



# AI for Software Development Software Delivery





Facebook somkiat.cc

Page Messages Notifications 3 Insights Publishing Tools Settings Help ▾

somkiat.cc  
@somkiat.cc

Home Posts Videos Photos

Liked Following Share ... + Add a Button



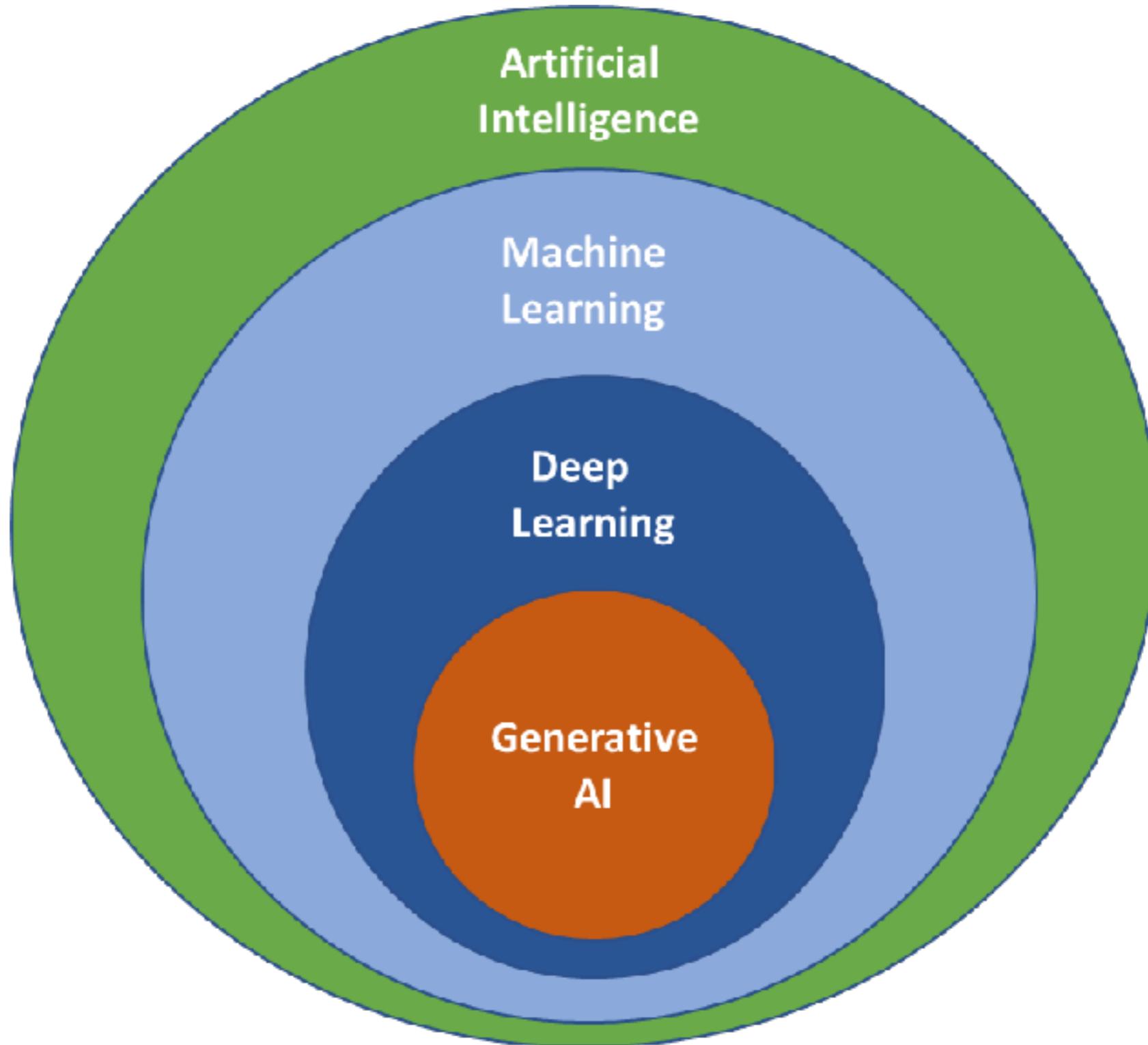
**[https://github.com/up1/  
workshop-ai-with-technical-team](https://github.com/up1/workshop-ai-with-technical-team)**



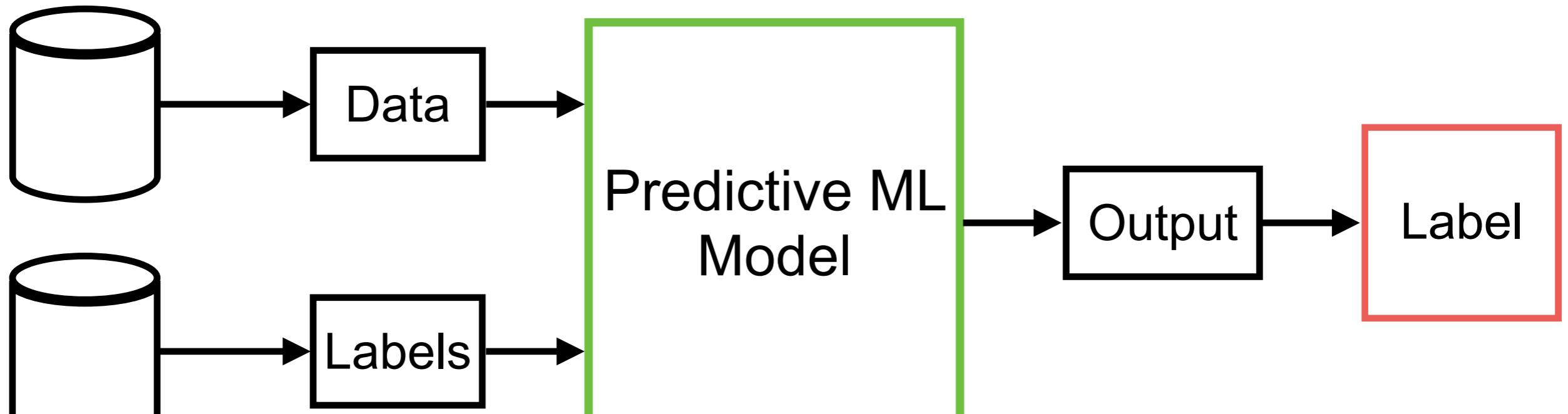
# Goals

Integrate Generative AI in Development  
Optimize code quality  
Team up with AI on coding tasks  
Develop innovative solutions





# Machine Learning

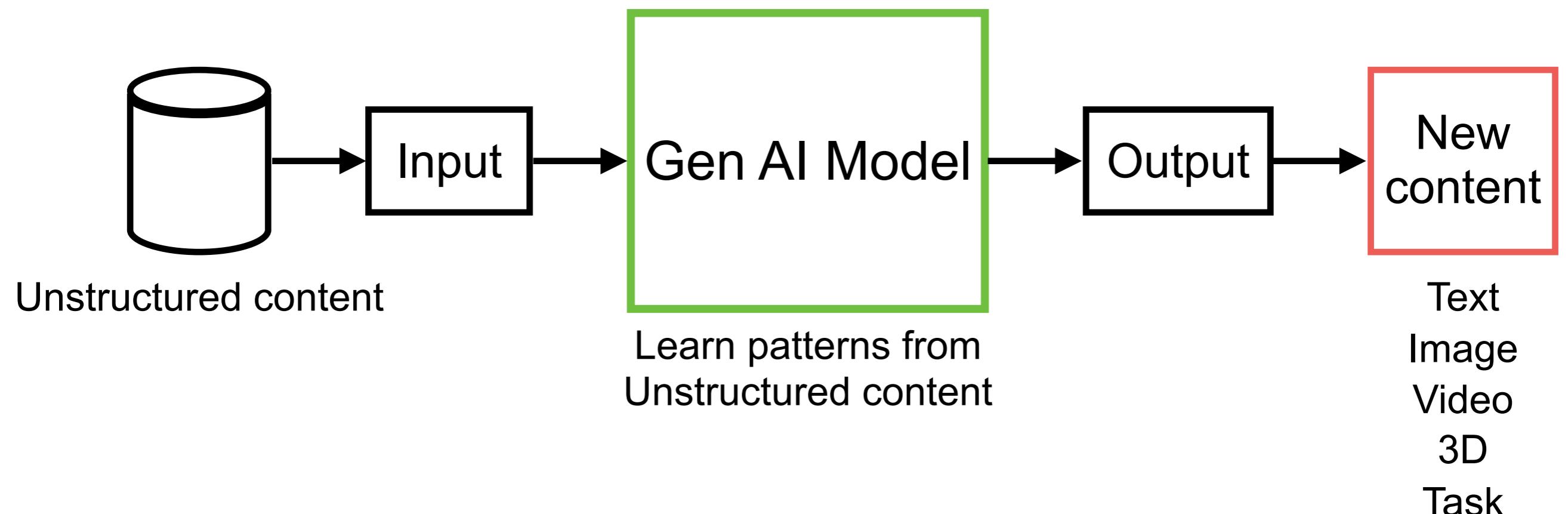


Learn relationship  
between data and label

<https://grow.google/ai-essentials/>

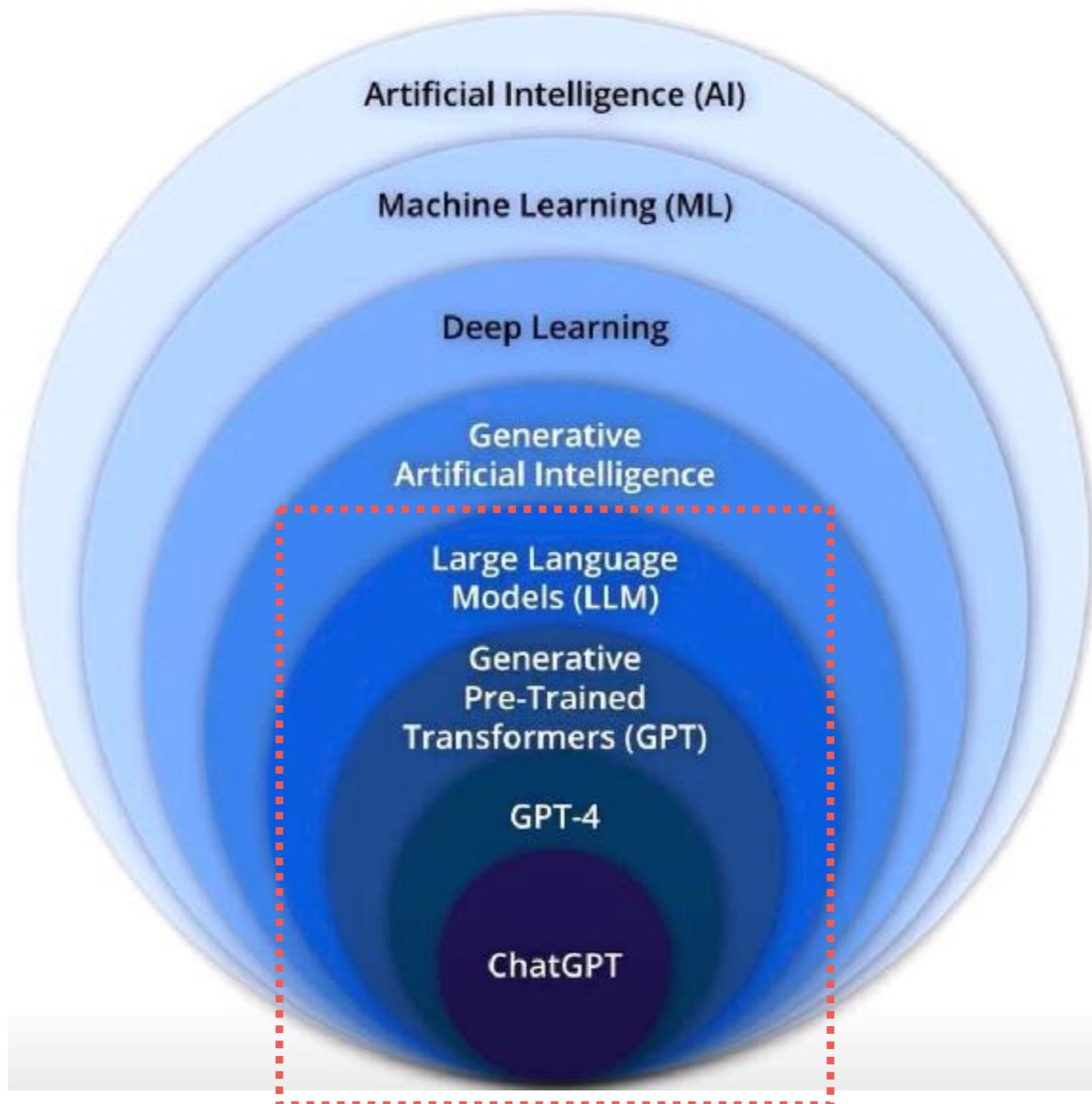


# Generative AI



<https://grow.google/ai-essentials/>





# Large Language Model (LLM)

Type of AI model

Process, understand

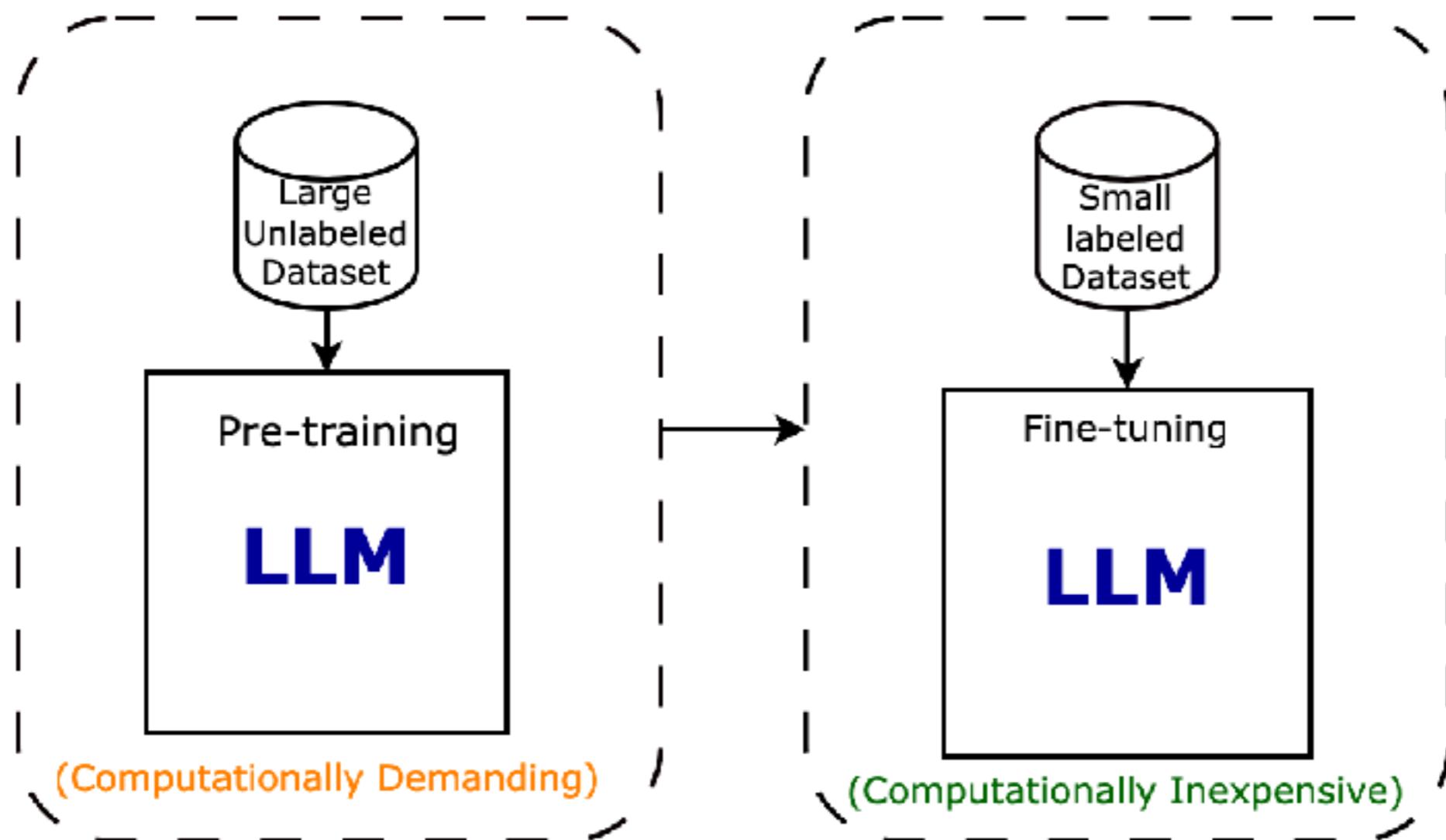
Generate human readable data

LLM

Training data !!



# Large Language Model (LLM)



# LLMs in industry

Model name	Company
Bidirectional Encoder Representation from Transformers (BERT)	Google AI
Generative Pre-trained transformer-3 (GPT-3)	OpenAI
Generative Pre-trained transformer-4 (GPT-4)	OpenAI
Pathways Language Model-E (PaLM-E)	Google AI
BLOOM	NVIDIA AI
Ollama 3	Facebook
Claude 3.5 Sonnet	Anthropic



# LLM Development timeline

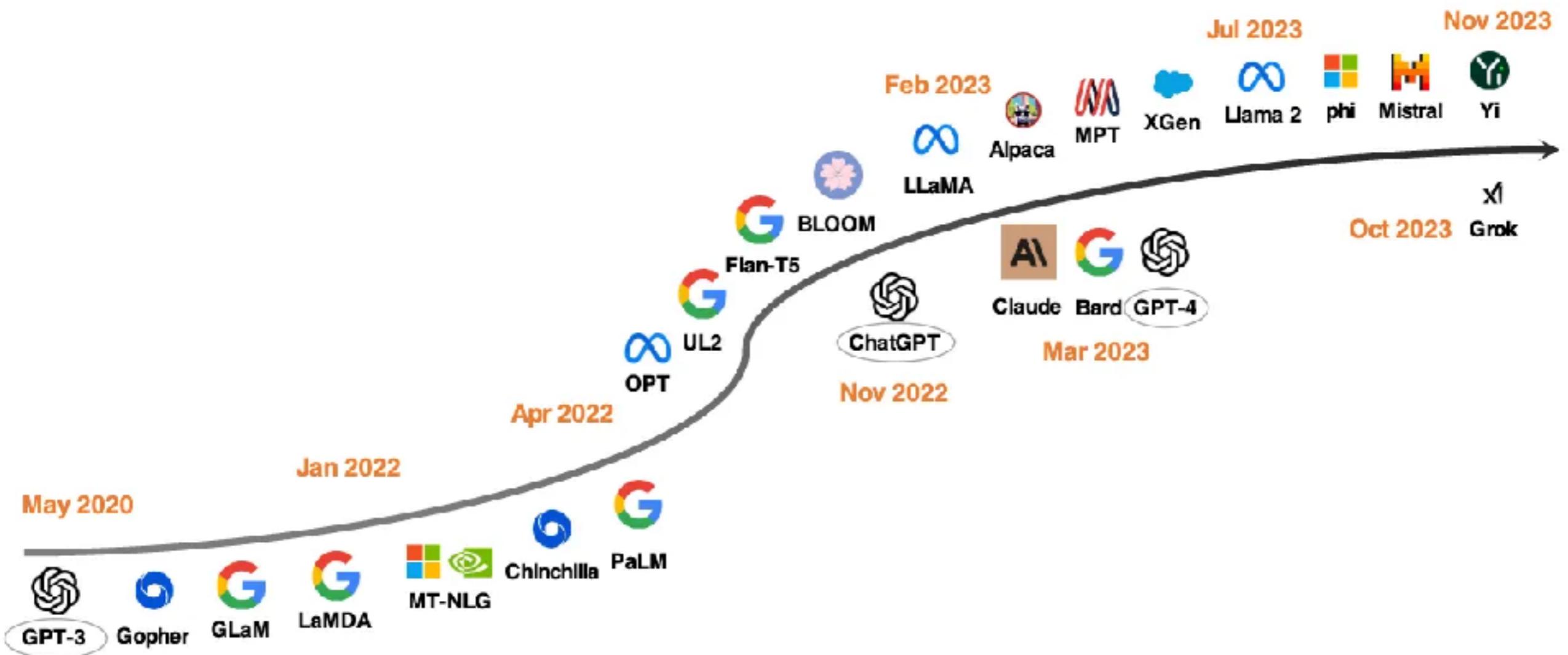


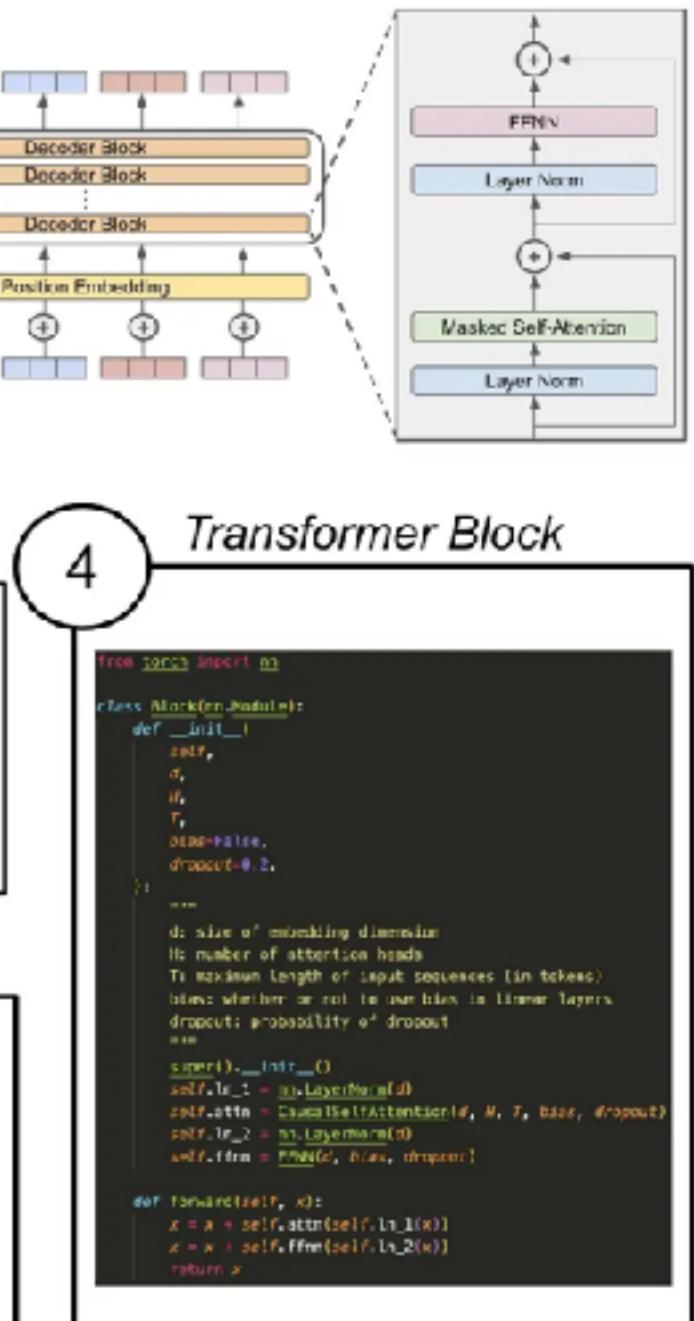
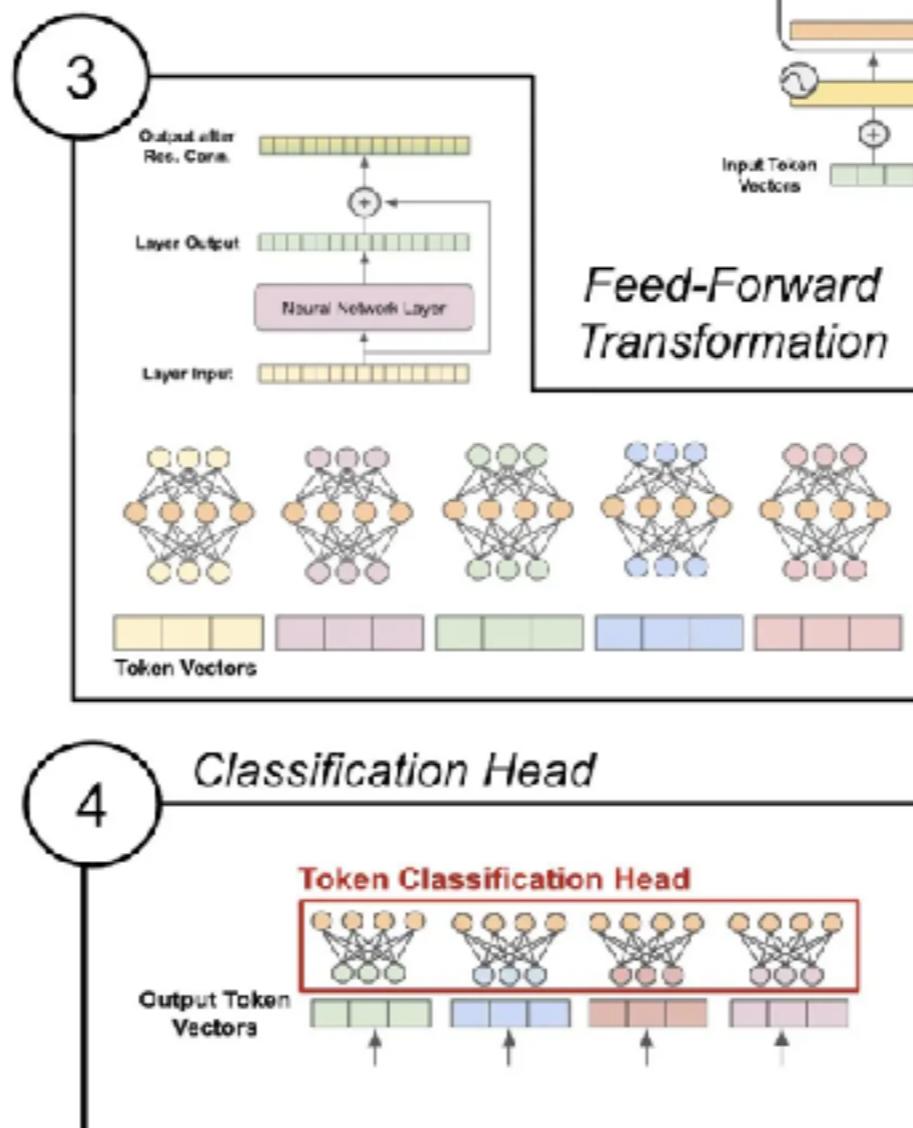
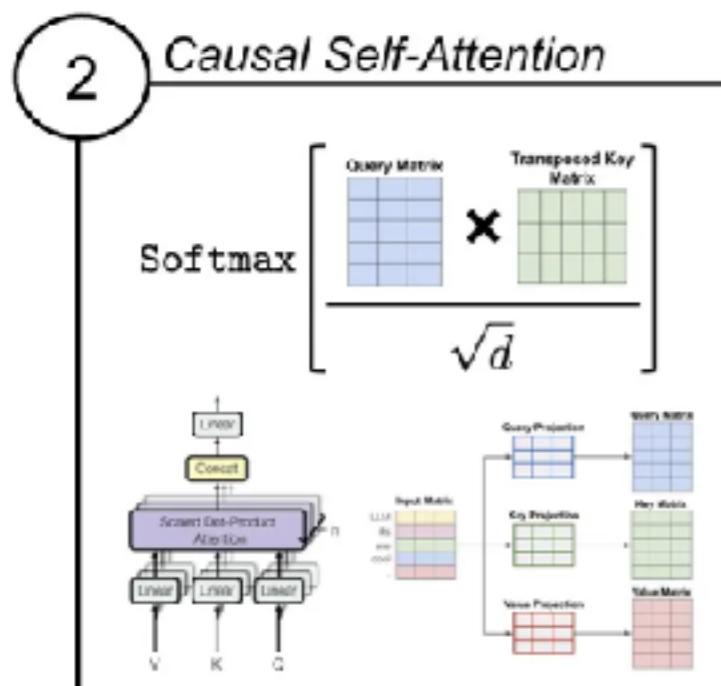
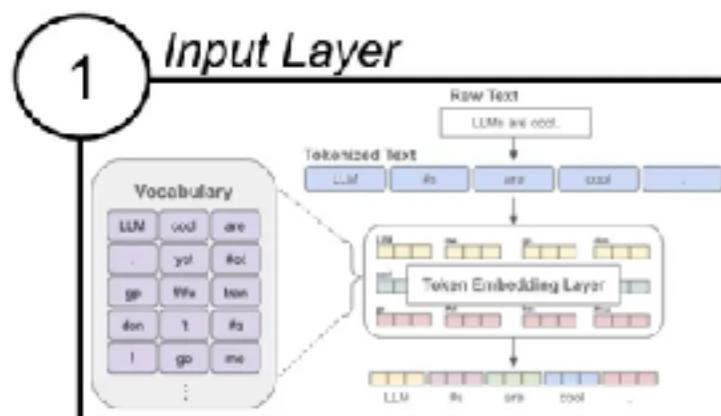
Figure 3: LLM development timeline. The models below the arrow are closed-source while those above the arrow are open-source.

<https://arxiv.org/abs/2311.16989>



# LLM components !!

## Components of the Decoder-only Transformer



<https://stackoverflow.blog/2024/08/22/lms-evolve-quickly-their-underlying-architecture-not-so-much>



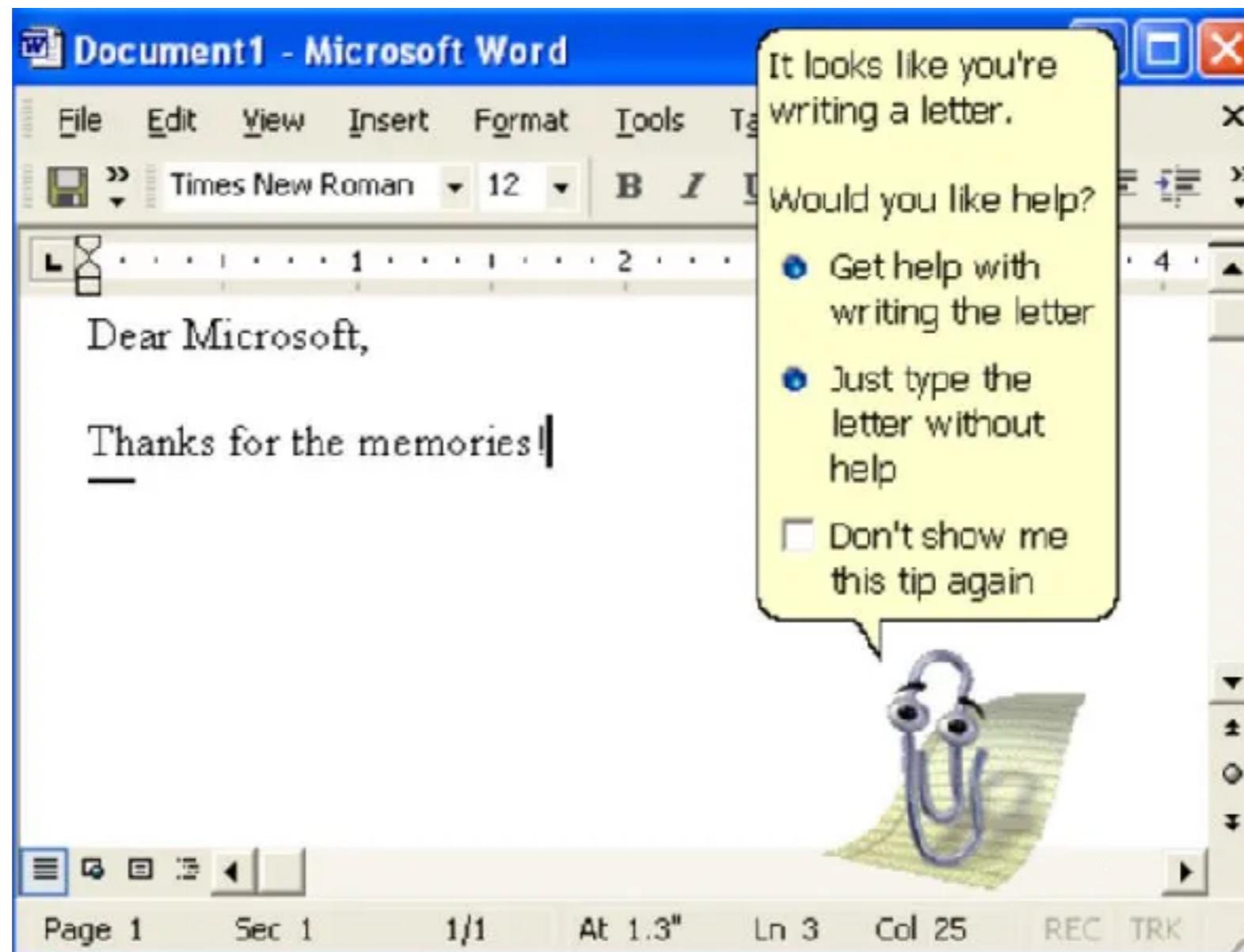
Application

Infrastructure

Model



# Generative AI (GenAI)



# Generative AI (GenAI)

Days before OpenAI



Days after OpenAI



# **Trust, but verify output !!**



# Challenges in Gen AI

Lack of high-quality data

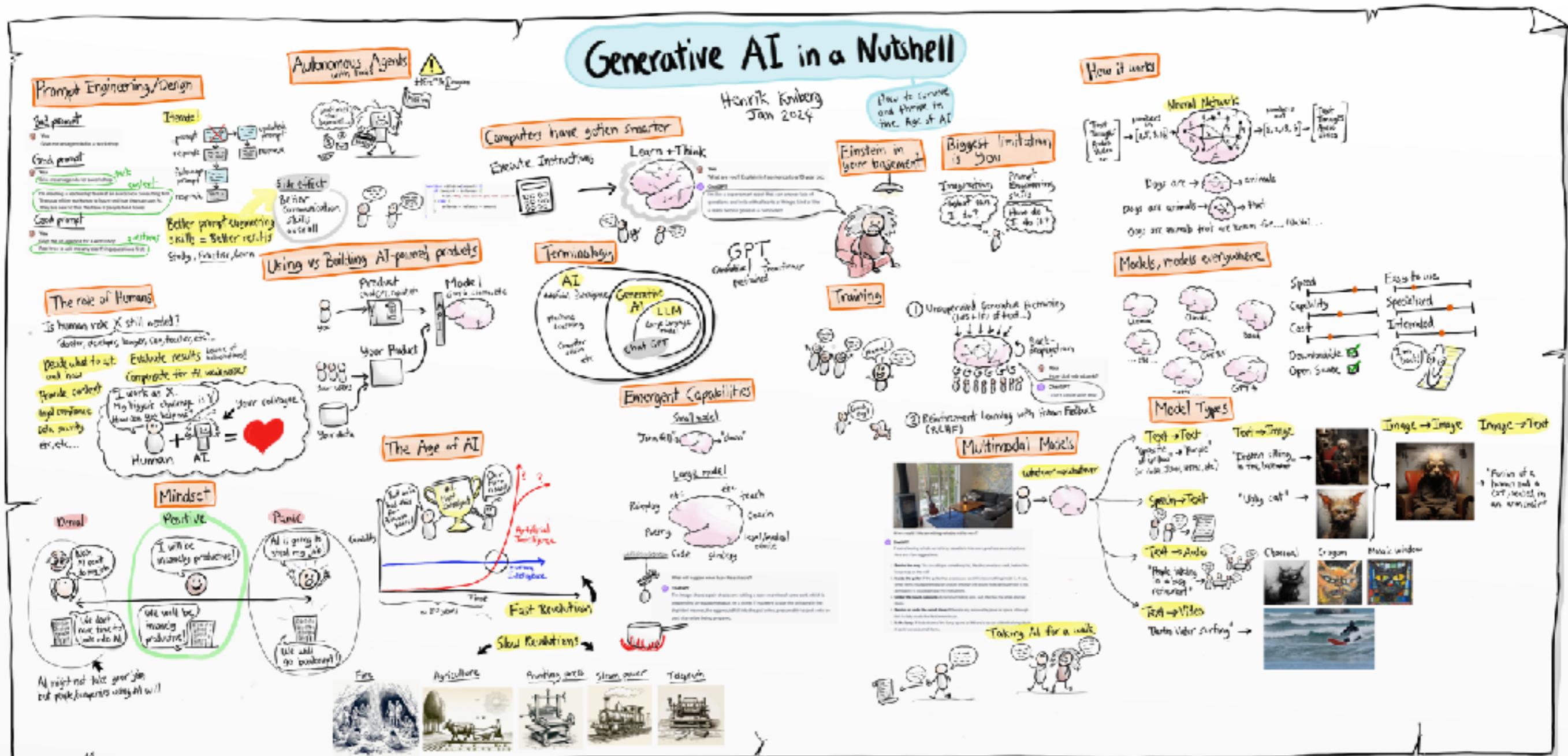
Data licenses

Generation latency

High computational power



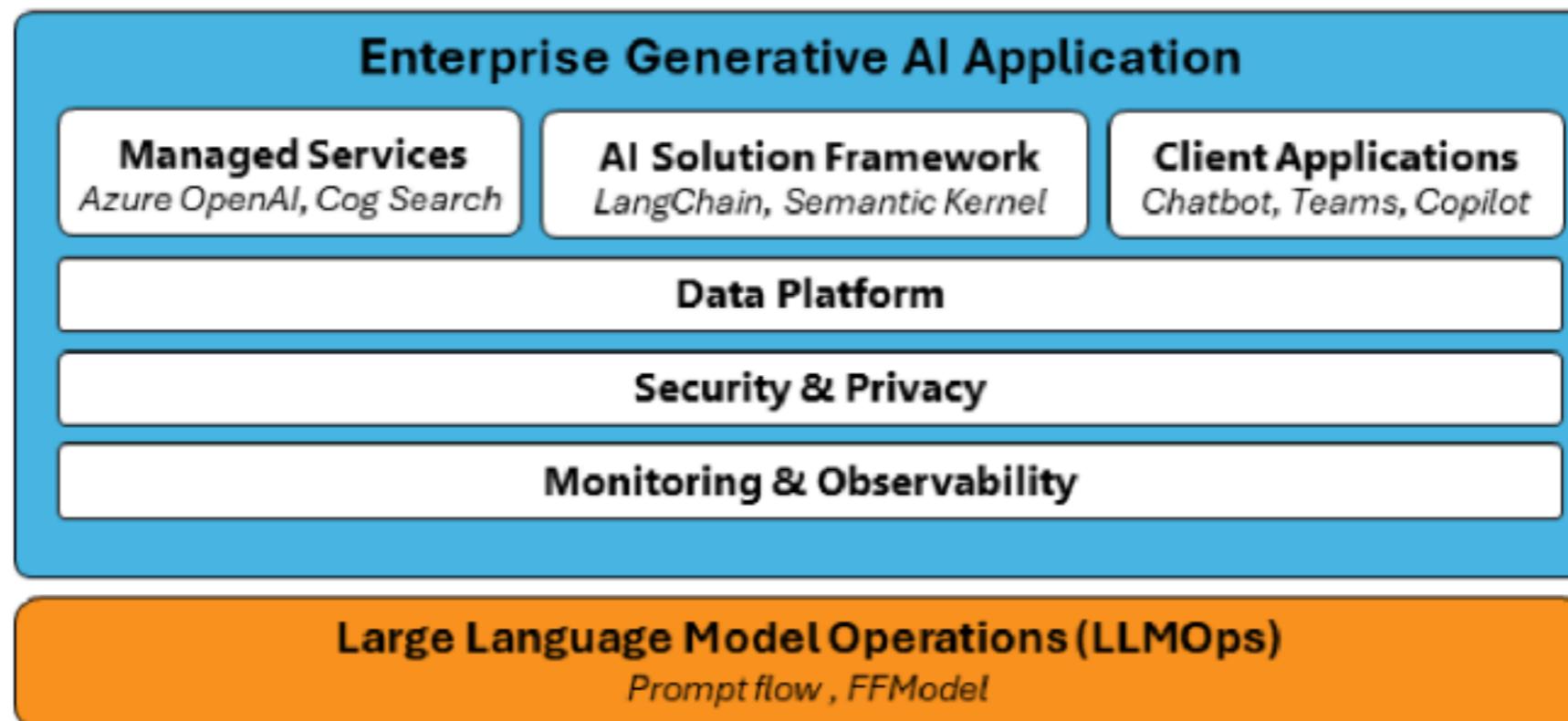
# Generative AI in Nutshell



<https://www.youtube.com/watch?v=2IK3DFHRFw>



# Generative AI Application Stack



<https://learn.microsoft.com/en-us/ai/playbook/technology-guidance/generative-ai/>



# Generative AI Roadmap



# Generative AI Roadmap

## Generate roadmaps with AI

Enter a topic and let the AI generate a roadmap for you

Enter a topic to generate a roadmap for

 Generate

OAuth ↗

UI / UX ↗

SRE ↗

DevRel ↗

Explore AI Roadmaps 

You have generated 0 of 10 roadmaps today.

Need to generate more? [Click here.](#)

<https://roadmap.sh/ai>



# **Application Tool chains**



# Global Generative AI Landscape

## The Global Generative AI Landscape 2024

AIport

### North America

MULTIMODAL	CHATBOTS
AcuteFretty, GPT4All, Gemini, perplexity	ANTHROPIC, glean, YandexART, Frame.ai, deepgenomics, OBSERVE-AI, Meta
TEXT	IMAGE
NFT, AssemblyAI, intuit, ImageFX	NVIDIA, OpenAI, LumenG, Neuraseal
AUDIO	VIDEO
AssemblyAI, Suno, soundful, ElevenLabs	Speechly, PlayHT, RØBLOX
CODE	GAMES
mosaic, Codebreaker AI	LEVELAI, layer6
BUSINESS INTELLIGENCE	

### South America

IMAGE
HUTT DATA

### Europe

MULTIMODAL	CHATBOTS	TEXT
runway, YandexART	ultimate.ai, LightOn, YandexGPT	Kafka, contents.com, clearword, SMARTLT.IO
IMAGE	stability.ai	stability.ai
stability.ai	stability.ai	stability.ai, blackshark.ai
CODE	AUDIO	BUSINESS INTELLIGENCE
stability.ai	ACCELERATAI, USICO	GOLUCINITY, uizard, DeepMind, SYNTHO
	VOICEMOD	

### Africa

CHATBOTS	AUDIO	BUSINESS INTELLIGENCE

### Asia

CHATBOTS
AI21studio, CHAI, gorial, Tymely, Tencent騰訊
MetaDialog, HUA ZANG, 文, 犬, VIA, SAMSUNG
TEXT
SAMSUNG, 文, 犬, zyntonym, DID, 女
Tencent騰訊, 文, SAMSUNG
MULTIMODAL
Dubverse, FourOne
AUDIO
codium, tobeline, 犬
GAMES
SYNTHSYS
BUSINESS INTELLIGENCE

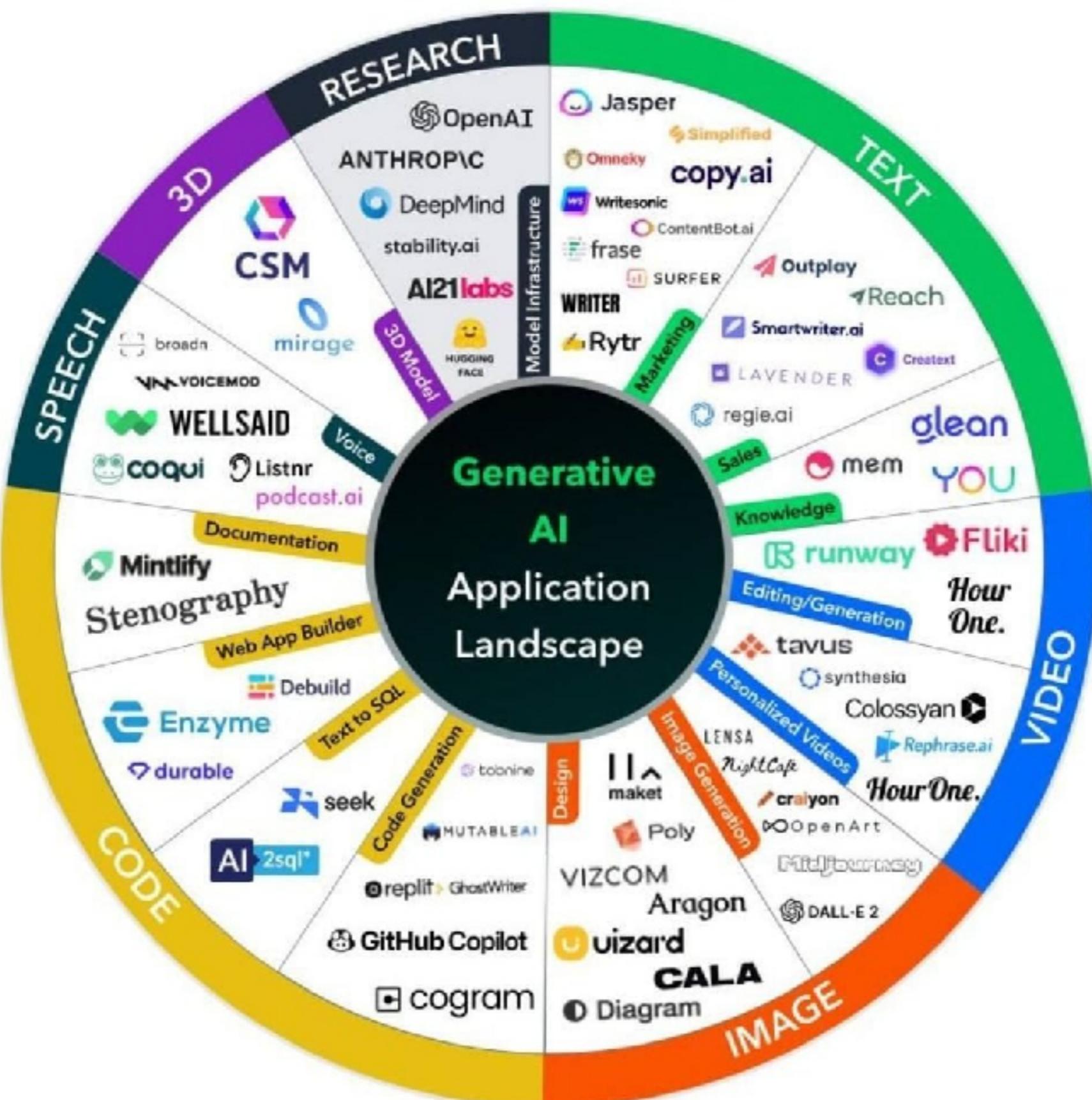
### Oceania

IMAGE	VIDEO	AUDIO
RightScript, modhex		splash

COMPANIES DEVELOPING TWO OR MORE TYPES OF MODELS

<https://www.blog.aiport.tech/p/the-first-truly-global-generative>





# Tool chains category

Assist  
tasks

Interaction  
modes

Prompt  
composition

Properties of  
model



# Assist tasks

Finding information faster in context

Generating code

Reasoning about code

Transforming code into something ..

Requirement

Design

Develop

Testing

Deploy

Software Delivery Lifecycle



# Interaction modes

Chat interfaces

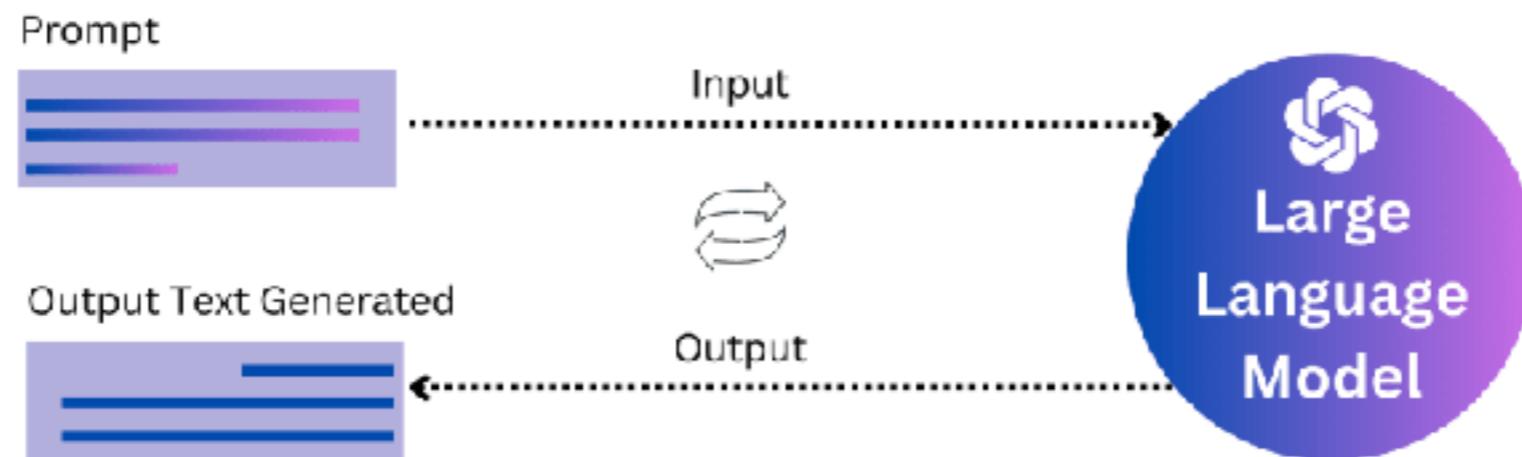
In-line assistance (typing in code editor)

CLI (command-line interface)



# Prompt composition

Prompt engineering  
Compose prompts from user inputs and context



<https://platform.openai.com/docs/guides/prompt-engineering>



# Better Prompt

Write clear instructions

Provide reference text

Split complex tasks into simpler subtasks

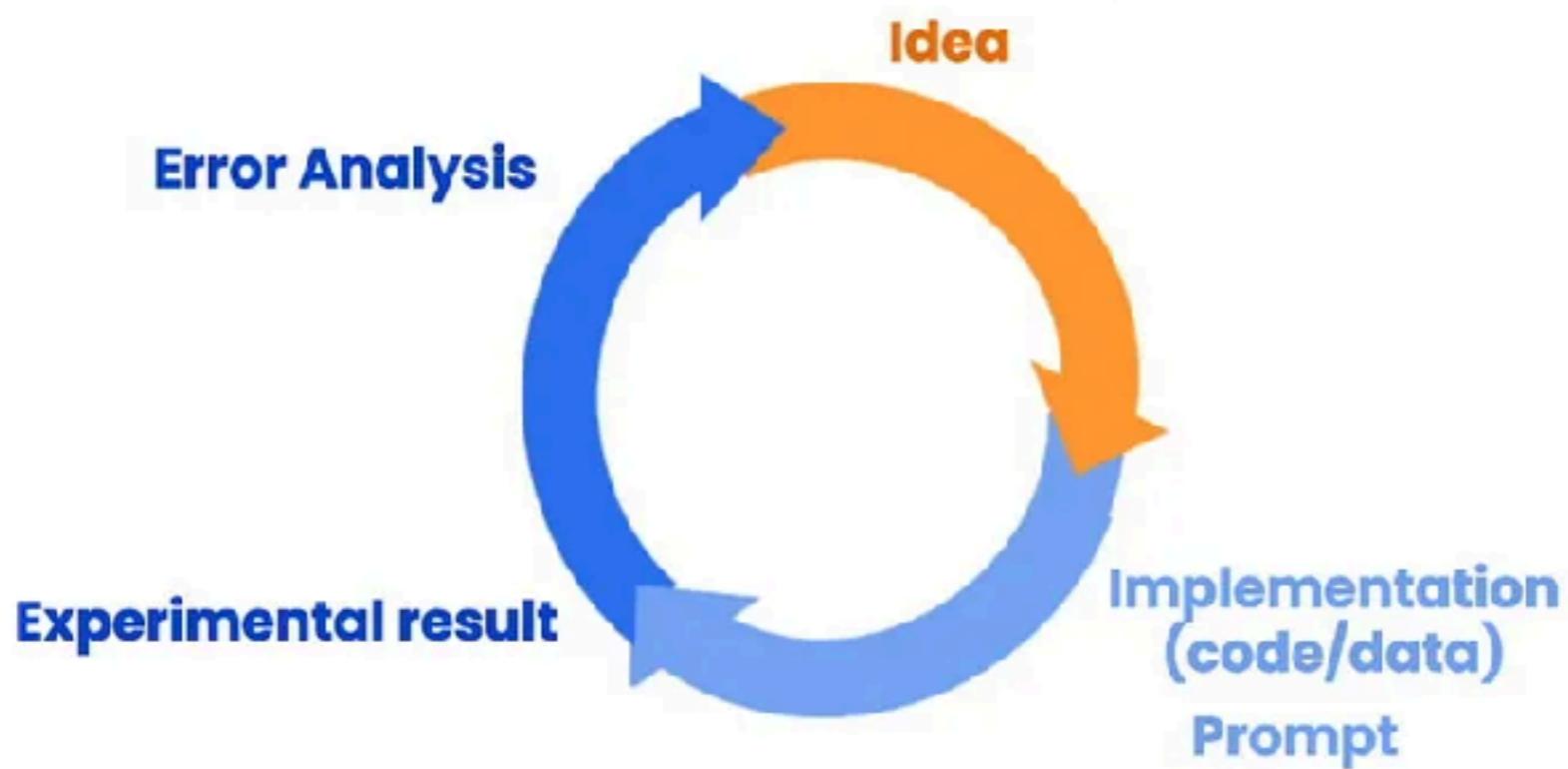
Give the model time to think

Testing and improve ...

<https://platform.openai.com/docs/guides/prompt-engineering>



# Iterative Prompt Development



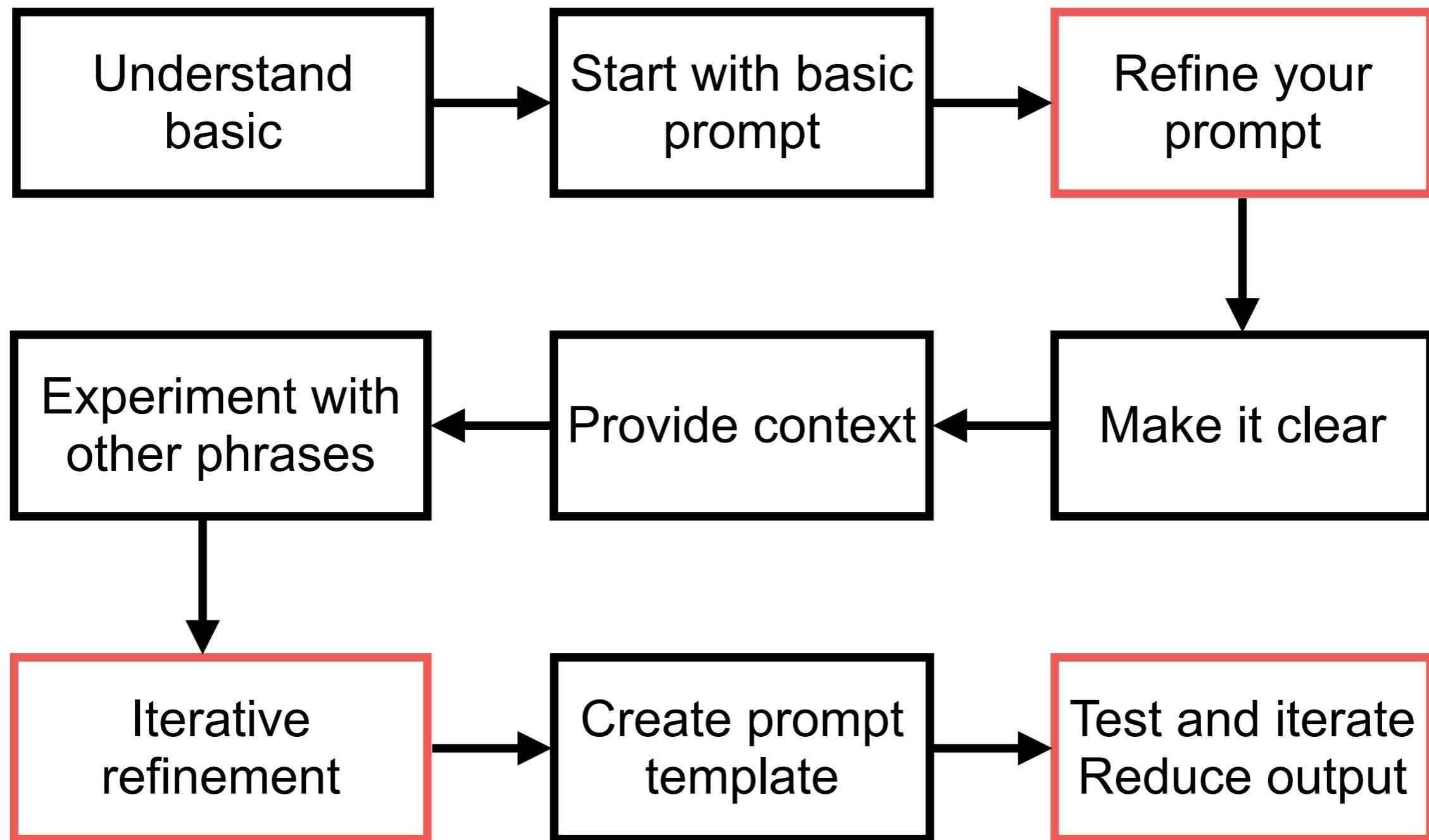
## Iterative Process

- Try something
- Analyze where the result does not give what you want
- Clarify instructions, give more time to think
- Refine prompts with a batch of examples

<https://www.deeplearning.ai/short-courses/chatgpt-prompt-engineering-for-developers/>



# Basic of Prompt Engineer



# Better Prompt

Write clear instructions

Provide reference text

Split complex tasks into simpler subtasks

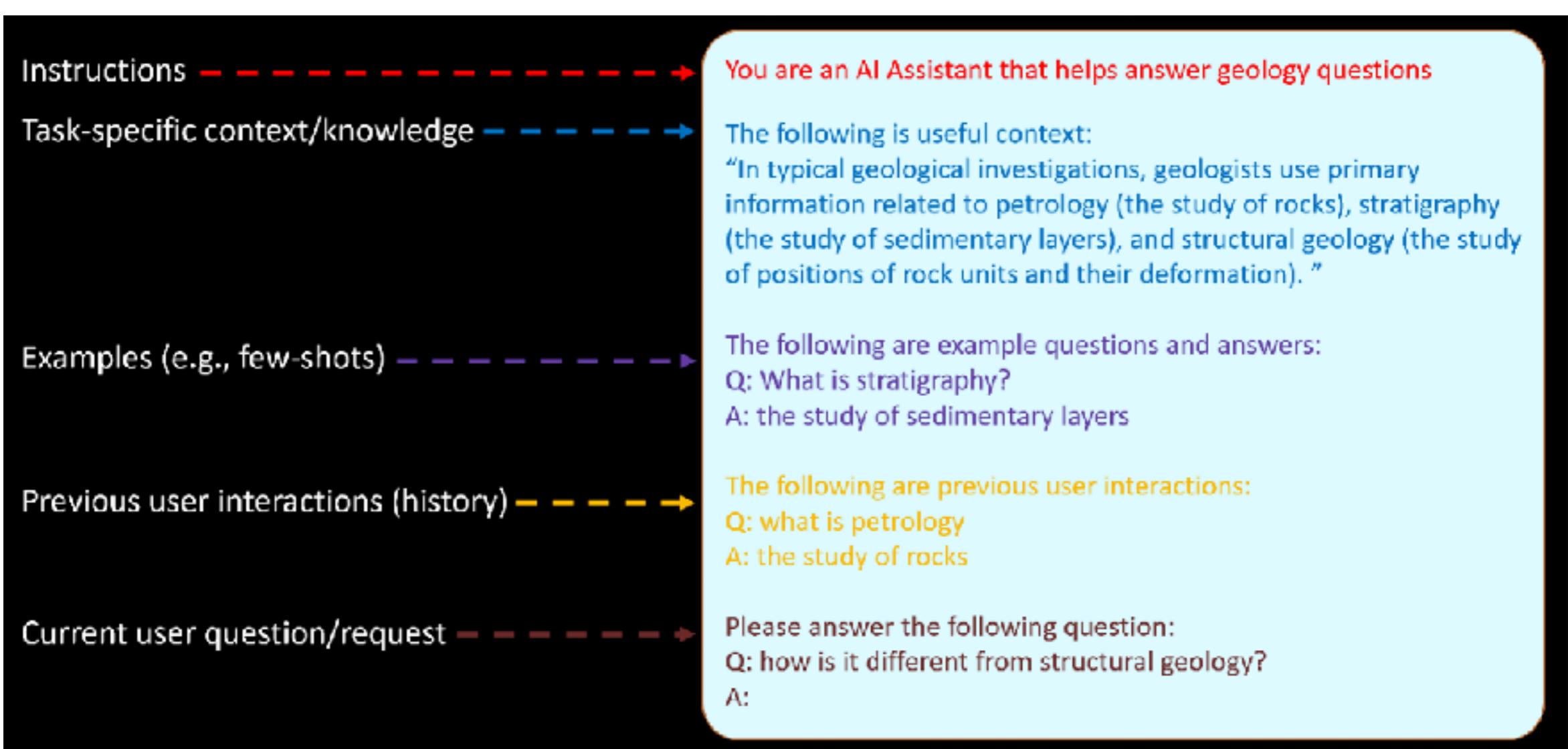
Give the model time to think

Testing and improve ...

<https://platform.openai.com/docs/guides/prompt-engineering/six-strategies-for-getting-better-results>



# Prompt Structure



<https://learn.microsoft.com/en-us/ai/playbook/technology-guidance/generative-ai/working-with-langs/prompt-engineering>



# Prompting Guide

Prompt Engineering

## Prompt Engineering Guide

Prompt engineering is a relatively new discipline for developing and optimizing prompts to efficiently use language models (LMs) for a wide variety of applications and research topics. Prompt engineering skills help to better understand the capabilities and limitations of large language models (LLMs).

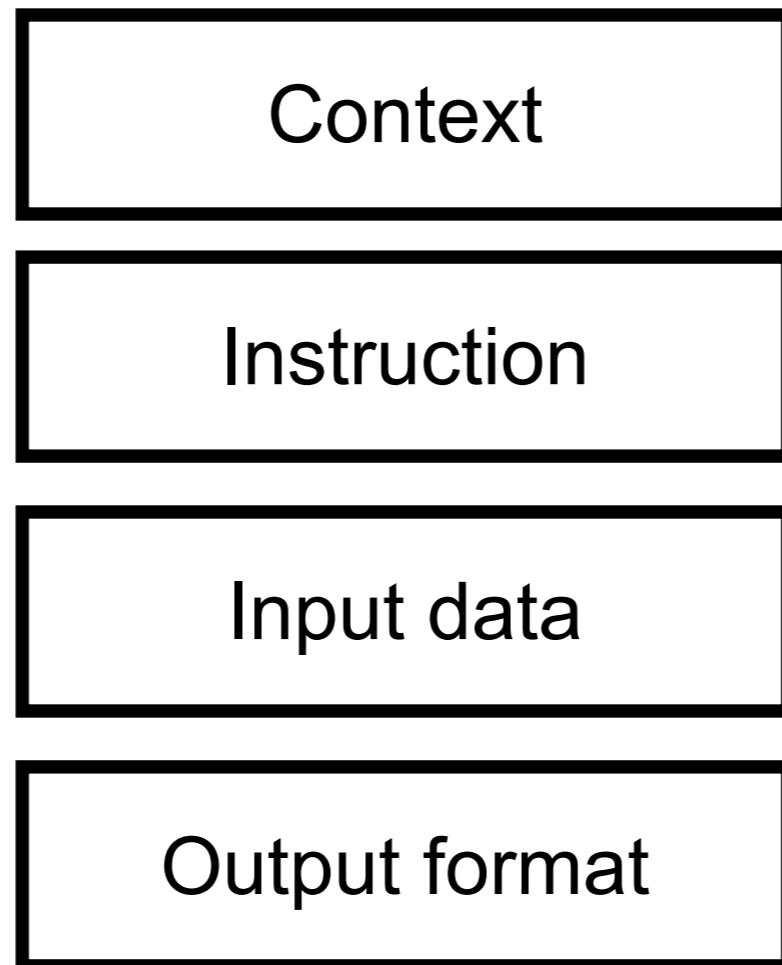
Researchers use prompt engineering to improve the capacity of LLMs on a wide range of common and complex tasks such as question answering and arithmetic reasoning. Developers use prompt engineering to design robust and effective prompting techniques that interface with LLMs and other tools.

Prompt engineering is not just about designing and developing prompts. It encompasses a wide range of skills and techniques that are useful for interacting and developing with LLMs. It's an important skill to interface, build with, and understand capabilities of LLMs. You can use prompt engineering to improve safety of LLMs and build new capabilities like augmenting LLMs with domain knowledge and external tools.

<https://www.promptingguide.ai/>



# Structure of Prompt



<https://platform.openai.com/docs/guides/prompt-engineering>



# Structure of Prompt !!

**APE**  
Action, Purpose,  
Expectation

**RACE**  
Role, Action,  
Context,  
Expectation

**TAG**  
Task, Action, Goal

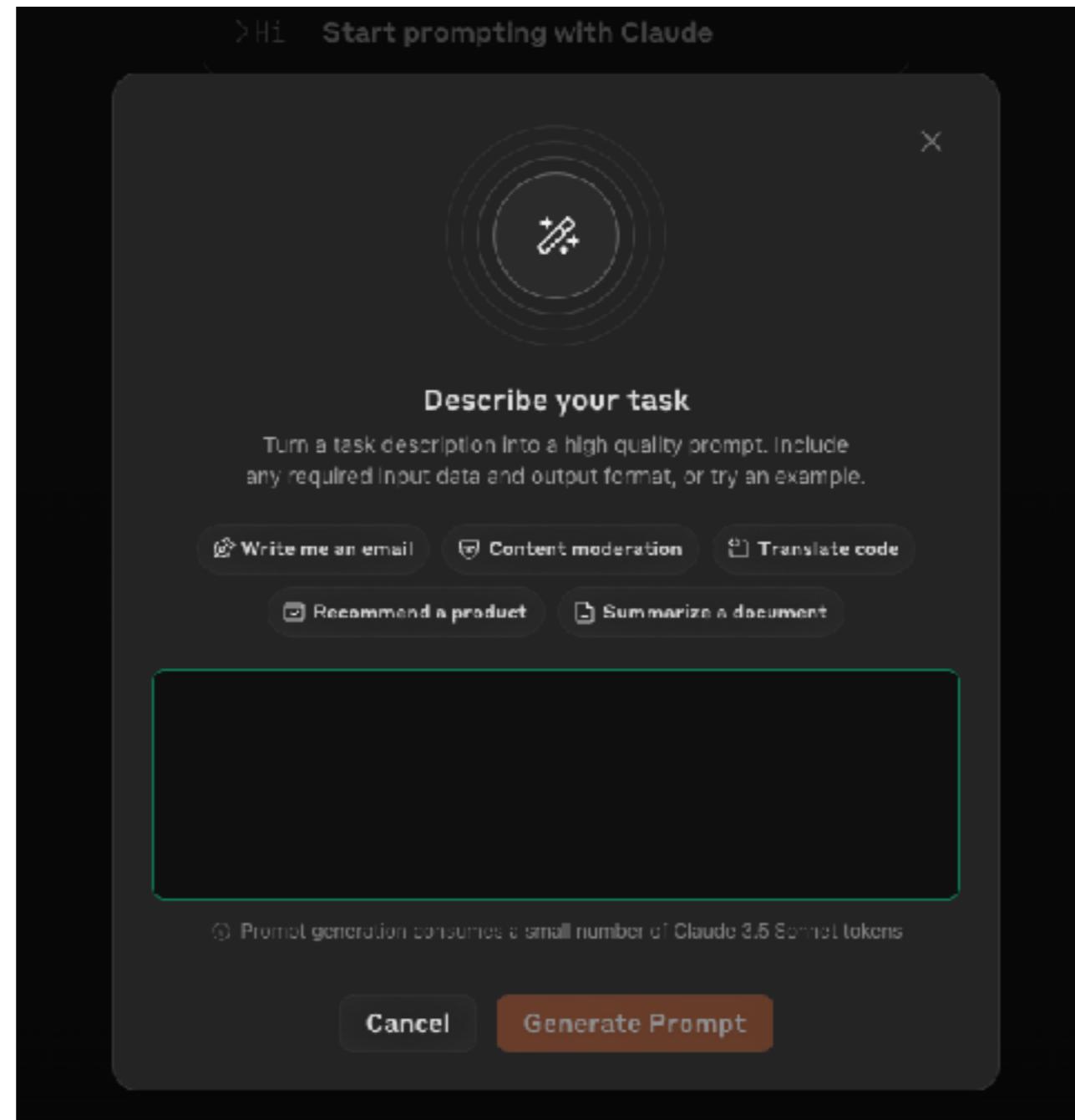
**COAST**  
Context, Objective,  
Action, Scenario,  
Task

**RISE**  
Role, Input, Step,  
Expectation

<https://twitter.com/pradeepeth/status/1673271866696544257>



# Prompt Generator



<https://docs.anthropic.com/en/docs/build-with-claude/prompt-engineering/prompt-generator>



# Prompt Generator

## OpenAI GPT prompt generator

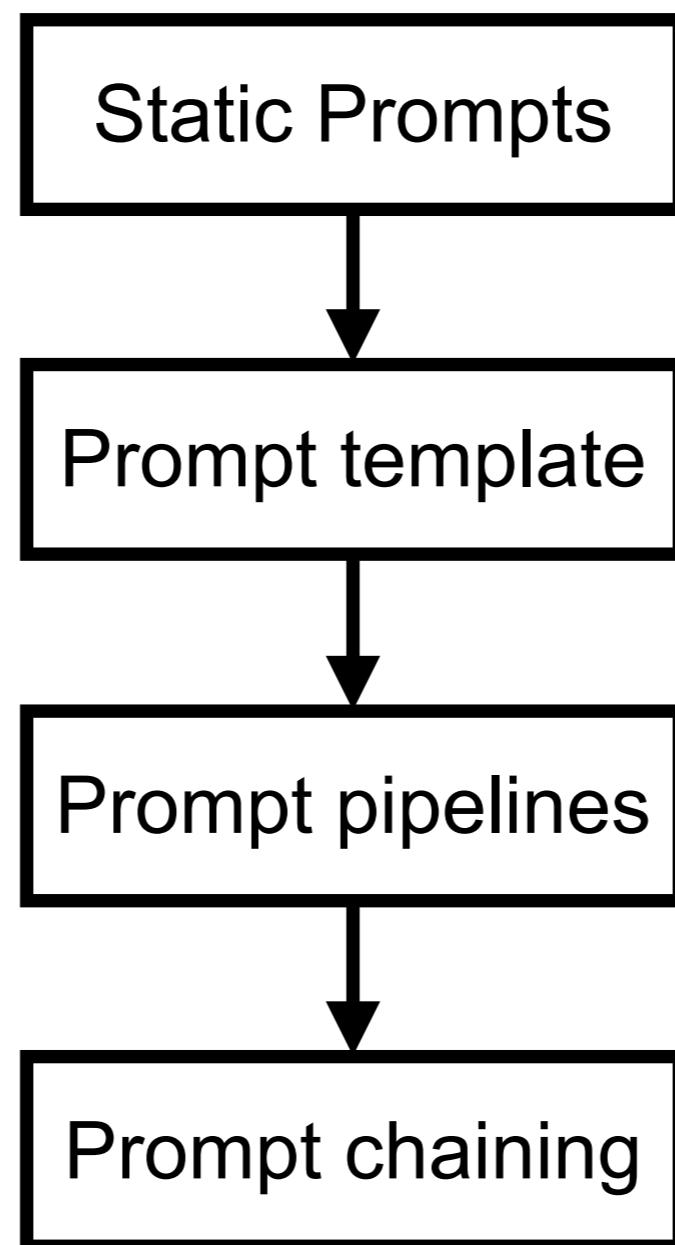
As we explain in our guide [How to write a good prompt](#), the key to writing a good prompt is to be very specific about what you want. You don't have to remember all the important informations. Use our easy generator to create your perfect prompt:

<b>Task</b>	Write a blogpost
<b>Topic</b>	OpenAI
<b>Style</b>	Academic
<b>Tone</b>	Assertive
<b>Audience</b>	5-year old
<b>Length</b>	2 paragraphs
<b>Format</b>	Text

<https://gptforwork.com/tools/prompt-generator>



# Evolution of Prompt Engineering

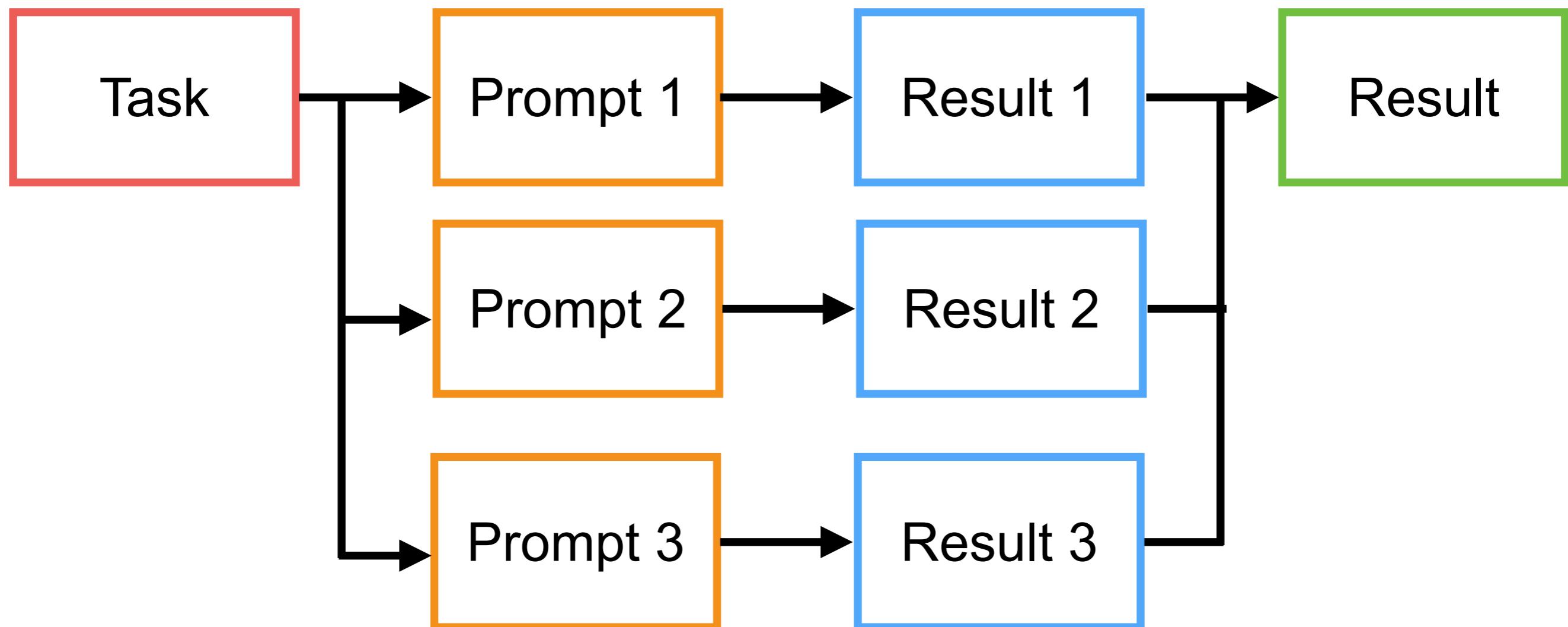


<https://github.com/promptslab/Awesome-Prompt-Engineering>

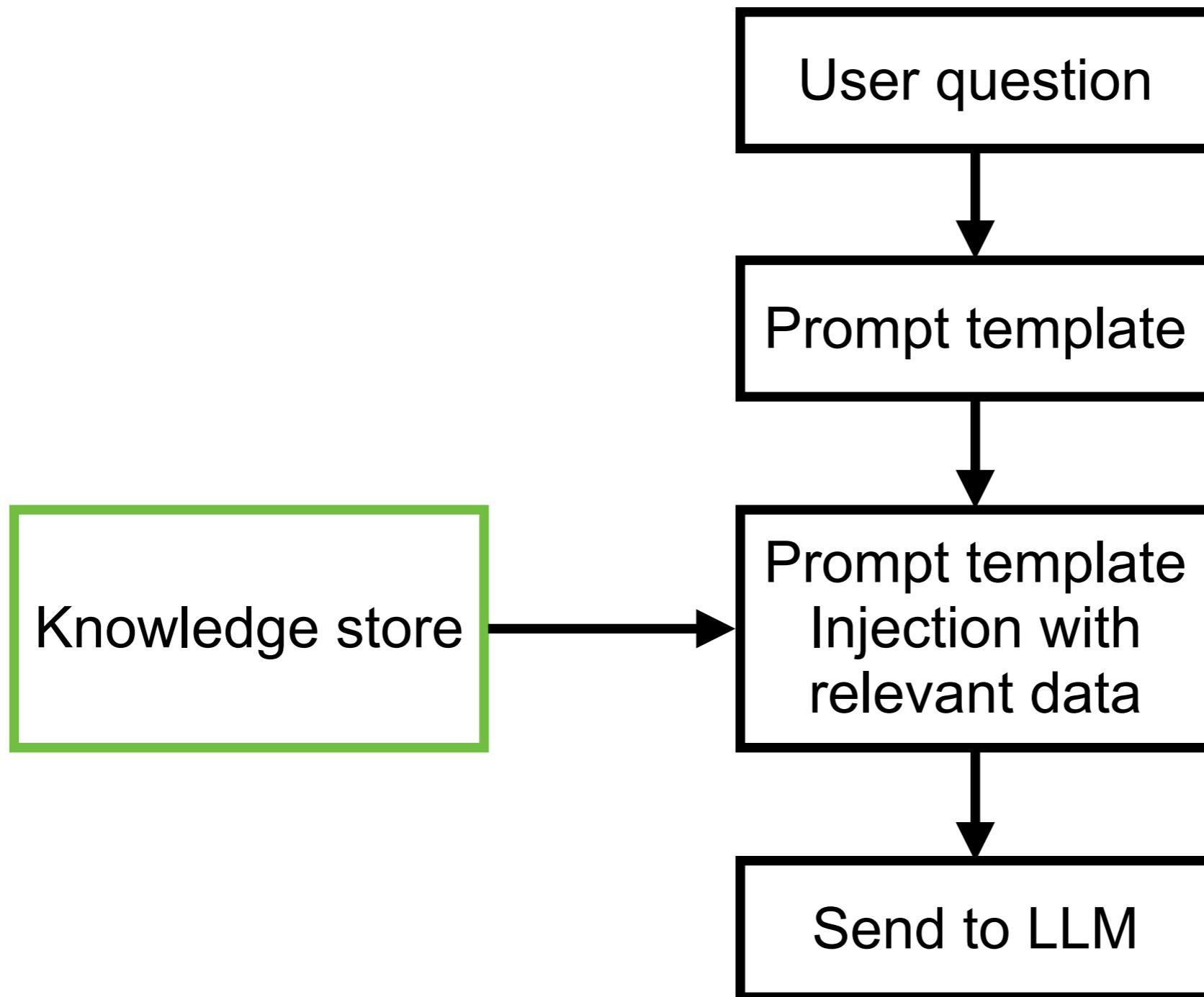


# Basic Prompts

User



# Prompt Pipelines



<https://cobusgreyling.medium.com/the-evolution-of-prompt-engineering-29c3d6943af2>



# Hallucinations in LLMs

The diagram shows two interactions between a user (represented by a person icon) and a robot (represented by a blue robot icon). In the top interaction, the user asks if 9677 is a prime number. The robot responds that it is not a prime number and provides a factorization. In the bottom interaction, the user asks if 9677 is divisible by 13. The robot responds with 'No'. To the right of these interactions, a large red 'X' is positioned above the first interaction, and a green checkmark is positioned below the second interaction. Brackets on the right side group specific errors: 'incorrect assertion' covers the prime number response; 'snowballed hallucination' covers the factorization response; and 'in a separate session, GPT-4 recognizes its claim as incorrect!' covers the divisibility response.

Is 9677 a prime number?

No, 9677 is not a prime number.  
It can be factored into 13 and 745, as  $9677 = 13 \times 745$ .

Is 9677 divisible by 13?

No

} incorrect assertion  
} snowballed hallucination  
} in a separate session,  
GPT-4 recognizes its  
claim as incorrect!



# Hallucinations in LLMs

Training data set  
issue

Architecture and  
training objective

Prompt engineering

Over-optimization



# Count r in Strawberry !!

The word "strawberry" contains 2 instances of the letter "r".

The word "strawberry" contains 2 occurrences of the letter "r".

<https://hackernoon.com/why-cant-ai-count-the-number-of-rs-in-the-word-strawberry>



# Count r in Strawberry !!

## ✳️ Perplexity

### Counting the Letter "R" in "Strawberry"

To count the number of times the letter "R" appears in the word "strawberry", we can break it down character by character:

S-T-R-A-W-B-E-R-R-Y

In this analysis, we see that the letter "R" appears 3 times in the word "strawberry" ① ② ③.

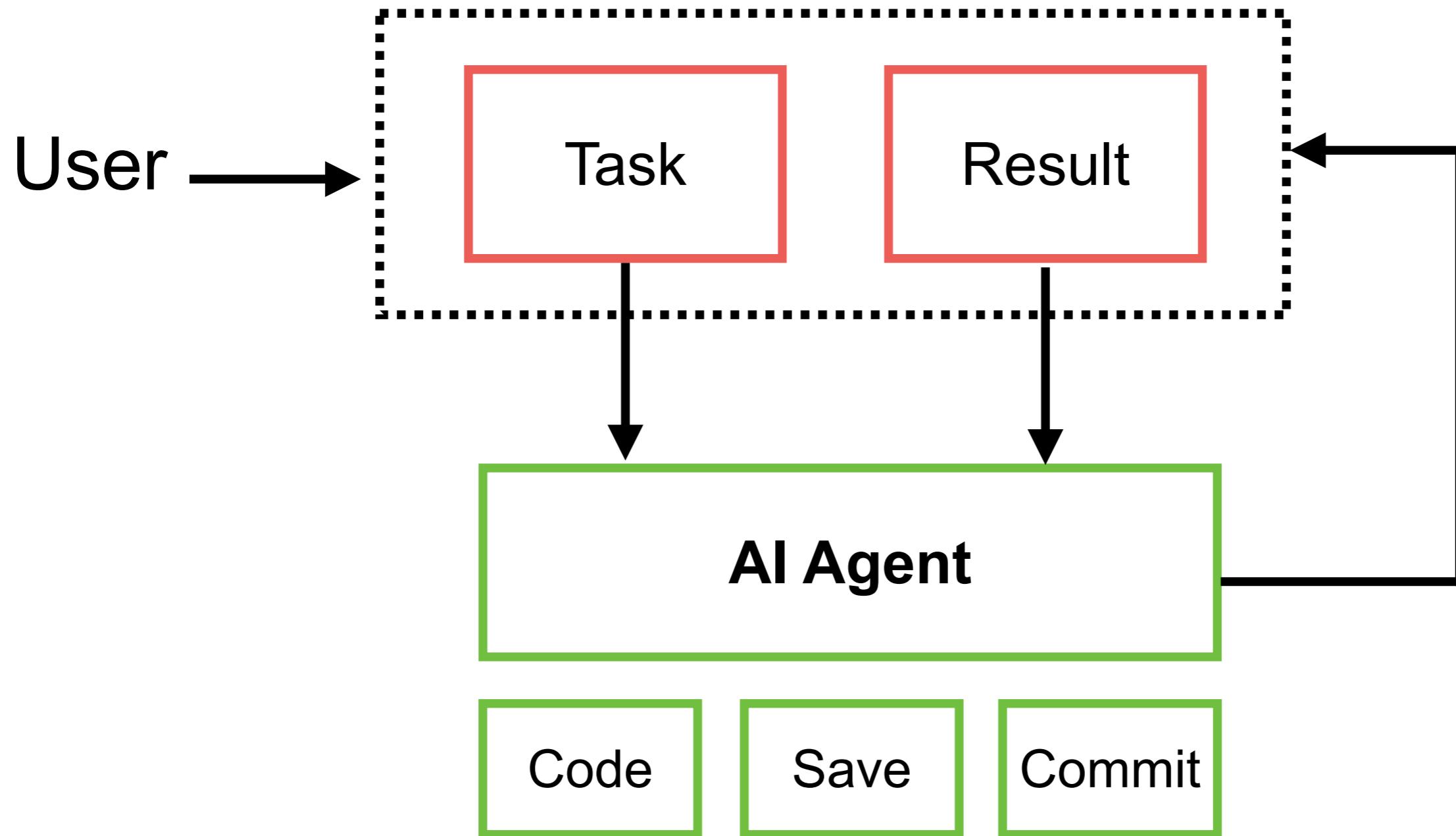
Some key points:

- Language models like ChatGPT do not always count letters correctly in words like "strawberry" ② ③
- This is because they break down words into tokens rather than individual letters, and the tokens may not map directly to the letters ②
- To get the right answer, you can have the AI spell out the word and count the "R"s as it goes ④
- Counting letters is a simple task for humans but can trip up even advanced AI systems ⑤ ⑥

So in summary, the letter "R" appears 3 times in the word "strawberry". While this is obvious to humans, it can be a tricky problem for current AI language models to solve consistently.



# Goal or Result-based

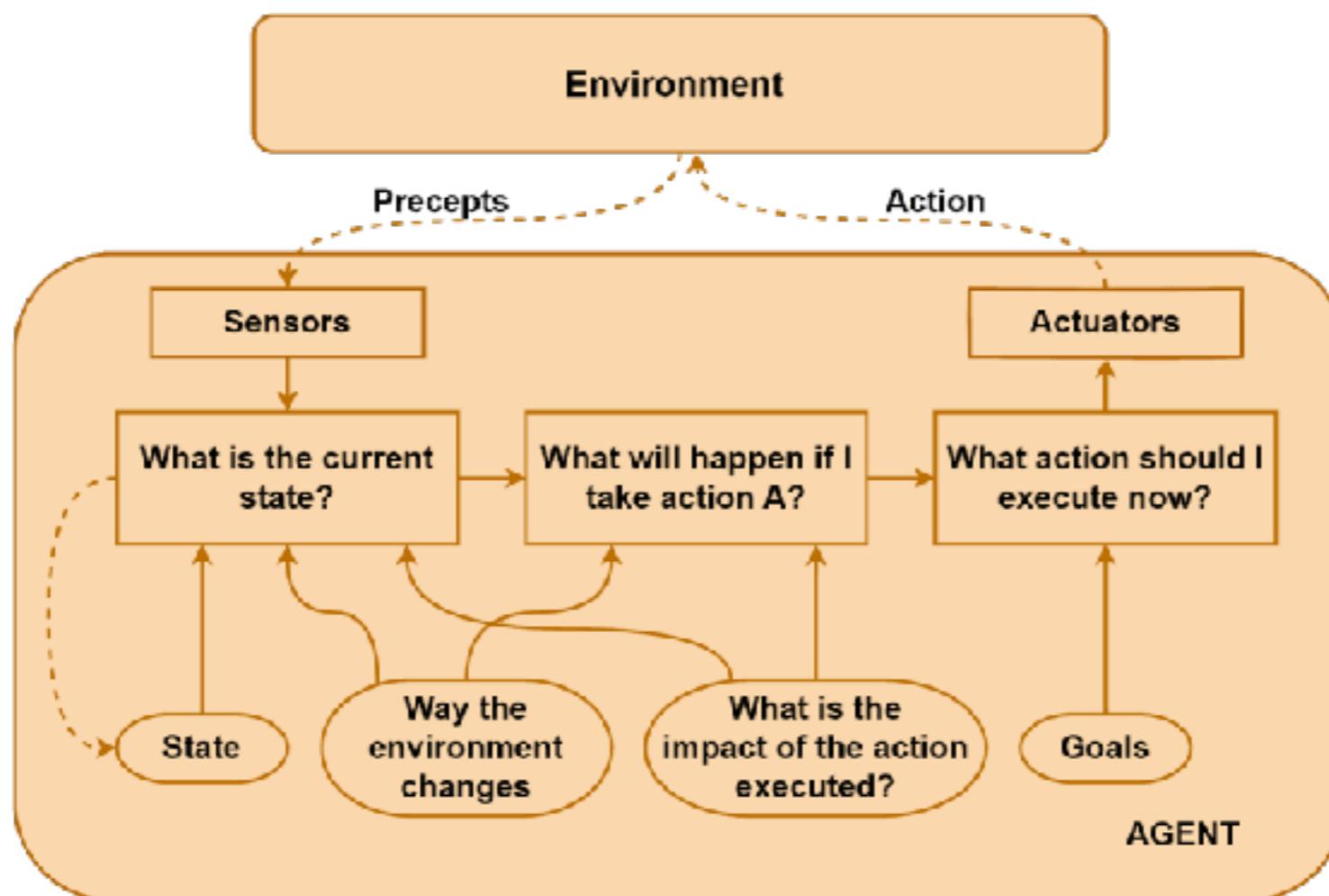


<https://github.com/e2b-dev/awesome-ai-agents>



# Goal-based agent

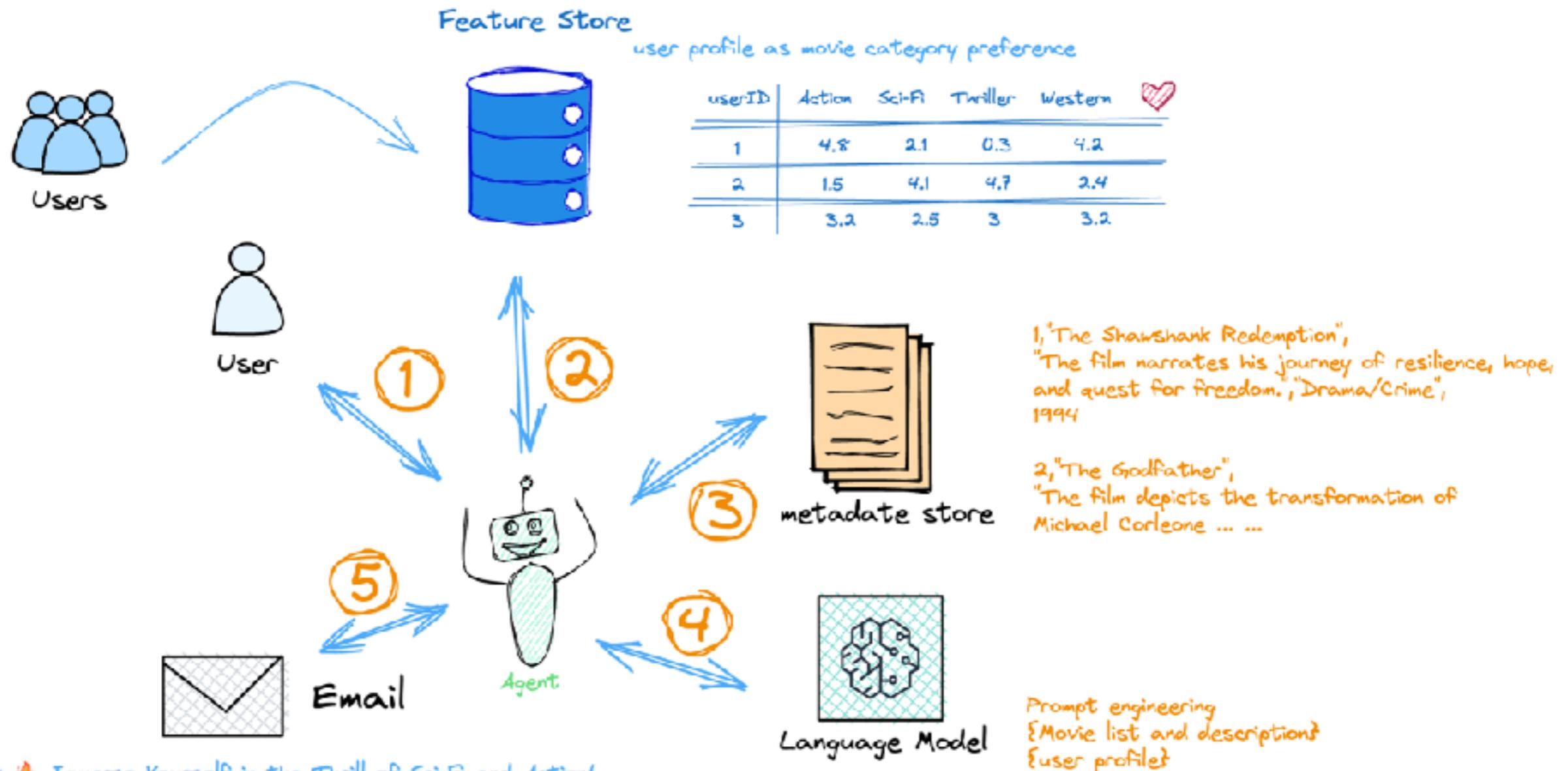
Attempts to choose best strategy to achieve goal on environment



<https://www.baeldung.com/cs/goal-based-vs-utility-based-agents>



# AI Agent



<https://aws.amazon.com/th/what-is/ai-agents/>



# Types of AI Agent

Simple reflex

Model-based  
reflex

Goal-based

Utility-based

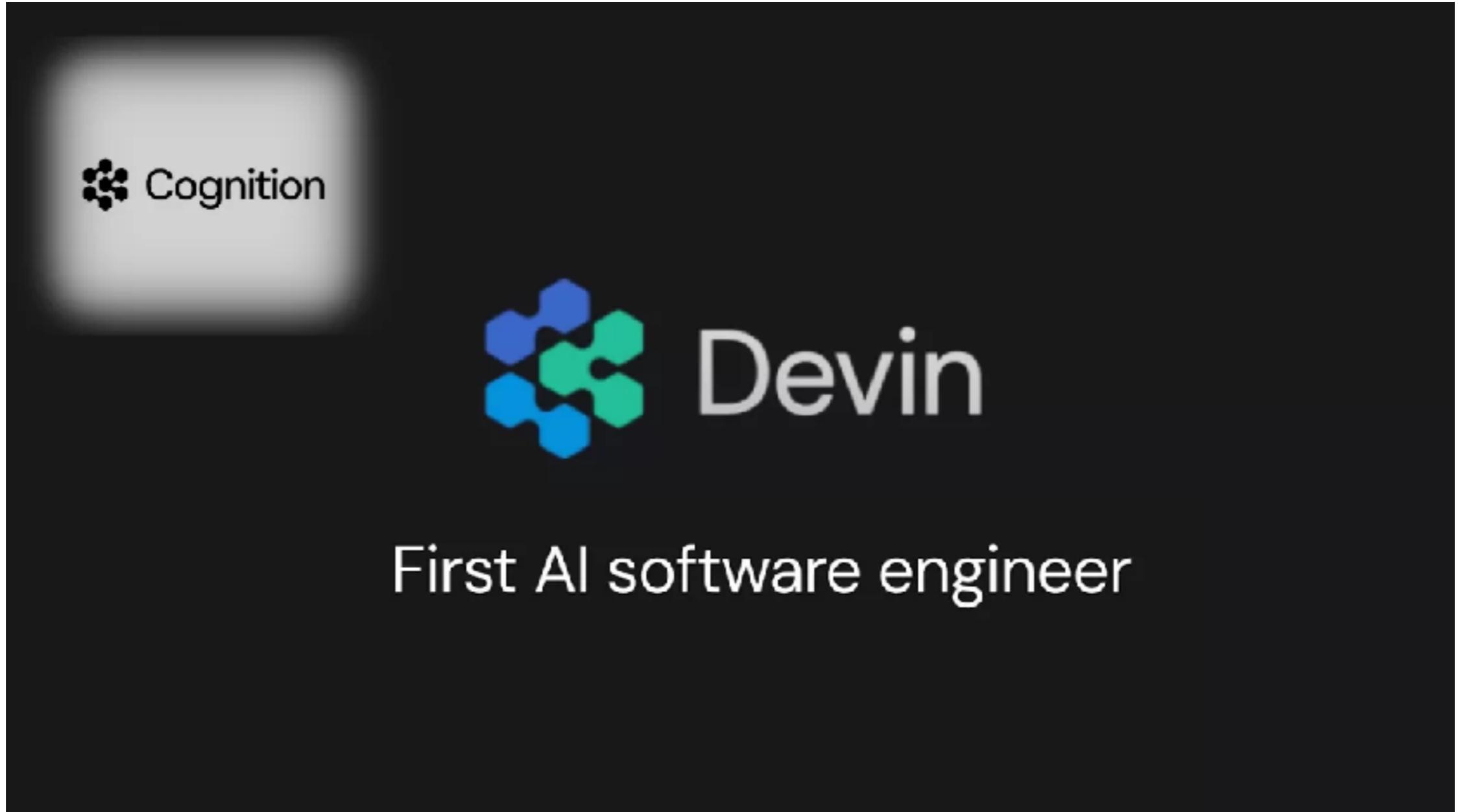
Learning

Hierarchical

<https://github.com/e2b-dev/awesome-ai-agents>



# End-to-end Software Agent



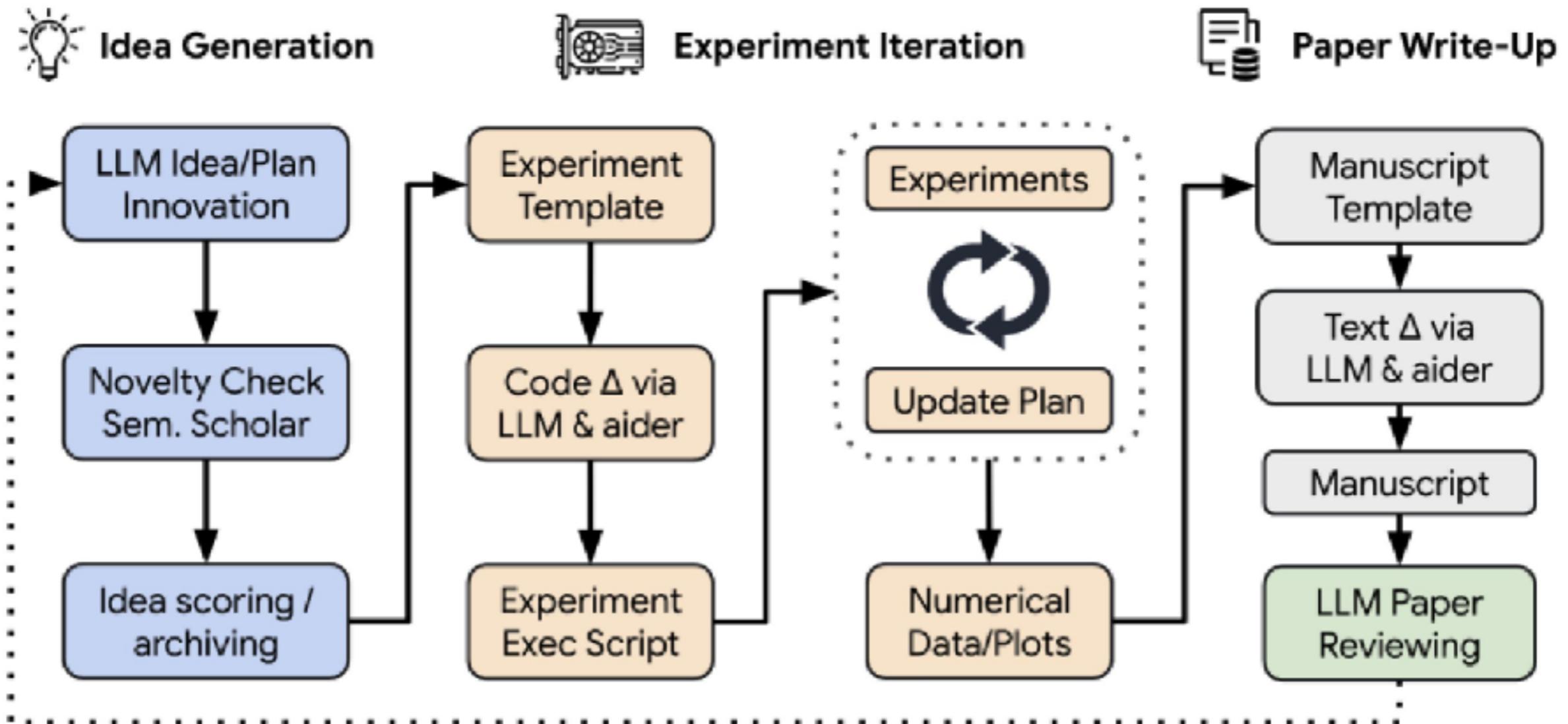
<https://www.cognition.ai/blog/introducing-devin>



# The AI Scientist: Towards Fully Automated Open-Ended Scientific Discovery

Chris Lu<sup>1,2,\*</sup>, Cong Lu<sup>3,4,\*</sup>, Robert Tjarko Lange<sup>1,\*</sup>, Jakob Foerster<sup>2,†</sup>, Jeff Clune<sup>3,4,5,†</sup> and David Ha<sup>1,†</sup>

\*Equal Contribution, <sup>1</sup>Sakana AI, <sup>2</sup>FLAIR, University of Oxford, <sup>3</sup>University of British Columbia, <sup>4</sup>Vector Institute, <sup>5</sup>Canada CIFAR AI Chair, <sup>†</sup>Equal Advising



<https://arxiv.org/abs/2408.06292>



# Let's Start



# Chat and Search



# Chat and Search

Gemini



ChatGPT



perplexity



# ChatGPT from OpenAI

The screenshot shows the ChatGPT interface. At the top left is the "ChatGPT" logo with a dropdown arrow. In the center is the AI icon (a stylized blue and white knot). Below the icon are four cards, each with an icon and text:

- Create a Renaissance-style painting
- Pick outfit to look good on camera
- Activities to make friends in new city
- Thank my interviewer

At the bottom is a message input field with a "Message ChatGPT" button and an upward arrow icon. A note below the field says: "ChatGPT can make mistakes. Check important info."

<https://chatgpt.com/>



# Google Gemini

Hello, somkiat  
How can I help you today?

Help create a weekly meal plan for two

Settle a debate: how should you store bread?

Improve the readability of the following code

Revise my writing and fix my grammar

Your conversations are processed by human reviewers to improve the technologies powering Gemini

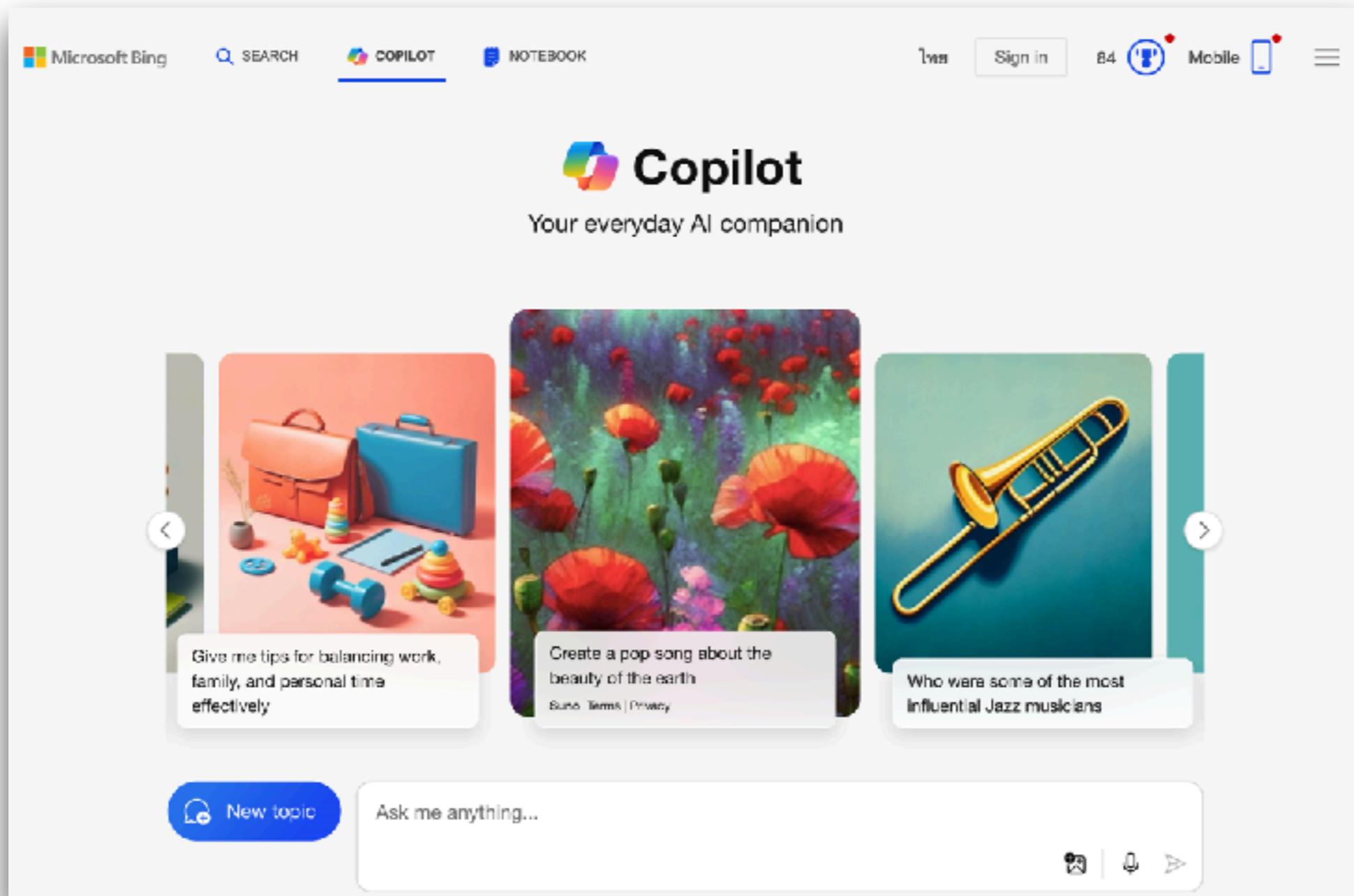
Enter a prompt here

Gemini may display inaccurate info, including about people, so double-check its responses. [Your privacy & Gemini Apps](#)

<https://gemini.google.com/app>



# Microsoft Bing Copilot



<https://www.bing.com/chat>



# Claude.AI

Using limited free plan [Upgrade](#)

✿ Good afternoon, Somkiat

How can Claude help you today?

Claude 3.5 Sonnet

Get started with an example below



Add content

Generate excel formulas

Summarize meeting notes

Write a memo



<https://claude.ai/new>



# Perplexity.ai

The screenshot shows the Perplexity.ai web interface. At the top, there's a navigation bar with a logo, a search bar containing the query "Create login form with reactjs and tailwind css", and a timestamp "Now". To the right of the search bar are icons for "Edit", "Share", and "Copy". On the left side, there's a sidebar with links for "New Thread", "Home", "Discover", "Library", "Sign in", and a prominent "Sign Up" button. The main content area displays the search results. The first result is titled "Create login form with reactjs and tailwind css" and has an "Edit" link. Below it is an "Answer" section with a brief explanatory text. A code block shows bash commands: "npx create-react-app my-login-form" and "cd my-login-form". Further down, another section titled "Step 2: Install Tailwind CSS" provides instructions. A sidebar on the right offers options to "Search Images", "Search Videos", and "Generate Image". A modal window is partially visible on the right, prompting the user to "Sign in or create an account" to unlock Pro features like search history and Google sign-in.

<https://www.perplexity.ai/>



# SearchGPT

July 25, 2024

## SearchGPT Prototype

We're testing SearchGPT, a temporary prototype of new AI search features that give you fast and timely answers with clear and relevant sources.

Waitlist closed ↗

<https://openai.com/index/searchgpt-prototype/>



# Chat and Search

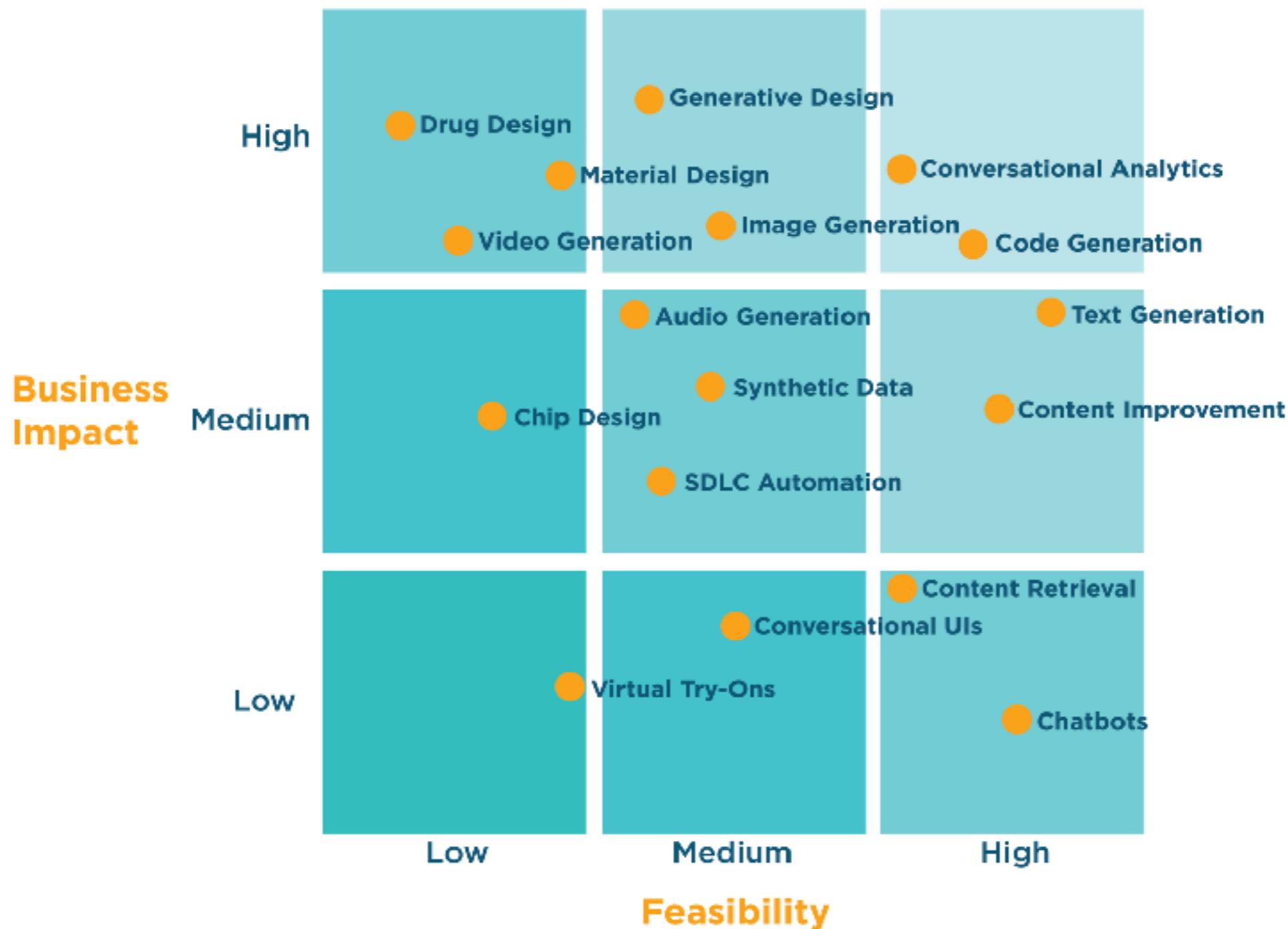
User	Company	Console	Best model
ChatGPT	OpenAI	OpenAI platform	GPT-4o
Claude	Anthropic	Anthropic console	Claude 3.5 sonnet
Gemini	Google	Google AI Studio	Gemini 1.5 pro



# Generative AI Use Cases



# Generative AI Use Case Impact/Feasibility Matrix



<https://altair.com/blog/executive-insights/want-to-identify-good-generative-ai-use-cases-dont-be-boring>



# Generative Design



# Canva

The screenshot shows the Canva interface. On the left, the 'Magic Media' section is active, featuring an 'Images' tab selected over 'Videos'. A text input field says 'Describe the image you want and we'll generate it for you.' Below it, a box contains the text 'Blue and green space rover lost in a strange planet'. A 'Try an example' button is present, along with a purple '+' button labeled 'Charlie'. To the right, the 'Storyboard' feature is shown, displaying a grid-based storyboard for a scene. The first frame is labeled '1' and depicts a landscape with clouds and green hills. Annotations include 'Add sandstorm CGI in post prod' in a pink box, 'Sam' next to the frame, and 'APPROVED BY DIRECTOR' and 'Vim' in a yellow box. Below the storyboard, the text 'Day • Establishing Shot • Pan' and 'Action: Opening shot of the barren, red Martian landscape. We hear the sound of a rover approaching. Cut to the inside' is displayed. At the bottom center is a 'Generate AI Images' button.

<https://www.canva.com/ai-image-generator/>



# FigJam AI



Products ▾ Enterprise ▾ Pricing Resources ▾ Community ▾ Contact sales Log in Get started for free

## Redesign the way you jam with FigJam AI

FigJam AI helps you instantly visualize ideas, suggest best practices, and automate tedious tasks.

Try it out



<https://www.figma.com/figjam/ai/>



# Notion AI

Novel Ideas

Write me 5 novel ideas

1. A world where people's dreams are connected and used to create a utopia.
2. A society where everyone has a unique superpower, but using it comes at a cost.
3. A time-traveling detective must solve a series of murders that have ripple effects throughout history.
4. A group of survivors must navigate a post-apocalyptic world where the sun has vanished.
5. A person discovers they have the ability to enter and manipulate memories, but using this power comes with unforeseen consequences.

告诉她下一步该怎么做...

AI responses can be inaccurate or misleading. Learn more

- ✓ Replace selection
- Insert below
- Continue writing
- Make longer
- Try again
- Discard

<https://www.notion.so/product/ai>



# Notion AI

 Notion ≡

## Just ask Notion AI.

Knowledge, answers, ideas. One click away.

[Get Notion free](#)

 **Get answers**  
Just ask Q&A, and find the info you need in seconds.

 **Write better**  
Get help writing and brainstorming in Notion, not in a separate browser tab.

 **Autofill tables**  
Turn overwhelming data into clear, actionable information in seconds.



<https://www.notion.so/product/ai>



# Generative Generation



# Mid Journey



<https://www.midjourney.com/>



# FreePik

The FreePik homepage features a large, blurred background image of a flower. At the top, there's a navigation bar with links for Tools, Images, Icons, Videos, Templates, PSD, Mockups (marked as NEW), More, Pricing, and Sign in. Below the navigation is a prominent call-to-action: "Create great designs, faster". A subtext below it reads: "High-quality photos, videos, vectors, PSD, AI images, icons... to go from ideas to outstanding designs". The main search area includes a "Assets" dropdown, a search bar labeled "Search all assets", and a "Search" button. Below the search bar are three smaller search boxes: "menu", "coloring pages", and "magazine mockup". At the bottom, there's a call-to-action: "Sign up for 10 daily free downloads and access to AI tools" next to a "Sign up now" button.

<https://www.freepik.com/>



# Hugging Face

The screenshot shows the Hugging Face website. On the left, there's a large yellow smiley face icon. Below it, the text "The AI community building the future." is displayed in a large, bold, white font. Underneath that, a smaller text reads: "The platform where the machine learning community collaborates on models, datasets, and applications." To the right, there's a search bar with placeholder text "Search models, datasets, users...". Above the search bar are navigation links: Models, Datasets, Spaces, Docs, Solutions, Pricing, Log In, and Sign Up. The main area features a "Tasks" tab selected, showing categories like Multimodal, Computer Vision, Natural Language Processing, Audio, and Tabular, each with sub-tasks. To the right, a "Models" section lists various AI models with their names, descriptions, and statistics (e.g., 409,541 models, 4.23Bk stars).

<https://huggingface.co/>



# DALL.E 2 from OpenAI



Research ▾ Product ▾ Safety Company ▾

# DALL·E 2

DALL·E 2 is an AI system that can create realistic images and art from a description in natural language.

[Try DALL·E ➔](#)

[Follow on Instagram ➔](#)

<https://openai.com/dall-e-2>



# AI DeepFake !!



Celebrity Deepfakes AI Image Generator Premium Sign up Log in 日本語 English



## Online Deepfake Maker

オンラインフェイススワップツール

動画を作成する

<https://deepfakesweb.com/>



# Software Development Life Cycle



# SDLC

Requirement

Design

Develop

Testing

Deploy



## Planning

Written planning process

Arch diagrams

## Testing

Automated testing

TDD

Testing environments

Testing in prod

Performance testing

Load testing

Generate test data

## Development

Automated dev env

CI/CD

Prototyping

Code review

Code generation

Templates

Cross-platform dev

Preview env

Post-commit code review

Linting

Static code analysis

Project mgmt

## Shipping

FF & experimentation

Logging

Monitoring & alerting

Staged rollouts

## Maintenance

Debug production

Documentation

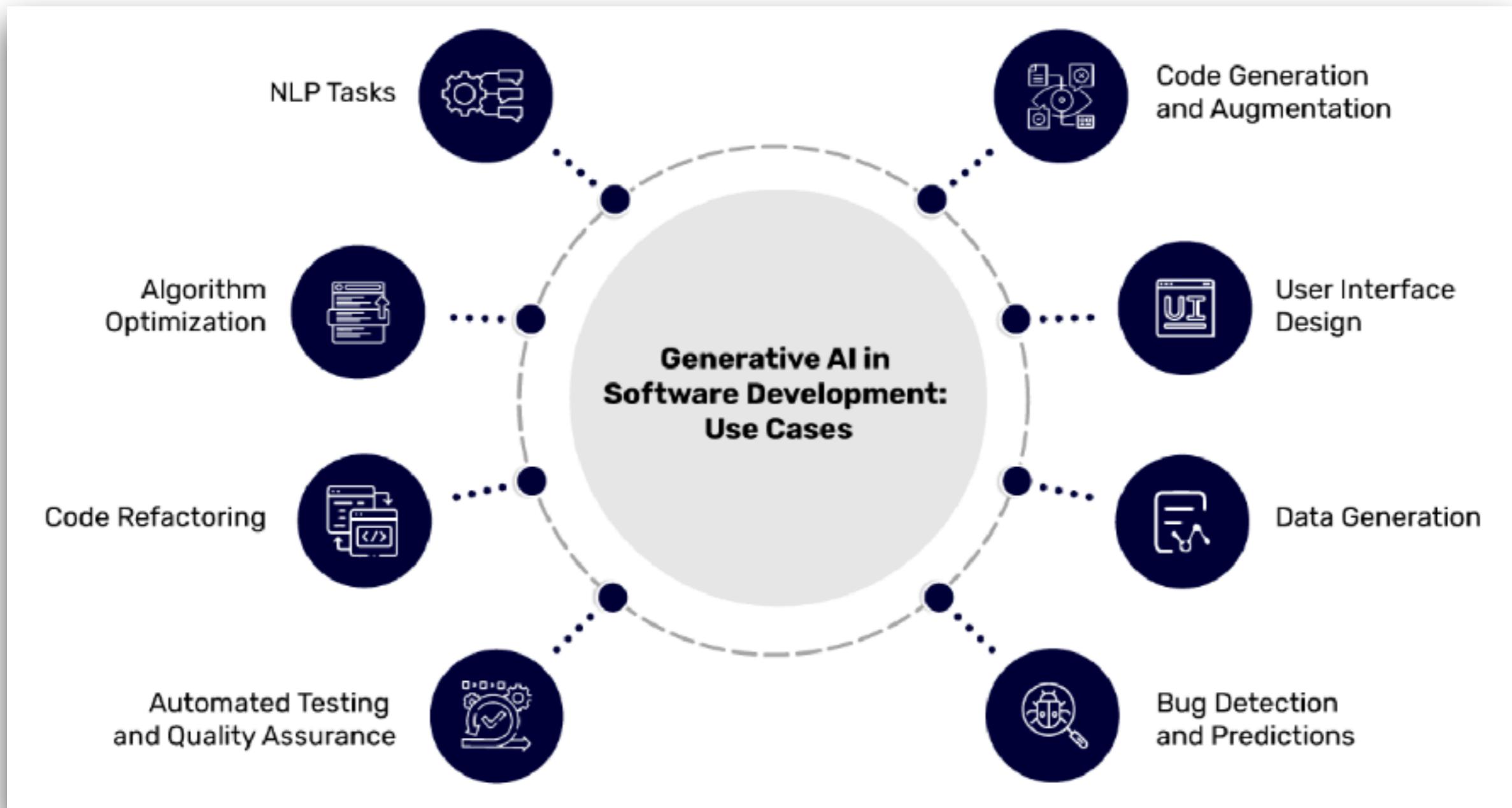
Runbook examples

Mitigation runbook

[pragmaticengineer.com](http://pragmaticengineer.com)



# SDLC



# Impacts with productivity ?

Automated  
simple tasks

Improve quality  
and reliability

Improve  
communication

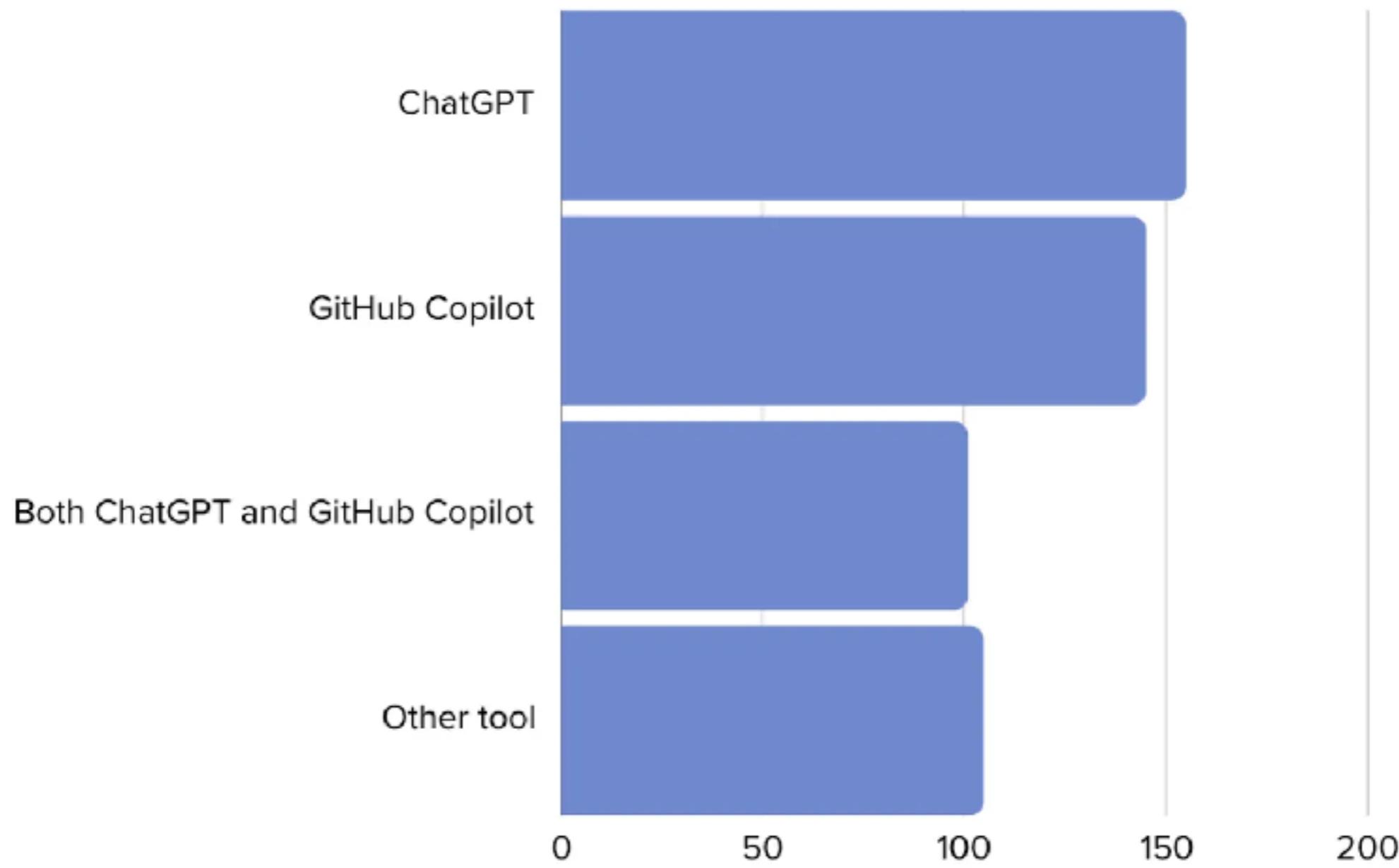
Faster  
prototype



# Survey



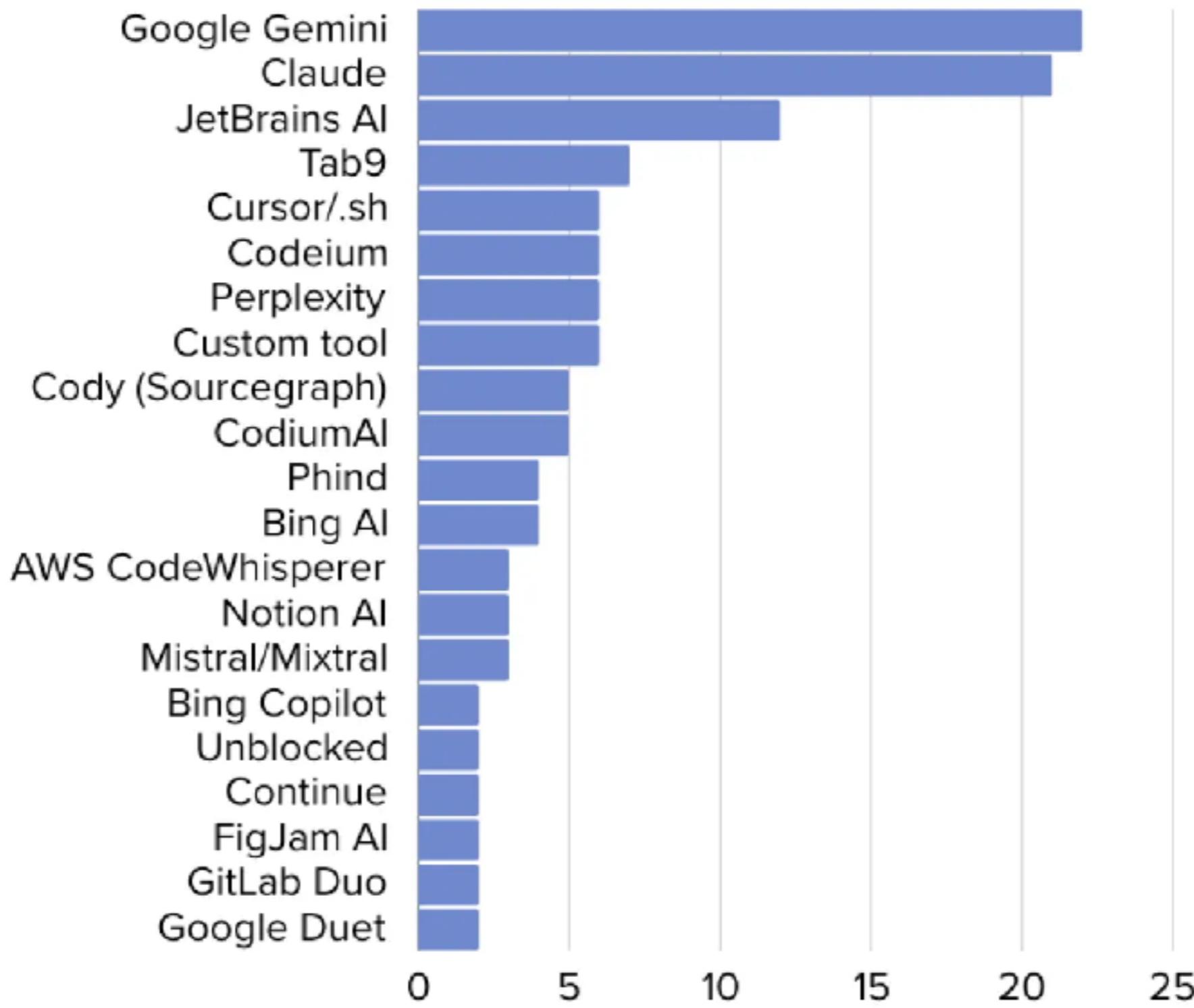
*"Which AI tools have you tried or used for software development?"*



pragmaticengineer.com

<https://newsletter.pragmaticengineer.com/p/ai-tooling-2024>



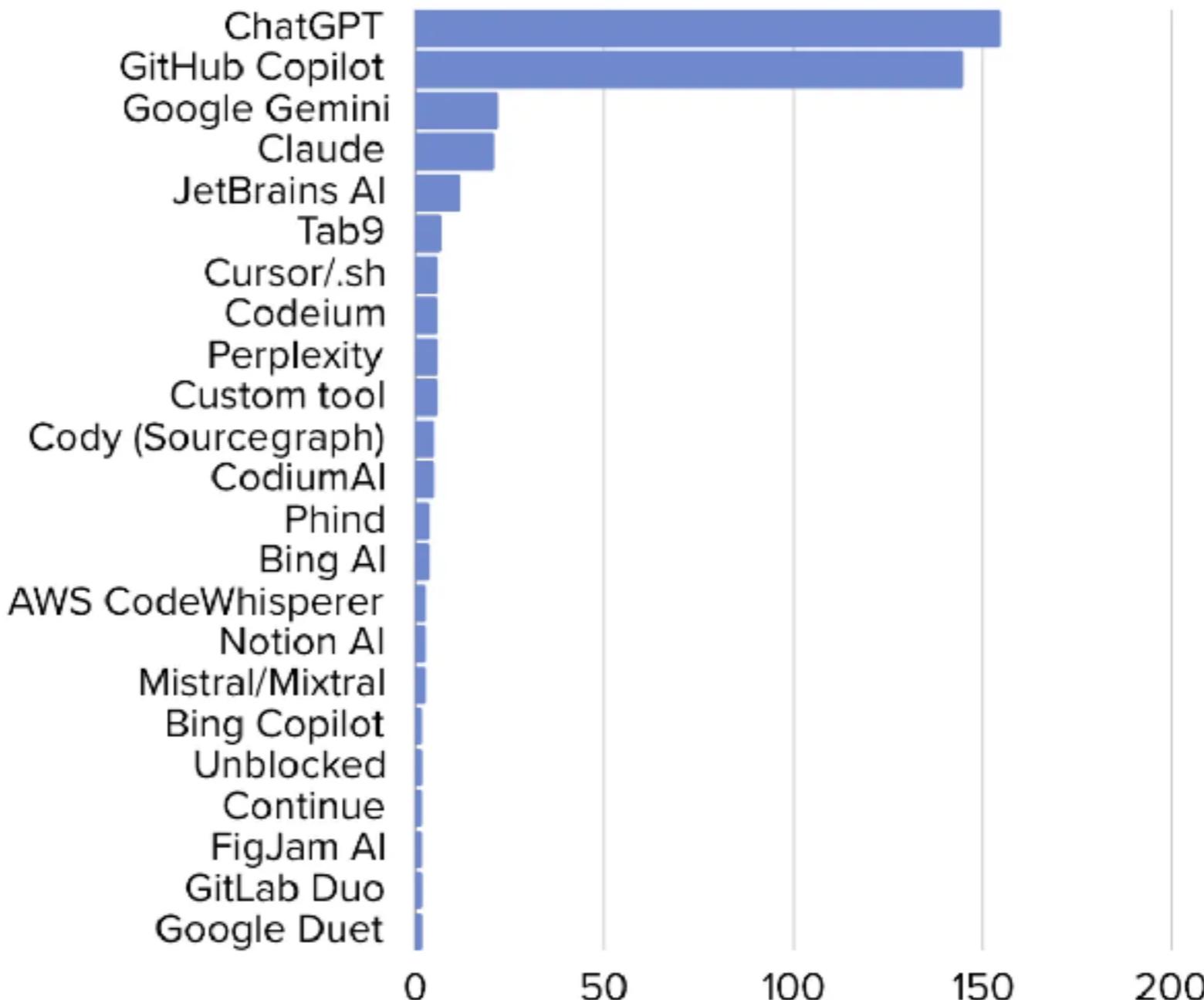


pragmaticengineer.com

<https://newsletter.pragmaticengineer.com/p/ai-tooling-2024>



**"Which AI tools have you tried or used for software development?"**



pragmaticengineer.com

<https://newsletter.pragmaticengineer.com/p/ai-tooling-2024>



**Generative AI isn't just a tool  
it's your team member**



# Requirement and Analysis



# Requirement and Analysis

Requirement

Design

Develop

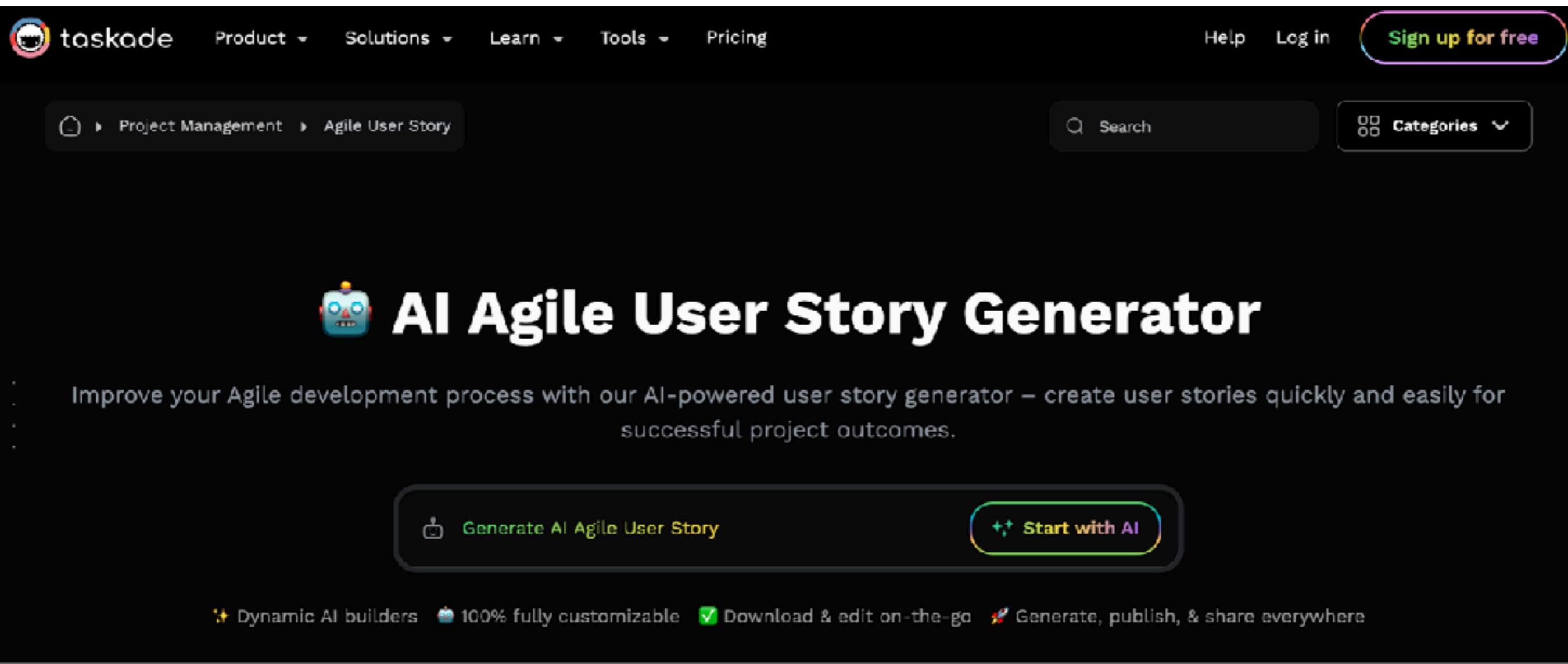
Testing

Deploy

Requirements writing and analysis  
User story generation



# Agents AI for Automated tasks



The screenshot shows the Taskade website's AI Agile User Story Generator page. At the top, there's a navigation bar with links for Product, Solutions, Learn, Tools, Pricing, Help, Log in, and a prominent 'Sign up for free' button. Below the navigation is a breadcrumb trail showing 'Project Management > Agile User Story'. To the right are search and categories filters. The main title 'AI Agile User Story Generator' is displayed with a small AI icon. A sub-headline explains the tool's purpose: 'Improve your Agile development process with our AI-powered user story generator – create user stories quickly and easily for successful project outcomes.' Two buttons are visible: 'Generate AI Agile User Story' and 'Start with AI'. Below these buttons, four features are listed with icons: Dynamic AI builders, 100% fully customizable, Download & edit on-the-go, and Generate, publish, & share everywhere.

taskade

Product Solutions Learn Tools Pricing Help Log in Sign up for free

Project Management Agile User Story

Search Categories

## AI Agile User Story Generator

Improve your Agile development process with our AI-powered user story generator – create user stories quickly and easily for successful project outcomes.

Generate AI Agile User Story Start with AI

Dynamic AI builders 100% fully customizable Download & edit on-the-go Generate, publish, & share everywhere

<https://www.taskade.com/generate/project-management/agile-user-story>



# Example with food delivery

**Food Delivery Workflow Template**

 **Order Processing #order**

- Check for new orders
  - Verify customer details
  - Confirm payment status
- Prepare order items
  - Gather ingredients
  - Cook or prepare food
  - Package items securely

 **Delivery Management #delivery**

- Assign delivery driver
- Plan delivery route
  - Prioritize multiple deliveries
  - Use GPS for directions
- Confirm delivery with customer
  - Send delivery notification
  - Obtain customer signature

 **Post-Delivery Tasks #postdelivery**

 What would you like to do next? ▶

 Create project ▷

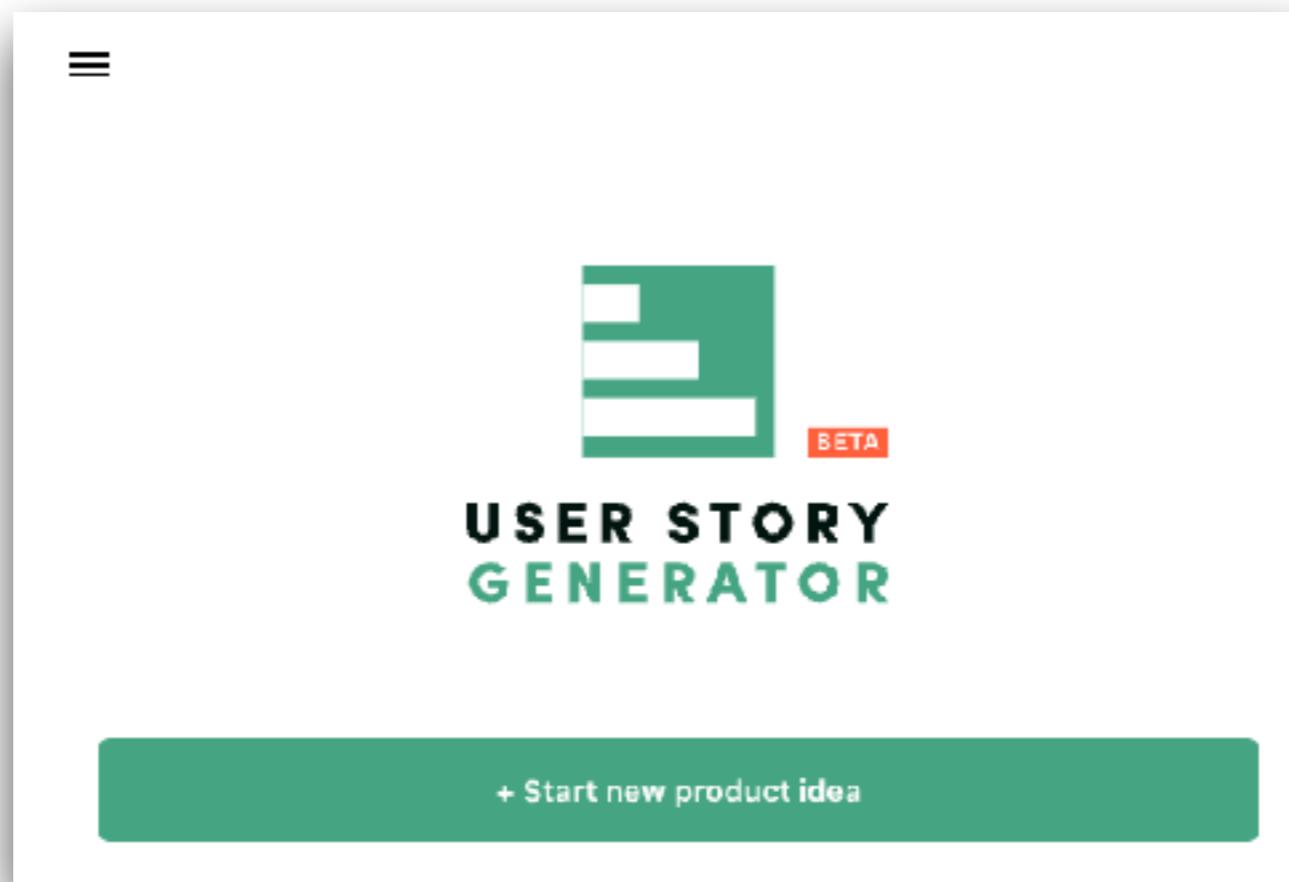
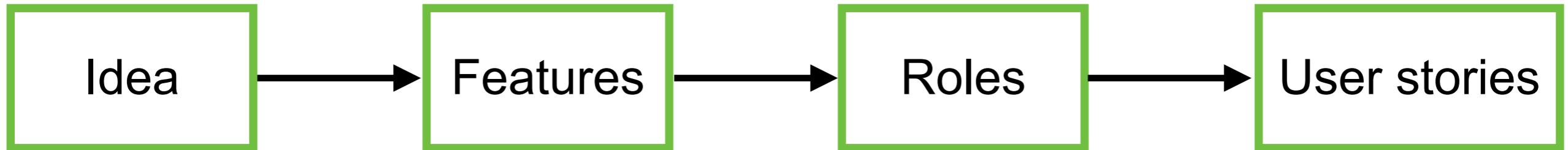
 Continue writing

 Make longer

<https://www.taskade.com/generate/project-management/agile-user-story>



# User Story Generator



<https://userstorygenerator.ai/>



# Notion AI Template

User Story Writer [AI Powered Notion Template]

View template

As Title	User Story	Acceptance Criteria	Notes	Business Value	Priority	Story Points
Password Reset Feature	As a user, I want to be able to reset my password using my registered email address or username associated with my account, so that I can regain access to my account in case I forget my password or suspect my account has been compromised.	- The user can reset their password using their registered email address or username associated with their account. - The password reset feature is accessible on all devices, including mobile and desktop. - The password reset email does not contain the user's password or other sensitive information. - The password reset link expires after a specified time period to prevent unauthorized access. - The password reset feature is not available if the user's account is locked or suspended.	- The password reset feature must be accessible to all users, including those with disabilities. - The password reset process must be secure and protect user data from potential threats. - The password reset feature must have a time limit for completion to prevent abuse. - The password reset feature must be logged for audit and security purposes. - The password reset feature must be tested thoroughly before deployment to ensure reliability and functionality.	High	High	3
Introduction	As a customer, I want to be able to introduce myself to the system.	As a customer, I want to be able to introduce myself to the system.	As a customer, I want to be able to introduce myself to the system.	Normal	Medium	4

<https://www.notion.so/templates/user-story-writer-ai-powered-notion-template>



# Product Owner ChatGPT Prompt

The screenshot shows a web page with a light blue header. In the top left corner is the PromptLeo logo, which consists of a purple hexagon containing a white icon of a head with a brain-like pattern. To the right of the logo is the word "PromptLeo". To the right of the logo are navigation links: "Docs", "Contact", "Pricing", "Log In", "Sign Up", and a small user icon. The main title "Product Owner ChatGPT Prompts" is centered in large, bold, dark blue font. Below the title is a paragraph of text: "With so many tools available in 2023, it can be difficult to know how you can get the most out of ChatGPT. To help you out, this page offers over 100 ChatGPT prompt examples, ideas, and templates focusing on prompts for product owners." The background of the page has a subtle grid pattern.

**Product Owner ChatGPT Prompts**

With so many tools available in 2023, it can be difficult to know how you can get the most out of ChatGPT. To help you out, this page offers over 100 ChatGPT prompt examples, ideas, and templates focusing on prompts for product owners.

<https://promptleo.com/prompt/chatgpt/product-owner>



# Design Process



# Design

Requirement

Design

Develop

Testing

Deploy

Architecture writing assistance

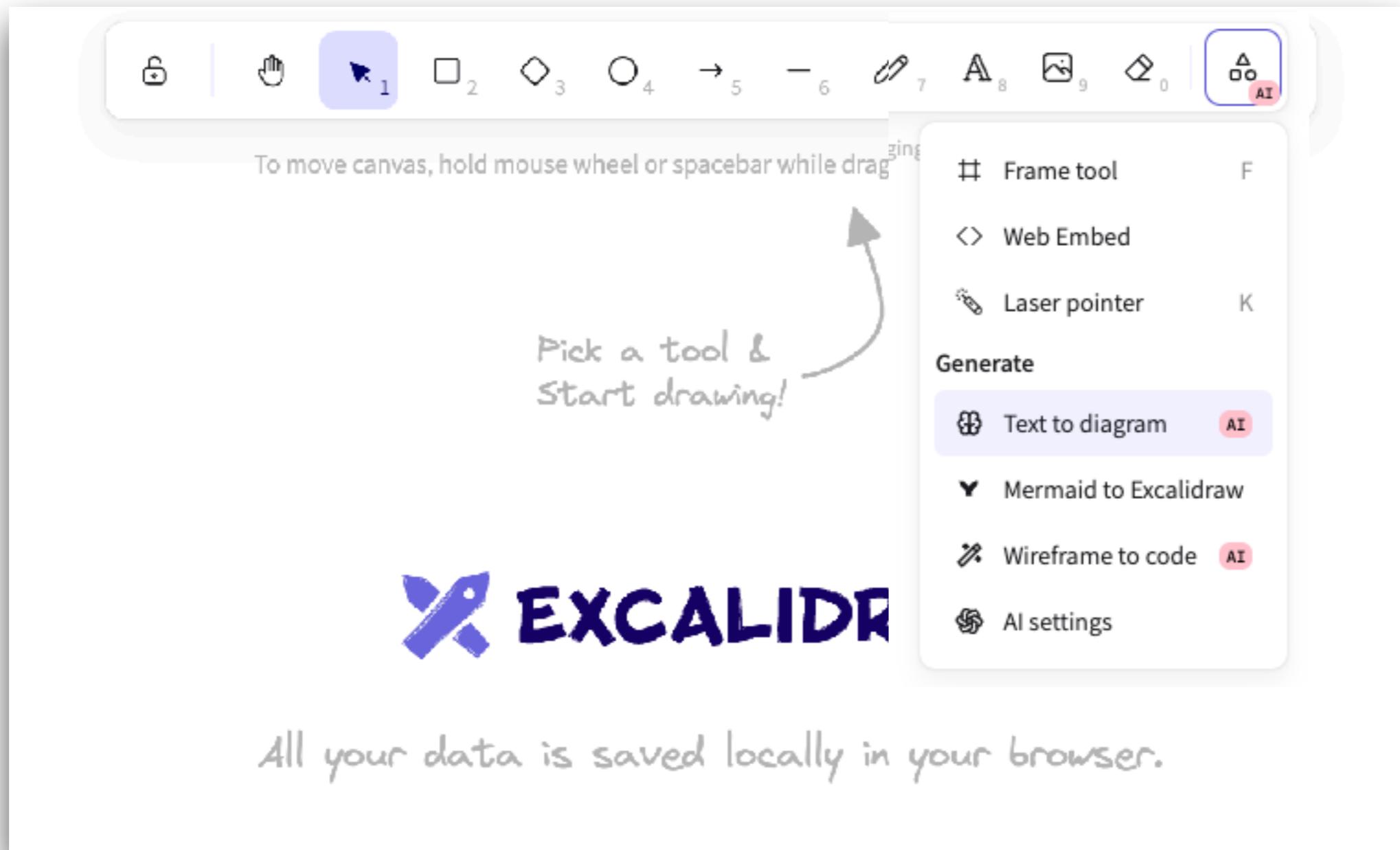
Sequence flow diagram generation

Data modeling

UX/UI design assistance



# Excalidraw with AI



<https://excalidraw.com/>



# Demo

## Text to diagram

AI Review

## Mermaid

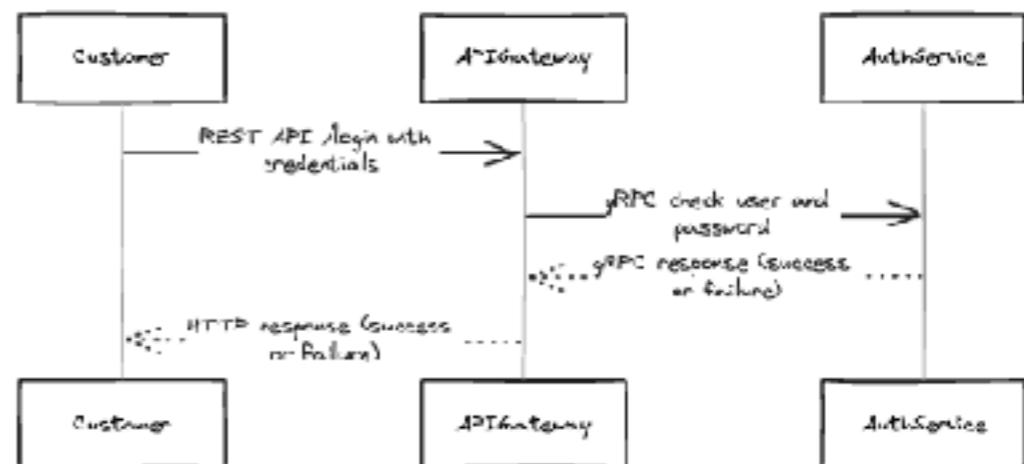
*Currently we use Mermaid as a middle step, so you'll get best results if you describe a diagram, workflow, flow chart, and similar.*

## Prompt

9 requests left today

Preview

Try to generate authentication service from below  
1. Customer call api gateway with REST API /login  
2. Api gateway check user and password from auth service via gRPC  
3. API gateway send response to client



Generate →

Cmd Enter

[View as Mermaid](#) →

Insert →



# v0.dev

The screenshot displays the v0.dev platform's user interface. At the top, there is a navigation bar with a logo on the left and a "Private Beta" button on the right. Below the navigation bar, a dark modal window titled "A 'report an issue' modal" is open, featuring three small icons: a square with a diagonal line, a checkmark, and a left arrow. Underneath the modal, there are four small buttons labeled "Product categories", "Hero section", "Contact form", and "Ecommerce dashboard". The main content area is divided into two sections: "New Generations" and "Featured". The "New Generations" section contains four wireframe examples: "Soccer Game", "Enhance Your Education Journey", "A website in a black and white theme", and "product tour like appcues". Each example has a small circular profile picture of a person at the bottom left and a descriptive text bubble at the bottom right. The "Featured" section contains two wireframes: "Data" and "Products", each with its own profile picture and text bubble.

<https://v0.dev/>



# OpenUI

User Profile Card

I need a user profile card with an avatar, name, and social media links in Tailwind CSS.

Version 0

HTML JSX

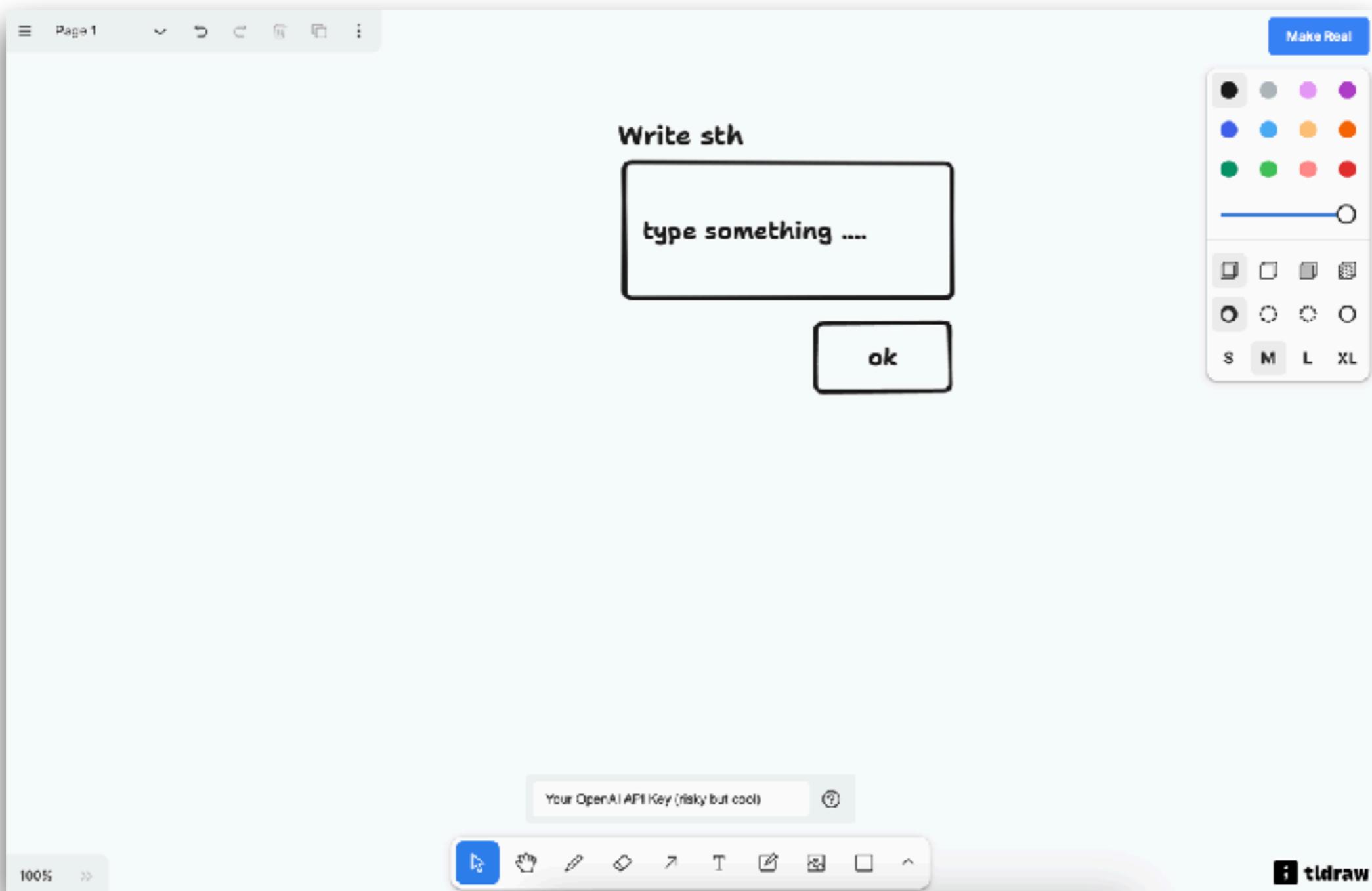
```
<div class="bg-card dark:bg-card-foreground text-card-foreground dark:text-card-foreground">
  <div class="flex items-center justify-center">
    
  </div>
  <div class="text-center mt-4">
    <h2 class="text-lg font-bold">John Doe</h2>
    <div class="mt-2">
      <a href="#" class="text-primary hover:underline">Twitter</a>
      <span class="mx-2">></span>
      <a href="#" class="text-primary hover:underline">LinkedIn</a>
      <span class="mx-2">></span>
      <a href="#" class="text-primary hover:underline">GitHub</a>
    </div>
  </div>
</div>
```

Ask for changes to the current UI

<https://openui.fly.dev/>



# Make Real



<https://github.com/tldraw/make-real>



# Screenshot to Code

Screenshot to Code

Sign in   Get started

## Build User Interfaces 10x Faster

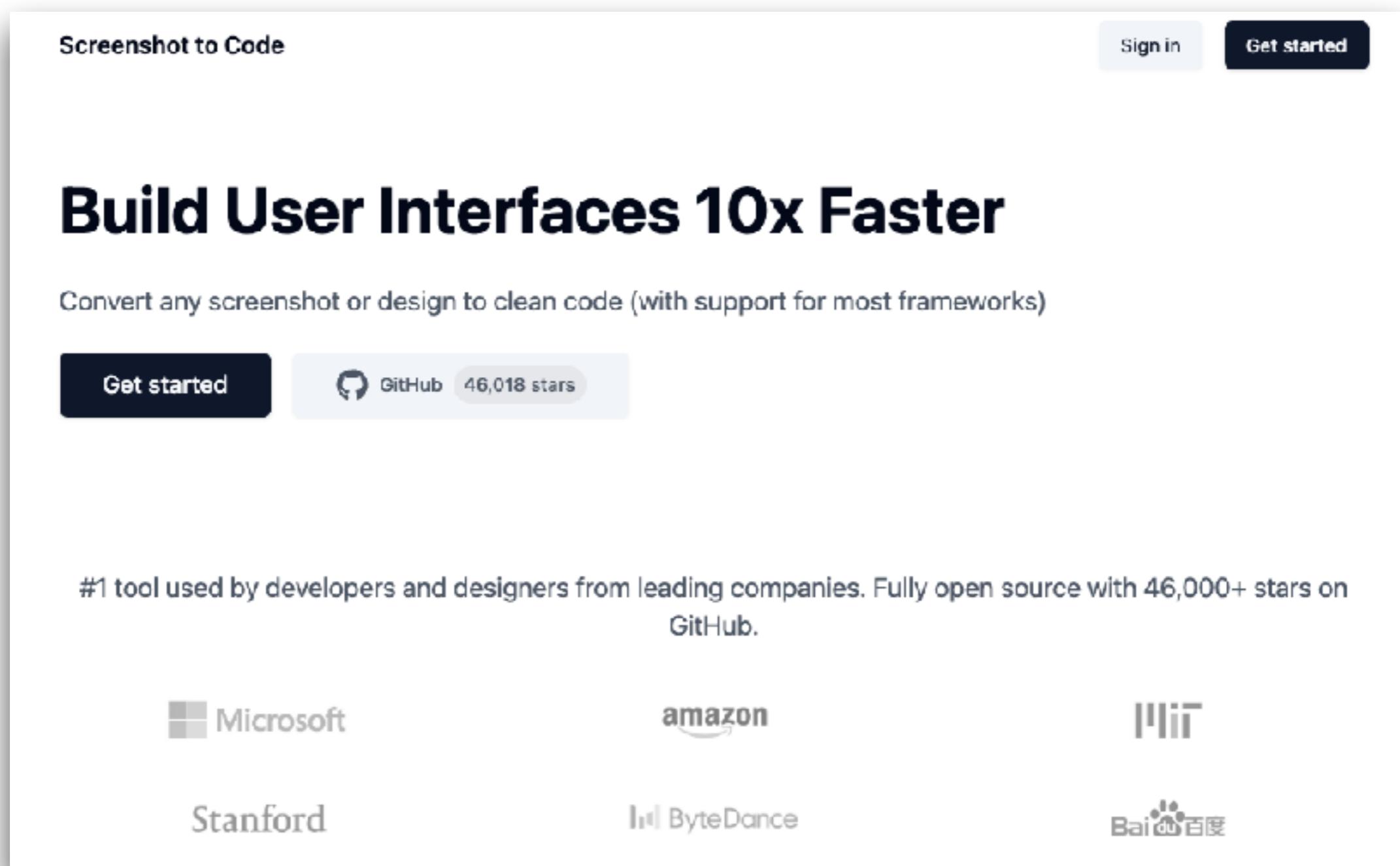
Convert any screenshot or design to clean code (with support for most frameworks)

Get started   GitHub 46,018 stars

#1 tool used by developers and designers from leading companies. Fully open source with 46,000+ stars on GitHub.

Microsoft   Amazon   MIT

Stanford   ByteDance   Baidu 百度



<https://screenshottocode.com/>



# Demo

The image shows a screenshot of the Screenshot to Code AI interface. On the left, there's a sidebar titled "Screenshot to Code" with settings for "Generating" (HTML + Tailwind) and "AI Model" (GPT-4o). Below this is a progress bar indicating "Generating images..." and a preview of the original screenshot of a Google search results page for "Google Logo". The main area shows the generated code output, which includes the HTML structure and some CSS (e.g., `color: blue; font-size: 0.8em;`). The generated code is displayed in a large, rounded rectangle.

Your account

Desktop Mobile Code

Generating: HTML + Tailwind

AI Model: GPT-4o

Generating images...

```
class="text-blue-500">English</a></div></body></html>
```

Cancel

ORIGINAL SCREENSHOT

Google Logo

ค้นหาด้วย Google ต้องการคำค้นแบบไหน

ผลลัพธ์ Google ใน: English

<https://screenshottocode.com/>



# GPT Engineer

## Build for the web 10x faster

Chat with AI to build web apps. Sync with GitHub. One-click deploy.

A page showing top stories from Hacker News



A landing page for my startup



An app to help me track my crypto portfolio



A dashboard to manage my startup's operations



Describe your front-end...

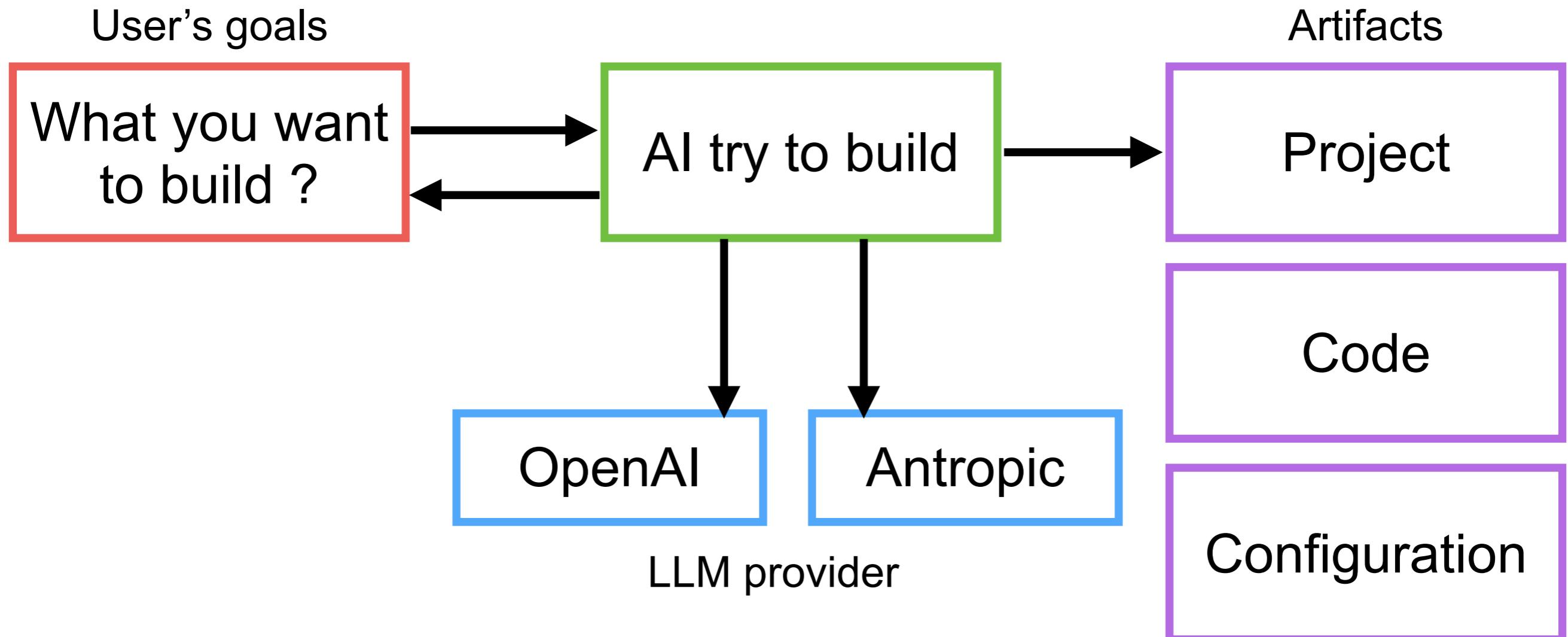


Build front-end with React, Tailwind & Vite.

<https://gptengineer.app/>



# GPT Engineer



<https://gptengineer.app/>



# Database

The screenshot shows the Postgres New interface. At the top, there are tabs for "New database", "Diagram", and "Migrations". Below the tabs, there are two tables:

- shipping\_addresses**:
  - id (Primary key)
  - user\_id (Foreign key referencing users.id)
  - address\_line1
  - address\_line2
  - city
  - state
  - postal\_code
  - country
- users**:
  - id (Primary key)
  - name
  - email

On the right side of the interface, there is a sidebar with the following text:

Create table of user that have many shipping address

Executed SQL

The tables 'users' and 'shipping\_addresses' have been created successfully. Here's a brief overview:

- Users Table:** Contains user information with columns for 'id', 'name', and 'email'.
- Shipping Addresses Table:** Stores multiple addresses for each user, with columns for 'id', 'user\_id' (foreign key referencing 'users'), 'address\_line1', 'address\_line2', 'city', 'state', 'postal\_code', and 'country'.

Conversation renamed to User and Shipping Address Management chance

PG 18 | Local-only database

Toggle theme

Primary key Identity Unique Nullable

Message AI or write SQL

<https://postgres.new/>



# Development Process



# Develop

Requirement

Design

Develop

Testing

Deploy

Code generation

Review and explain code

Debugging code

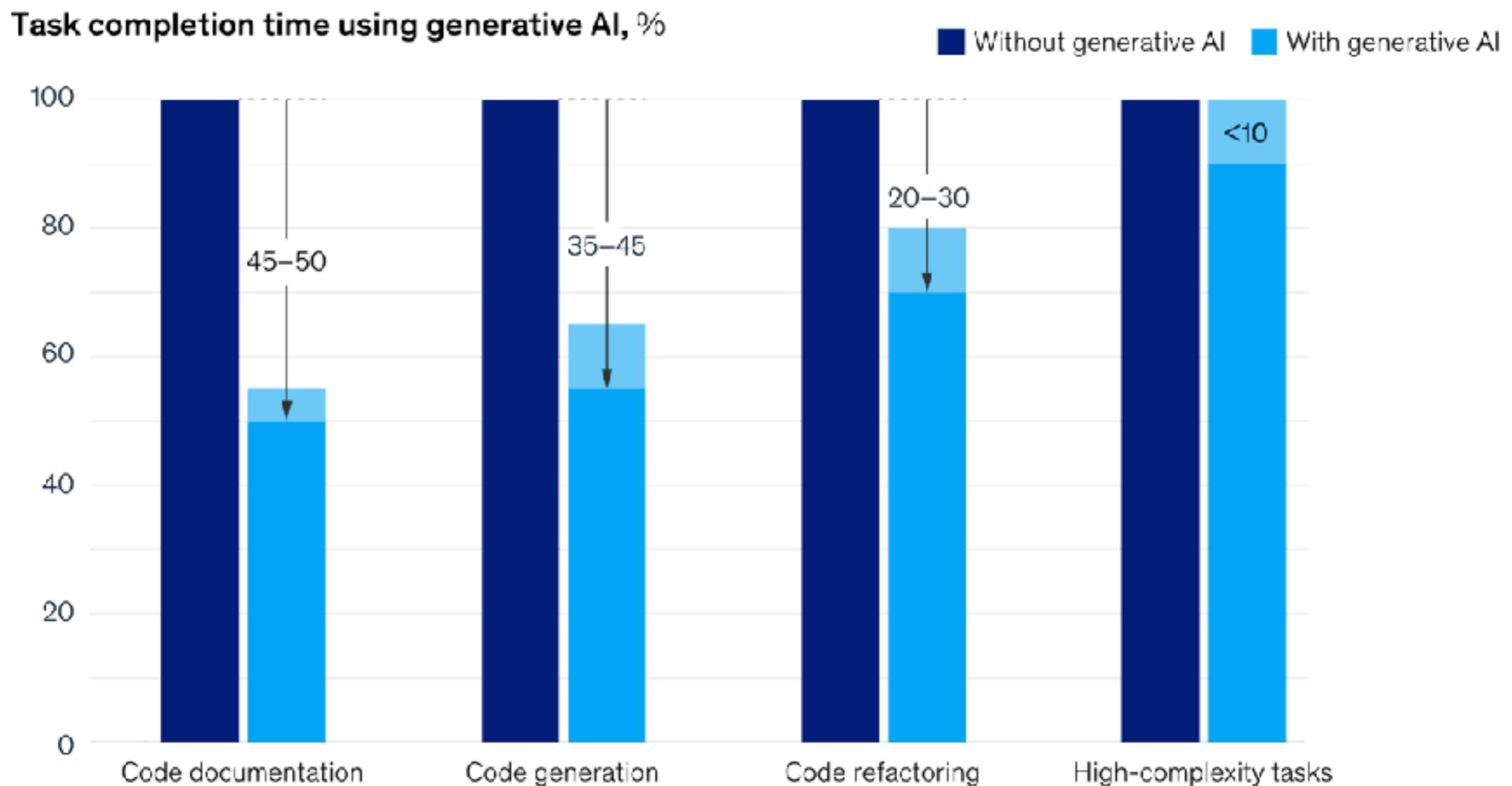
Improve consistency

Code translation



# Development

**Generative AI can increase developer speed, but less so for complex tasks.**



<https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/unleashing-developer-productivity-with-generative-ai>



# Tools (Seamless with developer)

GitHub Copilot

Codium AI

aider

Continue

Bito



# Category of Tools

Chat AI

Code AI

Agent AI

ChatGPT  
Gemini  
Claude.ai  
Bing



# Category of Tools

Chat AI

ChatGPT  
Gemini  
Claude.ai  
Bing

Code AI

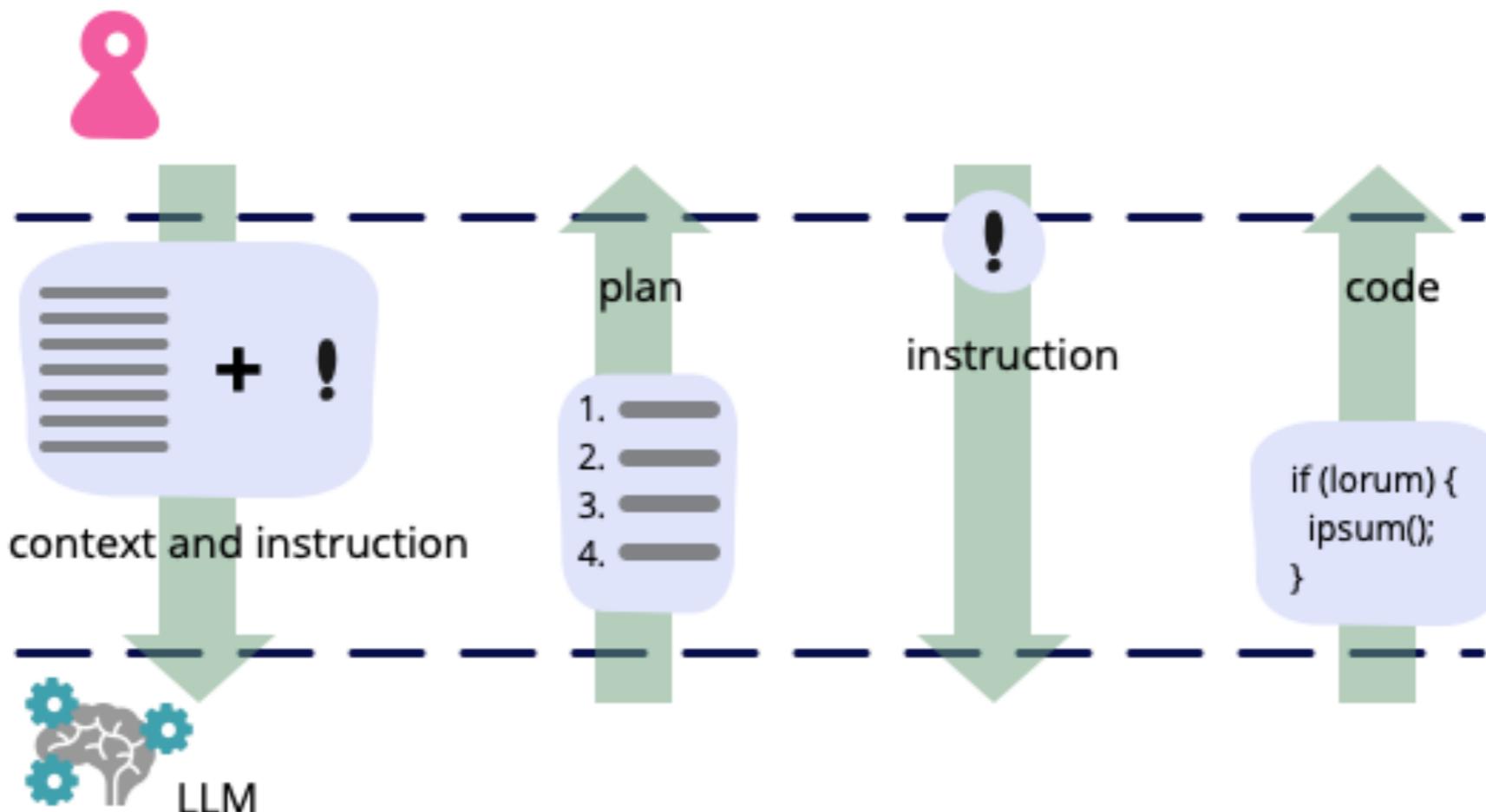
GitHub Copilot

AI Agent  
Public and Local

Aider  
Continue  
Codium



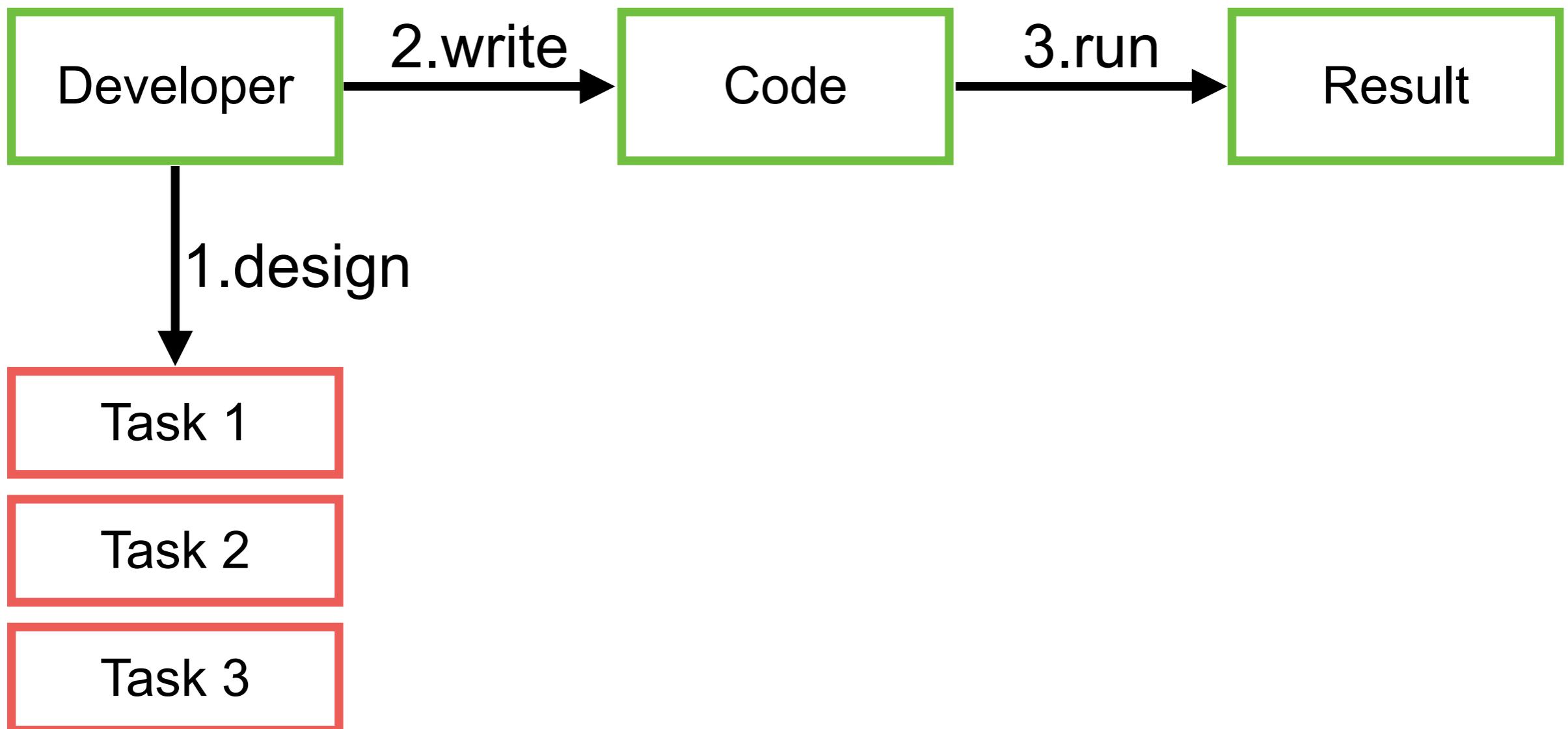
# Development



<https://martinfowler.com/articles/2023-chatgpt-xu-hao.html>

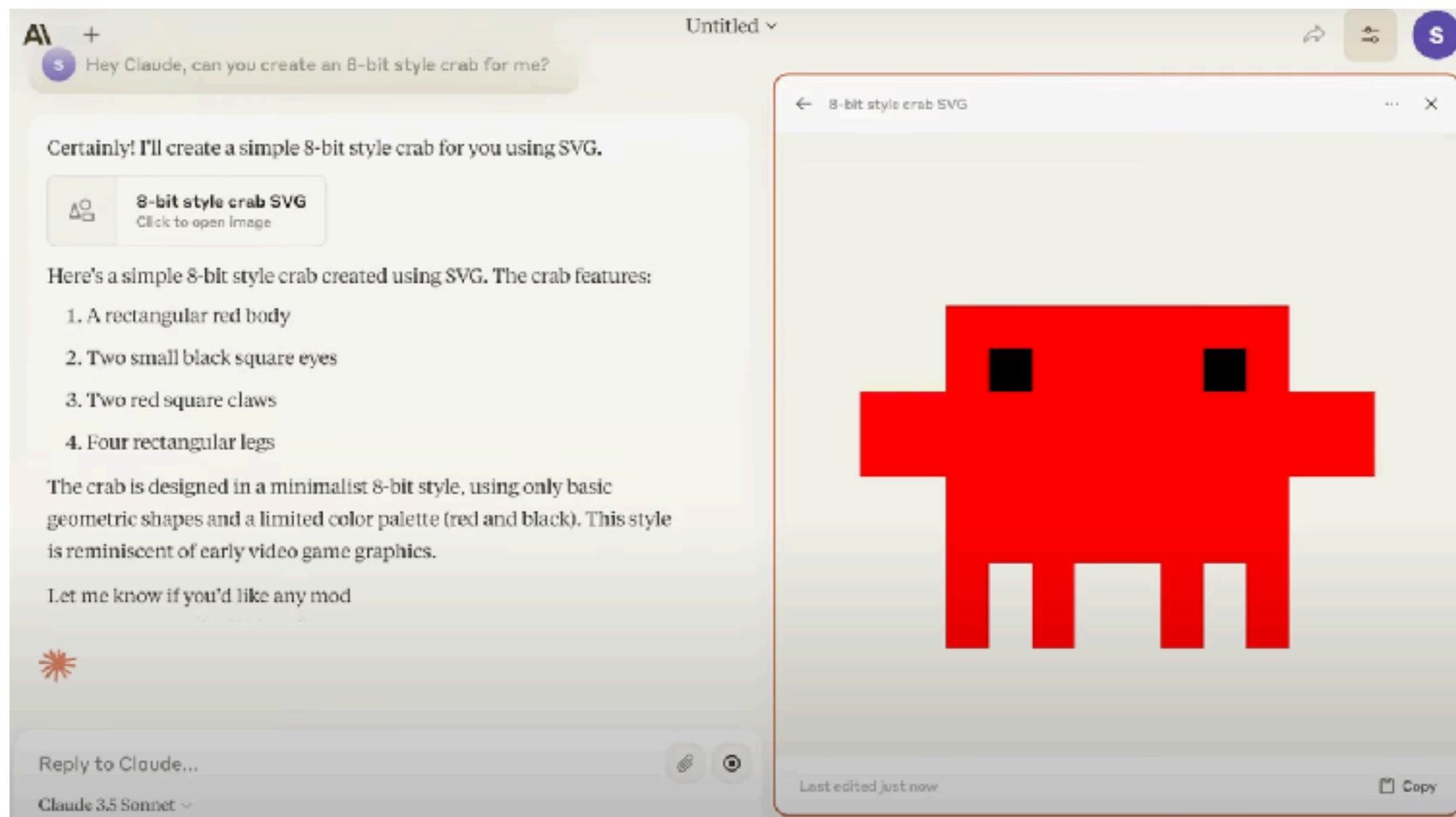


# Development



# Claude AI + Artifact

Try to automatically compile and run generated code



<https://www.anthropic.com/news/clause-3-5-sonnet>



# Demo

Claude Q Generate "Hello World" SVG ...

generate svg file for word "Hello World"

✖ Edit

Certainly! I'll create an SVG file with the text "Hello World." for you.

🔗 Hello World SVG  
Click to open image

I've created an SVG file containing the text "Hello World". Here are some details about the SVG:

1. The SVG has a viewBox of 0 0 200 100, which means it has a width of 200 units and a height of 100 units.
2. The text "Hello World" is positioned at x=10 and y=50 within this viewBox.
3. The font used is Arial (with a sans-serif fallback), and the font size is 24 units.
4. The text color is black.

You can use this SVG in various ways, such as embedding it in a webpage or using it as a standalone image. The SVG format allows for scaling without loss of quality, making it suitable for various display sizes.

Would you like me to explain any part of the SVG code or make any modifications to the design?

Copy Retry ...

✳️

Claude can make mistakes. Please double-check responses.

Subscribe to Pro for 5x more usage with Claude 3.5 Sonnet. Subscribe to Pro X

Reply to Claude... ...

Claude 3.5 Sonnet A. 1

Last edited just now ... Publish

<https://claude.ai/>



# Demo

The screenshot shows the Claude AI interface with a demo titled "React Login Form with Tailwind CSS".

**Left Panel (Demo Preview):**

- Title:** Create login form with reactjs and tailwind css
- Description:** I'd be happy to create a login form using React and Tailwind CSS for you. This is a great use case for a reusable component, so I'll create it as a React artifact.
- Component Preview:** A button labeled "React Login Form with Tailwind CSS Click to open component".
- List of Features:**
  1. A form with email and password input fields
  2. State management for email and password using React hooks
  3. A submit handler that logs the email and password (you'll need to replace this with your actual login logic)
  4. Tailwind CSS classes for styling, including responsive design
  5. A "Remember me" checkbox
  6. A "Forgot your password?" link
  7. A submit button
- Usage Instructions:** To use this component in your React application:
  1. Make sure you have React and Tailwind CSS set up in your project.
  2. Copy this component into your project.

**Bottom Left (User Interaction):**

- Subscribe to Pro for 5x more usage with Claude 3.5 Sonnet.
- Reply to Claude...
- Claude 3.5 Sonnet 2 1

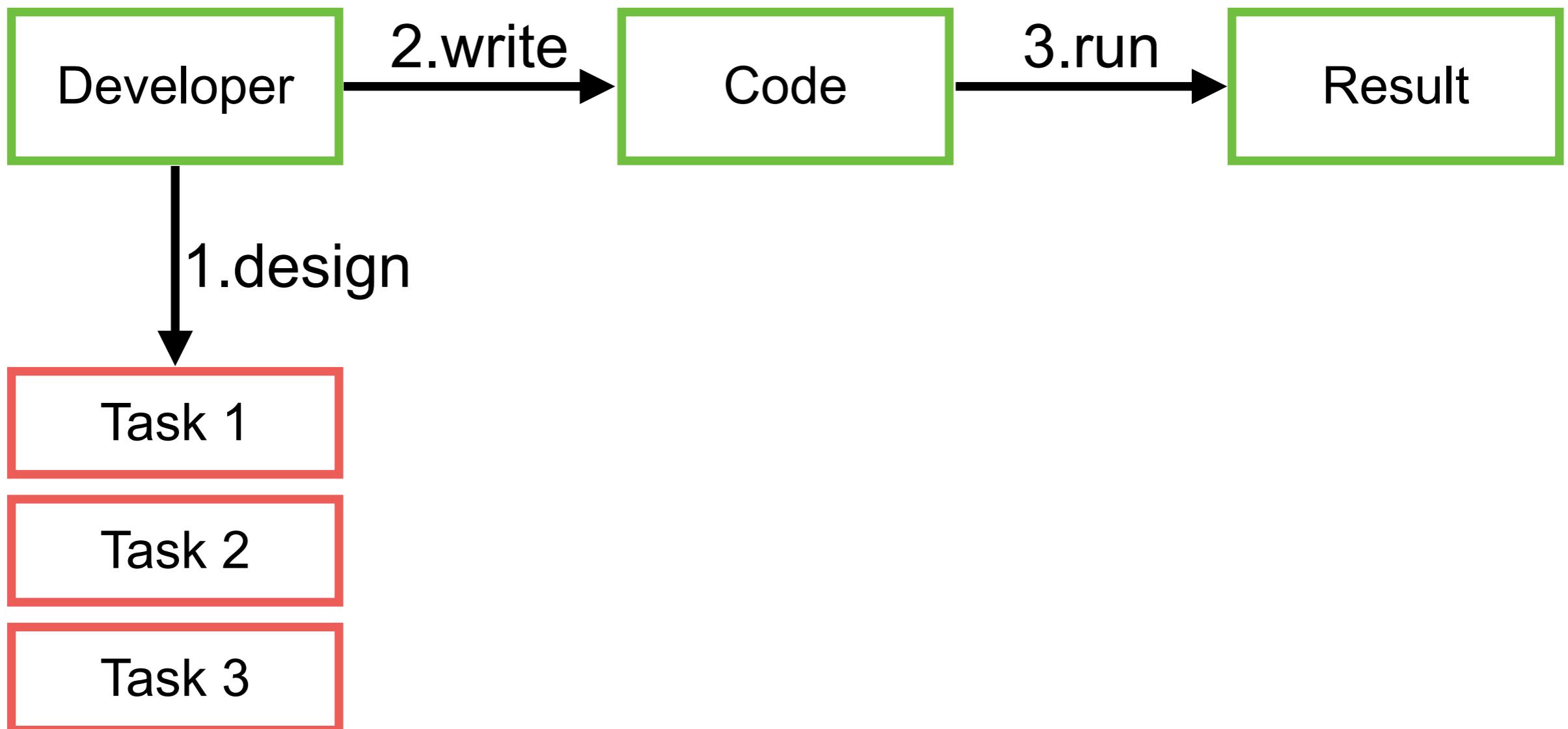
**Right Panel (Code Preview):**

- Title:** React Login Form with Tailwind CSS
- Content:** A sign-in form with fields for Email address and Password, a Remember me checkbox, a Forgot your password? link, and a Sign in button.
- Status:** Last edited just now
- Actions:** Publish

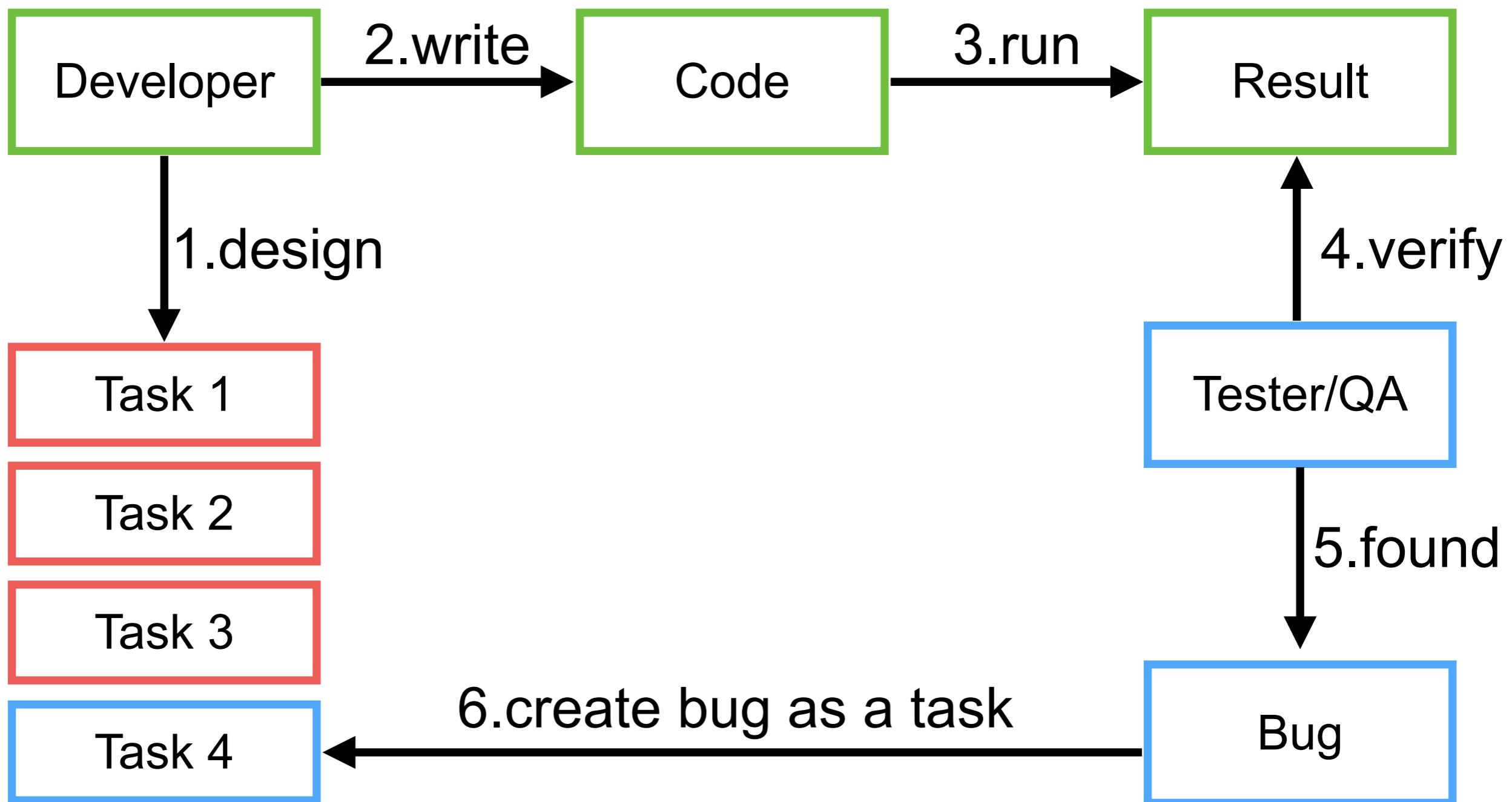
<https://claude.ai/>



# Development



# Development + Testing



# Main Features

Ask question

Generate code

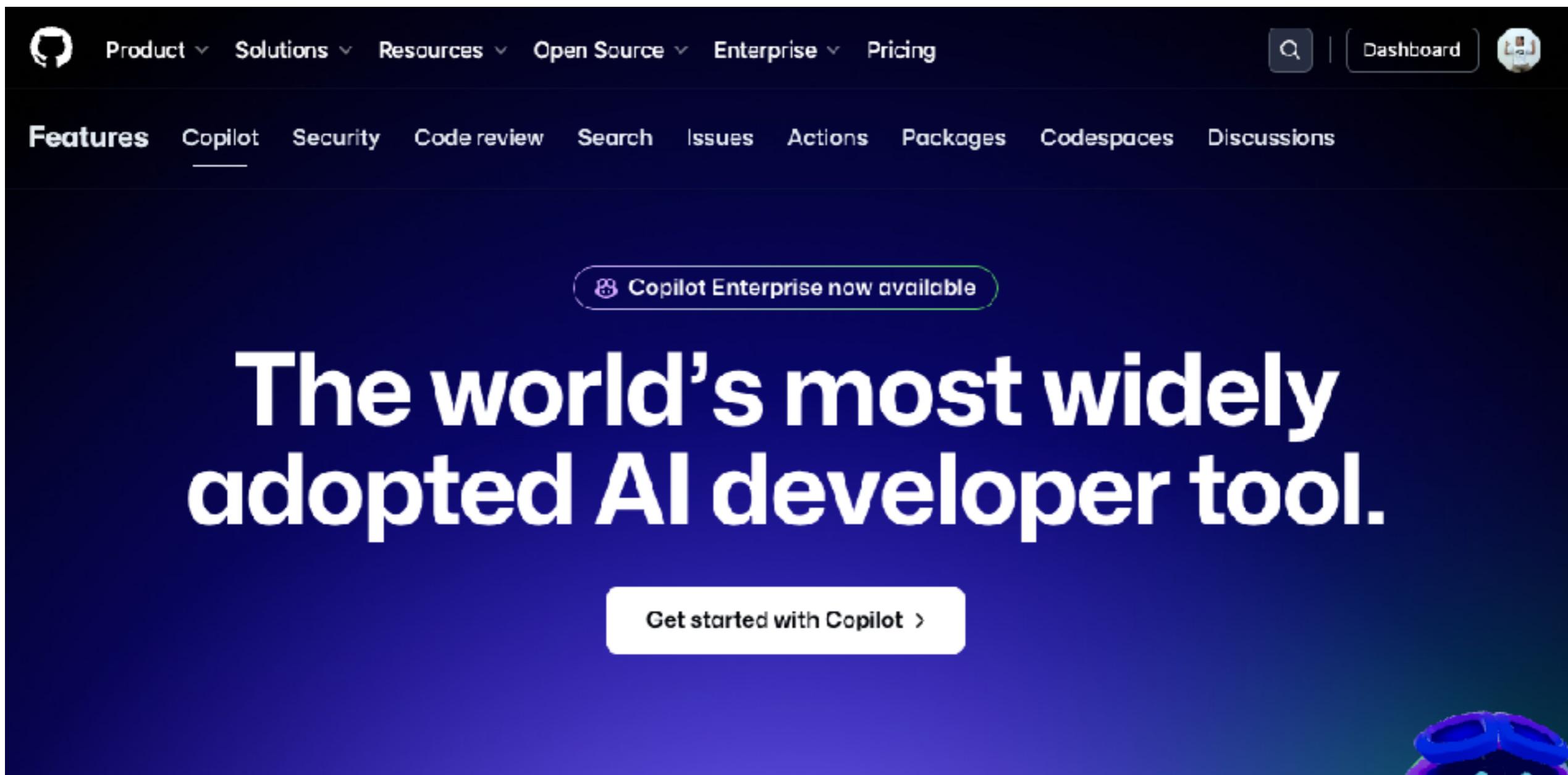
Refactor code

Document code

Find problems in your code



# GitHub Copilot



The screenshot shows the GitHub Copilot landing page. At the top, there's a navigation bar with links for Product, Solutions, Resources, Open Source, Enterprise, Pricing, a search bar, a dashboard button, and a user profile icon. Below the navigation is a secondary navigation bar with links for Features, Copilot (which is underlined), Security, Code review, Search, Issues, Actions, Packages, Codespaces, and Discussions. A prominent banner in the center says "Copilot Enterprise now available". The main headline reads "The world's most widely adopted AI developer tool." Below the headline is a button labeled "Get started with Copilot >". In the bottom right corner, there's a small, stylized blue and purple AI character.

<https://github.com/features/copilot>



# Using GitHub Copilot Chat correlates with better code quality

---

85% of developers felt more confident in their code quality when authoring code with GitHub Copilot and GitHub Copilot Chat

**85%**



Code reviews were more actionable and completed 15% faster than without GitHub Copilot Chat

**15%**



88% of developers reported maintaining flow state with GitHub Copilot Chat

**88%**



# Auto pilot with Code

 Continue

Enterprise

About Us

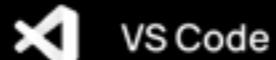
Docs

Blog



## Amplified developers, automated development

The leading open-source AI code assistant. You can connect any models and any context to build custom autocomplete and chat experiences inside the IDE



VS Code



JetBrains

<https://github.com/continuedev/continue>



# CodeGPT



Academy Developers ▾ Partners Pricing Business Solutions

Get Started

## AI Coding for Developers

Explore our **AI Code Assistants** and **Copilot Generator Platform**, tailored for AI coding. We offer the perfect solution, specifically designed to make it simple for the engineering teams to code using AI.

Create Free Account

Download VSCode/Cursor Extension

<https://codegpt.co/>



AI for Software Development  
© 2020 - 2024 Siam Chamnankit Company Limited. All rights reserved.

123

# Code Review

The screenshot shows the homepage of the Codium AI website. At the top, there is a dark blue header with the Codium AI logo on the left and navigation links for Products, Pricing, Blog, Contact, and About on the right. The main title "Generating meaningful tests for busy devs" is displayed in large, white, sans-serif font. Below the title, a descriptive paragraph explains the product's purpose: "With CodiumAI, you get non-trivial tests (and trivial, too!) suggested right inside your IDE or Git platform, so you can code smart and stay confident when you push. Code, as you meant it." At the bottom of the main section, there is a call-to-action button labeled "Get your FREE Codiumate now:" followed by two smaller buttons for "VS Code" and "JetBrains".

**Codium<sup>ai</sup>** Products ▾ Pricing Blog Contact About ▾

# Generating meaningful tests for busy devs

With CodiumAI, you get non-trivial tests (and trivial, too!) suggested right inside your IDE or Git platform, so you can code smart and stay confident when you push. **Code, as you meant it.**

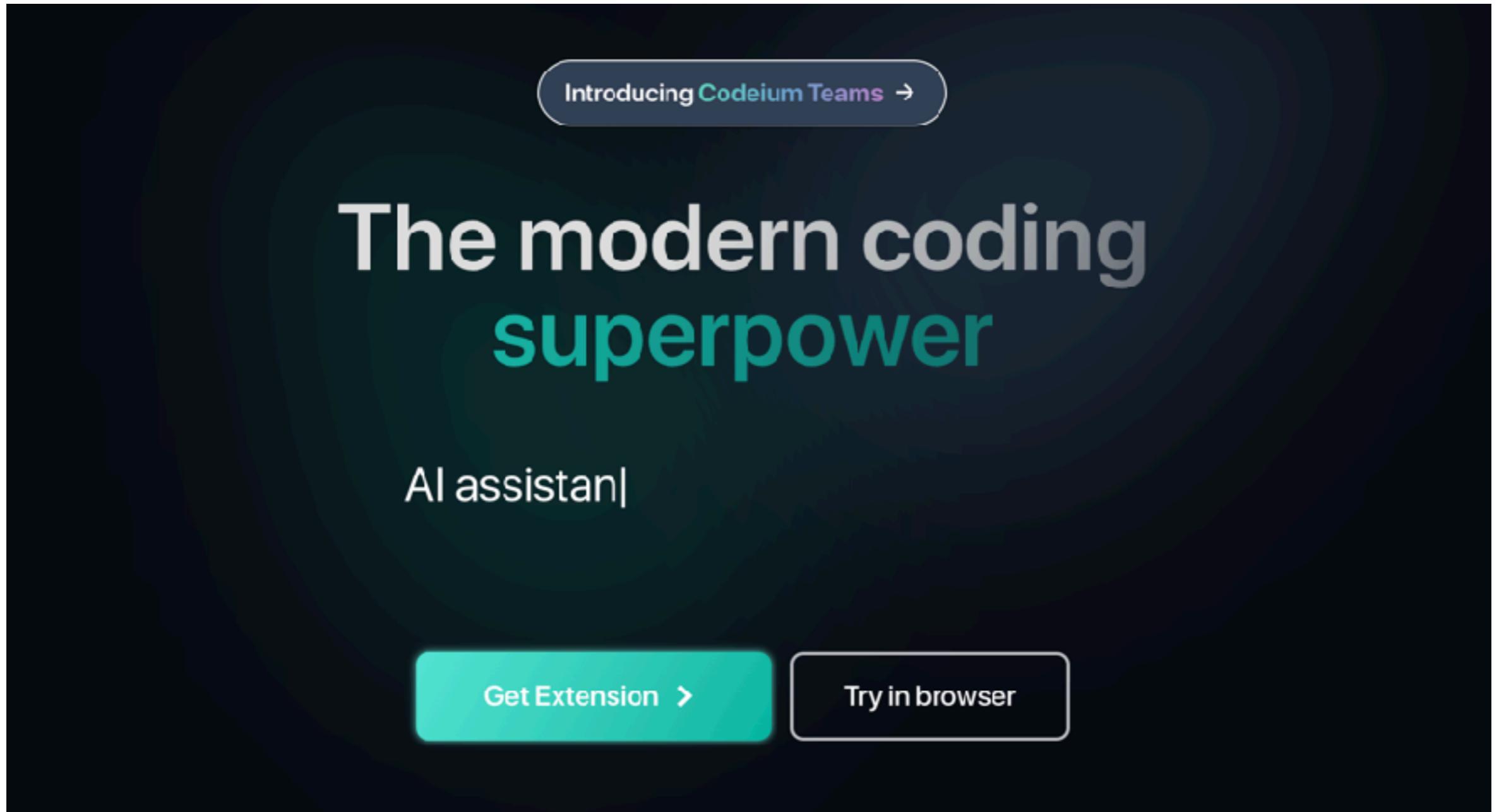
Get your **FREE Codiumate** now:

**VS Code** > **JetBrains** >

<https://www.codium.ai/>



# Code Review

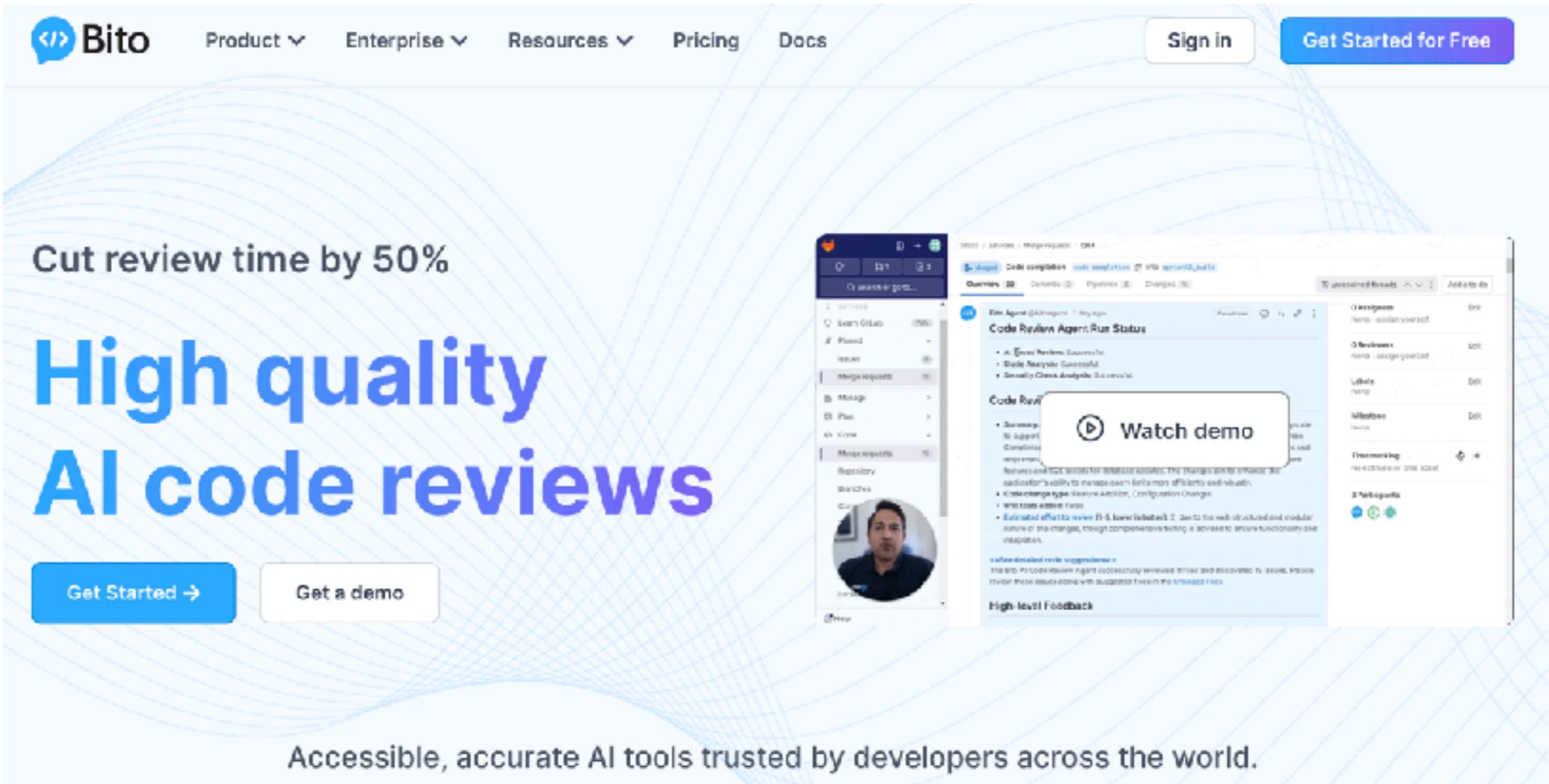


The landing page for Codeium features a dark background with a green-to-black gradient overlay. At the top right, a blue button reads "Introducing Codeium Teams →". Below it, the main headline "The modern coding superpower" is displayed in large, white and green text. A sub-headline "AI assistant" is partially visible. At the bottom, two buttons are shown: a teal one labeled "Get Extension >" and a white one labeled "Try in browser".

<https://codeium.com/>



# AI Code Review



The screenshot shows the Bito AI Code Review homepage. At the top, there's a navigation bar with links for Product, Enterprise, Resources, Pricing, and Docs, along with Sign In and Get Started for Free buttons. The main headline reads "Cut review time by 50% High quality AI code reviews". Below this are two buttons: "Get Started" and "Get a demo". To the right, there's a large screenshot of the Bito interface showing a sidebar with options like "Merge Requests" and a video feed of a developer. The main panel displays a "Code Review Agent Run Status" section with a list of successful tasks and a "Watch demo" button. At the bottom, a footer states "Accessible, accurate AI tools trusted by developers across the world."

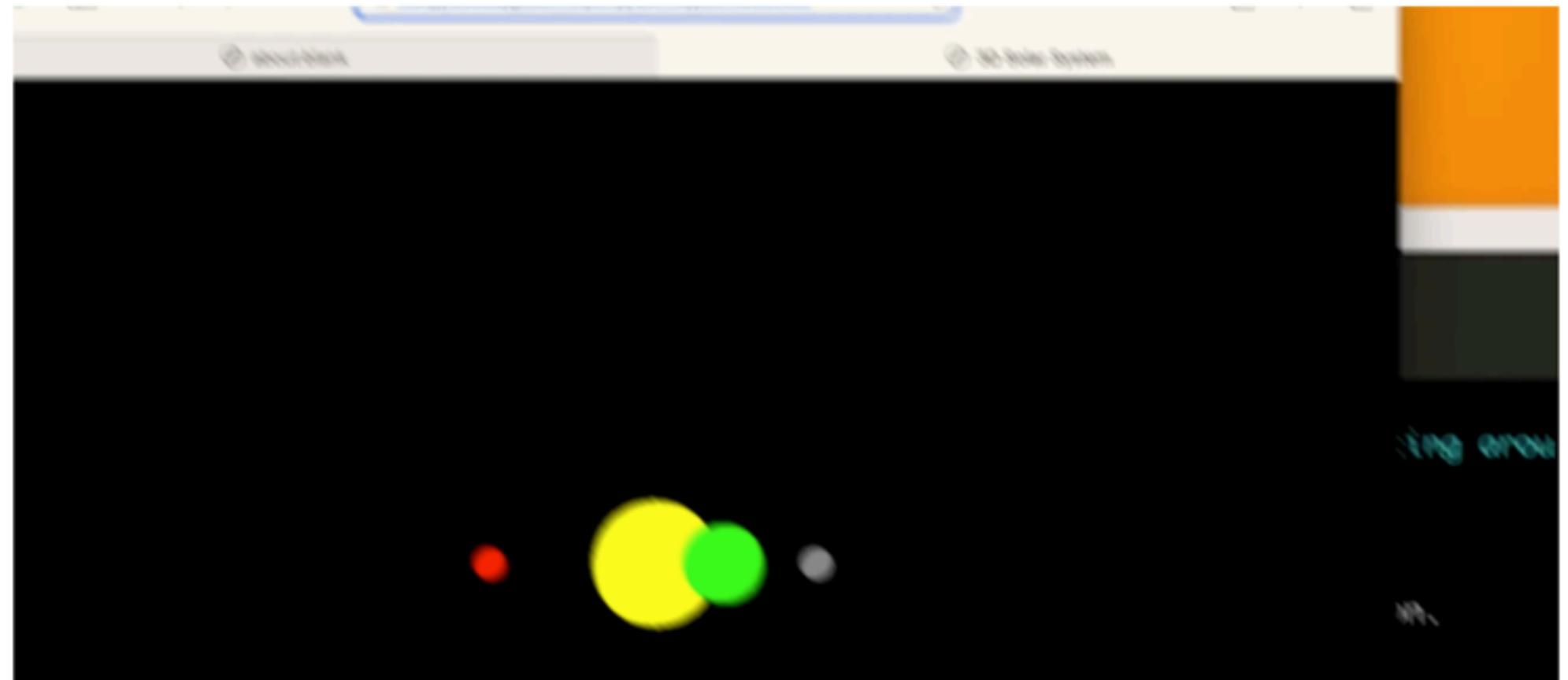
<https://bito.ai/>



# AI Pair Programming

Aider is AI pair programming in your terminal

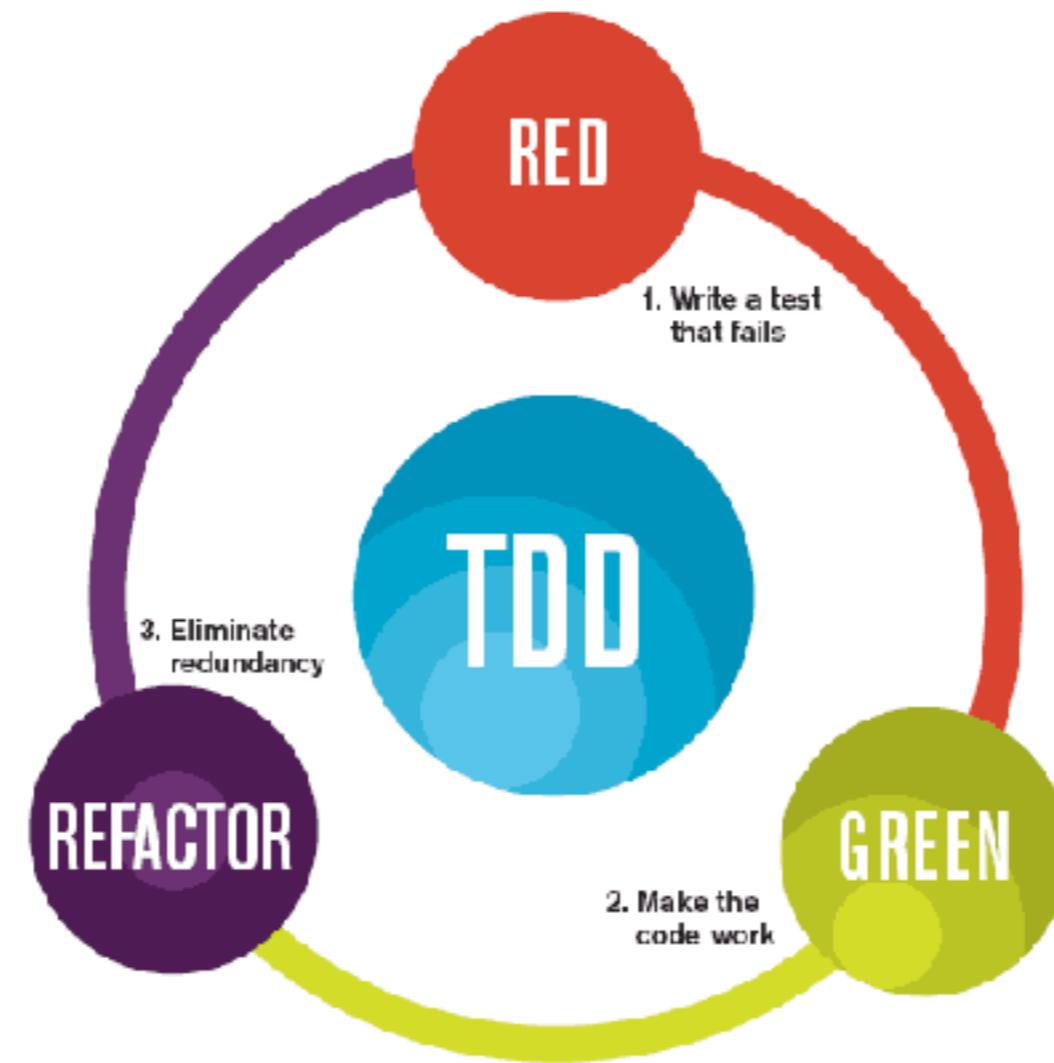
Aider lets you pair program with LLMs, to edit code in your local git repository. Start a new project or work with an existing git repo. Aider works best with GPT-4o & Claude 3.5 Sonnet and can [connect to almost any LLM](#).



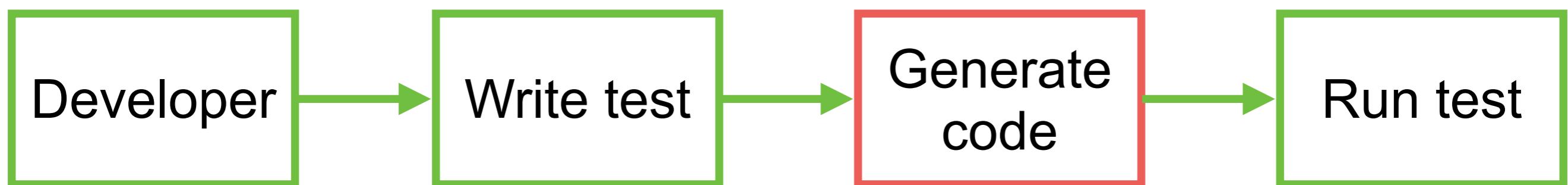
<https://github.com/paul-gauthier/aider>



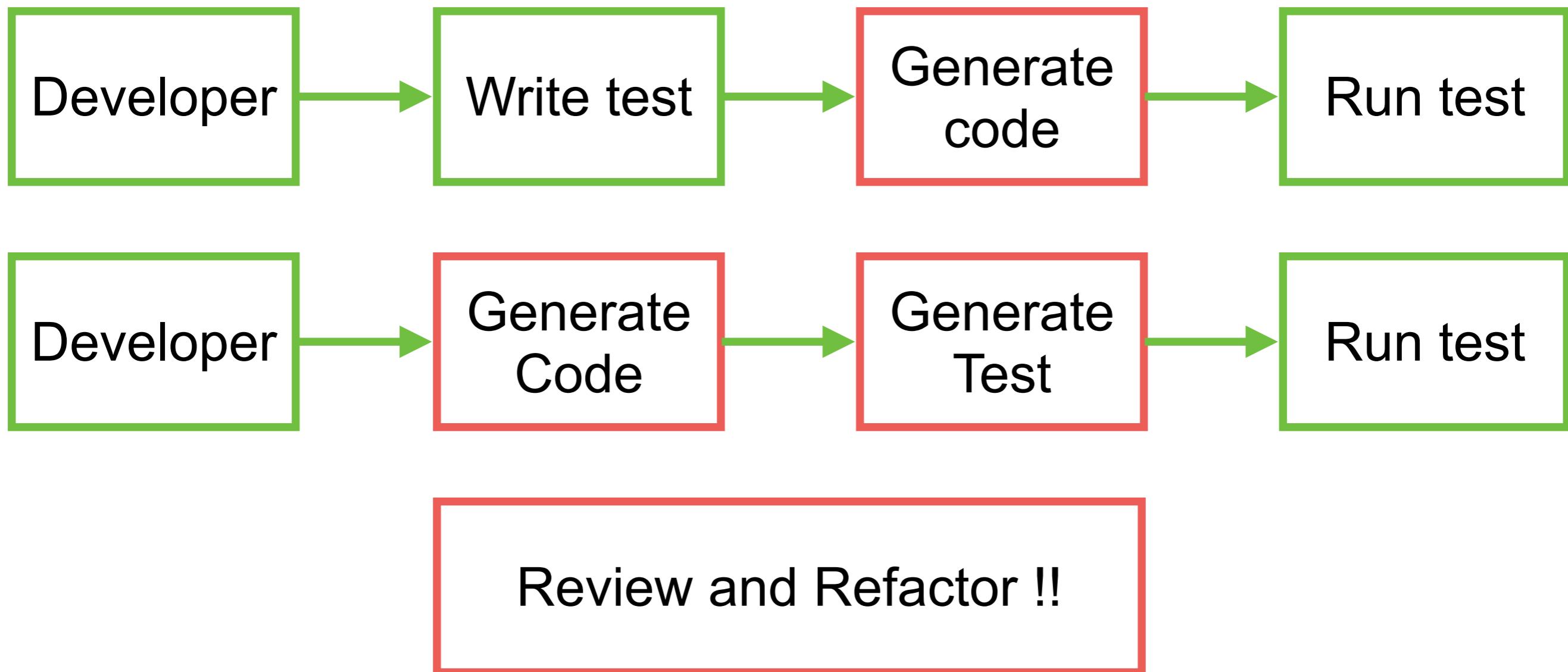
# Test-Driven-Development



# Test-Driven-Development



# Test-Driven-Development



# Workshop with Copilot Chat



# Workshop AI Agent with Aider

GPT-4o

Claude 3.5  
Sonnet

DeepSeek  
Coder

Ollama

<https://aider.chat/>



# **Testing Process**

## **High quality process**

**Functional**

**Non-Functional**



# Testing

Requirement

Design

Develop

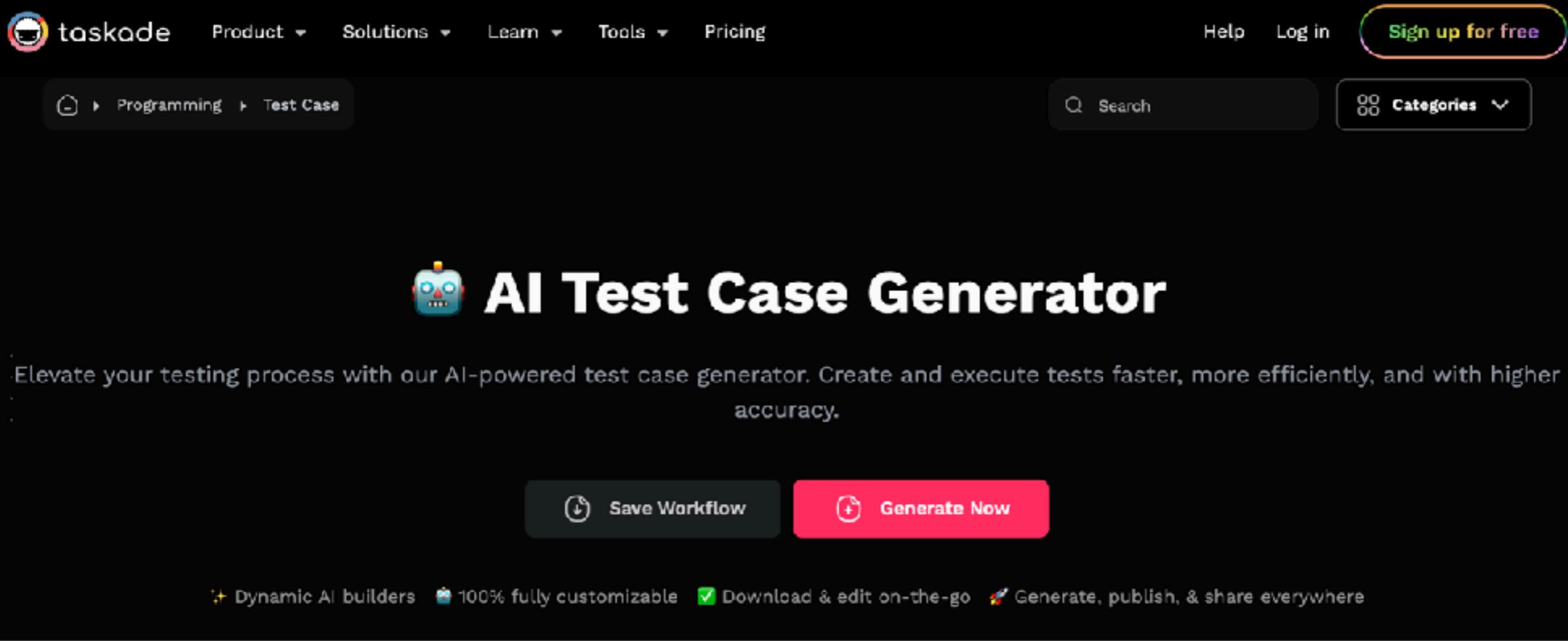
Testing

Deploy

Test cases writing  
Test code generation  
Bug detection  
Test planning  
Data test generation



# Test Case generator



The screenshot shows the Taskade website with a dark theme. At the top, there's a navigation bar with links for Product, Solutions, Learn, Tools, Pricing, Help, Log in, and a prominent green "Sign up for free" button. Below the navigation is a breadcrumb trail showing the user is in the Programming category under Test Case. To the right are a search bar and a categories dropdown. The main content area features a large "AI Test Case Generator" heading with a blue robot icon. A sub-headline encourages users to "Elevate your testing process with our AI-powered test case generator. Create and execute tests faster, more efficiently, and with higher accuracy." Below this are two buttons: "Save Workflow" (gray) and "Generate Now" (pink). At the bottom, there's a row of icons with labels: Dynamic AI builders, 100% fully customizable, Download & edit on-the-go, and Generate, publish, & share everywhere.

taskade

Product Solutions Learn Tools Pricing Help Log in Sign up for free

Programming Test Case

Search Categories

## AI Test Case Generator

Elevate your testing process with our AI-powered test case generator. Create and execute tests faster, more efficiently, and with higher accuracy.

Save Workflow Generate Now

Dynamic AI builders 100% fully customizable Download & edit on-the-go Generate, publish, & share everywhere

<https://www.taskade.com/generate/programming/test-case>

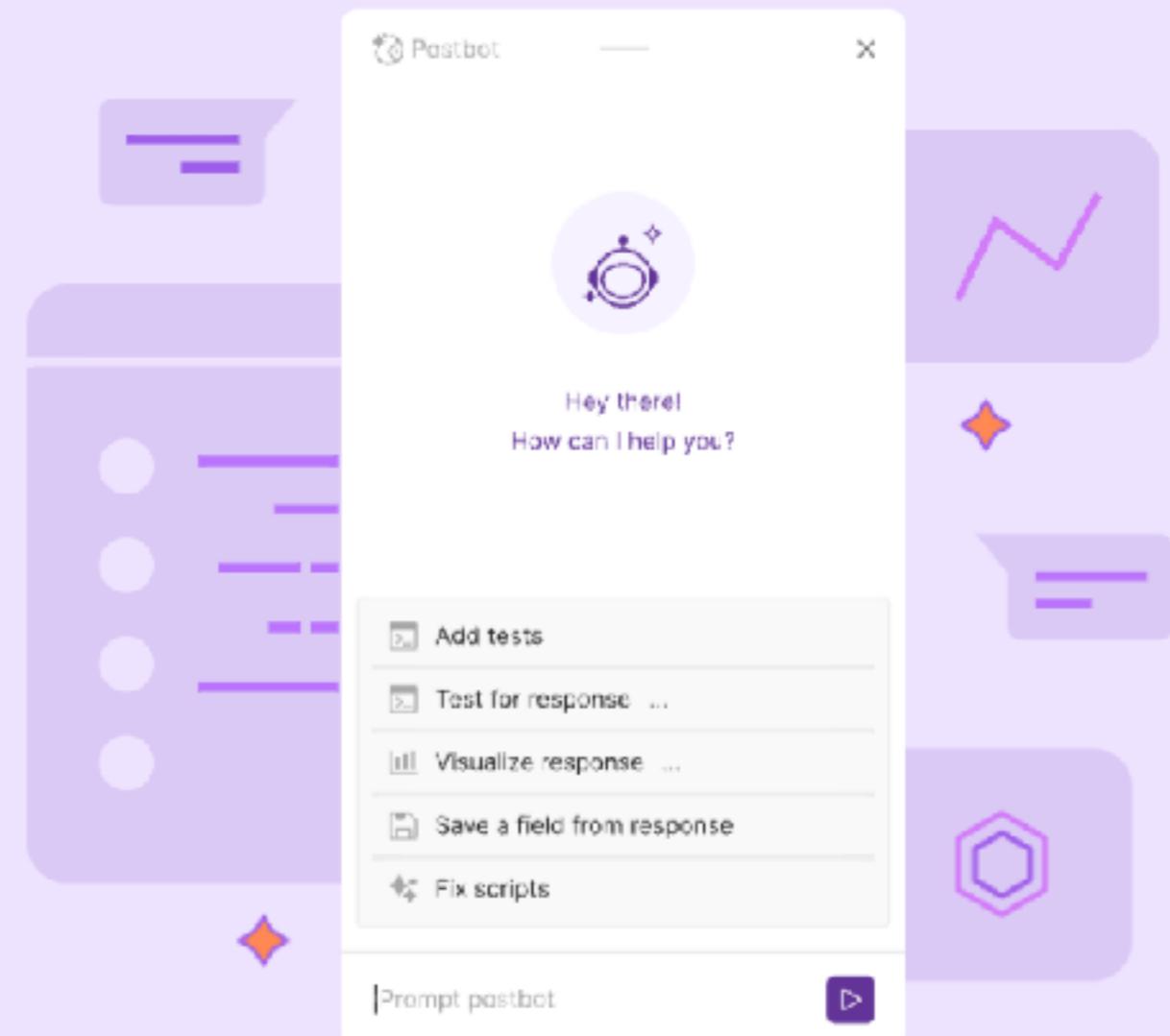


# Testing with Postman

**Postbot, our AI-powered assistant, will supercharge your API development.**

Speed up your most common API development workflows with natural-language input, conversational interactions, and contextual suggestions.

[Get Started](#)



<https://www.postman.com/product/postbot/>



# PostBot

The screenshot shows the Postman application interface. A request is being made to `https://jsonplaceholder.typicode.com/users/1` using the `GET` method. The `Tests` tab is selected in the header bar. The response body is displayed in Pretty JSON format, showing a user object with fields like `id`, `name`, `username`, `email`, and `address`. A context menu is open on the right side of the interface, listing options such as `Add tests to this request`, `Test for response...`, `Visualize response...`, `Save a field from response`, and `Add documentation`. A modal window titled `New on Postbot` provides information about the feature, stating it can auto-complete tests to help work faster, and describes how it suggests important tests based on available responses.

```
1 {  
2   "id": 1,  
3   "name": "Leanne Graham",  
4   "username": "Bret",  
5   "email": "Sincere@april.biz",  
6   "address": {  
7     "street": "Kulas Light",  
8     "suite": "Apt. 556".  
9   }  
10 }
```

<https://www.postman.com/product/postbot/>



# 6 Keys software quality

Defect density

Code duplication

Hardcode token/key

Security  
vulnerabilities

Outdated package

Non-permissive  
opensource libraries



# Deployment Process



# Deploy and manage

Requirement

Design

Develop

Testing

Deploy

CI/CD pipeline

Infrastructure as a code

Automated script

Performance and monitoring suggestion

Document generation

AI-assist support

ChatOps, AIOps



# PromptOps



Solutions ▾ Resources ▾ Contact us Log In

## ChatGPT for your DevOps Teams

Turn DevOps tasks into automated workflows with a single prompt straight from Slack

Get started

Learn More

A screenshot of the PromptOps Slack app interface. At the top, there's a message from the "PromptOps APP" bot: "Hello, I'm PromptOps, your DevOps virtual assistant for managing, troubleshooting, and running DevOps tasks directly from Slack!". Below this, a Slack conversation shows a user named "Sergoy" reporting an issue: "Uh oh, MOAR 408 errors in graph-engine. Help, @PromptOps!". The "PromptOps APP" bot responds with "Eleven ran into this issue last week" and suggests a fix: "aws easily fixed it by bumping up CPU cores on nginx node. Should I do it?". Two buttons at the bottom right of the message are "Yes" and "No". At the bottom of the screenshot, there are four buttons: "Acknowledge", "Resolve", "Run a play ▾", and "Edit code".

PromptOps APP  
Hello, I'm PromptOps, your DevOps virtual assistant for managing, troubleshooting, and running DevOps tasks directly from Slack!

Sergoy 02:14am  
Uh oh, MOAR 408 errors in graph-engine.  
Help, @PromptOps!

PromptOps APP 02:14am  
Eleven ran into this issue last week  
aws easily fixed it by bumping up CPU cores on nginx node.  
Should I do it?

Yes No

Acknowledge Resolve Run a play ▾ Edit code

<https://www.promptops.com/devops/>



AI for Software Development

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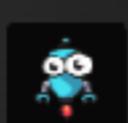
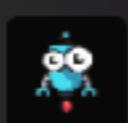
# ChatOps for DevOps

[Product](#)[How it Works](#)[Learn](#)[Company](#)[Uptime](#)[Sign In](#)[Book a demo](#)[Sign Up](#)

## > ChatGPT for DevOps

Converse with your engineering platforms, powered by LLM.  
A virtual teammate to handle DevOps requests so you can handle the rest.

[Add Kubi to Slack](#)

-  Kubi (DevOps)  
@Alerts I got an alert from Prometheus:  
  
Deployment 'alert-manager' on namespace 'Openfaas' is experiencing high traffic
-  Kubi (DevOps)  
@Alerts Should I increase the number of replicas on 'alert-manager'?
-  Jeff (R&D)  
Yes
-  Kubi (DevOps)  
  
✓ The following deployment has been updated:  
Deployment: alert-manager  
Namespace: Openfaas  
Replicas: 3

<https://www.kubiya.ai/>



# K8sGPT



## CLOUD NATIVE K8sGPT joins the SANDBOX CNCF Sandbox

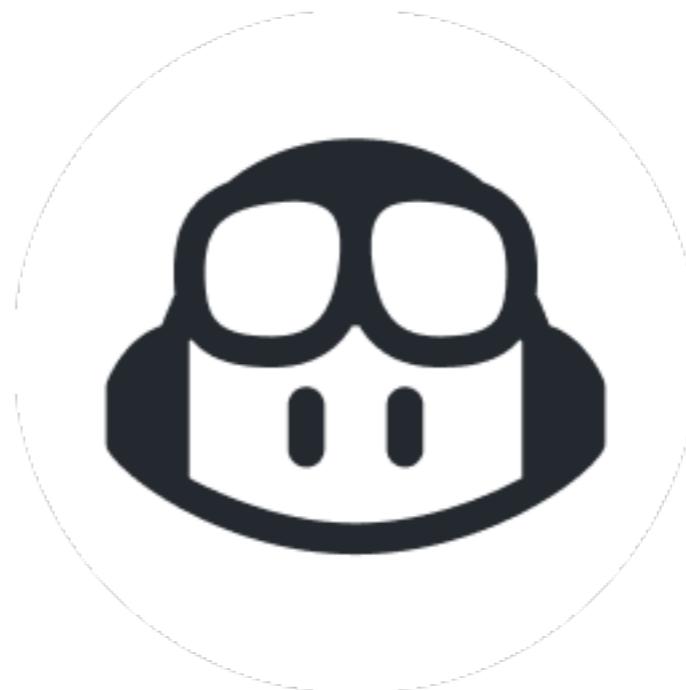
K8sGPT is a tool for scanning your kubernetes clusters, diagnosing and triaging issues in simple english. It has SRE experience codified into its analyzers and helps to pull out the most relevant information to enrich it with AI.

Get it now!

<https://k8sgpt.ai/>



# Workshop



 Claude

The logo consists of a stylized orange-red sunburst or starburst icon followed by the word "Claude" in a bold, black, sans-serif font.

<https://github.com/up1/workshop-ai-with-technical-team>



# Tips and Techniques

Scope of prompt

Error in result

Setup and config  
project

Latest information

Use technical  
keywords



# **Risks when using Generative AI**





# Risks

Quality of output generated  
Explainability of decisions  
Security policy !!  
Sensitive data !!



# Tips

Understand what you want

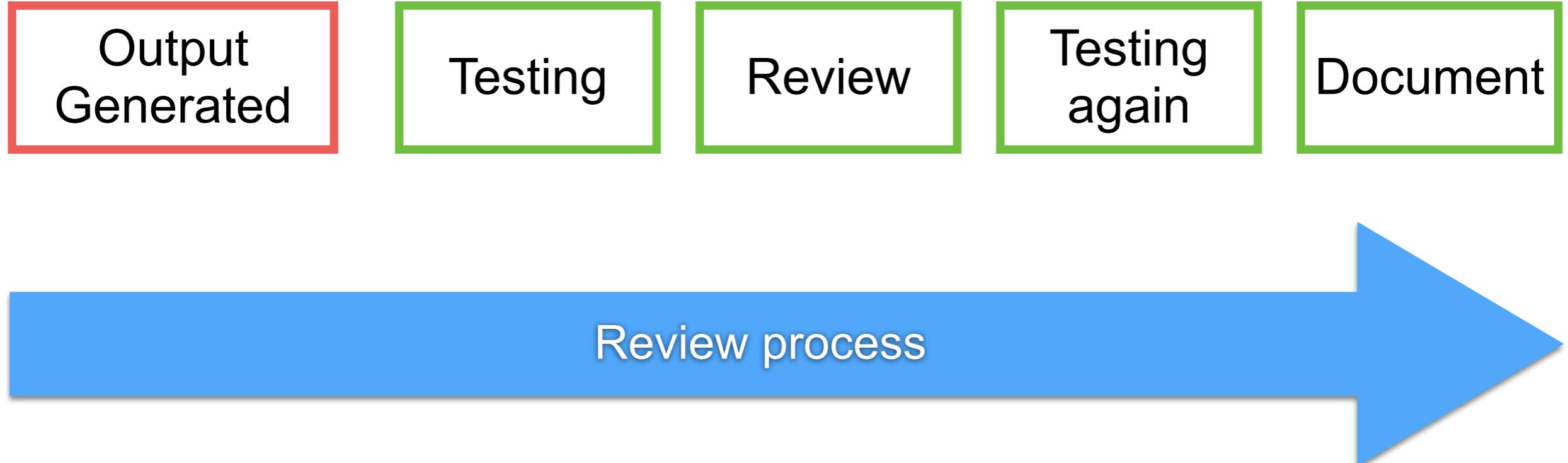
Modular approach

Clear and Precise inputs

Make sure you understand the code

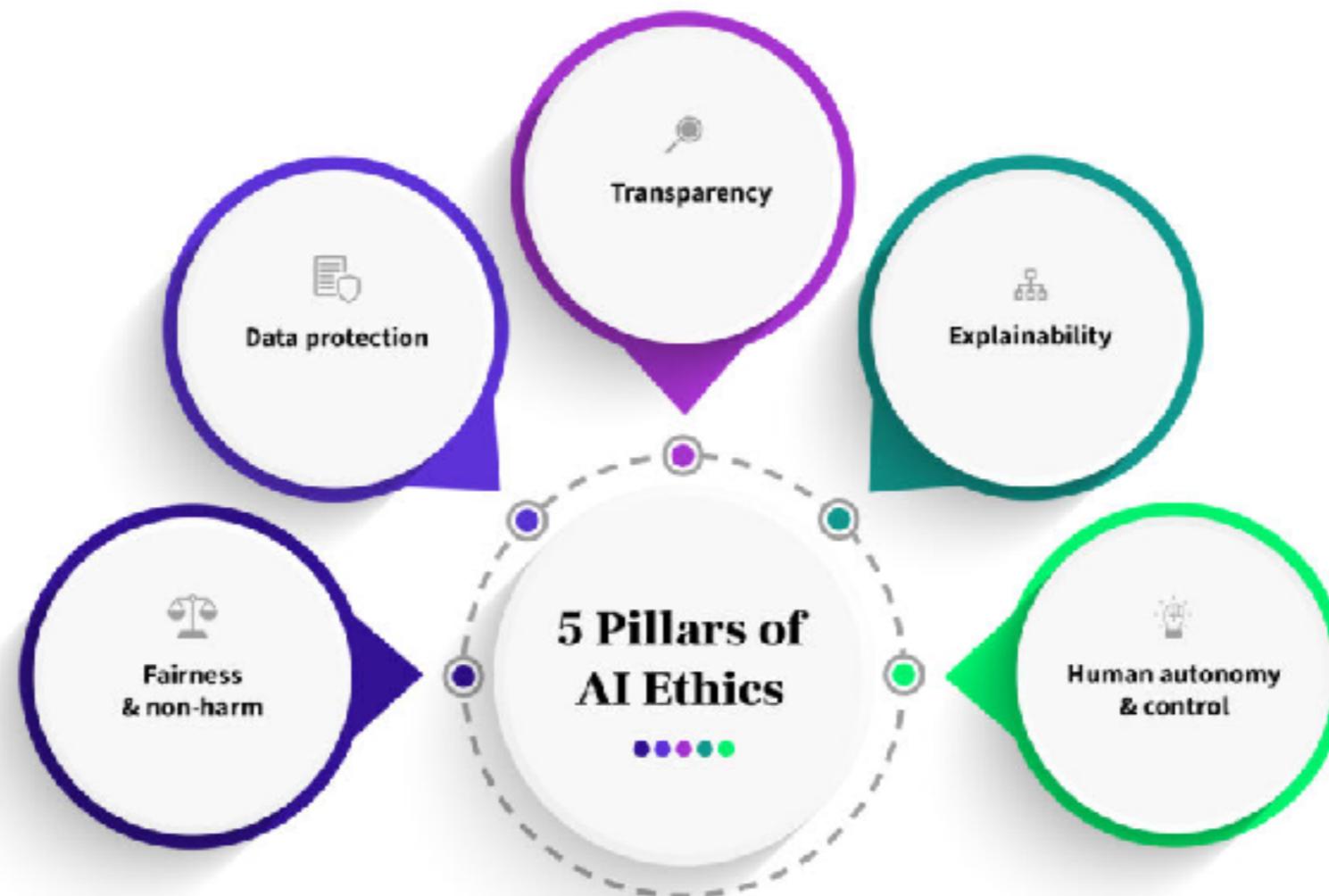


# Quality process ?



# Skill Required

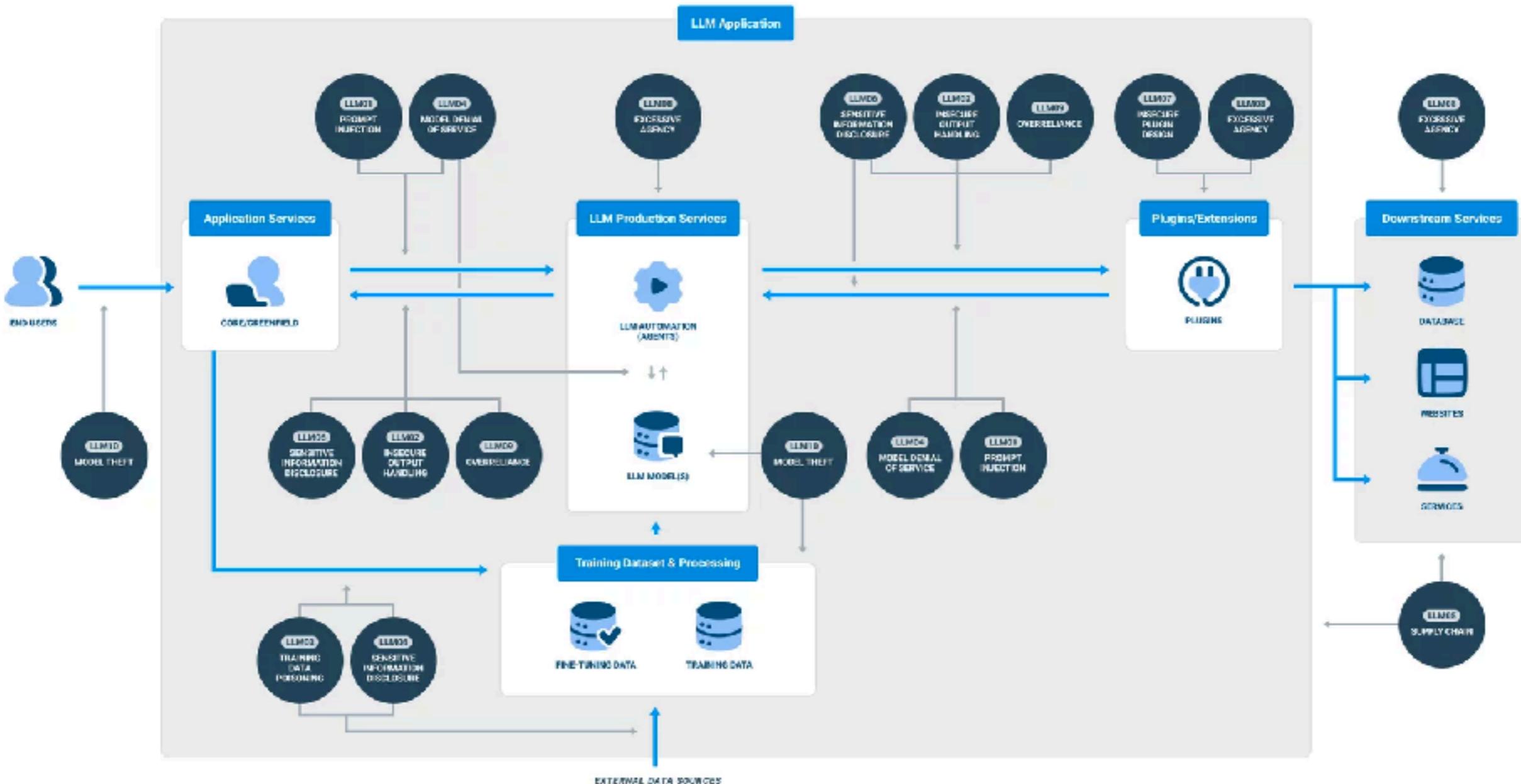
Knowledge of ethical AI principles, legal and regulatory compliance, stakeholder management



# **Security !!**



# OWASP Top 10 for LLM app



<https://llmtop10.com/>



# OWASP Top 10 for LLM app

LLM01

## Prompt Injection

Crafty inputs can manipulate a Large Language Model, causing unintended actions. Direct injections overwrite system prompts, while indirect ones manipulate inputs from external sources.

LLM02

## Insecure Output Handling

This vulnerability occurs when an LLM output is accepted without scrutiny, exposing backend systems. Misuse may lead to severe consequences like XSS, CSRF, SSRF, privilege escalation, or remote code execution.

LLM03

## Training Data Poisoning

This occurs when LLM training data is tampered, introducing vulnerabilities or biases that compromise security, effectiveness, or ethical behavior. Sources include Common Crawl, WebText, OpenWebText, & books.

LLM04

## Model Denial of Service

Attackers cause resource-heavy operations on Large Language Models leading to service degradation or high costs. The vulnerability is magnified due to the resource-intensive nature of LLMs and unpredictability of user inputs.

LLM05

## Supply Chain Vulnerabilities

LLM application lifecycle can be compromised by vulnerable components or services, leading to security attacks. Using third-party datasets, pre-trained models, and plugins can add vulnerabilities.

LLM06

## Sensitive Information Disclosure

LLM's may reveal confidential data in its responses, leading to unauthorized data access, privacy violations, and security breaches. It's crucial to implement data sanitization and strict user policies to mitigate this.

<https://llmtop10.com/>



# OWASP Top 10 for LLM app

LLM07

## Insecure Plugin Design

LLM plugins can have insecure inputs and insufficient access control. This lack of application control makes them easier to exploit and can result in consequences like remote code execution.

LLM08

## Excessive Agency

LLM-based systems may undertake actions leading to unintended consequences. The issue arises from excessive functionality, permissions, or autonomy granted to the LLM-based systems.

LLM09

## Overreliance

Systems or people overly depending on LLMs without oversight may face misinformation, miscommunication, legal issues, and security vulnerabilities due to incorrect or inappropriate content generated by LLMs.

LLM10

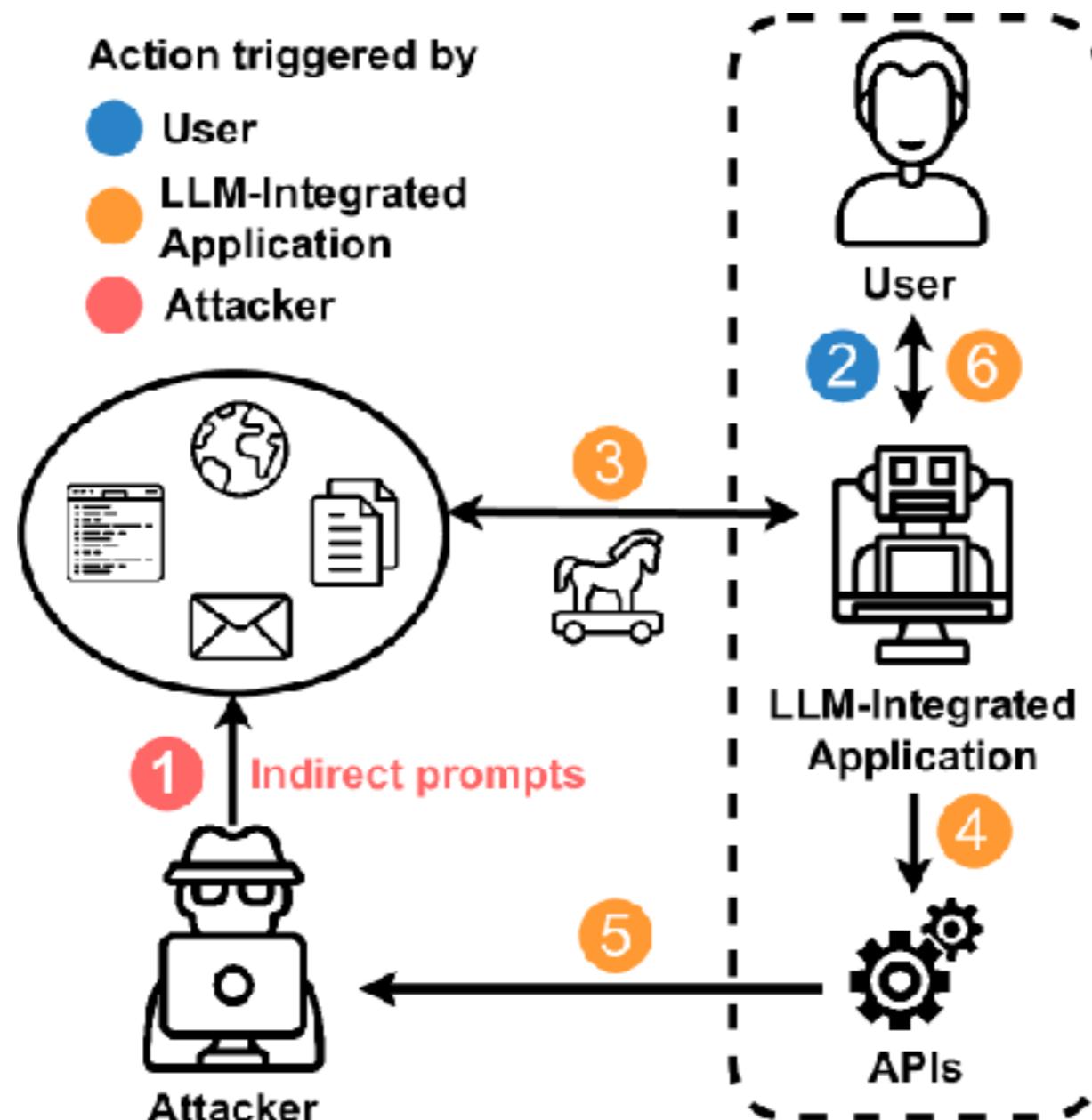
## Model Theft

This involves unauthorized access, copying, or exfiltration of proprietary LLM models. The impact includes economic losses, compromised competitive advantage, and potential access to sensitive information.

<https://llmtop10.com/>



# Prompt Injection !!



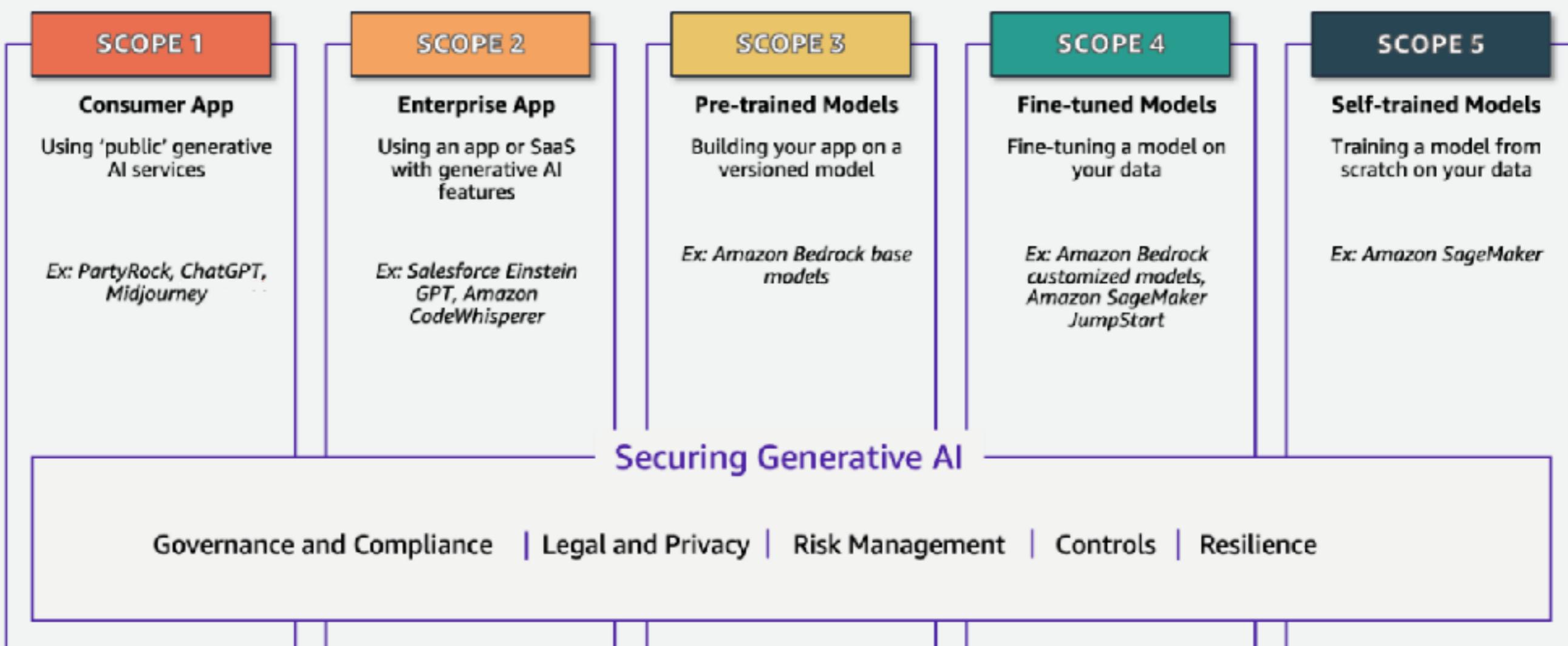
<https://llmtop10.com/>



# Secure GenAI

## Generative AI Security Scoping Matrix

A MENTAL MODEL TO CLASSIFY USE CASES



<https://aws.amazon.com/blogs/security/securing-generative-ai-data-compliance-and-privacy-considerations/>



# National AI Policies & Strategies

The screenshot shows the homepage of the OECD.AI Policy Observatory. The top navigation bar includes links for Blog, Experts, AI Principles, Policy areas, Trends, and a search bar. Below the navigation is a breadcrumb trail: Home > National strategies & policies. A large teal header banner reads "National AI policies & strategies". A descriptive text below the banner states: "This section provides a live repository of over 1000 AI policy initiatives from 69 countries, territories and the group targeted by the policy." A grid of country icons and names is displayed, categorized into three columns: Countries & territories, Policy instruments, and Target Groups.

Countries & territories	Policy instruments	Target Groups
African Union	Costa Rica	Iceland
Argentina	Croatia	India
		Luxembourg
		Malta

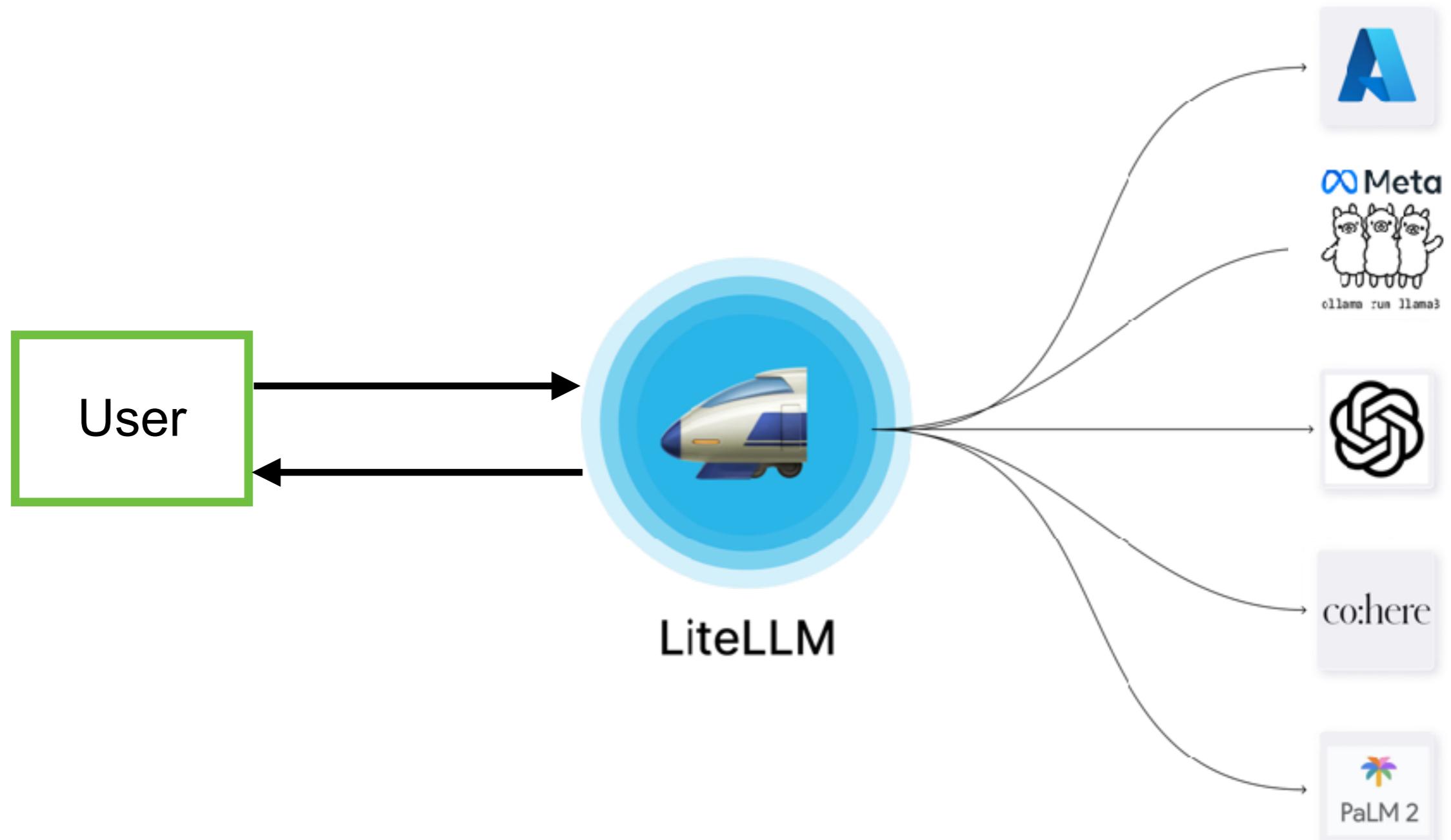
<https://oecd.ai/en/dashboards/overview>



# **LiteLLM as a Proxy**



# LiteLLM as a Proxy

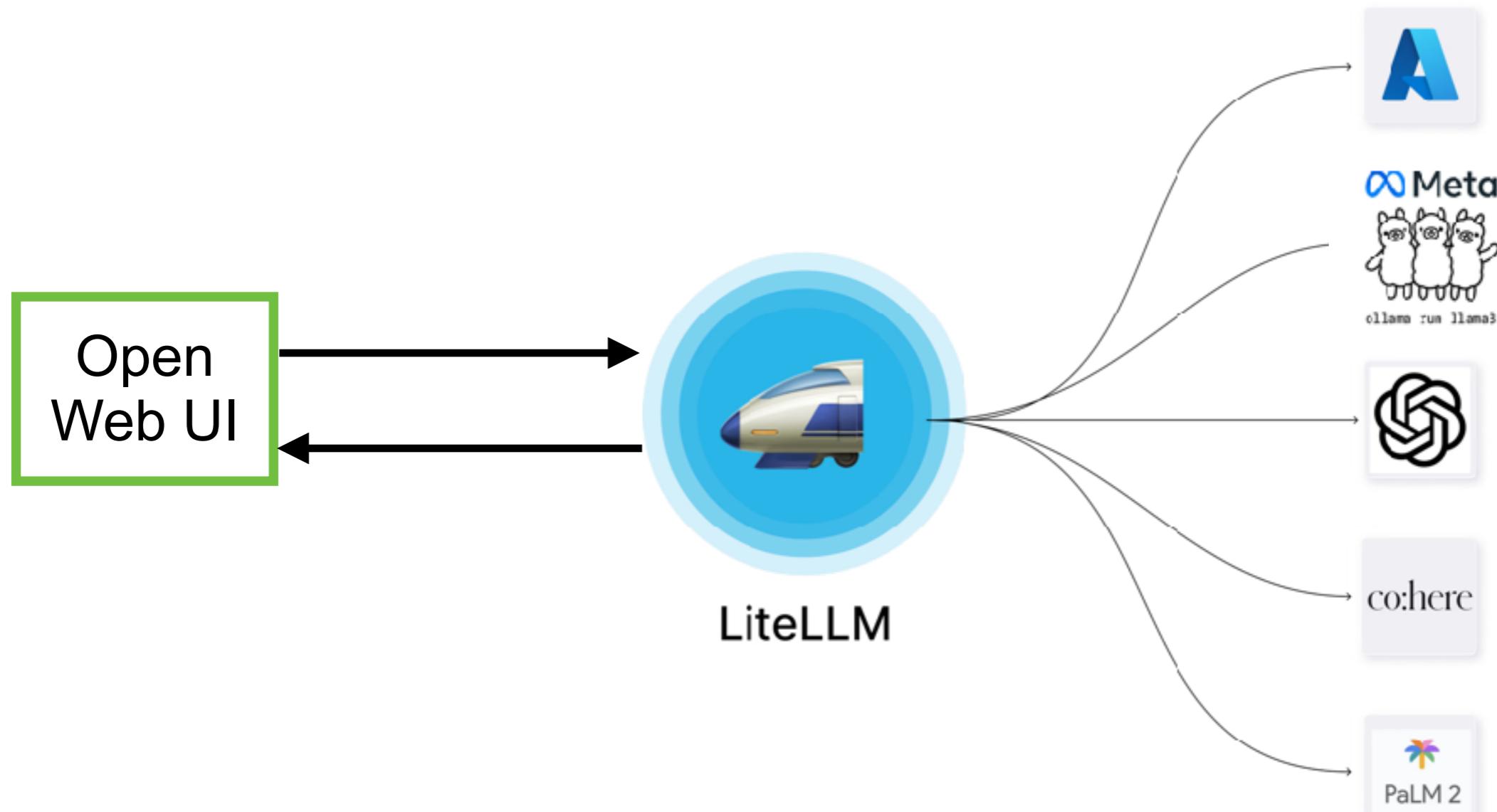


<https://www.litellm.ai/>



# Workshop

Use docker compose to build and run



<https://docs.openwebui.com/>

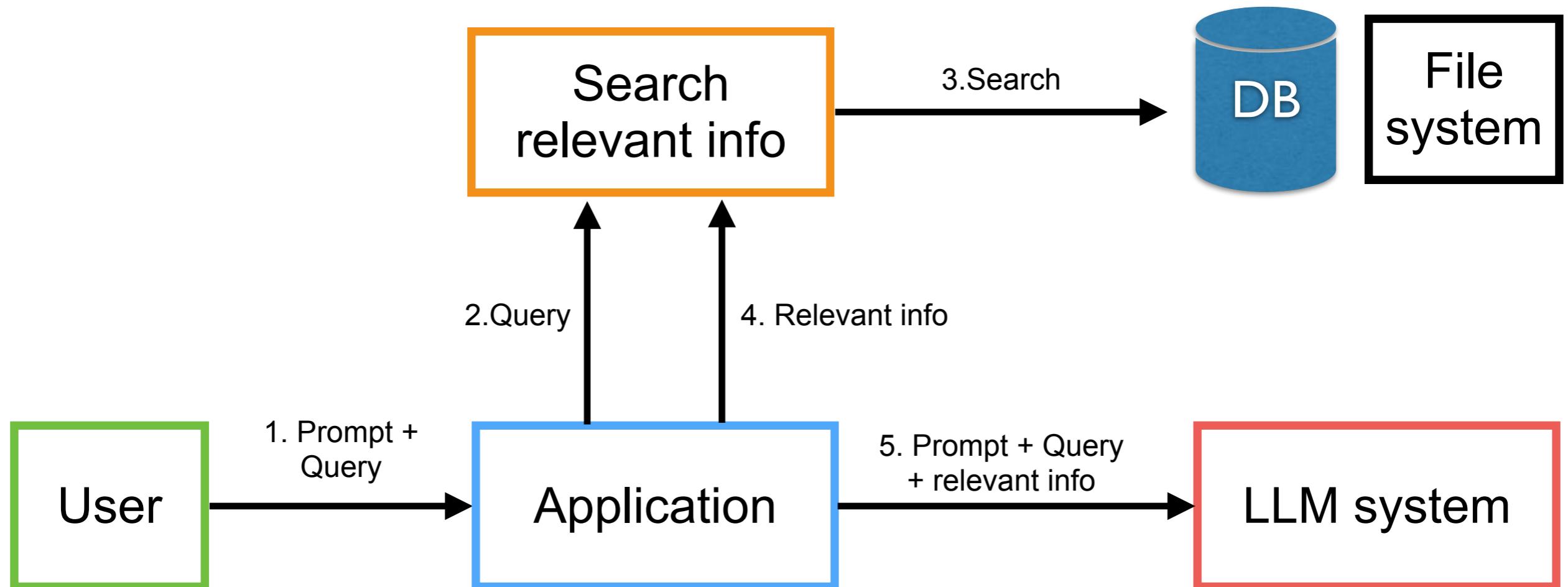


# **Retrieval-Augmented Generation (RAG)**

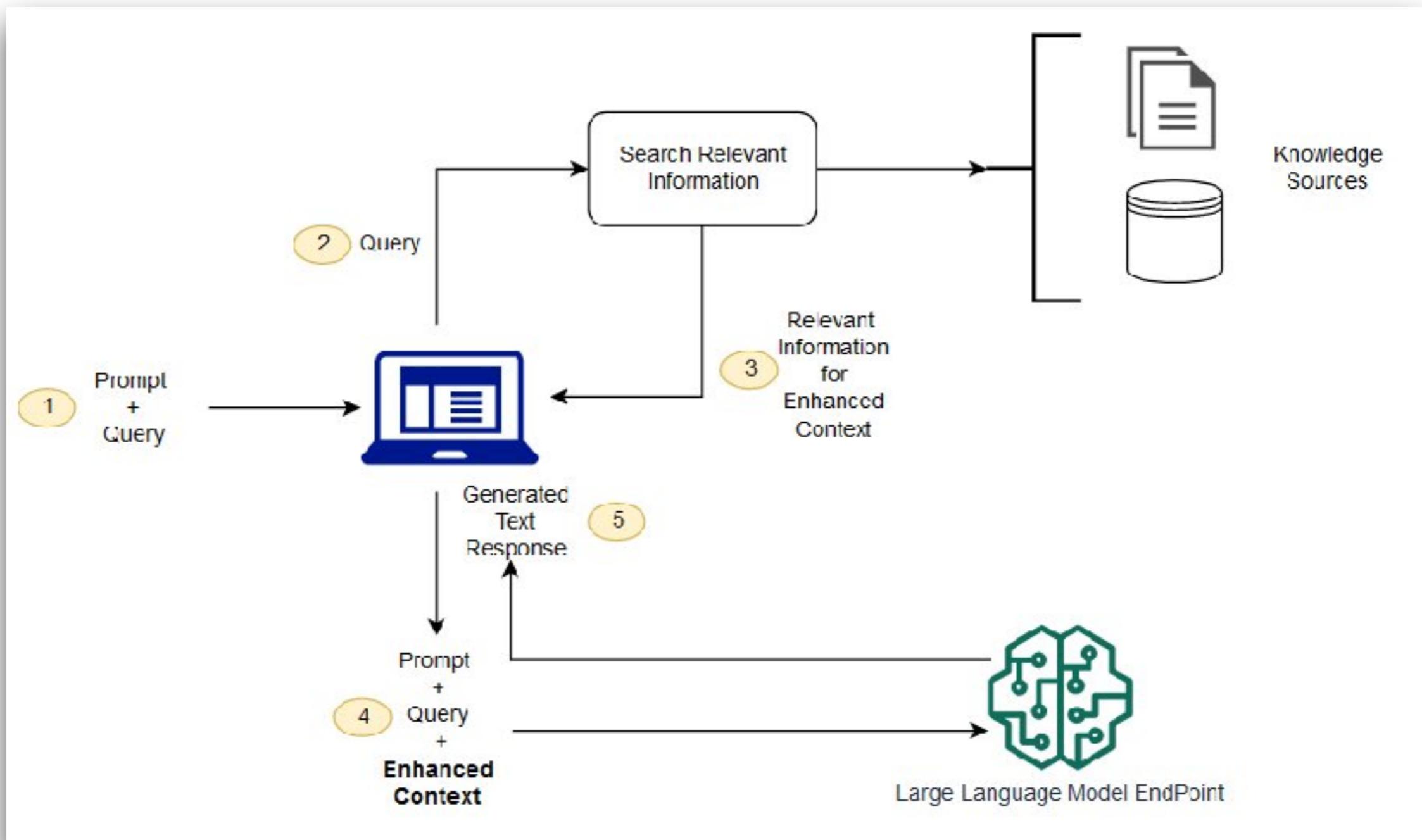


# RAG with LLM

Improve your LLM models, more accurate answer



# RAG with LLM

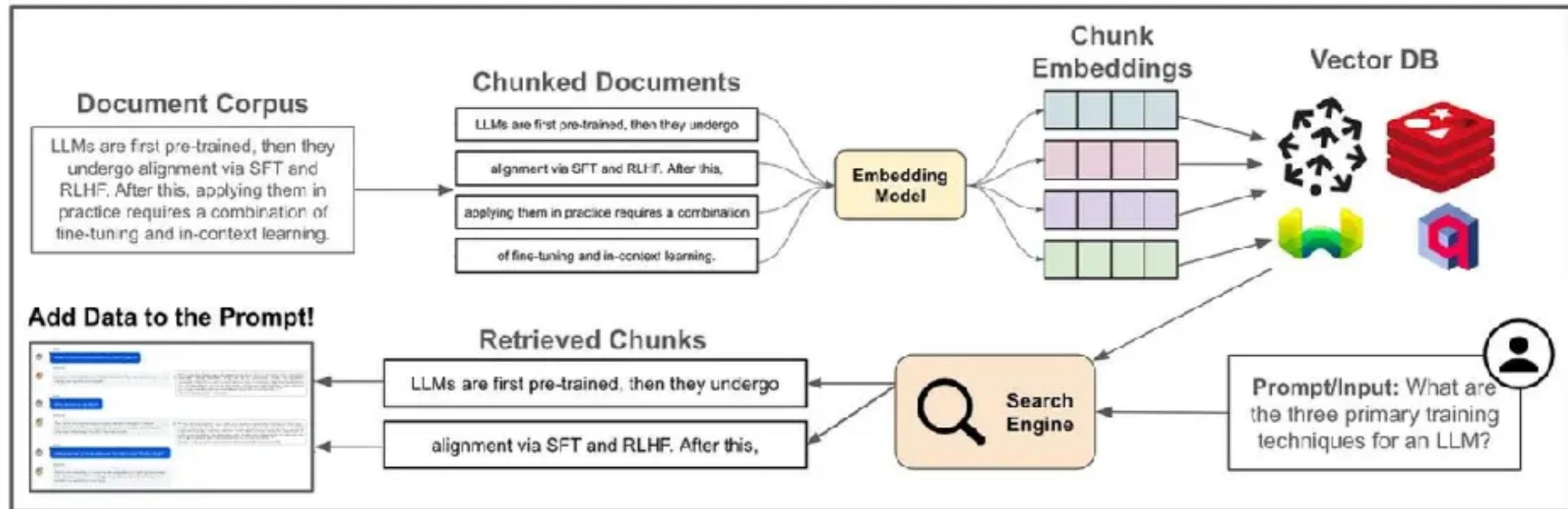


<https://aws.amazon.com/th/what-is/retrieval-augmented-generation/>



# Better RAG application

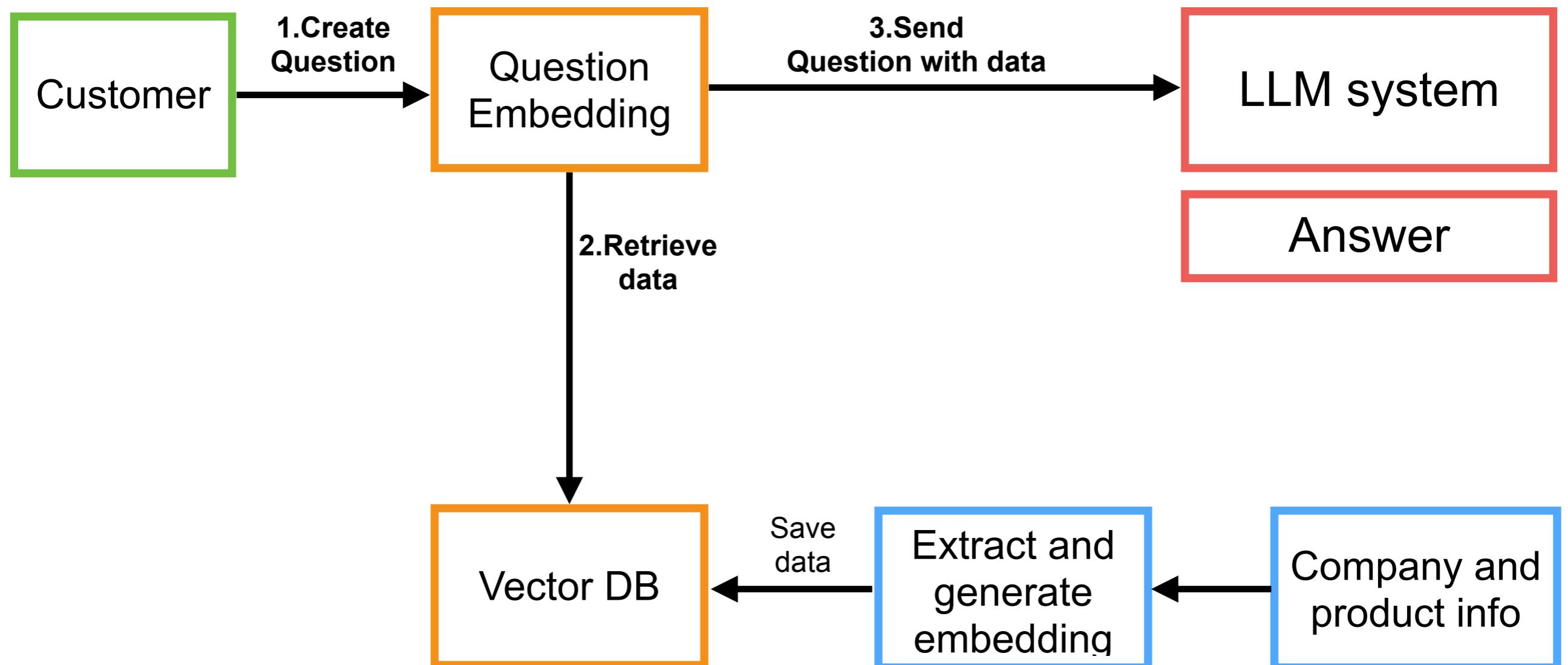
## How can we make better RAG applications?



<https://stackoverflow.blog/2024/08/15/practical-tips-for-retrieval-augmented-generation-rag/>



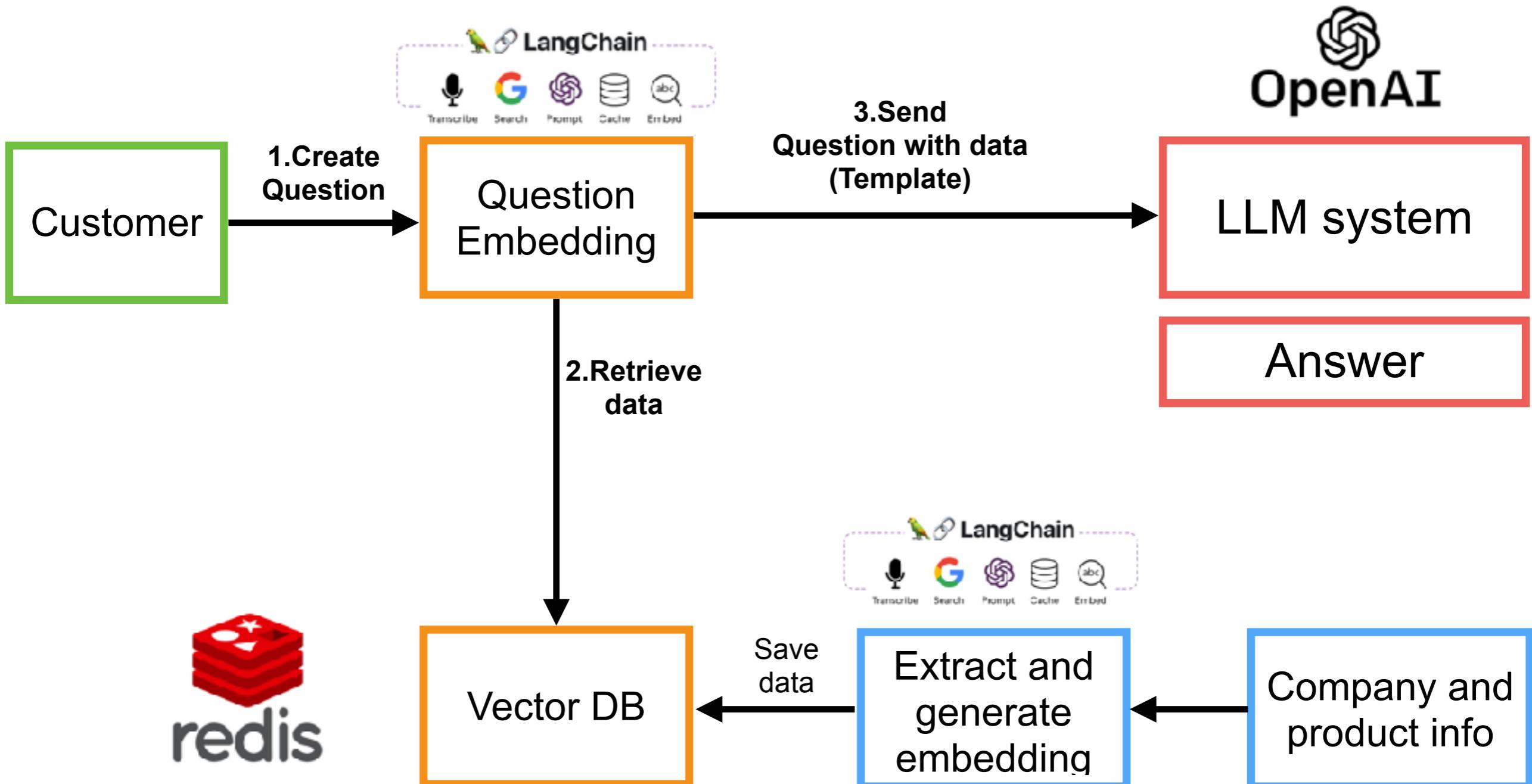
# Demo with Chatbot



<https://redis.io/blog/build-e-commerce-chatbot-with-redis/>



# Frameworks and Tools

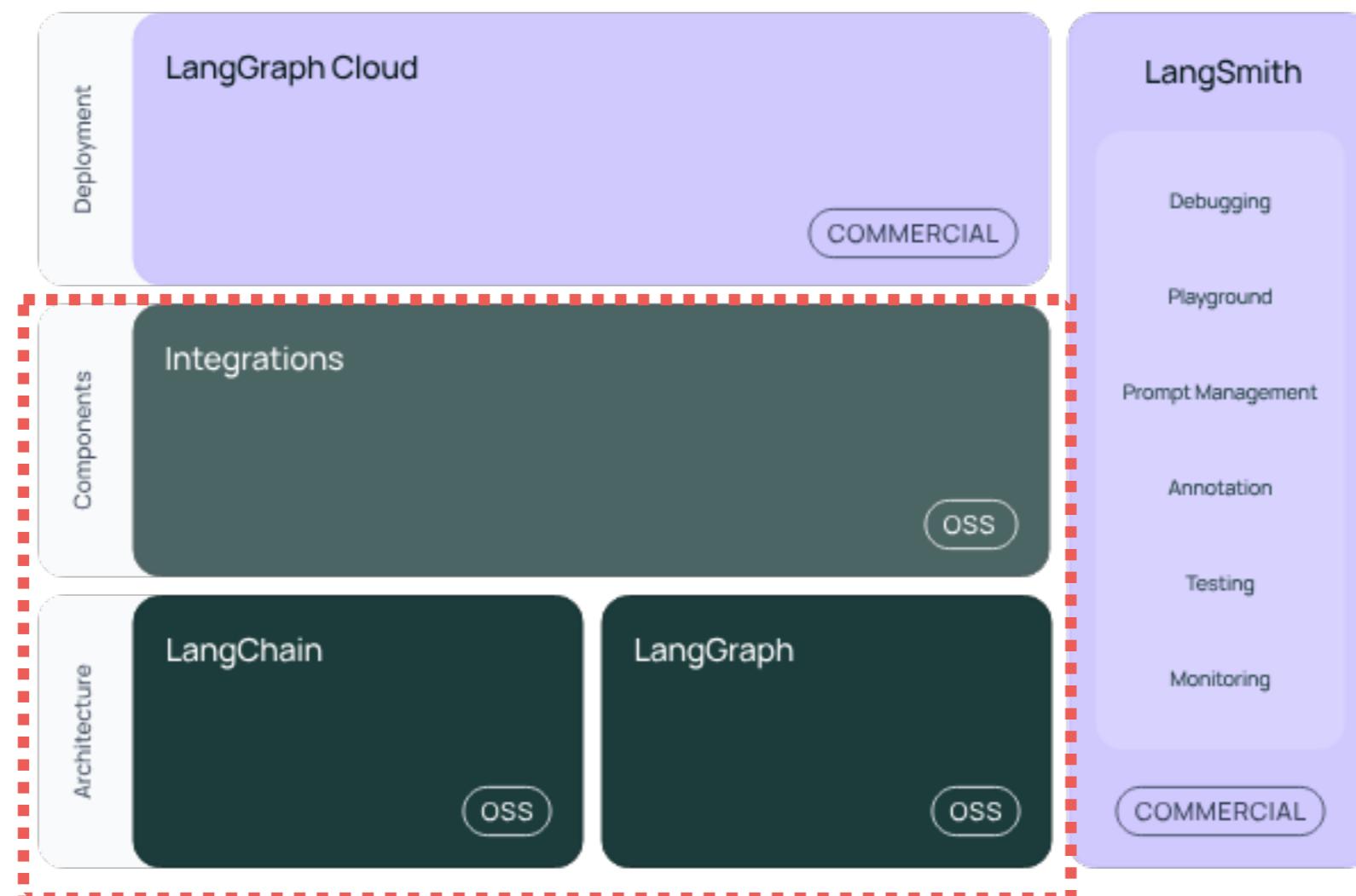


<https://www.langchain.com/>



# LangChain

Framework for develop application powered by LLM



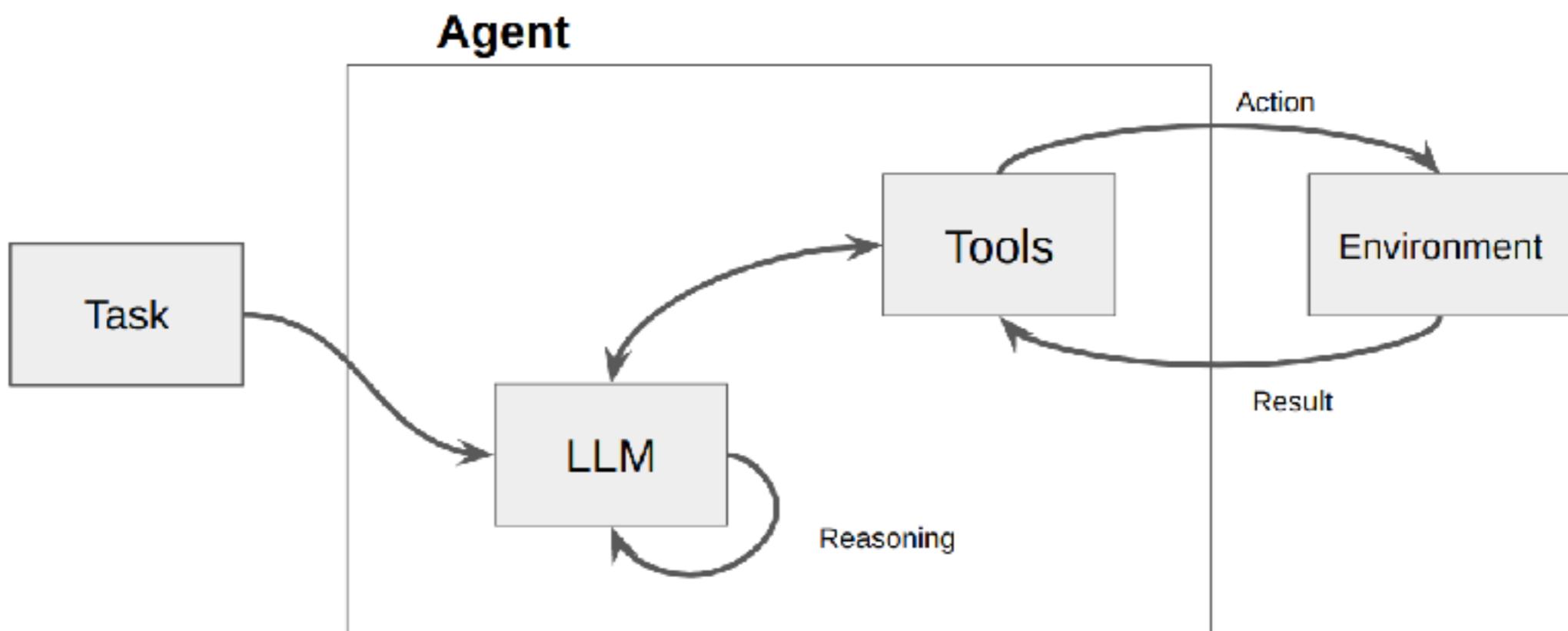
<https://python.langchain.com/>



# AI Agent



# AI Agent



# Workshop AI Agent with Aider

GPT-4o

Claude 3.5  
Sonnet

DeepSeek  
Coder

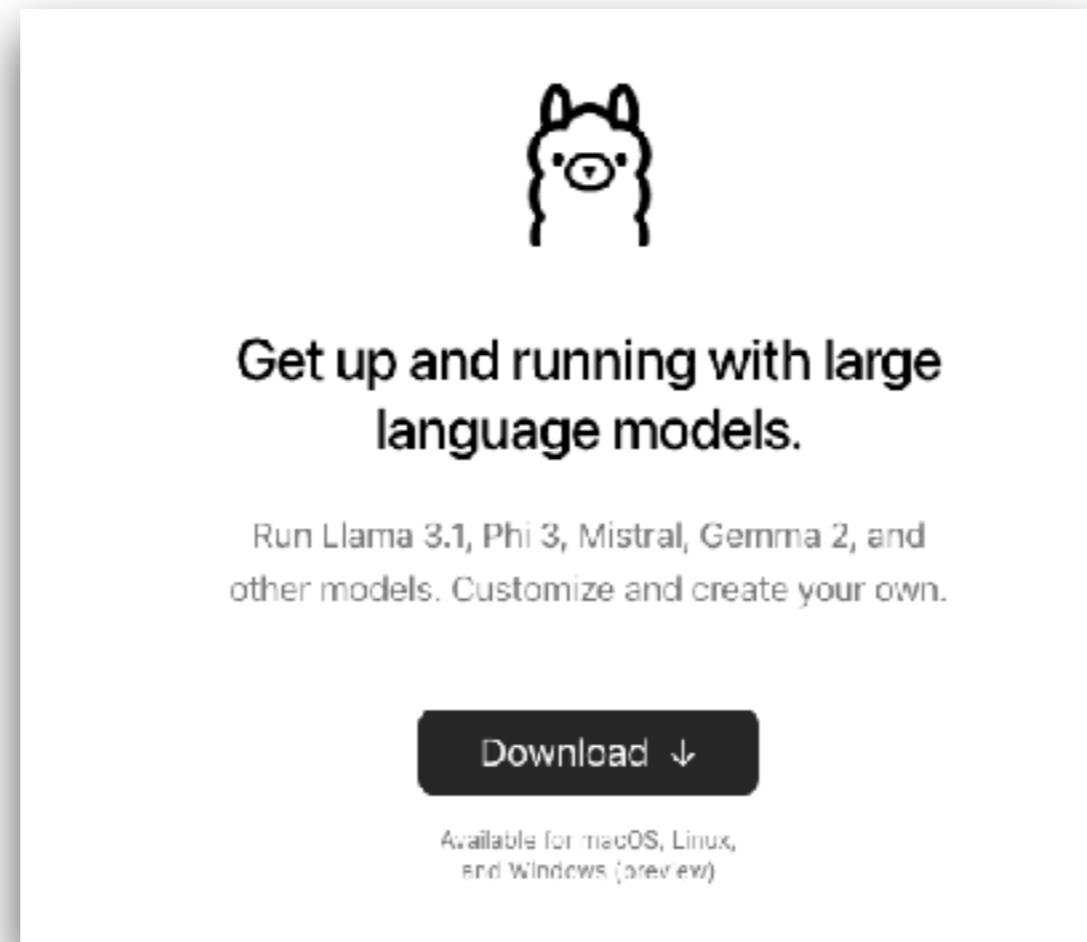
Ollama

<https://aider.chat/docs/llms/ollama.html>



# Local LLM with Ollama

\$ollama run llama3.1



<https://ollama.com/>



# LLM

**Prompt**



LLM

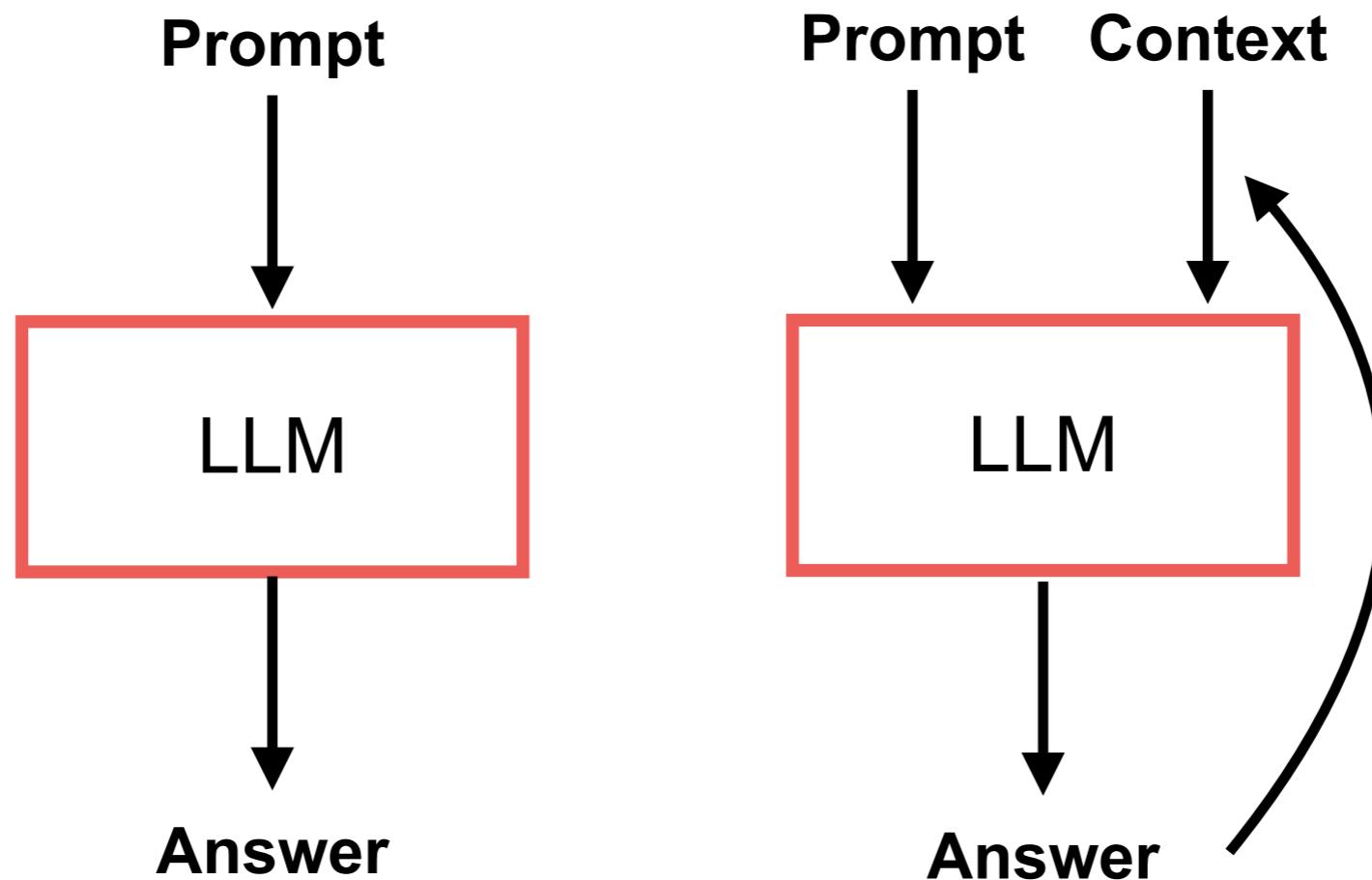


**Answer**

<https://towardsdatascience.com/intro-to-lm-agents-with-langchain-when-rag-is-not-enough-7d8c08145834>



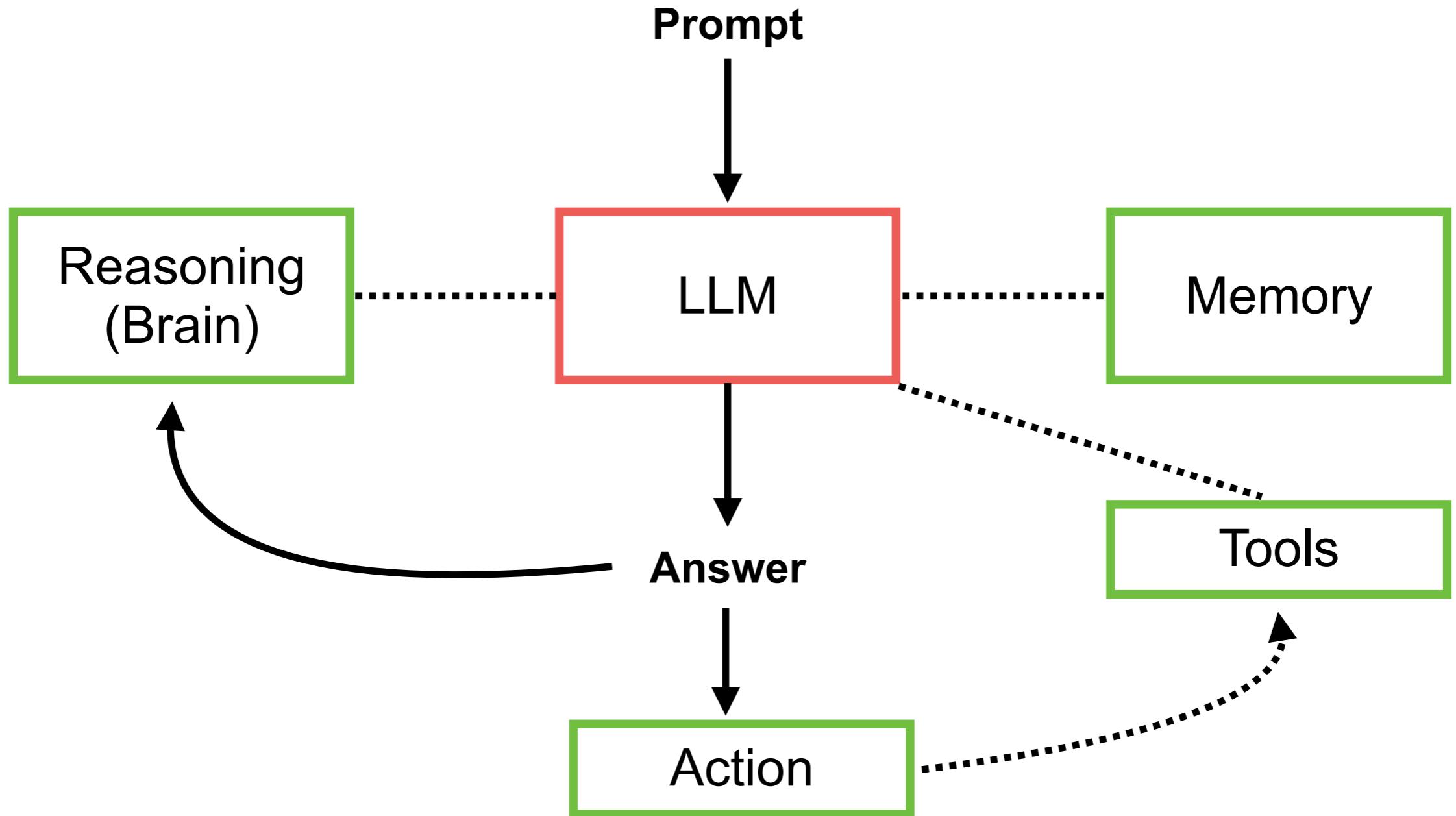
# LLM → RAG



<https://towardsdatascience.com/intro-to-llm-agents-with-langchain-when-rag-is-not-enough-7d8c08145834>



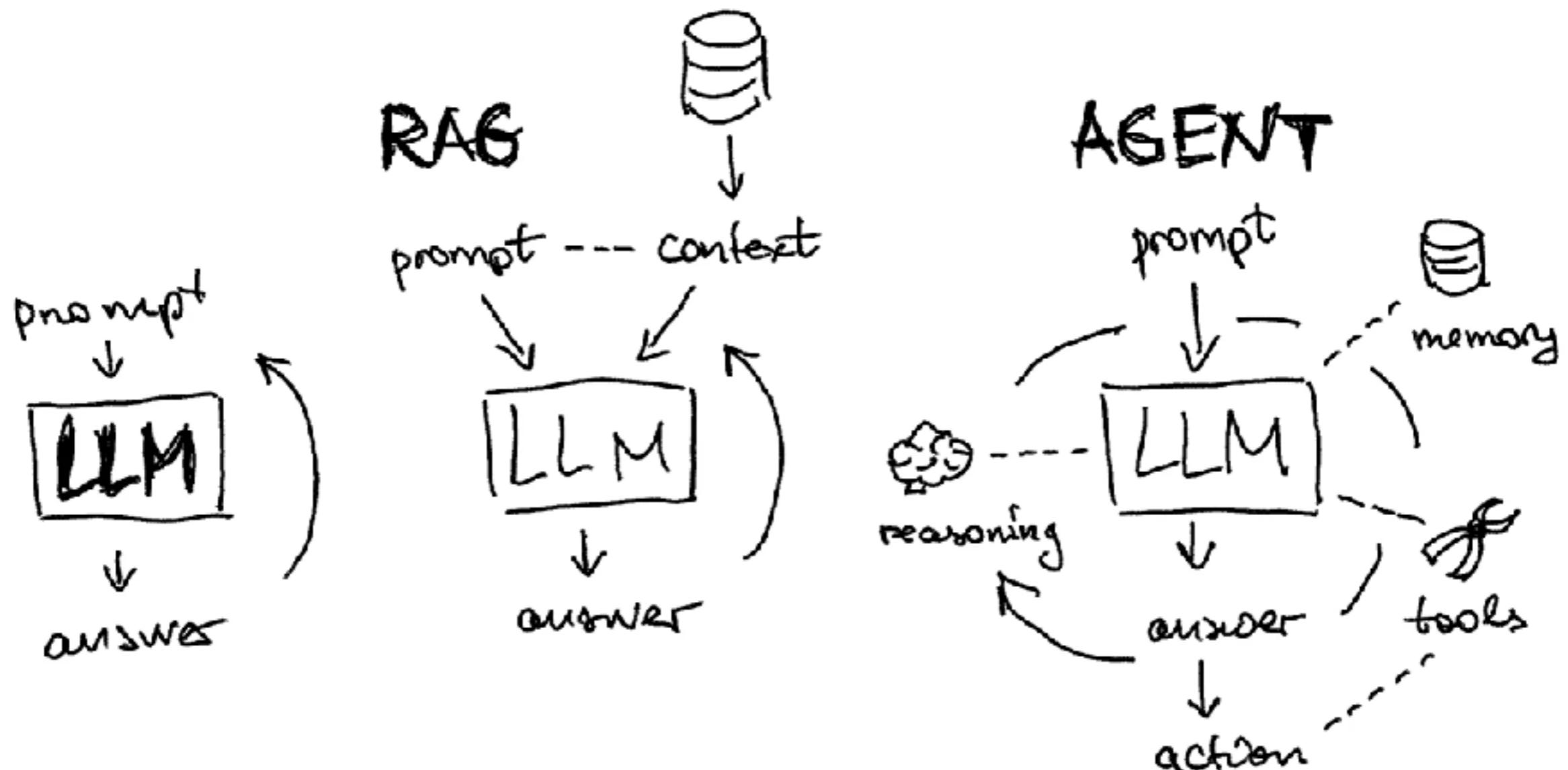
# Agent



<https://towardsdatascience.com/intro-to-lm-agents-with-langchain-when-rag-is-not-enough-7d8c08145834>



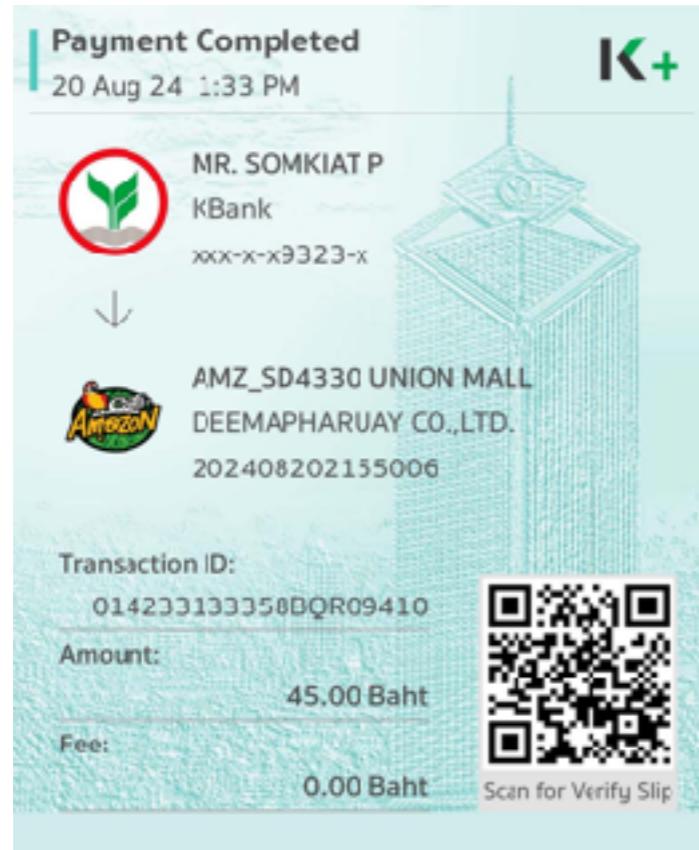
# LLM → RAG → Agent



<https://towardsdatascience.com/intro-to-llm-agents-with-langchain-when-rag-is-not-enough-7d8c08145834>



# Workshop Record Expense



Here is the extracted data from the payment slip in JSON format:

```
{  
    "payment_status": "Completed",  
    "date_time": "20 Aug 24 1:33 PM",  
    "payer_name": "Mr. Somkiat P",  
    "bank": "KBank",  
    "payer_account": "xxx-x-x9323-x",  
    "payee_name": "AMZ_SD4330 UNION MALL",  
    "company_name": "DEEMAPHARUAY CO., LTD.",  
    "transaction_id": "202408202155006",  
    "payment_reference_id": "014233133358BQR09410",  
    "amount": "45.00 Baht",  
    "fee": "0.00 Baht"  
}
```



# Workshop Record Expense

Requirement

Design

Develop

Testing

Deploy

Generative AI



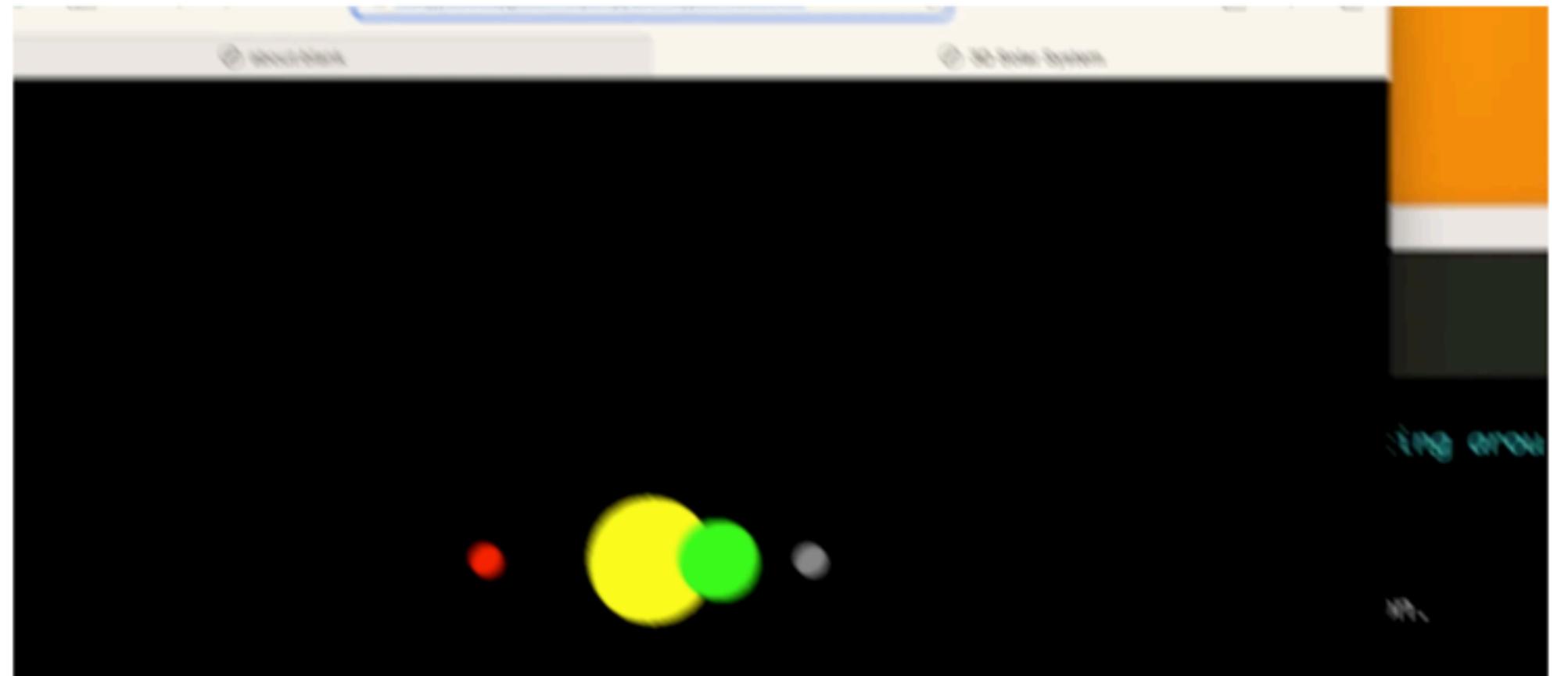
# AI Agent Tools



# Aider

Aider is AI pair programming in your terminal

Aider lets you pair program with LLMs, to edit code in your local git repository. Start a new project or work with an existing git repo. Aider works best with GPT-4o & Claude 3.5 Sonnet and can [connect to almost any LLM](#).



<https://aider.chat/>



AI for Software Development

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# Microsoft AutoGen

## AutoGen

An Open-Source Programming Framework for Agentic AI

Getting Started - 3min 

<https://microsoft.github.io/autogen/>



# Q/A

