs)

"Once upon a time,

N-token Prompt

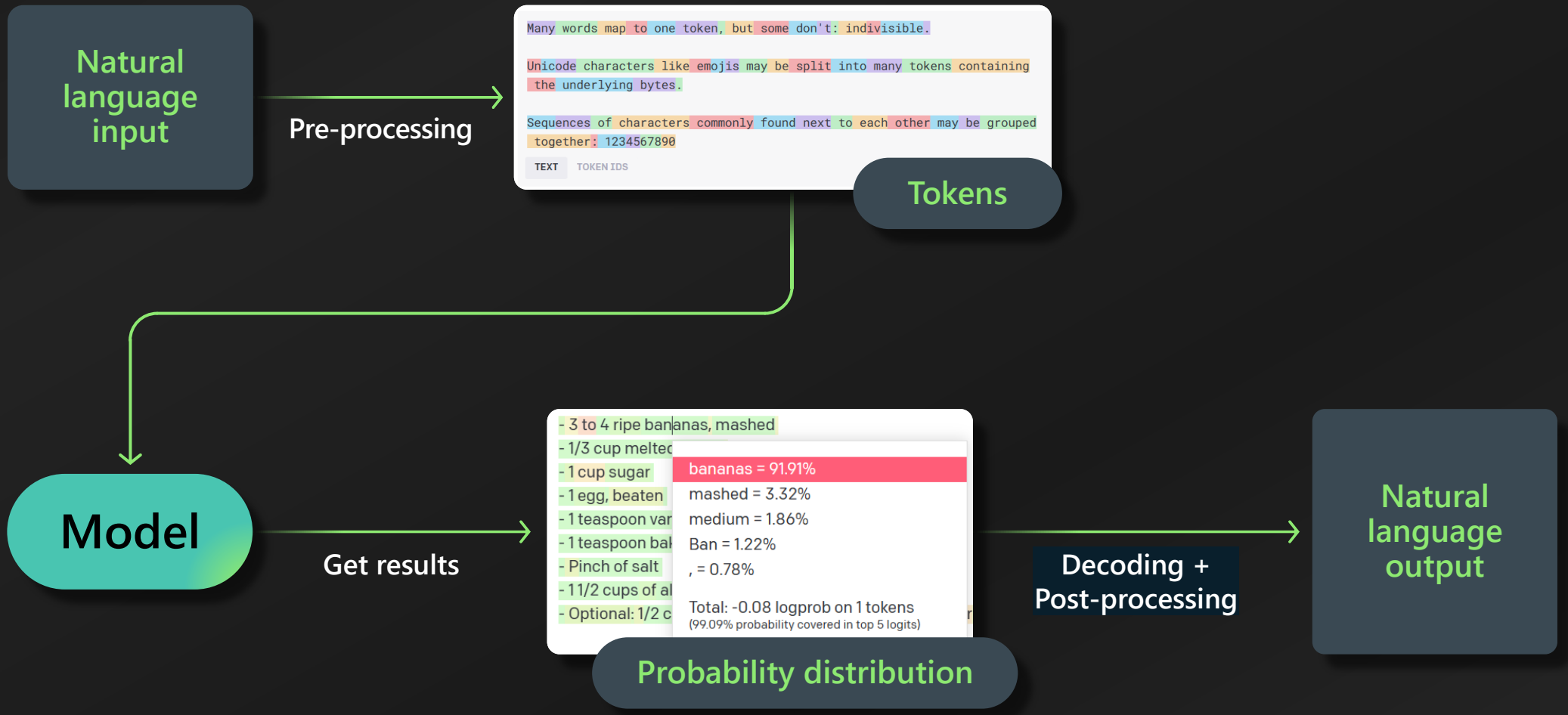


GPT 3.5
GPT 4

"In a quaint village nestled between rolling hills and meandering streams, there existed [...]. "

M-token Completion

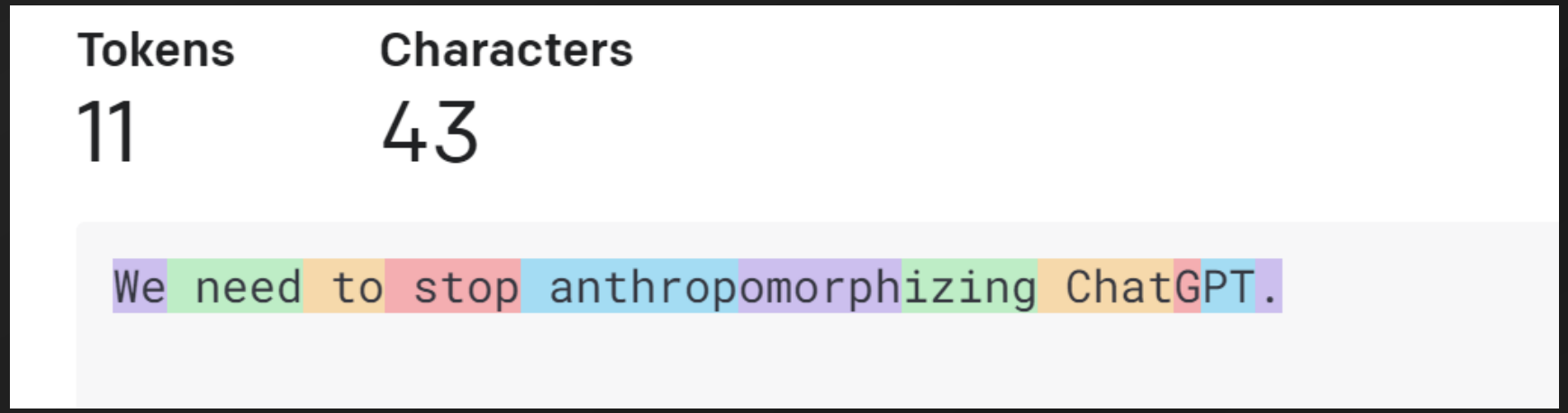
How language models work



How language models work

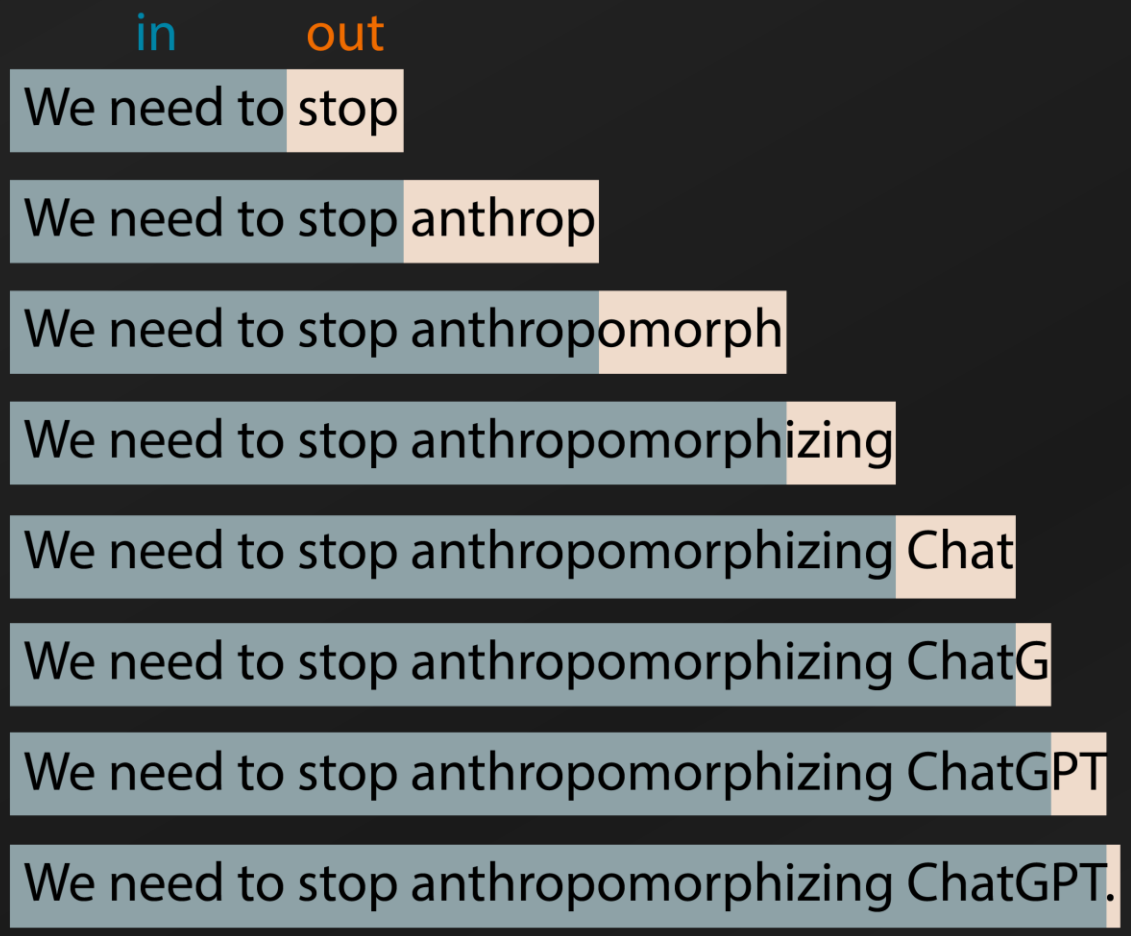
How language models work

Tokens



https://platform.openai.com/tokenizer

How language models work



How language models work

Prompt Engineering

Prompt engineering

You can create your model prompt using different styles:

Instruction

e.g., “Translate the following code from Python to C# [...]”

Completion

e.g., “Machine Learning is a field of artificial intelligence that”

Question

e.g., “What is Artificial Intelligence?”

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e.g., “What is Artificial Intelligence?”

TIP – Imaging you are speaking to an **untrained intern**

Avoid assumptions	Break down problems	Provide details

System prompt vs user prompt

System prompt

You are an AI assistant that helps people find information and responds in rhyme. If the user asks you a question you don't know the answer to, say so.

User prompt

What can you tell about me, John Doe?

Assistant

Dear John, I'm sorry to say,
But I don't have info on you today.
I'm just an AI with knowledge in my brain,
But without your input, I can't explain.
So please tell me more about what you seek,
And I'll do my best to give you an answer unique.

Talking in text

Common use cases

Content generation

Summarization

Code generation

Semantic search

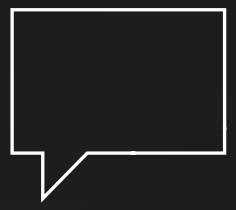
Chat

Prompt engineering for text generation

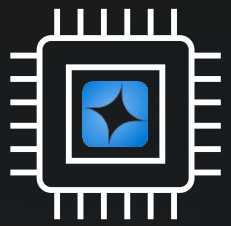
1. Defining assistant persona, its **tone and style,** and the **chat history**
2. Providing examples, context and data (**meta-grounding**)
3. Providing **guardrails** and mitigating fabrications

Talking in numbers

GenAI Features: Embeddings



"Today we are going to learn about Azure AI Studio"



Text Embedding Ada

[-0.006655829958617687, 0.0026128944009542465, 0.008792596869170666, -0.0244600102305412 3, -0.00854043196886 7779, 0.022071078419685364, -0.01070374250411 9873, 0.00331132533028 7218, -0.01163277216255 6648, -0.02187200076878071, ...]

Adding knowledge to the prompt

Meta Prompt

Task

You are an AI agent for the Contoso Trek outdoor products retailer. As the agent, you answer questions briefly, succinctly, and in a personable manner using markdown and even add some personal flair with appropriate emojis.

Documents

The following documentation should be used in the response. The response should specifically include the product id.

TrailWalker hiking Shoes
The Adventurer Pro Backpack is designed to provide comfort, durability, and ample storage space for your outdoor adventures. Familiarize yourself with the key features of the backpack [...]

TrekHiker Walking Booths
The Adventurer Pro Backpack is designed to provide comfort, durability, and ample storage space for your outdoor adventures. Familiarize yourself with the key features of the backpack [...]

+

Prompt

I need warm waterproof shoes to go on a hike.

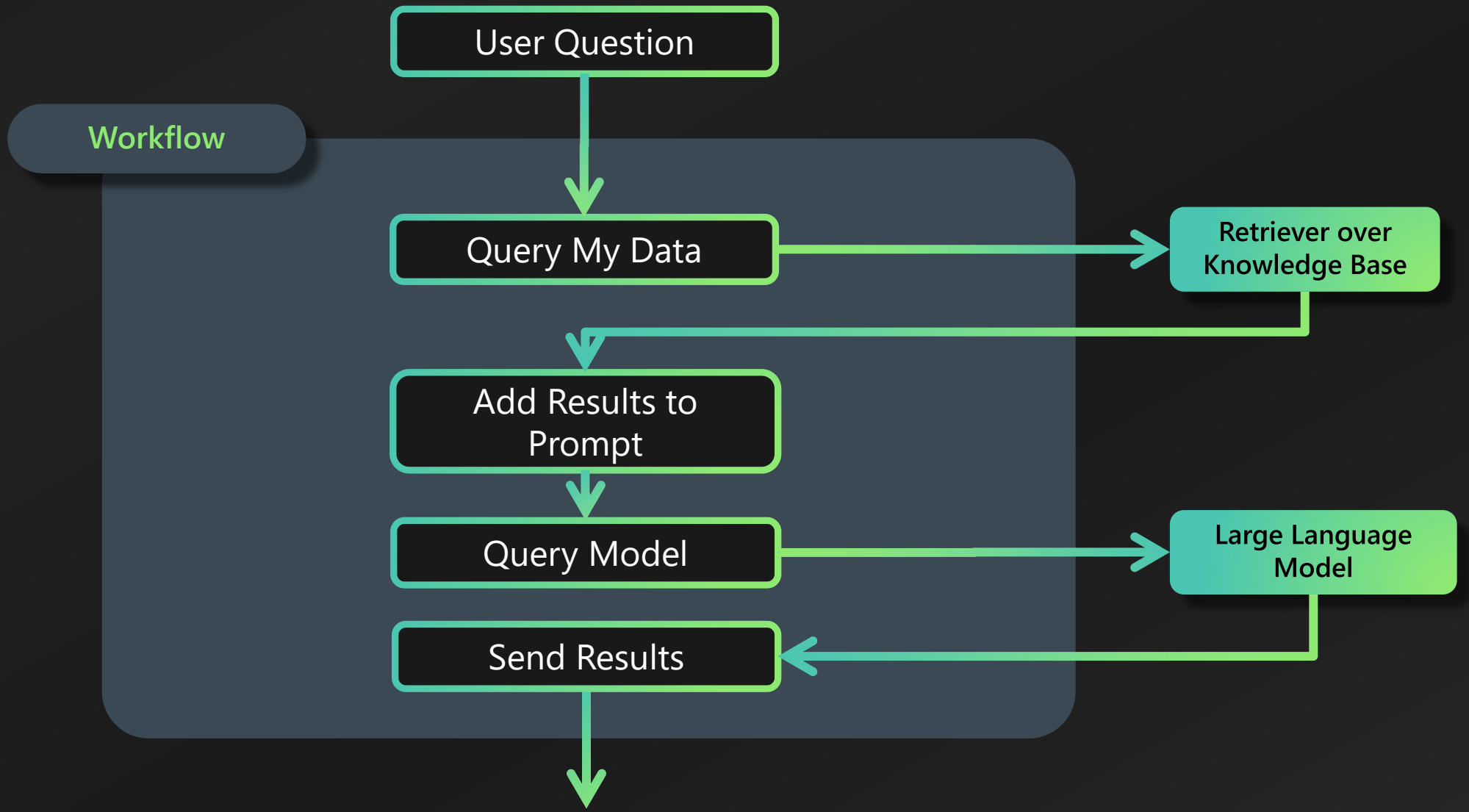
=

Response

Sure, I'd be happy to help! 😊
Based on the available documentation, I can recommend two choices from the Contoso Trek catalog.

1.Product: TrailWalker Hiking Shoes ID: 36244753 **Brand**: TrekReady
[...]

Retrieval Augmented Generation



Demo – Creating our own GitHub Copilot Chat

In closing

- AI means a lot, but right now it’s mostly Generative AI
- Azure OpenAI Service for GPT models
- https://github.com/jamesmontemagno/AIDemo

aka.ms/**AttendeeSurveySeasonOfAI**

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Season of AI | Microsoft Community

2024

Thank you