Creating Your First AI-Based Product

For Product Managers, Engineers, and Leaders

Go from novice to dangerous in 46 minutes.

Hi, I'm Rich Theil

- **Founder of Product Forge**
- **Father of 3 (newly) adult children**
- **Technically minded and not an Engineer**
- **Please ask questions as we go**

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Let's Build a
Competitive Intelligence System.

Steps to Building Our Application

1. Describe your business problem.
2. Choose a model & platform
3. Design our application

Daily Competitive Intelligence Monitoring System

The Plan

1. Find news articles about the competition

2. Summarize the articles

3. Pull relevant competitive brand market information (based on the summary)

<u>Step 2</u>: Choose a Model Provider

Closed Source	**Open Source**	**Platforms**
• OpenAI	• Meta	• Google
• Anthropic	• Mistral	• AWS
• Gemini	• *Hundreds of others*	• Groq
	• *HuggingFace.co*	• Together.ai

Step 2: Choosing a Large Language Model

Cost per Token

- Input Tokens
- Output Tokens

Quality

- Can you get the output you want from prompts?
- Prove it manually

Features

- JSON Mode
- Ability to fine tune

Speed

- Tokens per second

Toolbelt: Prompt Engineering

Concept

Configuring the LLM and crafting the best possible prompt to elicit the most desirable response.

Key Concepts

Requires days of practice writing and refining complex prompts.

- Harnessing Variability
- JSON Mode

Temperature = 1.0

Prompt: Finish this sentence: The cow jumped

Result: over the moon.

Temperature = 1.5

Prompt: Finish this sentence: The cow jumped

Result: The cow jumped over the tall wooden fence, surprising everyone in the pasture.

Toolbelt: Prompt Engineering

Temperature = 2.0

Prompt: Finish this sentence: The cow jumped

Result: swiftly over the fence, nursing not a one indigency around smiling paysage housed sag concord coû that printed domicile honnai afsche tp checkout sécur assumption seeking diligenceⁿNear панели dro malicious ciert выполняblah hustылЬrd好运เดียวizacao борьбы ingenuity"]) πρα cães.rect yur поиска_keepers expectationprecision мумкін뭘 zda spreadsheet harmoniousWaxaaஸ schlimmhold пред resolvesividades //!

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Find and summarize news articles about the competition

AI Magic

1. Identifying articles that are telling the same story
2. Summarizing those articles to a single summary

Toolbelt: Embeddings

Concept

Convert words to mathematical "vectors" that enable the computer to understand their *meaning*.

How to Use It

This allows us to calculate how similar in meaning two sets of words are.

1. The dog jumped over the fence.
2. The animal jumped over the fence

86% match

1. The dog jumped over the fence.
2. The cat jumped over the fence.

54% match

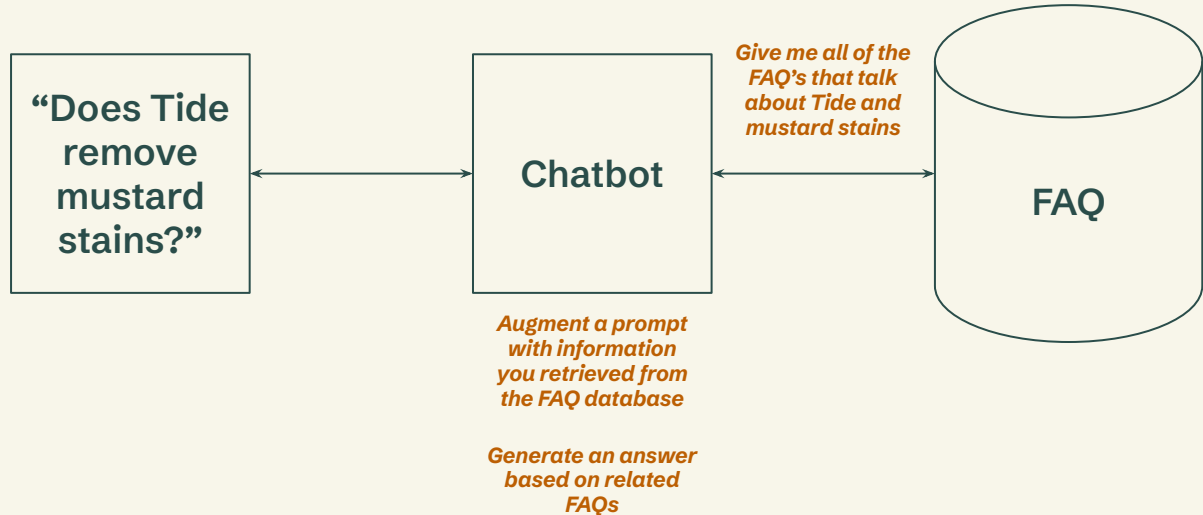# Toolbelt: RAG = <u>R</u>etrieval <u>A</u>ugmented <u>G</u>eneration

Concept
Use information from other systems in your prompt, automatically.

Chatbot responding to a customer's question using information from a FAQ database

Can Be Done With

- Databases
- API's
- Files
- Embeddings
- Search Results
- Other?

"Does Tide remove mustard stains?"

Chatbot

FAQ

Give me all of the FAQ's that talk about Tide and mustard stains

Augment a prompt with information you retrieved from the FAQ database

Generate an answer based on related FAQs
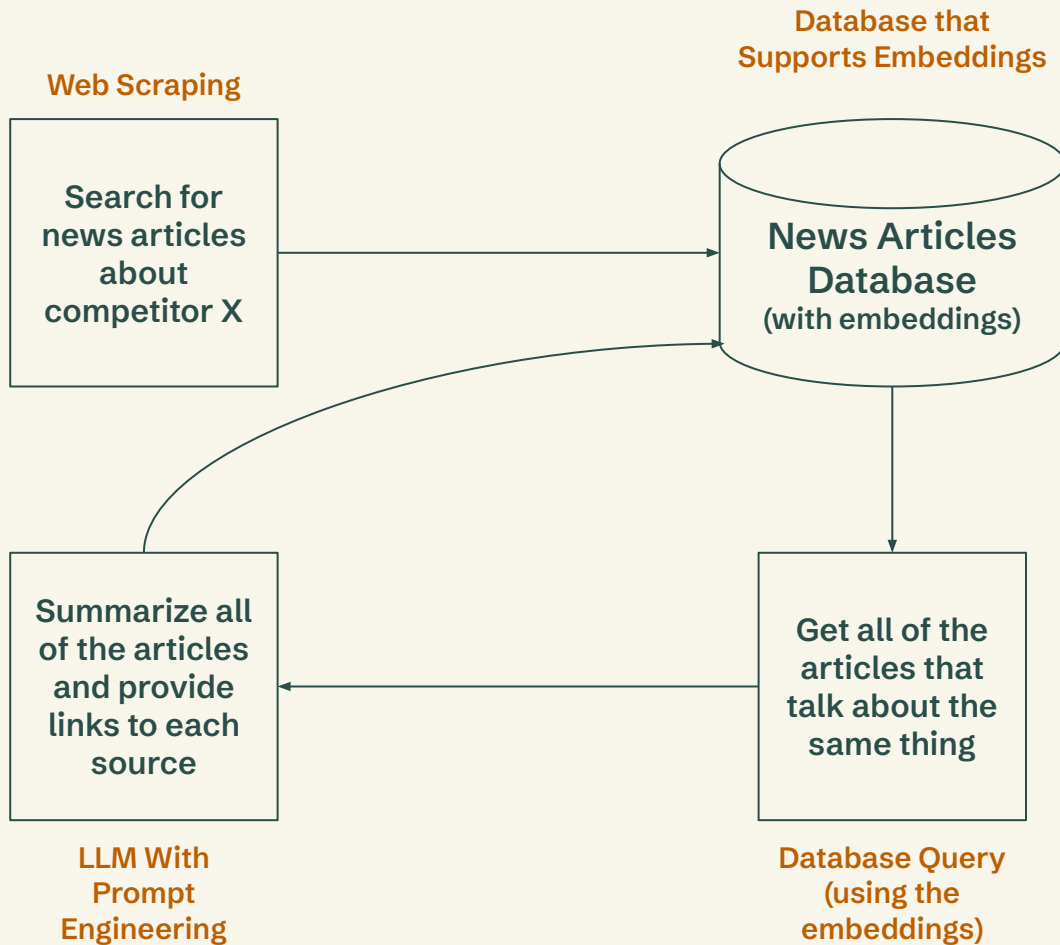
Toolbelt: Possible Tech Stack

Creating Embeddings

- Transformers (hundreds of options)
- Sometimes available through your DB

Databases that Support Embeddings

- Postgres (Tembo.io shout out!)
- Pinecone
- GCP, AWS, and Azure

Can We Build It? Yes We Can!

Web Scraping

Search for news articles about competitor X

Database that Supports Embeddings

News Articles Database
(with embeddings)

Summarize all of the articles and provide links to each source

LLM With Prompt Engineering

Get all of the articles that talk about the same thing

Database Query (using the embeddings)

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Daily Competitive Intelligence Monitoring System

The Plan

✓   **Find news articles about the competition**

✓   **Summarize the articles**

3.   **Pull relevant competitive brand information (based on the summary)**

Pull relevant competitive brand market information

AI Magic

1. Identifying the *relevant* information
2. Providing perspective on the information

Toolbelt: Agents

Concept

Provide the LLM with a direction and allow it to autonomously carry out a task using a variety of tools at its own discretion.
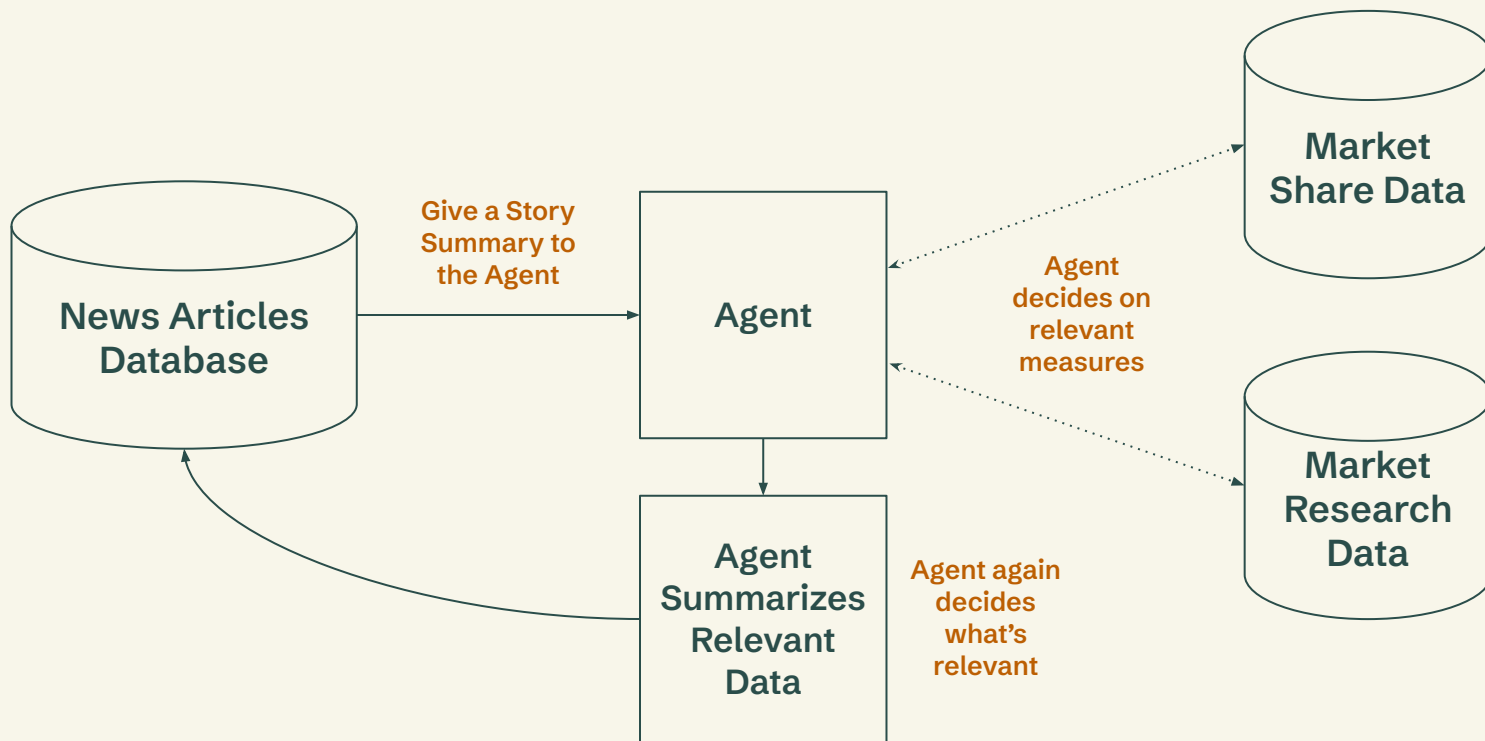
How to Use It

1. Tell the agent which tools it has.
2. Provide the agent with a goal.
3. Set it loose.

Can We Build It?
Yes We Can!

News Articles Database → **Give a Story Summary to the Agent** → Agent

Agent → **Agent decides on relevant measures** → Market Share Data

Agent → **Agent decides on relevant measures** → Market Research Data

Agent → Agent Summarizes Relevant Data

Agent again decides what's relevant

Agent Summarizes Relevant Data → News Articles Database

Toolbelt: Agent Platforms

- **AutoGen (Microsoft)**
- **Crew (Open Source)**
- **Langchain (Open Source)**
- **AgentGPT (Open Source)**

Plus many more.

Daily Competitive Intelligence Monitoring System

The Plan

✓   **Find news articles about the competition**

✓   **Summarize the articles**

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We did it!

Product Forge: Writes Epics, Features, and Stories

Uses the techniques we described today.

- **Prompt Engineering for Generating Content**
- **RAG for incorporating other documents and call transcripts**

Could You Help Us Learn?

Who Uses It?

- **Dev Shops**

- **Product Teams**

- **Story Writers**
  (Product Owners, Project Managers, Engineers, Scrum Masters, etc)

Creates Stories From:

- **Meeting Notes**

- **Statement of Work**

- **Product Requirements Documents**

- **Single Story Descriptions**

Helps You:

- **Estimate work**

- **Start work sooner**

- **Creating consistently high quality stories**

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Questions?

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