SAP BTP

Intro to Generative AI

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July 04, 2024

Add partner
logo and alt text

AI Buzzwords – llms, tokens, self-supervised learning

Germany _____

Germany is _____

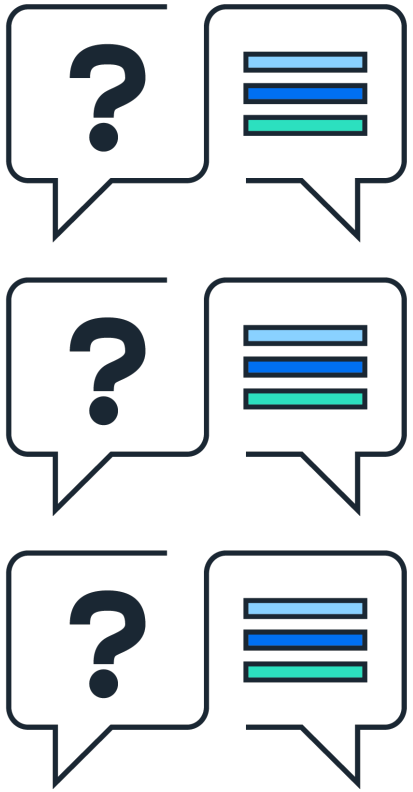
Germany is a _____

Germany is a country ____

Germany is a country in _____.

Germany is a country in Europe.

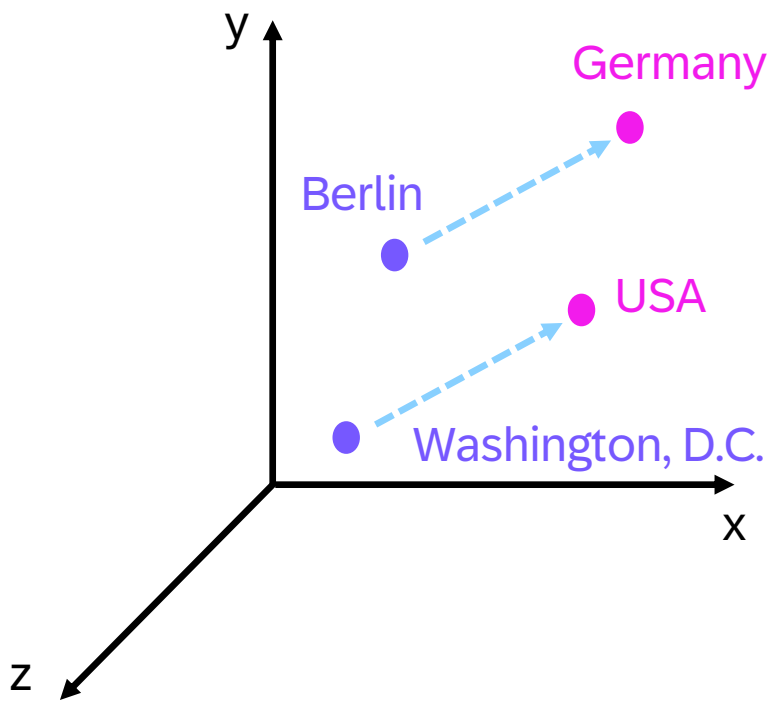
AI Buzzwords – fine-tuning



supervised

reinforcement learning

AI Buzzwords – embeddings



OpenAI:

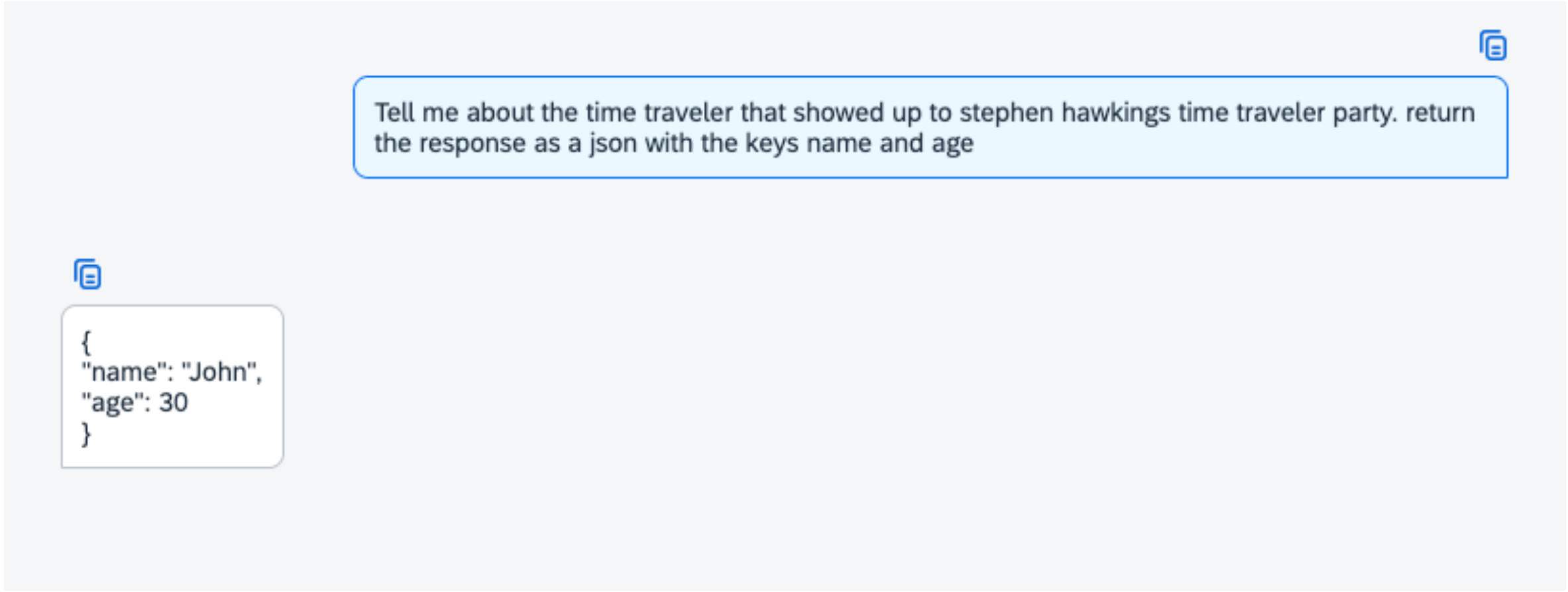
1536 dimensions

Germany:
x [0.012,
y 0.13443,
z 0.0086,
0.52234,
0.004,
...
0.000823,
0.3894]

Vector calculations:

Washington, D.C. – Berlin + Germany = USA

AI Buzzwords – Hallucination



AI Buzzwords – Hallucination

What are the names of the three siblings in Friends? Return the result in json format with the keys first name and last name.


```
[
{
"first_name": "Ross",
"last_name": "Geller"
},
{
"first_name": "Monica",
"last_name": "Geller"
},
{
"first_name": "Rachel",
"last_name": "Green"
}
]
```

AI Buzzwords – Hallucination

areyou sure?

I apologize for the mistake. The three siblings in Friends are Ross Geller, Monica Geller, and Jill Green. Thank you for bringing that to my attention.

really?

Yes, in the TV show Friends, Ross Geller and Monica Geller have another sibling named Jill Green, who is their younger sister. She is played by the actress Reese Witherspoon in a few episodes of the show.

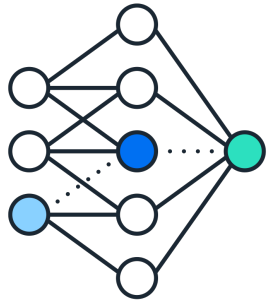
AI Buzzwords - Retraining

Prompt Engineering/Prompt Templates
- + simple but powerful
- - limits

```
"Tell me a {adjective} joke about {content}."
```

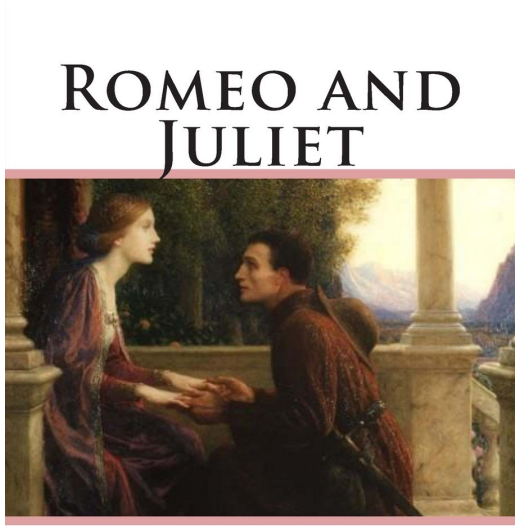
Retrieval Augmented Generation (RAG)
- + Question Answering based on Documents
- - Not suitable for overview or comprehensive analysis

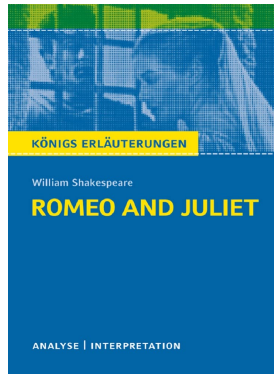
Fine Tuning
- + improves performance on desired topic
- - expensive and complex



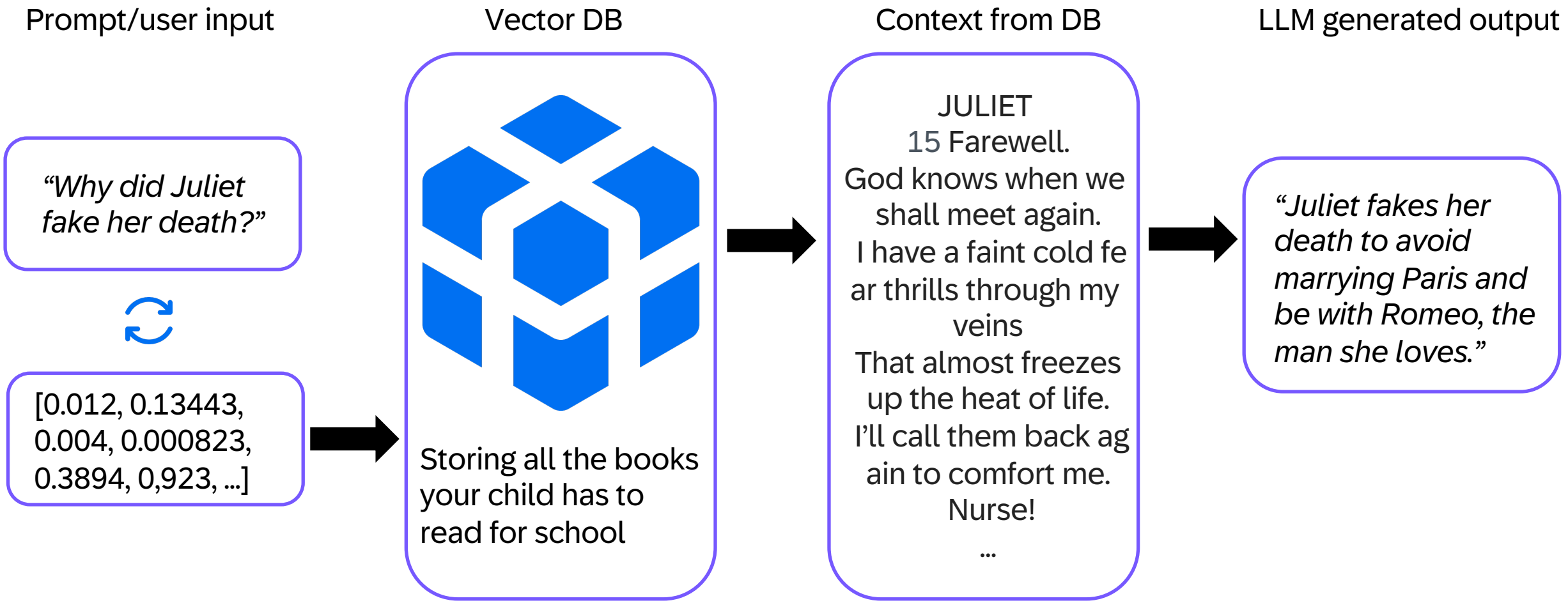
Retrieval Augmented Generation - Problem

#BookTok





Retrieval Augmented Generation - Solution



AI Buzzword - Chunking

- By character (e.g. 50 characters)
- By sentence (delimiter: ".")
- By paragraph (delimiter: "\n")
- **Semantic** chunking (similar sentences together)
- **Agent-like** chunking (give LLM instructions)

"Popcorn is a popular snack enjoyed by people of all ages, especially at the movies. It is made from dried corn kernels that are heated until they burst, creating a light and fluffy snack with a satisfying crunch."

Chips, also known as crisps in some countries, are thinly sliced potatoes that are deep-fried or baked until they become crispy and golden brown. They are a beloved snack that comes in a variety of flavors, such as salted, barbecue, and sour cream and onion.

AI Buzzwords - Vector Store

Data type: REAL_VECTOR

CRUD operations using SQL

Dimension (range 1 to 65,000)

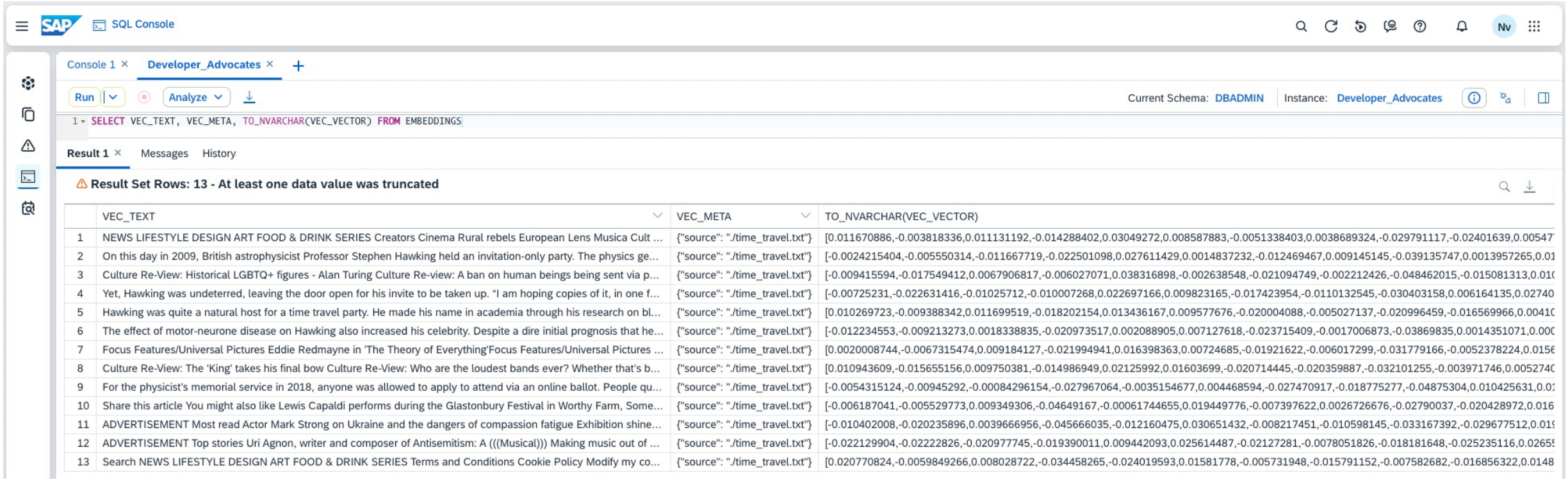
Similarity measures:

1. Cosine similarity
2. L2 distance

Similarity search

1. Brute force
2. Nearest Neighbor search

AI Buzzwords - Vector Store



	VEC_TEXT	VEC_META	TO_NVARCHAR(VEC_VECTOR)
1	NEWS LIFESTYLE DESIGN ART FOOD & DRINK SERIES Creators Cinema Rural rebels European Lens Musica Cult ...	{"source": "./time_travel.txt"}	[0.011670886,-0.003818336,0.011131192,-0.014288402,0.03049272,0.008587883,-0.0051338403,0.0038689324,-0.029791117,-0.02401639,0.00547
2	On this day in 2009, British astrophysicist Professor Stephen Hawking held an invitation-only party. The physics ge...	{"source": "./time_travel.txt"}	[-0.0024215404,-0.005550314,-0.011667719,-0.022501098,0.027611429,0.0014837232,-0.012469467,0.009145145,-0.039135747,0.0013957265,0.01
3	Culture Re-View: Historical LGBTQ+ figures - Alan Turing Culture Re-view: A ban on human beings being sent via p...	{"source": "./time_travel.txt"}	[-0.009415594,-0.017549412,0.0067906817,-0.006027071,0.038316898,-0.002638548,-0.021094749,-0.002212426,-0.048462015,-0.015081313,0.01(
4	Yet, Hawking was undeterred, leaving the door open for his invite to be taken up. "I am hoping copies of it, in one f...	{"source": "./time_travel.txt"}	[-0.00725231,-0.022631416,-0.01025712,-0.010007268,0.022697166,0.009823165,-0.017423954,-0.0110132545,-0.030403158,0.006164135,0.02740
5	Hawking was quite a natural host for a time travel party. He made his name in academia through his research on bl...	{"source": "./time_travel.txt"}	[0.010269723,-0.009388342,0.011699519,-0.018202154,0.013436167,0.009577676,-0.020004088,-0.005027137,-0.020996459,-0.016569966,0.0041(
6	The effect of motor-neurone disease on Hawking also increased his celebrity. Despite a dire initial prognosis that he...	{"source": "./time_travel.txt"}	[-0.012234553,-0.009213273,0.0018338835,-0.020973517,0.002088905,0.007127618,-0.023715409,-0.0017006873,-0.03869835,0.0014351071,0.00(
7	Focus Features/Universal Pictures Eddie Redmayne in 'The Theory of Everything'Focus Features/Universal Pictures ...	{"source": "./time_travel.txt"}	[0.0020008744,-0.0067315474,0.009184127,-0.021994941,0.016398363,0.00724685,-0.01921622,-0.006017299,-0.031779166,-0.0052378224,0.0156
8	Culture Re-View: The 'King' takes his final bow Culture Re-View: Who are the loudest bands ever? Whether that's b...	{"source": "./time_travel.txt"}	[0.010943609,-0.015655156,0.009750381,-0.014986949,0.02125992,0.01603699,-0.020714445,-0.020359887,-0.032101255,-0.003971746,0.005274(
9	For the physicist's memorial service in 2018, anyone was allowed to apply to attend via an online ballot. People qu...	{"source": "./time_travel.txt"}	[-0.0054315124,-0.00945292,-0.00084296154,-0.027967064,-0.0035154677,0.004468594,-0.027470917,-0.018775277,-0.04875304,0.010425631,0.01
10	Share this article You might also like Lewis Capaldi performs during the Glastonbury Festival in Worthy Farm, Some...	{"source": "./time_travel.txt"}	[-0.006187041,-0.005529773,0.009349306,-0.04649167,-0.00061744655,0.019449776,-0.007397622,0.0026726676,-0.02790037,-0.020428972,0.016
11	ADVERTISEMENT Most read Actor Mark Strong on Ukraine and the dangers of compassion fatigue Exhibition shine...	{"source": "./time_travel.txt"}	[-0.010402008,-0.020235896,0.0039666956,-0.045666035,-0.012160475,0.030651432,-0.008217451,-0.010598145,-0.033167392,-0.029677512,0.019
12	ADVERTISEMENT Top stories Uri Agnon, writer and composer of Antisemitism: A (((Musical))) Making music out of ...	{"source": "./time_travel.txt"}	[-0.022129904,-0.02222826,-0.020977745,-0.019390011,0.009442093,0.025614487,-0.02127281,-0.0078051826,-0.018181648,-0.025235116,0.0265
13	Search NEWS LIFESTYLE DESIGN ART FOOD & DRINK SERIES Terms and Conditions Cookie Policy Modify my co...	{"source": "./time_travel.txt"}	[0.020770824,-0.0059849266,0.008028722,-0.034458265,-0.024019593,0.01581778,-0.005731948,-0.015791152,-0.007582682,-0.016856322,0.0148

AI Buzzwords

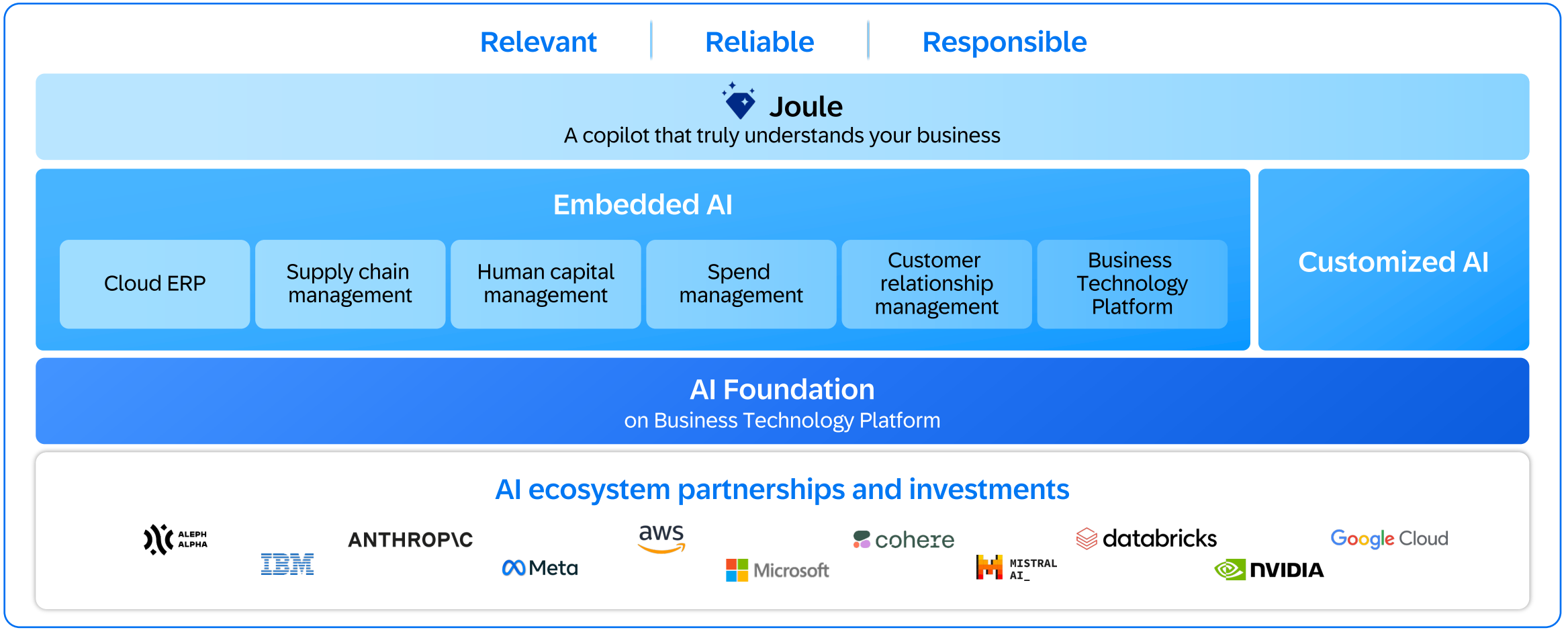
Simplifies LLM workflows

- LLM chains
- Tools
- Retriever
- Chunks
- Vector DB
- Agents (LangGraph)

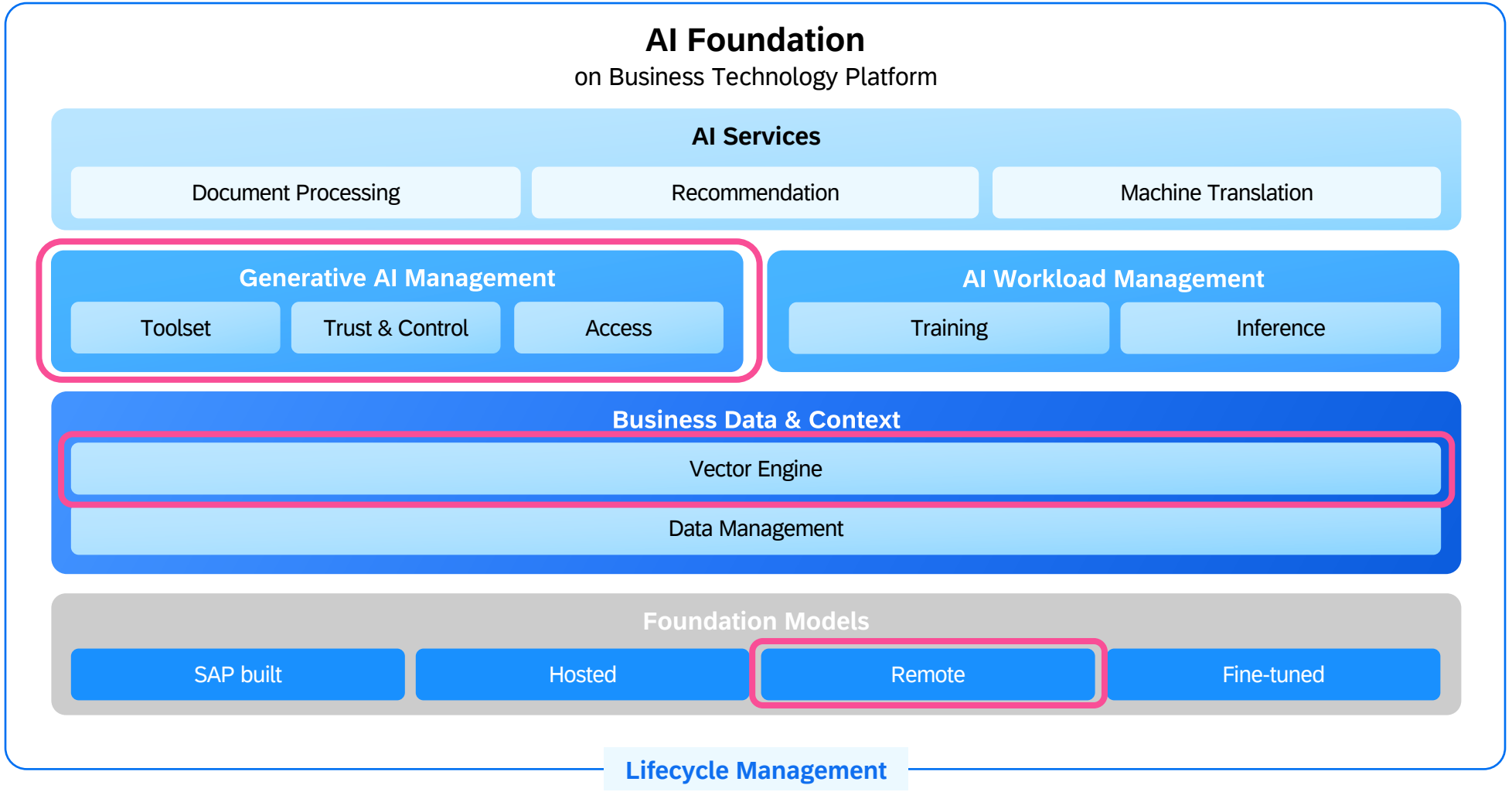
Universal LLM integration

Monitoring & debugging (LangSmith)

Business AI


Relevant
Reliable
Responsible
Joule
A copilot that truly understands your business
Embedded AI
Cloud ERP
Supply chain management
Human capital management
Spend management
Customer relationship management
Business Technology Platform
Customized AI
AI Foundation
on Business Technology Platform
AI ecosystem partnerships and investments
ALEPH ALPHA
IBM
ANTHROPIC
Meta
aws
Microsoft
cohere
MISTRAL AI_
databricks
NVIDIA
Google Cloud

AI Foundation on SAP BTP



Thank you.

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