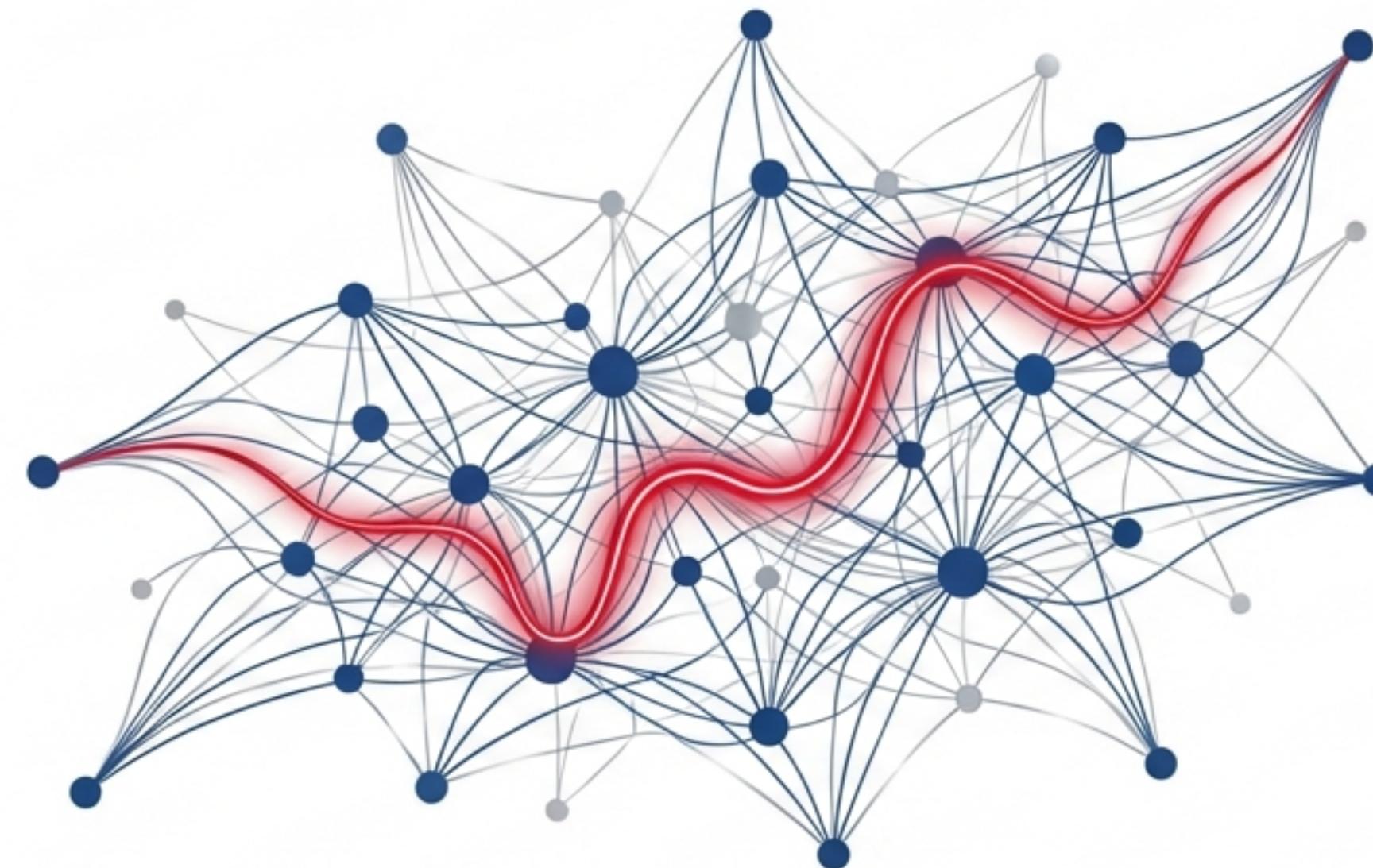


# What is Generative AI?

Understanding the Technology Behind the Hype.





# YOUR CLIENT: BEACON RETAIL GROUP

Role: AI Strategy Task Force advising CEO Pat Holloway



Revenue:  
**\$312M**



Stores:  
**25**



Employees:  
**1,200**



HQ:  
**Rockford, IL**



HR: Seasonal  
Hiring Overload



Marketing:  
Service Backlog



Finance:  
Expense Errors

# The Mental Model

## Traditional Software (Retrieval)

If X, then Y.

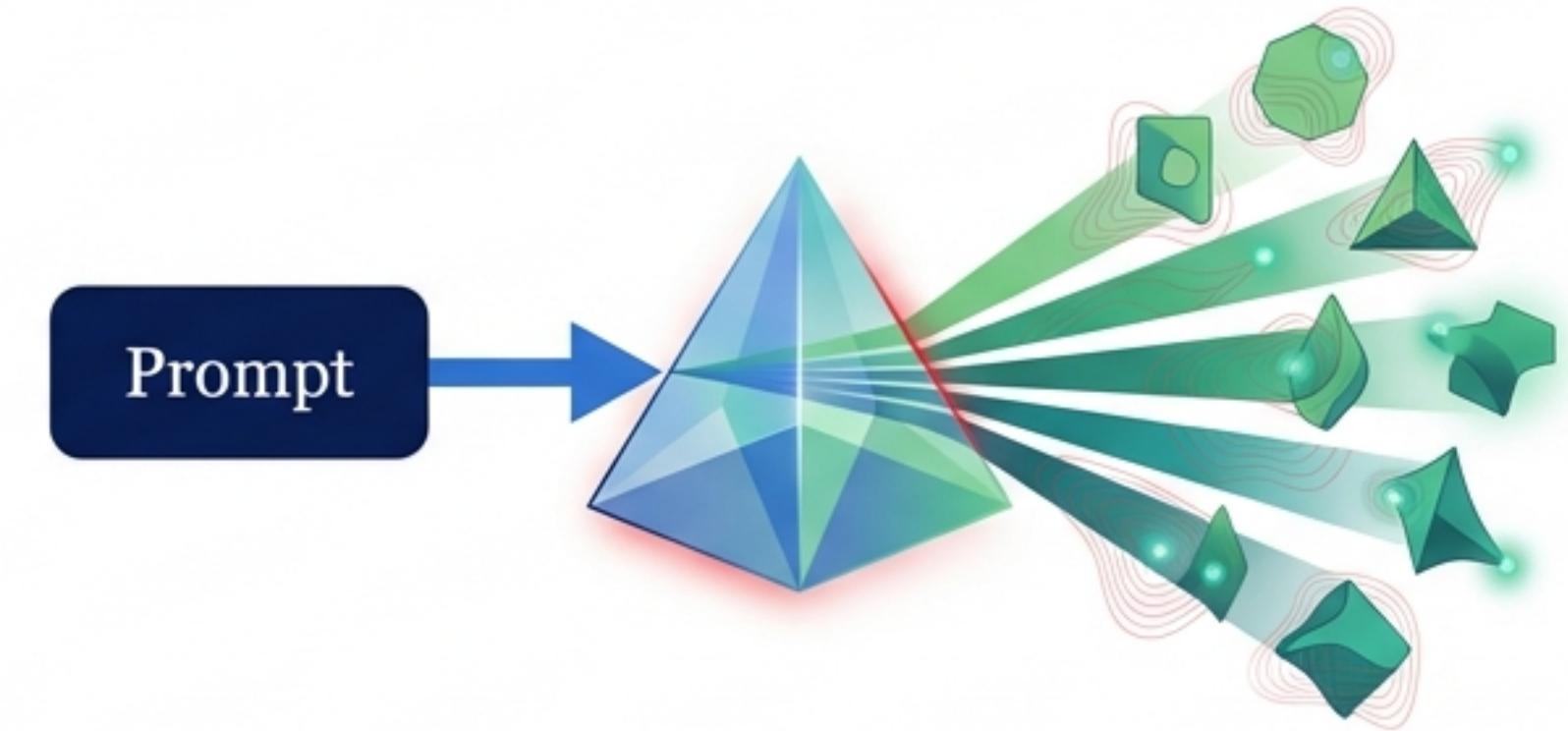


It retrieves matching answers.

It doesn't search for answers.  
It synthesizes new content by predicting patterns.

## Generative AI (Synthesis)

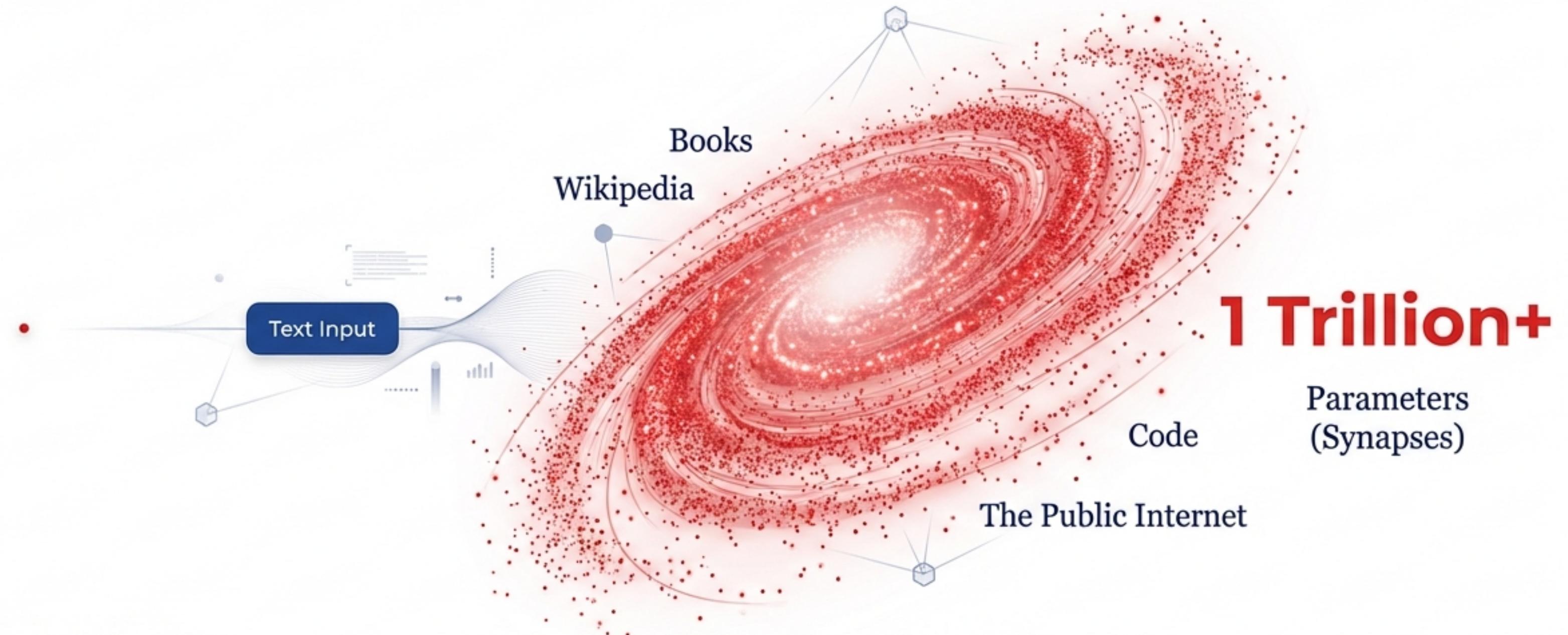
Based on X, create new Y.



It synthesizes new content by  
predicting patterns.

# Under the Hood: What is an LLM?

A Deep Learning model trained on internet-scale text.



Human Lifetime Reading  
(~1 Billion Words)

LLM Training Data  
(300 Billion+ Words)

Tokenize

# Concept 1: Tokens

The Currency of AI (and Beacon's Bill)



## Business Impact

850 emails/week

≈ 400,000 tokens/month

Embed

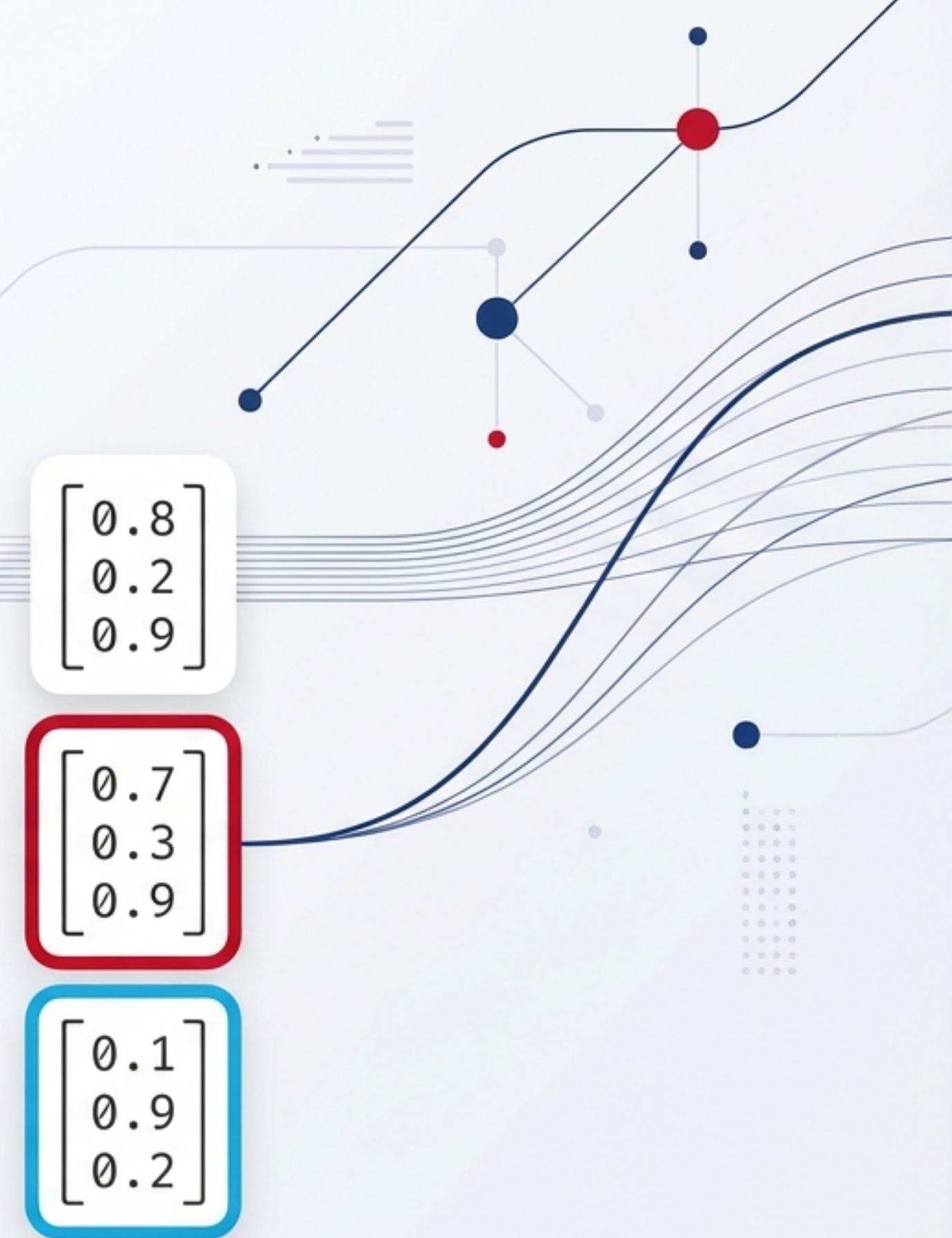
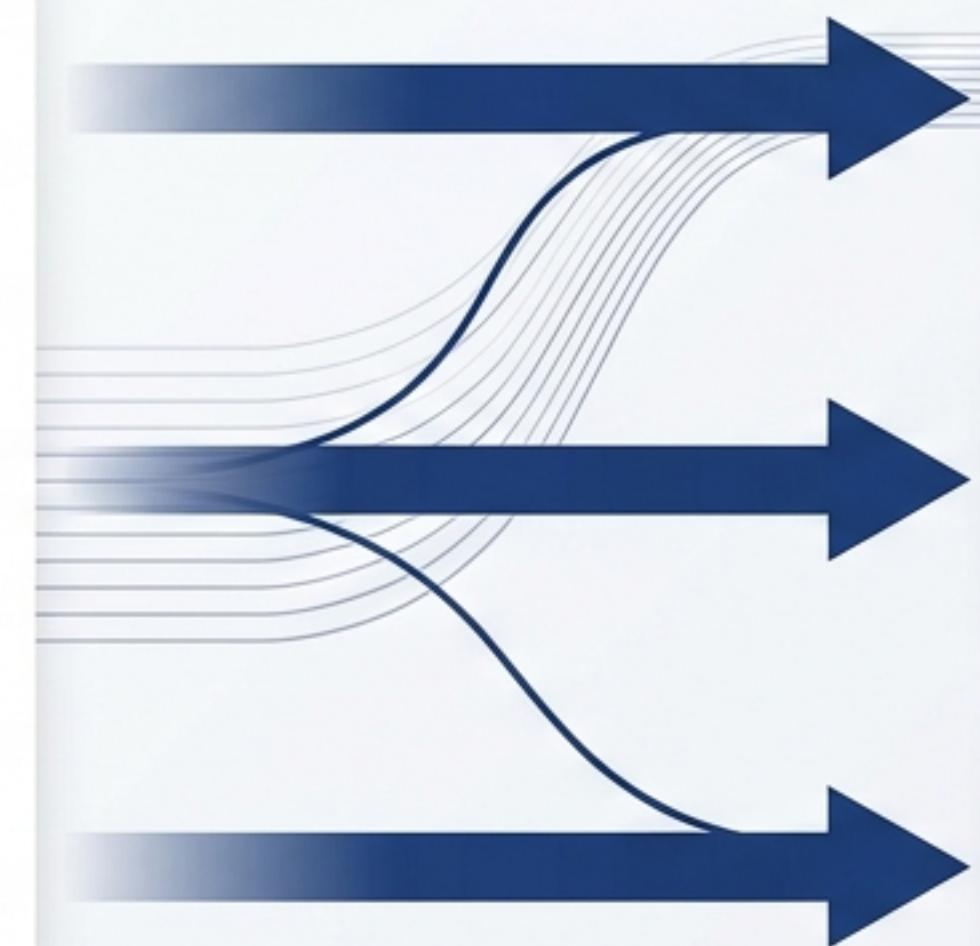
## Concept 2: Embeddings

Words Become Numbers

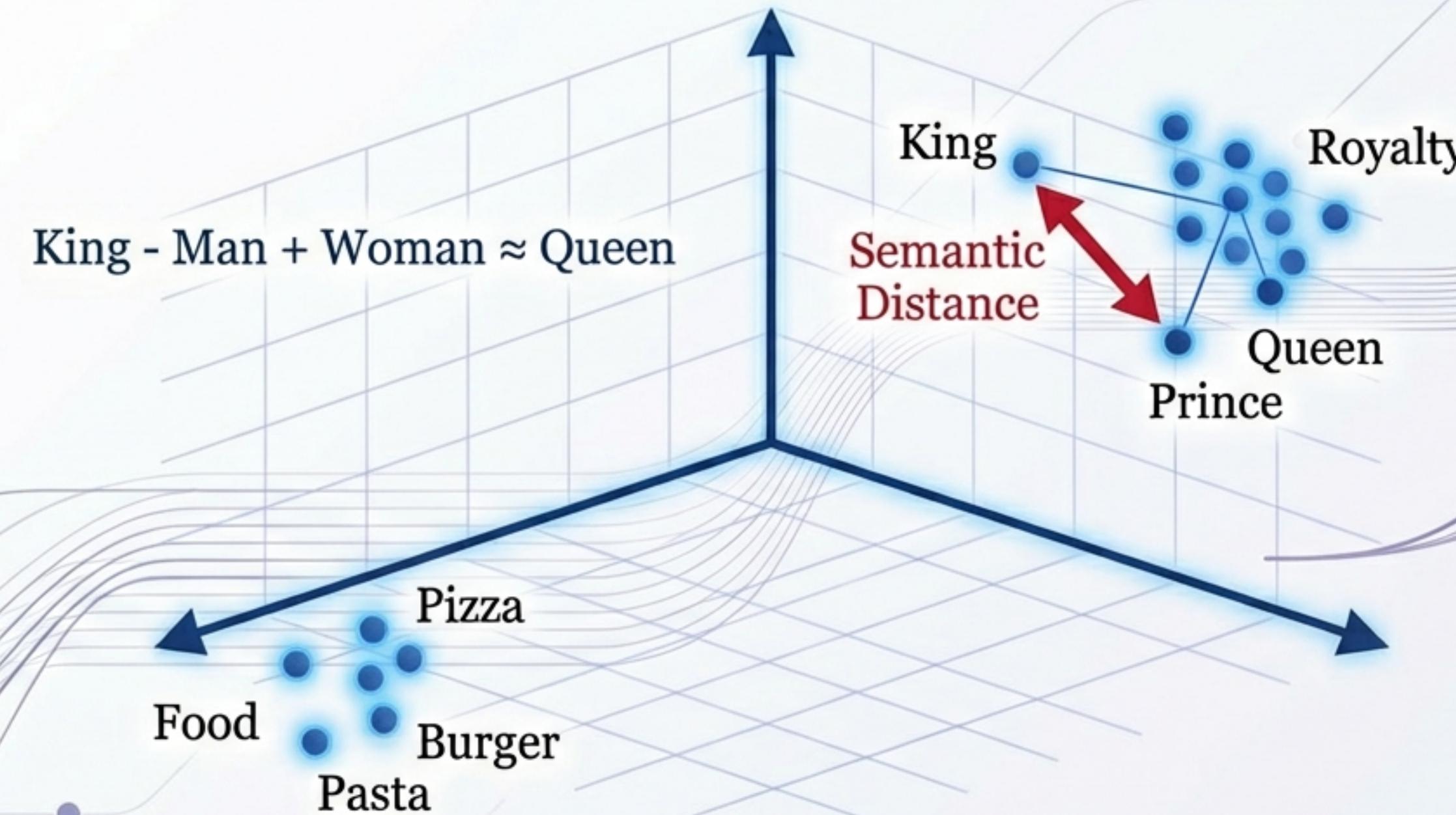
King

Queen

Pizza



# Visualizing Semantic Relationships



Beacon Application: AI knows 'This sucks' and 'I am dissatisfied' are mathematically identical.

# Concept 3: Attention

## The Context Spotlight

The **bank** was crowded, so I used the **ATM**

**bank**

The **bank** was muddy, so I pulled the **boat**

# Concept 4: Prediction & Temperature

## The Prediction Engine

Revenue has...

increased (34%)

decreased (28%)

fell (12%)



## The Temperature Dial



# Checkpoint: Test Your Understanding

**Q1: A Beacon email is 200 words. How many tokens?**

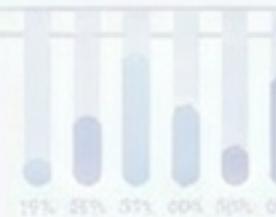
- A) 150
- B) 267**
- C) 1000

**Q2: New chat, same document question. Why does Gemini forget?**

- A) Broken
- B) Context Window Reset**
- C) File size

# The Danger: Hallucinations

Confidence ≠ Accuracy



A recent study by the Boston Consulting Group and the University of Pennsylvania found that GenAI has led to a 37% reduction in factual errors during creative marketing ideation.

# Hallucinations in the Real World

## The Legal Disaster



Lawyers fined for submitting ChatGPT-invented court cases.

## The Finance Error



CNET forced to issue mass corrections after AI failed basic interest calculations.

**Lesson: AI can draft, but humans must verify.**

# What AI Cannot Do (Yet)



## No True Reasoning

Simulates logic patterns,  
fails at complex math.



## No Real-Time Info

Training data cutoff  
dates apply.



## No Persistent Memory

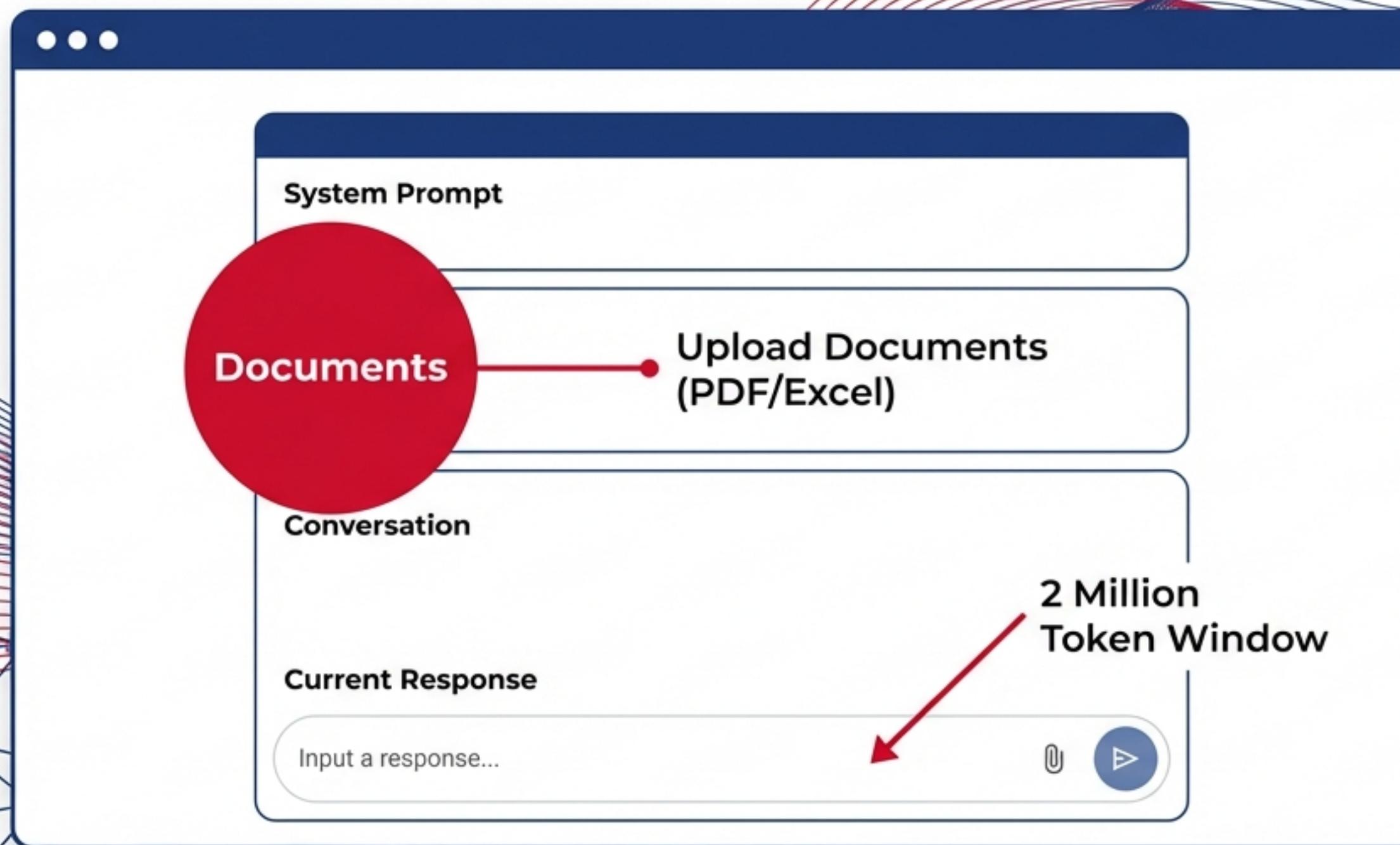
Doesn't remember you  
between chats.



## No Privacy Default

Do not upload sensitive  
employee data.

# Your Tool: Google Gemini



## Why Gemini?

1. Google Ecosystem Integration
2. Multimodal (Sees Images)
3. Massive Context Window

# Lab Briefing: AI Strategy Task Force

**Time: 90 Minutes**

1. Log in to [gemini.google.com](https://gemini.google.com) (Personal Account).
2. Task A: Summarize Hiring Challenges.
3. Task B: Draft Denial Email.
4. Task C: The Hallucination Hunt.

Objective: Apply today's concepts to Beacon Retail data.

**Start Lab ↗**